ARCHITECTURAL RECORD

10 *October 1961*

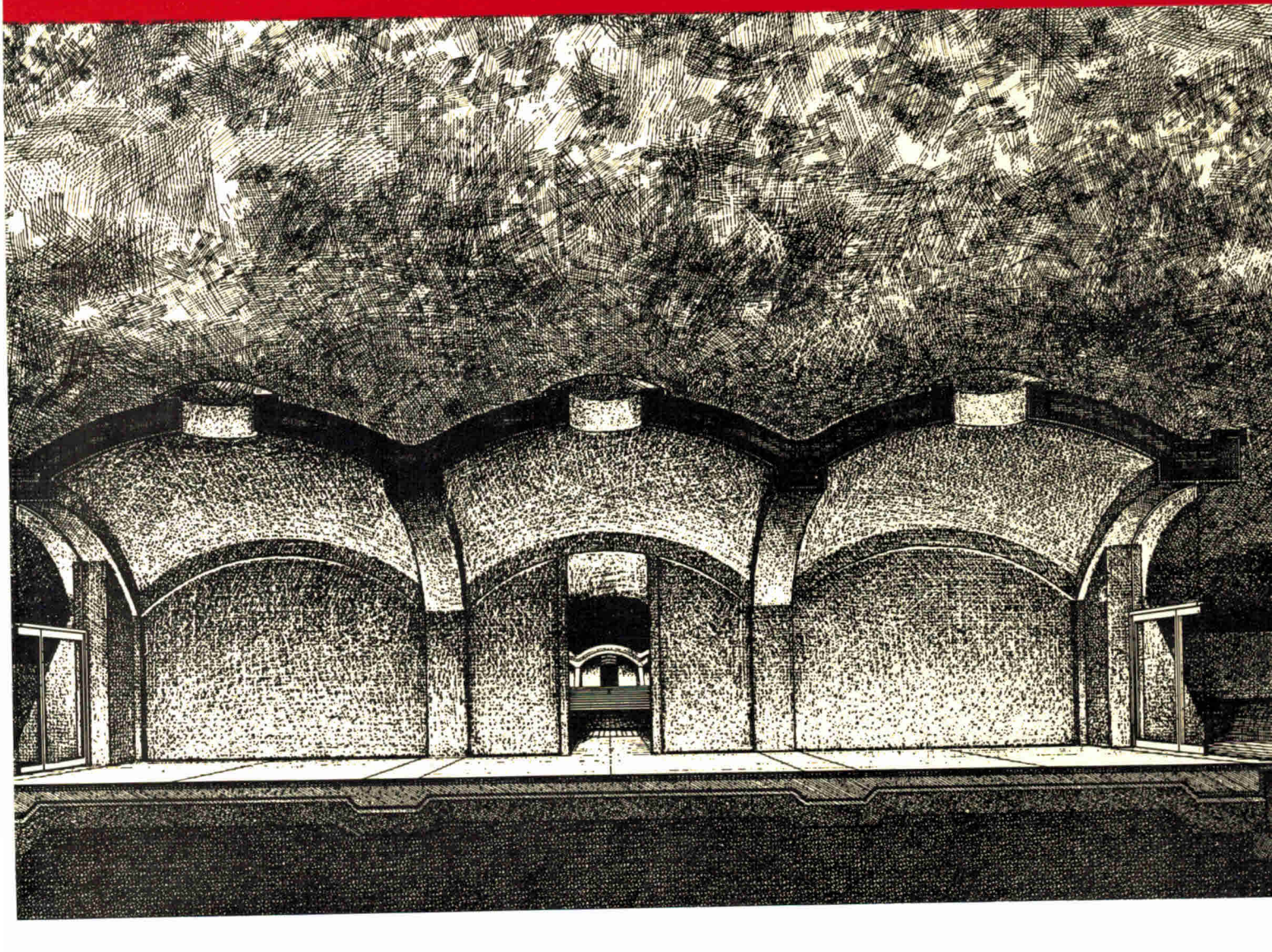
Building Types Study: Schools

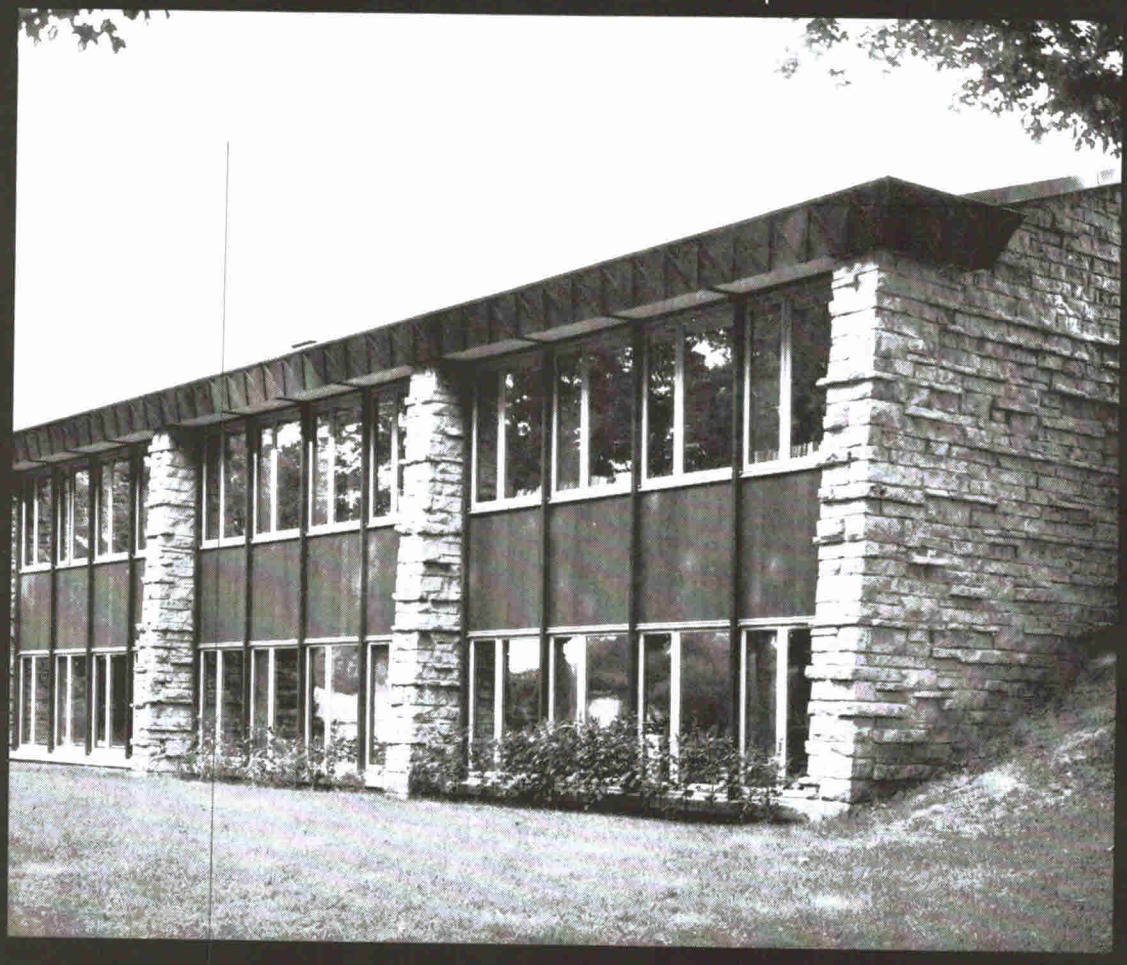
Quiet Architecture of Edward Larrabee Barnes

Organization for Efficient Practice

New Precast Techniques

Full Contents on Pages 4 & 5





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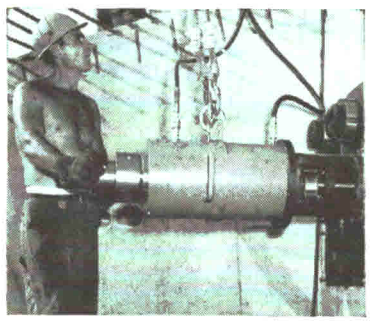

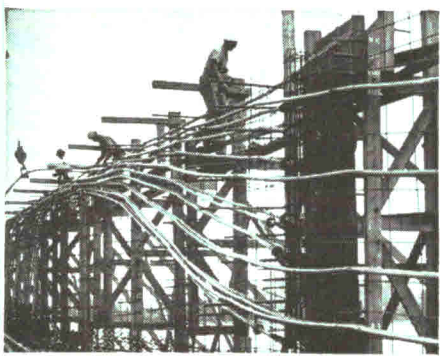

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ARCHITECT—Skidmore, Owings & Merrill
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BUILDER—State of New York, Dept. of Public Works
ENGINEER—Summers, Munninger and Molke
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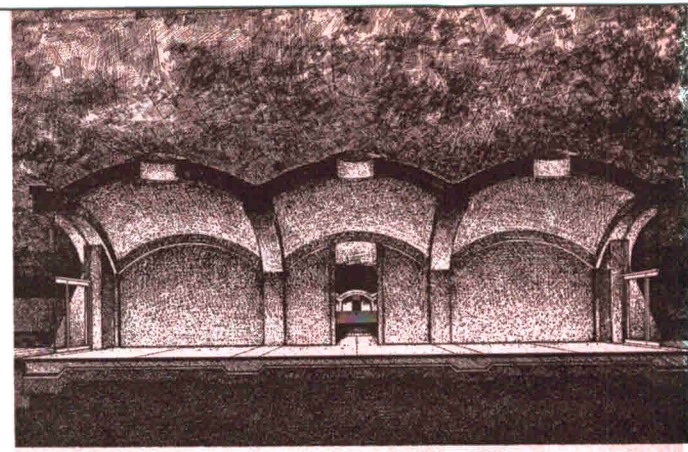
Architectural Engineering



Cover:

Section and perspective, United States Consulate, Tabriz, Iran. Edward Larrabee Barnes, architect. Drawing by Ara Derderian

ARCHITECTURAL RECORD October 1961 Vol. 130, No. 4 Published monthly, except May 1961, when semi-monthly, by F. W. Dodge Corporation, a McGraw-Hill Company.

Executive, editorial, circulation and advertising offices: 119 West 40th Street, New York 18, N. Y. Western Editorial Office: 2877 Shasta Road, Berkeley 8, Calif. Office of Publication, 10 Ferry Street, Concord, N. H.; second-class mail postage paid at Concord, N. H.

Subscription rate for individuals in the field served $5.50 per year in U. S., U. S. Possessions and Canada; single copies $2.00, except Mid-May 1961 issue $2.95. Further details on page 6. Postmaster: Please send Form 3579 to Circulation Manager, ARCHITECTURAL RECORD, 119 West 40th Street, New York 18, N. Y. (National Edition)

ARCHITECTURAL

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RECORD

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October 1961

Building Types Study 299: Schools

Eight Schools With Good Ideas For Achieving Quality With Real Economy

Coming in the Record

MODERN ARCHITECTURE, MONASTIC

Breuer's great monastic church for St. John's Abbey, Collegeville, Minn., has now been completed, and a major presentation in the RECORD *will provide another opportunity (as with Le Corbusier's La Tourette) to consider modern architecture as the expression of ageless purpose and unchanging character at work in a changing world. The perceptive will find, in this most important unit of Breuer's greatest work, a rare combination of true architectural sophistication and true architectural humility.*

HOUSES SEEN AS ARCHITECTURE

Every house is not a home, and every house or *home is not architecture, either; but it would be the* RECORD'S *thesis that* every *house has a better chance of being a home if it* is *architecture—and that this is a reasonable objective right across the board cost-wise. Next month's 16-page special feature on houses will offer some convincing testimony as to the validity of this thesis in five houses ranging from "minimum" to "maximum." All of the houses have rather spectacular sites, and these were gifts of nature; but their wonderful spaces for living—from the smallest to the largest—are the purposeful creations of their architects.*

BUILDING TYPES STUDY NO. 300

The RECORD *will present next month its 300th Building Types Study, this one a review of current architectural accomplishment in the field of industrial buildings. Kinds of industrial buildings presented will range from small manufacturing facilities to very large research centers: the coverage based, as always with* RECORD *Building Types Studies, on the most careful editorial analysis of contemporary practice, problems and trends. Not to mention, of course, access to F. W. Dodge Corporation analyses of prospective activity of the type.*

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Architects as Leaders

"We expect our living standards to rise more or less automatically. But what will not automatically rise is the environment of living." So said Hugh Gaitskell, leader of Britain's Labor party, as quoted by John Crosby in his syndicated column. "This is essentially a matter of planning."

Recent observations in London, Paris and Rome confirm the fact that cities are not improving automatically with the rising standards of living in European countries. They are choked with automobiles and those blasted little scooters to the point where Paris at least is restricting the sale of automobiles to Parisians. No, improvement in the environment of living is not an automatic concomitant of improving material prosperity. Rather the reverse, as for life in cities.

It is, yes, essentially a matter of planning. And for all that we seem always to be talking about planning, the exact status of it at present is woefully backward. Charles Luckman, an architect who has been around a bit, has this to say about planning in California:

". . . The Commission (the Governor's Commission on Metropolitan Area Problems) was horrified to learn:

"That such urgent riddles as air pollution, water utilities, and transportation were wholly beyond the jurisdiction of local authorities;

"That no comprehensive metropolitan area plan had ever been generated in this state;

"That not a single identified metropolitan area in this state had an over-all planning function;

"That even if such plans had existed, no authority was available to carry them out."

Luckman's firm is one that has organized to undertake planning assignments, which might help fill this void. He continues:

"In order to develop a total concept, we put together a 22-man team of researchers, analysts, planners, engineers, traffic consultants, and cost estimators. We gathered data in scores of meetings with firms, individuals, agencies, and authorities. We examined and evaluated 400 separate reports. We collated and weighted the opinions of other architects, engineers, contractors, civic experts, and citizens' committees.

"Out of this orderly melee, there evolved a coherent solution—and another proof that the architect has a function as the statesman-like advocate of coordinated planning.

"As another evidence of this changing role of the architect, it will perhaps interest you to know that about five years ago, our work in large-scale planning became 30 per cent of our total fee volume."

The situation seems to be crying for leadership, just such leadership as a well equipped architectural firm could supply. To carry city planning beyond street surveys and mechanical map-making, into something which might impress Mr. Gaitskell as a rise in the environment of living, is a task for architects.

As A.I.A. members know, the encouragement of architects to undertake serious planning and the preparation of members for the job are a current project of the organization. It looks like a clear call for architects to assume their full responsibility for improvement in environmental standards.

—Emerson Goble

EERO SAARINEN DEAD AT 51; ASSOCIATES PLAN TO CARRY ON

EERO SAARINEN'S SKYSCRAPER

Maris-Ezra Stoller Assoc'e

First tall building and last design of Saarinen: 37-story skyscraper for Columbia Broadcasting System at 53rd Street and Avenue of the Americas in New York: a tower built of granite-clothed triangular concrete piers and rising from a moat.

Eero Saarinen died unexpectedly on September 1 at the age of 51; and thus ended with tragic and stunning abruptness a lifetime of the most intensive and innovative search and research, effort and accomplishment in the cause of architecture.

Mr. Saarinen showed the first symptoms of illness on August 14 and was taken to the University Hospital, Ann Arbor, Mich., August 21. His death followed an operation, a malignant brain tumor the cause.

In the 11 years since the death of his renowned father Eliel, the younger Saarinen had emerged as a commanding figure in this architectural generation's search for form: he had also steadily and inventively explored, in all his executed work, and as perhaps no other architect of his generation, the new architectural possibilities unfolded by contemporary developments in building materials and techniques. The larger problems of city planning and urban design which had so absorbed his father might also have come to be the equal concern of Eero: such later projects as the U. S. Embassy in London, the residential colleges for Yale (now under construction) and some of his other recent work suggest it. And Mr. Saarinen, in an article on campus planning published last November in the RECORD, commented that "the primary characteristic of this period seems to be building buildings—buildings thought of as entities in themselves." The architect, he said, "must emerge from his self-made cocoon and expand his vision into the next larger thing. In the process he will gradually formulate strong convictions about outdoor space—the beauty of the space between buildings—and if he does, he will carry his convictions on to his most important challenge—how to build cities. This is the next chapter, the one we have not yet begun to face —esthetically."

Mr. Saarinen's partners, Joseph N. Lacy and John G. Dinkeloo, have announced that the plans to move the Saarinen office from Bloomfield Hills, Mich., to Hamden, Conn., will be carried out on schedule (about October 15) and that the entire staff is dedicated to completion of Saarinen's work according to his designs. Ten major projects of Saarinen's design are in various stages of construction, working drawings or final design detail.

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All-bronze spire wins 1961 Achievement Award

fabrication and installation by
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The Copper and Brass Research Association considered this impressive spire the year's most distinctive and ingenious application of copper metals in architecture and building construction.

It was designed by Architect Hugh Moore, Jr., of Easton, Pennsylvania and was erected in that city on St. Michael's Church. The design is a reinterpretation of early Gothic forms which were usually made of wood sheathed in lead. Example: Sainte Chapelle in Paris.

The spire stands 32′ high on a 9′ diameter base, and weighs about 3 tons. It consists entirely of standard mill sizes of Anaconda architectural metals in angles, sheet, rod and tube, thus avoiding the cost of specially designed shapes.

For complete information on copper metals for architectural and building construction, write Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont. 61-975

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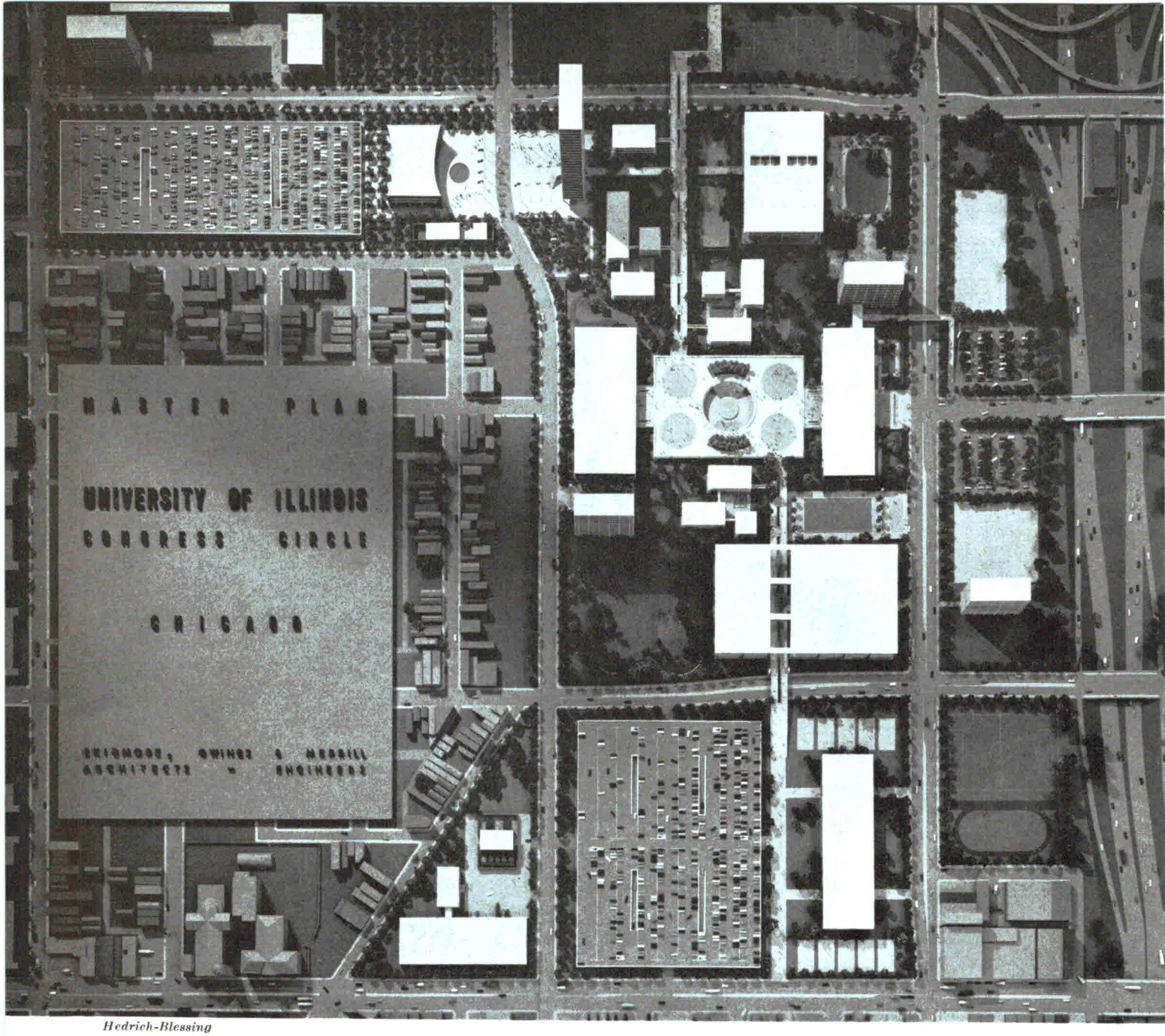
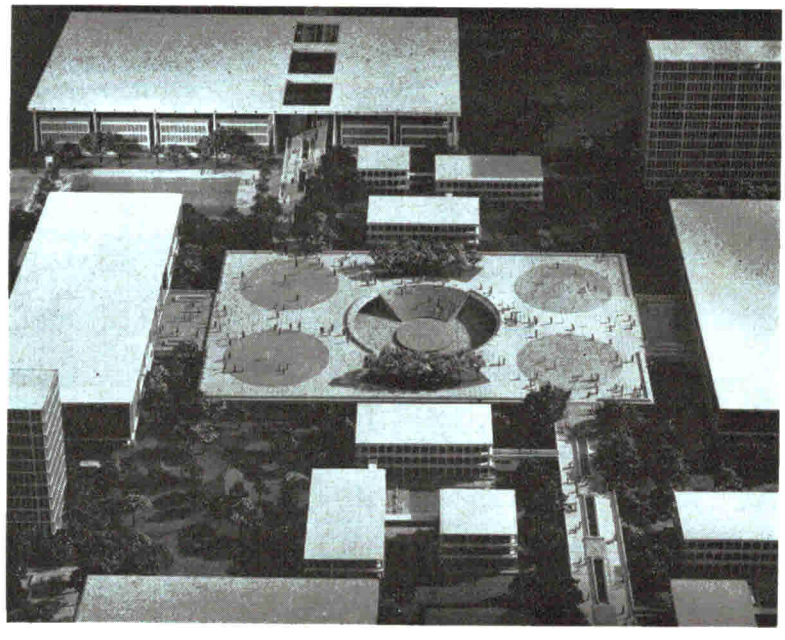


Hedrich-Blessing

Proposed master plan for new Chicago campus of University of Illinois, to be built in three stages, would provide in the first phase a 40-acre core campus (central in photo above and far right acrosspage) with the most intensively-used facilities (lecture center, library and student union) related to a "Great Court" (closeup at right) which would be both the ceremonial center of the campus and the roof of the lecture center. High-rise structures, including a 28-story staff office and administration building (shown at left on opposite page, with auditorium across plaza), would be placed at periphery and low-rise buildings in center to establish sense of architectural identity both from within and from without campus



CAMPUS DESIGN BY FUNCTION, NOT BY DISCIPLINE

A new concept in campus design has been developed by Skidmore, Owings & Merrill, architects, in their master plan for a new Chicago campus for the University of Illinois. Buildings are designed to serve a function rather than a discipline, so that classroom buildings, laboratory buildings and high-rise office buildings replace the traditional "biology" or "special science" building which *included* classrooms, laboratories and offices. Another significant innovation in the scheme is an "express walkway" which will connect most buildings on the campus at the second-story level, either directly or through tributary walkways, thus creating a pedestrian circulation system completely separated from vehicular traffic.

The plan was made public in Chicago last month at a civic luncheon given by the university's Board of Trustees. It was to be presented formally to the trustees later, with approval expected in time for groundbreaking next summer.

The proposed plan would develop a 106-acre site on Chicago's near west side in three phases at an ultimate cost of at least $150 million—the first phase to be completed by the fall of 1964 for an enrollment of 9000 students, with most advanced undergraduate work restricted to the Colleges of Liberal Arts and Sciences, and Commerce and Business Administration; the second phase to be completed by the fall of 1969 for an enrollment of 20,000 students in a full four-year, degree-granting institution; the third phase, scheduled for construction "probably after 1969," to provide auxiliary buildings —graduate, research and service structures, and other facilities.

The site is at Congress Circle, in the section of Chicago's near west side which lies immediately south and west of the Congress Expressway and the South Expressway, now under construction. The educational program now being offered in temporary facilities of the Chicago Undergraduate Division at Navy Pier will be transferred to the new campus and will be the basis for expansion into a full, four-year degree-granting program. Students at the Congress Circle campus will live at home, so housing facilities are not provided.

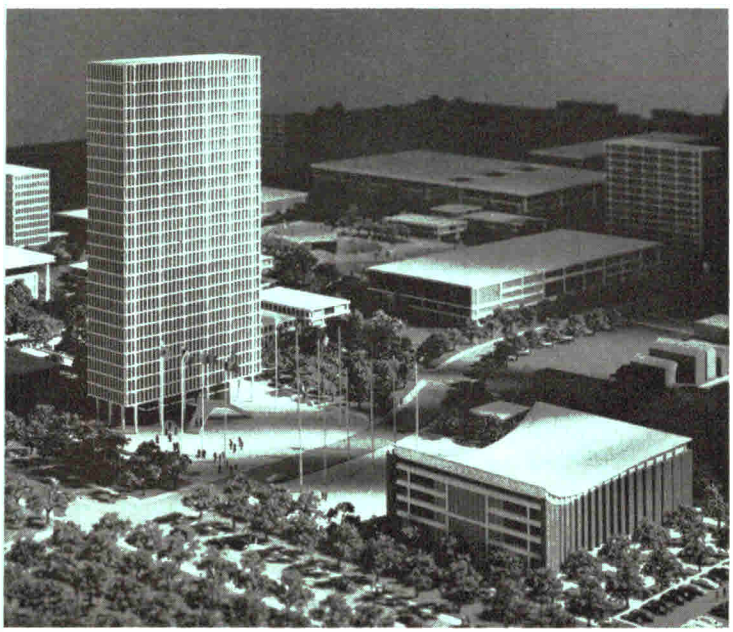
In the planning of the educational environment, the architects have explained that four basic ideas predominate:

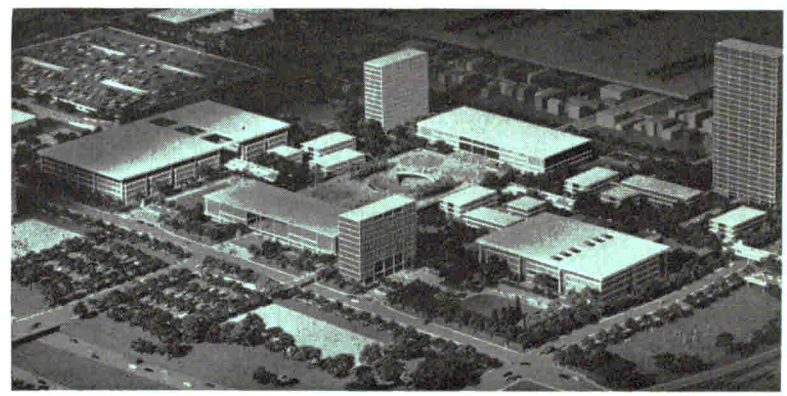
First, new teaching techniques.

Second, flexibility. Rapid change and growth will require building spaces which permit ready conversion and expansion.

Third, variety in the environment. Each University activity should be in the type of structure which can be utilized most efficiently. Classrooms and laboratories generate mass movements of students in short periods between classes. These can best be housed in three or four-story buildings which do not require passenger elevators. Offices and seminar rooms —generating smaller and more evenly distributed traffic—can best be housed in high-rise buildings. Lecture rooms, the Library and the Student Union require specialized structures.

Fourth, inter-disciplinary opportunities. Higher education is moving toward closer inter-relationships among the academic fields of study. To meet this development, a building should be designed to serve a function rather than a discipline. Classrooms and laboratories should be interchangeable and usable for various kinds of courses, both for economy and for inter-disciplinary contact. . . . The need for additional utilities can be met by a common service core for all floors—again important and economical. Planning classrooms and laboratories in separate buildings achieves another economy because ceiling heights are nine ft for classrooms and twelve ft for laboratories.



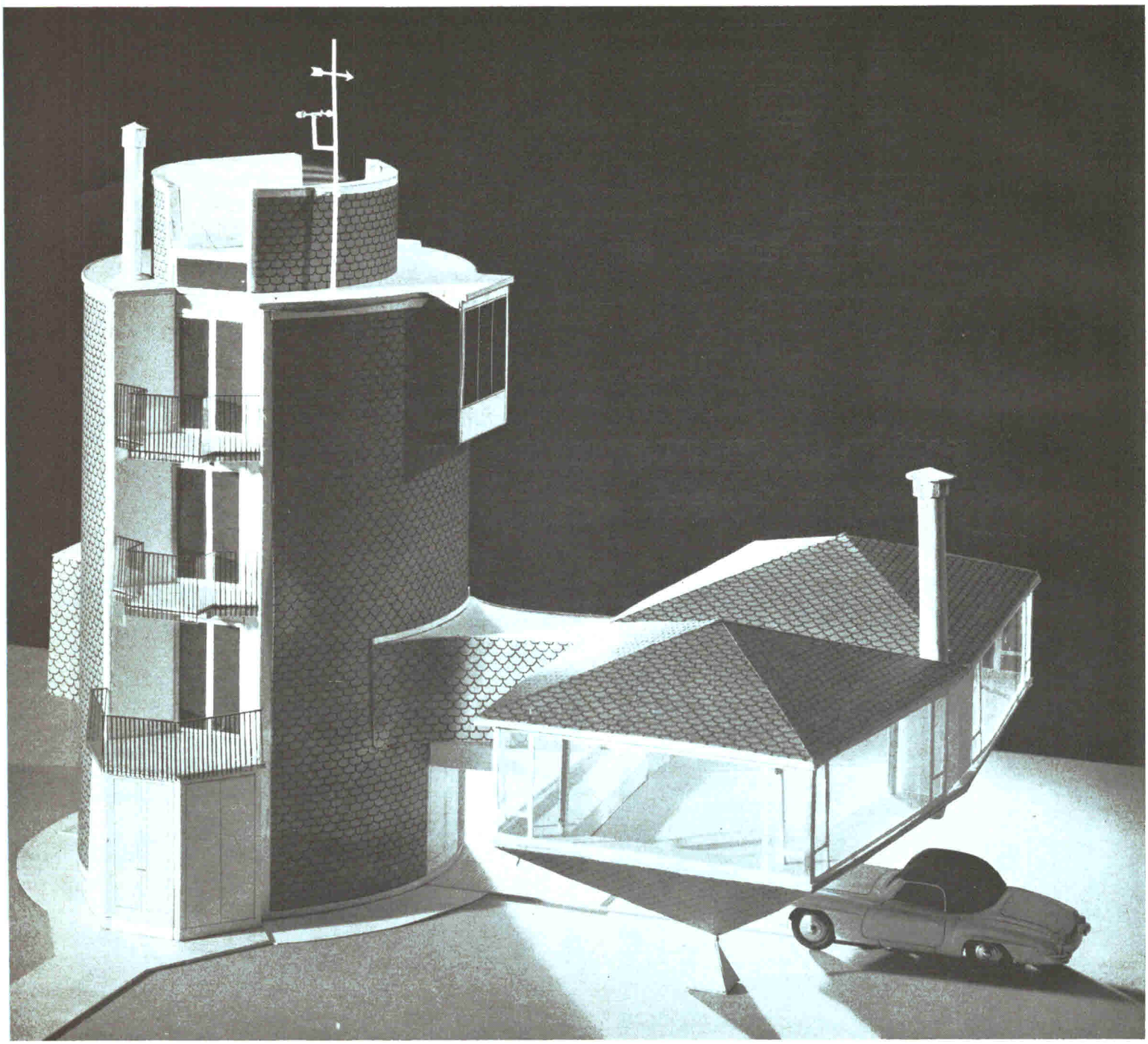


DESIGN FOR A CASTLE WHICH MIGHT HAVE BEEN

ONCE upon a time an architect named Harry Weese designed a Swiss chalet for a Rocky Mountain setting. Consisting of a fairy-tale bedroom tower and a glass pavilion living room, the three-bedroom summer and winter vacation house was to be a speculative or non-speculative residence.

The house was so arranged that three separate and private suites with bedroom and bath could be rented independently when the owner was not there. During rental season, living-dining areas could be shared.

When the owner lived in the house, he and his family could enjoy maximum privacy. The separa-



Hedrich-Blessing

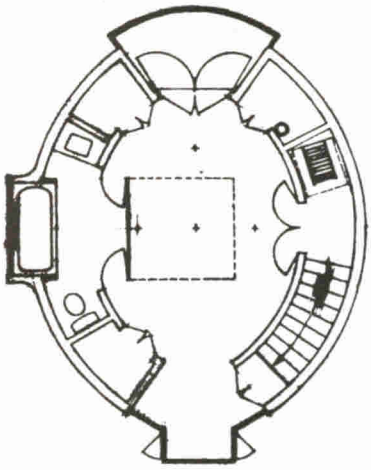
tion of the bedrooms contrasted with the extroverted living room which looked out onto mountain views.

The bedroom tower was reached from a stairway running between curved walls from floor to floor. On the ground floor was the dining area and a service kitchen whose built-in units were concealed by a folding screen. This room was convertible to another bedroom on occasions. Each of the three bedrooms in the tower had its own balcony.

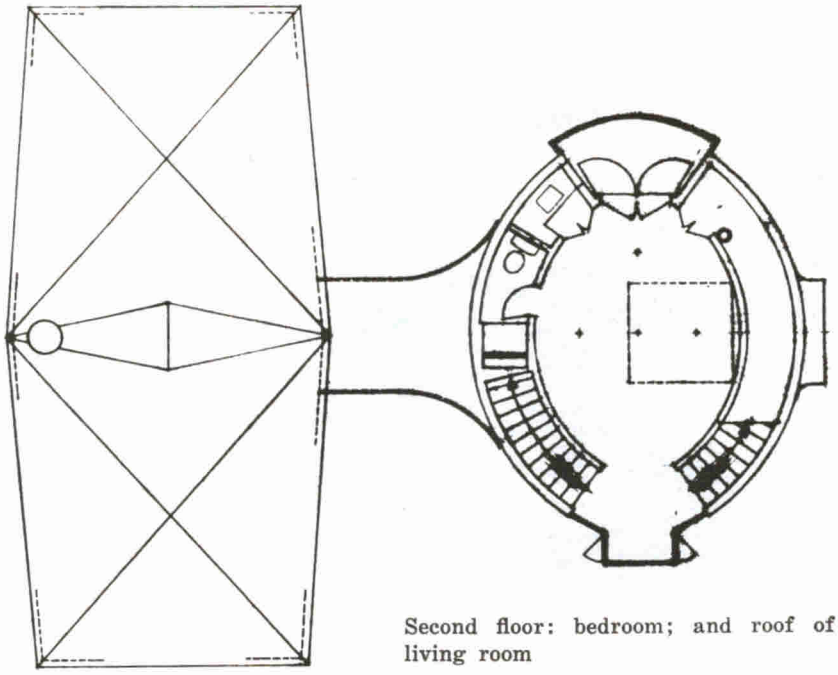
The living room had a large fireplace; foam rubber pads on the window seats which made up into four to eight sleeping accommodations for young people.

As the architect himself said of his house, "Designed for conventional construction, if somewhat unconventionally arranged, and easy maintenance; for example, the exterior of unpainted shingles. Exterior doors are flush white pine; casement sash is steel. Heating is by baseboard convection system. Bathrooms are tiled, with built-in cabinets and shelving under lavatories. Storage located by the ground floor side entry is intended for ski equipment."

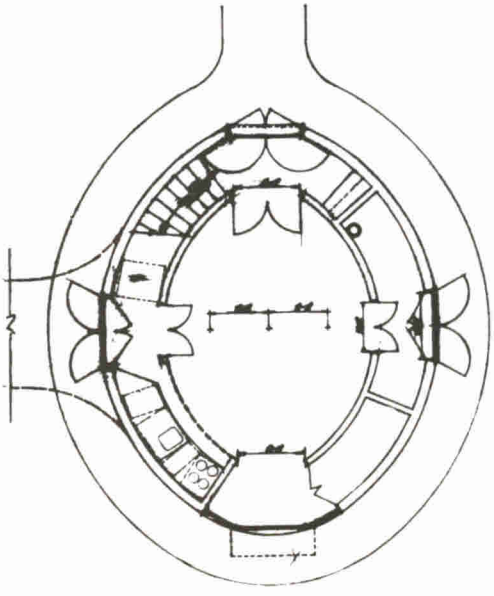
The house was one of 12 commissioned by the late Walter Paepcke to be designed for Aspen. And then the client died, and the house was never built.



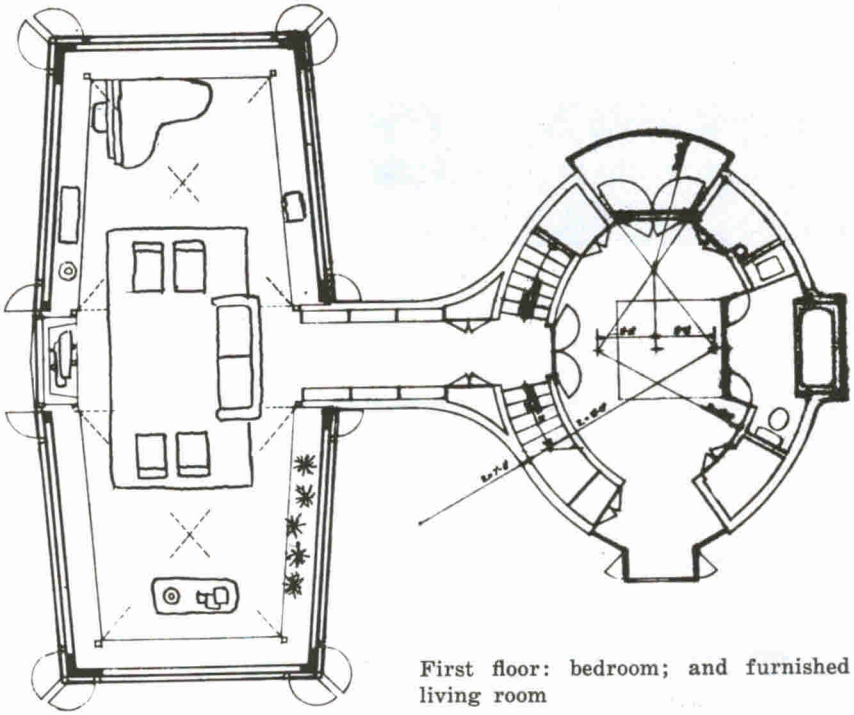
Third floor: bedroom



Second floor: bedroom; and roof of living room

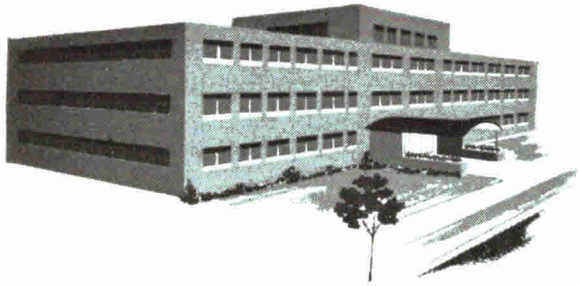


Ground floor: dining area and service kitchen

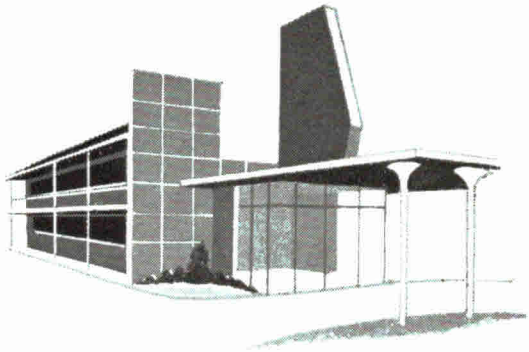


First floor: bedroom; and furnished living room

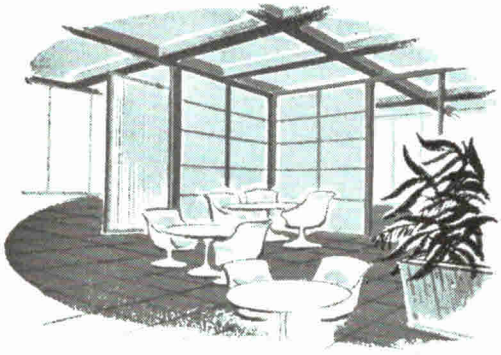
for important initial savings... substantial continuing economy



HOSPITAL



MOTEL



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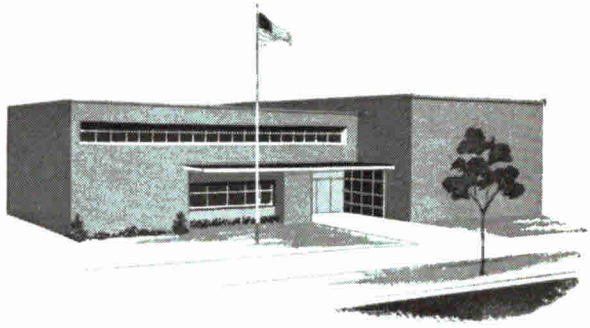

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Only the remarkable new Westinghouse Selectomatic Mark IV Elevator System ■ knows the shortest distance between two points... doesn't waste time going to the top or bottom when you're in-between ■ operates on Demand Reversal—the ability to reverse direction at any point in the building. Cars go from any floor to any floor ■ scans the entire building, matching calls and cars, decides in a fraction of a second where each car must go to give the fastest possible service ■ travels in direct response to demand, not on a timed dispatch cycle. Result: Selectomatic Mark IV gives equal service to all floors, answers calls as much as 30.6% sooner than the fastest system before Mark IV. Proven by in-use tests. Even if you're not contracting for new elevators this year call Westinghouse now to find out more about this radically new elevator system, available for installation in 1962. Contact your local Westinghouse representative for a convenient viewing date of a 12-minute, color movie demonstration. Or for more information, write Westinghouse Electric Corporation, Department **RJ00**, Elevator Division, 150 Pacific Ave., Jersey City, New Jersey You can be sure... if it's Westinghouse.

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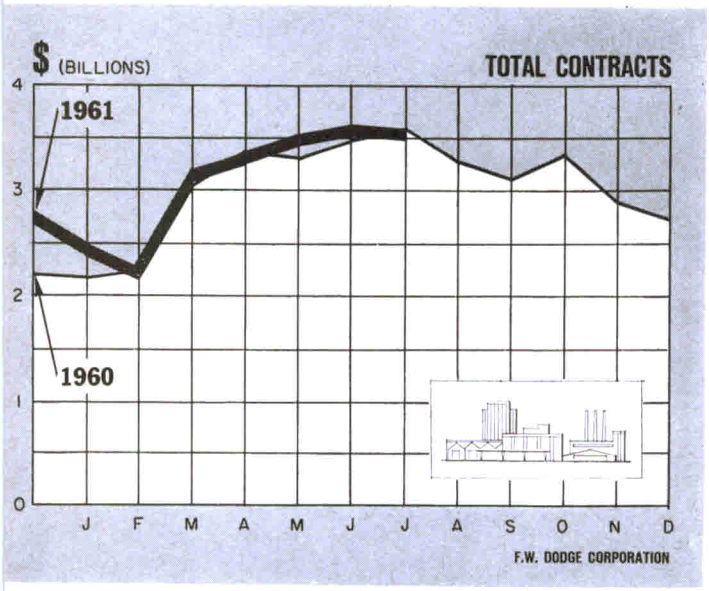
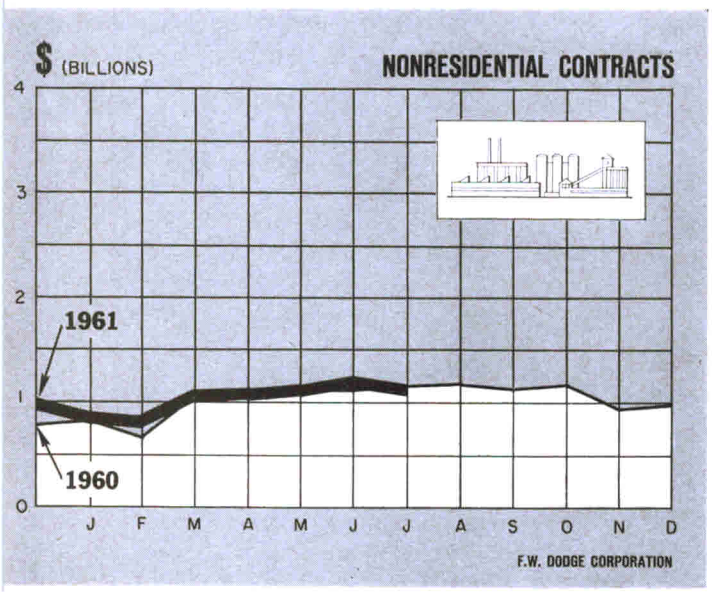
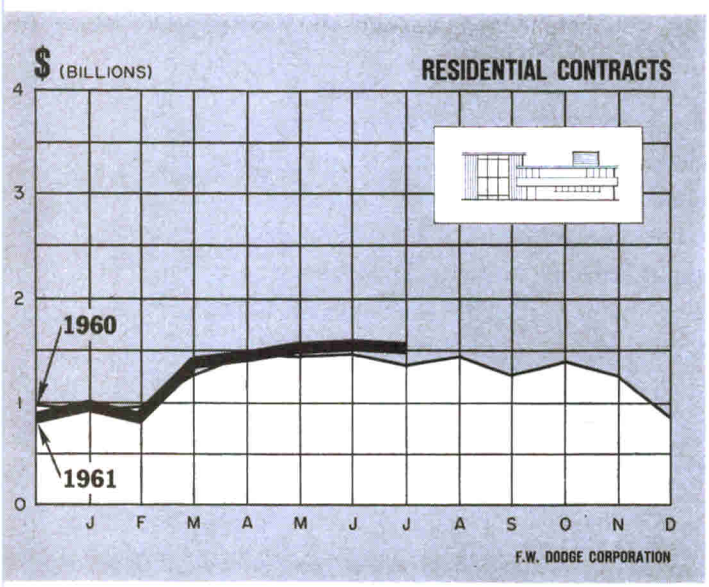


Total contracts include residential, nonresidential, heavy engineering contracts





BUILDING FOR LEARNING

"INVESTMENT IN HUMAN CAPITAL" was a phrase bandied around Washington this spring mostly by supporters of legislation to increase Federal-aid to education. It was intended, of course, to serve as a substitute for less noble sounding terms such as "Government spending." But despite its political implications, "investment in human capital" is a most appropriate expression to highlight the financing of our school systems. One of the surest ways to ensure the future of this country, or at least a future worth looking forward to, is to make sufficient current investment in the process whereby the quality of human capital is improved. Many, if not most, of our communities are taking the necessary steps. The lure of substantial Federal subsidies for local school districts (which has been put off probably for two years at least) has not deterred them from making their own efforts to upgrade the school systems.

IN RECENT YEARS, public school teachers' salaries have risen notably faster than average money income from all occupations. School construction, the area of particular interest to us, has proceeded to a record pace for the last year and a half. Contract awards for educational and science buildings amounted to some $3 billion in 1960, 13 per cent above 1959 and easily an all-time high for any year. For the first seven months of 1961, school awards ran 6 per cent ahead of the same period last year. As a whole 1961 will undoubtedly set a new record for dollar valuation of school contracts. As we predicted last fall, total square footage involved in school contracts probably will range close to the 1960 level.

SCHOOL BUILDING now accounts for 26 per cent of the nonresidential building market, and is outranked in size only by the giant commercial building category. We anticipate a very strong growth trend in school building during the decade of the Sixties. In particular, there will be much more emphasis on construction of secondary school and college facilities for reasons that have been documented in this column before. But elementary school construction will still be the largest part of the school building market. Enrollments at this level are expected to rise between 12 and 18 per cent by 1970—a slower rate than experienced during the 1950's. Because we are over the hump for a while in enrollment increases this does *not* mean an equivalent slowdown in elementary school building. Some fast growing areas around metropolitan centers will require more new school construction than ever before. The next five or six years will offer a good opportunity to eliminate what is left of the backlog of classroom need. Furthermore, increased emphasis on supporting facilities and on more classroom space per pupil should mean larger schools for the same enrollment. To allow use of audio-visual aids and other new teaching methods in elementary schools, the National Education Association claims that classrooms (for a maximum of 30 students) should have approximately 1400 sq ft of usable space. In the past, according to the NEA, from 700 to 900 sq ft were adequate for simple recitation and lecture instruction.

EDWARD A. SPRAGUE, *Associate Economist*
F. W. Dodge Corporation
A McGraw-Hill Company

Construction Cost Indexes

Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc. Inc.

Labor and Materials: U.S. average 1926-1929=100

NEW YORK

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1949	243.7	240.8	242.8	246.6	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	274.9	271.8
1952	278.2	274.8	271.9	265.2	262.2
1953	281.3	277.2	281.0	286.0	282.0
1954	285.0	278.2	293.0	300.6	295.4
1955	293.1	286.0	300.0	308.3	302.4
1956	310.8	302.2	320.1	328.6	324.5
1957	318.5	308.3	333.1	345.2	339.8
1958	328.0	315.1	348.6	365.4	357.3
1959	342.7	329.0	367.7	386.8	374.1
1960	351.6	337.2	377.7	395.8	380.6
May 1961	362.3	342.1	396.8	422.0	396.4
June 1961	365.5	345.5	402.6	427.3	400.7
July 1961	367.3	346.6	405.4	431.3	403.9
	% increase over 1939				
July 1961	197.4	183.2	210.2	223.3	210.4

ATLANTA

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
1953	223.0	224.6	221.3	221.8	223.0
1954	219.6	219.1	233.5	225.2	225.4
1955	225.3	225.1	229.0	231.5	231.8
1956	237.2	235.7	241.7	244.4	246.4
1957	241.2	239.0	248.7	252.1	254.7
1958	243.9	239.8	255.7	261.9	262.0
1959	252.2	247.7	266.1	272.7	273.1
1960	259.2	253.3	274.7	282.5	278.8
May 1961	256.2	249.1	275.3	284.2	274.9
June 1961	254.8	247.3	275.0	284.0	274.5
July 1961	254.8	247.3	275.0	284.0	274.5
	% increase over 1939				
July 1961	195.2	197.6	189.2	191.6	189.9

ST. LOUIS

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.0	259.2
1954	266.6	260.2	263.7	273.3	266.2
1955	273.3	266.5	272.2	281.3	276.5
1956	288.7	280.3	287.9	299.2	293.3
1957	292.0	283.4	295.2	307.1	302.9
1958	297.0	278.9	304.9	318.4	313.8
1959	305.4	296.4	315.0	329.8	323.9
1960	311.4	301.0	322.2	337.2	329.2
May 1961	316.1	302.9	329.1	347.6	332.1
June 1961	316.7	303.5	329.9	348.2	332.7
July 1961	317.0	303.8	330.2	348.2	332.7
	% increase over 1939				
July 1961	187.6	183.9	178.2	190.6	179.6

SAN FRANCISCO

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	90.8	86.8	100.6	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
1953	255.2	257.2	256.6	261.0	259.7
1954	257.4	249.2	264.1	272.5	267.2
1955	268.0	259.0	275.0	284.4	279.6
1956	279.0	270.0	288.9	298.6	295.8
1957	286.3	274.4	302.9	315.2	310.7
1958	289.8	274.9	311.5	326.7	320.8
1959	299.2	284.4	322.7	338.1	330.1
1960	305.5	288.9	335.3	352.2	342.3
May 1961	310.7	290.7	347.1	367.4	353.7
June 1961	310.8	292.4	346.9	364.8	352.1
July 1961	311.8	293.8	347.4	364.6	351.2
	% increase over 1939				
July 1961	195.3	195.9	195.9	199.1	201.4

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

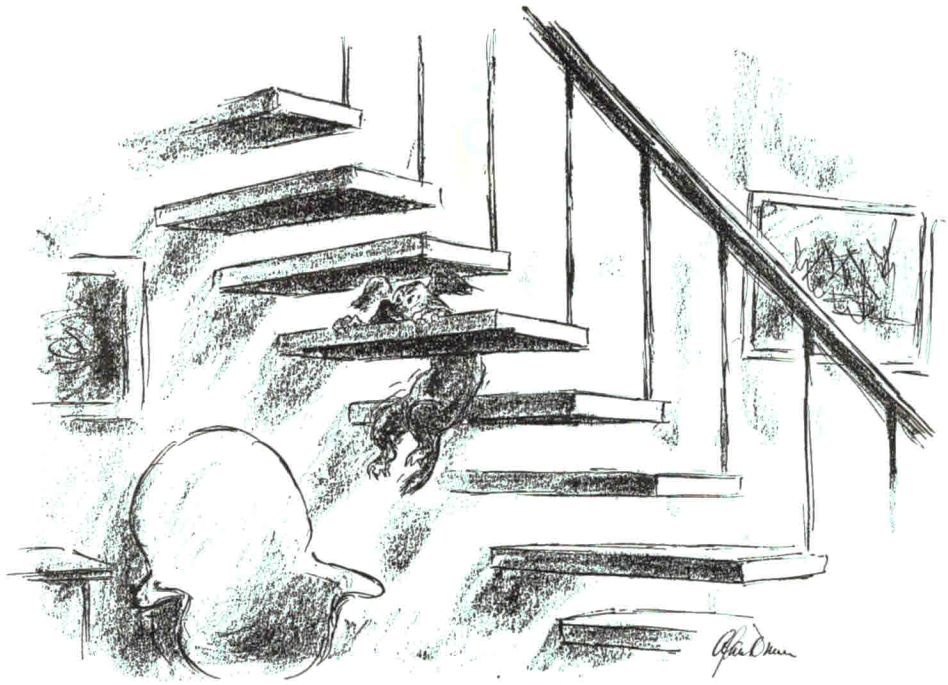
$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

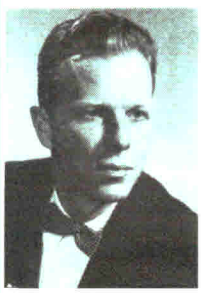
$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.



—drawn for the RECORD *by Alan Dunn*



Hurst Named Dean at University of Southern Calif.

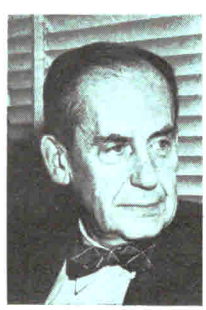
Samuel T. Hurst, dean of the School of Architecture and Arts at Auburn University, Alabama since 1957, has been appointed dean of the School of Architecture at the University of Southern California.

Dean Hurst's resignation at Auburn was announced by President Ralph B. Draughon and Dr. M. C. Huntley, dean of faculties, who said, "We congratulate him upon the promotion and U.S.C. upon obtaining the services of such an excellent educator."

The new U.S.C. dean assumed his new position in Los Angeles in September. Professor Henry Charles Burge has been acting dean of the U.S.C. School of Architecture the past year since Arthur B. Gallion resigned after 15 years to become director of planning for Harland Bartholomew and Associates in Honolulu.

A graduate of Harvard University where he received his master's degree in architecture in 1949 and of Georgia Tech where he earned his bachelor of architecture degree in 1942, Dean Hurst recently received a new four-year appointment to the National Architectural Accrediting Board.

In his position as dean of the School of Architecture and the Arts at Auburn, he has also been responsible for the department of art, building technology, dramatic arts and music. Dean Hurst has been a speaker at many architectural conferences across the nation and has lectured on architecture, art and education at Notre Dame, Georgia Tech, Union Theological Seminary in Richmond and the University of Arkansas.



Gropius Receives Highest German Prize

At a ceremony held in the Pauls Kirche on August 28, the birthday of Goethe, Dr. Walter Gropius of Lincoln, Mass. received the "Frankfurter Goethe Preis" for 1961 ($13,000). The citation declares that "Gropius, by means of his buildings, his writings, and his educational activities, has given direction to the architecture of the industrial age and influenced its development."

This is the first time the prize has been given to an architect. Former recipients of the Goethe Preis, which is given every third year, include Sigmund Freud, Albert Schweitzer, Gerhard Hauptmann, Max Plauck, Carl Zuckmayer and Thomas Mann.

Architectural Innovators Share Norton Professorship

For the first year the Charles Eliot Norton Professorship, which honors Harvard's great teacher of fine arts, will be shared. Newly appointed Norton Professors for the Harvard academic year 1961-62 are Felix Candela of Mexico, R. Buckminster Fuller of the United States and Pier Luigi Nervi of Italy.

Professor Candela will lecture from the middle of November to Christmas, 1961; Mr. Fuller from the beginning of February to the middle of March, 1962; and Professor Nervi, from the beginning of April to the middle of May.

continued on page 24

Meetings and Miscellany

continued from page 23

Second Reynolds Student Competition Invites Entries

For the second year the Reynolds Aluminum Prize for Architectural Students is being offered in recognition of design achievement, "the best original design for a building component in aluminum", at two separate levels: the individual school prize and the national prize.

Subjects chosen for design work can range from a single element to a complete architectural entity. Eligible to enter are students who have previously completed a minimum of two years of an architectural design curriculum at any school in the United States which is a member or associate member of the American Association of Collegiate Schools of Architecture or which has a student chapter, American Institute of Architects.

Each participating school will submit its winning design to the A.I.A., administrator for the Reynolds Prize, for consideration for the national prize. From these entries a jury of distinguished architects appointed by the A.I.A. will select one for the national prize, which carries an award of $5000—$2500 for the student or group of students originating the design and $2500 for the winner's school. A $200 school prize will be given to the winner in each of the participating schools.

Deans or department heads from schools wishing to participate should notify the A.I.A. by letter. For information write the A.I.A., Attn: Reynolds Aluminum Prize, 1735 New York Ave., N.W., Washington 6, D.C.

It is suggested that student designs be prepared for judging by individual schools no later than Dec. 18 to provide time for school judging and shipment of the selected entry to the A.I.A. in time for review by the National Prize jury. Each winner of the school prize submitted in the national competition must be received no later than Jan. 9.

A.I.A. National Honor Awards Program Announced

To encourage excellence in architecture, the American Institute of Architects announces its 14th Annual Program of National Honor Awards for current work. Eligible are buildings designed by registered architects practicing professionally in the United States, having been erected anywhere in this country or abroad and completed after Jan. 1, 1957.

A jury of five architects (one, an architectural educator) appointed by the Board of Directors of the A.I.A. will make one or more First Honor Awards for Distinguished Accomplishment in Architecture and as many Awards of Merit as it finds entries deserving.

Entries will be judged, not in competition with other entries, but on the basis of the architect's solution of the problem presented him and its worthiness for an award of excellence in architecture.

Entry slips must be received prior to Nov. 28. For further information write: 1962 Honor Awards Program, A.I.A., 1735 New York Ave., N.W., Washington 6, D.C.

Frank Lloyd Wright in Posthumous Recording

"Frank Lloyd Wright on Record" is the title of a long-playing record being issued this fall by Caedmon Records, Inc. In a one-hour conversation the late Mr. Wright speaks in typically candid style, answers questions posed by his publisher and by Caedmon.

Made from a master tape done in 1955, the recording, says Harold Drayson, national sales director for the spoken-word label, has been "most eagerly awaited. . . . We have had orders, re-orders and back orders, since it was first announced awhile ago. However, editing problems prevented its issuance until now."

Kaufmann International Award Jury Members Announced

The Jury of the Kaufmann International Design Award, which met in Zurich in September to select the winner of the 1961 Award, consists of the following members: Franco Albini, professor at the University Institute of Architecture in Venice, Italy; Jay Doblin, director of the Institute of Design, Illinois Institute of Technology, United States; Kaj Franck, director of the design department of the Waertsila-Arabia Potteries and the Waertsila-Notsjoe Glassworks, Finland; Prince Ludwig Von Hessen, founder and chairman of the Institut fuer Neue Technische Form at Darmstadt, Germany; and Iwataro Koike, associate professor at the Tokyo University for the Arts, Japan.

The announcement of the Jury's choice will be made in November.

Glass Cross Identifies Minnesota Church

This free-standing cross of colored glass identifies Transfiguration Lutheran Church in Bloomington, Minn. Capturing light and glowing with it, the 31-ft high and 12-ft wide cross serves as the visual expression of the name of the church.

Across the horizontal bar there are eight sections of colored glass. Within the metal framework are several hundred pieces of glass in approximately 40 shades. Colors begin with dark shades at the outer ends and fade to clear white in the center. The artist, August Molder, has woven into the glass work symbols of transfiguration: the Iota and the Chi, the first letters of Jesus and Christ in Greek; three shells for James; a serpent in a chalice for John; and crossed keys for Peter.

The entire cross weighs nearly 300 pounds. Its base is sunk in three yards of concrete.

Grant Gilderhus, of Sacred Design Associates, Inc., Minneapolis, Minn., contributed the concept of the glass cross. Structural engineering and working drawings were done by Adkins and Johnson.

more news on page 83

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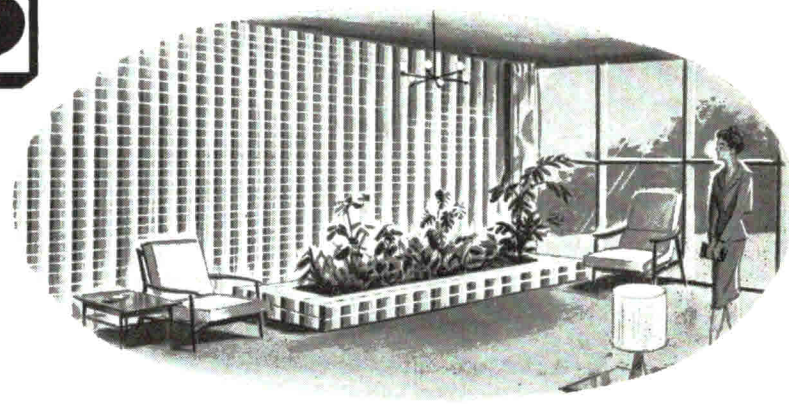

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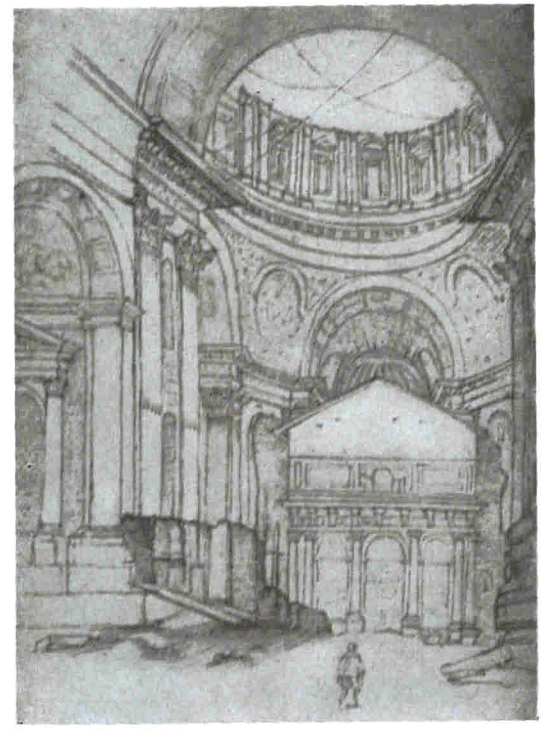
Required Reading



St. Peter's, under construction, 1560
—from *The Horizon Book of the Renaissance*

Space for Working In

OFFICE BUILDINGS. *An architectural Record Book. F. W. Dodge Corporation, 119 W. 40th St., New York 18. 248 pp., illus. $9.75.*

This is a collection of articles, and case histories, of office buildings published in ARCHITECTURAL RECORD over the past five or six years. For convenience of organization, the buildings have been sorted into sections covering high-rise and low-rise structures, although, as RECORD editor William Dudley Hunt Jr. points out in his introduction, design principles applied to one size may have equal implications for the other.

A third section, on engineering, comprises material on automation, acoustics, air conditioning and data processing facilities.

For Our Universities

MODERN PHYSICS BUILDINGS: *Design and Function. By R. Ronald Palmer and William Maxwell Rice. Reinhold Publishing Corp., 430 Park Ave., New York 22, 324 pp., illus. $13.50.*

In 1958, a survey conducted by the American Association of Physics Teachers showed that 200 university physics departments planned building projects in the near future to fill the needs of increasing enrollment in both beginning and advanced classes. With the aid of a grant from Educational Facilities Laboratories, Mr. Palmer, chairman of the physics department at Beloit, and Mr. Rice, an architect, began to look for answers to some of the questions these physics departments would be asking.

When the authors say that "special problems arise because a physics building is more complex than most other college buildings," they appear to be understating the case, seeing that physics buildings must somehow accommodate classrooms, conference rooms, libraries, shops, student labs and research labs—the future requirements and uses of the last being difficult to predict.

After several chapters broadly defining the needs of college physics departments, the authors add individual chapters on floor plans, lecture rooms, classrooms, teaching labs, research labs, offices and libraries. All of these chapters are illustrated with several examples of solutions found in existing buildings.

The study should be helpful in designing physics buildings, but will probably have its greatest utility for both administrators and architects in the programming stage.

The final chapter is a discussion of the requirements of high school physics laboratories.

A Golden Age in Color

THE HORIZON BOOK OF THE RENAISSANCE. *Horizon, 551 Fifth Ave., New York 17. 431 pp., illus. $17.50.*

Horizon, the magazine that is almost a book, has gone all the way in this enormous compendium of Renaissance art and history. Most striking are the numerous and superbly reproduced illustrations, chosen for their value both as art and history.

The text, written by the editors and by J. H. Plumb, is augmented by brief biographies of such Renaissance noteworthies as Leonardo, Michelangelo, Machiavelli and Lorenzo de' Medici. The contents cover all major areas of Renaissance culture—art, scholarship, religion, diplomacy, war—with the single exception, alas, of architecture. Even Michelangelo's biography leaves him before he turned architect.

The Building Team

ARCHITECT AND PATRON. *By Frank Jenkins. Oxford University Press, 417 Fifth Ave., New York 16. 254 pp., illus. $6.50.*

Mr. Jenkins's subtitle, "A survey of professional relations and practice in England from the 16th century to

continued on page 47

Required Reading

continued from page 38

the present day," is more accurate (though admittedly less graceful) than *Architect and Patron.* The author traces the relations of the architect, his client and the builder as they developed from the earlier simple and flexible—one might almost say amateur—proceedings to today's complex, formal and highly professional practice. This development, Mr. Jenkins indicates, was influenced not only by matters of business, but also by considerations of taste, training and dominant building types (from fortified castles to country villas to council schools).

The author has supported his thesis with thorough, even painstaking, documentation.

