ARCHITECTURAL RECORD

2 FEBRUARY 1964 • TWO DOLLARS PER COPY

BUILDING TYPES STUDY: SCHOOLS

A SCHOOL FOR THE ARTS AT YALE

ARCHITECTURAL DETAILS: MARCEL BREUER

FULL CONTENTS ON PAGES 4 & 5

Lobby, Great Valley Laboratories, Wyeth, Inc. Tile Contractor: Italian Marble Mosaic Co.

This dramatic lobby mural is executed in American Olean ceramic mosaic tile with sparkling highlights of glazed Accent* colors. American Olean's design staff can assist you in creating outstanding ceramic murals in keeping with the architect's design concepts. • For distinctive lobbies and corridors—for walls as well as floors—select from the wide range of pure, clear colors in the new Precedent line of ceramic mosaics. Send for full-color Booklet 561, showing new Precedent ceramic mosaics, the many handsome patterns available and striking illustrations of how effectively they can be used.

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Features

RECORD

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February 1964

Building Types Study 329: Schools

Coming in the Record

ARCHITECTURE AND PLANNING FOR THE YEARS AHEAD

Surely no greater challenge has invited any generation of architects than the present opportunity to practice architecture at the scale of the community. How does architecture relate to planning at the scale of the redevelopment area or the city (or the region)? A new series of articles developed for the RECORD *by Albert Mayer with the collaboration of Clarence Stein will start next month to present an analysis of the nature of the new problems and basic principles to be considered in their solution.*

OFFICE BUILDINGS AND THE NEW DOWNTOWN CENTER

A clear trend in the location of new office buildings in recent years has been their appearance in "centers" which include them in multi-building complexes along with shopping, hotel, apartment and civic facilities in one combination or another. Next month's Building Types Study will analyze a number of such centers with particular attention to the complex problems of site planning, traffic, circulation and real estate economics they present.

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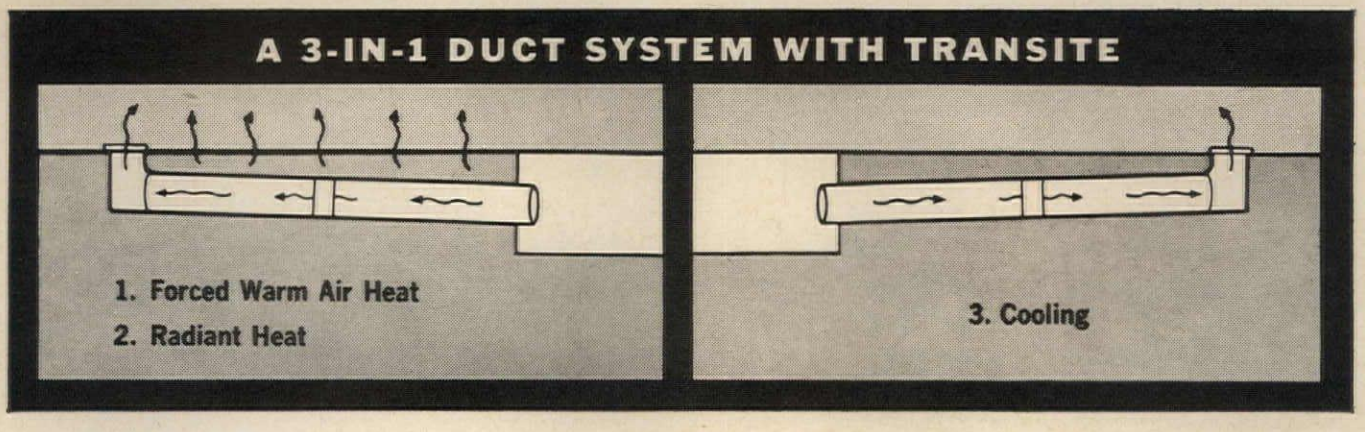

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Two variations on a repoussé theme. Floor shown above makes dramatic use of new Kentile® Repoussé I (octagonal styling) and Repoussé II (circular styling) Solid Vinyl Tiles. 8 colors (shown here coordinated with White Solid Vinyl Tile).

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KENTILE VINYL FLOORS

*Kentile Repoussé, selected for excellence in design in the American Institute of Interior Designers International Design Awards—1964.

Reactions on Research

Some months ago (September) I was bemoaning the lack of serious research into factors which are basic to architectural design, no "post-graduate course in human environment." I said rather flatly that science is not at work on basic environmental questions, and that there is "no new information to collate, digest, test and communicate."

Let me note a couple of responses; one a protest, one an announcement.

The protest comes from Robert M. Ford III, assistant professor of architecture, University of Illinois: "Today's architectural schools, on the whole, have broadened their outlook considerably. The relationship of man to his total environment is paramount in all phases of design instruction. Subjective and objective criteria and controls must be fully considered. The graduate schools in particular are concerned with the human environment and the physical and psychological forces which shape it. Much research and investigation has and is being undertaken in this vital direction . . .

"Sir, your eyes are closed."

Sir, I am pleased by your response.

The announcement concerns the formation of the Center for Environmental Research; it comes from Clifford Douglas Stewart, Boston architect:

"The need for basic research into environment stems from two sources. First, the ever-increasing speed with which basic design decisions must be made if we are to meet the creative challenges of our developing era, and, second, the poverty of basic data which serves our creative demands.

"The natural elements erode our constructions and the pressures of society corrode our vitality. We too often do battle with these adversaries armed only with medieval weaponry. In these terms, it will be impossible to adequately serve the burgeoning world population and all of its geometrically progressing social and physical demands.

"Our aims are to:

"1. Investigate and systematically record the controllers of physical environment.

"2. Investigate and systematically record the energizers of psychological environment.

"3. Analyze the many forms of growth environment and attempt to develop appropriate design direction.

"4. Investigate and systematically record the potentials of Construction Technique and Material Design.

"5. Analyze the use and the potential of Graphic Communication and the Visualization Process.

"Our first step is to cut through the currently accepted methods and techniques of environmental creativity and lay bare the very basic needs, the elemental goals, and the common aspirations. In a world geared to 'progress,' the time spent in questioning 'instinct' and 'common sense' may seem superfluous, but so can be the expenditure of time, energy and money based primarily on such homely virtues.

"The Center for Environmental Research welcomes the open exchange of information with any other similarly oriented organization. The job is indeed broad enough to absorb the interests and energies of a great many. We will welcome and support the efforts of all who rise to this challenge of our times."

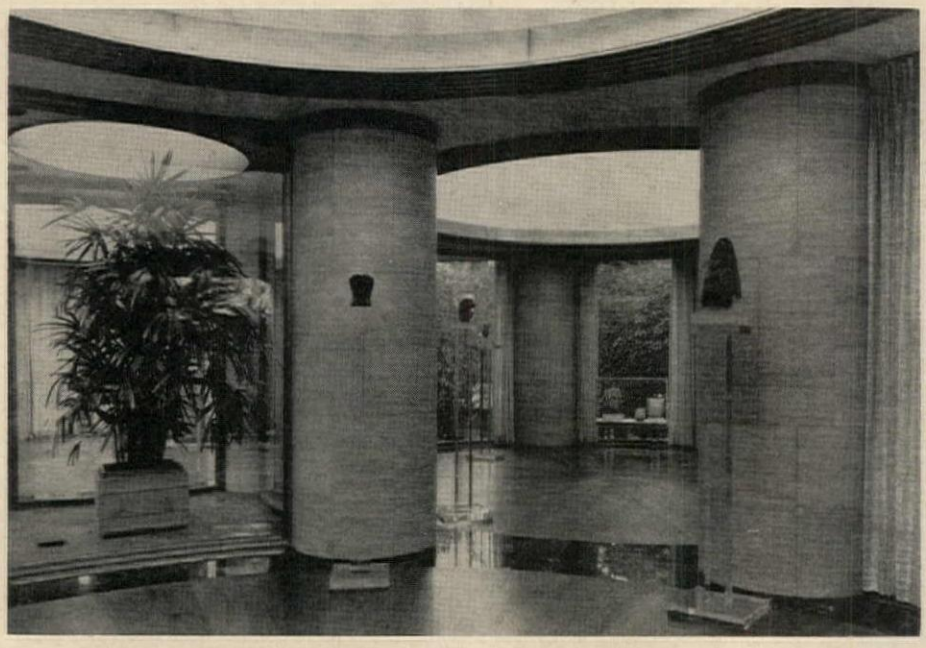
Well, a hopeful mouthful. His letter of transmission is less formal:

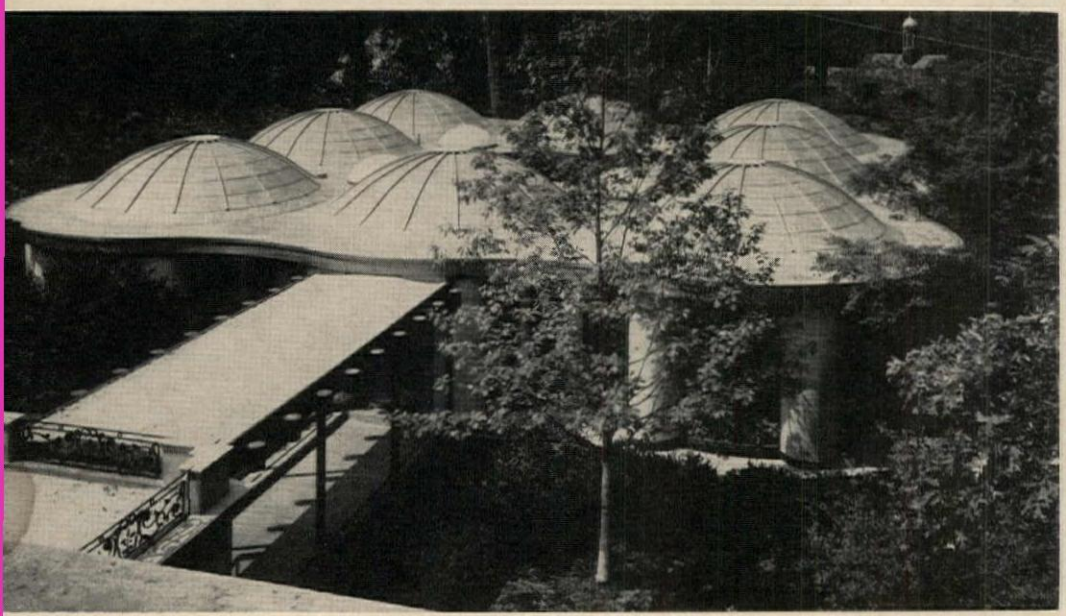
"A whopping lot of work must go into this center before any results of its research will be uniquely valuable. Just last week, after many false starts, we were able to interest an angel, who, by the way, is a man not in the architectural profession, to invest a considerable amount of money in the center. We now feel that we are off the ground, if only a few inches.

