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ARCHITECTURAL DETAILS: PHILIP JOHNSON

ARCHITECTURE IN A SOCIAL CONTEXT: SVEN MARKELIUS

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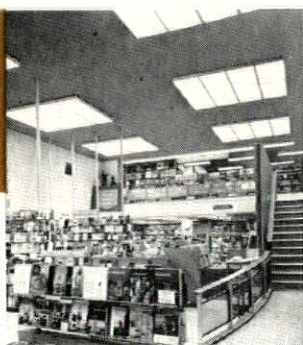


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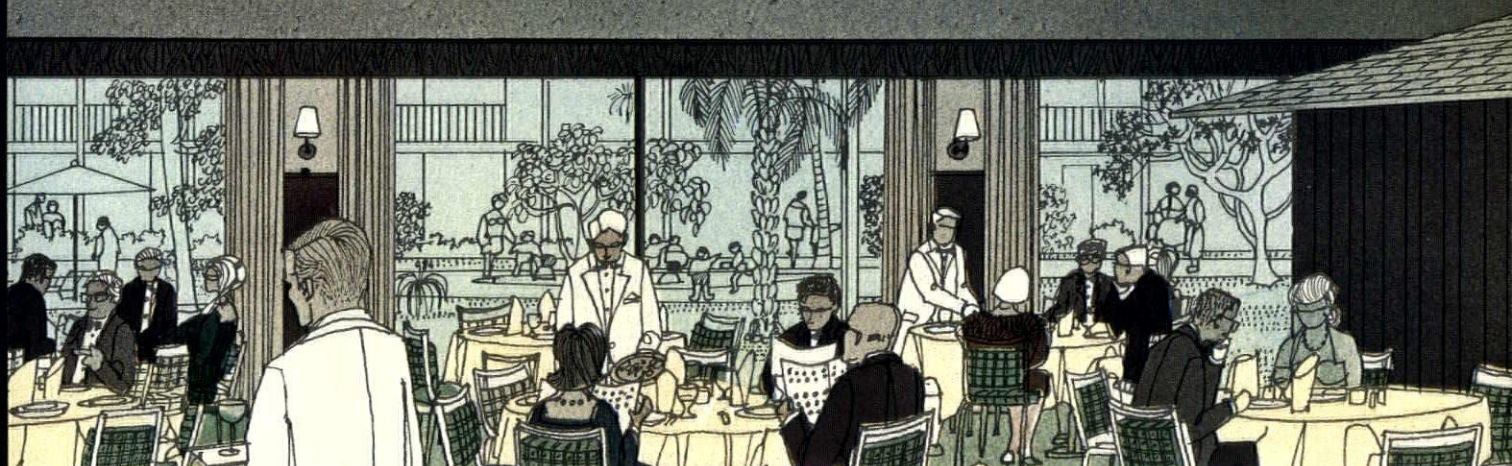
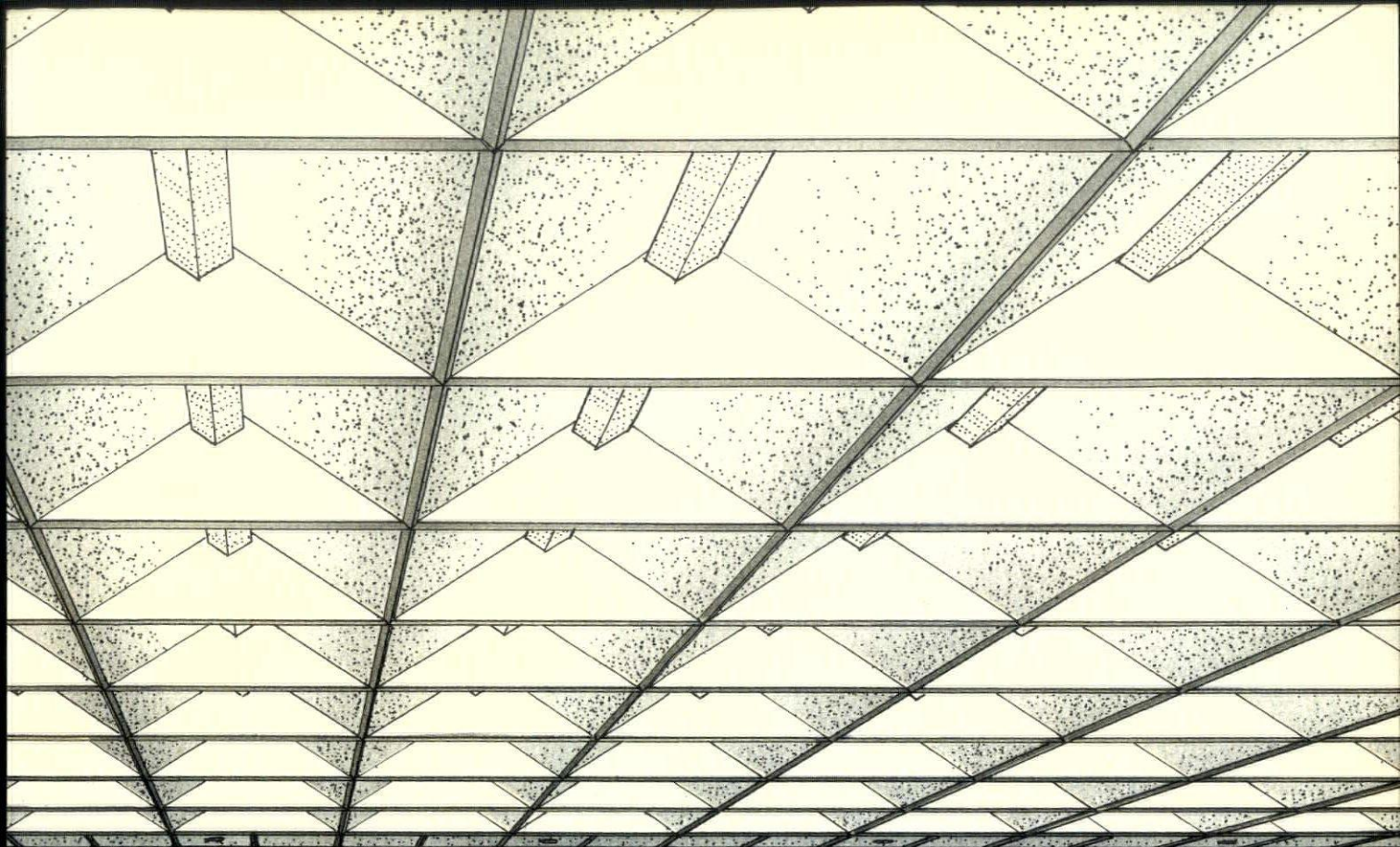
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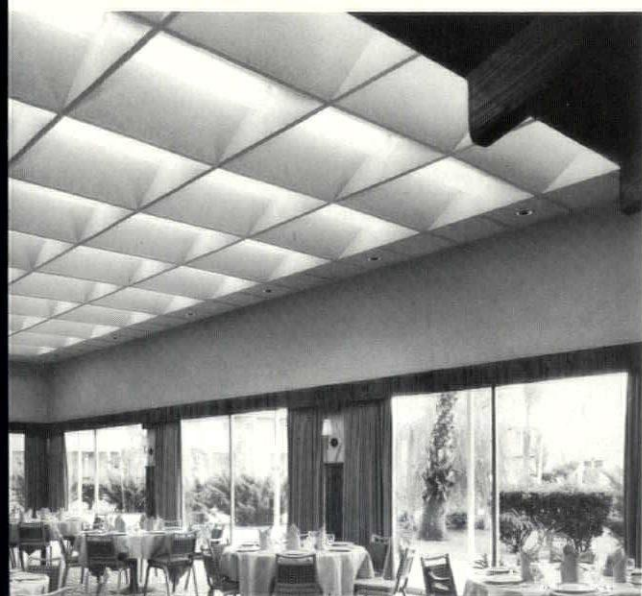
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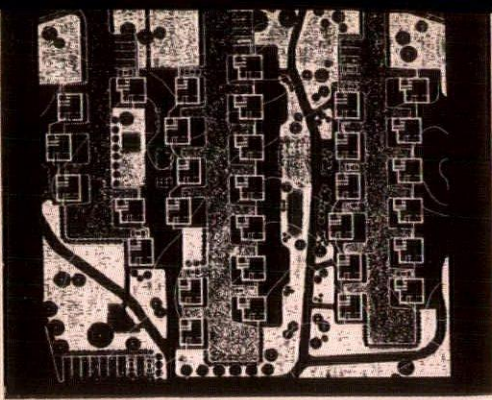
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Coming in the Record

GROPIUS SALUTES ARCHITECTURE

From the vantage-point of a long lifetime spent teaching and working in the service of architecture, Walter Gropius has recently taken a searching look at the architectural principles by which he has lived and their relevance to the present and future of architecture. His essays, which amount to a ringing re-declaration of his faith in functionalism as the modern architect's creed, will be published in a series of three articles beginning next month.

DESIGN FOR THE CAMPUS EXPANDS ARCHITECT'S ROLE

Expansion is the order of the campus these days, and architects are increasingly involved in planning for (rapid) expansion of existing campuses and for whole new campus complexes as well as for the design of individual buildings and building groups. The Building Today Study next month will review some major developments in all these activities, including New York State's bold and imaginative program.

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What's Missing in Housing?

In a really great series of articles (page 169) Albert Mayer, with an assist from Clarence Stein, gives some much needed directions for planning the great expansion of our cities, or their renewal, that is ahead of us. He has important things to say, and we have not influenced his statements, but here on this page permit me a couple of subjective reactions.

What has been missing in urban housing? Mayer's article in this issue deals with public housing, and begins with a very frank statement of what has been wrong with it. His basic position is that public housing, in its early years, was ruined by its enemies. Private enterprise spokesmen raised such a fuss in Washington, goes the argument, that Federal and local authorities, and their architects, were forced into a posture of spartan and sterile economy. No "amenity values," no commercial enterprises that might have introduced some life, no "architecture," certainly no art. Nothing to stir a note of pride. Nothingness.

Well, everybody will agree that "nothingness" is a pretty good picture of what's wrong. But if public housing's enemies were responsible, then who is responsible for the dismal quality of post offices, or Federal office buildings, or police stations, or fire houses? Somehow government equates always with mediocrity, with sterile utility. Why, in general, does FHA housing come out little better, why does even luxury housing so often look just like public housing, except that the open areas are missing in the luxury developments?

What's missing in public housing is just what's missing in private housing. And you can simplify the answer in one three-letter word—ART.

Early in the rush of postwar housing Vi Hudnut (Dean Hudnut, then of Harvard) remarked that no modern plumbing or electric refrigerator ever warmed a human heart—it could be done, however, with a window box of flowers. Let Vi Hudnut relate art to housing ("The Post-Modern House," ARCHITECTURAL

RECORD, May, 1945) with a touch of his own art:

"There is a way of working, sometimes called art, which gives to things made by man qualities of form beyond those demanded by economic, social or ethical expediency; a way of working which brings into harmony with ourselves some part of our environment created by us; which makes that environment, through education, a universal experience; which transforms the science of building into architecture.

"If a dinner is to be served it is art which dresses the meat, determines the order of serving, prepares and arranges the table, establishes and directs the whole with that ceremony which, long before Lady Macbeth explained it to us, was the best of all possible sauces. If a story is to be told it is art which gives the events proportion and climax, fortifies them with contrast, tension, and the salient word, colors them with metaphor and allusion and so makes them cognate and kindling to the heart. If a prayer is made, it is art which sets it to music, surrounds it with ancient observances, guards it under the solemn canopies of great cathedrals.

"The shapes of things made by man are determined by their functions, by the laws of materials and the laws of energies, by marketability (sometimes) and the terms of manufacture; but these shapes may also be determined by the need, more ancient and more imperious than your present techniques, for some assurance of importance and worth in those things which encompass humanity."

How terrible it was for the housing authorities and their architects to forget those "things that encompass humanity" in public housing! How terrible it was for FHA and private builders and their architects to forget them. How terrible ever to build any housing anywhere, and let "enemies," or utility, or economy, or plain politics, override that "need, more ancient and more imperious . . . for some assurance of importance and worth. . . ."

—Emerson Goble

HECKSCHER URGES PRESIDENT TO CARRY OUT KENNEDY'S PROGRAM FOR ADVISORY ARTS PANEL

August Heckscher, who was President Kennedy's Special Consultant on the Arts, recently urged President Johnson to carry on the work begun by his predecessor in the area of government and the arts.

As special consultant, Mr. Heckscher submitted a report to President Kennedy which recommended the establishment of an Advisory Council on the Arts, within the White House organization, and the formation of a National Arts Foundation. He also suggested that the post of Special Consultant to the President on the arts be made a full-time job. (ARCHITECTURAL RECORD, August 1963, page 10.)

At the time he gave his report, Mr. Heckscher resigned his post, agreeing to stay on until a successor was named. Although President Kennedy had selected a new consultant and members of the suggested council, he was not able to announce the appointments before his death. President Johnson accepted Mr. Heckscher's resignation on February 12 of this year. As yet, no successor has been named, although rumors of impending appointments have circulated.

The White House has denied a report that Mrs. Jacqueline Kennedy would be appointed special consultant. It has not denied a report that Roger L. Stevens, New York real es-

state broker and theatrical entrepreneur, is being considered. His name was, according to report, suggested by a four-man panel which Mr. Johnson asked for nominations.

"An Earnest Plea"

Mr. Heckscher, speaking last month before the Federation of Protestant Welfare Agencies, said: "I cannot refrain on this occasion . . . from making an earnest plea that the start which was made shall not now be abandoned, that the hopes which were aroused shall not be disappointed, that the energies massed in this good cause shall not be dissipated." While suggesting that the President might want to review the report and to deal with it in his own way, nevertheless, Mr. Heckscher continued: "I would stress the urgency of establishing the post of the President's Special Consultant on the Arts upon a firm, continuing basis, making it henceforth a recognized and permanent part of the governmental structure."

Of the direction and importance which the program should assume, Mr. Heckscher said: "There has been some disposition to think of this as an interest so closely identified with President Kennedy that it can scarcely be prolonged in other conditions. There has been a tendency, again, to think of it as exclusively concerned

with the performing arts, or with new and exciting Kennedy Centers in Washington. But I am convinced work should be more broadly conceived. It concerns all the arts—literature, architecture, painting, music, the dance, crafts, the movies—all these as well as the theater touches the arts as they affect communities across the land, and as help determine whether the environment in which we live shall be a good and truly habitable, or ugly and planned. The person who holds the post must be ready to deal on a day-to-day basis with the departments and agencies of the Federal government, must be in contact with those being made in this sphere by the states and cities, must be ready to initiate initiatives by the Congress.

"Thus conceived and carried forward, we should hope to have within the executive branch an Office of the Arts supported by a broadly representative council, administering a national cultural program as comprehensive and well-defined as the international program now administered by the Assistant Secretary of State specifically charged with that function. In so doing, the United States will be doing no more than today being done by every civilized country, every nation that affirms the full range of man's interests and the ultimate value of the creative

ADVISORY COMMITTEE APPOINTED FOR KENNEDY LIBRARY

At the invitation of Mrs. Jacqueline Kennedy, 18 architects and artists will serve on the Advisory Committee on Arts and Architecture for the John Fitzgerald Kennedy Library. The committee will establish an architectural program for the project, to be built on a site selected by the late President at Harvard University. The building will contain the President's papers, a memorial, a museum and an institute. The Committee will also advise on art, sculpture and display of mementoes.

The chairman of the committee is William Walton, artist and Chairman of the Fine Arts Commission.

The committee members include eight American architects—Pietro Belluschi, Louis Kahn, I. M. Pei, Mies van der Rohe, Hugh Stubbins, Paul Thiry, Benjamin Thompson and John Carl Warnecke—and six foreign architects—Alvar Aalto of Finland, Franco Albini of Italy, Lucio Costa of Brazil, Sven Markelius of Sweden, Sir Basil Spence of England, and Kenzo Tange of Japan.

In addition, the committee includes Hideo Sasaki, landscape architect, and Henry Dreyfuss and George Nelson, designers.

Eugene Black is chairman of the Library Board of Trustees.

The committee will hold its first meeting in Boston on April 11.

The library, to be built with funds donated by the public, will cost an estimated \$10 million, \$6 million of which will be spent on building equipment. Funds collected so far total \$4.4 million.

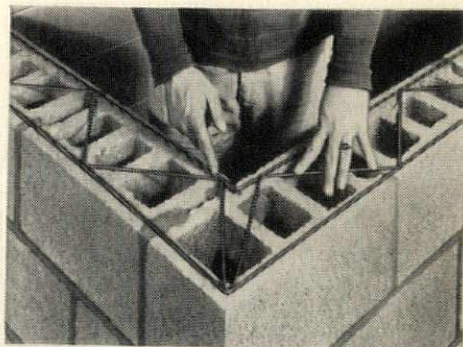
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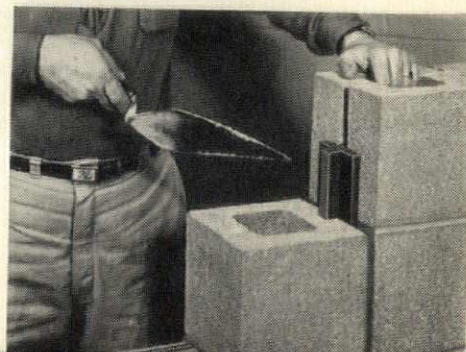
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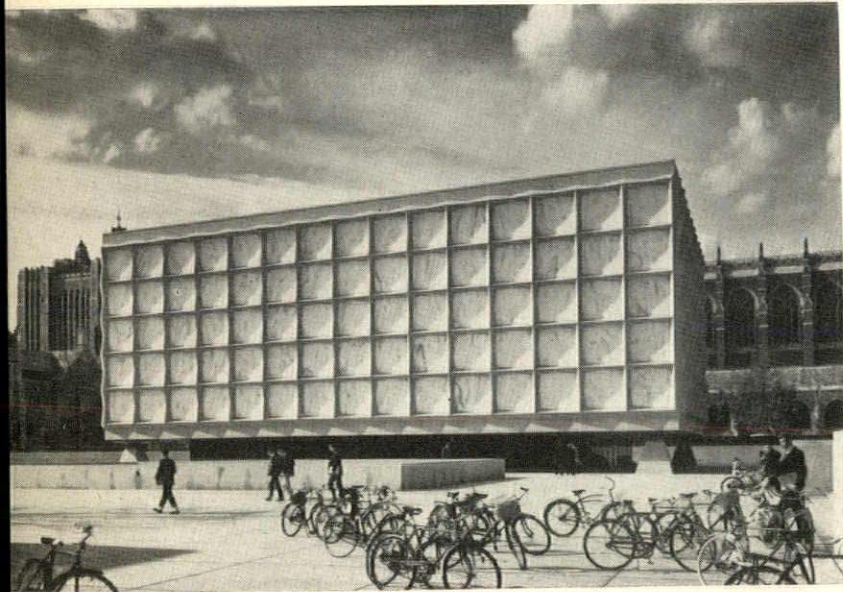
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SECOND PROGRAM OF LIBRARY AWARDS CITES THREE FOR TOP HONORS

Ezra Stoller Associates



First Honor Award: Beinecke Rare Book & Manuscript Library, Yale University, New Haven, Conn.; Skidmore, Owings & Merrill, architects. Jury comment: "The total design presents with clarity the unique function of the building . . . The plan is pristinely simple, the interior monumental, and the exterior an elegant statement and dramatization of the fact that the building contains great treasures."



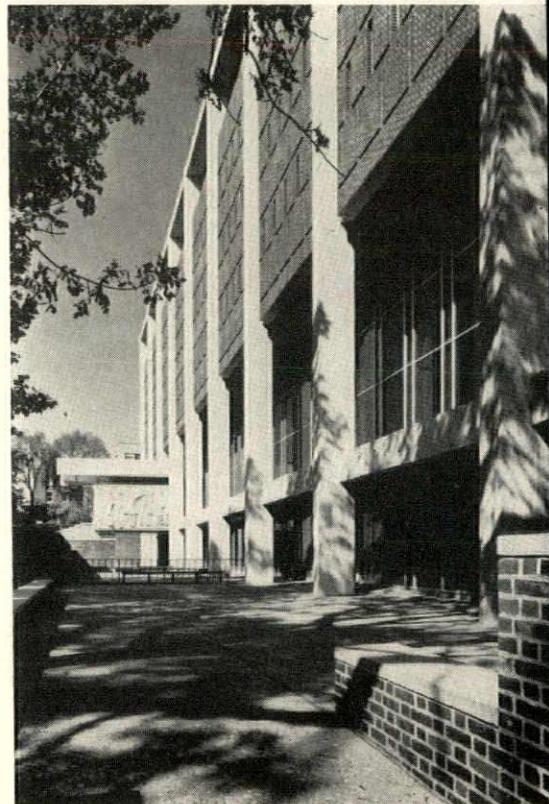
First Honor Award: Flora B. Tenzler Memorial Library, Tacoma, Washington; Russell N. Garrison, architect. Jury comment: "This community library building designed to serve as a unit in a county library system, is a striking example of creative design which succeeds in being functional and effective for public library purposes."

Three libraries were cited for top honors in the S Library Buildings Award Program sponsored jointly by the American Institute of Architects, the American Library Association and the National Book Committee. First Honor Awards were selected in the college category and one in the public category (see photographs). The Awards of Merit included three in the school category.

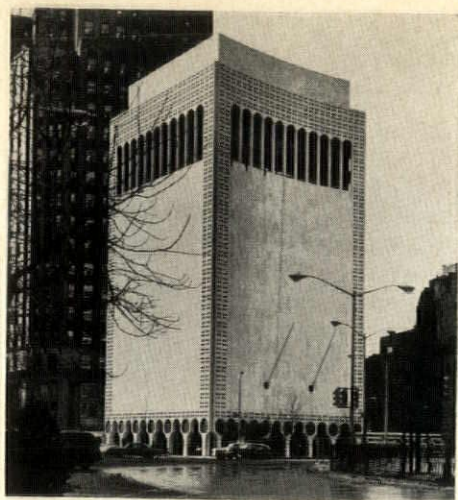
On the jury were: Arthur Gould Odell Jr., F.A.A., Charlotte, N.C., chairman; U. Floyd Rible, F.A.I.A., Angeles; David H. Condon, A.I.A., Washington, D.C.; Liam H. Jesse, director of libraries, University of Tennessee, Knoxville; Hoyt R. Galvin, director, Charlotte, N.C., Public Library; Dr. Keyes D. Metcalf, librarian emeritus, Harvard University; and Dr. Richard L. Davidson, school library specialist, Library Services Branch, Office of Education, U.S. Department of Health, Education & Welfare, Washington, D.C.

Merit Awards were given to the following architects: Gassner, Nathan, Browne; Shepley Bulfinch Richardson & Abbott; Schubart & Friedman; Watson, Deuschle, Krusé; Vincent G. Kling; Durham, Anderson and F. Eli Rabineau; Joseph Stein; Cass Gilbert Jr. & F. Keally, Associated Architects; T. Trip Russell & Associates; Fred Keeble & George Rhoda, Architects; C. Gromme & Ralph B. Priestly; and Cope & Lippincott.

Cortland V.D. Hubbard



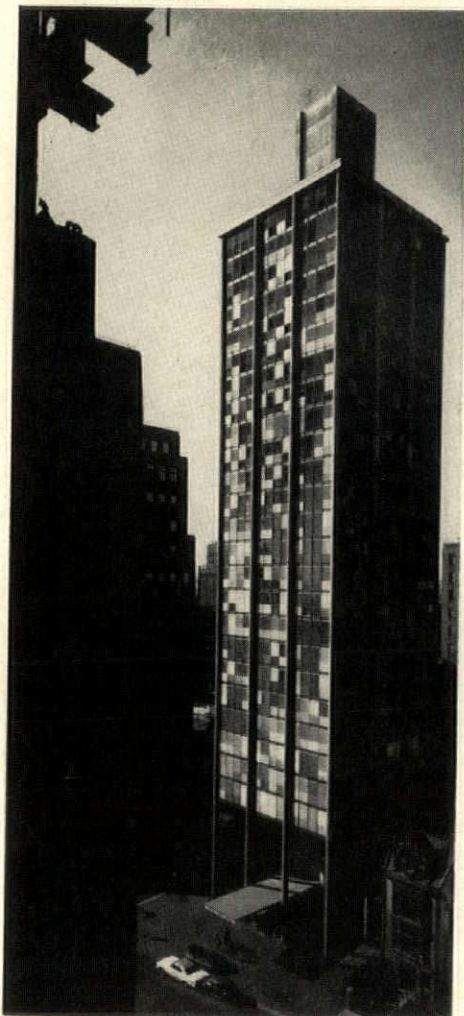
First Honor Award: Charles Patterson Van Pelt Library, University of Pennsylvania, Philadelphia; Harbeson, Livingston and Larson, architects. Jury comment: "A ingenious solution of the problem of creating a large university library in scale with the other academic buildings . . . three quite different units which functionally in one structure . . . The facade clearly expresses the functions within. . . ."



New York's Newest Museum

Huntington Hartford's Gallery of Modern Art opened March 1964. Perhaps in sympathy with his client's dedication to a renewed historical awareness of 19th- and 20th-century art, Edward D. Stone looked to "the architecture of Byzantium" for inspiration. His problem was to create a vertical museum on a restricted site. The circulation pattern—ascend by elevator, descend by stairways—led Stone to describe the building as a "vertical museum and staircase, with the galleries serving as landings."

Orlando R. Cabanban



Photos: Arnold Eagle for The Gallery of Modern Art, including the Huntington Hartford Collection



Research Building for MIT

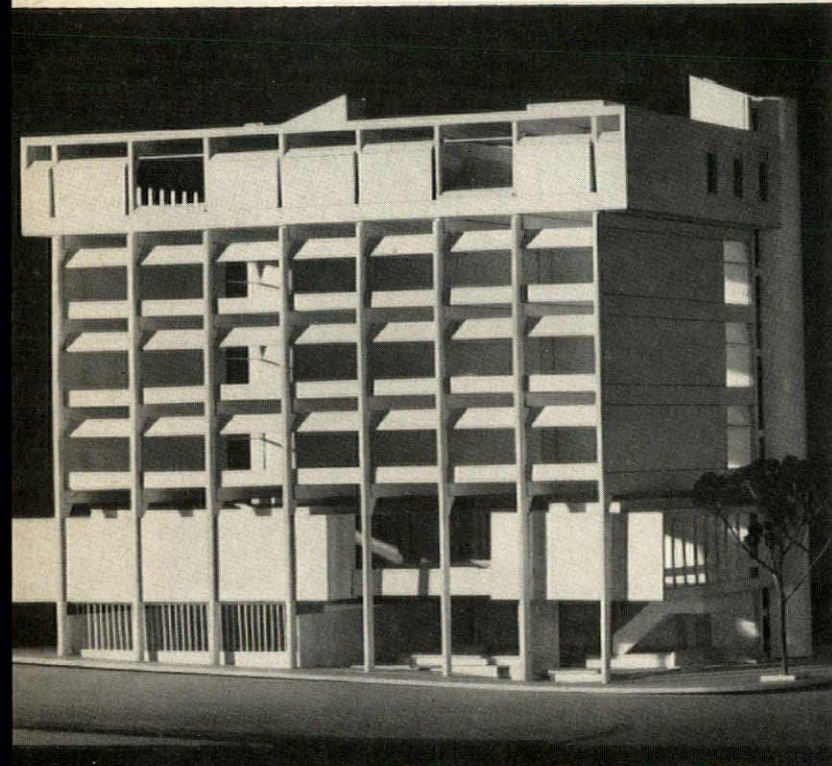
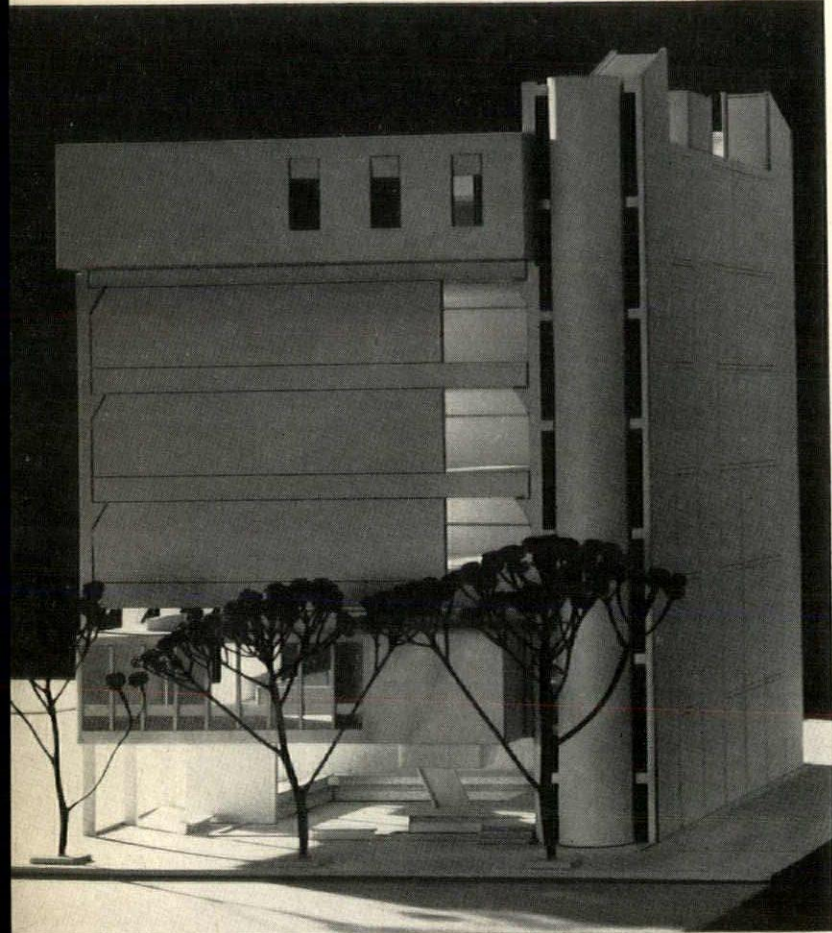
The \$3 million Grover M. Hermann Building on the M.I.T. campus will provide research facilities for the departments of management and social sciences. Exterior walls of the upper two floors will be structural precast panels. The second floor wall, a poured-in-place concrete girder, will transmit the weight of the upper stories to the first floor columns. Architects are Professor Eduardo F. Catalano in association with Robert C. Brannen and Paul S. Shimamoto

New Hotel for Chicago

Bertrand Goldberg's \$4 million Astor Tower Hotel in Chicago was originally proposed in 1958 and served as a prototype for Marina City. The hotel's central utility core was erected in a period of three weeks by slip-form concreting. Raised on 50-foot-high steel columns, the 30 floors are built around the 300-foot-high shaft. Specially treated steel louvers, adjustable from inside, provide an exterior protection. General contractor: Goethe Building Corporation

BOSTON ARCHITECTURAL CENTER DESIGN CHOSEN

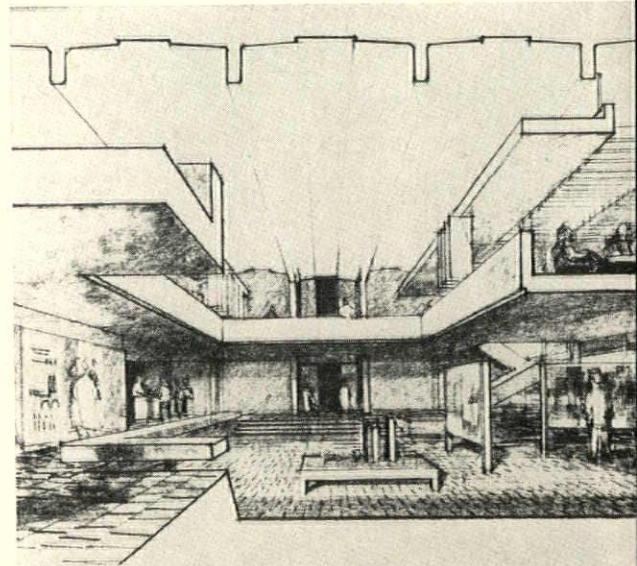
Phokion Karas photos



Practically all of the prize-winning schemes (shown on these pages) for the Boston Architectural Center competition were designed by architects under 40 years of age. Professional adviser Walter F. Bogner of the Graduate School of Design of Harvard University happily commented that the competition "gave an opportunity to young and so far hidden talent to rise to the surface and display its architectural skill."

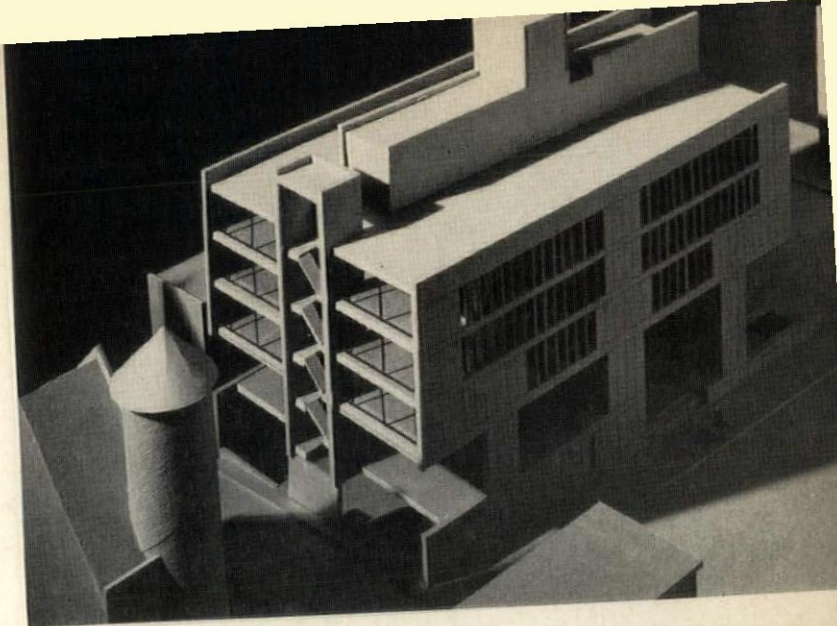
The task set before the competitors was a challenge—one—to design a building of 30,000 square feet housing the educational, social and organizational activities of the architects of Boston offered by the Center under a maximum cost allowance of \$550,000. Judging was based not only on the fitness of the design to the small corner lot, but also on the need for structural simplicity and flexibility of construction and economy, but also on the hope that the building would "play a role in the city's new spirited renaissance."

On the jury were: Pietro Belluschi, dean of the School of Architecture and Planning, M.I.T., chairman; José Sert, dean of the Harvard Graduate School of Design; Ralph R. Rapson, dean of the School of Architecture, University of Minnesota; Arcangelo Cascieri, dean of the B. A. C. School; James Lawrence Jr., former president of the Boston Society of Architects; Lawrence B. Anderson, chairman of the Department of Architecture, M.I.T.; Benjamin Thompson, chairman of the Department of Architecture, Harvard Graduate School of Design. William LeMessurier, consulting engineer, was technical adviser.

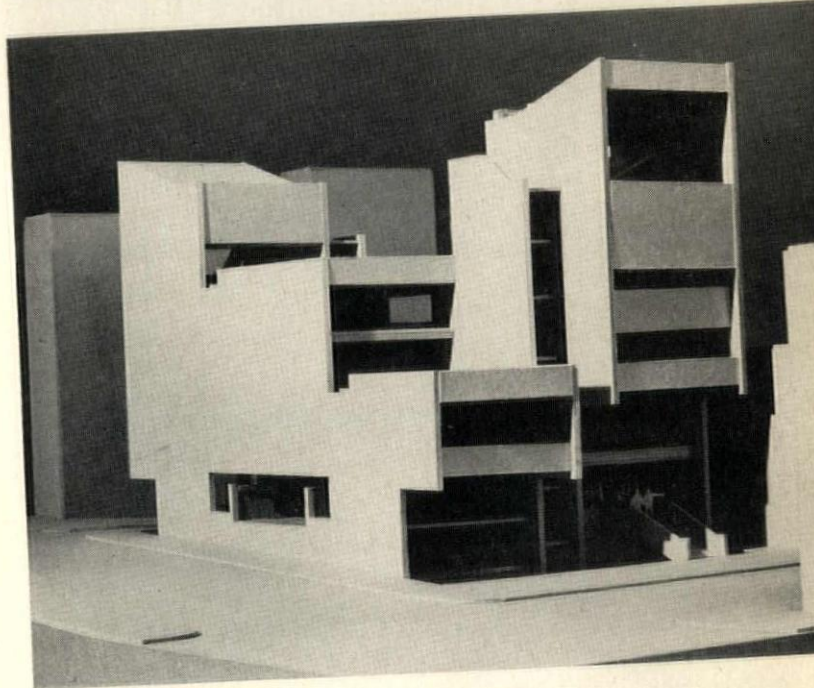


First Prize: \$5,000; Ashley & Myer, with associates F. O'Neill, Richard Krauss, Robert Goodman and William J. O'Connell. Jury comment: "The best worked-out plan. The structural solution offers a logical system, using prefabricated elements. Also admired was the plan for recognizing the wall as logical location for all the services."

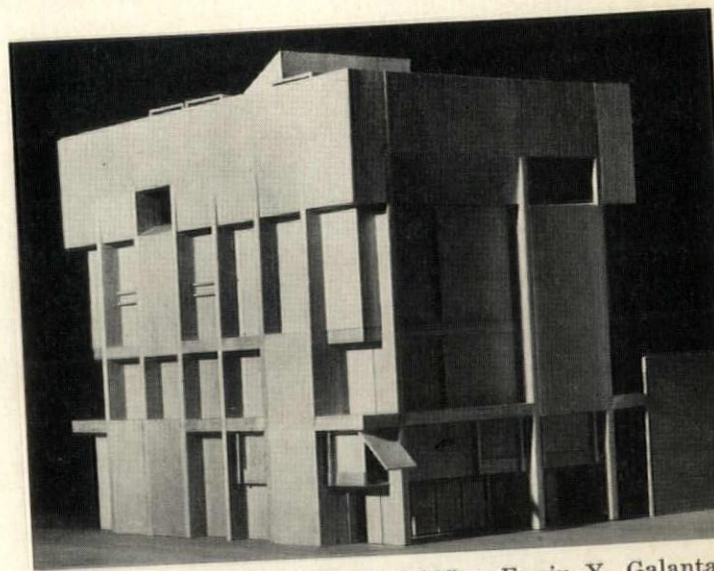
nd Prize: \$3,000; Chapman & Goyette, with associates
 ihiko Maki and John Bennetts. Jury comment: "... found
 he jury to have great merit. It has a clean plan and a
 fied and simple exterior. The central service core, which
 he key to a sound structural solution, unfortunately
 tens the flexibility of the plan."



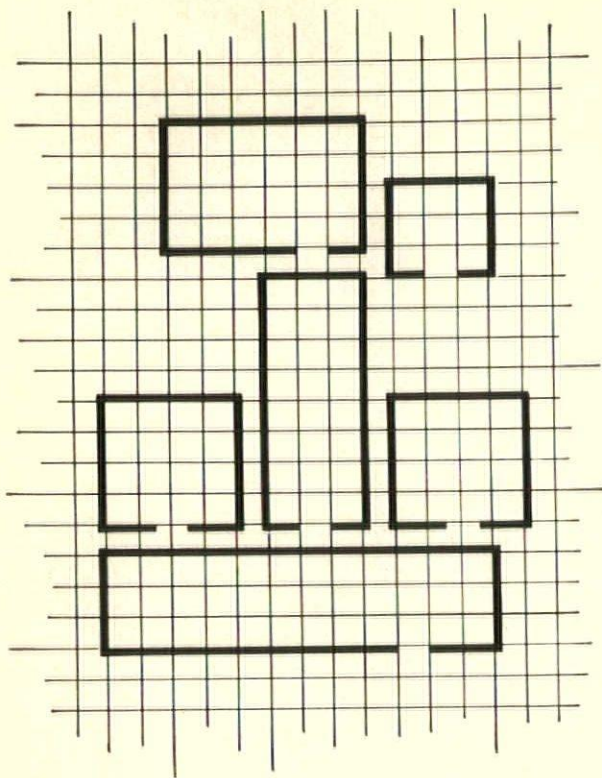
Prize: \$1,000; Robert Herman, with Peter Woytuk for
 ressive Design Associates. Jury comment: "It is indeed
 of the most interesting of all entries ... mostly because
 e brilliancy of its concept and presentation. The jury
 d the designer had applied the same care and enthusi-
 n the fashioning of the sculptural expression of his de-
 to the functional planning. Evidently the designer chose
 sregard the fact that this is a small site; he played
 features against each other at the expense of sound
 use."



able Mention: Johnson, Notkin & Welke. Jury com-
 "The design follows an interesting approach. The out-
 ad too many complications and features for the com-
 vely small size of the building. However, the construc-
 s fairly simple and economical."



Honorable Mention: Joseph J. Schiffer, Erwin Y. Galanta
 Henry A. Millon. Jury comment: "... logical structure, ski-
 ful use of existing foundations and an appealing section. I-
 grettably, the handling of space, particularly the meeti-
 hall area, does not favor the requirements of the progra-
 The design also suffers from fragmentation of functions."



FLEXIBLE REFRIGERATION

pre-fabricated, all-metal

NORRIS WALK-IN COOLERS, FREEZERS, COMBINATIONS

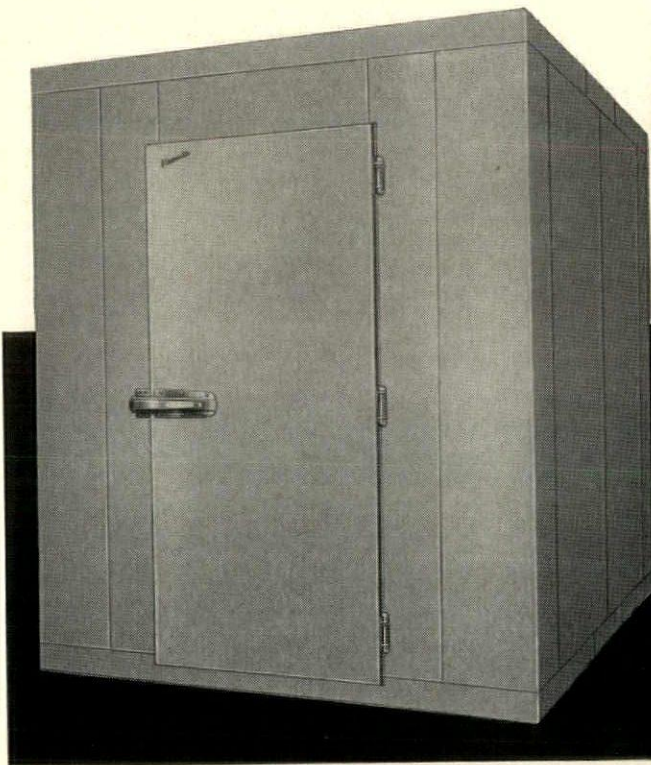
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space by the foot

Flexible refrigeration describes Norris walk-in coolers, freezers, or cooler-freezer combinations, for Norris walk-ins offer you complete installation versatility. They're pre-fabricated in two- and three-foot wall sections, four-foot door sections (7½' high), and can be set up in one-foot increments in any size . . . in virtually any space . . . in new or existing buildings. Best of all, the only tool required is a light hammer.

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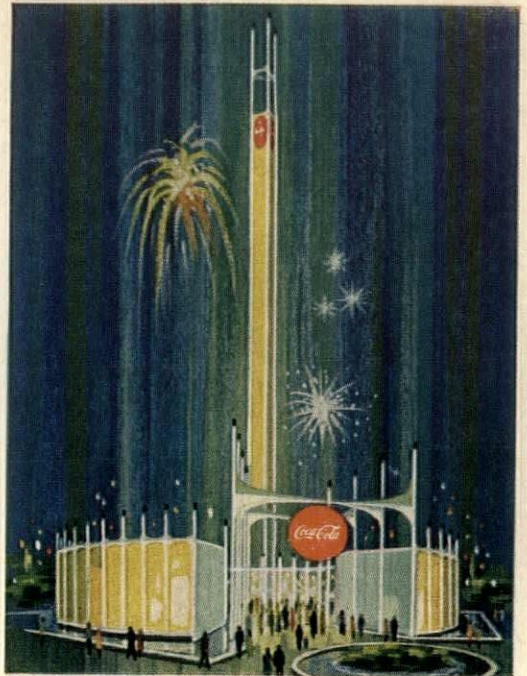
For more data, circle 16 on Inquiry Card

Barrett Urethane Insulation flexes its muscles on the "deep dish" restaurant roof at Chicago's O'Hare Airport!

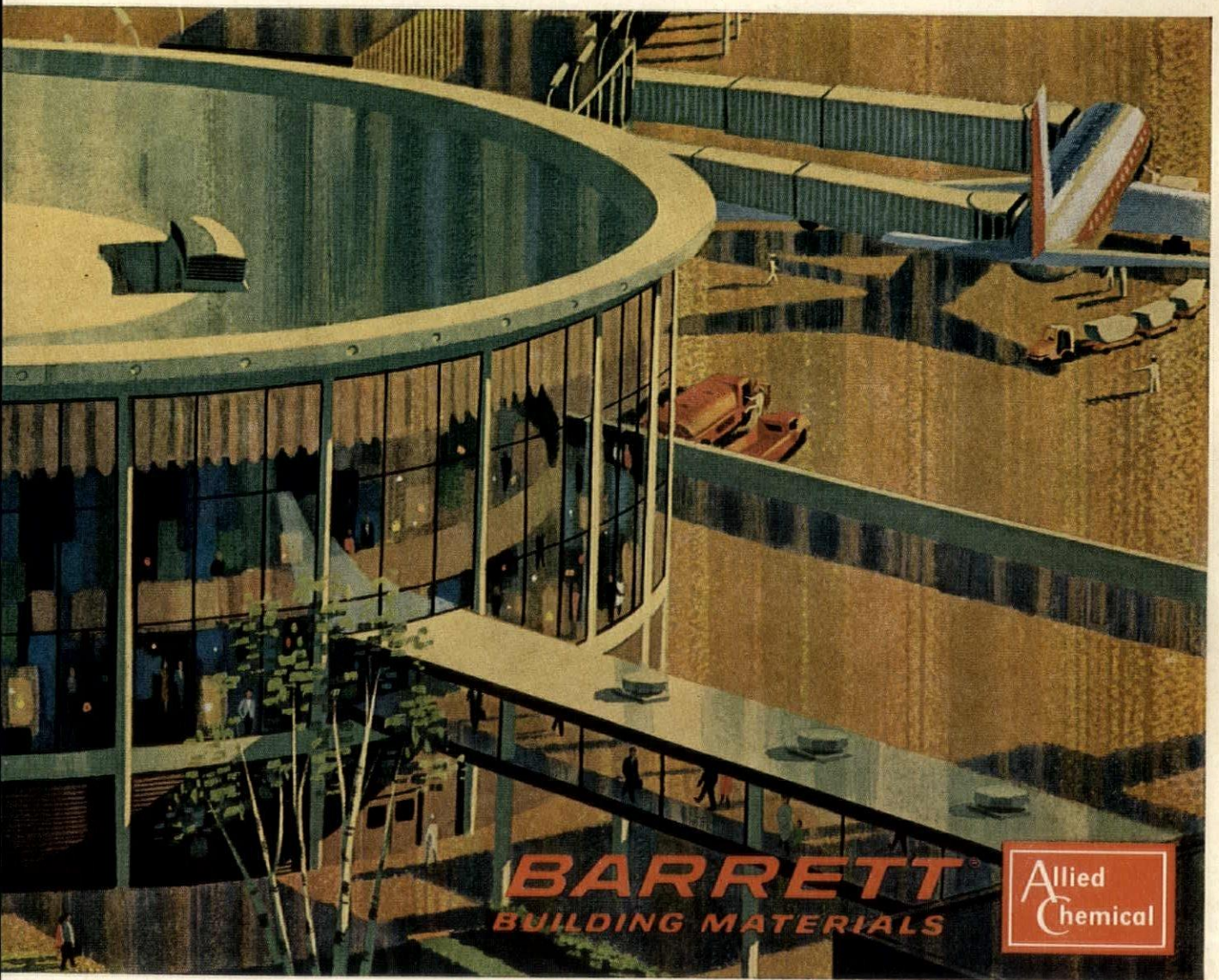
Problem: find an insulating material that combines superior thermal efficiency with the flexibility required by a suspended, concave roof that moves. Architects of the new Carson's Restaurant at Chicago's O'Hare Airport specified Barrett Urethane Roof Insulation. Here's why:

Barrett Urethane Roof Insulation is a foamed plastic containing billions of tiny, closed cells sandwiched between two layers of a tough roofing membrane. It offers just the right combination of flexibility and efficiency with a K-factor of 0.13, the lowest in the industry. Barrett Urethane cuts and shapes easily to conform to all roof irregularities. It won't absorb water, and it bonds readily to other roofing materials.

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Custom-fabricated Barrett Vinyl Building Panels add excitement to the Coca-Cola Pavilion at the World's Fair. Architect: Welton Becket and Associates, New York, N. Y.



For more data, circle 19 on Inquiry Card

AIA HOLDS COMPETITION FOR HEADQUARTERS

Over the years, the American Institute of Architects has held that one of the most desirable ways of achieving excellence in the solution of major architectural tasks is through the holding of design competitions. Now, with the problem of providing a new, expanded location for its national headquarters in Washington, D. C., the A.I.A. will select a design through a competition held under its own auspices.

The Committee on Institute Headquarters hopes that the competition will produce a design for a National Headquarters Building that "will satisfy both physical and spiritual

functions—a building of special architectural significance, establishing a symbol of the creative genius of our time yet complimenting, protecting and preserving a cherished symbol of another time, the historic Octagon House."

Only the Octagon House and its rear terraced garden are considered to be inviolable elements on the existing site. To preserve and enhance this complex with a new structure is the crux of the program. The Octagon will continue to serve the Institute for receptions, meetings, and special small exhibits, but, above all, as a historic museum.

The new building, which may occupy all or any part of the site to north and east of the garden terraced wall (see plan), must provide approximately 50,000 square feet gross floor area. The building is to be planned to accommodate Institute activities and to provide some space for tenants at an estimated construction cost of \$1,450,000.

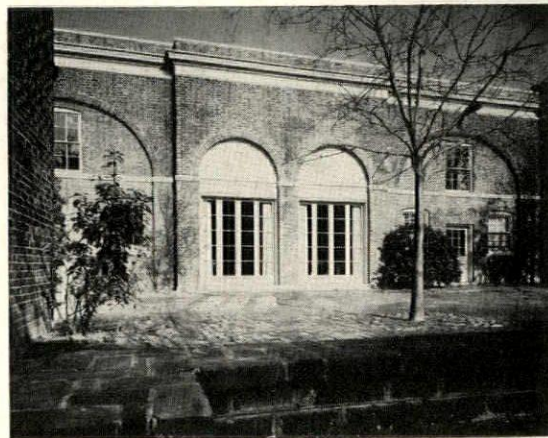
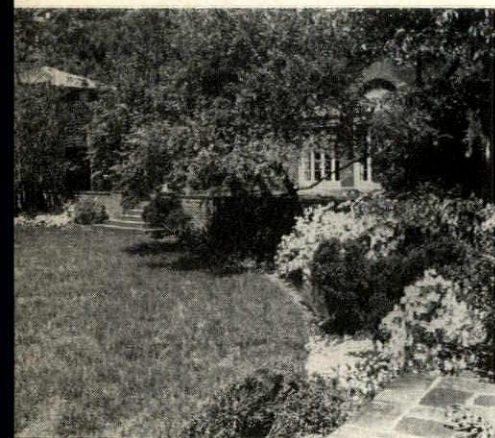
The competition is open to all corporate members of firms of members of the A.I.A. The professional adviser is A. Stanley McGaughan, A.I.A. The jury of awards includes: Edward L. Barnes, A.I.A., New York; J. Roy Carroll Jr., F.A.I.A., Philadelphia; O'Neil Ford, F.A.I.A., Antonio; Hugh A. Stubbins, F.A.I.A., Cambridge; and J. C. Warnecke, F.A.I.A., San Francisco.

Registration for the competition ended on March 15. Winners of the first stage, based on drawings submitted before May 18, will be announced on July 1 and the six selected competitors will each receive a \$5,000 award. They will then enter the final stage, submitting drawings and a model. Announcement of the winning design to be employed by the A.I.A. will be on November 1. The architect will receive a \$10,000 advance on his fee. More important of course, is that his design is likely to be executed. Unlike many progenitors of infamous competitions of the past, the A.I.A. no doubt take the chance to practice what it has preached.

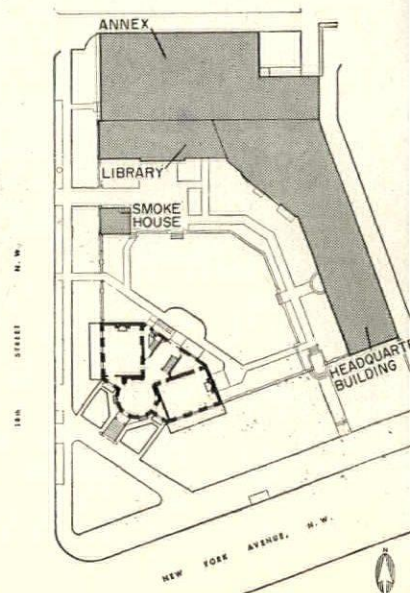


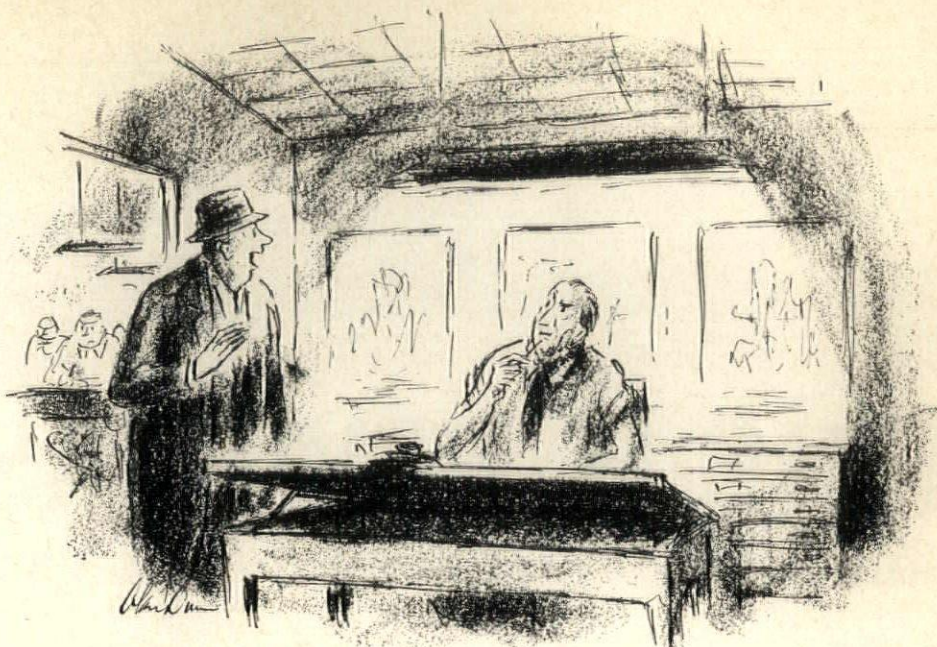
Henry H. Saylor, F.A.I.A. photos

The Octagon House, built by Dr. William Thornton for Col. John Tayloe, 1798-1800



Left: Looking across the garden to the smokehouse and the library
Right: View of the library facade, originally the old stable





— Drawn for the RECORD by Alan Dunn

"I just stopped by to tell you how much I loved your thing at the Fair!"

PEAKERS ANNOUNCED FOR A.I.A. ANNUAL MEETING

ers at the 1964 Convention of American Institute of Architects number among them prominent s in Federal, state, and city nment, law, religion, medicine rchitecture. Drawn from varied of activity, they will explore problems that confront the archi- n his role of creating a viable cal and spiritual environment ban civilization. They will at- to shed new light on the forces are shaping our communities n the framework of the profes- program's theme—"The City ble and Invisible."

list of speakers includes: son Williams, Senator from ersey; John Anderson, Gover- Kansas; Dr. Luther L. Terry, on General, U.S. Public Health e; Raymond Tucker, Mayor of uis; Thomas H. Eliot, Chancel- Washington University, St. Dr. J. J. Pelikan Jr., Director aduate Studies, Department of ous Studies, Yale University; el T. Hurst, A.I.A., Dean of the of Architecture and Fine University of Southern Cali- ; Albert Mayer, F.A.I.A., ect, New York City; and Fran-

cis D. Lethbridge, A.I.A., architect, Washington, D.C.

The two-day forum, beginning on Wednesday morning, June 17, will be moderated by Dean Hurst. The first session will open with a keynote address by Chancellor Eliot on the subject of "The Structure of Law and Justice in the City." The over-all topic of this session, "The Invisible City," will cover the psychological, legal, historical, cultural, family and spiritual elements of urban civilization. Dr. Terry will discuss "Health and Psychological Aspects of the City," and Dr. Pelikan will speak about "The Family and the Spirit of the City."

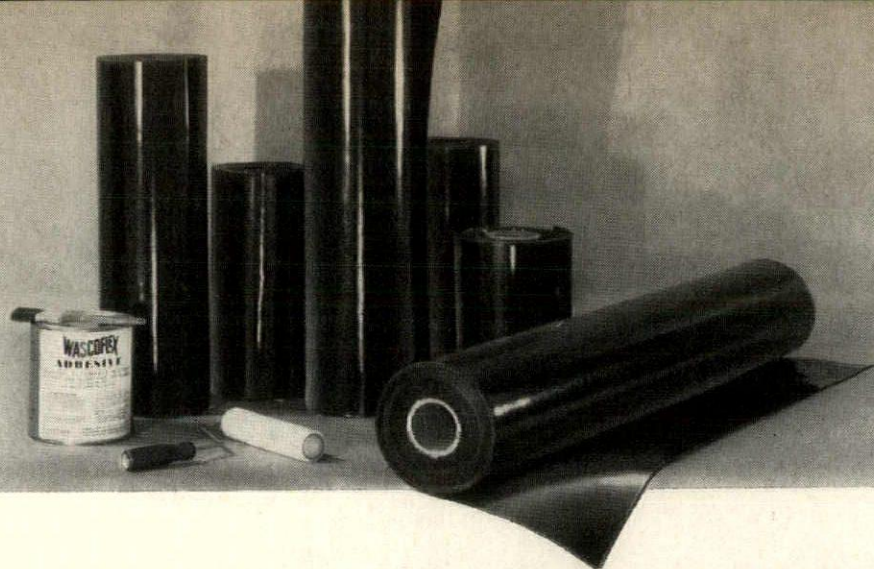
Wednesday afternoon, the second session will get under way a discussion of "The City and the Body Politic," dealing with the effects of Federal, state and local governments on community problems such as air and water pollution, open space, local and regional planning, zoning, land use pattern, urban renewal, mass transportation, taxation and economics. Senator Williams' talk will be concerned mainly with "Federal Relationships with the City," Governor Anderson's with "State Relation-

ships," and Mayor Tucker's with "Local Relationships."

On Thursday morning, the last session will move from the realm of the "invisible" to that of the "Visible City." Albert Mayer and Francis D. Lethbridge will contribute their views on the subject. To wrap up the entire program, Chancellor Eliot will deliver a summary address.

Four members of the A.I.A. Board of Directors have helped to plan the events of the professional program: Angus McCallum, A.I.A., Kansas City, chairman; R. Lloyd Snedaker, A.I.A., Salt Lake City; Robert H. Levison, A.I.A., Clearwater, Florida; and Charles M. Nes Jr., F.A.I.A., Baltimore.

On Tuesday night, June 16, the St. Louis Chapter of the A.I.A. has planned an "Evening on the Mississippi" aboard the S.S. Admiral. The Host Committee has also planned tours of old and new St. Louis, a ladies' brunch and the annual dinner. Members of the committee are: Joseph D. Murphy, F.A.I.A., chairman; Rex L. Becker, A.I.A.; Betty Lou Custer, A.I.A.; George E. Kassa- baum, A.I.A.; and John D. Sweeney, A.I.A.



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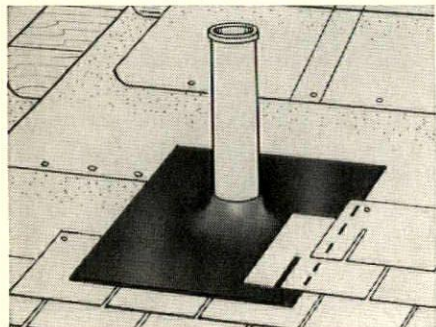
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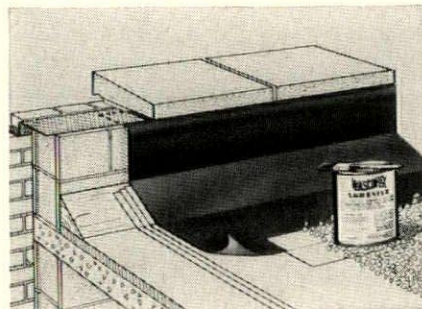
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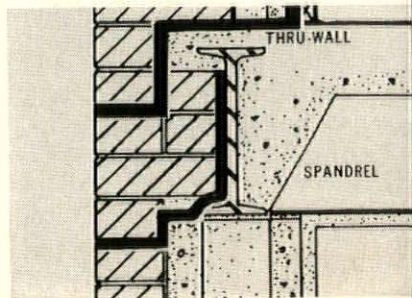
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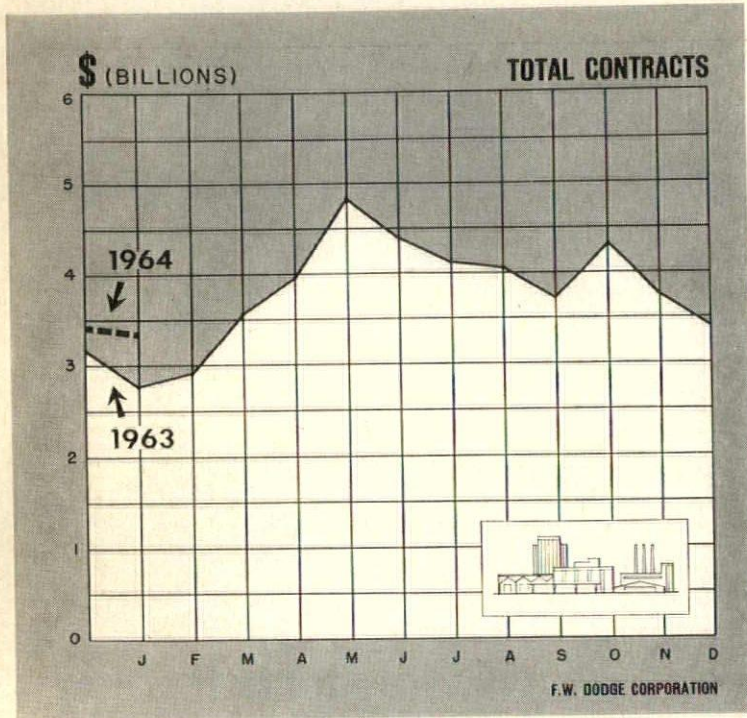
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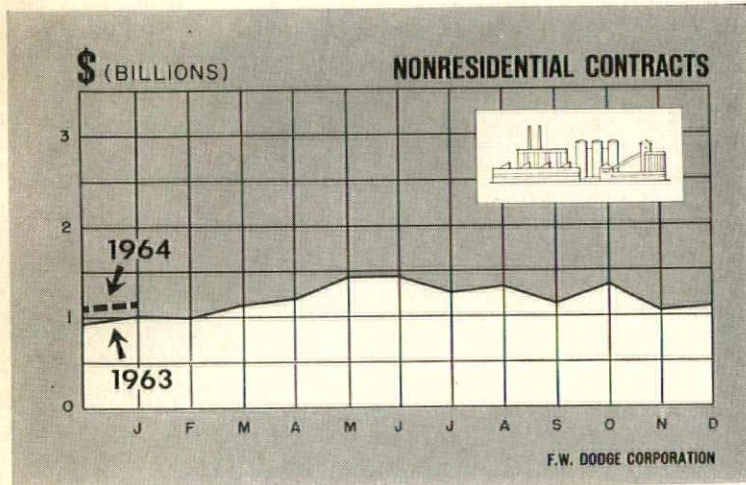
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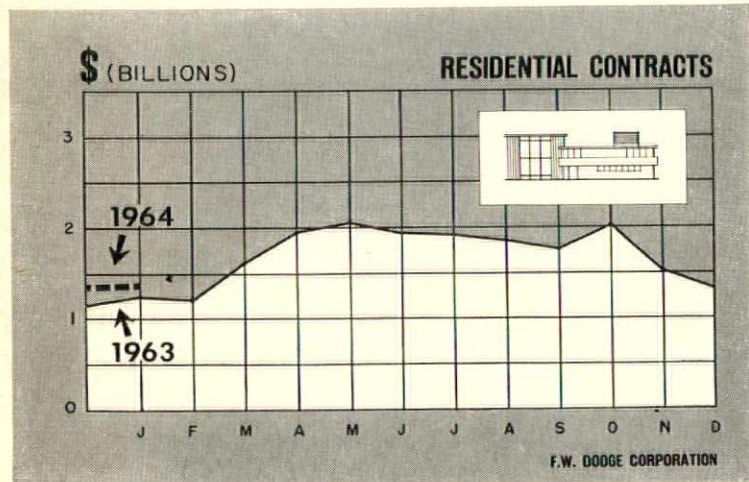
HOSPITAL CONSTRUCTION: VERY HEALTHY



Total contracts include residential, nonresidential and non-building contracts



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In 1963, contract value of hospital and other health ment buildings in the U.S. totaled almost \$1.5 billion, 40 per cent higher than 1962's level. This impressive gain followed gains of 18 per cent in 1961, and 9 per cent in 1960, nearly an 80 per cent rise in three years! What's more, the booming building type began this year with strength. Contract value in January was nearly 30 per cent higher than January 1963's level.

The volume of hospital construction depends on the demand for hospital services and there are several factors which explain why the demand for hospital services has and still is so vigorous: population growth, technological advances, and social or cultural factors.

- The mere increase in population obviously exerts a pressure to increase hospital capacity. On top of this fact, the results of improved medical care (lengthened average life span) has added disproportionately to this pressure because the sharply rising 65-and-over age group is estimated to require hospital space at twice the rate of younger persons.

- Additions to the fund of medical knowledge and advanced medical technology have considerably improved the diagnosis and treatment of illnesses and given impetus to hospital construction. Practically every new piece of diagnostic or therapeutic equipment developed in this century must be housed in a hospital. Not only is most of this apparatus too expensive for each doctor to own, much of it simply isn't portable. These improvements in the "state of the art" have had a twofold impact: first, more patients are sent to hospitals for diagnosis; and second, because diagnosis is more effective, more people either remain in hospitals or are sent to hospitals for treatment.

- Since World War II, there have been two factors which have helped alleviate the burden of rapidly rising medical expenses, thereby enabling more people to utilize hospital services, which of course, has boosted the demand for them: a rising personal income per family has risen sharply and, even more important, the number of persons covered by hospital insurance has soared from less than one out of every ten persons in 1940 to about three out of every four in 1962.

- Finally, there are social or cultural factors which have helped swell the demand for hospitals. For instance, the biggest changes during the last 40 to 50 years have been in maternity care. Fifty years ago, very few women gave birth to their children in hospitals; by the end of the 1940s, more registered births took place in hospitals than outside. Today, how many babies are born outside hospitals. This trend becomes even more impressive when the post-war baby boom is taken into account.

With all these demand factors expected to remain strong and with the aid of construction grants to medical facilities under the various Federal programs, hospital construction should remain healthy in the years ahead. However, there is one question mark: will there be enough people, particularly trained nurses, to adequately staff the nation's hospitals without skyrocketing operating costs? If the number of persons graduating from nursing and medical schools does not pick up, the lack of trained personnel could become a major problem on hospital construction.

Henry C. F. Arnold, Editor
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Building Construction Costs

By Myron L. Matthews

Manager-Editor, Dow Building Cost Calculator,
an F. W. Dodge service

The information presented here permits quick approximations of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). The tables and charts can be used independently, or in combination as a system of complementary cost indicators. Information is included on past and present costs, and future cost can be projected by analysis of cost trends.

A. CURRENT BUILDING COST INDEXES—MARCH 1964

1941 Average for each city = 100.0

Metropolitan Area	Cost Differential	Current Dow Index		Per Cent Change Year Ago Res. & Nonres.
		Residential	Nonresidential	
U.S. AVERAGE—21 Cities	8.5	263.5	280.7	+2.68
Atlanta	7.1	295.1	313.0	+2.48
Baltimore	8.0	266.5	283.5	+2.35
Birmingham	7.4	244.2	262.6	+3.14
Boston	8.4	236.4	250.2	+2.66
Chicago	8.8	293.6	308.9	+2.73
Cincinnati	8.8	254.5	270.5	+2.61
Cleveland	9.3	266.2	283.0	+2.46
Dallas	7.3	250.2	258.3	+1.83
Denver	8.3	271.9	289.0	+3.85
Detroit	8.9	265.3	278.5	+3.03
Kansas City	8.3	240.0	254.0	+3.51
Los Angeles	8.4	267.0	292.2	+2.40
Miami	8.4	262.7	275.7	+3.73
Minneapolis	8.9	264.9	281.6	+2.61
New Orleans	7.9	240.2	254.5	+1.94
New York	10.0	271.7	292.2	+1.63
Philadelphia	8.7	264.3	277.5	+3.31
Pittsburgh	9.1	248.5	264.1	+2.55
St. Louis	8.9	254.8	270.0	+2.73
San Francisco	8.5	333.1	364.5	+1.88
Seattle	8.5	242.1	270.6	+2.84

B. HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES

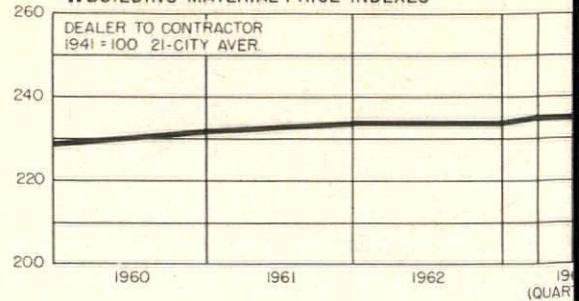
1941 average for each city

Metropolitan Area	1947	1952	1957	1958	1959	1960	1961	1962 (Quarterly)				1963 (Quarterly)												
								1st	2nd	3rd	4th	1st	2nd	3rd										
								21 Cities											185.9	213.5	244.1	248.9	255.0	259.2
U.S. AVERAGE	190.0	223.5	269.6	277.7	283.3	289.0	294.7	296.5	297.6	298.2	300.6	302.0	303.0	305.0										
Atlanta	181.0	213.3	249.4	251.9	264.5	272.6	269.9	270.5	272.6	272.4	271.9	272.3	272.9	275.0										
Baltimore	175.0	208.1	228.6	233.2	233.2	240.2	249.9	249.9	249.9	249.9	250.6	251.3	252.0	256.0										
Birmingham	187.0	199.0	224.0	230.5	230.5	232.8	237.5	238.5	239.9	240.4	240.4	240.4	241.2	244.0										
Boston	182.0	231.2	267.8	273.2	278.6	284.2	289.9	289.9	289.9	292.6	295.8	296.4	296.4	301.0										
Chicago	178.0	207.7	245.1	250.0	250.0	255.0	257.6	257.6	257.6	260.0	260.0	260.0	260.7	263.0										
Cincinnati	173.0	220.7	258.0	257.9	260.5	263.1	265.7	265.7	268.4	268.4	271.7	272.3	272.8	275.0										
Cleveland	202.0	221.9	228.4	230.5	237.5	239.9	244.7	244.7	244.7	247.7	250.8	251.5	252.2	253.0										
Dallas	187.0	211.8	245.6	252.8	257.9	257.9	270.9	273.1	276.3	275.3	274.8	275.0	275.4	282.0										
Denver	158.0	197.8	237.4	239.8	249.4	259.5	264.7	264.7	264.7	267.1	267.1	267.1	267.9	272.0										
Detroit	172.0	213.3	230.5	235.0	239.6	237.1	237.1	238.5	239.5	240.8	241.8	242.3	242.9	247.0										
Kansas City	180.0	210.3	248.4	253.4	263.5	263.6	274.3	274.3	274.3	278.0	278.6	279.1	279.7	282.0										
Los Angeles	193.0	199.4	234.6	239.3	249.0	256.5	259.1	259.1	259.1	260.8	262.4	262.4	266.7	269.0										
Miami	176.0	213.5	235.6	249.9	254.9	260.0	267.9	267.9	267.9	270.8	270.8	271.4	272.1	275.0										
Minneapolis	180.0	207.1	232.8	235.1	237.5	242.3	244.7	244.7	244.7	245.5	245.5	246.5	246.5	248.0										
New Orleans	181.0	207.4	240.4	247.6	260.2	265.4	270.8	273.5	273.5	276.6	280.4	280.9	280.9	282.0										
New York	209.0	222.3	255.0	257.6	262.8	262.8	265.4	265.4	265.4	265.0	265.0	265.6	265.6	271.0										
Philadelphia	191.0	204.0	234.1	236.4	241.1	243.5	250.9	250.9	250.9	252.1	253.5	255.0	256.1	258.0										
Pittsburgh	191.0	213.1	237.4	239.7	246.9	251.9	256.9	254.0	254.3	256.2	257.3	260.1	262.4	263.0										
St. Louis	243.0	266.4	302.5	308.6	321.1	327.5	337.4	339.1	340.8	344.5	348.7	350.1	350.1	352.0										
San Francisco	175.0	191.8	221.4	225.8	232.7	237.4	247.0	249.0	251.9	253.7	255.3	256.5	257.8	260.0										
Seattle																								

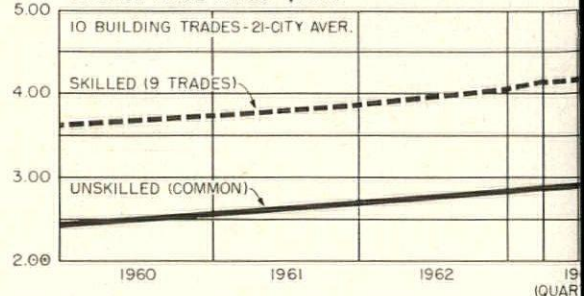
HOW TO USE TABLES AND CHARTS: Building costs may be directly compared to costs in the 1941 base year in tables A and B; an index of 256.3 for a given city for a certain period means that costs in that city for that period are 2.563 times 1941 costs, an increase of 156.3% over 1941 costs.

TABLE A. Differences in costs between two cities may be compared by dividing the cost differential figure of one city by that of a second; if the cost differential of one city (10.0) divided by that of a second (8.0) equals 125%, then costs in first city are 25% higher than costs in second. Also, costs in second city are 80% of those in first ($8.0 \div 10.0 = 80\%$) or 20% lower in the second city

1. BUILDING MATERIAL PRICE INDEXES



2. BASE WAGE RATES \$/HR.



3. MONEY RATE & BOND YIELDS %

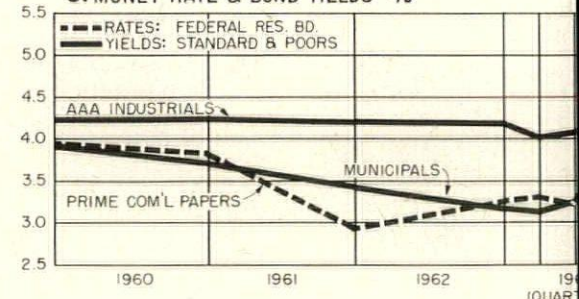
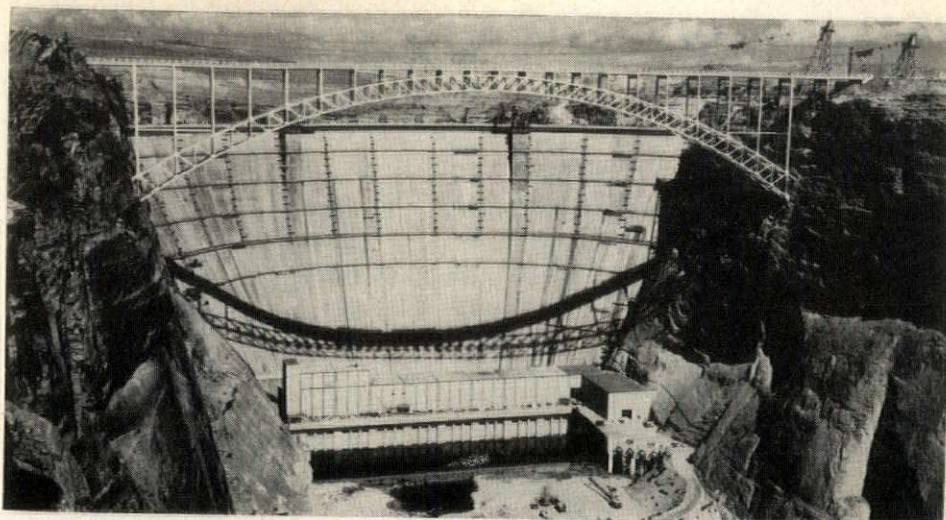


TABLE B. Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; for a city for one period (200.0) divided by index for a second period equals 133%, the costs in the one period are 33% higher than the other. Also, second period costs are 75% of those of the other date ($200.0 = 75\%$) or 25% lower in the second period. **CHART 1.** Building material indexes reflect prices paid by builders for quantity purchases at construction sites. **CHART 2.** The \$1.20 per hour gap between skilled and unskilled labor has remained fairly constant. **CHART 3.** Barometric indicators that reflect variations in the state of the money market

GLEN CANYON DAM COMPLEX RECEIVES AWARD FROM A.S.C.E.