Medicine's Headaches

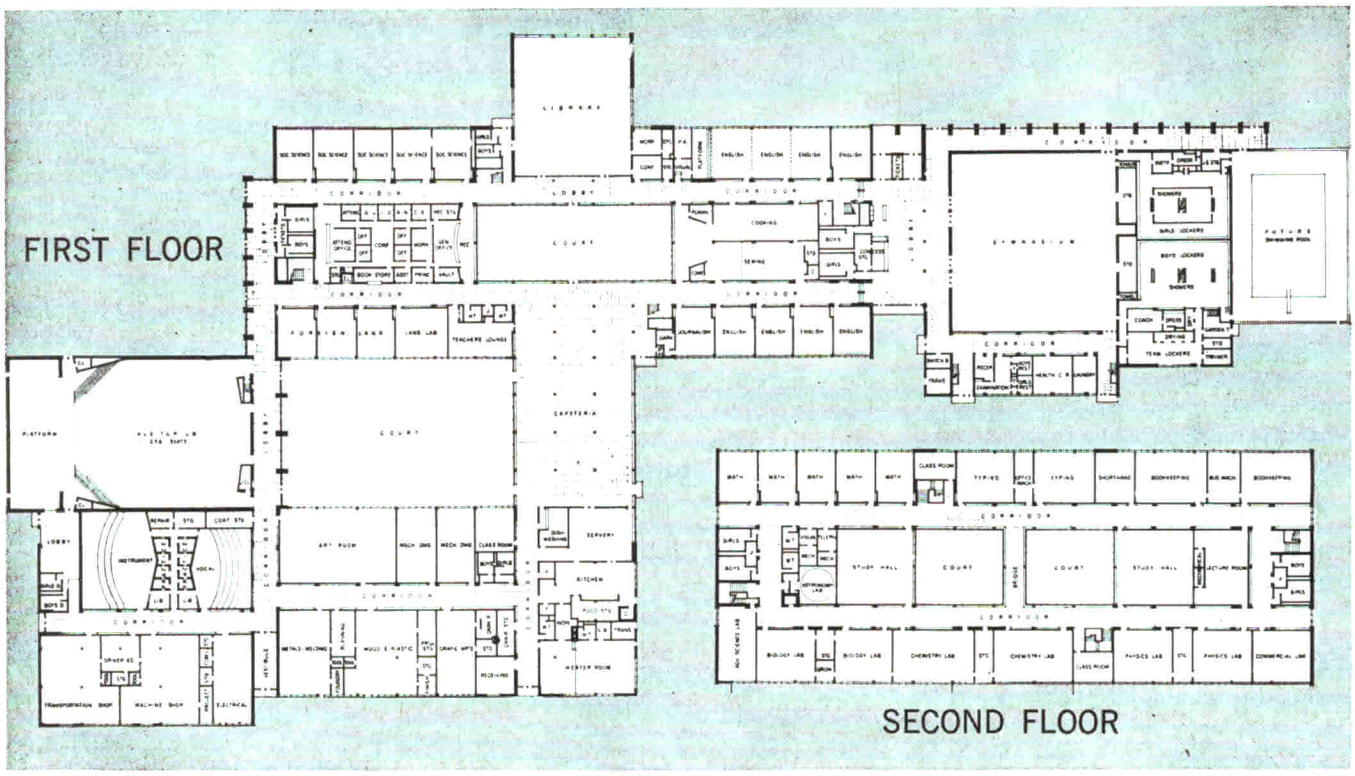
HOSPITALS, DOCTORS AND DOLLARS. *By Robert M. Cunningham Jr. F. W. Dodge Corporation, 119 W. 40th St., New York 18. 275 pp. $6.95.*

To most people, with the likely exception of hospital administrators, it would seem that hospital administration is a most unpromising subject for a readable book. Mr. Cunningham, however, is a writer who can put life even into, say, the financial troubles of Blue Cross.

Architects engaged in hospital design should enjoy reading about hospitals from this viewpoint, and may indeed already have read some of these selections in *The Modern Hospital.* And they may find helpful Mr. Cunningham's suggestions for hospital design (*e.g.*, "double the elevators"), and Frank Lloyd Wright's dicta on the same subject (*e.g.*, "sick people should never be allowed to see sick people").

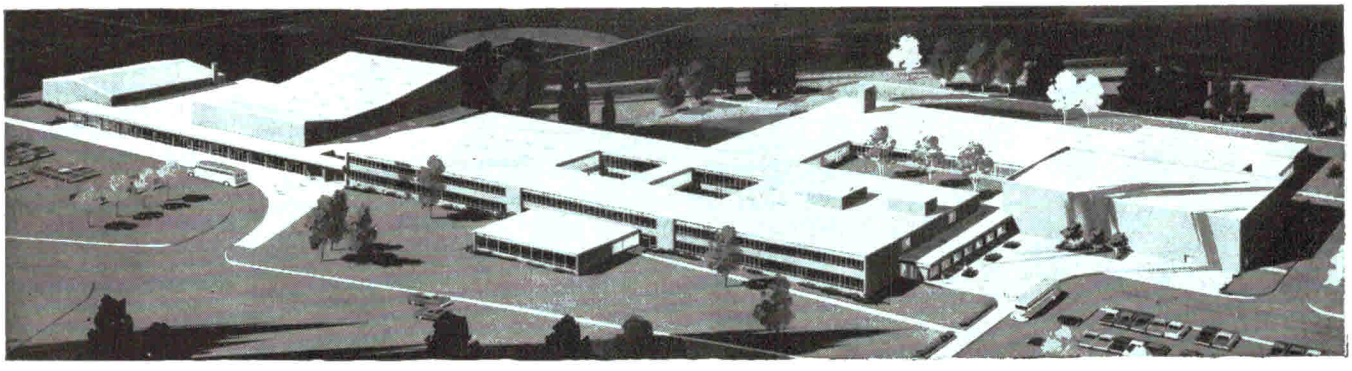
Strictly for diversion, Mr. Cunningham has included a few biographical sketches, ranging from a faintly eulogistic profile of the A.M.A.'s redoubtable Morris Fishbein to a somewhat less eulogistic piece on one Bradford Dorr, a thoroughly reprehensible quack whom Mr. Cunningham invests with wholly undeserved charm.

continued on page 60



AT PARMA... the size and scope of the new Valley Forge High School put special emphasis on the need for an efficient Time Control and Program system, free of operational and maintenance problems. This lead to the selection of Stromberg timing. Dependably correct clocks and signals are assured by the precision Master Time Control. This modern time system operates from ordinary lighting circuits. Complete uniformity of time is maintained by supervisory pulses each hour and every 12 hours over a control circuit. Stromberg maintains installation and maintenance service throughout the U.S.A.

A complete catalog — TIME AND SIGNAL EQUIPMENT — prepared for Architects and Engineers — is yours for the asking.



PLANNING THE NEW SCHOOL

A population explosion at Parma, Ohio completely overtaxed secondary school facilities. Rather than expand the old school, construction of the new Valley Forge High School was started in May of 1960 and scheduled for completion in advance of the school year beginning September 1961 at a completed cost of $4,000,000. The new structures — containing 70 classrooms, adequate library, science, language, shop and music facilities, as well as an ample auditorium, cafeteria and gymnasium — is planned to accommodate 2,000 students. Despite these impressive new facilities, plans are now being made for a third secondary school.

The Parma Public Schools, Mr. Paul W. Briggs, Superintendent — were advised in their choice and installation of Time Controls by:

Fulton, Dela Motte, Larson, Nassau & Associates—Architects
Mr. Vincent A. Lombardi — Electrical Engineer
The Doan Electric Company — Electrical Contractor

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GENERAL TIME CORPORATION
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MAKERS OF THE WORLD'S FINEST TIME EQUIPMENT

strong, light and beautiful

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Required Reading

continued from page 47

Design in Early Virginia

THE EIGHTEENTH-CENTURY HOUSES OF WILLIAMSBURG. *An Architectural History. By Marcus Whiffen. Colonial Williamsburg, Inc., Williamsburg, Va.; dist. by Holt, Rinehart and Winston, Inc., 383 Madison Ave., New York 17. 223 pp., illus. $10.*

This study is divided into two sections. The first contains material on construction methods, materials and tools, and on design sources and theories (as far as these last can be reconstructed). The second section, intended both as history and as a guide to the Colonial houses at Williamsburg, gives rather detailed descriptions of the originals as well as some information on their restoration.

The illustrations include plans, drawings, and photographs (before-and-after, in some cases) of the houses, their interiors, and framing details.

Politics and Building

POLITICAL INFLUENCE. *By Edward C. Banfield. The Free Press of Glencoe, Inc., a Division of the Crowell-Collier Publishing Co., 60 Fifth Ave., New York 11. 354 pp.*

Superficially, this study, undertaken by a professor of government, is not related to architecture. Ultimately, it is not so related, either. But in the middle ground—well, four of the six political case histories given are directly, or at least intimately, related to building: the Branch Hospital, the Urban Renewal Project, the Branch Campus and the Exhibition Hall.

Mr. Banfield, looking at the community of Chicago, has attempted to answer speculations about who makes political decisions, and why. Architects who are already members of decision-making cliques (and very often architects are) will not be astonished by the C.P. Snow-like complexities of political influence. For architects periphally involved, as yet, in community (and therefore political) matters, Mr. Banfield's treatise should prove enlightening—not to mention entertaining.

TOP Executive L-desk is combined with two 60" cabinets from The Template Group to form an attractive, functional work station in the President's office, Catalina, Inc., Beverly Hills, California.

CENTER Four executive desks with overhanging wood tops serve officers of the Union National Bank, Bartlesville, Oklahoma. Two smaller scaled L-desks were specified for the secretaries. All are from The Template Group.

BOTTOM Open front single pedestal desks with Textolite tops from The Template Group in the general office of Sutro Bros. & Co., New York City brokerage firm.

THE LEOPOLD COMPANY
Burlington, Iowa

The Record Reports

U.L.I.-N.A.H.B. Study Cites Need of Modern Zoning

Out-of-date zoning regulations hampered by the single lot concept and involved legal verbiage are major barriers to better use of land suitable for residential development, according to a joint study on residential land use published by the Urban Land Institute of Washington, D.C., and the National Association of Home Builders.

"Density control zoning" is suggested to guide suburban growth into more compact areas which can be easily serviced with municipal facilities and include properly located open space and park land. Under this method population densities need not increase but more efficient use of available land is obtained.

The study, titled "New Approaches to Residential Land Development," points out that more dwellings designed into efficient groupings means lower road and utility costs and additional savings by advance planning for schools, churches and open space.

Promising development methods, including the planned community development, the cluster method and town houses, are discussed in this study. Differing from the small subdivision and the neighborhood in that it starts out by fixing land uses, building relationships, allocations of open space, the planned community development calls for a total concept instead of individual lot planning.

Other land development concepts discussed include circular blocks and lots, loop streets, mobile home parks and waterfront property.

The study, while recording some progress in altering zoning regulations which now prevent improved land use, concludes, ". . . only through improved planning techniques, through knowledge of prevailing enabling legislation and restrictions, numerous appearances before zoning bodies and tremendous diligence and patience can success be achieved."

Bulletin 40 which carries the study is available for $6.00 a copy from the Urban Land Institute, 1200 18th St., N.W., Washington 6, D.C.

more news on page 94

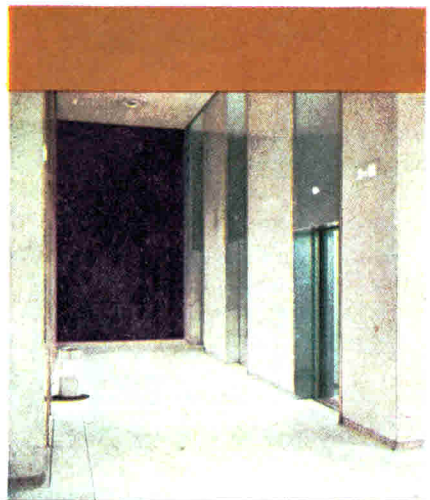
Now! A "fast-flow" storm water drainage system that cuts installed costs up to 28%

With Johns-Manville Transite® Pipe, you can control the flow of rain water from roof level to outfall with a system that can be installed at a 28% reduction in cost.

First, Transite's material cost is substantially less than that of other quality materials previously used in this service. Secondly, the long lengths and light weight of this strong asbestos-cement pipe make for quick, sure installations, thus cutting labor time and costs. And, J-M's easy-to-install Ring-Tite® Coupling is a time-saver, too. It forms a tight joint that protects against leakage and the infiltration of ground water.

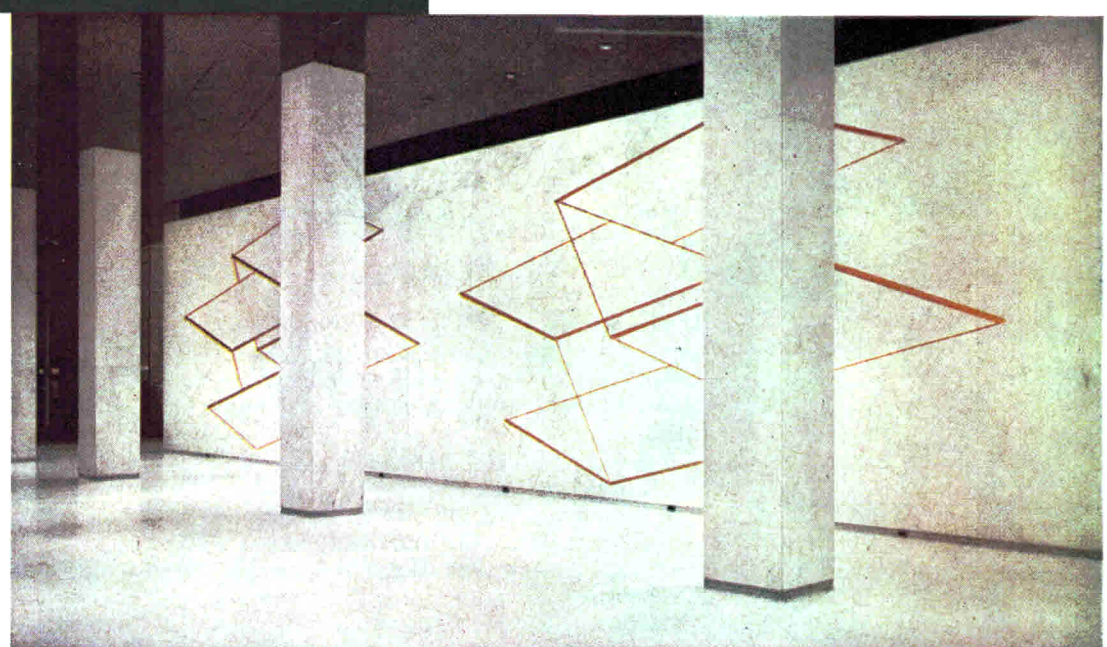
Over the years, Transite will continue to save you money. Its interior is made smooth to stay smooth, thus permitting rain water to be carried off at a maximum rate through minimum pipe sizes. You can just about forget maintenance problems, too! This non-metallic pipe cannot rust and resists corrosion inside, outside, and all the way through. For full details, send for Data Sheet TR-252. Write Johns-Manville, Box 362, AR-10, New York 16, N. Y. In Canada: Port Credit, Ontario. Cable address: Johnmanvil.

JOHNS-MANVILLE
TRANSITE PIPE

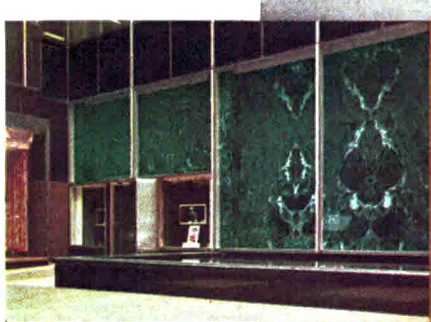


MARBLE

. . . for dramatic beauty in another major building



CORNING GLASS BUILDING, NEW YORK, N. Y. • ARCHITECTS: HARRISON & ABRAMOVITZ & ABBE



In New York's new Corning Glass Building, architects Harrison & Abramovitz & Abbe sheathed the lobby columns, walls and elevator areas with the classic beauty of domestic white marble. For the exterior areas above a reflecting pool, they framed diamond-matched sections of dark green marble behind glass panels set in stainless steel frames. The marble will require little maintenance . . . remain an economical and beautiful choice through the years. Significantly, marble is being specified for large and small installations by architects of note throughout the country.

Qualified members of the MIA can give you complete information on the selection and use of more than two hundred marbles. For detailed literature and a list of members, write

Marble Institute of America, Inc. 32 SOUTH FIFTH AVENUE, MOUNT VERNON, NEW YORK

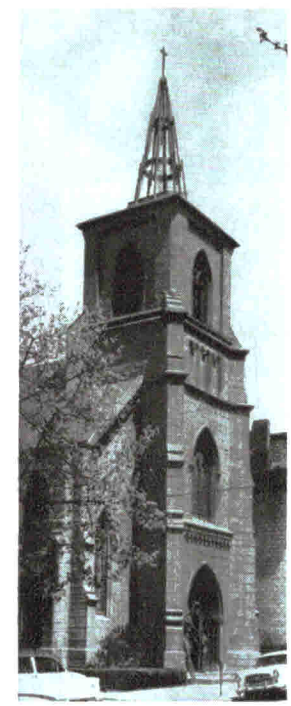
DESIGN FOR CHURCH SPIRE WINS COPPER AND BRASS AWARD

A new design in a church spire has won for Hugh Moore Jr., A.I.A., Easton, Pa., the 1961 Copper and Brass Achievement Award for distinguished application of the copper metals in architecture. The award, $500 and a bronze trophy, was presented to Mr. Moore during the annual meeting of the Copper & Brass Research Association.

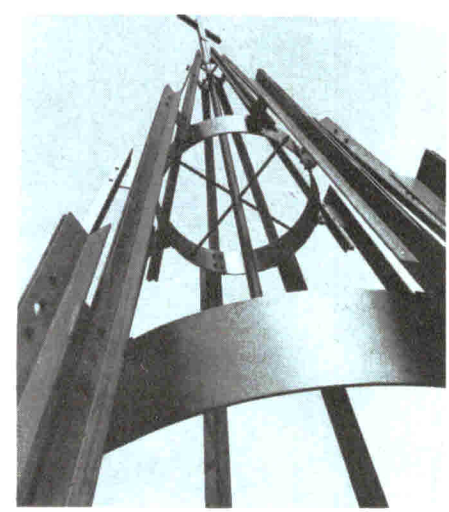
The prize-winning spire, made entirely of bronze, was recently erected on St. Michael's Roman Catholic Church in Easton, replacing one destroyed by fire some years ago.

Mr. Moore used only standard mill forms for his 32-ft high structure, thereby avoiding production costs associated with specially designed shapes. Materials were bronze angles, flats, rods and tubes joined with bronze bolts. The form of the spire is described in the award announcement as "based on early Gothic prototypes."

Special citations for outstanding merit were awarded William J. Conklin, partner in the firm of Mayer, Whittlesey & Glass, for his design of a five-story bronze façade of the Painting Industry Insurance Building in New York; and R. F. Schultheis for his engineering work involving the design and application of a copper roof on the Wells Fargo-American Trust Building in San Francisco. Architects were Skidmore, Owings & Merrill.



Bronze spire, 32 ft high, on Easton, Pa. church (built in 1853) has won 1961 Copper and Brass Achievement Award for architect Hugh Moore Jr. Components are all standard mill forms



more news on page 113

The Record Reports

continued from page 94

Kling Scholarship Established at Columbia

The Vincent G. Kling Scholarship in Architecture has been established at Columbia University's School of Architecture. The partial tuition scholarship has been made possible through an annual gift to the School of Architecture by members of the staff of the architectural office of Vincent G. Kling, Philadelphia. Mr. Kling was a member of the class of 1940.

The award will be made primarily on the basis of professional promise and financial need to students in the third year or later years of their architectural curricula.

E.J.C. Study Finds Job Market Up for Engineer Grads

According to a report by the Engineering Manpower Commission of Engineers Joint Council, a decided increase in the postgraduate commitments of engineering graduates of 1961 is apparent, in spite of the recent economic recession. The report summarized the results of a survey based on the response from 138 of the nation's engineering schools representing 16,344 engineering graduates, or a little less than half of the 1961 graduating class.

As of May 19, 84.4 per cent of the engineering graduates, covered by the Manpower Commission's survey, had either secured jobs, decided on postgraduate studies, had been committed to military service or had other definite plans. By June 15, the engineering graduates "committed" had risen to 91.8 per cent. Those in the liberal arts and physical science groups compared favorably with engineering, although the "graduates committed" group among the business and commerce groups was 11 per cent below engineering.

As of May 19, 1959, 83.6 per cent of engineering graduates were committed and, in 1960, 81.5 per cent were committed to postgraduate careers. Of the total, 14.3 per cent of engineers in 1961 were entering graduate studies to pursue advanced degrees in engineering. This contrasts with 9.8 per cent in 1960.

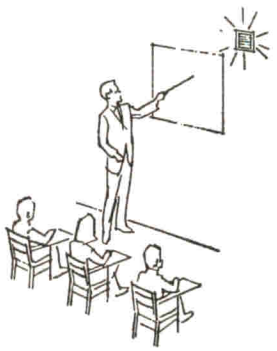
more news on page 266

8 ways to enrich school curricula and improve administration

...through an economical sound-communication system

The console shown here is the central control of an Executone sound-communication system for an average-sized K-8 or secondary school. Located in the General Office, it handles switching, programming, transmission and power amplification for all the services described below—and others that your special requirements may suggest. Its 5-channel capacity eliminates the need for more than a single conduit for signals or communication between any two points in the system. Identical functions are available in a vertical console, for use where office space is at a premium.

Supplement the teaching program with sound



Classroom audio-aids can give students access to sources of important teaching materials . . . can place each class in closer relation to the school and the world around it . . . can help develop each pupil's critical faculties. Leading educators value the availability of:

Radio broadcasts: speeches; music; coverage of special events; interviews; important dramatic presentations; sessions of Congress; etc.

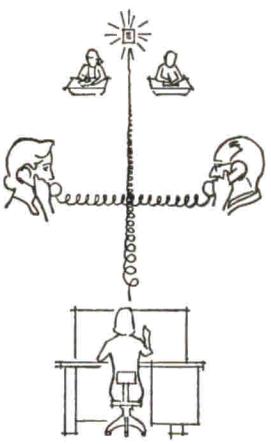
Recordings: from an ever-increasing fund of educational material on tape and discs.

Transmissions from other parts of the school: student musical programs; sports events; etc.

Recording and play-back facilities: for classes in choral and instrumental music; language and speech courses; drama workshops; etc.

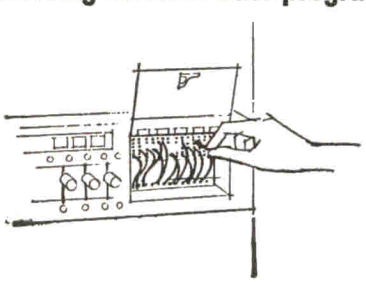
All these audio-aids can be supplied by a single Executone classroom reproducer . . . the same instrument that handles time signal, alarm and intercom functions. With a standard Executone system, any combination of rooms—chosen by selector-switches—can receive either of two simultaneous sound transmissions. Reproduction is of unusually high quality. Where recording and play-back are desired, rooms need only be supplied with microphone and tape-deck jacks. Amplification takes place at the main control console.

Speed administrative action: relieve over-burdened staff



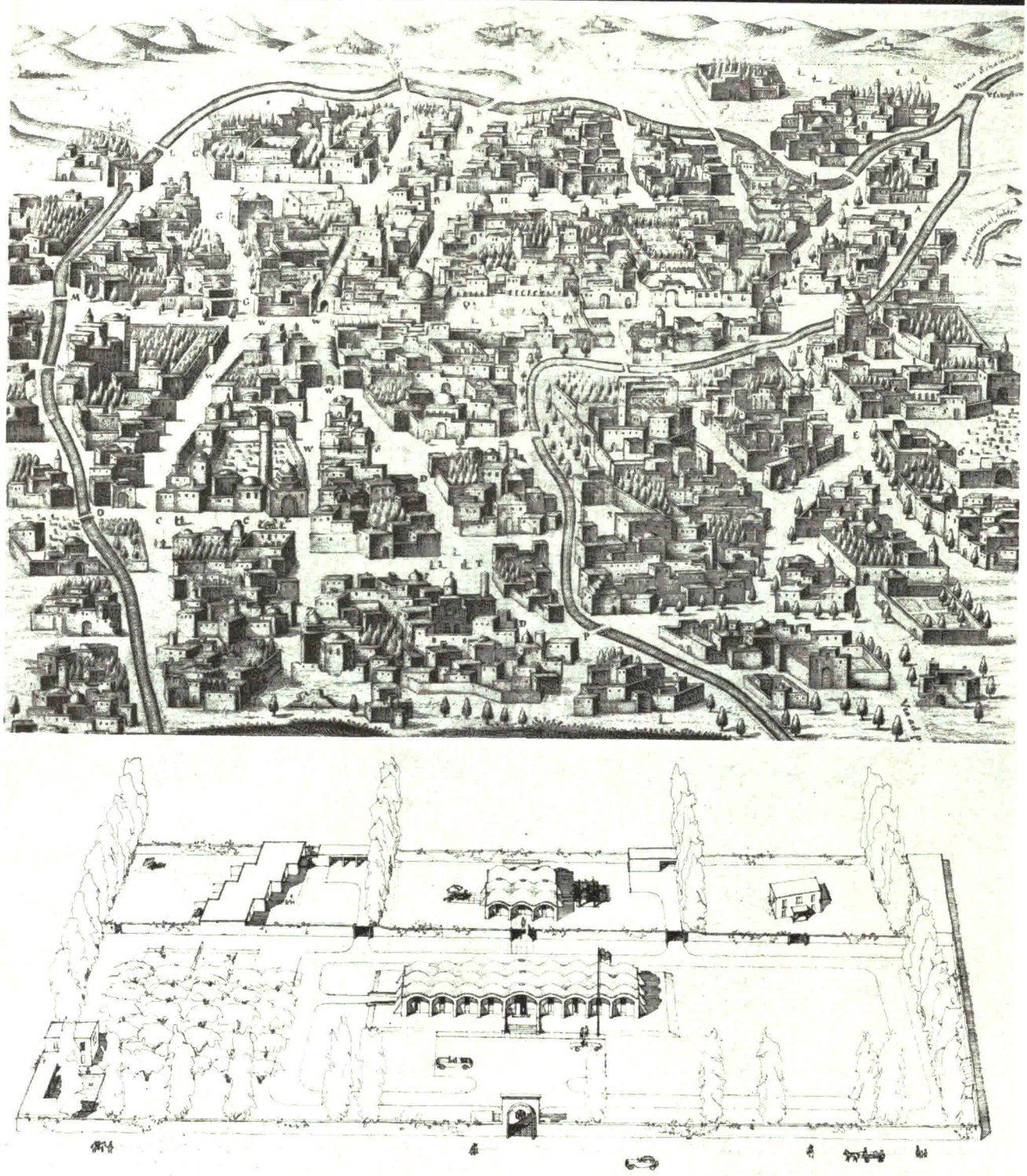
Freedom to teach—and to work more productively—is one of the best answers to the chronic shortage of teachers and administrative personnel. Time savings increase in direct proportion to the staff's communication capabilities. Today, these can economically include: A) 2-way electronic voice intercom . . . between the office and any classroom . . . with complete privacy safeguards. B) Private-line room-to-office and room-to-room intercom . . . with call origination from any point. The Executone system offers all the above, providing 2-way remote-reply intercom through each classroom speaker . . . optional private-line handset communication using an independent channel carried by the same wiring.

Save money & space in providing variable time programs



Classes with varying time requirements need no longer be subject to an inflexible set of signals. But conventional time-programming equipment—including independent crossconnect panels, relay racks, classroom buzzers and wiring systems—is bulky and expensive.

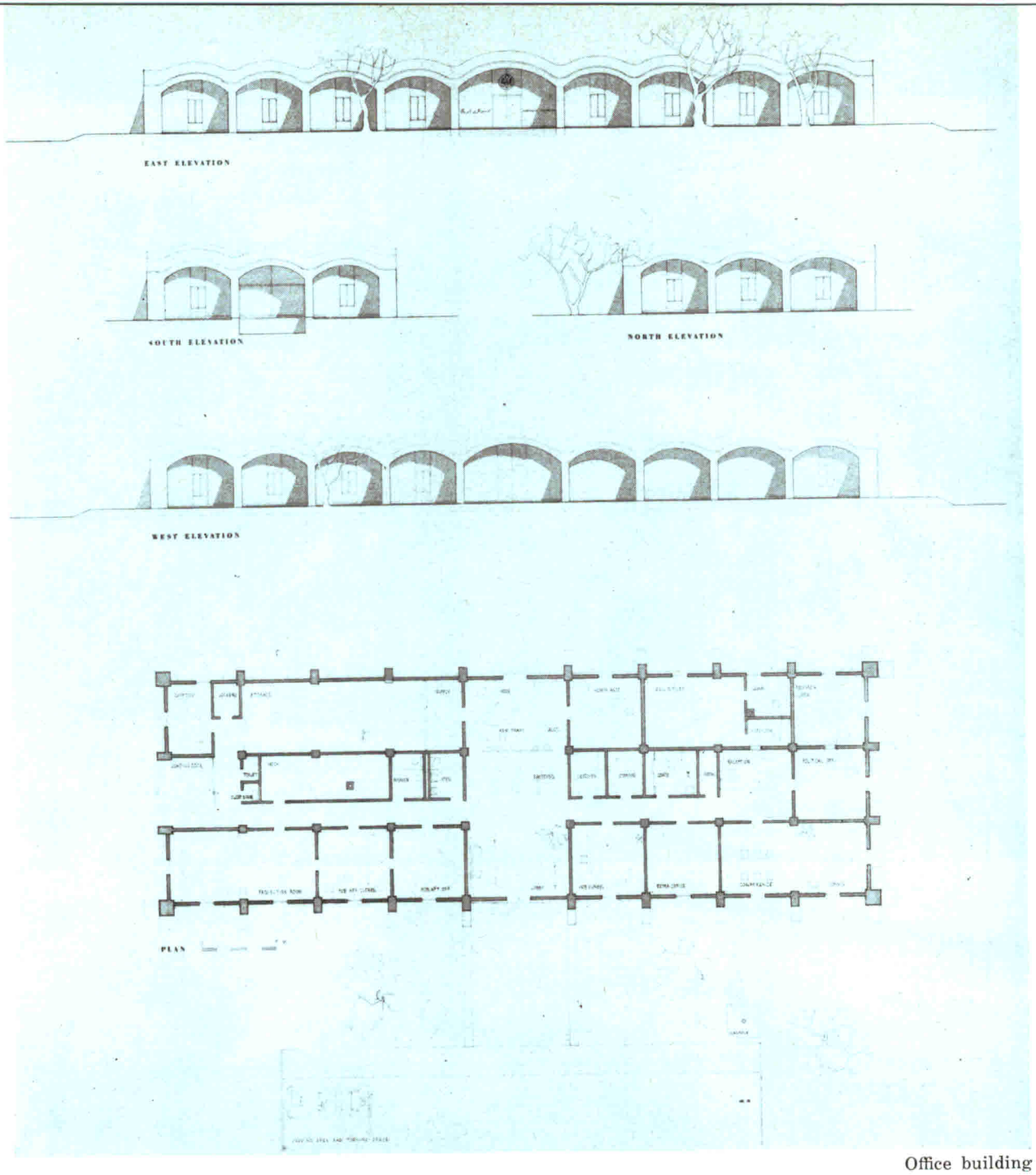
The Executone system includes a remarkably compact, easily accessible peg-board programmer—which allows each classroom to be placed on any one of six different time programs within seconds. This function is built directly into either standard console! The costly conventional system is eliminated.



Project drawing of the United States Consulate for Tabriz, Iran contrasted with old engraving of a Persian city. The consulate lies within a walled compound as do most of the buildings in the Persian city, its roofs are domed or flat as in the old city, but while the old compounds in the engraving were crowded and assymetrical, the new one is spacious with a major axis, not unlike the more sophisticated Persian design of palaces and gardens. Office building is at the center of the compound on axis with the consul's residence. Staff apartments are at upper left

QUIET ARCHITECTURE OF EDWARD LARRABEE BARNES

Quiet architecture, that neither startles nor asserts,
by an architect uniquely concerned with the timeless qualities of buildings . . .
environment, material, light, shadow and scale



Office building

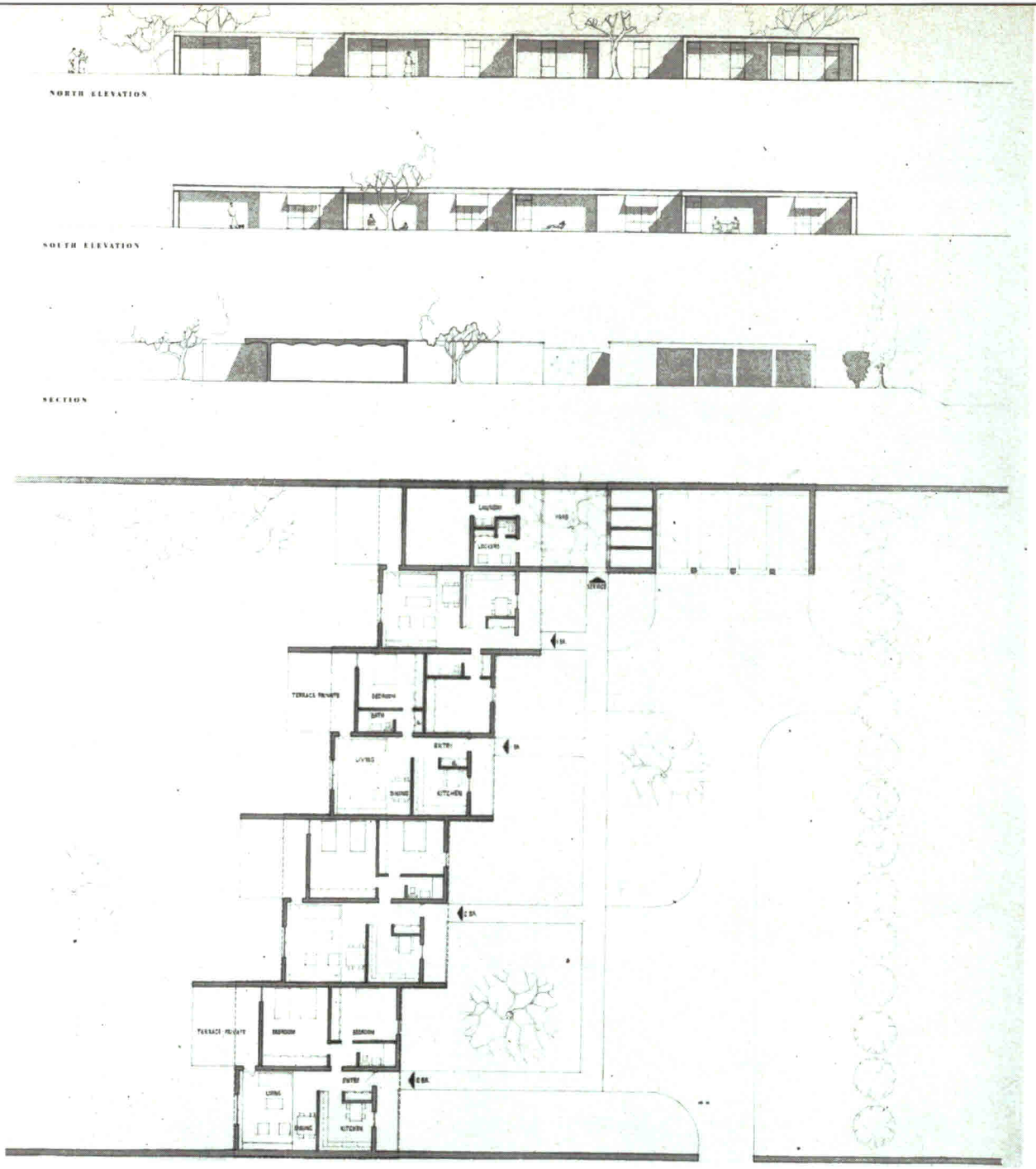
Domed and Walled United States Consulate for Tabriz, Iran

ARCHITECT: *Edward Larrabee Barnes*
STRUCTURAL ENGINEERS: *Severud-Elstad-Krueger-Associates*
MECHANICAL ENGINEERS: *McGuinness and Duncan*

Architect Barnes has said: "There must be a stron architectural idea behind every project. It is no enough to have a decorative, or historical or mathe matical concept. An architectural idea is an expres sion of life in the building." For the Tabriz con sulate, about to be constructed, the idea grew fron the native way of building, basically a system o mud covered brick walls and domes, within walle compounds and inner walled gardens.

The United States Consulate Compound lies o the outskirts of Tabriz, near the Russian border. I was once a farm with an almond grove, and reser voir and irrigation system. The old outer brick wa is retained and the compound is further divide with inner walls, and rows of poplar trees so tha each of the major buildings; the office, the consul' residence, the staff apartments, and existing hous is given a court with its own landscaping.

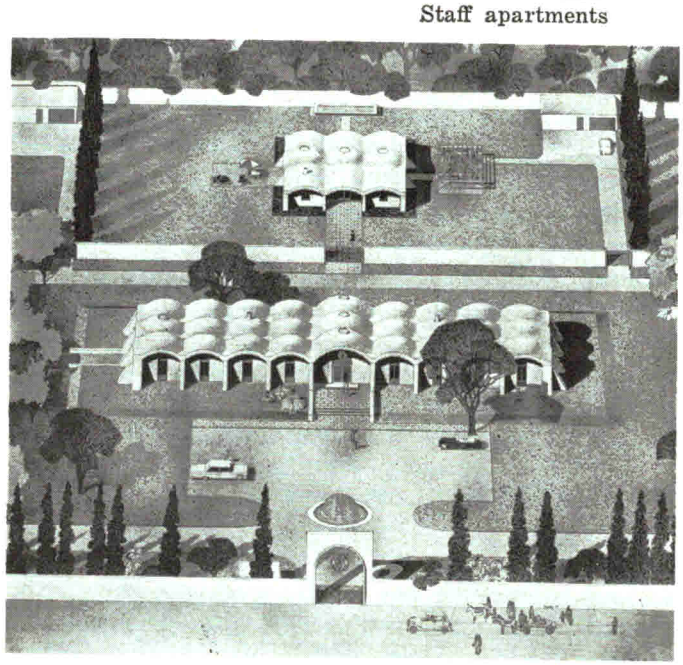
The office building, like the Persian bazaars, is cluster of brick domes. There is a strong disciplin



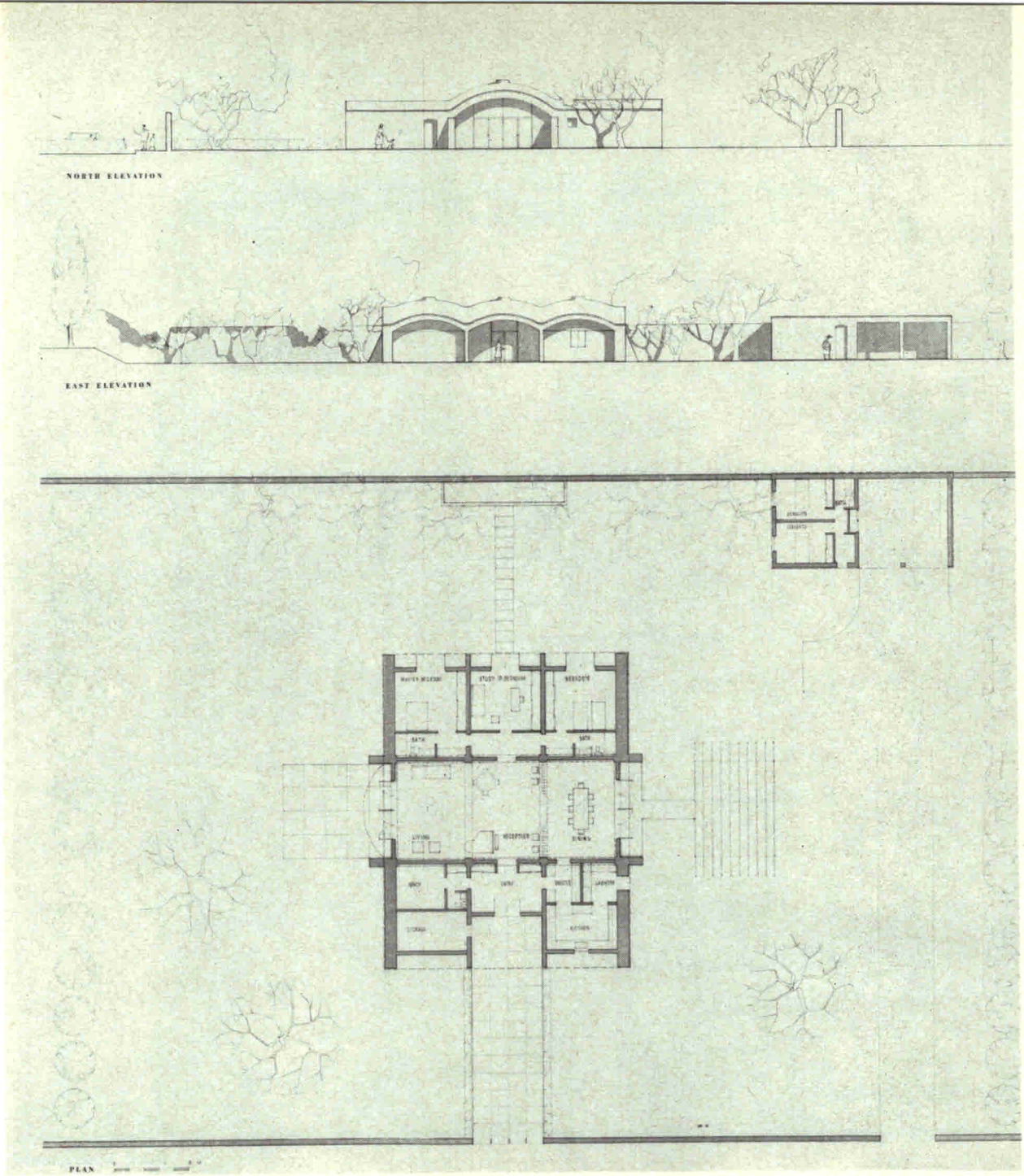
Staff apartments

n plan and structure. The thin brick domes are upported on ribbon arches and brick columns. The hrust of the peripheral domes is carried to the round in sloping buttresses. Infilling walls between he columns are non-bearing (like any modern of- ce building). The domes over the lobby are ellipti- al, providing greater height and span. Inside rooms re lit with an oculus skylight at the center of the ome. The entire structure is brick, the principal ersian building material since Old Testament ays. It is an architecture entirely of compression. he tradition, in Iran, is to cover the brick with a ıud, or plaster, or, in the case of the mosques and alaces, with ceramic tile. Here, the entire structure ; stuccoed white on the exterior and plastered on ıe interior. Tabriz, as a city, is mud brown. Once ıside the outer compound gate of the Con- ulate, all architectural surfaces will be white.

The consul's residence has three elliptical domes butting six barrel vaults. The roof forms slip into



Office building in foreground, consul's residence beyond

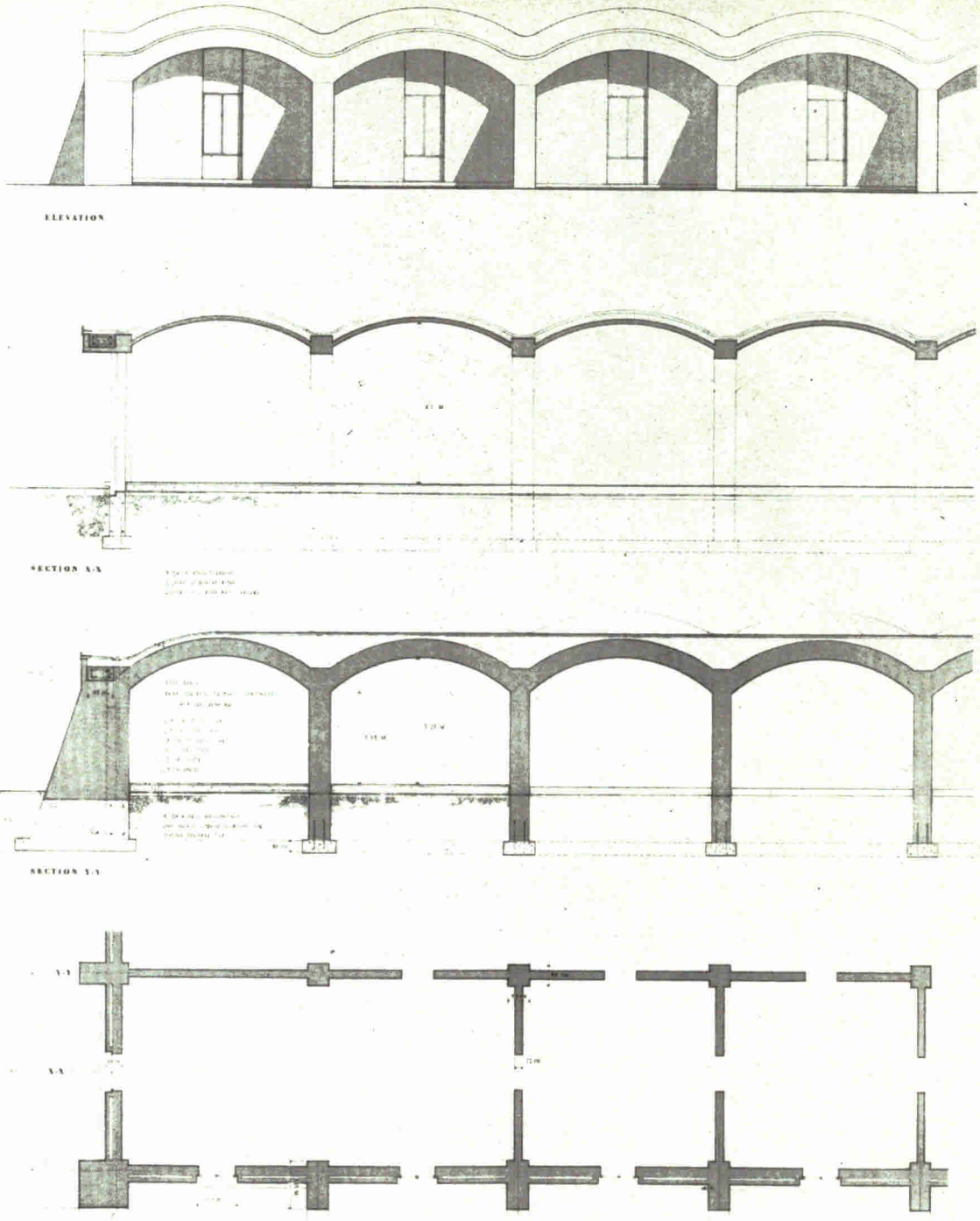


Consul's residence

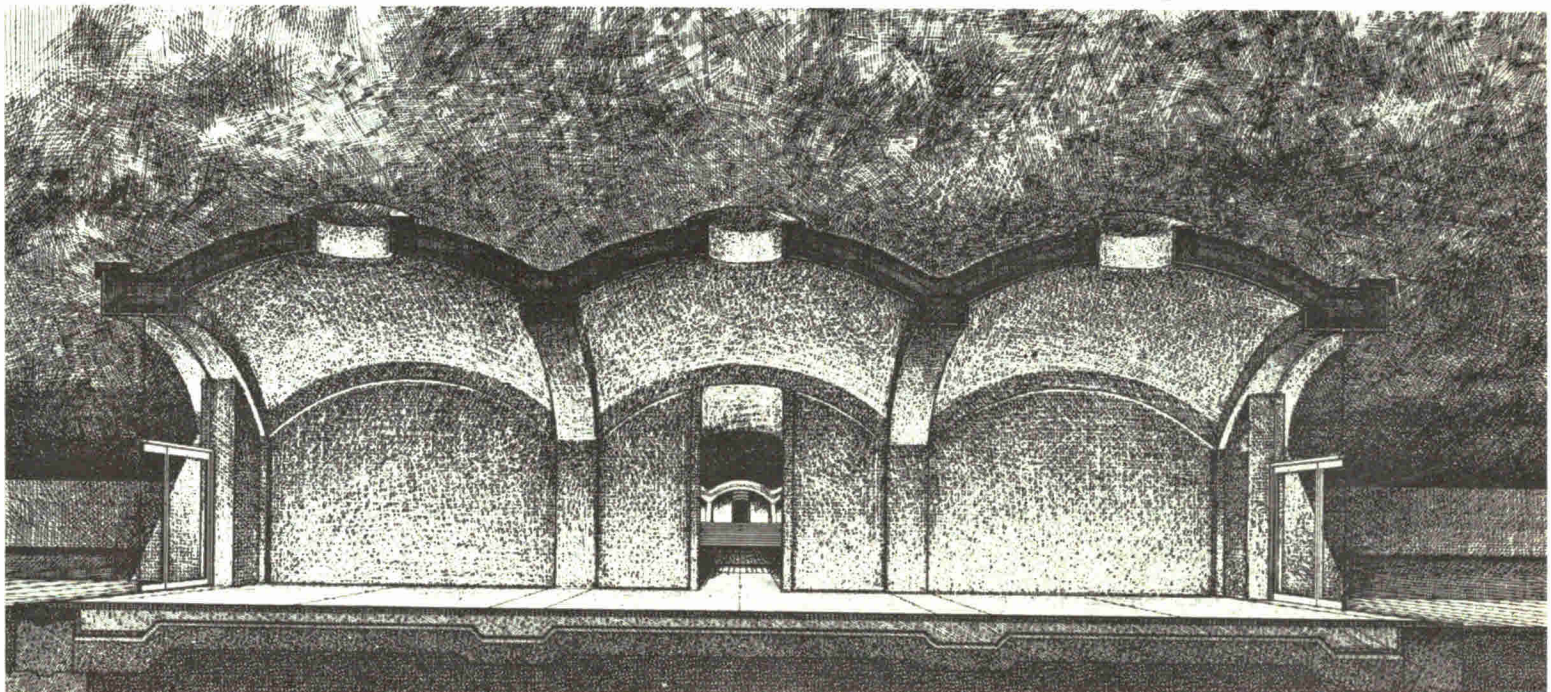
each other. As in the office building, a formal plan coincides with a formal structure. The house is planned for formal receptions, with axial relationship to the office building and garden vistas.

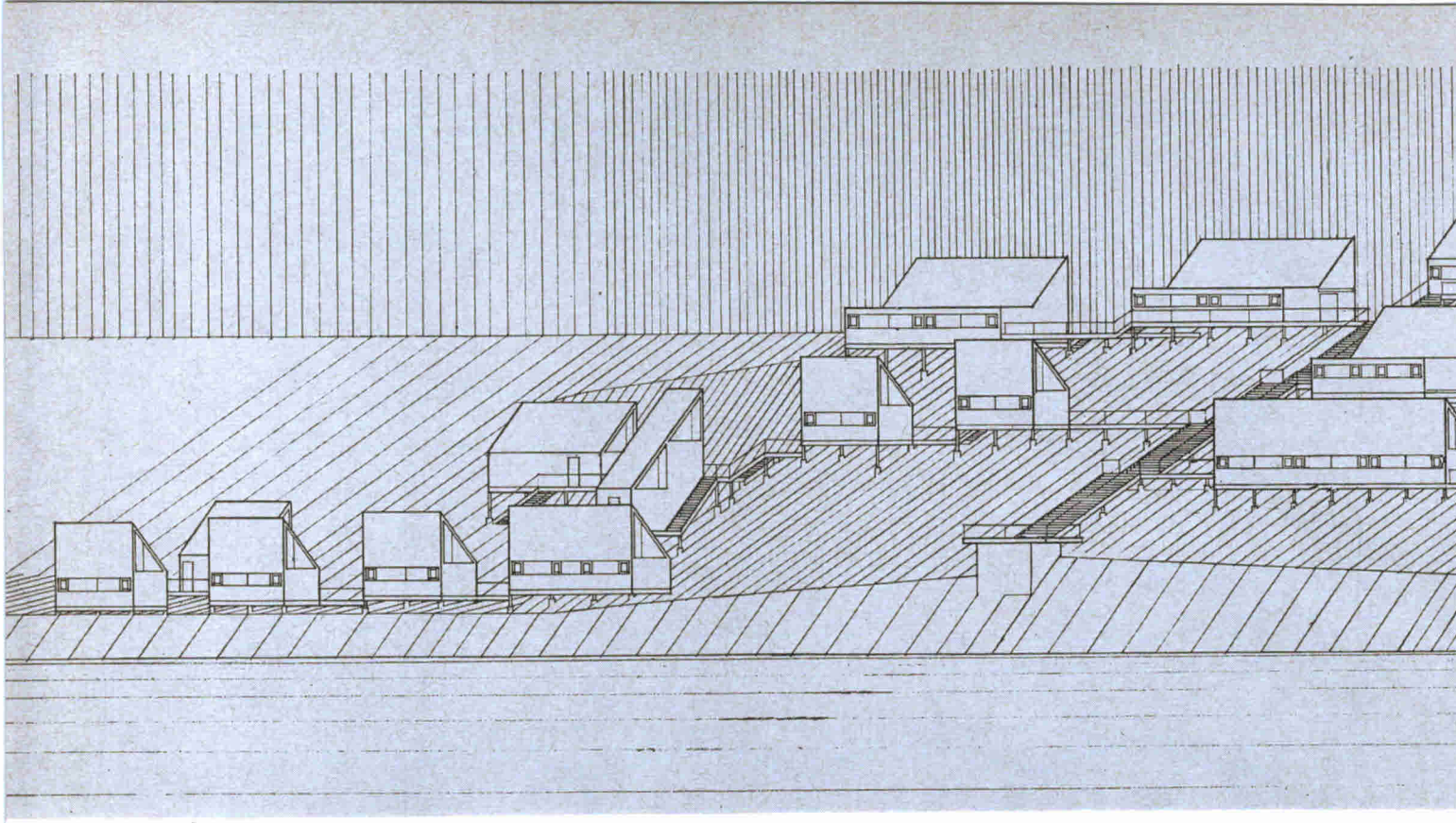
The staff apartments zig-zag to provide separate little outdoor terraces, all within a private garden. The roofs are flat-supported on brick jack arches on steel beams.

The structural details show the thin shell dome, the ribbon arch, the elevation, and plan. Because the mortar is sticky and paste-like, known locally as "gatch", domes up to 16 and 20 ft in diameter are built without form work or centering by spiraling in from the supporting structure. The same is true of the barrel vaults. Each successive arch of brick is glued to the succeeding one until it is completed and can take its own thrust. One modern structural refinement; the poured concrete beam around the periphery. This beam rings the building and binds it together to withstand earthquake crumbling.



Below: section through center living, reception and dining space in consul's residence. Office building in distance

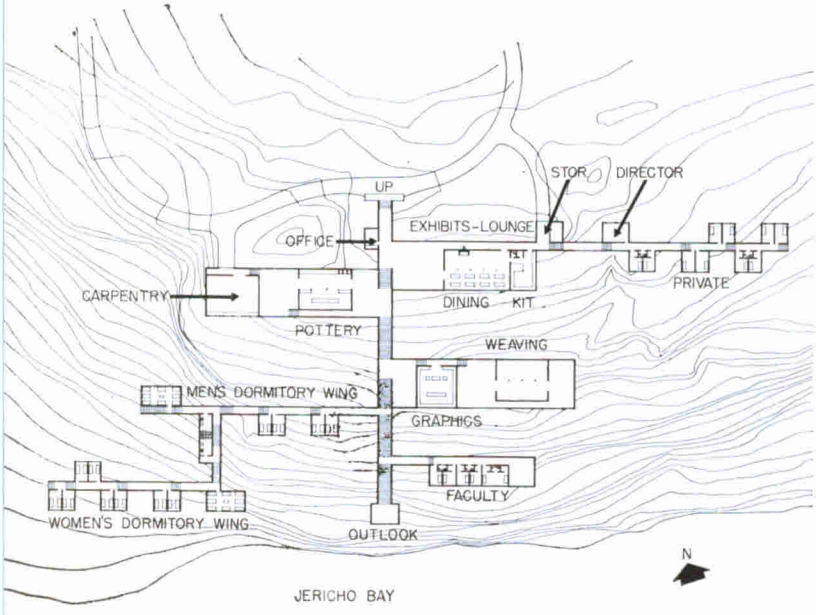




Quiet Architecture of Edward Larrabee Barnes (cont.)

Twenty-four Roofs, Same Pitch, Shelter Arts and Crafts Camp

NAME: *Haystack Mountain School of Arts and Crafts*
LOCATION: *Deer Isle, Maine*
STRUCTURAL ENGINEERS: *Severud-Elstad-Krueger*

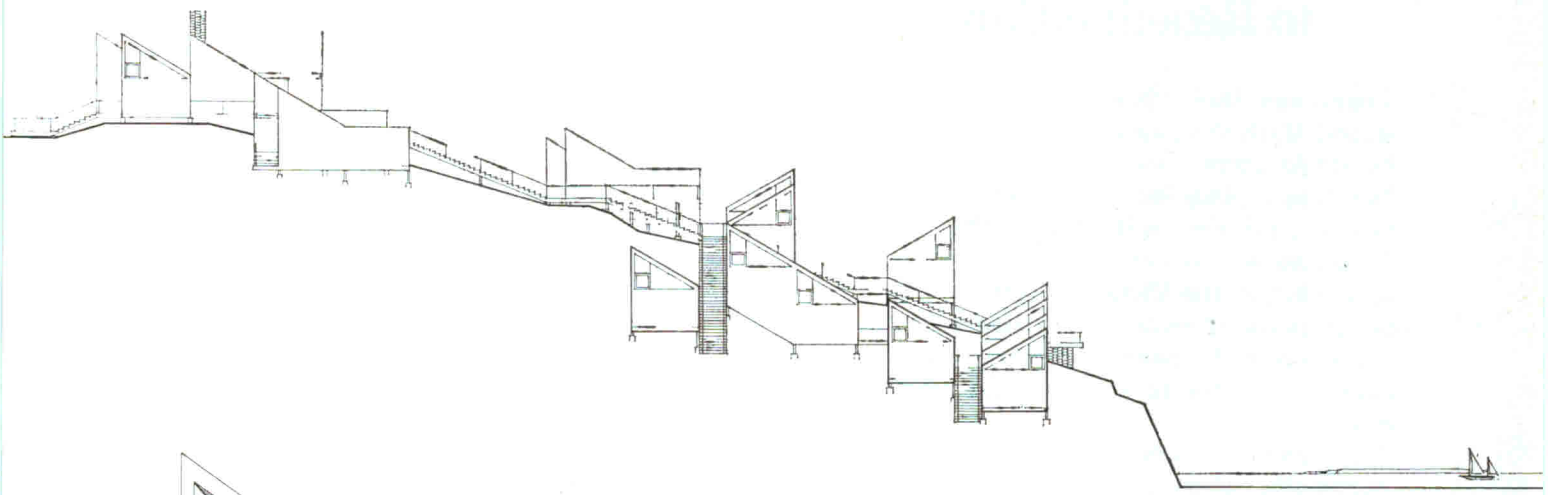


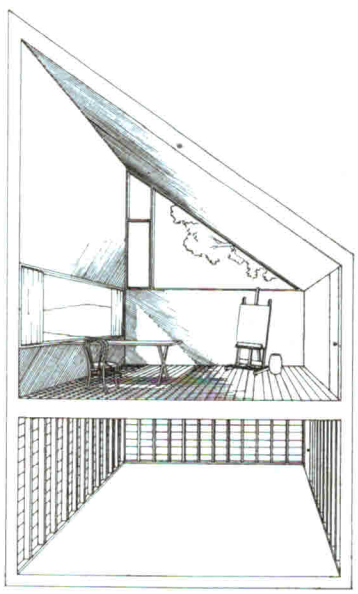
In discussing the repetitive vocabulary of this art camp, Barnes said: "There is nothing esoteric about architectural ideas. They can be drawn on the backs of envelopes. A flight of steps to the sea. A banked garden. Such ideas are at the root of every job. They formalize space and movement through it. The important thing is to express the idea clearly and see all the implications. Structure must be direct and consistent. Elimination is as important as elaboration. There is no better way to do architecture than to have a strong architectural idea and be true to it."

The Haystack School of Arts and Crafts is a summer community of 80 students and faculty who work and live on a lichen-covered granite slope looking south to the sea. A main flight of steps runs down to the shore, and branching walkways and decks link the work shops and cabins together. Big studio windows point up to the trees. Ribbon windows look out to sea. The construction is balloon frame. The walls and steep tilted roofs are shingled. Already all the wood is turning silver like a Maine fishing village.

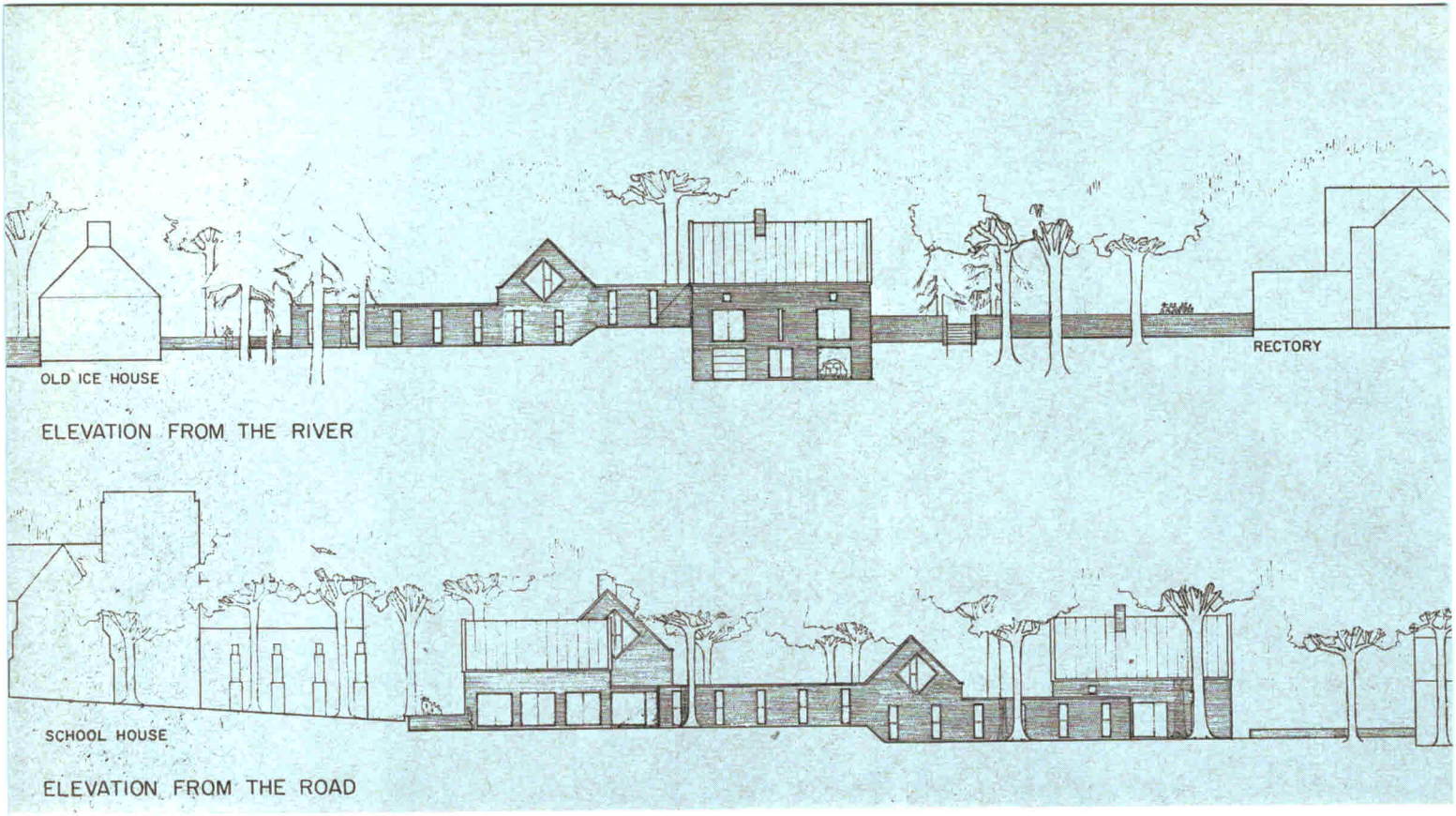
The approach from the road is over a slight rise to a crest of rock 90 ft above the sea. Straight ahead is the main stair down. The first deck serves as a sort of "Town Square", a place to gather and eat outside the dining hall. The four shops: pottery, carpentry, weaving and graphics: each have generous teaching decks. White canvas covers are planned for partial shade. Sleeping quarters vary from the faculty house with its own living room and deck to dormitories and individual cabins. Note the wash house stepped downhill under a continuous roof.

Diagonal elevation from water





The prototype was this studio designed by Barnes for Robert Osborn in 1951

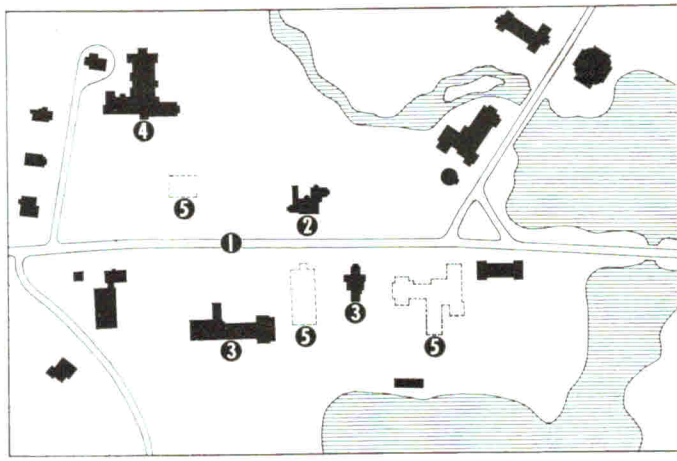


NAME: *Saint Paul's School Dormitories*
OWNER: *Saint Paul's School*
LOCATION: *Concord, New Hampshire*
STRUCTURAL ENGINEER: *John Mascioni*
MECHANICAL ENGINEER: *Arthur Trombly*
CONTRACTOR: *E. W. Howell Co.*

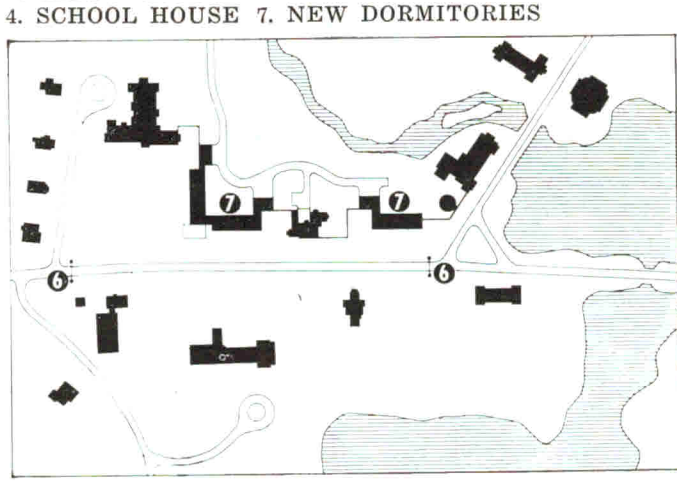
New Dormitories Located to Redefine Campus Space

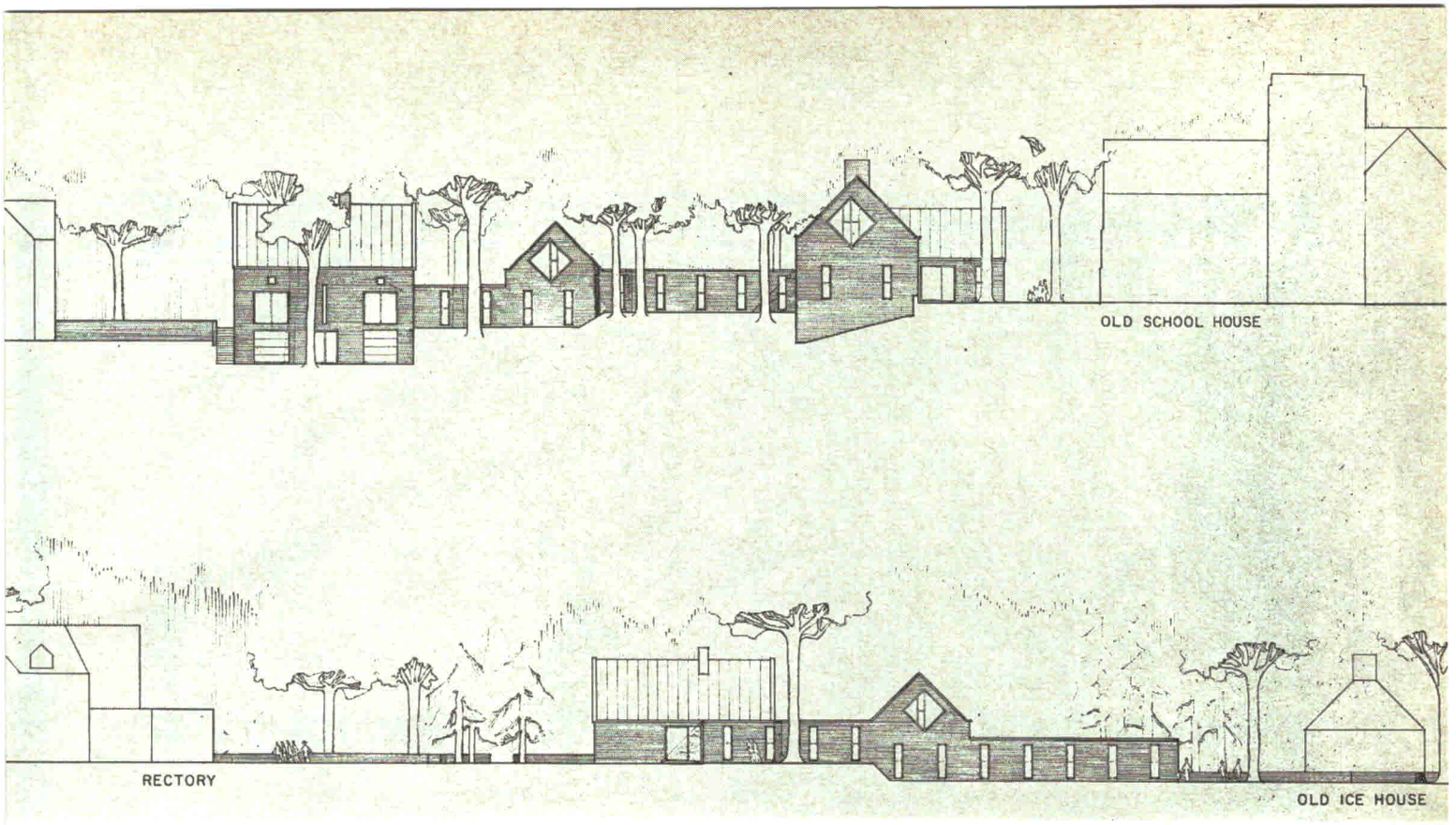
Years ago this school was built along a country street. With the passing of time many of the oldest buildings have been demolished and construction has taken place on the campus periphery. These new dormitories will reverse the trend and reinforce the school center. They connect to a Gothic school house, the Victorian rectory, the old cylindrical ice house. Across the old street they face the old chapels and the pond. New service roads and gates made it possible to keep through traffic off the old street.