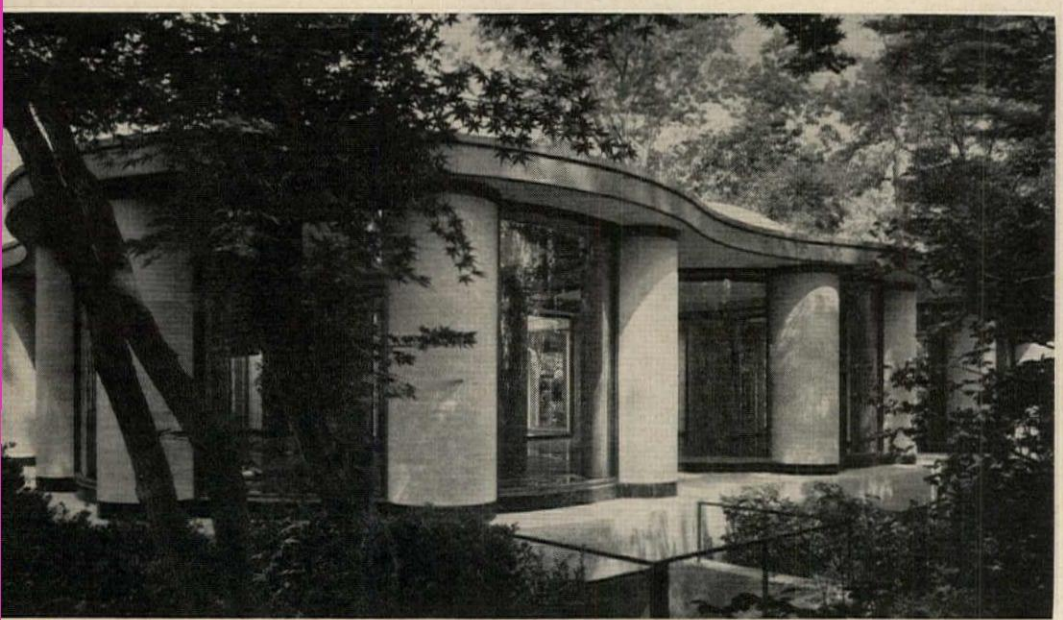
"Our intentions are honorable, our experience is at the ready, and we are full-tilt at the windmill. Mr. Goble said in his editorial, 'science is not at work on these basic environmental questions,' but we are; and I hope that we are just one of many organizations who agree heartily with him in his desire for 'new information to collate, digest, test and communicate'."

I hope so too; and best wishes!

—Emerson Goble







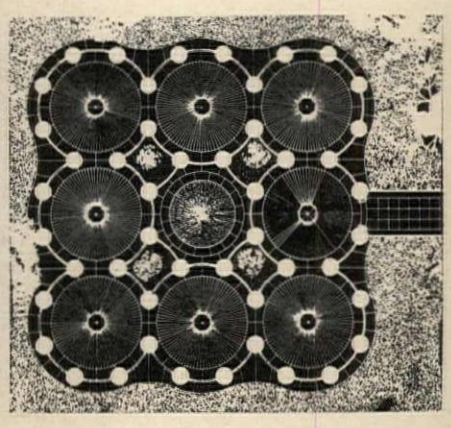
Johnson's Museum Opens At Dumbarton Oaks

The Robert Woods Bliss Collection contains Pre-Columbian artifacts of relatively small scale, precious materials, superb craftsmanship and great beauty. Philip Johnson, designing a building to house it, has duplicated all of these qualities.

The plan provides eight small dome-covered rooms, one of them an entrance, the others exhibition rooms where the collection is arranged geographically. The ninth circle contains a small garden with fountain.

The collection includes items made of gold, silver, jade, onyx, feathers. In response, Mr. Johnson has lavished luxurious materials on the building with what might be called conspicuous restraint. The smooth marble-faced columns are crowned with bronze collars. More bronze is used at the base of each of the shallow domes to conceal lighting. The floors are oiled teak bordered with polished dark green marble.

The collection is displayed on acrylic plastic stands designed by the museum staff.



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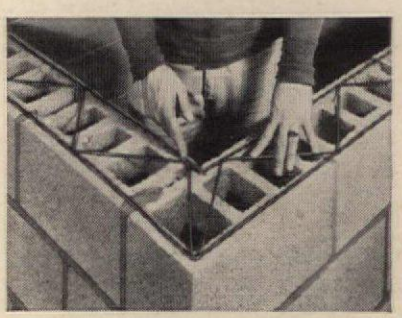

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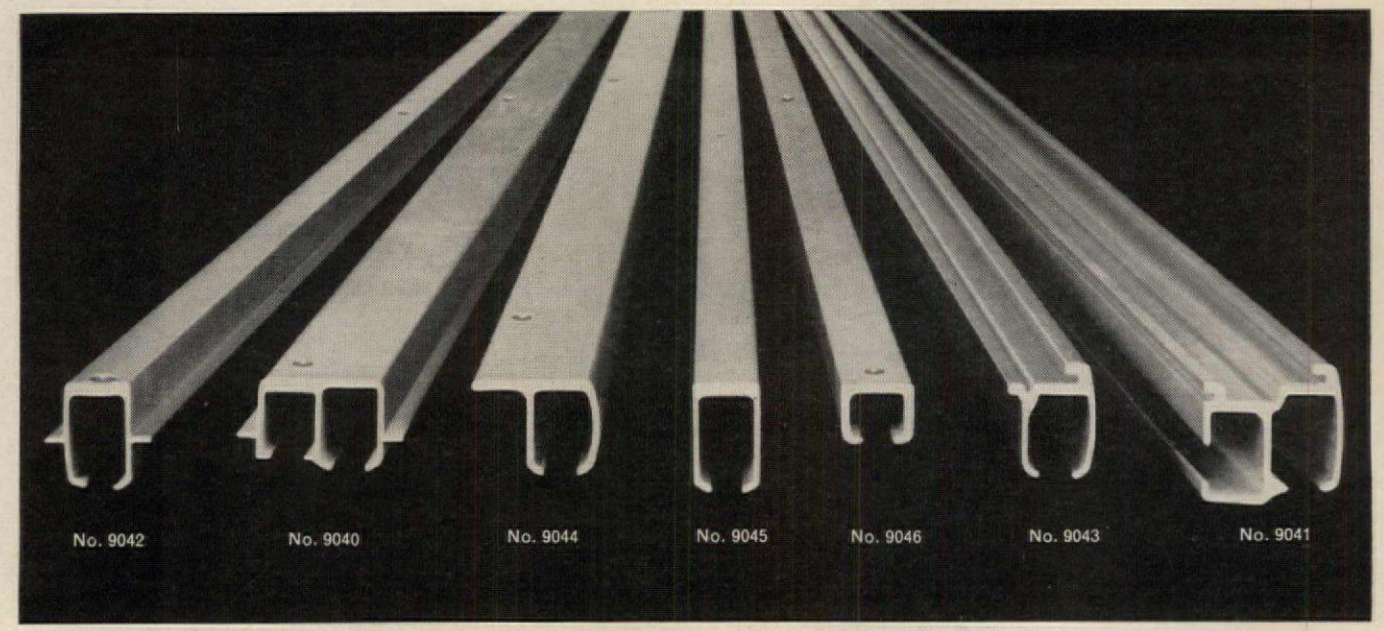

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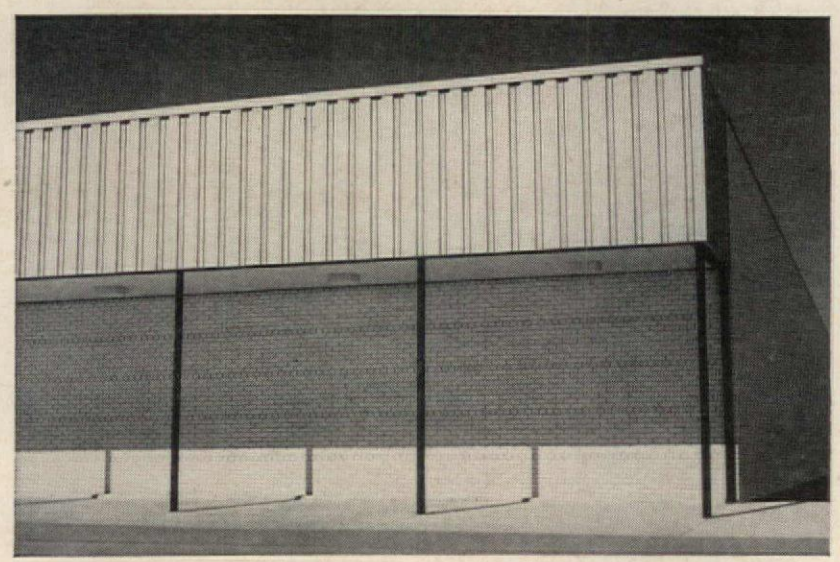