American Society of Civil Engineers awarded its "Outstanding Civil Engineering Achievement Award" last year to Glen Canyon Dam, Dam and Power Plant. The complex, now nearing completion, spans the Colorado River near the Arizona-Nevada border. It is a project of the Federal Bureau of Reclamation. The award is made yearly by the A.S.C.E. to "the engineering project which demonstrates the greatest contribution to civil engineering and its kind."

The concrete arch dam is, at 710 feet high, the second highest in the country after Hoover Dam. In bulk—1,000,000 cubic yards—it ranks first. Water storage has already begun in the reservoir, which is called Lake Powell after the first explorer of the river. It will be 186 miles long, including recreation facilities in Utah and Arizona, and will hold 2,400,000 acre-feet of water (1 acre-foot = 1 acre of water 1 foot deep). The power plant, scheduled to begin operation this spring, will have a net generating capacity of 900,000 kilo-



watts, the third largest yield in the country after those of the Federal Hoover and Grand Coulee plants and New York's Niagara plant. It will provide power to Arizona, Colorado, New Mexico, Utah and Wyoming.

Glen Canyon Bridge is the highest steel arch in the country; the deck is 700 feet above the river.

Recommendation for the award was made to the board of A.S.C.E. by

a panel of engineering editors: Robert L. Byrne, Western Construction; J. Roland Carr, Engineering News-Record; Robert E. Fischer, ARCHITECTURAL RECORD; William S. Foster, American City; Robert M. Pope, Water Works and Wastes Engineering; Robert G. Wiedyke, Journal, American Concrete Institute; and Hal W. Hunt (chairman), Civil Engineering.

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where he expects to save \$250,000 over the 50-year life of the building.

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WALL-LESS FOOD PLANTS SEEN FOR THE FUTURE

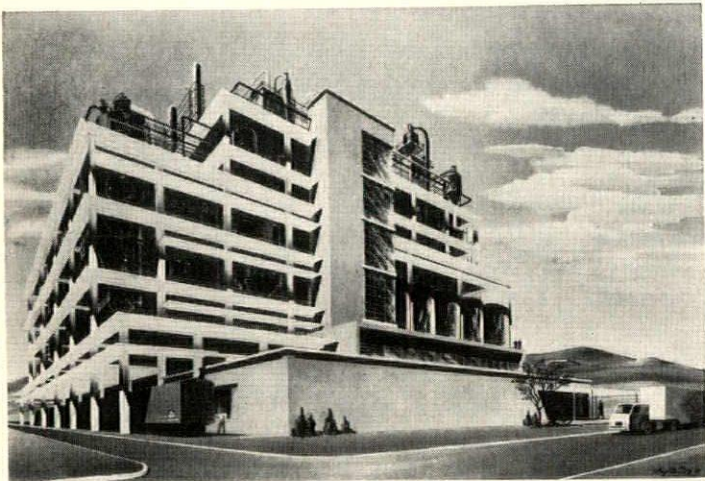
The factory of the future, suggests architect Frank L. Whitney, will be a structure without walls, containing automated equipment, and operated remotely from great distances. Mr. Whitney designed the well-known wall-less Bluebonnet Plant for the Corn Product Refining Company in 1949.

Speaking at the Food Industry Science School last November, Mr. Whitney was referring particularly to the food processing industry, but his remarks could by little extension have implications for any industry requiring continuous processes amenable to automation. Basic to the envisioned plant is equipment which is self-contained, obviating the need for walls, and automated, permitting remote control.

Some of the advantages of the wall-less plant cited by Mr. Whitney would be economic. Most obvious is the elimination of the structural cost of the walls, whose expense is often increased in food processing plants by the need to provide corrosion-resistant materials. Most food plants also require large mechanical plants for environmental control. Both initial and operating costs, suggests Mr. Whitney, are exaggerated when volumes far larger than those required for the manufacturing process itself must be air-conditioned and heated.

The second advantage indicated by Mr. Whitney is human. He pointed out that the basic occupant of any modern plant is equipment, and that men working in the plant must adjust to the conditions required for the machinery. By sealing off the equipment, employes are freed to work in buildings, complete with windows and comfortable temperatures, designed to house people. A corollary advantage for the architect is that "the designer doesn't have to compromise. He doesn't have to plan one facility that must house both men and machines."

Having separated men and machines, Mr. Whitney sees as the logical conclusion putting the plants, manned only by small maintenance crews, in remote areas, while the operating staff may work in central cities, controlling the manufacturing process in one or more plants.

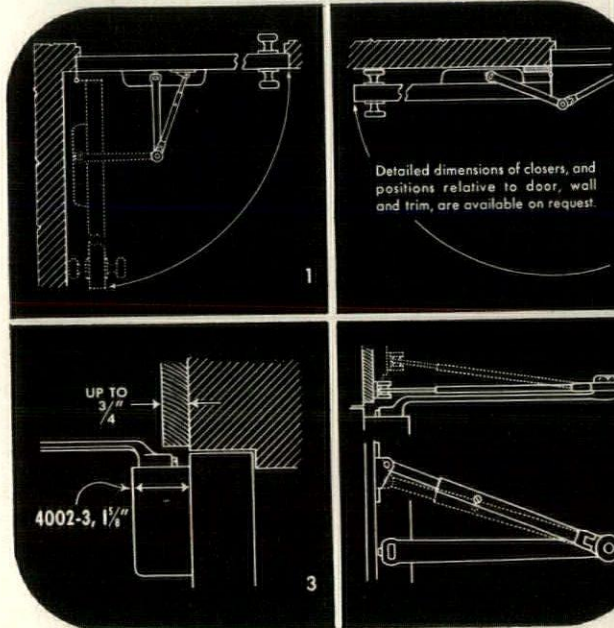


Wall-less food plant, projected by architect Frank L. Whitney, would place equipment, partly exposed, on open platforms, personnel in windowed central shaft, warehousing on ground floor

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COMPETITIONS: A FOUNTAIN FOR PHILADELPHIA

A national competition for a monumental fountain to be built on Philadelphia's Benjamin Franklin Parkway has been announced by its sponsor, The Fairmount Park Art Association. Franklin Parkway is a

mile-long avenue extending from the Art Museum in Fairmount Park to City Hall and Penn Center.

First prize in the competition is \$12,500, and recommendation of the design for commission. Other prizes will be for \$7,500, \$5,000, \$3,000 and \$2,000, as well as \$1,000 for each of five honorable mentions.

Members of the jury include architects I. M. Pei and Paul Rudolph, sculptors Jacques Lipschitz and Theodore Roszak, and Philip Price, pres-

ident of the Fairmount Park Association.

The final date for registration is June 15, and all entries must be mailed by October 30. Information about the competition, which has a prize fund of \$100,000, is available from the American Institute of Architects, is available from Mrs. N. Rice, A.I.A., Professional Secretary, Fountain Competition, 18366, Philadelphia, Pa., 19103.

The American Institute of Steel Construction has announced that, for the fifth time, it will conduct its Architectural Awards of Excellence program. The competition is open to any architect practicing in the United States, and to any architect who has completed since January 1, 1963. The jury will consider entries for creative use of structural steel. Submissions are due by June 1, and information is available from the A.I.S.C., 101 Park Avenue, New York, N.Y., 10017.

The Committee of Stainless Steel Producers, American Iron and Steel Institute, is sponsoring its annual design competition. The subject this year is a prefabricated stainless steel cabin.

Intermediate and advanced architectural students and draftsmen under the age of 30 are eligible to compete. Three prizes, of \$800, \$500 and \$200 each, will be awarded to the winners. In addition, \$500 will be sent to the school of the first winner to further architectural education.

Submissions are due May 15. Information is available from the National Institute for Educational Services, 40th St., New York, N.Y., 10018.

Pittsburgh Plate Glass Company is sponsoring four student design competitions on the subject of glass architecture. The first is a special competition for the design of an underwater restaurant carrying one prize of \$800, \$600 and \$400. The other three competitions are for work on materials and structural design and the history of architecture. Each of the 92 participating schools, in the United States, Canada and Mexico, will send their entries to a jury selected by the National Institute for Architectural Education. The deadline is May 15.

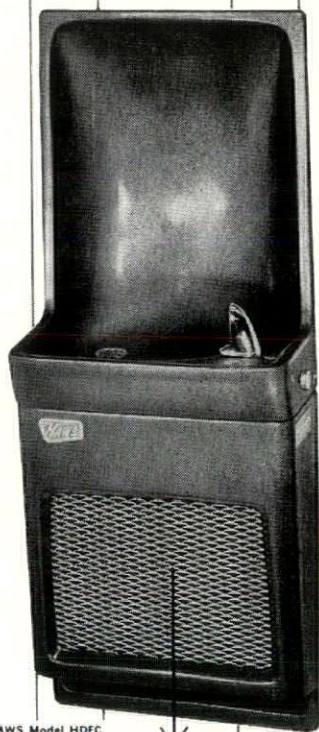
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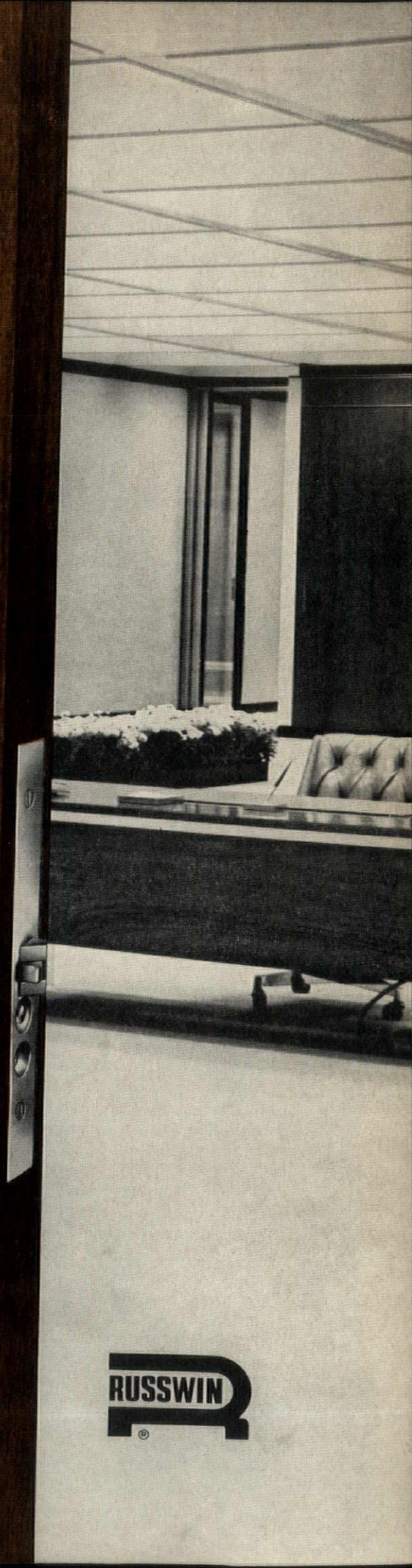


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Award

Robert Branner has received the 1964 Annual Book Award of the Society of Architectural Historians for his study "La cathedrale de Bourges et sa place dans l'architecture Gothique," based on his excavations at Bourges. The book was published by Tardy Frères of Paris, and is distributed in this country by Wittenborn and Company, 1018 Madison Avenue, New York 21. It is available only in a French-language edition.

Structure Sans Math

STRUCTURE IN ARCHITECTURE. *By Mario Salvadori, in collaboration with Robert Heller. Prentice-Hall, Inc., Englewood Cliffs, N.J. 370 pp., illus. \$14.*

Structural concepts have always been exciting to architects, but their interest has been more pervasive in the last 15 years or so because of the variety of new structural systems made available by structural engineers and the proliferation of new materials. In fact, structure has played a significant and frequently dominant role in the esthetic of our new buildings.

It would be hard to prove, however, declares the author, that esthetics are essentially dependent on structure. Some "incorrect" structures are pleasing to the eye, while some "correct" ones are unsatisfying. Correctness of structure most of the time is a necessary condition for beauty but not a guarantee.

Apart from the form-giving aspects, structure has made important contributions to freeing interior space, to integration with mechanical elements and to economy.

But the flow of forces and the nature of stresses in the new structures cannot be grasped as easily or intuitively as simple column and beam framing, arches and trusses. Thus today's architect is not in as favorable a position to evaluate the "correctness" of a structural system for a particular building application. But even as complex as structural design can be nowadays, the architect still feels more comfortable assaying structure than the other technical disciplines. Thus we have seen several books of late that are

designed to give the architect and student a fuller understanding of how various structural shapes perform under load, and how shape itself can be an important factor in efficient utilization of structure.

Mario Salvadori, who is Professor of Civil Engineering and Architecture at Columbia University, has written a book without mathematics on structural behavior which should broaden tremendously the reader's knowledge of how various structural elements—beams, frames and arches, tension and compression structures, grids and plates, and thin shells—resist the forces of nature.

Professor Salvadori first discusses the types of loads that are imposed, the nature of structural materials and the structural requirements—ranging from technical considerations through function, economy and esthetics. Then he turns to the individual elements and describes their behavior in some detail through text and accompanying illustrations which visually portray the response of these elements to the loads imposed. Thus this is a book of structural principles unfettered by abstract equations and engineering analysis which, while necessary in engineering design to obtain quantitative values for stresses, fail to give physical meaning as to how building structures really work. Professor Salvadori does not attempt to categorize or suggest the suitability or practicality of different kinds of structures for particular building types. Nor does he, except in a few instances, discuss the structures of specific buildings.

Pier Luigi Nervi states the true importance of the Salvadori book in his foreword when he says, "... theory must find in intuition a force capable of making formulas more alive, more human and understanding, and of lessening their impersonal technical brittleness. On the other hand, formulas must give us the exact results necessary to obtain 'the most with the least'... Through always clear and, at times, most elementary examples, Professor Salvadori's book tends to unify these two viewpoints (I was almost going to say, these two mentalities), which must be cast into a unique synthesis if they are to give birth to the essential unity of all great structures."

—Robert E. Fischer

College Facilities

BRICKS AND MORTARBOARD. *A book on College Planning and Building Educational Facilities Laboratories, Inc., 477 Madison Ave., New York 17. 168 pp., illus. No charge.*

This handsome volume—written for college trustees, corporation foundation executives, law- and potential donors—holds great interest as well for architects concerned with college building planning. Its purpose is to insure that the great volume of construction soon to be built will rather than impede advanced education, pointing out by example the newest and most successful college buildings.

The main body of the book consists of five sections dealing with the principal campus building types with the problem of the campus itself, written by five professional writers. Each has toured the country, talked to experts, and reported his findings in praise of the rapidly changing educational process and its effect on buildings. The student population explosion, the pressing need for \$19 billion worth of new facilities in the next eight years.

"Bricks and Mortarboard" is a stunning example of the graphic designer's art, and is generously illustrated with effective and so dramatic photographs. The color dividers are printed in color. Educational Facilities Laboratories congratulated for this report.

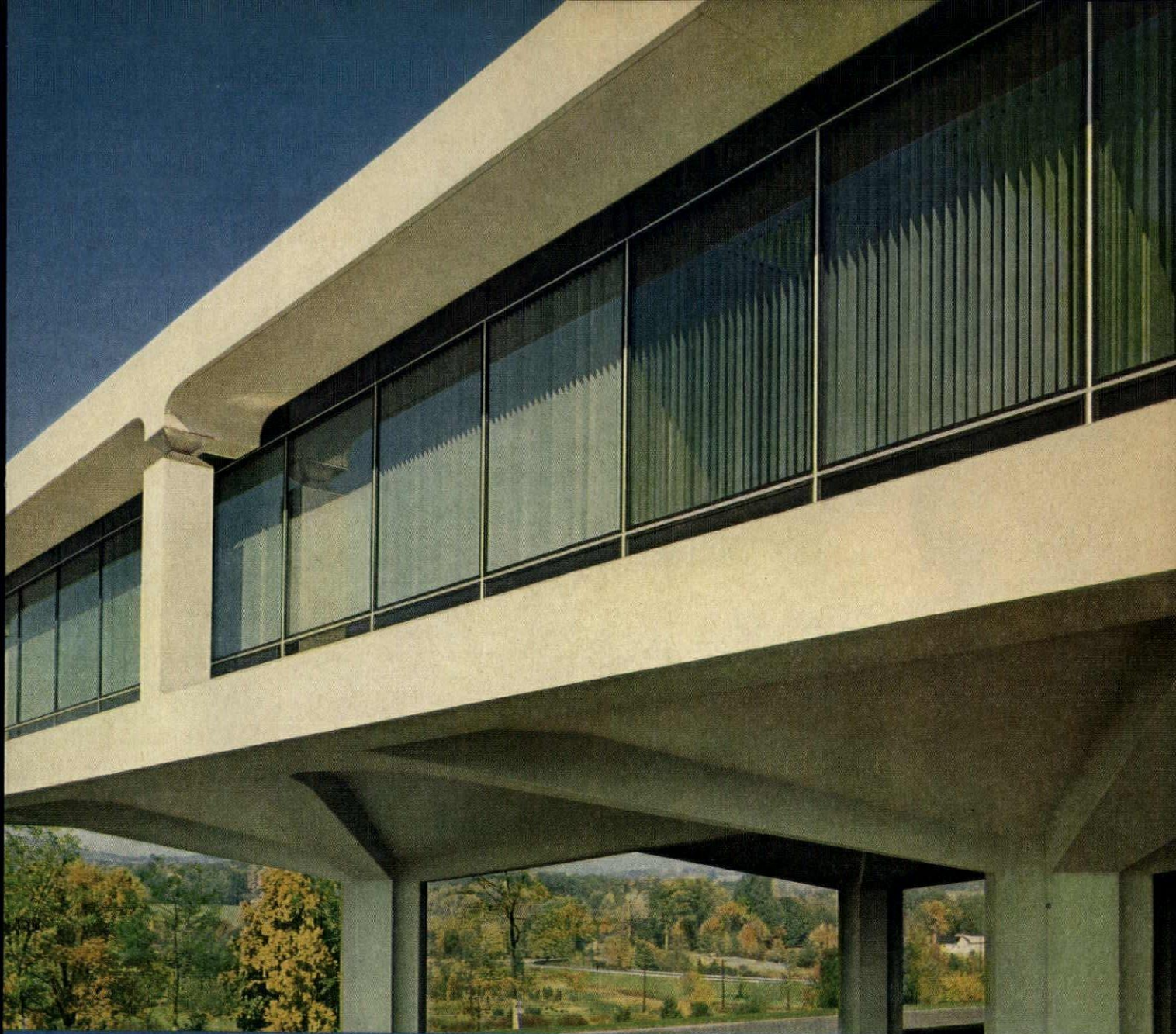
—James S. Fisher

College Planning

CAMPUS PLANNING. *By Richard Dober. Reinhold Publishing Corporation, 430 Park Ave., New York 17. 10022. 314 pp., illus. \$25.*

Comprehensive is probably the single word description of this book on campus planning. The multitude of illustrations—photographs—offer the reader a tour of many United States campuses, old and new, and the book's volume is designed for architects, administrators and

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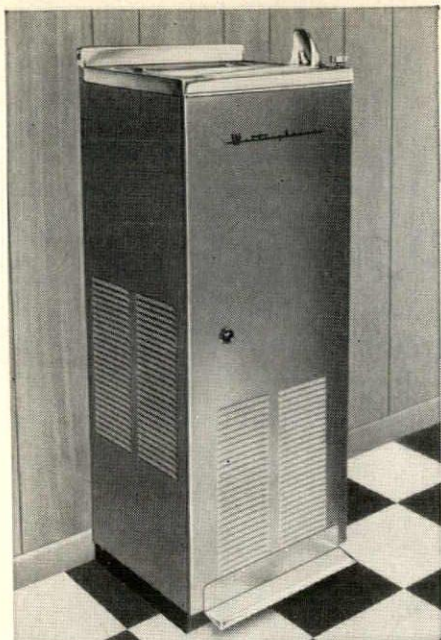
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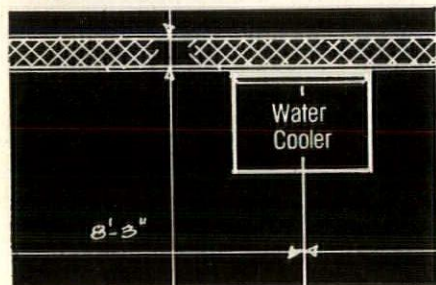


Emhart Manufacturing Company headquarters, Bloomfield, Conn. Architects: Skidmore, Owings & Merrill, N.Y. Engineers: Paul Weidlinger, N.Y., and Weiskopf & Pickworth, N.Y. (structural), and Syska & Hennessy, Inc., N.Y. (mechanical).





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Required Reading

continued from page 60

tors. The book's pages have a busy, crowded look: in this business-like production, a praiseworthy quality.

The material is organized into three sections, each having its particular kind of arrangement. In the first, the author points out the crisis nature of the problem of providing adequate space and faculty for the years directly ahead, sets the problem, and then dips into history to survey the evolution of the American college as a design form. The second section deals with the elements that make up the college—classrooms, labs, libraries, housing, etc.—and for each of the author's nine types sets forth considerations of programming, planning modules and cost. The third and last part of the book might be described as the "how to do it" and "how it has been done" section, and shows many types of plans for a variety of geographical areas. Heartily recommended.

—James S. Hornbeck

Greenough

HORATIO GREENOUGH. *By Nathalia Wright. The University of Pennsylvania Press, 3436 Walnut St., Philadelphia 4, Pa. 382 pp., illus. \$8.50.*

This first full-length biography of Horatio Greenough sets forth his devotion to the classical tradition in sculpture and describes his concept of functionalism in architecture.

His life is examined in a detailed, historical manner. The accounts of Greenough as an artist in Italy, of his dealings with the United States government in the execution of his public works, and of his associations with James Fenimore Cooper and Ralph Waldo Emerson are particularly informative. In addition, Greenough as an art theorist and his role, at last, as a moral philosopher have been assessed. Considerable use is made of quotations, many previously unpublished.

There are 50 plates with 78 individual illustrations. These include photographs or drawings of all of Greenough's original statues, groups, and bas-reliefs which are known to

continued on page 106

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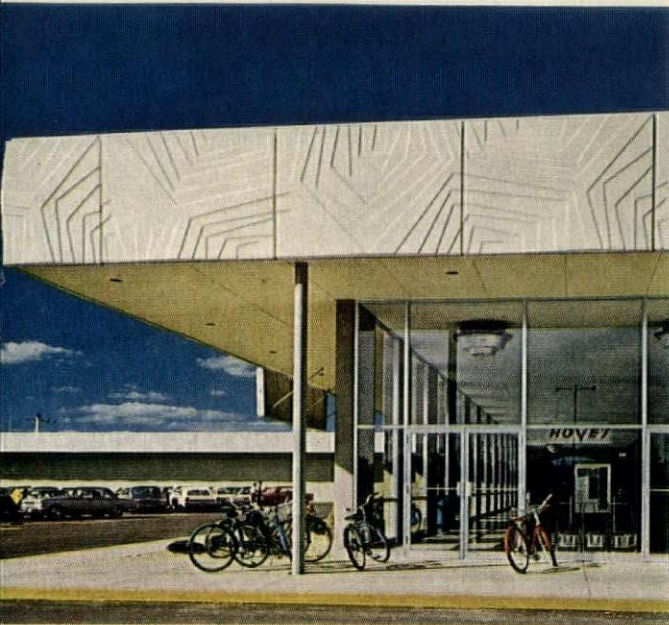
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Required Reading

continued from page 94

exist or of which depictions are available, and typical specimens of male, female and children's portraits, busts, and his "ideal" busts, many of these published for the first time.

—Mary Aronson

Art in America

CREATIVE AMERICA. *Published for National Cultural Center by Ridge Press Inc., 551 Fifth Avenue, New York. 128 pp., illus. \$5.95.*

An introduction by the late President Kennedy and a magnificent selection of Magnum photographs are the most interesting features of this publication, which aims to present a picture of the creative impulse behind all forms of artistic expression. The text consists of contributions from nine distinguished American artists among them Dwight D. Eisenhower and Harry S. Truman. Two short poems are included by Robert Frost and John Ciardi.

Although this work cannot claim to be a profound study of "creative art," all the arts," it does succeed in giving quite a vivid impression of the heights and depths experienced by artists in their struggle to give expression to their thoughts and ideas.

—Susan Braybrooke

Ruskin

THE GENIUS OF JOHN RUSKIN. *Edited by John D. Rosenberg. George Braziller, Inc., 215 Park Avenue South, New York 3, N.Y. 560 pp. \$7.50.*

By providing this collection of excerpts from Ruskin's writings, Rosenberg hopes to overcome the reluctance of the general reader to tackle the writer's overstuffed volumes and the distortion which his views have suffered from too many quotations. To selections from "Modern Painters," "The Seven Lamps of Architecture," and "The Stones of Venice," as well as from Ruskin's social-philosophic writings, the editor has added notes putting Ruskin into the context of his own life and of the Victorian age.

ARCHITECTURAL DETAILS

3. PHILIP JOHNSON

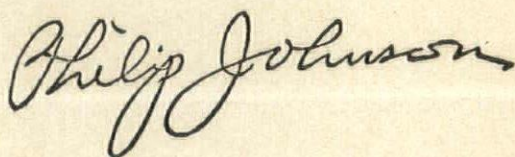
The word "details" means different things to different architects. It is obvious that a Brunelleschi pilaster capital is of a different order from the twist or taper of a Breuer concrete column. One is a decoration to cause richness, shadow and delight, helpful to the architecture. The other is merely the shape of a necessary structural piece.

Mies van der Rohe says, "God lies in the details."

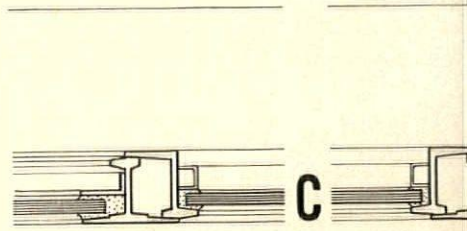
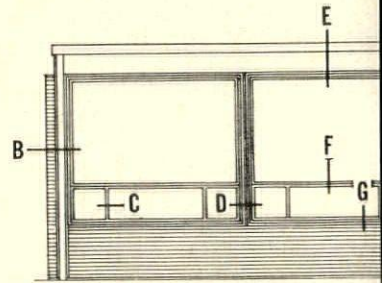
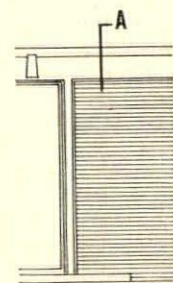
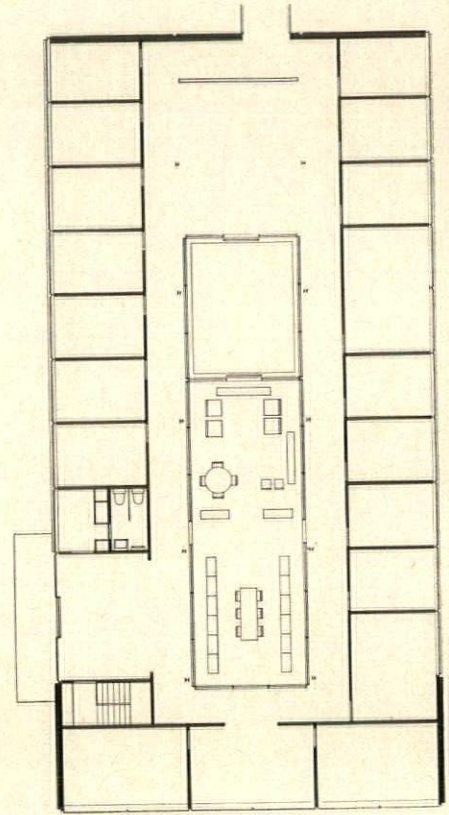
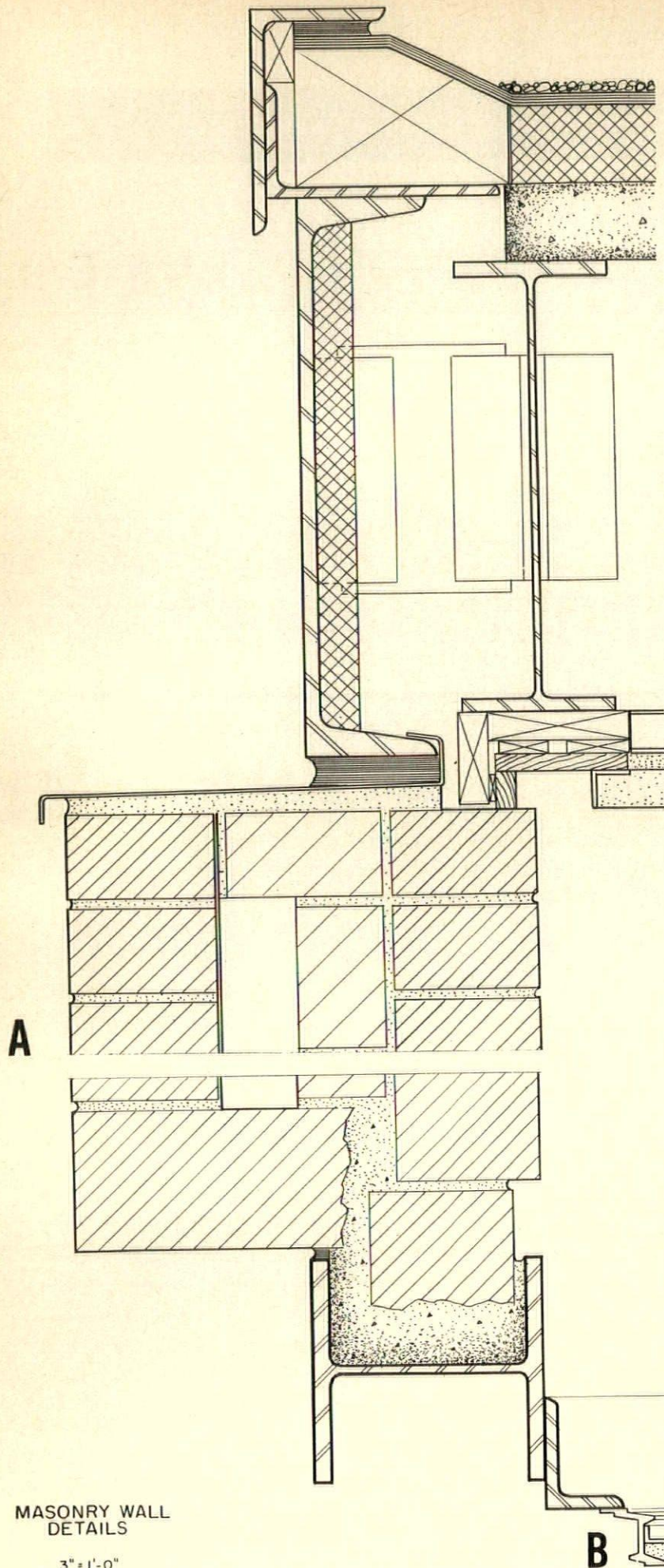
Paul Rudolph says, "There are no details." There is of course a generational distinction, but also a semantic one.

Can we ever speak meaningfully of details today? The most obvious example of shift of emphasis is in the work of Frank Lloyd Wright. The Robie House of the 1900's is full of beautifully worked out "details." The Guggenheim Museum of the 1950's has none, not even a stair rail. Details today are hardly more than enlarged structural connections and corners.

The collection that follows contains many kinds of "details." Window enframements (Miesian or even Perretesque), geometric calculations as in the Roofless Church, decorative grills as in the stair rails, arbitrary steel curves as in the Museum of Modern Art's East Wing, a single building section as in the Dumbarton Oaks Museum. Varied as they are in type, they may sometimes all be called, I suppose, "details."



PHILIP JOHNSON



MASONRY WALL
DETAILS

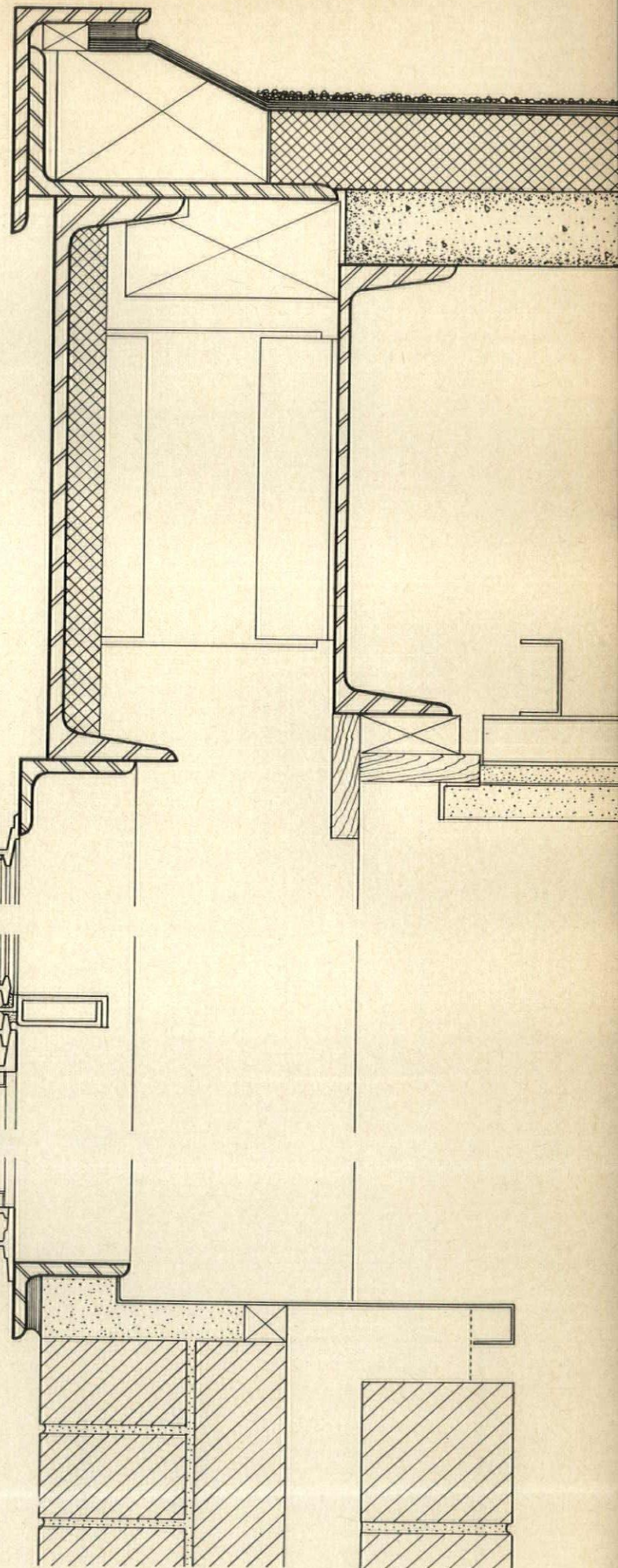
3" = 1'-0"

Ben Schnall



ADMINISTRATION BUILDING
FOR SCHLUMBERGER
DODGEFIELD, CONNECTICUT

Most of the buildings in this group, this example has a strong Miesian influence in the handling of details, unlike later examples. Columns, roof fascia, eave flashing, window frames, and interior sills are of steel painted black; the glazing is 1/4-inch thick plate glass; interior and exterior exposed masonry is glazed black and white iron-spot brick; ceiling is blown-on asbestos; the floor is vinyl tile



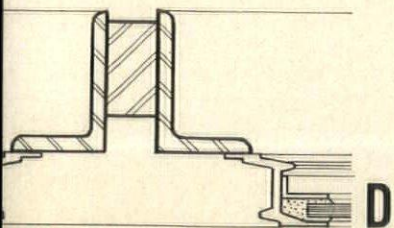
E

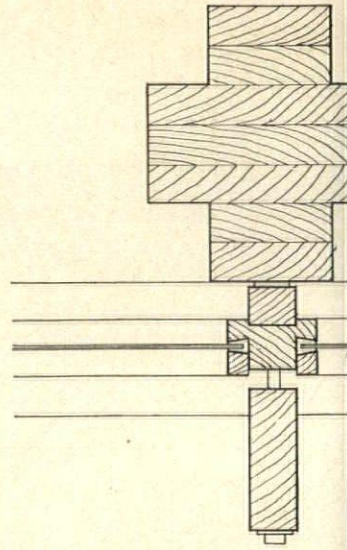
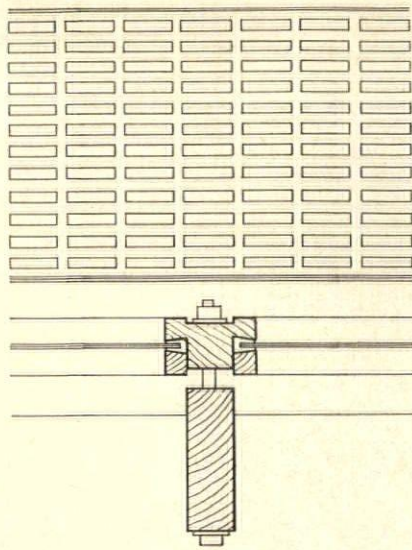
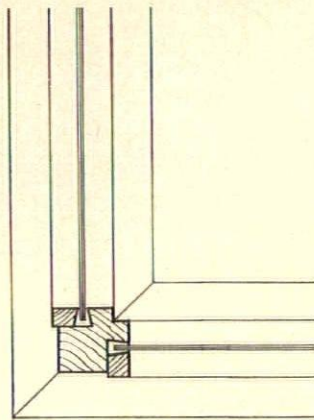
F

GLASS WALL
DETAILS

3" = 1'-0"

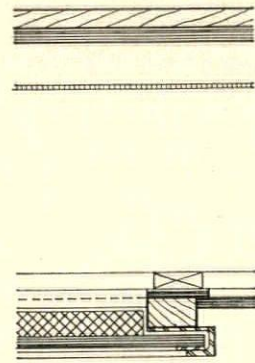
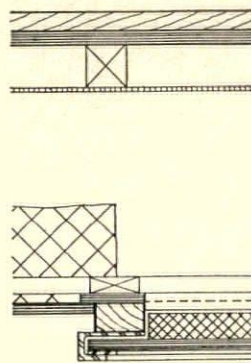
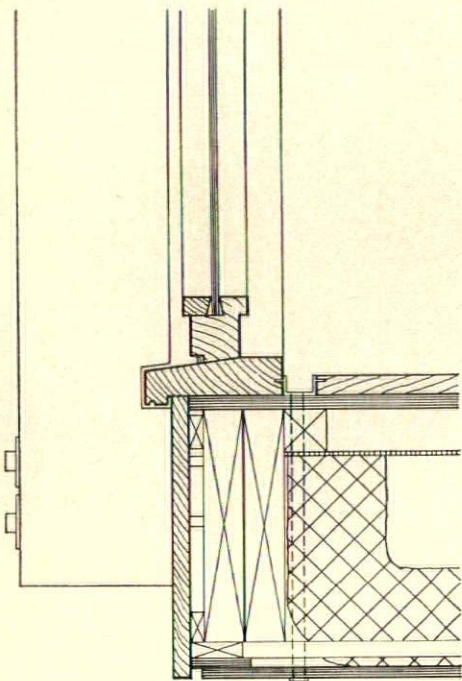
G





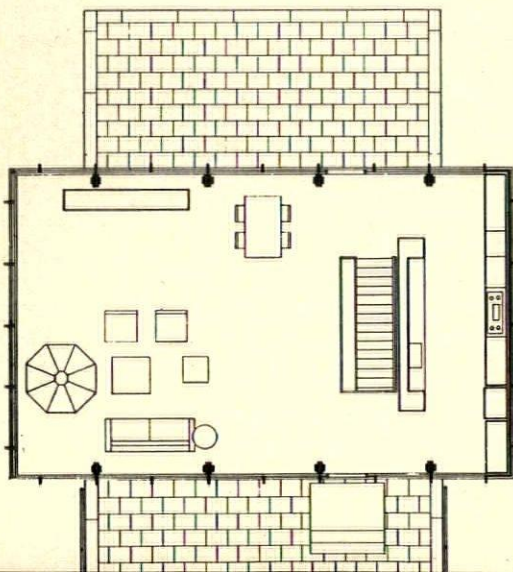
TYPICAL PLAN DETAILS

3" = 1'-0"



SECTION
AT
OVERHANG

3" = 1'-0"



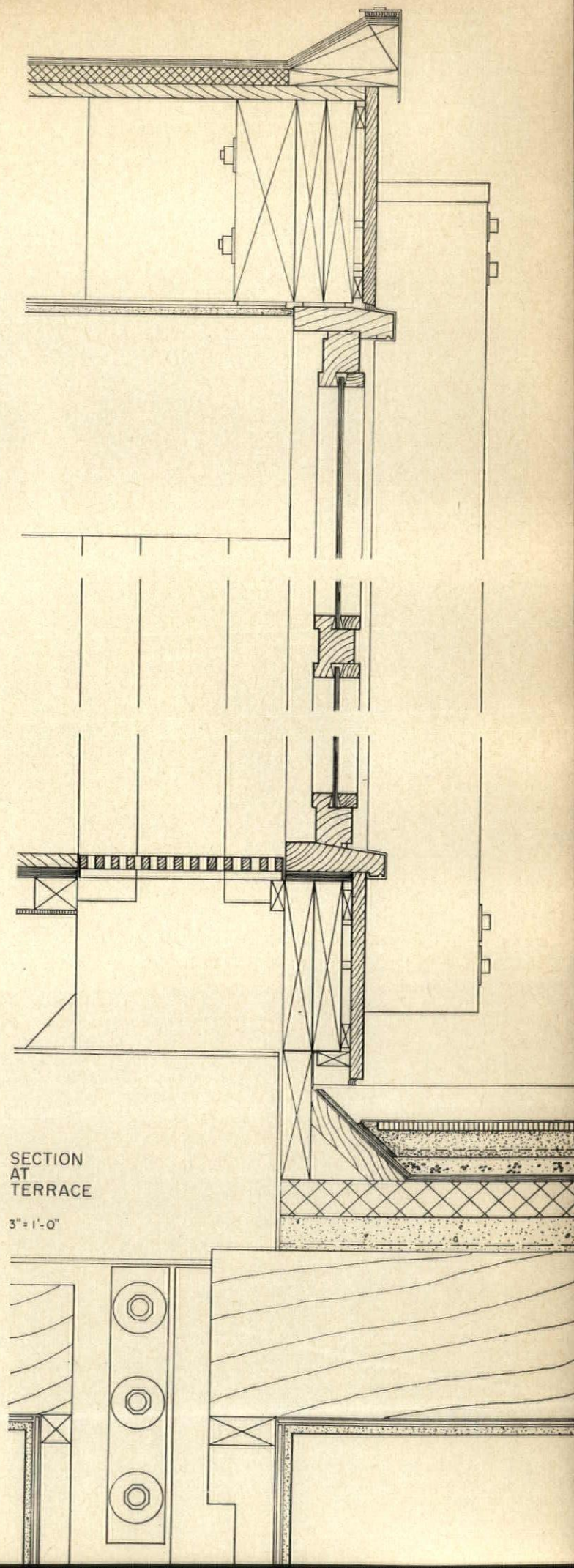
Ezra Stoller

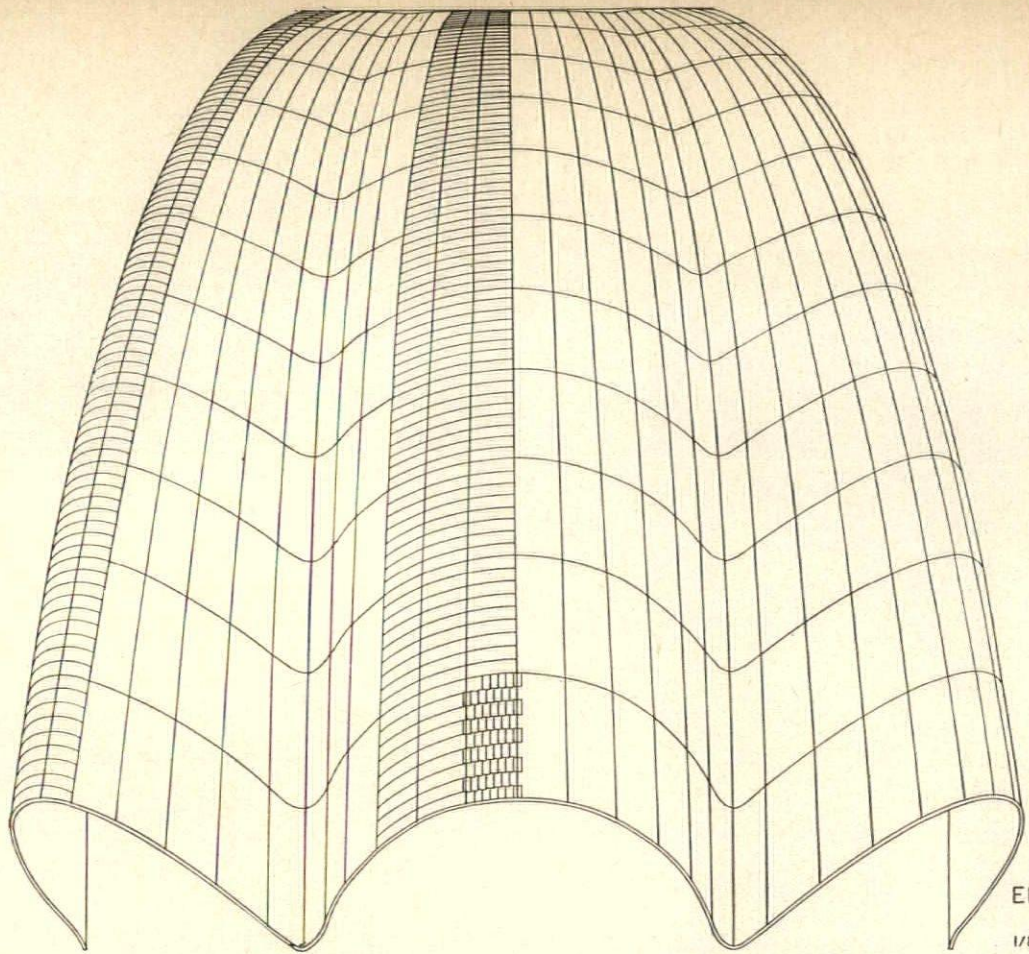


THE ROBERT WILEY HOUSE
NEW CANAAN, CONNECTICUT

53

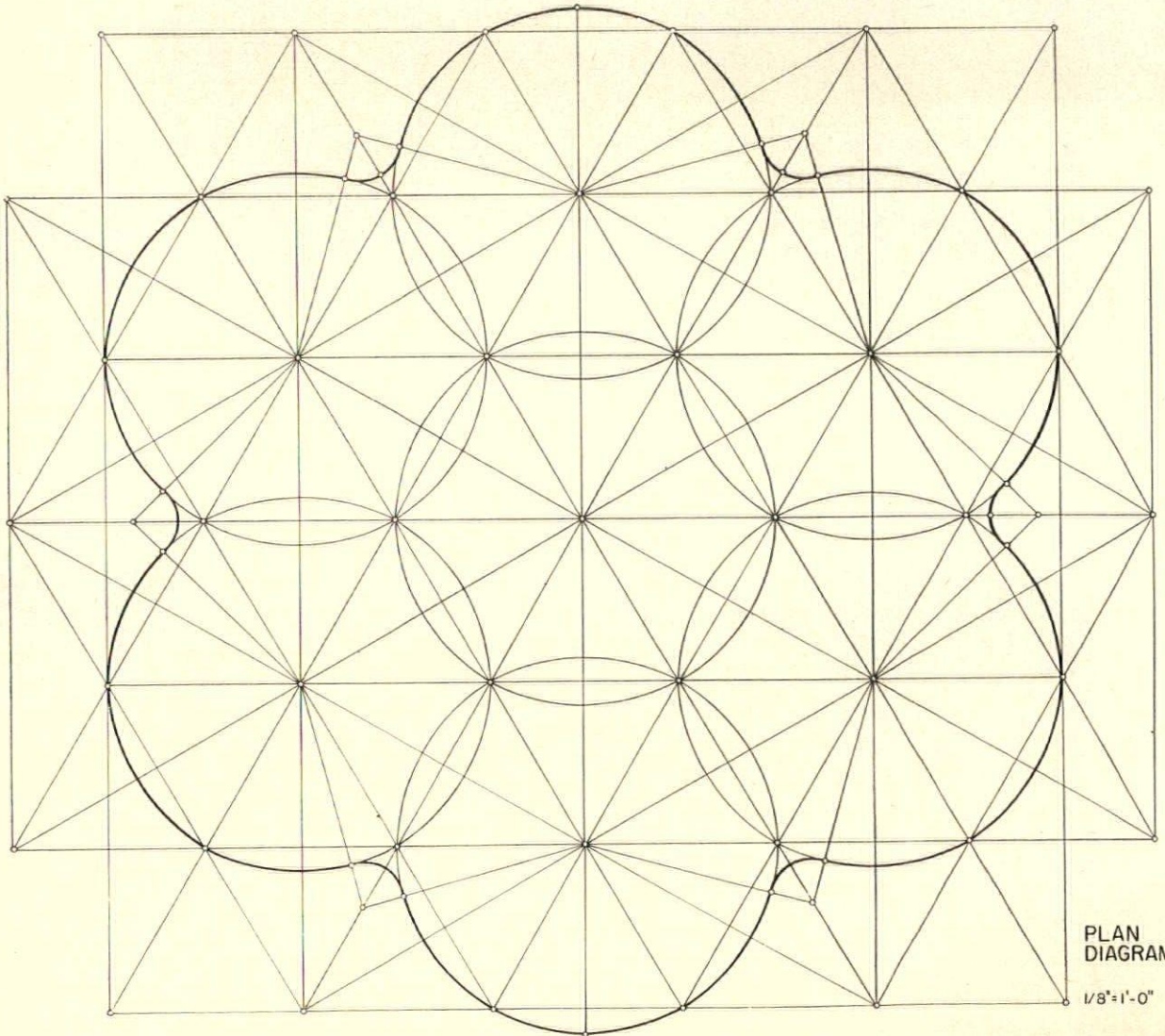
This house is notable for the manner in which its elements, structure, and materials are beautifully articulated. The Miesian influence is apparent here, but has been interestingly translated into a wood structure. Columns and beams are of stained, laminated wood. Mullions, window frames, roof fascias and sills are of stained white pine; windows are glazed with 1/4-inch plate glass; the ceiling is plaster with acoustical tile; the floor and peripheral grills are of stained maple; exterior wall panels and soffits are of plywood painted white; the foundation and roof terrace deck are of slate; the foundation is fieldstone.





ELEVATION

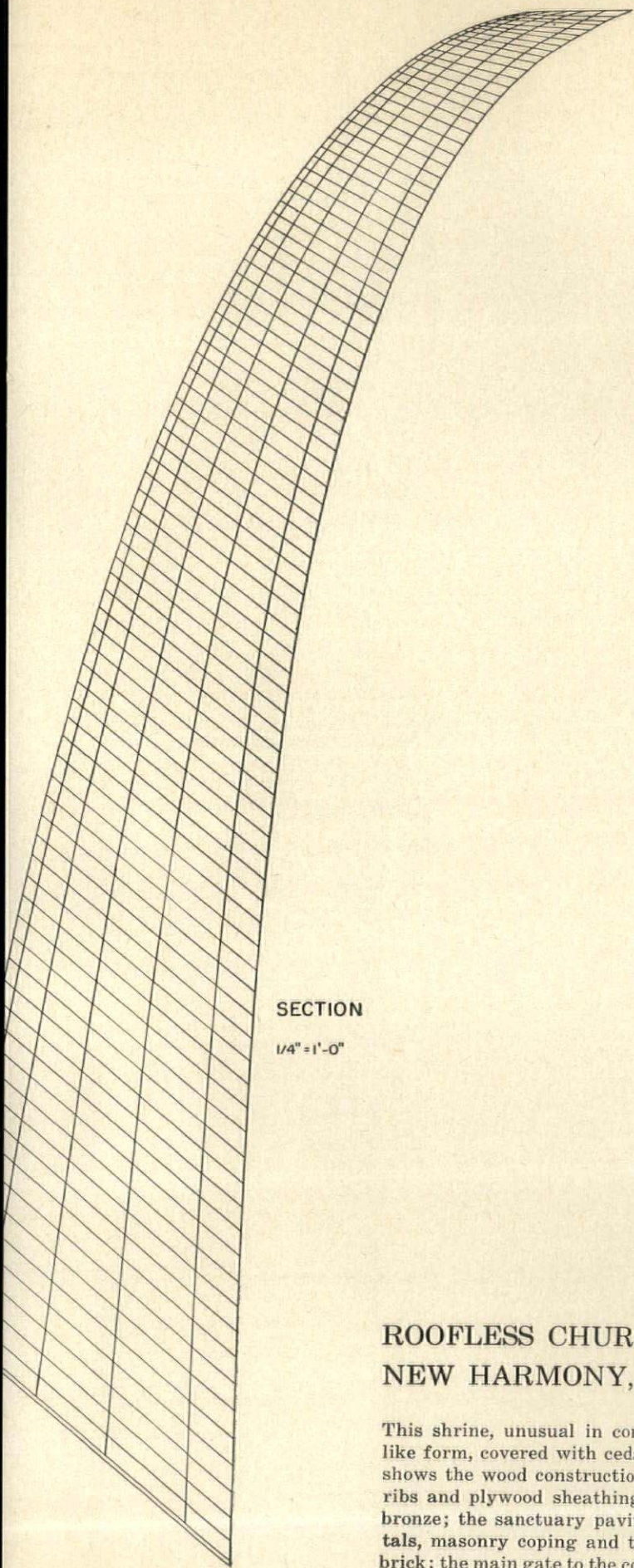
1/8" = 1'-0"



PLAN
DIAGRAM

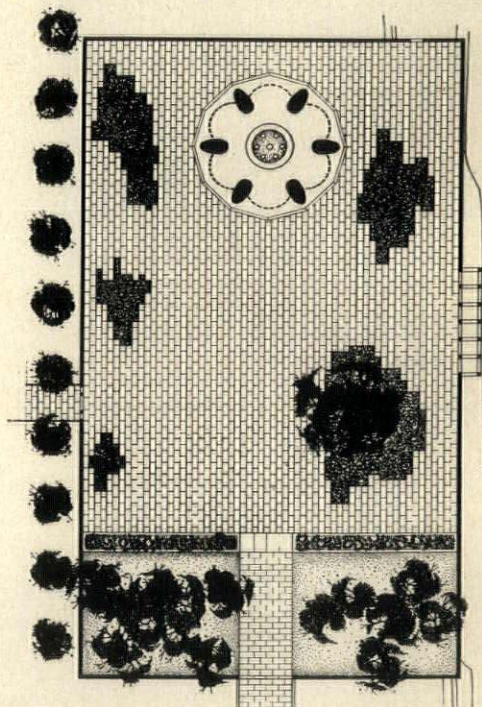
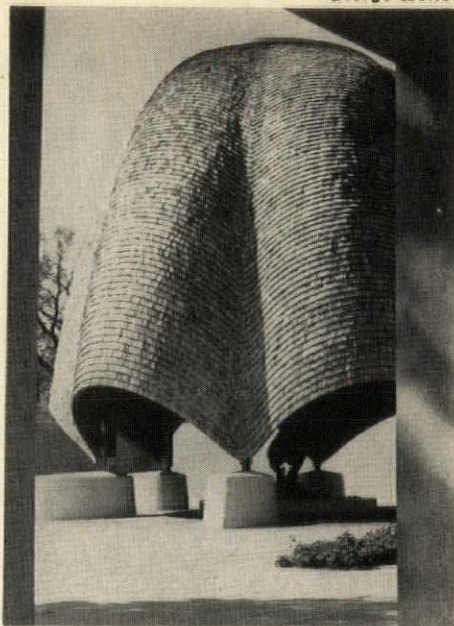
1/8" = 1'-0"

George Holton



SECTION

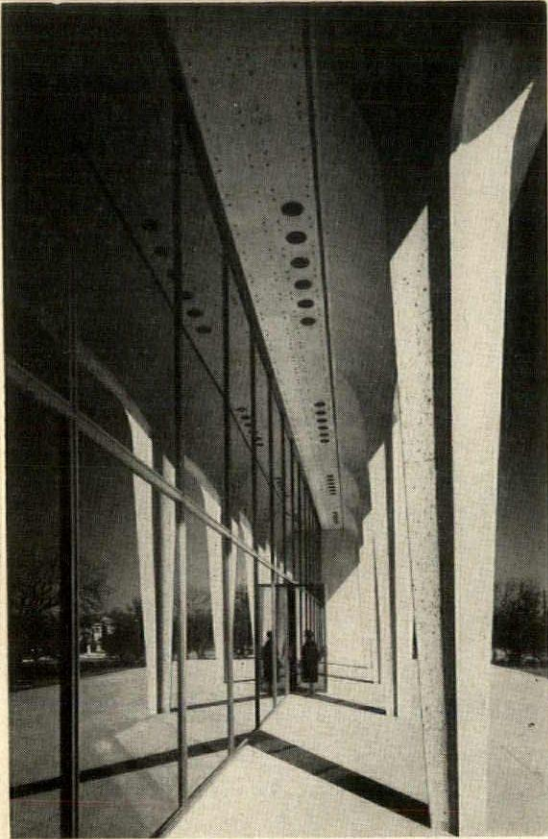
1/4" = 1'-0"



ROOFLESS CHURCH NEW HARMONY, INDIANA, 1960

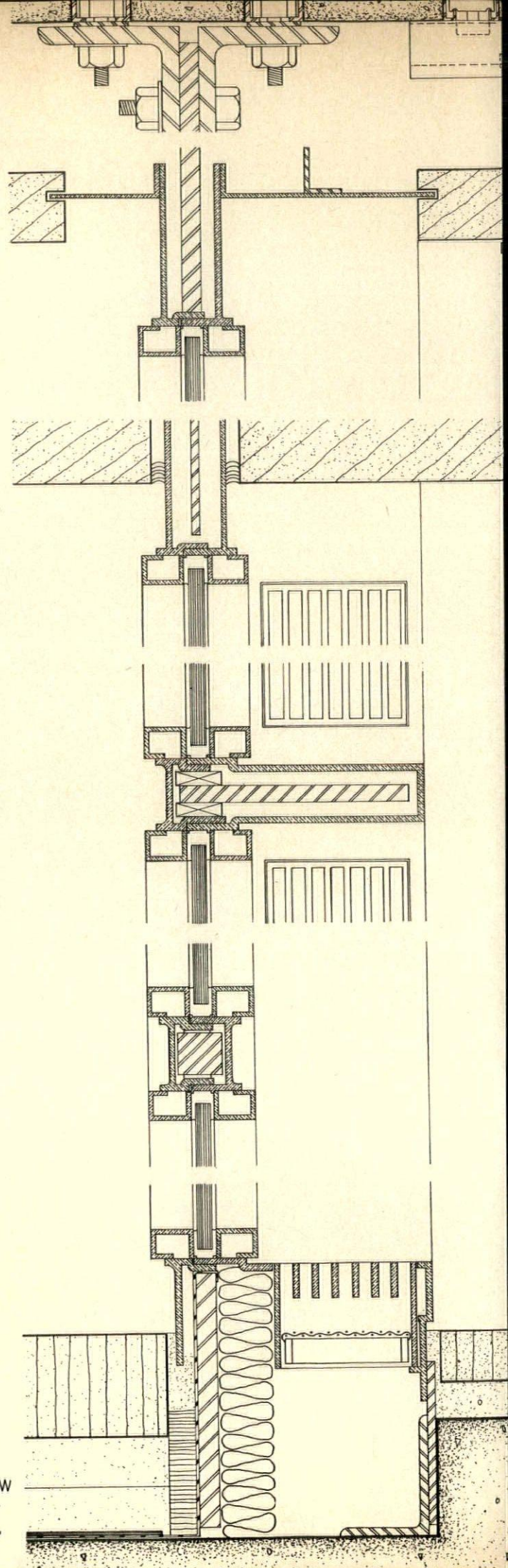
This shrine, unusual in concept, form and use of material, features a dome-like form, covered with cedar shakes, which rises from six points. The interior shows the wood construction, which is painted red—laminated columns, arches, ribs and plywood sheathing. The column shoes and dome cap are of statuary bronze; the sanctuary paving is granite; the courtyard paving, column pedestals, masonry coping and trim are of limestone; the courtyard wall is of red brick; the main gate to the courtyard is of steel painted black

Ezra Stoller



AMON CARTER MUSEUM
OF WESTERN ART
FORT WORTH, TEXAS, 1961

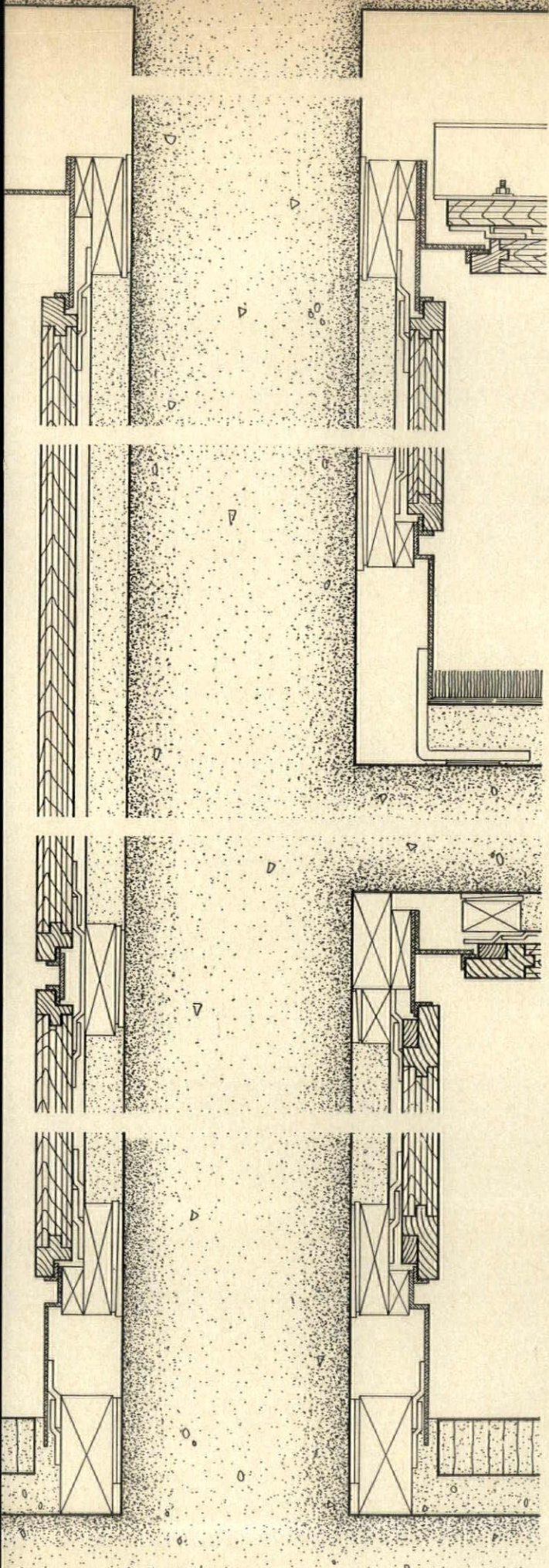
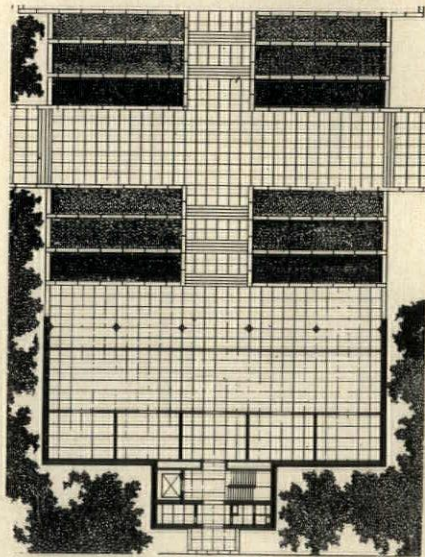
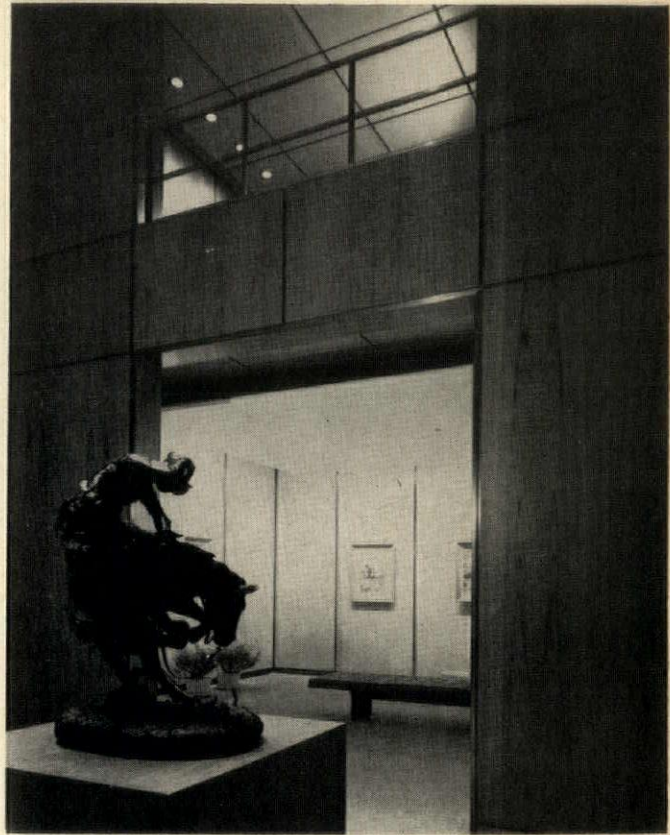
Typical of this museum is a highly sophisticated elegance and refinement, and again, a studied articulation of materials and surfaces. Columns, arches, exterior and interior walls, gallery ceiling and exterior soffits are of Texas shellstone; exterior and interior paving, stairs, foundation walls and retaining walls are of pink-gray granite; all exposed metal work and floor grills are of statuary bronze; wall paneling is of teak or pandanus covered plywood; ceiling paneling is of plywood lacquered pale gray; glazing is $\frac{3}{8}$ -inch tinted plate glass



WINDOW
WALL

3" = 1'-0"

Ezra Stoller



INTERIOR WALL

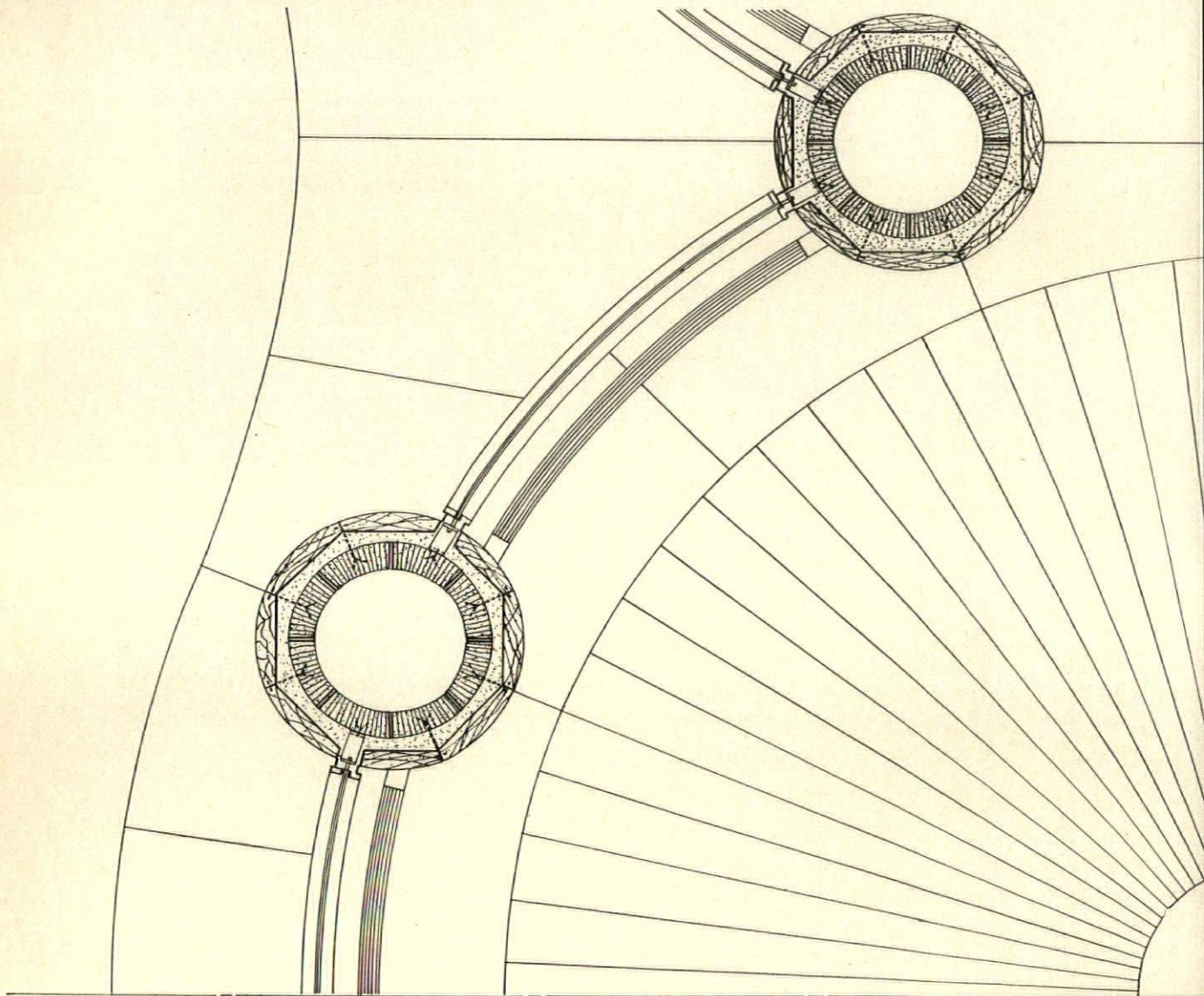
3" = 1'-0"

Ezra Stoller

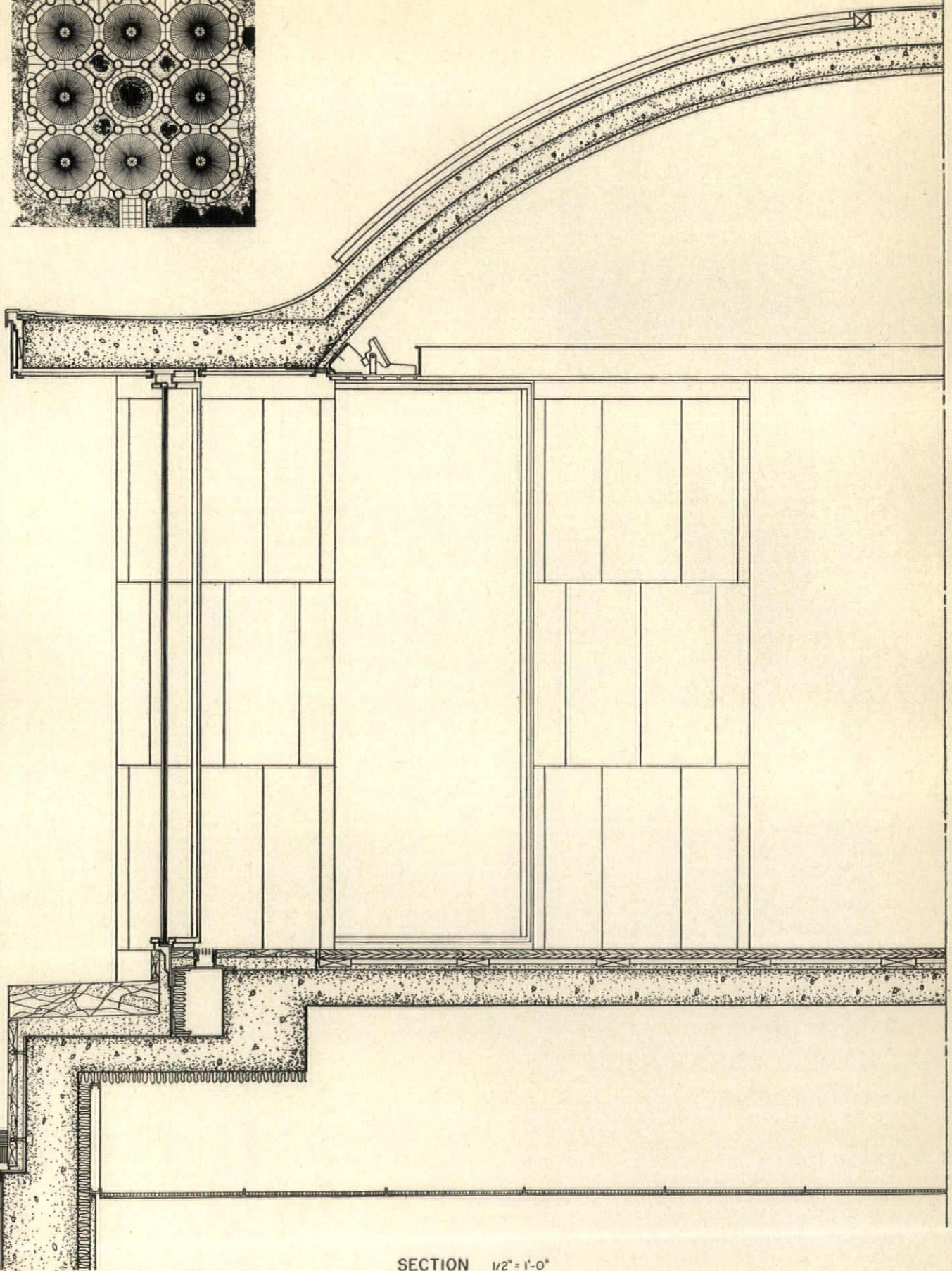
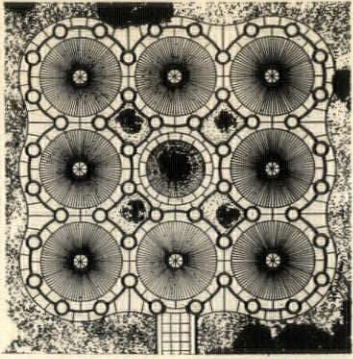


WING FOR BLISS COLLECTION
OF PRE-COLUMBIAN ART
DUMBARTON OAKS, WASHINGTON, 1964

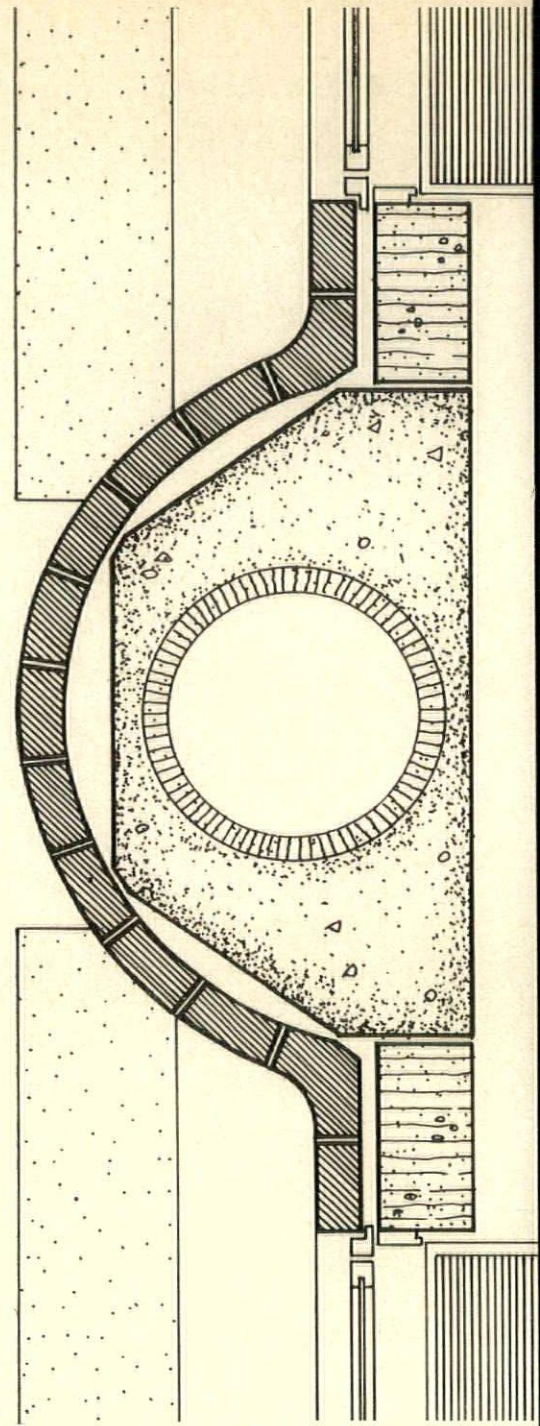
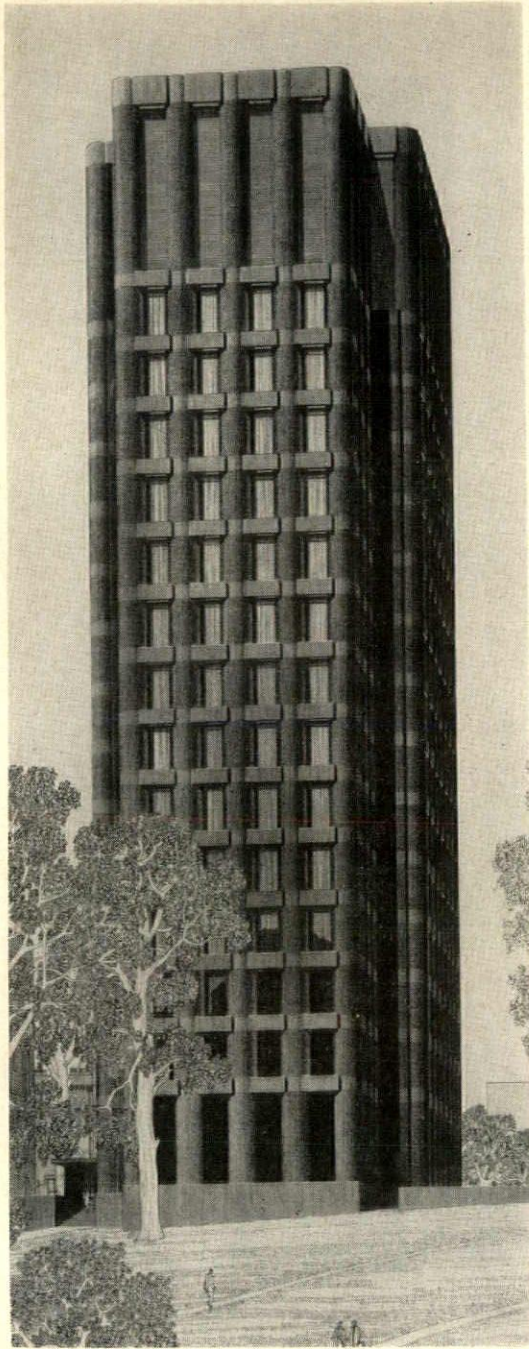
This is the example, according to architect Johnson, in which section of a building becomes a detail. The columns, base, soffits are of agatan-veined marble; the window frames, fascia, light cove, and floor grills are of statuary bronze; the domed vault is of plaster painted white; the floor is of teak with a border of verde antique marble