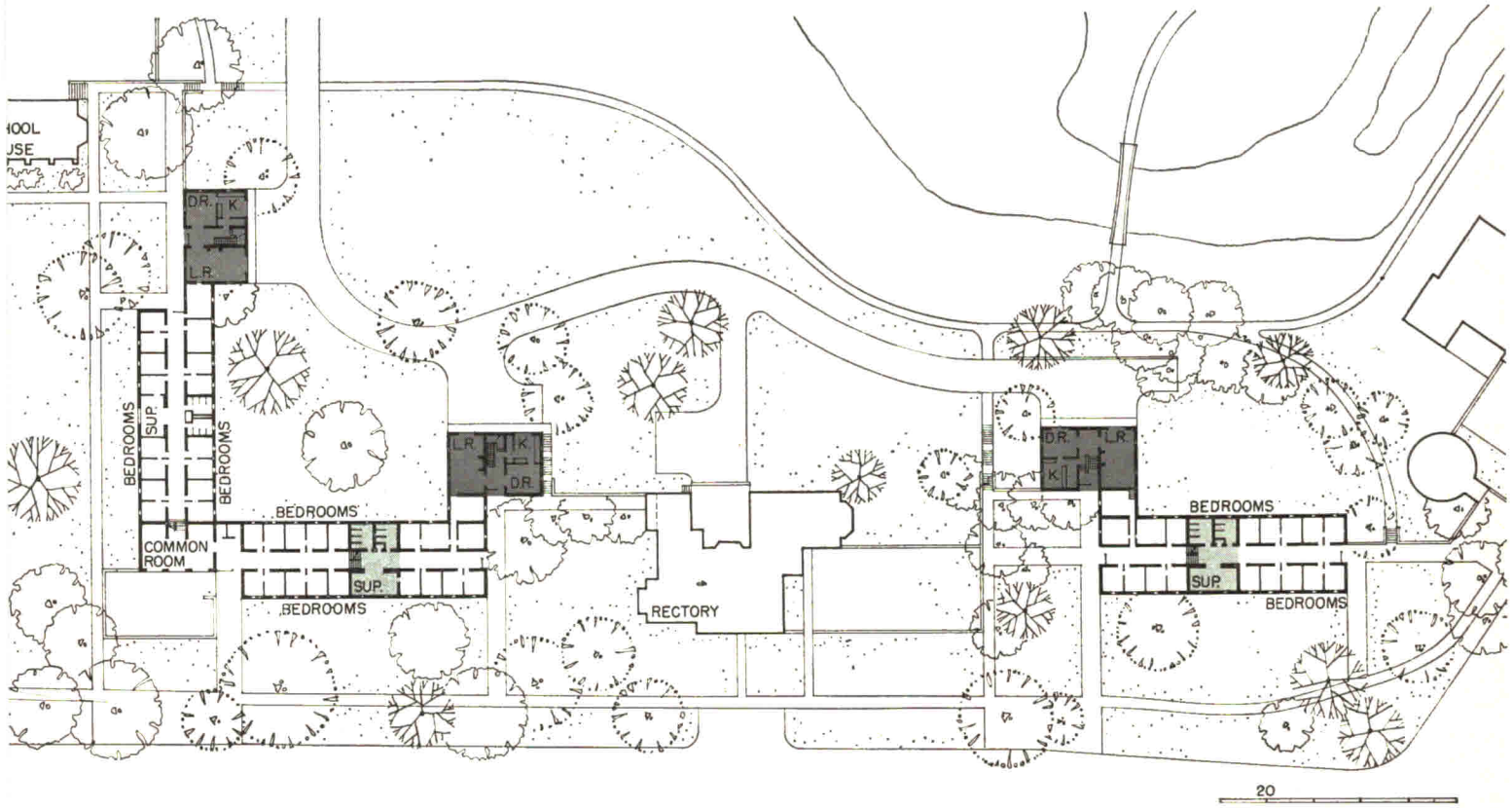
In scale, the new buildings are low. The boys' rooms are all on the ground floor in a continuous ribbon-like structure which steps down at intervals to follow the sloping street. The masters' houses and apartments rise occasionally in three-story blocks and pent houses perched above the boys' rooms. The prototype for the basic concept is the University of Virginia where the one-story student arcade steps downhill broken by two-story faculty houses. Low retaining walls form little entrance squares that link the new buildings to the old. The effect is that of a continuous garden wall running along the street with the skyline broken by the masters' quarters with their pitched roofs and studio windows looking up to the trees. The material for the walls, terraces, corridor floors and outside walks is red brick with dark mortar. The flat roofs have brick red gravel. The pitched roofs are oiled copper.



1. OLD STREET
2. RECTORY
3. CHAPELS
4. SCHOOL HOUSE
5. OLD BUILDINGS REMOVED OR TO BE REMOVED
6. GATES CLOSING OLD STREET
7. NEW DORMITORIES




OLD SCHOOL HOUSE
RECTORY
OLD ICE HOUSE


DR.
K
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BEDROOMS
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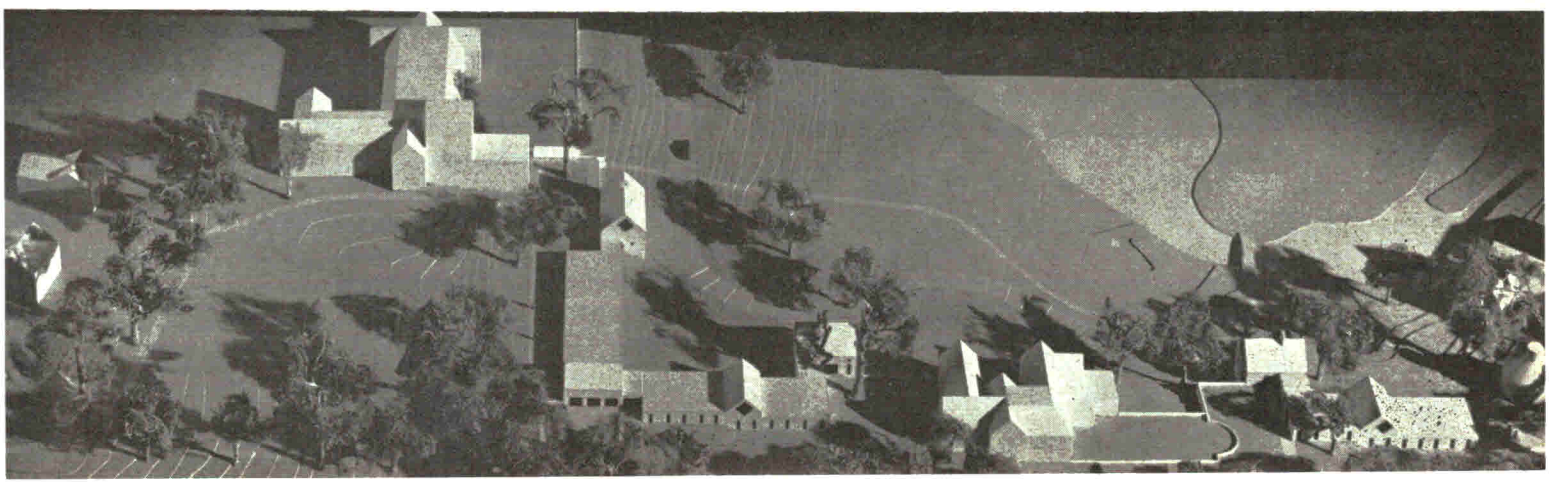
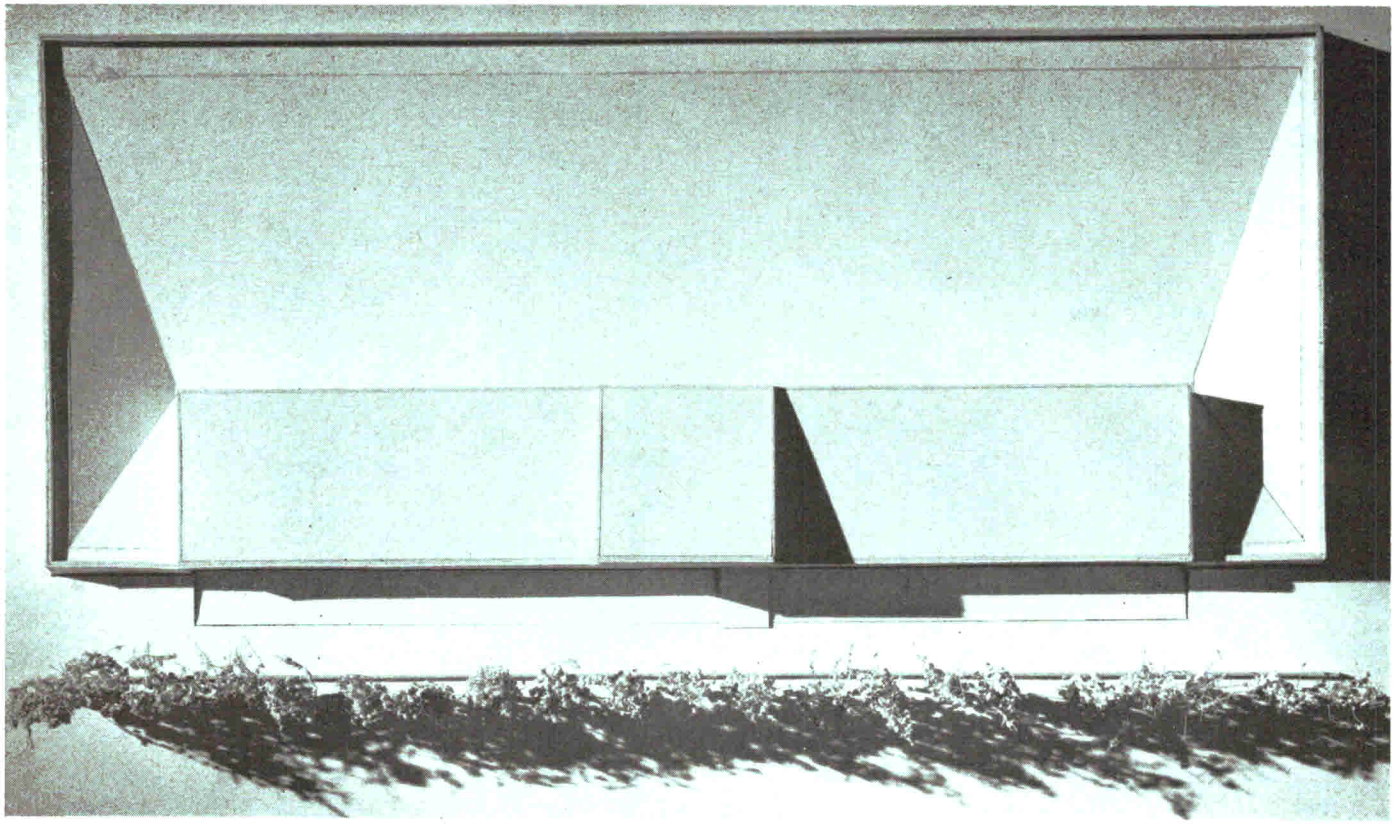




Photograph looking directly down upon model showing dormitory roof and planes of sloping lawn

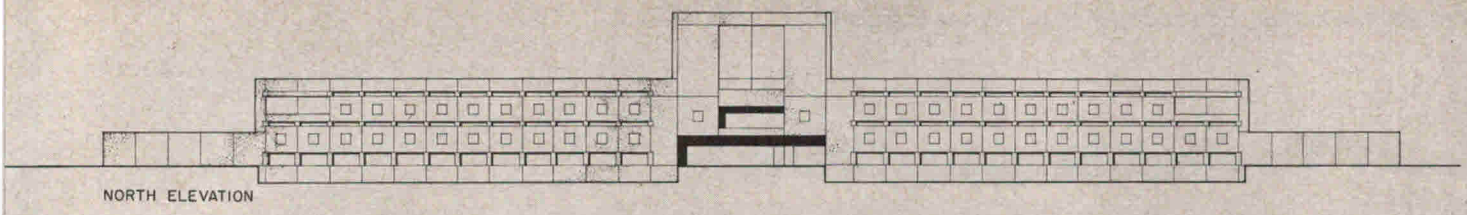
Sloping Lawn and Retaining Wall Enclose Dormitory

NAME: *Helen Newberry Joy Residence for Women*
OWNER: *Wayne State University*
LOCATION: *Detroit, Michigan*
STRUCTURAL ENGINEERS: *Severud-Elstad-Kruger-Associates*
MECHANICAL ENGINEERS: *Cosentini Associates*

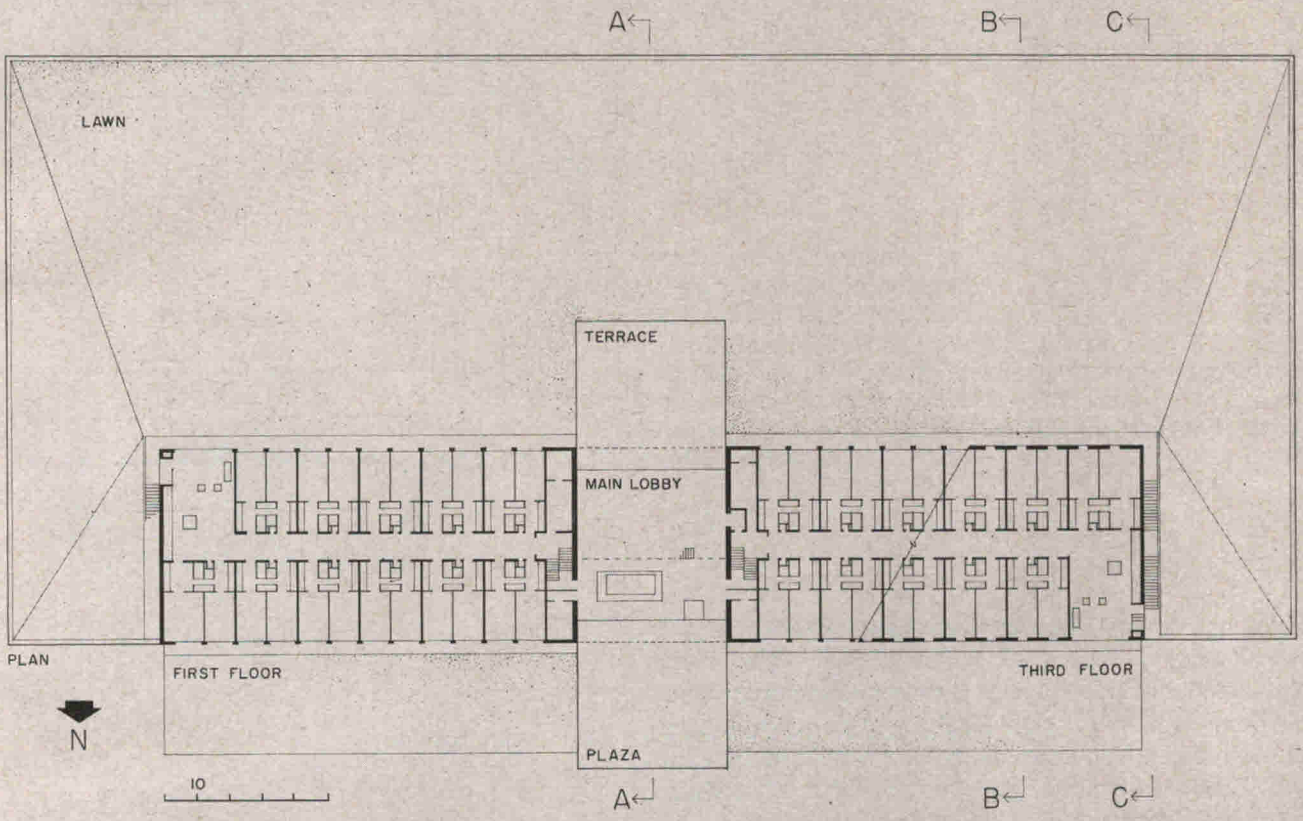
The dormitory site is near to parking lots, two expressways, and a 40-acre cloverleaf. It is essential to provide isolation for study and relaxation—to keep out the city. The basic concept is that of a private lawn and garden planned as an integral part of the building. The façade of the dormitory continues out in a 10-ft wall back of which is a ramped bank pitching up from the dormitory so that rooms look out, not on a closed in courtyard with a high wall, but on a great tilted plane of grass. This wedge of earth is carried around the ends of the dormitory so that there is access at grade from all three floor lounges. The building is sunk a half floor into the ground, thus cutting the vertical height and the walk to the top floor. Cut and fill on the site are in balance.

The central block contains the common facilities. Since the lobby has glass walls facing both entrance and the garden, the effect is that of a bridge under which one looks to the green lawn. Spanning over the entrance desk is the resident advisor's apartment, and on the top floor is the recreation room with a great north window looking up into the trees. There is space transfer from the entrance over the recreation room balcony up to the sloping roof.

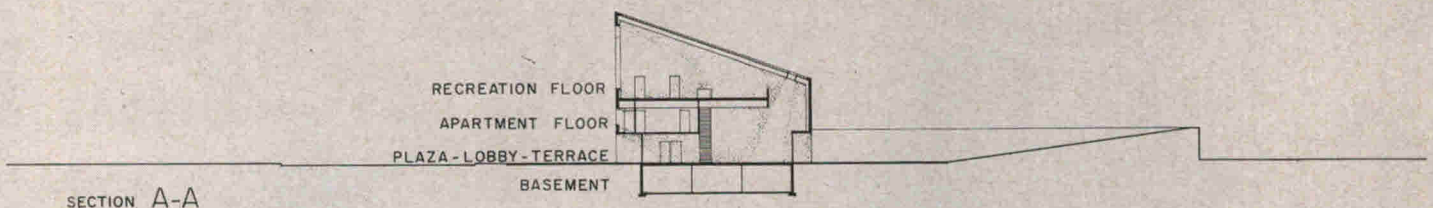
The fenestration and furnishing of the individual rooms is of interest. A desk runs along the inside face of the outside wall, over which is a square view window, and at the ceiling is a deeply recessed ventilating strip of glass. The skin of both the building and the retaining wall is precast concrete, natural color with a smooth stone-like finish.



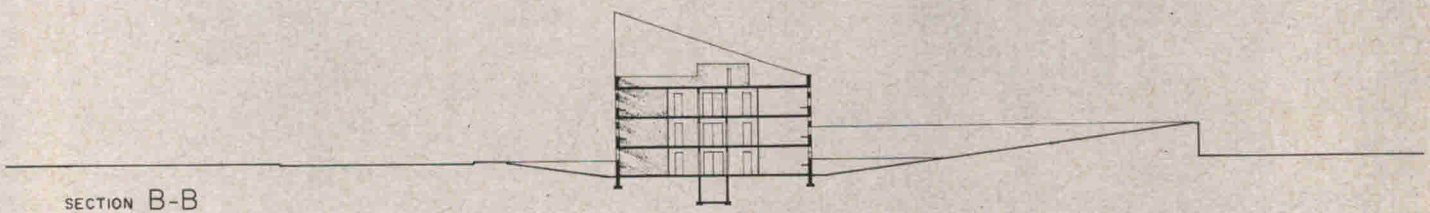
NORTH ELEVATION



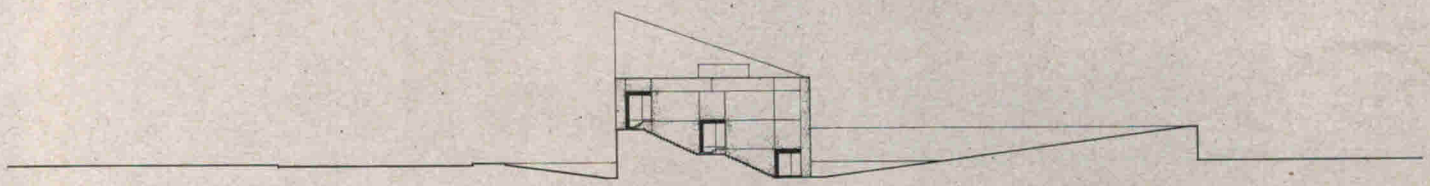
PLAN



SECTION A-A

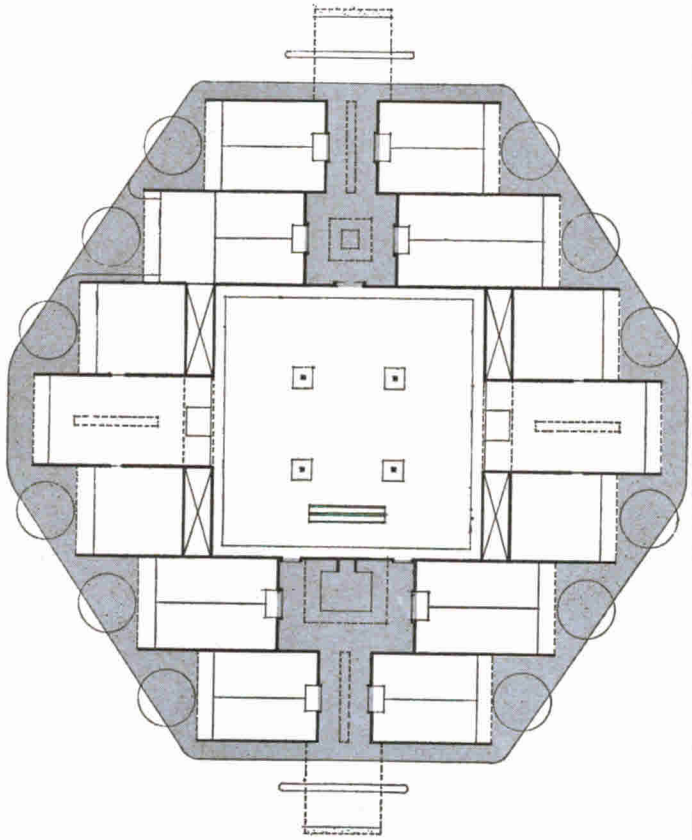


SECTION B-B



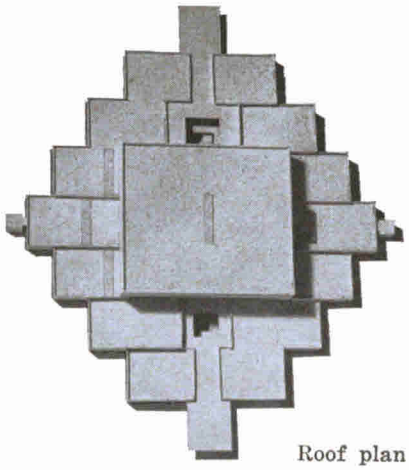
ELEVATION C-C

Compact Shopping Center

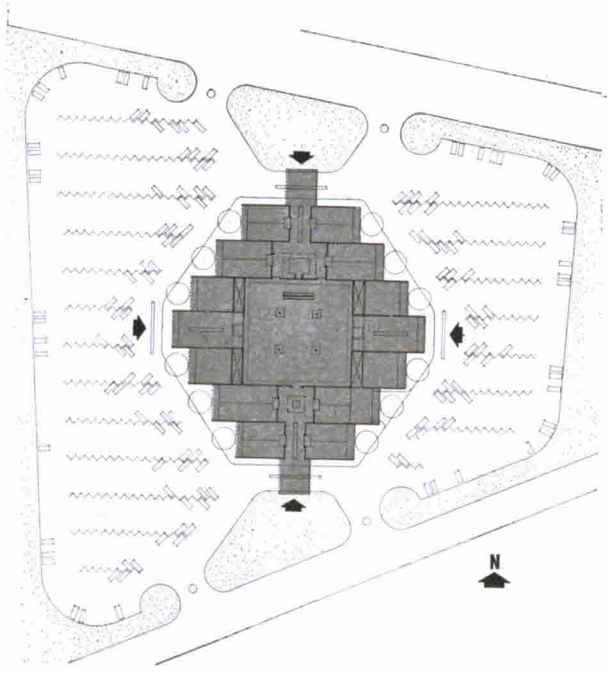


NAME: *Neiman-Marcus*
OWNER: *Neiman-Marcus Co.*
LOCATION: *Fort Worth, Texas*
ASSOCIATED ARCHITECT: *Preston M. Geren*
STRUCTURAL ENGINEERS: *Severud-Elstad-Krueger-Associates*
MECHANICAL ENGINEERS: *Cosentini Associates*
INTERIOR DESIGNER: *Eleanor Lemaire, Frank J. Labianca, project co-designer*

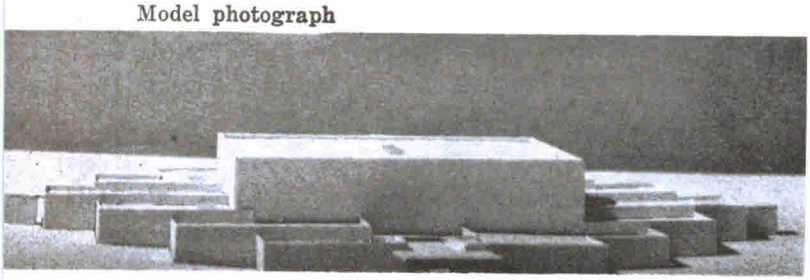
This two story department store project is surrounded by a cluster of rental shops. Axial courtyards and outdoor arcades connect to generous *porte cochères* on two streets. Parking will be convenient at both sides. The shops step down around the central block to follow the warped site. Fountains, trees and flowers will fill the patios and courts.

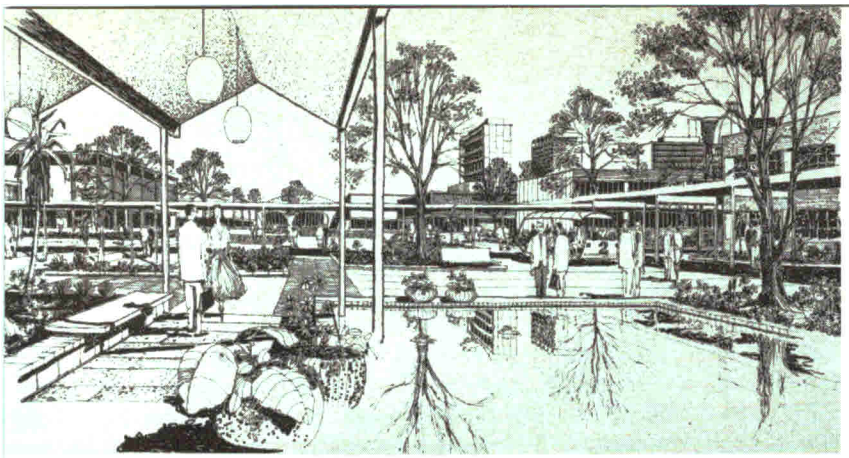


Roof plan

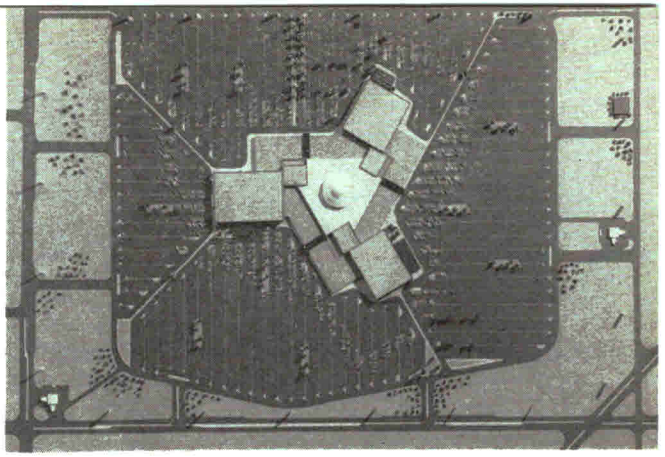


Model photograph

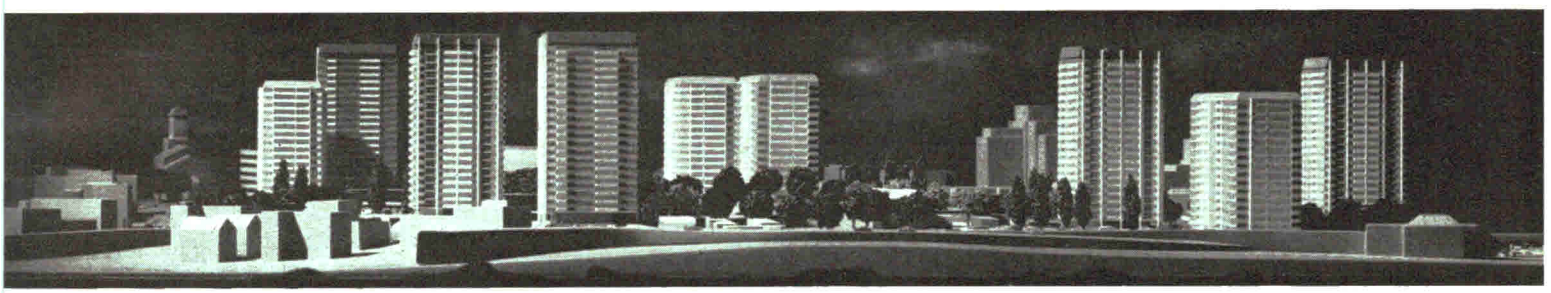




Planning: Downtown Fresno, California



Shopping Center: Randhurst, Mt. Prospect, Ill.



Apartments: Charles River Park, Boston, Mass.

Gordon Sommers Photos

Image of the Architect IN PRACTICE

ORGANIZATION FOR EFFICIENT PRACTICE

6. Victor Gruen Associates

How to practice architecture in this time? The Victor Gruen Associates answer to this question is—in actuality—a series of answers. They say, "we try to combine good design with good business, to temper idealism with realism. To do this, we offer very complete services in architecture, planning, engineering, and related design fields by a group of specialists who are also whole architects." While the Gruen method may not be right for every office or practitioner, the method works. Therefore, it merits consideration

Victor Gruen Associates was organized to do complex building projects in complex times. To accomplish this, the firm offers professional services including architecture, engineering, planning, and related design services such as interiors and graphics. Having recognized the extreme difficulties facing any one man who might attempt to master the technology and economics of building today, the firm reflects in its organization a team effort of a group of capable professionals. This, they feel, leads to the high degree of cooperation and coordination necessary for successful practice in these times. Perhaps the most useful method of getting at the secrets of such a practice is to examine the workings of a particular project as it passes through its phases. Before doing this, it will be helpful to take a look at the general organization of the firm in some detail.

The Gruen firm is a large one. It employs about 250 people and has permanent offices in Beverly Hills, New York, and Chicago. The locations of these offices reflect, roughly, the geographical distribution of the firm's work across the country, about a third of the work being located in the western states, a third in the midwest, the remainder in the east. In addition, the firm does quite a bit of foreign work. Most of the production is handled in Beverly Hills. From time to time, the firm establishes what it calls coordinating offices in other locations when the volume of work in a given area demands it. At the present time, the firm has about $130 million of work under construction.

In addition to the professional staff of architects, engineers, planners, and the like, the organization includes interior designers, merchandising analysts, graphic designers, and other specialists. The largest proportion of these people is located in the Beverly Hills office. On the highest level, the executive functions of the firm are handled by Victor Gruen and five partners.

The work of the firm includes an extremely wide range of projects, varied in size, scope, and type. While most of the firm's projects are individual buildings, a number involve groups of buildings, planning, or elements such as graphics, interiors, or furniture design. As is often true, there is some tendency, on the part of outsiders, to regard the firm as shopping center specialists, commercial specialists, or the like, but the firm definitely thinks of itself as being engaged in the general practice of architecture.

ORGANIZATION OF FIRM

Victor Gruen Associates was organized in a manner calculated to give clients the benefits of specialization, while retaining the assets inherent in generalist practice of architecture. Thus, each of the five partners of the firm, other than Victor Gruen himself, performs at least two major functions. Each has a specialized divisional responsibility and also acts as partner-in-charge of a number of individual projects. Organizationally, this means that each partner has a staff position as well as a line position; each participates in every project as the firm's expert in his specialty; each performs the role of the whole architect in charge of specific projects.

As it works out, partner Edgardo Contini has charge of engineering, while R. L. Baumfield heads architectural design. Ben H. Southland is head of the planning division, Karl Van Leuven of development, and Herman Guttman of production. Gruen's role in all of this involves him in guiding and directing the activities of the firm as a whole and in participation in all phases of all projects.

The organization has thirty associates. Some of these, with the title of director, act as assistants to the partners. Others head various specialized departments of the firm such as urban renewal, research and analysis, cost control, interior design, graphic design, landscape architecture, or merchandising. Still others act as project coordinators or have similar specialized functions.

WORK OF FIRM

The Gruen organization, as now constituted, is only twelve years old. However, each of the principals had been in practice before the founding of the present firm. During the years of growth of the firm, all types of projects have been handled. These range from small specialty shop interiors to multi-million dollar urban renewal projects. At the present time, the organization is attempting to continue offering services on all types of projects, regardless of size. Along with this goes a continuing effort to make those services more complete.

Right now, the firm has on the boards such diverse jobs as shopping centers, apartments, stores, civic buildings, churches, and industrial plants. In other than single buildings, the work ranges up in size to commissions involving land development, rapid transit system consultation, traffic planning, legislative proposals, and a host of other projects of similar scope. At the same time, a number of smaller jobs such as the design of lighting fixtures, chairs, and signs are now in progress.

HOW FIRM WORKS

One of the partners, other than Gruen, is assigned to each project that comes into the office. This partner, with a project coordinator, has the over-all responsibility for the job. In essence, the partner is the architect of the job, representing the Gruen firm. He handles all of the outside contacts on the job, with the client, consultants, city building departments, contractors. He guides the job through conceptual stages, development, production, and construction to completion. His is the responsibility for coordinating, for this particular job, the work of all other divisions and departments within the firm. In addition to his responsibilities on his own jobs, each partner, other than Gruen, directs one of the specialized divisions of the firm such as design, engineering, or production.

FEES AND CONTRACTS

The Gruen organization feels very strongly that the conceptual stages of any project are the decisive ones. They believe the traditional percentage fees to be unrealistic because this type of fee structure does not allow the proper amount of emphasis to be placed on the conceptual stages. Instead, the firm recommends to its clients that fees for the exploratory and preliminary design phases be based on a cost-plus contract. After the program and design have been fixed, the production of working drawings and specifications and the construction phase of the project can be accomplished for a lump sum fee. The firm has found some client resistance to this idea and there are some jobs—government work for example—which do not readily lend themselves to such a system.

When the cost-plus, lump sum fee structure has been used by the organization, the Gruen firm has found itself able to work out better design solutions for their clients, often at savings in construction costs. In most cases, fees based on this structure closely equate with those based on a percentage of construction costs. The success of the cost-plus, lump sum system used by the Gruen organization could not have been achieved without the accurate and detailed data maintained by the firm on the professional service costs of each job. With such information in hand, the firm has been able to estimate with accuracy the amount of time required for doing jobs of particular types, and to translate this into fees.

COST CONTROLS

The firm believes that close control of costs, both office costs and actual construction costs, is essential to client understanding and efficient practice. Accordingly, very complete and accurate records are kept of all items of costs of production of a job and its construction. Periodic checks, at close intervals, are made to insure up-to-date control. In this way, costs are kept in hand and problems may be anticipated. Complete records are analyzed and put into usable form for future estimates and budgets.

OUTSIDE CONSULTANTS

The Victor Gruen Associates organization is unusually complete, yet it finds itself increasingly dependent on the consulting services of outside specialists. As the firm is drawn into bigger, more complete, more complex projects, it turns increasingly to such people as scientists, sociologists, economists, market analysts for expert help. It finds itself working more with painters, sculptors, and other artists. It may seem somewhat unusual in an architectural practice, but hardly surprising considering the breadth of the Gruen work, that the firm finds a growing need for consultation with financial experts, lawyers, political advisors, and governmental agencies. Some understanding of the way the Gruen organization works may be had from an examination of one of its complete projects. Midtown Plaza in Rochester, N. Y. serves as a good example on several counts. The firm was involved in the project before the exact nature of the project had been determined, from its beginnings through the planning, architectural, and construction stages. Midtown is sufficiently complex, composed of enough elements, to demonstrate well the Gruen techniques in all phases of architecture.

The Planning of Midtown Plaza

Midtown Plaza is a downtown shopping center integrated with office buildings, a parking garage, and department stores. Unusually complete professional services on this project by Victor Gruen Associates included architecture, planning, engineering, graphic design, interiors, and a host of related activities. While not exactly typical of the firm's services, Midtown does serve to illustrate the manner in which the firm handles many of its large, complex projects

As finally designed, Midtown Plaza is a downtown shopping center in Rochester, N. Y. Located on a ten-acre site in the central business district, the center will revitalize a business area which had gone into an acute decline. Presently under construction, Midtown Plaza will eventually form a complex group of elements including a two-story shopping mall, an 18 story office building with 180,000 sq ft of rental space and 78 hotel rooms, a telephone company building, a union bus terminal, two large department stores, and underground parking for about 2000 cars. Several existing structures have been incorporated into the complex. The central and unifying element is the skylighted, air conditioned central shopping mall. The cost of the first phase is $15 million; the ultimate cost will be $25 million.

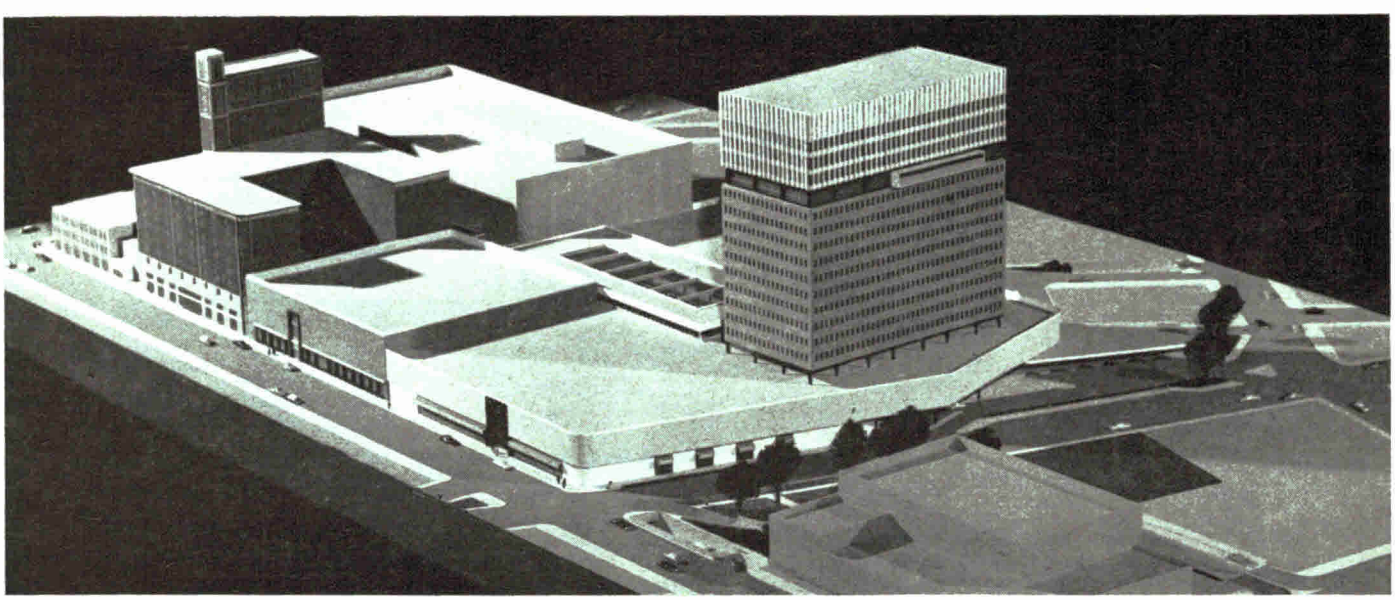
THE BEGINNINGS

Midtown Plaza actually began late in the winter of 1956, when Victor Gruen was asked by the owners of two of Rochester's department stores to look into their merchandising problems. Their business was falling off due —they thought—to the lack of downtown parking. Their question was: should the stores initiate a suburban shopping center program? They had grave doubts about such a step since Rochester seemed hardly large enough to support such ventures. If not suburban stores, what?

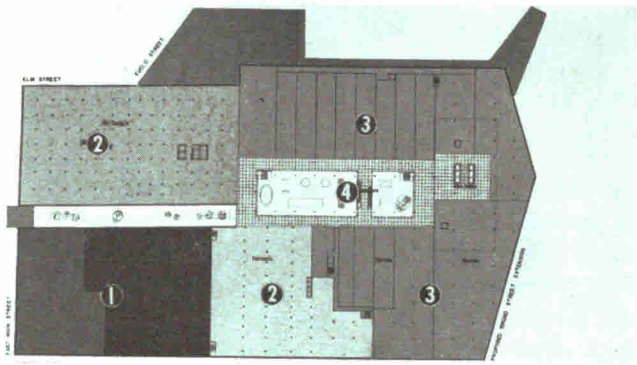
Victor Gruen, in response to the request of the department store owners, discussed their problems with them at some length and visited a number of the outlying shopping centers near the city. Just before Christmas, Gruen reported to the owners that, in his opinion, no real market for regional shopping centers with department store branches existed in the area. Further, he informed them that his firm would develop some recommendations for actions that might be taken to correct the existing situation. These first preliminary steps were taken in utmost secrecy to forestall any competitive moves by other interests before the goals had been determined and agreed upon by all of the parties concerned.

EARLY PLANNING STUDIES

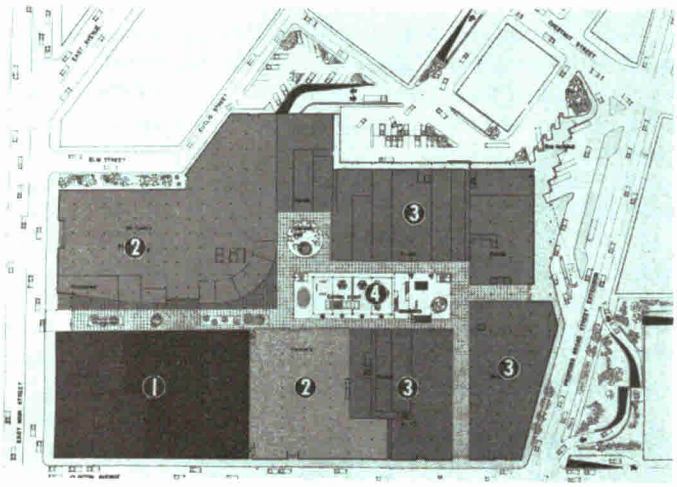
Early in 1957, the firm began exploratory studies of the downtown Rochester situation. Working with the planning department of the city, the Gruen partner for planning and his staff found that Rochester had come to realize the problems existing in the heart of the city and had initiated some preventative measures. A loop road, offering access to the central area, was then under construction. A number of public garages had been constructed in the area, but none near the site of the department stores in question. A parking and property survey was made. At this time, the firm advised the owners re-



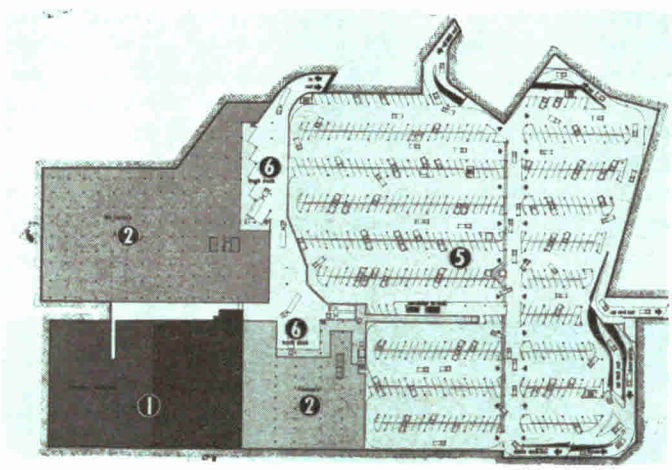
Midtown Plaza—Early Study Model



Second Floor



First Floor



Parking Level

garding acquisition of land near their stores. The owners began buying the land.

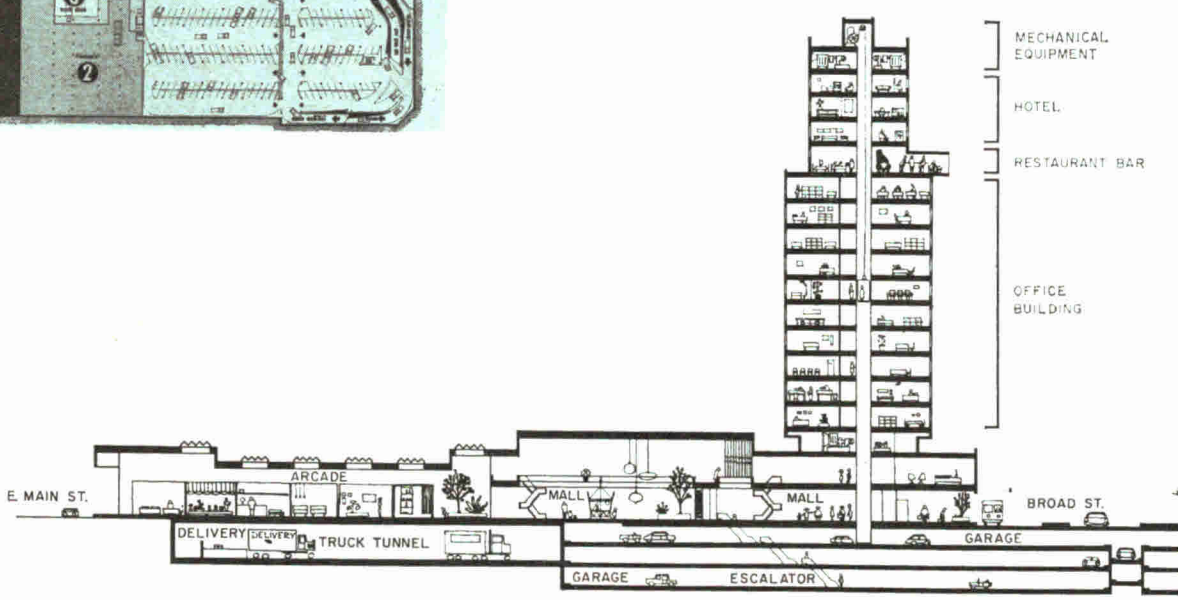
By March, 1957, the firm had prepared a program and report which was presented to the owners and the city. The fees for these services were handled on a cost-plus basis, as were all of the fees for the ensuing conceptual phases. The recommendations made in this report were that revitalization of the area in question was feasible, that the city would cooperate, that a complete economic study should be made, that further planning study was necessary. On the basis of the report, the owners authorized further studies. Consultation was begun at this time between the architects and the Rochester planning consultant, Ladislas Segoe.

FIRST PLANS

As the Gruen firm began further planning studies, economic studies were under way by consultant Larry Smith, and the city's overall plan for downtown was progressing. The Gruen firm insisted that the city's over-all plans must be developed in conjunction with and complement the Gruen plans for the Midtown area. Only in this way could the city government and taxpayers be convinced of the ultimate benefits to be derived by all from the revitalization efforts.

When the city plan for a downtown core had been finalized to some extent, the firm presented a series of requests to the city relating to Midtown. If the project were to go ahead, it would be necessary for the city to extend a street to the property, close one street on the property, another partially, and construct an underground garage larger than had been originally contemplated.

In January, 1958, nine sketches were presented, showing the Midtown Plaza concept as a pedestrian shopping center with an office and hotel building, an underground parking garage, and a union bus station. The scheme was accepted in general, with the provision that the shopping center become two-story rather than one, warehousing for the department stores be included, the bus terminal be enlarged, and a restaurant and bar be provided. As it turned out, the scheme was almost contin-



LEGEND

1. Exist. Bank & Stores
2. Dept. Stores
3. New Rental Areas
4. Shopping Mall
5. Parking Garage
6. Shipping Area

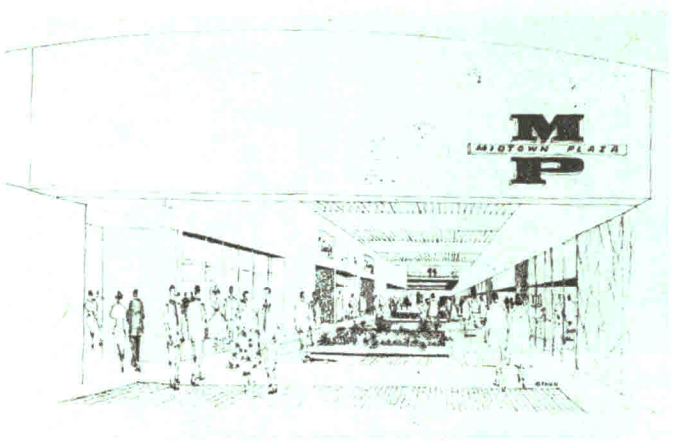
uously reviewed and revised, and alternate schemes were developed, during the entire year following.

DESIGN

Gradually, during the development of the first sketches, the burden of the project was shifted from the planning division of the firm to the architectural design division. At this time, Edgardo Contini assumed responsibility for the project as partner-in-charge. The projected time schedule was this: Revision of exploratory studies—6 weeks, development—5 months, preliminaries—3 months, working drawings—4 months, adding up to a total time of about one year before construction could actually begin.

As work went ahead, all sorts of new problems presented themselves and had to be resolved. The owners decided to enlarge one of the department stores. The Gruen merchandising and interior departments were put to work on this problem. The firm found itself increasingly involved in areas that ordinarily fall outside of architecture, such as consultation on land acquisition. Since the entire project was to be privately financed and owned, except for the parking garage which was to be publicly financed and owned, the firm got involved in the knotty legal questions presented by public and private ownership of the same piece of property. These problems, together with a vast number of others, added up to considerable delay in the architectural work. Twelve schemes were worked out, presented, and revised many times. The thirteenth scheme was accepted, in the spring of 1958. Work now came almost to a halt, since certain necessary parcels of land had not been acquired at this time.

In the summer of 1958, negotiations for three important parcels of property were nearing completion and the owners authorized the preparation of presentation plans and a model. In the fall of that year, the presentation was made to the city council and the press. Victor Gruen gave a public lecture in Rochester to outline the benefits to be derived by the city from Midtown Plaza. Later, he appeared before the city council to explain the



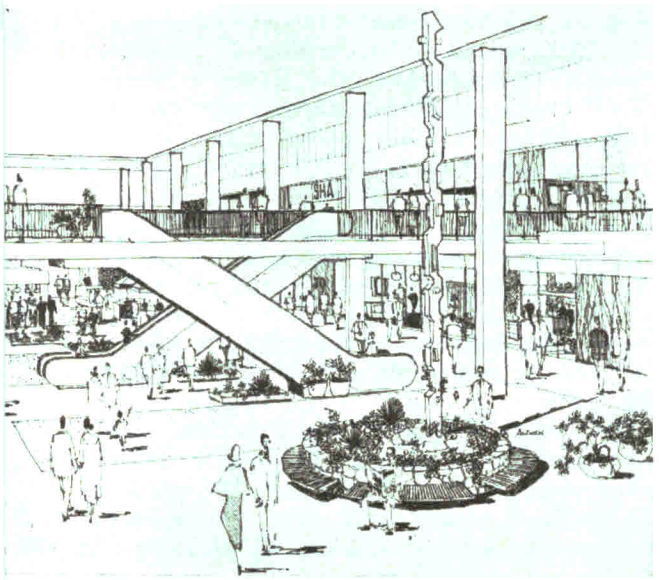
Arcade Connecting Central Mall with Main Entrance

project. The city council approved extension of Broad Street as requested, and gave the go ahead for preparation of parking garage working drawings. The architectural contract was on a percentage basis and included all services, except supervision which was given to the Rochester firm of Bohacket and Flynn.

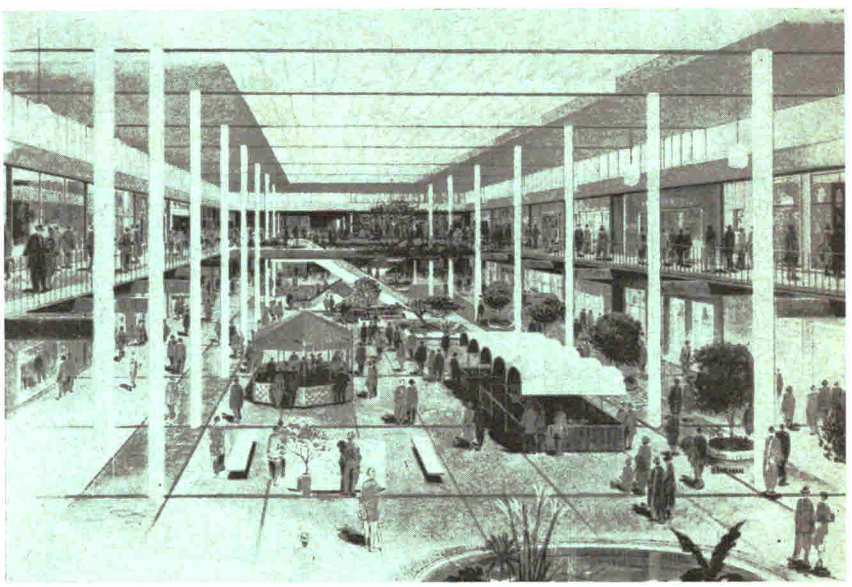
PRODUCTION

The Gruen firm began working drawings for the garage, on a crash basis, early in 1959. Within four months, excavation of the site was begun. Within the next two months, all working drawings and specifications for the garage were complete, including those for the intricate automatic system of traffic control. Garage working drawings had to be rushed to completion, before all the preliminary problems of the remainder of Midtown had been solved. This made necessary a series of assumptions on features common to both structures such as columns, stairs, exits, elevators, and the like.

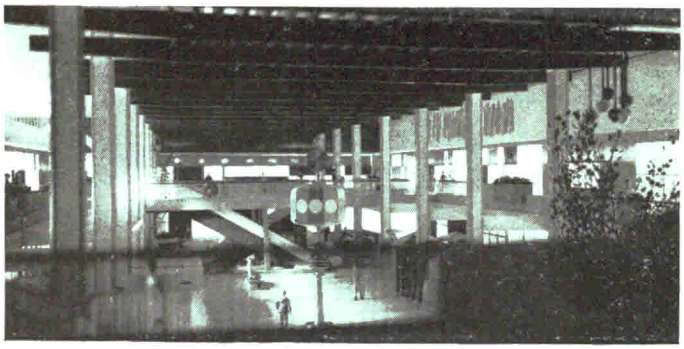
While the garage production was under way, problems kept popping up on the remainder of the project. For example, objections were raised against Midtown by neighboring merchants and a theater. Victor Gruen and



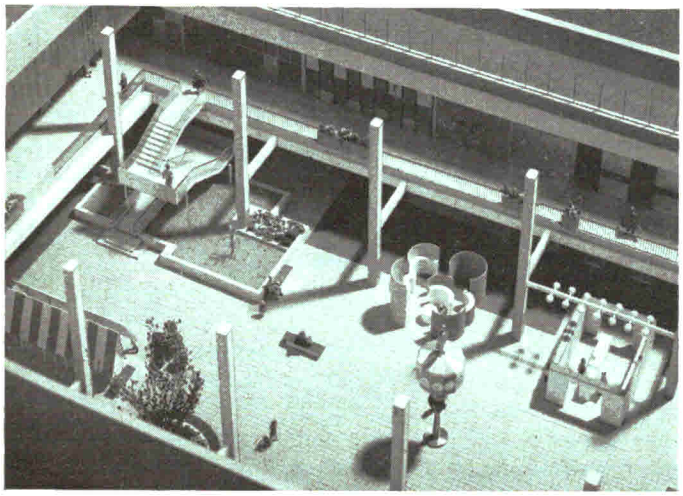
Escalators Connect Various Levels With Parking Garage



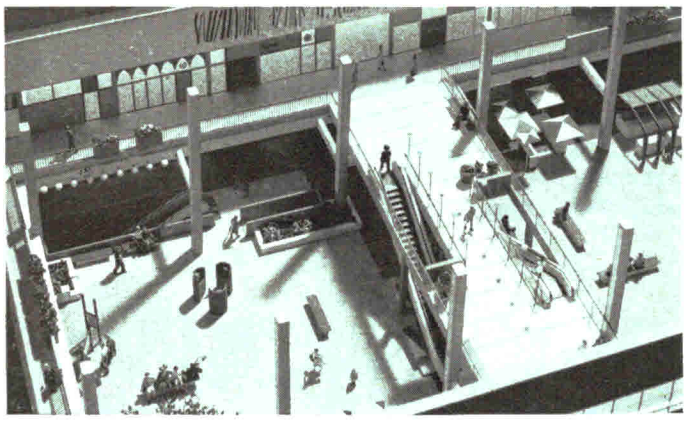
Central Mall Forms Link Between Large Stores



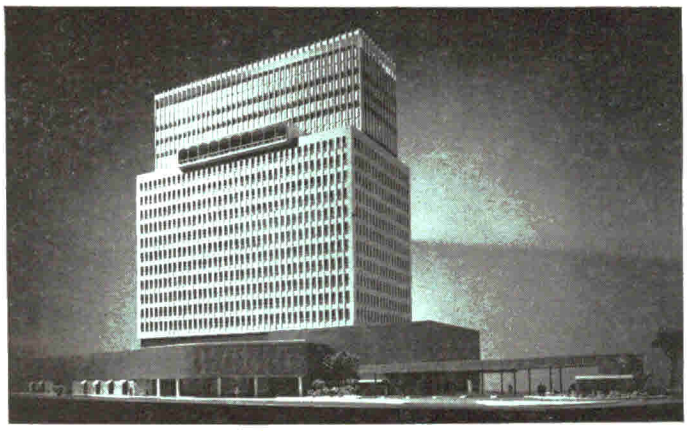
Central Mall From Second Level Walkway



Reflecting Pool and Kiosks in Central Mall



Mall Circulation by Bridges and Escalators



Midtown Plaza: Final Model

Edgardo Contini met with these interests and succeeded in working out the differences. The final result was that the theater and many of the stores began alteration programs of their own to bring their properties more into keeping with Midtown.

As the garage construction got under way, the other preliminaries were being revised and reworked to bring them into accordance with later thinking of the architects and owners and to solve further problems. Estimates of costs were under study during all of this time and were being revised in the light of more complete information.

About this time, the firm got into two other areas of the work, the initiation of an art program for the center and the leasing negotiations between the owners and prospective tenants. Victor Gruen set up a program of integration of art with the architecture of the project, with the cooperation of local artists whose work is eventually to be used. A separate project was set up to assist prospective tenants with layouts, consultation, and design. To help stimulate interest among these people, the graphics department prepared a brochure to explain and help sell Midtown Plaza to prospective tenants. By late winter, 1959, the project was far enough along for the owners to authorize preparation of working drawings. The architectural and engineering services contract, from this point on, was for a lump sum based on the extent of the work.

A difficult problem, at this stage, was that while the owners wished to push ahead with working drawings as fast as possible, they also wanted, at the same time, to keep basic features of the plans open and flexible to avoid inteference with lease negotiations. To add to the problems, garage construction was behind schedule, with the result that the department stores were without their original parking, yet could not use the new garage. Steel drawings were finalized early to allow early mill orders. At length, the problems were solved and contract drawings and specifications were completed and released in October, 1960.

CONSTRUCTION

In the spring of 1960, while working drawings were being prepared, the firm recommended to the owners that they negotiate with a selected group of contractors for construction of the project. The owners retained Carl Morse, of Construction Advisors, Inc., and President of Diesel Construction Co., to negotiate with contractors in the interests of the owners. The Gruen firm worked with Morse in these negotiations. Also, early in this year, the Rochester Telephone Company decided to go ahead with the construction of a six-story office building within the project. The architectural firm was involved in the negotiations leading up to this decision. While working drawings were being prepared for the telephone building, the contract for the rest of the project was awarded in November, 1960.

The first phase of the garage has now been completed; the shopping center, telephone building, and tower are under construction. Supervision is in the hands of the Victor Gruen Associates field office, established in Rochester for that purpose. Checking of shop drawings is handled in Beverly Hills by the Gruen departments involved. Construction is scheduled for completion in 1962.

All photos by Gordon Sommers

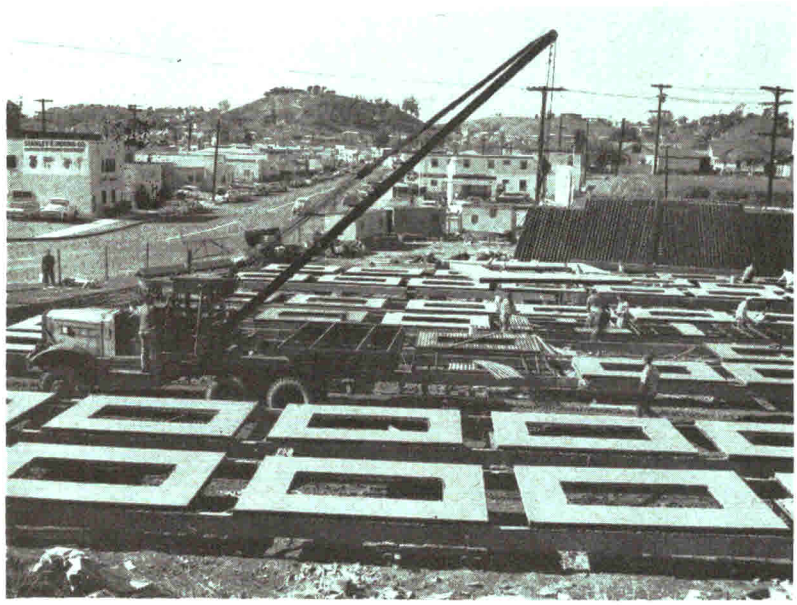
COLORFUL HIGH-RISE IS TALLEST IN L.A.

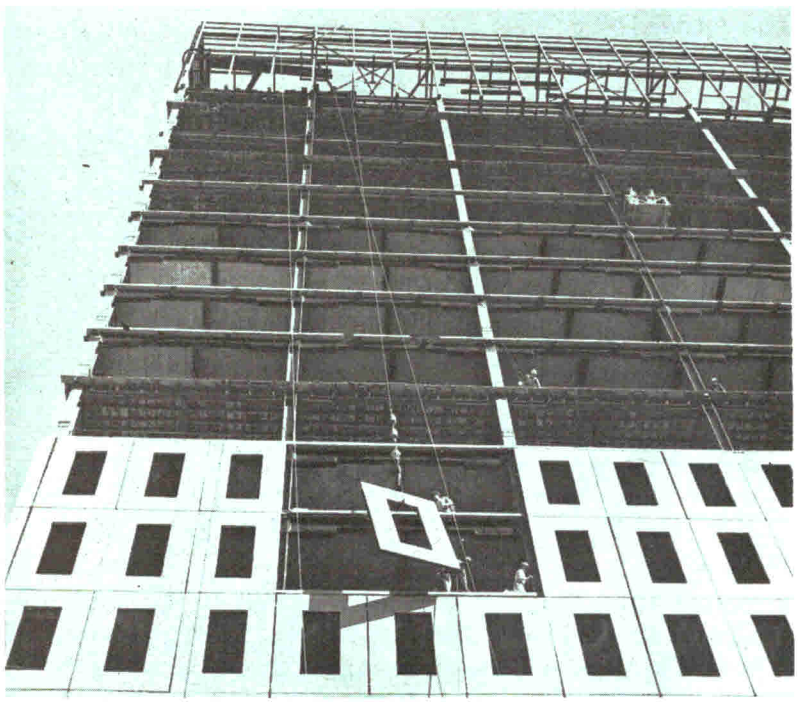
The Tishman 615 Building
Los Angeles, California
ASSOCIATED ARCHITECTS & ENGINEERS:
Victor Gruen Associates
Daniel, Mann, Johnson & Mendenhall
MECHANICAL & ELECTRICAL ENGINEER:
Ralph E. Philips
GENERAL CONTRACTOR:
Tishman Realty & Construction Co.

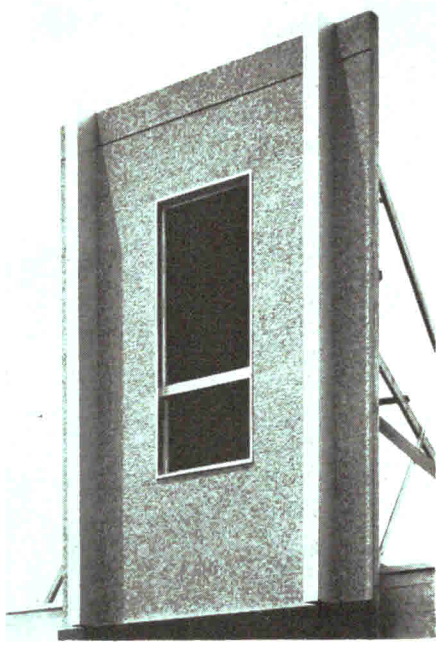
Sheathed in a curtain wall of blue glass mosaic tile and vertical aluminum ribs, the colorful new 22-story office building for the Tishman Realty and Construction Co. in Los Angeles is one of the first structures to exceed that city's previous height limit of 13 stories, and is now the tallest commercial building in the city. Rising over two below-grade floors devoted to storage and certain mechanical equipment, the structure—which covers an area of one-half a block—reaches a height of 270 ft. Additional mechanical equipment is housed at roof level; tenant parking is provided by a new, multi-level structure for 350 cars, located on an adjacent lot.