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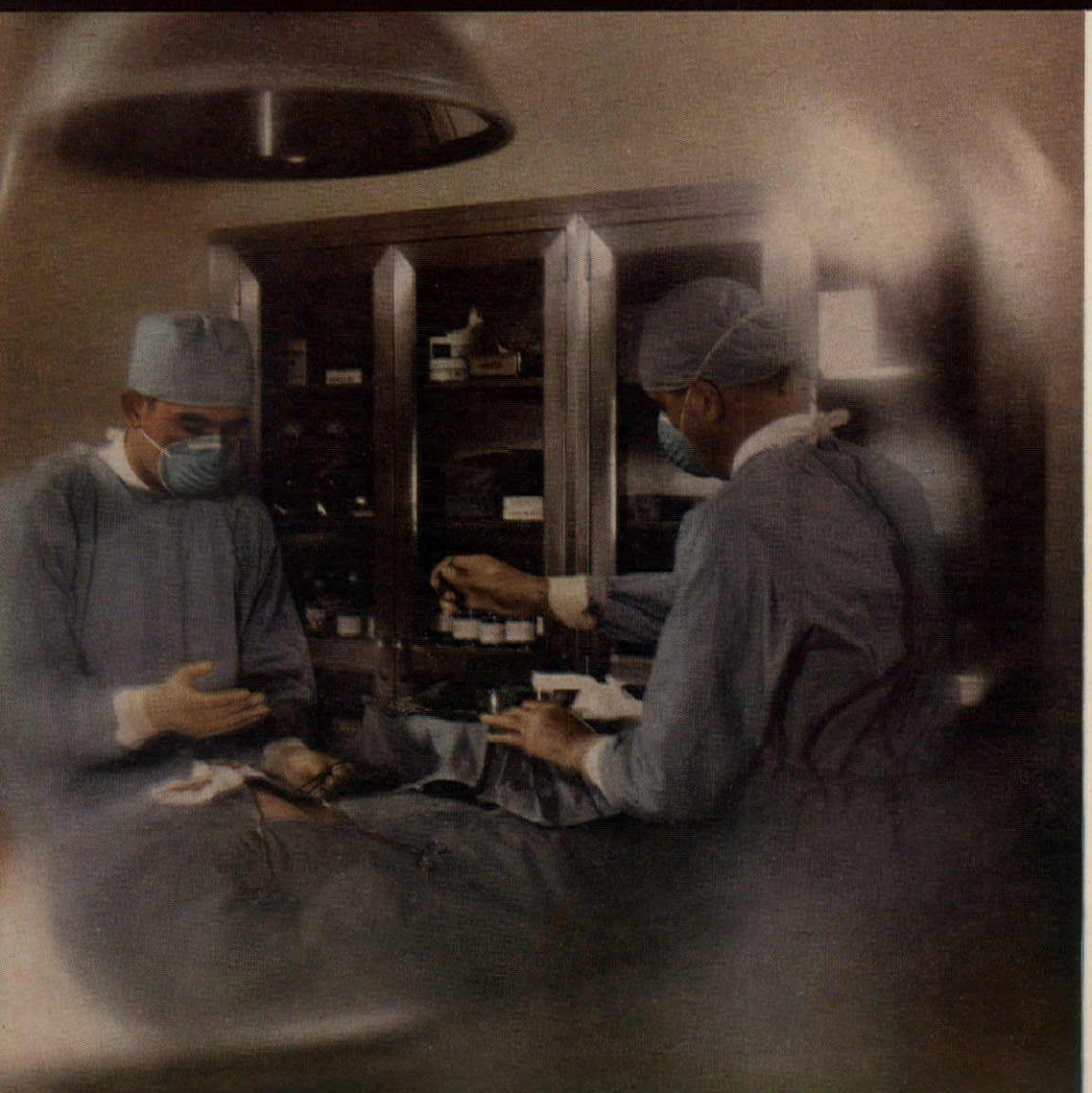
The most vital 50% of Southwest Texas Methodist Hospital in San Antonio is housed in two sub-levels under reinforced concrete. Self-contained facilities include water, power, filtered ventilating system, oxygen and vacuum outlets — and over 200,000 square feet of stainless and enameled steel casework by Remco.

Designed by Phelps & Simmons & Associates, this is the first hospital to have a "Survival Complex" built to the specifications of the Office of Civil and Defense Mobilization.



The complex will accommodate 1,800 persons and can be self-sufficient for more than 2 weeks even against radioactivity due to fallout.

Throughout the building, maintenance and sanitation are simplified by wide use of Remco cabinets and casework employing "Cove" construction. And Southwest, Texas Methodist Hospital is one of 50 major institutions around the world that have installed Remco equipment in the past twelve months.

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Remco

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Balthazar Korab

YAMA DESIGNS 110-STORY WORLD TRADE CENTER

For most people, the big news in New York City's proposed World Trade Center is that it will render the Empire State Building *passé*. At 1,350 feet, the twin towers will share the title of tallest building in the world.

For architects, the big news will lie in the skillful handling of a major renewal site and in the treatment of structural and mechanical elements, releasing sufficient rentable space to make such tall buildings economically reasonable (see caption on facing page).

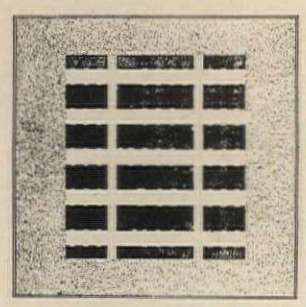
The center of the 16-acre site will be covered by a five-acre plaza surrounded by 70-foot galleried buildings. These buildings will house exhibition space and a hotel, but one of their chief functions is to maintain human scale in the face of the towering office blocks.

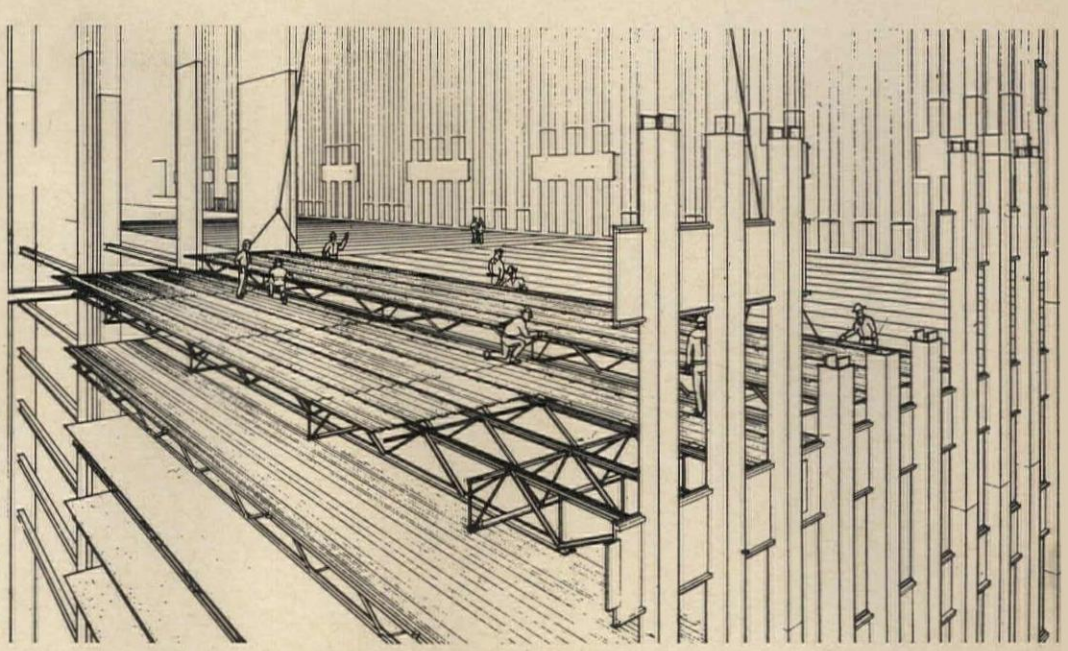
Of the 10 million square feet of rentable space, about 4 million will be used by private firms in international trade. The remainder will be used by government—local, state, Federal and foreign. A new terminal for the Port Authority Trans-Hudson tube will be located below grade.

Construction of the project, to cost an estimated $350 million, will be completed in stages: the first in 1968, the balance in 1969 and 1970.

The architects are Minoru Yamasaki and Associates and Emery Roth & Sons. Worthington, Skilling, Helle and Jackson are the structural engineers; Jaros, Baum and Bolles, mechanical; and Joseph R. Loring and Associates, electrical. The owner is the Port of New York Authority, which administers the port for New York and New Jersey.

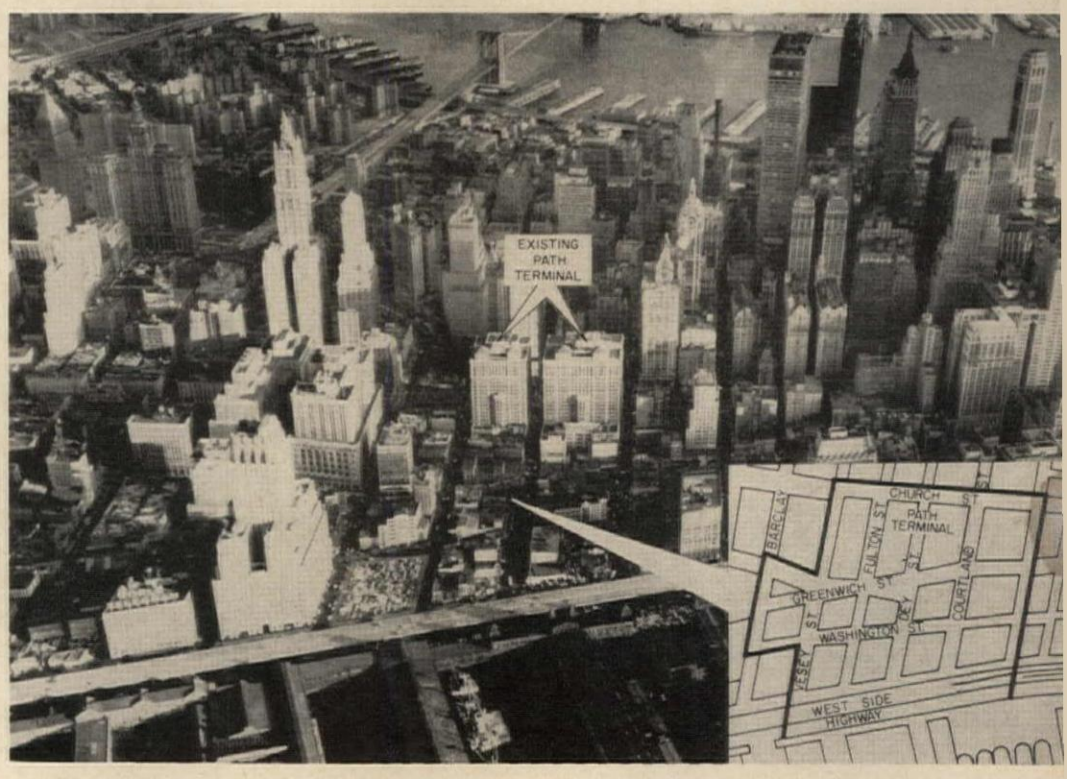
Further details on the center will be given in a forthcoming issue of the RECORD.