PLAN DETAIL 1/2" = 1'-0"



SECTION 1/2" = 1'-0"



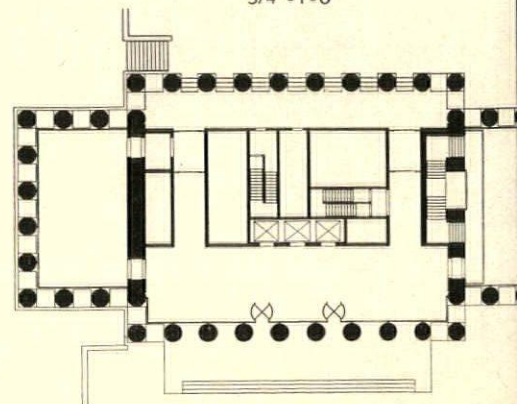
PLAN AT WINDOW

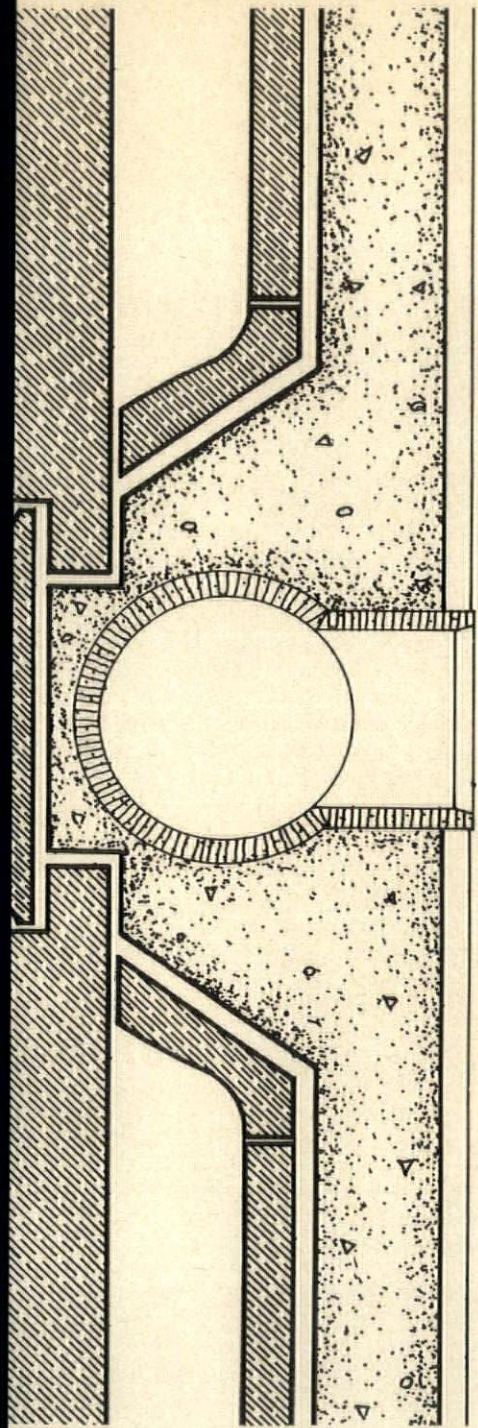
3/4" = 1'-0"

**KLINE SCIENCE CENTER
YALE UNIVERSITY
NEW HAVEN, CONNECTICUT**

To be completed in 1965

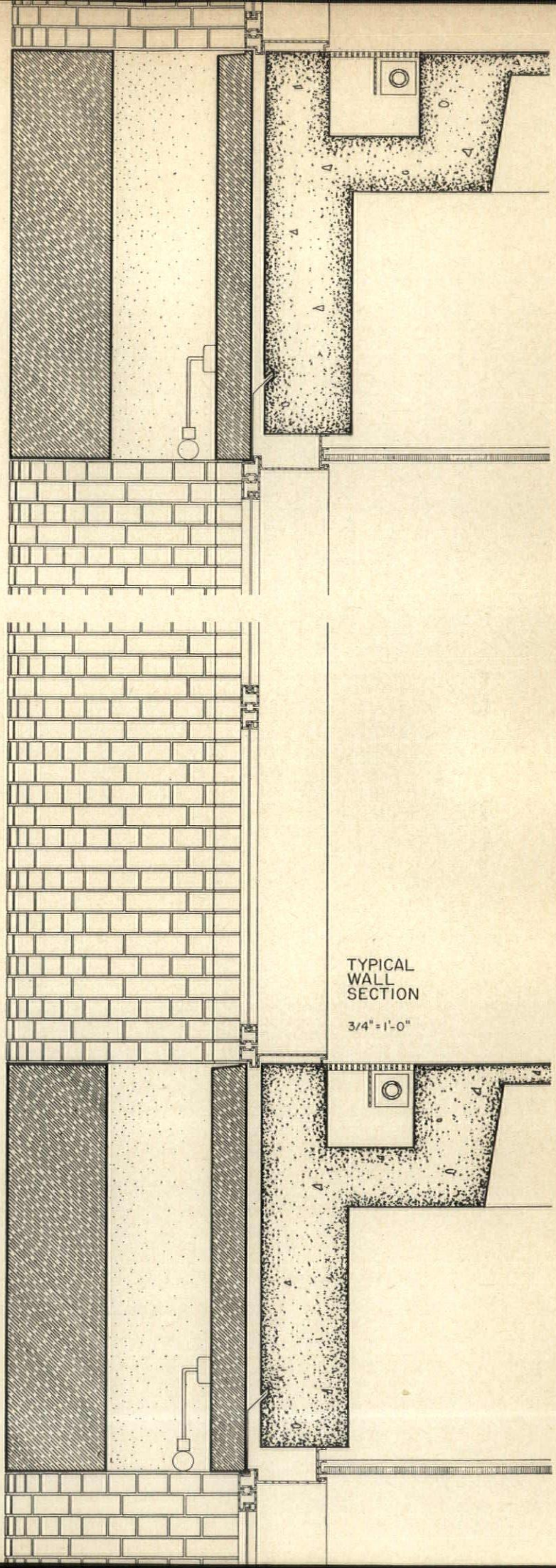
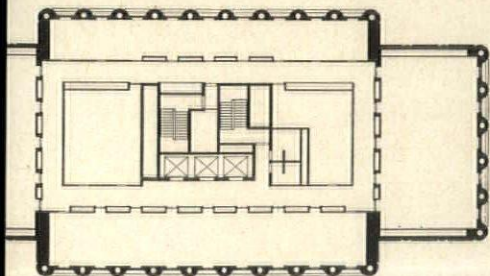
This building makes use of structural columns as mechanical stacks, and interestingly interprets that use in architectural form. The columns will be clad in iron-spot brick; the free-standing spandrels will be of brownstone; window frames, interior window trim, and floor grills will be of anodized aluminum; floors will be finished with vinyl asbestos tile; hung ceilings will consist of cloth-faced panels of glass fiber; interior walls will be concrete and block, painted





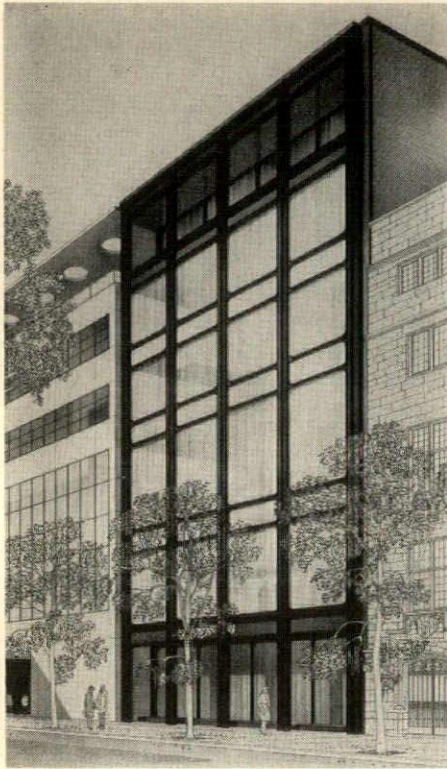
PLAN AT SPANDREL

3/4" = 1'-0"



TYPICAL
WALL
SECTION

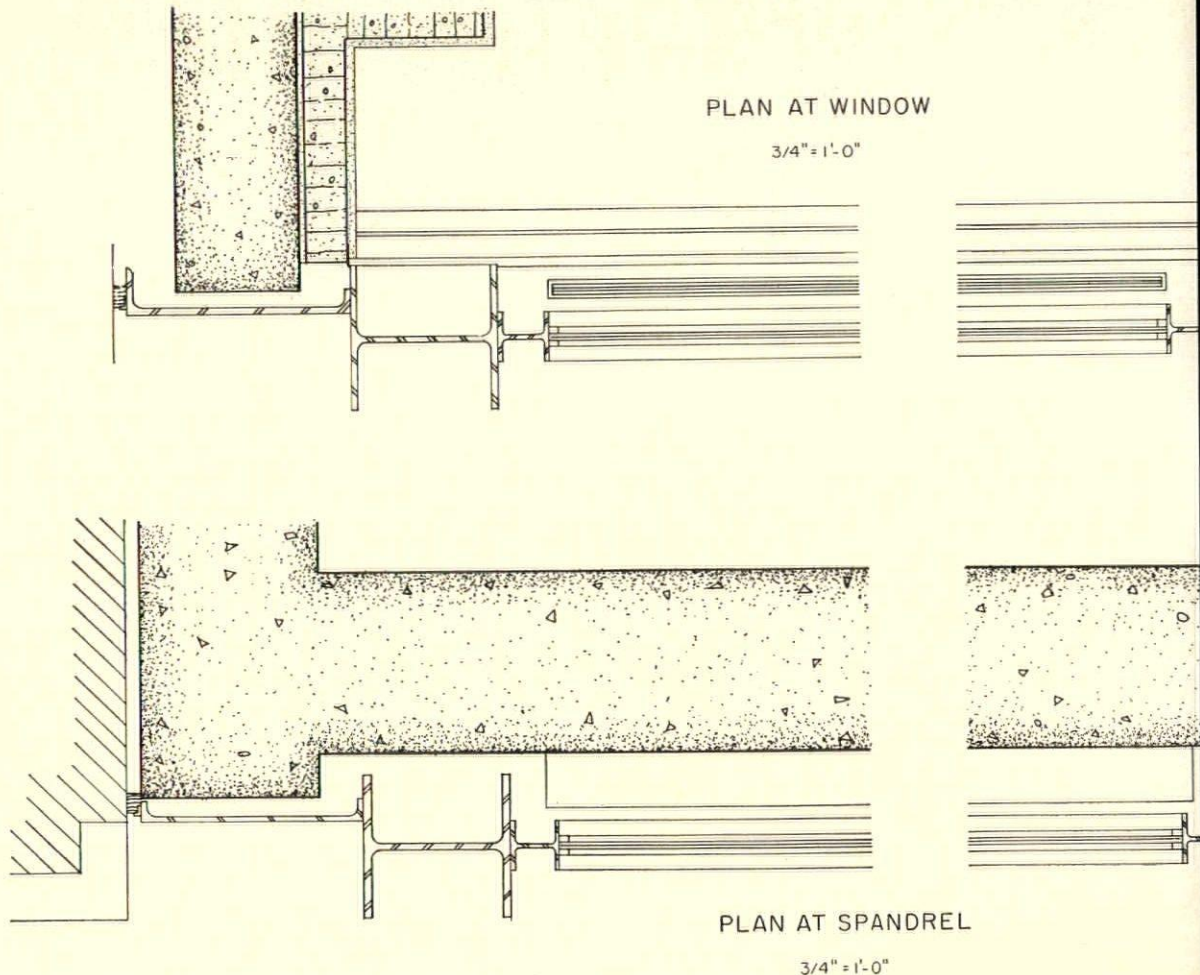
3/4" = 1'-0"

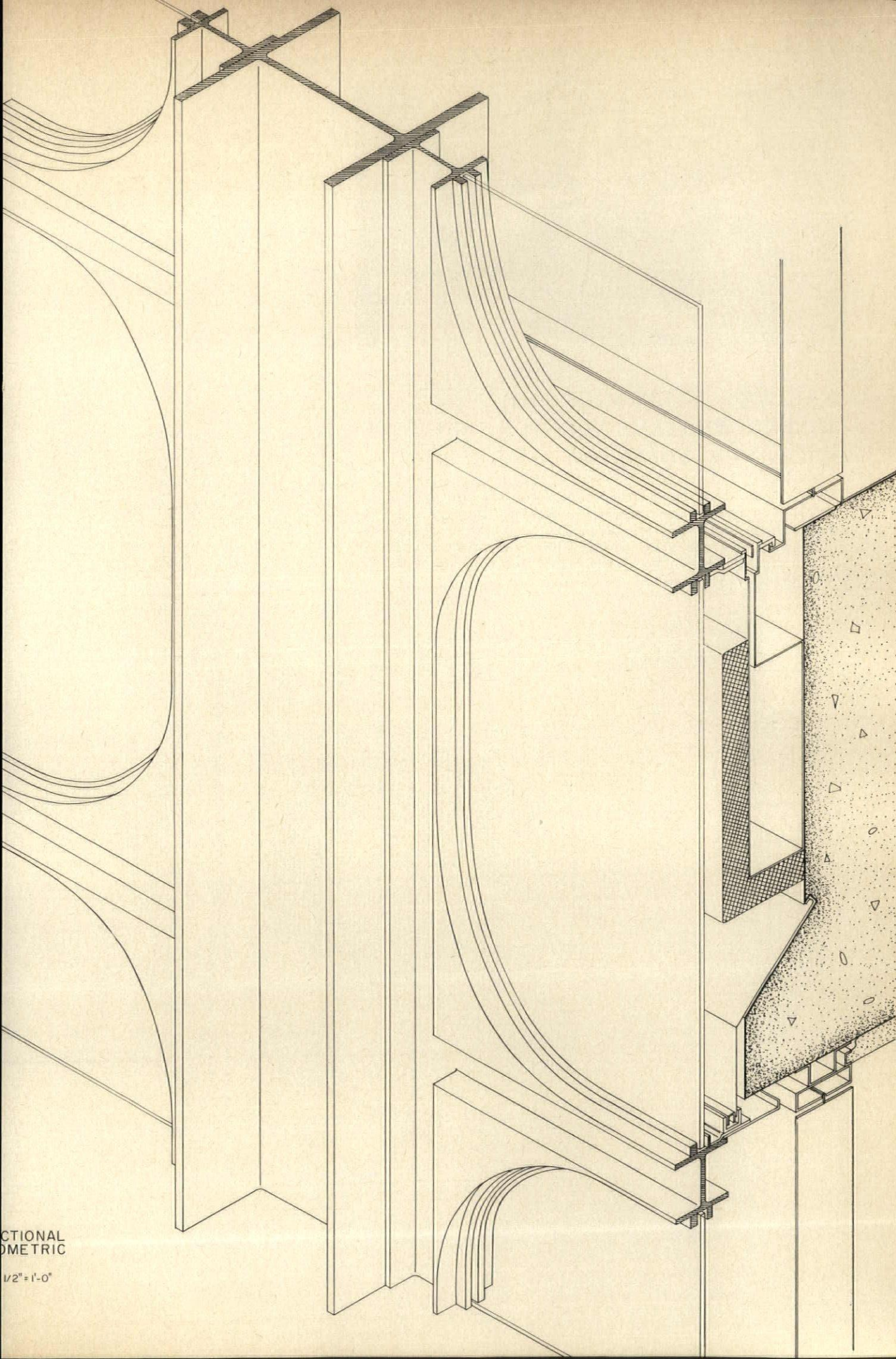


MUSEUM OF MODERN ART, EAST WING NEW YORK CITY, NEW YORK

To be completed in 1964

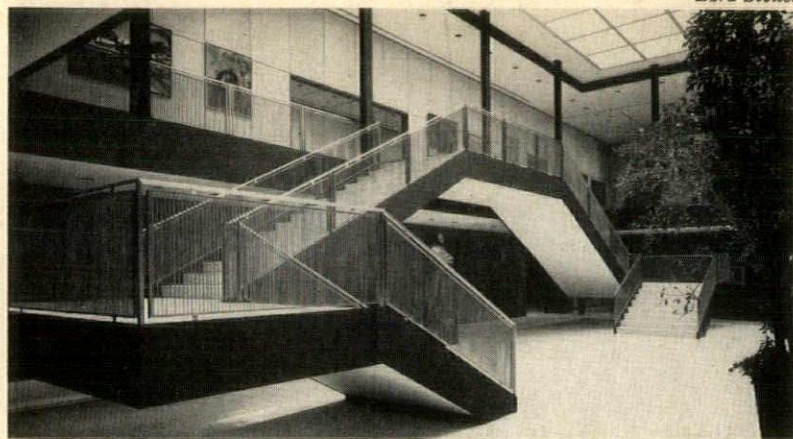
The design of this museum addition has excited considerable interest and comment, since it adjoins Edward D. Stone's famous example of the International Style, and because it calls for the redesign of the old entrance and its curving canopy. The new facade—which appropriately enough looks more different than the old—is a reinterpretation of the Miesian steel and glass wall. In Johnson's design, which is carried out with style and refinement, the windows and spandrel panels are set in curved steel frames. The construction of the entire wall can be seen in the architect's sectional isometric on the right. Note that provision is made for air circulation over the inside face of the glass to prevent fogging. The steel will be painted black; the windows will be of tinted plate glass; the spandrels will be of tinted rough plate glass, polished on the exterior face only.





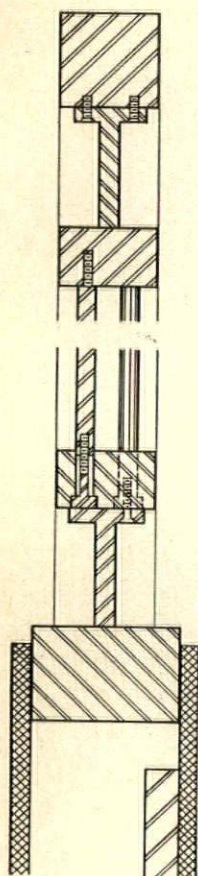
SECTIONAL
METRIC
1/2" = 1'-0"

Ezra Stoller



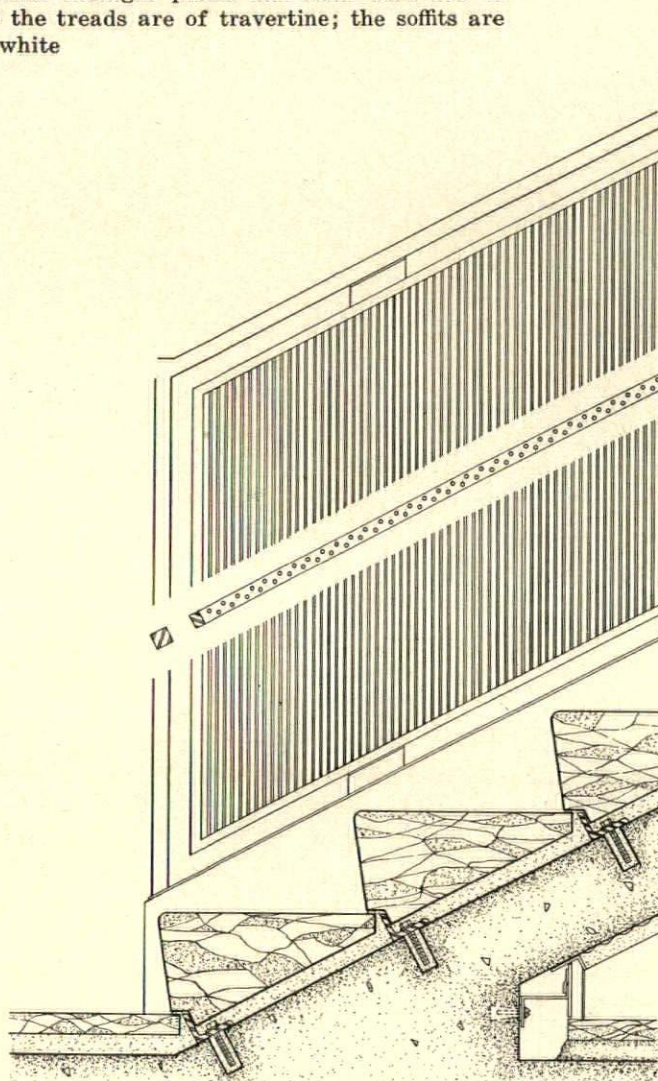
STAIRWAY, MUSEUM OF ART
MUNSON-WILLIAMS-PROCTOR INSTITUTE
UTICA, NEW YORK, 1960

This stairway is one in which the delicate, lacy grillwork of the balustrade panels becomes decoration. Brushed stainless steel was used for the handrail and posts, the panel frames and clips, the tension rods and stringer cap piece. Stringer plates and soffit base are of aluminum painted black; the treads are of travertine; the soffits are of smooth plaster painted white



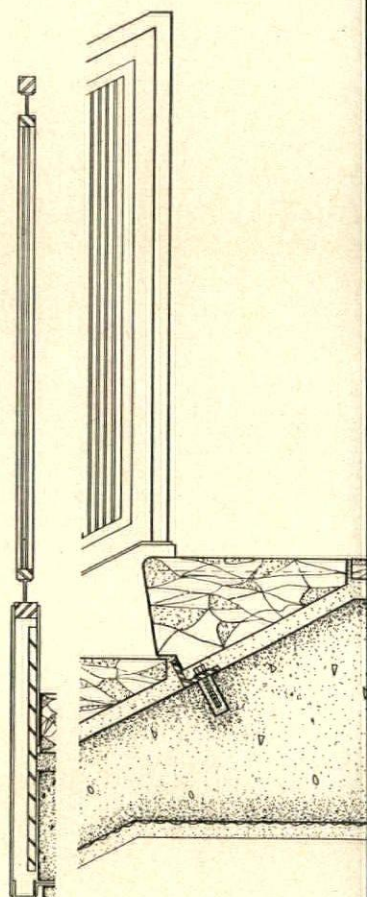
RAILING

6" = 1'-0"



STAIR DETAILS

1" = 1'-0"



ARCHITECTURE

IN A SOCIAL CONTEXT:

THE WORK OF SVEN MARKELIUS

Architects often influence each other in matters of form and technique, but Sweden's Markelius is one of the few who exert a widespread influence over what might be called the context of architecture: that is, the manner in which a building is used and its relationship to the surrounding environment. At the RECORD's request, Professor Markelius has described his convictions about architecture and the responsibility of the architect in a statement which is printed here as the introduction to a review of some of his important work.

The new architecture which during the twenties emerged with a petrified traditionalism was not just a struggle with new shapes, not just a weariness with old and accustomed forms. It had accepted a new technology and a new social outlook, taking ethically and humanly the consequences of a revolutionary new situation. It is important to keep this in mind: *esthetically* and *humanly*. Esthetically, in resolving the existing conflict between form and function, between form and technique. Humanly, through its earnest aim to put architecture in the service of man, of his health, comfort and well-being.

I still believe in the truth and durability of this approach to the problems of architecture in our time. If sometimes I cannot help joining the criticism which condemns the architecture of the thirties as ugly, and inhuman, may I add the conviction that this criticism originates in a widely-held misconception that emphasizes one-sidedly the technical and economic aspects of the architectural problem. Our buildings are disfigured by the evidence that many architects were, and still are, happy in the conviction that the "new style" is not expected to pay any attention to beauty.

The situation of today offers many problems so complex that we simply cannot master them. The most important reason for our failures is that the pace of our rapid and wide-spread technical progress has made possible an enormous rise in the standard of living, but unfortunately this is the case only in certain spheres. It is beginning to be more and more generally recognized that in many respects technical progress has by no means led to better conditions, rather to a deterioration. We have to be continuously reminded that the aim of science and technology is to serve humanity. At the same time, we should not let "the human" become a misused slogan in

building and social planning; the reality behind the word is often merely a reactionary formalism, a romantic hunt for *motifs* in the surroundings of the past, beautified by our imaginations.

Our aim must be towards a structure of society, and of cities, that promotes the health and happiness of the citizen. Here our major task should be to find new and better ways of planning our cities, as well as of replanning those existing ones which are no longer workable as instruments for good life.

Somebody has said that there are three items which necessarily should be considered in the planning or replanning of cities today. These items are safety, silence and privacy. It is evident that these conditions can be fulfilled only by exempting sufficiently large and well-planned areas from motor traffic, from its noise and dangers, its smells and poisonous exhausts. Modern planning can calm down high-strung nerves and let us enjoy healthy walking in pleasant surroundings, in park lanes and shopping centers, in nicely-shaped streets and plazas. Beautiful architecture will have a new meaning when we are able to look at our fine buildings without the risk of being run over.

Admitting that our greatest and most difficult problem is the planning of our cities—our external environment and its organization and shaping according to man's material demands and spiritual values—we must not overlook the important and often disregarded problems which concern our closer environment, the planning and shaping of buildings.

It is astonishing how often we encounter blunders that unnecessarily create discomfort and irritation in our daily life. Everywhere we are able to state the need for regenerating our way of thinking, the necessity of attacking the problems over and over again.

We do not create a human environment by trying to stop the course of time and returning in imagination to the "good old days," but by using well, in the service of mankind, the enormous resources which are today put at our disposal. There was once a belief that architecture had to carry certain external attributes to be regarded as "modern." We do not need a "modern style." We need an architecture which is faithful to its purpose and which is true to its own time: to its needs, its inherent forces and its possibilities.

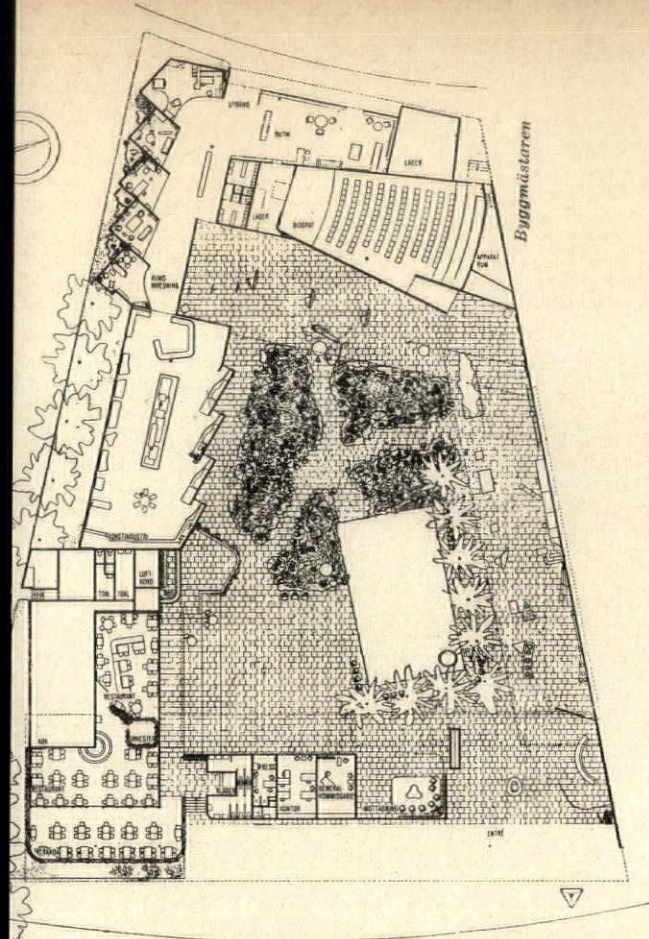
—Sven Markelius



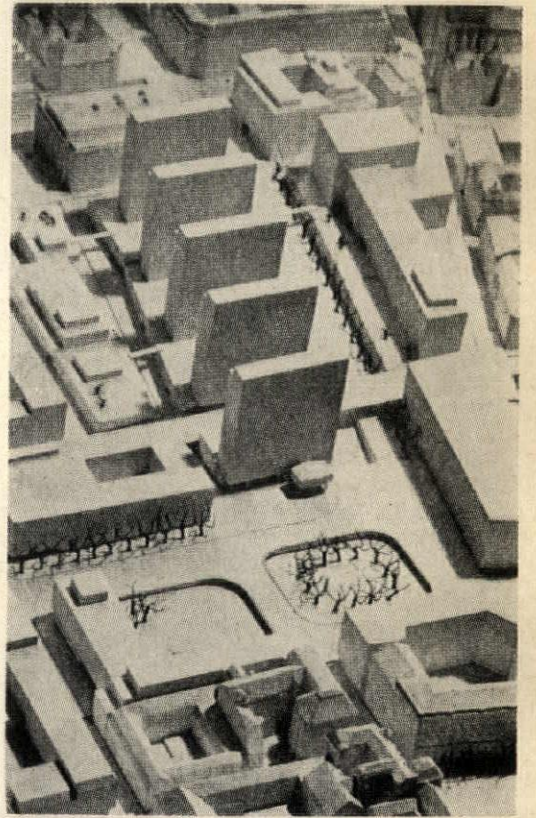
BUILDINGS THAT CONTROL ENVIRONMENT

Professor Markelius first became internationally known for his Swedish Pavilion at the New York World's Fair of 1939. In a setting where individual exhibits were vying with each other for attention, the Swedish Pavilion was an oasis, a place where the exhausted fair-goer could pause, rest and recuperate. The visitor became a participant in the architectural experience, and not just a spectator of primarily visual effects. Markelius was at that time chief of the planning section of the Royal Board of Building. In 1945 he became the Stockholm City Planning direc-

tor, a post he retained over the next 10 years. Under his administration the Stockholm City Plan was drawn up: Vällingby, the first of the satellite towns, was established; two other towns, Färsta and Södertälje, were planned; and the redevelopment of the commercial center of Stockholm was begun. The sign of this new central business district carried over the planning concepts that were already present in embryonic form in the Swedish Pavilion, and persisted also in an early unrealized project by Markelius for a housing development.



Plan of the Swedish Pavilion at the New World's Fair of 1939. Left: View of the court- and pool of the Swedish Pavilion



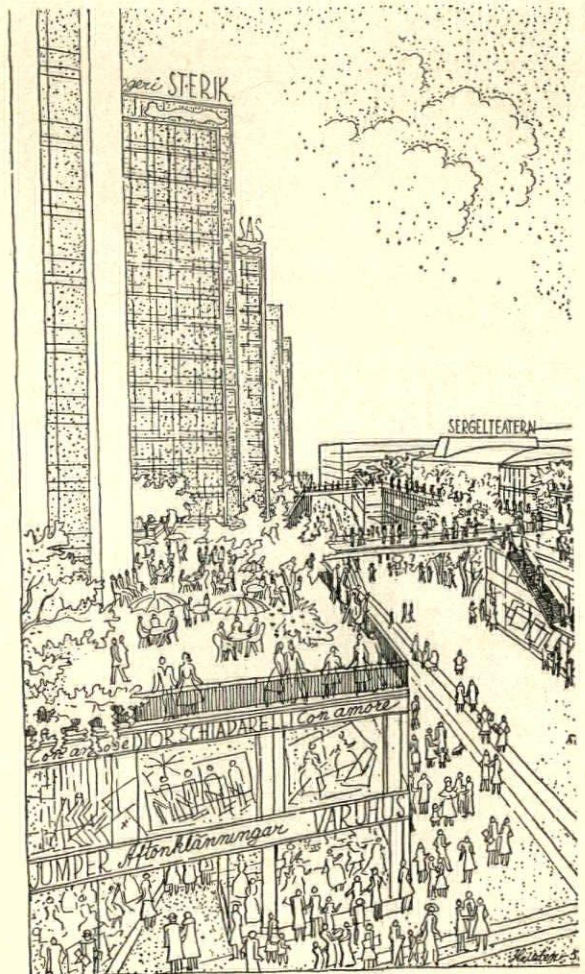
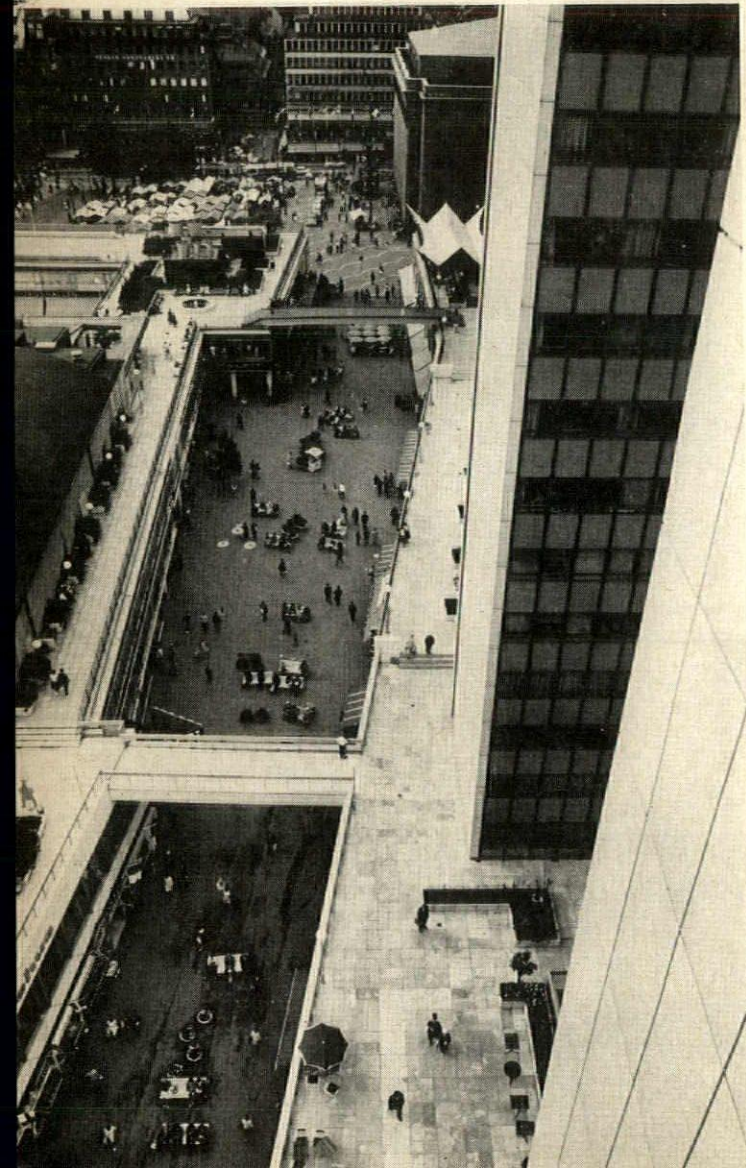
Block model showing redevelopment of Stockholm central business district, which was planned under Markelius's direction. Below: Model of un-realized housing project designed in 1930

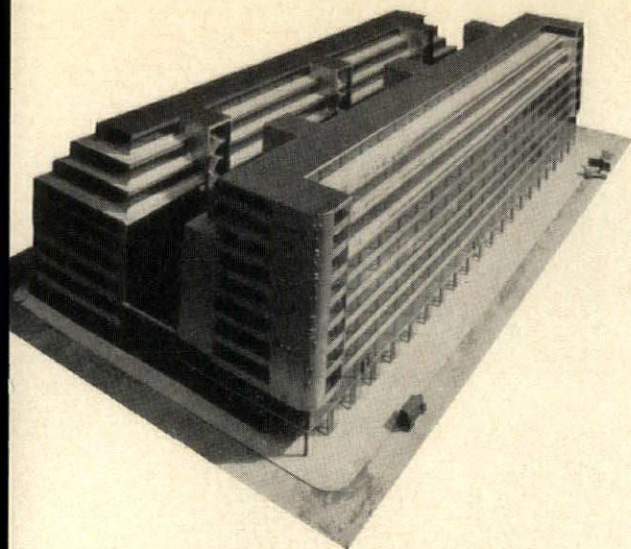




Mats Lindén photos

The redevelopment of the Stockholm central business district. Its planning was carried out under the direction of Sven Markelius from 1945 to 1955 and Göran Sidenbladh from 1955 to date. Others working on the project were the architects, C. F. Ahlberg, David Hellden, Holger Blom and Torsten Westman; and the engineers, Ake Hedtjärn, Bo Hertzmann-Ericsson, P. O. Klevemark and C. H. af Klercker. Architects for the five office buildings were David Hellden, Anders Tengbom, Sven Markelius, L-E Lallerstedt, and Backstrom and Reinius





An early, unrealized project by Markelius dating from 1930

Arvidson



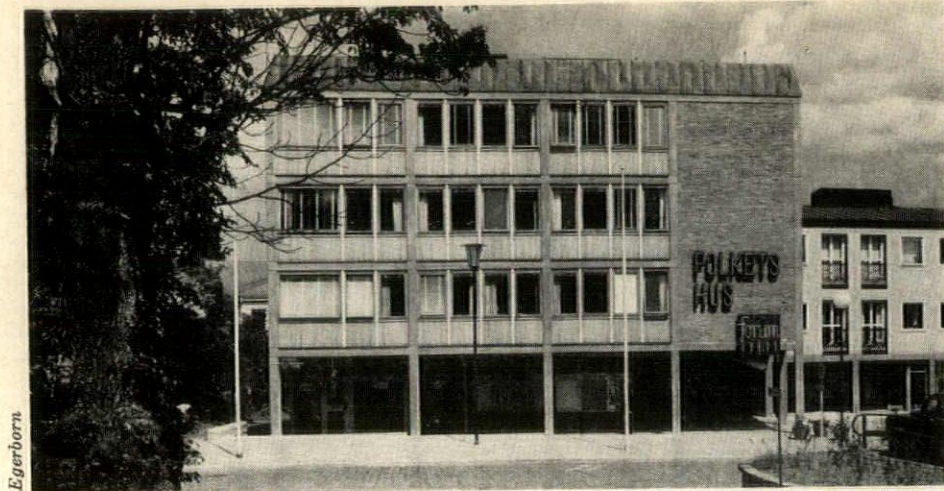
Offices for the Stockholm Building Society completed in 1937

THE BUILDING IN THE CITYSCAPE

Markelius has always seemed keenly conscious of the role of an individual building in the cityscape. Even in his earliest work, such as an unrealized project for an office building of 1930 and the Stockholm Building Society offices of 1936-1937, questions of scale and the relationship of the building to its street were important aspects of the design. In his more recent buildings urbanistic considerations have almost been said to dominate. The Trade Union Center at Linköping is really a large and complex building; but the offices have been separated from

the apartments and the auditorium and conference rooms, breaking down the scale of the group so that it would not compete with the adjacent cathedral. The office building for the Swedish Forest Industries was also broken down in scale to conform to its location in a residential district.

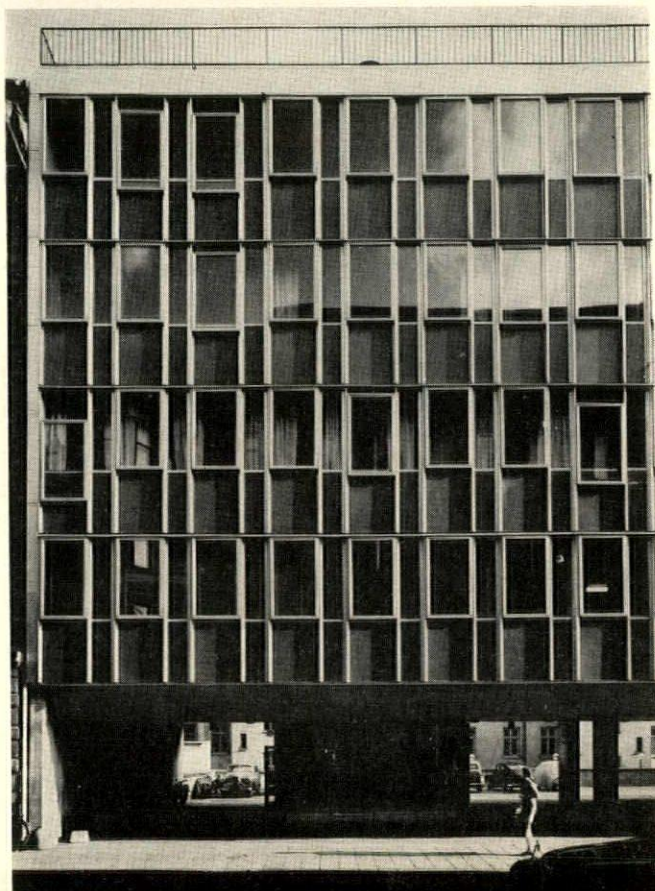
The Trade Union Center in Stockholm, a large complex that is being built in several stages, will eventually create several courtyards. The entrance under the building shown leads to a small courtyard that is used for parking.



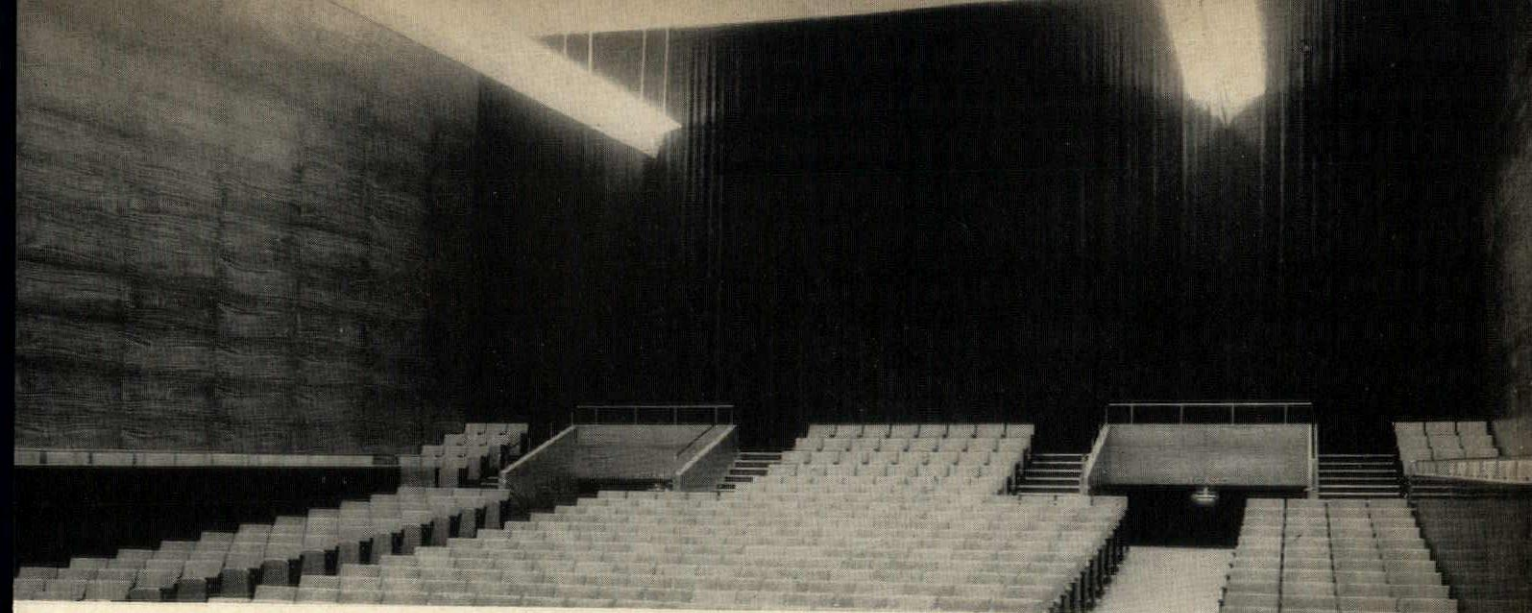
A portion of the Trades Union Headquarters at Lynköping of 1954



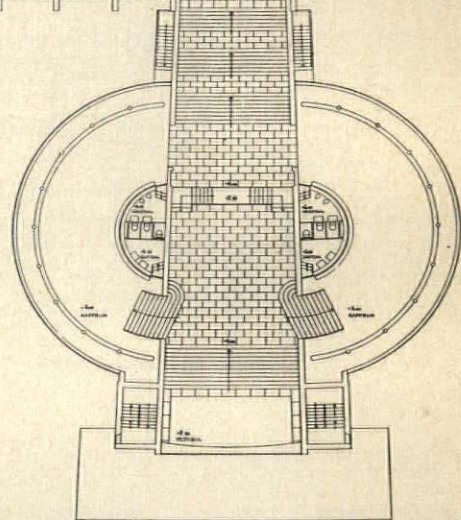
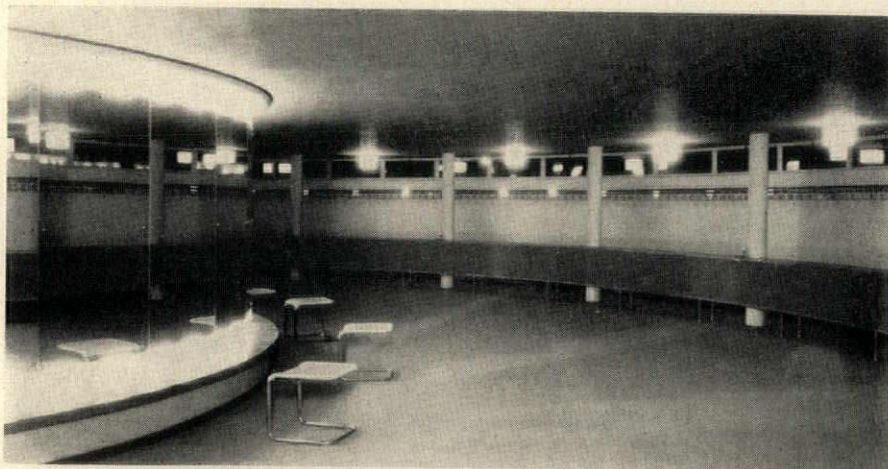
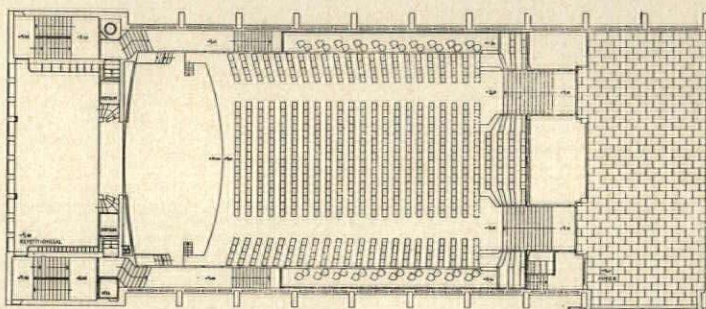
Offices of the Swedish Forest Industries in Stockholm, 1956



A unit of the Trades Union Headquarters, Stockholm, completed 1960



Above: The interior of the Concert Hall at Hälsingborg completed in 1932. Markelius's first major building, he won the competition for it in 1925. *Below:* One of the two coat rooms that appear in the lower portion of the plan at right



FORM DEFINED BY USE

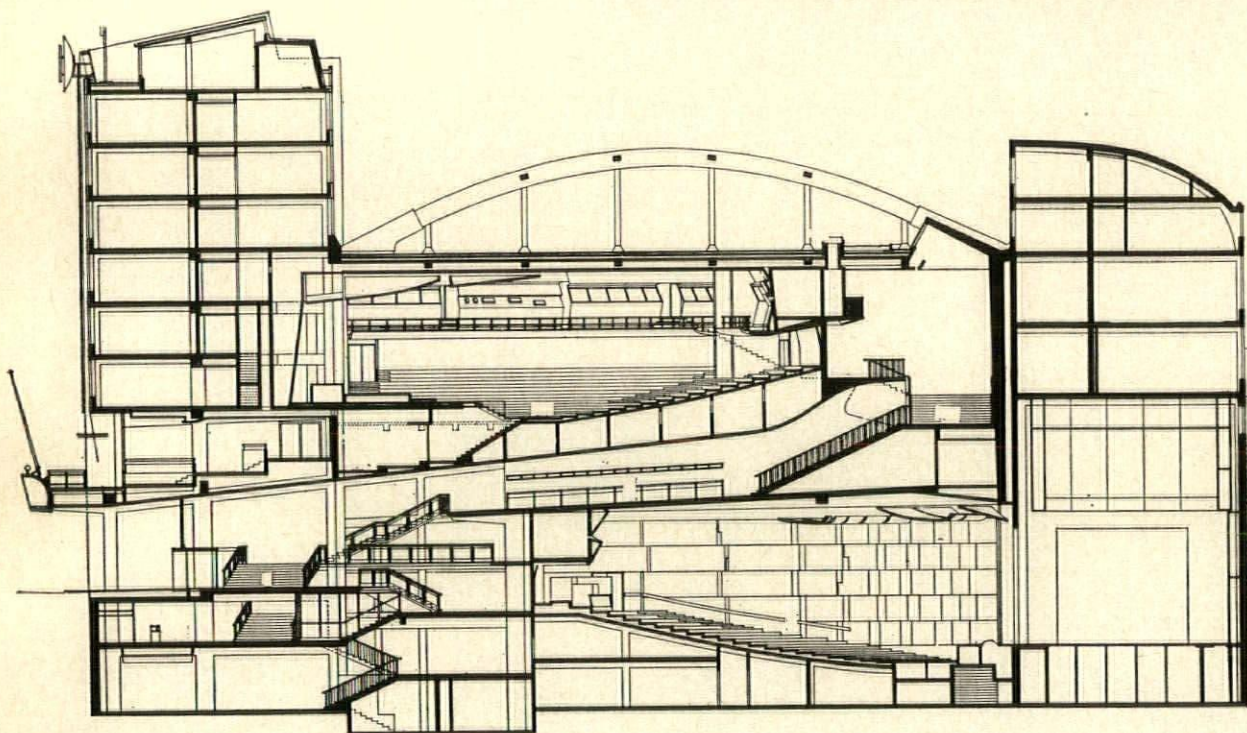
Concert Hall at Hälsingborg completed in 1932 is one of the earliest of such buildings to take its form directly from its use. There is no reference to classical tradition, not even those elements of it that had been present in the design with which Markelius won the competition for this building in 1925. The design of the auditorium was based upon practical considerations and the outer lobbies emphasize the sequence in which the arriving concert-goer hangs his ticket and hangs up his coat, as well as the traditional social promenade. A study of the design of the Stockholm Trades Union Center will show further developments of the same approach in

the design of the conference auditorium and the theater. The project for the Stockholm City Theater uses movable seating in banks to convert from arena to proscenium staging, with numerous variations in between. Markelius says of theater design: "New theaters very often are built even in these days according to antiquated ideals, sometimes superficially disguised in the costume of 'modern style.' But the individual of the audience in a democratic time—sharing the possibilities of television and radio—is not happy to pay for a seat in which he is not comfortable and from which he cannot see and hear well."

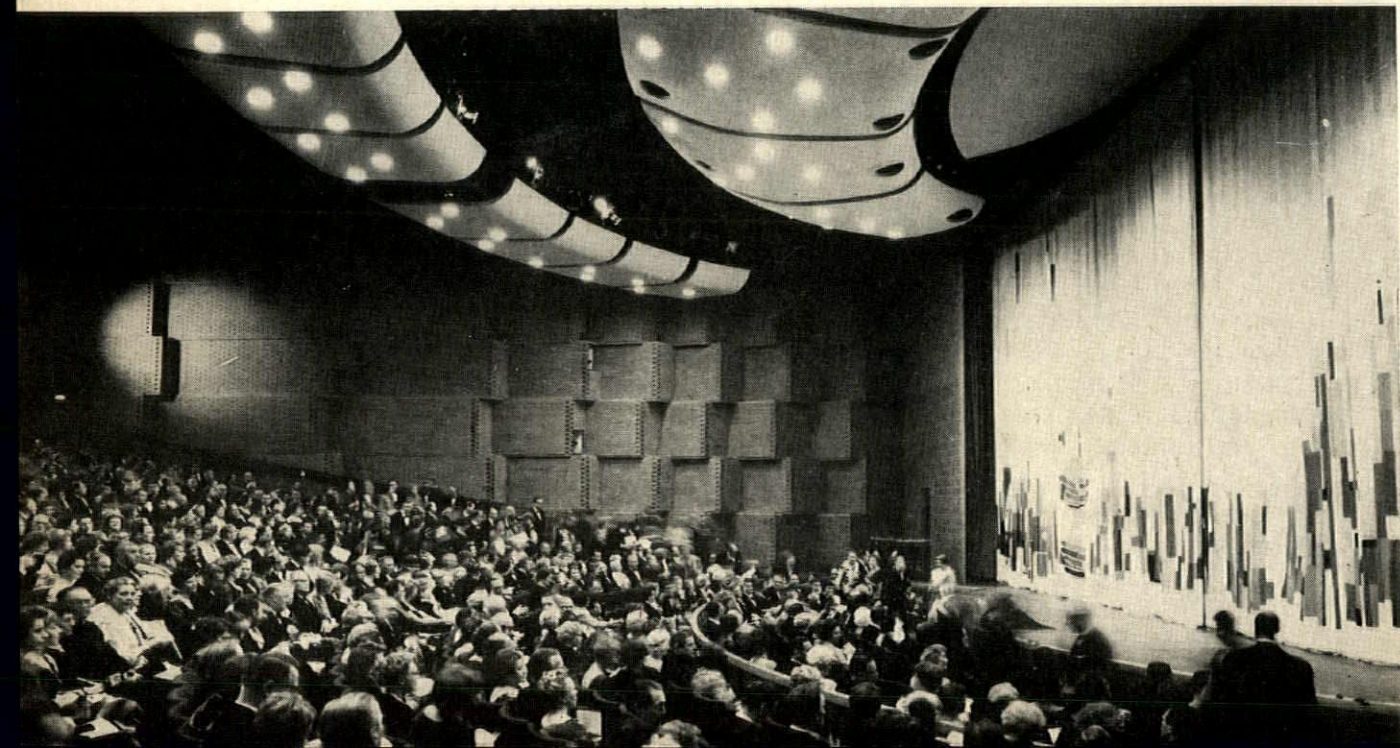
Section through a portion of the Trades Union Center at Stockholm. The conference hall is shown in the photograph at right and the theater in the photograph at bottom. Compare sequence of public spaces to that of concert hall on previous page

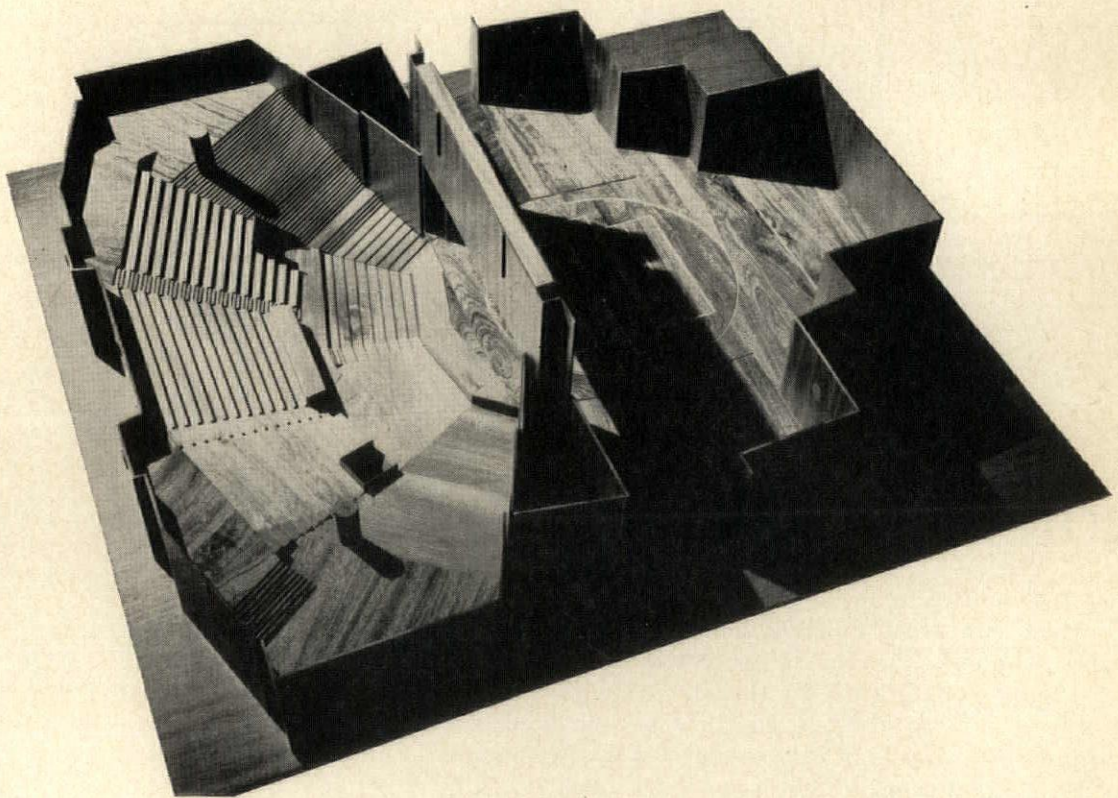
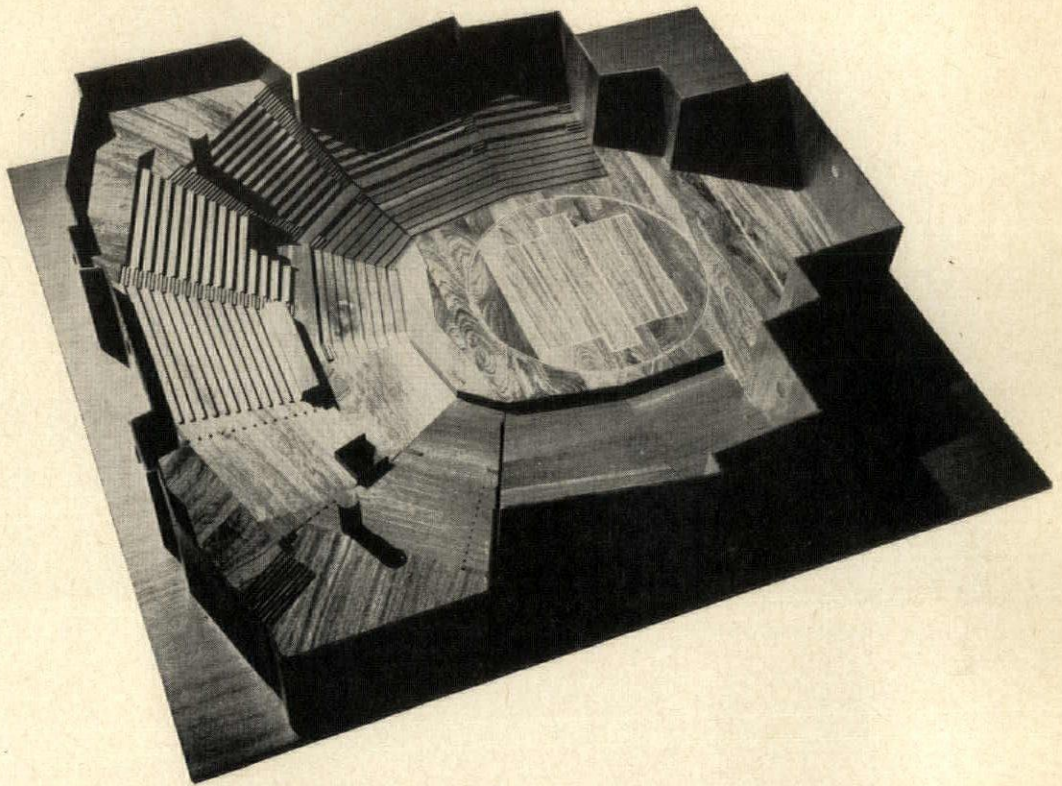


Lars Lennart Forsberg



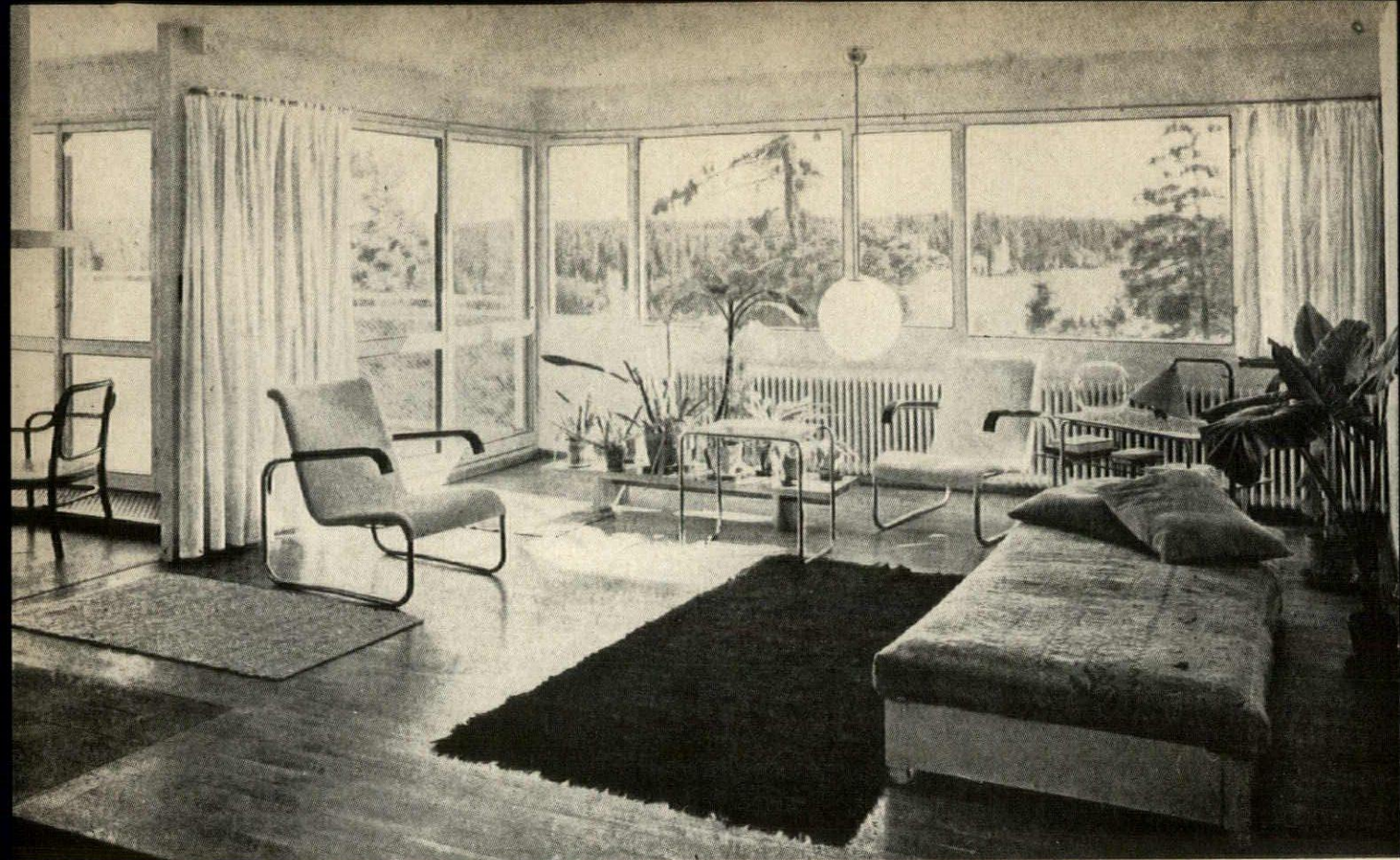
Vecko-Journalen



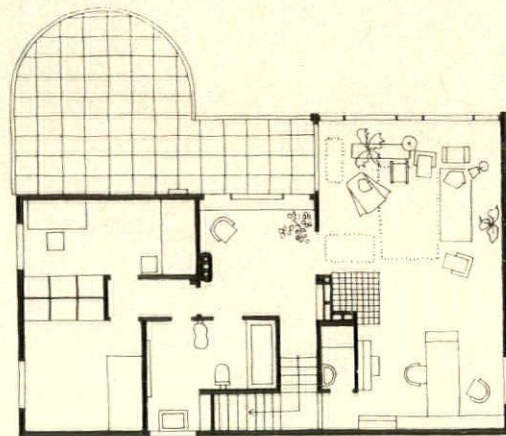
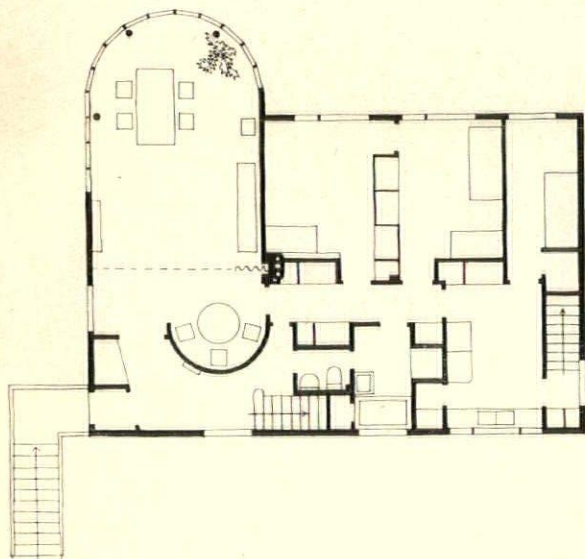


Sundahl photos

Studies for the Stockholm City Theater. The auditorium is designed to convert from arena to proscenium staging, with numerous variations in between



Markelius had already established his approach to the individual housing units in his own house of 1929

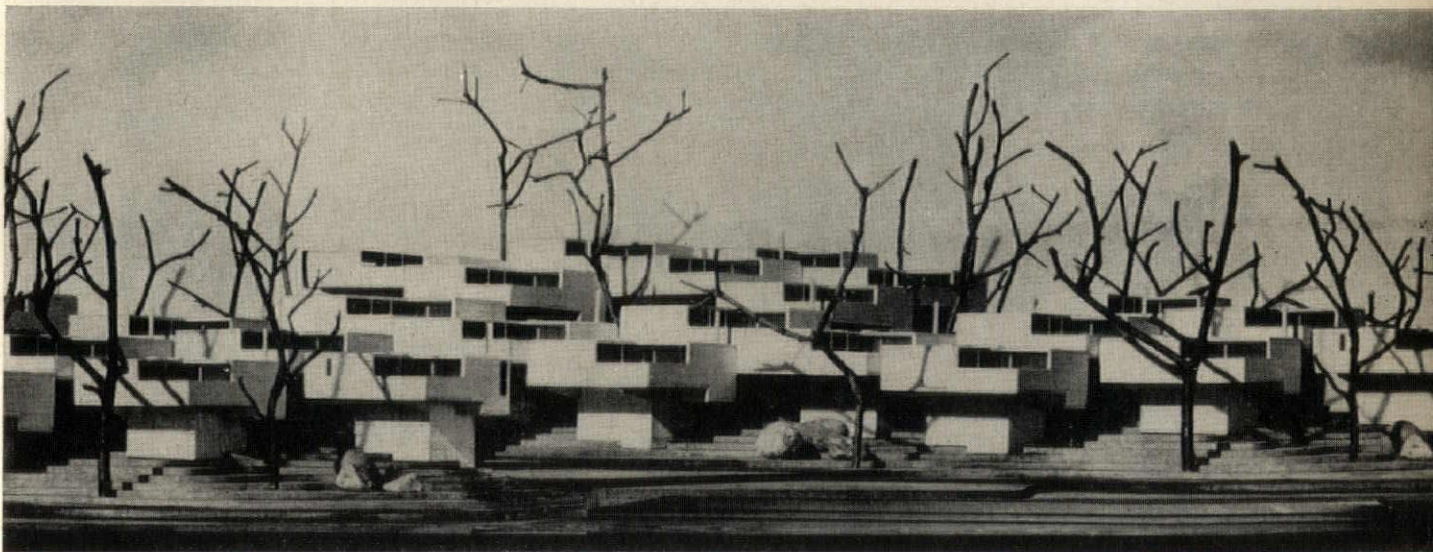
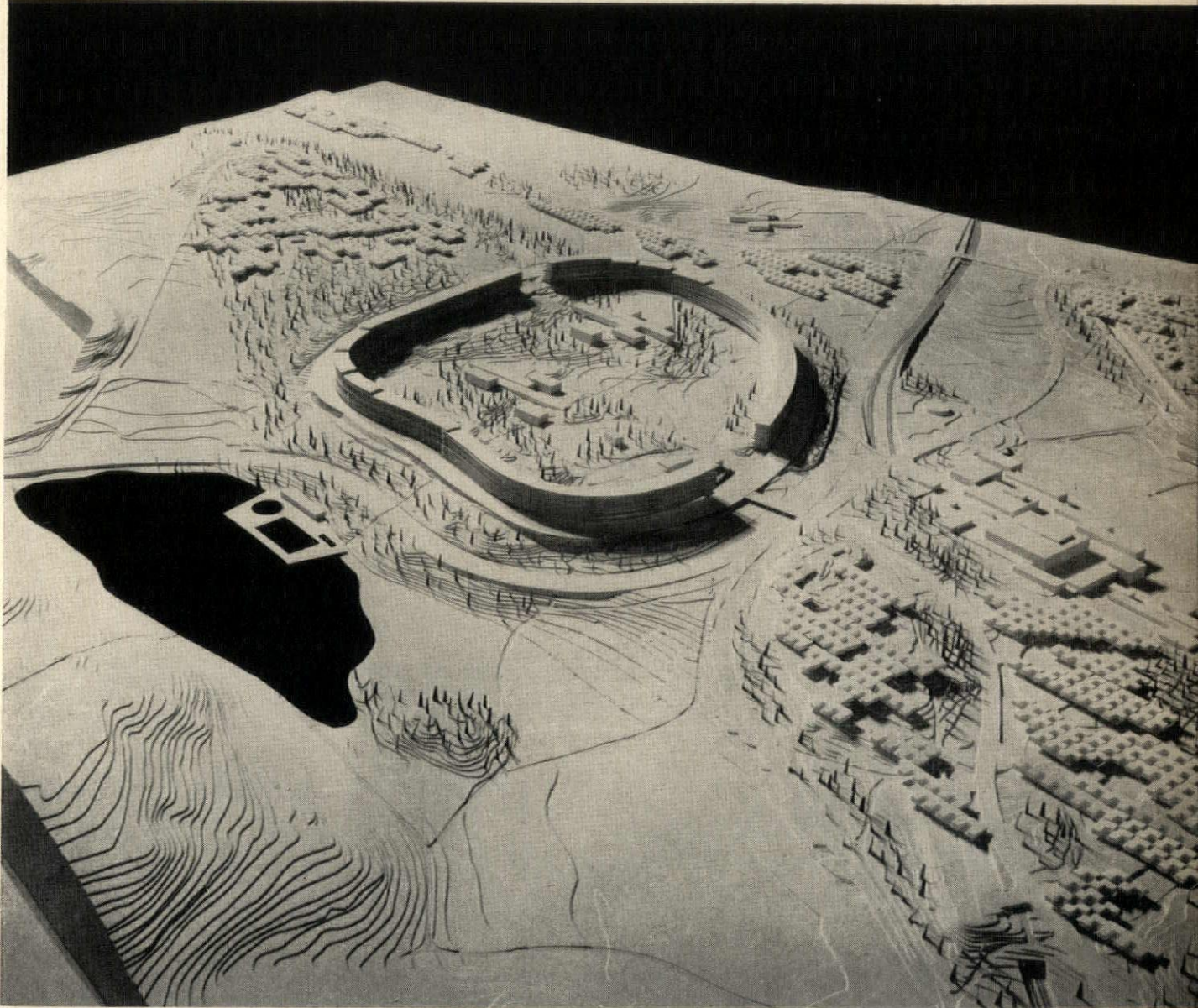


HOUSING AS A SOCIAL PROBLEM

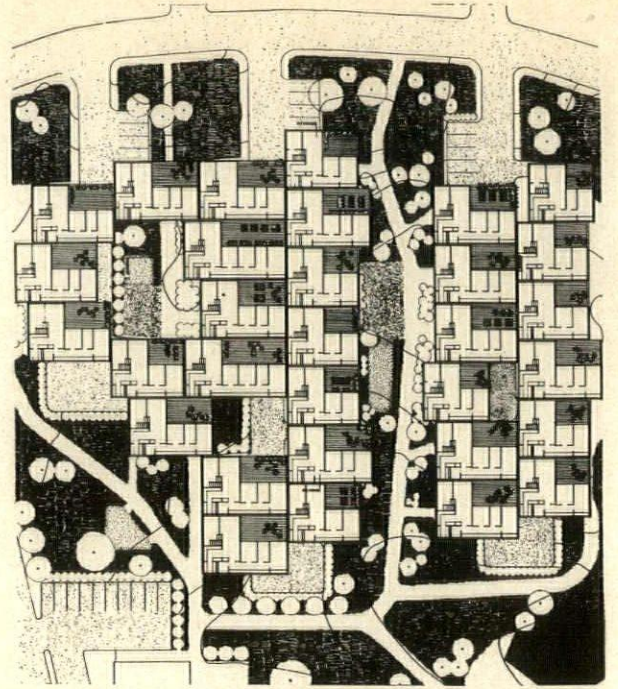
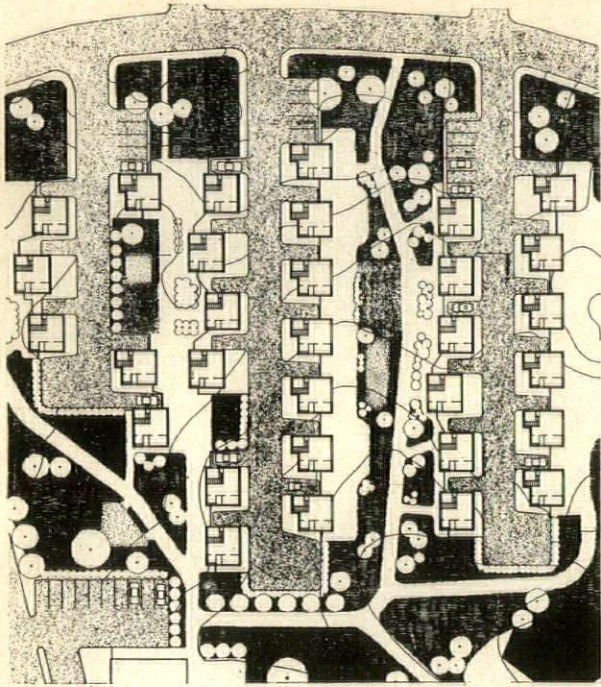
Housing is the field in which Markelius feels the architect can most directly make his voice felt on social problems. His latest project is a development for 12,000 inhabitants in the Ör area of Sundbyberg, one of Stockholm's satellite towns. The central portion consists of six- to eight-story apartment blocks surrounding a large open park area containing playgrounds, schools and kindergartens. What distinguishes this project from others of its kind, however, is that half the population will be housed in

single-family dwellings located on either side of central area. These single family houses provide accommodation not dissimilar to Markelius's house of 1929, but they are interlocked in an ingenious manner and built out over the connecting stairs and walkways to achieve a density far higher than conventional row housing. This design marks a step towards the hitherto elusive goal of providing large numbers of private houses in high density developments.