At the level of the 20th floor, a 12-ft wide-open terrace forms the perimeter of the building and provides 20th floor tenants a protected outdoor space—reached through sliding glass doors—that offers an attractive view of the city. At street level, the exterior walls are of glass, marble, and travertine; the travertine is carried through into the lobby.

Glass mosaic tile was chosen for the unusual curtain wall due to its qualities of permanence, ease of cleaning, and wide range of color. However, its small size and the necessary high labor and scaffolding costs of conventional application led the architects to devise a production line technique to manufacture prefabricated panels one-story high and 7 ft 6 in. wide. The panels were manufactured in the open on a suburban lot; ordinary tools and equipment were used; no special problems were encountered, either in manufacture or in placing the panels on the building.

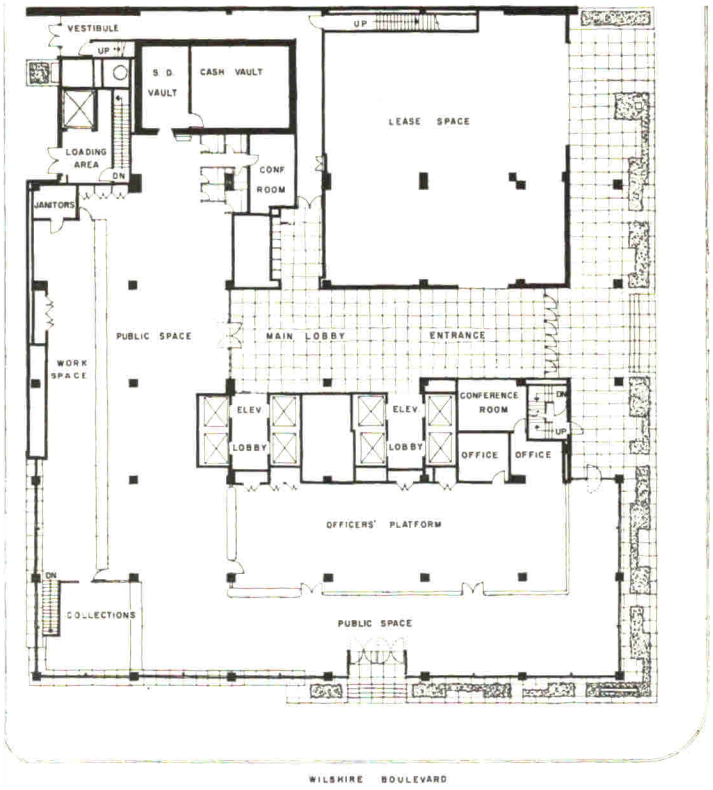


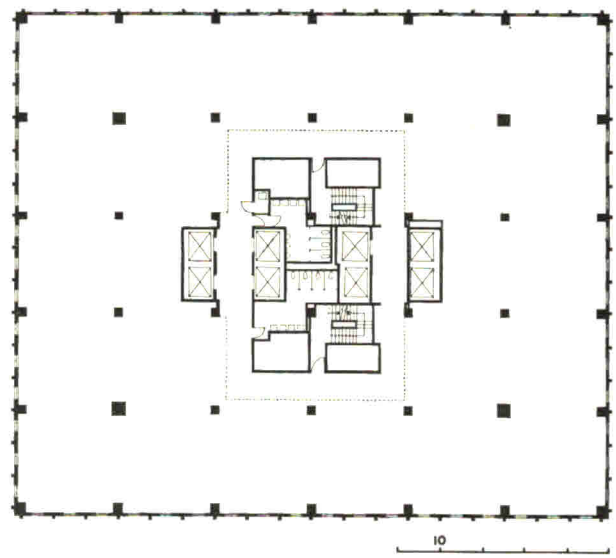




Tishman 615 Building
Los Angeles

The production line fabrication methods employed in the manufacture of the blue glass tile curtain wall panels for this building may encourage further experimentation with glass tile walls, since a practical and economical method of using this material has been established. The panels—7 ft 6 in. wide and 11 ft 6 in. high—were manufactured in the open on a suburban lot. Each panel has a 4 in. steel channel frame and a 3 by 5 ft opening for an aluminum window assembly. A scratch coat was applied to wire mesh attached to the frames; followed by a setting bed into which paper backed tile sheets were pressed. After the paper was soaked off, the panels were grouted and stacked ready for shipment. The building required 1180 panels, each weighing 1200 lbs. Panels were secured to the steel frame by welding; the placing of window units and caulking were done from a light-weight window washing scaffolding


VESTIBULE
UP
UP
S. D. VAULT
CASH VAULT
LEASE SPACE
LOADING AREA
DN
CONF ROOM
JANITORS
PUBLIC SPACE
MAIN LOBBY
ENTRANCE
WORK SPACE
ELEV LOBBY
ELEV LOBBY
CONFERENCE ROOM
DN
UP
OFFICE
OFFICE
OFFICERS' PLATFORM
DN
COLLECTIONS
PUBLIC SPACE
FLOWER STREET
WILSHIRE BOULEVARD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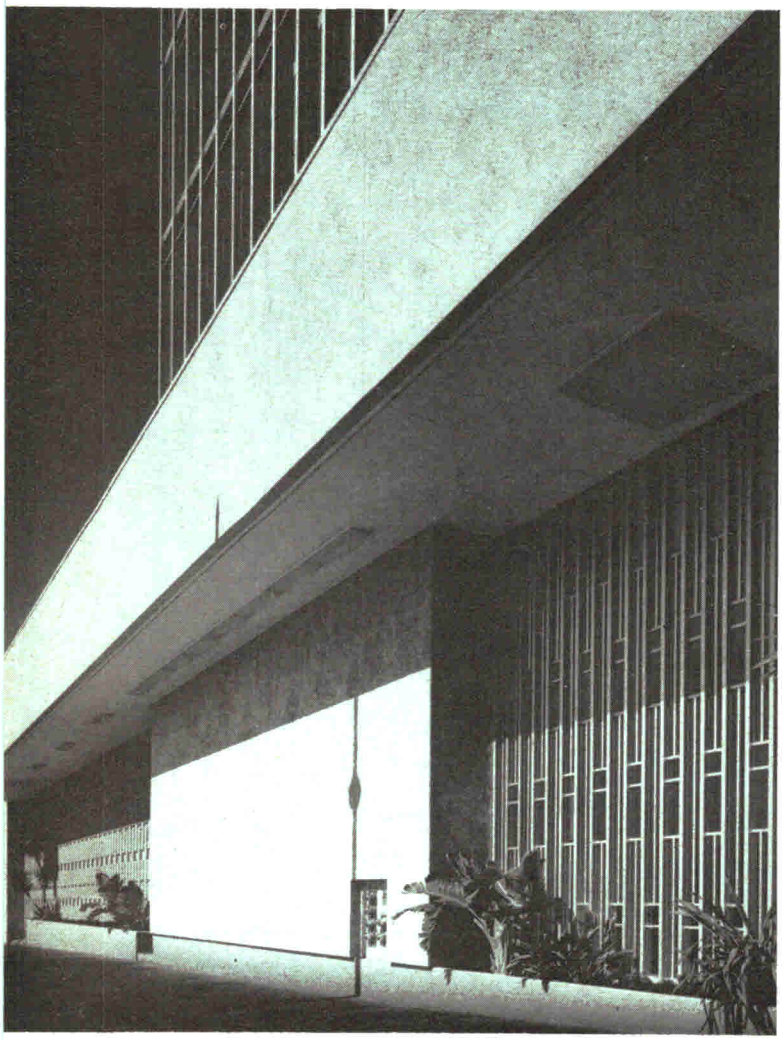
2 photos by Marvin Silver



LUXURY INTERIORS A FEATURE IN CALIFORNIA BANK

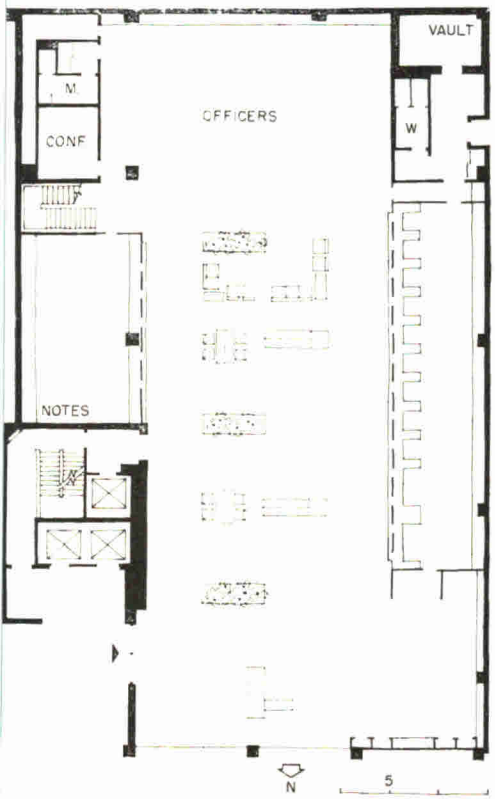
Union Bank, Beverly Hills, Calif.

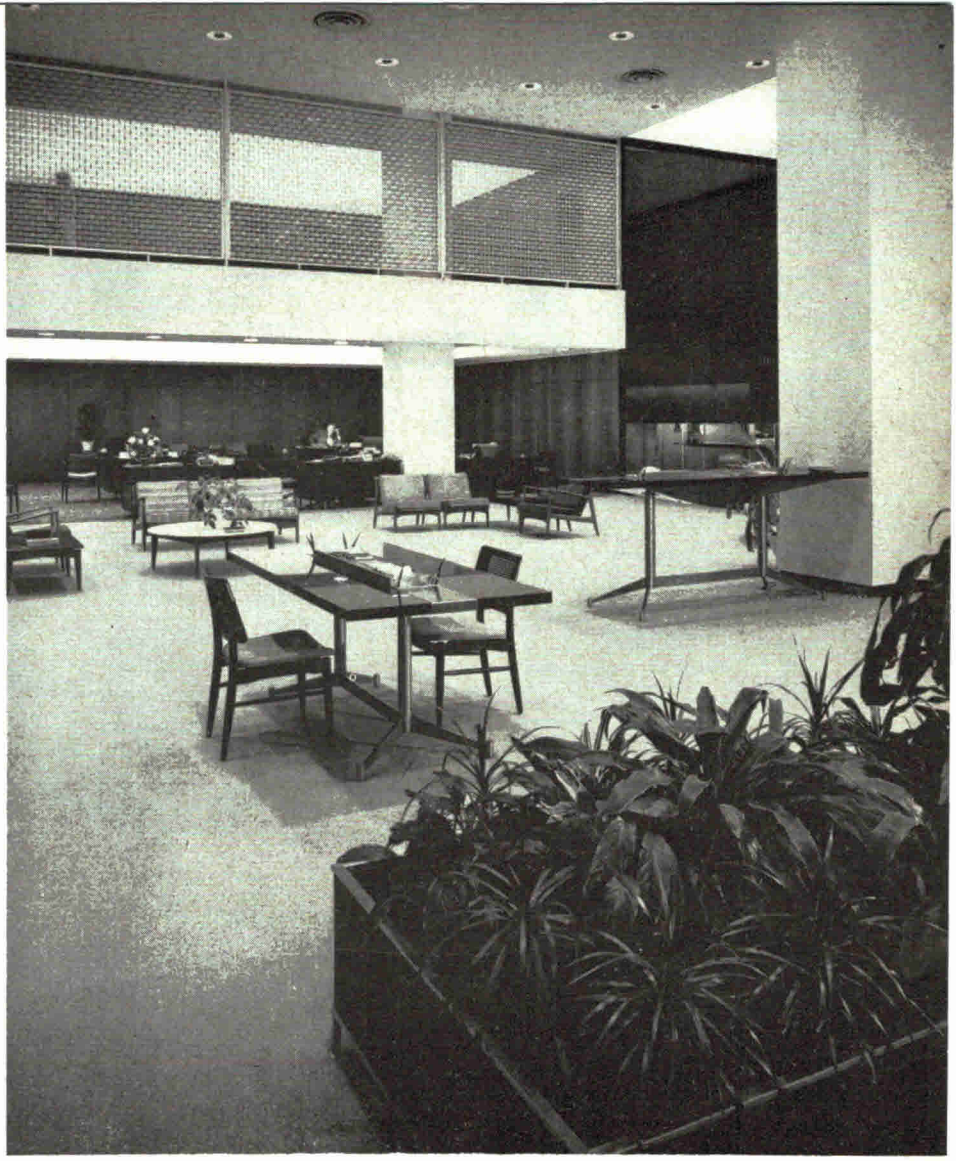
Sidney Eisenshtat, Architect

Maria Bergson Associates, Interior Designers

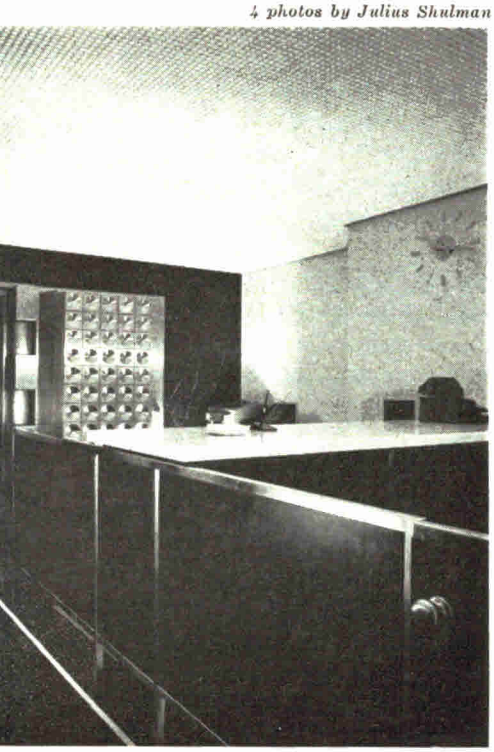
The posh interiors of this bank—the first regional branch built by the parent Los Angeles organization—are designed for maximum appeal to the wealthy Beverly Hills citizenry. The brown and beige carpeted banking room is high-ceilinged, spacious, uncluttered; and features a generous lounging area reminiscent of a turn-of-the-century club. The black marble and stainless steel check desks are of both the stand-up and sit-down types, and were made to special design by Bergson. Lounge and desk chairs are variously upholstered in blue, orange, and beige fabrics. The restrained banking counter has black marble top surfaces and a die face of natural cherry panels and aluminum strips. The wall back of the tellers consists of white vinyl rectangles. The mezzanine, enclosed by a decorative screen of special design, houses the credit department.

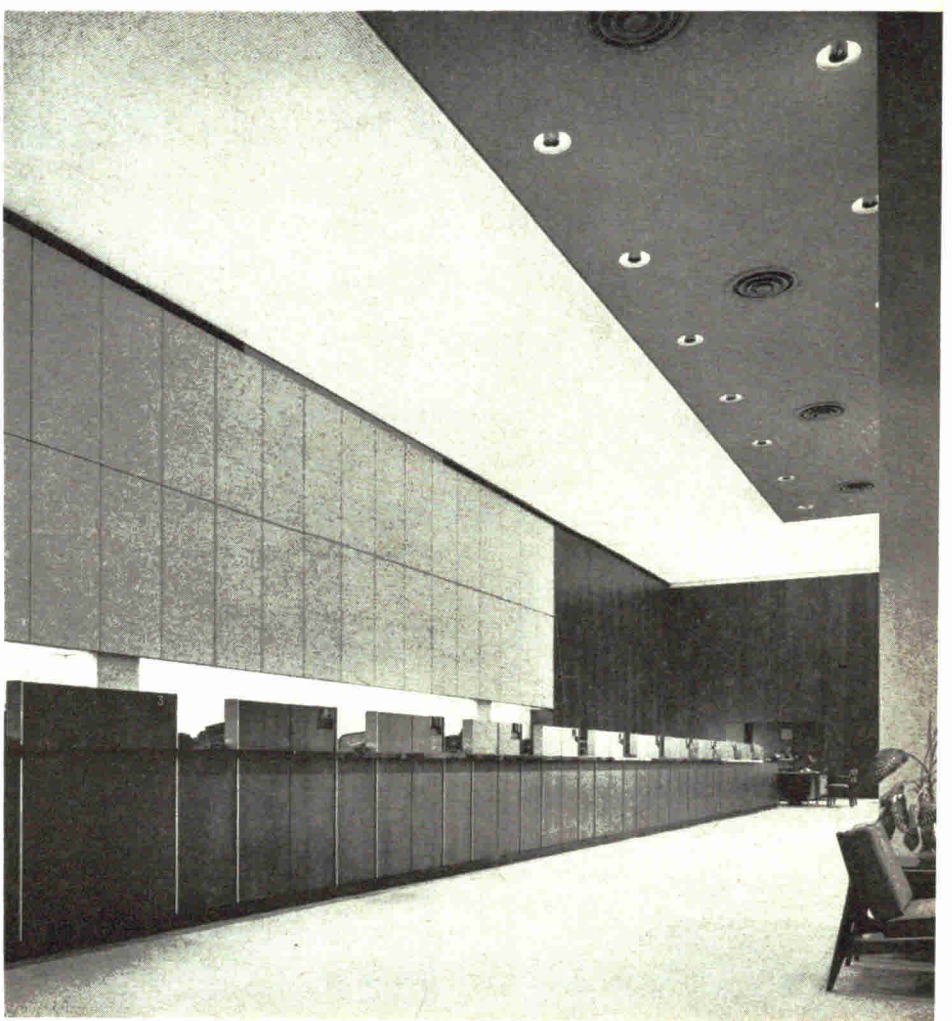
Engineers: Joseph Sheffet, Structural; Samuel Kaye, Mechanical; John Silver, Electrical; General Contractor: Del E. Webb Construction Company

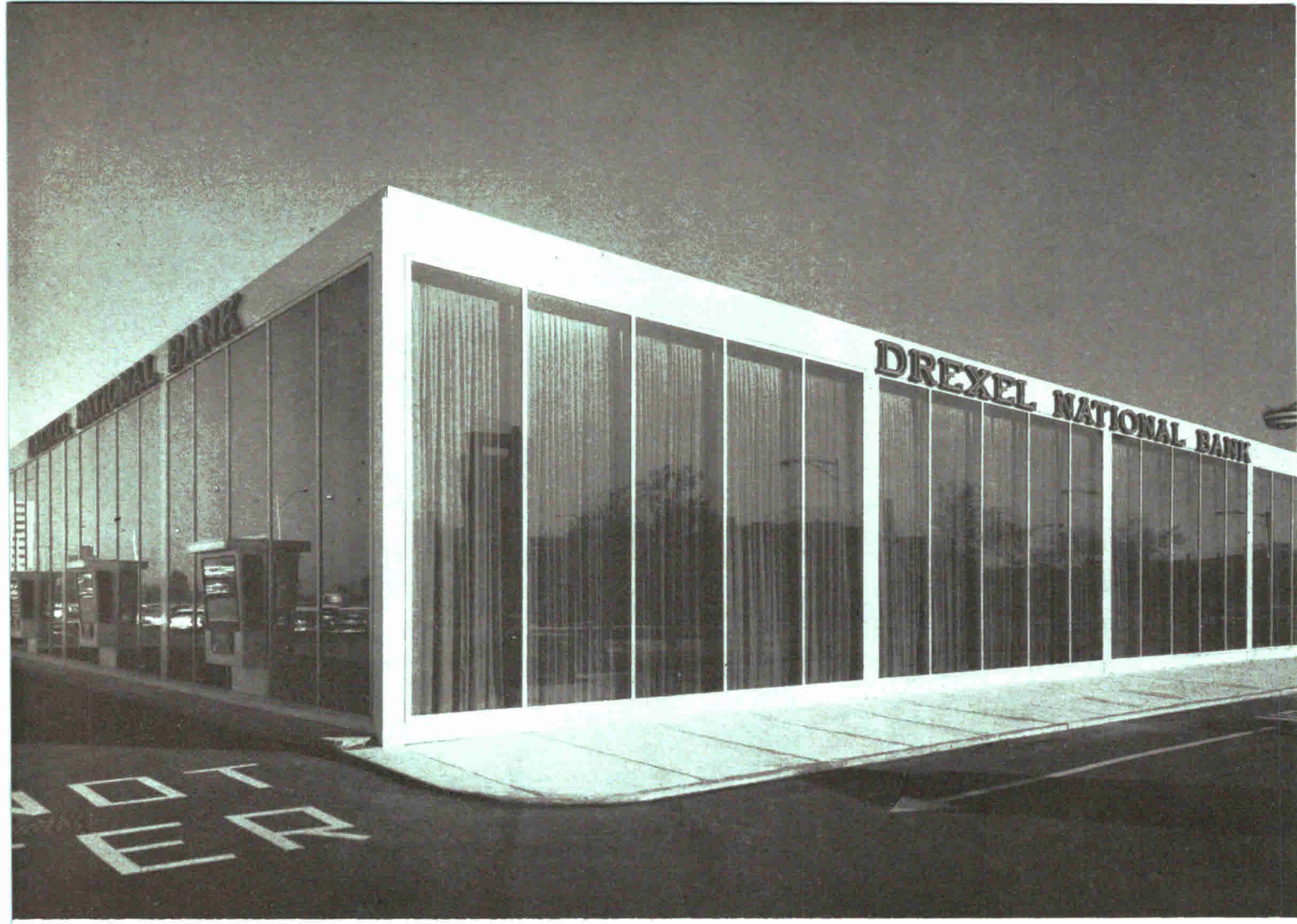




4 photos by Julius Shulman







HANDSOME BANK IN CHICAGO REDEVELOPMENT

Drexel National Bank
Lake Meadows Shopping Center
Chicago, Illinois
Skidmore, Owings & Merrill,
Architects & Engineers

This well designed bank building—containing 10,000 sq. ft of banking space, a safe deposit vault, and 10,000 sq. ft of office and service area—is the latest addition to an existing shopping center which is, in turn, a part of the Lake Meadows Redevelopment Project.

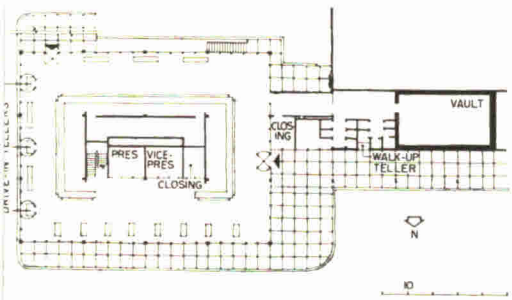
Two major considerations influenced the design: the small site, and the effort to integrate the new building into the existing structural expression and at the same time give it an individual character. The fireproofed steel frame is jacketed and painted white; the gray glass walls are framed in extruded aluminum sections.

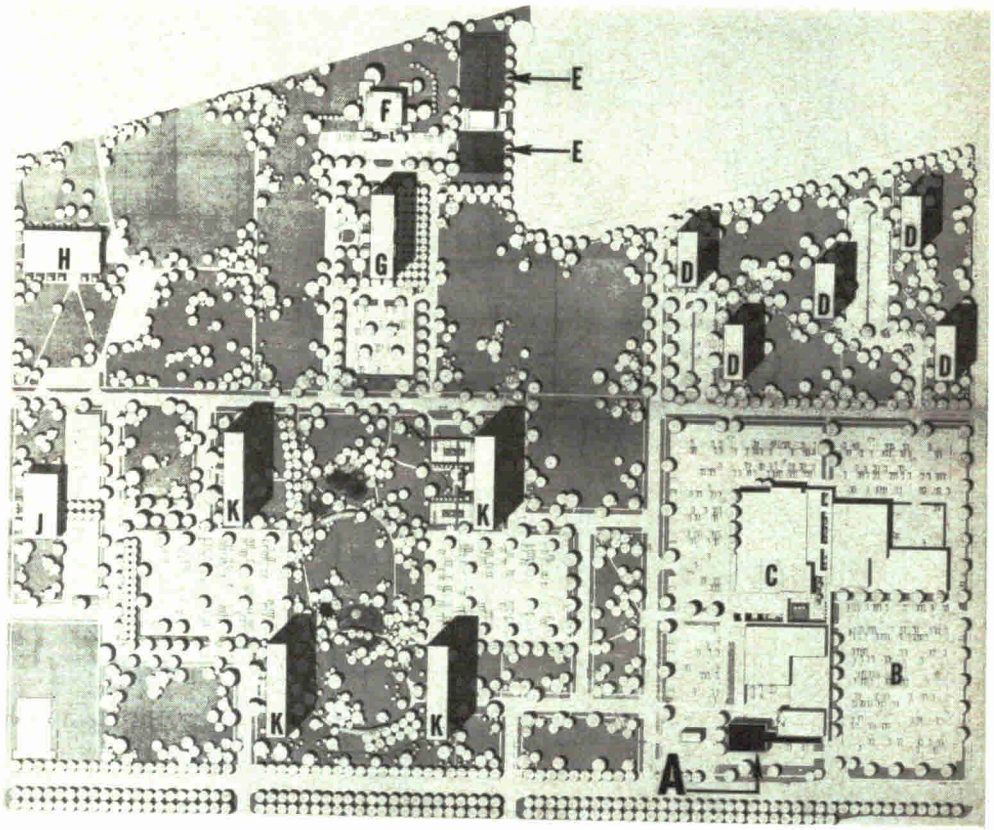
The building is in two parts: the glass enclosed main banking room, and a link to the south housing the vault, walk-up teller's booths, and a closing room. The only major element in the banking room space is the free-standing central core of offices, stairs, shafts, etc.

General Contractor: E. H. Merhoefer, Jr. Company

LEGEND

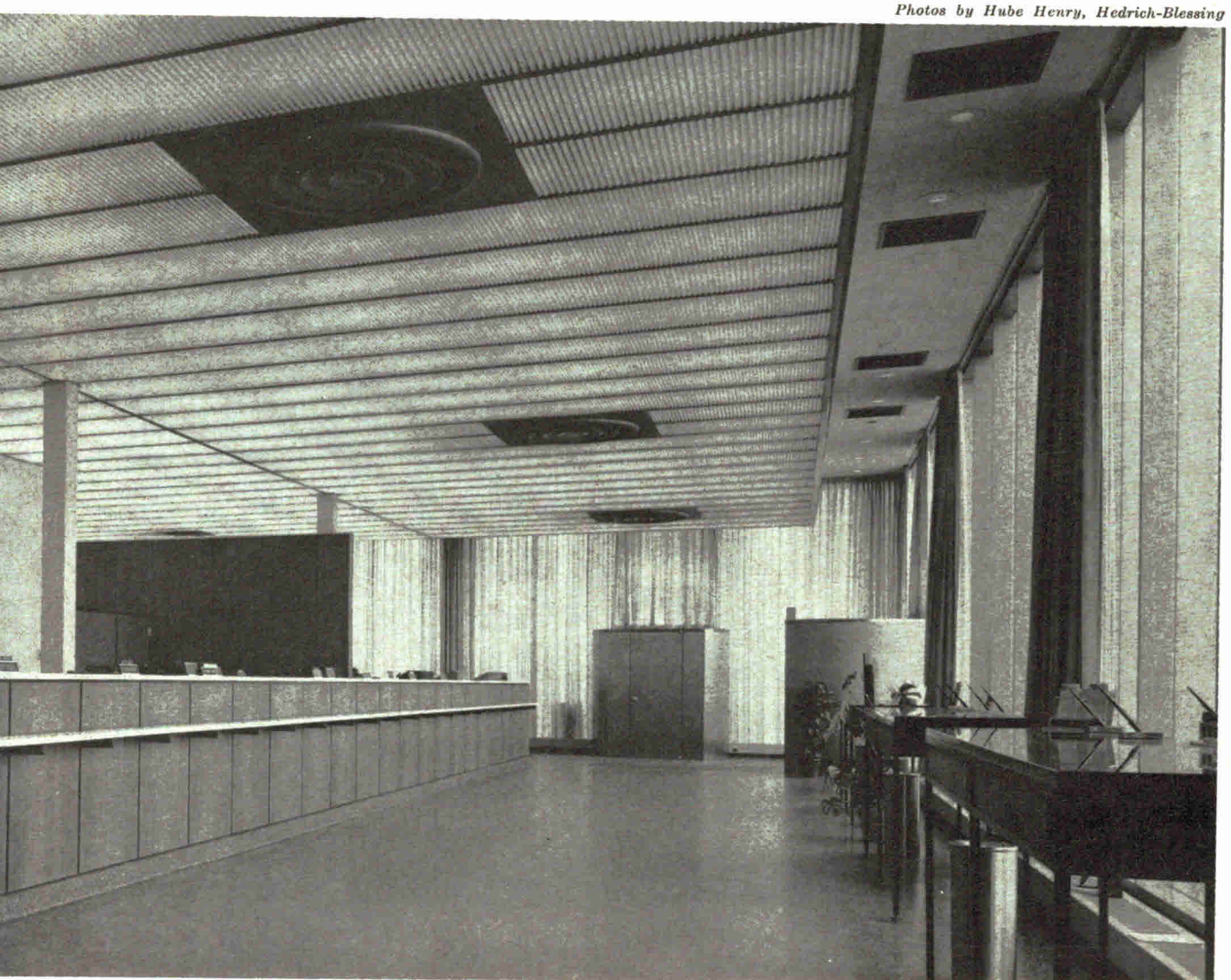
A. Drexel National Bank
B. Shopping Center
C. Department Store
D. 12-Story Apartment
E. Tennis & Ice Skating
F. Club Building
G. 13-Story Apartment
H. Public School
J. Professional Building
K. 21-Story Apartment

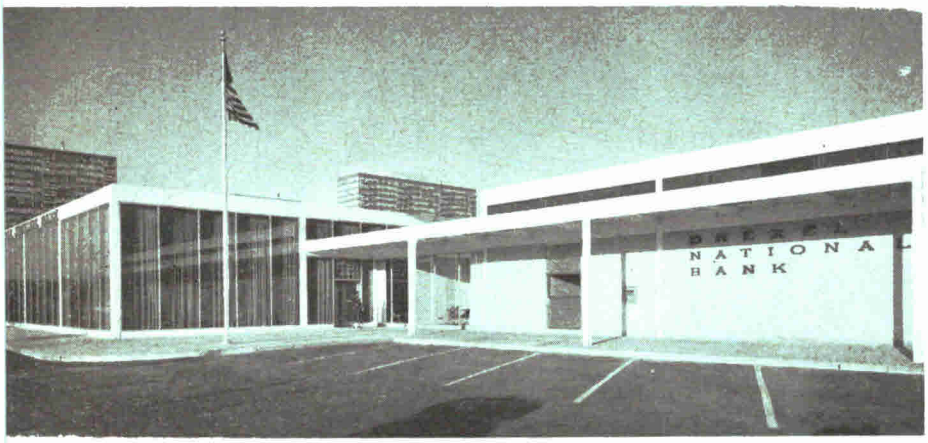


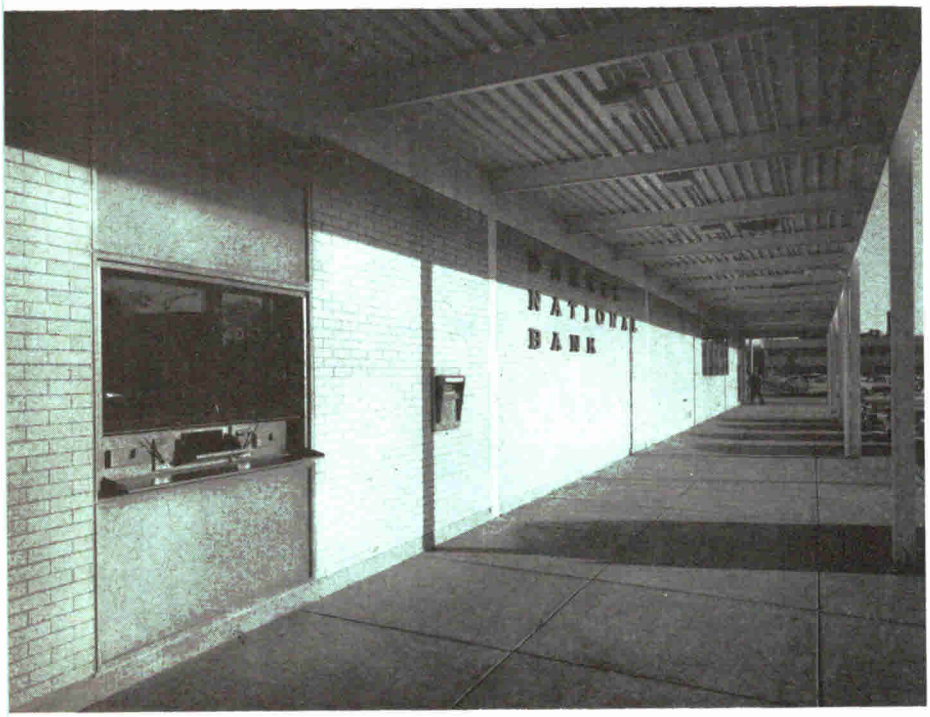


The photo below shows the main banking space, pointing out how the central island core—at left—leaves the peripheral gray glass walls clear for check desks and the three drive-up tellers' booths. The illuminated ceiling is suspended on aluminum T-sections; the floor of the banking room is gray terrazzo—in other areas is vinyl tile; the glass-topped check desks are of special design by the architects

Photos by Hube Henry, Hedrich-Blessing



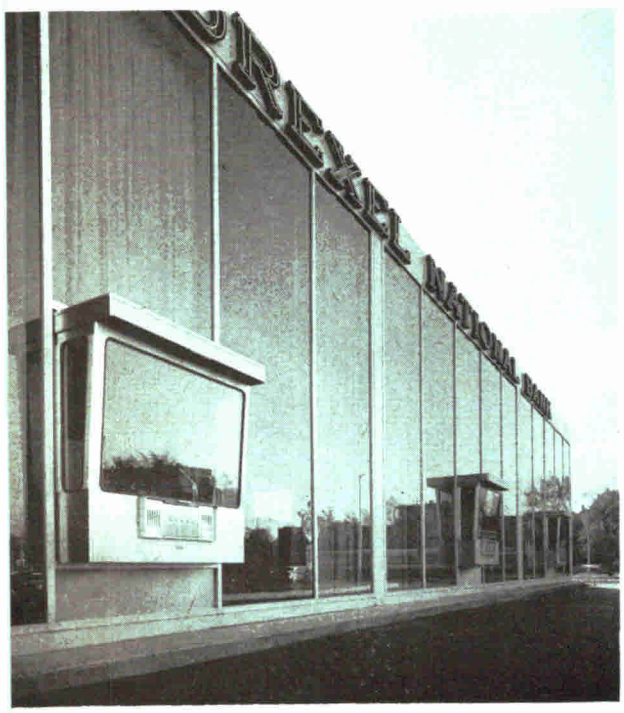


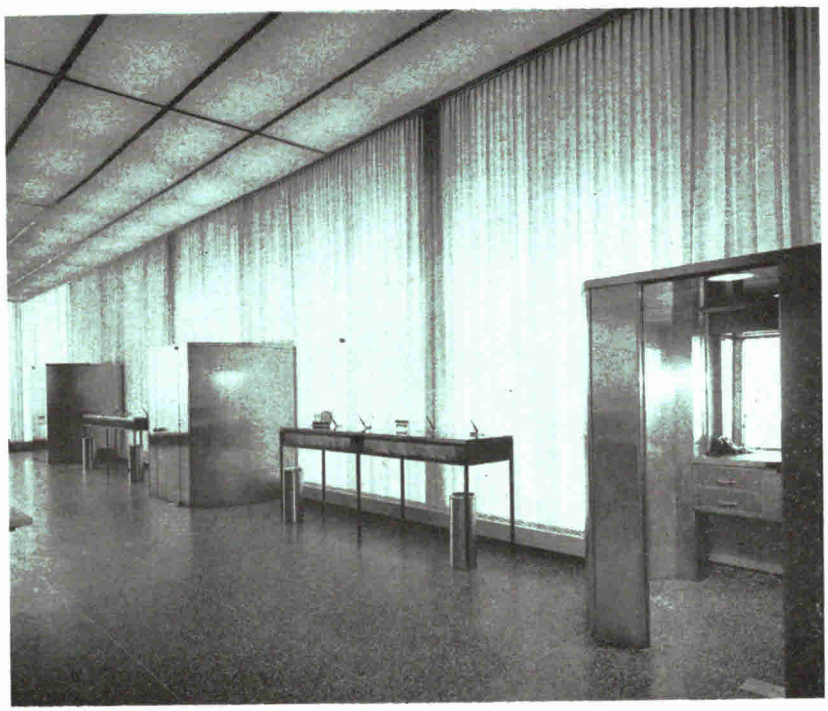


Drexel National Bank
Chicago, Illinois

The two photos at left show exterior views of the link that connects the bank to the remainder of the shopping center, and which houses, at its far end, the safe deposit vault. In the foreground one sees a walk-up teller's window and the night depository. The brick that sheathes this wing is matte glazed and light gray in color.

At left below, the photo shows the north wall with its drive-up tellers' windows. Note the precision of detail for the aluminum and gray glass curtain wall, and the manner in which the drive-up windows have been integrated into its modular pattern. At right below, a view of the interior of the same wall, showing the other side of the drive-up booths, as well as a peek inside one





Rudi Rada photos

BIG HOUSE SPACIOUSNESS FOR SMALL FLORIDA LOT

House for Mr. and Mrs. Burton Cohen
North Miami, Florida
Kenneth Treister, Architect
Howard Ahern, Associate Architect
Gaines Construction Company, Contractor
Bertram S. Warshaw, Structural Engineer

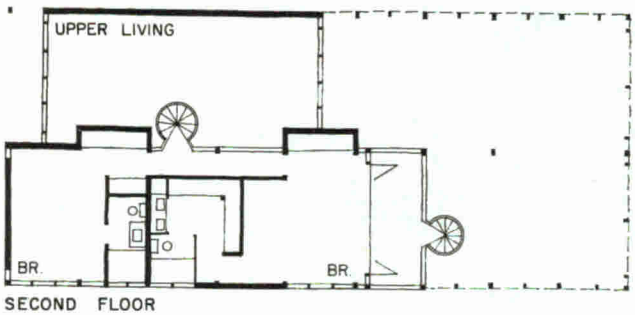
The Burton Cohen House

The big problem of providing privacy and large living and entertaining areas, at reasonable cost for a young family, was solved in some very interesting ways in this house.

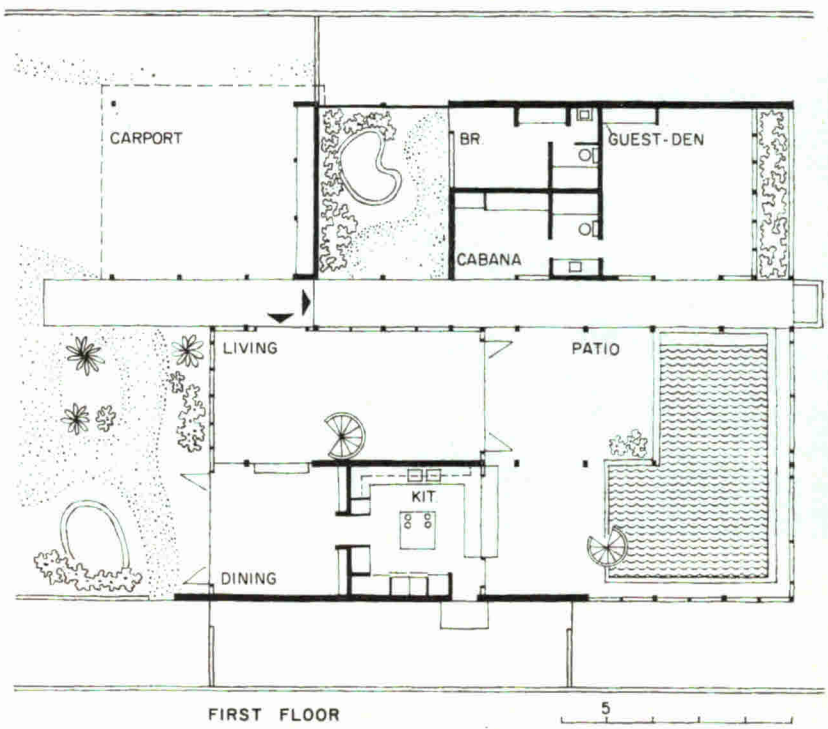
The lot was a small urban one, measuring 75 by 125 ft, and bordering on a typical Florida developer's canal. There were no natural features, except for the possibility of a view of Biscayne Bay from a second floor. The family, at present, consists of husband, wife, and an 11-year-old son.

The clients' needs were met by completely enclosing the lot with a garden wall, to give privacy and define the lot as living space, and by using a divided or "exploded" plan with several courtyards for outdoor living in traditional tropical style. The house is divided into three separate buildings within this compound: a main house (complete in itself), a guest and cabana house (which could become a self-contained apartment), and a carport. Family bedrooms were placed on a second floor in the main house to take advantage of the bay view.

The sense of space was enormously increased in the house by several devices. The living areas have a fairly open plan, and using a two-story space for the actual living room. These areas also open on two sides to private courts and on the third side onto a big screened Florida room with swimming pool. Wherever possible, the furniture was built-in to save space.



SECOND FLOOR



FIRST FLOOR 5

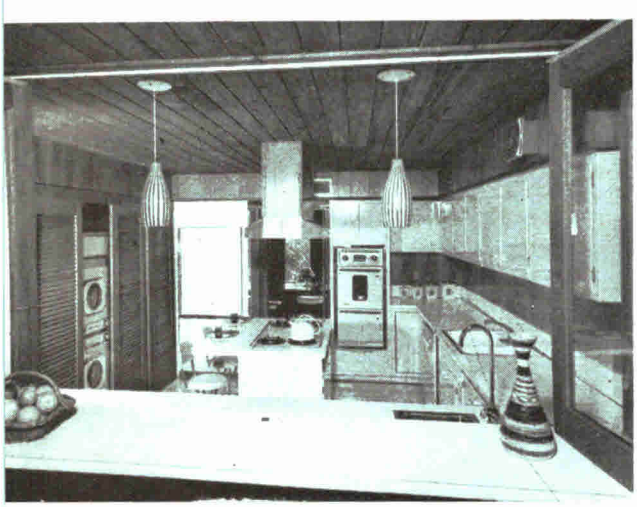
Rudi Rada Photos

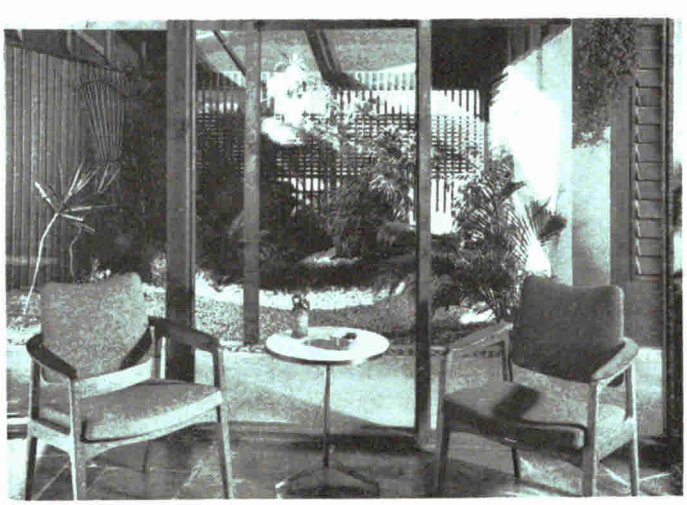
The Burton Cohen House

The separate guest house helps create an illusion of more space in the complex than really exists. This building contains guest room-den (above) which gives additional living space, a cabana and bath facilities for the pool, and a maid's room placed where it has considerable privacy.

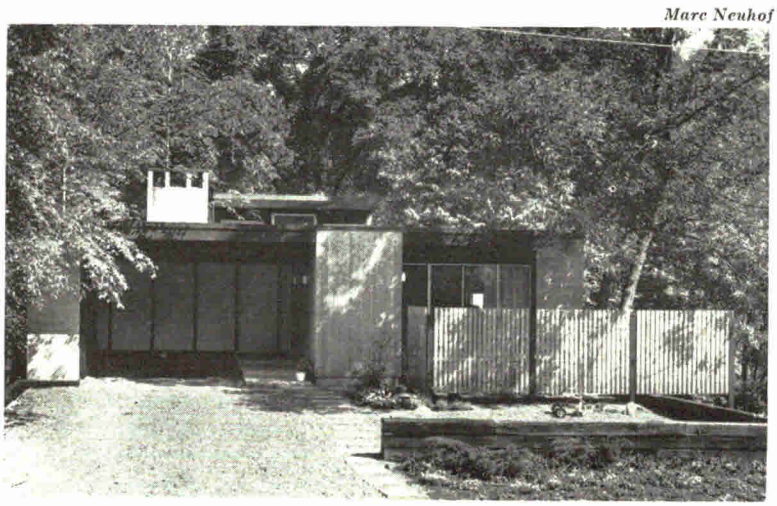
In the main house, the kitchen has a pass-through and snack bar opening directly on the pool area (below left). All rooms in the house open onto courts, as in the living room (below right).

Construction is of wood frame, with cypress board paneling throughout. Living and dining room floors are green Vermont slate; those in the den are brick, and walks and pool areas are cement finish lined in cobblestones. The courts are largely paved with gravel



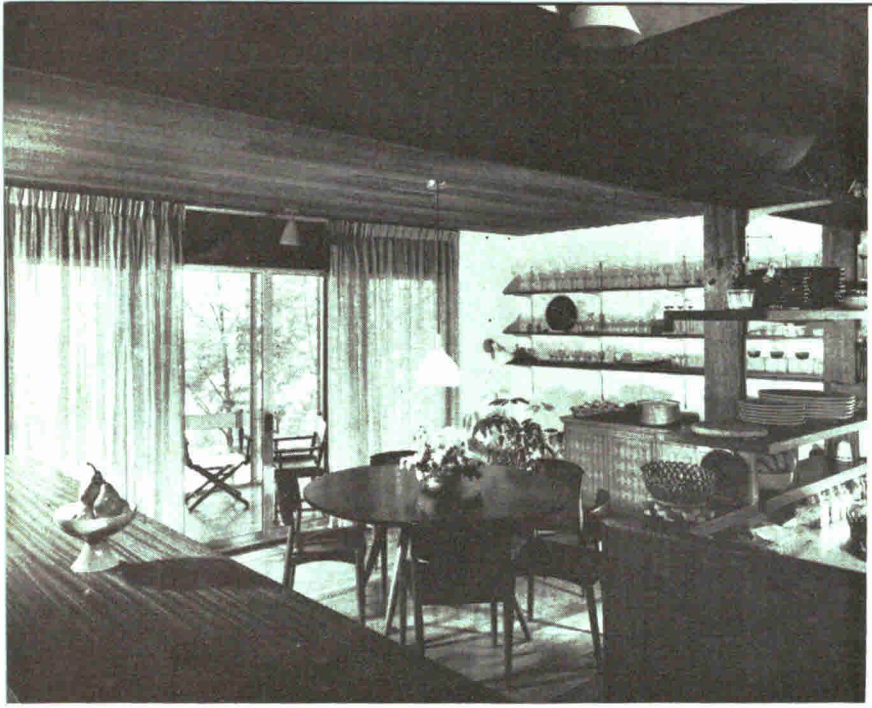


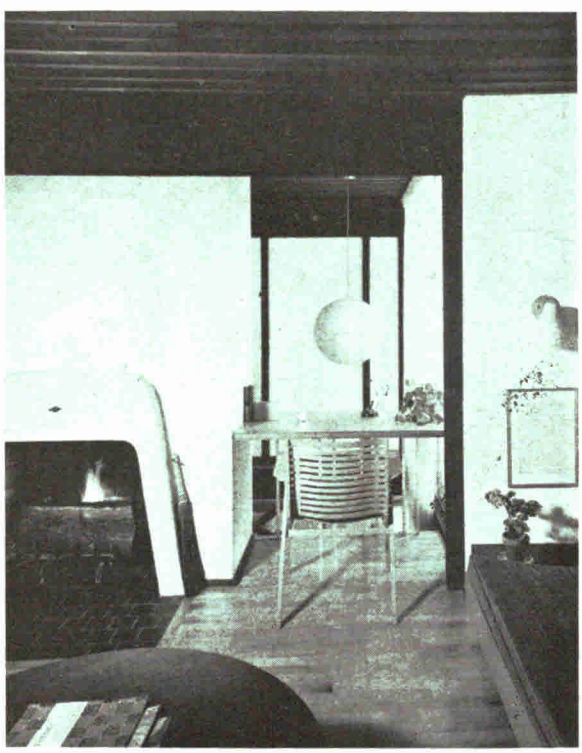
MASONRY PYLONS SUPPORT TRIM HOUSE

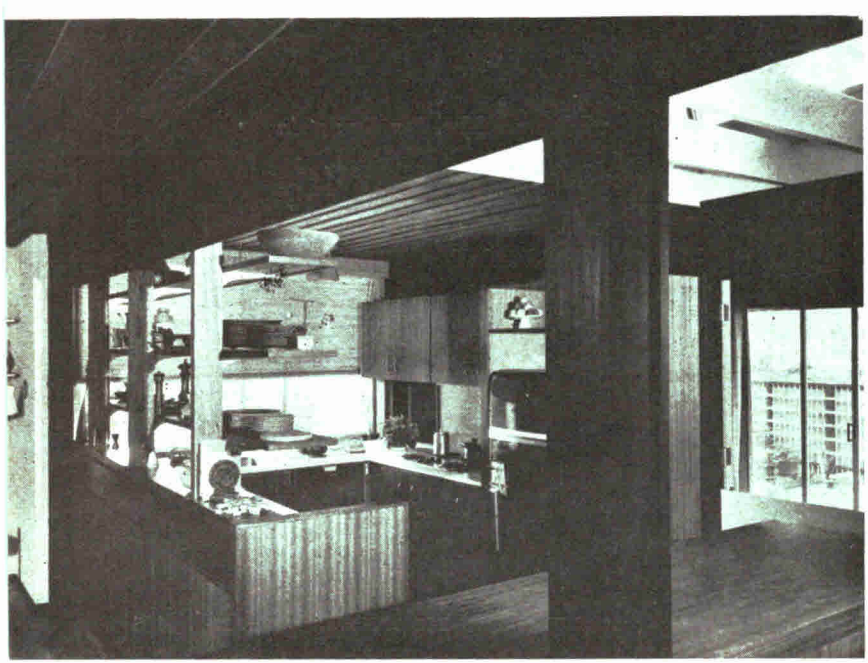


Marc Neuhof

OWNERS: *Mr. and Mrs. Ira Bernstein*
LOCATION: *Princeton, New Jersey*
ARCHITECT: *Frank Schlesinger*
LANDSCAPE ARCHITECT: *Jeanne Schlesinger*







The Bernstein House

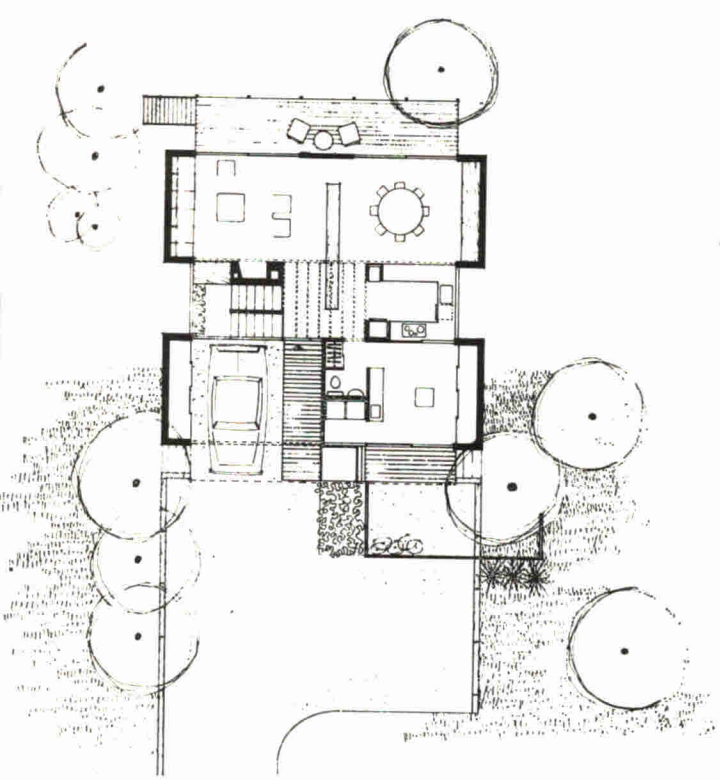
Four massive masonry elements rising unbroken from ground level to roof line play a major role in structure, design emphasis, and plan of this neat $29,000 house.

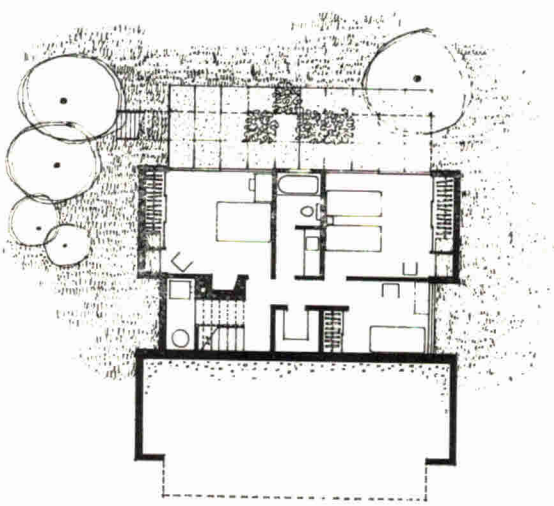
The house is on a sloping site, and is approached across a podium-like motor court. All major living areas are located on the upper level to overlook a brook and a large stand of elms to the north; it also permits admission of south sun to these spaces through a skylight in the roof. These spaces are extended out by a screened deck. Smaller bedrooms, opening on covered terraces, are on the lower "half-basement" level. It was felt that the strong two-story masonry elements would help obviate any "basement floor" associations to the lower level. The "U" shape of the masonry pylons also allows them to house the basic storage areas of the house; the lot is a narrow one, with windows not particularly desirable at the sides of living spaces.

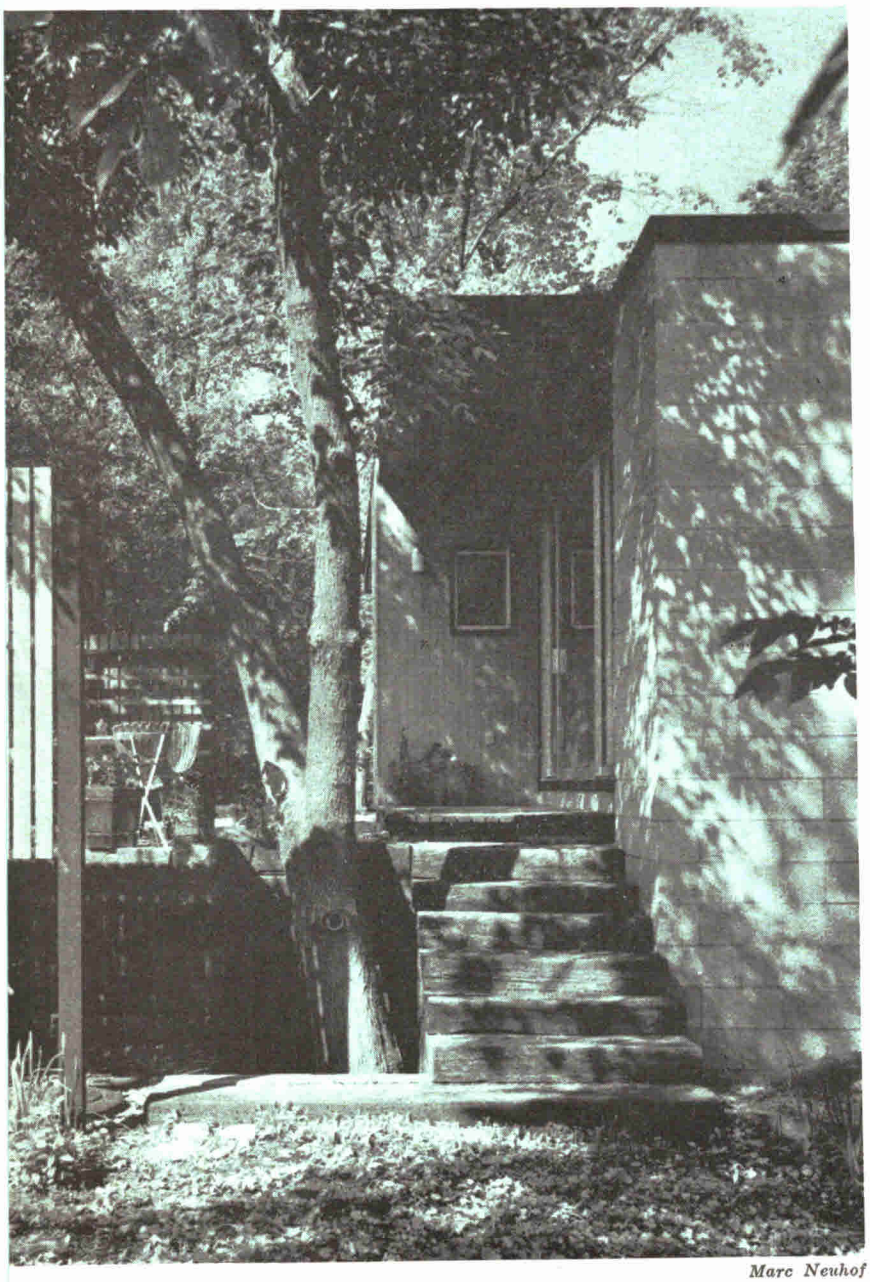
One of the owners' requirements was that the kitchen, living and dining areas be one open space. This was provided, with low cabinets to designate activity areas. The obvious need for a multi-use, private room, was provided by the studio off the kitchen. It is concrete floored, and includes such items as a slop sink, floor drain, laundry facilities, lavatory and storage. It also doubles as hobby room, TV room and spare guest room.

The exterior walls are lightweight concrete, finished with silicone. Interiors are finished in plaster, with a sand finish. All ceilings are cedar. Floors are birch in living areas, quarry tile in kitchen and entry. Heating is radiant panel in the concrete slabs, and fin tube radiation recessed in floor joist spaces.

Marc Neuhof





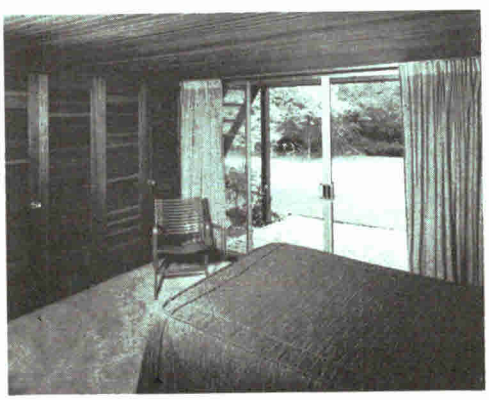


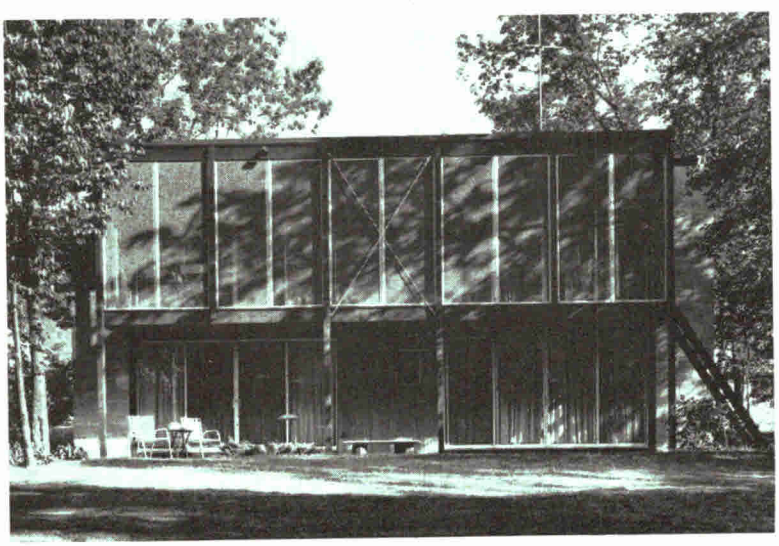
Marc Neuhof

The Bernstein House

In spite of its raised-basement scheme of the house, all rooms and areas are well related to the outdoors, as these photographs clearly show. The photo at left is a side view of the entrance court, with steps leading to the grounds.

At the rear of the house, the lower terrace is reached directly from bedrooms by sliding glass doors. The screened deck above has access to the terrace via the stair seen in the photo below right





BUILDING TYPES® STUDY 299

SCHOOLS

Eight Schools With Good Ideas For Achieving Quality With Real Economy

It has been repeatedly said that, without resorting to shoddy, cheap construction, there is no *single* way to achieve real and effective economy in schools: there are, though, endless combinations of *many* smaller ways.

With this in view, we have gathered this portfolio of more than usually attractive schools, whose architects have found their own answers to at least some of the many cost problems facing school designers today. The range runs from schools which had to be designed for their programs for the least money possible, to one with a more liberal—but fixed—budget, and which was expected to offer the most and best facilities possible for that sum. A couple of the schools were expected to considerably upgrade the environment for the children, and on a budget; and there is one which offers a scheme for addition at minimum cost. Several offer ways for possible changes for new curriculums. And there is a direct comparison cost study between a gym of typical construction, and one housed in one of Bucky Fuller's domes.

As for typical costs of schools, we would like to recommend a new government publication giving results of a cost survey of 128 schools across the nation, and with breakdowns on regional averages, materials, labor, and so on. Their U.S. cost per sq ft average is $14.16; for the Northeast, $16.99; North Central, $13.67; South, $12.11; and West, $14.25. The booklet, "Labor Requirements for School Construction, Bulletin No. 1299", may be obtained for 35 cents each from the Bureau of Labor Statistics, 341 Ninth Avenue, Room 1025, New York 1, New York.

ART AND NEAT DETAILS BEAT BROOKLYN BUDGET

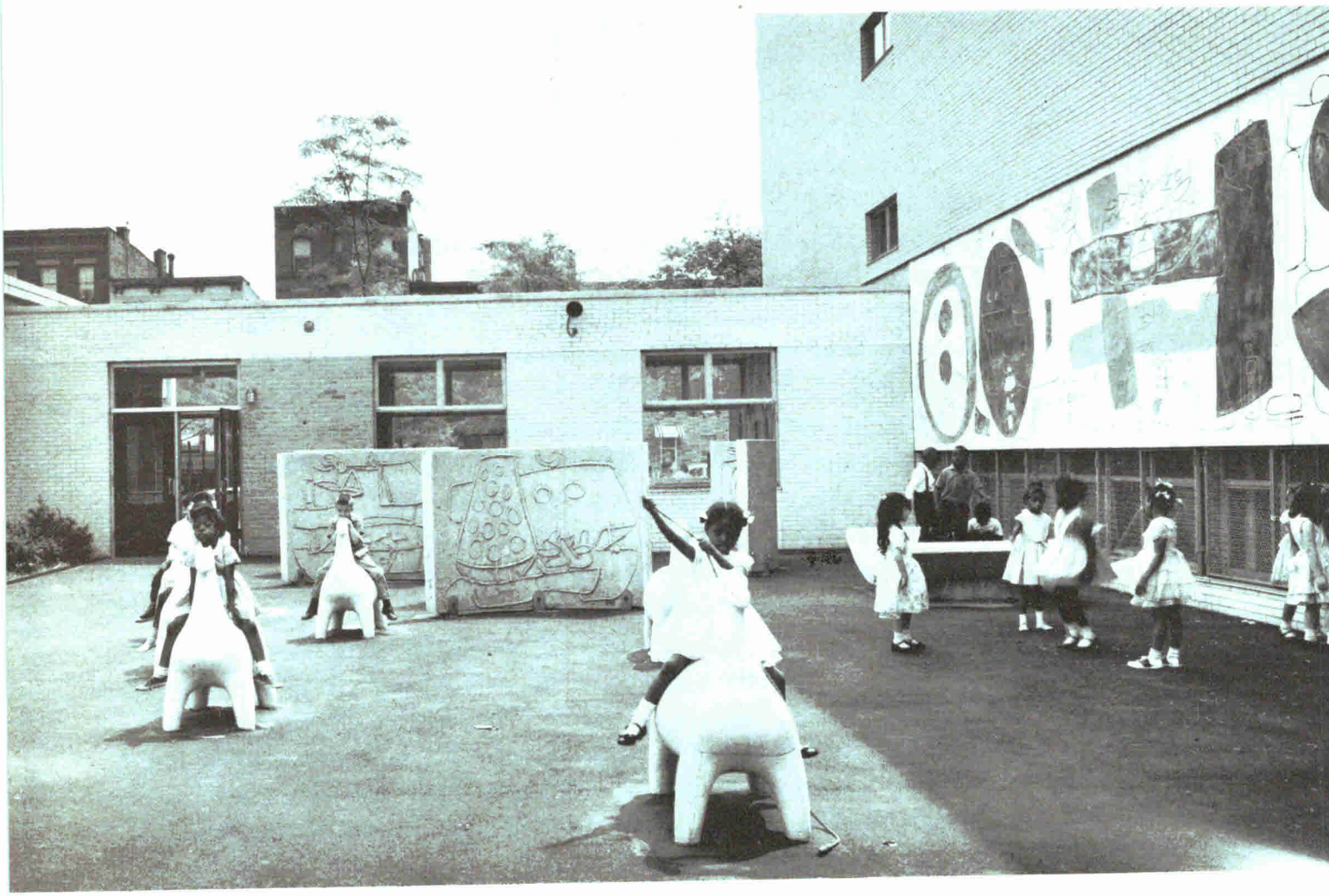
NAME: *Public School 46*
LOCATION: *Brooklyn, New York*
ARCHITECTS: *Katz, Waisman, Blumenkranz, Stein, Weber Architects Associated (Richard G. Stein, Partner-In-Charge)*
MECHANICAL ENGINEER: *Bogen and Allston*
STRUCTURAL ENGINEER: *Fraioli, Blum & Yesselman*
ACOUSTICAL CONSULTANT: *Michael Kodaras*
BOARD OF EDUCATION, DIRECTOR OF ARCHITECTURE: *Michael Radoslovich*
MURALS AND SCULPTURE: *Costantino Nivola*
GRAPHICS: *Ladislav Sutnar*

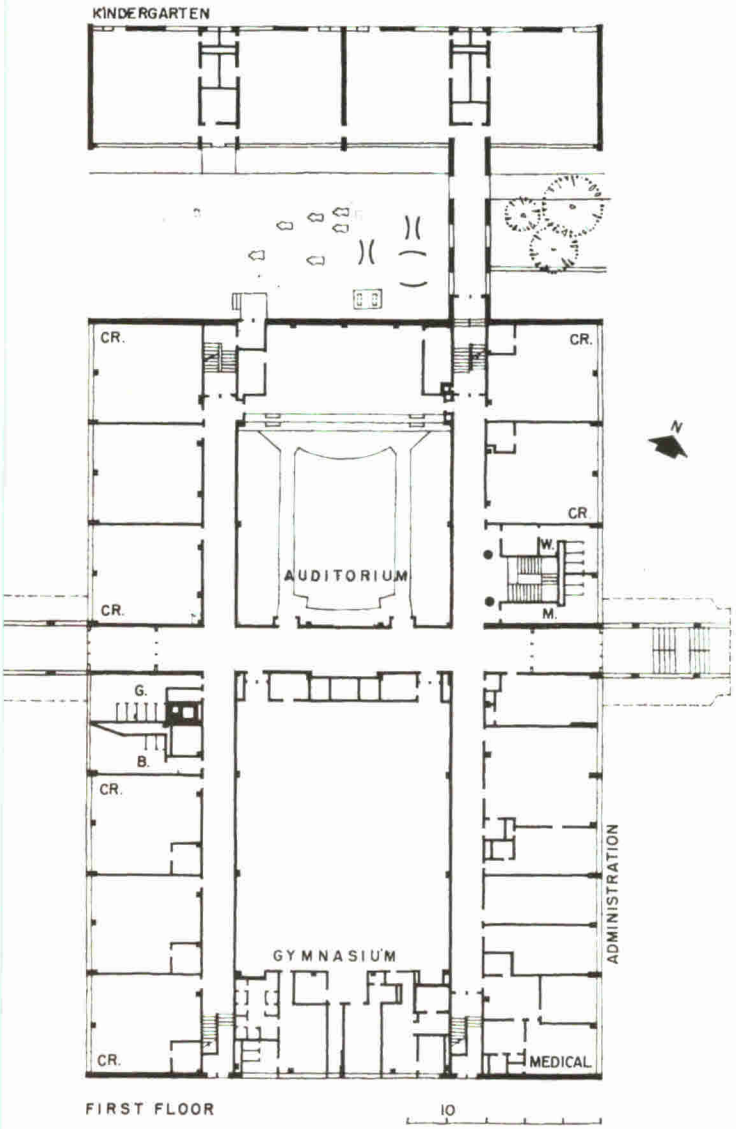
This handsome K-6 school forms quite a "status" structure for its Brooklyn neighborhood—it is replete with sculpture, murals, good graphics, and fine details. But perhaps the most interesting facet is the fact that its cost was about $600,000 under the budget: it was budgeted for $2,500,000 and bids came to $1,910,000.