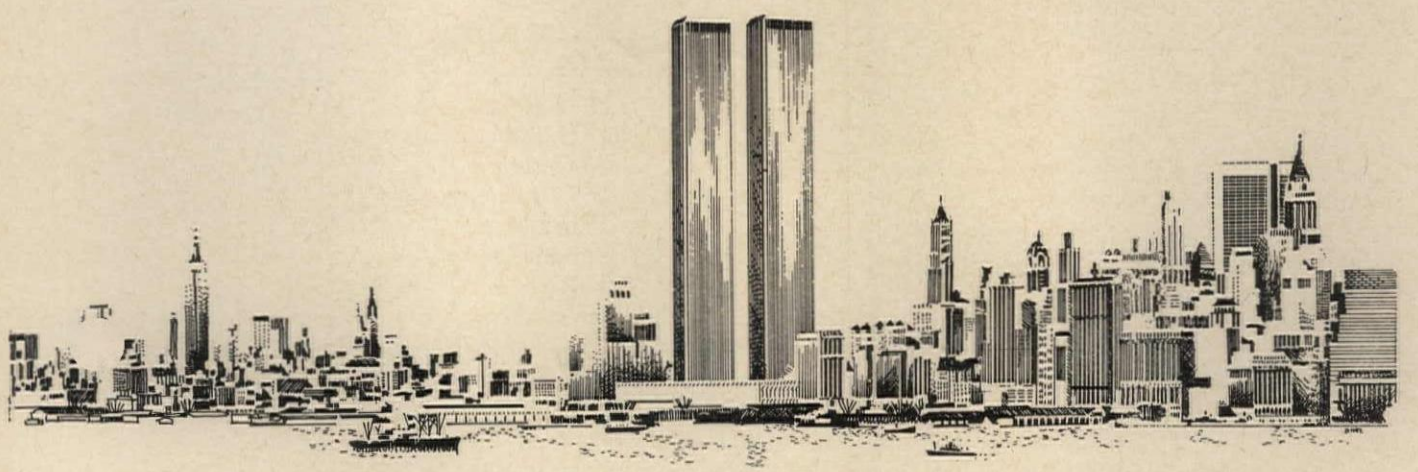


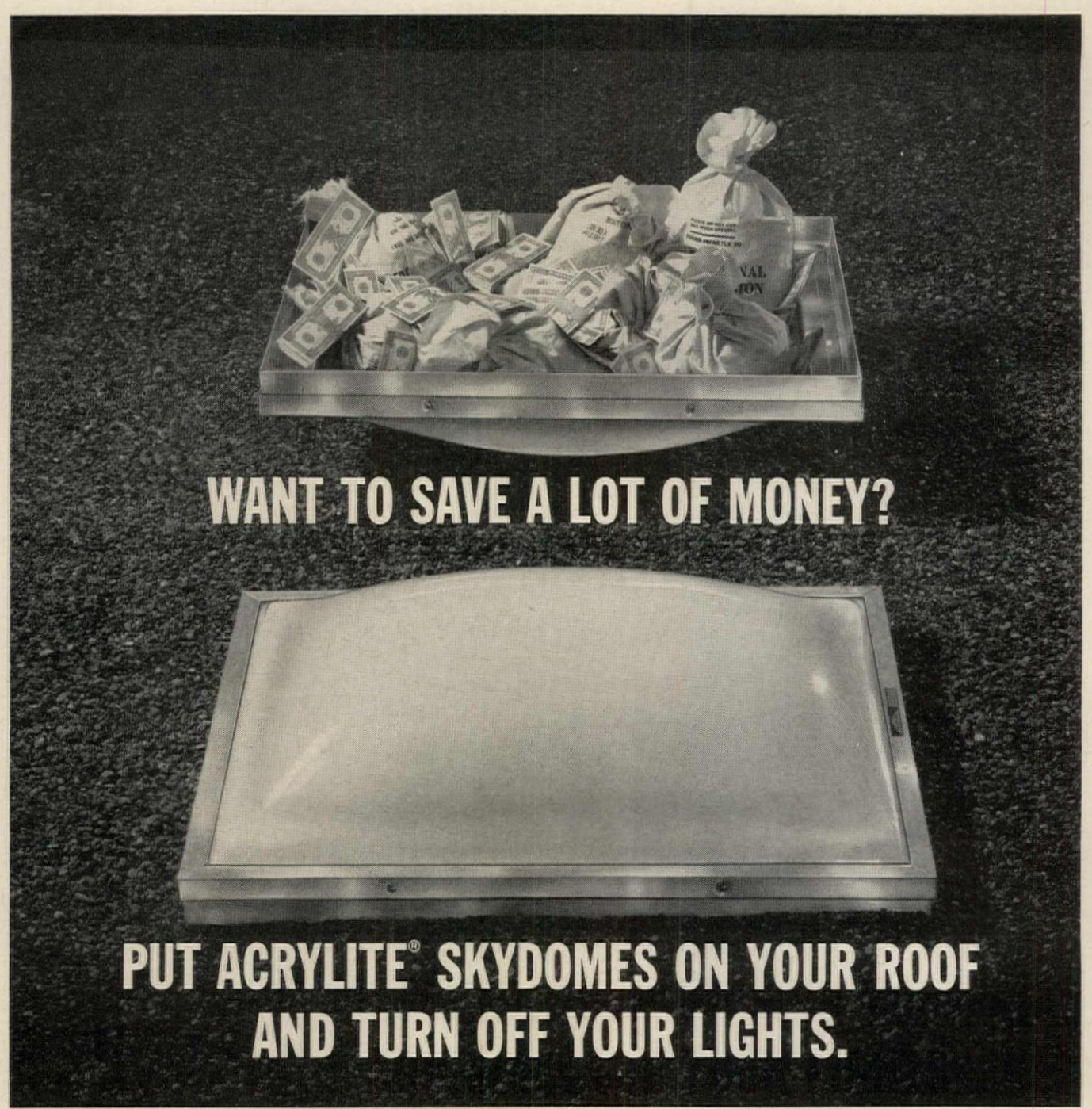


Renderings by Carlos Diniz

One of the disabilities of tall buildings is the increasing amount of structure and utilities required as they go higher, so that as little as 52 per cent of the interior space may be usable for offices. The plan for the World Trade Center buildings will provide 75 per cent rentable space. (Comparative plans, *above.*) The elevator system is analagous to the subway system of expresses and locals. Large high-speed express cars will go only to "skylobbies" on the 41st and 74th floors. Locals will in effect start all over at each of these floors, so that the banks are stacked. The structure of the buildings will be steel bearing walls, requiring no interior support, apart from the utility core. The prefabricated components will be sheathed either in aluminum or stainless steel. The resulting narrow windows will reduce heating and cooling loads, and will also reduce any tendency to acrophobia on the parts of occupants. Floor components will also be pre-manufactured (*above, right*).







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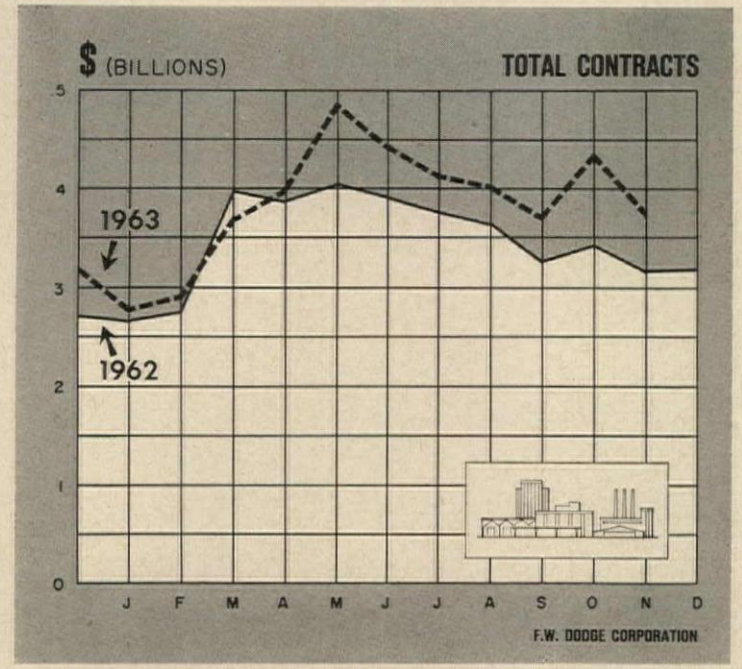
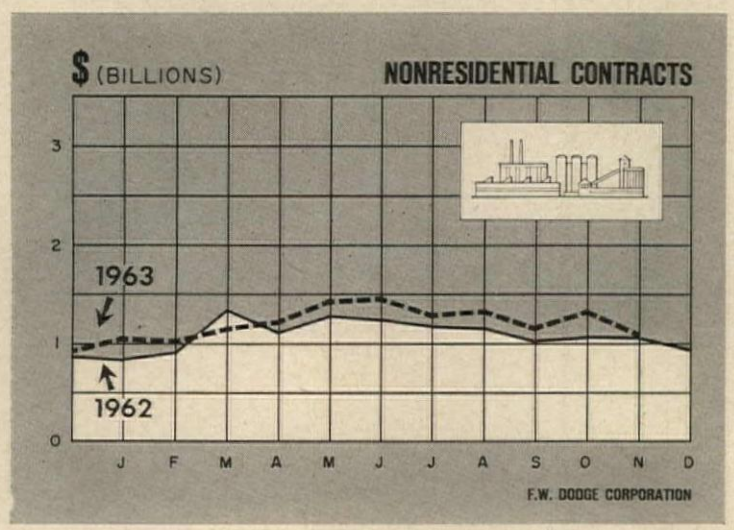
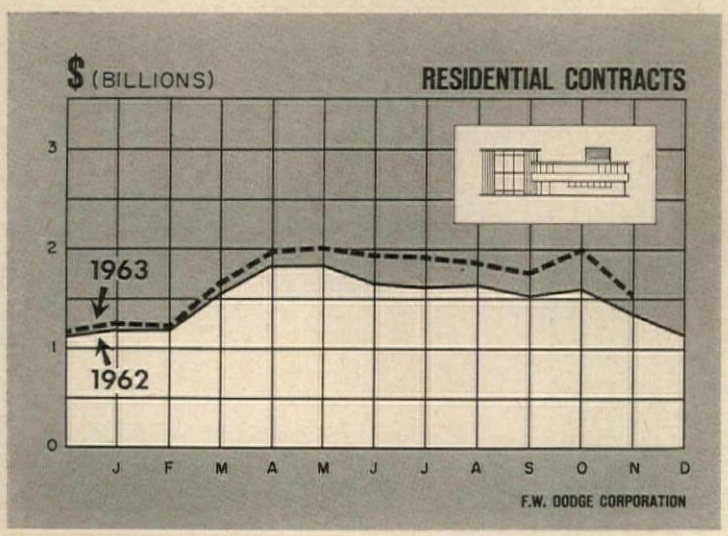