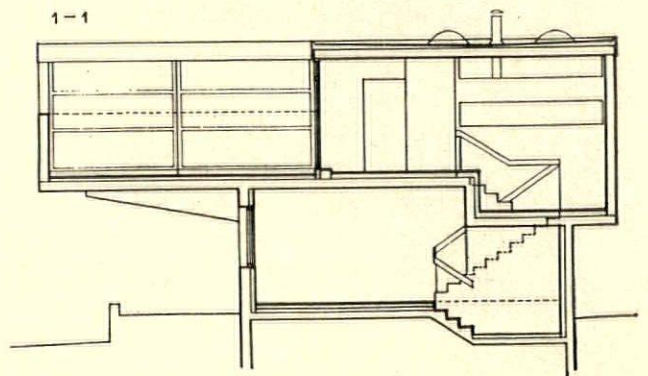
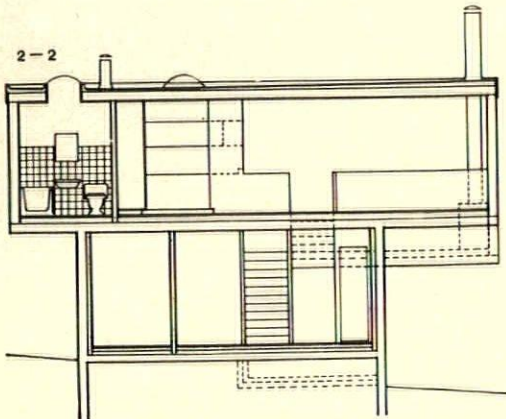
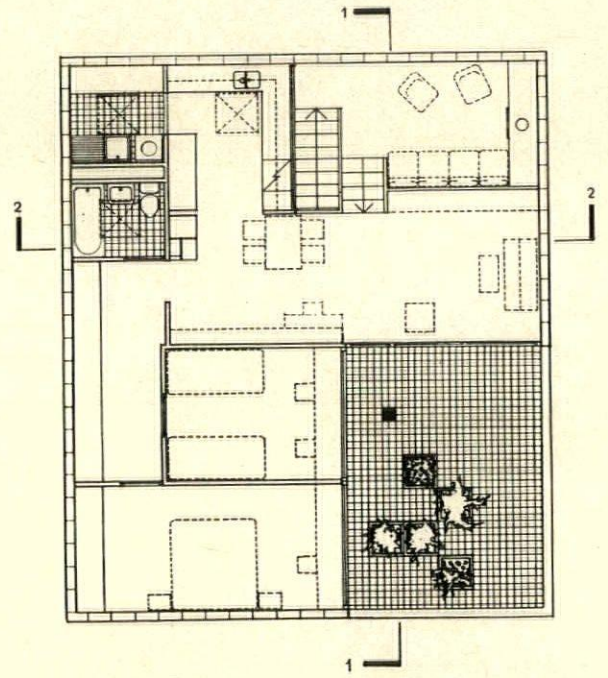
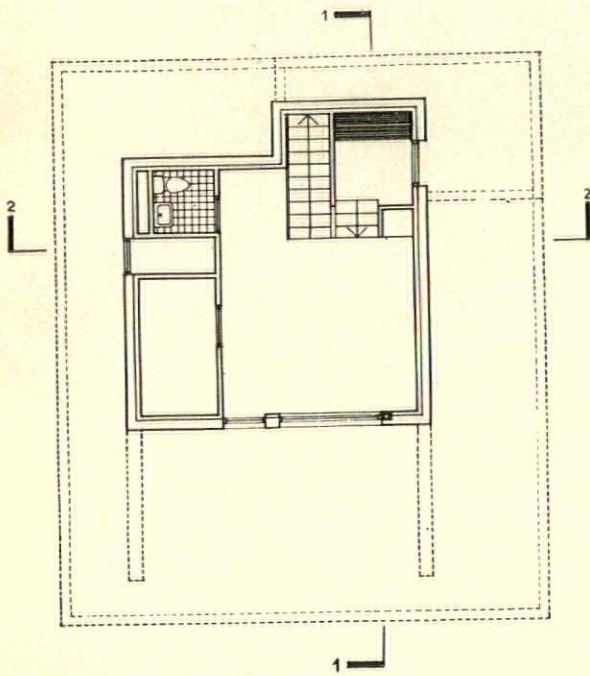
Sundahl photos



Single-family units for mass housing. Half of the new town in the Ör area of Sundbyberg (model photo at top of page) will be composed of single-family units like these



Left: Single-family units at ground level showing separation of automobile and pedestrian traffic. Right: Plan at second floor. Below: Plans and sections of two-bedroom unit





Balthazar

HIGH-RISE AND LOW-RISE GROUPING FOR MICHIGAN CAMPUS

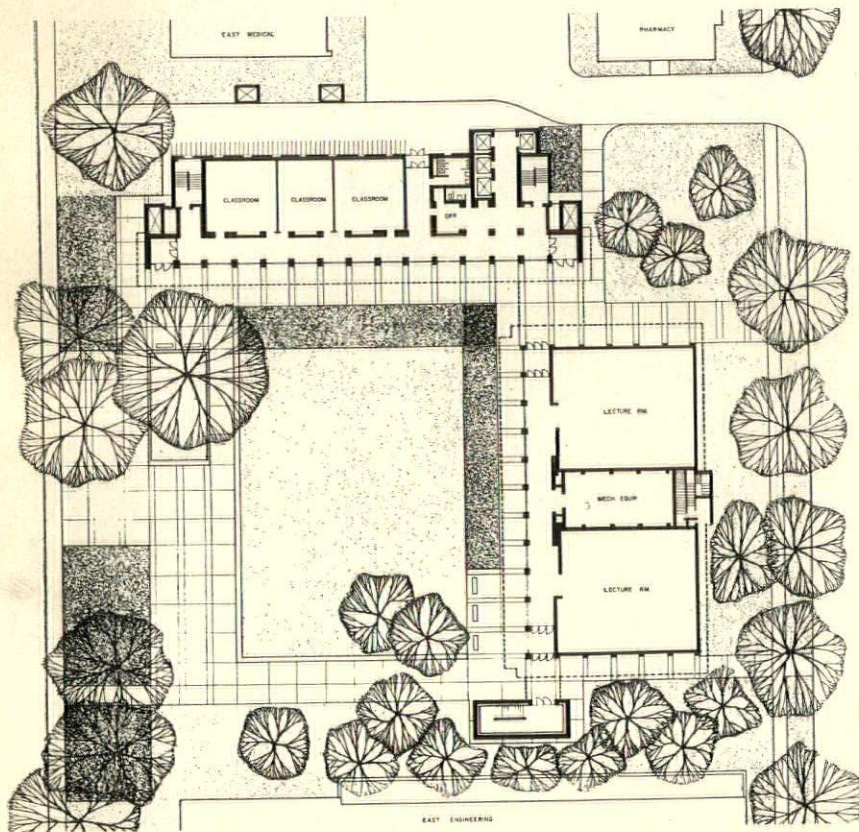
This arrangement of two buildings—one high, the other low and spreading—offers a neat solution to the common problem of adding density to a campus without giving it an overcrowded look. These two buildings, that comprise the new physics and astronomy center at the University of Michigan, are disposed at right angles to each other, and placed so they form the two joining sides of an open quadrangle. Such a plan gives emphasis and definition to the open space, which is oriented to the central campus. The bold, continuous precast band at second floor level and the stepping back of the wall under this band serve to create a strong horizontality that ties both buildings together and gives the entire complex fine scale. A glass-enclosed bridge at second floor level connects the two buildings at the level of maximum intramural traffic.

Traffic volume appears almost as a graded tone, with the minimum at the top and maximum at the ground. Astronomy occupies the top three floors in the high-rise classroom, office-lab unit; physics the lower seven. Two large lecture rooms with shared library above are housed in the low building.

*Physics and Astronomy Building
University of Michigan
Ann Arbor, Michigan*

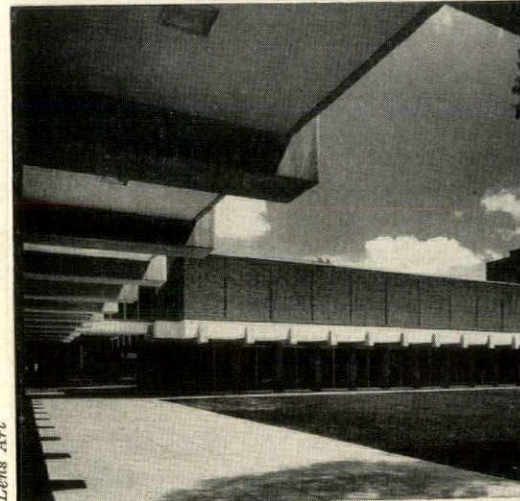
ARCHITECTS AND ENGINEERS:
Albert Kahn Associated Architects and Engineers

GENERAL CONTRACTOR:
A. Z. Shima & Sons Company

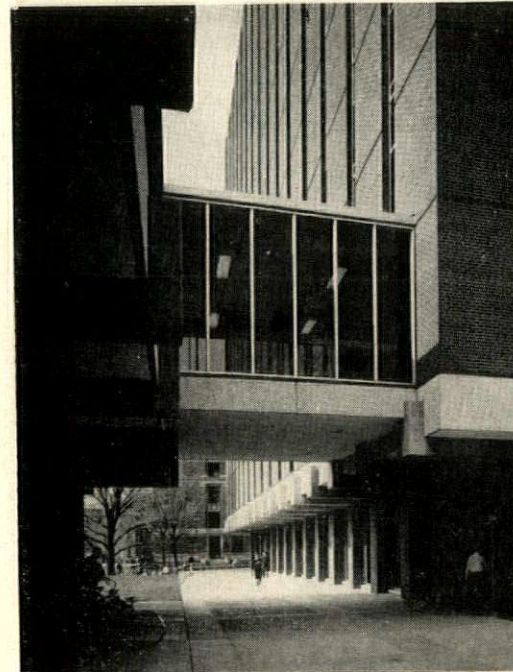


The plan shows how the two units are juxtaposed to form two sides of a courtyard. Spaces were planned so the heaviest traffic occurs at ground level and on the lower floors above. To this end, the large classrooms and elementary labs occupy the lower three floors of the high-rise unit. The largest classrooms are located at ground level, the added required depth obtained by off-setting the corridor from the floors above, creating at the same time a protective overhang for exterior circulation. A similar overhang occurs along the corridor and ends of the low-rise lecture room element to permit protected exterior circulation across the plot in both directions.

The 3-foot-wide fenestration of the high-rise unit is centered in each 11-foot 4-inch structural bay, and consists of gray glass lights with black glass spandrels completing the verticals

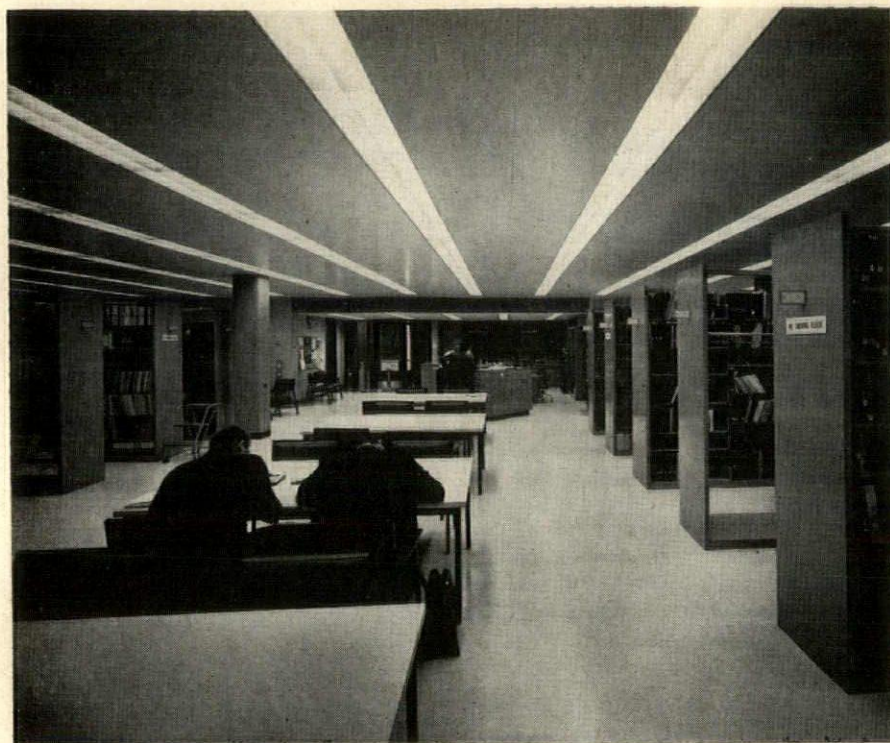


Lens Art





Balthazar photos



Lens Art photos



The principal areas of the 81- by 127-foot, two-story low-rise building are shown on this page: the joint departmental library for physics and astronomy and one of the two similar amphitheater-type lecture halls, seating 250.

Materials and finishes for the two air-conditioned buildings: exterior walls of face brick to match existing buildings nearby; precast quartz aggregate panels at second floor level; interior walls of painted plaster; partitions of lightweight block; concrete floors covered with vinyl asbestos tile or sheet rubber; ceilings of acoustical plaster or metal pans; fixed sash of aluminum

ARCHITECTURE AS TOTAL COMMUNITY: THE CHALLENGE AHEAD

A series of seven articles examining the contemporary crisis in human environment and presenting strong, frequently controversial, convictions on planned development as guiding principles for community order with diversity, beauty and humanity

By ALBERT MAYER

in consultation with CLARENCE STEIN

PUBLIC HOUSING AS COMMUNITY

ic housing, and particularly the principles and ating elements underlying it, are the key and of any satisfactory urban and regional develop- program. They are *not* just an unpleasant hang- or residual present necessity incidental to per- ng relocation of those displaced by new high- , public works and urban renewal.

r unorthodox thesis is that the country's solemn ative commitment to achieve proper housing *communities* for all Americans cannot be car- out without the ingredient of a greatly expand- nd much broader subsidized housing program, nly to provide better housing for citizens of very ncome and low middle income, but to open the to proper community development in terms of ntire neighborhood spectrum.

e tortured history of public housing, its strait- ted, unadventurous, non-evolving character, its de-imposed and accepted penury of spiritual ok, its involuntary isolation: these might at hought make the proposal of such an enhanced eem absurd. But consider the factors in great accounting for the past and present state of e housing.

l quite lately it has been the prisoner of its nal opponents and detractors, its character to nbelievable extent determined by them. They gged to attach a stigma to the program and to gandize public housing into a position apart the main stream of things. Both of these cir- tances have had a traumatizing influence on e housing and have greatly affected its livabil- nd its architecture. These influences have not,

until lately, been thrown off to any serious extent.

Housing officials, Federal and local, have always been excessively on the defensive. They sought to escape attack by being undeniably "virtuous": penurious, inoffensive, practicing stark economies, squeezing down space, minimizing community facilities, squeezing down architects' fees. There was great competition to achieve this kind of virtue. It was a source of pride to the housing authority that discovered closet doors could be eliminated! The generally depressing results aroused no enthusiasm anywhere among the general public—and in fact alienated support. One may add that the specific legislative handicaps such as prohibition against commercial facilities in housing developments, and the requirement that families had to move out whose incomes had increased beyond rather narrow limits, had sharply deteriorating social effects.

Symbol of a Shabby Past

Public housing has been the butt of critiques whose targets are really the assorted ills and shortcomings of our urban society and policy, which the circumscribed public housing effort alone couldn't begin to overcome. But as a major visual landmark, it became the easy symbol.

It has been associated, for example, with locational, economic, and color ghettos which are the imposed result of white middle-class unwillingness to permit diffusion-integration, i.e., insistence on retaining its own exclusive general white preserves.



Ed Bagwell



The actuality of public housing, its often, or even pretty general, ugly and unimaginative character, its inert physical identifiability and label, its unresolved spiritual and social difficulties, were actual evidence and justification for criticism. And it is also true for years Public Housing Administration policy in design, in program, in administration and in management was wooden, unimaginative, excessively rigid and barnacled.

For example again: it has been identified with more extreme juvenile delinquency and vandalism, mainly because physically more identifiable. We know that this is not statistically verified¹, we now know that delinquency and vandalism are widespread even unto high economic and social levels, a society-wide social-economic-educational problem particularly characteristic of our own time. Dramatically epitomizing this observation is the recent headline in the Christian Science Monitor: "Affluent Hoodlums Test Rye, N.Y."—Rye being a wealthy and highly exclusive suburb in Westchester, New York's upper-class suburban area. The first sentence of the Monitor article reads: "Privileged children of upper-income homes, who amuse themselves with petty thefts, vandalism and party-crashing, are the object of a city-wide clean-up drive." Similar experiences in upper-middle-class suburbia are noted in newspapers all over the country.²

Combined with these elements, we have a strong reaction from the excessive original youthful hopes and expectations of the friends and proponents of public housing, a number of whom have been excessively disappointed. We all naively thought that if we could eliminate the very bad physical dwellings and surroundings of the slums, the new physical and sanitized conditions would almost *per se* cure the social ills. We know better now, and we will in a moment see what public housing, lately stung and roused by the findings, has in the last few years be-

gun to do about it creatively.

There is no intention here to whitewash the largely shabby performance of public housing; we indeed have to face it and remedy it. The actuality of public housing, its often, or even pretty general, ugly and unimaginative character, its inert physical identifiability and label, its unresolved spiritual-social difficulties, were actual evidence and justification for criticism. And it is also true for years Public Housing Administration policy in design, in program, in administration and in management was wooden, unimaginative, excessively rigid and barnacled.

But these criticisms deal with the past actuality and its stereotypes, still in considerable measure justified, it is true. And meantime, under hard and harsh ground, and particularly in the few years, we have a number of new growths in attitudes, visible new progress, not adequately practiced but with the power of the idea whose time has come or is coming. Finally, PHA Commissioner McGuire's buoyant determination is giving to the beginnings a sustained lift and drive.

Hope for a Human Future

For example: public housing as *renewal*, as a community and civic asset, not just shelter; as a focus and focus, as neighborhood enhancement. On



ustration is Miami, where on sites within an all city area of over a square mile, the Miami Housing Authority programed 900 units of low cost housing—three 200-unit developments whose community spaces working with adjacent schools significantly to the usability of these facilities, the remaining units in scattered vacant areas, in groups as small sometimes as only a couple of units, thus removing the moth-eaten, litter-spotted character of the general area, and encouraging aesthetic improvement. The result will be both a visual and social impact and an upgrading of a substantial part of town, a notable and suitable piece of urban renewal as well as of needed housing.

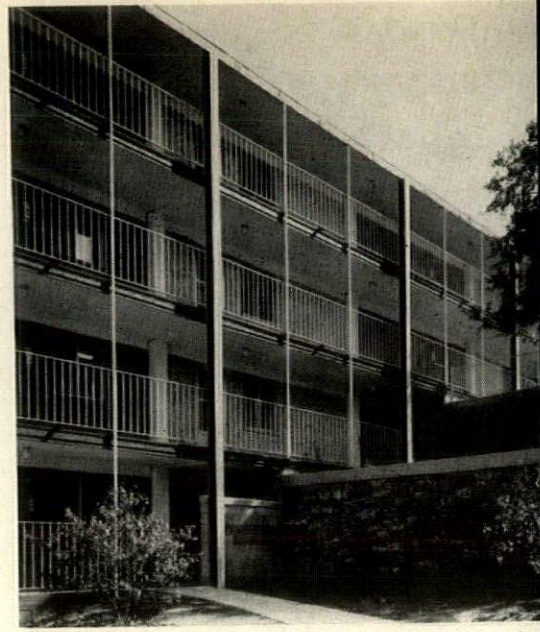
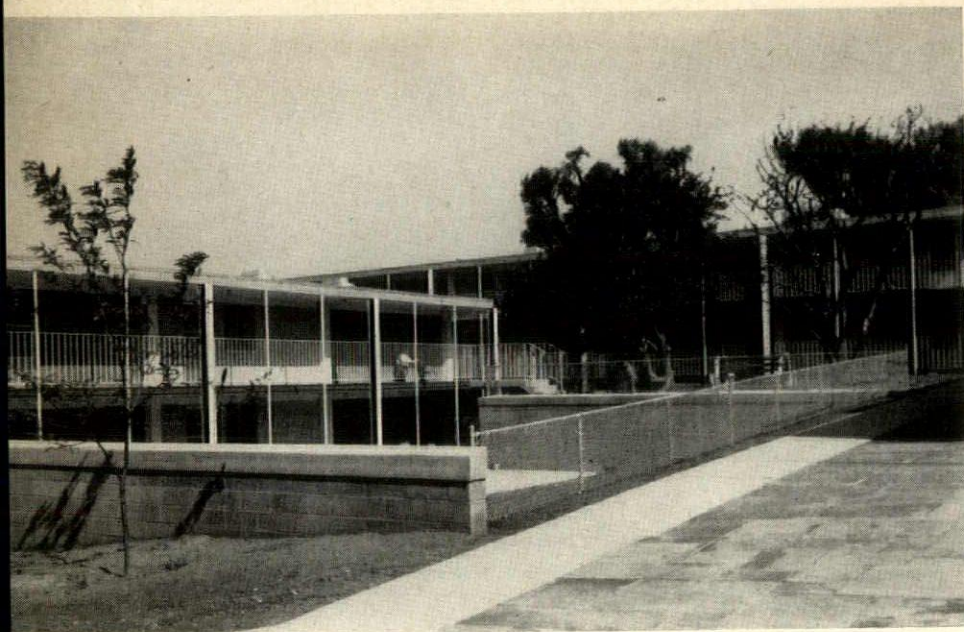
Another new kind of approach in a number of cities, notably Cleveland, where it started some five years ago: the community-recreational facility designed and built by the housing authority for its elderly is sized for and actively used by the elderly generally, regardless of income, from a large area quite beyond the development. In small cities, it is often the only such available resource, and it is the skill and experience available to the housing authority that have initiated and carried it through.³ Another type of example of out-reach into the community beyond: in New York's Jefferson Gardens, there is the East Harlem Plaza, a multi-purpose outdoor asset, a fiesta design and atmosphere, used by those in the development itself for family and group recreation, but also reaching out

into the whole East Harlem sub-city with its concerts, festivals, art shows by local part-time artists. Membership on its managing committee of 25 comes from all over the area; in its third year of operation, it has 700 patrons from the area who pay one dollar a year to qualify. Audiences vary from just parents and teachers at a local school show, to hundreds and

¹ For example, a recent study by the Family Court in Chicago shows significantly lower actual crime rate in public housing than in adjacent areas. For another example, I have recently seen figures on the notoriously publicized Pruitt-Igoe-Vaughn public housing complex in St. Louis. Police department figures on index crimes for the period 1959 to mid-1963 show considerably lower incidence per 100,000 there than for the city as a whole, and far less than half that for the Fourth District in which it is located. And significantly, the rate in Pruitt-Igoe-Vaughn has in this period gone down by over 50 per cent while the other two rates are practically stationary

² Less spectacularly—or is it more spectacularly?—in San José, California, the high school has been suffering broken windows and other damages of vandalism. The malefactors are the children of well-paid industrial workers in the \$7,000-\$8,000 bracket who own their own homes in local subdivisions

³ I was fascinated by reading the Public Housing Administration's "Senior Citizens Centers—Coordinating Community Interest" (published in April 1963), a guide winding step by step through the problem of arousing interest, conducting surveys, the formation of citizens' committee, augmenting funds by finding private contributions and other city funds; later, organization of the operating committees of the elderly themselves. A real contribution, simple and direct, omitting nothing, to effective citizen action and physical-social result. It is based on, among others, a successful consummation of the process in Temple, a small town in Texas



Leonard Ross photos

Architectural response to new spirit is already visible in such public housing developments as Hugh Moore's project in Easton, Pennsylvania (*above*) and (*across-page*) the project in Marin City, California, by Aaron Green and John Carl Warnecke

even sometimes thousands for abbreviated opera.

Pushed and self-pushed into it in the last years, some public housing bodies have become engaged in genuine social analysis, in path-finding, in imaginative programs, and, finally, achievement, in terms of social action. A few specific cases, from cities of various sizes, will illustrate the trend.

Role of Leadership

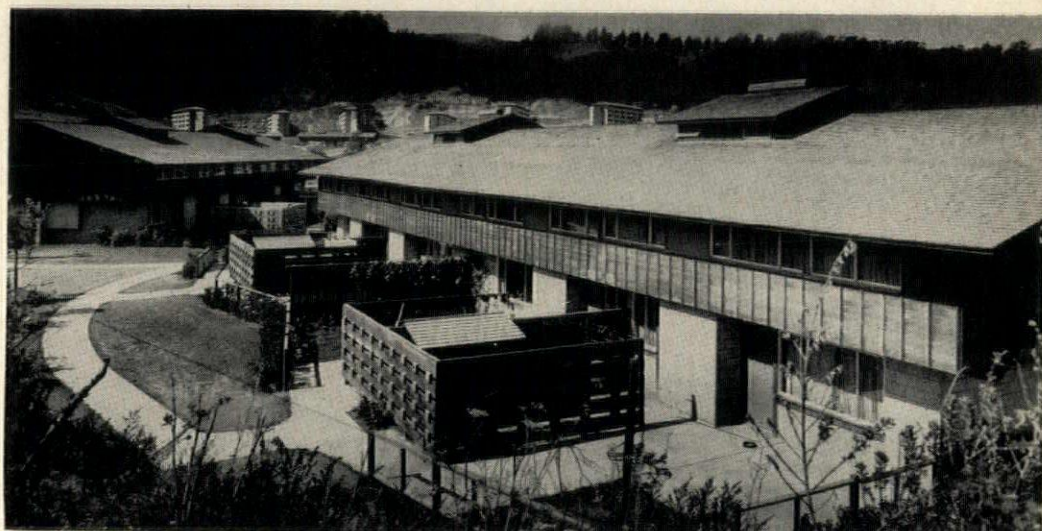
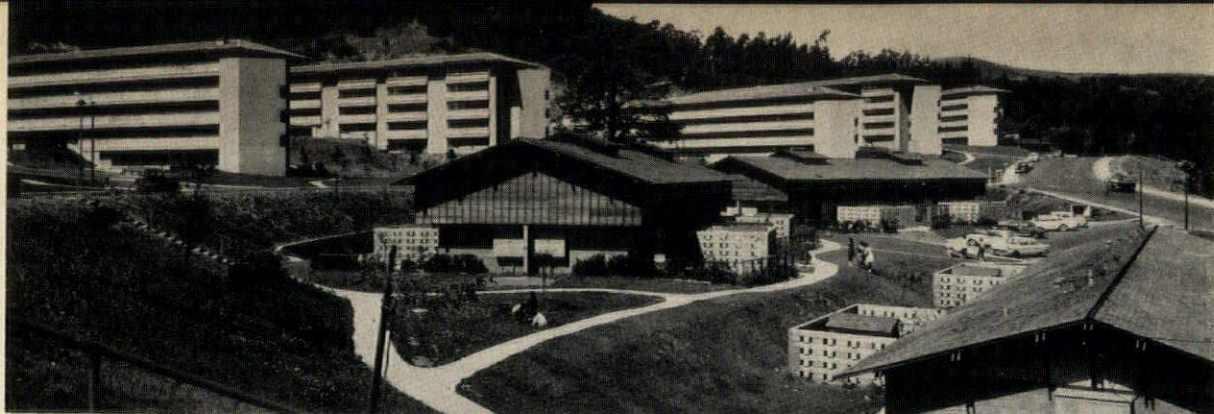
The Chicago Housing Authority has sought out and has systematically encouraged leadership—in its larger projects, please note, as well as the smaller. In its Rockwell development, as an example, there are nine building presidents, forming a council. Floor members are elected in each building group. Apartments have been leased to the council presidents, operating as newspaper office, teen lounges, meeting rooms, etc. Under the presidents, tenant committees control laundry room use, playground supervision, gallery and elevator use, in some cases with rotating monitorships. They are independent, and in Rockwell specifically, the organization has survived three changes of manager and changes in staff of other agencies. Thus, an urban grass-roots burgeoning of active democracy and responsibility.

In Knoxville, the local authority's low-rent Western Heights was a cop's headache until about two

years ago. Captain Huskisson, head of the city's crime prevention bureau, is quoted: "Almost nightly we get a call on broken windows, smashed street light, garbage cans set afire. But we haven't had a call like that there in over 18 months, maybe two years." A series of tenant and parents' mass meetings produced a Scout troop and a junior police department. A group of selected junior policemen were issued identification cards and honored by being encouraged to "go out in" with the Knoxville Police.* It is, of course, conceivable that such activities may become paternalistic. In my limited observation there was this tendency at the start, but there is now generally independence.

Another fairly recent avenue of social experimentation and social effort by local housing authorities has been the emphasis on competitive achievement and the incentive to pride in creation and in maintenance and in its maintenance: at its least as an antidote to vandalism, at its best as enhancing the character of environment, and as human growth.

One set of efforts in particular is typical, a dramatic epitome and a reversal of cliché. It has for decades been a rule and almost an axiom that in public housing landscaping, flowering shrubs, blossoming trees are "out of place" and inevitably plucked or destroyed. Yet, sparking the experience of the Chicago Housing Authority is precisely here that the assumptions have turned upside down. Even previously, there



low-rental developments—of which I have photo-
 where flowers were almost as prevalent and
 equous as in the middle-class suburbs. But the
 ly competitive stage flourishes—of all places
 he big cities of Chicago and latterly New
 and others, where prizes are offered and wide-
 peted for in two classes: in public areas by
 ized public or project effort, and by innumer-
 enants in their own small front and back
 AND very often, no protective fences! Public
 n and determination are the social equivalent
 ces.

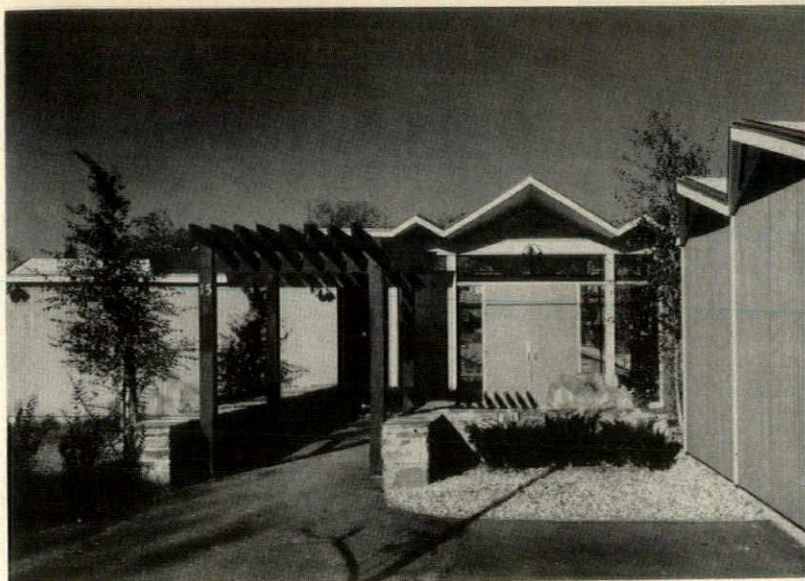
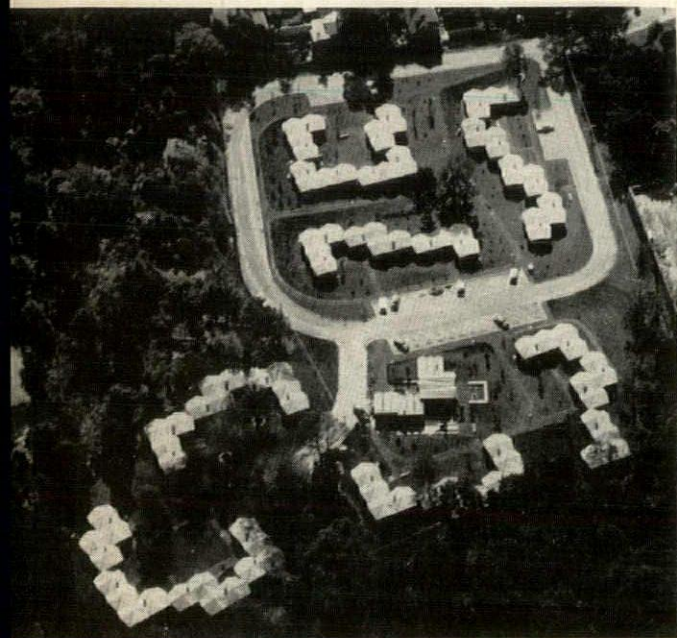
"juvenation" as a Tool

ng much further, in this contagious and
 idespread flower movement, this facet of en-
 nent and vitalization of physical environment,
 ovement just beyond its beginning which we
 lling *juvenation*. Two things are becoming
 recognized. Visual appearance and space cre-
 ave an important positive psychological and
 effect in pride and identification, which the
 est clean-up, paint-up campaigns can't attain
 at the same time their plus results are not
 atic, and may be quite ephemeral or negligible
 -defeating, and may fortify cynicism, unless
 re preceded by, and synchronized with, social
 t and participation. This is just what is now

beginning to take place. The East Harlem Plaza proj-
 ect previously noted, and several others in New
 York, Washington and elsewhere illustrate this
 fresh dynamic combination of architectural quality
 and social eagerness.

*We may even generalize on this kind of undertaking and experience. Thomas E. Harris, executive director of the Hunter Point Boys' Club in San Francisco, has noted that 150 boys' clubs have been set up within or near public housing projects, in many cases in physical quarters made available by housing authorities. He mentions specifically that housing authorities in Seattle, Portland and Los Angeles have helped to set them up. Ray W. Sweazy, director of the Urban Relationships Service of the National Council of Boy Scouts, delivered a paper in October 1963 before the National Social Welfare Assembly, in which he noted the initiative of Miss Marion Neprud of the Public Housing Administration, starting in early 1962, which has flowered into close cooperation between Housing Authorities and Boy Scouts. This has since produced 200 scouting units in Chicago Housing Projects, over 50 in Dallas, etc., etc. In many instances, he says, boys who live in the developments participate in Scout units and other activities outside of the housing complex itself.

. . . In a recent issue of the Scout Executive, the experience is cited of Nickerson Gardens, a development of 1,800 families in Los Angeles. There, the sponsorship of scouting rests with a central committee—a tenant organization which coordinates all youth activities, such as Girl Scouts, Boy Scouts, Little League. Sixty adults are involved as unit committeemen, unit leaders, den mothers. In another issue of Scouting Magazine, I found a detailed case history of the growth of leadership in operation of the Quinnipiac Council's Troop 105 in New Haven's Public Housing, in an ethnically integrated troop. . . Thus, and summarizing, the initially tough conditions in the center of the urban problem, have produced a massive reaction of the most positive social character, on a scale and of a quality that can only be considered a major contribution to urban social technique and potential



Public housing project for the elderly on a 7.8-acre site in Gre
Connecticut, groups single cottages in a campus plan with varied
dividual courts for both private sitting and neighborhood meeting.
tect: Emanuel Turano

Self-Criticism as a Spur

Public housing certainly has very far to go still, to accomplish what it must accomplish in urban society. The point is that it *is* self-critical, that it is no longer static but has in recent years taken important new strides *and is evolving*. Anything in these descriptions that implied complacency or painted any over-optimistic picture would be both a misunderstanding and an extreme disservice. In fact, one must call sharp attention to the disturbing fact that the bad image of public housing is prevalent not only among the real estate people and the middle-class public but among those for whom it is meant. A study by Chester Hartman in the West End of Boston reports that only 17 per cent of the slum inhabitants in the nation who had to be relocated moved into public housing. In the specific area studied, 74 per cent of the sample said they would not want to move into public housing.*

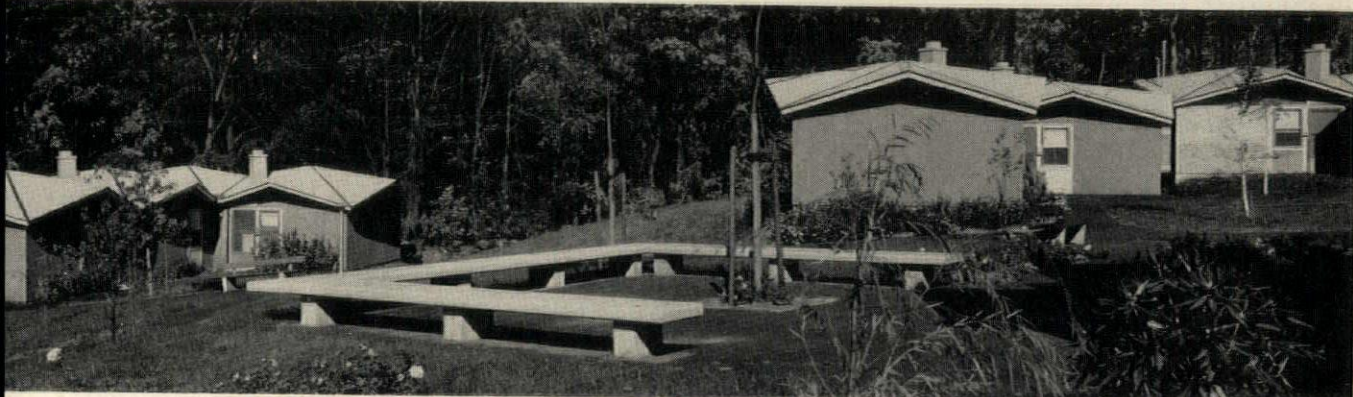
We are just beyond the beginning of sensitive creative policy and operation. But that we are definitely and encouragingly beyond, I have no doubt. Even in architectural appearance, I have been surprised, in visits around the country within the last year, by how many pleasant developments there are, and to find indeed that there are some brilliant ones. Certainly the great bulk are still grim, dull, drab, discouraging (though not the great bulk of recent ones). But this low state is generally true of our

middle-class housing and of our luxury housing. My impression is that there are proportionately fine low-rental developments, and finer ones, than on the other levels.

In Easton, Pennsylvania, Hugh Moore has done a little-known, jeweled and sensitive project on a difficult terrain; Aaron Green's magnificent Marin City is better known. Emanuel Turano has done a delightful one for the aged in Greektown. Meathe and Kessler's single homes and row houses in Mt. Clemens, Michigan, like the others mentioned, are by far the best work in the city. Tom Amisano and Wells have done a large-scale development on challenging topography which is the most complex of domestic architecture in Atlanta. The model I saw of Warshauer and Feldman's development, now getting under way at Mt. Kisco, is a deliberately casual idiom of grouping, a refreshing note in low-rental housing and in group housing together.

All these are fairly recent, certainly the best since the earliest PWA days over 25 years ago, and they deal more venturesome. Looking at these I am glad that no one, casual visitor or discerning critic, would react with "Public Housing!"—nor would fail to recognize a special synthesis as among architect, client-authority, in-dweller and site.

All of this progress in social and architectural terms encourages me. It has all been recent part of a new ferment, a new outlook and



Marc Neuhof photos

and has been accomplished in an uncongenial, severely limiting framework and against a background of generally denigrating public opinion, including recently my own. What I have seen and learned in the last year has definitely reconverted the view that there is new accomplishment and realistic promise.

of a New Approach

er further the tremendous factor, beginning felt and put to use, of the modification and ending of negative pressures and rules on low-cost housing:

asing of the income-rent ratios, permitting those to stay who have raised their incomes: responsibility of retention of local leadership. No single measure is more important than one of the blackest marks against public housing is becoming more and more confined to low-income and "the other America." This does not seem to be inherently necessary. But an enormous persistent effort must be undertaken and supported to reverse the trend.

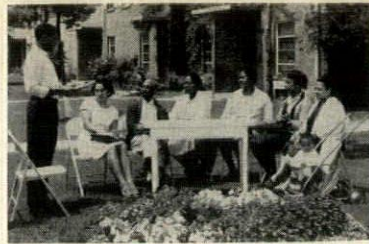
permission to include commercial facilities, shopping centers: not only a release from the inconveniences and even hardships of having to go a distance for every little item, but a livelier effect on the tempo of living and congregating.

In Europe such facilities have always been allowed and quite normally included. I have been told that where revenue there is often substantial, and can appreciably reduce subsidy otherwise required.

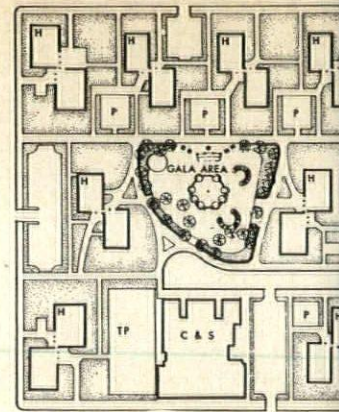
Adding all the above together, we have building up a whole change of outlook and body of sympathy, skill, research and performance which will soon be seen to be a priceless community asset, while most people not aware of it are tilting at crumbling targets. Jettisoning public housing five years ago in its then form and outlook might conceivably have made sense; as of now, it would be social folly and waste. For there just is no comparable body to do the job that local housing authorities have in many instances begun. Situated at the heart of things—the home and the family—they are in a very special position to bring together the agencies and the departments to act not departmentally but as catalyst for the whole man, the whole family. What is needed is sustained strong criticism in positive directions, but in an encouraging and expectant tone: creative, vigilant criticism, not a dismissing shrug.

All sorts of alternatives are proposed: private enterprise, new private development with subsidy, rehabilitation, rent certificates. Of course rehabilita-

*For the reasons, and other important indicators, see this illuminating study, "THE LIMITATIONS OF PUBLIC HOUSING—Relocation Choices in a Working-Class Community," in *Journal of American Institute of Planners*, November 1963



Mart Studios



Outdoor space designed as a vital element in two public housing projects in New York. Above: East Harlem Plaza designed by Mayer, Whittlesey & Glavin. Below: Franklin Plaza designed by Holden, Eggen & Corser. The plan shows a central 'GALA AREA' (community meeting and mixed-use space), 'TP' (tenant council) areas, and 'C & S' (church and school) facilities. It also indicates playground areas (P) and other community spaces.

New efforts to create community through tenant leadership of and participation in social and civic activities within projects have met enthusiastic response—from flower-planting and how-to-do-it through performing-arts groups and tenant councils to plan them and participate in project management in public housing projects around the country



L. Marinoff



A. Hansen Studio

tion has a place. But it does not meet the major question: desperate need for more low-rental housing to relieve the shortage at this income level. As to private enterprise, what housing solutions has it to show that anyone can think seriously of these propositions? What desire or capacity for the social aspects and civic aspects which are so essential? The troubling question of well-located land for low-rental housing is no easier of solution under private auspices, because the moment private enterprise gets earnestly into integration at low- and low-middle income levels, as distinguished from middle- and middle-high levels, where the minorities can be only a sprinkling because of economic conditions, precisely the same problems and harassments will arise. These must be met in either case by much greater public decisiveness and determination. The cost question or cost differential between public and private work is more realistic, certainly must be threshed through. Definitely there are differences. But figures I have seen from New York comparing costs of straight public housing, private (regulated) Mitchell-Lama and co-operatives are anything but conclusive. The problems of standards and durability-maintenance are probably crucial in explanation of cost differences. This is one area that should be most susceptible of factual and creative examination waiting to be tackled. Where is the Ford Foundation? Where are HHFA's research projects? How to reduce the inflexible costs of housing has alto-

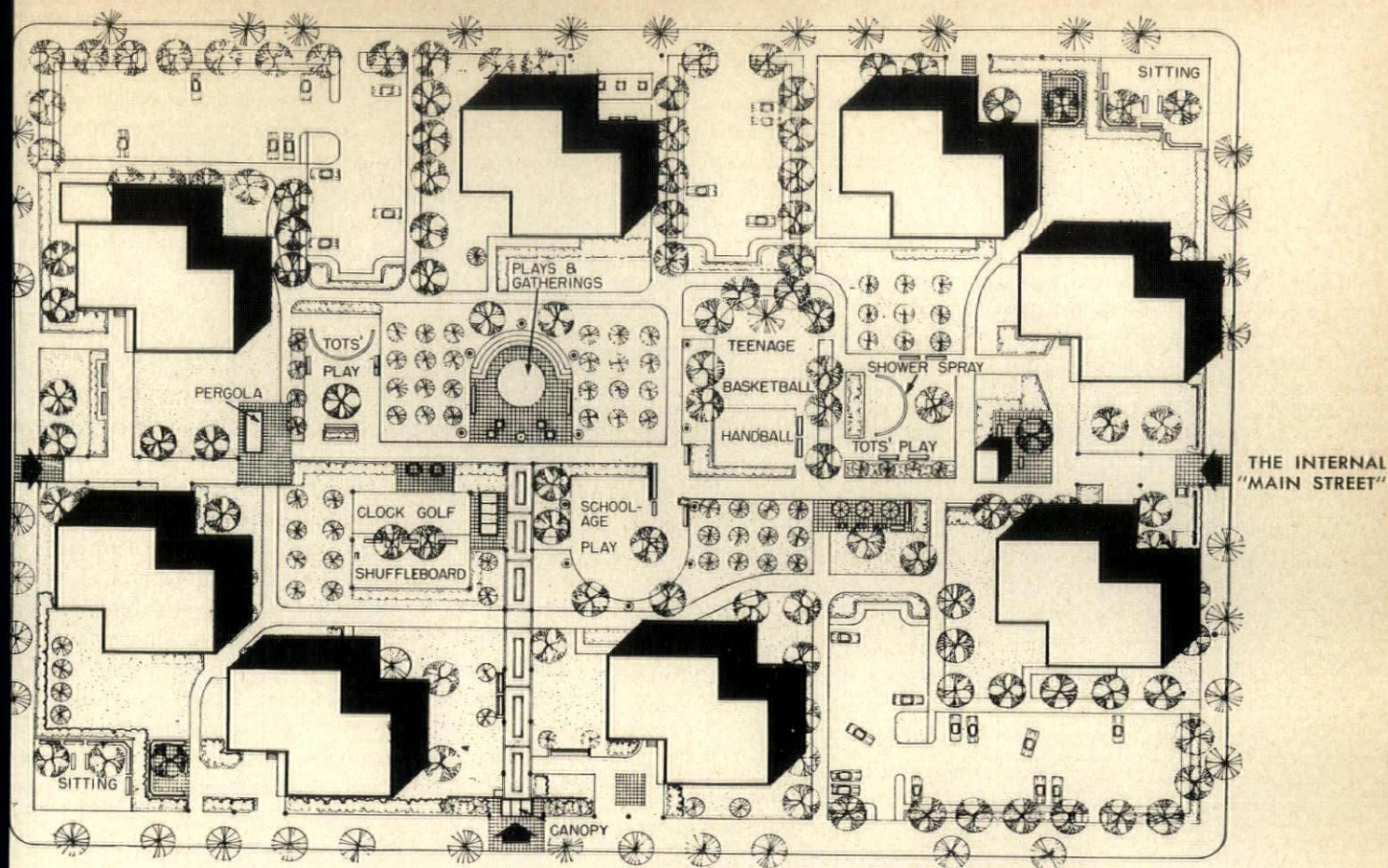
gether not had the scale and immediacy of what it requires. Certainly the prevalent practice of partially meeting the cost problem by paring down living space is not only inconvenient but socially sighted.

New Role for Private Enterprise

There is a special ingenious effort to involve private enterprise which should have a trial. Its purpose is to de-stratify. This is: to place into low-income families in private "middle-income" housing, with public individual subsidy to meet the rent difference. It was specified in the president's housing message to Congress in January. Previously proposed in New York State, and in somewhat different form which required a Constitutional amendment, it was turned down by the Senate. One forceful illustration that if we mean business in this whole realm, there has got to be a real moral-political purpose and surge and determination. And certainly this particular idea should be allowed a trial run on a trial scale.

It is one thing to take the position that low-rent housing should be a continuing entity and even increased in quantity, quite another to assert that it is, as I maintain here, key to urban development. Why, and how?

The *why* has been fairly touched on, in the



ial and physical and architectural self-search-
 and techniques that are beginning to flower;
 discovery, to my satisfaction at any rate, that
 ve in public housing a policy and administra-
 ol potentially and even actually much more re-
 ve and creative than we had suspected, or than
 d given it any incentive to be, or indeed al-
 it to be. The fact that it has begun to build
 n spite of these handicaps is tribute to its vi-
 This contribution is needed at other income
 also—for example, the responsibility and in-
 e and purpose that are being uncovered and
 ed; and the effectiveness in local democratic
 in place of the *anomie* and the resignation.
 se citizen-incubators we may be developing a
 needed and more potent and more ethical set
 pulses and practice than in the hallowed and
 healthy but limited home ownership equation.
 s the creative side of public housing, as con-
 with the stereotype of the anonymous rabbit
 n.

Key to Urban Development

the *how* of public housing as a key to urban
 pment, we need to go seriously further in leg-
 e improvements than the two important modi-
 ns already noted: the new higher incomes al-
 e for remaining in public housing, and the

possibility of shopping-liveliness as needed in the
 individual situation. Let us now determine to add
 the following elements, to further put together the
 housing statement: *Housing as Community*, and as
 stimulus to the larger community.

There is the need, for social health, of appreciably
 greater economic spread of tenant income *within* de-
 velopments or in closely related developments. Pilot
 projects should be expedited. Cooperative sales
 should be allowed—as objective constantly in mind—
 to tenants who can begin to afford it.

In the direction of social health, there is no ques-
 tion of the need and the proved value of social sci-
 entists and social workers, both for sensitive diagnosis
 and creative operation, and for the injection of their

*I omit for the moment the consideration of genuine institution-
 based cooperatives or direct investment of important magnitude by
 large institutions such as insurance companies and pension funds,
 in other words, a very different sector of private enterprise though
 not directly active. Definite proposals will be made in this series. I
 omit also the rare cases of philanthropic groups such as in the
 old days the Rosenwald Foundation in Chicago, the Buhl Foundation
 in Pittsburgh, the Phipps Estates and the Lavanburg Foundation in
 New York. For some reason the major foundations never did get into
 this field. In a recent memorandum discussing New York conditions,
 the following statement was made by Paul T. O'Keefe, president of
 the real estate firm of Charles F. Noyes and Co., chairman of the
 Emergency Committee for More Low Rent Housing: "I realize that
 one of the purposes of your commission is to explore ways to fit
 private investment into the low-rent housing picture. That is indeed
 a commendable purpose, and I would endorse it—except that it has
 been tried before with all the ingenuity man can muster. It doesn't
 work." Then he gives the history of the inadequacy of these attempts

insights into the planning and design process. While in one way or another various housing bodies have managed to employ a meager sprinkling of such professionals, my understanding is that new specific authorization is needed to make such counsel available to housing authorities on a fruitful scale. There is, in fact, a vast and pressing need for the insights of social science and the skills of social work in relating people effectively to their fast-changing—and often suddenly changing—environment.¹

Housing developments of varying sizes can be strategically deployed as urban renewal and community development, as in the Miami approach noted earlier. This is *not* subscribing to the thesis of universal “vest-pocket” policy of housing tucked away unnoticed, but might be thought of as the civic statesmanship of low-rental housing, with some developments large enough to make striking impact and improve the community atmosphere and facilities, adding to the resources of a large ambient area; and others helping to cure the moth-eaten, leap-frogging gaps of our blighted areas.

We must deal with the population explosion and with industrial decentralization. As of now, low-income workers are still by and large confined to the inner city because of the availability only, or chiefly, there of slum rents or public housing which they can afford. Private enterprise is building “new towns” or fringe developments, the one-class communities which have at best only a thin layer of economic variation, and which accentuate and intensify all the imbalance of transit and lengthened journey-to-work, because it cannot afford to build to accommodate decentralized industry’s workers. The needed ingredient here is subsidized housing in these new developments, as in the English New Towns. Thus, public housing must not be chained to the inner city, and mainly to slum areas therein, but must contribute also to the integrated development of these new undertakings.² This may well mean new legislation. The President’s recent message has partially proposed this.

It has become clear to me in the course of my investigations that it is one’s duty as a citizen to freshly re-examine the last few years’ actuality and the tendency-potential in public-subsidized housing, as it is emerging now; to check for one’s self that it is now giving strong indications of transcending the stagnant unimaginative stereotype, that it is really becoming part of the main stream and no socially isolated evanescent phenomenon. This process has got to go much, much further both in terms of recognizing what is beginning to happen, and in creating new conditions in terms of public image and freeing legislation. This is going to require a resurgence of informed eagerness and determination. There is some encouraging evidence that the time is ripe for it. For example, the Regional Plan Association of New York recently conducted a “Goals for the Re-

gion” project in which some 5,500 persons of middle and upper-income range were involved, many in the suburbs. It found “there was . . . overwhelming support for landscaped sites in city housing projects . . . though participants were warned that such improvements would require substantial financial interest and some controls.”

Challenge to Creation

On another plane, it should be noted that the design of public housing communities is increasingly being considered an important challenge by architects. While to most major firms the prestigious building, the new university library, the new office building are still the glittering assignments, public housing is a filler-in, younger talented architects are being attracted to the creation of communities. With one exception, all the examples cited for outstanding excellence have been done by younger architects. And this is equally true for those I have seen that are not specifically mentioned. Automatically, perhaps the most substantial remaining negative factor here is the low fee structure. Paramountly, of course, the total question is that of creative reconciliation and evocation of opportunity. The challenge, irritation, frustration, exaltation must enter into the realization of the community synthesis. This whole question of the relations of architects and architecture to public housing demands a searching article in itself, as do a number of other facets in this already ambitious and thin-stretched paper!

We are certainly at a cross-roads or a series of cross-roads with respect to many facets of choices in urban and regional development. It is my view that public housing has an indispensable role to play, that its impulses and resources and competence, and above all its recently emerging integrated outlook and performance have a great deal to offer as a versatile ingredient in the context of vital communities of the city and region. It should be given the chance; and performance must be demanded of it commensurate with its potential with the urgent need.

¹ The need is pressing in both Public Housing and Urban Renewal. More will be said on this in the next article

² Thirty years ago, i.e., in the early beginnings, Lewis Mumford, Henry Wright and I wrote a series of articles in the *New York Times* devoted mainly to urging the thesis that Public Housing should be equated with central slum clearance, should also and mainly be done on vacant land, in-lying and out-lying. The number of reasons besides those noted here, but we were to influence the course of events. This issue is desperately re-arguing as even more applicable now. But there is no space to do it adequately here. One can just repeat that the crucial factor is *added supply* and not replacement; and that unless there is a greater locational choice available within the cities and metropolitan areas, the ghettos and the excessive journey-to-work of decentralized industry will continue

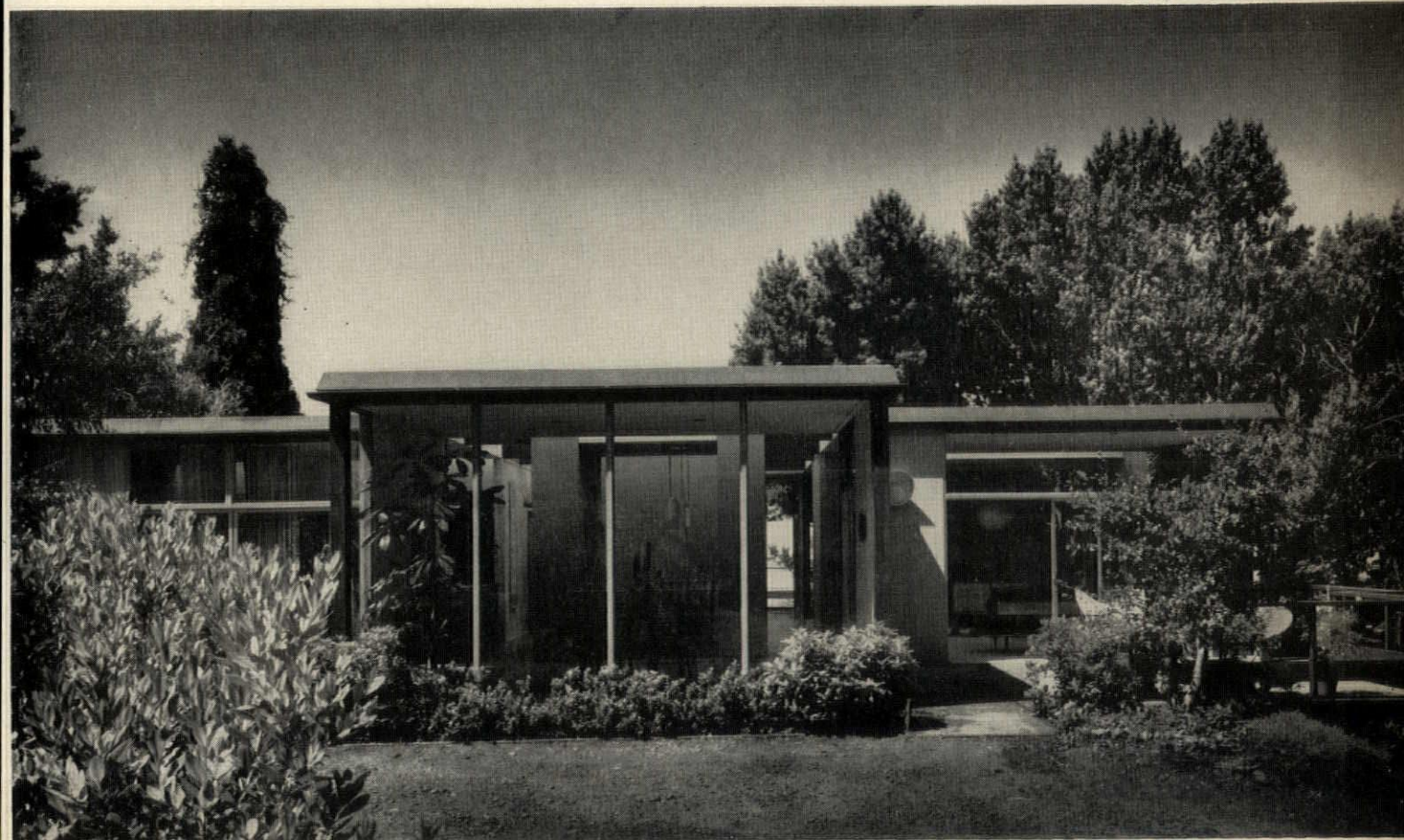


Jerry Bragstad

CROSS-SHAPED HILLTOP HOUSE PROVIDES WIDE VARIETY OF OUTLOOK

Jacob Robbins clusters six pavilions for a two-level family house

Jerry Bragstad

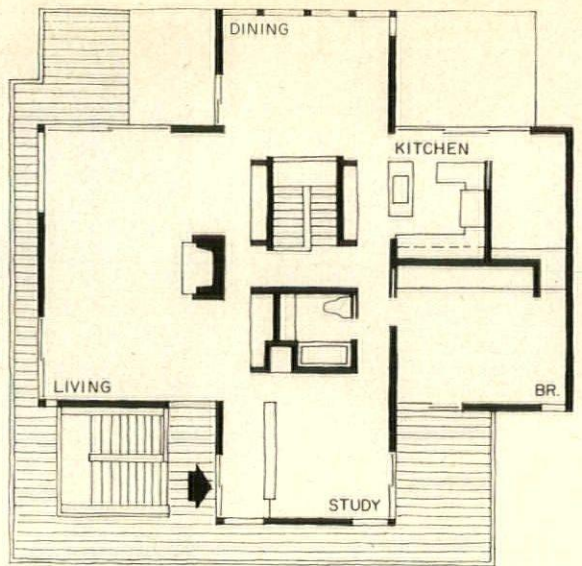


Paramount among the program requirements for this comfortable house were the needs for unusually good lighting, good zoning, and economical space for a family of five.

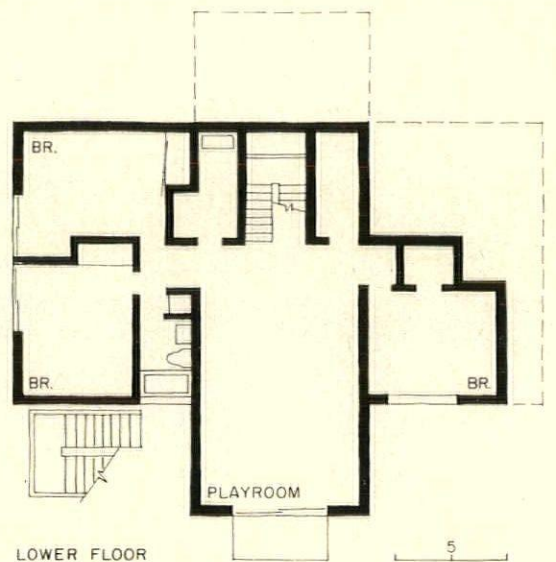
The special emphasis on lighting resulted from the problem of providing a home easily maintained by a housewife with extremely limited vision, and to create an ideal seeing environment of high level, glare-free light.

To achieve this, major rooms and the master bedroom suite were placed on one level, and arranged in a cross-shaped plan of six bays or "pavilions" (the living area occupies two bays) with circulation between areas in straight lines around a bath-storage-stair core. The six bays are separated by light-diffusing plastic skylights, and have their structures tied together through the skylights by beams to 10 plywood shear panels. Overhead light is thus provided over all circulation areas, storage areas, work areas and the living room seating area. Large glass areas to balance the skylights were oriented to glare-free greenery of trees and planted banks. This upper level is accessible by car, and has a front entrance reached by stairs climbing through the trees. Family entrance is via a patio and the dining room.

Quarters for three teen-age sons were placed on a lower level set into the hillside, and includes a separate living-play room and outside entrance. This portion of the house is designed to be adapted as a rental apartment. The structure of this level is of reinforced concrete block, with wood framing above. The lower level ceiling is furred for ducts and pipes, and for sound separation between the levels. Exterior walls are cedar, stained gray with dark gray trim.

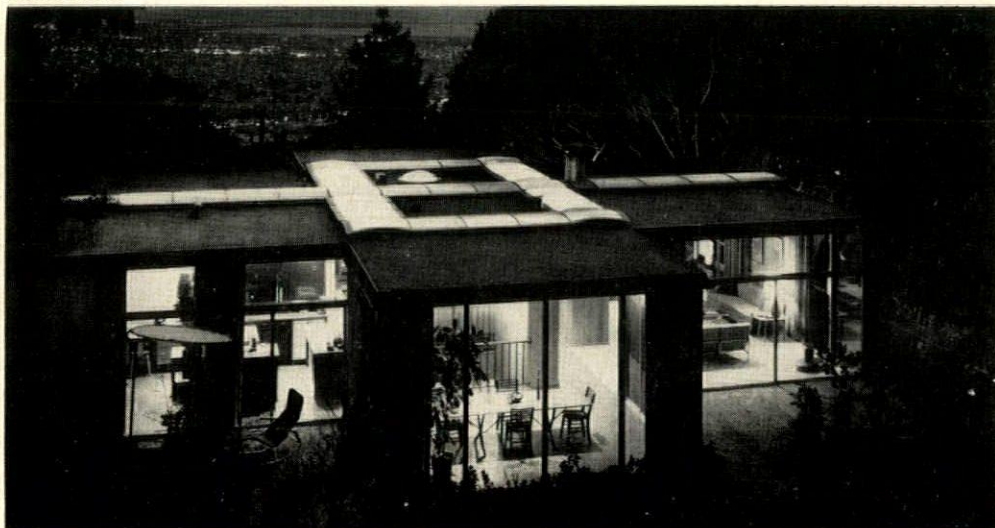


UPPER FLOOR



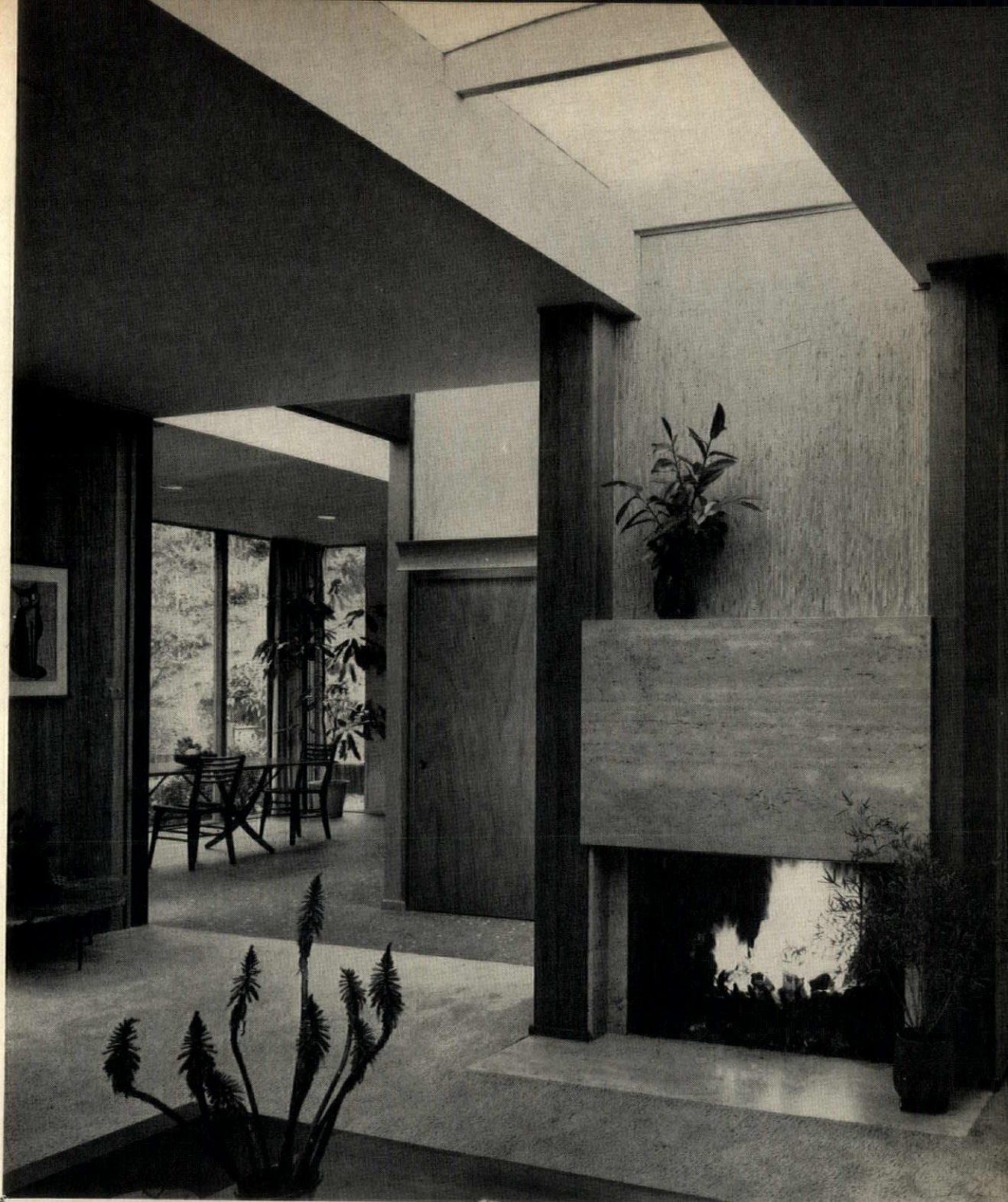
LOWER FLOOR

Ernest Braun



Jerry Bragstad





Ernest Braun

*Residence for Mr. and Mrs. James F. King
Berkeley, California*

ARCHITECT: *Jacob Robbins*

ENGINEER: *Nicholas Forell*

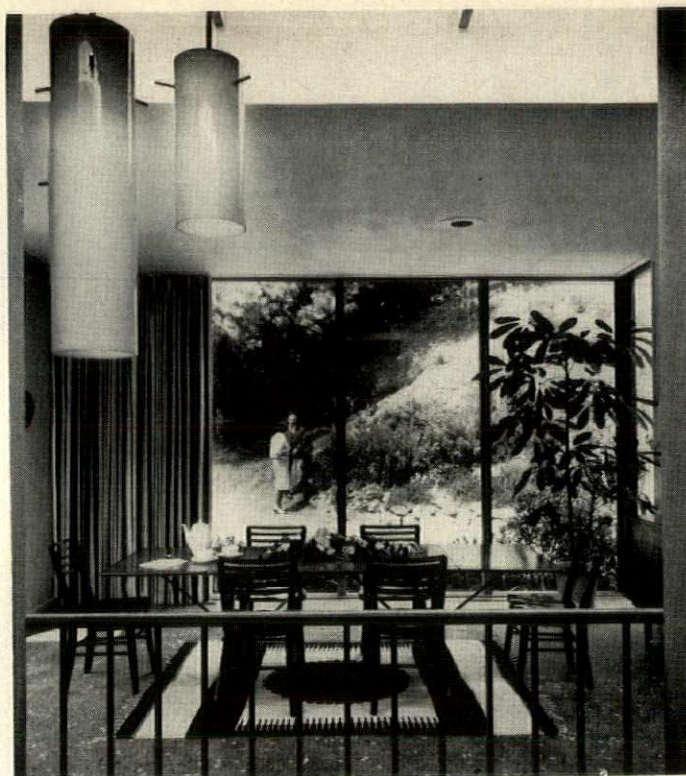
CONTRACTOR: *Carlson & Maier*

LANDSCAPE ARCHITECT: *Tito Patri*

INTERIOR DESIGNER: *Emily King*



Ernest Braun



Jerry Bragstad



Jerry Bragstad

A variety of views and outdoor spaces were created for both levels of the King house: all rooms have direct access to either decks or patios. The lot is a deep, steeply sloping one, overlooking San Francisco Bay on the west and adjacent to a wooded creek bed on the north. Access is from a public street below, with a front entrance via stairs (*top left*) and a family entrance through the dining patio (*top right*). The master bedroom (*above*) is flanked by a deck

MEDICAL FACILITIES

Criteria for design of proprietary nursing homes based on study of patients' needs

An advanced concept for nonprofit residence and care for the aging (page 189)

Metropolitan hospitals redesigned for teaching and research (page 194)

Clinics, rehabilitation and medical centers

NURSING HOME CRITERIA BASED ON PATIENTS' NEEDS

Planning of nursing homes is getting new real attention. Detailed analyses of patients' cases and needs are being translated into architectural forms. Increasingly successful applications of rehabilitation techniques—physical, mental and emotional—to nursing home patients are changing the image of custodial care facilities and calling for new space allocations. One research project that has already affected the design of new nursing homes is reported here.

In order to develop a correlation between patient mobility and architectural form, Dr. Michael B. Miller and architect William N. Breger analyzed the type of care required by the patient population of the Rockland Nursing Home and Cottages in Garner, New York, an institution primarily for the chronically ill aged. Dr. Miller is proprietor and director of the Rockland home and of the Miller Center Nursing Care in White Plains, New York. He is also assistant clinical professor of rehabilitation medicine at Albert Einstein College of Medicine. Breger is professor of architecture and chairman of the Department of Architectural Design at

Pratt Institute. Both are members of the board of trustees for the Research Institute for the Care of Prolonged Illness, now in its third year of development at Warsaw, Indiana.

The White Plains establishment (page 185), designed by Mr. Breger and opened in December 1963 was the first application of principles examined by the Rockland study. A second evolutionary step in the design application of those principles is being developed in plans for a new building at the Rockland site embracing all the functions of both intensive care and cottage facilities. Current stage of this design is the round building shown on page 187.

Basic data of the study consisted of individual diagnoses of 90 patients at the Rockland Nursing Home and Cottages. This institution consists of four separate structures on approximately nine acres of semi-rural land 40 miles from New York City. An intensive care facility houses 41 patients while three separate cottages are assigned to patients capable of substantial self-care. The study covered all patients' records from January through June 1962 and included all new admissions, deaths and discharges.

Although the statistical sample is not large, Miller and Breger point out that the diversity of diagnoses is quite typical of similar institutions. At Rockland there were 63 females and 27 males with an average age of 75. There were 13 patients under 65 (youngest, 34) and eight patients over 90. Major medical and nursing management problems concerned the physical and behavioral manifestations of arterial diseases of the brain and/or the heart. Although 31 per cent of patients were admitted with other kinds of impairment (arthritis, cerebral palsy, sensory deficits, etc.) which were of diagnostic importance, they formed no single major group of medical management significance. Heart disease was significant in 38.8 per cent of the population while brain involvement, manifested either in the behavior typical of senility or in the disabilities typical of the stroke patient, was seen in 84.4 per cent of the patients. This overlap is typical of the multiple organic involvement of nursing home patients.

The analytical procedure was to assess physical and mental disabilities of each patient using arbitrary scales of gradation from 0 to 4 in each category. Grades were related to the degree of medical and nursing care required. In the mental or behavioral category, 0 denotes little or no impairment of judgment, memory, orientation or social relations. The scale proceeds with increasing degrees of impairment up to grade 4 indicating a memory content of less than 5 seconds, severe impairment of judgment, confusion, disorientation and anti-social behavior. In this mental scale, it was found that only 13 patients (14.4 per cent of the whole population) could be classified as in the relatively unimpaired 0 or 1 categories. The remaining 85.6 per cent required significant degrees of medical and nursing supervision. More than half of all patients showed brain damage.

Similarly, a grade analysis from 0 to 4 was made of the abilities of patients to perform the physical activities of daily living such as feeding, dressing, locomotion, bathing, etc. It was found that 32.1 per cent of all patients could be classified as having grade 0 to 1 impairment; that is they were substantially self-sufficient physically. The rest required substantial or total nursing care for physical deficits.

Charting the combined physical and behavioral assessments of each patient showed that groups could be assembled reflecting various degrees of nursing and supervisory requirement. It was found that four such groups would divide the Rockland population into workable units for which various architectural arrangements might logically serve the various engagements of staff for intensive or custodial nursing, physical or occupational therapy, social and family counseling, etc.

Group distribution at the start and finish of Rockland observations is shown in Table 1 with an indication of the amount of time average individuals in each group are engaged in the various categories of

nursing home care. The changes of group distribution reflect an unexpected element of mobility confronting architectural planning. Of the Rockland sample less than half (47 per cent) remained without change during the six months of observation. More (23) improved, 8 were discharged, 16 relapsed and died.

Analysis of time study data showed that about 15 per cent of all nursing functions were performed

TABLE 1—DISTRIBUTION AND CARE PATTERNS OF THERAPY GROUPS

Group	Impairment rating		Percent of pop. at:		Per cent of individuals' time		
	Phys.	Mental	Start	End	Treatment & therapy	Custodial care	Social & family
1	0-2	0-2	27.8	38.8	5	5	
2	3-4	0-2	14.4	11.9	15	15	
3	3-4	3-4	37.8	22.6	15	20	
4	0-2	3-4	20.0	26.7	10	15	

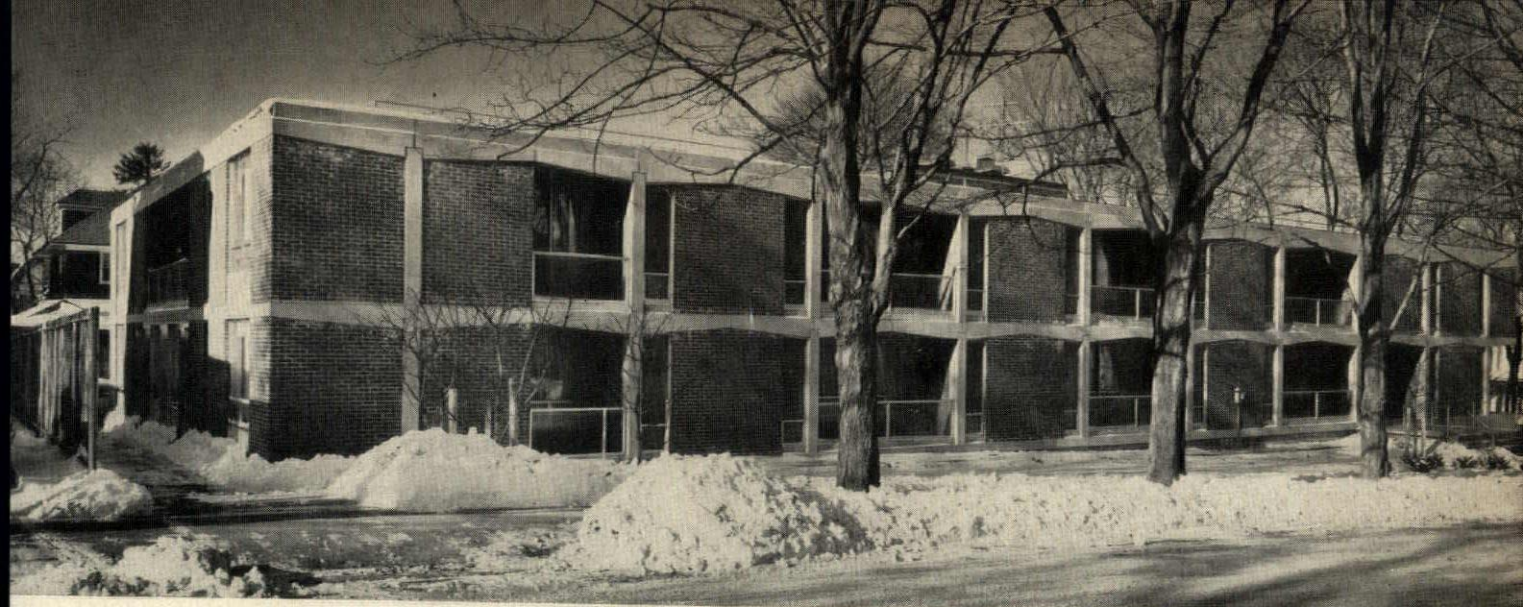
ly medical including physical and occupational therapy. About 25 per cent or less of nursing care devoted to bedside custodial techniques of feeding, bathing, dressing, shaving, etc. The balance, representing more than half of nursing and medical activity, was related to social and behavioral supervision and family counseling.

Some Space Criteria

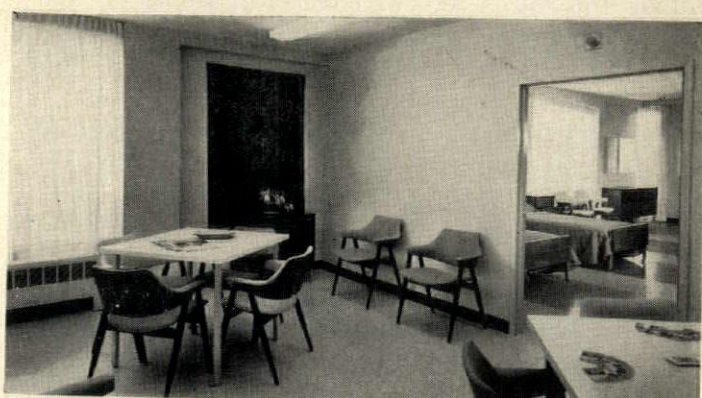
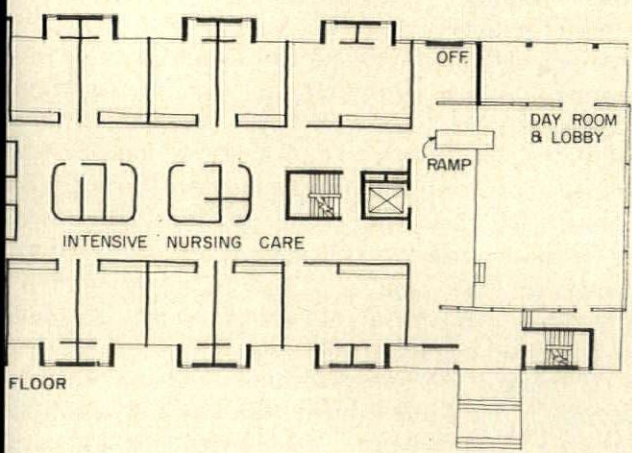
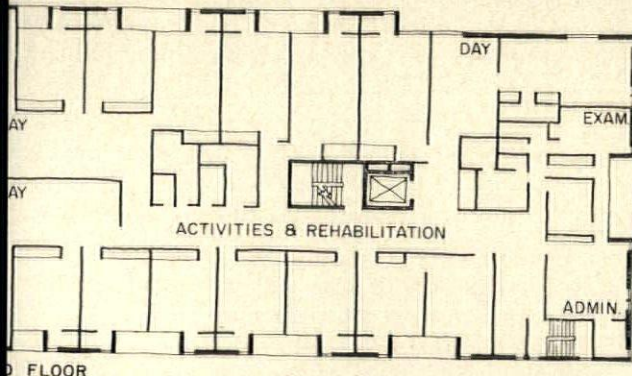
Bedrooms: Dr. Miller, in approaching the question of single bedrooms versus double or multiple rooms, points out that the present study, as well as past experience, indicate an over-all preference for the double bedroom. Patients experience social isolation upon admission to a nursing home, and a double or multi-bed room provides some stimulation against withdrawal. Also, for reasons of safety, patients who are 75 or over should not be housed in single rooms. Certainly, he says, patients in the behavioral categories 3 and 4 should never be in single rooms. Conceivably patients who are in the physical and emotional categories 0 to 2 (group 1 in this study) could function well in private rooms. They should also be single rooms for contagious isolation and terminal care.