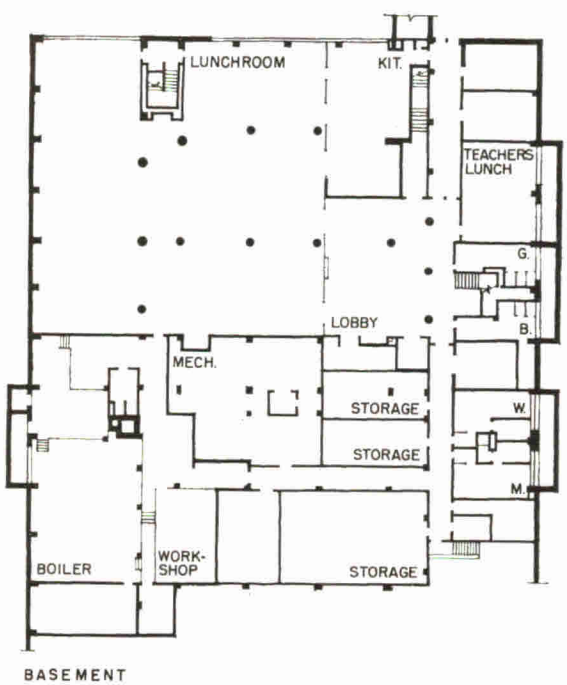
Planned for 1,200 pupils (and including a detached kindergarten wing), a good visual and educational environment was sought throughout. All materials were also selected with a special eye to low upkeep.

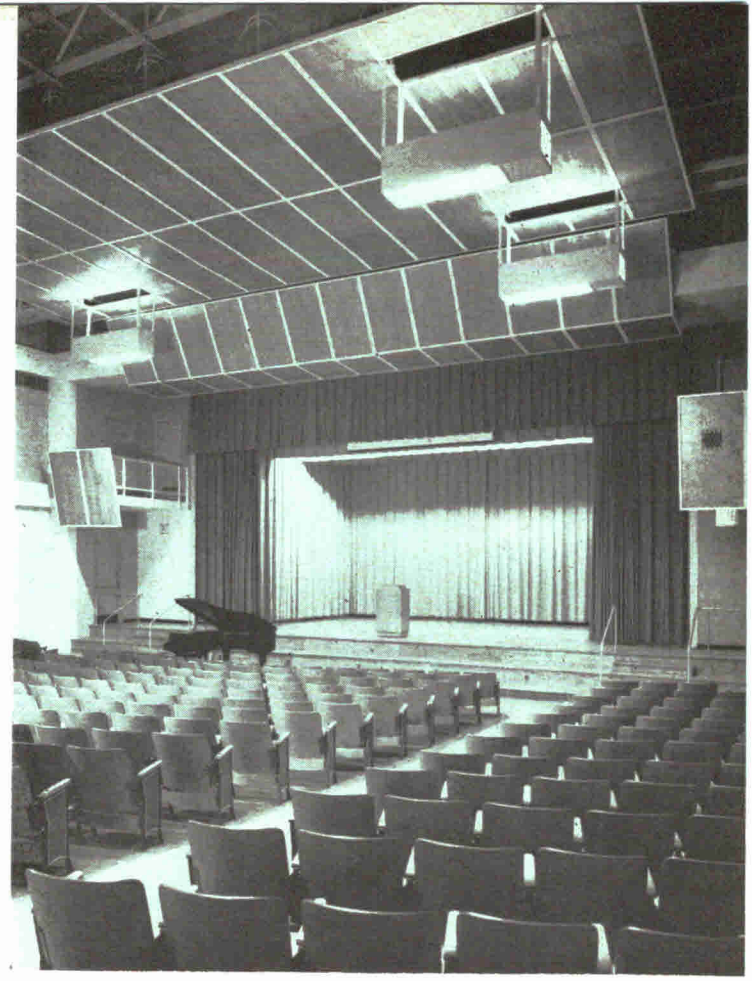
The architects credit the economy to several factors: 1. the use of a simple, compact structure and plan; 2. construction materials are largely used as finish materials; 3. repetition of a carefully studied classroom (there are 37, besides the kindergarten); and 4. special attention to detail.

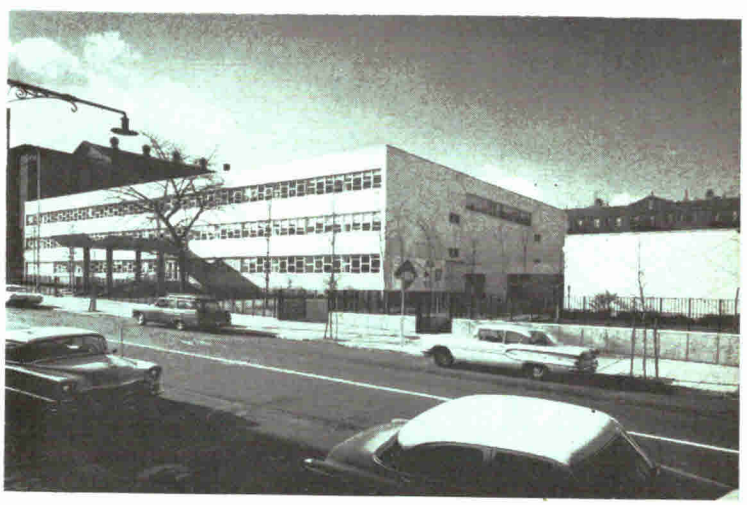
Some of these details include: continuous windows with column covers and glazed brick spandrels less expensive than other combinations studied; raw concrete for retaining walls, with exposed aggregate; high auditorium and gym permit elimination of fireproofing over steel; epoxy enamel wainscot on exposed concrete; repetition of window type; canopies independent of basic structure.

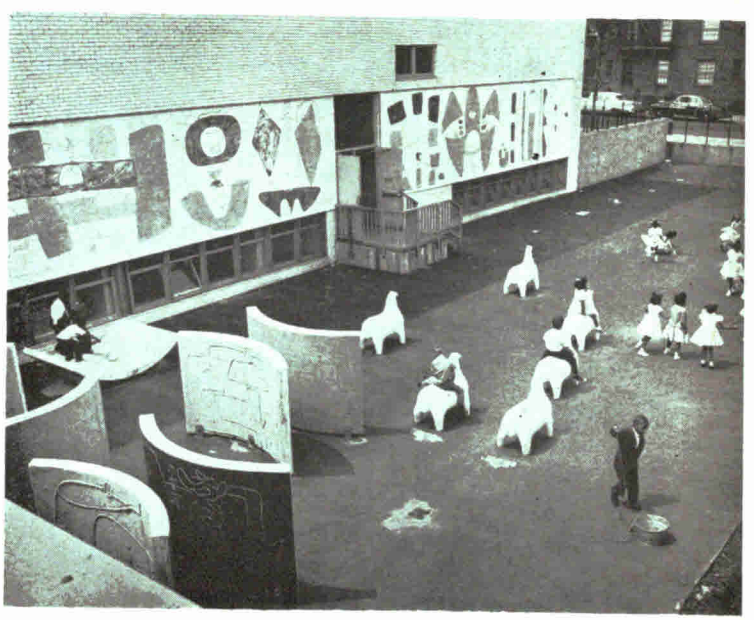


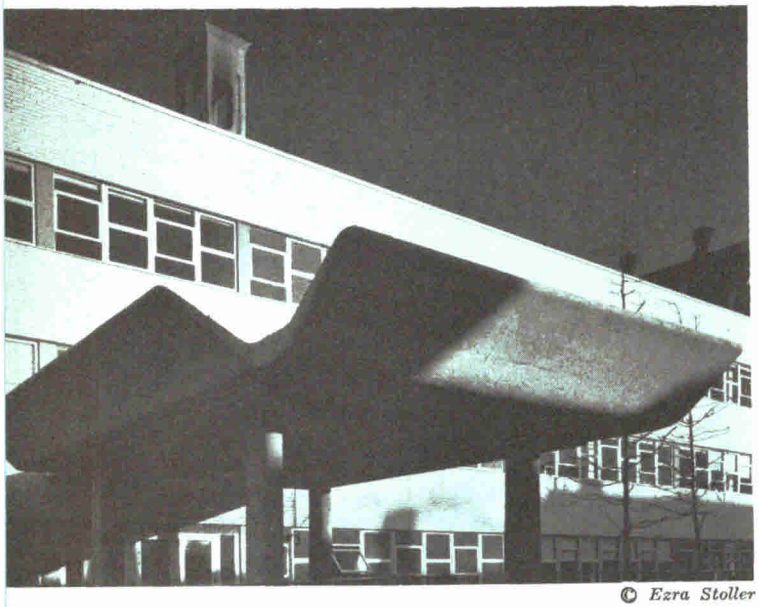

KINDERGARTEN
CR.
CR.
CR.
AUDITORIUM
W.
M.
CR.
G.
B.
CR.
GYMNASIUM
ADMINISTRATION
CR.
MEDICAL
N
FIRST FLOOR
10


LUNCHROOM
KIT.
TEACHERS LUNCH
G.
LOBBY
B.
MECH.
STORAGE
W.
STORAGE
M.
BOILER
WORK-SHOP
STORAGE
BASEMENT

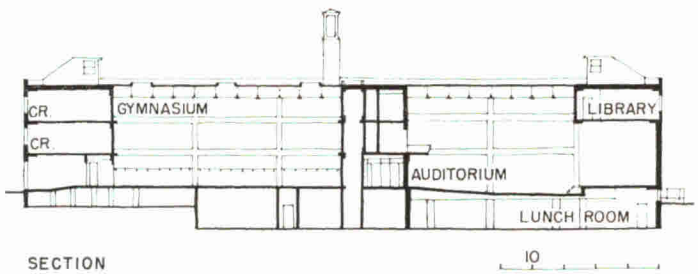




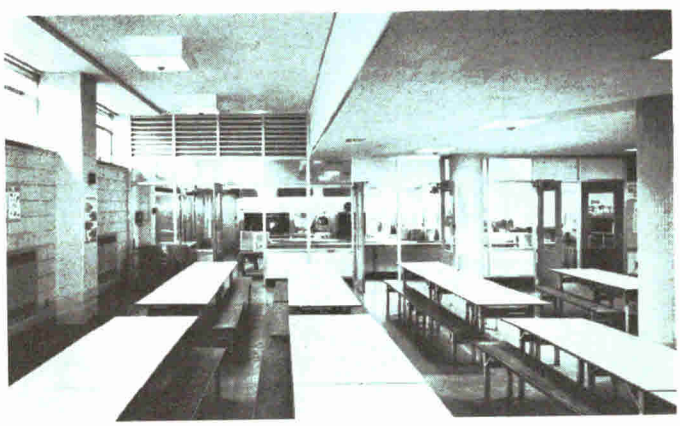




© *Ezra Stoller*



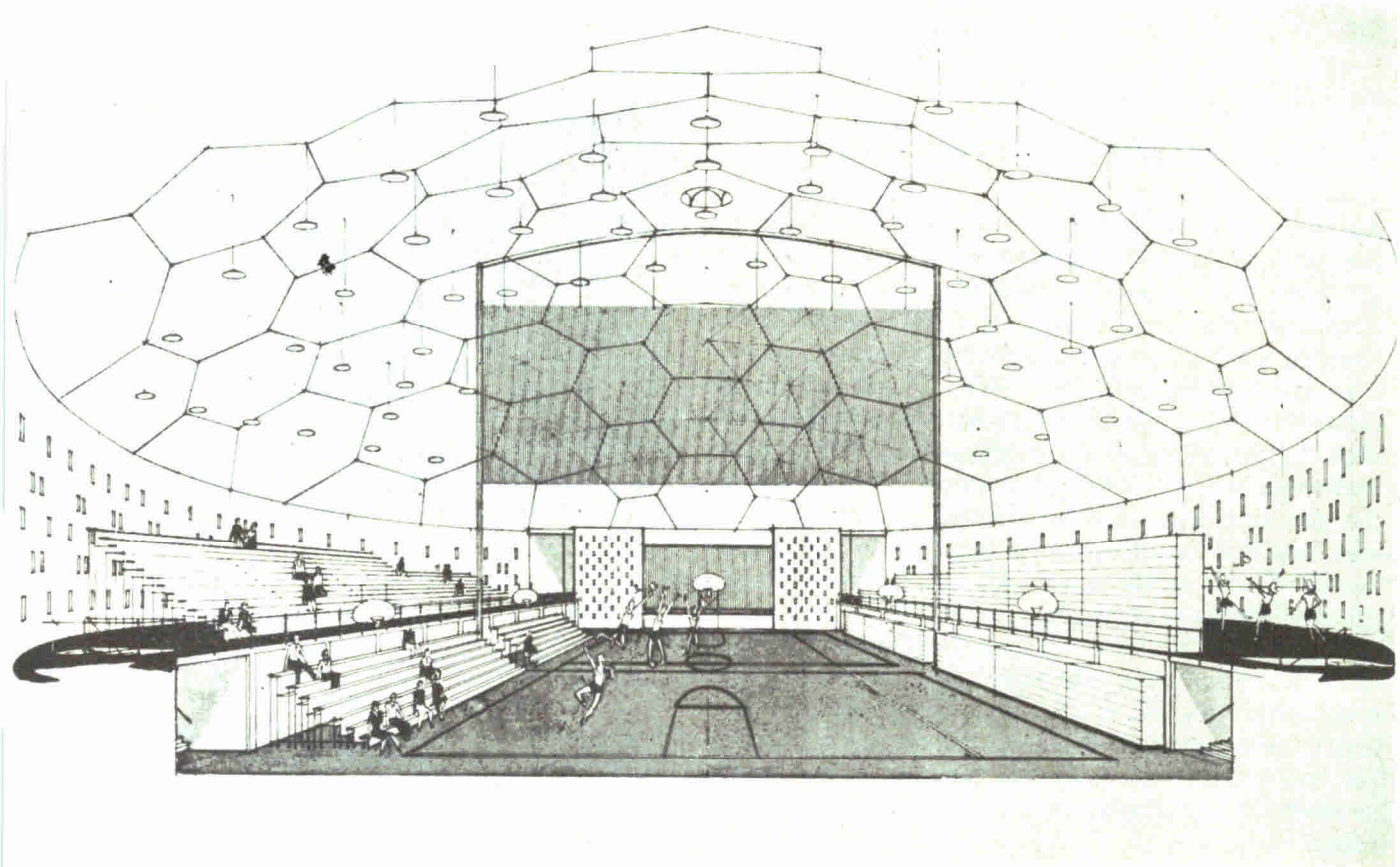
SECTION



Brooklyn Public School 46

The free-standing entrance canopies of the school, as well as the retaining walls, have sculptural inserts by Nivola. These were set in forms and became the negative sculptures when the forms were stripped. (Photo upper left).

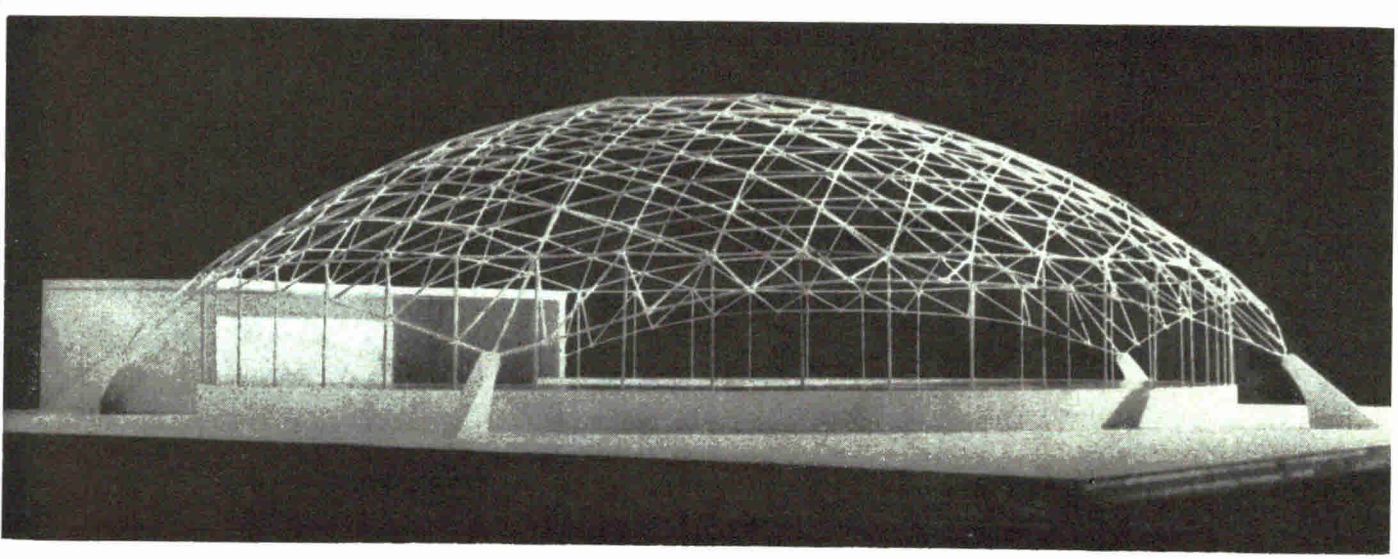
Corridors are zoned to 5 classrooms each, and have colorful, durable finishes: plastic faced block and glazed brick, acoustical ceilings, vinyl covered display boards. Other interiors have plastic faced block under chalk boards and as continuous base, and colorful, plastic laminate tops and faces for all storage cabinets; all cabinets are standardized. All clocks, signs and identification symbols are extremely well designed for the building



GEODESIC GYM GIVES MORE FOR LESS

NAME: *West Bethesda High School*
LOCATION: *Montgomery County, Maryland*
ARCHITECTS: *McLeod and Ferrara*
STRUCTURAL ENGINEER: *J. Gibson Wilson, Jr.*
MECHANICAL ENGINEERS: *Kluckmuhr and McDavid*
ELECTRICAL ENGINEER: *Kenneth W. Cobb*
GEODESIC DOME CONSULTANTS: *Synergetics, Inc.*
CONTRACTOR: *Merando, Inc.*

Results of a comparative cost study on a conventional gymnasium vs. a geodesic "field house" won a victory for the geodesic scheme for the West Bethesda High School, now under construction. The architects were able, by virtue of a grant from the Educational Facilities Laboratories, (Ford Foundation), to carry out a research project to determine cost and space advantages of each. Plans and bids were made on both types of structures. The geodesic scheme came out with 4,000 more sq ft of usable space, slightly less cost



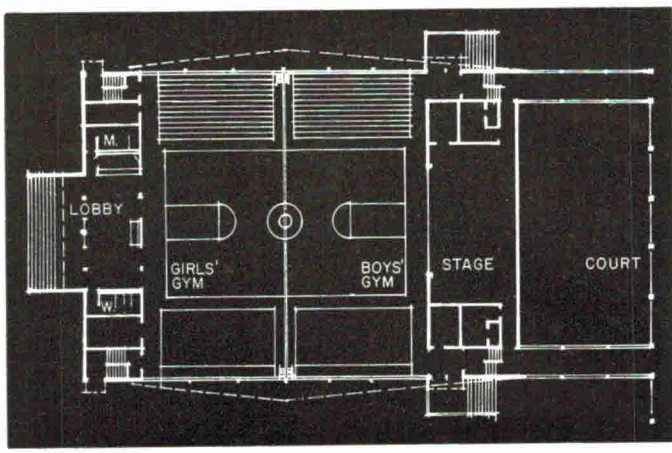
West Bethesda High School
Conventional Gym vs. Geodesic Field House

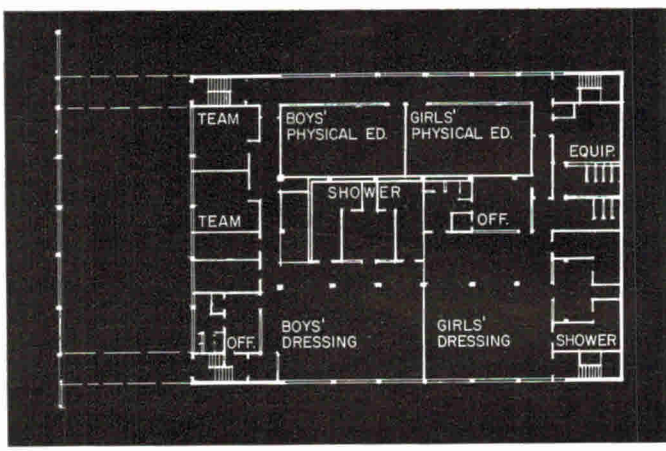
An unusual opportunity to make actual cost comparison between a geodesic dome gym or field house, and a typical, double court, gym of conventional construction, was made possible by EFL's grant to finance a study, and preparation of working drawings and specifications for each. The Montgomery County Board of Education reportedly wanted more than the conventional box gymnasium, and yet were understandably reluctant to commit public funds to the planning of a domed alternate. The final results, and bids, led the Board of Education to adopt and construct the geodesic scheme based on R. Buckminster Fuller's structure.

Conditions set down for the study required that the two types satisfy the same program and equipment requirements: it was not intended that the designs for either type reflect an absolutely minimum facility, but that the two types meet the usual Montgomery County standards for a physical education plant.

Bids were taken on three items: the main school excluding the gym; the standard gym; and the geodesic field house. Site work was taken as a separate bid for each item for better comparison. A breakdown of the successful contractor's bidding on the two gyms is shown below.

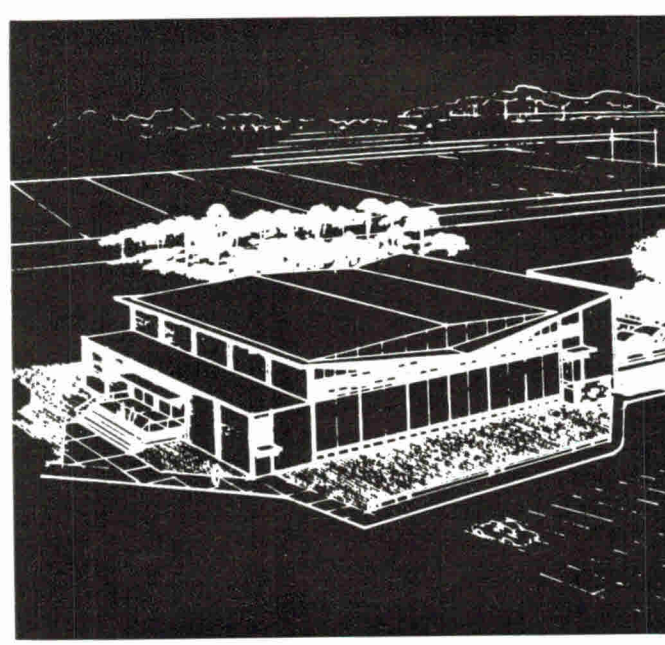
A full report of the study, Case Studies of Educational Facilities #1, is available from Educational Facilities Laboratories, 477 Madison Ave., New York City.

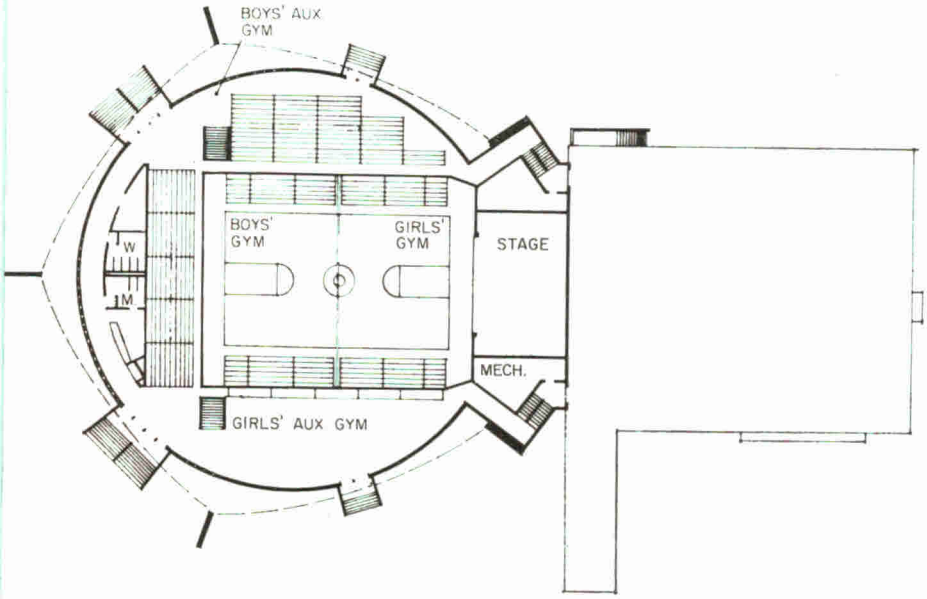


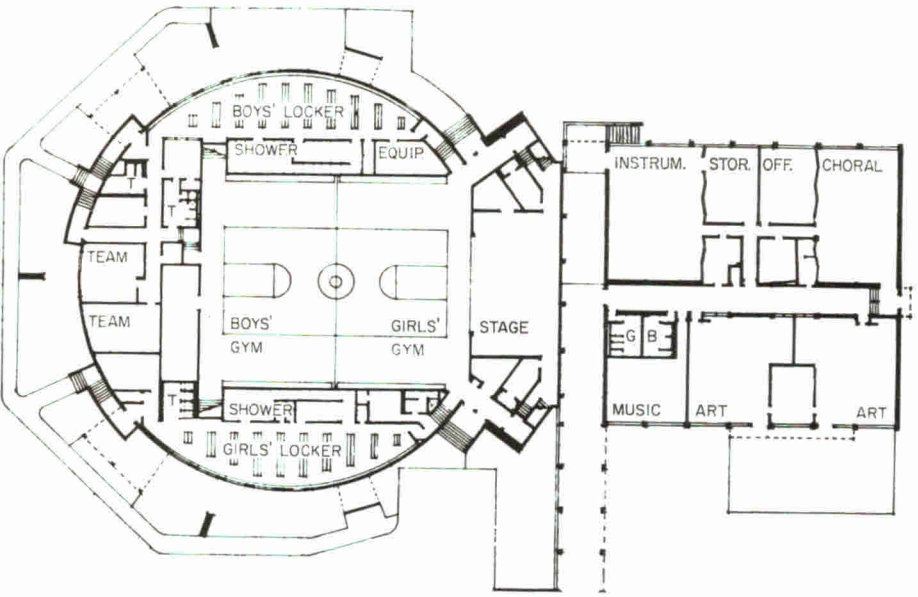


COMPARATIVE COST TABLE

Item	*Conventional Gymnasium*	*Geodesic Field House*
Building Excavating and Backfilling	$ 10,915	$ 9,272
Concrete	98,500	94,450
Masonry	71,000	62,000
Structural Steel	37,000	64,100
Ceramic Tile	13,700	11,000
Metal Windows, Curtain Walls, Screens, and Panels	20,000	5,000
Metal Doors and Frames	5,000	6,000
Miscellaneous Metals	7,400	8,000
Insulation, Roofing, and Sheet Metal	12,200	46,778
Calking, Weatherstripping, and Thresholds	1,300	1,500
Carpentry and Millwork	26,460	24,189
Acoustical Ceilings	7,750	
Resilient Floors	3,250	800
Glass and Glazing	1,400	450
Furring, Lathing, Plastering, and Stucco	11,480	4,920
Painting	16,000	20,310
Toilet Partitions	1,075	1,285
Furnishings and Special Equipment	72,492	60,106
Plumbing, Heating, and Ventilating	112,000	100,535
Electrical	55,000	57,200
Miscellaneous	5,839	5,779
	$589,761	$583,674



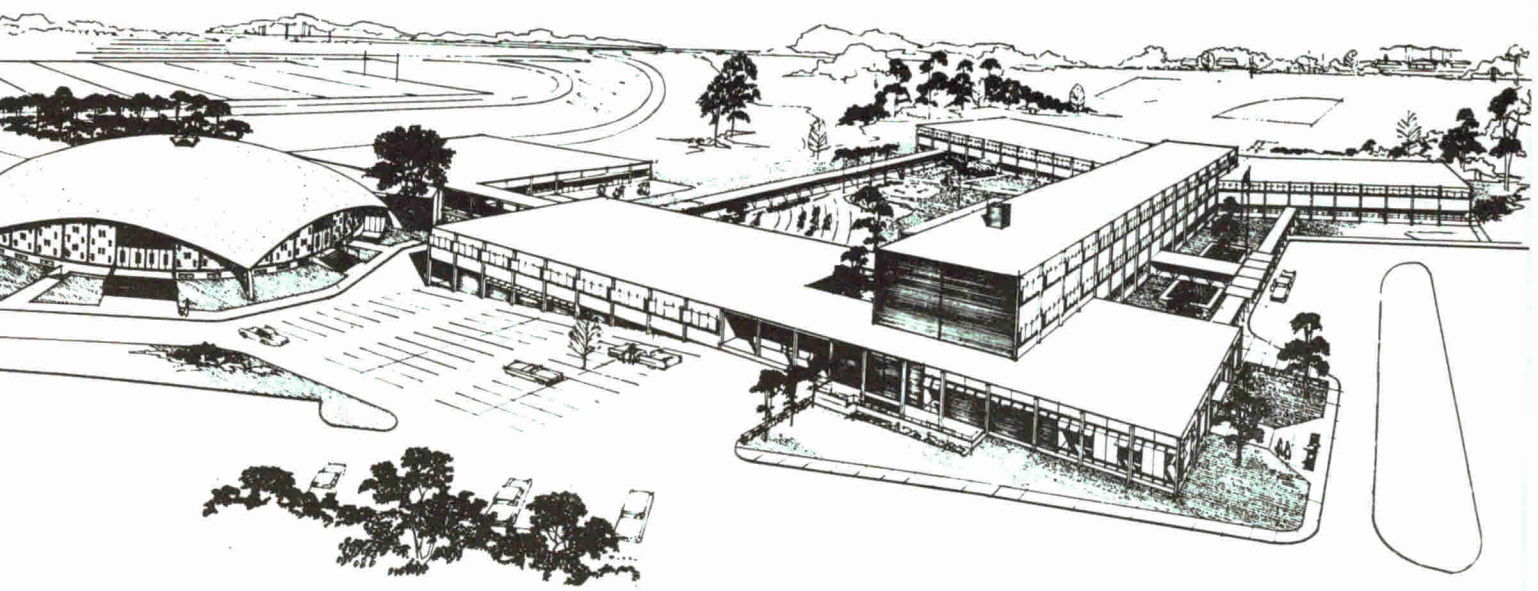




THE CONVENTIONAL GYM (sketches on black, opposite page) has floor area on two levels of 31,586 sq ft, has space to seat 2500 spectators. Gym areas are divided by a motorized folding wood partition.

THE GEODESIC FIELD HOUSE (the circular part of the plans and sketch on this page) contains 35,800 sq ft, space to seat 3500 spectators. The gym is divided by a reinforced plastic divider which can be automatically raised vertically. The playing floor is wood.

THE ENTIRE SCHOOL was planned for a total construction cost of $3,150,000. The school is planned for an eventual curriculum change requiring varying size instruction spaces. Thus all general subject spaces have partitions which can be rearranged as needed. The entire plant will be air conditioned.



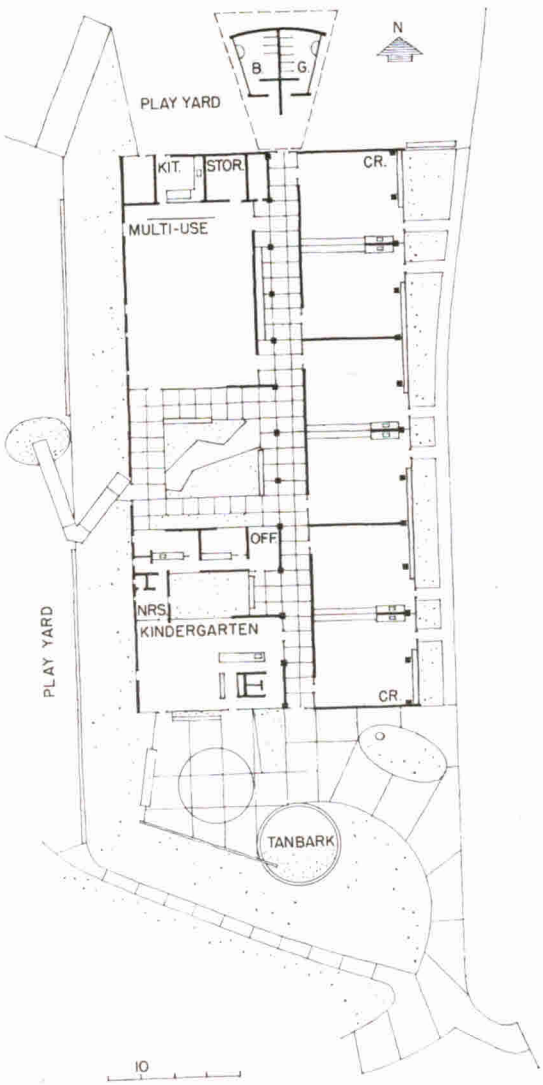
PRECAST VAULTS ADD PLAYFUL AIR TO GRADE SCHOOL

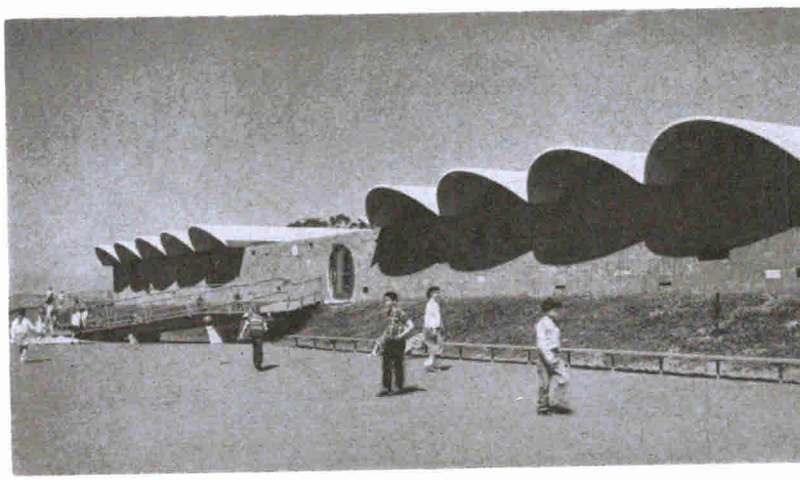
NAME: *Vista Grande Primary School*
LOCATION: *Daly City, California*
ARCHITECT: *Mario J. Ciampi*
ASSOCIATE ARCHITECT: *Paul W. Reiter*
LANDSCAPE ARCHITECT: *Lawrence Halprin*
STRUCTURAL ENGINEERS: *Ellison, Sedgewick & Associates*
MECHANICAL AND ELECTRICAL ENGINEERS: *Buonaccorsi & Murray*

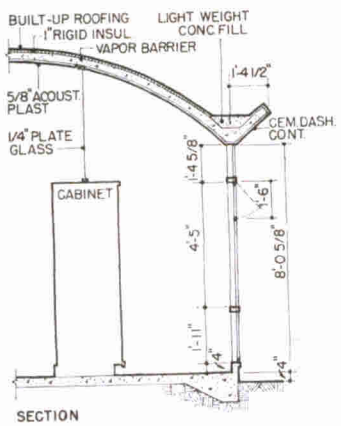
This festive little school is a good demonstration that limited funds need not prevent the creation of a stimulating environment for children.

The building was built under the so-called "austerity program" of the California State Aid Program of school construction. The program called for a six-classroom, plus kindergarten, primary school with multi-use room, administrative unit, and dependent facilities. The site is a limited, hillside one in a densely populated urban area. Problems of vandalism and maintenance were serious factors.

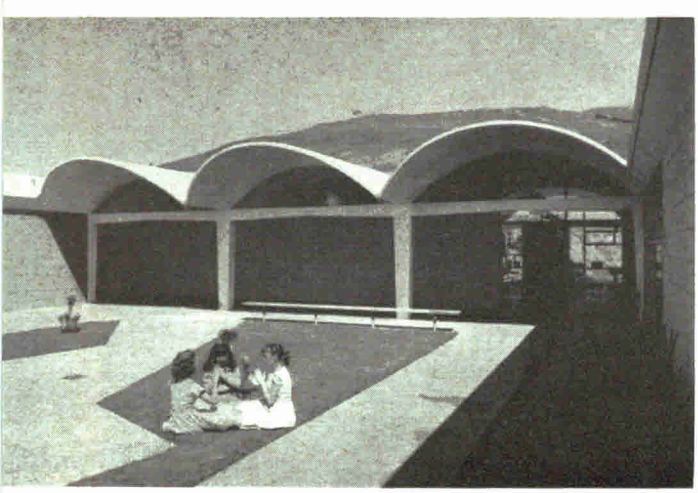
The architects provided a very pleasant, compact and workable plan, roofed by a system of precast thin-shell, reinforced concrete barrel vaults, and pre cast concrete bents. The vaults were topped by built up roofing with aluminum coating. Acoustical plaster was used to finish the underside. The vaults, two to a classroom, rest on a sort of low "garden wall" construction of reinforced concrete block. Floors are concrete slab on grade, with a colored concrete finish. Classroom and administration areas have radiant heating installed in the slab, unit heaters elsewhere. Partitions are movable for future changes. The system makes for a minimum of maintenance, low insurance and long life. Total cost of the project was $253,300 ($199,900 for building, $53,400 for site work). Gross area of the school is 14,160 sq ft.

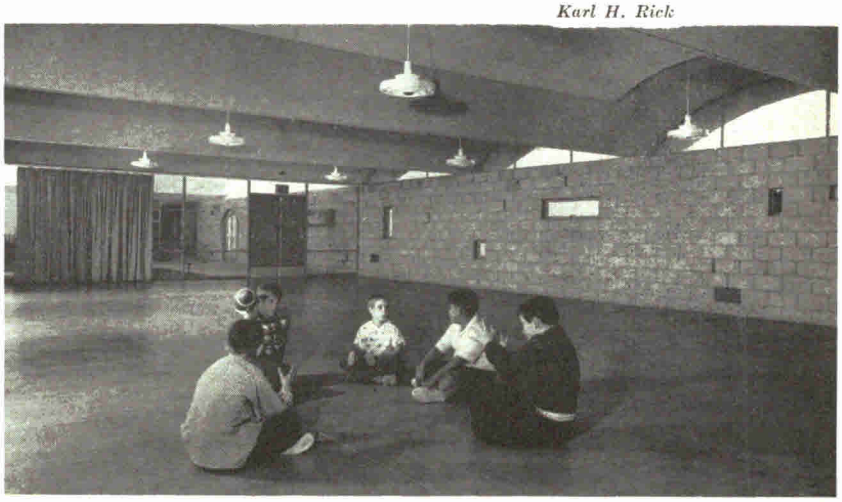






Karl H. Rick





WELL EQUIPPED, LOW-UPKEEP SPACE IS ECONOMY BASIS

NAME: *Darien High School*
LOCATION: *Darien, Connecticut*
ARCHITECTS: *Ketchum and Sharp*
MECHANICAL ENGINEERS: *Cosentini Associates*
STRUCTURAL ENGINEERS: *Severud-Elstad-Kruger-Associated*
SITE ENGINEERS: *Tregenza & Briglia*
CONTRACTORS: *The Deering Company*

This Senior High School, which has a present classroom capacity of 1,000 students, offers some very interesting ideas for providing a well equipped (there are seven science labs), sound building at reasonable cost—$14.93 sq ft.

As so often happens, the school was faced with a program cut-back in its earlier stages: the original budget was for $3,400,000, and was later cut to $3,000,000. Rather than provide "cheaper" (and usually higher maintenance) construction, three major economies helped provide for the program.

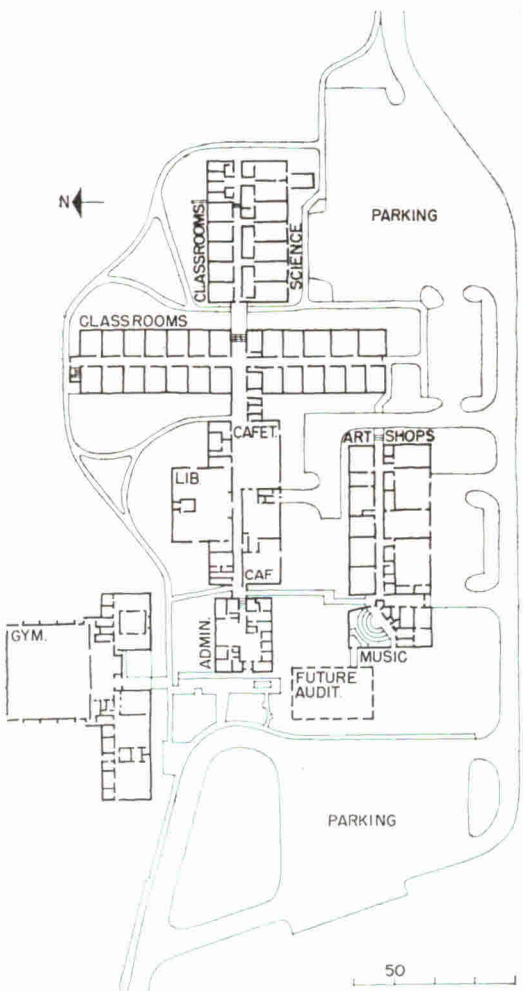
First, spaces were developed for multiple use. The cafeteria doubles as a study hall, and a second, smaller dining space also serves as a small auditorium or lecture hall for about 200 people. The teachers' dining area, which adjoins this, doubles as a stage, and is closed with a folding partition.

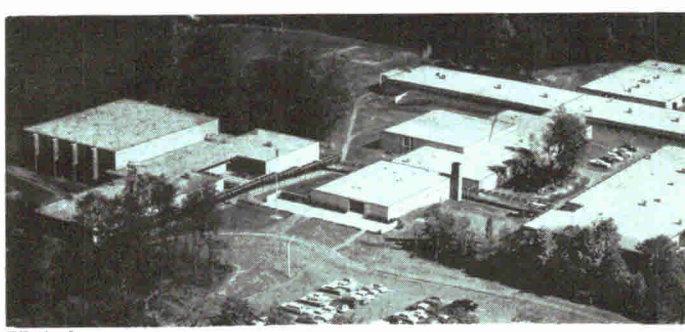
Secondly, after study, some spaces were reduced in area. The prime example was the gym, reduced by 33 per cent, and reportedly working well, with good scheduling, for the school and community.

The cafeteria uses a "supermarket" technique to cut waiting time in line to a minimum, and thus speed up time for lunch periods: hot meals are picked up from two motor-operated turntables, each of which holds 14 plates and makes a revolution a minute.

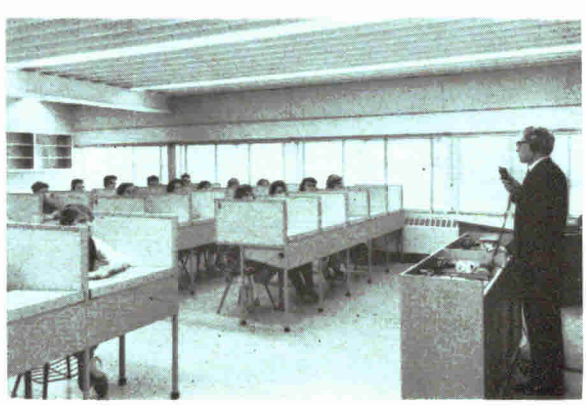
Third: temporary economies resulted from postponing the building of the auditorium.

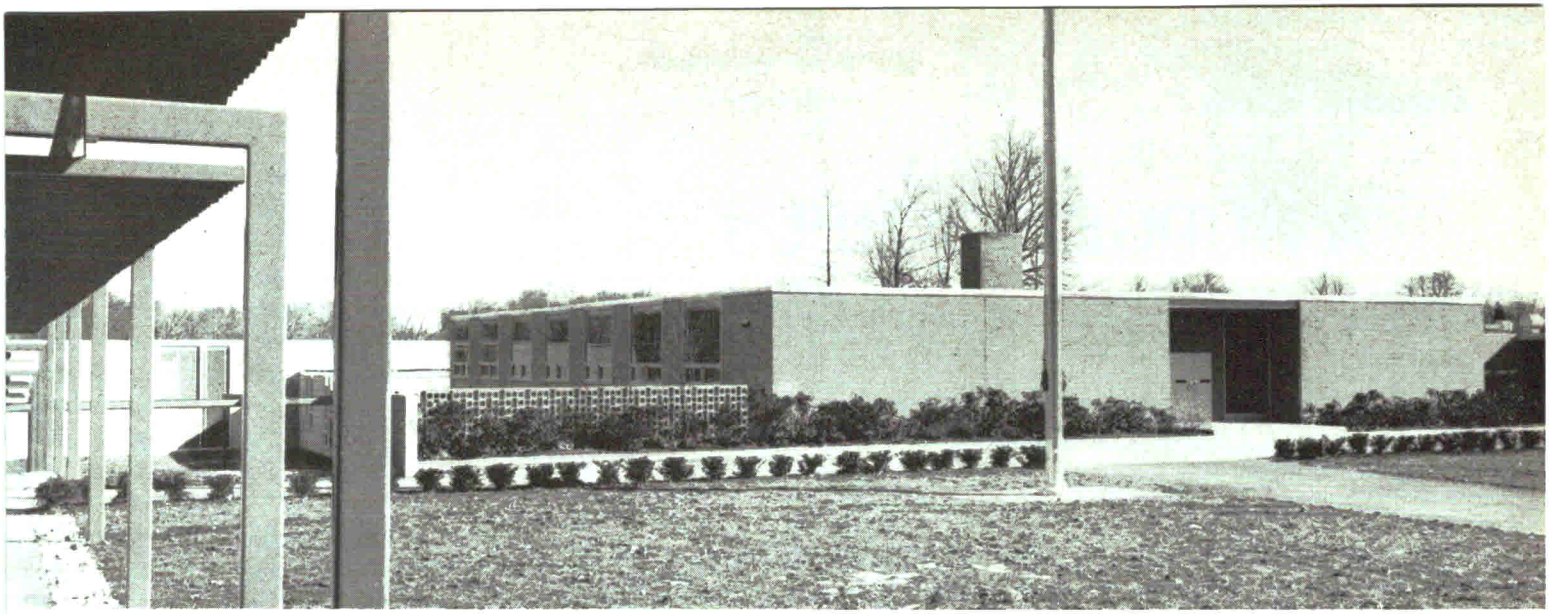
Durable materials include gray cement and blue-glazed brick exteriors, steel deck roofing.

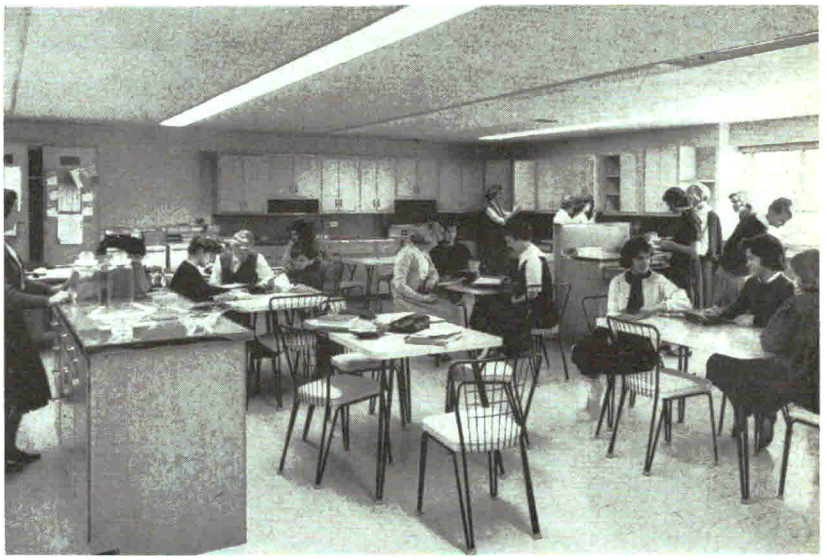


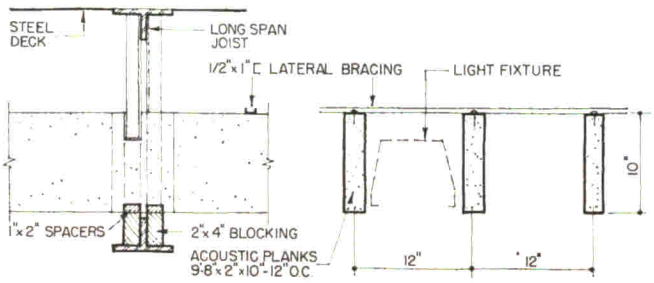


Gil Amiaga

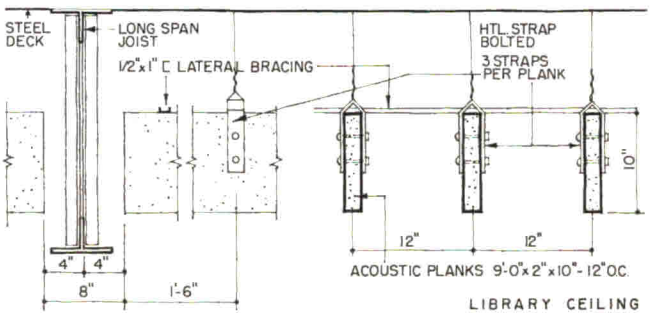




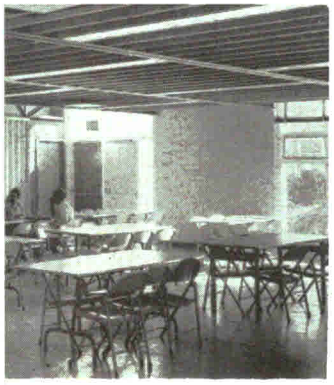


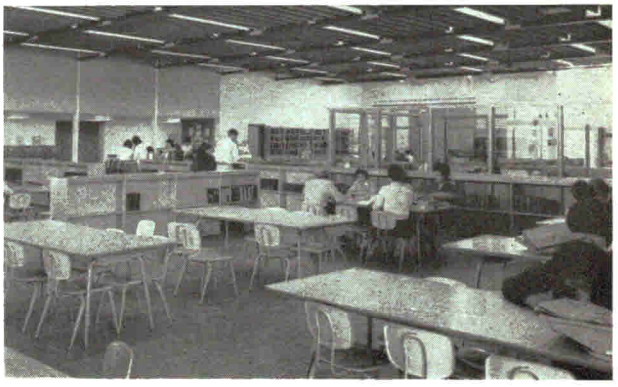


CAFETERIA CEILING



LIBRARY CEILING





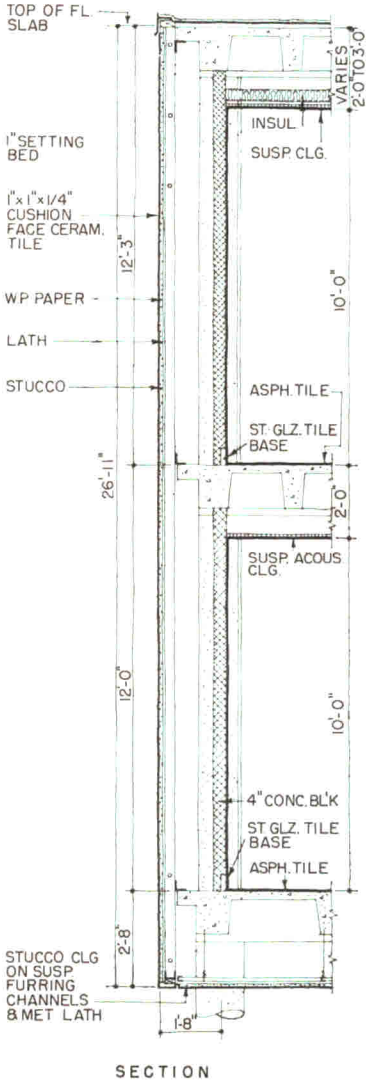
A BUDGET CAMPUS SCHEME REPLETE WITH MURALS

NAME: *Woodlawn High School*
LOCATION: *Shreveport, Louisiana*
ARCHITECTS: *William B. Wiener, Morgan and O'Neal*
STRUCTURAL ENGINEERS: *E. M. Freeman & Associates*
MECHANICAL ENGINEERS: *Carl M. Hadra and Associates*
CONTRACTOR: *W. A. McMichael Construction Co.*
ARCHITECTURAL ART: *Sam Weiner Jr.*

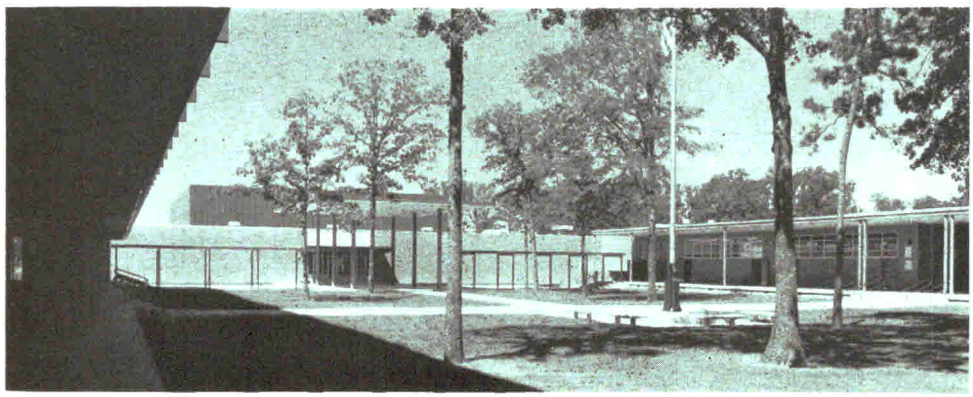
The idea that a budget school must, of necessity, be of compact, barracks austerity, is skillfully refuted once again by this extremely pleasant high school. The program required a well-equipped, 1500-capacity school for grades 10, 11 and 12, with emphasis on the community use of cafeteria, auditorium and gymnasium. The site is a 54-acre, heavily wooded one, with soil conditions making it mandatory that all buildings be placed on pile foundations and suspended concrete floor slabs.

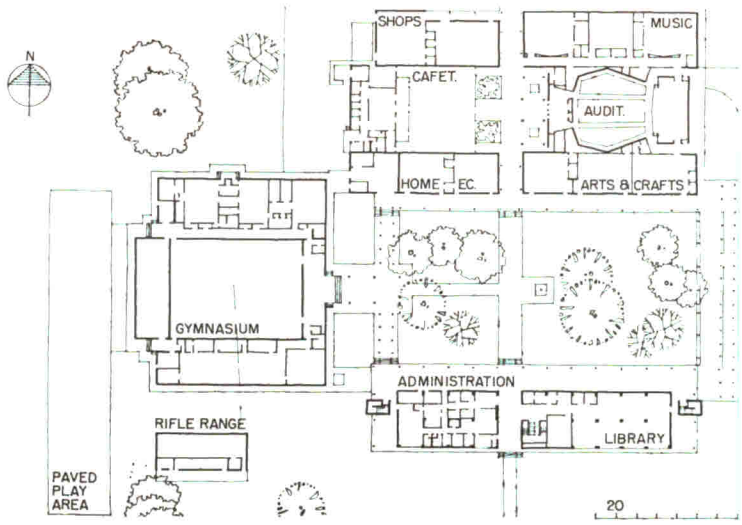
A campus scheme was evolved which placed all academic activities in a three-story wing, and all joint school-community facilities in connecting buildings, with planted courts between. The pleasant atmosphere was further enhanced by integrating abstract murals into the brick and concrete wall surfaces. The structural frames are concrete and steel; exterior walls are brick and porcelain enamel panels. Interiors are concrete block and glazed tile, with floors of asphalt tile or terrazzo, ceilings of suspended acoustic panels.

The actual building cost of the project was $2,266,444, or $1510.97 per pupil, $13.72 per sq ft. This included $285,300 for special foundation conditions; excluding this brings costs to $11.99 per sq ft.



SECTION



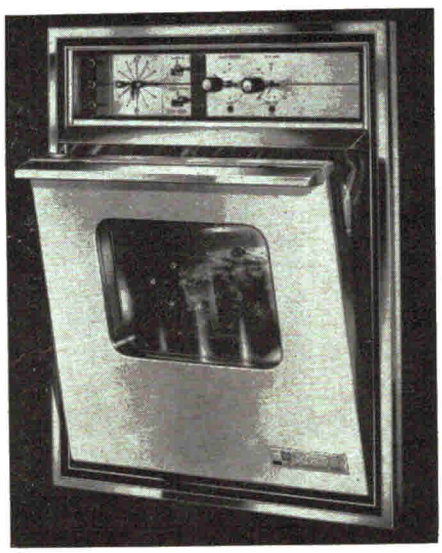


Product Reports

continued from page 198

Range and Oven with Fume Control

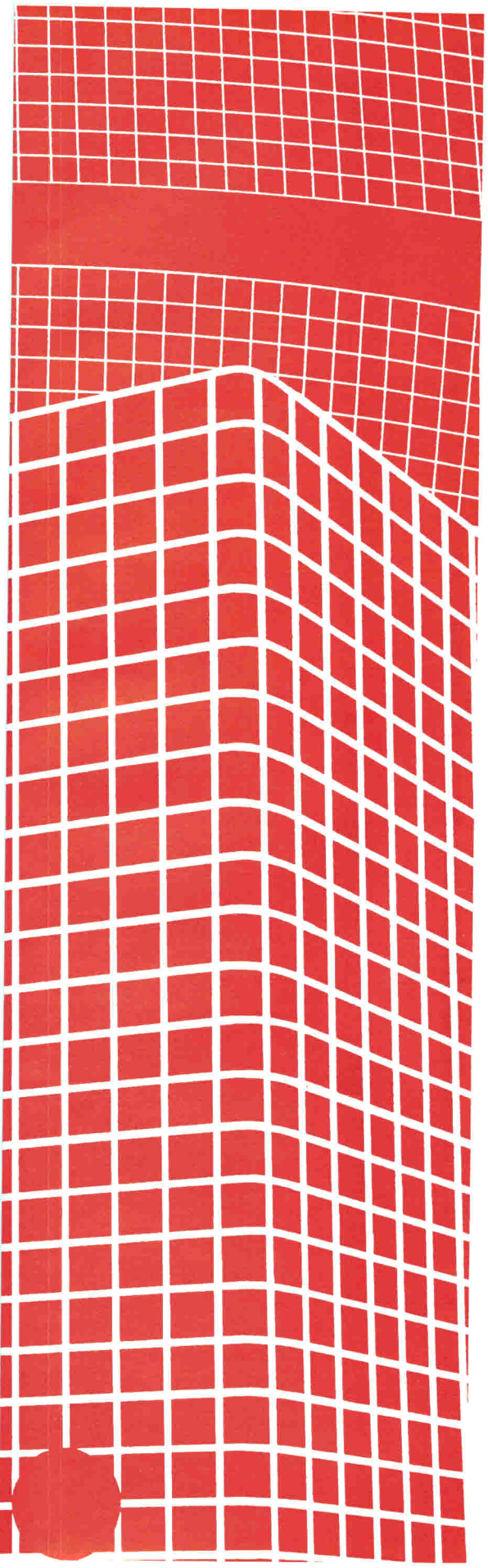
The *Air Conditioned Range* is a built-in cooking surface with its own fume control system which removes cooking odors, smoke and heat before the fumes escape into the room. During cooking, fumes are sucked through a high-velocity pull-off slot in the raised cover. Because the power unit is suspended on a resilient mounting in the rear of a bottom cabinet, the operation is quiet. When the cover is closed, all power to the range is automatically cut off. Because there is no overhead equipment, cabinets can extend across the wall above the range. There is greater freedom in designing kitchens since odors do not reach near-by areas. The four cooking surfaces are arranged in a line,



eliminating reaching over hot burners. The matching, built-in *Air Conditioned Oven* has the same fume control so the kitchen is not heated when the oven is opened. *Jenn-Air Products Co., Inc., 1102 Stadium Drive, Indianapolis 7, Ind.*

more products on page 220

concrete...
goes in place 1/3 faster than bars



New Structural Wire Fabric will speed up and improve multistory building construction. Just consider these advantages: ■ Structural Wire Fabric mats go in place at least ⅓ faster. ■ Structural Wire Fabric eliminates thousands of time-consuming spacing and tying operations. ■ Structural Wire Fabric mats are prefabricated to your exact specifications of size and design requirements. ■ Structural Wire Fabric mats are "stiffer," your assurance that the steel will remain in the proper position in the concrete slab. ■ Structural Wire Fabric is made from high-tensile, high-yield cold drawn wire up to ½" diameter, permitting increased working stresses with a greater factor of safety. ■ Structural Wire Fabric is electrically welded at all intersections, assuring positive mechanical anchorage in the concrete. ■ For designs that call for innovations in concrete, look into Structural Wire Fabric. We'll be glad to assist you or your structural consultant with technical recommendations. Just contact our nearest sales office or write American Steel and Wire, Dept. 1247, Rockefeller Building, Cleveland 13, Ohio. **Innovators in wire.**

USS
TRADEMARK

American Steel and Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco
Tennessee Coal & Iron Division, Fairfield, Ala.
United States Steel Export Company

Product Reports

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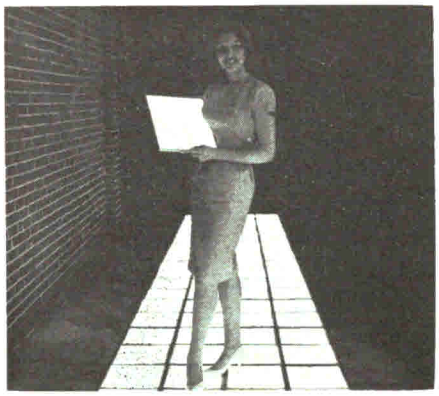
Solid State Lighted Sidewalk

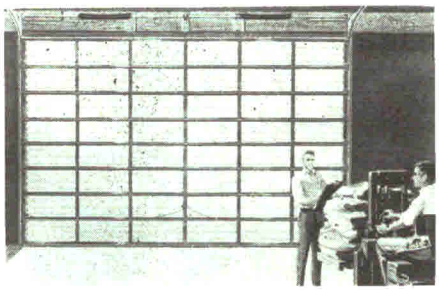
A solid state, lighted sidewalk has been installed at Sylvania Electric Products Inc. Unlike lighted side-



walks which require conventional light sources under a transparent or opaque surface, the Sylvania product is composed of solid pieces of steel embedded in the ground. The *Panelescent* lamp used produces light over the entire surface by the principle of electroluminescence, in which light is created by the excitation of phosphors in an electrical field. The lamps used are set in aluminum trays and covered with plastic for weatherproofing. *Sylvania Electric Products Inc., 730 Third Avenue, New York 13, N.Y.*

Translucent Industrial Door

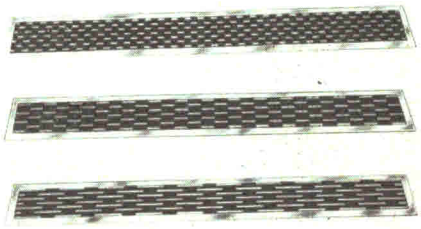
A new kind of strong, heavy-duty door, the *Filuma 2800 Series*, is translucent. It weighs about one third as much as comparable size wood or metal doors and comes in a choice of five colors in sizes up to 24



by 16 ft. The *Filuma* is an overhead door operated by adjustable torsion springs, with sections of reinforced fiberglass tightly encased in extruded aluminum frames. The door never needs painting or glazing and is cleaned by hosing. *Frantz Manufacturing Co., Sterling, Ill.*

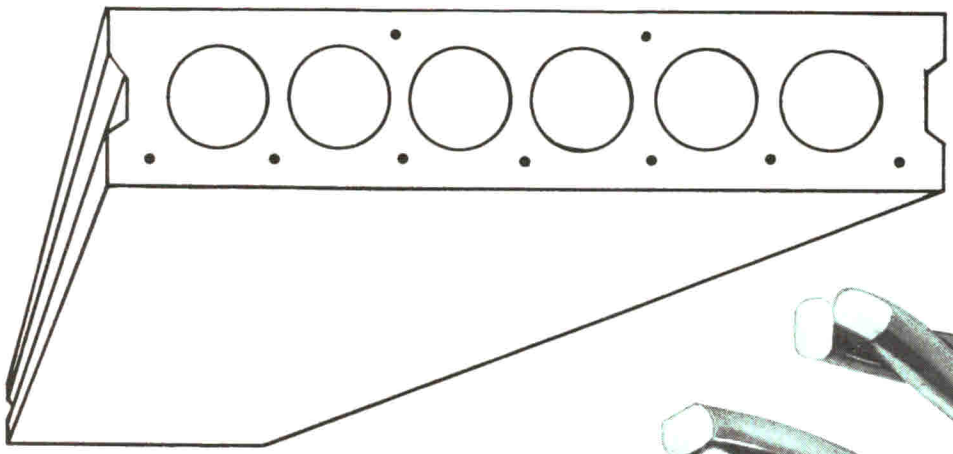
Decorative Linear Diffusers

A new line of extruded aluminum linear air diffusers called the Titus *Staccato Line* introduces a copyrighted design in which short-spaced dashes along each louver stand out in relief against a dark background. The faces of the raised sections are brushed satin aluminum finish, a contrast to the anodized black finish of the rest of the louver. Diffusers can be furnished with a variety of extruded aluminum borders, in many

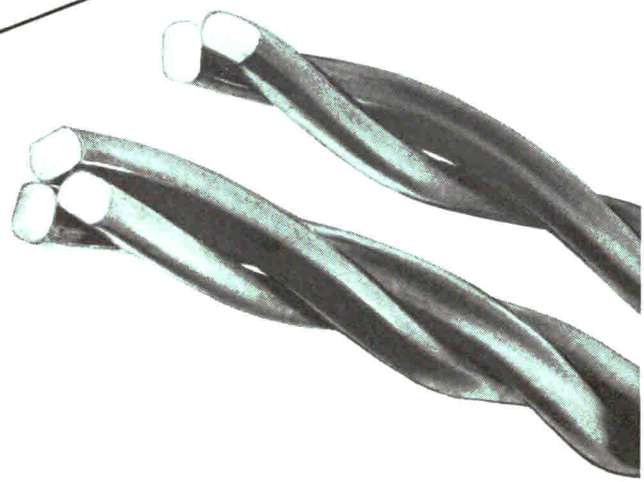


standard widths, and in any length for continuous appearance. *Titus Mfg. Corp., Waterloo, Iowa.*

more products on page 214



New steels are born at Armco



Prestressed Concrete Industry Continues To Add To Design and Construction Advantages

Few, if any, of its segments have contributed so greatly to the construction industry in such a short time as has prestressed concrete.