Total contracts include residential, nonresidential and non-building contracts





CONGRESS AND SCHOOL CONSTRUCTION

On December 30, 1963, Congress adjourned the longest peacetime session in the history of the United States, a session that critics described as lethargic, snail-paced and just plain obstructionist. It is true that the first session of the 88th Congress never even acted on the two bills (civil rights and tax cut) that the late President Kennedy considered as having the highest priority, but it did manage to put three new laws on the books that will have a decided impact on school construction.

In dollar terms the biggest of these new laws is the Higher Education Facilities Act of 1963 (college-aid bill), which establishes a five-year program of construction aid to colleges and universities. It authorizes almost $1.2 billion for the construction of college facilities over the first three years of the program; further authorization will be required for the last two years. If Congress appropriates the funds, some 2,100 colleges and universities around the country will be eligible for matching grants of $835 million, and loans of $360 million.

There are three parts to the act. First, Federal grants of $230 million for each of the first three years can be made to colleges to build undergraduate facilities like libraries, laboratories and classrooms, provided they are used to teach foreign languages, science, mathematics or engineering. Roughly one fifth of the amount authorized will be set aside for junior colleges and technical institutions. The second provision of the law authorizes the U.S. Commissioner of Education to grant $145 million—over the three years—for the building and improving of graduate schools and cooperative centers. Finally, the act provides for low-interest-rate loans ($120 million for each of the three years) to construct and rehabilitate both undergraduate and graduate facilities.

The second new law is the Health Professions Educational Assistance Act of 1963, which authorizes appropriations of $175 million for matching construction grants over a three-year period. Of this total, $105 million will go to the building of new teaching facilities for physicians, pharmacists, podiatrists, optometrists and public health personnel; $35 million is slated for dental teaching facilities; and $35 million is set aside for replacement and rehabilitation of existing teaching facilities.

The third of the new acts really isn't so new. The Vocational Education Act of 1963 simply extends and expands Federal aid for vocational training, the National Defense Education Act, and aid to impacted areas—those places where the Federal government has put financial burdens on the local educational authority. Although the Federal government has been aiding vocational education for some time, this law expands this aid by authorizing total appropriations that will rise from $60 million in 1964 to $225 million in 1967, and each succeeding year thereafter. One third of these authorizations must be spent for construction (one-quarter after 1968), unless a state gets a special dispensation from the U.S. Commissioner of Education to spend less.

Henry C. F. Arnold, Economist
F. W. Dodge Company
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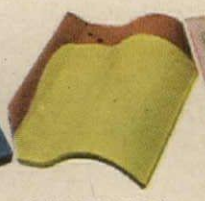
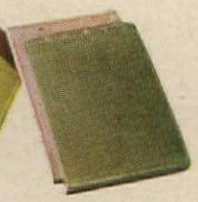
SMOOTH WHITE

BLUE GLAZE ON DESIGNER PATTERN



YELLOW GLAZE ON SPANISH PATTERN



GREEN GLAZE ON DESIGNER PATTERN

Rowsey Memorial Chapel, Muskogee, Oklahoma—Archts.: Bennett & Crittenden, Dallas, Texas—Tile by Ludowici: Early American Gray Range

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A.I.A. FILE 12-E

Building Construction Costs

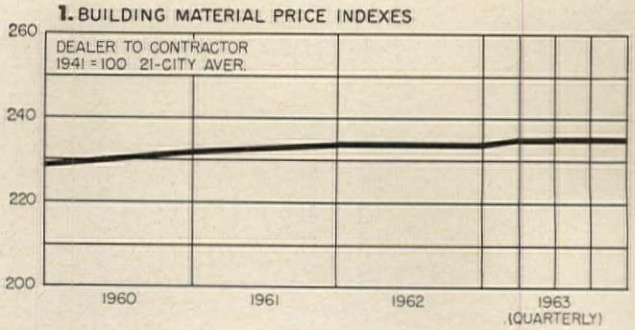
By Myron L. Matthews
Manager-Editor, Dow Building Cost Calculator, an F. W. Dodge service

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

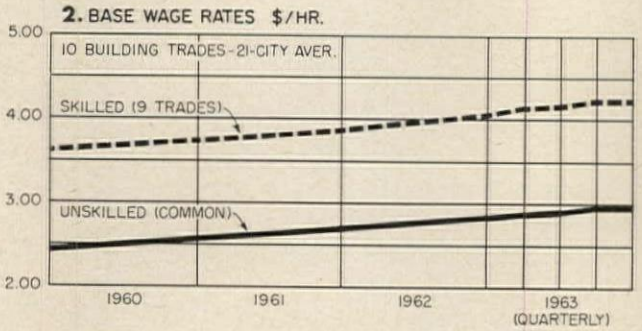
A. CURRENT BUILDING COST INDEXES—JANUARY 1964
1941 Average for each city = 100.0

Metropolitan Area	Cost Differential	Current Dow Index Residential	Current Dow Index Nonresidential	Per Cent Change Year Ago Res. & Nonres.
U.S. AVERAGE— 21 Cities	8.5	262.3	279.3	+2.34
Atlanta	7.1	293.7	311.5	+2.29
Baltimore	8.0	265.2	282.1	+1.91
Birmingham	7.4	243.1	261.4	+2.87
Boston	8.4	235.3	249.0	+2.16
Chicago	8.8	292.2	307.3	+2.36
Cincinnati	8.8	253.3	269.2	+2.11
Cleveland	9.3	264.9	281.6	+2.09
Dallas	7.8	248.9	257.0	+1.47
Denver	8.3	270.6	287.6	+3.42
Detroit	8.9	263.9	277.1	+2.50
Kansas City	8.3	238.8	252.8	+3.10
Los Angeles	8.4	265.7	290.7	+2.01
Miami	8.4	261.4	274.4	+3.23
Minneapolis	8.9	263.6	280.2	+2.25
New Orleans	7.9	239.1	253.3	+1.75
New York	10.0	270.4	290.8	+1.28
Philadelphia	8.7	263.0	276.1	+2.94
Pittsburgh	9.1	247.2	262.8	+2.44
St. Louis	8.9	253.6	268.7	+2.99
San Francisco	8.5	331.5	362.6	+1.66
Seattle	8.5	241.0	269.3	+2.70