Since the severely handicapped require mechanical aids for movement, the area per bed should be greater for the physically disabled than is necessary for the physically intact.

Storage space in patients room is of two types, vertical space for outer clothing and horizontal space for other clothing, personal effects and nursing accessories. Patients in the physically handicapped group require an increased amount of horizontal storage space for indoor clothing and nursing supplies. Patients with severe behavioral handicaps require proportionately more storage space both vertical



Miller Center for Nursing Care, William N. Breger architect, is a facility for the chronically disabled. On a corner site in an urban residential area close to shopping and to five other medical facilities, it houses 66 patients about equally divided between those needing intensive medical care (first floor) and those who can use small-group day rooms and therapy spaces on the second floor. Photos (below right) show day room with adjacent bedroom, also multi-purpose day and community room near lobby.



...ontal because of the problem of incontinence
...ing both inner and outer clothing.

...service takes place either in patients' rooms,
...community rooms or separate dining rooms. Since
...ing in bed contributes to the kind of static living
...st which nursing home care should constantly
...nd, it should be discouraged. If it is necessary
...d patients in their rooms, a suitable substitute
...n overbed table should be considered. A wall
...drop leaf table provides dining or writing space
...aves floor space free for the operation of wheel-
...s and other aids to locomotion. All patients who
...o so should eat in groups either in community
...or designated dining areas.

Wash Basins in or near patients, rooms provide a hygienic measure for staff and patients. Even the severely handicapped can use a basin where it is accessible from a wheelchair. For patients with little or no physical disability, basins can be located in toilet areas where accessibility is no problem. In bedrooms for patients with organic brain diseases, consideration might be given to placement of the basin in an exposed area where supervision is easier.

Toilet facilities: Although patients in the 3 and 4 ranges on physical and behavioral scales have considerable difficulty in reaching and using toilet facilities, many in this group are trainable in the use of standard facilities when they are easily accessible.

Since the group as a whole comprises more than 35 per cent of the total population, it is recommended that two types of toilet and lavatory facilities be considered for quarters assigned to groups 2 and 3. About $\frac{1}{3}$ to $\frac{1}{2}$ the accommodations for these groups should be provided with a wall-hung bedside flush water closet with adjoining lavatory. The remaining patients should be provided with standard wall hung closet and lavatory in an adjacent room.

Toilet facilities for patients in group 4 who are physically intact but with organic brain disease (about 20 per cent of the total population) can be similar to those for group 1, since most of the patients in this category are trainable in the use of standard facilities.

Dr. Miller says: "In the highly important area of toilet function related to the needs of a chronic care facility for the aged, our concern has been to provide: (1) freedom and accessibility for patients capable of using toilet facilities; (2) design of toilet facilities and of equipment for the severely handicapped with intent to virtually abolish the need for bed pans and commodes. The bedside flush toilet may represent an important advance in this direction for extreme physical disability."

Bathing facilities: Although patients in group 1 are both physically and mentally intact and conceivably could wash and bathe in an unsupervised facility, no nursing home patient should at any time shower or bathe unattended. This is a conclusion based on accident experience, administrative and medical-legal considerations. Supervised bathing facilities, then, can be located to accommodate staff efficiency rather than in close proximity to patient quarters. Patients with severe physical and mental disability require double or triple the nursing personnel to accomplish the bathing functions. It is recommended, therefore, that per patient bathing facilities for these groups be increased as compared to those for group 1.

Bathing and toilet facilities for all patients should include safety measures such as grab bars, elimination of shower bases, water controls removed from patient access, etc. Bathing facilities for physically disabled patients should include wide tubs with mechanical lifting devices, preferably of the quiet hydraulic type rather than noisy apparatus that can in-

duce apprehension. There should also be an arrangement suitable for use of water-proof wheelchairs shower facilities.

Community rooms: Since 65 to 90 per cent of day patient care is represented by functions of the therapeutic community rather than medical-nursing procedures, major planning emphasis should be placed on the inter-personal environment as well as on the physical environment. Hence, the architectural qualities of community rooms should simulate living areas but with variety accommodating various group functions and control problems. Location of community rooms where supervision is readily provided is especially important for ambulatory patients in agitated or confused behavioral groups. The mentally intact require less supervision and should have direct access to outside walks, lawns and sitting areas as well as direct access to bedroom areas where personal effects are stored. An auxiliary pantry may be provided with full access to group 1 patients.

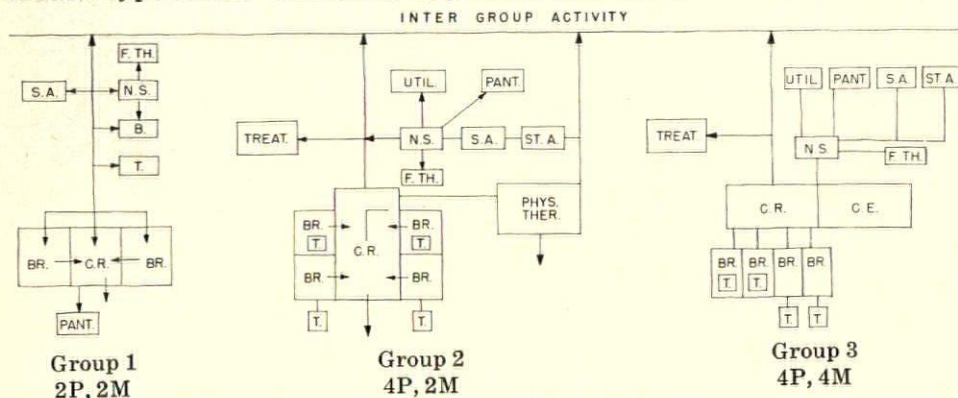
For group 2, community rooms may be required to serve additional functions for physical or occupational therapy. Hence, they should be somewhat larger or have adjacent specialized space for therapy. The allocation of space for community room dining for this group may be somewhat less because of a certain amount of bedroom dining. Pantry facilities for this group should be under nursing supervision because of physical difficulty in managing pantry facilities.

Supervisory control of the community rooms for groups 3 and 4 is important, especially for group 3 because the rooms are used for procedures in social rehabilitation. Since group 4 is ambulatory and requires close nursing supervision, the community room, bedrooms, and access to the outdoors should all be under close control from the nurses station.

Only groups 2 and 3, the physically disabled, require any substantial space allocation for utility rooms for nursing and medical functions.

Although the conventional nursing duties for groups 1 and 4 are a minimum and may require less nursing station space than might be allocated for groups 2 and 3, there should be space for records, charts and for minor medical and first aid treatments.

General storage space for linen, wheelchairs



Method of relating space allocation to patient capacities and nursing care requirements demonstrated for groups 1, 2 and 3 at Rockland. Legend: F.T.H.—family therapy or counseling; S.A.—storage area, general; C.R.—community room; C.E.—controlled environment; others obvious. Physical mental ratings (2P, 2M, etc.) of groups are members' maximum impairment ratings on a scale from 0, no impairment; to 4, near total disability.

chairs, braces and housekeeping supplies is allocated on a rational basis. Group 2, for example, would require approximately twice the space for clean and dirty linen as group 1. Group 3 would require the greatest storage space for all groups because of heavier linen usage as well as dependence on wheelchairs and other appliances.

Examination rooms are not required for extensive procedures, since most examinations in a nursing home are conducted in patient bedrooms. They would not normally be required for groups 1 and 4, but may occasionally be provided for the physically handicapped patients, preferably near the nurses stations.

Family counseling is an important function of the professional staff in a chronic disease facility. Family counseling is conducted either jointly with the loved patient and family or separately with a family member in conference with a psychiatrist, social worker or family physician. It is important to provide adequate space for family counseling as a feature of the nursing unit and near the nurses station.

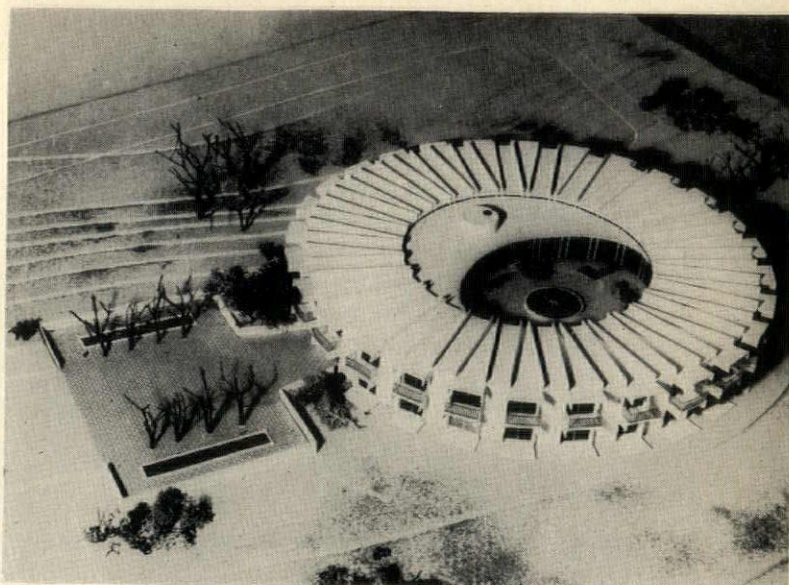
Group space: The total community gains therapeutic value when opportunity is provided for intergroup activities in addition to all the spaces associated with groups and their nursing stations. Space for such activities as religion, entertainment or joint group experience should be provided, preferably with access to the outside community so that lectures, demonstrations and volunteer functions may be carried on.

The schematic guide to space allocations and configurations in accordance with the Miller and Breger criteria outlined above is suggested by box diagrams for groups 1, 2 and 3 at the bottom of the opposite page.

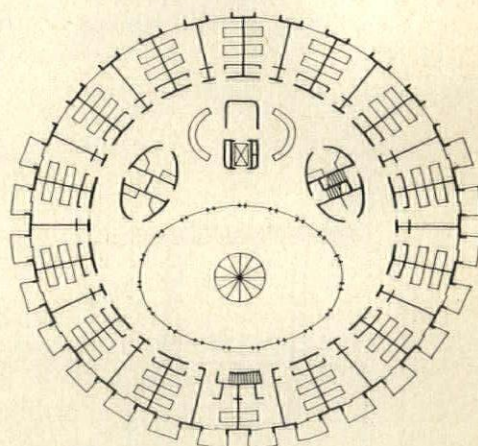
Architectural Translation

The Miller Center for Nursing Care shown on page 186 and the new Rockland Nursing Home shown at the top of this page, both designed by Mr. Breger, represent the translation of vocabulary through which some of the principles underscored by the Rockland observations have been translated into architectural form. In commenting on his approach to the design of chronic care facilities, Mr. Breger says:

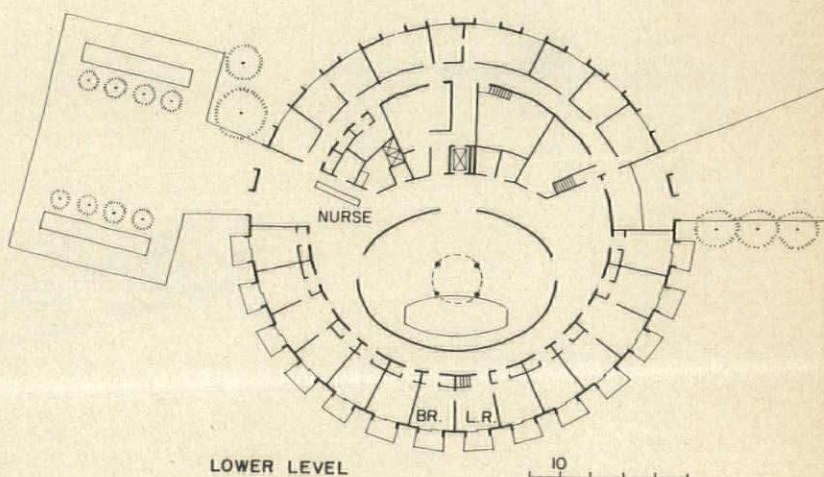
One may surely be accused (even by myself upon reflection) of a dreadful cultural lag in that I still believe that form follows function. I think, however, that there are two modifications of this proposition that should be mentioned: (1) it is not really that there is a form stipulated by a functional analysis but a variety of forms. It is the designer's choice that constitutes the architectural manifestation; (2) the functions of a building are more than structural or utilitarian. The designer must choose what emotive functions are meaningful. But this depends on its social



The new building to be erected on the spacious rural site of the Rockland Nursing Home and Cottages is a round, two-level design by William N. Breger to house about 90 patients in three care-related space types. Upper level, with off-center open court glazed for full view of floor from nursing station, houses intensive medical cases near station and general medical or behavior problems near the court. Lower level has sleeping, living and community rooms for patients who can use out-of-doors.



UPPER LEVEL



LOWER LEVEL



purpose. Thus, a church's main function might be the emotive experience. In a chronic care facility, I believe this is quite secondary.

"The contents of nursing homes are *sui generis*. The values and formal expression should be as well. The new Rockland building is a circle, perhaps the most coercive formal pattern we know. Yet it was arrived at from Dr. Miller's and my own analysis of behavioral patterns of patients, medical care, social environment and economy. Many forms may have solved these functions, but I chose this one."

The Rockland building, on a rural setting, will house a population spatially divisible into three types requiring: (1) intensive medical care (about 20 per cent comprising group 2 and some of group 3); (2) general medical care but intensive observation for behavioral difficulties (about 50 per cent assigned from groups 3 and 4); (3) limited medical or behavioral problems requiring mainly custodial care (about 30 per cent, group 1).

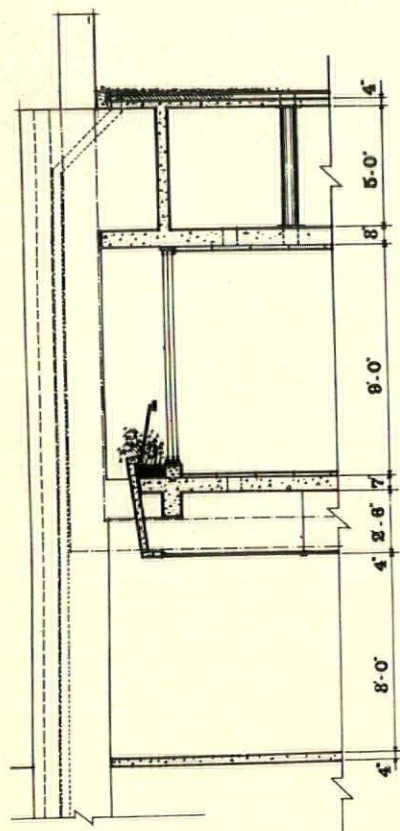
In contrast, the White Plains establishment is on a small site in an urban residential area with nearby shopping and hospital facilities. It houses 66 patients, half requiring intensive care for serious disabilities, the other half needing a minimum of bedside nursing care. Both of these patient categories derive special benefit from the location and character of the building. Those in the first-floor intensive care section, although served by in-house laboratory and X-ray facilities, have the additional advantage of special and consulting services from five conven-

ient medical, mental and rehabilitation institu- More active patients on the second floor relate sly to each other in multiple activity rooms and t community outside through balconies and ou walks, general purpose space near the reception occasional shopping trips, and full-time social family counseling personnel.

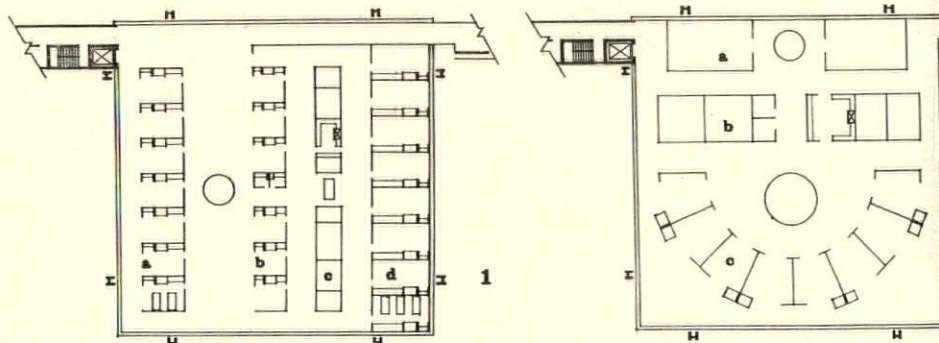
The Rockland research, then, limited though sampling is acknowledged to be, has docum principles which the researchers are putting t test. Both Dr. Miller and architect Breger u score the need for broader and deeper studies o many-faceted problems confronting nursing architects, physicians, staff and patients.

More Research

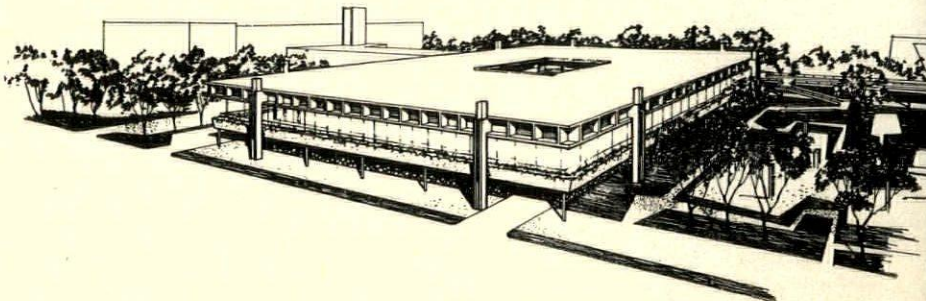
One step in the direction of further study of nu home problems is the Research Institute for the of Prolonged Illness, now in effectuating stag financing and organization in Warsaw, Indiana institute is a nonprofit endeavor separate fro attached both physically and organizationally Murphy Medical Center. Both Mr. Breger an Miller are on the board of trustees. It will be h in the two-floor building shown below, design Mr. Breger as a completely flexible space in various physical arrangements for nursing ca be tested in conjunction with medical and tra research.



Typical Wall Section



William N. Breger's building for the Research Institute for the care of Prolonged Illness in Warsaw, Indiana, is a two-level scheme with offices, classrooms, storage and food service on the first floor, and a column-free second floor for which vierendeel frame above and suspended ceiling below provided complete flexibility of utility supply serving experimental layouts of nursing floors (above). Plan 1: (a) open room; (b) single room; (c) service; (d) 3-bed room. Plan 2: (a) open ward; (b) service; (c) radial nursing un





NEW CONCEPT IN HOUSING AND NURSING SPACES

Isabella House is the first limited-profit housing project, combining dwelling apartments for the active elderly in the same building with nursing home facilities, to be financed with New York State aid. Architect Joseph W. Weiss developed plans for this 17-story building in such a way that occupants of the two categories of space can enter and leave the premises and live their separate lives without interfering with or even encountering one another. It represents the culmination of a long and thoughtful development by the architect, who is chairman of the N.Y.C. National Committee on Housing the Aged, and the sponsors, the Isabella Home for the Aged, a nonprofit nursing home founded in 1875.

Commissioner James W. Gaynor of the New York State Division of Housing and Community Renewal said: "We are proud to participate in this pioneering project . . . We hope it will serve as an example by showing feasibility of providing . . . housing for the aging in a setting where medical and institutional care are available if needed."

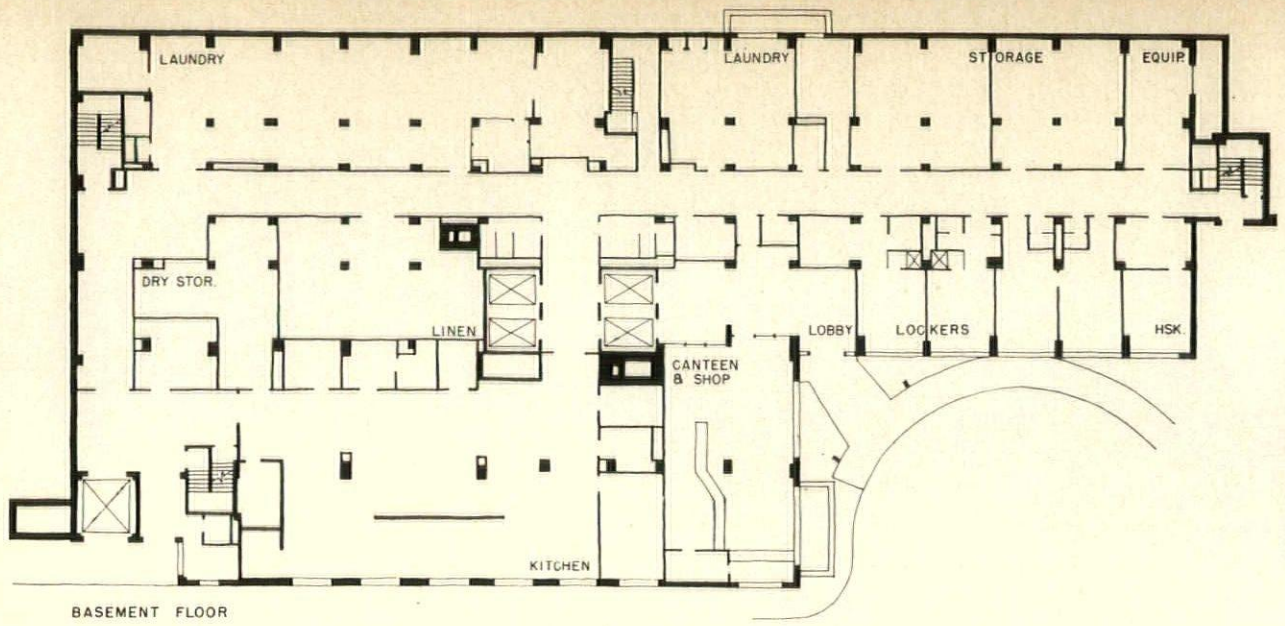
The new structure will occupy a 1.6-acre site adjacent and connected by passageway to the original

Isabella Home on 190th Street in New York City. The older building will provide community center spaces for apartment dwellers and will continue to serve its present patients, but with added medical facilities in the new structure.

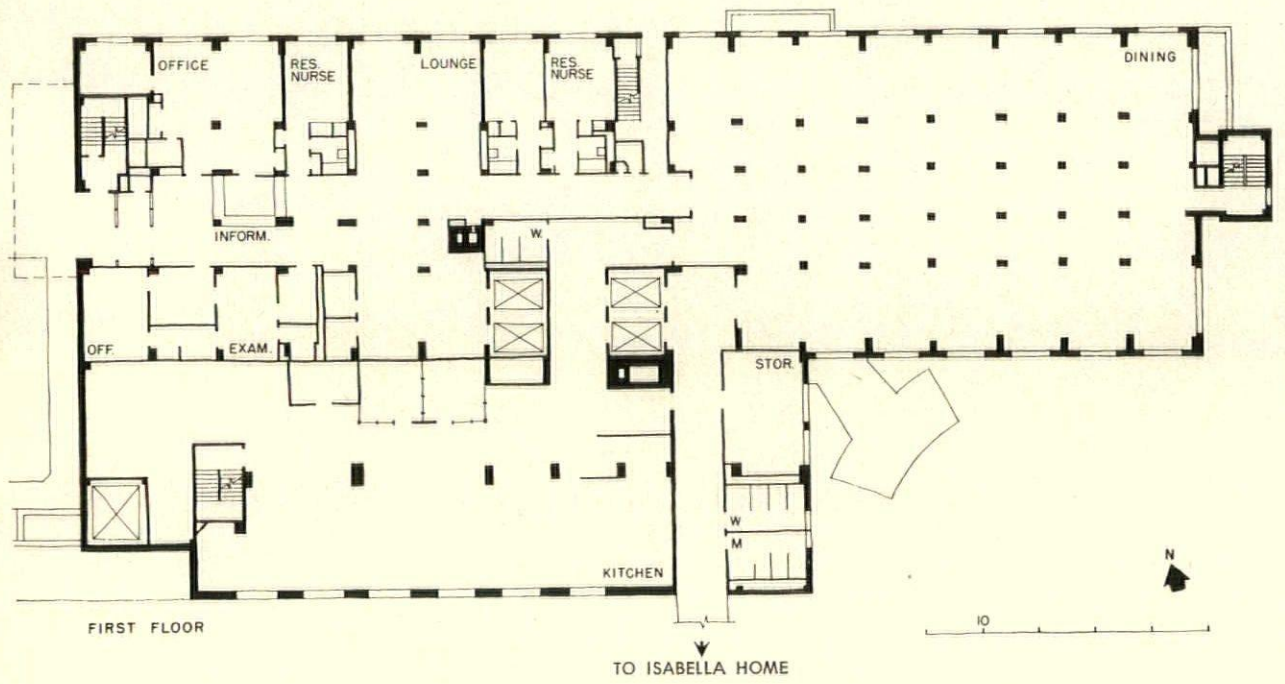
Essence of the plan, says, Mr. Weiss, exploits the fact that the land around the building is one story below street level. This permits street access for apartment dwellers and basement access from garden level for nursing home occupants and services. Two separate elevator systems permit development of the two occupancies virtually independent of one another.

Apartment dwellers will enter at the street or first floor level which contains lobby, community room and central dining room. Adjacent to the street entry is a doctor's office suite of conventional layout for convenience of the active elderly. Also on the first floor are three residence apartments for nurses who are employed to serve nursing home facilities but are housed near the apartment lobby so that tenants can ask them for occasional minor services.

Only the basement, first and second floors have access from both elevator systems. Elevators to apart-

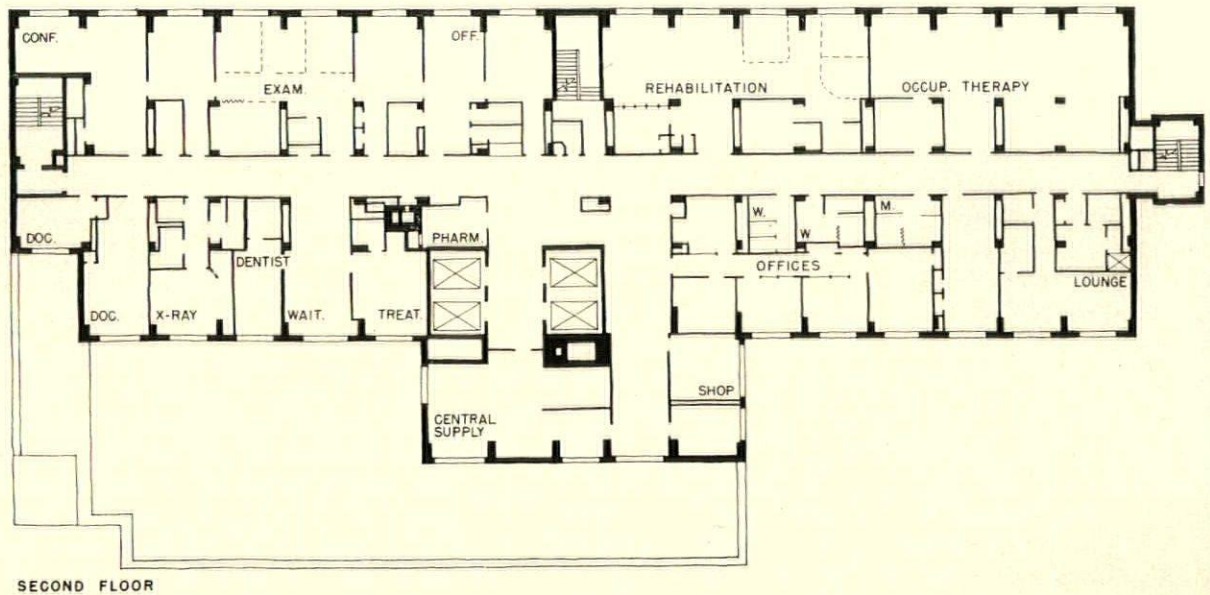


BASEMENT FLOOR

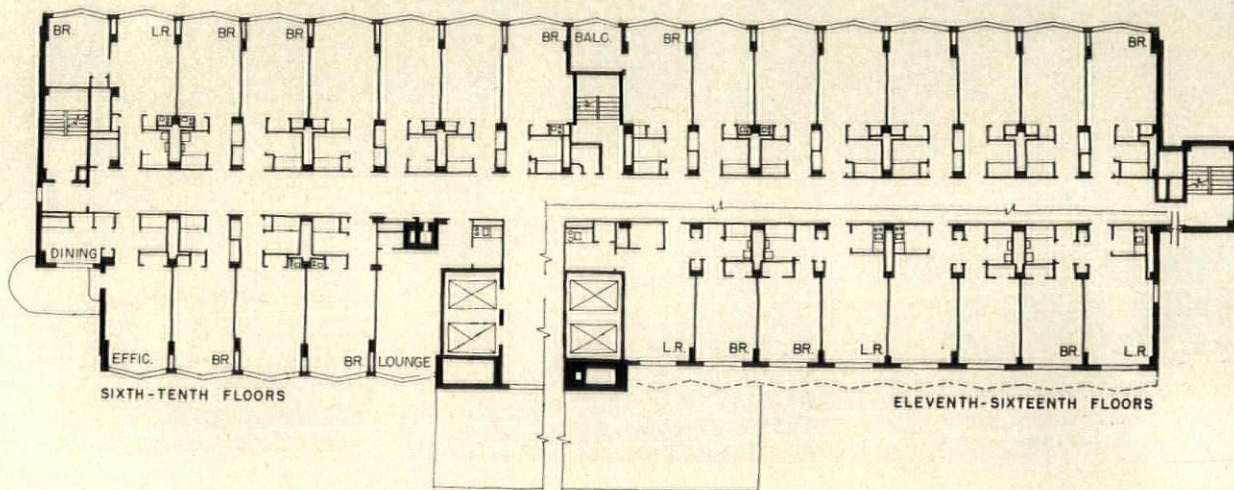
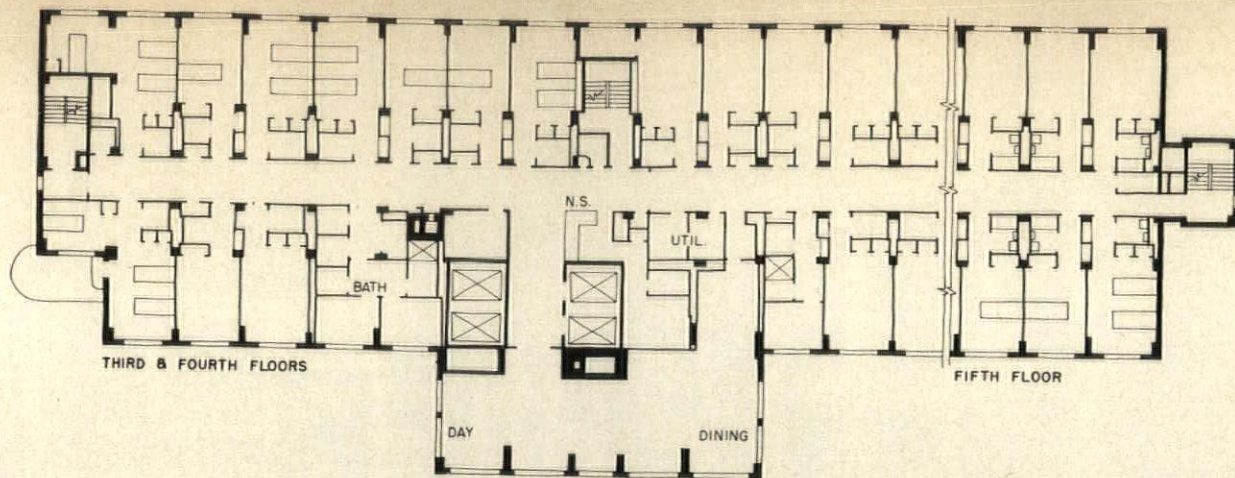


FIRST FLOOR

TO ISABELLA HOME



SECOND FLOOR



Isabella Home, New York, New York
 ARCHITECT: Isabella Home
 OWNER: Isabella Home Housing Company
 ARCHITECT: Joseph Douglas Weiss

STRUCTURAL ENGINEERS: Farkas & Barron
 MECHANICAL ENGINEERS: Fred S. Dubin Associates
 LANDSCAPE ARCHITECT: Leo A. Novick
 CONTRACTOR: Walsh Construction Company

Patients are entered from the first floor lounge, bypassing the third, fourth and fifth floors where nursing quarters are established, and providing service apartments on the sixth floor and above. These apartments provide convenient access to the basement where there is a canteen, tenant storage and a small laundry-sitting room for neighborly exchanges. They also open to the clinics, shops and offices on the second floor which can provide services for all categories of occupant.

The basement floor provides vehicular access to a garage for nursing home traffic. From here, elevators provide service to the nursing home floors, two through five, with access also from the first floor for personnel.

Patients' quarters on the third, fourth and fifth floors have double and single rooms for nursing home occupancy. Each floor has its dayrooms and dining rooms. A few rooms on the fifth floor are equipped

with full toilet and bathtub facilities for occupancy by patients with adequate physical capacities and/or private nursing attendants. Other rooms on these floors have toilet and wash facilities with a central bathing area for supervised tub and shower bathing.

Apartments on the 6th to 10th floors are mostly single room efficiency residences. There are two lounges with adjacent kitchenette or home laundry facilities on each of these floors for occasional socializing, but all residents contract to eat regular meals in the main dining room on the first floor. There are two-room apartments on the 11th to 16th floors. These apartments have their own kitchenettes but residents are also expected to eat regular meals in the main dining room.

Apparent in the design of both nursing home and apartment floors is unlimited flexibility for conversion from one type to another with minimum structural or utility rearrangement.



Alexandre Georges

GERIATRICS BUILDING FOR A MENTAL HOSPITAL

In this one-story building, open courts and spacious dayrooms provide a residential character which gives positive support to an active rehabilitation program for 210 aged mental patients. The building, in fact, has performed so well that rehabilitation has acquired an increasing emphasis over five or six years of its operation.

In framing the program, Dr. Hyman Pleasure, director of the hospital, said: "We wanted a building which would express the new permissive therapeutic activity and optimistic attitude toward the patient which help get him back to his family and society. We believe that a dynamic approach should be as successful with geriatric cases as it has been with other types of mental illness. That premise is proving true in this building where we have achieved a discharge rate of over 50 per cent for selected patients of good prognosis."

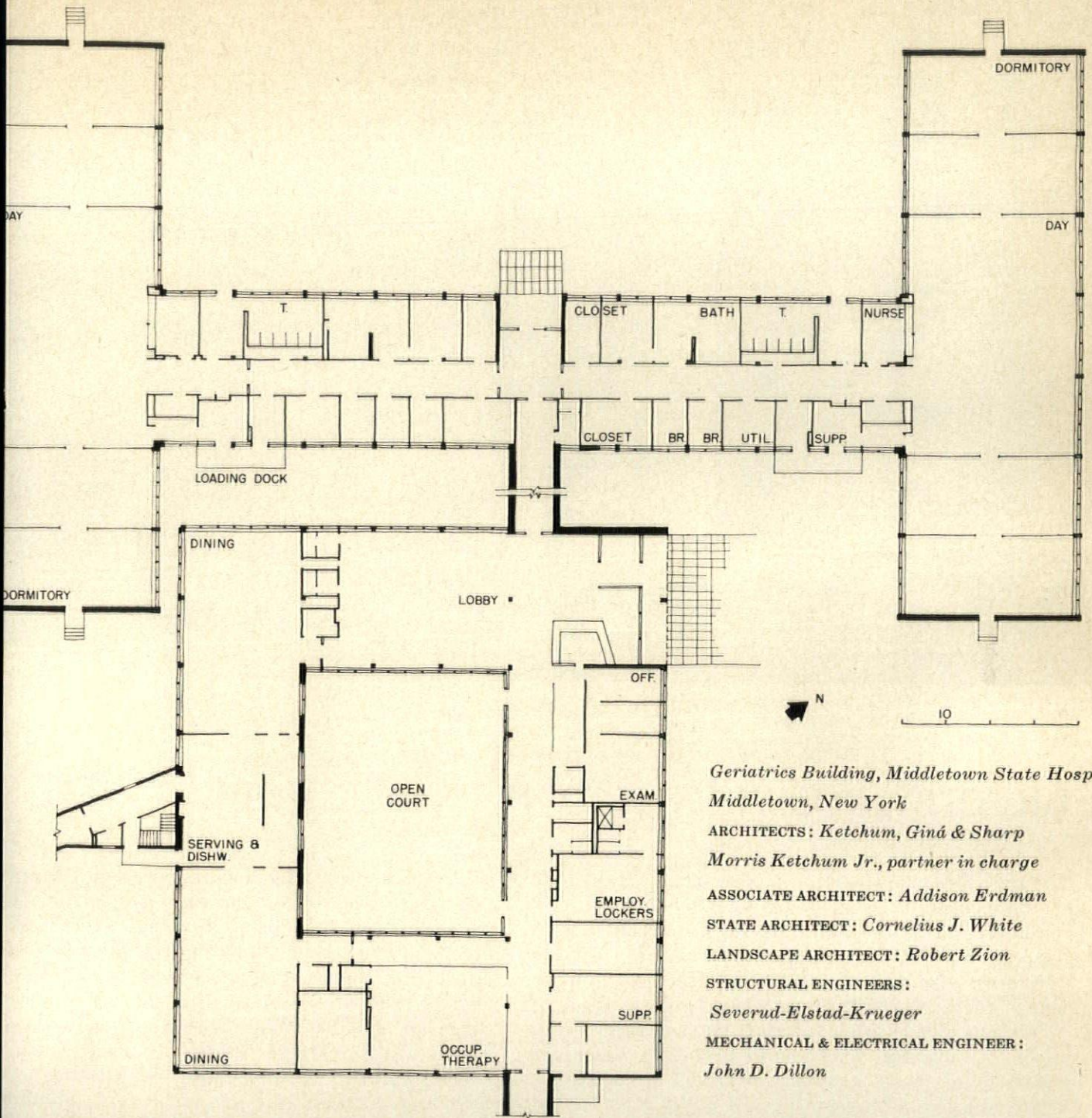
The building is made up of four dormitory units in two H-shaped wings connected to a square central unit built around a planted patio. Off-white brick is used on the central unit and for the long walls of the dormitories. The connecting corridors and the end

walls of the dormitories are done in red brick, a pleasant contrast. Long window walls open up units and provide excellent lighting and cross-ventilation. Windows are framed in aluminum, and fascia is the same material.

The dormitory units, each with two 25-bed sleeping rooms, are further divided into six-bed space dwarf partitions. The central part of each dormitory is a large, well-furnished dayroom which can be supervised easily from a nurse's station. All rooms look onto well-kept lawns and wooded hills.

Crosspieces of the dormitory H's contain rooms for bathing, storage space for linens and clothes, and two or three small bedrooms for any who come ill.

Lobby and reception areas are in the central unit adjacent to a large assembly space used for visiting during the day and entertainment in the evening. Dining space in the central unit is planned on a large scale and facilitate service to give a homelike scale and facilitate service. Food is prepared in a central kitchen in another part of the building and brought via connecting corridor to a serving area in the central unit.



*Geriatrics Building, Middletown State Hospital
Middletown, New York*

ARCHITECTS: *Ketchum, Giná & Sharp*
Morris Ketchum Jr., partner in charge

ASSOCIATE ARCHITECT: *Addison Erdman*

STATE ARCHITECT: *Cornelius J. White*

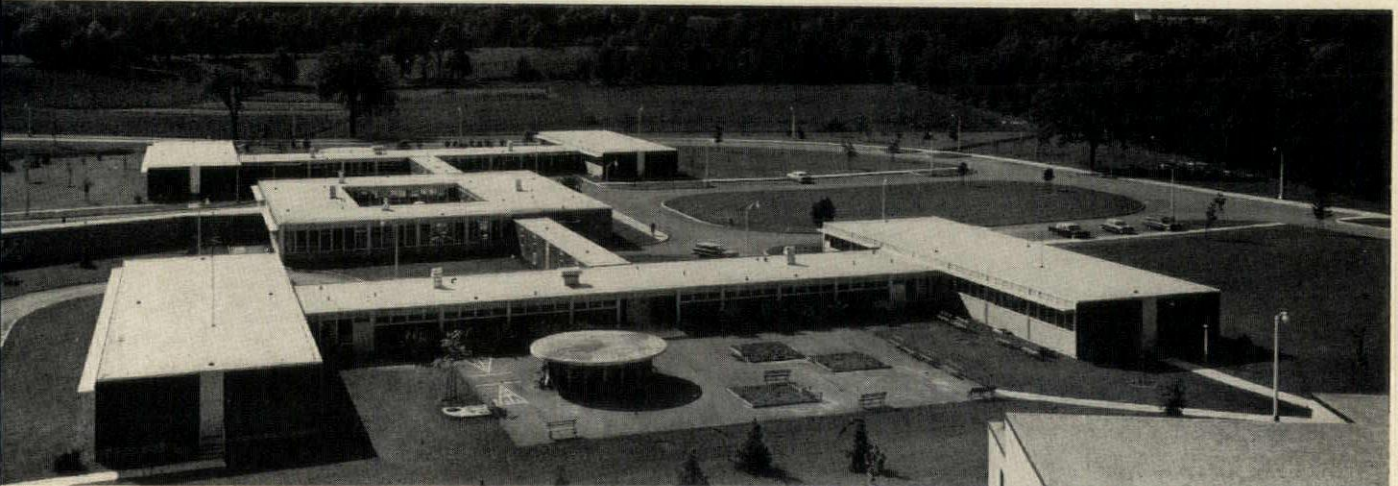
LANDSCAPE ARCHITECT: *Robert Zion*

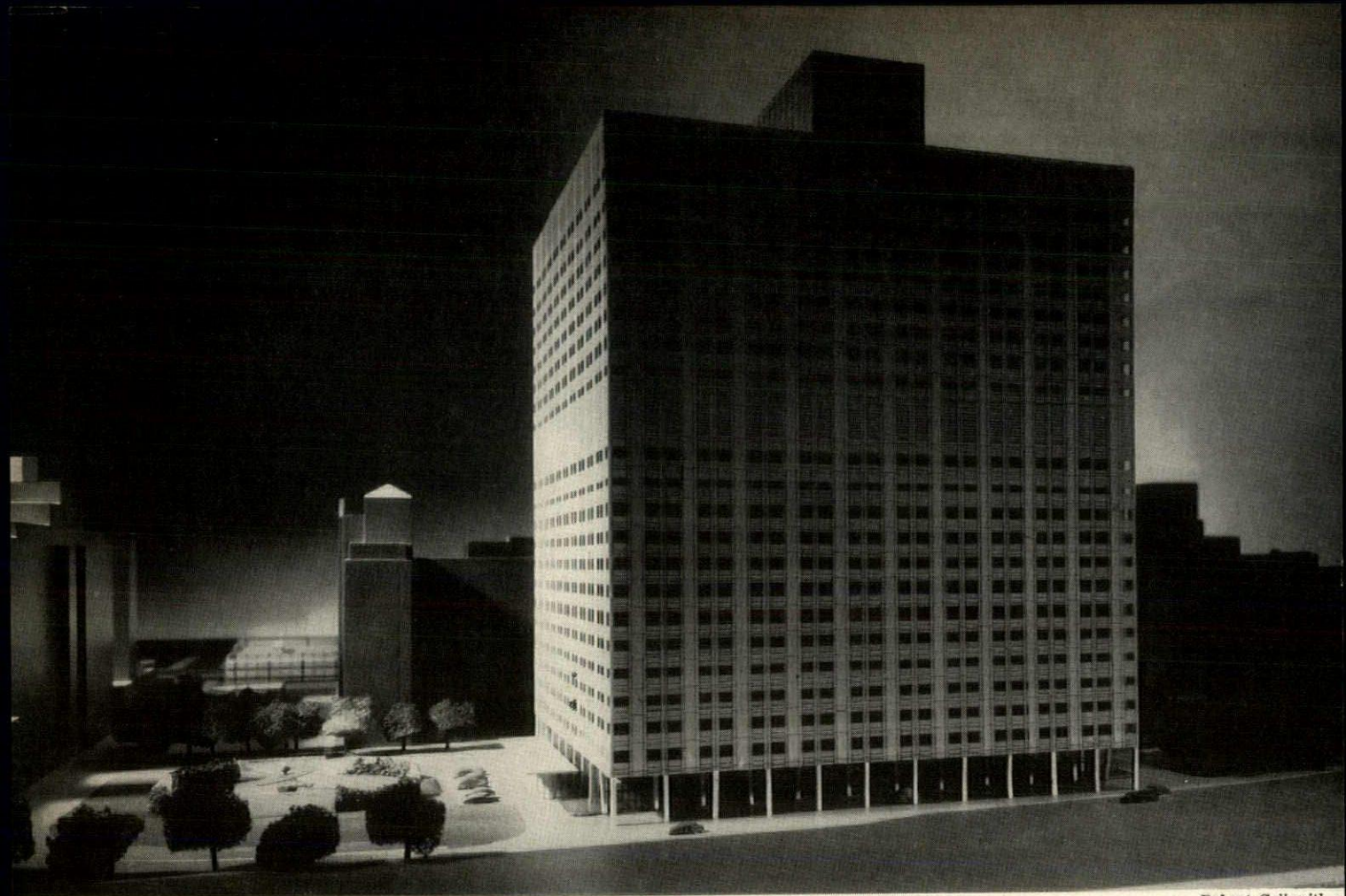
STRUCTURAL ENGINEERS:

Severud-Elstad-Krueger

MECHANICAL & ELECTRICAL ENGINEER:

John D. Dillon





Robert Galbraith p

BIG-CITY COMPLEX IN A FLEXIBLE CUBE

The new Bellevue Hospital in New York City will be a single, block-type structure of 2,000-bed capacity replacing all of the eight pavilions currently used for patient care. Although Bellevue is perhaps unique in size and scope, having teaching and research facilities for three universities in addition to serving as city hospital for an extremely large population, it embodies solutions to problems which are confronting many growing metropolitan areas.

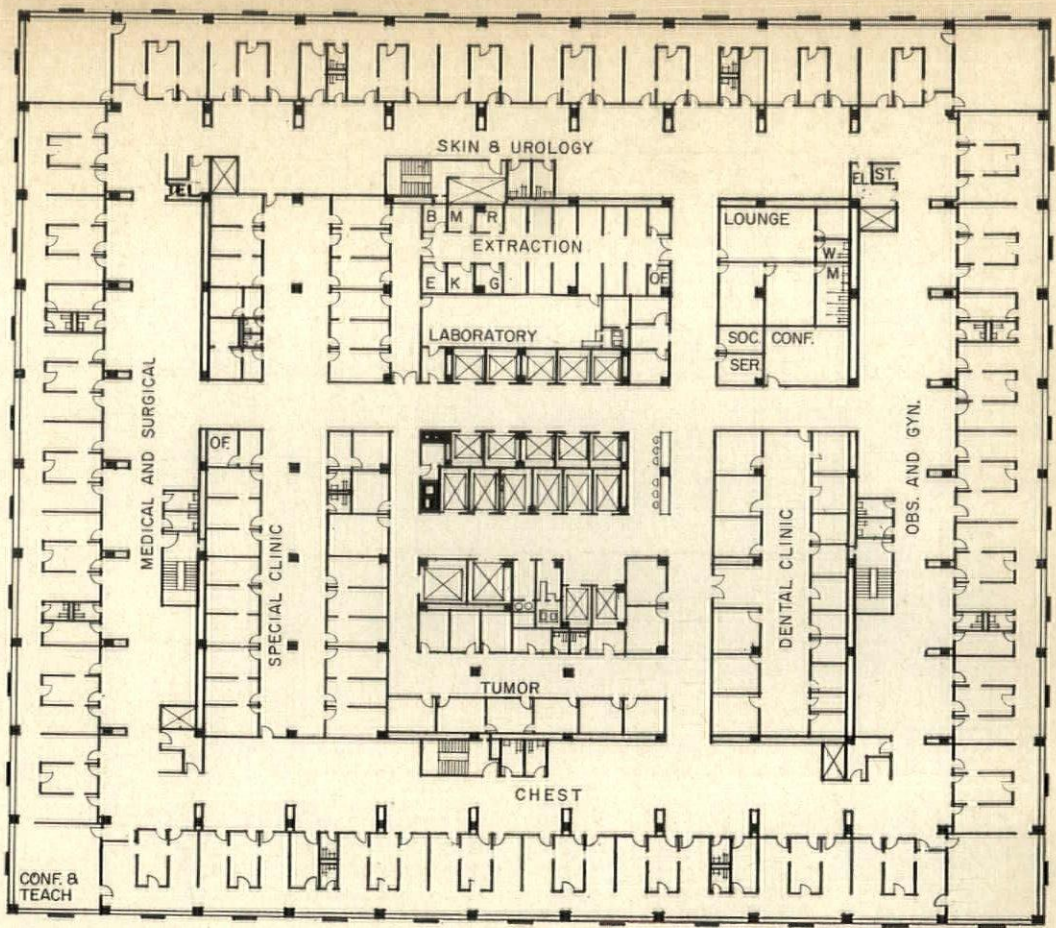
The single-building concept grew out of an urgent need to improve the efficiency of operation of the complex and to integrate teaching and research functions with large hospital operation for the better advancement of the professions and better care of patients. Horizontal, inter-building traffic patterns at Bellevue had reached a degree of complexity that imposed extremely high costs in personnel and maintenance. By taking advantage of advanced systems of vertical transport and a variety of conveyor systems for distribution of food and supplies on each floor, the new 25-floor structure is expected to amortize its construction cost in 10 years of annual savings in the operating budget.

The floor size of approximately 65,000 square feet per floor was determined by the space needs for 180 bed patients together with all their necessary medi-

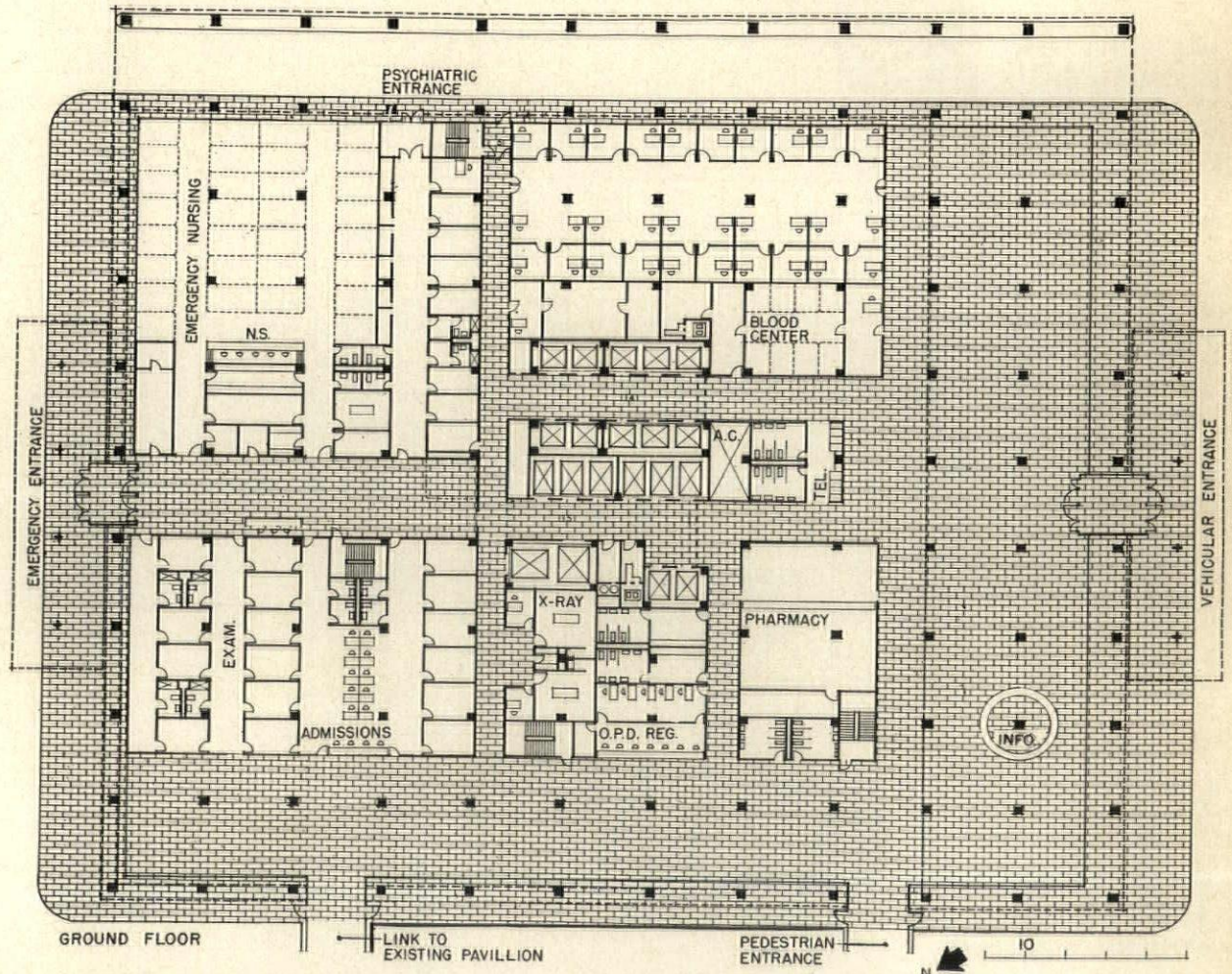
cal, research, teaching, food service and administration spaces. Inquiry among those responsible for research at the three participating universities (Columbia, Cornell and New York University) determined that 180 beds would provide a workable load in each of the general categories of research. Since an establishment of 180 beds constitutes an economically operable hospital in itself, each was designed to contain its own supporting services including X-ray, radiation laboratory, administration, kitchen, etc. This arrangement will make possible to keep patients on one floor for all diagnostic and treatment procedures except major surgery and radiation therapy. Thus, elevator travel by patients will be kept to a minimum while conveyor systems reduce the need for both vertical and horizontal travel by personnel.

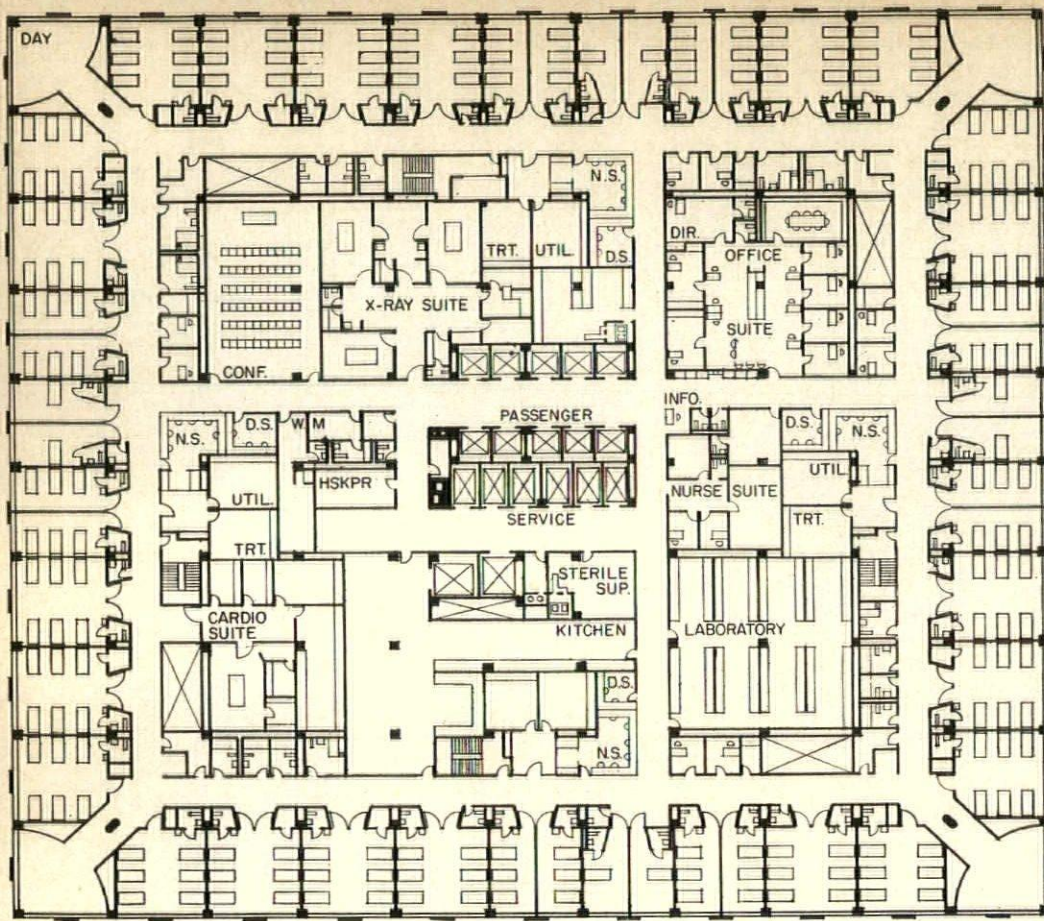
Since daylight is of major importance only to patients while supporting functions can be carried on as well if not better in artificial light, patient rooms are arranged along outside walls and supporting services are located in the central area of each floor. This deployment sets the need for complete air conditioning, and efficiency of the arrangement justifies the expense.

The Bellevue site is confined to four blocks

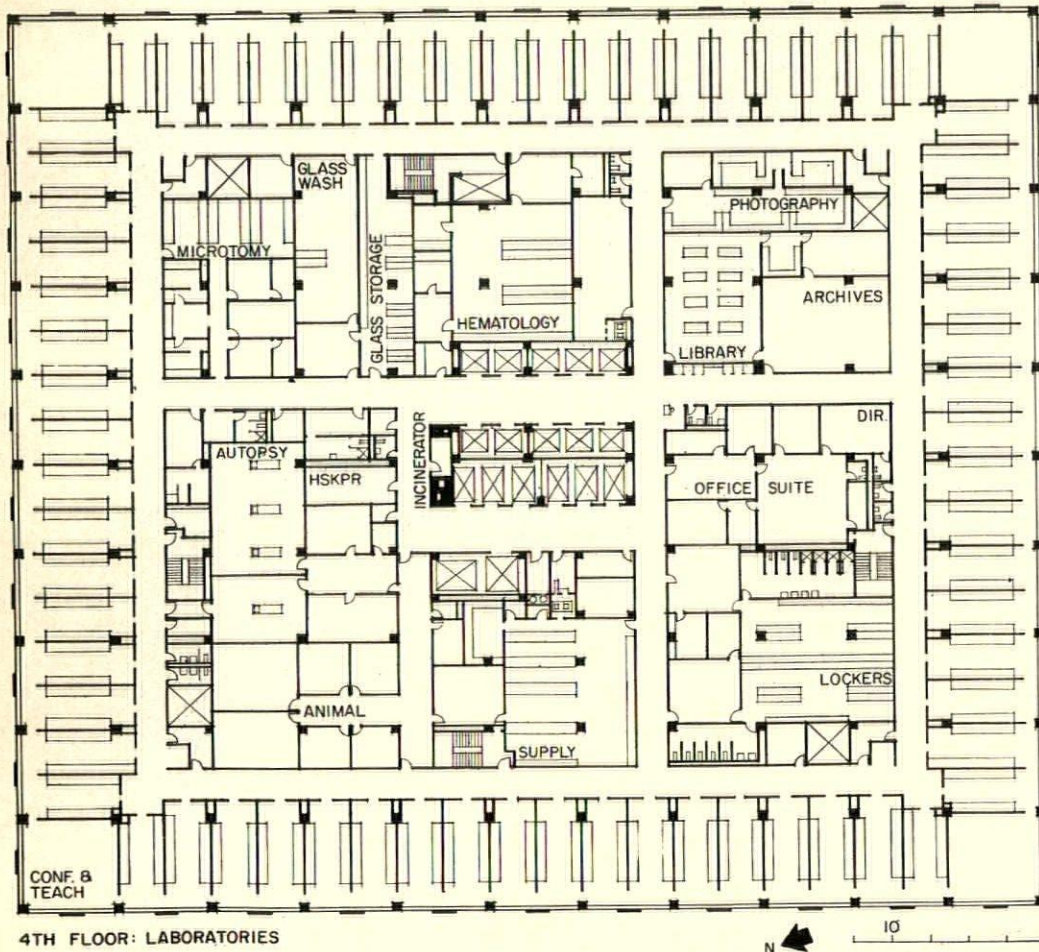


2ND FLOOR: O.P.D.





15TH FLOOR: MEDICAL & SURGICAL



4TH FLOOR: LABORATORIES

Bellevue Hospital Center
New York City, New York

OWNER:

The Department of Hospitals, City of New York, Hon. Ray E. Trussell, Mayor; Commissioner; Project Supervision: Department of Public Works, Bureau of Engineering Construction; Albert B. Berman, Director; Alexander W. Berenson, Architect-Hospitals; Nathan Goldstein, Project Architect

ARCHITECTS:

Pomerance & Breines; Katz Walker Strauss—Joseph Blumenkrantz, Project Administrator; Timoney; Lewis Alan Berne, Project Administrator

LANDSCAPE ARCHITECT:

Robert S. Malkin

MECHANICAL ENGINEERS:

Syska & Hennessy, Inc.

PLUMBING AND ELECTRICAL ENGINEERS:

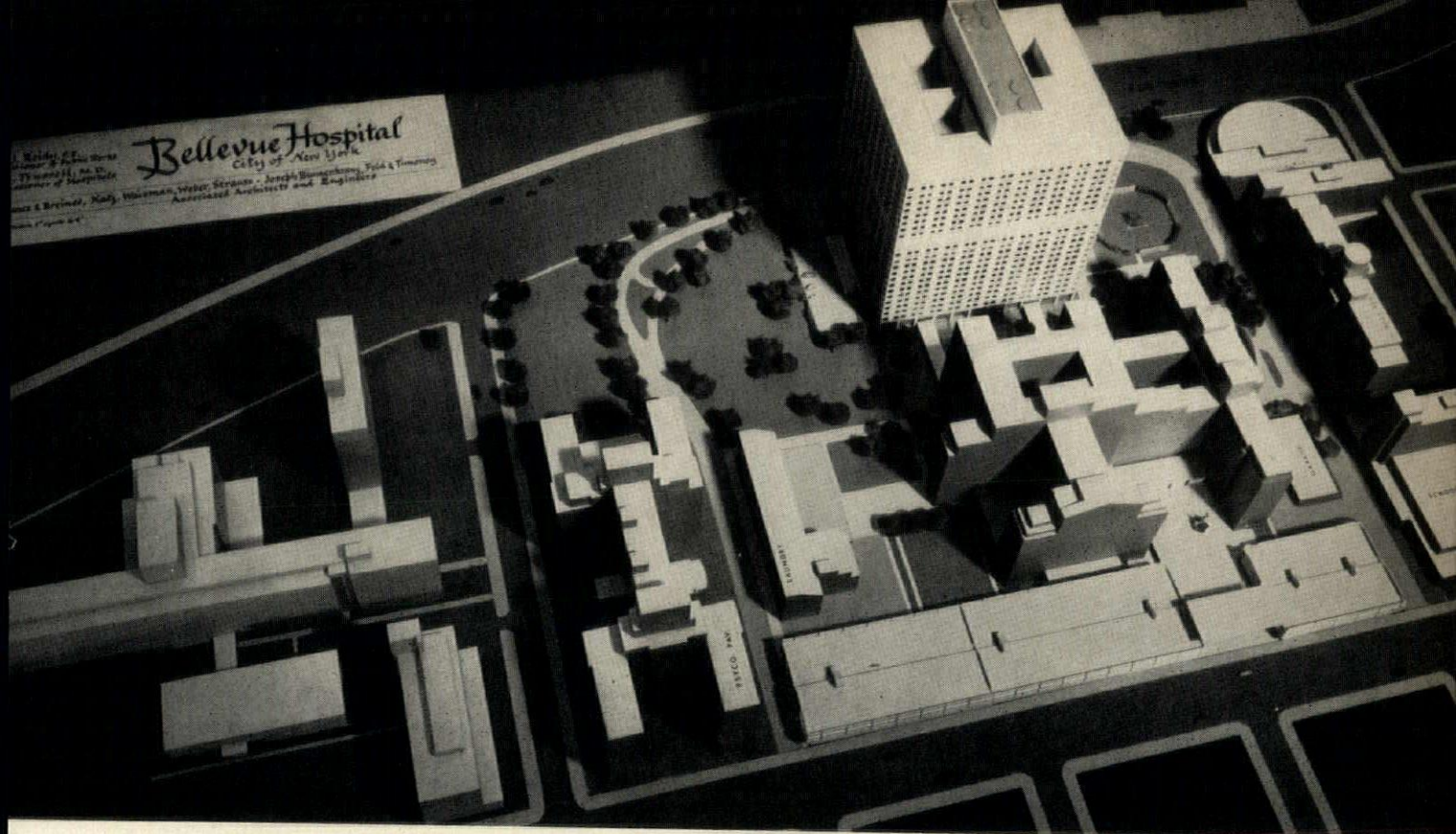
Guy B. Panero, Inc.

ACOUSTICS:

Michael J. Kodaras, Inc.

FOOD SERVICE:

Howard L. Post Associates



g about 22 acres on the eastern shore of Man-
n Island. It is separated from the East River
anklin Delano Roosevelt Drive and is bounded
e west by First Avenue. Existing buildings are
ated that only the present parking lot is avail-
or new construction, a site of approximately
res adjoining the FDR Drive. This location
ermit construction and occupancy of the new
ng before demolition of the old buildings is
d. The present land occupancy of nearly 43
ent will then drop to 34 per cent.

icular traffic patterns will allow complete sep-
n of trucking and passenger traffic. Trucking
y and discharge will be to a covered service
at cellar level, fully concealed from above-
view, allowing isolation of noise and screening
handling of refuse.

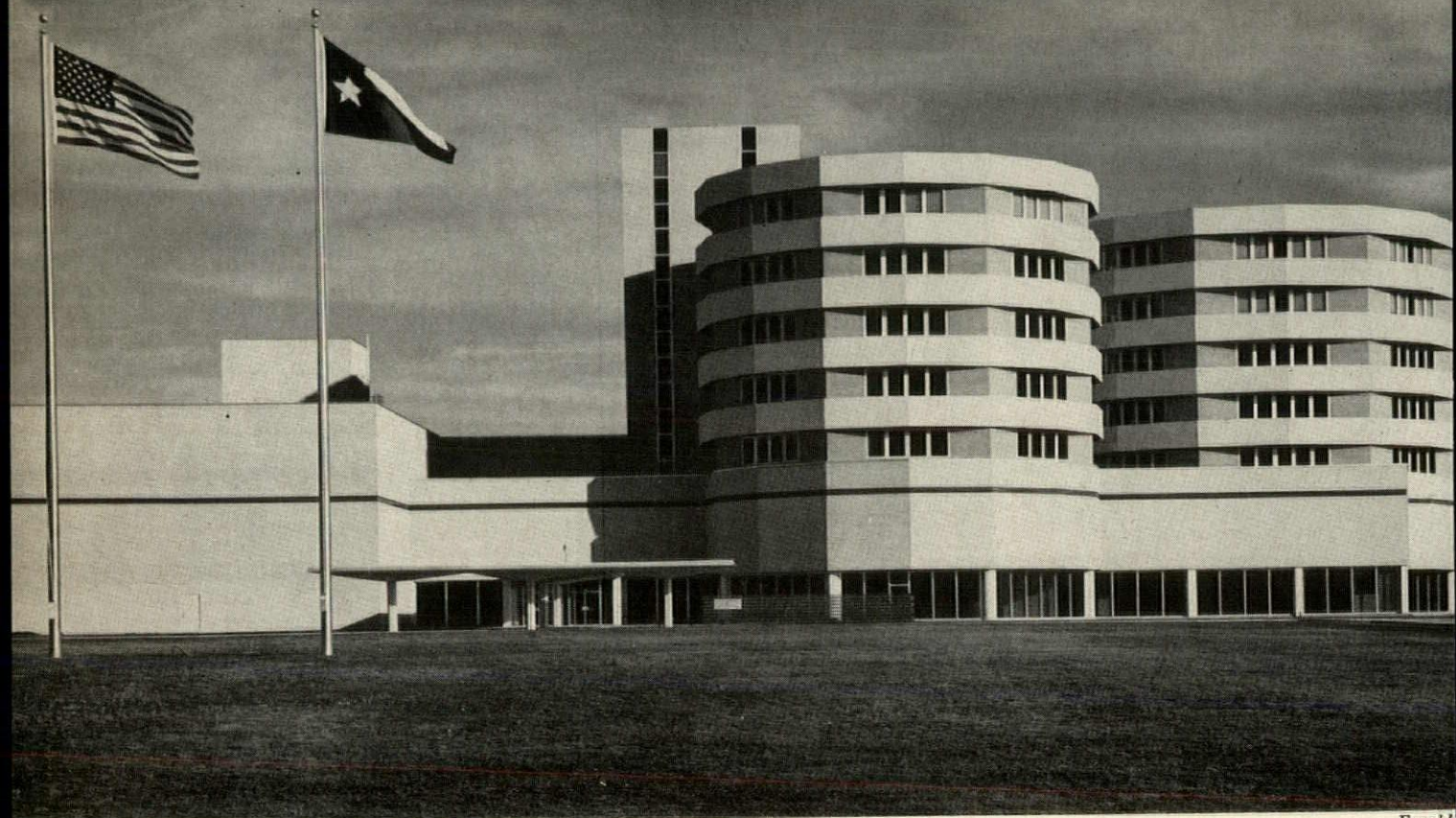
essenger access by ambulance or automobile will
ground level close to related functional divi-
of the new structure. A helicopter landing
outh of the new building will make possible
transportation of accident victims to the
ency treatment station. Pedestrian access and
ation will remain at First Avenue from which
ered walkway will be provided. It will be
l by a new garage and parking facilities. The
e will be a multi-level, self-parking, open-face
g, first stage of which has already been built
ary 1964, pages 164-166) to replace the park-
ea being used to construct the new hospital.
ent areas and day rooms are placed peripher-

ally around a continuous corridor. There is no rigid
concept of fixed nursing units. Patient areas are
served from nursing posts, each of which consists of
a nurses' station, a doctors' station, a treatment
room and a utility room. Variable numbers of pa-
tients can be assigned to these posts on the basis of
degree of care required. Hence, a progressive care
section can be instituted on each floor as required.

The center of each in-patient floor contains two
elevator lobbies. One of these will have 10 elevators
for staff, personnel and visitors. The other will have
six elevators for in-patients and for service. Out-
patients will be served separately by four elevators.

The identical shape of each floor plan permits
easy adaptability to fluctuations in case loading for
various categories of patients: acute, long-term,
psychiatric, etc. Similarly, on out-patient floors, the
peripheral arrangement of examination and treat-
ment rooms around contiguous waiting areas per-
mits flexibility in the number of treatment stations
assigned to specific clinical loads.

The loft-like structure, without wings or setbacks,
although primarily based on efficiency of patient
care, has other important economic advantages. A
uniform structural system of steel and concrete in
24-foot bays with walls of precast, exposed aggre-
gate concrete provides a low-cost structure. Cubic
shape gives a low ratio of wall to content, with con-
sequent savings in heating and cooling costs. Stark-
ness of the concrete cube is offset by the textured
rhythm of orderly variation in sill and floor heights.



Franklin

RADIAL WARDS SERVE A TEACHING HOSPITAL

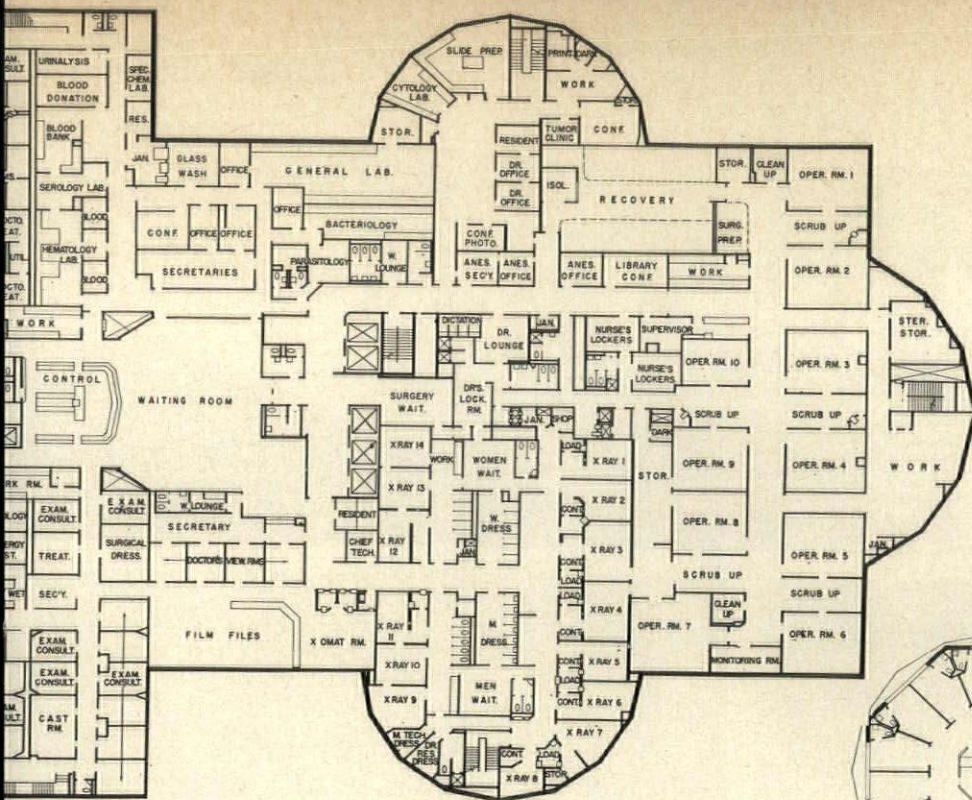
Program assignment for this institution was to integrate functions of a 315-bed hospital, a diagnostic clinic, the Olin Culberson Research Center, the Temple Division of the University of Texas Post-Graduate School of Medicine and the Scott and White School of Nursing. All of these were to be drawn together from some 31 scattered buildings and meshed as an operating whole in a single new building on a suburban site of about 300 acres.

Basic plan of the building is a two-story tee at the base of which a clover leaf of three octagonal towers rises five additional stories. Stem of the clover leaf is a rectangular tower housing elevators and ancillary spaces which serve radial nursing units on each octagonal tower floor. Spine and head of the tee carry a third story of obstetrical and pediatric facilities. The basement level extends as a wing above the down-sloping grade at the rear of the tower section. It houses mechanical and utility spaces, emergency reception, medical library, radiation and hydrotherapy, doctors quarters, etc.

The two main floors are devoted principally to diagnostic clinics, and consultation and examining

rooms for 65 staff specialists, and 40 intern and student physicians who function in group practice. Administration offices are in the glass-walled entrance level, and the major portion of the windowless floor above it is devoted to surgical and radiology services.