Its growth has been phenomenal and healthy because it is based upon an advanced engineering concept of attaining equal or greater structural strength with less concrete and less steel.

After rapid technological development of superior steel, concrete and design, theory became theorem with an impact to be reckoned with. Now, each year, more and more architects and engineers are using prestressed concrete in their designing. A wide range of architectural and structural shapes are produced in plants across the nation.

Technological development continues to enhance the many basic and collateral advantages of prestressed concrete such as:

- Greater—more flexible strength for longer spans, fewer columns.
- Thinner sections, lower depth to span ratios.
- Lower wall heights, increased usable cubage.
- Balanced stresses and strains and controlled deflection.
- Closer quality checks in controlled manufacture.
- Ready availability, speedier erection.
- Lower maintenace and insurance.

Strength Factors of Prestressed Concrete Increased By Research Laboratory

In combining, or balancing, the compressive strength of concrete with the tensile strength of stress relieved round wire strand, a loss of bond occurs. The designing engineer must compensate for this with more strand at less tension.

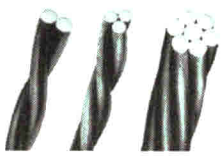
Prestressed wire and strand has been a major project in Union Wire Rope laboratories, even before the beginning of the industry in America. Now, loss of bond through creeping and slippage has, for the first time, been largely overcome with Union's Tuf-Lock strand.

New Union Tuf-Lock* Strand Locks Itself In Concrete – Increases Bond Strength Up To 100%

Note the shape of the wires. Not round—not flat—but a combination that provides angular grooves and rounded bonding areas. The tendency to slip when cast in concrete is restricted. A locking action takes place as the strand, in seeking release from tension, tends to orient itself. A gripping effect is set up in the concrete locking the strand all along the axial path of the grooves.

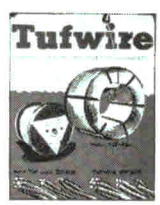
The superior ability of Tuf-Lock strand to pass the tension stresses to the concrete has been proved in tests. 100% strand strength is developed by Tuf-Lock in one-half the length required by round wire strand.

Still Readily Available UNION's ORIGINAL Tufwire



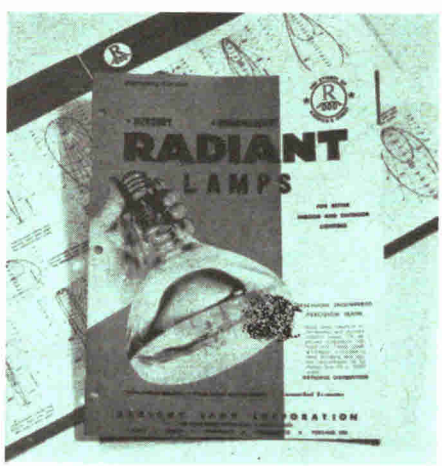
Tufwire for post-tensioning—Tufwire Strand—widely used since the beginning of prestressing in America will continue to be manufactured in unlimited quantities. It is available in coils, wooden reels and the New Tuf-Pak.

FREE Brochure provides information on the physical properties of all Union prestressing products, including the increased bonding qualities of new Tuf-Lock Strand. Also gives methods of shipment including the new Tuf-Pak which makes possible shipment of longer lengths. Write **Union Wire Rope, Armco Steel Corp., 2312 Manchester Ave., Kansas City 26, Mo.**



* Pat. Applied for

ARMCO Union Wire Rope



Lamps for Industry
Looking for the exact lighting for your particular needs? This 16-page booklet includes candle power curves showing light distribution patterns of 116 types of industrial lamps. The hard glass incandescent and mercury flector lamps are of all kinds, for both indoor and outdoor lighting, from 50 to 10,000 watts. *Radiant Lamp Corp., 300 Jeliff Ave., Newark, N.J.*

Blueprint for Better Schools
Features wood school designs developed by Cooper and Auerbach, A.I.A., with isometric renderings, site plans, sketches and detail drawings. A variety of exterior siding, interior panelings, and door and window designs are also shown, as are flat, sloping and curved roofs supported by beam-and-purlin and beam-and-rafter systems, laminated wood bents, laminated beams, bowstring trusses, and V-arches. *Wood Information Center, National Lumber Manufacturers Assn., 1319 18th St., N.W., Washington 6, D. C.**

Insulation Product Information
(A.I.A. 37-D) Describes available forms or types of thermal insulations for all types of commercial and industrial requirements; discusses advantages to users; and gives detailed specifications, including compliance with government specifications and ASTM standards. Catalog IN-244A, 64 pp. *Johns-Manville Sales Corp., 20 East 40th St., New York 16, N. Y.**

Store Equipment for Store Planning
(A.I.A. 35-H-5) Describes and illustrates complete line of store fixtures and furnishings. Catalog E-11, 64 pp. *Frederic Weinberg Co., 145 W. Columbia Avenue, Philadelphia 22, Pa.*

TECO Catalog
Describes and illustrates the firm's line of timber connectors, framing devices and installation tools, and includes recommended working loads of *Teco-U-Grip* joist and beam hangars, *Trip-L-Grip* and *Du-Al-Clip* framing anchors, and installation data on *Fas-Lok* bridging. 8 pp. *Timber Engineering Company, 1319 18th St., N. W., Washington 6, D. C.*

Kentile Floors
A new *Workbook for Architects and Builders* (A.I.A. 23-G) covers recommended uses, suitable walls and underfloors, approximate costs, light reflectance, radiant heating, adhesives, static loads, and relative quietness; and also includes installation and maintenance instructions for various tile and wood floors, flooring suggestions for special circumstances, and specification data. 48 pp. *Kentile, Inc., 58 Second Ave., Brooklyn 15, N. Y.**

Electric Traverse Rod
A 16-page catalog describes the Kenney electric traverse rod as "an entirely new concept in automatic drapery control." The rod includes track assembly, power supply and electrical control system. Controls operate from single or multiple stations. *Kenney Mfg. Co., 609 Wellington Ave., Cranston 10, R. I.*

Patterned Aluminum Sheet
Samples of 41 different types of patterned aluminum sheet are shown in *Designed Surfaces,* from Alcoa. It lists the width, length, alloys and tempers in which each pattern is normally available. The patterned sheets are flexible and allow interchange and combination of patterns and finishes, pre-finished coatings, color and original designs. *Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.**

Steel Beams
(A.I.A. 13-G) Details and specifications of Diamond-Span-R open web steel beams are given in a spring-bound catalog. *Elizabeth Iron Works, Inc., 540 Green Lane, Union, N. J.*

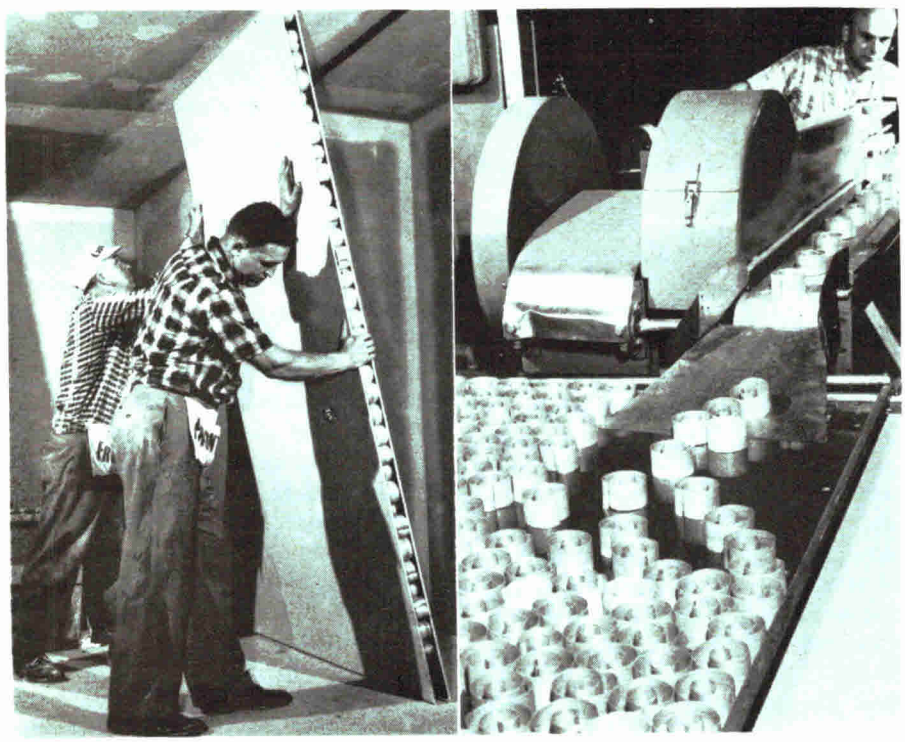
Concrete Construction Devices
Accessories used in concrete construction are discussed in a handbook made up of 12 loose-leaf bulletins. Form-tys, supports, inserts and anchors are among the more than 400 products included. Individual bulletins or the complete handbcok are available from *Richmond Screw Anchor Co., Inc., 816-838 Liberty Ave., Brooklyn 8, N.Y.**

Emergency Lighting
A 24-page catalog describes emergency lighting systems that can be used in all types of non-residential buildings. Should normal lighting fail, emergency lighting comes on instantly and automatically. The systems also have built-in "supervisory" circuits which report any disarrangement—even a burned-out light in an exit sign. Power is provided by non-acid nickel-cadmium batteries which last 25 years or more. *The Standard Electric Time Co., 89 Logan St., Springfield, Mass.*

**Additional product information in Sweet's Architectural File*

more literature on page 254

WOOD SHAVINGS, GYPSUM MAKE UP PREFAB PANELS

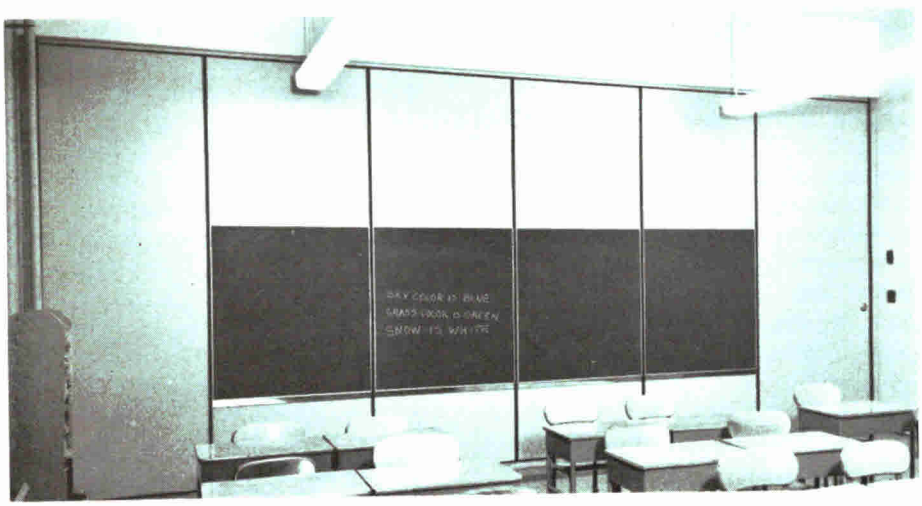


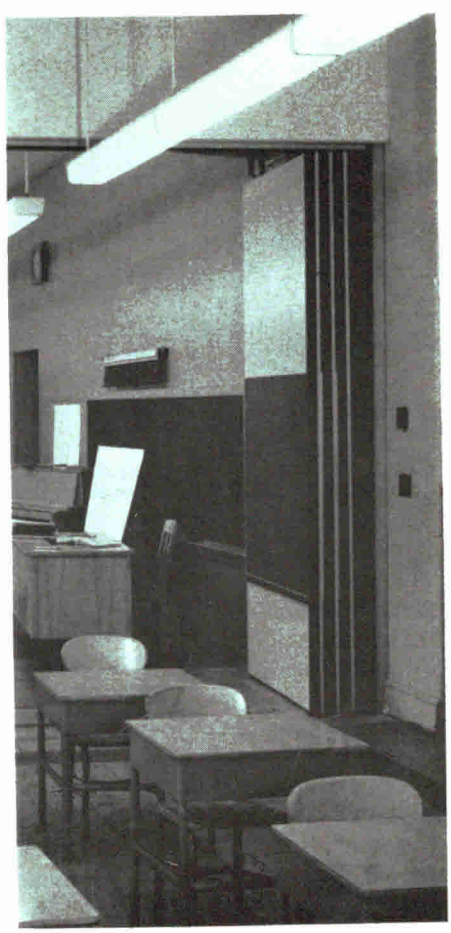
The National Gypsum Co. has developed a new prefabricated panel which can be assembled to form non-load-bearing partitions. The panels are made of two pieces of gypsum wallboard laminated with a center core of hardwood spirals to form a panel 2⅜ in. thick. The hardwood spirals resemble familiar wood shavings, but are precision cut to a uniform size. Each panel has a wood strip embedded in one end to aid application on the job site. Panels can be erected individually, or by pre-assembling entire wall sections. They can be used in place of conventional stud construction for all interior non load-bearing walls, except those incorporating water and sewer service lines. Short electrical runs can be pushed between the spirals, or they can be punctured to permit longer runs of cable to be fed through them. *National Gypsum Co., Buffalo 2, N.Y.*

FOLDING PARTITION PROVIDES SOUND BARRIER

A new folding partition which provides a high degree of sound control has been introduced by the E. F. Hauserman Co. Sound tests have shown the partition, called Operable Wall, to have an over-all average of sound reduction comparable to many fixed partitions. The wall is composed of steel panels which enclose a core of packed rock wool. Continuous sealing at the perimeter and neoprene gaskets at the panel joints counteract sound leakage. The wall is manually operated and runs on an overhead track. There is also a floor guide for increased stability. A thirty foot Operable Wall can be stacked in an area less than 2 ft deep. The panels have a baked enamel finish, and chalk and tack boards can be permanently applied. Individual panels are removable, as each is hung separately, and an end panel is available as a door. *The E. F. Hauserman Co., 5711 Grant Ave., Cleveland 5, Ohio.*

more products on page 198





NYLON:
Molded-nylon products have qualities as spectacular as those of the longer known nylon fabrics. They are tough, have a low frictional coefficient, and they resist mechanical wear better than many metals. Nylon's high softening temperature is exemplified by its replacement of brass for mixing-valves in automatic washers.

POLYCARBONATE:
A new polymer offering outstanding impact strength, dimensional stability under varying humidity or temperature, and heat resistance.

POLYETHYLENE:
Waxy and chemically inert, flexible even at low termperatures, this material is one of the best known plastics. It is a water barrier and retards the passage of water vapor. The plain, colorless substance is short lived in sunlight, but carbon-black-pigmented polyethylene has a good weathering record. (A new, "linear" polyethylene with properties more desirable for certain applications, is now available.)

POLYPROPYLENE:
A thermoplastic material composed of polymers of propylene. The lightest of all commercial plastics, its properties are roughly comparable with those of linear polyethylene.

POLYSTYRENE:
Non-water-absorbent, it is found in colorful, but brittle, wall tiles. Copolymers of styrene with rubber can be very tough. Polystyrene is one of several plastics used in electric-lighting diffusers. In foamed form, it has become an important thermal insulation.

PVC (POLYVINYL CHLORIDE):
The resin itself is rigid; plasticizers add flexibility to excellent resistance to wear and abuse.

SARAN:
A cousin of PVC, chemically as well as in its properties. Unlike PVC, which must be "stabilized" against degradation under ultraviolet light, Saran performs well outdoors without special formulation.

Thermosets

ALKYDS:
These appear chiefly as molded electrical parts. They are also important constituents of certain paints.

EPOXY:
Relatively new and still quite expensive, epoxy is already used in building because of its remarkable adhesive qualities and chemical resistance.

MELAMINE AND UREA:
Hard, durable, and dimensionally stable, these quite similar plastics are resistant to chemicals, electrical potential, and heat. This last property makes lower-priced urea useful for incandescent-light diffusion. With a wider color range, melamine is well known to the public in the form of molded dishes and laminates, such as counter tops.

PHENOLIC:
Familiar for years as Bakelite in the old, black telephone handsets, it is strong, durable, and both electrical- and heat-resistant. This low-cost "workhorse" plastic is limited to dark colors.

POLYESTER:
Appears in film form under trade names such as "Mylar" and "Videne." It has been known longer as the plastic most commonly used in large glass-fiber-reinforced translucent panels that are strong, rigid, and impact-resistant. Polyesters' resistance to abrasion can be poor, as can its ultraviolet-light resistance, but properties vary widely with differences in formulation.

SILICONES:
Being semi-inorganic substances, silicones might not be classified strictly as "plastics." In building, they are applied to masonry to improve its water-repellance and weatherability.

URETHANE, properly called polyurethane:
Newly developed thermosetting polymer, appearing as flexible and rigid foams and coatings, also as adhesives and as elastomers.

APPLICATIONS

Solid Finish Surfacing*

FLOOR COVERING
Plastics typically employed—PVC; vinyl-asbestos.
Preferred because—Permanent color; chemical and wear resistance.
Remarks—Share some problems of all resilient floorings, such as shrinkage, selection of proper adhesives and indentation.

COUNTERTOPS
Plastics typically employed—Melamine on phenolic laminate; PVC or polyester laminated to hardboard or other substrate.
Preferred because—Ease of cleaning, no maintenance, withstand abuse and variety of colorful designs.
Remarks—Best heat resistance offered by decorative melamine-surfaced laminates; some are cigarette-proof. But the others are more adaptable to complex shapes.

INTERIOR WALL SURFACING
Plastics typically employed—Polystyrene tile or boards; PVC, either in sheets (often fabric-backed) or impregnated in fabric; polyester often factory- or field-applied to masonry.
Preferred because—Variety of colorful designs; easy maintenance withstand abuse; do-it-yourself application of wall tiles.
Remarks—PVC provides top-quality wall coverings for such hard use installations as hotels and institutions. Field-applied polyesters uses include sanitary locations such as dairies and bakeries.

EXTERIOR WALL SURFACING
Plastics typically employed—Polyester (reinforced with glass fibers) acrylic, (often similarly reinforced); PVC.
Preferred because—Integral color large-area units possible, with fewer joints than brick, shingles, etc. lightweight; relatively easy to clean
Remarks—None of these building materials have been in use long enough to establish weatherability comparisons; acrylics have stood up thus far for more than 20 years. Architectural possibilities offered by added feature of translucency only beginning to be explored. These are organic materials and will burn

GLAZING
Plastics typically employed—(see also translucent exterior wall surfacing, above), Acrylic; polyester PVC; polyethylene.
Preferred because—Shatterproof conducts only ¼ as fast as glass; because readily formed, offers self-flashing shapes such as single-unit skylights.
Remarks—Optically, not as good as the best glass, but decorative possibilities unlimited. Polyethylene used temporary only, as during construction.

(To be concluded in November)

* as contrasted with liquid-applied paints and coatings.

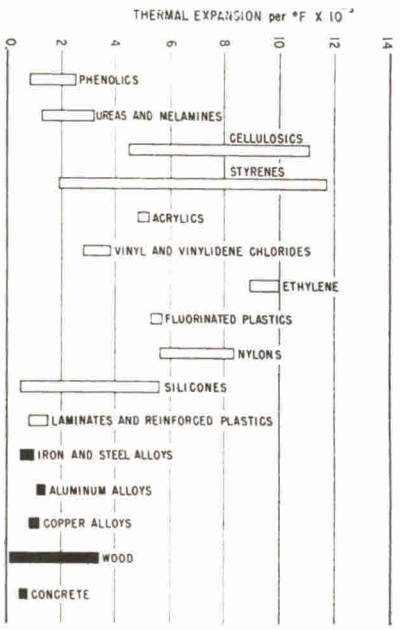


Fig. 3. Thermal Expansion of Plastics and Various Other Materials

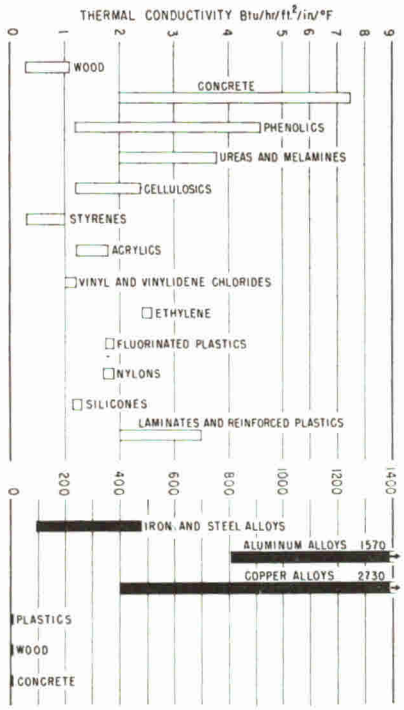


Fig. 4. Thermal Conductivity of Plastics and Other Materials

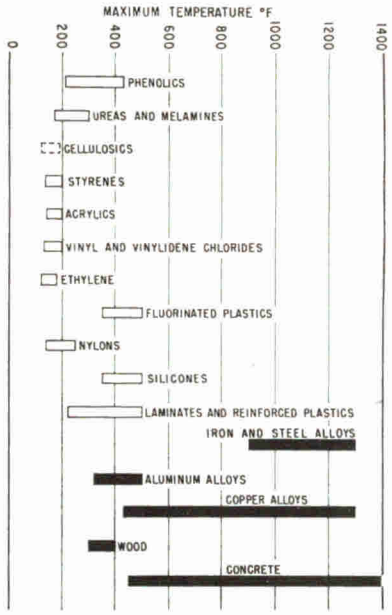


Fig. 5. Approximate Temperature Limits for Plastics Compared with Other Materials

'LASTICIZER:
Materials added to a plastic to improve flexibility or to facilitate compounding.

'OLYMER:
A substance consisting of long-hain molecules formed by the union of many small molecules that are like. (See "monomer.")

'OLYMERIZATION:
The process by which polymers and copolymers are formed.

'OSTFORMING:
Bending phenolic laminates or cer-ain other thermosetting sheet ma-erials into simple (substantially permanent) shapes by heat and pressure after initial cure.

ESIN (SYNTHETIC):
Polymeric synthetic products hav-ng some of the characteristics of natural resins. Some serve as base ngredients of plastics; others are mportant ingredients of finishes, dhesives, etc.

ESORCINOL:
Generic noun for a group of syn-hetic polymers, much like the phen-lics, that are chiefly used as heat nd water resistant adhesive.

OVING:
A form of fibrous glass in which pun strands are woven into a tubu-ar rope.

USPENSION:
A liquid with small, solid particles dispersed more or less uniformly throughout.

THERMOPLASTIC:
Term identifying that category of plastics which soften whenever heated sufficiently.

THERMOSET AND THERMOSETTING:
Terms identifying the other category of plastics, which undergo a chemical change and harden permanently when heated (in contradistinction to the thermoplastics).

THIXOTROPIC:
Said of materials that are gel-like at rest, but fluid when agitated (desirable in paints).

VACUUM FORMING:
Method of sheet forming in which the plastic sheet is clamped in a stationary frame, heated and drawn down by a vacuum into a mold.

VINYL:
Alone, this word has a precise meaning to chemists. But as used in building, it is a vague term for certain polymers or copolymers. It is safe to assume that "vinyl" means, in connection with latex paints, "polyvinyl acetate" or—anywhere else in building "polyvinyl chloride" (PVC), or a preponderantly-PVC copolymer.

PRINCIPAL TYPES OF PLASTICS

Thermoplastics

ABS PLASTICS:
Compounds of acrylonitrile, butadiene, and styrene. Important characteristics are toughness, chemical resistance, and non-brittleness at low temperatures.

ACETATE:
See "Cellulosics."

ACRYLICS:
Popularly known trade names are "Lucite" or "Plexiglas"; chemical name, "polymethyl methacrylate." These materials combine the transparency of glass with plastics' shatterproof quality. Their weathering performance has been better than other common plastics and is being constantly improved.

BUTYRATE:
See "Cellulosics."

CELLULOSICS:
(Primarily cellulose acetate or butyrate.) Also transparent, "acetate" is well known as photographic safety-film. These plastics are amazingly tough—one common use is tool handles.

FLUOROCARBONS:
A group of extremely inert plastics. As resins, dispersions, oils, greases, and waxes, they have high thermal stability and excellent resistance to chemical attack.

METHYL
MECHACRYLATE:
See "acrylics."

Plastics in Building

Tensile strength of plastics is comparable to wood and concrete, but increases to the range of metal alloys when reinforced or laminated with other materials or when drawn into fine filaments. Although plastics are inherently low in stiffness, when reinforced they range higher even than wood and concrete. Forming into structural shapes also increases stiffness. Thermal conductivity is about as low as wood, making plastics excellent insulators. Although most plastics are damaged above about 200 deg F, many do not support their own combustion or burn with difficulty

Note: Charts are reproduced from "Physical and Engineering Properties of Plastics" by Albert G. H. Dietz, a paper delivered at the 1954 conference on plastics held by the Building Research Institute and published in the conference report "Plastics in Building."

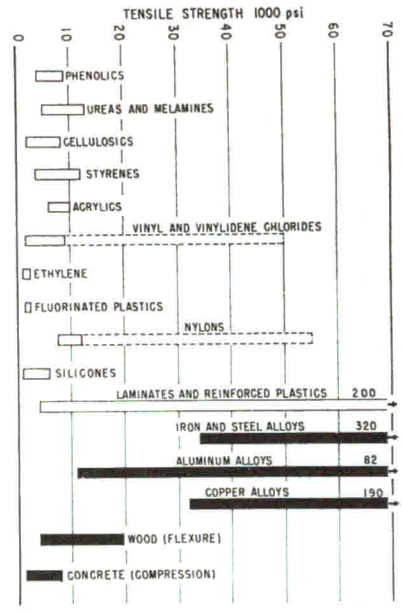


Fig. 1. Tensile Strength of Plastics and Other Materials at 1000 psi

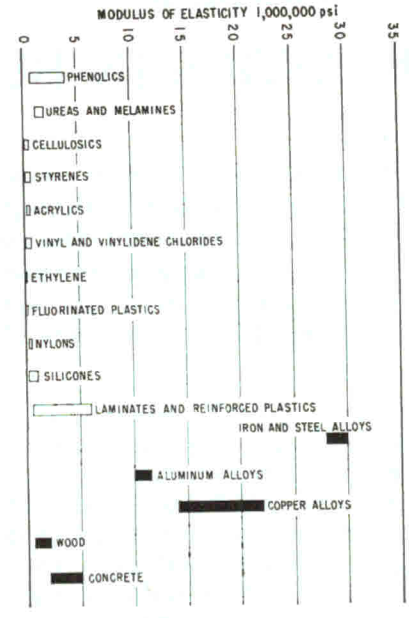


Fig. 2. Modulus of Elasticity of Plastics and Various Other Materials at 1,000,000 psi

TERMINOLOGY

A certain amount of chemical-industry terminology cannot be avoided in discussing plastics. A few of the following terms are included because their meanings in this context are somewhat more precise than in common parlance.

COLD FLOW:
Creep occurring at room temperature.

COPOLYMER:
A substance consisting of long-chain molecules formed from two or more different monomers.

CREEP:
The change in dimension of a plastic under load over a period of time. Does not include the initial instantaneous elastic deformation.

CROSS-LINKING:
The chemical union of polymer molecules to form a three-dimensional network. Cross-linked polymers are usually infusible thermosets.

CURE:
Changing physical properties of a material by chemical reaction—usually to a harder or more permanent form.

DEFLECTION TEMPERATURE:
Degrees Fahrenheit at which a plastic material under fixed stress distorts as temperature increases, according to standard ASTM test procedure. (D 648-56).

DEGRADATION:
Molecular change to the polymer, usually from exposure to light, fire, or heat, becoming apparent as charring, discoloration, clouding of transparent plastics, embrittlement, or other loss of original properties.

DISPERSION:
A liquid with finely-divided insoluble particles scattered uniformly throughout. Called a "colloid" if particles are fine enough. "Dispersion" and "suspension" contrast with a "solution."

ELASTOMER:
A material which at room temperature can be stretched repeatedly to at least twice its original length and, upon release of the stress, will return instantly and with force to its approximate original length.

EXOTHERMIC:
Adjective indicating a chemical reaction that gives off heat.

FILM:
Sheeting of nominal thickness not greater than 10 mils.

FLASH:
Extra plastic attached to a molding along the parting line. It must be removed before the piece can be considered finished.

HIGH-PRESSURE LAMINATES:
Laminates molded and cured at pressures not lower than 1000 psi, (commonly 1200-2000 psi).

INHIBITOR:
A substance that slows down chemical reaction—often used to prolong "shelf" or storage life.

LATEX:
A suspension in water of fine particles of rubber, (which today includes synthetic rubber).

LINEAR:
Adjective to describe a long-chain molecule with a minimum of side chains or branches.

LOW-PRESSURE LAMINATES:
In general, laminates molded and cured in the range of pressure from 400 psi down to and including pressures obtained by the mere contact of the plies.

MONOFILAMENT:
A continuous thread made up of only one filament.

MONOMER:
A substance constituted of a simple molecule, of relatively low molecular weight, that is capable of reacting with like molecules to form long molecular-chain "polymers" (or with both like and unlike molecules to form "copolymers").

ORGANIC:
Adjective to distinguish those compounds, like plant and animal matter, which contain the very prevalent carbon atom. "Inorganic" compounds are those that do not contain carbon.

A Lexicon for PLASTICS IN BUILDING

Part I

Even though plastics have come into architecture in a big way, there still is considerable uncertainty about nomenclature and the proper application of these synthetic materials to building components. This article gives definitions that architects and engineers need to know in working with plastics, and lists plastics typically employed—from surfacings all the way to plumbing

by William Demarest
Director, Plastics in Building
Manufacturing Chemists' Association, Inc.

Although our laboratories are synthesizing more and more materials that do not occur in nature, this is not a random process and the plastics—so far, the greatest group devised by man—constitute a recognizable class of materials, analogous to the woods or the metals.

Chemists describe this group as organic "polymers" and can explain why similarities in the structure of plastics' molecules give rise to many similarities in engineering properties. Fairly safe generalizations can be made about the physical characteristics of these materials, just as with metals and other materials. Further, it is useful to recognize the basic division among plastics, which is reflected in their engineering properties. Not unlike the distinctions between "non-ferrous" and "ferrous," or "hardwoods" and "softwoods," the two major divisions into one of which all the plastics must fall are:

The Thermoplastics, which become soft when exposed to sufficient heat and harden when cooled, no matter how often the process is repeated. Although some need more heat than others, softening with heat is their distinguishing characteristic, very much like the behavior of candle wax.

The Thermosets, which are set into permanent shape when heated during forming. Reheating will not soften them (any more than it would the white of an egg), and the only change that can be brought about by increasing heat is actual chemical decomposition—analogous to the charring and burning of wood.

Ten characteristics of plastics in general have an important bearing on building applications. They are exhibited in varying degree, often being especially marked in one or the other of the two basic subclasses—thermoplastic and thermosetting plastics.

1. *Excellent electrical-insulating properties*, in terms both of resistivity and dielectric strength. There are also other good electrical properties which are important in specific applications that are of more significance in electrical engineering than in building.

2. *Good corrosion resistance.* At least one plastic material can be found to resist practically any corrosive condition found in building. Many instances can be cited—in industrial piping, for example—where plastics have far out-performed costlier metals, such as copper or stainless steel, under corrosive conditions.

3. *Creep.* Some plastics, especially the thermosets, are essentially elastic within certain limits of stress: deformation in proportion to the load applied which disappears quickly when the load is released. Others, especially the thermoplastics, exhibit plastic behavior: they flow, or "creep," when stressed, depending not only on the load, but also on the rate at which it is applied and its duration, and increasing with increases in temperature. This characteristic is comparable to that of steel or other metals when stressed, perhaps at high temperatures, beyond the elastic limit. When the load is removed, the material may eventually recover part of the deformation, or all of it.

4. *Low tensile strength* is generally characteristic of unreinforced plastics, although in laminated or reinforced form, plastics can compare quite favorably with metals.

5. *Low modulus of elasticity* is also characteristic, but glass-fiber-reinforced thermosetting plastics offer roughly the same range of stiffness as wood or concrete.

6. *Low maximum service temperatures.* In contrast with a number of structural building materials in common use, plastics in general are best used at temperatures below the wood-char point of 380-400 deg F. This is only an approximate statement, due to the varied conditions of actual use and to differing combinations of temperature-affected properties that may be relevant: tensile strength, creep, chemical stability, and the like.

7. *High thermal coefficient of expansion.* Plastics typically expand, per unit of temperature increase, several times as much as metals. Thermoplastics, as a group, have a higher coefficient than thermosets.

8. *Flammability.* In the sense that they can be destroyed by fire, plastics can be grouped with all other organic materials. However, a number of them—including certain thermoplastics—will extinguish themselves once the igniting flame has been removed.

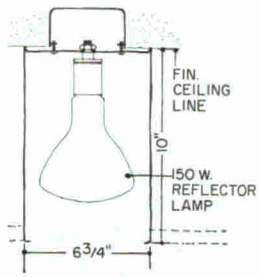
9. *Low thermal conductivity.* Typical "k-value" for the plastics in common use is about 1.5, or slightly higher than wood. As low-density foams, plastics provide some of the most efficient thermal insulators available for building; a 2 lb per cu ft polystyrene foam, for example, might offer a "k" of 0.25.

10. *Light weight*, per unit volume. Unmodified with fillers, reinforcements, or other additives, the more common of these materials range from a specific gravity of just under 0.9 (polypropylene) to roughly 1.5 polyvinyl chloride, PVC. Strength-to-weight ratios thus compare favorably with those of other materials.

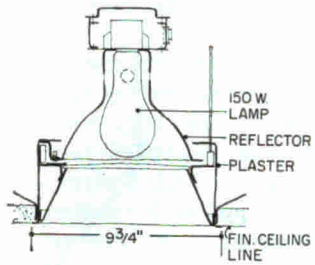
LIGHTING FOR STORES: 2 — Equipment; Electrical Outlets

by Daniel Schwartzman, F.A.I.A., Architect

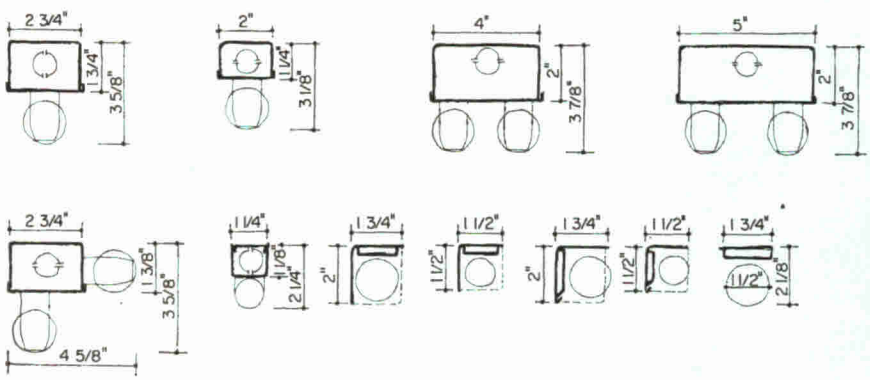
(Conclusion)



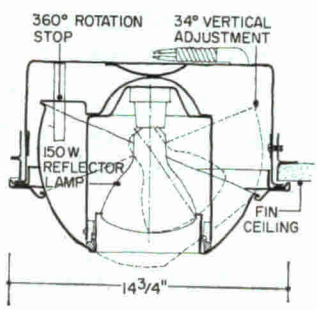
Cylindrical Downlight



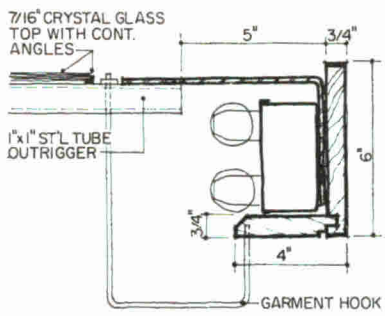
Recessed Downlight



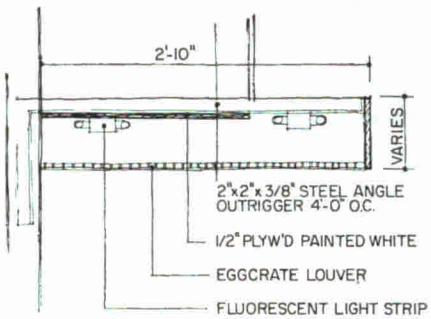
Typical Fluorescent Light Strips



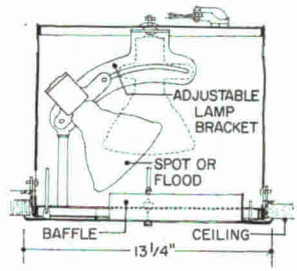
Adjustable Accent Light



Typical Light Cornice



Lighted Soffit at Back Wall



Recessed Adjustable Accent Light

OUTLETS

All interior columns should have one duplex convenience outlet about 14 in. above the floor; one duplex convenience outlet about 12 in. below ceiling; and one telephone receptacle. All exterior columns should have one duplex outlet about 14 in. above floor.

Outlet Locations:

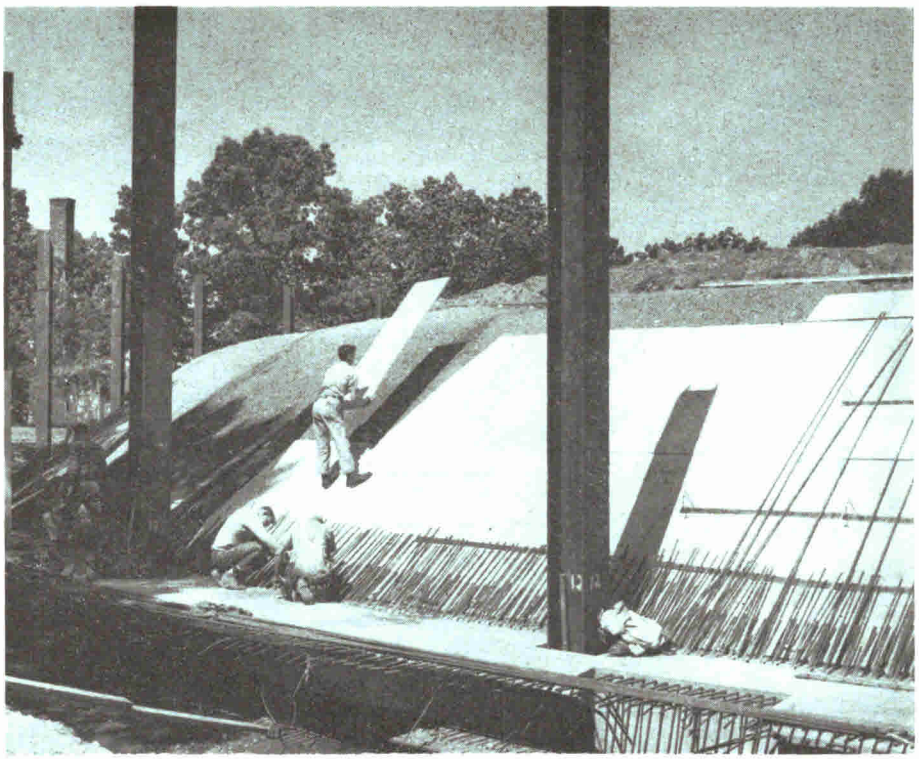
1. Cashier's Room for Calculating and adding machines
2. Cloth winder measurograph machines
3. Pilot lights for all machines, executive office equipment
4. Luggage stamping machines
5. Alteration Room for: Steam irons, sewing machines, steam generating unit boiler, pants pressing machine
6. Stationery department pen stamping machine
7. Drinking fountains and dispensing machines
8. Hospital sterilizer and stove
9. Pharmacy sterilizer and stove
10. Carpentry shop power equipment
11. Ticketing machines in marking areas
12. Store time-card clocks
13. Burglar protection
14. Sprinkler wiring system
15. Local fire alarm system
16. Store clock system and dismissal bell
17. High and low water alarm
18. Automatic time control system of exterior signs
19. Ventilating smoke and heat detection
20. Annunciator System
21. Automatic time control for show window lighting
22. Telephone system
23. Pneumatic tube blower system
24. Service bell at receiving platform
25. Night bell at store entrance
26. Cash register outlets on electric circuit separate from lighting circuits.

Mound of Earth, Plastic Planks Provide Thin Shell Form

The 240-ft thin shell concrete dome for a 7200-seat auditorium in Anderson, Ind., has been poured over a mound of gravel, and after curing will be hoisted into final position atop 36 steel columns by hydraulic jacks. A compression ring of concrete, 36-in. wide and 24-in. deep will be post-tensioned to take outward thrust.

The 26,000 cu yd of gravel used to mold the dome were topped by sand and then covered with 1-in. thick sheets of Styrofoam expanded polystyrene which serve as both a permanent form liner and as insulation. Concrete is poured after the steel reinforcement has been laid over the expanded polystyrene. When the dome is erected the Styrofoam will serve as an insulator and a base for the plaster.

Architects for the Warner Auditorium of the Church of God are Johnson, Ritchhart and Association.



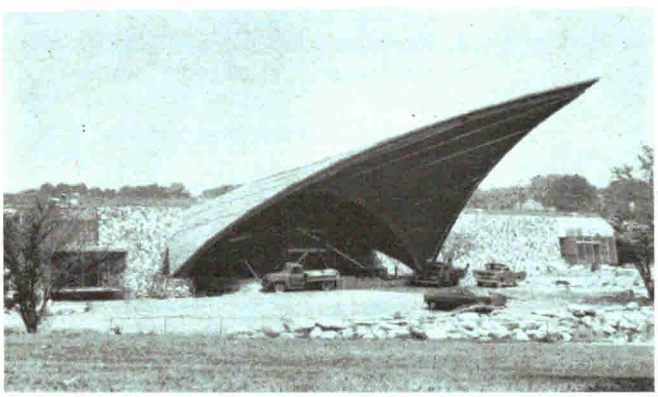
Epoxy Resin Glues Together Aluminum and Plastic Shell House

Epoxy resin is the only material used to fasten the post-and-beam structural components of a 24 by 28 ft plastic and aluminum shell house, designed by architect George Frederick Wise and chemical engineer Max C. Weiner for Major Realty Corp. of Philadelphia.

Structural aluminum mullions which are part of the wall panels are attached to the wood sill by epoxy resin. The wall panels are rigid polyurethane foam sandwiched between and exterior sheet of plastic-coated aluminum and an interior sheet of hardboard, sealed with polyvinyl acetate. Reinforced fiberglass plastic beams, 3 by 12 in., in turn are glued to the aluminum mullions with epoxy. Finally the roof panels, laminated sandwiches of rigid polyurethane foam between two layers of fiberglass reinforced plastic, are laid on top of the beams with epoxy as the adhesive. This shell without finishing sells for about $3000.

Liquid-Applied Plastic Forms Roofing for a Plywood Canopy

A 7500 sq ft fir plywood hyperbolic paraboloid canopy for a bowling center in Willow Grove, Pa., features medium blue roof covering of fluid-applied neoprene- and Hypalon-based material. The roofing was placed in four coats to give a total thickness of 20 mils. Neoprene chips were applied between the two pigmented Hypalon-based coats to provide texture. The membrane weighs less than 20 lb per 100 sq ft. Architects are Powers, Daly and DeRosa.



Vibration Isolation System Shuts Out Bowling Alley Noise

A new ceiling isolation system utilizing cross-ribbed neoprene pads counteracts noise and vibration generated by bowling alleys located over a floor of offices in the renovated Strand Building in Brooklyn.

Wide Application

According to the acoustical consultant, Lewis S. Goodfriend and Associates, Montclair, New Jersey, the same isolating principle can be used either when extreme vibration must be contained or when an unusually low vibration and noise level must be maintained.

Because the noise problem was discovered after the installation of the bowling equipment, the isolation system was designed to meet existing conditions. The system as used was considered both effective and economical for the given conditions.

Pin-setting machines and rolling bowling balls on the second and third floors created vibration which was transmitted through building structural members. Isolation of noise due to vibration was a prime consideration in order to provide office space on the first floor.

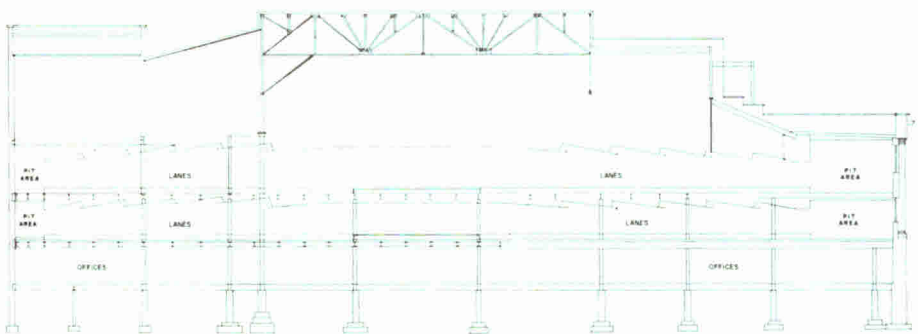
By isolating the first-floor ceiling from the second floor, engineers determined that noise and vibration would be reduced to below that acceptable for office space. Isolation of the walls was not considered necessary.

A conventional ceiling isolation approach considered involved rubber-in-shear vibration hangers. However, these hangers would have had to be spaced at 4 ft intervals. Many of them would have been attached to the floor at points where some vibration could be transmitted from the floor through the hanger to the ceiling, according to Goodfriend. This approach, although entirely satisfactory in many applications, was ruled out because of the magnitude of vibration.

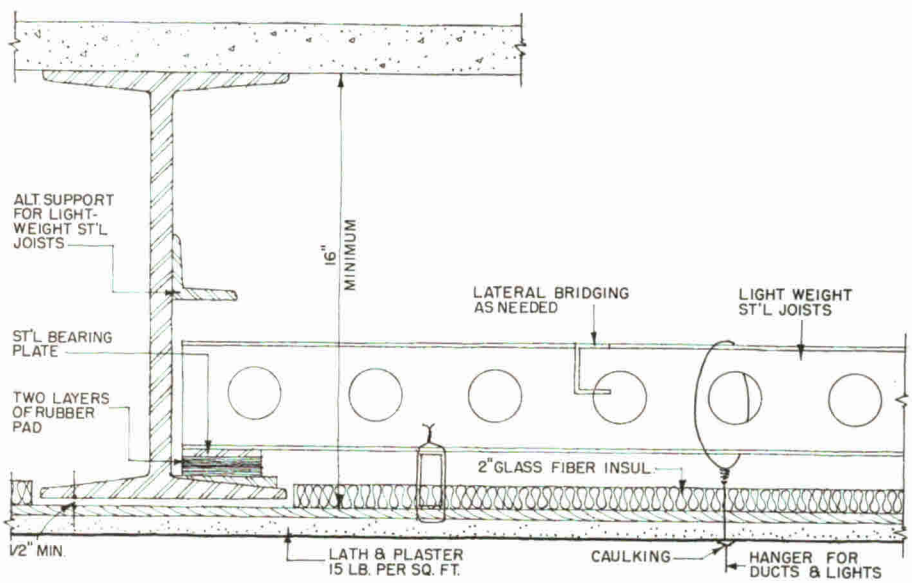
The acoustical engineers decided isolation efforts should be concentrated at the rigid structural steel members rather than at points along the concrete floor. Their solution, utilizing the cross-ribbed isolating pad is shown in the bottom figure.

Proper compressive loading of the isolating pad is the key to its effective use. The isolating system shown is the original method developed. It can be modified to accommodate individual problems found in specific installations.

The material, designated MB Isomode Pad by its manufacturer, MB Electronics, New Haven, is predominantly used to isolate vibrating machinery of all types.



Bowling alleys on upper floors of remodeled theater building had to be isolated by neoprene pads and suspended ceiling before space below could be used for offices



System Details

Ideally, vibration should be isolated at a point as close to the source as possible. In the Strand application, vibration traveled from the second floor through the main structural members to subsidiary members. The joints between the main structural members and the lightweight joists used to support the ceiling were chosen as isolation points.

Two layers of neoprene pad were inserted at the beam-joist joints. A steel bearing plate and a steel wedge were used as illustrated to create proper loading surfaces for the pad. Approximately 4 sq in. of pad were used to bring the pad loading figure to 50 lbs per sq in.

The number of layers of pad needed for a given installation is a function of the disturbing frequency. In this application, two layers were recommended so that better than 75 per cent isolation could be obtained in the hearing range of humans.

An air-tight 15 lb per sq ft lath and plaster ceiling with a 2-in. thick glass fiber blanket backing was hung from the joists. All lighting fixtures and ducts were suspended below the monolithic ceiling. Holes drilled in the ceiling for fixture hangers were sealed with a non-hardening caulking compound. Ceiling edges were sealed in the same manner.

Remodeling was done by Braverman Construction Co., Inc.

4. PRECAST PILES ECONOMICAL IN VOLCANIC SOIL

If Hawaii's builders have made significant advances in the use of precast, prestressed components for high-rise structures, it has been possible only because they first solved a variety of perplexing foundation problems. The island's basic volcanic substrata are literally interlaced with erratic deposits of sand, clay, boulders and coral reef. It is not uncommon to have a difference of as much as 50 ft in the driven length of piles which are only 3 ft apart.

Precast, prestressed concrete pilings have proven to be the most satisfactory solution thus far. Because of the prestressing action, the concrete will take a great deal of punishment from the driving hammer which permits the piles to be driven to extremely high bearing capacities. This, of course, means considerable savings can be realized through a reduction in the number of piles required for a given column load and a consequent reduction in the size of concrete pile cape and reinforcement.

Equally important is the relatively low initial cost. Eighteen-inch, octagonal, prestressed piles have been sold at the plant for as little as $5.23 per lineal foot, and driven at the construction site to carry a design load of 200 tons each.

To meet the inconsistent ground conditions mentioned earlier, it has been imperative to develop a simple and economical method of pile splicing. A dowel splice has been used extensively with 18-inch octagonal piling. Experience, however, has shown that the dowel connecting the two pile sections can occasionally cause severe damage. Chipping at the splice point may cause the pile contact points to disintegrate, with the result that the dowel begins acing like a driving wedge which eventually destroys the connecting units.

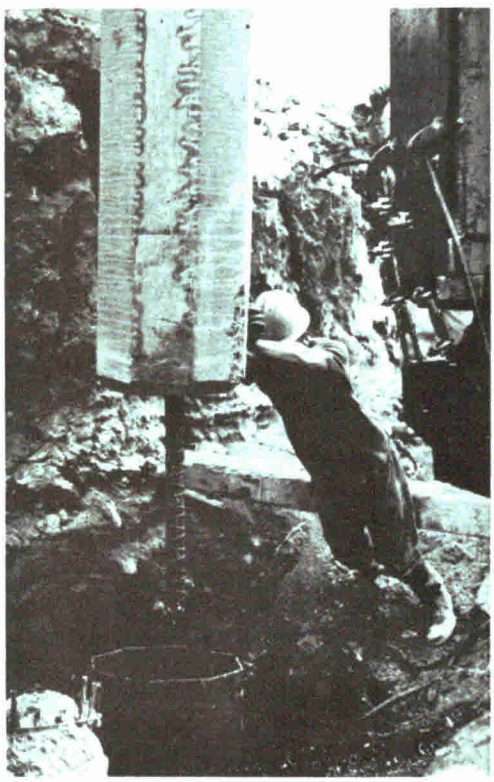
Elimination of the dowel has provided a simple solution. Recent tests have shown that the "steel-can" splice collar by itself is capable of developing all the strength needed to resist the bending movement of connecting piles under actual driving conditions. On a recent job a pile driving rig with the hammer resting on the top pile toppled over shortly after making a splice. The upper of the two connecting piles broke off just above the splice joint, which was still exposed above ground. Despite its inconvenience, the accident offered solid proof that the "can" splice was stronger than the piles it connected.

Lightweight Concrete

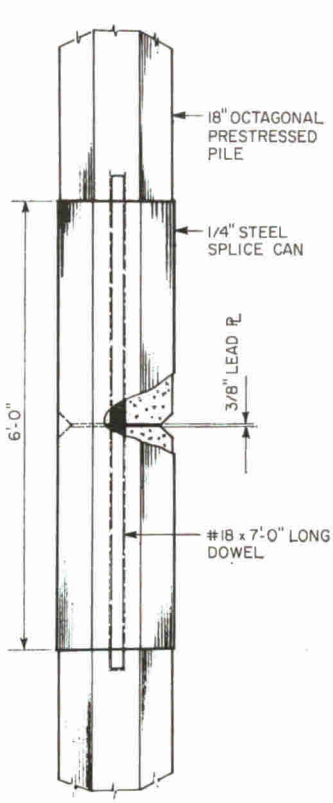
One other recent development that must be included in any discussion of multi-story construction in Hawaii is lightweight concrete. Commercial operations have now begun on two deposits of lightweight pumice aggregate. This material is giving designers a new opportunity for reducing building weight, a critical factor in high-rise construction.

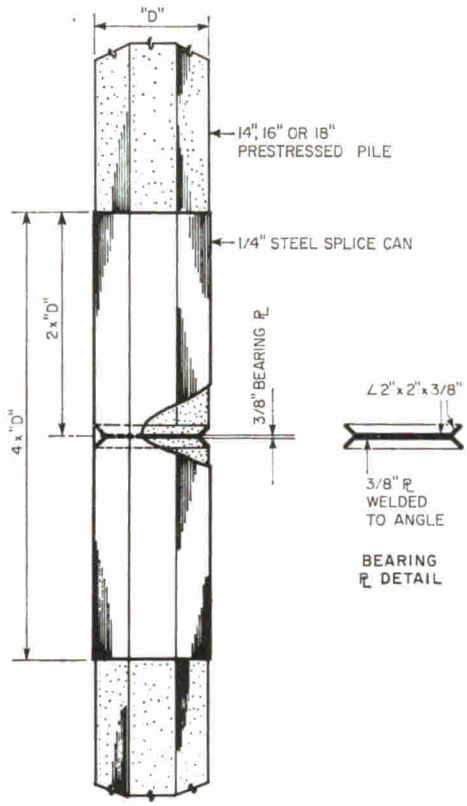
These aggregates can easily produce 3000 to 4000 psi concrete weighing about 105 pounds per cubic ft. This concrete is being used for cast-in-place composite slabs, walls, spandrels and columns. With these basic structural elements reduced in weight, pile footing costs are saved, and additional savings are realized through a significant reduction in the amount of concrete and reinforcing steel required in the structure.

This article is derived from a talk given at the Western Conferences on Prestressed Concrete Buildings sponsored by the Engineering and Sciences Extension of the University of California



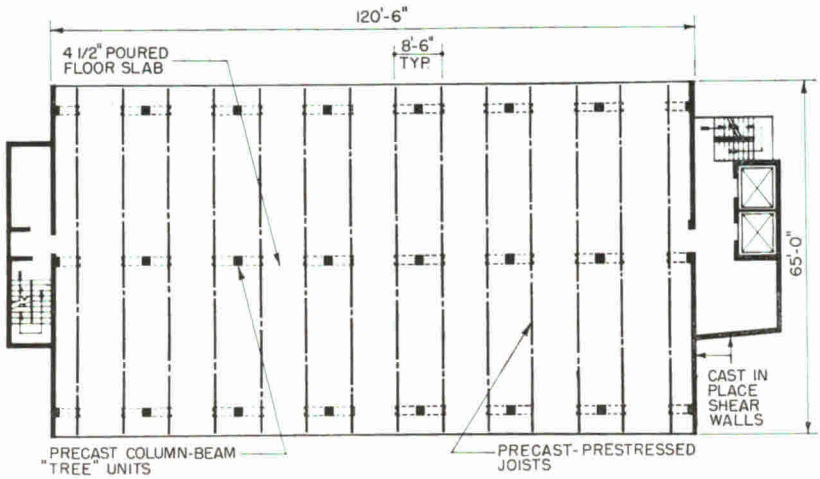
Splicing an 18-in. octagonal prestressed, precast concrete pile

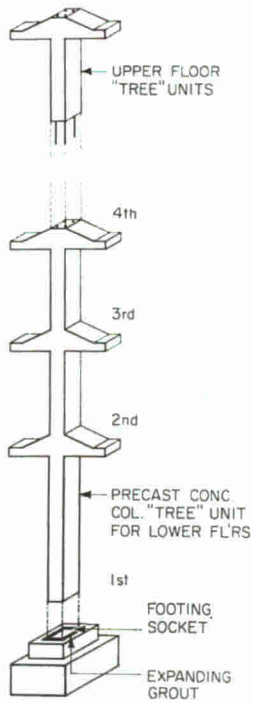


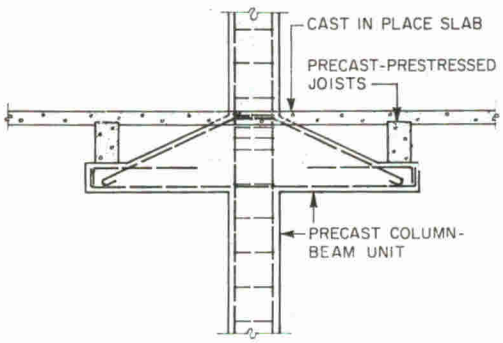


Left: Pile splice detail showing use of both the steel splice can and dowel
Right: Pile splice detail with dowel eliminated

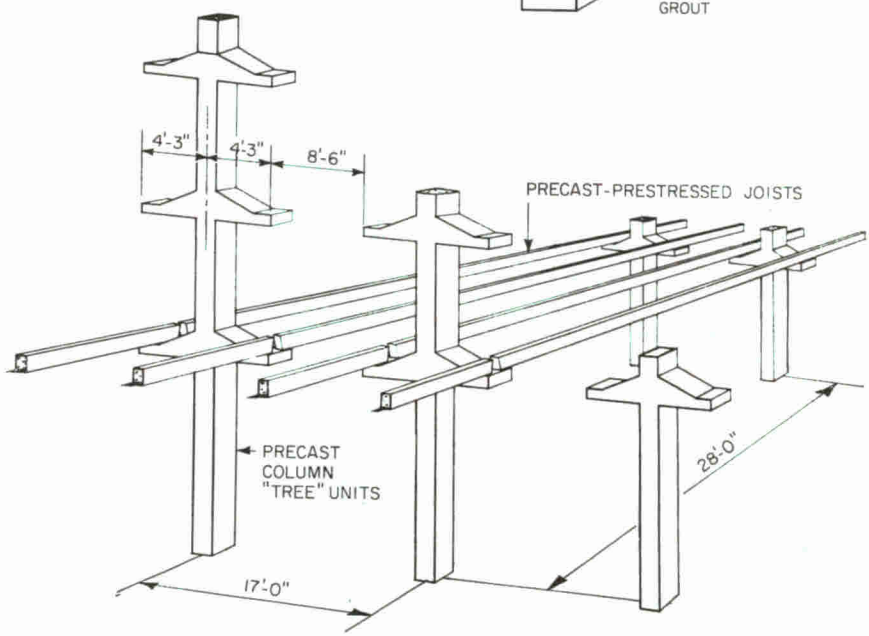
Part 3 Continued



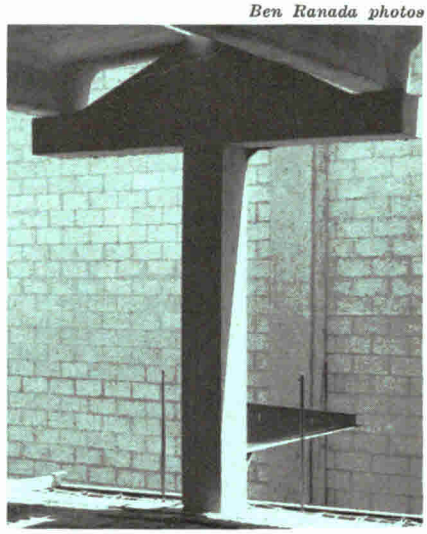


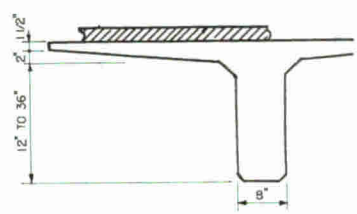


Prestressed joists are supported by the "branches" of columns. Dimensions in the sketch right are for a building under construction. The first three levels of "column trees" are precast in one piece; upper floor "trees" are precast in single-floor units for ease of handling. Precast units are tied together with a cast-in-place floor, which acts as a shear diaphragm to transmit lateral forces to shear walls. Detail above shows reinforcing pattern (follows stress lines) of a "tree"



Ben Ranada photos





A two-story warehouse and laboratory uses "column trees," but in this case precast Lin-Tees form the floors (detail right gives general dimensions for this type of unit). This technique permitted construction of a two-story addition over an existing warehouse. Architect: George W. McLaughlin; Structural Engineers: Alfred A. Yee & Associates, Inc.; Contractor: Rothwell Construction Co., Ltd.

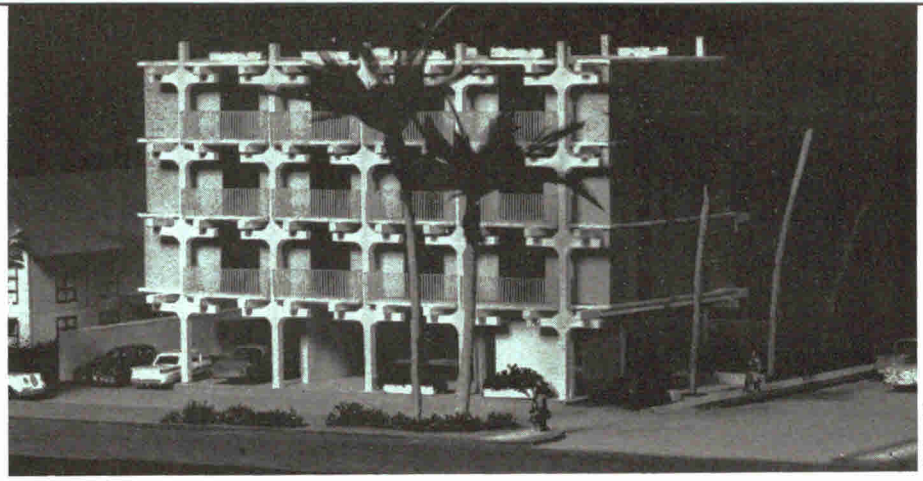
3. THE PRECAST "COLUMN TREE" CONCEPT

One of the most recent developments in multi-story framing is the so-called "column tree" concept. Principal components of this system are combination column-beam units and precast, prestressed joists. We have employed "column trees" successfully in a number of multi-story buildings. The tallest thus far is nine floors, now under construction.

A typical "column tree" unit consists of a precast column with contiguous, branch-like beams projecting out at the various floor levels. The joists rest on these "branches" of the tree. The first three floors of the column-beams are normally cast as a single unit, with all "trees" for the upper floors cast individually for ease of handling and placing.

The base of the column fits into a concrete socket in the footing which is cast to a dimension somewhat larger than the column. First a grout pad is put down into the bottom of the socket to exact elevation. When the grout pad hardens, after a day or so, the column is set on the pad at the exact vertical elevation. Then the column is adjusted laterally in either direction or rotated clockwise or counterclockwise as necessary. This oversized concrete socket has permitted all of these adjustments, even though the footing or column may not have been cast to exact dimension. Finally, the gap between the socket and the precast column is filled with expansion grout for permanent anchorage.

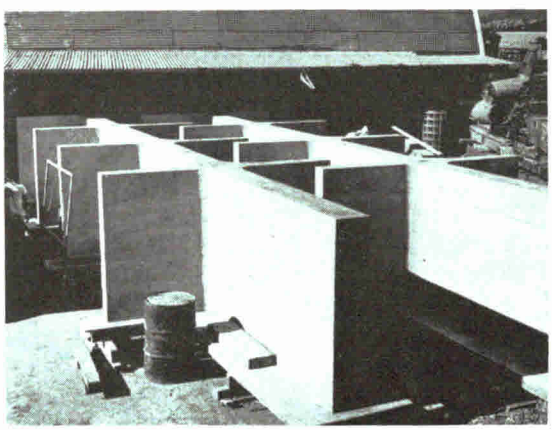
The space between the "branch" ends of adjacent "column trees" offers a decided advantage since it can be utilized for running air conditioning ducts, plumbing and other utilities close up against the deck slab with a resulting savings of head room. At the same time, "column tree" units can be designed so that they closely follow stress lines, making reinforcement placing simple and effective. In the completed structure, lateral forces are resisted by shear walls and the cast-in-place floor slab acts as a shear diaphragm tying together all precast components at each floor level.

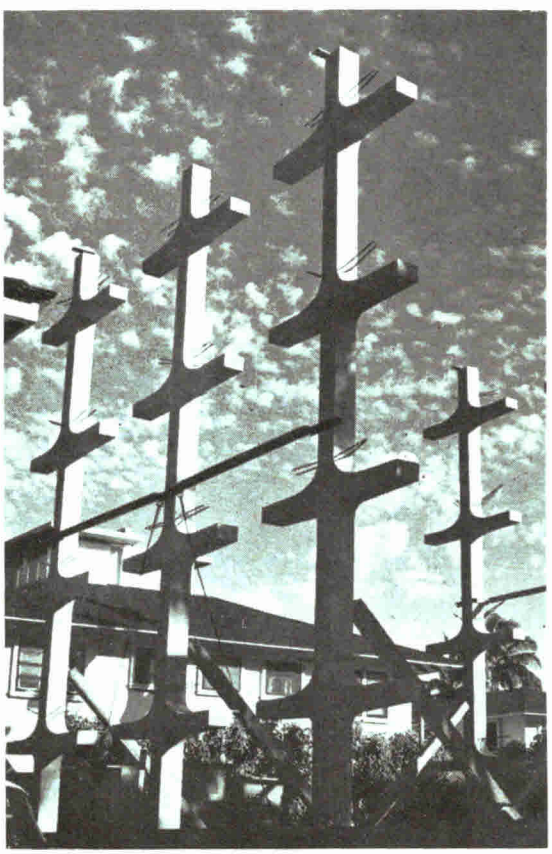


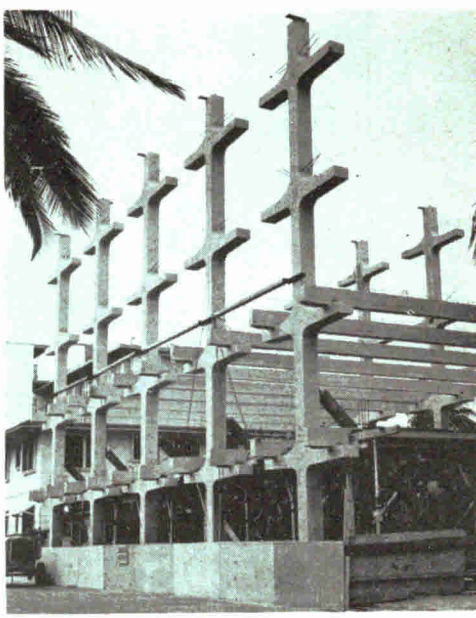
Bob Johnson

Scale model of apartment building which utilizes the "column tree" concept. The four-story "trees" are precast in one piece. (Details of the structural system are on the following page.) Towers Corporation Apartment Building, Waikiki, Honolulu. Architects: Bassetti, Morse & Tatom; Structural Engineers: Alfred A. Yee & Associates, Inc.; Contractor: T. Takahashi, Ltd.