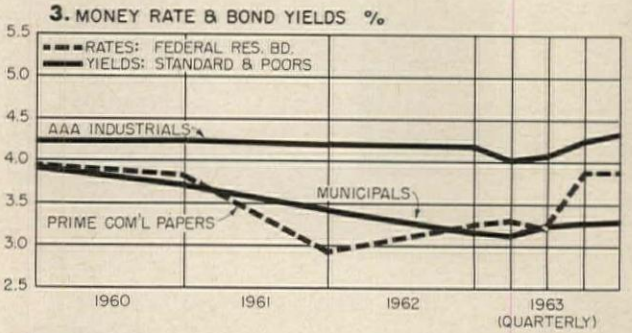
1. BUILDING MATERIAL PRICE INDEXES



2. BASE WAGE RATES $/HR.



3. MONEY RATE & BOND YIELDS %



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

1941 average for each city = 100.0

Metropolitan Area	1947	1952	1957	1958	1959	1960	1961	1962 (Quarterly) 1st	1962 (Quarterly) 2nd	1962 (Quarterly) 3rd	1962 (Quarterly) 4th	1963 (Quarterly) 1st	1963 (Quarterly) 2nd	1963 (Quarterly) 3rd	1963 (Quarterly) 4th
U.S. AVERAGE 21 Cities	185.9	213.5	244.1	248.9	255.0	259.2	264.6	265.1	265.9	267.4	268.7	269.4	270.3	273.4	275.0
Atlanta	190.0	223.5	269.6	277.7	283.3	289.0	294.7	296.5	297.6	298.2	300.6	302.0	303.0	305.7	307.5
Baltimore	181.0	213.3	249.4	251.9	264.5	272.6	269.9	270.5	272.6	272.4	271.9	272.3	272.9	275.5	277.1
Birmingham	175.0	208.1	228.6	233.2	233.2	240.2	249.9	249.9	249.9	249.9	250.6	251.3	252.0	256.3	257.8
Boston	187.0	199.0	224.0	230.5	230.5	232.8	237.5	238.5	239.9	240.4	240.4	240.4	241.2	244.1	245.6
Chicago	182.0	231.2	267.8	273.2	278.6	284.2	289.9	289.9	289.9	292.6	295.8	296.4	296.4	301.0	302.8
Cincinnati	178.0	207.7	245.1	250.0	250.0	255.0	257.6	257.6	257.6	260.0	260.0	260.0	260.7	263.9	265.5
Cleveland	173.0	220.7	258.0	257.9	260.5	263.1	265.7	265.7	268.4	268.4	271.7	272.3	272.8	275.8	277.4
Dallas	202.0	221.9	228.4	230.5	237.5	239.9	244.7	244.7	244.7	247.7	250.8	251.5	252.2	253.0	254.5
Denver	187.0	211.8	245.6	252.8	257.9	257.9	270.9	273.1	276.3	275.3	274.8	275.0	275.4	282.5	284.2
Detroit	158.0	197.8	237.4	239.8	249.4	259.5	264.7	264.7	264.7	267.1	267.1	267.1	267.9	272.2	273.8
Kansas City	172.0	213.3	230.5	235.0	239.6	237.1	237.1	238.5	239.5	240.8	241.8	242.3	242.9	247.8	249.3
Los Angeles	180.0	210.3	248.4	253.4	263.5	263.6	274.3	274.3	274.3	278.0	278.6	279.1	279.7	282.5	284.2
Miami	193.0	199.4	234.6	239.3	249.0	256.5	259.1	259.1	259.1	260.8	262.4	262.4	266.7	269.3	270.9
Minneapolis	176.0	213.5	235.6	249.9	254.9	260.0	267.9	267.9	267.9	269.5	270.8	271.4	272.1	275.3	276.9
New Orleans	180.0	207.1	232.8	235.1	237.5	242.3	244.7	244.7	244.7	245.5	245.5	246.5	246.5	248.3	249.8
New York	181.0	207.4	240.4	247.6	260.2	265.4	270.8	273.5	273.5	276.6	280.4	280.9	280.9	282.3	284.0
Philadelphia	209.0	222.3	255.0	257.6	262.8	262.8	265.4	265.4	265.4	265.0	265.0	265.6	265.6	271.2	272.8
Pittsburgh	191.0	204.0	234.1	236.4	241.1	243.5	250.9	250.9	250.9	252.1	253.5	255.0	256.1	258.2	259.7
St. Louis	191.0	213.1	237.4	239.7	246.9	251.9	256.9	254.0	254.3	256.2	257.3	260.1	262.4	263.4	265.0
San Francisco	243.0	266.4	302.5	308.6	321.1	327.5	337.4	339.1	340.8	344.5	348.7	350.1	350.1	352.4	354.5
Seattle	175.0	191.8	221.4	225.8	232.7	237.4	247.0	249.0	251.9	253.7	255.3	256.5	257.8	260.6	262.2

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

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

TABLE B. Costs in a given city for a certain period my be compared with costs in another period by dividing one index into the other: if index for a city for one period (200.0) divided by index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than those of the other. Also, second period costs are 75% of those of the other date (150.0 ÷ 200.0 = 75%) or 25% lower in the second period. CHART 1. Building materials indexes reflect prices paid by builders for quantity purchases delivered at construction sites. CHART 2. The $1.20 per hour gap between skilled and unskilled labor has remained fairly constant. CHART 3. Barometric business indicators that reflect variations in the state of the money market

BORDEN DECOR PANELS: DECA-GRID

The aluminum sun screens on the school building above are Deca-Grid style Borden Decor Panel. The lightweight panels were furnished with tilted spacers to provide the proper degree of shading.

The tilting of the Deca-Grid spacers is known as the slant-tab variation, in which the slant-tabs (spacers) may be mounted at angles of 30°, 45°, 60° or 90°. The slant-tabs may be specified in various lengths as well, depending on tthe chosen angle of mounting. With the Deca-Grid style, specifications for spacings and spacer bar positions may be varied almost indefinitely.

All the Borden Decor Panel styles, including Deca-Grid, Deca-Gril, Deca-Ring and Decor-Plank, are highly versatile in design specification and in application such as facades, dividers, grilles, fencing, refacing of existing buildings, etc. Fabricated in standard or custom designs in sturdy, lightweight aluminum, Borden Decor Panels provide a handsome, flexible, maintenance-free building component.

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Waltham, Mass.
Architect:
Anderson, Beckwith
and Haible,
Boston.
Floor shown:
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"Who do I see about the popcorn concession?"

CURRENT COMPETITIONS: SECOND P.C.I. AWARDS PROGRAM

The Prestressed Concrete Institute has announced its second annual Awards Program, open to all architects and engineers practicing in the United States and Canada. Entries, which may be any kind of structure built within three years prior to March 31, will be judged by their contribution to the advancement of prestressed concrete. The winner will be the institute's guest at its Washington convention in September, and other designated designs will receive Award of Merit certificates.

The chairman of the jury is Richard M. Bennett, F.A.I.A.; the remaining jurors have not yet been selected.

The deadline for entries is May 1. Information can be obtained from P.C.I. at 205 West Wacker Drive, Chicago, Illinois, 60606.

Kitchen Concepts

The General Electric Company is conducting a national competition "to stimulate the development of new concepts in kitchen design." Prizes will be $2,500 for first place, $1,500 for second place, $1,000 for third place and $100 for each of 15 honorable mentions. In addition, the first three winners will be awarded trophies. Those eligible to enter the competition are architects, designers and other professional personnel associated with firms engaged in the design and construction of residential kitchens; all entrants must be at least 21 years old. The competition is approved by the American Institute of Architects.

Declarations of intention to enter must be mailed by April 1, and entries must be mailed by May 1.

Jurors include Robert M. Engelbrecht, A.I.A.; Olindo Grossi, F.A.I.A., dean of the School of Architecture, Pratt Institute; Bernard W. Guenther, A.I.A.; Joseph Hazen, A.I.A., publisher, Architectural Forum and House & Home; Herbert L. Smith Jr., associate editor, ARCHITECTURAL RECORD; Ward Buzzell, N.A.H.B., Journal of Homebuilding; Joseph B. Mason, editor, American Builder Magazine; Robert Hamill, senior editor, Practical Builder Magazine; and Milton Gralla, co-publisher, Kitchen Business Magazine.

The professional adviser is Herman A. York, A.I.A. Inquiries may be directed to "Kitchen Concepts Competition," P.O. Box 383, New York, N.Y., 10046.

Dow Chemical

An architectural awards program open to all architects in the United States is being conducted by the Dow Chemical Company "to encourage excellence in architectural and engineering design and to promote the implementation of Styrofoam insulation." The competition offers $6,000 in awards, and winners will be announced at the convention of the American Institute of Architects.

Entries may be any design, except for single residences, intended for construction within a year of the competition's closing date: May 5.

Louis G. Redstone, A.I.A., is the program's professional adviser. Requests for information may be directed to him at Architectural Awards Program, 10800 Puritan Avenue, Detroit, Michigan, 48238.

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Swimming pool enclosure of PLEXIGLAS® at International Inn, Washington, D.C. Architects: Morris Lapidus • Liebman & Associates, New York, N.Y.

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An outstanding feature of the new International Inn of Washington, D.C., is its enclosed outdoor swimming pool. The enclosure is a dome, 38 feet high and 102 feet in diameter. The dome's steel framework holds more than 300 pre-assembled light-transmitting units—double glazed in aluminum frames and mounted in structural gaskets. The glazing material is PLEXIGLAS acrylic plastic. Over 600 sheets of PLEXIGLAS were cut into more than 400 different trapezoidal shapes for the double glazed units. Why was PLEXIGLAS used? **Resistance to breakage. Ease of fabrication. Outstanding weather resistance. Light weight. Crystal clarity.** We will be pleased to provide you with design assistance on specific projects which involve the use of PLEXIGLAS for glazing dome structures.