Evolution of the radial nursing unit began at the Methodist Hospital and Mayo Clinic in Rochester about seven years ago as a quest for means of meeting the need for 24-hour special duty nursing. The radial unit with central nursing station permitted constant observation of patients to be handled in active hours of the day by ward nurses. Although the Scott and White towers comprise the largest application of radial units to date, Ellerbe Architects, who participated in the Rochester program, cite subsequent experience with radial units at some 20 hospitals. The radial ward, they point out, has resulted in a marked reduction of distances walked by nurses during a one-day shift. Also, contrary to early speculation, patients are actually visited by nurses more frequently because patients can see when a nurse is free and call her without interrupting other



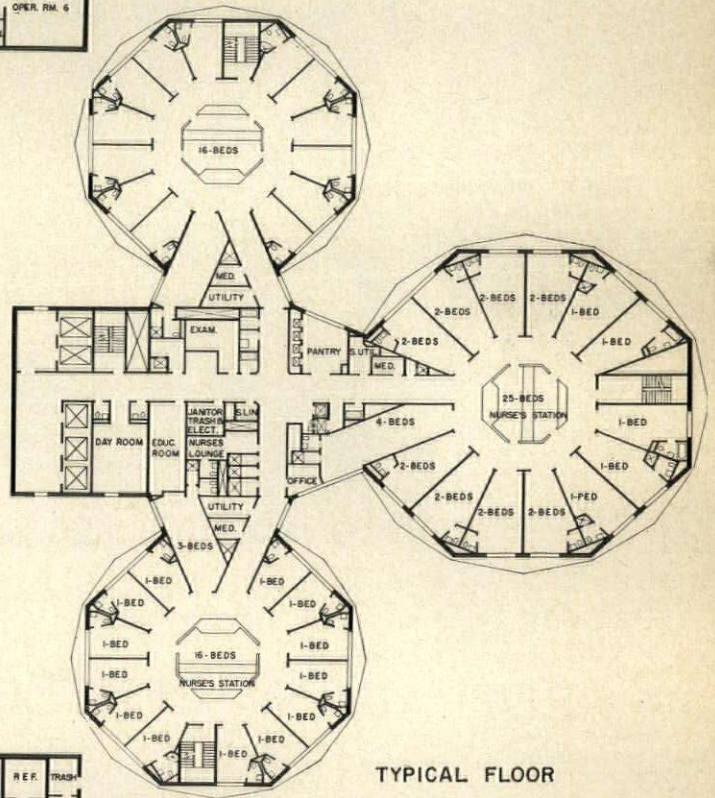
FLOOR

White Memorial Hospital and
Wood and Brindley Foundation, Temple, Texas

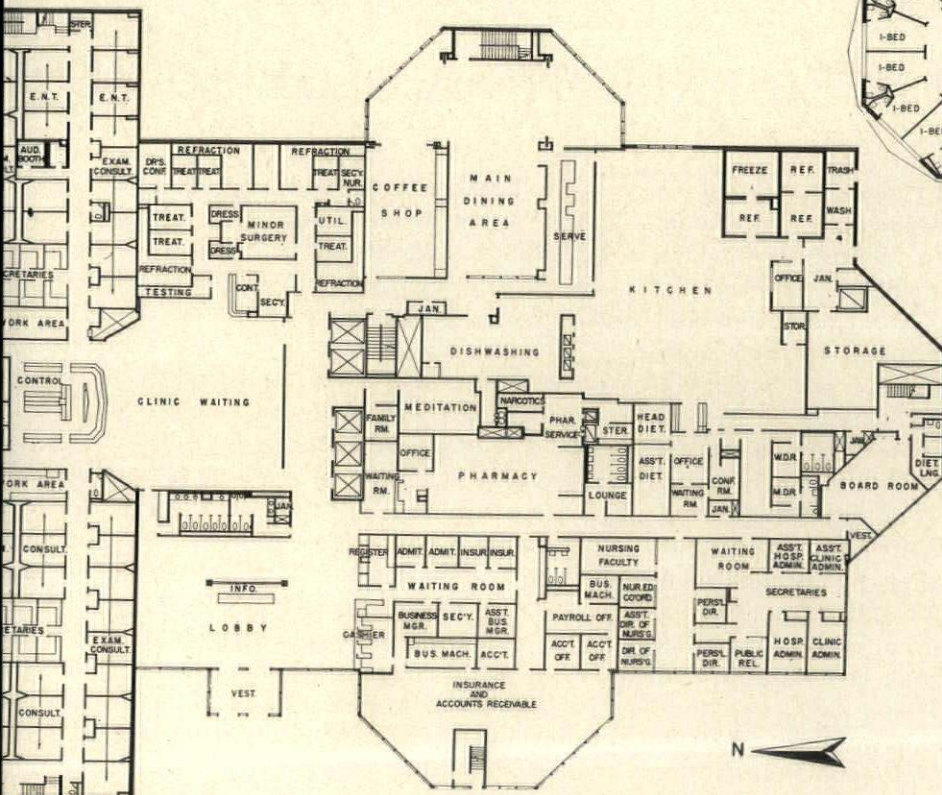
ENGINEER: Wyatt C. Hedrick

ARCHITECTS: Ellerbe Architects

CONTRACTORS: H. A. Lott, Inc., with
Drake and Piper



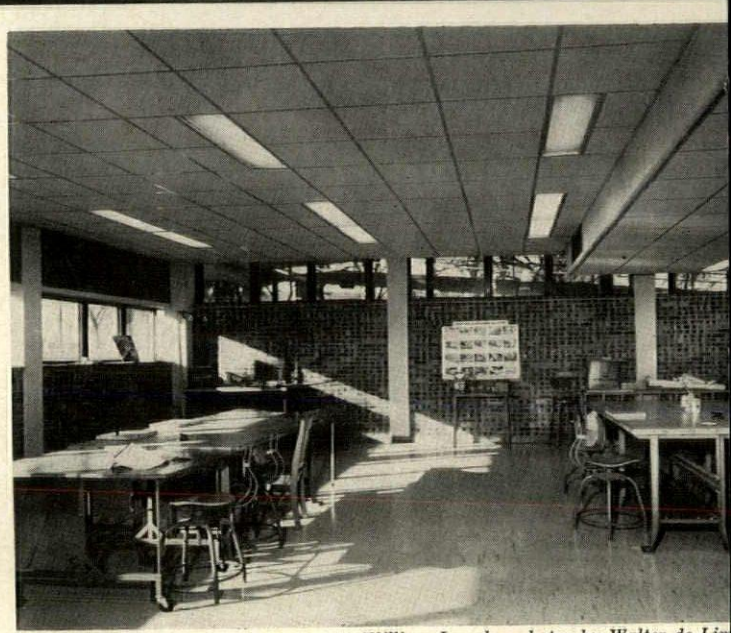
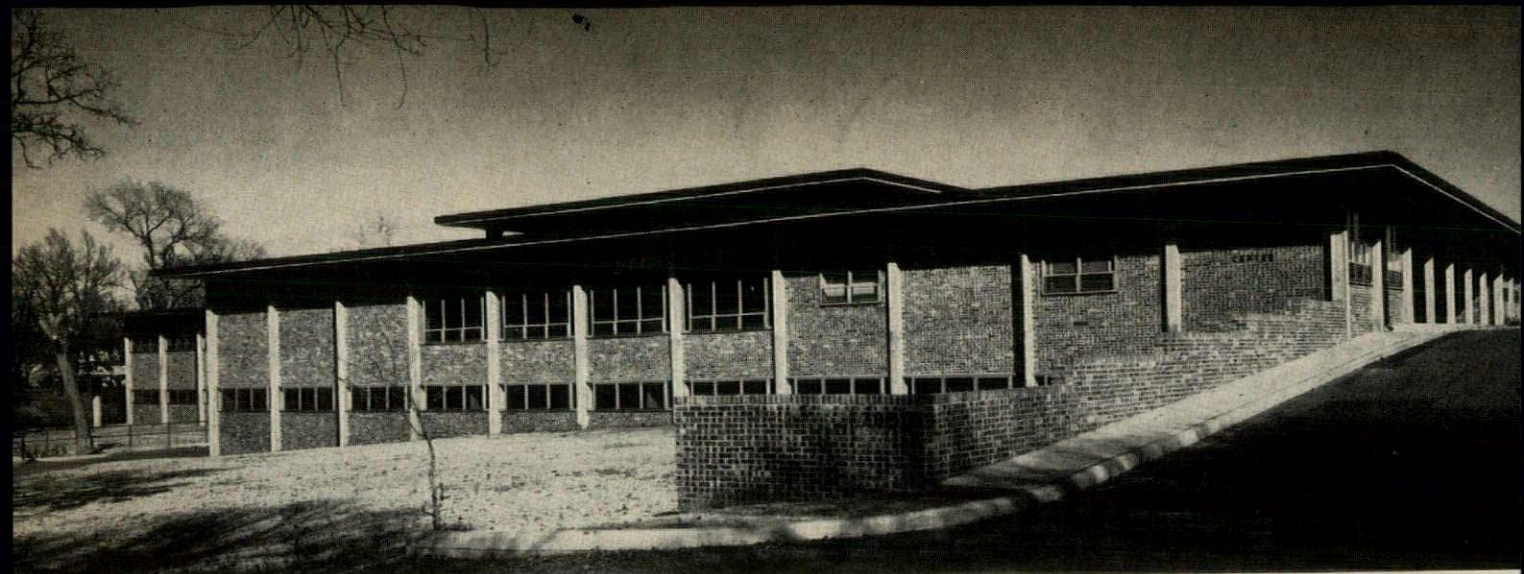
TYPICAL FLOOR



FLOOR



10



William Langley photos by Walter de Lina

RETRAINING CENTER EXPLOITS A SLOPING SITE

The Caruth Center provides all types of physical rehabilitation with special emphasis on vocational retraining. It is on a four-acre sloping site which permits a two level arrangement separating the basic functions of the center. Administration and living spaces are on the upper level while therapy and vocational training spaces are on the lower level, each with a separate main entrance. Two passenger elevators and one service elevator provide vertical circulation.

Initial construction provides 28 beds for in-patients with therapy spaces sized for an extensive outpatient program in physical therapy, occupational therapy and hydrotherapy. Each patient's program at the center is individually evaluated at prescribed intervals during a time which may last from several weeks to several months.

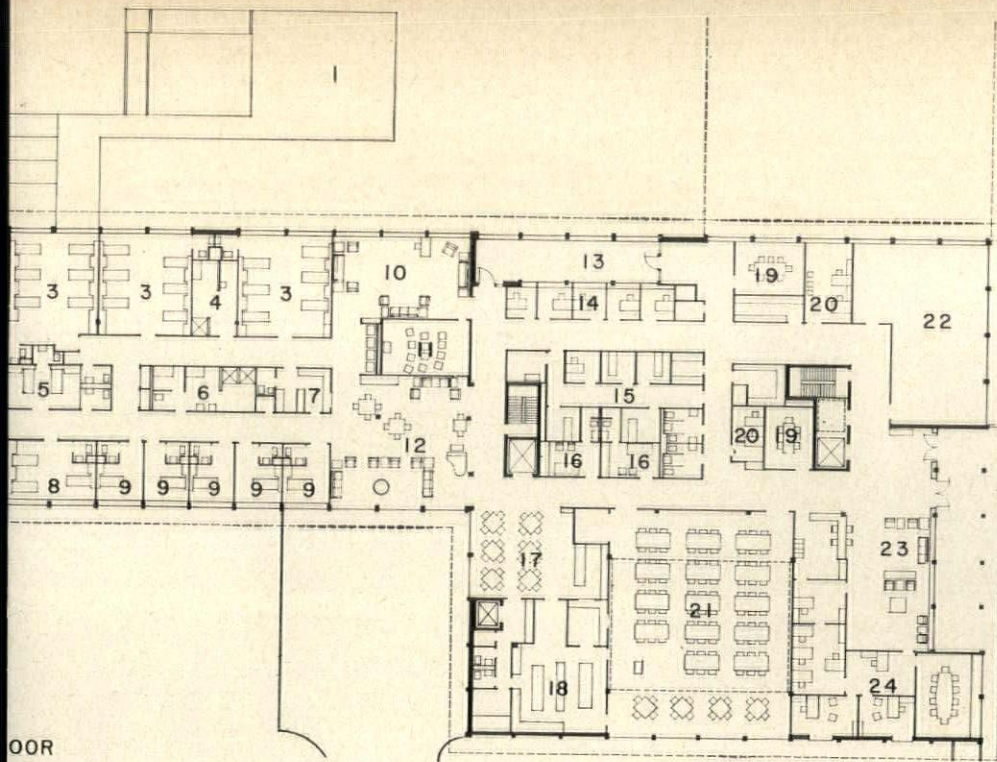
An outdoor area serves the therapeutic program through variations in paving and slope for training in handling wheel chairs and other locomotion de-

vices. The area contains a typical street crossing. Other training areas include rooms devoted to activities of daily living and typical home situations. Most of these training spaces are on the ground level where they are readily accessible to all.

The module of design was the wheel chair. Doors, doors, lavatories, and furniture are sized and spaced to accommodate wheel chair patients. An exterior concrete ramp is provided as an escape route at the north end of the nursing wing.

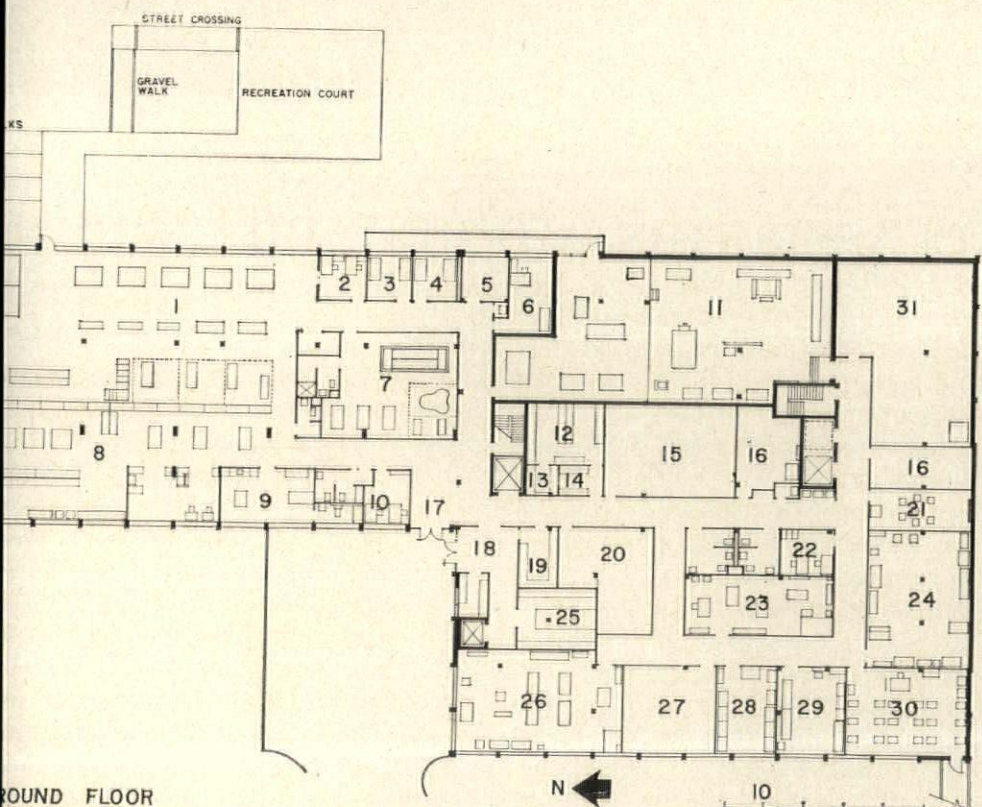
Structure is reinforced concrete frame with exposed dome slabs in the major rooms. The walls are on 12-foot modules with a two-way concrete system. Walls are cavity masonry.

The entire building is air conditioned with a central hot and cold water system serving fan-coil units in perimeter areas supplemented by air handling units in interior zones. Structural planning provides for future expansion to more than double the present area.

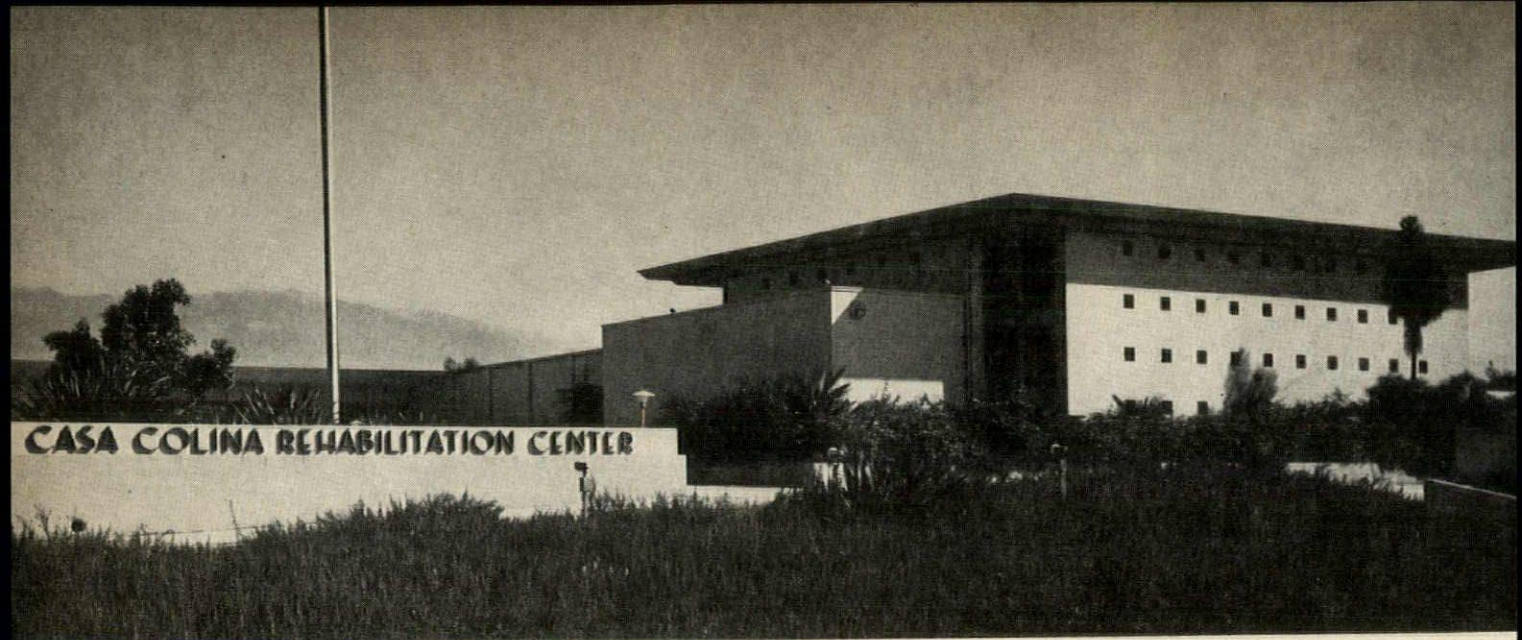


1. Recreation court
2. Ramp down
3. 6-bed room
4. Bath women
5. 2-bed room
6. Bath men
7. Nurses station
8. 3-bed room
9. 1-bed room
10. Living room
11. Television room
12. Activity room
13. Porch
14. Doctors offices
15. Examination rooms
16. Staff lounges
17. Snack bar
18. Kitchen
19. Conference room
20. Office
21. Cafeteria and auditorium
22. Speech and hearing space
23. Reception and waiting
24. Administration

MEMORIAL REHABILITATION CENTER, DALLAS, TEXAS
 DALLAS REHABILITATION INSTITUTE
 ARCHITECT: Howard R. Meyer
 MECHANICAL ENGINEER: Frank W. Chappell
 ELECTRICAL ENGINEERS: Leo L. Landauer & Associates
 STRUCTURAL ENGINEERS: Hunt and Joiner, Inc.
 CONSULTANTS: Mason-Johnston & Associates
 CONTRACTOR: T. C. Bateson Construction Co.
 MECHANICAL CONTRACTOR: Natkin & Company
 ELECTRICAL CONTRACTOR: Hall-Fisk Electric Co., Inc.



1. Physical therapy
2. Physical therapy office
3. Day students lounge
4. Day students lounge
5. Brace fitting room
6. Testing & O.T. student lounge
7. Hydrotherapy
8. Occupational therapy
9. Activities of daily living
10. Occupational therapy office
11. Mechanical equipment
12. Central supply
13. Pharmacy
14. Office
15. Brace shop
16. Storage
17. Ground floor entrance
18. Service entrance
19. Clean linen
20. Laundry supply
21. Visual education
22. Vocational training office
23. Upholstery shop
24. Prevocational testing
25. Kitchen supply
26. General shop
27. Industrial training classroom
28. Electrical shop
29. Arts and crafts
30. Business administration classroom
31. Unfinished



Douglas M. Simmons

COURTS AND CLASSROOMS AID REHABILITATION

This is a full scale rehabilitation center offering a wide variety of therapeutic and educational services for all ages. It provides a 72-bed facility of 57,639 square feet on a single floor replacing a 25-year-old establishment formerly at Chino, California. Site for the new building is 10 acres, formerly an orange grove. Separate structures for laundry and garage comprise an additional 4,500 square feet.

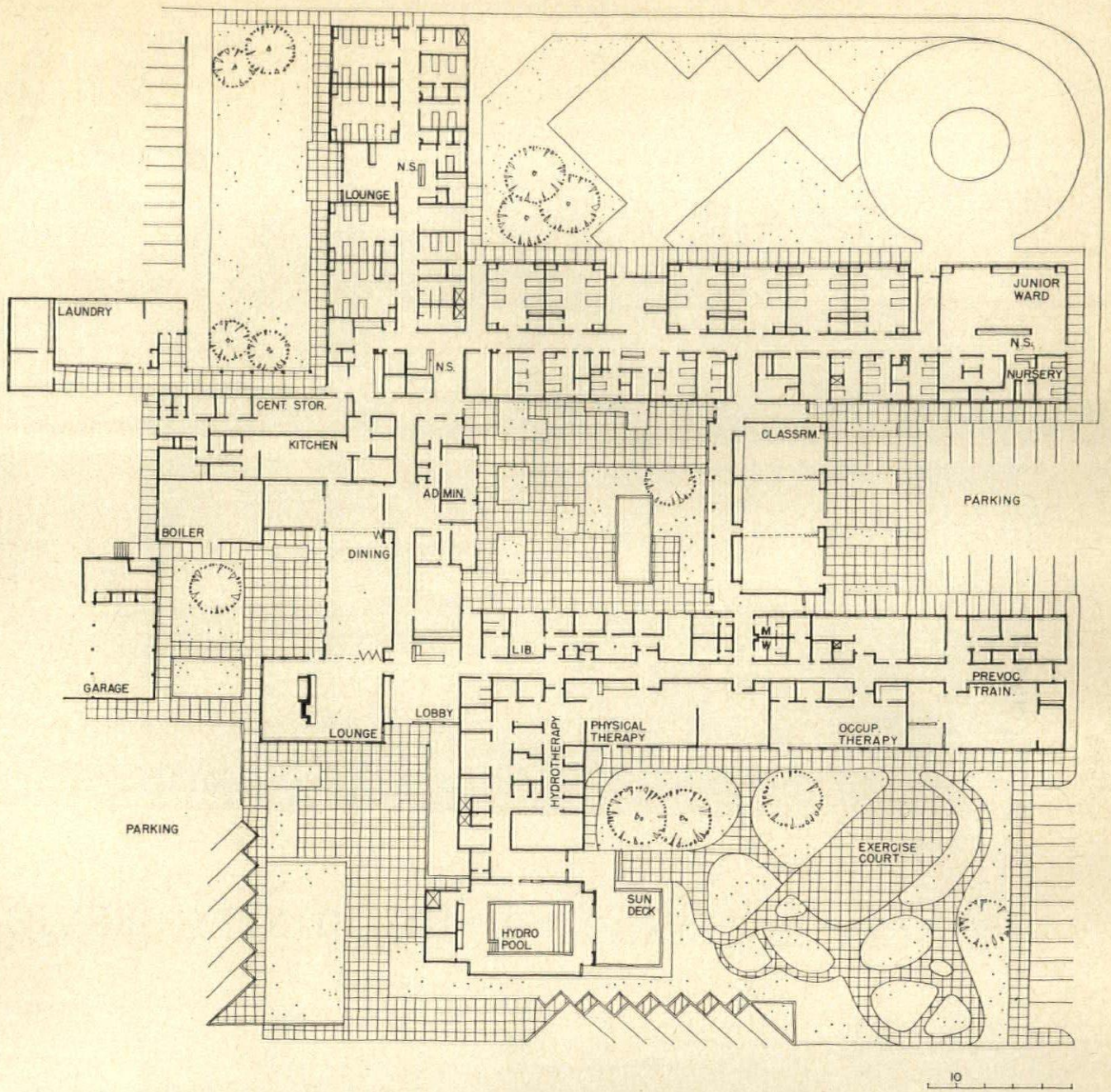
A system of arcades and courts provides orderly separation of nursing, educational, administration and therapy spaces with a unifying relationship to the out-of-doors. Outdoor privacy is assured by plantings and walls between parking and exterior courts.

Services include programs in physical therapy, occupational therapy, prevocational testing, speech

and hearing analysis, psychological services complete school curriculum for grades 1 through 12 which is carried out through the cooperation of the Pomona school district.

Spaces for therapy and education are sized to accommodate an extensive out-patient program. The hydrotherapy wing is especially equipped with hydrotherapy tanks, whirlpool baths and a large therapeutic swimming pool equipped with special devices.

Construction is of reinforced concrete with exterior walls, slab floor, wood and plaster interior partitions except in the hydrotherapy wing which is framed in steel. The building is completely air conditioned by a 14-zone system of chilled and hot water piped to air-handling units in each zone.



Casa Colina Rehabilitation Center, Inc.
Pomona, California

ARCHITECTS:
Henry L. Eggers and Walter W. Wilkman

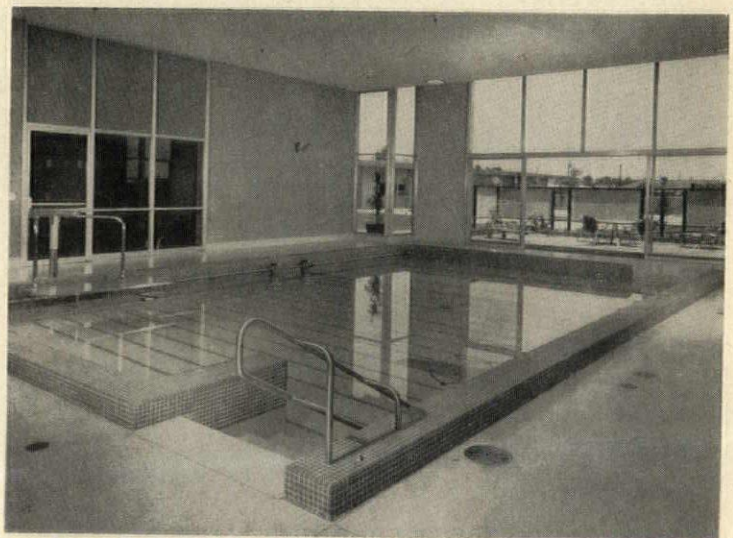
LANDSCAPE ARCHITECT:
Victor H. Pickney Jr.

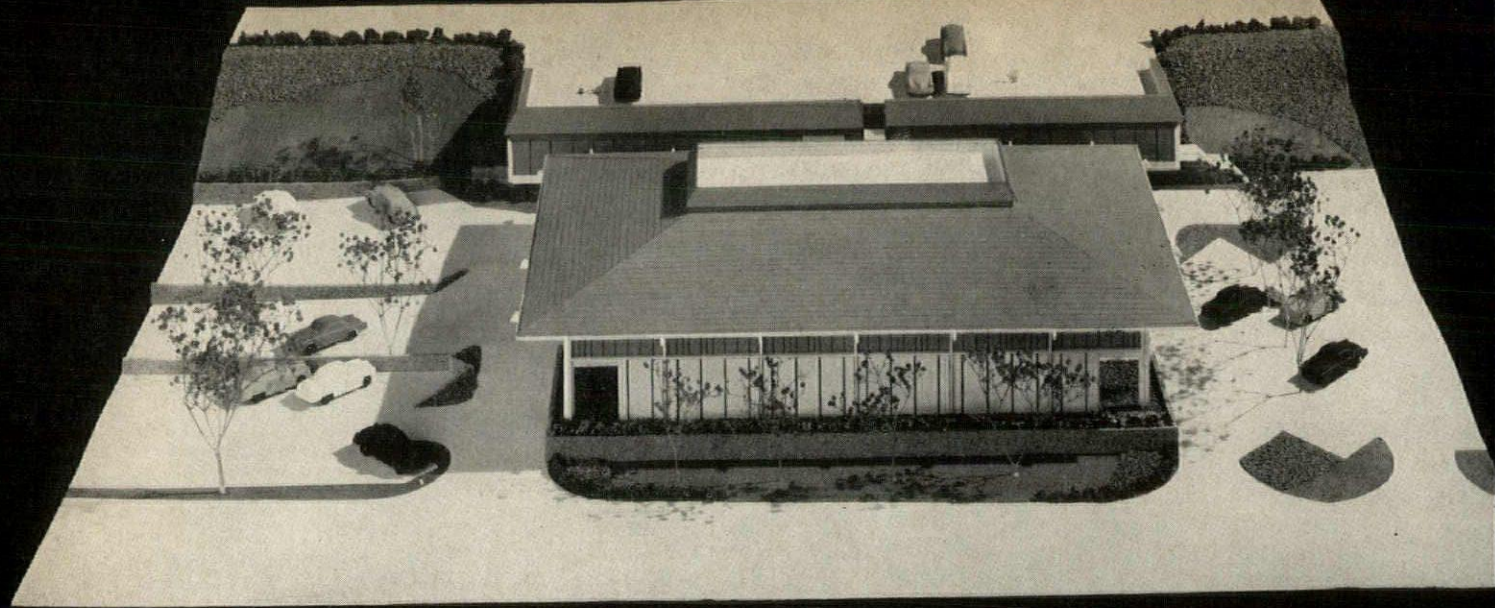
CIVIL ENGINEER:
H. C. Vanden Bossche

STRUCTURAL ENGINEER:
Donald Douglas

MECHANICAL ENGINEER:
Thomas H. Perry

ELECTRICAL ENGINEER:
Stuart B. Eddy





Davis Studio

A TWO-LEVEL CLINIC FOR COMMUNITY SERVICE

The Fairmont Clinic is an out-patient facility, open to the public but charged primarily with providing full medical services for United Mine Workers members and their families. There is no overnight care.

Offices and examining rooms are provided for surgeons, internists, ear, nose and throat specialists, eye specialists, obstetricians, pediatricians, dentists, psychiatrists and social workers. The 16 doctors' offices are grouped together on an upper level of the building, serviced by both stairs and elevators.

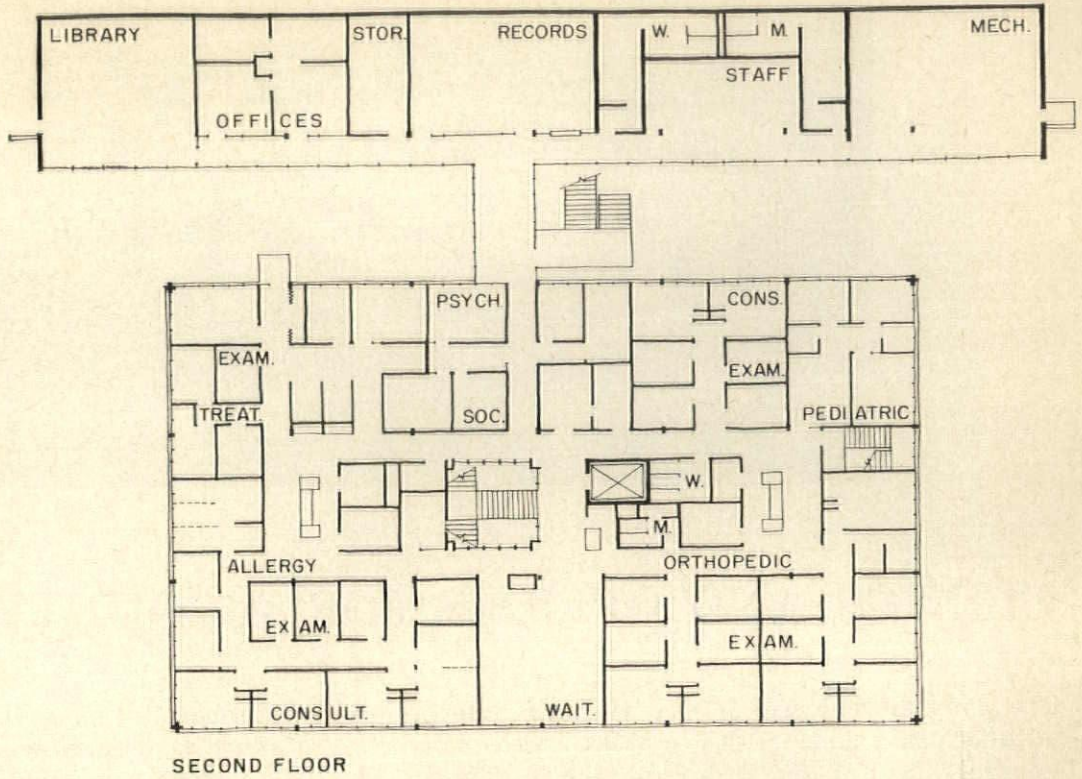
On the ground level are facilities for emergency, minor surgery, radiology, physical therapy, laboratory and reception.

In the rear wing, which because of the site conditions is actually the upper level, are located administrative facilities and such staff facilities as a library, conference room and a lounge.

The building is located on 2½ acres fronting on a narrow but heavily traveled highway directly across from the Fairmont General Hospital. While some of the patients will come by bus, most will arrive by automobile. This indicated that three types of park-

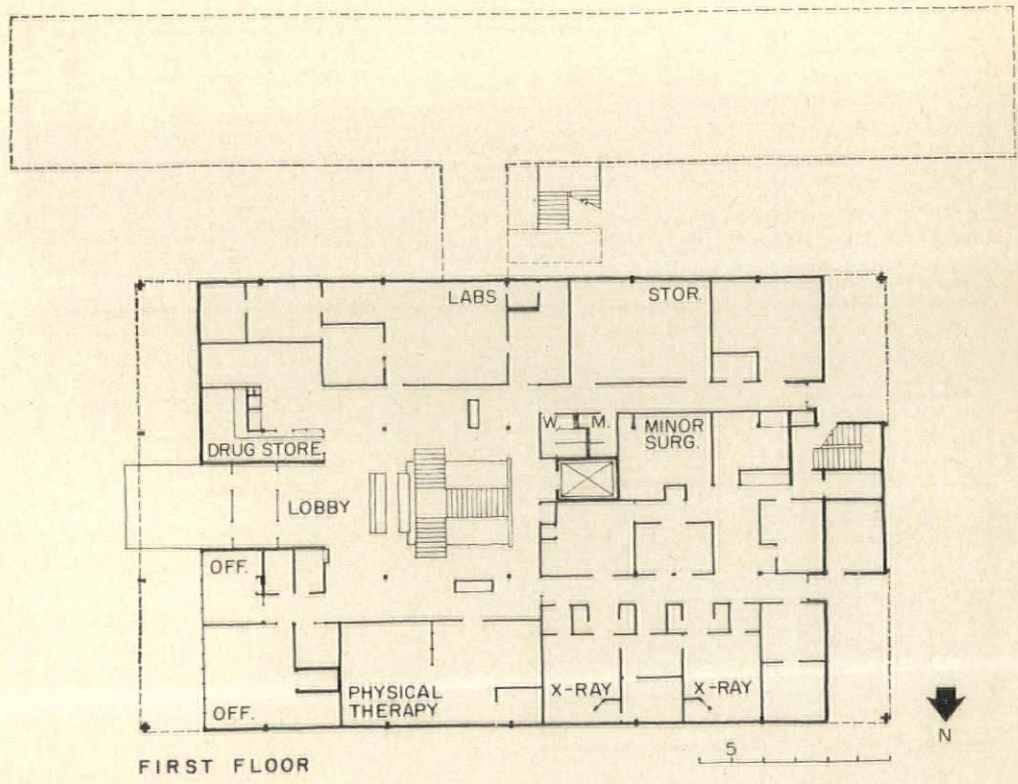
ing were necessary: (1) convenient entrance parking for patients; (2) in-and-out parking for doctors; (3) all-day parking for supporting staff. Because of the site contours which are reasonably level across the front and to a depth of less than 100 feet, but rise steeply over 30 feet higher than the road to the rear of the property, it seemed appropriate to provide for patients and doctors parking on the highway level and the staff at the upper level, which is accessible by a minor street at the rear. To accommodate an adequate number of cars, it was rather necessary to use the roof of the rear wing as a deck parking facility from which a stair descends to the upper level of the building.

Because the building can be observed both from the highway and from above on the hillside, the roof was developed for the main building with overhangs to reduce solar heat gain. The attic space created is used for air-conditioning equipment and elevator machinery. The building is a steel structure with precast panels on the ground floor and steel wall panels on the second floor.



SECOND FLOOR

...ont Clinic, Fairmont, West Virginia
 ...s: The Monongahela Valley Association of Health Centers
 ...ECTS: E. Todd Wheeler and The Perkins & Will Partnership
 ...NICAL AND ELECTRICAL ENGINEER: William A. Brown
 ...TURAL ENGINEER: Donald J. Neubauer
 ...AL CONTRACTOR: Baker & Coombs



FIRST FLOOR



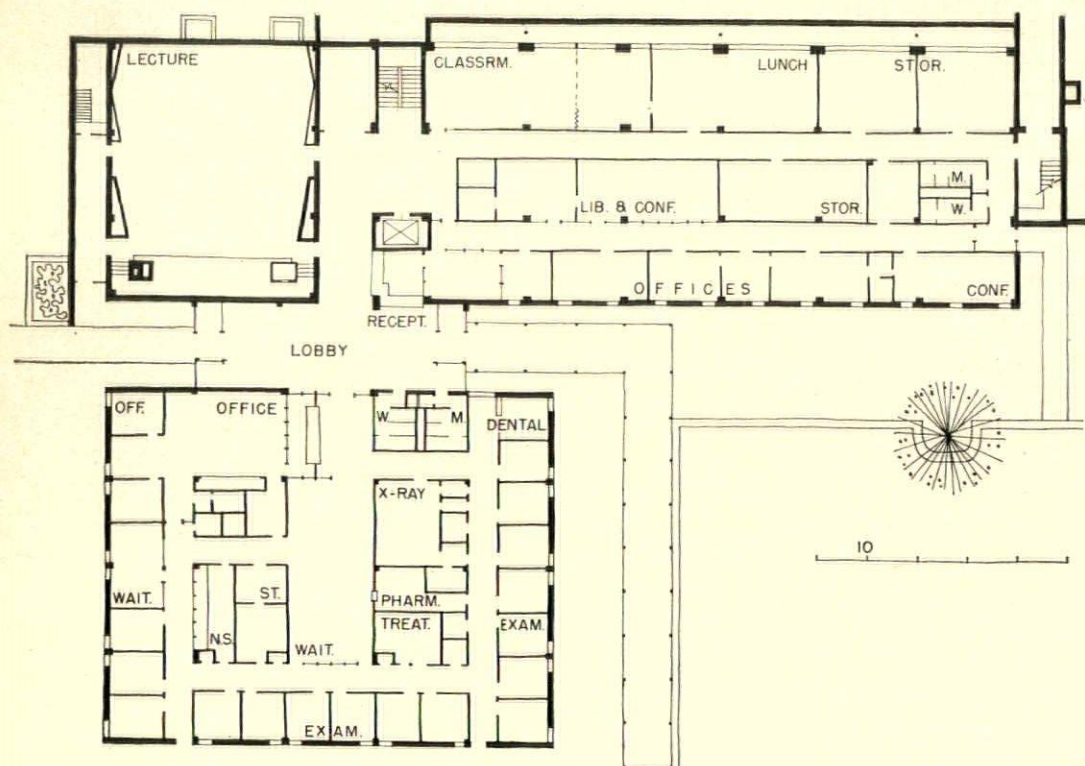
CLINICS AND OFFICES FOR A COUNTY CENTER

The Topeka-Shawnee County Health Center is an adjunct of a county health complex which includes a general hospital and a nursing school. The site is centrally located in the city, and the building is integrated into a medical facilities program being developed to serve an ultimate population of 170,000 persons.

The building consists of a one-story clinic wing attached through lobby space to a two-story wing housing offices and classrooms. A large lecture hall at one end of this wing is two-stories high, acoustically treated and divisible by folding partitions into

two separate rooms. Public health nurses and sanitarians have office space on the second floor of office wing. A multi-use food service area on the first floor will be a demonstration and education facility for food handlers. Regular meals will be served through automatic food dispensing machines in dining room.

The clinic was planned to allow one physician to serve three examining rooms. An underground tunnel connects the health center to the nearby general hospital which will provide supporting laboratory and certain treatment services.



Topeka-Shawnee County Health Center, Topeka, Kansas

OWNERS:
Shawnee County and City of Topeka, Kansas

ARCHITECTS:
Ekdahl, Davis and Depew

STRUCTURAL ENGINEERS:
Finney & Turnipseed

MECHANICAL & ELECTRICAL ENGINEERS: *Scott & Kinney*

GENERAL CONTRACTOR:
Bowers Construction Company

Architectural Engineering

"Built Environment"

Instead of separate and partial approaches to what is essentially an integrated set of problems, the time has come to study all research problems of "built environment" in relation to each other. This thinking of The Royal Institute of British Architects has led to its call for the setting up of a research council to cover physical planning, architecture and construction. Building technology in Britain is at present served by the Building Research Station, a part of the Department of Scientific and Industrial Research; and it is the Institute's view that this organization should now become part of this proposed research council. A budget of at least \$14 million a year was suggested for the council.

"Flexibility For What?"

What is flexibility and how much of it is really valid in a new college science building? This question is examined by Bernard Asbell in an article on college laboratories appearing in "Bricks and Mortarboards," a new Educational Facilities Laboratories publication. One architect who advocates a careful interpretation of the current architectural catchword flexibility, is William W. Caudill. The following illustrative incident is described by Mr. Asbell. Mr. Caudill was being interviewed, along with other architects, for the assignment of a proposed 1.5 million dollar structure. The interviewing faculty committee at Colorado College had already fixed upon the guiding design principle of flexibility. At each mention of the word "flexibility," Mr. Caudill asked, "What do you mean by that?" Jotting down the various attributes of flexibility elicited from various committee members, Mr. Caudill showed them that the list contained contradictions, solutions to problems they did not face, and solutions that concealed other problems. Furthermore, the cost of each "solution" was itemized, and the ideas far outran the budget. "It's obvious," he said, "that flexibility is a big word that means many more things than you, perhaps any college, can buy. In fact, it means more things than you need. I suggest we start all over again and ask, 'Flexibility for what?'" Later, Mr. Caudill (who got the job), had the committee dissect the word flexibility into all the major things it may mean. These include expandibility; changes in the relative demand for physics, chemistry and biology space, or for merging these spaces for biochemistry, biophysics or physical chemistry; and providing each discipline with services it does not now need but may need later, such as air conditioning or various electrical currents.

High-Pressure Oxygen Chambers

A million-dollar hyperbaric or high-pressure oxygen facility has been designed by a Borg-Warner Corporation research team for Lutheran General Hospital at Park Ridge, Illinois. Hyperbaric oxygen research and therapy involves a relatively new procedure. In such treatment, a patient is placed in a pressure chamber and subjected to as much as three times normal air pressure by means of air compression. The patient is then given pure oxygen to breathe through an oxygen mask. Under these conditions, the patient's blood carries 15 times the oxygen that it normally does. Research in this technique indicates potential value in patients with impaired circulation such as "blue babies," for sufferers of shock, burns and strokes, and other bodily disorders. The Park Ridge system consists of three horizontal cylindrical teal chambers. The largest of these chambers is 41 ft long and 10 ft in diameter and serves as an intensive medical care center with a six-bed capacity. The second, smaller chamber is a surgical chamber, designed to accommodate two simultaneous operations, as in organ transplants. The third chamber, 24 ft long and 10 ft in diameter, is a recompression and research room.

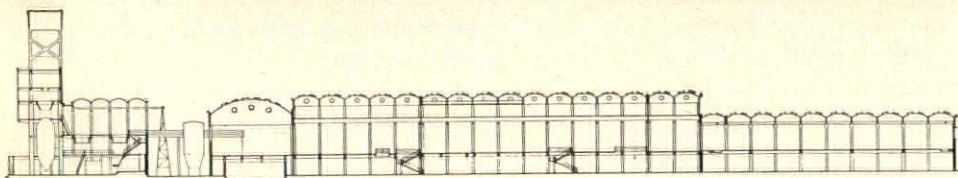
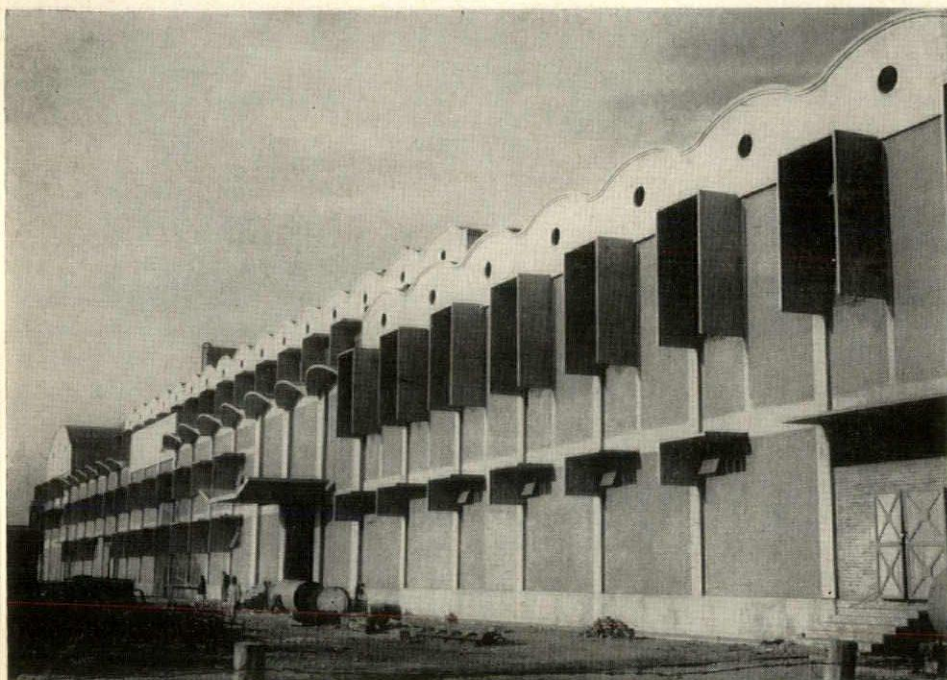
This Month's AE Section

TROPICAL CLIMATE CONTROL TECHNIQUES, p. 208. *C.P.M.: WHAT FACTORS DETERMINE ITS SUCCESS?*, p. 211. *BUILDING COMPONENTS: Insuring Entrance Door Lock Security*, p. 221. *Products*, p. 223. *Literature*, p. 224.

TROPICAL CLIMATE CONTROL TECHNIQUES

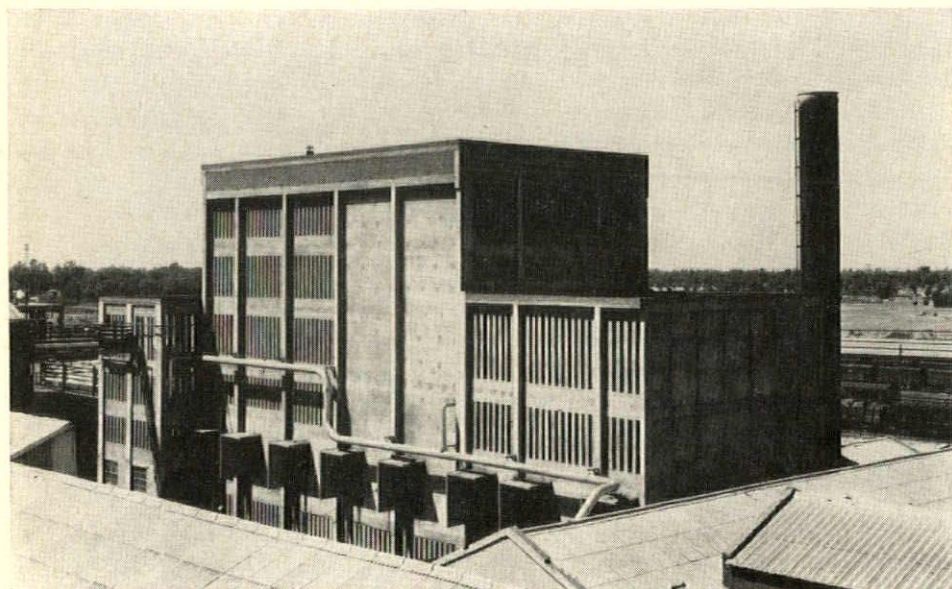
Sunshading and natural ventilation methods show prominently in five buildings in India

By Benjamin Polk, A.I.A.



Southwest orientation of Star Paper Mills in Saharanpur required a combination of horizontal and vertical surfaces to exclude unwanted sun but let in the daylight

Evaporator house at same plant gets natural ventilation through vertical slots. Machinery is enclosed, so facade gives only minimum protection against sun and rain



Building design techniques for coping with the adversities of tropical climates can emerge naturally from the basic functional requirements rather than be merely an arbitrary applique. This point, we believe, has been made in a number of buildings our firm has designed in India, both hot-dry and hot-wet areas, some of which are illustrated in this article.

These buildings have been designed to shut out fierce sun, sudden rains, wind-driven dust; to provide comfortable daylighting and to take advantage of breezes to reduce interior heat and humidity. The natural techniques have been combined integrally with structural and economic considerations and offer a valid basis for esthetic design of tropical buildings.

Star Paper Mills, Saharanpur, India

Climate: Very hot in summer (115 F for about six months); severe dust storms.

Problem: The manufacturing process required complete enclosure of paper machines and finishing processes against dust. Maximum daylight was desired in the finishing house, but no direct sun rays were permissible because this would hinder inspection of the paper. There was a similar requirement for the paper machine house, but it was necessary to exclude all sun. The evaporator house needed protection against occasional severe rains and against the glare of the sun; the process is protected against weather by the machine itself.

Solution: Structure for the paper machine house and finishing house reinforced concrete using long barrel shells for the roof. To shut out unwanted sun, L-shaped U-shaped concrete surrounds were used at windows. Openings in

Benjamin Polk is partner in the architectural and engineering firm of Charles and Benjamin Polk, New York and Calcutta

nds have exhaust fans. Win-
 remain open all the time except
 dust storms or driving rains.
 he main plant had to be ori-
 n a southwest direction, sun
 ion required a combination of
 horizontal and vertical louvers.
 shaped louvers were used on
 shing house to exclude all di-
 rays, while the L-shaped
 are on the paper house. Cir-
 penings were provided in the
 ofs for exhaust fans and sky-
 Glass in the skylights is
 cent wired glass, so the sun's
 e well diffused. The scale of
 ding is controlled and marked
 large window surrounds, and
 naturally from the structur-
 e as extensions of column and

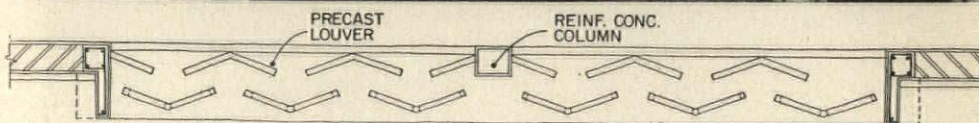
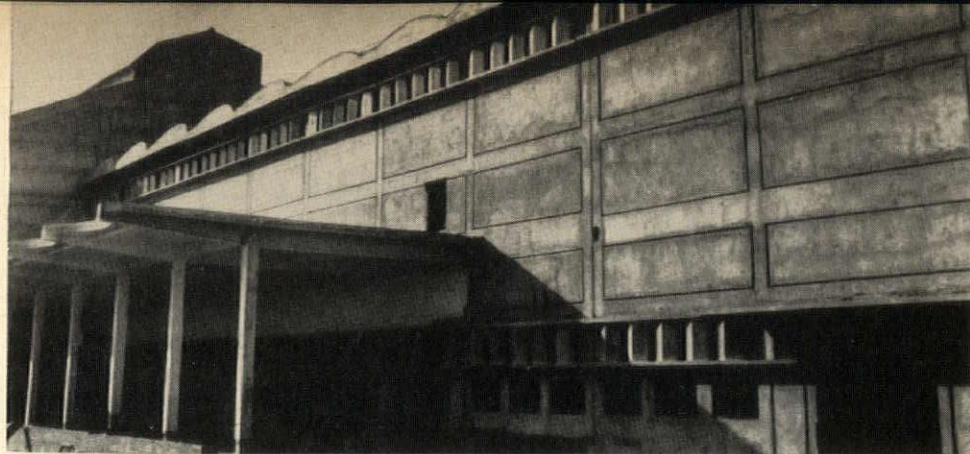
solution for the evaporator
 s quite different. Open verti-
 s provide natural ventilation
 op to bottom.

Window Glass Ltd., Calcutta, India

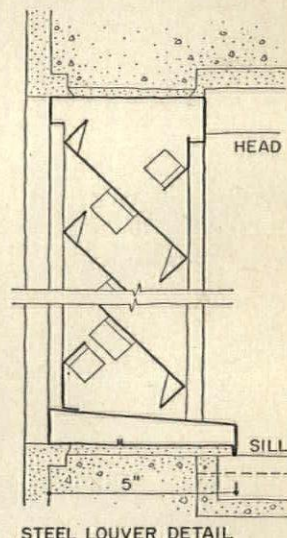
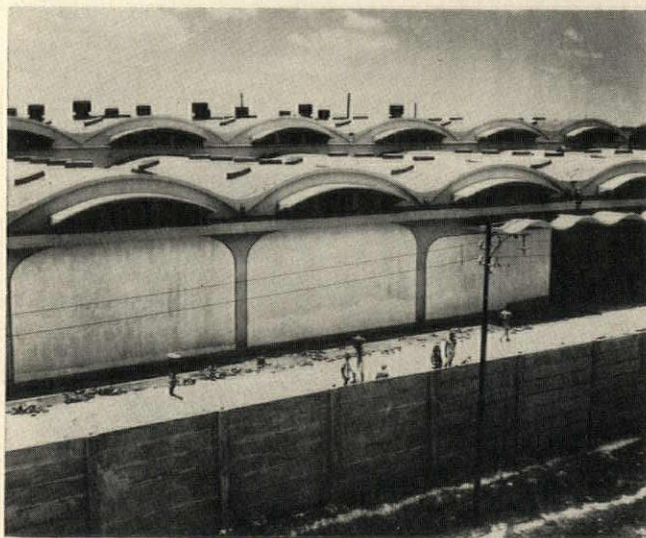
: Warm in winter, hot and
 humid in summer; no dust.
 r horizontal rains during the
 n months, June to September.
 : Provide louvers for natu-
 tilation which are rainproof.
 : Horizontal bands of stag-
 gered vertical V-louvers in precast
 e extend around the building
 us levels and just below the
 hese louvers admit no light.
 on for discharge of special
 ducts was made through
 ds of the barrel shells. These
 s were hooded by projecting
 l as a sloping plane surface
 rd and outward over the
 s.

Tea Factory and Warehouse, Calcutta, India

: Hot-wet.
 : To prevent tea from de-
 mildew, it was necessary
 re always be maximum natu-
 tilation with protection
 the rain.
 : No windows were needed
 warehouse areas, but the cen-
 nufacturing mezzanine was
 atural ventilation by raising
 el shells up to a higher level
 oviding Z-type interlocking
 in the face of each gable.
 cent glass skylights are pro-
 the shells which can be re-
 with mechanical exhaust fans
 need arises.

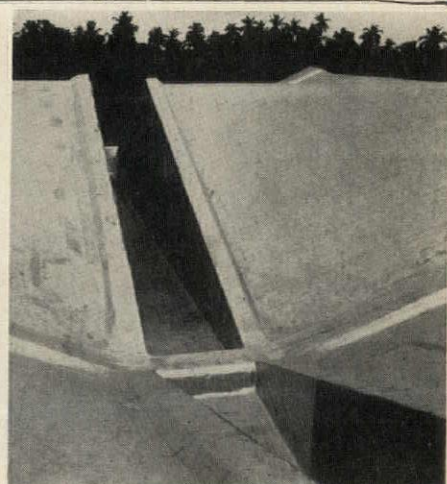
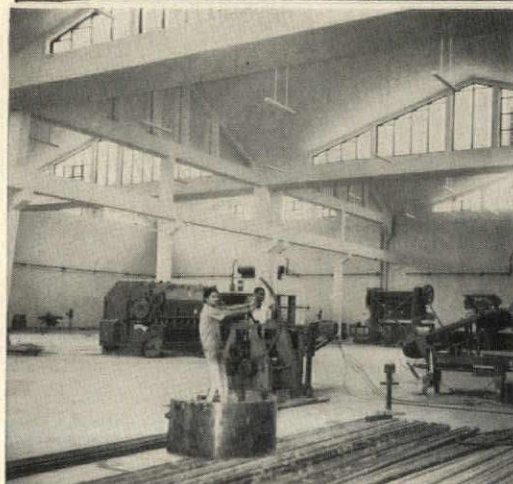
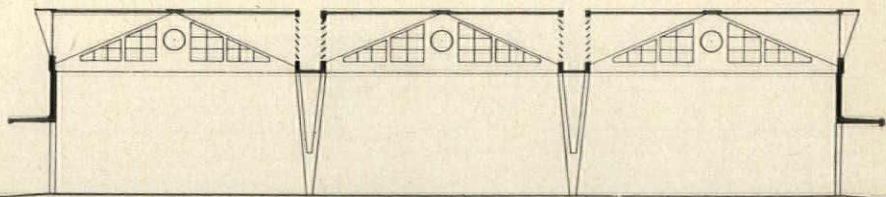


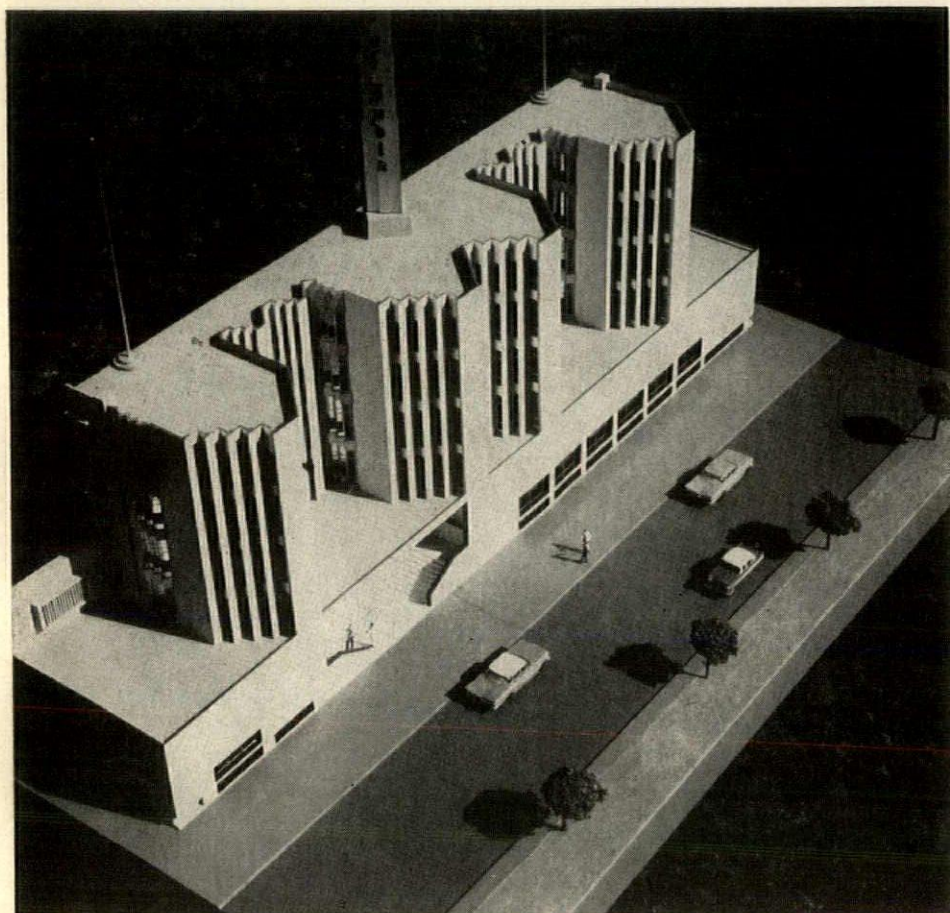
Staggered precast V-louvers in Window Glass Ltd. factory located in Calcutta permit natural ventilation but ward off rain. Daylight comes from other sources



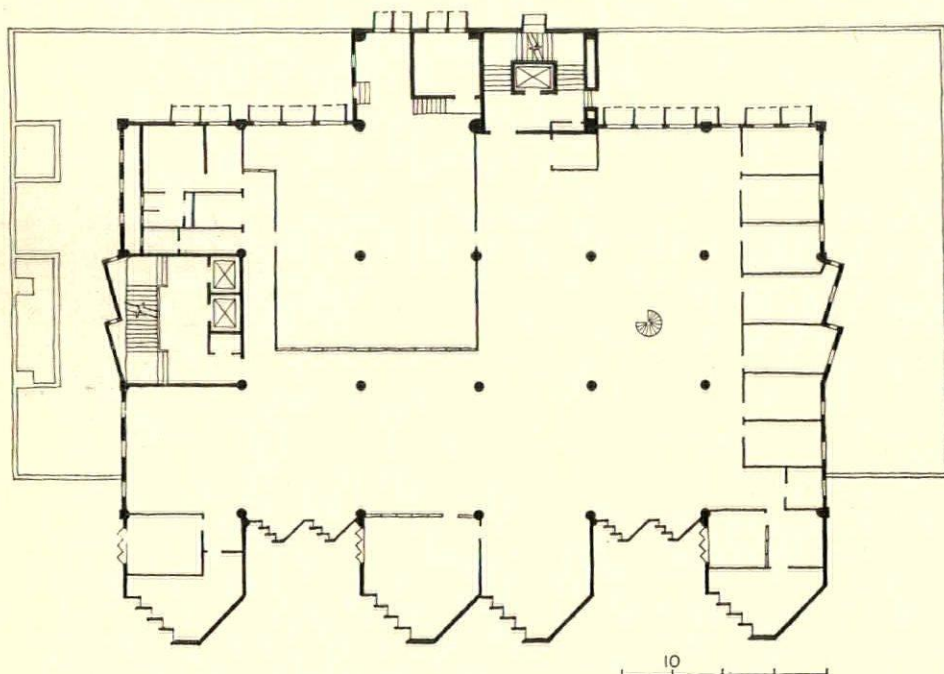
Lipton Tea factory and warehouse in Calcutta needed maximum ventilation to prevent mildewing of their product. Interlocking louvers make sure rain is shut out

Space between shell roofs lets daylight and air into S. F. Products plant, Calcutta and provides space for an integrally cast rainwater disposal trough as well





Architect laid out office wings for Times of India building in Calcutta in zigurat pattern so that they would receive daylight but reject the western sun. Windows at ground level permit passersby to see presses



Rainwater is collected in inter-ly cast concrete gutters which run between the shells.

S. F. Products, Calcutta, India
Climate: Hot-wet.

Problem: Constant ventilation, with protection against driving

Solution: Independent hyper-paraboloid shells allow both lighting and ventilation while facilitating rainwater disposal. Six bays were possible approximately square in plan and this suggests hyperbolic paraboloid roof system for maximum economy, durability, daylighting and natural ventilation. The structural requirement for beams in this type of hyper-paraboloid shell and a break between individual shells creates a suspension of gable ends which were sized for a combination of fixed louvers, ordinary glazing and exhaust fans. The distinguishing feature of the design was the integration of the rainwater disposal trough with daylighting wells right through the center of the building; breaks also accommodate shell expansion joint requirements. Drainage troughs are combined with daylighting wells via separation of shells. Offering mutual protection against driving rains, the pair of exterior facing gables have open louvers which are located so there is no short-circuiting of exhaust fans. The compelling force for continuous air movement controls design in hot-wet climate to the excessive humidity.

Times of India Press and Building, New Delhi, India
Climate: Hot-dry.

Problem: Long direction of a plot faced west and east, so would hit the major facades head-on. Both excessive solar heat and light had to be controlled.

Solution: There are no glass facades facing west or southwest except street-side observation windows opening down into basement press room. Screened daylight and natural ventilation is provided for the facade by having all glass facades in a zigurat pattern.

C.P.M.: WHAT FACTORS DETERMINE ITS SUCCESS?

Some of the reasons have been deduced from a study of 22 case histories (Part 1)

Francis A. Sando, Project Engineer, Day & Zimmermann, Inc., Engineers, Philadelphia, Pa.

Critical Path Method (C.P.M.) has been used and misused extensively. It has produced excellent results in many applications but it has fallen far short of its mark in others. Why does it work successfully for some projects and not for others? Who should use it—architect, independent consultant, architect or contractor? How should it be used to best advantage? Is it worth the cost? These are a few of the questions we will attempt to answer and the answers appear at the same time reveal a pattern of successful C.P.M. applications for future guidance.

Uses of C.P.M.

C.P.M. has three basic disciplines: Project Control and Management (C.P.M.).

Optimum Project Cost Control (C.O.N.).

Resources Management—Reserve Evaluation System Technique (R.E.S.T.). Any or all of the C.P.M. disciplines are applied in three phases:

Phase I—Determining the sequential order of building design and construction. Drawing an arrow diagram of that logic and determining the initial project building schedule by computer printout.

Phase II—Regular updating of the schedule to evaluate progress, determine expenditures to date, and prepare any revised manpower schedule.

One generalization that can be made without equivocation is that the success of C.P.M. is directly proportional to the effort and ability of those responsible for its implementation. Where the diagrams have been fully prepared by experienced architects, engineers and contractors, updated regularly, C.P.M. usually has experienced some degree of success in controlling the project. Where C.P.M. has been implemented by incapable field superintendents, even with accurate diagrams and regular updating, it has produced poor results.

The most difficult problem facing C.P.M. users today seems to be how

C.P.M. is implemented. The theory is sound, but when even the most experienced engineers attempt to follow the rigorously prescribed textbook procedures, they sometimes encounter difficulties. There is no cut-and-dried formula for successfully implementing C.P.M. What works well for one concern might be an imprecation to another. Job conditions vary so widely that it is difficult to find two projects that bear enough similarity to make an intelligent comparison of C.P.M. procedures. However, from the limited study (22 projects) made as background for this article, the most successful projects

using C.P.M. reveal a similar pattern of implementation. That pattern can be broken down into two broad categories—pre-planning and operations.

Pre-Planning Stage

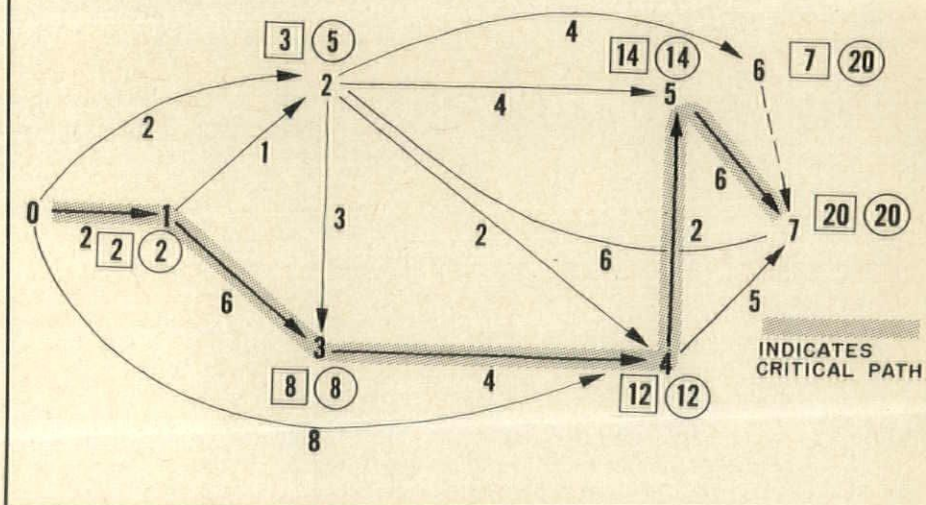
Successful C.P.M. planning and control of the design and construction of a project itself requires careful planning before it is launched. Preliminary procedure should include:

1. Orientation of client.
2. Thorough training of key personnel such as project managers and project coordinators.

Critical Path Method begins with a visual analysis of the over-all design or construction project in which arrows representing specific jobs are arranged in the order of their relative interdependence and show the time of each job. Some jobs are *critical* because a delay in any of them would delay the entire project. Critical jobs have no slack time ("float"). Time required for the job exactly equals the time available. All other jobs are non-critical because they have spare time. If the float of a non-critical job is used up, however, it then becomes critical. Throughout any project there are always one or more continuous critical chains—paths of critical jobs running from start to finish. This is the *Critical Path*.

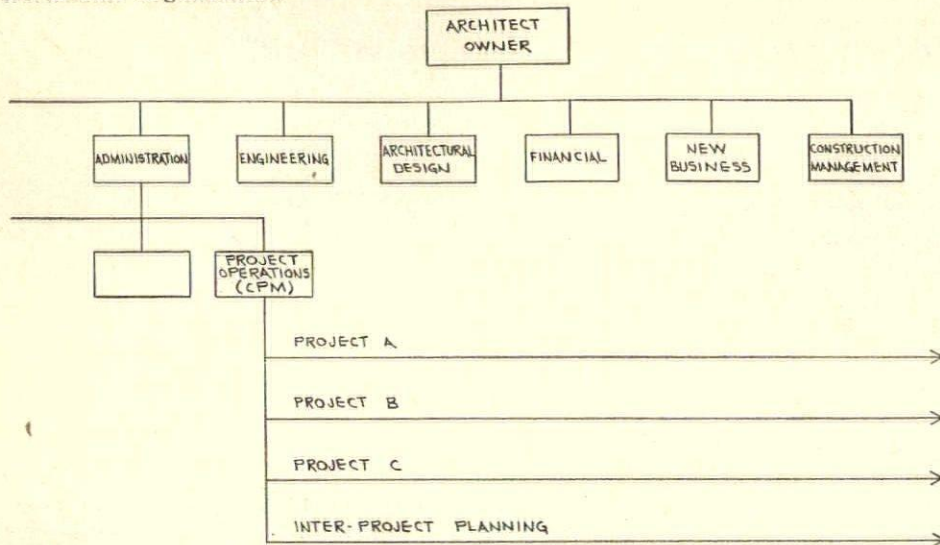
With an arrow diagram the Critical Path can be seen at a glance. The Earliest Event Times (earliest possible starts) are in the boxes. The Latest Event Times (latest permissible starts) are in the circles. When these times are identical there is no slack for these events.

Now examine Job 4-5. The Earliest and Latest Event Times for this job's start and finish are the same. There is no leeway on either end—the time available for this job is exactly equal to the job's duration. Job 4-5, therefore, is *critical*. Jobs 0-1, 1-3, 3-4 and 5-7 also are critical. The shaded line shows the continuous chain of critical jobs which is the *Critical Path*.

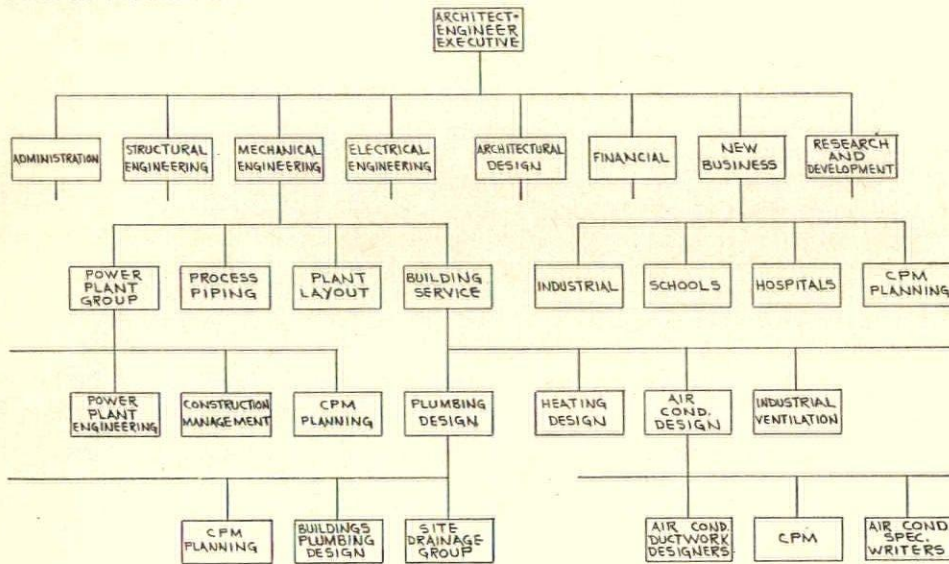


HOW C.P.M. FITS IN A DESIGN FIRM

Horizontal Organization



Vertical Organization



Horizontal Advantages

1. Central planning always available without cost of specialists on one's own staff.
2. Projects are better controlled by engineers thoroughly trained in planning techniques.
3. Crossing departmental boundaries expedites planning.
4. More accurate over-all planning picture available to top management.
5. Maintains common planning language throughout the architectural firm.

Vertical Advantages

1. Planning engineers have a better understanding of the project if they are part of the department.
2. The network system is more thoroughly implemented throughout the department.
3. Project managers do not assume the Network System is just another top management spy system.
4. Innovations are possible to "custom tailor" the network system to one's own needs.
5. More wholehearted and enthusiastic cooperation results if the system is generated "from within."

3. Training and orientation of project personnel who will work the system such as architects, engineers, administrators, superintendents, subcontractors, procurement personnel, etc.

4. Arrangement for the construction equipment required to do the project.

5. Establishing the proper organization within the architect's and contractor's offices to conduct network planning and control.

Orientation of Top Client Management. Unless your client is convinced of its value in controlling building construction, the chances of implementing C.P.M. for construction are extremely low. If he can be sold the concept, he will support it and also appreciate the results of a work controlled project.

Training of Key Personnel Within the Architect's Office. Management throughout the architectural engineering firm must also be convinced that C.P.M. planning is effective to realize its value in helping the project manager maintain control of architectural and engineering work as well as construction.

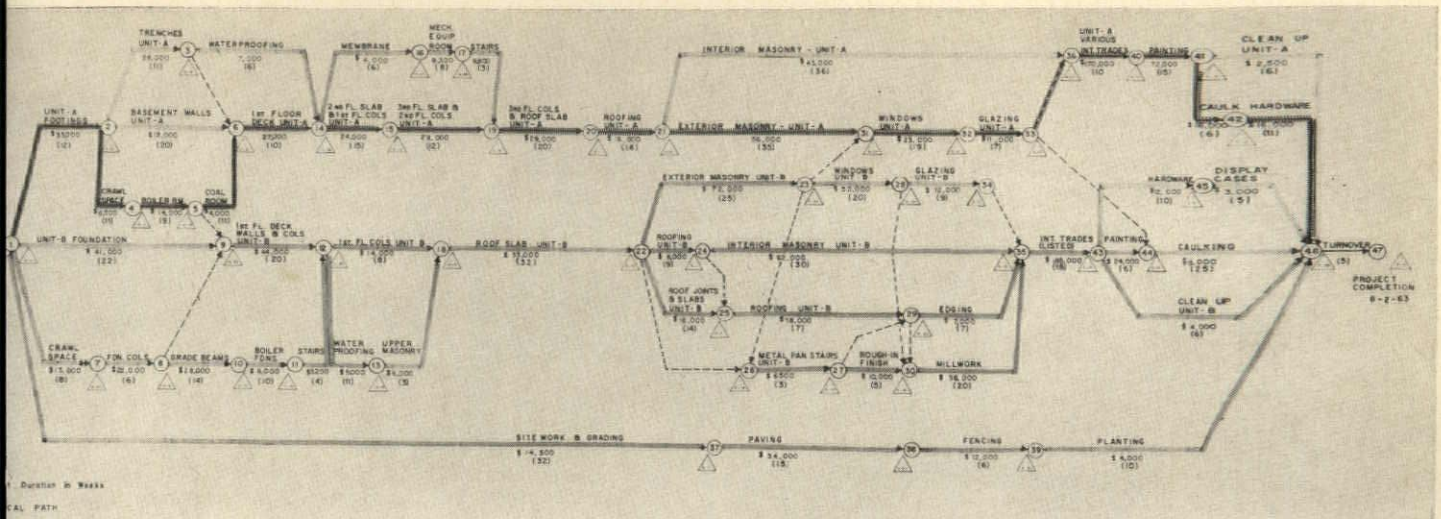
On large building projects a group should be delegated the responsibility for operating the work system. They can best function as staff advisers to the project manager.

General Orientation—Design Coordinators, Squad Leaders, etc. The people who are reporting to the system feel that they are participating and are also obtaining benefit from the system, their frustration will be minimized. An atmosphere of cooperation may not be obvious but can show up as unreliable data.

New business personnel should be involved from the standpoint of interpreting performance capabilities of the design firm from multi-project diagrams. Other persons involved in procurement, basic engineering and preliminary design should also have an understanding of the method.

Operations

Organizational Requirements for C.P.M. Control of Design. Network planning and control for the architectural-engineering design work transcends organizational lines; therefore it is important that an in-house department or outside consultant be signed the job of administrative



Control diagram for construction of a high school. Essentially it is a much simplified arrow diagram

work system. This planning might logically fall under the administrative department head. Persons in the planning group function as consultants and the managers.

The procedure would be to have a consultant assigned to each task. The consultant works as an adviser to the project manager, assists him in developing his network arrow diagrams for design and construction. The network consultant collects input data, updates the diagrams, obtains computer printouts, analyzes the output and advises the project manager on the status of the project. The project manager makes final decisions on action to be taken.

The size of the C.P.M. planning

group employed is a function of the number of projects to be planned and controlled. It has been found in practice that one C.P.M. consultant can handle three to five networks—each network containing about 1,500 activities.

Two systems can be used to properly implement a network system: the "Horizontal Method" or the "Vertical Method." The "Horizontal Method," (shown on facing page) has a separate project operations group as part of the administration department. The group then serves as in-plant consultants to the entire firm.

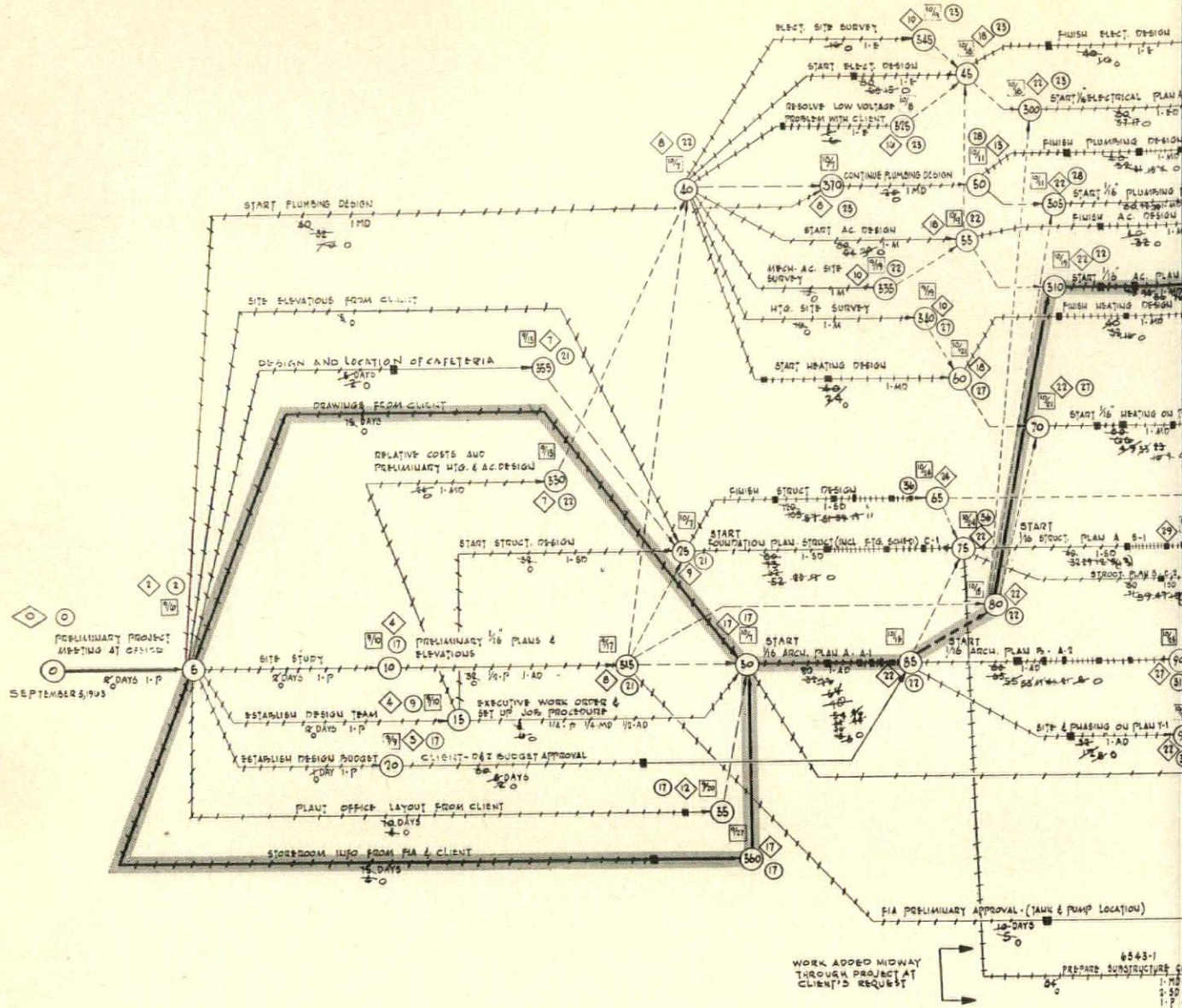
It is important in establishing such a group to place it on a middle management level. For a very large architectural firm, a section level might be adequate. For a small firm, it could

become a separate department. At least middle management level is necessary to place the consultants and the project operations head on an even level with the people with whom they are dealing. Network system operation is not for part-time experts or neophytes.