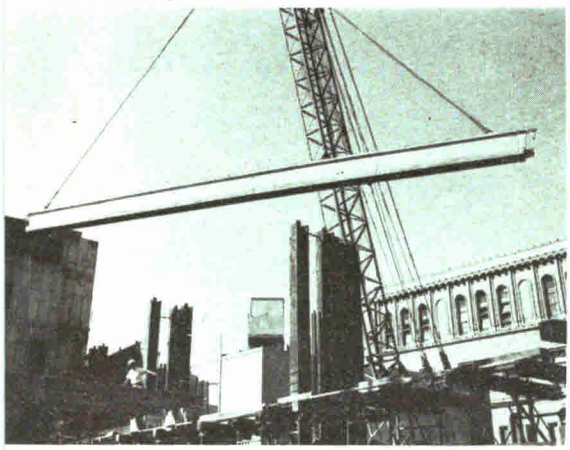
Erection sequence of the "column-tree" apartment building. Top, left: "Column trees" were cast in a five-layer sandwich; note how they were staggered to save space in the contractor's yard. Top, right: First column is lifted at the site. Below, left: "Column trees" in place after eight hours' time. The units have been plumbed, positioned and placed to final dimensions. Below, right: All "column trees" and precast, prestressed beams for the second and third floors are up after 16 hours' time



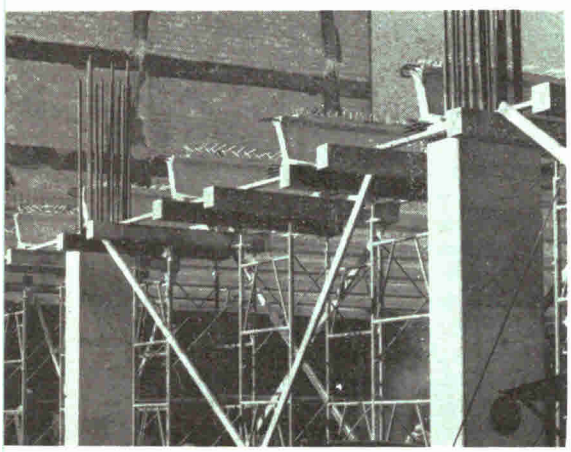




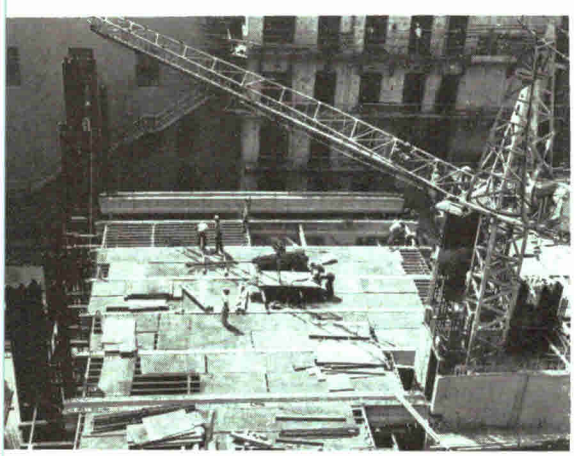
Ben Ranada photos



64-ft prestressed concrete girders are hoisted by boom of conventional crane on lower floors



The girders are shown in place ready to receive slab form work. Columns are poured-in-place

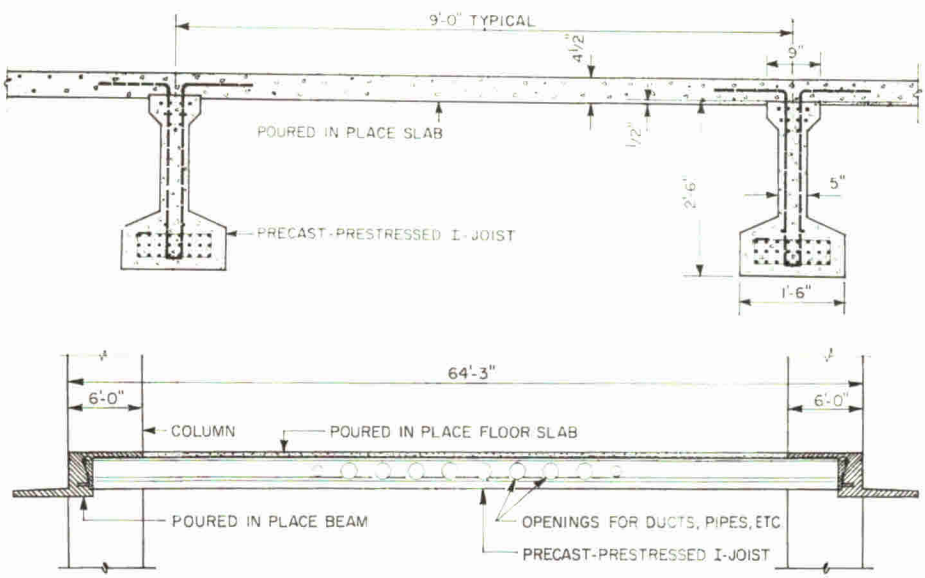


Forming and pouring of the floor slab is accomplished through use of a climbing crane

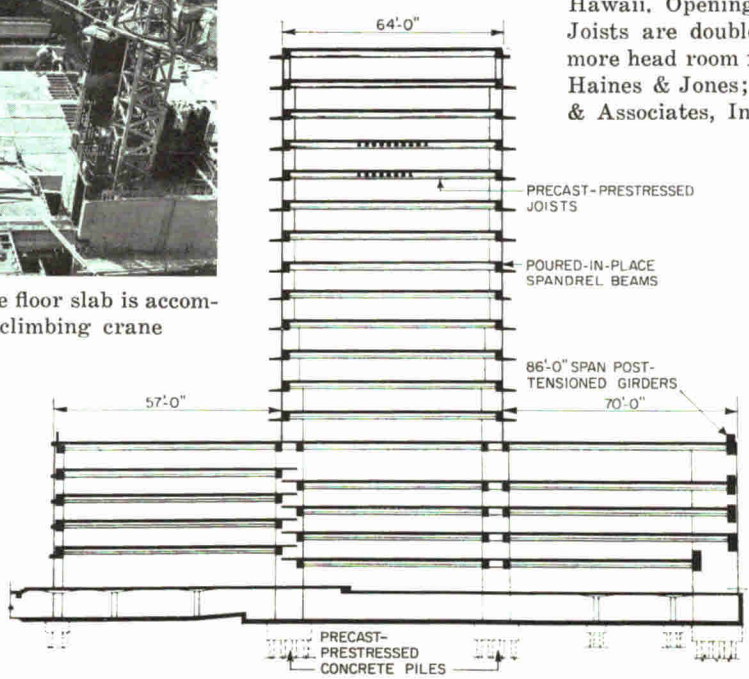
2. ACCOMMODATING UTILITIES

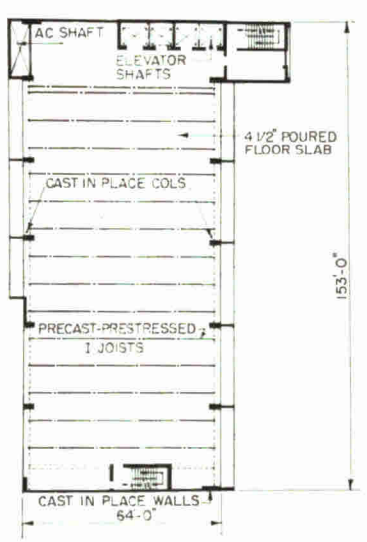
For maximum economy in the use of mass-produced precast units, the variety of beams and joists should be held to a minimum. If unusual loads or other irregular conditions occur in the deck framing, it is possible in most cases to use the same kind of components throughout by simply doubling them up for additional strength or altering the spacing to meet the situation.

In the 19-story building shown here, a traffic jam of air conditioning ducts leading into the main air conditioning shaft created a headroom problem. Precast, prestressed joists, which had been evenly spaced for the rest of the deck frame, were doubled up adjacent to the congested area and thickness of the cast-in-place slab was increased. This left the area near the shaft free of joists, thus providing the required head room while maintaining adequate structural strength. Air conditioning ducts, wiring and plumbing were accommodated with no loss of head room throughout the remainder of the floor area by casting the joists with holes in the webs.



Prestressed girders are tied compositely to the floor slab by stirrups in the 19-story First National Bank of Hawaii. Openings in joist web accommodate services. Joists are doubled near air conditioning shaft to get more head room for ducts. Architects: Lemmon, Freeth, Haines & Jones; Structural Engineers: Alfred A. Yee & Associates, Inc.; Contractor: E. E. Black, Ltd.





the entire deck frame is compositely "glued" together to resist both lateral and vertical forces.

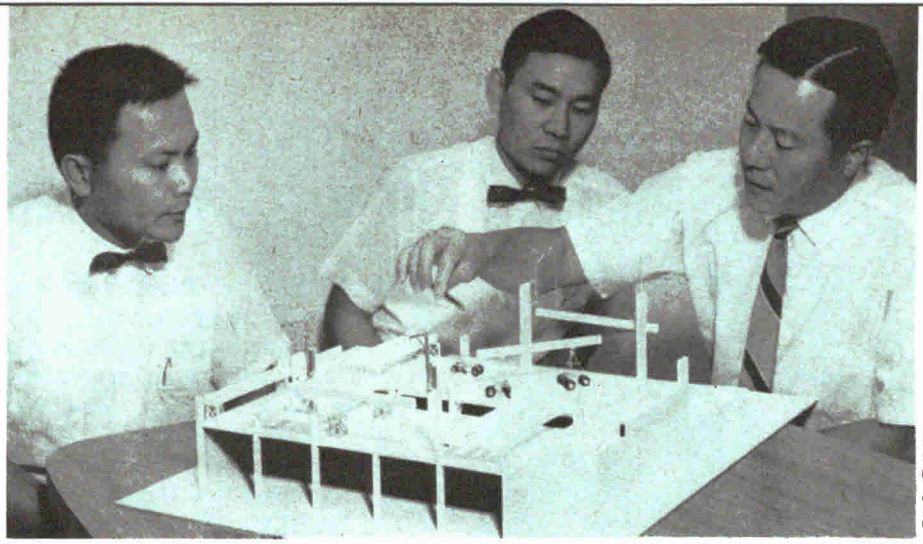
Precast Columns. One of the most encouraging of recent cost saving developments has been in the field of precast concrete columns or combination column-beam units which are adaptable for use in either low- or high-rise buildings.

One of these methods permits the precasting of several floors of columns in one unit (page 176). In the multiple-column units, vertical reinforcing steel is continuous throughout, but spaces are left in the concrete portion of the column at each floor level to accept continuity bars for the intersecting beams. The joint between beams and column can be completed with a cast-in-place column head.

There are several advantages in using precast columns. Where the building site is located in a congested area, and there is little room to store materials and equipment, columns can be precast at a central plant and hauled to the site for erection. Because of the nature of precast work, these columns can be made with a high quality architectural finish. Precasting saves much formwork and shoring, and the construction can progress much faster. However, where buildings are higher than 10 stories, the column sizes usually become quite large for handling and, therefore, must be spliced often. There may be difficulty in developing the full load transfer at these splices because of the greater amount of vertical reinforcing steel necessary in these heavily loaded columns.

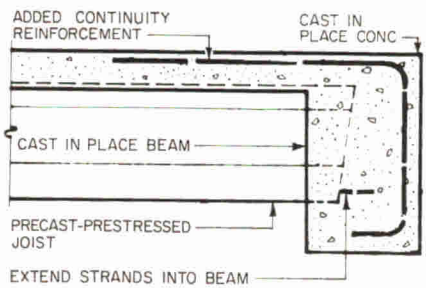
In general, for buildings below 10 floors, columns can be precast, and above 10 floors should be poured. When buildings have about eight or nine floors, it is open to question whether they should be poured-in-place or precast, and the answer depends upon structural and architectural considerations.

Beam Ends. Ends of the beam units are tapered to develop more favorable bearing stress patterns and the beam's prestressing tendons are extended into the cast-in-place portion for additional tie. Spalling at this joint is prevented by the use of small diameter mild steel reinforcing cages in the corbel area near the ends of the beams. Full continuity is assured by adding mild steel in the composite deck slab.



Jack Satow

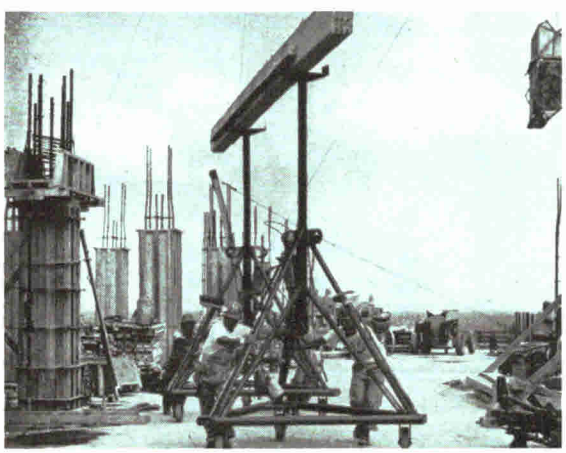
Alfred A. Yee (far right) with partners Ben Ranada, Kalfred B. T. Lum study a scale model of a special prestressed beam erection method devised by their office for high-rise buildings. Lifting davits attached to two columns place the beams on movable tripods for final positioning. This davit system was used for the office building shown on the following page; conventional crane was used for lower floors

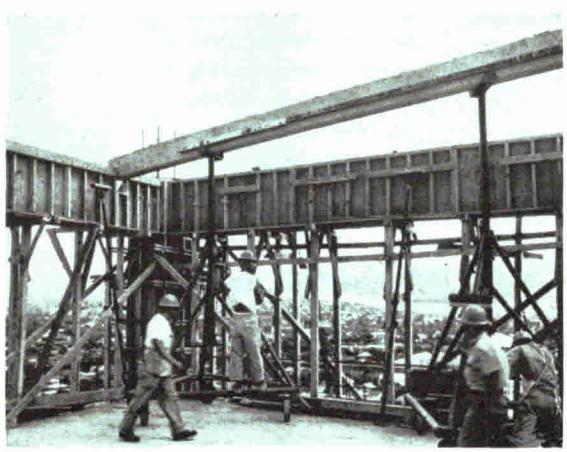


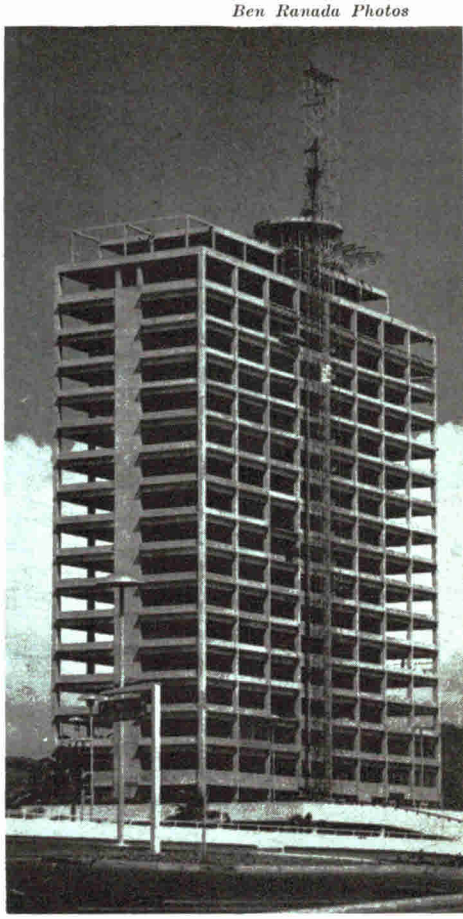
EXTERIOR BEAM CONNECTION

Composite connection of prestressed concrete joists to spandrel beams is shown in the detail. This system was used in the 25-story structure below. Beams were moved into position on rolling tripods whose vertical posts telescope to lower beam. 1441 Kapiolani Boulevard Office Building, Honolulu; Architects & Engineers: John Graham and Co.; Contractor: Hawaiian Dredging Construction Co., Ltd.

Ben Ranada Photos







HIGH-RISE STRUCTURES IN HAWAII COMBINE PRECAST, POURED CONCRETE

by Alfred A. Yee
Alfred A. Yee & Associates, Inc.
Structural Engineers
Honolulu, Hawaii

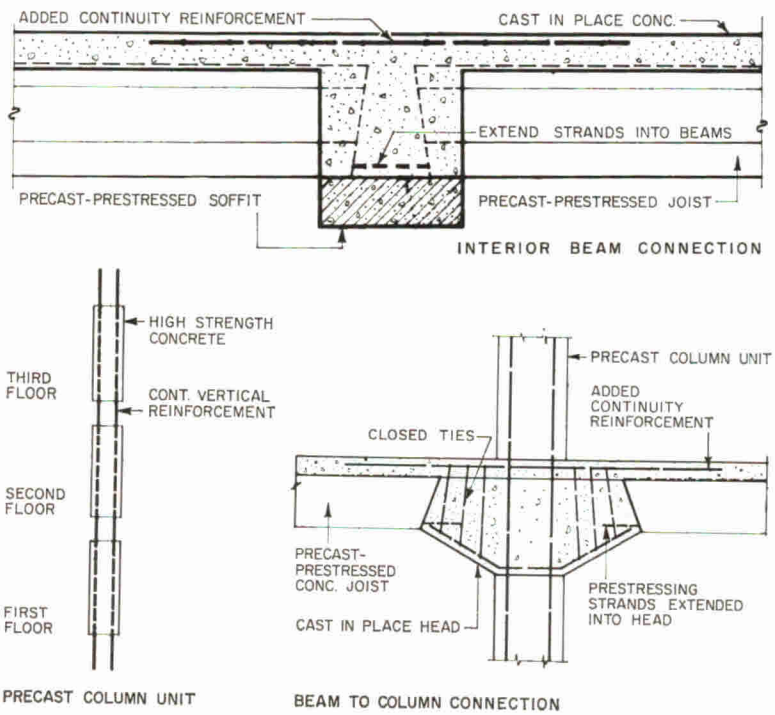
Rapid advancements in the mass production of precast, prestressed concrete components are aiding Hawaii's increasing need for high-rise buildings. Where the framing system must have a clear span of 30 ft or more, the utilization of these components tied together compositely with cast-in-place lightweight concrete can bring about very significant cost savings. Also wherever ground conditions require piling, prestressed concrete piles can furnish the necessary support at low cost. Prestressed units also can provide a building framing system which is simple to erect and offers flexibility for mechanical services

1. TEAMING PRECAST, POURED CONCRETE EFFICIENTLY

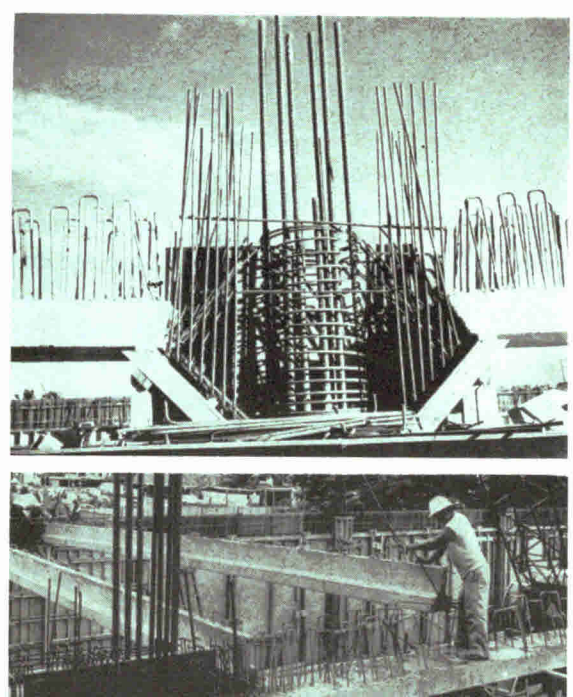
Our experience has shown that simplicity of erection and handling of utilities can be achieved by utilizing a combination of precast units and cast-in-place concrete in a composite system. Framing for a typical floor in this system requires precast, prestressed joists and beams cast with stirrups in the top flange to develop composite structural action with the cast-in-place floor slabs. On the job, the units are individually hoisted into position.

To achieve the highest efficiency, all connections between precast units should develop full bearing and continuity (detail below and page 177). The connecting ends can either rest on, or butt against, intersecting units, with mild steel reinforcing added in the poured slab portion to serve as continuity ties. In this situation no steel bearing plates, bolts or weld points are required.

Tolerances. Precast concrete units cannot be manufactured with the same degree of precision as machine-shop-produced steel units. Some dimensional deviations from specified alignment, camber and length will exist in precast units. Fortunately, however, under the composite method all of these dimensional inconsistencies can be easily absorbed by the cast-in-place concrete with no sacrifice in structural strength. Cast-in-place concrete forming the spandrels and slab also completes the jointing media between precast units; thus



Top: In this composite connection between precast, prestressed joists and a poured-in-place interior beam, the joists rest on a precast, prestressed "soffitt." Bottom: Several floors of columns may be precast as one unit, with spaces in the column at each floor for continuity reinforcement. Column head is poured-in-place



The prestressed "soffitt" becomes part of the beam through use of stirrups pre-embedded in the unit. The "soffitts" are connected to columns by poured-in-place corbels. The "soffitt" units may range in length from 15 to 45 ft

Architectural Engineering

Prestressed Industry Profile

Facts and figures on the nature and size of the prestressed concrete products industry are given in 8-page report presented in the June *Construction Review* published by the Business and Defense Services Administration, U. S. Department of Commerce. One of the most interesting statistics pertains to growth of this industry in the last decade—from five or six plants in 1950 to more than 200 at the end of 1959. In 1959 plants used 1,200,000 cubic yards of concrete; 90,000 tons of steel especially made for prestressing operations; and 45,000 tons of conventional types of steel. Structural members for buildings exceeded those for bridges and waterfront structures by 10 per cent based on cubic yards of concrete. There were 163 companies fabricating building members. More plants (117) produced double tees than any other item. Other types included single tees, channel slabs, I-beams and joists, T-joists, inverted T-beams and rectangular beams, flat slabs, linteals, wall panels, box beams, tapered girders, monowing tees and trusses.

Home-Made Electricity from Gas Turbines

The gas industry (and electric utilities too) along with architects and engineers will be watching the performance of gas turbine installations in buildings for generating electrical energy on the spot as well as providing energy to heat and cool these buildings. A 900 kilowatt generator is being used at Park Plaza shopping center in Little Rock, Ark. to supply electricity to a supermarket, bowling alley, discount department store and 27 other shops. Waste heat from the turbine is converted into steam for heating and for absorption refrigeration. A natural gas burning turbine utility package will be installed also in a division office of Northern Illinois Gas company outside Chicago. This unit will produce 400 cycle current for fluorescent lighting and will be converted to 60-cycle for other applications.

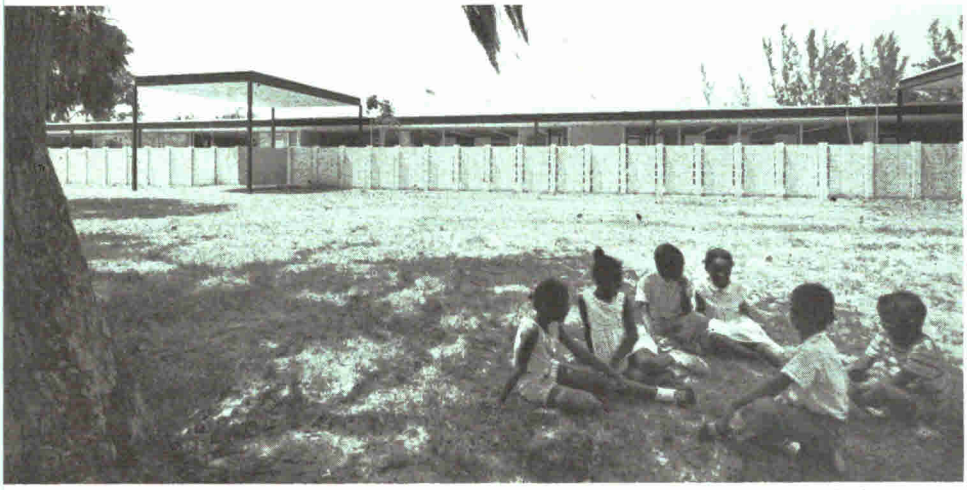
Scientific Plumbing

The problem of providing plumbing drains and vents which are adequate, but not unnecessarily large and costly, has been studied at the National Bureau of Standards. Current plumbing codes differ in their requirements on sizes of pipes for these systems. The study has resulted in equations, tables, and charts to compute pipe dimensions ample but not excessive in size. The study was concerned primarily with the mechanics of flow in main vertical drains and vents (stacks). Pertinent charts and illustrations were developed showing velocity of water in vertical drains, rates of air flow, hydrodynamic pressures, and permissible plumbing loads. The report, *Capacities of Stacks in Sanitary Drainage Systems for Buildings,* NBS Monograph 31 (1961) is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. for 35 cents.

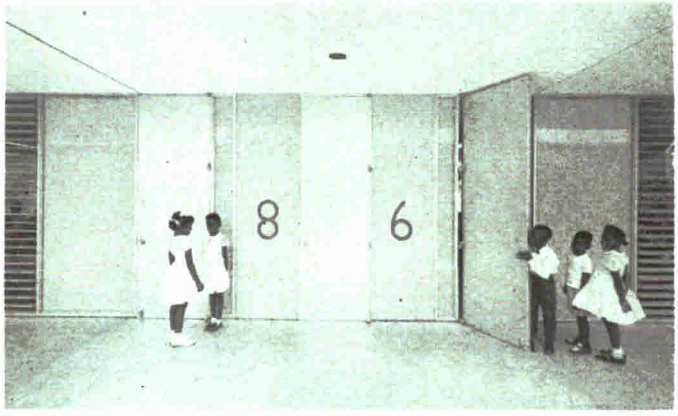
Tubular Steel Made for Buildings

Almost two years ago we wrote about the growing interest in tubular steel structures. The point was made that, "In architectural circles, tubular steel structures have for many years been thought of principally in terms of the dramatic space-frame constructions—bridges, towers, exhibition buildings, et al—so common abroad. With the exception of the pipe column, which can surely be no mystery to any designer, structural uses here have been limited to the quasi-architecture of radio and TV towers, and oil-well drilling masts." This article, which dealt with welded steel tubing, went on to point out how the availability of this material had made possible a variety of curtain wall constructions, canopies, and even served as the exterior columns for a 24-story office building in Dusseldorf, West Germany. Recently several steel producers have announced the availability of hot-rolled steel structural tubing in square and rectangular shapes up to 8 by 8 in. in size. One of the main deterrents against the use of steel tubes for building has been cost; and a prime reason for this has been that steel tubing has been produced primarily for industries outside the building field. Now steel producers are offering tubing with properties in line with those of hot rolled structural sections.

This Month's AE Section



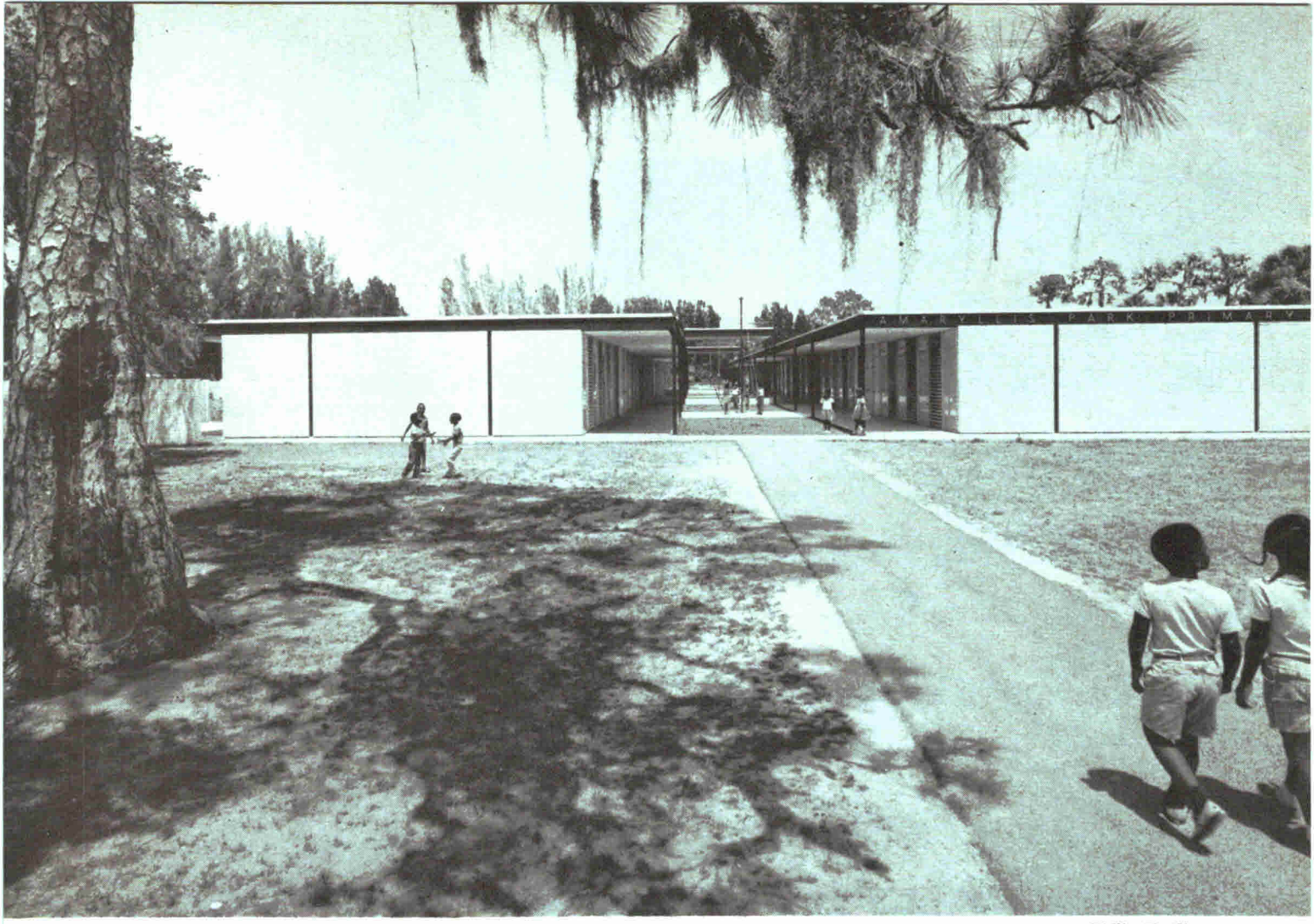
Philip H. Hiss



Amaryllis Park School

The unifying appearance of the exposed steel structure, and some very nice detailing, negate any possible monotony from the repetition of the basic classroom units. (Photos above). The tall open pavilion visible is now used as a covered play shed, and is part of the future covered walkway which will link successive wings of the school.

As sharp accents to the basically beige-toned building, all exposed steel is painted black and gravel stops white. The corridor wall is made up of white translucent plastic panels alternating with a "weathered-gray" stained wood jalousie; entrance doors are aluminum clad, bright colored. Interior cabinet work is natural birch; core walls are surfaced in yellow tile



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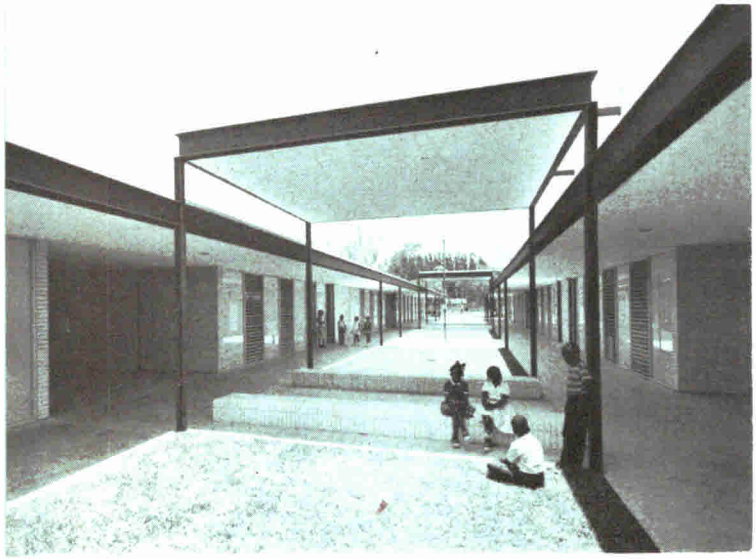
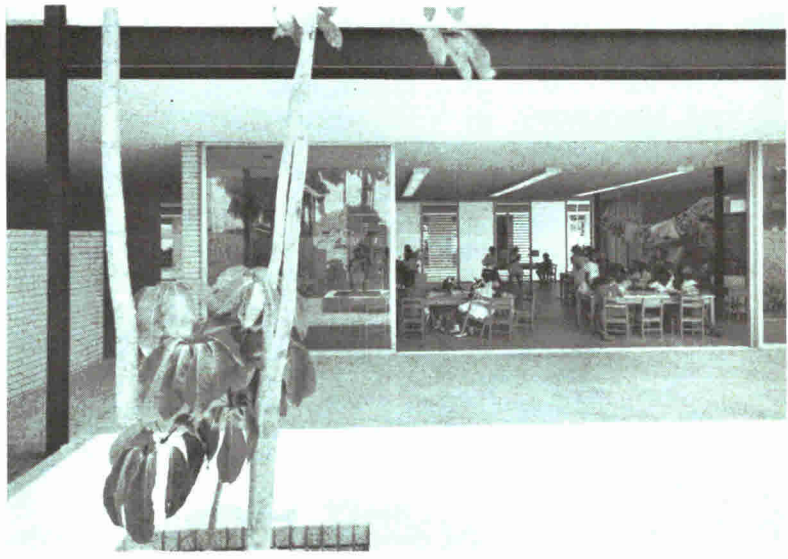




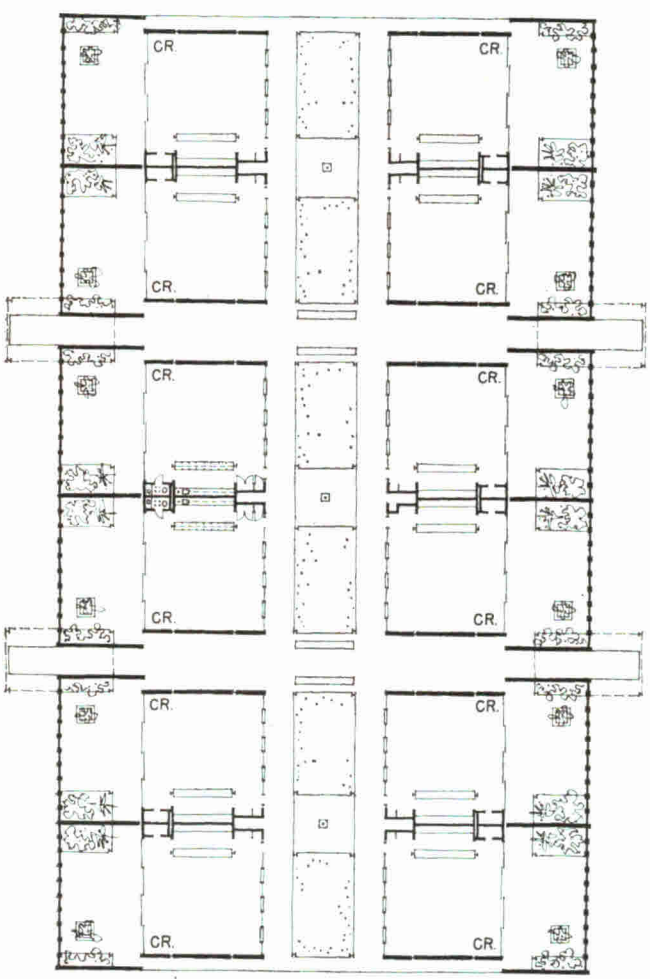
EXPANSION SCHEME USES REPETITIVE CLASSROOM UNIT

NAME: *Amaryllis Park Primary School*
LOCATION: *Sarasota, Florida*
ARCHITECT: *Mark Hampton*
STRUCTURAL ENGINEER: *J. C. Russello*
MECHANICAL ENGINEERS: *Ebaugh & Goethe*

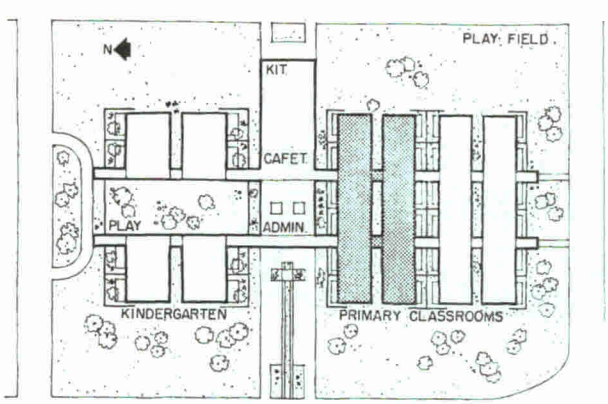
This elegant little school is the first stage (12 classrooms) of a scheme which will ultimately have 24 classrooms, 8 kindergarten rooms, an administration unit and a cafeteria with either a kitchen or serving pantry. (The completed part is shaded in the plot plan below.)

For maximum economy in both first stage and future development, the scheme was based on a concept of self-contained units that could be added to the school plant as needed. Each unit is a double-classroom arrangement with consolidated utilities; the units were also designed to allow plumbing to run free of paving, to allow outside access to the heater (for code and maintenance), and to give as much counter space, tackboard, pegboard and chalkboard area as possible. Each classroom includes an outdoor instruction area.

To simplify later additions, a structural system of exposed steel in 16 by 16 and 16 by 28 ft bays was worked out. All materials were carefully chosen for cost, scale, visual and maintenance requirements: walls are buff concrete block; floors are buff vinyl asbestos; ceilings are sprayed acoustic plaster. Cost of the 12 classroom unit was $243,235.17 or $11.69 for 20,800 sq ft (with covered areas at ½).

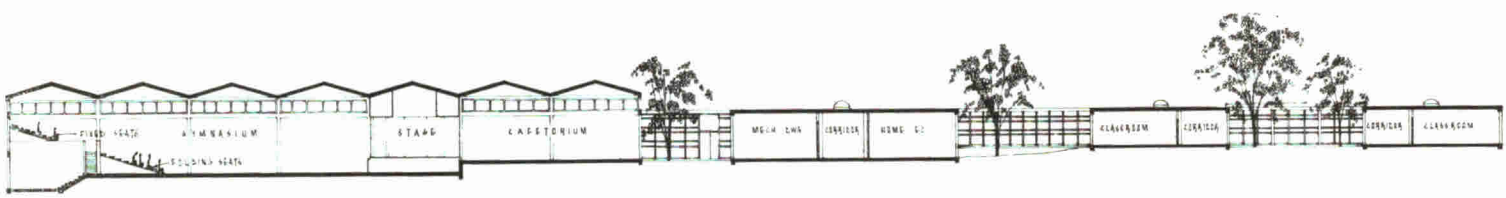


FLOOR PLAN



PLOT PLAN

Malcolm Smith



DISCIPLINE AND TASTE CUT COST TO $10 SQ FT

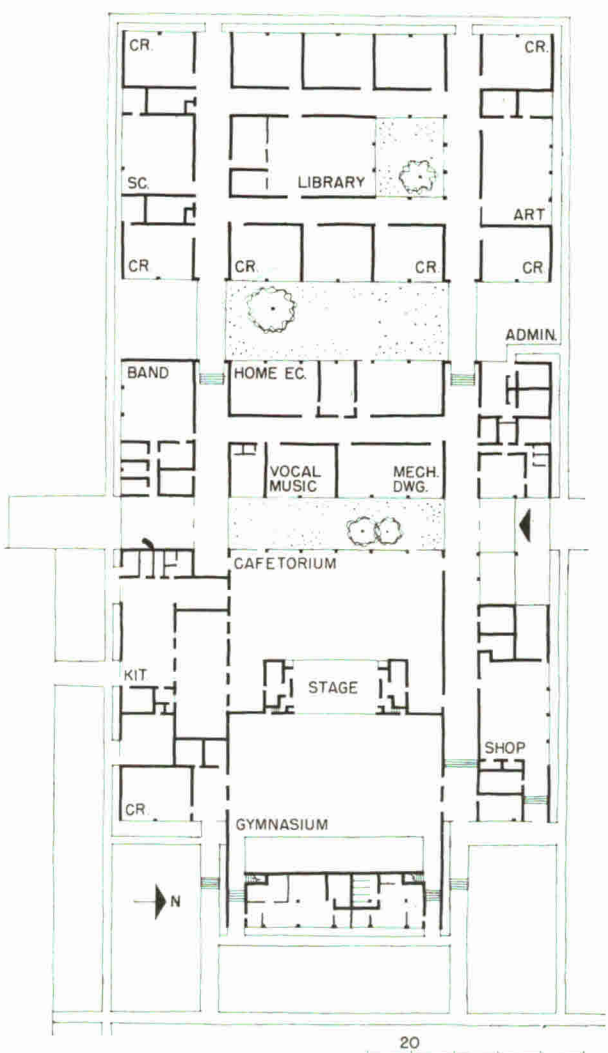
NAME: *Richland Junior High School*
LOCATION: *Memphis, Tennessee*
ARCHITECTS: *Mann & Harrover*
STRUCTURAL ENGINEER: *John C. Brough*
MECHANICAL & ELECTRICAL ENGINEERS: *Griffith C. Burr*
CONTRACTOR: *S & W Construction Co.*

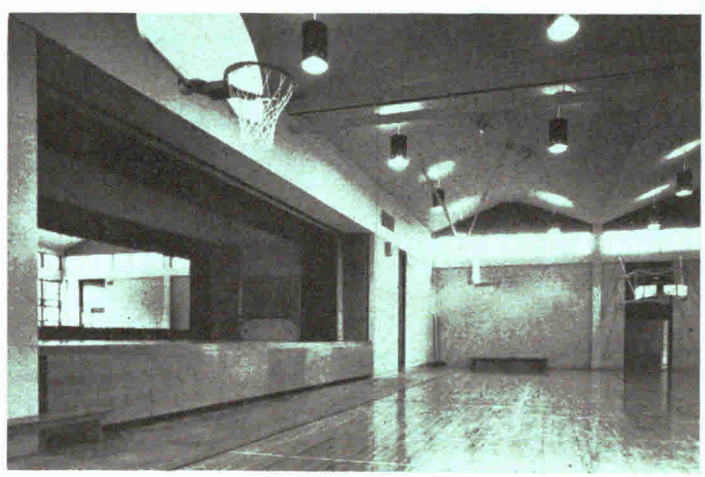
This handsome, neatly organized junior high school, was designed to fit a standard program: ten classrooms; eight special classrooms, including a library; auditorium-cafeteria and gymnasium; and administration. It was also required that the building be easily expandable, economical in first and maintenance costs, and suitable for community use.

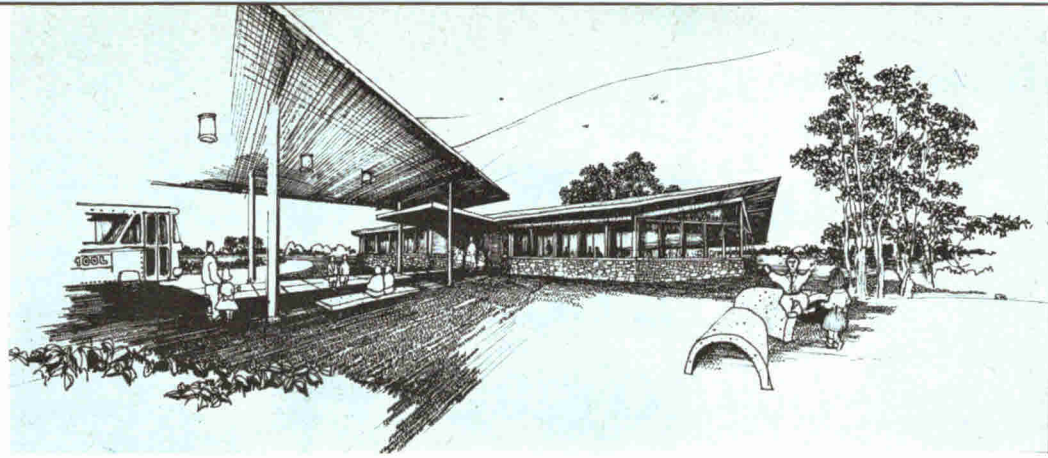
As constructed, the building comes off very well. By tailoring a regular structural system to fit the program and site—and by using simple, durable materials—the city obtained a good-looking, well organized and equipped school for the modest cost of $10 per sq ft.

The site is a sloping one; a uniform roof line was effected by designing the school in three units, with the highest spaces (cafetorium, gym) at the lowest land level. The west unit, on high ground, contains classrooms and library, which faces on a court. The central unit contains home economics, labs, music rooms, and administration. This disposition allows evening use of the remaining facilities—shops, cafetorium and gym—for community use.

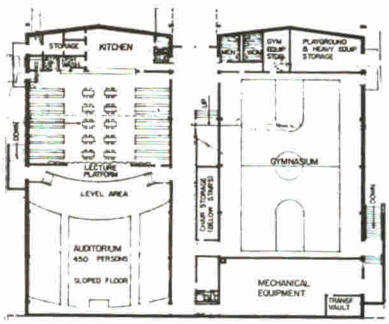
The structure is reinforced concrete, dominated by a post-tensioned folded plate concrete roof. Walls are brick, concrete block and porcelain enamel panels. Floors are quarry tile, ceilings acoustic plaster.

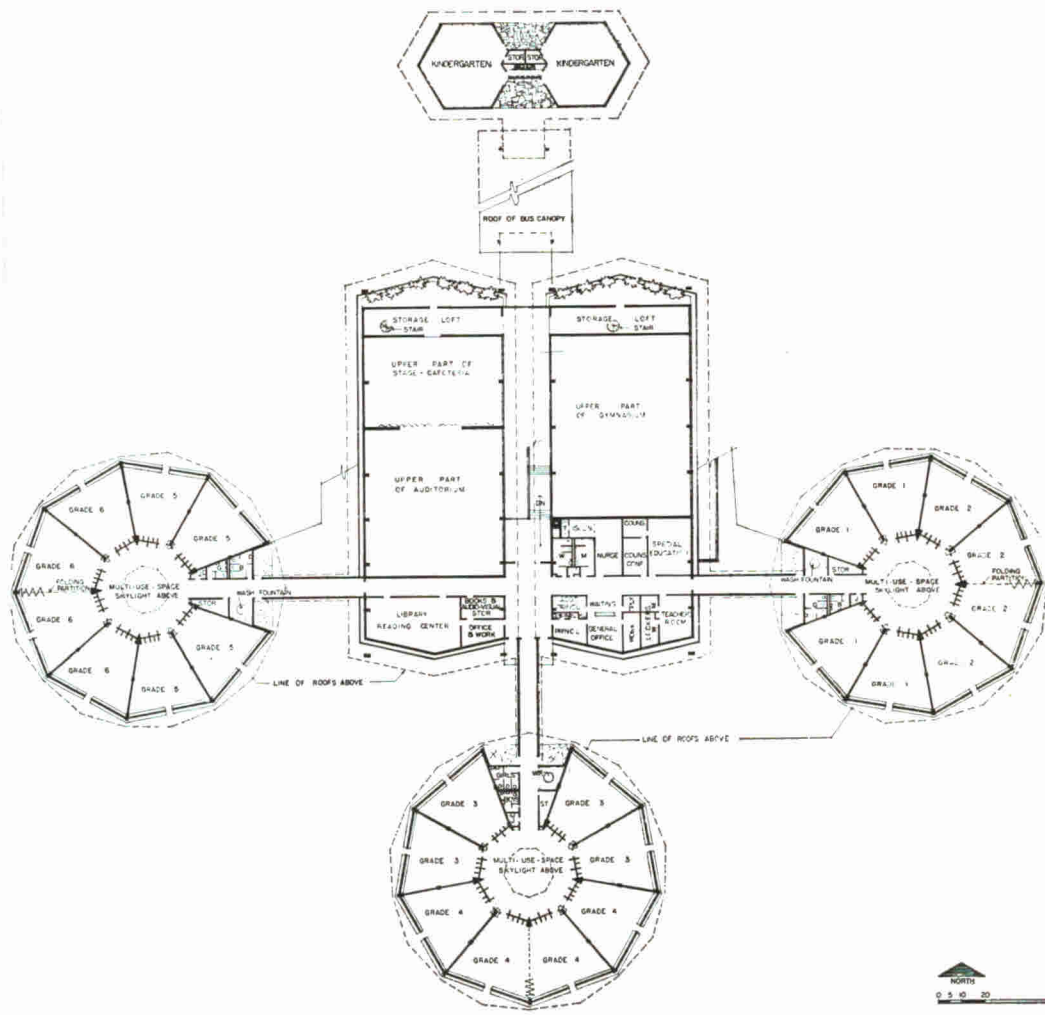




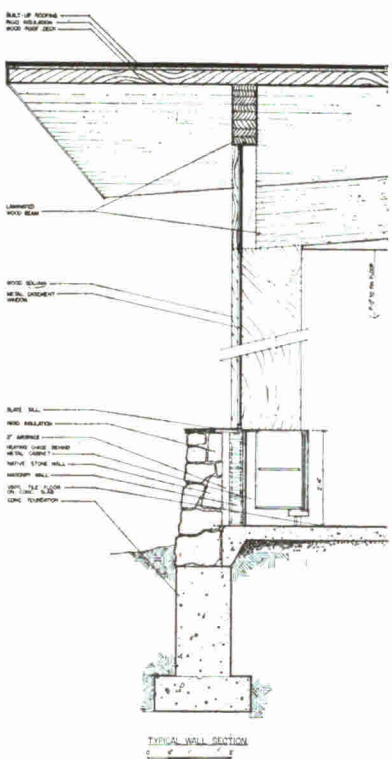


KINDERGARTEN

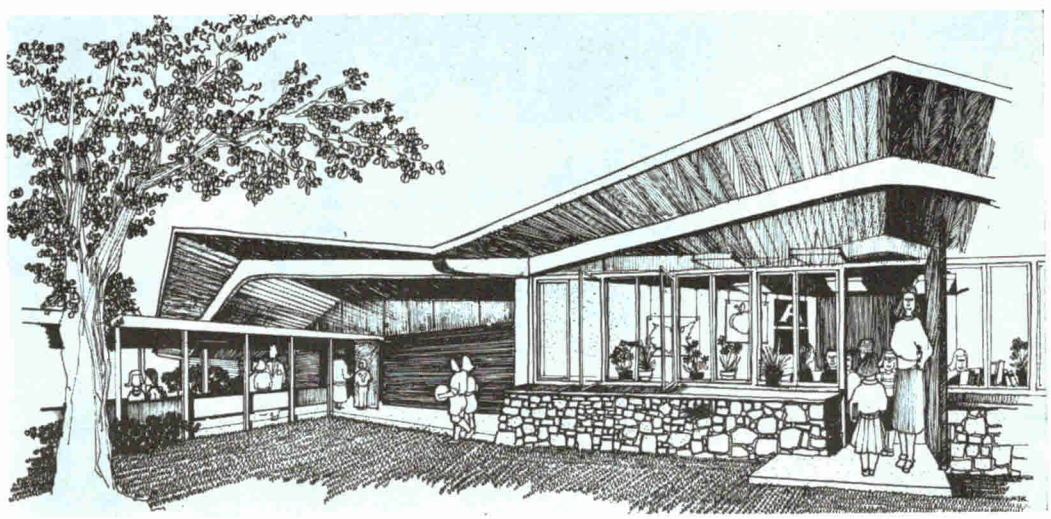




CLASSROOMS

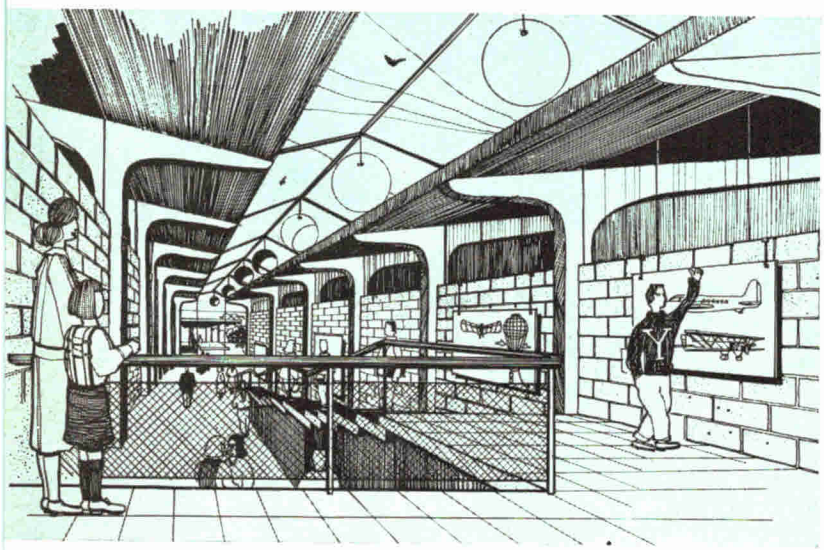


TYPICAL WALL SECTION



A CHALLENGE TO PROVIDE THE BEST FOR FIXED FUNDS

NAME: *Riverbank Elementary School*
LOCATION: *Stamford, Connecticut*
ARCHITECTS: *Curtis and Davis*
STRUCTURAL ENGINEERS: *Fraioli, Blum & Yesselman*
MECHANICAL ENGINEERS: *Tizian Associates*
LANDSCAPE ARCHITECTS: *Schreiner and Schmitt*
ACOUSTICAL CONSULTANT: *John A. Donohue*



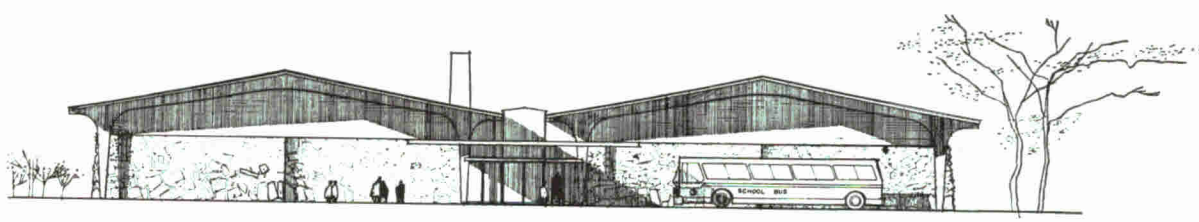
MAIN BUILDING

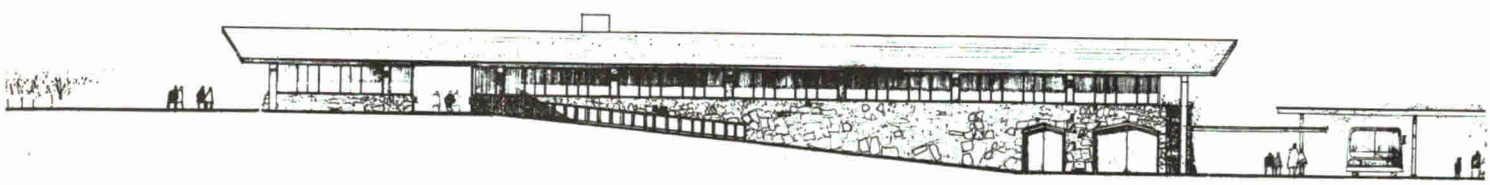
The cost problem facing this school was not necessarily to design the most economical building, but rather to provide the best school plant and the most facilities within the funds available. The funds totalled $1,058,000, and the program called for a K-6 school for 800 pupils which included 24 classrooms, two kindergartens, auditorium, cafeteria, gymnasium, library and administrative area. The site was 14 acres of rolling land.

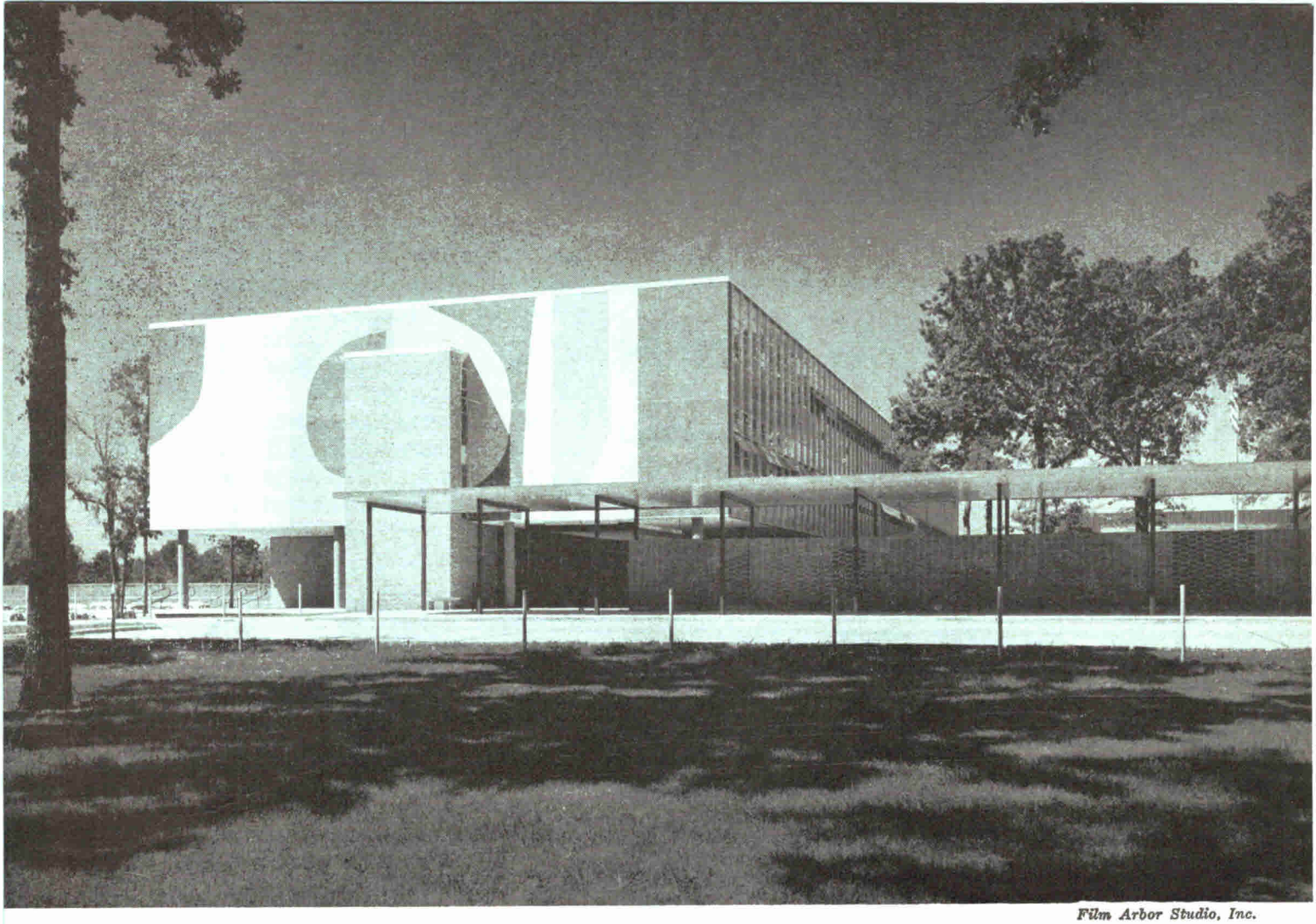
The final school, as shown here, represents the result of a considerable series of studies, whereby the architects sought to fulfill the following objectives: 1. develop complete separation of classroom areas from areas used by the community after school hours; 2. isolate all classrooms from noisy activity areas; 3. group and separate units requiring different types of structural systems (long span versus short span), for simplicity and economy of construction. A study was made to find the most economical method of construction for these spans—resulting in the use of steel columns and laminated wood beams and wood deck (which the architects found cheaper in this case in spite of higher insurance costs).

The obvious need for combining some of the major spaces led to an analysis indicating that a stage-cafeteria combination was best. It allowed the gym to be available for physical education throughout the day; it permitted a sloping floor with fixed seats for the auditorium; a sound deadening curtain made both stage and auditorium available as educational space.

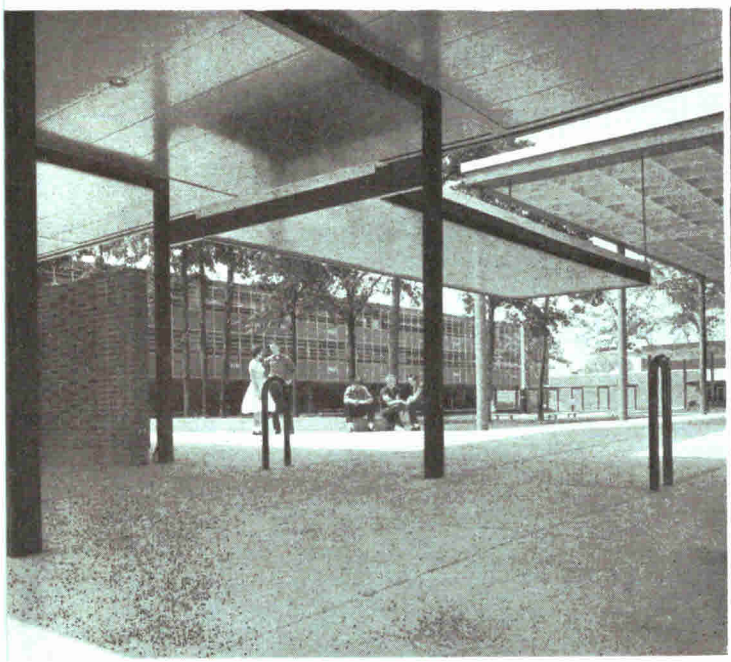
The cluster classroom arrangement also permits a corridor space which can double for teaching or display space. Classroom shapes were determined to some extent by best shape for viewing TV; all partitions are non-load-bearing and contain no utility lines for possible replacement by folding walls.

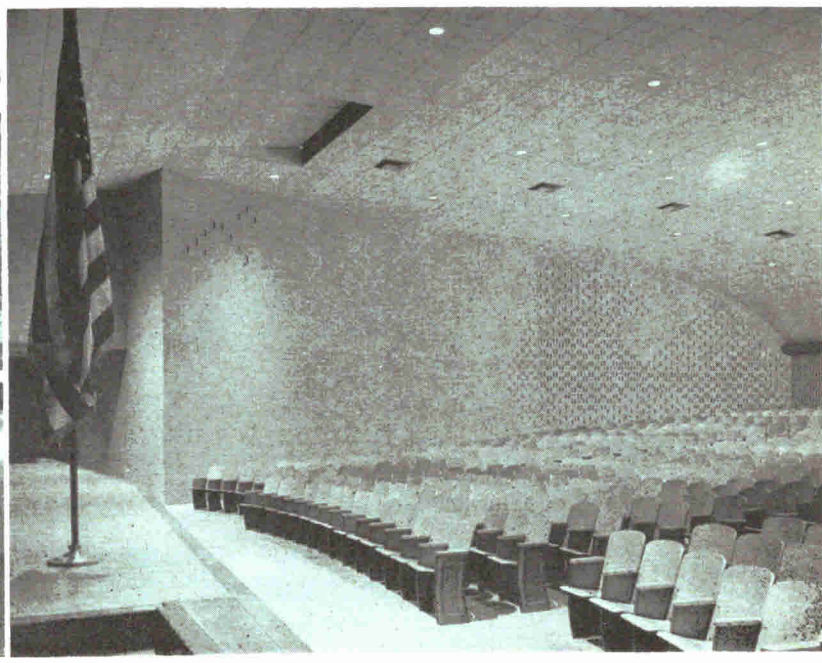






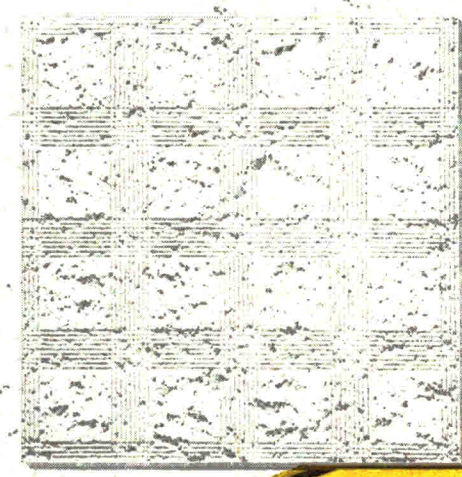
Film Arbor Studio, Inc.