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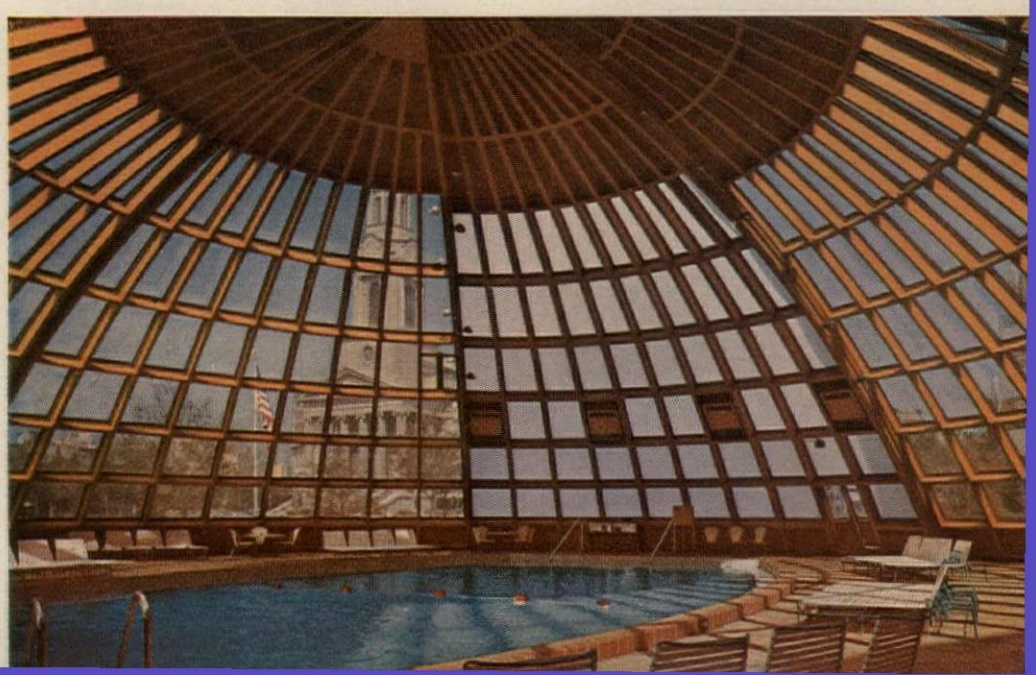
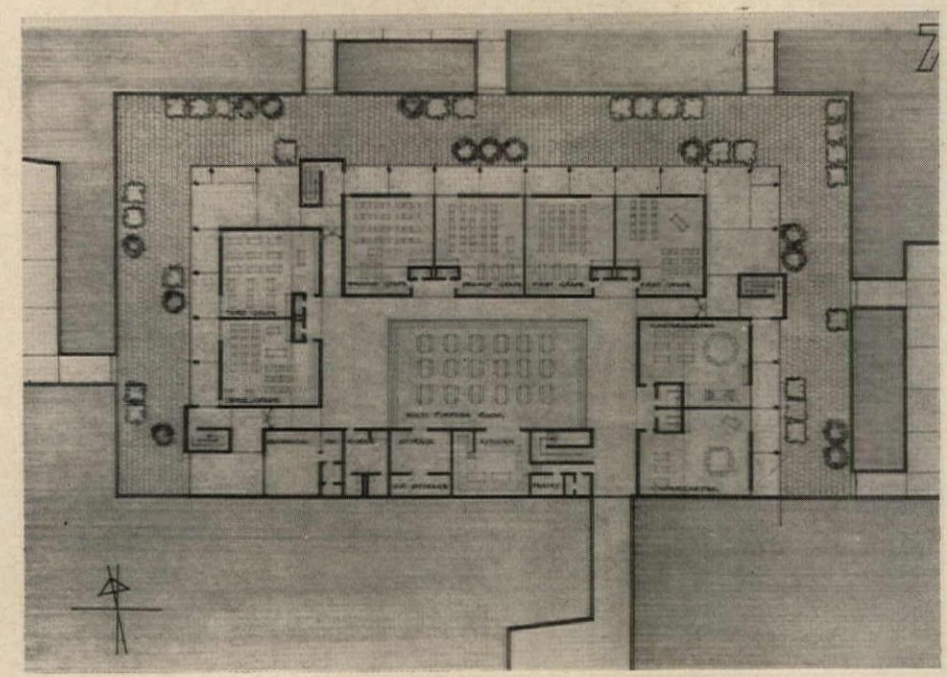
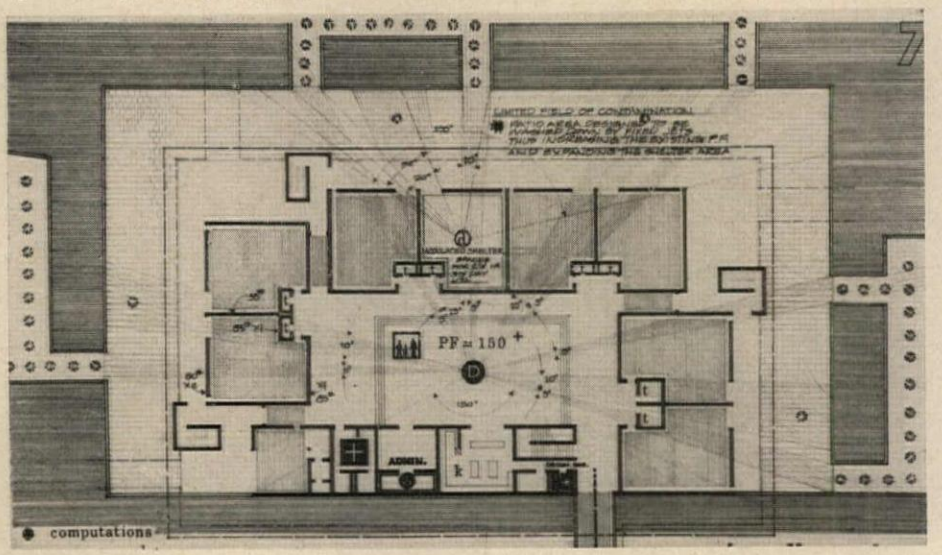
PLEXIGLAS *details: Thickness: .250". Types: Colorless transparent and white translucent No. W-2447. White translucent used for inner glazing of two main triangular sections of dome.*





In the grand prize scheme, shelter is provided in the school's multi-purpose room for two phases of radioactivity. In the first phase, occupants would be confined to the room itself, protected by the banked earth and overhead by concrete roof and floor. The room itself is also depressed, admitting light but passing radioactivity over the heads of occupants. As radioactivity decays, adjacent classrooms could be opened. A jet spray would periodically wash the patio



WINNERS NAMED IN COMPETITION FOR SCHOOL SHELTERS

Ellery C. Green, A.I.A., has been named Grand Prize Winner in the National School Fallout Shelter Design Competition. His team members, like Mr. Green members of the faculty at the University of Arizona, were architect James S. Gresham, S. Wayne Williams, and structural engineer Howard P. Harrenstein. The award was for $15,000.

The competition, a project of the Office of Civil Defense, Department of Defense, was conducted by the American Institute of Architects. It was devised to encourage cooperation in the office's shelter program and to show that schools could include community shelters without impairing function or appearance.

In looking over Mr. Green's entry and those of the other 25 prize winners and honorable mentions, the jury commented that it considered "at least four very important lessons to be learned from this competition: (1) probably the most important lesson to architects and educators is the fact that shelter capability can be incorporated in a school with no interference whatever with the education process. In many of these schools, it would be difficult, if not impossible, to know that fallout shelter is included; (2) although the addition of fallout shelter capability to a school will increase its cost, there are many ways it can be done at a reasonable cost; (3) a team of talented and capable architects, engineers and shelter analysts can devise a dual use fallout shelter which will not adversely affect the esthetics nor the function of a school; (4) the principles learned relative to schools are equally applicable to other building types."