The other way to organize is the "Vertical Method." As the name implies, the vertical approach integrates planning groups at every level within a design group. The structural engineering department would have their own network planning people, mechanical engineering would have their own, construction supervision would have their own, etc. In addition, within each department various levels of network planning would be employed—each more sophisticated

An example of a computer printout giving three possible start and finish dates for construction jobs; critical job is circled

Sch. Start										SCHEDULE PAGE 000 15			
ACTIVITY	STATUS	DURATION DAYS	WK/DA	SCHEDULED START	SCHEDULED FINISH	EARLIEST START	EARLIEST FINISH	LATEST START	LATEST FINISH	WK/DA SCHED	FLOAT TOTAL	COST	WT
525		1	0/1	14 JAN 64	15 JAN 64	13 DEC 63	16 DEC 63	06 MAR 64	09 MAR 64	0/2	11/1	0	7
REBAR BALCONIES 2ND FL A3													
659		0	0/0	14 JAN 64	14 JAN 64	20 DEC 63	20 DEC 63	02 MAR 64	02 MAR 64		9/2	0	0
DUMMY													
688		2	0/2	02 JAN 64	06 JAN 64	10 DEC 63	12 DEC 63	25 FEB 64	27 FEB 64	0/2	10/1	0	7
START BRICK WK 3RD A2													
726		1	0/1	26 DEC 63	27 DEC 63	09 DEC 63	10 DEC 63	27 FEB 64	28 FEB 64	0/2	10/4	0	0
BUILD BULKHEADS 4TH A2													
764		0	0/0	24 DEC 63	24 DEC 63	06 DEC 63	06 DEC 63	27 FEB 64	27 FEB 64		11/0	0	0
DUMMY													
802		1	0/1	19 DEC 63	20 DEC 63	05 DEC 63	06 DEC 63	04 MAR 64	05 MAR 64	0/3	12/0	0	0
SET JOISTS 6TH FL A2													
840		0	0/0	19 DEC 63	19 DEC 63	05 DEC 63	05 DEC 63	14 FEB 64	14 FEB 64		9/3	0	0
DUMMY													
181	CRIT	1	0/1	20 DEC 63	23 DEC 63	20 DEC 63	23 DEC 63	20 DEC 63	23 DEC 63			0	9
POUR 1ST FL DECK A1													
466		2	0/2	30 DEC 63	02 JAN 64	26 NOV 63	29 NOV 63	27 FEB 64	02 MAR 64	0/1	12/2	0	5
FINISH MASONRY STAIR TONES													



ed as the management level rises.

For example, at the squad and section level, small diagrams would be used that can be hand calculated. At the project management level larger diagrams dealing with completion dates and coded sorts would be used requiring a computer. At the department level large diagrams with manpower allocations, cost expediting, and cost control would be employed. At the partner or vice presidential level, inter-project planning and master control diagrams would be used.

Implementing C.P.M. Control of Design. Whether you use the vertical or horizontal method, the following procedure usually will produce excellent results in project control of the design phase:

1. Develop arrow diagrams using the logic of the project manager and key

project engineers. Take time to do this accurately and in considerable detail.

2. Implement C.P.M. from an initial computer run as the only schedule to be used for the project. Bar charts are redundant and unnecessary.

3. Update the schedule regularly every two weeks with new computer runs.

4. Hold regular planning meetings with key engineers to discuss the new computer printout and scope of work for the next week or two-week period. Each new printout should be coded for each major engineering area (mechanical, electrical, etc.).

5. Stick to the logic of the arrow diagram. If revisions become absolutely necessary, change the logic of the diagram and obtain a new computer run and new schedule. Force the design work to follow the dia-

gram rather than the diagram following the design work.

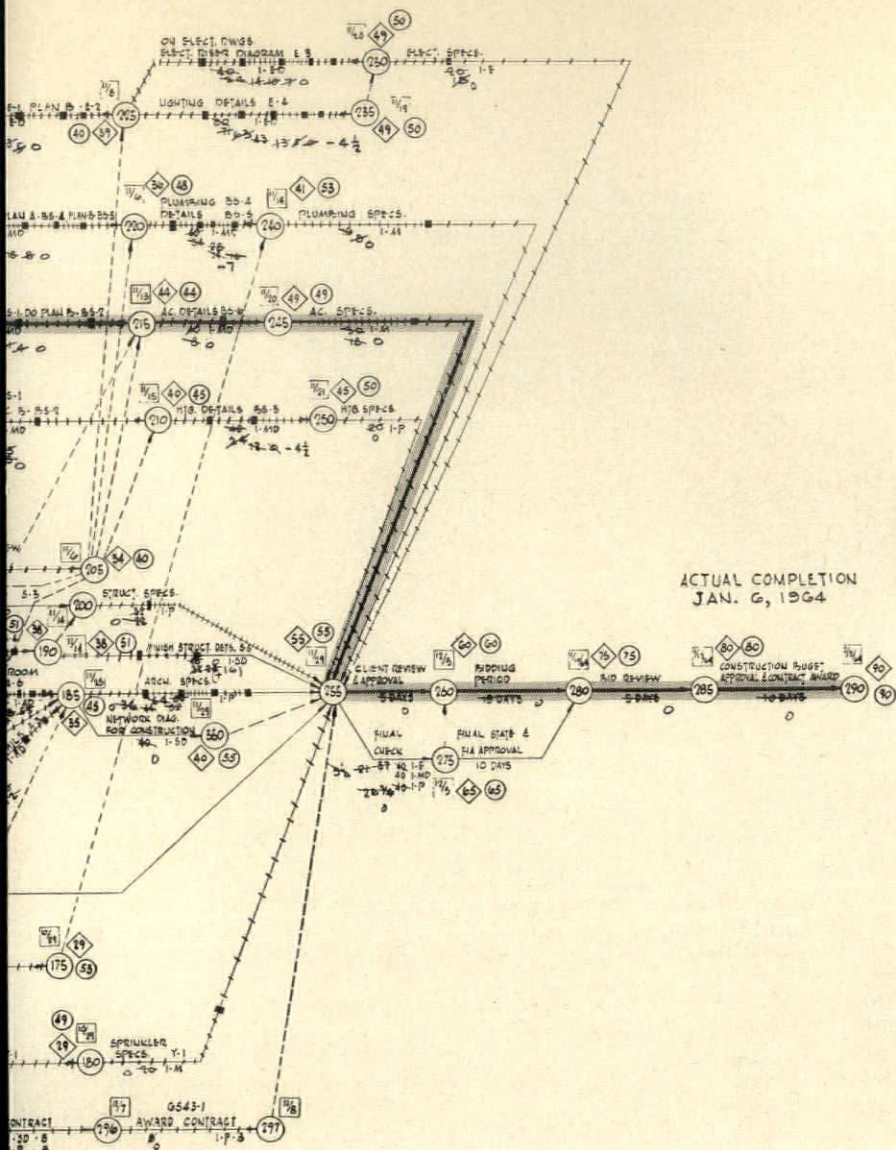
Architects and engineers must play a greater role in management of construction phase of the project.

In the eyes of the client the responsibility for completing the project on schedule cannot be delegated.

Implementing C.P.M. Control of Construction. The following procedure has proven its value in producing building construction on time, with a minimum of scheduling headaches.

1. Develop a Master Control Diagram (previous page) and computer printout which become part of the specifications and the bid package. Contractors must submit bids on basis of meeting the over-all project duration time established meeting milestone dates for construction jobs.

2. Develop a detailed arrow dia-



This is Day & Zimmermann's actual arrow diagram for the design of a manufacturing plant. The critical path is indicated by the shaded line

the successful contractors after
 act award. The detailed diagram
 reflect the contractor's logic of
 ing but must still conform to the
 all project completion date and
 mediate milestone dates.
 old frequent orientation meet-
 early in the project for con-
 sors and superintendents to ex-
 construction planning and con-
 procedure to be used.
 odate the project with new com-
 runs at least bi-weekly. (Costs
 ne computer runs can be includ-
 a part of the general contract
 onstruction or obtained directly
 the owner through additional
 old regular bi-weekly planning
 ngs with contractors to discuss
 rogress. The computer printout
 d be thoroughly discussed at
 ime and all critical and near cri-

tical jobs pointed out. Any possible
 delays should be forecasted and
 plans formulated to overcome them.
Computer Equipment Required.
 For large buildings, the C.P.M. dia-
 grams for construction should be
 computer oriented. Small C.P.M. dia-
 grams for design may require no
 equipment; hand calculating tech-
 niques can be used with excellent
 results for projects up to \$100,000
 design cost. Experience has shown
 that manual network calculations can
 be done for design in the range of
 \$25,000 to \$100,000 design cost. Com-
 puterized systems seem to be more
 economical for design costs over
 \$100,000 in magnitude and four
 months' duration.
 One of the basic limitations of a
 computerized system is generating
 the input data and the analysis of
 output. Thus, on small jobs, it is not

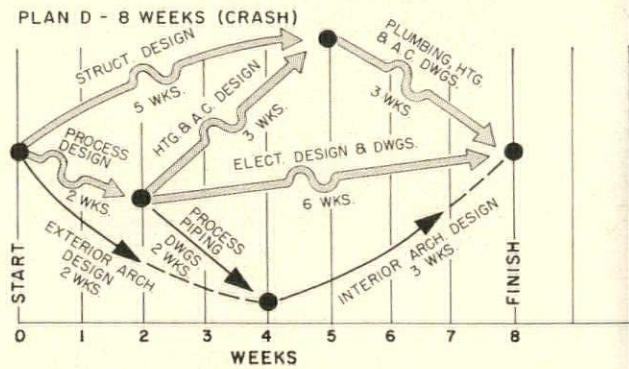
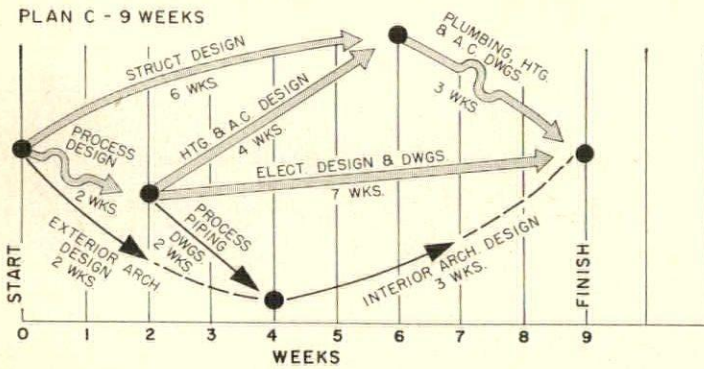
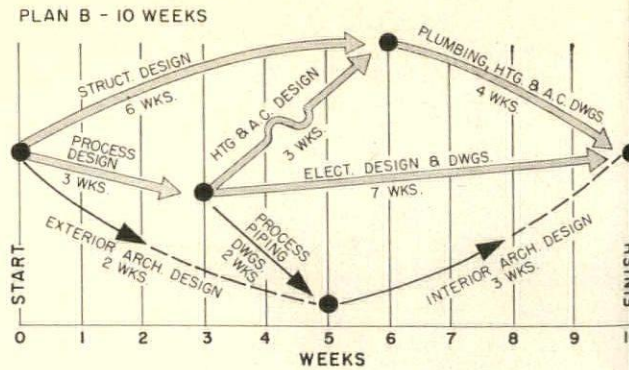
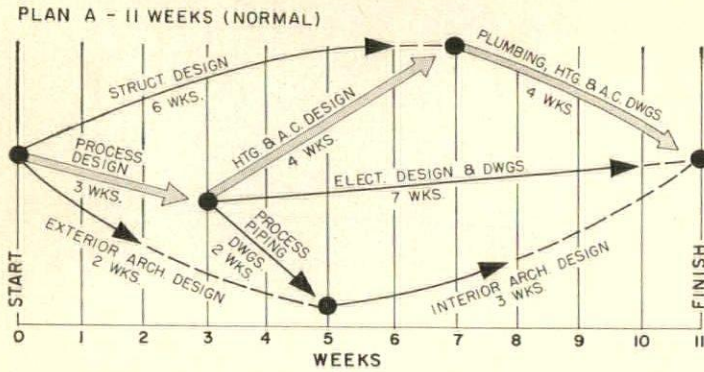
feasible to computer orient network
 systems.
 It is not necessary to have a com-
 puter within your office if you employ
 a C.P.M. consultant or can rent com-
 puter time from a computer service
 bureau. In regard to periodic com-
 puter runs, bi-weekly updating is
 economical and seems to satisfy most
 requirements.

Optimum Project Cost Control (O.P.C.O.N.)

The most significant single feature
 of network analysis lies in its ability
 to control costs. Since this is also the
 most difficult feature to implement,
 it is little used today.

Controlling costs and determining
 the optimum schedule has been the
 long sought goal of the building in-
 dustry. System after system has
 been tried with usually the same re-

OPTIMUM COST CONTROL FOR DESIGN OF MANUFACTURING PLANT



LIST OF JOBS REQUIRED TO DESIGN THE PLANT & THEIR COSTS

Job	Normal		Crash		Cost of crashing dollars per week
	Weeks	Cost	Weeks	Cost	
Process design	3	\$ 1,400	2	\$ 2,100	\$700
Struct. design	6	2,150	5	2,750	600
Exterior arch. design	2	1,600	1	2,400	800
Htg. & air-cond. design	4	1,300	3	1,800	500
Process piping dwgs.	2	1,700	1	2,500	800
Elect. design & dwgs.	7	1,650	4	2,850	400
Plumbing, htg., & air-cond. dwgs.	4	2,100	3	2,900	800
Interior arch. design	3	1,100	2	1,600	500
TOTAL		\$13,000		\$18,900	

9 WEEKS (PLAN C) HAS LEAST COST TO CLIENT

Plan	A	B	C
Duration (weeks)	11	10	9
Direct cost (arch. & eng. work)	\$13,000	\$13,500	\$14,500
Indirect cost 1,100/wk. (Arch. & clients)	\$12,100	\$11,000	\$ 9,990
Total cost	\$25,100	\$24,500	\$24,490
			Optimum

sult—a growing mountain of paperwork until overhead costs exceed any possible benefits of the system at hand. What is needed is a simple cost control mechanism completely devoid of paperwork at the field level and only enough paper at the top management level to briefly and accurately report on the project status.

To illustrate how O.P.C.O.N. works, let us assume we are architects and engineers with a commission to design an addition to a manufacturing plant. A simplified version of our arrow diagram is shown (above). The design jobs and their costs are also indicated.

From the arrow diagram, Plan A, if we were to proceed at a normal pace it would take 11 weeks to design the job. Let us assume our client is

now forced to rent temporary warehouse space costing \$600 per week for every week he does not have the new addition. His increased costs because of the split operation amount to \$200 per week. In addition, it costs us \$200 per week in indirect overhead costs for each week the project is in our office, and the client incurs another \$100 per week in liaison and overhead costs while the project is in the design stage. The total indirect overhead costs, ours and the client's, amount to \$1,100 per week. Now, in light of this heavy weekly indirect expenditure, is expediting the design work in order? What is the most economical solution for our client?

It can be readily seen that the optimum schedule is the 9 week plan, Plan C. Even though the architect is

reimbursed for overtime work client will save money.

Note also that if we "crashed" jobs producing the project weeks, it would be considerably expensive than the least cost 8 plan, Plan D. Putting all jobs project on overtime is a waste of money. If a project is to be expedited to its crash point, only those affecting the over-all project completion should be accelerated.

The fundamental problem in the above example is to determine the absolute least cost for any expedited schedule. With the help of the computer, the multitude of calculations necessary to produce the least possible project cost can be accomplished quickly and economically.

(To be concluded next month)

INSURING ENTRANCE DOOR LOCK SECURITY

Edwin F. Toepfer, President, Toepfer Safe & Lock Co., Milwaukee, Wisconsin

The technological advances have made building security "easier" for architects in one sense, these advances have, in another sense, made the problem of building security more complex than ever. Not only must the architect be aware of the various types and special functions of door locks, for example, but he must also be cognizant of the correct installation methods as well.

Developing Security Standards

Recognizing the need for an impartial source of qualified knowledge on lock security, the Associated Locksmiths of America recently appointed a committee to study the problem. This Security Standards Committee is at work conferring with law enforcement personnel, insurance underwriters, lock manufacturers, builders, contract hardware dealers and architects in an effort to bring a meeting of the minds between these groups to adopt practical standards for entrance door security. Their recommendations will be available to city building code agencies who are working on such additions to building codes. In addition to door locks and methods of attachment to doors and frames, the committee is also concerned with door reinforcement of door and window jambs to prevent ripping, sagging and spreading. At least one manufacturer has anticipated these demands and made available a case-hardened cylinder guard with a steel reinforcing insert to fully support their lock strike in "soft" metal frames.

Entrance Door Security

Door locks do not constitute a total solution to the problem of insuring security by any means, they merit thorough discussion for two reasons. First, the most popular cause of illegal entry by nonprofessional burglars is the main entrance. Secondly, door locks of all types re-

quire a new evaluation, due to the revolution in design and functions, and the lessening concern for security among some manufacturers. Let us, therefore, first consider the basic requirements for entrance door security.

Lock cylinders should be of solid brass construction with a full .051 diameter cylinder plug, with a full complement of no less than five pin tumblers and preferably six pins. Master keying should be kept as simple as possible, as each split of tumblers created by master and sub-master functions reduces security against picking and interchange of keys. The following key change table of a major lock manufacturer is typical:

1. 1,000,000 theoretical mathematical key changes on a 6 pin tumbler cylinder (not master keyed).
2. 15,625 secure, practical and useable key changes on a 6 pin tumbler cylinder (not master keyed).
3. 2,000 maximum secure changes on a simple master keyed system with one key section.

The number of secure changes is further reduced by complex master keying. The maison keying system common on apartment and office buildings, which provides for all keys to open a common entrance, prevents the establishment of a highly secure master key system. Use of several sections of key blanks in a large master key system presumably increases maximum key changes, and in effect it does. However, it also leads to a reduction in security by the promiscuous use of master section key blanks by key cutters who do not stock all sectional types of key blanks. Individual keys duplicated on master blanks cause them to become sub-master keys of a sort.

Mechanical Functions Decisive

Appearance is no guide to the reliability of locks. This fact was dramatized recently by the experience of

the security supervisor of a major public utility company. For years, the security of these buildings had been taken for granted, as the company had always specified quality hardware in all construction work. A security survey for the entrance doors of 45 of the firm's buildings exposed, however, the fallacy that cast bronze screwless shank knobs and trim were synonymous with security since mechanical functions of the lock must also be considered. Using wire coat hangers and celluloid rulers during the survey, the security supervisor was able to surreptitiously enter 31 of the 45 buildings, as many of the impressive-looking locks were found to be improper for the purpose. They did not possess automatic deadlatch features to prevent "case knifing" of the latch, and in some cases the deadlatch did not operate due to malfunction. The glaring deficiency of these locks would no doubt have been magnified if certain other tests had been made to attempt to defeat them.

Methods of Increasing Lock Cylinder Security

1. The complexities of master keying can best be resolved by a competent hardware consultant who many times will confer with the client's locksmith, who is often familiar with the special problems of the business. Security in master keyed lock systems may be maintained by sound planning with the client, who often should be discouraged from insisting on "single key" performance for executive personnel. This single master key to fit "everything" in complex systems advocated by some suppliers results in much cross keying and resulting loss of security.
2. If removable core cylinders are used, the architect should emphasize the importance of tight control of the core removal key, as this key, in effect, is a grand master key, providing access to the inner mechanism of

all of the locks. This fact is often unknown or overlooked.

3. Inasmuch as key blanks for the many special sectional key types are usually not readily available from lock supply sources, provisions should be made in advance to have the building occupant's locksmith supplied with the proper types of key blanks in sufficient quantities to take care of the demands for additional keys. Failure to make this advance provision often results in the duplication of keys on master section key blanks, which breaks down the cylinder security, as such keys become sub-master keys which will pass many of the locks for which they are not intended.

The fact that security starts with key control cannot be overemphasized. It is within the power of the hardware specification writer to insure security for the future of a building or project by the manner in which he specifies key control. Regardless of the size of a building, a key control system is a necessary part of the security story. The system should be a complete type, including key gathering and identification envelopes, proper pattern key markers, temporary markers, signature receipt forms and cross index records. The storage cabinet should be secured by a tamper-resistant combination (safe type) lock of the built-in type, as this lock becomes the guardian of the complete lock system.

Additional Lock Security Measures

Armored face plates should be specified to prevent the advance loosening of cylinder set screws by burglars planning a later entry.

Automatic dead latch should be specified on all locks not having a dead bolt function, as a protection against release of the latch with a "case knife."

Double cylinder locks should be used whenever possible. When fire codes or convenience consideration requires an emergency handle or push-bar release from the inside, it becomes possible for a burglar to release the lock from the outside by "hooking" the handle or bar with a wire coat hanger through the space between pairs of doors, mail slots, transoms or other openings. Therefore, auxiliary double cylinder locks should be specified for protection

during the "unoccupied" hours. When such added protection is not possible, an automatic astragal may be used to close the opening between pairs of doors.

Cylinder protector rings should be specified to prevent "pulling" of lock cylinders, which is very common in some areas. This simple process of removal of the cylinder by burglars, permitting release of the lock with a finger, is rapidly increasing in scope. Some manufacturers now supply hardened, non-pullable cylinder protection rings for their locks as an added security feature.

Extra long lock bolts are required to meet the growing burglary technique of spreading of the door jamb to by-pass the lock bolt. Bolts, 1-in. long and longer, with hardened steel inserts are available. An additional vertical bolt which locks into the threshold, provides added protection.

Reinforced strike plate mountings are required, especially on metal frames, to prevent ripping of the metal around the strike plate. This recently identified burglary technique was developed to circumvent the secure types of locks now available for narrow style metal doors. A section of steel angle or channel inserted in the area of the strike plate will prevent the peeling or ripping of the soft metal, and properly anchor the strike. On wood jambs a sub-base of plywood under the door frame in the area of the strike plate and hinges will supply proper anchor facility for the full length of the wood screws. This reinforcing will also serve to prevent spreading of the door jamb. The extensive use of hollow metal doors and frames has resulted in the use of metal too light for security purposes on entrance doors. Such doors should be of 16 gauge construction and frames, of 14 gauge construction. When possible, channel iron or structural steel frames should be used.

Locks for Safety Control

In addition to locks designed to keep burglars out, there are the more intriguing types of locks developed for safety, especially concerning the invisible dangers of the "atomic age." Research and developmental laboratories require personnel safety locks which will allow emergency entrance and exit, and simultaneously alert the control office, and prevent entry into danger areas, even by persons

possessing a key, until a control tion authorizes such entry by remote electrical means. Such functions incorporated in single unit electrical mechanical locks with "cheat-proof" protection features. Closed-circuit television and intercom systems combine with such locks to create ultimate in remote control and supervision.

Data processing areas, laboratories and dark rooms require air- and light-lock doors. The increased demand for such interlock devices has created certain mechanical safety problems. The all-important factor is safety, and therefore such interlocks should incorporate a "safe" feature to prevent trapping personnel due to power failures resulting from emergencies.

Safes and Vaults

Location of safes and vaults proper lighting of them is an important part of interior planning. Placement of such equipment within obstructed view from public streets is an important factor in discouraging burglars. Not one, but a pair of lights assures an uninterrupted source of light for the safe area.

While on the subject of safes, well to point out the misunderstanding regarding the difference between insulated vault doors and fire doors. Fire doors are essentially non-combustible doors intended primarily to help prevent the spread of flames from one section to another. They, however, permit the passage of heat in temperature ranges far too high to be considered safe for the protection of papers. Furthermore, the absence of the conventional combination lock prevents the owner from obtaining burglary insurance. Vaults equipped with fire doors, on the other hand, insulated vault or storage room doors are intended to prevent, for a specified period of time, the influx of heat into an enclosed area of fire-resistive vault-like construction. These doors contain insulation of a type that actually dissipates heat to prevent buildup of destructive temperatures inside the vault for the period which the doors are labeled (often six hours). Vault door rating requirements allow a maximum temperature of 300 F at a distance of 18 in. inside the door. Fire doors are not permitted to pass much more heat than this.

For more information circle selected item numbers on Readers Service Inquiry Card, Pages 279-280

NEW LIGHT SOURCES AND CONTROLS

General Electric is introducing a number of new lamps at the New York World's Fair. *Multi-Vapor* lamps will be used for the first time in an installation to illumine the water in the Pool of Industry. The new lamps use metallic additives in mercury arcs to produce white light more brightly than previously possible, reports. The lamp can produce as much as 40,000 candlepower and give light of better color quality than mercury sources. The 400-watt *Multi-Vapor* lamp is being made commercially available this month.

In creating the kaleidoscopic lighting effect on the dome of the G-E Pavilion over 2,000 colored spot lamps. These lamps are part of G. E.'s new line of 150-watt, sealed-beam dichroic colored *PAR-38* spots which have a multi-layer interference film on the inner surface of the cover lens to transmit desired colors of higher intensity and greater saturation than has been obtainable heretofore. G. E. says the peak beam candlepower of these lamps is from three to five times that of conventional color *PAR-38* spots.

The *PAR-Q*, a new sealed-beam projector lamp, combines the best features of G. E.'s *Quartzline* and projector and flood lamps. A 500-watt, quartz-iodine filament tube is mounted at the focal point of the parabolic reflector. Featuring high efficiency, better maintenance of light output, and ability to control light intensity, these lamps are used to light the tower of the 7-Up Pavilion. General Electric, Nela Park, Cleveland 12, Ohio

CIRCLE 300 ON INQUIRY CARD

The compact metallic vapor arc lamp, developed by its developer to combine good rendition, long life and high efficiency, has been announced by Sylvania. Called *Metalarc*, it will produce an average of 80 lumens per watt in ordinary use, 60 per cent more than 40 lumens per watt produced by conventional mercury lamps. The

lamp emits a 3,000-line spectrum which approaches a continuous color spectrum from red through blue, thereby reducing color distortion. The *Metalarc* has an average rated life of 7,500 hours on a 10 hour on-off cycle. It will be produced in the same wattage range as mercury lamps and can be used for both indoor and outdoor applications. Sylvania Electric Products, Inc., 730 Third Ave., New York 17, N.Y.

CIRCLE 301 ON INQUIRY CARD

Semi-indirect lighting, or indirect lighting tempered with sufficient downlighting to add dimension and character to objects at the school and office working level, is provided by Smithcraft Corporation's new *Power-Beam* fluorescent fixture. The fixture is available with a two-level ballast; the second level of lighting is approximately 20 per cent of full level and is particularly suitable for use during visual aids presentations.

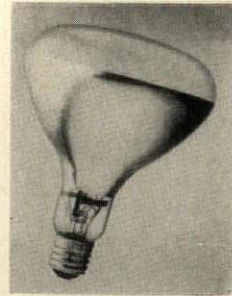
Polished specular anodized aluminum reflectors provide uniformly distributed lighting, and convection currents through the unit assure cool operation and maximum lamp output. The lamp housing and baffles are of etched and anodized satin aluminum. Available lengths range from 5 ft 10 in. to 17 ft 10 in. Width of the fixture is 6 in. and total height is 7 in. Smithcraft Corp., Chelsea, Mass., 02150

CIRCLE 302 ON INQUIRY CARD

A continuously adjustable intensity control has been introduced by Lighting Services, Inc. The *PAR-control*, an electronic dimmer module, can be supplied with any of the firm's sealed-beam display spotlights ranging from 150 to 500 watts. Utilization of *PAR-control* will increase lamp life and reduce power consumption, LSI reports. Lighting Services, Inc., 77 Park Ave., New York, N.Y., 10016

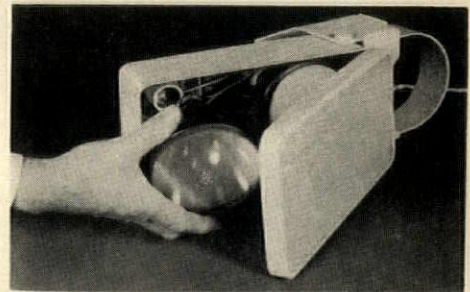
CIRCLE 303 ON INQUIRY CARD

more products on page 228



Multi-Vapor Lamp

300



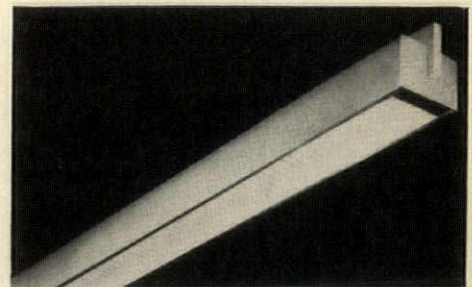
Dichroic Colored Spot Lamps

300



PAR-56 Projector Bulb

300



Semi-Indirect Fixture

302



Electronic Dimmer

303

Office Literature

For more information circle selected item numbers on Reader Service Inquiry Card, pages 279-280

METAL RACEWAYS

A new 160-page catalog and wiring guide, number 23 in the series, covers the company's line of surface metal raceways and fittings, multi-outlet assemblies, tools and lighting equipment. Among the new products listed are the *Plugmold G-6000*, said to be the largest commercially available multi-outlet system; telephone hardware for pre-wiring of high-rise apartments; and 20A fluorescent lighting units. The catalog is replete with product and installation photographs and tabular material, including over 180 illustrations. *The Wiremold Co., Hartford, Conn.**

CIRCLE 400 ON INQUIRY CARD

HIGH VELOCITY AIR HANDLING SYSTEMS

A 24-page design manual for high velocity air handling systems includes data on branch energy losses of divided flow fittings and combinations of fittings for dual duct cross-over or change of branch elevation. The manual's 35 tables and charts include complete design and performance data covering energy losses of fittings, duct, elbows and reducers. *Spiral Pipe Division, United Sheet Metal Co., Inc., 200 E. Broadway, Westerville, Ohio*

CIRCLE 401 ON INQUIRY CARD

WOOD BUILDING PRODUCTS

The new edition of "Building and Industrial Products," an indexed color catalog, covers major specialty building products manufactured by the forest industry, ranging from decorative hardwood wall paneling to colorful synthetic rubber overlaid exteriors. *A. W. Petrey, Georgia-Pacific, P.O. Box 311, Portland, Ore., 97207*

CIRCLE 402 ON INQUIRY CARD

AIR-CONDITIONING PRODUCTS

The Westinghouse line of air-conditioning and heating products is presented in a 20-page brochure. Chillers, heat pumps, humidifiers and rooftop heating and cooling units are among those described. *Westinghouse, Air Conditioning Division, Staunton, Va.*

CIRCLE 403 ON INQUIRY CARD

STAGE-LIGHTING CONTROL SYSTEM

The *Solitrol Controlette*, a packaged electronic preset stage-lighting control system for small theaters, is described in a four-page bulletin (74SC). Engineering data and specifications are included in a separate bulletin (74SC-S66). *Ward Leonard Electric Co., Control and Dimmer Division, 34 South St., Mt. Vernon, N.Y.*

CIRCLE 404 ON INQUIRY CARD

TORQUE/TENSION DESIGN MANUAL

Torque/Tension Design Manual No. 6101 is offered as an aid to obtaining reliable and correctly stressed bolted connections. This 18-page booklet includes 12 tables listing specific recommended installation torque values for thin and standard height UNC and UNF hex type red nylon insert elastic stop nuts. Additional information includes: points to consider in selecting suitable tightening torques; use of lubricants with fasteners; tabular data covering elastic stop nut tensile stress areas and standard bolt strengths. *Dept. 3161, Elastic Stop Nut Corp. of America, 2330 Vauxhall, Union, N.J.*

CIRCLE 405 ON INQUIRY CARD

LABORATORY FUME HOODS

A new 68-page catalog illustrates and describes Kewaunee's complete line of laboratory fume hoods. Mechanical service roughing-in drawings and duct location drawings accompany all fume hoods cataloged. Fume hood superstructures, auxiliary-air attachments and fume hood accessories are included as well. *Kewaunee Mfg. Co., 5046 S. Center St., Adrian, Mich.*

CIRCLE 406 ON INQUIRY CARD

PLASTIC DUCTING

Pliaduct, a new lightweight plastic ducting, is described in two new technical bulletins. Bulletin PD1 contains general information, including air flow, weights, dimensional data and suggested applications. Bulletin PD2 lists physical and chemical properties. *Dayco Corp., 333 W. First St., Dayton, Ohio, 45401*

CIRCLE 407 ON INQUIRY CARD

TRANSLUCENT PANELS

Rippolite, a fiber-glass reinforced acrylic modified polyester translucent panel for skylights, glazing panels and similar uses, is dealt with in a four-page folder. Choices of finishes, colors, thicknesses, grades and configurations are explained. And technical data is presented in chart form. *Rippolite Plastics Products, 3910 Hasset St., Burbank, Calif., 91506*

CIRCLE 408 ON INQUIRY CARD

PERLITE AGGREGATES

"Perlite Concrete Aggregate" PI 74 contains specifications and physical property data on the use of lightweight perlite insulating concrete for roof decks, floor fills, slab floors on grade. Insulating uses available with silicone treated perlite loose fill insulation are included. "Perlite Plaster Aggregate" No. PI 64 presents design data, retardant ratings, weight savings and application techniques for perlite plaster. Data on the use of perlite-portland cement plaster for retaining wall back-up systems is included also. *Perlite Institute, 45 W. 45 St., New York, N.Y., 10036*

CIRCLE 409 ON INQUIRY CARD

INTERIOR FIRE EQUIPMENT

The Fyr-Fyter Company's 1964 "Interior Fire Fighting Equipment Catalog" includes illustrations and specifications for the company's entire line. *The Fyr-Fyter Co., Fire Equipment Services Dept., 221 Crane Dayton 1, Ohio**

CIRCLE 410 ON INQUIRY CARD

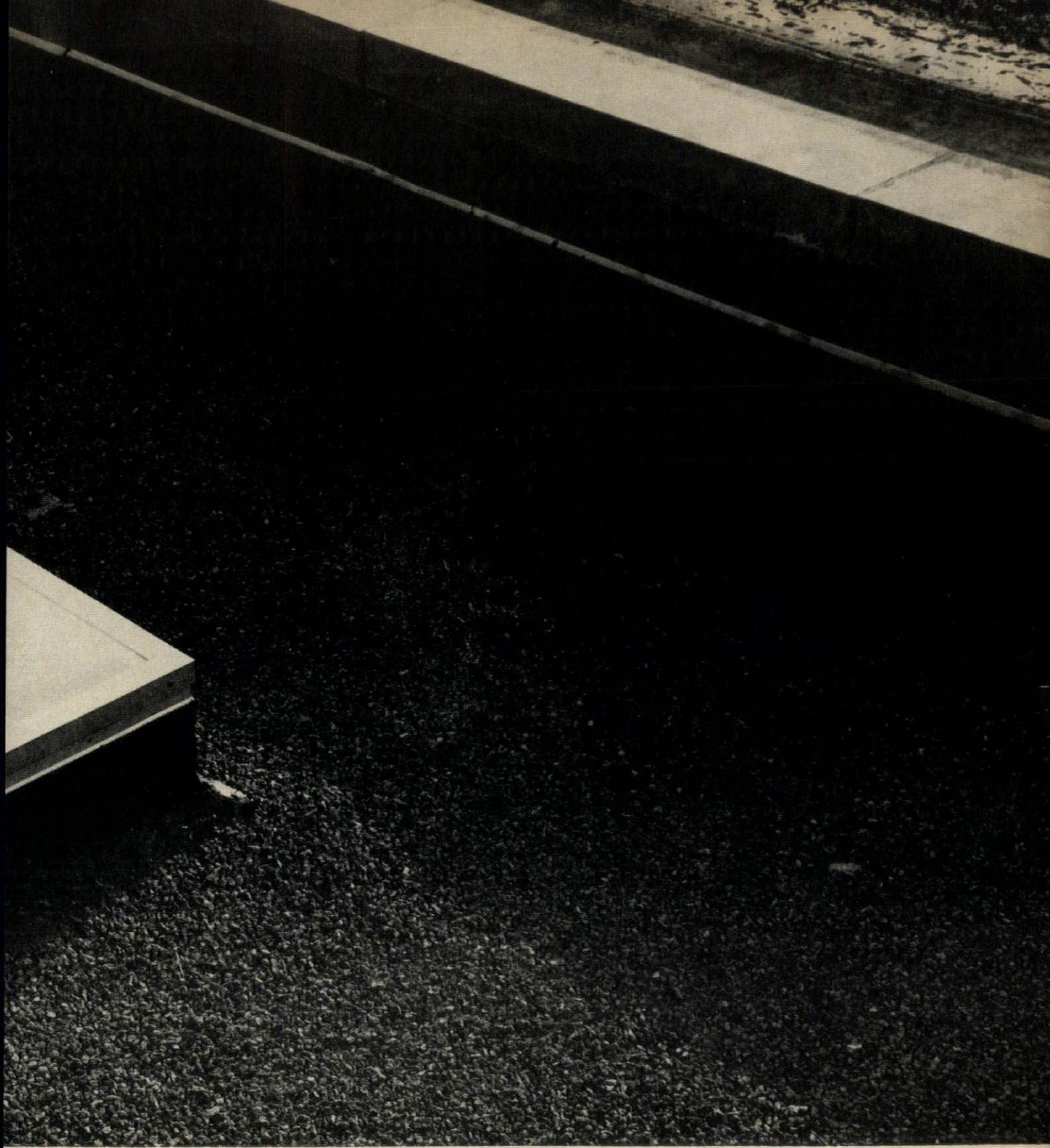
STAGE LIGHTING

In catalog No. 13 over 450 pages devoted to lighting fixtures, lighting control equipment and accessories for the stage, television and motion picture photography. Two suggested lighting plans for a small and a large stage are given. *Times Square Lighting Co., Inc., 349 W. 47th St., New York 36, N.Y.*

CIRCLE 411 ON INQUIRY CARD

* Additional product information available in Sweet's Architectural File

more literature on page 280



OK. Now forget it.

If a roof has been insulated with Styrofoam® RM brand roof insulation, you won't have to worry about that insulation again. Forget it.

The same goes for Styrofoam FR for masonry walls. Or Styrofoam SB for slabs and foundations. Or Styrofoam anywhere.

Remember to specify Styrofoam next time you want an insulation that can't soak up water. An insulation that serves as its own vapor

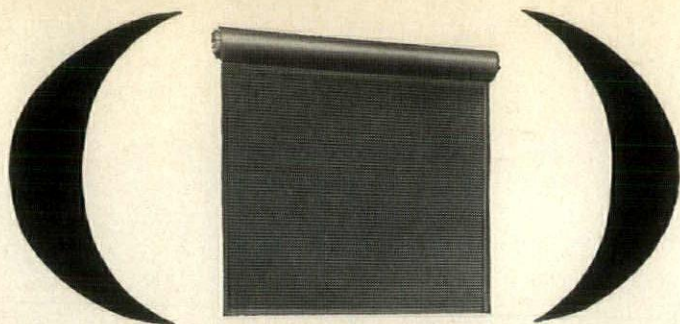
barrier. An insulation that won't rot, mold, deteriorate—ever.

To help you remember Styrofoam, we've included some information in Sweet's Architectural File 10a/Dow and 8a/Dow. Or you can write us. The Dow Chemical Company, Plastics Sales Department 1310N4, Midland, Michigan.

Styrofoam is Dow's registered trademark for expanded polystyrene produced by an exclusive manufacturing process. Accept no substitutes . . . look for this trademark on all Styrofoam brand insulation board.

For more data, circle 139 on Inquiry Card





Some people call them —

**ROLLING DOORS
SHUTTERS**

COIL UP DOORS

SLAT DOORS

ROLLER DOORS

ROLL UP DOORS

but most people call them —

“**Kinnear**”

And this is true the world over! Kinnear originated the interlocking metal slat curtain more than 65 years ago — for the first time making the efficiency of a metal coil-up door practical. As a result, the name KINNEAR is synonymous with doors of this coil-up operating principle.

To specify KINNEAR — and to INSIST ON THE GENUINE — means more than the selection of a door of more efficient design. It's also your assurance of a product of the highest quality — rugged construction that has stood the test of time under every condition of use — and backed by a nationwide sales and service organization, as well as “Registered” Life extension service. Write **TODAY** for complete, detailed information on Kinnear Doors.



Offices and representatives in all principal cities

The KINNEAR Manufacturing Co. and Subsidiaries

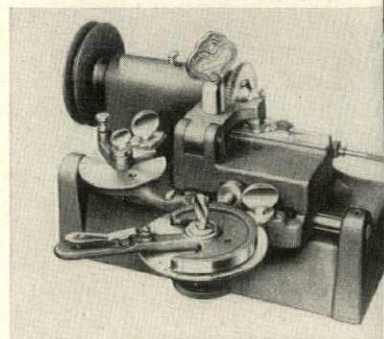
FACTORIES: { 1860-80 Fields Avenue, Columbus 16, Ohio
1742 Yosemite Avenue, San Francisco 24, Calif.
3683 Dundas Street West, Toronto, Ont., Canada

For more data, circle 140 on Inquiry Card

*Product Reports
continued from page 228*

KEY CUTTING BY CODE

A new system cuts keys accurately by code instead of by tracing a master original or duplicate key on a conventional key machine. The machine occupies 2½ sq ft of space, has coded discs. One disc gives the angle or distance between each cut of the key. The second disc is for determining the depth of each cut. The numbers on this disc coincide with numbers found on the bow of the

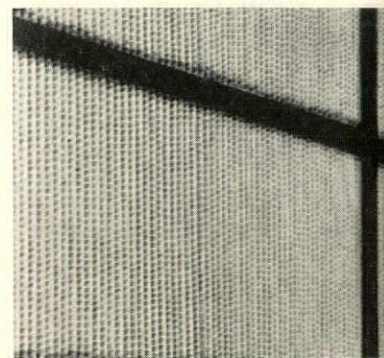


With Ilco's improved system, identical keys are cut each time. In addition, the only inventory required is a stock of key blanks for the type of lock on that building, in contrast to the conventional, elaborate filing system of extra original keys for every lock in the building. *Locksmith Products Division, Independent Locks, Fitchburg, Mass.*

CIRCLE 304 ON INQUIRY

WHITE-ROOM FILTERING UNIT

A new filtering unit which the manufacturer says provides absolute

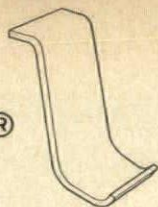


filtration for entire walls or ceilings at low cost has been designed for white rooms or laboratories. *Flanders Filters, Inc., Riverdale, N.Y.*

CIRCLE 305 ON INQUIRY
more products on page 228

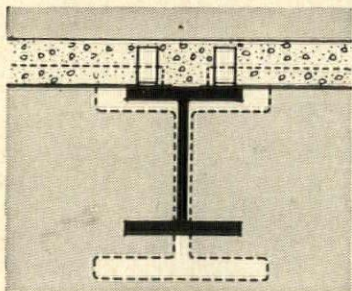
For more data, circle 138 on Inquiry Card

New Cofar[®] shear connectors reduce the cost of composite construction



utilizing new AISC specification

Important savings in materials, space and money begin with Cofar composite construction. Cofar—now available with shear connectors (Pat. Pend.). When field-welded to the beams, these “J”-shaped pieces of steel make the slab work as an integral part of the supporting members; thus beam sizes may be reduced.



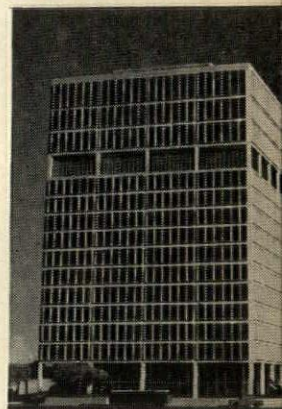
The main benefit of Cofar composite construction is the substantial reduction in steel tonnage because you get equivalent strength with lighter beams. Additional benefits are gained

by: (1) Longer spans (2) More usable space with the same building cubage (3) Increased beam stiffness (4) Less deflection (5) Reduced building height.

Cofar's economy has been well established in the building industry. Cofar is the 4-in-1 product—form, working deck, bottom reinforcing steel and temperature steel for a structural concrete slab. Construction is fast—proven—economical. Now with the development of the Cofar shear connector, even greater economies are yours by using Cofar composite design.

For more information, write for Catalog No. 103-B-62: GRANCO STEEL PRODUCTS COMPANY, 6506 North Broadway, St. Louis 15, Missouri. A subsidiary of Granite City Steel Co. Our catalogs are filed in Sweet's.

Illustrated at right: 16-story Pierre Laclede Building, now under construction, Clayton, Missouri, which utilizes Cofar composite construction.



Architect:
Smith and Entzeroth
Engineer:
Fruco and Associates, Inc.
Contractor:
Fruin-Colnon Contracting Co.

COFAR[®]

COMPOSITE CONSTRUCTION

GRANCO

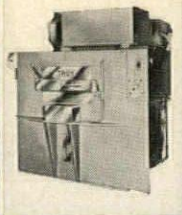


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For more data, circle 141 on Inquiry Card

TROY®



equips the new 580-bed
V.A. Hospital in Atlanta for
HIGH-PRODUCTION LAUNDRY

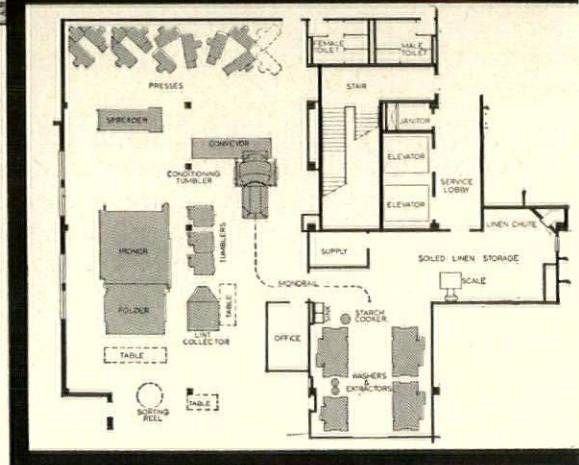
GREGSON &
ASSOCIATES
ARCHITECTS

622 Mortgage
Guarantee Building
Atlanta, Georgia 30303



Laundry layout at the new Atlanta V.A. Hospital includes four Troy WX® Washer-Extractors, an 8-roll Troy Speedline® Ironer, Troy Fleximatic® Air-Jet® Folder plus tumblers, presses and other equipment from the **complete** Troy line.

At Atlanta's new veterans' hospital now under construction laundry facilities will be completely Troy-equipped. Architect Wilfred J. Gregson states:



“ Troy Laundry Machinery was very energetic in meeting the laundry requirements for this modern hospital. The layout represents the last word in sanitary handling of hospital laundry and streamlined processing. The specifications for the equipment were very rigid to assure the highest, most efficient laundry output. ”

For your next hospital or other institution requiring **dependable** laundry facilities, contact your Troy Representative or write for complete information and service . . . from the world's oldest manufacturer of power laundry equipment.



TROY LAUNDRY MACHINERY

A DIVISION OF AMETEK, INC.
EAST MOLINE, ILLINOIS

For more data, circle 142 on Inquiry Card

Product Reports
continued from page 228



COFFEE TABLE

A new "surfboard-shaped" coffee table with upturned ends has been designed by Folke Ohlsson. The table is vertically planked in teak or veneered with sycamore splines. Matching dining tables are also available. *Dux* 1633 Adrain Rd., Burlingame, Calif. CIRCLE 306 ON INQUIRY

LIGHT DIMMER

The new 1,200-watt *Li/Trol* dimmer, like the smaller 600-watt unit marketed earlier this year, operates on a positive on-off switch and provides a full range dimming control through an electronic circuit. The device is a U. L. approved printed circuit board which employs four silicon diode rectifiers for full wave dimming. The dimmer may be used to modify lighting effects in restaurants, offices, showrooms and large residences. *Federal Pacific Electric Co.*, 500 St. St., Newark 1, N.J. CIRCLE 307 ON INQUIRY

CONCRETE AND MASONRY PRESERVATIVE FINISH

A newly-developed concrete and masonry preservative finish stops moisture and dampness in new and existing construction, the manufacturer claims. The product, *GRP Northwall*, is available clear or in different colors. It is formulated for use on exterior above-grade construction of such materials as monolithic concrete, precast concrete panels, glazed tile masonry, clay brick masonry and sand-cast stucco. It can be applied with a pressure spray, brush or roller. *Northwall* meets U.S. Federal Specification SS-W-110b. In color, it meets Federal Specification TT-P-001. *Lespie-Rogers-Pyatt Co., Inc.*, 400 St. St., New York 5, N.Y. CIRCLE 308 ON INQUIRY

more products on page 228

For more data, circle 143 on Inquiry Card

Yes,

Carrier

...and Carrier has the service to back it up!

chedule to installation information and certified
ints.

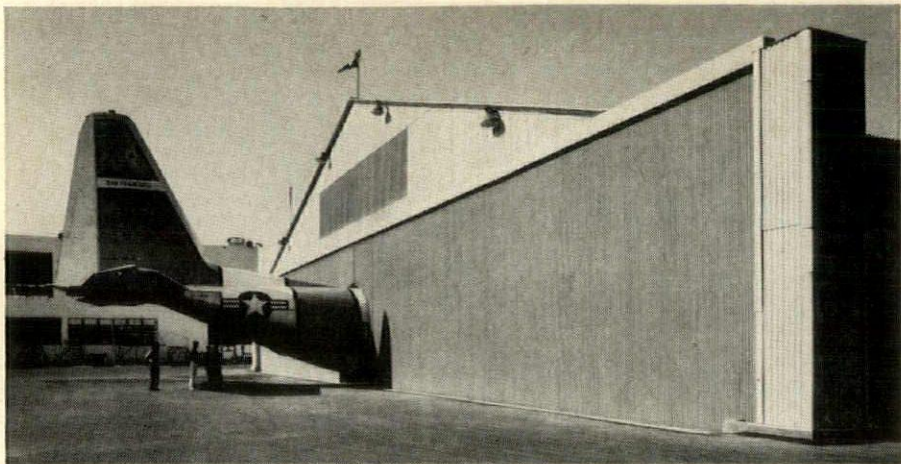
And, after the equipment has been turned over
the owner, responsibility for proper performance
n be centered on the same reliable shoulders. For
yond our equipment warranty, we offer three types
maintenance contracts known as Carrier Planned
ervice. Together with our dealers, we back our
fer with the largest and best-trained service organiza-
tion in the business—over 12,000 men strong.

For information about components for *any* apart-
ment job—or *any other* air conditioning project—
call your Carrier representative. Or write Carrier
Air Conditioning Company, Syracuse 1, New York.
In Canada: Carrier Air Conditioning (Canada) Ltd.,
Toronto 18.

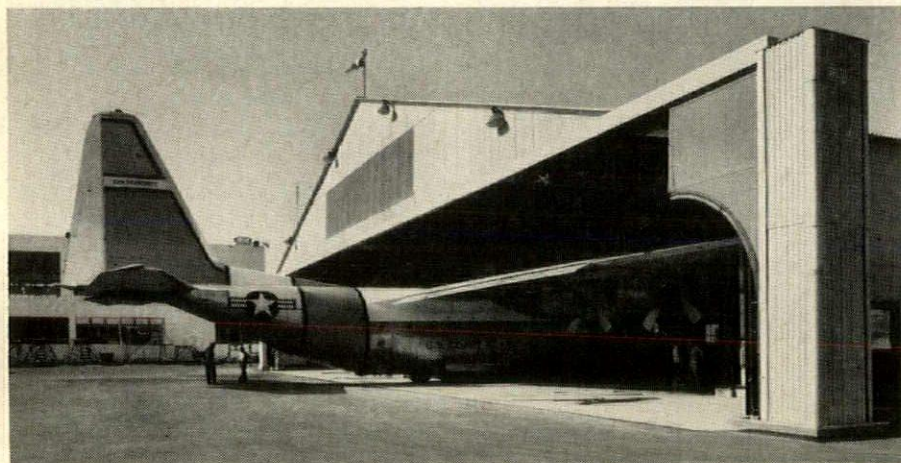
Carrier Air Conditioning Company

For more data, circle 151 on Inquiry Card

CUT CONSTRUCTION COSTS



ON HANGARS, OTHER BIG OPENINGS



WITH COOKSON BI-PARTING STEEL SIDE COILING DOORS

Here is the economical, practical answer to closing off big openings: Side Coiling Steel Rolling Doors by Cookson, leading designer of commercial and industrial doors for all purposes. Note how these doors avoid the need for large stacking areas normally associated with sliding doors. Curtains are coiled out of the way to the sides in relatively small box housings for a completely unimpaired opening. With lighter weight curtains, the truss loading is reduced with resulting economies. Design is simple, installation is quick and easy. Door operation is smooth, highly efficient and trouble-free, whether by hand crank or electric motor. Ideal for large openings, either single or bi-parting, and designed for a 20 pound wind load. For the best doors at less cost in overall construction, specify Cookson. Write for full information, or see Sweet's.



ROLLING DOORS • FIRE DOORS • GRILLES • COUNTER DOORS • COILING PARTITIONS

"BEST WAY TO CLOSE AN OPENING"

COOKSON

The Cookson Company • 700 Pennsylvania Avenue
San Francisco 7, California

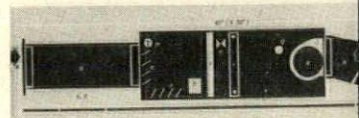


For more data, circle 152 on Inquiry Card

Product Report
continued from page 23

CLASSROOM VENTILATION

A complete individual classroom ventilation system for use with acoustical ceiling heating has been announced by Jacobson and Company. The heart of the *E.C.D. room Ventilating System* is a compact ventilating unit mounted to the ceiling. The unit draws in quantities of fresh air through an outside wall louver and blends it with recirculated air obtained from two modular ceiling return air

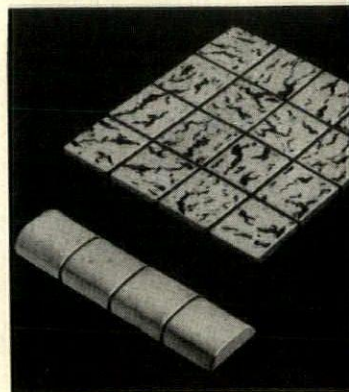


The unit then filters the mixture and delivers it at a constant volume and uniform temperature to the classroom through two modular ceiling diffusers. The system operates on a single circuit, 5 amp, 115 volt power source. It provides fresh air at a minimum of 300 c.f.m. and a maximum of 1,200 c.f.m. Total air delivered is 1,100 c.f.m. for Model 1,200 c.f.m. for Model N. *Envirotech Control Division, Jacobson & Company, 227 E. 44 St., New York, N.Y.*

CIRCLE 309 ON INQUIRY CARD

MOSAIC TILE

A new semi-porcelain mosaic tile called *Styline* is designed for easy installation and grouting. The tile is available in six plain colors and



tracing and solid gold color. The tiles are mounted on 12-inch square mounted sheets. A new cap tile is also available. *Latco Products, 3371 Glendale Blvd., Los Angeles, Cal., 90039*

CIRCLE 310 ON INQUIRY CARD
more products on page 24

Why Andersen WOOD WINDOWS were specified for this new 12-story hotel!

Because the architects, Sommerich and Wood, estimated **installation cost savings** of \$1800 and maintenance savings of 40% with Andersen Casement Windows in the Brown Suburban Hotel, Louisville, Kentucky.

They took a long, hard look at the extensive use of glass in their design . . . considered all window types . . . and came up with a choice that not only met their design needs, but saved the owner's money in the process.

Since factory-assembled, stock Andersen Casements could be installed by the regular crew, instead of hiring specialists required to install steel windows, they were able to save about \$7 per window on installation costs! A total of more than \$800 saved!

The architects went a step further and predicted a long-range **maintenance saving** advantage of 40% with Andersen units.

The economic advantages coupled with the architects' (and the owners') desire to eliminate exterior sweating of sash and frame members made Andersen Casements a logical specification.

A pretty compelling story. But there are other reasons for specifying Andersen Wood Windows.

There's the Andersen line that permits complete **creative freedom** in meeting any design problems. Seven different styles . . . 30 different sizes . . . over 600 cataloged sizes.

Or Andersen's **extra weathertightness** (up to 4 times tighter than industry standards for wood windows). This means you can design extra-large glass areas without sacrificing insulating effectiveness. And, owners can save substantially on heating and cooling costs.

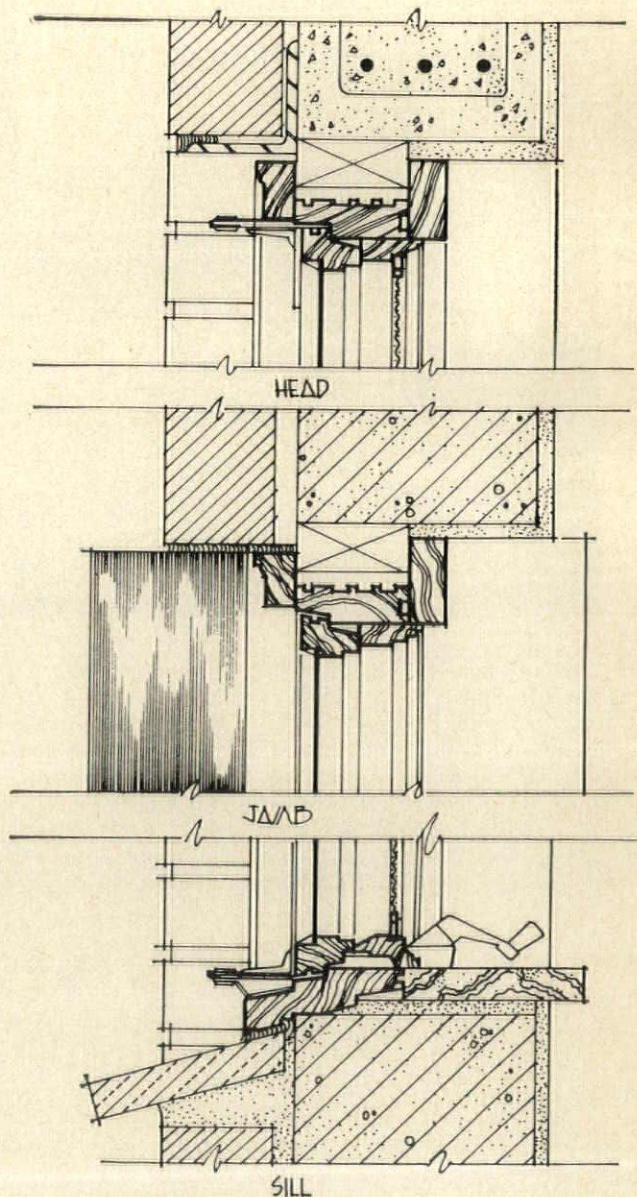
Check Sweet's File. Or, contact your local Andersen distributor for a Tracing Detail File. Andersen Windows are available throughout the United States and Canada.

Andersen Windowalls

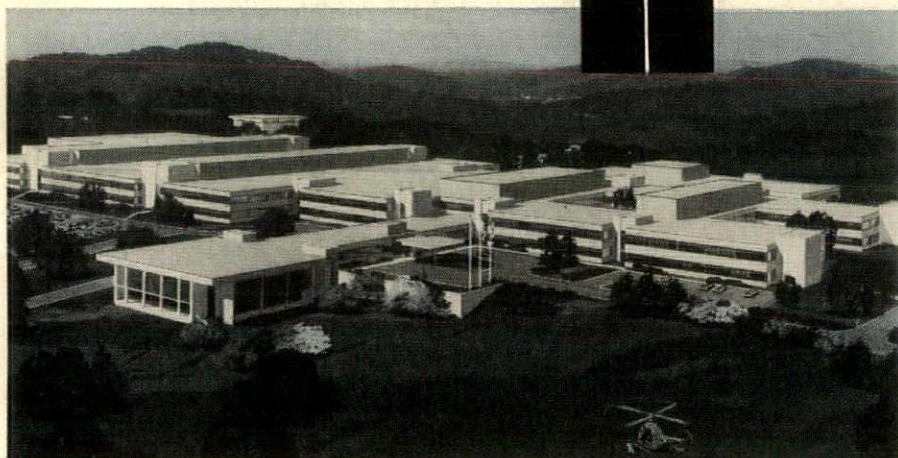
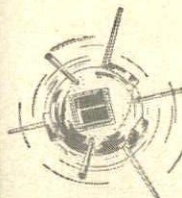
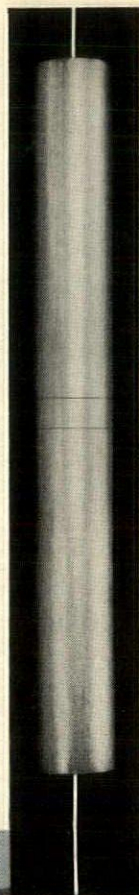
TRADEMARK OF ANDERSEN CORPORATION

America's Most Wanted Windows

ANDERSEN CORPORATION • BAYPORT, MINNESOTA



The doors
will swing
on McKinney
Moderne
Hinges
at the new
Space Technology Center
Valley Forge, Pennsylvania



McKinney Moderne hinges were selected for the new General Electric Space Technology Center now nearing completion at Valley Forge, Pennsylvania, because they're as modern and as handsome as the building itself. Their slim lines and the quality of stainless steel pins, stainless steel oil-impregnated bearings, plus McKinney craftsmanship provide hinges which can "take it" on high frequency doors.

On your next job go Moderne. Specify McKinney Moderne . . . choice of quality-conscious consultants.

McKINNEY

SCRANTON, PENNSYLVANIA 18505 / IN CANADA:
McKINNEY-SKILLCRAFT LTD., TORONTO 3, ONT.

Project: General Electric Space
Technology Center
Valley Forge, Pennsylvania

Engineers & Designers: United Engineers &
Constructors, Inc.,
Philadelphia, Pennsylvania

Architects: Vincent G. Kling, F.A.I.A.,
Philadelphia, Pennsylvania

General Contractors: Huber, Hunt, &
Nichols, Inc.,
Indianapolis, Indiana

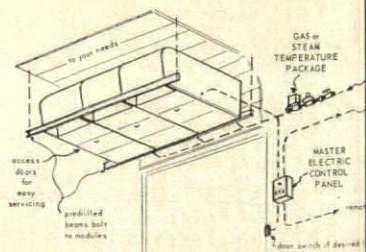
Hardware Supplier: Barrison & Clarke, Inc.,
Indianapolis, Indiana
Joseph Clarke, President

Hinges: 1825 pair TA3331 bronze hinges
TA3731 steel hinges
TA3350 bronze hinges

For more data, circle 154 on Inquiry Card

Product Reports

continued from page 24



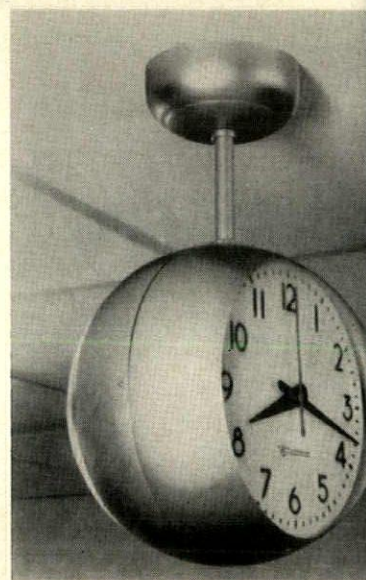
WARM AIR CURTAIN

The *Thermal Curtain* system consists of self-contained, direct-fire burners to be hung above door openings to blanket the opening and halt infiltrating cold floor drafts. Modular units heat the air—mixture of outside and room return—and then discharge it downward. The system can be used in factories, garages and warehouses. *Cam Engineering, Inc., 1330 N. Rock Rd., St. Louis, Mo. 63124*

CIRCLE 311 ON INQUIRY

COMMERCIAL DECORATOR CLOCKS

Edwards Company's comprehensive new line of clocks for offices, transportation terminals, lobbies



banks is now available. Units available in size from 6 to 24 in. Among the special-purpose clocks are explosion-proof, weather-proof and vapor-proof models; elapsed time indicators for hospitals and laboratories; and globe face models. *Dept. 99, Edwards Co., Inc., Norwalk, Conn.*

CIRCLE 312 ON INQUIRY
more products on page 253

For more data, circle 155 on

subtract sound ÷ by 480

terior steel panels and effective perimeter seals give Soundmaster 480 the speech privacy of a 4" cinder block wall, painted both sides. The 480 earned a Sound Transmission Class of 40 at Geiger & Hamme Laboratories.* This full scale test rating is particularly significant since it was made, simulating field conditions, in a 14' x 9' opening.

Geiger & Hamme Test No. NC 18 FT

add beauty and durability ÷ by 480

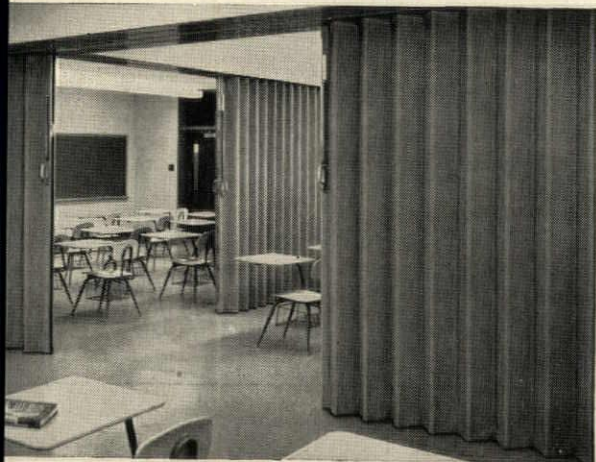
ew heavy duty vinyls, in a myriad of texture, color and pattern combinations, are produced in Modernfold's own plant to meet the exacting requirements of operable walls. Time-proven engineering and design, plus the use of quality materials throughout, permit you to specify with confidence assurance of outstanding performance and client satisfaction.

multiply applications ÷ by 480

ecause of its sound characteristics and construction features, the new 480 can solve many division problems never before possible with operable walls. See details in Sweet's File $\frac{16f}{Ne}$ or consult your nearby Modernfold distributor, who is a partitioning specialist.

For mathematics that solve space division problems...use

new Soundmaster 480 operable walls of silence



modernfold

NEW CASTLE PRODUCTS, INC.

NEW CASTLE, INDIANA

In Canada: Modernfold of
Canada, Ltd., St. Lambert, Que.

For more data, circle 156 on Inquiry Card

NEW CASTLE PRODUCTS, INC.
DEPT. A2044, NEW CASTLE, INDIANA

Please send full information on Soundmaster 480 and name of nearest
Modernfold distributor.

Name.....

School.....

Address.....

City..... Co. State.....

If you've tried other vapor seals and they failed... isn't it time to switch to the very best?*

As a conscientious architect or contractor you have undoubtedly specified and used various types of vapor seals many, many times. If you have never had a vapor seal failure or complaint, read no farther—you're already using **PREMOULDED MEMBRANE Vapor Seal**. If, however, you have found that the vapor seal you used did not stop the ravages of excessive moisture, then we believe this message will be of interest to you. It's an academic fact that 80% of the moisture that enters a structure originates in the site. It makes little difference where the structure is placed... somewhere below the site water exists and vapor will infiltrate the structure. Dampness, condensation, insulation failures, cracked plaster, dank smells, blistering and peeling paint, fungal or bacterial attack on construction and furnishings and masonry efflorescence soon follow.

YOU KNOW THE PROBLEM...

While the building industry has recognized the need to install a vapor seal between the structure and the site there has been a promiscuous use of permeable materials as vapor barriers. The only sure way to permanently eliminate moisture migration into the structure is to install true inviolate, impermeable vapor seal during the original construction. The following chart graphically illustrates that saturated felts, building and duplex papers, and plastic films are highly permeable and should not be considered as effective vapor seals.

MATERIAL	WATER-VAPOR TRANSMISSION*
Duplex Paper (coated both sides with reflector material, reinforced)	.347
Polyethylene Film (.006 in. thick)	.17
55-pound roll roofing	.081
PREMOULDED MEMBRANE Vapor Seal	.0048

*grains/per square foot/per hour as measured in accordance with ASTM Designation E96-53T, Procedure A.

WE HAVE THE ANSWER...

In addition to an almost nil water-vapor transmission rating, **PREMOULDED MEMBRANE** with **PLASMATIC Core** offers many other important and exclusive qualities. It is durable, flexible, and strong... will not rupture or tear under normal installation, traffic, and handling. Monolithic when installed to expand and contract in direct ratio with the concrete without breaking bond. Available in 4'x 8' sheets and rolls 4' wide to 50' long. It is lightweight, easy to handle and install.



PREMOULDED MEMBRANE Vapor Seal with **PLASMATIC Core** provides a practical, permanent method of waterproofing both vertical and horizontal surfaces in all types of construction; including slab-on-grade, basement and crawl space. For complete information request Catalog No. 753.



FOLDING PARTITION

The new *Hufcor 900 Woodwall* folding partition is designed specifically for industrial and commercial offices. The partition combines wood veneer panels in a variety of wood species with a unique conjoining system and uses the *Hufcor* track and carrier system. *Hufcor Manufacturing Corp., Janesville, Wis.*

CIRCLE 313 ON INQUIRY

GYPSUM WALL PANEL LOOKS LIKE WOOD

Ultrawall, a gypsum wall panel that has the appearance of wood paneling, will not warp, shrink or splint according to the manufacturer. *States Gypsum Company, 100 Wacker Drive, Chicago 6, Ill.*

CIRCLE 314 ON INQUIRY

CAULK-SEALING COMPOUND

A new caulking-sealing-glazing compound called *Polylastic* will seal joints, seams and openings on such surfaces as glass, metal, stone, plastic, concrete, aluminum and masonry, according to the manufacturer. It is also said to be totally impervious to weather, gas, moisture, and to have high adhesion strength. *Polylastic* is made from a non-staining grade of Enjay rubber, rubber plasticizers and fillers. It is recommended for use on window frames, mullions, building panels, expansion and control joints, and as a glazing auxiliary glazing compound in conjunction with glass and glass to wood joints. *Avadan Corp., 29 E. 11th St., Nutley, N.J.*

CIRCLE 315 ON INQUIRY
more products on page 256

SEALTIGHT®

PRODUCTS
FOR BETTER
CONCRETE
CONSTRUCTION

W. R. MEADOWS, INC.

4 KIMBALL STREET • ELGIN, ILLINOIS 60122
W. R. MEADOWS OF GEORGIA, INC.
 4765 FREDRICK DRIVE, S. W.
 ATLANTA, GA. 30331
W. R. MEADOWS OF CANADA, LTD.
 130 TORYORK DRIVE
 WESTON, ONTARIO, CANADA

For more data, circle 157 on Inquiry Card

Product Reports

continued from page 256

WINDOWS WITH INTEGRAL BLINDS

Integral venetian blinds are now available with either RA-50 or RA-60 reversible aluminum pivoted windows. The blind is made an integral part of the sash by incorporating the blind track to serve as the glass stop. The blind track is flush with the interior of the sash and keeps the tempered aluminum alloy blind slats in place. The slats are 1 in. wide and all operating mechanism is concealed. *Our City Architectural Metals Division, Hupp Corp., Minneapolis 6, Minn.*

CIRCLE 316 ON INQUIRY CARD

REVERSE-PUSH-BUTTON ELEVATOR SYSTEM

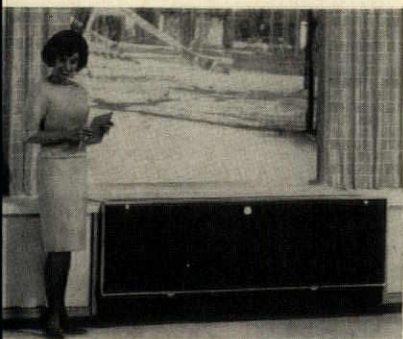
In close proximity or touch control push button system for elevators is developed by the company as maintenance-free and virtually indestructible through the use of solid-state, silicon-conductor switching devices. The design of the equipment adapts itself to the control signaling apparatus of all manufacturers, allowing use for conversion as well as new construction fields. *T. G. Johansen Inc., 96 Verdi St., Farmingdale, N.Y.*

CIRCLE 317 ON INQUIRY CARD

COOLROOM UNIT VENTILATOR

The 1964 Valedictorian line of unit ventilators performs the full air-conditioning function. Units can be installed for heating and ventilating and require no changes if cooling with humidification is desired later. Capacities of the five basic models are 750, 1,000, 1,250 and 1,500 cu ft air per minute. *Modine Manufacturing Co., 1500 De Koven Ave., Racine, Wis.*

CIRCLE 318 ON INQUIRY CARD



DOORS

ARK DOORS, FIRE DOORS
INDUSTRIAL DOORS, STEEL
DOORS, COMMERCIAL DOORS
RADIATION DOORS, WOOD
DOORS, ALUMINUM DOORS
STRAIGHT DOORS, CURVED
DOORS, TIN-CLAD DOORS
SMALL DOORS, LARGE DOORS
BLAST DOORS, HANGAR DOORS

DOORS

TO MEET YOUR OWN DESIGN REQUIREMENTS,
ESTHETICALLY—FUNCTIONALLY—ECONOMICALLY

When you want more than just a standard door—or when you run into a tough door opening to fill, please keep in mind that the design and construction of custom industrial and commercial doors to meet your esthetic and functional requirement is a specialty with Richards-Wilcox. In addition, R-W can supply all of the necessary hardware and heavy-duty electric operators where required . . . doors, hardware and operators that are "custom-fitted" to each other to assure trouble-free installation and service. The use of custom-fit doors can also provide greater economy than rebuilding openings to accommodate standard doors in remodeling projects.

Your local R-W APPLICATION-ENGINEER is a specialist in this field—he would appreciate the opportunity of consulting with you in regard to your door problems.

YOU DESIGN THE OPENING — R-W WILL FILL IT!

write today for
complete information
request Catalog
No. A-410.