PROTECTONE* MINERAL FIBER UL FIRE-RATED PRODUCTS

PRODUCTS	TIME-RATED	CEILING-FLOOR CONSTRUCTION
(1) Natural Fissured (2) Plaid (3) Striated	1-hr.	Wood deck over wood joists
	2-hr.	Concrete deck over steel bar joists
All above are 12″ x 12″, square-edge, kerfed for concealed H & T suspension system		
(4) Tiffany	2-hr.	Concrete deck over steel bar joists
12″ x 12″, tongue and groove, kerfed for concealed Z-runner suspension system		



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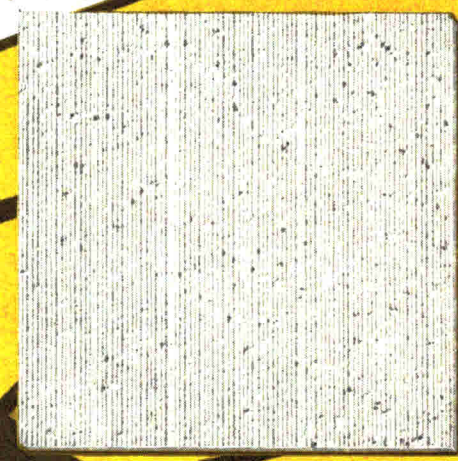

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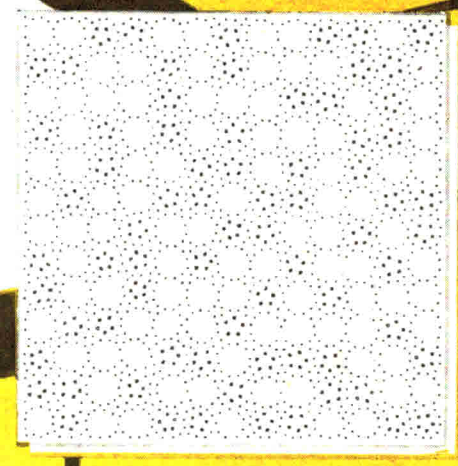

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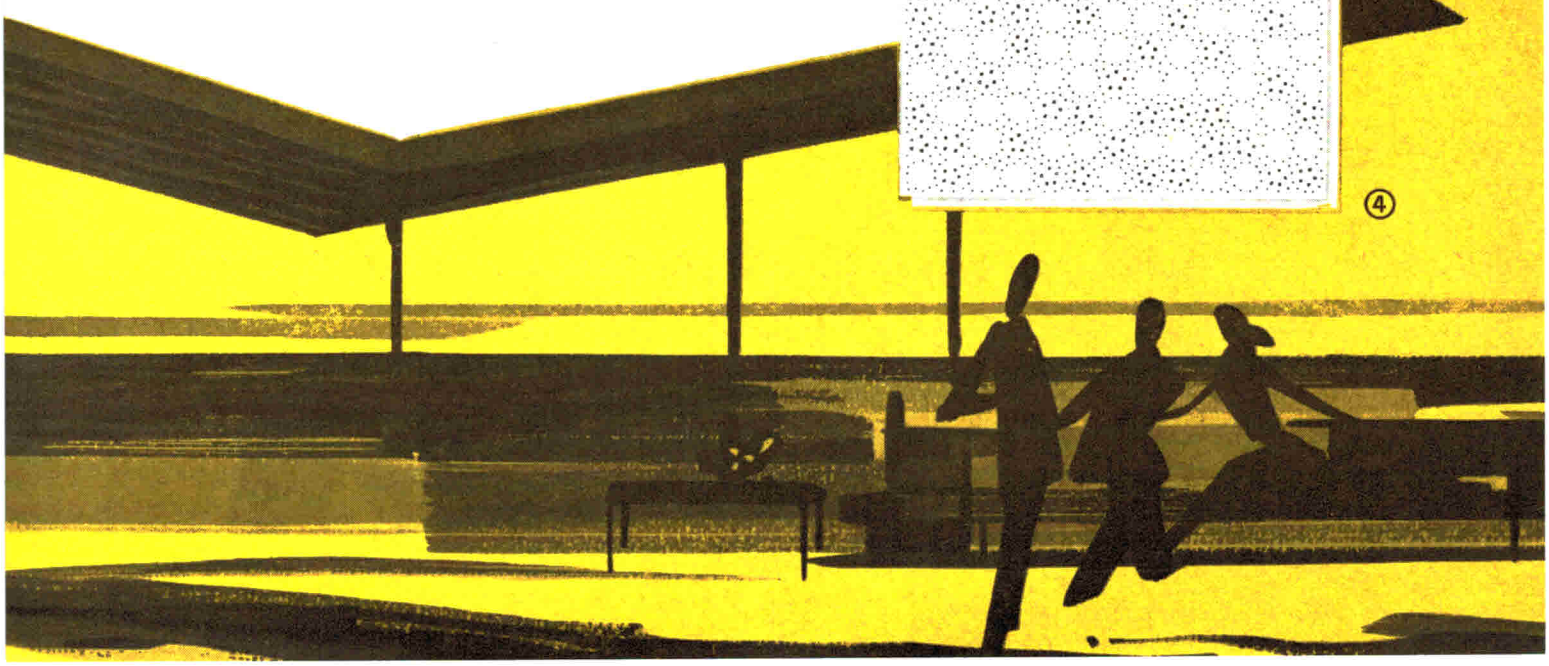


Product Reports

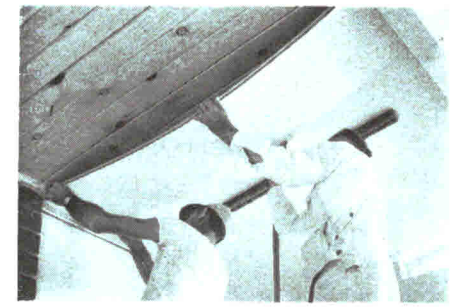
continued from page 214

Gray Transparent Mirror

Parallel-O-Grey Mirropane is a twin-ground gray transparent mirror designed for use where there is little difference in light intensity between the two areas involved. Like regular *Plate Mirropane*, which it will augment, it consists of a special chrome alloy, thin enough to be transparent, applied to twin ground glass by thermal evaporation. There are two differences: the glass in the new product is gray instead of clear, and it operates effectively as a mirror at lower light ratios: between four-to-one and two-to-one, instead of ten-to-one and five-to-one. It comes in a ¼-in. thickness in any size up to 70 by 84 in. *Libbey-Owens-Ford Glass Co., 811 Madison Ave., Toledo 3, Ohio*

Acoustic Plank

By enlarging the traditional one-ft-sq acoustical tile to a plank 16 in. wide and 10 or 12 ft long, Kaiser Gypsum has introduced an easy-to-



handle product which reduces application time. The *Fir-Tex* acoustical plank is ½ in. thick, same as standard tile. It has a washable, white finish and comes in either a pin-punched or fissured pattern. Because of the plank size, it can be used for walls as well as ceilings. *Kaiser Gypsum Co., Kaiser Center, Oakland 12, Calif.*

Fire-Resistant Wall Finish

In a series of tests, *Glazetite*, a spray-applied, low maintenance interior wall coating, rated "0" for flame-spread and "0" to "10" for smoke developed. A permanent covering of over 90 per cent inorganic composition, *Glazetite* is not affected by deterioration from oxidation and moisture. It is available in many colors, with a high gloss finish. *Desco International Association, Box 74, Buffalo, N.Y.*

more products on page 226

Overly

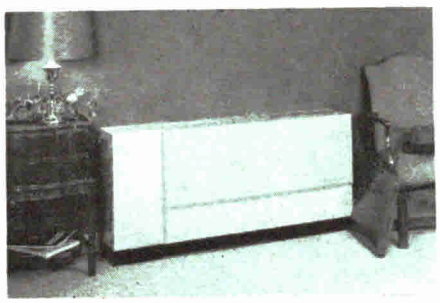
Batten Roof Systems

Product Reports

continued from page 220

Console Air Conditioning Unit

Roommate II combines two air conditioning firsts: patented *Humid-a-Guard* control system which can de-



humidify at full capacity with or without reducing room temperatures; and an air volume stabilizer damper which will maintain the desired amount of outside air under all conditions no matter what the wind velocity. *John J. Nesbitt, Inc., State Road & Rhawn St., Philadelphia 36, Pa.*

Photo-Copying Machine

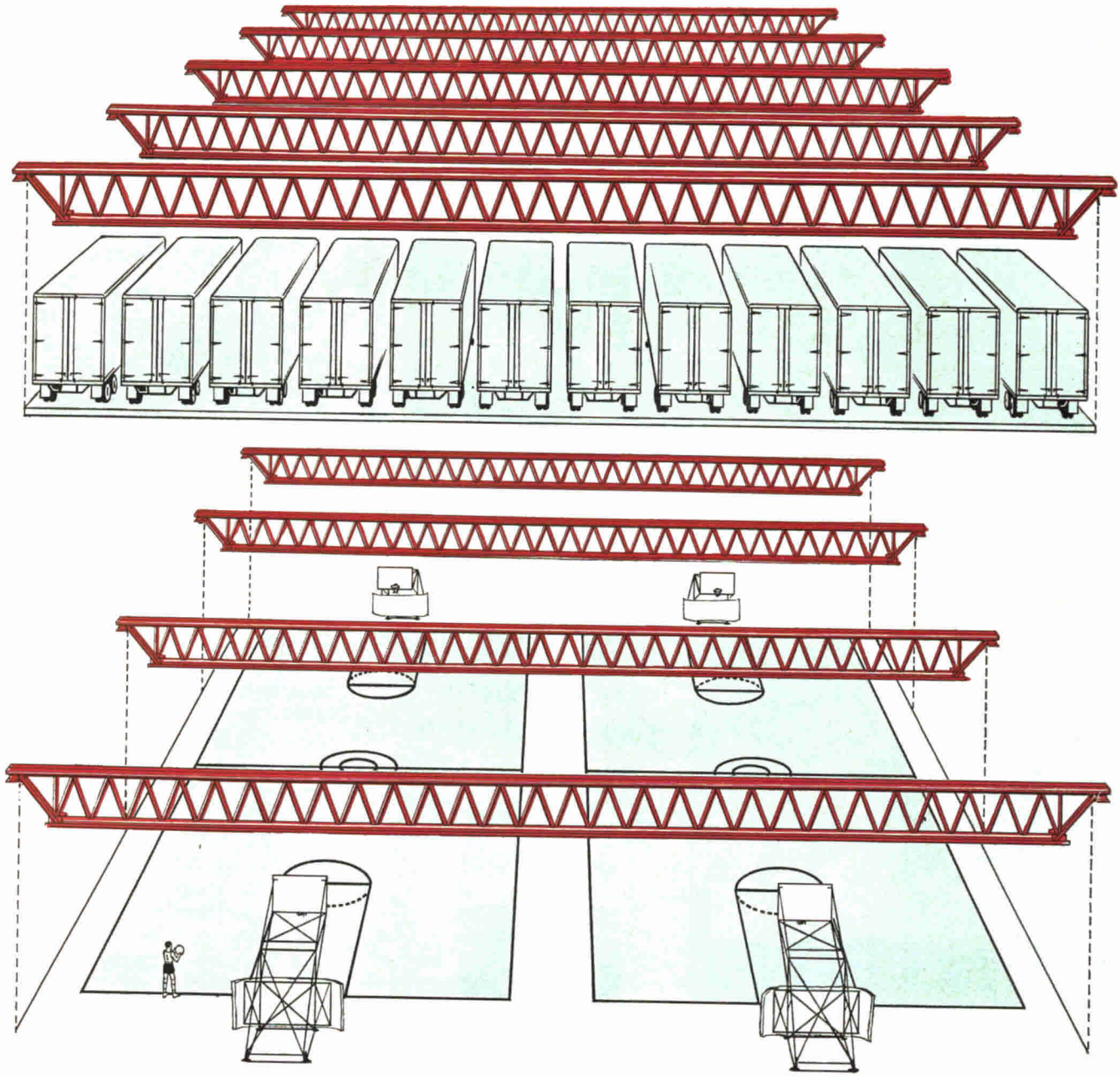
Office production of glossy photocopies is possible with *Polymicro*, a photo-copying machine made in France. The prints can be used in making half-tones and are produced in 10 seconds each for less than 10 cents in paper costs. *Photorapid Corp., 142 Oregon St., El Segundo, Calif.*

Aluminum Window—Colonial Style

The Series 410 *Alwintite* window is single-hung with separate panes and

white enamel finish in Colonial style The sashes are pre-glazed and chipped or broken glass can be replaced from the inside. For cleaning, the lowe sash lifts completely out of th frame. *General Bronze Corp., 71 Stewart Ave., Garden City, N.Y.*

more products on page 23



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ALLSPANS, up to 120 feet in length, are vital where plans call for maximum unobstructed space. ALLSPANS are the **longest, strongest** open web framing members available. They give you all the design and erection economies of open web construction —**plus** nailability—without excess weight. Frame with ALLSPANS for strength, speed, economy.

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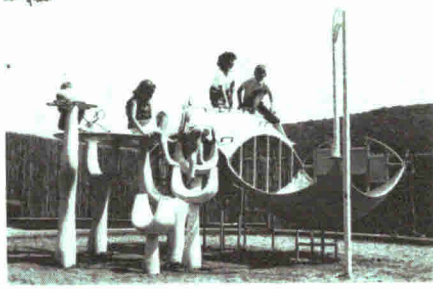
Product Reports

continued from page 226

Compact Playgrounds

Packaged playgrounds called playscapes combine economy and safety with sculptured design. They are de-



signed with such built-in safety factors as no moving parts and no piece higher than five ft. Individual pieces are age-graded. A typical playscape is about 50 ft sq, and contains a selection from a total collection of 3 devices. Planning, design, and consultation services are available *Playground Corp. of America, 16 E 52nd St., New York, N.Y.*

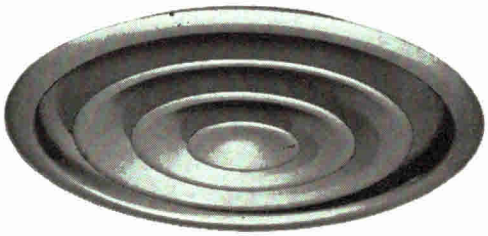
Geodesic Dome Shelter

A lightweight, dome-shaped structure 22 ft in diameter, said to b sturdier, more durable and lower i cost than a tent of equal size now i being marketed as a ready-to-assem ble shelter. *Geospace* is a free-stand ing, portable geodesic dome 12½ f tall and weighing only 450 pound but containing 352 square feet o usable floor space. It sells for $34

f.o.b. Baxley, Ga. Shelter is forme from prefabricated triangular pa els of one-half inch thick *Fomec* board, resin coated for weather r sistance, which are bent and bolte together at the site, available in pa yellow, forest green and eggsh white. *Geospace Dome Shelters, 8 N. Lindbergh Blvd., St. Louis 66, M*

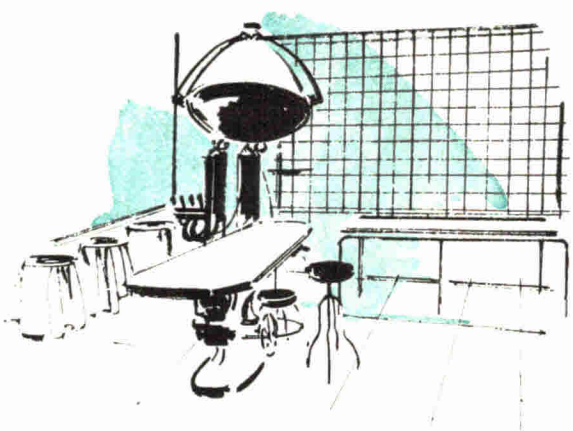
more products on page 2

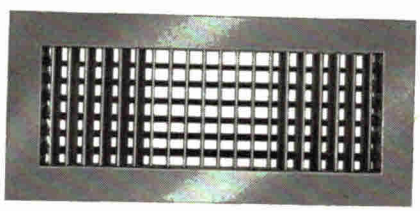
when the air distribution equipment is by TUTTLE & BAILEY

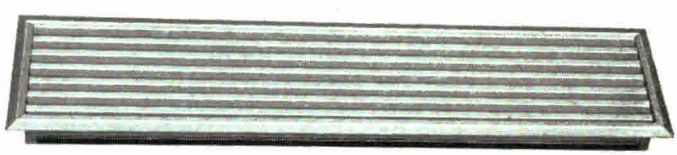


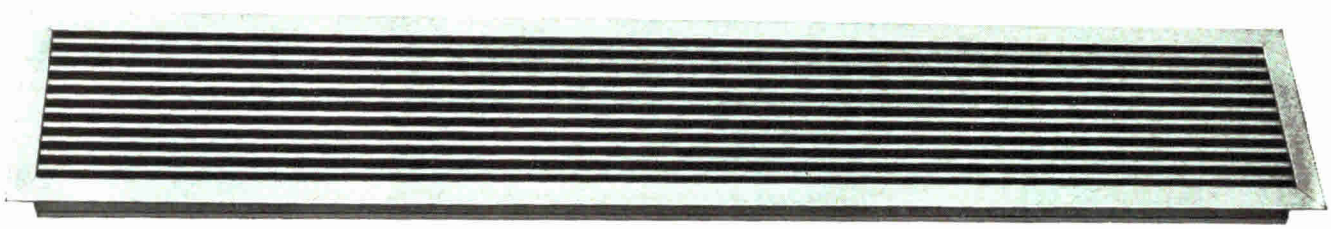
The broad range of T&B air distribution devices and accessory equipment for heating, cooling and ventilating answers every requirement of the architect, engineer and client. As the largest full-line manufacturer, T&B offers the precise piece of equipment for each job . . . setting the highest standards of appearance and performance.

Write for the name and address of the Factory Office or Sales Representative nearest you.









TUTTLE & BAILEY

Division of Allied Thermal Corporation
New Britain, Connecticut

Tuttle & Bailey Pacific, Inc., City of Industry, Calif.

Product Reports

continued from page 234

Domed Plastic Skylight

A new roof window by Ventarama is designed to function as both skylight and operating window. Roof window

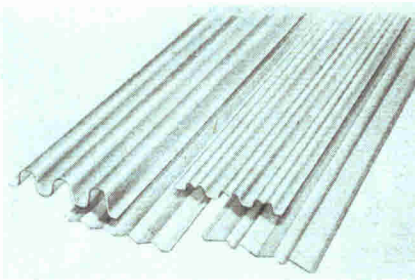
can be installed on either flat or pitched roofs, and can be opened awning-fashion to act as a scoop for ventilation air. A single package includes screening, flashing and operating control. Framing is aluminum, sizes from 22 by 30 in. to 45½ in. square. Dome consists of a double layer of clear plastic providing insulation. It is also available in translucent or colored plastic. *Ventarama Skylight Corp., 174 Main St., Port Washington, N.Y.*

Clear Finish for Exterior

A clear satin finish for wood which closely simulates an expensive hand rubbed effect and is suitable for indoor, outdoor and marine use, is newly perfected. Varmor Satin, companion to Varmor Clear Finish Gloss, is a clear, semi-luster finish having sufficient resistance to wear, weather and water to be used on any wood surface. *Pratt & Lambert, Inc. Tonawanda St., Buffalo, N.Y.*

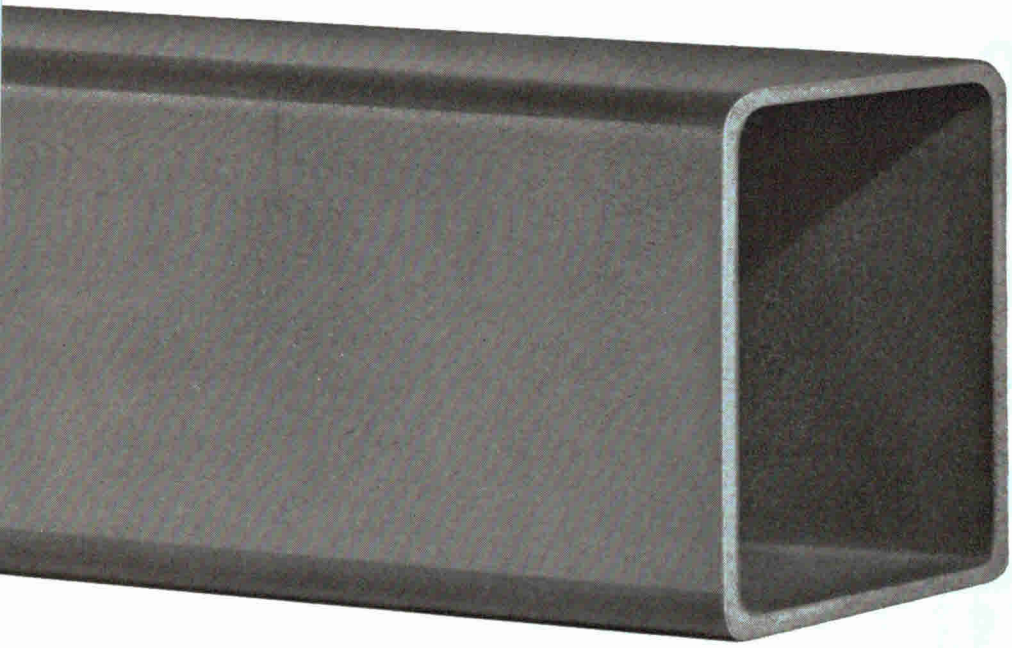
Fiberglass Panels

Lascolite fiberglass panels can be made to duplicate any sheet contour shape to architect's design in runs as



low as 10,000 sq ft. A wide variety of colors is available. *Lasco Industries, 1561 Chapin Rd., Montebello, Calif.*

The shape for things to come ...in structural steel



Add low-cost **USS National Hollow Structural Tubing** to the list of available structural sections.

USS National Hollow Structural Tubing is made of hot-rolled carbon steel. This product has a tensile strength of up to 80,000 psi, and a minimum yield strength of 33,000 or 36,000 psi—maximum strength at minimum cost. It conforms to the chemical and mechanical properties of ASTM A-7 and A-36 specifications. Because of the hollow design, you obtain maximum strength with minimum weight. It's compact, easy to handle and maintain. It is a highly efficient structural member especially in compression and where subjected to bending moments in more than one direction.

USS National Hollow Structural Tubing comes in a wide range of stock sizes: 1″ x 1″ to 10″ x 10″ for squares, up to 32″ perimeter for rectangles, and in lengths 36 to 42 feet. For more detailed information, send the coupon.

USS and National are registered trademarks

National Tube Division of United States Steel

Office Literature

continued from page 194

Blueprint Reading Course
A technical blueprint course is available in English and soon will be available in major foreign languages. Consisting of 12 LP records and a 24-page blueprint manual, the course uses easy-to-understand language. The complete course is $9.90, with $1.50 each for additional manuals. *Natec Publications, Inc., 214 W 23rd St., New York 11, N.Y.*

Movable Partition File
A special file includes sample specification sheets for interior movable walls and partitions. *Aluma-Wall Partition Co., 859 E 108th St., Los Angeles 59, Calif.*

Curtain Walls
A 16-page catalog illustrates various types of, and typical specifications for, curtain walls, window walls and interior division walls. *W. P. Fuller & Co., Trimview Metal Fabricating Division, 600 N. Third Ave., Covina, Calif.*

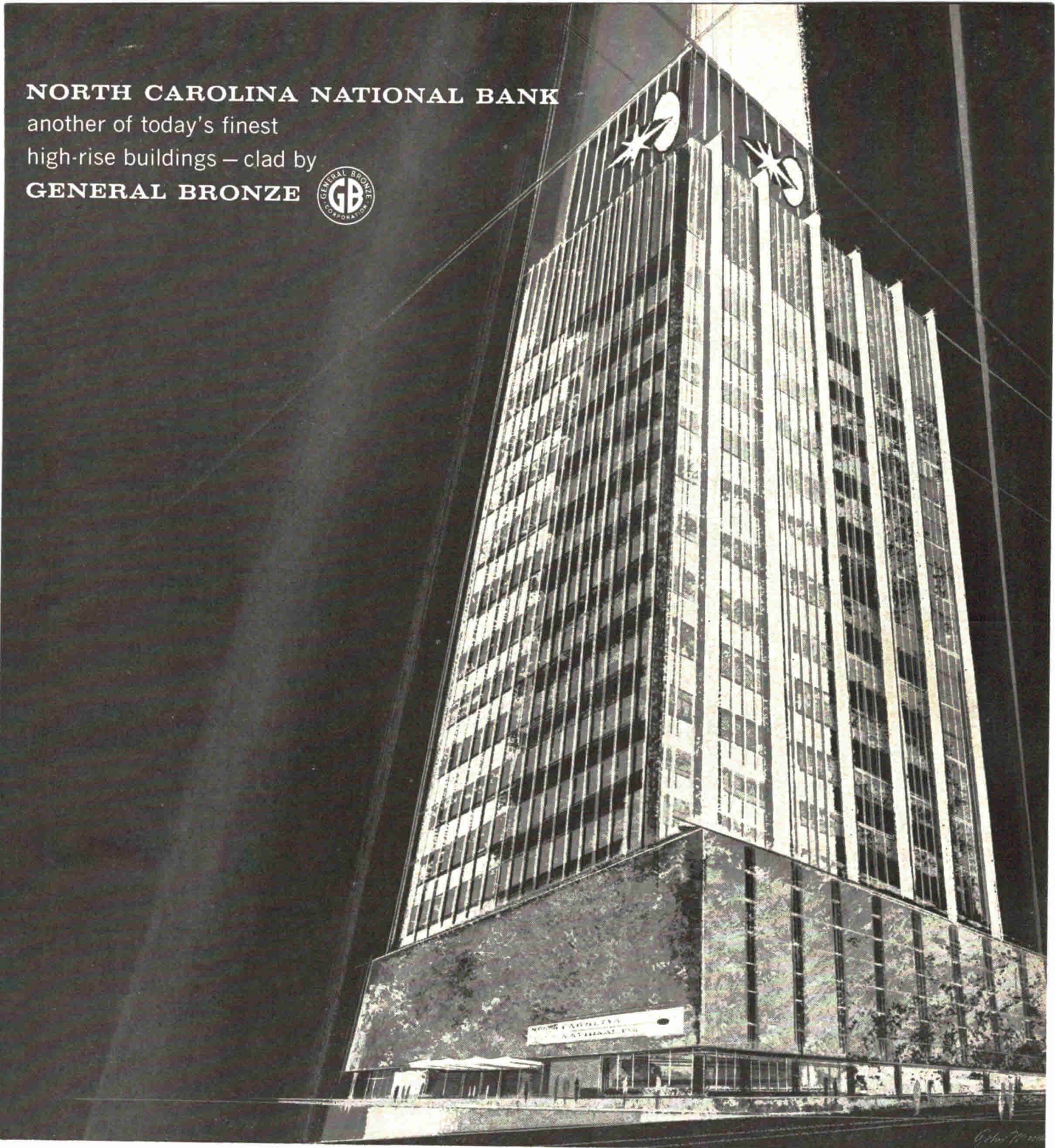
X-Ray Layout File
A 64-page loose-leaf reference file contains scale drawings and specifications on x-ray processing tanks, coolers and all standard x-ray accessories with complete plumbing roughing in details to aid architectural layouts. *Bar-Ray Products Inc., 209-25th St., Brooklyn 32, N.Y.*

Prestressed Concrete
Illustrated 20-page booklet describes 21 types of structures in which prestressed concrete is often used and gives reason for the selections. *Prestressed Concrete Institute, 205 W Wacker Dr., Chicago 6, Ill.*

Spec Sheets on Closet Seats
Specification sheets on solid plastic closet seats designed for institutional, commercial and industrial applications. *Beneke Corp., Columbus Miss.*

Plastics Lighting
K-S-H Plastics, Inc. has re-issued their plastics lighting catalog, now including the white opal polystyrene and acrylic prismatic lens panels. *K-S-H Plastics, Inc., 10212 Manchester, St. Louis 22, Mo.*

more literature on page 26



The Charlotte skyline now boasts a striking new addition: the headquarters building of the North Carolina National Bank. General Bronze engineered, produced and erected the complete aluminum curtain wall system, as well as reversible aluminum windows and architectural metalwork.

Architects: Walter Hook Associates, Inc.
Contractor: Southeastern-Godde-Thompson and Street

When you think of curtain walls... either skin or grid-and-panel systems ...in aluminum, bronze, or stainless steel... think also of the design and engineering services only General Bronze can offer you. With close to half-century's experience in architectural metalwork and fenestration, and 16 years in curtain wall construction, General Bronze is uniquely equipped to help you realize the benefits and avoid the pitfalls of this highly specialized field.

For additional information, consult your Sweet's files . . . call in the General Bronze representative nearest you . . . or write to: General Bronze Corporation, Garden City, N. Y. • Sales Office: 100 Park Avenue, New York, N. Y.

PERMATITE DIVISION—Custom-built Windows, Curtain Walls, Architectural Metal Work and Revolving Doors. ALWINTITE DIVISION—Stock-size Aluminum Windows and Doors. BRACH MFG. CO. DIVISION—Radio, Television and Electronic Equipment. STEEL WELDMENTS, INC. DIVISION—Custom Fabrication in Steel and Iron.

Office Literature

continued from page 254

Automatic Innkeeping
The advantages of automatic innkeeping for hotels and motels are described in a 16-page booklet featuring centralized control systems for message signal, morning call and maid control. The booklet also describes electronic air cleaners, security systems, fire-detection systems and other forms of centralized control. *Minneapolis-Honeywell Commercial Division, 2727 S. Fourth Ave., Minneapolis 8, Minn.**

Decorating With Canvas
A 24-page color booklet illustrates more than 60 shapes and styles of canvas sunshades for windows, doorways and accessory uses. "Decorating and Shading With Canvas," price 25¢, *National Cotton Council of America, P. O. Box 9905, Memphis 12, Tenn.**

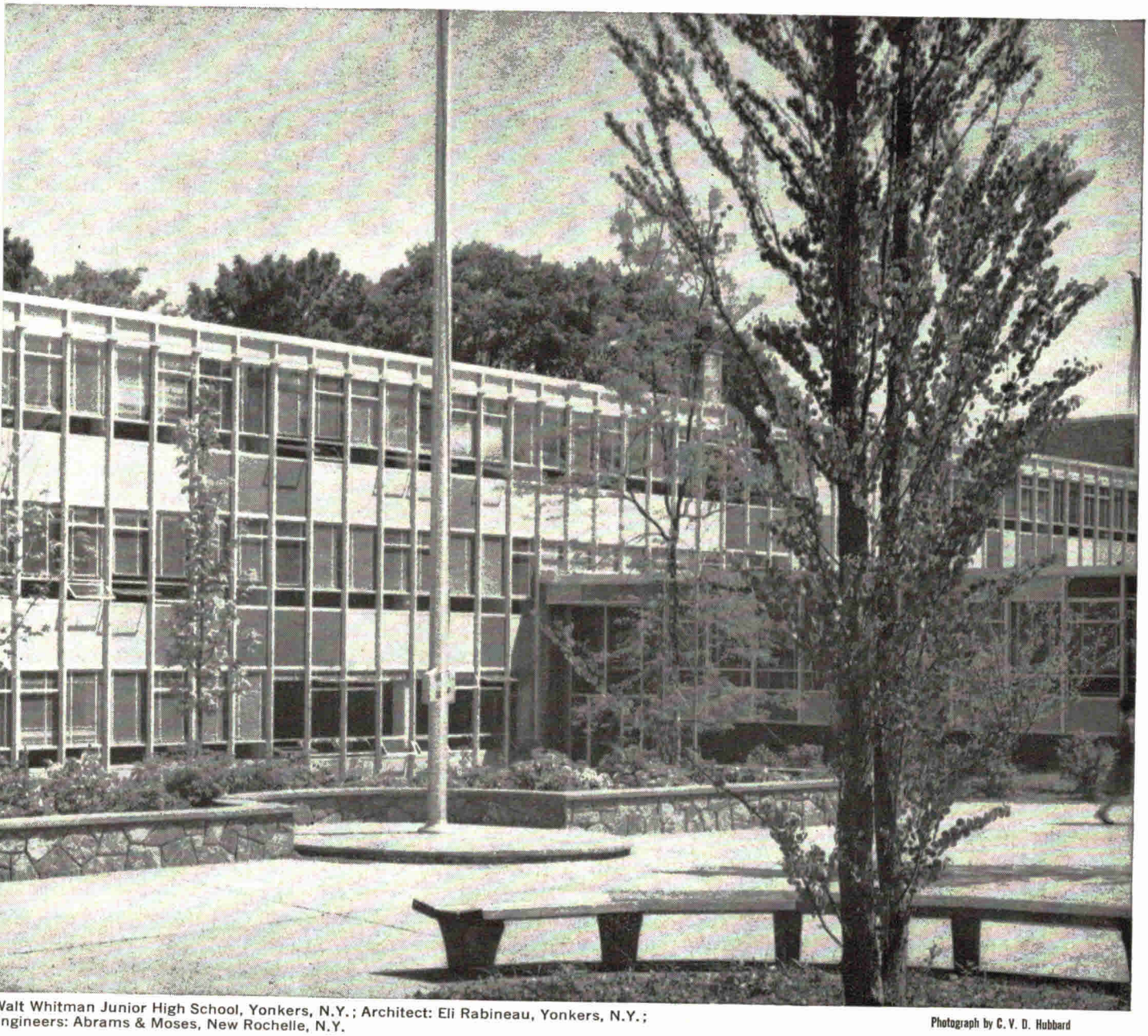
Emergency Lighting Handbook
A 96-page handbook on emergency lighting covering installation considerations, equipment specifications and maintenance requirements, is now available for $2. *Electric Cord Co., Handbook Dept., 432 Plane St., Newark 2, N.J.**

Metal Doors
Doors of stainless steel, bronze and aluminum are described in two booklets. Doors are custom designed and need minimum maintenance. Details and photographs show installations. Editions V-48 and B-48 (Balanced Doors). *Ellison Bronze Co., Inc. Jamestown, N.Y.**

Fire Safety
Buyer's guide to portable fire extinguishers, smoke and fire detectors and built-in carbon dioxide systems is a 12-page booklet which also gives information about accessory items. Brochure P-67, *Walter Kidde & Co. Inc., 675 Main St., Belleville 9, N.J.*

Recommended Design Practices
Technical manual presents detailed engineering data on the design of metal buildings. *Metal Building Manufacturers Assn., 2130 Keith Bldg., Cleveland 15, Ohio*

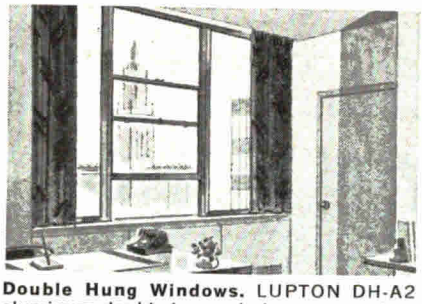
**Additional product information in Sweet's Architectural File*



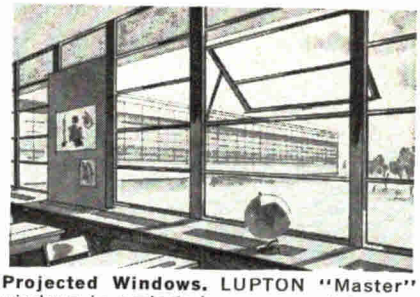
Walt Whitman Junior High School, Yonkers, N.Y.; Architect: Eli Rabineau, Yonkers, N.Y.; Engineers: Abrams & Moses, New Rochelle, N.Y.

Photograph by C. V. D. Hubbard

OTHER LUPTON PRODUCTS THAT MAY SOLVE PROBLEMS FOR YOU ARE:



Double Hung Windows. LUPTON DH-A2 aluminum double-hung windows are custom built for installation in masonry construction or metal curtain walls. Woven-pile weatherstrip and barrel type suspension give smooth operation and weathertight closing.



Projected Windows. LUPTON "Master" windows in projected or casement types—used equally well in curtain walls or in masonry construction. Tubular ventilator members for extra rigidity... double weatherstripping, bronze hardware.

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The Record Reports

On the Calendar

October

1-6 43rd National Recreation Congress, sponsored by American Recreation Society and National Recreation Association; cooperating agencies: Detroit Dept. of Parks and Recreation, Recreation Association of Michigan, Federation of National Professional Organizations for Recreation; theme: "Recreation in a Mobile America"—Cobo Hall, Detroit

5-8 Annual meeting, American Society of Industrial Designers; theme: "Design Explorations"—Santa Catalina Island, Calif.

6-15 Second annual decorating show, "Decoration & Design 1962", sponsored by Resources Council of the American Institute of Interior Designers, New York Chapter of A.I.D., *New York Herald Tribune*—Seventh Regiment Armory, New York City

7-10 Western Building Industries Exposition, sponsored by Associations of the Western Building Industries Council—Great Western Exhibit Center, Los Angeles

9-15 National Electrical Contractors Association—Washington, D.C.

9-18 8th Advanced School for Home Builders, co-sponsored by Univ. of Illinois Small Homes Council-Building Research Council and National Association of Home Builders, in cooperation with Division of University Extension—University of Illinois campus, Urbana, Ill.

10-12 National Conference on Standards, American Standards Association—Rice Hotel, Houston, Texas

10-13 1961 National Planning Conference, Community Planning Association of Canada; theme: "Regional Planning"—Nova Scotian Hotel, Halifax

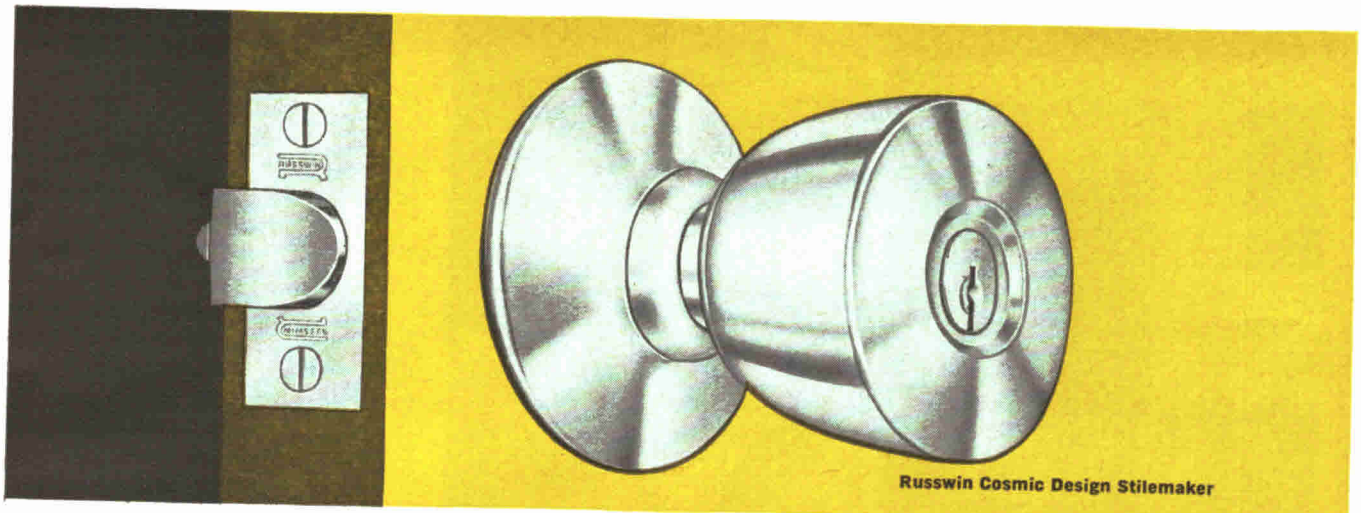
10-14 Annual meeting, American Council of Independent Laboratories, Inc.—Sheraton Hotel, Philadelphia

continued on page 27

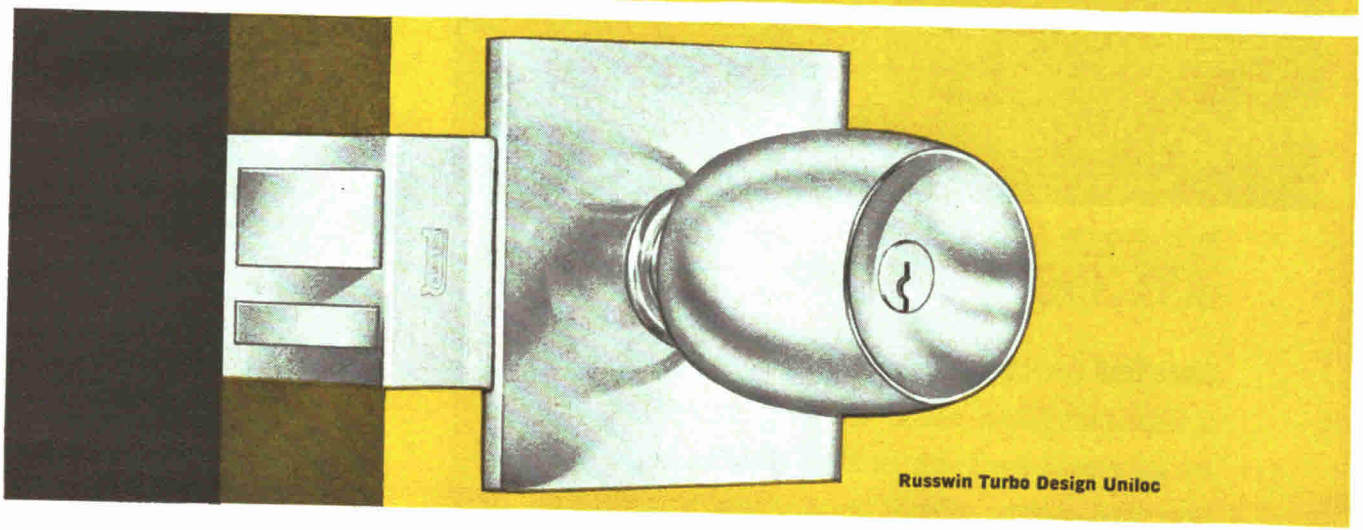
in the two newest states...

Public Safety Bldg., Anchorage
Architect & Assoc.: Edwin Crittenden, Anchorage, Alaska
Hardware: Glass, Sash & Door Supply Co., Anchorage, Alaska

The Ala Moana Building, Honolulu
Architect: John Graham & Co., Seattle and New York
Hardware: Theo. H. Davies & Co., Ltd., Honolulu, Hawaii
Owner-Contractor: Hawaiian Land Company, Ltd., Honolulu



Russwin Cosmic Design Stilemaker



Russwin Turbo Design Uniloc

it's russwin, the doorware that "speaks for the architect"!

In Alaska, in Hawaii . . . *wherever* doorware is chosen for beauty and stamina, architects choose Russwin Doorware.

Handsome Turbo Design Unilocs with award-winning knobs and heavy-duty "unit construction" are the choice for Honolulu's new Ala Moana Building with its distinctive roof-top revolving lounge. In the new Anchorage Public Safety Building, Russwin's popular Stilemaker Heavy Duty Cylindrical Locks, Cosmic Design, are used.

Look to Russwin when *you* want doorware with flair . . . doorware that lasts . . . doorware that speaks for itself and *you*. Write Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

RUSSWIN

The Record Reports

continued from page 266

12-16 Annual conference, National Trust for Historic Preservation—Waldorf-Astoria Hotel, New York

15-19 1961 convention, Prestressed Concrete Institute; theme: "New Opportunities in Structural Design"—Cosmopolitan and Brown Palace Hotels, Denver

15-20 Fall General Meeting, American Institute of Electrical Engineers—Statler-Hilton Hotel, Detroit

16-20 Annual convention, American Society of Civil Engineers; theme: "Metropolis-1980"—Hotel Statler Hilton, New York

16-20 1961 National Safety Congress, annual convention of the National Safety Council—Chicago

17-18 American Society of Mechanical Engineers Materials Handling Conference—Pick Nicolette Hotel, Minneapolis

19-21 Joint Fall Meeting of the Virginia Chapter, American Institute of Architects and the Virginia Chapter, Virginia Society of Professional Engineers and the National Chapter of the National Society of Professional Engineers, who are holding their National Directors Meeting; theme: "Education for Engineers and Architects to Meet Today's Needs"—Hotel Roanoke, Roanoke, Va.

23-27 National Metal Exposition—Detroit

28 First National Symposium Industrial Designers Institute; theme: "The Pivoting Forces"—Somerset Hotel Boston

29ff 28th National Conference National Association of Housing and Redevelopment Officials; through Nov. 1—Sheraton-Park Hotel, Washington D.C.

November

1-3 14th regional meeting, American Concrete Institute—Dinkler-Tutweiler Hotel, Birmingham, Ala.

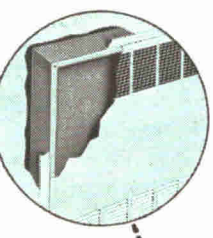
continued on page 27

insures the well-known performance of products like this!

What does it take to turn out products of consistent high quality? At Modine, specialized testing equipment deserves a share of the credit. Other factors include a sustained research program, creative engineering, modern production tools and techniques, and over 40 years of heat transfer experience.

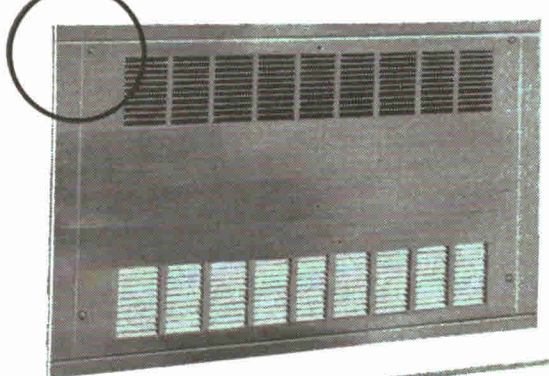
Combine them, and you come up with products like the Modine convector at work in this hospital scene. Modine convectors provide steam and hot water heating at its *finest* . . . and most economical. They respond instantly! Maintain uniform, full-room comfort with gently circulated radiant and convected heat. They're lightweight and compact . . . easy to install, easy to maintain. And Modine has models for *every* building need . . . 8000 combinations of sizes and types.

For further information on the "little-known" side of Modine or any of our products, contact your nearest Modine representative. Or write direct. Ask for Convector Bulletin 259.



MODINE CONVECTOR WITH PERMA-LAP® FRAMING.

Modine's PERMA-LAP framing assures easy, neat, permanent installation of recessed convectors. It snugs up to finished walls or can be used as a plaster stop for flush installation. No air leakage to cause wall streaking! Servicing? Simply remove the unit's front panel . . . no need to disturb the seal between wall and PERMA-LAP.



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The Record Reports

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4-7 National Retail Lumber Dealers Association Eighth Annual Building Materials Exposition—McCormick Place Exhibit Hall, Chicago

6-8 Annual convention, Structural Clay Products Institute; theme: Industry Research—Shoreham Hotel, Washington, D.C.

6-9 46th edition, National Hotel Exposition—The Coliseum, New York

6-9 1961 conference and Atom Fair exhibit, sponsored by Atomic Industrial Forum and American Nuclear Society—Conrad Hilton, Chicago

6-10 Annual convention, National Warm Air Heating and Air Conditioning Association—La Salle Hotel, Chicago

12-15 Annual meeting, Air-Conditioning and Refrigeration Institute—The Homestead, Hot Springs, Va.

14-16 Building Research Institute 1961 Fall Conferences—Shoreham Hotel, Washington, D.C.

15-18 1961 Joint Convention, Gulf States Regional A.I.A. and Louisiana Architects Association, A.I.A.—Capitol House Hotel, Baton Rouge, La.

20ff American Society of Mechanical Engineers Winter Annual Meeting; through Dec. 1—Statler Hilton Hotel, New York

21ff Exhibition, Stained Glass Windows by Chagall designed for a synagogue at the new Hadassah-Hebrew University Medical Center near Jerusalem, shown under the sponsorship of Hadassah; through Jan. 7, 1962—Museum of Modern Art, New York City

28-30 Building Research Institute 1961 Fall Conferences—Mayflower Hotel, Washington, D.C.

December

3-7 18th annual National Association of Home Builders Convention-Exposition — McCormick Place, Chicago

5-7 Building Research Institute 1961 Fall Conferences—Shoreham Hotel, Washington, D.C.

continued on page 28

The principal characters shall remain anonymous because we don't want to get anyone in trouble... especially ourselves

On the 20-plus story X building in the city of A, the architect had specified either Type B spray-on fireproofing, or Zonolite Mono-Kote.

The general contractor, for mysterious reasons of his own, informed the plastering contractor to use the Type B spray-on fireproofing. So the plastering contractor, eager to oblige, ordered over 1,000 bags of Type B, and his men dutifully began to spray it on.

Now, be it understood that Type B is a respectable product, manufactured by one of the giants in the field, scientifically tested and all that. You read all the time about how good it is.

Except that the nozzle men spraying the stuff on didn't think so. Type B didn't stick to the lower edge of the beam flanges. It was hard to build up even to ⅜" on the first pass. And there was so much rebound and splatter that the nozzle men were getting coated as well as the beams.

When the nozzle men threatened to quit, the plastering contractor decided to try Mono-Kote, though the general contractor tried to dissuade him (verbally; no firearms). But his argument failed.

The nozzle men found that on the first pass, they could apply Mono-Kote at least ½" thick to the beams, and a full ⅞" thick to the contour floor.

Within two hours, Mono-Kote was so firmly set that the nozzle men could come back for the second (and final) pass to build the coat out to 1¼", for a five hour rating. The floor received a 1" coat for a three hour rating. A fast, clean, economical job.

The story has all sorts of happy endings. The plastering contractor was happy because he did a good job fast. The general contractor was mollified (sort of) because the work waiting for the fireproofers to finish was able to begin sooner than he had planned. Even the nozzle men were happy . . . they stayed clean, not coated, working with Mono-Kote.

In many advertisements they are willing to give you the names on request if you write in. Not us. Not even if you say please. No names mean no trouble.

Story's over; now for a few more facts. Aside from the speed and excellent application characteristics of Mono-Kote, you use less material; 1" for a three hour fire rating, 1¼" for a five hour rating.

On your next job, specify what you will or Zonolite Mono-Kote. We'll be happy to take on all comers. For complete information about Mono-Kote, write for Bulletin PA-53, to:

ZONOLITE COMPANY

135 SOUTH LASALLE ST., CHICAGO 3, ILLINOIS

The Record Reports

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Office Notes

Offices Opened

W. E. Green has opened an office for the general practice of architecture at 130 W. Liberty Drive, Wheaton, Ill.

James P. Hawke, internationally known consulting structural engineer, has opened a consulting engineering office at 503 Market St., San Francisco.

New Firms, Firm Changes

John A. Bower Jr. and Frederick M. Fradley announce the formation of a partnership for the practice of architecture as Bower and Fradley Architects, 114 West Coulter St., Philadelphia.

The partnership of Pohlman & Chapelsky Architects has been formed by Lauren V. Pohlman and Roman N. Chapelsky. The address is 1140 E. Jersey St., Elizabeth, N.J.

Robert K. Moss, engineer, announces the formation of a new consulting organization to be known as Robert K. Moss, Consultants, 2252 Dehne Rd., Northbrook, Ill.

Rolland D. Thompson, formerly in partnership with Henry Steinhardt, announces the relocation of his architectural office to 33 E. 61st St., New York 21, N.Y.

C. Herbert Paseur is now a full partner in the Houston architectural firm of Caudill, Rowlett and Scott. New associates in that firm are: James R. Cox, Louis E. Finlay, Philip C. Williams, Donald B. Wines, William W. Harper and W. C. Bonvillain.

William R. Funk, administrator of the Mechanical Contractors Industry Advancement Program of Greater Philadelphia, Pa., announces the appointment of John R. Watson to the staff. Mr. Watson, an engineer, will promote closer cooperation and relationships between architects and engineers.

Alexander E. Hoyle has retired from the Boston architectural firm of Hoyle, Doran and Berry (formerly Cram and Ferguson). New members of the firm are: Nisso T. Aladjem, Frank E. DeBruyn, Robert W. Hadley and Charles P. Harris.

Richard O. Stanley, architect, has established a new firm with offices at 31 Exchange St., Lynn, Mass.

William E. Cox has been appointed to the architectural design staff of The Ballinger Company, Architects & Engineers, 1625 Race St. Philadelphia.

Henry Van Loon, who was Executive Director of the Pennsylvania State Planning Board, has joined the architectural firm of Perkins & Will. To participate in the firm's urban design practice, Mr. Van Loon will be based in the White Plains N.Y. office.

New Addresses

Richard J. Chorlton, Architect 188 Nassau St., Princeton, N.J.

Erroll R. Clark, Architect, 1372 W. Warren Ave. Dearborn, Dearborn, Mich.

Henneberg & Henneberg, Architects and City Planners, 806 Massachusetts Ave., Cambridge 39, Mass

Morton T. Ironmonger—A.I.A 106 Oak Park Bldg., 2631 E. Oaklan

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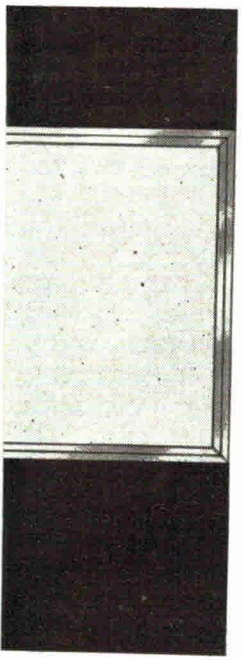
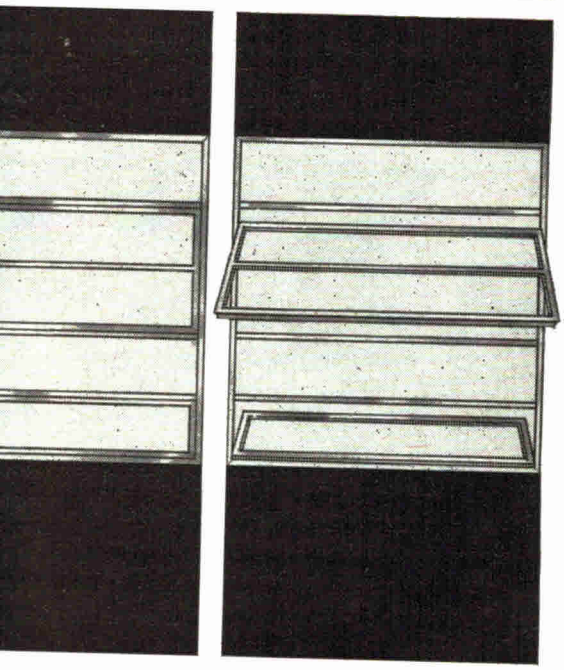
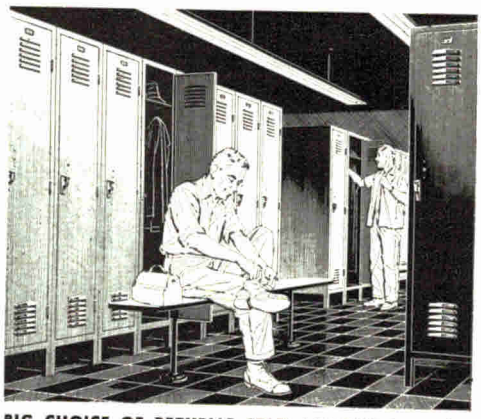


Vision-Vent and Grid-Vue Walls, with Vertically Pivoted Aluminum Window Series 55-A, especially designed for use in multi-storied air-conditioned buildings. Available with hopper vent and for transom ventilator.

Vision-Vent and Grid-Vue Walls with Aluminum Projected Window. Standard of the industry. See details and specifications in Sweet's Architectural File 3d/TR.





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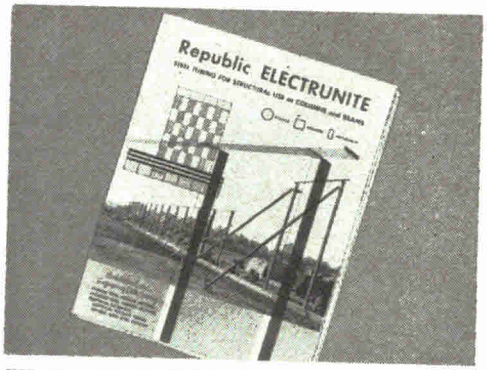

USE REPUBLIC ELECTRUNITE® STRUCTURAL TUBING for mullions, columns, beams, spandrels in curtain wall buildings. Square and rectangular shapes save weight, cut costs, speed erection, are architecturally attractive. New design manual lists elements of sections for round, square, and rectangular structural tube. Send coupon.

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City_____ Zone____ State_____

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Park Blvd., Fort Lauderdale, Fla.

Ratcliff-Slama-Cadwalader Architects, 3408 Grove St., Berkeley 3, Calif. and 6117 Grove St., Oakland 9, Calif.

Allen J. Wright Associates, Civil Structural Engineers, 11212 Grandview Ave., Wheaton, Md.

I.E.S. Awards Gold Medal, Elects Fellows

The Gold Medal Award for 1961 of the Illuminating Engineering Society has been given to Dr. Deane B. Judd, "the outstanding authority in the field of color in the United States and probably in the world."

The I.E.S., an organization of more than 10,000 members, awards its Gold Medal "for the purpose of giving recognition to meritorious achievement which has conspicuously furthered the profession, art or knowledge of illuminating engineering."

According to A. D. Hinckley, managing director of the world-wide Society, "The importance of the part played by color in illuminating engineering has only in recent years begun to receive the recognition it deserves."

Dr. Judd, who has been a physicist at the National Bureau of Standards since 1922, has made major contributions in the following broad areas: the "standard" observer for colorimetry and photometry; light scattering properties of materials, color-blindness, indices of whiteness, uniform color scales, color names, color differences and color tolerances, and chromatic adaptation.

Eight members of the I.E.S. have been elevated to the rank of Fellow, an honor which recognizes stature in the profession and contributions to the program of illuminating engineering. They are: H. E. D'Andrade, architects' and engineers' adviser, Large Lamp Department, General Electric Company, New York, N.Y.; Grant E. Davidson, supervising illumination engineer, Ontario Hydro-Electric Power Commission, Toronto, Ont., Canada; Arthur A. Eastman, visual research engineer, Radiant Energy Effects Laboratory, Lamp Division, General Electric Company, Cleveland; George E. Inman, retired, formerly manager, Advance Discharge Lamp Engineering, Large Lamp Department, General Electric Company, Cleveland; Merle E. Keck, manager, Outdoor Lighting Engineering Section, Engineering Department, Westinghouse Electric Corp., Cleveland; Herbert A. Kliegl, president, Kliegl Brothers Universal Electric Stage Lighting Company, New York; Karl A. Staley, specialist, Personnel and Sales Training, Large Lamp Department, General Electric Company, Cleveland; and Arthur W. Weeks, engineer in charge of fluorescent testing, Champion Lamp Works, Lynn, Mass.

Lloyd Warren Fellowship Winners Announced

Winners of the Lloyd Warren Fellowship, Paris Prize in Architecture are: Alan B. Glass, Oklahoma State University—first prize of $500; and Sidney R. Barrett, Georgia Institute of Technology—second prize of $3500. Both sailed in September

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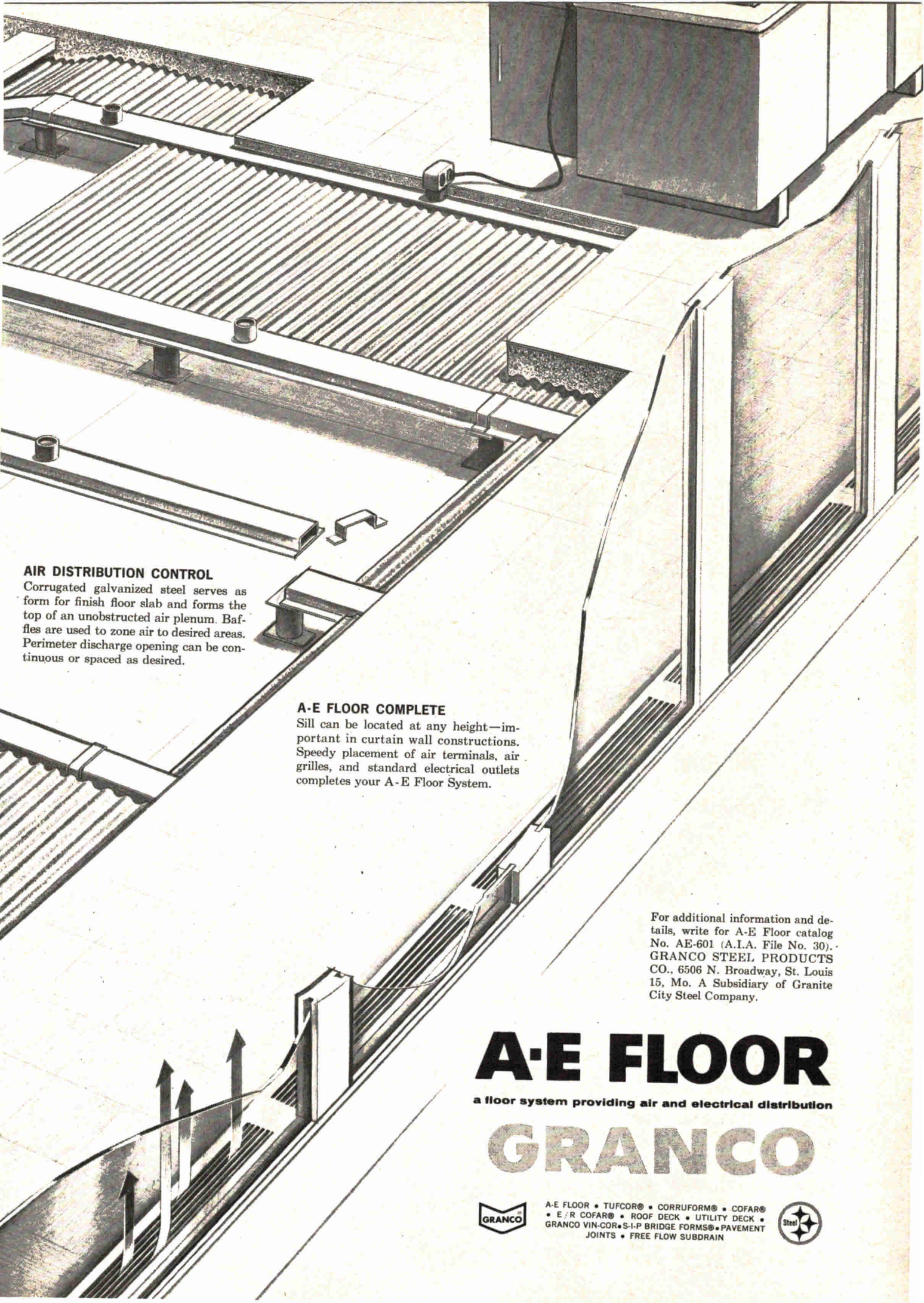

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Corrugated galvanized steel serves as form for finish floor slab and forms the top of an unobstructed air plenum. Baffles are used to zone air to desired areas. Perimeter discharge opening can be continuous or spaced as desired.

A-E FLOOR COMPLETE
Sill can be located at any height—important in curtain wall constructions. Speedy placement of air terminals, air grilles, and standard electrical outlets completes your A-E Floor System.

For additional information and details, write for A-E Floor catalog No. AE-601 (A.I.A. File No. 30). GRANCO STEEL PRODUCTS CO., 6506 N. Broadway, St. Louis 15, Mo. A Subsidiary of Granite City Steel Company.

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Steel

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to pursue their studies abroad. Mr. Glass will stay one year, Mr. Barrett eight months.

Awarded by national competition, the fellowship is administered by the National Institute for Architectural Education and has been given since 1904 with the exception of the war years. The competition this year consisted of a preliminary competition executed in three days from which those to compete in the final competition were selected. The problem for the preliminary called for the design of "A Center for New Countries Adjacent to the U.N." The second part of the competition required the solution in five consecutive weeks to a problem the subject of which was "A U.N. Delegation Headquarters" for the African countries.

Members of the jury were: Caleb Hornbostel, chairman, Arnold A. Arbeit, George Beiers, Giorgio Cavaglieri, Charles Colbert, Joseph Judge, Sidney L. Katz, L. Bancel LaFarge, Gillet Lefferts Jr., John C. B. Moore, Hugh N. Romney, Charles Rieger and Kenneth Underwood.

The third prize of $250 in the final competition was awarded to Morton Gruber, a student at Massachusetts Institute of Technology. Regional prizes of $100 each were awarded to students at Agricultural & Mechanical College of Texas, Iowa State University, North Carolina State College and the University of Illinois.

Brunner Scholarship Available

Applications are being accepted for one of the nation's top architectural awards, the $5000 Arnold W. Brunner Scholarship. The Scholarship, sponsored annually by the New York Chapter of the American Institute of Architects, is open to American architects who have advanced professional background. Each candidate may choose his subject of study in some special field of architectura investigation which will contribute effectively to the practice, teaching or knowledge of the profession.

As part of his application, the candidate is required to submit his choice of subject with an outline o his proposed studies, research and necessary travel. Under normal conditions the Scholarship must b completed within one year from th date of the grant.

Past projects for which the Scholarship has been awarded include: study of urban living through th movement of people, the creation o a traveling architectural exhibit fo high school students, the compila tion of a guide to contemporary ar chitecture of Europe and a histor of city planning. Architects Richar A. Miller and Arnall T. Connell wo the most recent grant for their pro posed study of visual perception a it is related to design.

For application blanks and fu ther information, write the Ne York Chapter, A.I.A., 115 East 40t St., New York 16, N.Y. Jan. 15 the deadline for submitting applic tions.

more news on page 2

AN $8,640 ADDITIONAL INVESTMENT WILL BRING THESE SAVINGS:

$13,950 ON HEATING-COOLING EQUIPMENT

The cost of construction for this air-conditioned school had to be $13 per sq. ft., or less. Original specifications called for ¾″ of Fiberglas* Roof Insulation, a 3½″ air space in the exterior walls, and plate glass windows. A Dividend Engineering analysis showed that increasing the roof insulation to 2″, filling the walls with Fiberglas Building Insulation, and using heat reducing plate glass would produce optimum heat savings. The added efficiency, obtained at a cost of $8,640, should reduce the cost of the heating-cooling equipment by $13,950 . . . a net saving of $5,310 in the budget.

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Dividend Engineering calculations also forecast a $1,836 saving in the cost of heating and cooling. Without this evaluation to point out the "thermo-economic" performance of the building, over $1,800 would be spent unnecessarily each year.

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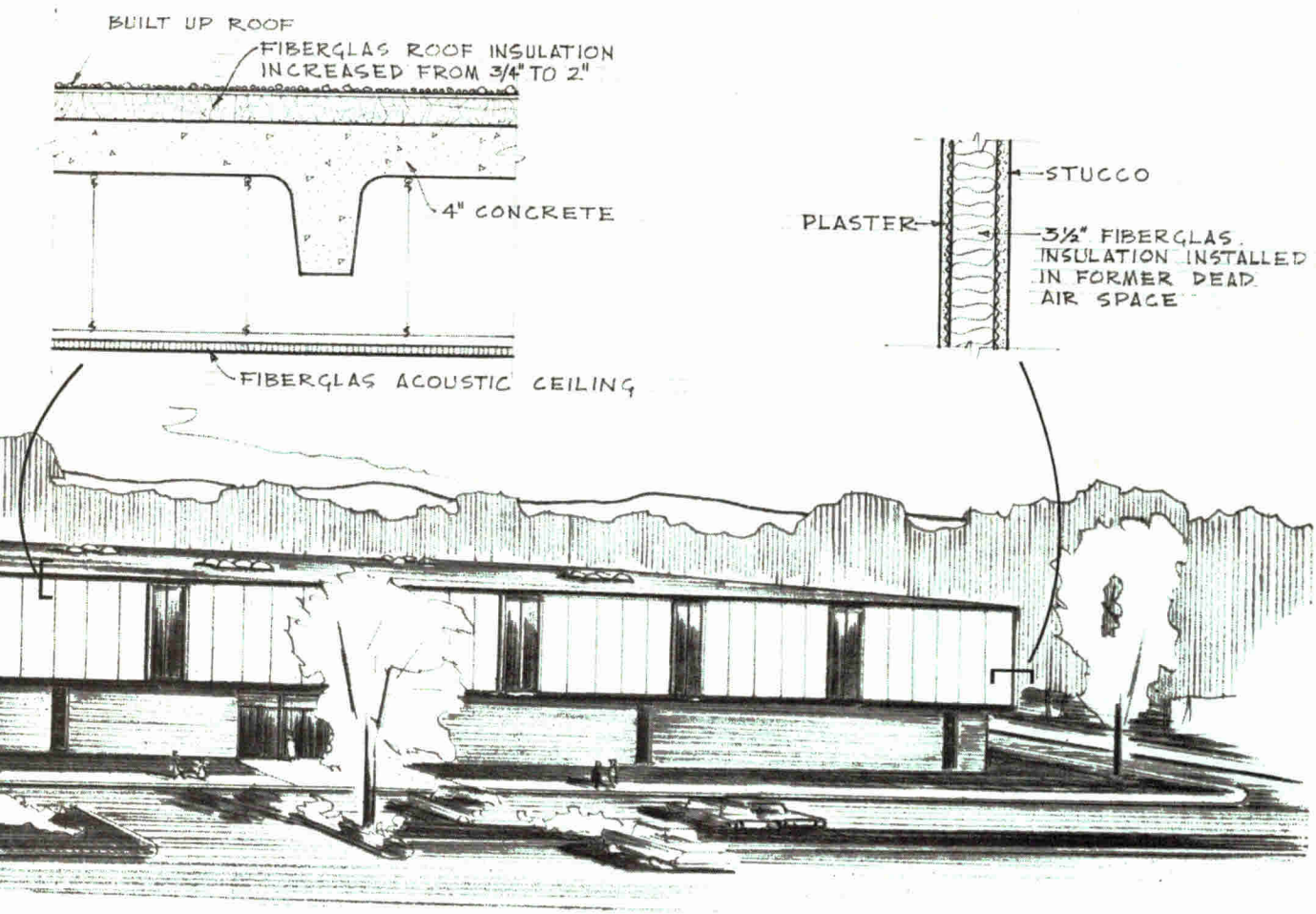

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Preservation Trust Meets; Two Exhibits Planned

Coinciding with the annual meeting in New York October 12-16 of the National Trust for Historic Preservation is the opening of two related exhibitions presented during October and November by the Cooper Union Museum for the Arts of Decoration in New York City.

One of the exhibitions, sponsored and prepared by the National Trust, is entitled "Preservation: the Heritage of Progress". It will consist of 40 photographic panels showing how many historic monuments have been preserved or restored and also illustrating neglect or destruction of others. After its initial showing at the Cooper Union Museum through Nov. 17, the exhibit will be circulated throughout the country under the sponsorship of the American Federation of Arts.

The second exhibition, prepared by the Cooper Union Museum staff, will illustrate in depth both the interior and exterior aspects of historic restoration. Entitled "Method and Style in Restoration," the exhibit will be divided into three sections: the first devoted to archaeological research; the second containing rare documents and a variety of objects showing how dates and styles can be verified in restoration projects; and the third illustrating the variety of styles in interior furnishings from which the restorer can choose to reflect a given historical period.

Cincinnati U. Appoints New Staff Member

John R. Hagely has been appointed assistant professor of architecture in the University of Cincinnati's College of Applied Arts.

Having received his Bachelor of Architecture degree from Ohio State University in 1953 and served on the faculty of Ohio State as an instructor in architectural construction from 1955 through 1960, Mr. Hagely completed his Master of Architectural Design degree at the University of Illinois in 1961. He has worked in the fields of architectural design and contract drawing for architectural firms in Columbus, Ohio.