HUPP
CORPORATION
RICHARDS-WILCOX DIVISION
116 THIRD STREET • AURORA, ILLINOIS 60507

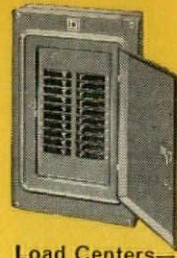
For more data, circle 161 on Inquiry Card



Safety Switches for Normal and Hazardous Locations



Industrial Circuit Breakers for Normal and Hazardous Locations

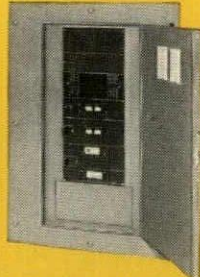
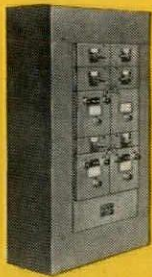


Load Centers—Circuit Breaker and Fusible



Drum Switches

SQUARE D MANUFACTURES A

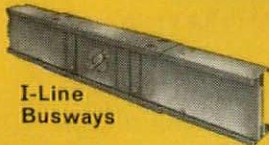
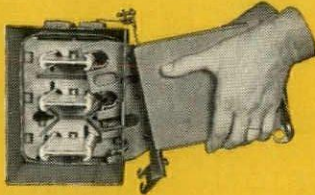


Fusible and Circuit Breaker Lighting and Power Panelboards



Power Distribution Switchboards and Switchgear

Plug-In Duct

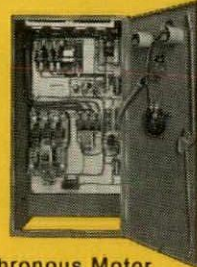


I-Line Busways

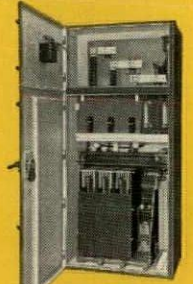
Motor Control Centers



Synchronous Motor Starters



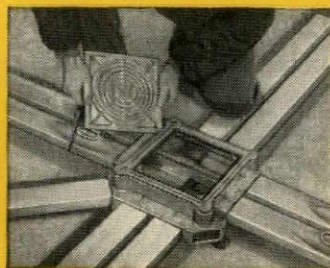
High Voltage Starters



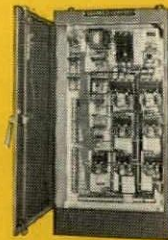
ON DUTY...WHEREVER ELECTRICITY IS



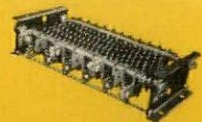
Square-Duct Wireways



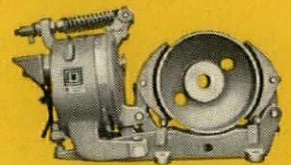
Underfloor Duct



Special-Purpose Control



Resistors



Magnetic Brakes



SQUARE D COMPANY



Control Relays



Timing Relays



Manual and Magnetic Starters



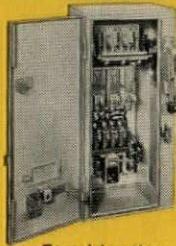
Complete LINE OF EQUIPMENT



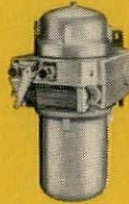
Limit Switches



Push Buttons



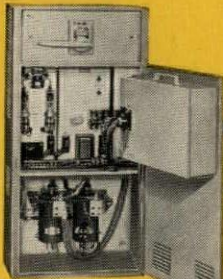
Combination Starters



Starters for Hazardous Locations



Reduced Voltage Starters



Welder Control



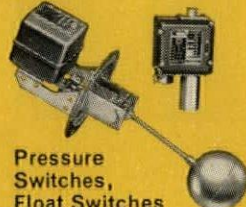
Static Logic Control Components and Systems



Lifting Magnets



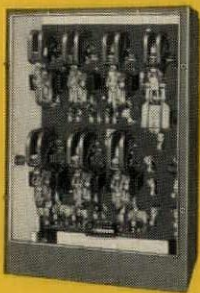
Voltage Testers



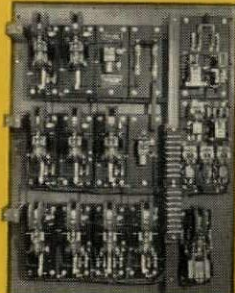
Pressure Switches, Float Switches

- ADJUSTABLE SPEED DRIVES
- BUSWAYS & WIREWAYS
- CIRCUIT BREAKERS
- CONTROL CENTERS
- CRANE & HOIST CONTROL
- DISTRIBUTION SWITCHBOARDS
- ELECTRIC TRUCK CONTROL
- HIGH VOLTAGE CONTROL
- LAUNDRY CONTROL
- LIFTING MAGNETS
- LIGHTING AND POWER PANELBOARDS
- LIMIT AND FOOT SWITCHES
- MACHINE TOOL CONTROL
- MAGNETIC BRAKES
- METERING EQUIPMENT
- MOTOR STARTERS
- PRESS CONTROL
- PRESSURE, FLOAT, & VACUUM SWITCHES
- PUSHBUTTONS
- RELAYS AND CONTACTORS
- RESISTORS
- SAFETY SWITCHES
- SERVICE ENTRANCE EQUIPMENT
- STAGE DIMMERBOARDS
- STATIC LOGIC CONTROL
- STEEL MILL CONTROL
- SWITCHGEAR & UNIT SUBSTATIONS
- SYNCHRONOUS MOTOR CONTROL
- TERMINAL BLOCKS
- TEXTILE MACHINE CONTROL
- TIMERS
- UNDERFLOOR DUCT
- VOLTAGE TESTERS
- WELDER CONTROL

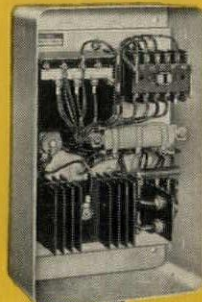
DISTRIBUTED & CONTROLLED



Crane and Mill Control



Adjustable Speed Drives

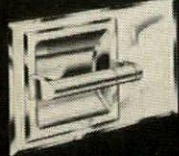


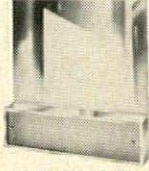
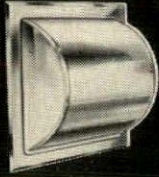





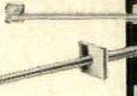

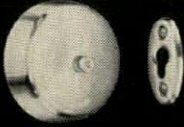

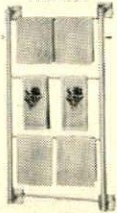



EXECUTIVE OFFICES • PARK RIDGE, ILLINOIS

For more data, circle 162 on Inquiry Card

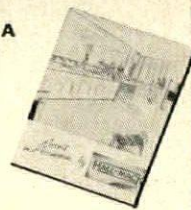
YOU WILL
sell more homes
 WITH
HALL-MACK®
 QUALITY
 IN EVERY BATHROOM!

When buying a home, one of the two rooms with the greatest attraction for Mrs. Housewife—and usually for the man of the house, too—is the *bathroom!* And in many transactions, it is the *unusual touches to the bathrooms*—the things that others don't have—that help sell homes. Below are a few of Hall-Mack's finest quality bathroom accessories—every one a real *home-seller!* By making bathrooms more attractive and convenient, Hall-Mack specialties help to clinch many a sale for smart builders and contractors everywhere.

 CONCEAL-A-ROLL HAS RECESSED COMPARTMENT FOR SPARE ROLL No. 375	 RECESSED TISSUE HOLDER TAKES LARGE PACKAGE No. 319	 DOLPHIN & SHELL TOWEL RINGS ADD PLEASING TOUCHES No. 125 - No. 127	 COMBINATION SURFACE VANITY SHELF WITH MIRROR No. 346 WM
 CONCEALED TOILET PAPER HOLDER HAS REVOLVING HOOD No. 378	 CONCEALED VANITY SHELF IS RECESSED INTO WALL No. 341	 STIRRUP SHAPED LUCITE TOWEL RING WITH CHROME BASE No. 386	 RECESSED MIRROR SHELF FOR TOILETRIES No. 305
 RELAXATION UNIT FOR LUXURIOUS BATHROOM TARRYING No. 302	 REVOLVING PANEL CONCEALS SOAP, TUMBLER, TOOTHBRUSH No. 338	 TOWEL RACK TELESCOPES INTO WALL—EXTENDS 14" No. 310	 STURDY GRAB BARS PREVENT MANY INJURIES IN TUB AND SHOWER Nos. 360/1/2
 CONCEALED CLOTHES LINE PROVIDES EXTRA DRYING SPACE No. 316	 SHOWER RECESS FOR SHAMPOO AND OTHER TOILETRIES No. 326	 LADDER OF TOWELS WITH A FULL 60" OF RUNG SPACE No. 395	 RECESSED SCALE OPENS DOWN WEIGHS ACCURATELY No. 350

EVERY BATHROOM A SALESMAN!

Just mail the coupon today! A new color brochure — "Accent on Accessories" — offers a wide choice of original designs, new ideas and exclusive features.



HALL-MACK COMPANY a **textron** company
 1380 West Washington Blvd., Dept. AR-464
 Los Angeles, California 90007
 I'd like complete information on these and other Hall-Mack quality bathroom accessories. Please send "Accent on Accessories."

Name _____
 Company _____
 Street _____
 City _____ State _____ Zip Code _____

Sold by leading plumbing, tile and hardware dealers everywhere.

For more data, circle 163 on Inquiry Card

Office Literature
 continued from page 223

VERTICAL TRANSPORTATION
 Ehrsam's diversified line of industrial and commercial vertical transportation products is described in an eight-page brochure. Contents include electric and oil hydraulic elevators, belt manlifts, hydraulic elevator drives and traction machinery. *The J. B. Ehrsam & Sons Co., Elevator Division, Enterprise, Kan.*

CIRCLE 412 ON INQUIRY CARD

MOVABLE PARTITIONS
Custom Line, a modular, movable partition system of 1 3/4-in. thick panels is described in a 10-page brochure. Panel construction, corner and meeting details, and finishing faces are presented graphically. *Architectural Systems, 4300-36 S.E., Grand Rapids, Mich.*

CIRCLE 413 ON INQUIRY CARD

HIGH STRENGTH, LOW ALLOY STEELS
 A new 20-page booklet describes high-strength low-alloy steels and provides basic information necessary for most effective use of these steels strengthened by the addition of small amounts of columbium, copper, vanadium, zirconium, titanium and niobium elements. The new booklet divides the various trade-named steels into three major groups according to similarities of characteristics. Producers, mechanical properties and typical uses of these steels are listed. *Committee of Hot Rolled and Cold Rolled Sheet and Strip Producers, American Iron and Steel Institute, 633 Third Ave., New York 17, N.Y.*

CIRCLE 414 ON INQUIRY CARD

EXTRUDED QUARRY TILE
 A full line of quarry, textured quarry and frostproof glazed quarry tiles is detailed in Summitville's latest color page catalog. The booklet includes patterns and trim unit specifications and installation details, and two pages of color photographs. *Summitville Tiles Inc., Summitville, Ohio**

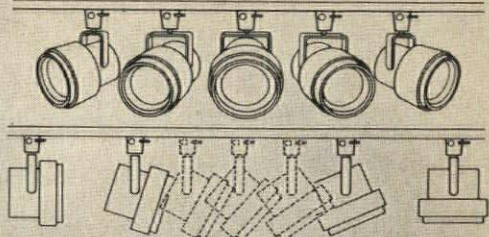
CIRCLE 415 ON INQUIRY CARD

*Additional product information in Sweet's Architectural File
 more literature on page 224



Lytespan is the first lighting distribution track designed as an integrated, architectural lighting system. It is the first track which can be recessed, or mounted on surface or stems.

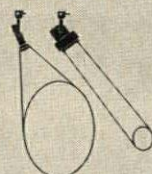
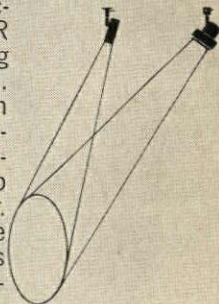
LYTESPOT FLEXIBILITY FEATURES



Direction. Lytespots rotate horizontally, pivot to any angle vertically. Pivot mountings are permanently tensioned and include a built-in 360° stop.

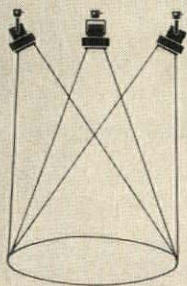
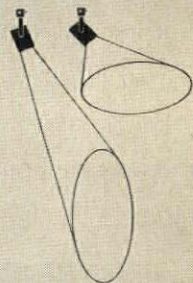
Position. Lytespots can be quickly clipped on and slid along the electrified track to any point desired. Thumbscrew rigidly secures unit, prevents sag or droop. Most Lytespots have individual switches. Spots can be stored on track when not in use.

Intensity. Lytespots accommodate a variety of R and PAR lamps ranging from 30 to 300 watts. Dramalux Lytespot with Intensitrol dimmer provides continuous intensity control from zero to 32,000 candlepower. Heat filters are available where high lighting levels at close range make display temperature critical.



Beam Spread. Ranges from a "pin spot" of 5½° to a flood of light at 110°. The flexibility in the throw of light ranges from two feet to twenty-seven feet (for 100 foot-candles).

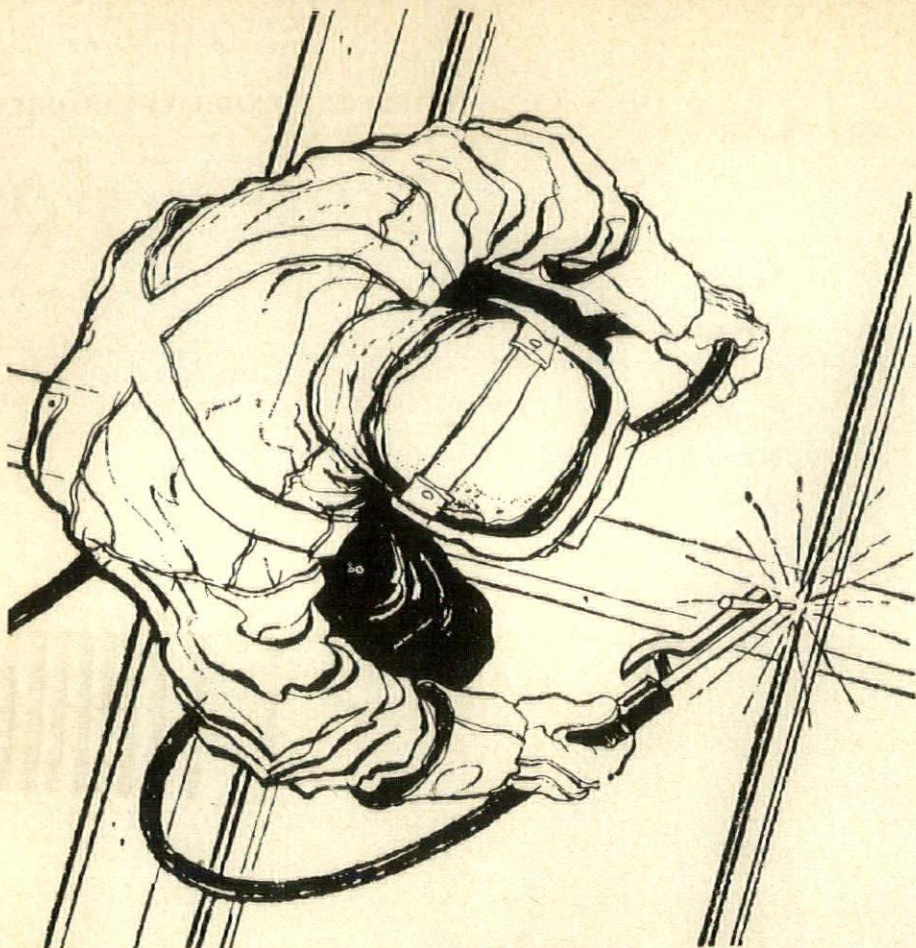
Beam Shape. Round or elliptical. An adjustable beam monitor permits changes in orientation of elliptical beams from horizontal to vertical. Aspread lens alters the shape of any light beam, making it tall and narrow, or short and wide. Stippled lens design eliminates filament image and softens the beam-edge.



Color. Using basic hues of the spectrum, a vast variety of shades is achieved by blending colored beams of light. One-piece color filters are made of borosilicate (heat-resistant) glass. Optical stippling eliminates filament image. Intensitrol dimmer controls intensity of any hue.

LYTESPAN® BY LIGHTOLIER!

Write to LIGHTOLIER, Jersey City, N. J. for Brochure No. 40. Or see the Yellow Pages for your nearest Lightolier distributor. Showrooms: 11 E. 36 St., New York; 1267 Merchandise Mart, Chicago; 2515 S. Broadway, Los Angeles; 1718 Hi-Line Drive, Dallas.



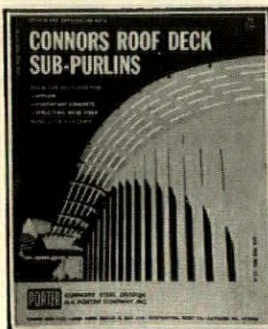
BULB TEE ROOF DECKS

ECONOMICAL, VERSATILE, FIRE-RESISTANT

Connors bulb tees are specially designed sections for roof deck applications. Rolled from A-440 steel, they provide an economical savings in weight and design versatility. Application data, properties and architectural specifications are contained in a descriptive brochure. Add this useful data to your AIA File . . . send the coupon to P. O. Box 118, Huntington, West Virginia.



**CONNORS STEEL DIVISION
H. K. PORTER COMPANY, INC.**



Please send application and design data covering Connors Bulb Tee Sections for Roof Decks

NAME _____

FIRM _____

Address _____

City _____ State _____

For more data, circle 166 on Inquiry Card

Office Literature

continued from page 264

ALUMINUM FENESTRATION SYSTEM; PROJECTED WINDOW

The *Geysler Grid System* is shown in 12 pages that contain project photographs, details in 3-in. scale, engineering data, information on finishes, gas sealing, costs and specifications. The catalog also describes the *Geysler Load-Bearing Grid System* with mullions of tubular steel 2 by 2 to 4 by 10 in. in size.

The "Projected Ventilators" catalog describes in four pages the construction of Geysler's window of extruded aluminum with rounded, formed corners. *E. K. Geysler Co., 915 Mc Ardle Roadway, Pittsburgh, Pa., 15203*

CIRCLE 416 ON INQUIRY CARD

LIGHT CONSTRUCTION GLASS

Mississippi Glass Company, manufacturer of rolled, figured and wavy glass for light construction, has released its new 16-page catalog, No. 64, covering its complete line of glass patterns for installation in industrial, commercial, school, church, institutional and residential structures. Illustrated with typical installations, the catalog also contains photographs of individual patterns accompanied by light distribution charts and transmission data. *Mississippi Glass Co., 88 Angelica St. Louis, Mo., 63147*

CIRCLE 417 ON INQUIRY CARD

INCINERATORS

Goder's complete line of incinerators is featured in a revised 16-page illustrated catalog. *Joseph Goder Incinerators, 4241 N. Honore St., Chicago, Ill., 60613*

CIRCLE 418 ON INQUIRY CARD

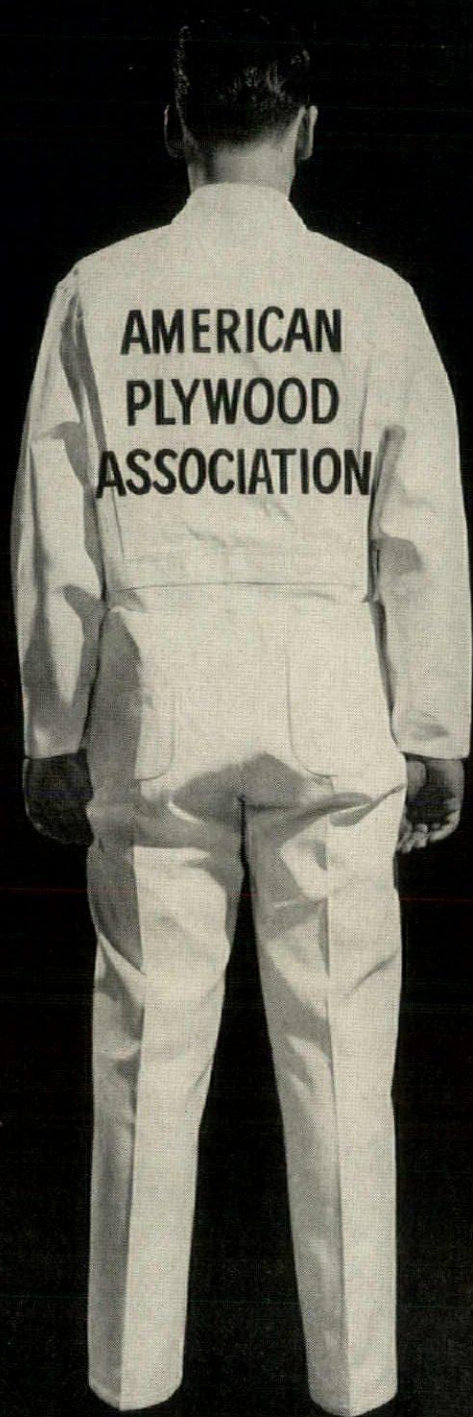
TOILET SEATS

A new 94-page reference manual covers Beneke's entire line of toilet seats. Requests for the manual should be made on business letterhead.

A new 28-page color catalog, No. 6, illustrates the company's solid plastic seat models. *Beneke Corp., Columbus, Miss.*

CIRCLE 419 ON INQUIRY CARD

*Additional product information in *Sweet's Architectural File* more products on page 268



**AMERICAN
PLYWOOD
ASSOCIATION**

The industry we represent has undergone some big changes in recent years. Our old name no longer fits.

Instead of making plywood only from Douglas fir—and only on the West Coast—the industry now makes a wide range of products from some 20 different species of

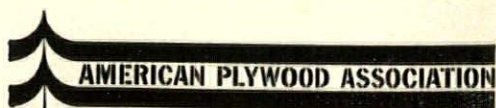
wood—and in plants in many parts of the country.

The new name reflects our members' growth and progress.

Even though the name is new, you can still specify DFPA plywood. These familiar letters still stand for quality in plywood certified by the

association and you'll continue to see them in our grade trademarks. Instead of Douglas Fir Plywood Association, though, they now stand for Division For Product Approval.

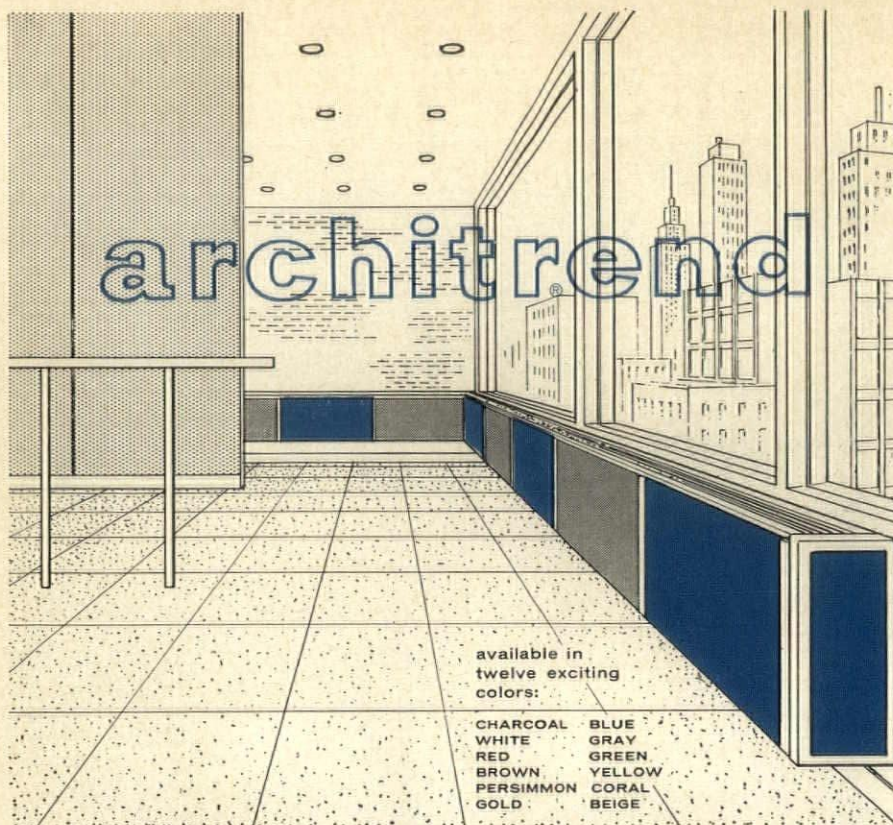
And we're still headquarters for all kinds of plywood information. Write us at Tacoma, Wash. 98401.



The new name for Douglas Fir Plywood Association.
Quality certified by the Division For Product Approval.



continued from page 268



available in
twelve exciting
colors:

CHARCOAL	BLUE
WHITE	GRAY
RED	GREEN
BROWN	YELLOW
PERSIMMON	CORAL
GOLD	BEIGE

NEW DESIGN VERSATILITY

in a prestige enclosure for perimeter heating featuring continuous anodized aluminum grilles

Contemporary architecture calls for the use of dramatic colors and clean, concise lines to create a pleasing environment. Building interiors are enhanced by this strikingly slim package of single or alternating color panels accented with distinctive anodized aluminum trim. You can actually achieve a custom appearance with standard components. But Architrend is much more than a bold new enclosure, it is perimeter radiation at its best... for hot water or steam heating systems! *Have your secretary write for Bulletin 4200 today so your files will be up-to-date on what's really new in sill fin radiation.*

FEATURES INCLUDE:

COLOR: Choice of 12 baked enamel colors. **ENCLOSURE SIZES:** Standard lengths of 2', 3', 3' 8", 4', 5', 6' x 4 1/4" to 5 1/4" depth and 13 1/2", 20 1/2" and 25" height. **TOP GRILLE:** Heavy duty extruded aluminum with anodized finish in continuous lengths up to 16' 6". Tamperproof construction. **FRONT PANELS:** Baked enamel over 16-gauge steel. Vertical dividers and end cap trim matches Top Grille. **INSTALLATION:** Exclusive mounting strip insures rapid, level application. Rugged inside panel supports keep it up. Simple screw, bolt and snap spring assembly. No exposed bolt or screw heads. **ALSO:** Thirty choices of enclosure and element, and matching accessories.



Send today for Bulletin 4200. Fully illustrated, complete with dimensional information and B.T.U. capacity ratings.

SCHEMENAUER MANUFACTURING COMPANY

"the most thoughtfully engineered heating products made!"
UNIT VENTILATORS AND CABINETS • FINNED TUBE PRODUCTS • COMMERCIAL RADIATION



FOR DETAILED FACTS send coupon to me for free, fully illustrated catalog on our new high-fashion Architrend Sill Fin.

E. C. Liebrecht
General Sales Mgr.

Schemenauer Manufacturing Company • Dept. 23 • Holland, Ohio

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

For more data, circle 168 on Inquiry Card

ENGINEERING AND DRAFTING ROOM FURNITURE

Stacor's 1964 catalog of engineering and drafting room furniture and accessory items lists and describes 200 different types and sizes of equipment. Among the products covered are the company's line of 42 types and sizes of automatic drafting units, and over 25 types and sizes of roll files and blueprints. *Stacor Corp., 285 Emmet St., Newark, N.J., 07114*

CIRCLE 420 ON INQUIRY

ALUMINUM GRILLES AND LOUVERS

Standard and custom design extruded aluminum architectural grilles and louvers for both new building construction and modernization are viewed in an illustrated, 12-page booklet. The booklet presents a series of five case studies, in which building is illustrated and the grille and louver installation is shown automatically. Specifications and technical applications are also given. *Aluminum & Brass Co., Dept. 1400 Lafayette Bldg., Detroit, 48226*

CIRCLE 421 ON INQUIRY

HEAT PUMPS, FURNACES

AFCO's "Heating, Cooling Systems" describes its line of air conditioning heat pumps and gas and oil fired suspended furnaces for residential, commercial and industrial applications. *American Furnace Co., 1300 Locust Ave., St. Louis, Mo., 63139*

CIRCLE 422 ON INQUIRY

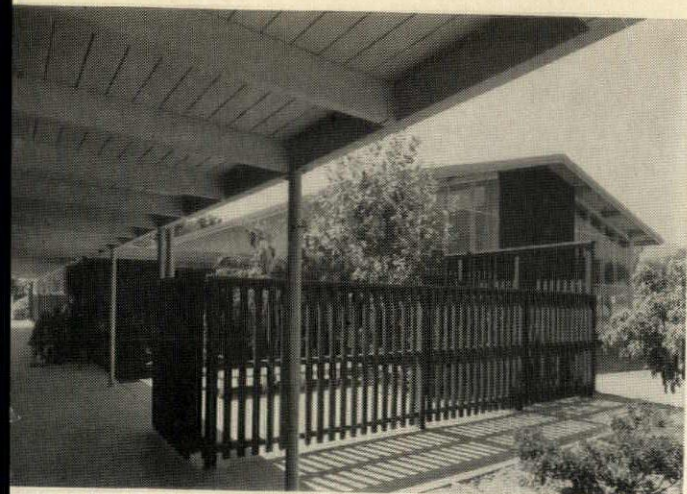
BRICK AND BLOCK CONSTRUCTION

Two 12-page booklets showing prototype buildings designed by architect Stanley Tigerman illustrate various uses of concrete block and brick masonry wall construction. Among the prototypes are a motor hotel, a high school and shopping center. Booklet MF-79 features block wall signs and MF-80, brick cavity signs. *Zonolite Division, W. R. Grace & Co., 135 So. LaSalle St., Chicago 3, Ill.*

CIRCLE 423 ON INQUIRY

*Additional product information in Sweet's Architectural File

For neighboring structures that differ in purpose
design with the freedom of WOOD



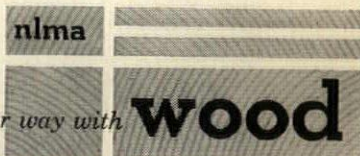
California's Pacheco School, wood creates both a homelike environment and an exterior most compatible with neighboring dwellings. Reid, Rockwell, Banwell & Tarics, architects and engineers.

UNICOM MANUALS 1 & 2: "Design Principles" (122 pages) and "Fabrication of Components" (248 pages), graphically detailing the UNICOM method of house construction, are available at nominal cost to those associated with or supplying the home building industry. For free booklet describing UNICOM, write to: UNICOM, National Lumber Manufacturers Association, 1619 Massachusetts Avenue, N.W., Washington, D.C. 20036.

Whatever their differences . . . schools, commercial buildings, and homes of wood will always complement one another. Wood's structural versatility permits the most daring designs for gymnasiums or garages, provides comfortable environments perfect for people. Its economies let you plan within the framework of a budget, without compromising the design of your structure.

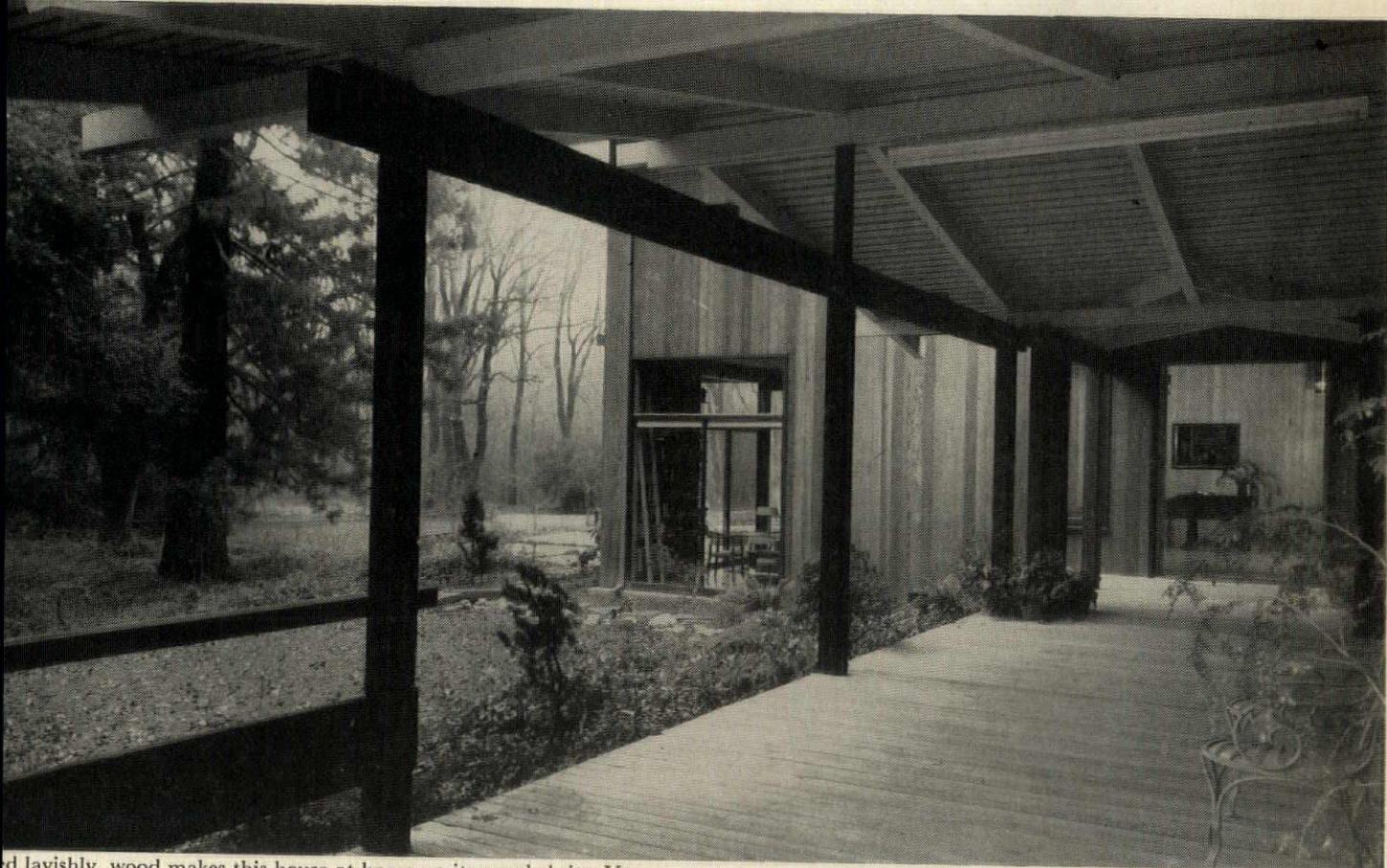
Wood is a sound choice for keeping noise to a minimum, a solid selection for insulation against the rise and fall of temperatures. Its many species, tones, and textures give you further advantages in creating unusual effects with visual warmth. Wood is easily maintained through years of wear, readily remodeled for necessary expansion. It's quick to adapt to new systems of planning such as UNICOM, the uniform method of modular dimensioning. For more information on designing more freely with wood, write:

NATIONAL LUMBER MANUFACTURERS ASSOCIATION
 Wood Information Center, 1619 Massachusetts Ave., N.W., Washington, D.C. 20036



find the better way with

wood



And lavishly, wood makes this house at home on its wooded site. Vertical boards panel both inside and outside walls. Contrasting finishes most effective. Architect: Joseph Esherick, A.I.A., San Francisco.

For more data, circle 176 on Inquiry Card

On the Calendar

April

5-9 30th Annual National Planning Conference, American Society of Planning Officials—Statler Hilton Hotel, Boston

7-9 25th National Conference on Church Architecture, sponsored jointly by the Church Architectural Guild of America and the Department of Church Building and Archi-

itecture of the National Council of Churches of Christ in the United States of America; theme, "Faith and Form in Church Design"—Sheraton-Dallas Hotel, Dallas

13-15 Meeting of Committee on Acoustical Materials, American Society for Testing and Materials—A.S.T.M. Headquarters, Philadelphia

21-23 1964 Spring Conferences, Building Research Institute—Shoreham Hotel, Washington, D.C. Infor-

mation from Milton C. Coon Jr., Executive Vice President, B.R.I., DeSales St., N.W., Washington 20036

25-26 Fourth annual conference of the United States Institute of Technology; theme, "Today's Inter—Yesterday's or Tomorrow's"—Barbizon-Plaza Hotel, New City

May

26-28 First National Convention of the Consulting Engineers Council, Denver, Colorado

31st International Conference on Office Administration Executed and sponsored by the National Management Association; through June 3—Statler Hotel, New City

June

8-11 Systems Engineering Conference and Conference—New Coliseum, New York City

8-19 First World Congress of Craftsmen, sponsored by the American Craftsmen's Council—Columbia University, New York City

14-18 96th Annual Convention of the American Institute of Architects; theme, "The City—Visible and Invisible"—Chase-Park Plaza Hotel, St. Louis

21-25 57th Annual Meeting of the Acoustical Control Association—Rock Hilton Hotel, Houston

21-26 American Society for Testing and Materials Annual Meeting—16th Materials Testing Exhibition, Conrad Hilton Hotel, Chicago

21-26 Annual Meeting and Exhibition of the American Society of Testing and Materials—Chicago

21-27 1964 International Conference, "Design '64: Dilemmas and Dilemmas"—Aspen, Colorado

28th 1964 Annual Meeting of the American Society of Landscape Architects; through July 1—Hotel Dallas

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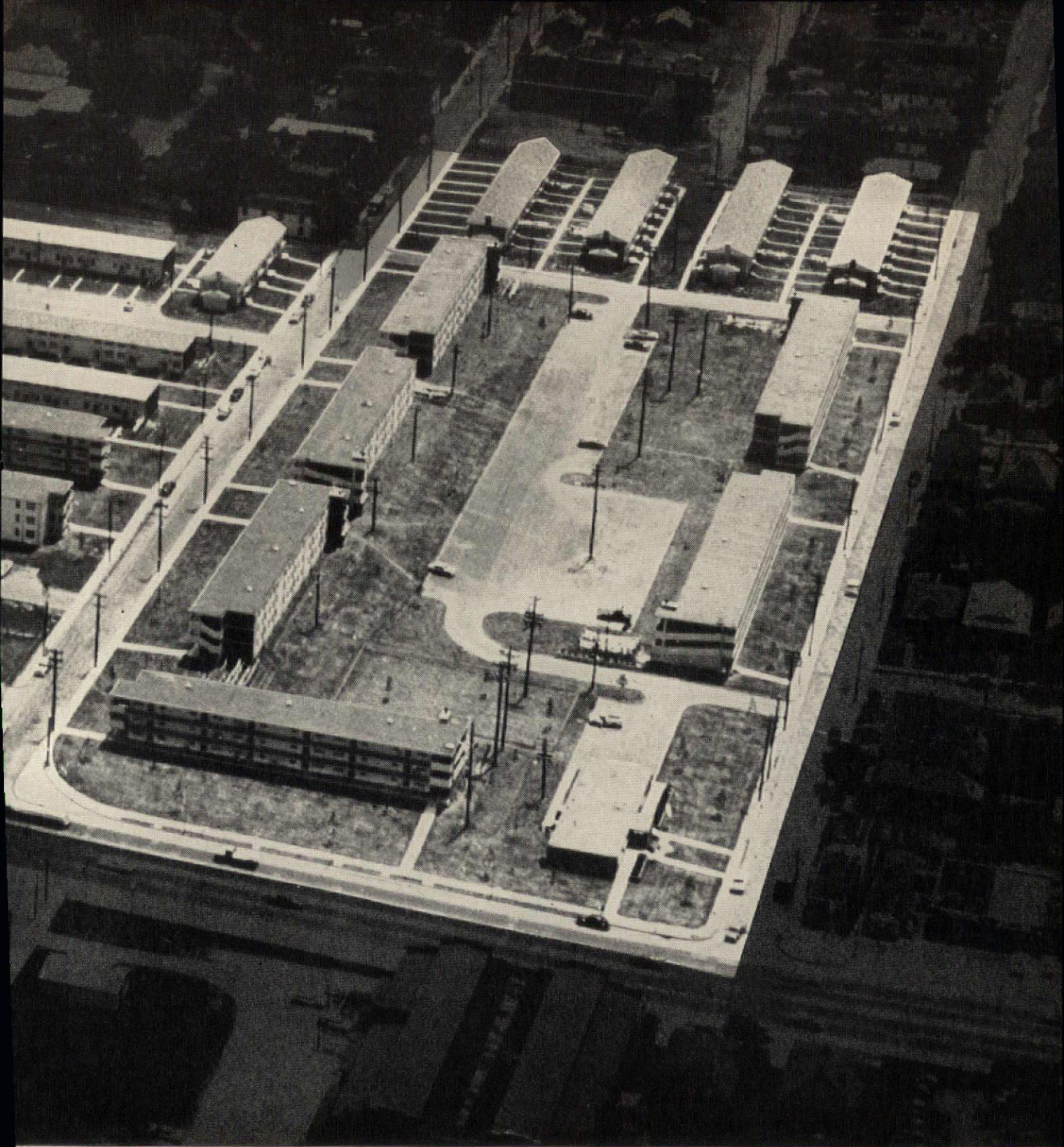
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Office Notes

Offices Opened

Pedro F. Lopez, architect planner, formerly Chief with **Leo Kornblath Associates**, now principal of the firm, **Lopez Associates**, 148 Liberty St., Brooklyn, N.Y., 11201

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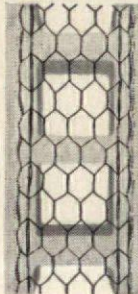


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COLUMBIA SCHOOL OF ENGINEERING MARKS 100TH YEAR

Highlighting the program of events scheduled to commemorate the 100th anniversary of the Columbia University School of Engineering and Applied Science will be a Conference at Arden House, Harriman, N.Y., dealing with the School's "Combined Plan" and a "Symposium on the Fu-

ture" at the United Engineering Center in New York City.

Some hundred and fifty presidents, deans and professors of colleges and universities associated with the Engineering School's "Combined Plan" will attend the conference, to be held on October 25-27. The plan enables students at associated schools to do undergraduate work in liberal arts for three years, when they are guaranteed admission to Columbia's School of Engineering and Applied Science. After two years of study at

Columbia, they receive a B.A. degree from their former schools and a degree in engineering from Columbia.

The "Symposium on the Future of Engineering" on November 17 and 18, will bring together a group of international experts to deliver papers previewing developments in engineering and science in the next 100 years.

Centennial events will also include an International Conference on Geographical Science and Engineering to be co-sponsored by the U.S. Army Force April 27-May 1 at the Americana Hotel; the Fourth International Conference on Strata Control and Rock Mechanics at the Statler Hotel May 4-8; the Monell Dinner at the Library on May 12; and Engineering Class Day on June 1. Planning for these events has been coordinated by Dean A. V. Smith, chairman of the Centennial Executive Committee.

The entire program will pay tribute to the long and pioneering history of Columbia's School of Engineering. One of the two or three oldest engineering schools in the country was, when founded in 1864, the School of Mines in the Western Hemisphere. By the turn of the century Columbia offered its students a broader curriculum that incorporated the various other engineering disciplines.

Among the lengthy list of graduates, professors and former students of the school who have made significant contributions in engineering and science are: Dr. John D. Cockcroft, the present dean, who in 1939 was the first man in the Western Hemisphere to split the uranium atom; Admiral Hyman G. Rickover, father of the U.S. nuclear navy; Donald C. Burmeister, professor emeritus of civil engineering; James R. Thompson, designer and builder of the Panama Canal and father of the noted architect; Alfred M. Fruedenthal, professor of civil engineering and a well-known consultant and expert on metal fatigue; Mario G. Salvatore, professor of civil engineering and an authority on thin-shell structures; General William B. Parsons, designer and builder of the New York City subway system; Daniel E. Moran, dean of American foundation engineers and consultant on the foundation work of many New York skyscrapers; and H. P. Gillette, developer of early cost data information on construction costs.

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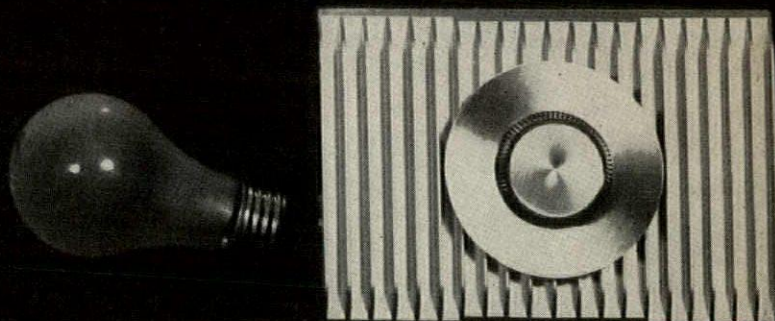
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MUMFORD NARRATES SIX-FILM SERIES ON THE CITY

The notable talents of Lewis Mumford and the National Film Board of Canada have combined in a six-part documentary film, "Lewis Mumford on the City."

The series is based on Mr. Mumford's book, "The City in History." Mr. Mumford appears on film at some length. To illustrate his points, and those of film-writer Ian MacNeill, the Film Board researchers have assembled a collection of prints and photographs: ancient art, 19th-century engravings, and contemporary stills and movies. These illustrate the good and charming qualities of the city: hospitals, courts, universities, theaters, festi-

vals, trade. They also illustrate some of the less attractive functions of the city, generally speaking, only which, accommodates: riots, slums, and alarm fires, book burning.

All of this film is intended to demonstrate Mr. Mumford's statement that "only in the city can the best cast of characters for the human drama be assembled." It also, more seriously, is intended as a definition of the city and as a guide to its preservation and improvement.

Part 1, "The City—Heaven or Hell," describes the city in history and outlines some of the contemporary forces shaping the city. "The City—Cars or People?" covers the old, if worsening, problem of urban transportation and congestion. "The City and Its Region" studies the relationship of city to country. "The Heart of the City" considers the increasing vitality and variety of the city. "The City as Man's Home" discusses city slums and suburban housing. The last film, "The City and the Future," suggests some emerging patterns—the regional shopping center, the university-centered city, New Towns. Each part runs about half an hour.

The films are distributed in this country by Walter Reade-Sterling Inc., and are intended primarily for sale to public and university libraries. Prices are \$135 for each film and \$750 for the series.

HILL AND BURTON HONORED BY A.I.A.

The American Institute of Architects has presented special citations to Senator Lister Hill and Harold Burton, former Associate Justice of the Supreme Court, commending their "vision and leadership in the field of public health." While Lister Hill was still a U.S. Senator, he and Burton co-authored the Hospital Survey and Construction Act, better known as the Hill-Burton Act.

Since the program's enactment in 1946, 7,015 hospitals and health centers have been approved for Federal aid. In addition, construction standards and design guides devised under the program have achieved wide circulation abroad and among private hospitals here. The President recently asked the Congress for a five-year extension of the act.

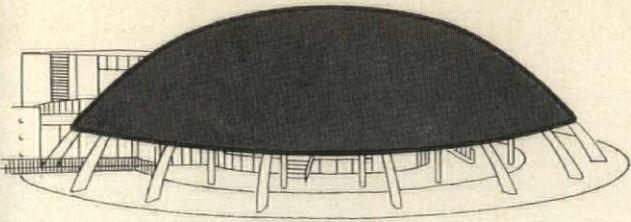
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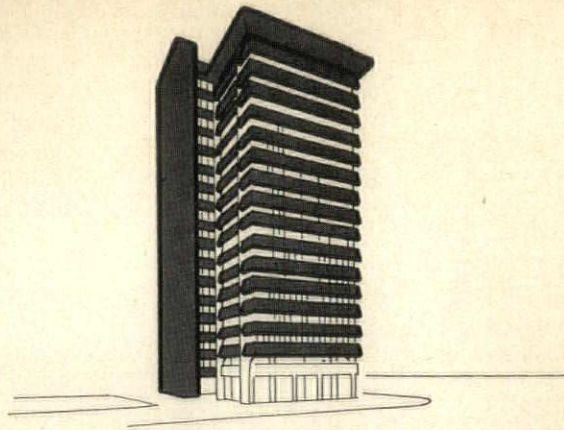


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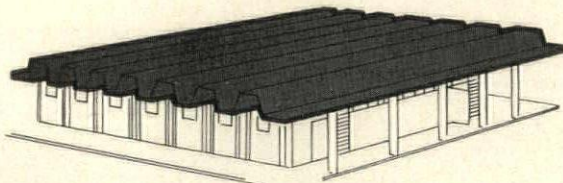
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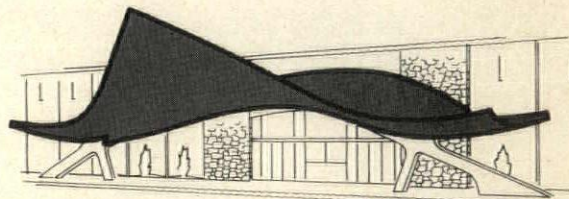
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B.R.I. PLANS SPRING MEETINGS

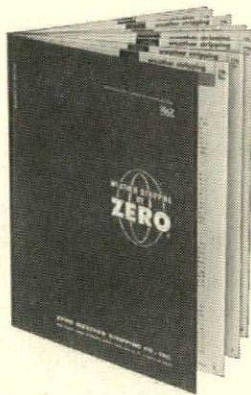
The Building Research Institute has scheduled two days of its four-day spring meeting to a conference on Periodic Maintenance Inspection. Sessions on this subject will cover case examples of inspection programs, the functions of public and private inspectors, and the evaluation and effect of reports.

The meetings will also include sessions on the critical path method, on the integration of mechanical, electrical and structural systems, and on the use and performance of various materials. A special panel will discuss the Jefferson Memorial Arch.

Information on the meeting, which will be held in Washington April 21-23, is available from Milton C. Coon, B.R.I., 1725 De Sales Street, N.W., Washington, D.C., 20036

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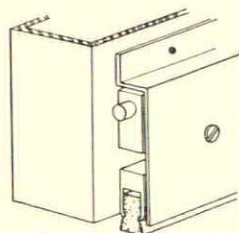
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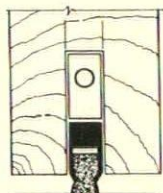
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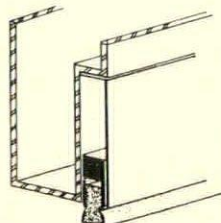


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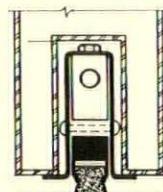


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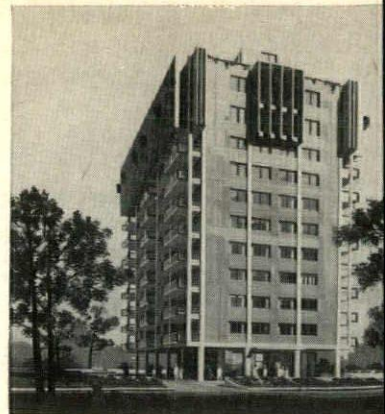
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ROOF GARDEN TO APARTMENT HOU

A roof garden has been planned for an apartment house now under construction for Crawford Realty, Inc. in Bridgeport, Connecticut.

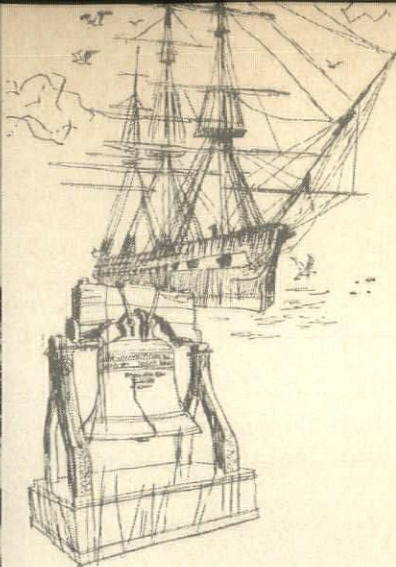
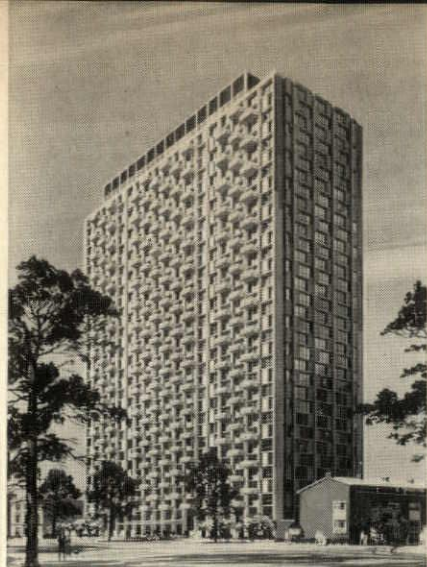
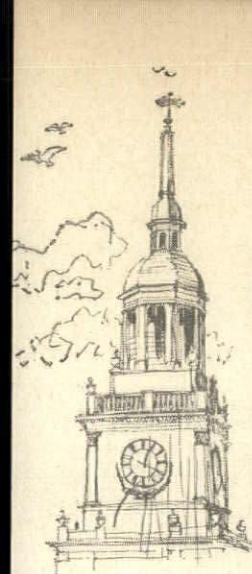
Architect William Mileto has designed the top two floors as a dramatic overhanging penthouse for luxury units. The steel structure will be faced with exposed concrete and brick or precast concrete. The total estimated cost is \$950,000.



APARTMENT HOU RISES 40 STORIES

Denver's first downtown apartment house since the war will be a 40-story building containing 432 units. Every Roth and Sons are the architect.

Bay windows, balconies and penthouses with floor-to-ceiling glass are designed to afford the tenants a view of the Rocky Mountains. The 10-story base will have a swimming pool and sun deck on its roof. Exterior facing is concrete and aluminum.



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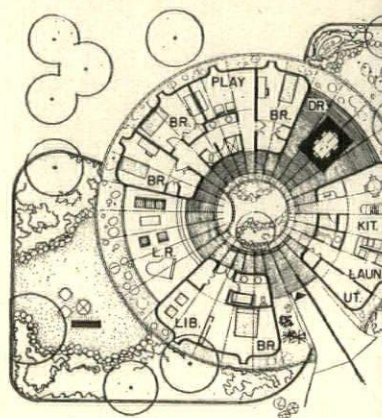
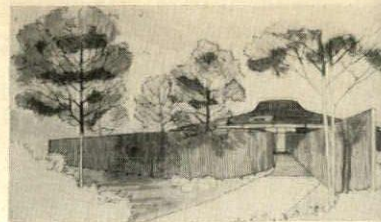
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SHOW HOUSE DESIGNED FOR PUBLIC EXHIBIT

The rare occasion of designing a house with no specific resident in mind has given the architect, Fred S. Toguchi, an opportunity to express his own approach to the prob-

lem. Built for the public by the Home Builders Association of Greater Cleveland and chosen for this honor by the Cleveland Chapter of the American Institute of Architects, the so-called "21st Century House in the Round" was featured in the 21st annual Cleveland Home and Flower Show.

The house, designed for a family of four to six, is planned around a central outdoor garden patio, the



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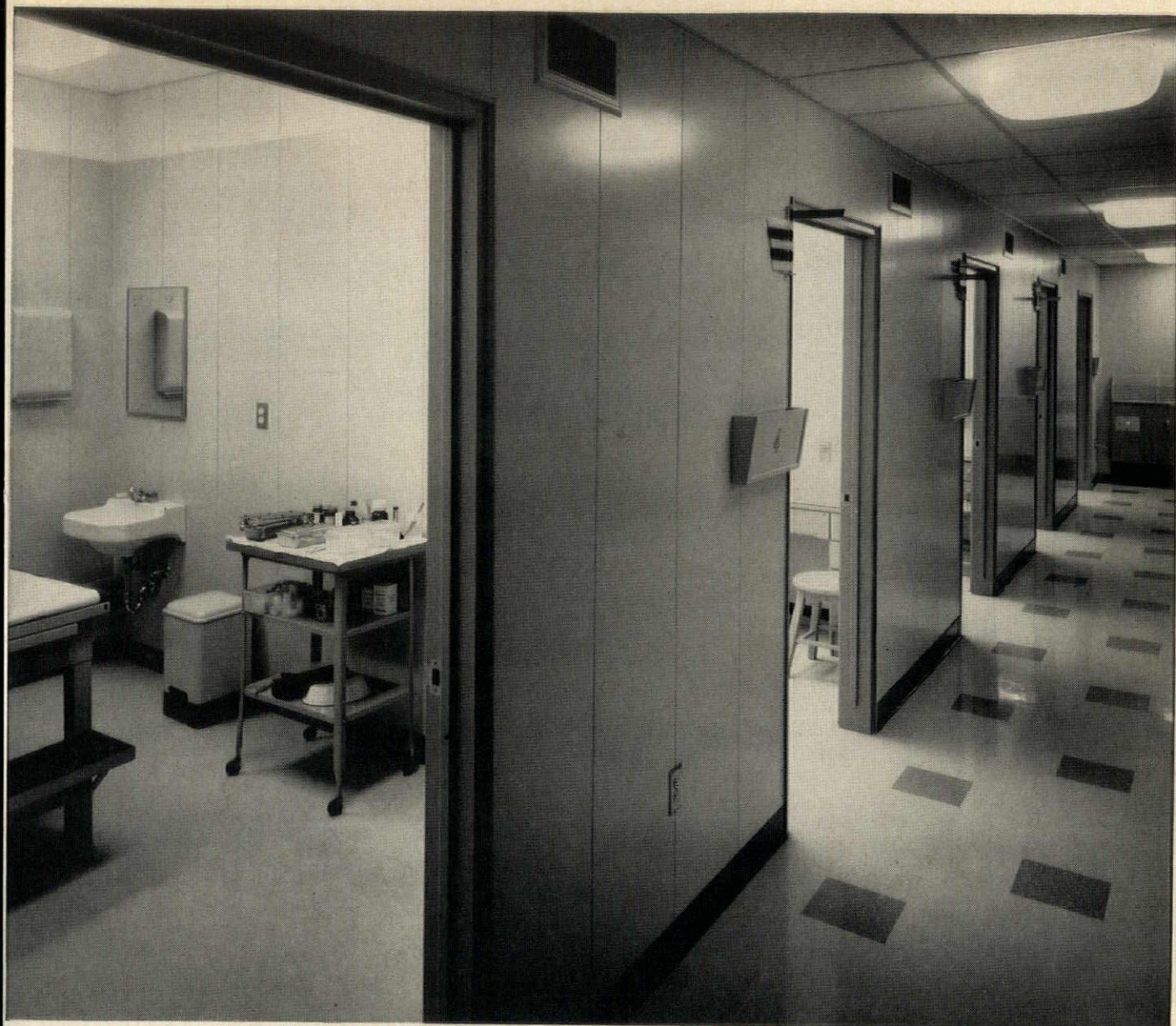
peristyle, which in turn is enclosed by a glass-enclosed gallery. This area serves as both the main entrance and as a passageway from one section of the house to another.

Private "capsules" and group living areas alternate around this central gallery, separating what the architect considers areas of space and privacy from those of privacy and security. The private sections are insulated with walls and ceilings of white plaster, a minimal window area and carpeted floors. Ceiling heights range from 6 feet at the perimeter to 8 feet at the gallery wall. By contrast, those of the living and dining rooms slant to a height of 12½ feet. Group areas of glass and cedar wood flow freely from the peristyle open onto landscaped gardens.

HARVARD TO HOLD FORUM ON RENEWAL

On May 1 and 2, Harvard's Graduate School of Design will conduct a conference in Cambridge, Massachusetts on "The Role of Government in Form and Animation of the Urban Core." The keynote speaker will be Robert Weaver, head of the Housing and Home Finance Agency. The conference will use Boston's renewal program as a case study, which to base general conclusions. Federally supported urban renewal programs.

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Marlite paneling is used throughout the new Akron Orthopedic Clinic designed by Wagner and Luxmore. The corridor features beige Plank; treatment rooms are paneled in various colors of Marlite Plank.

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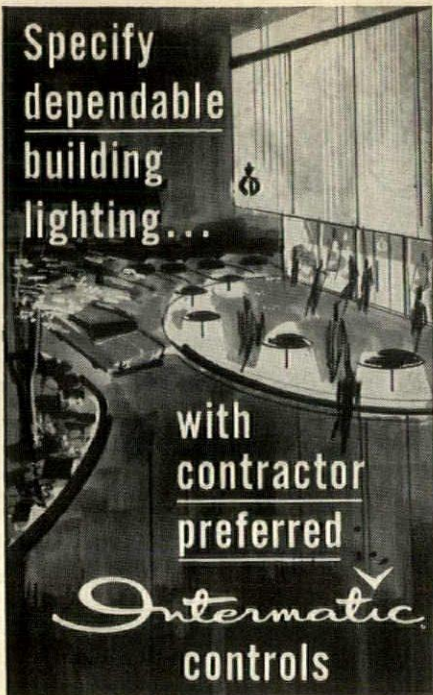
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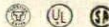


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Vibration-proof circuits and self-cleaning lens eliminate maintenance. And the entire unit is in an aluminum housing—unaffected by humidity conditions. Performance proved between -40° and $+150^{\circ}$ F. They're the most durable, dependable you can buy!

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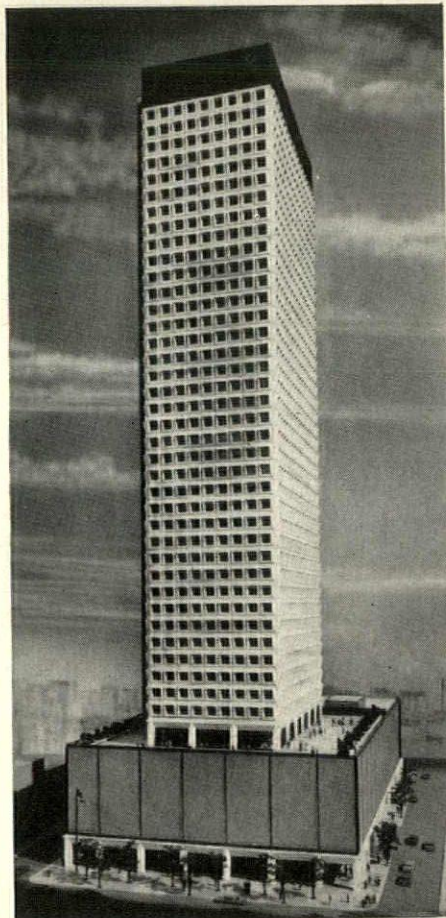
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NEW YORK OFFICES TO TOP FDR POST OFFICE

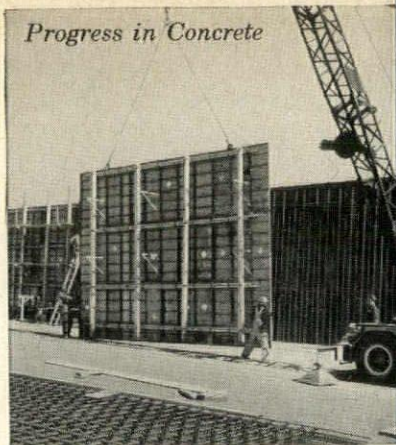
Simultaneously facing the imperatives of urban real estate and complying with President Johnson's frugality campaign, the Post Office Department has announced plans for a combined postal station and office building in New York City.

The new building will be constructed under the department's Lease Construction Program. Under this program, the post office selects the lowest bidder to construct and own the building, which the department would lease four lower floors and two basement floors for its Franklin Delano Roosevelt Station. The owner would probably rent the 38 remaining floors to private tenants.

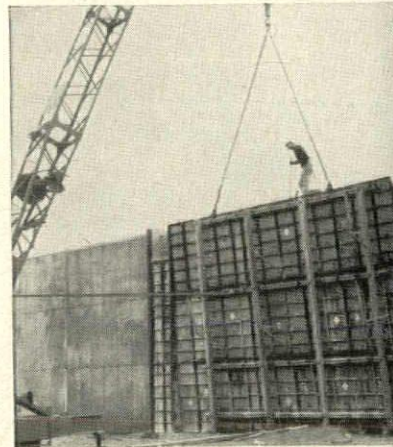
The design, by the Office of Max O. Urbahn, calls for windowless post office floors faced with gray brick and aluminum. The office tower will be faced with precast concrete panels. On the Third Avenue side, the building will be set back from the street to provide a landscaped plaza.



Progress in Concrete



SYMONS GANG FORMS
SMALL CREW AND INGENUITY
MAKE QUICK WORK OF BIG JOBS



Concrete subcontractor, A. Masons, Inc., North Brunswick, New Jersey, averaged 56 lineal feet of 12 inch thick basement walls (including two projecting concrete lasters) each working day. The job is a two-story and basement department store (260 by 560 ft.) in Woodbridge, New Jersey, shopping center.

BOTH FORMS AND STEEL GANGED

Alsan ganged both Symons Steel Forms and steel mesh, and cast heavily reinforced walls in repetitive bays, each 28 ft. by 18 ft. divide unreinforced concrete pilasters, 4 in. wide and projecting 1 ft. from inside wall face.

INGENIOUS STRIPPING

For quick stripping of Symons Steel Forms, Alsan used the stationary crane in the crane's cab. A steel hook attached to the stationary drum, hooked onto the second line of wire in the gang form. After carpenter cut the top of the gang away from the concrete the crane finishes stripping in motion by pulling upward with the hitch and outward at same time hook from stationary drum cable.

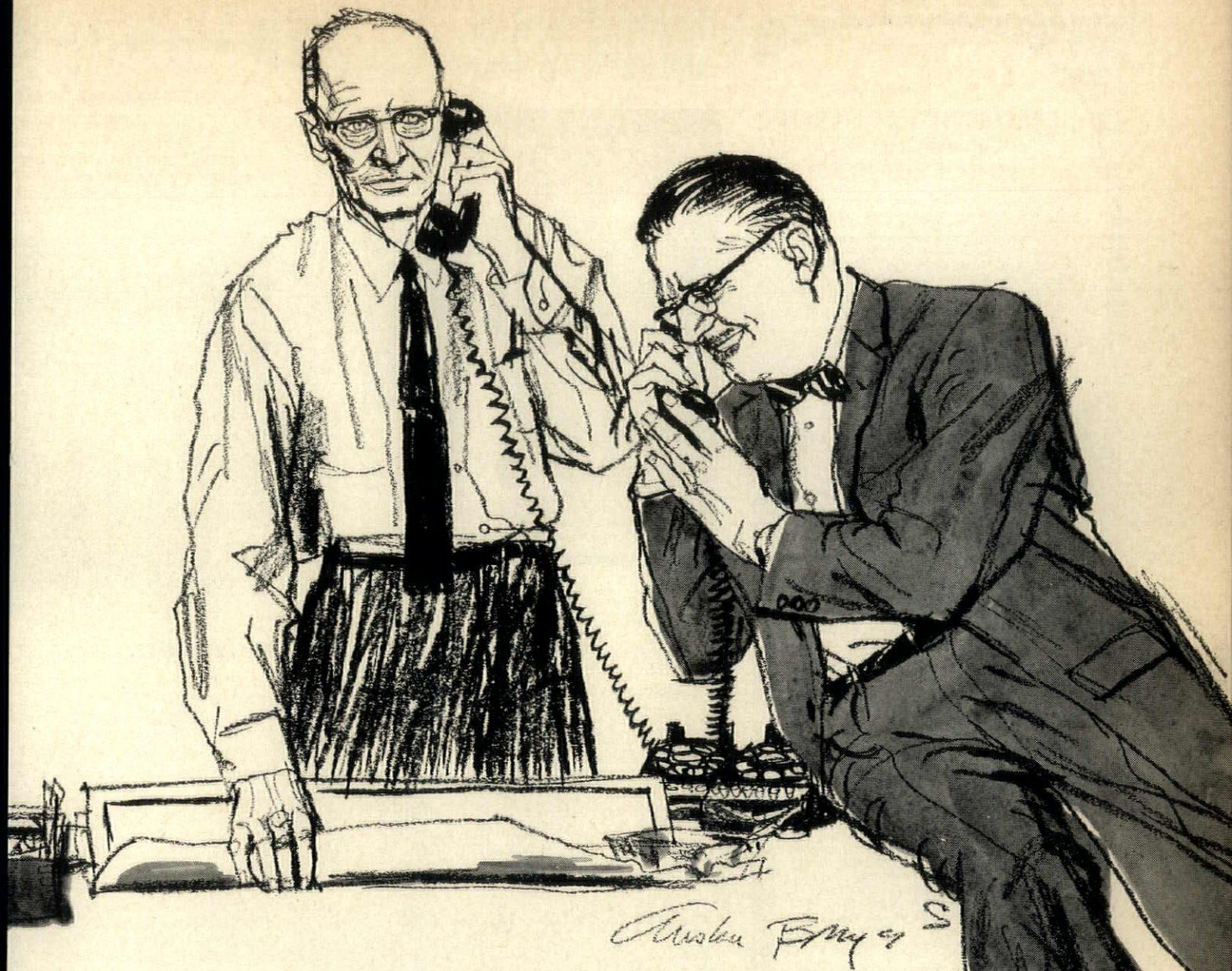
Complete information furnished upon request, also information about Symons Forms rental purchase plan.



CONCRETE FORMING EQUIPMENT
SYMONS MFG. COMPANY
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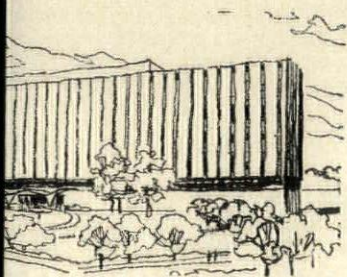
MORE SAVINGS FROM SYMONS

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Senior Vice President Harold A. Ashbrook (left) and Sales Vice President Eugene C. Munro are top men at Ware Aluminum Windows of Miami. With a competent staff, a quality product, and a real interest in their customers' problems, they have made their company one of the most respected names in the aluminum-window and curtain-wall business.

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Charlotte Memorial Hospital,
Charlotte, N. C. Architect:
A. G. Odell, Jr. and Associates

When you talk to Mr. Ashbrook or Mr. Munro or any one at Ware, you'll know your order is getting the kind of personal attention you want . . . whether it's from the main office in Miami or from one of the branch offices in Houston, Chicago, Atlanta or Washington, D.C. That's the kind of attention available from an independent aluminum fabricator . . . the kind of attention that supervised fabrication of windows and curtain wall for the beautiful Charlotte Memorial Hospital, Charlotte, North Carolina.

This new building demonstrates a number of the advantages of using aluminum. For one

thing, it will stay beautiful with low maintenance. Because aluminum curtain walls require less space than other materials, the hospital will have more usable space inside. And aluminum sections are easy to work with, saving construction time and costs.

Like many independent aluminum fabricators, Ware insists on top-quality aluminum . . . aluminum alloys made and supplied by ALCAN®. For Aluminium Limited backs its product and the independent fabricators it supplies with quality control and research that's second to none in the world of aluminum.

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Discusses the relationship between the landscape and people, individually and collectively, concentrating on the design process that affects the quality of the landscape. Demonstrates the continuity of design, with examples of everything from small patio spaces to community design. By G. Eckbo. 260 pp., illus., \$16.50, payable \$6.50 in 10 days, \$5 monthly

HEATING HANDBOOK

Gives today's best methods and accepted standards and codes for designing and installing any type of heating system—steam, hot water, warm air, or electric. Includes facts on handling fuels; valves, piping, and fittings; hardware and components for furnaces, heaters; etc. By R. H. Emerick, Prof. Eng. 509 pp., 101 illus., \$14.00, payable \$7 in 10 days, \$7 in 1 month

BUILDING FAILURES

Helps you maintain a permanent guard against oversight, carelessness, or negligence arising in construction or renovation of buildings. Gives 277 cases of structural collapse ranging from foundation, steel, reinforced concrete, and others, to hazards of fire, wind, etc. By T. McKaig, Cons. Eng. 255 pp., illus., \$10.75

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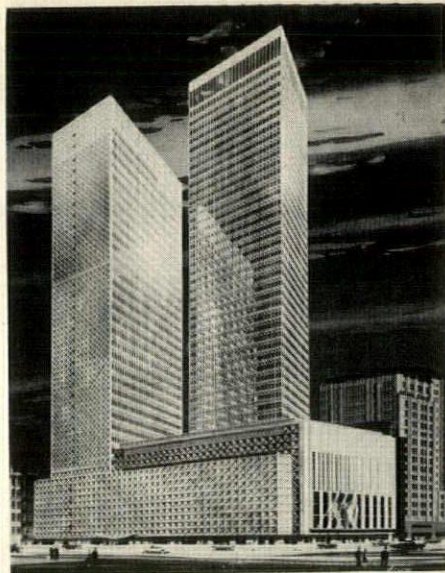
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**DALLAS BANK
 ADDS TOWER**



With the addition of its new 50-story tower, the Republic National Bank of Dallas will be the largest combined bank and office building in the South.

The multi-million dollar, 900,000-square-foot structure will use an all-welded steel frame faced with aluminum curtain walls. Associated architects are: Harrell & Hamilton; Thomas, James & Merrill; and Grayson Gill, Inc.

**COLUMNS, WALLS
 FUSE IN NEW BANK**



The plans for the downtown office of the Mutual Savings Building of Pasadena feature a nine-story office and banking building combined with a five-level parking structure.

The \$4.2 million building will contain about 175,000 square feet and will be constructed of poured-in-place concrete walls with integrated structural columns. Welton Becket and Associates are the architects. Completion is scheduled this fall.

1 of a series

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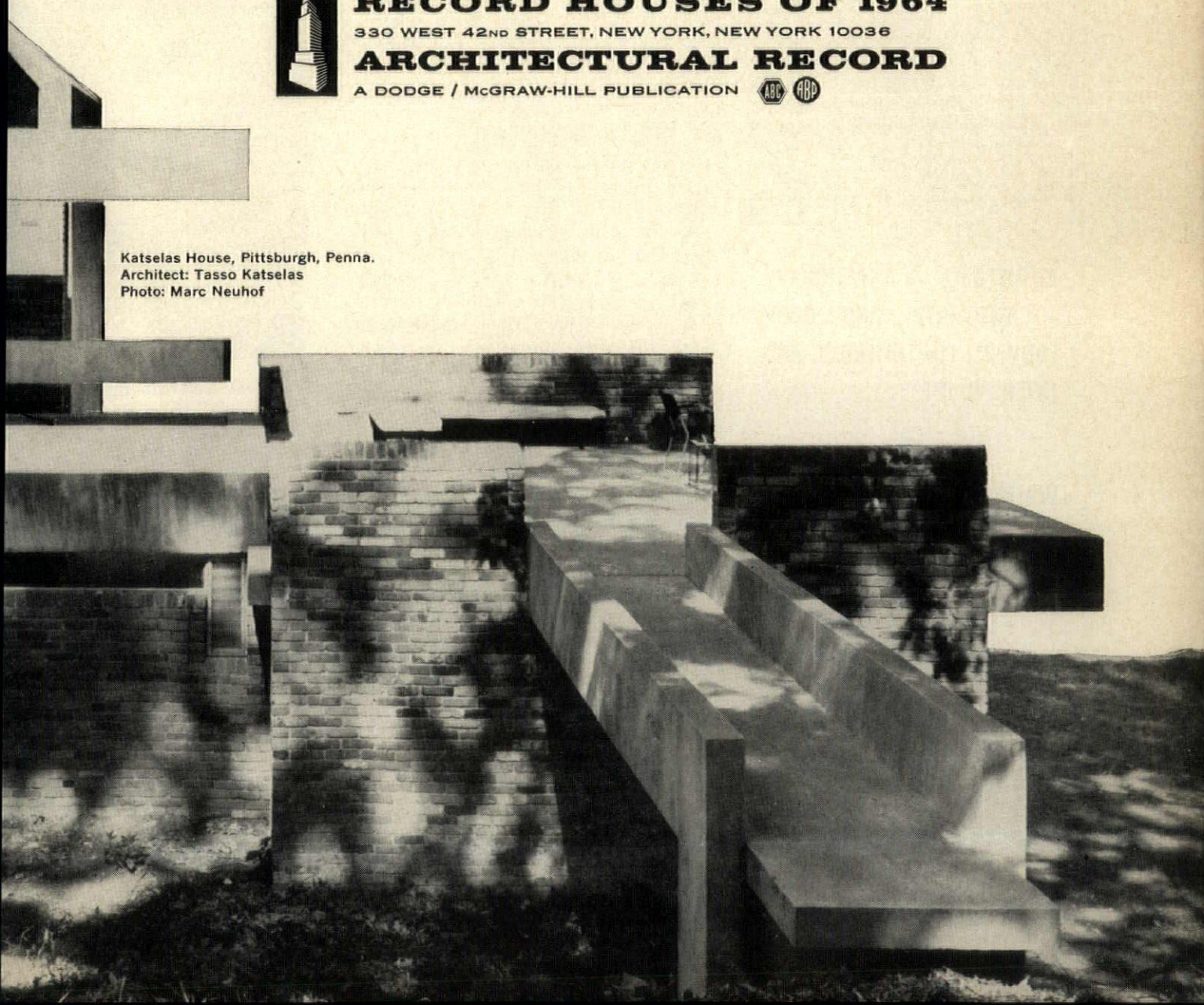
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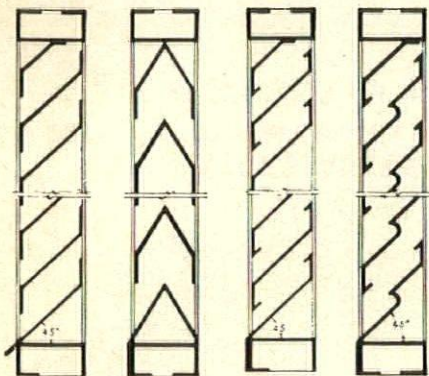


Katselas House, Pittsburgh, Penna.
Architect: Tasso Katselas
Photo: Marc Neuhoof



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Current Competitions

continued from page 70

An international competition is underway for three houses to be built in Mount Olympus development at Hollywood, California. The sponsors, the Mount Olympus Project, a division of the Russ Vincent Realty Co., offer three first prizes of \$10,000 each, plus \$5,000 for a grand prize among the first place winners. Other prizes include three second prizes at \$2,500 each, three third prizes at \$1,000, six fourth prizes at \$500, and 15 fifth prizes at \$100.

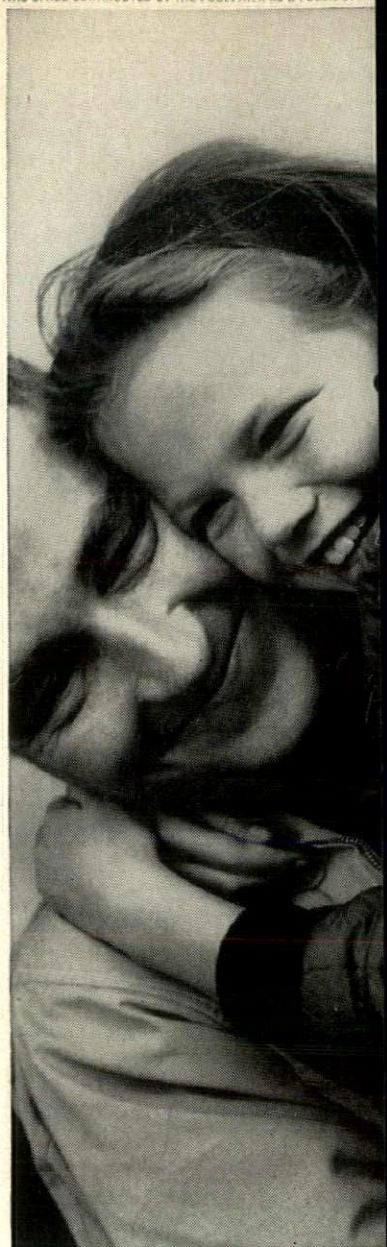
Registration was due April 1, and submissions are due by September 26. The professional adviser is George Vernon Russell, F.A.I.A.

The University of Illinois is receiving applications for its Kate Neal Kinley Memorial Fellowship. The fellowship awards \$2,000 to be used for advanced study in architecture, music or art here or abroad. Information is available from Dean Allen S. Weller, College of Fine and Applied Arts, Room 110, Architecture Building, University of Illinois, Urbana, 61803.

Juries have been announced for several current competitions. For the 1964 R.S. Reynolds Memorial Award: Mario Ciampi, F.A.I.A., Robert M. Little, F.A.I.A., George F. Pierce, F.A.I.A., Dahlen Ritchey, A.I.A., and Hans Maurer, German architect who won last year's Reynolds Award. For the Prestressed Concrete Institute's 1964 Awards Program: architects Richard M. Bennett (chairman), J. Roy Carroll Jr., and S. Kenneth Johnson; G. Brook Earnest, president of Fenn College, Cleveland; and Montreal architect Maurice Robillard, winner of the 1963 first prize. For the Koppers Architectural Student Design Competition: Peter Blake, A.I.A., Karl Kamrath, F.A.I.A., and Richard W. Lilliott, Dean of Architecture, University of Houston.

Still current: Kitchen Concepts Competition, sponsored by the General Electric Company—deadline for submissions, May 1. Architectural awards program sponsored by The Dow Chemical Company—closing date, May 5. (ARCHITECTURAL RECORD, February 1964, page 23).

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