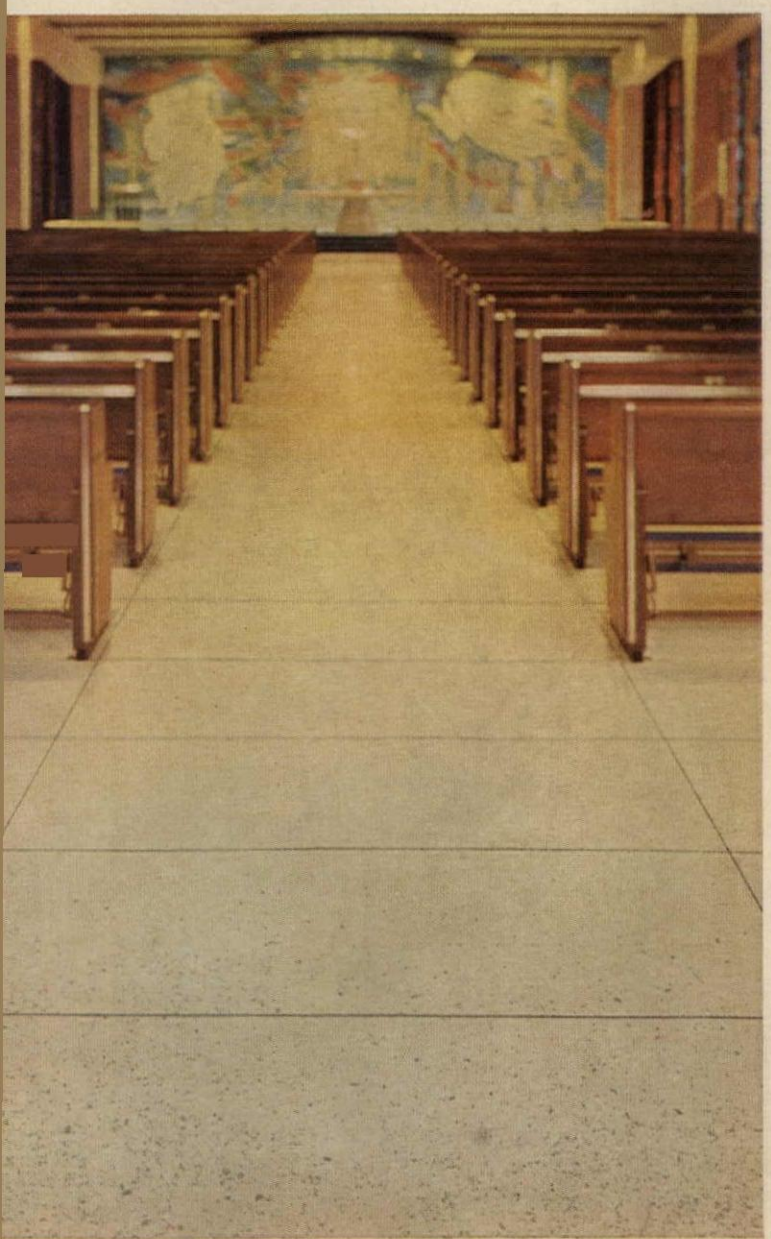
The Winners

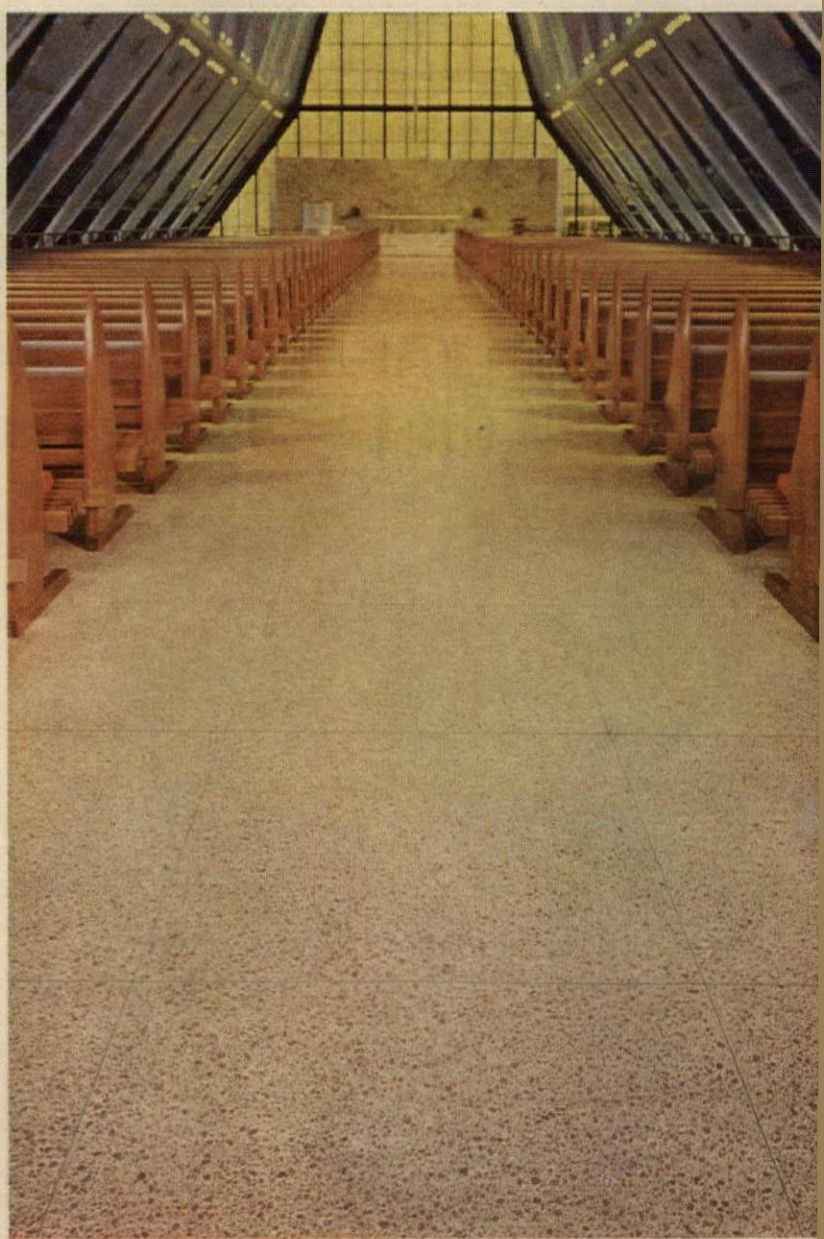
Winners of the six Regional First Prizes, each of which carried a $4,000 award, include: Sargent, Webster, Crenshaw & Folley, Architects, Engineers, Planners, Syracuse, N.Y.; Joseph Baker, A.I.A., Newark, Ohio; Francis E. Telesca, A.I.A., Miami, Fla.; Brian Crumlish, Architect, Urbana, Ill.; Robert R. Coffey,

continued on page 234

Terrazzo reports to the Air Force Chapel.

Cadets by the thousands will tread this flooring through years to come. They'll earn their degrees and go, but the concrete-hard terrazzo will stay as long as the chapel stands. No other flooring material is as serviceable or as easy to maintain. No waxing or buffing is ever required. ■ When you plan long-life terrazzo floors, wainscots, stairs, specify a matrix of ATLAS WHITE portland cement. Its uniform whiteness brings out the true color of aggregates and pigments. Complies with ASTM and Federal Specifications. Ask your local terrazzo contractor. For brochure, write Universal Atlas, 100 Park Ave., New York, N. Y. 10017.





Terrazzo flooring made with ATLAS WHITE cement at The Chapel, U.S. Air Force Academy, Colorado Springs, Colo. **Architects & Engineers:** Skidmore, Owings & Merrill. Chicago. **Partner-in-Charge and Designer:** Walter A. Netsch, Jr. **General Contractor:** Robert E. McKee, Inc. **Terrazzo Contractor:** J. B. Martina Mosaic Company, Denver.

USS **Universal Atlas Cement Division of United States Steel**

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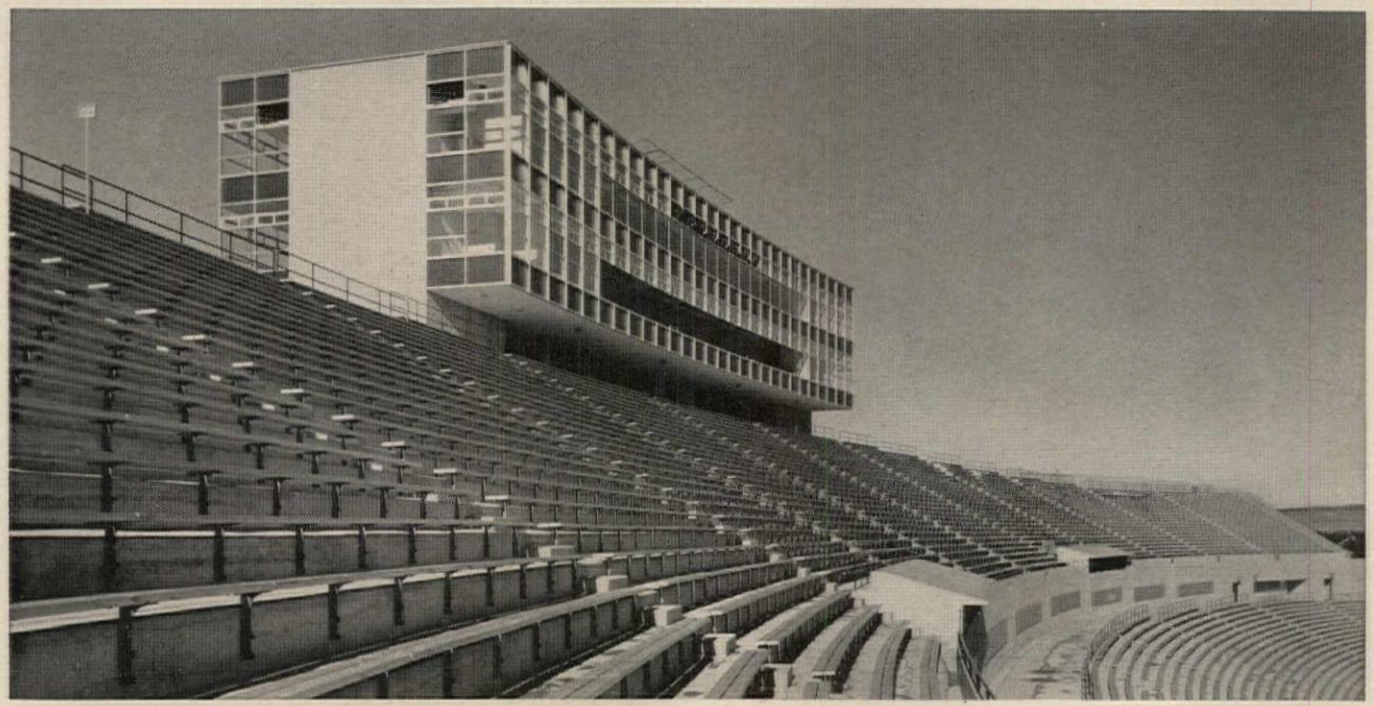
Press box and east tier of seats of Falcon Stadium, The Air Force Academy, Colorado. ARCHITECT-ENGINEERS: Prager-Kavanaugh-Waterburg, New York City, and Gordon Sweet, A.I.A., Colorado Springs. PRIME CONTRACTOR: B. H. Baker, Inc. GLAZING CONTRACTOR: Pittsburgh Plate Glass Co. Both of Colorado Springs.



DAP® BUTYL-FLEX® handles tough sealing jobs at Falcon Stadium 20% faster, with 50% material cost savings

The 48″ x 48″ mosaic panels at both ends of the Falcon Stadium press box presented a tough sealing problem. There were others, too. Concrete expansion joints—with 300′ runs—had to be sealed over an asphalt-base filler. Only the finest-quality sealants would do. DAP Butyl-Flex was used. Butyl-Flex gives performance equal or superior to materials costing twice as much — and cuts application time 20-25% to boot.

Butyl-Flex also sealed seams in aluminum siding between concrete pillars, and all other press box construction joints. This permanently flexible sealer adheres tenaciously to glass, aluminum, concrete, marble, steel, plastic and most any construction material. *It's a one-part, butyl-rubber based compound with 5 times the service life of oil-based caulks.* Applies fast—no mixing, no special clean-up needed before application; easily wiped up after application. In many applications, Butyl-Flex gives you performance equal to expensive liquid polysulphide polymer sealers—at substantial cost savings.

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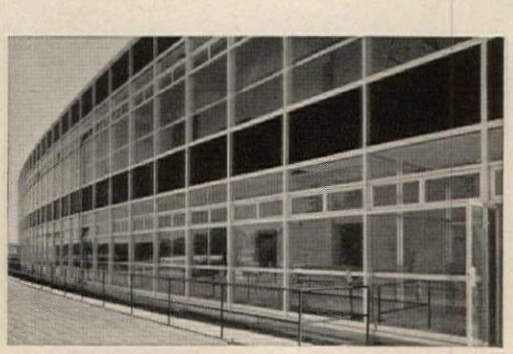
Aluminum frames around doors and windows in 3-story press box were sealed with aluminum-pigmented DAP Architectural Grade Caulking Compound. DAP Architectural Grade Caulk provides dependably long-lasting, water-tight, air-tight seals.



DAP, WORLD'S LARGEST MANUFACTURER OF QUALITY SEALING MATERIALS, OFFERS YOU TECHNICAL SPECIFICATION SERVICE ON SPECIALIZED SEALANTS FOR MODERN CONSTRUCTION.

DAP INC., DEPT. AR, GENERAL OFFICES: DAYTON 31, OHIO, SUBSIDIARY OF *Plough, Inc.*, MEMPHIS 1, TENN.

For more data, circle 15 on Inquiry Card

What's in a Screw Hole?

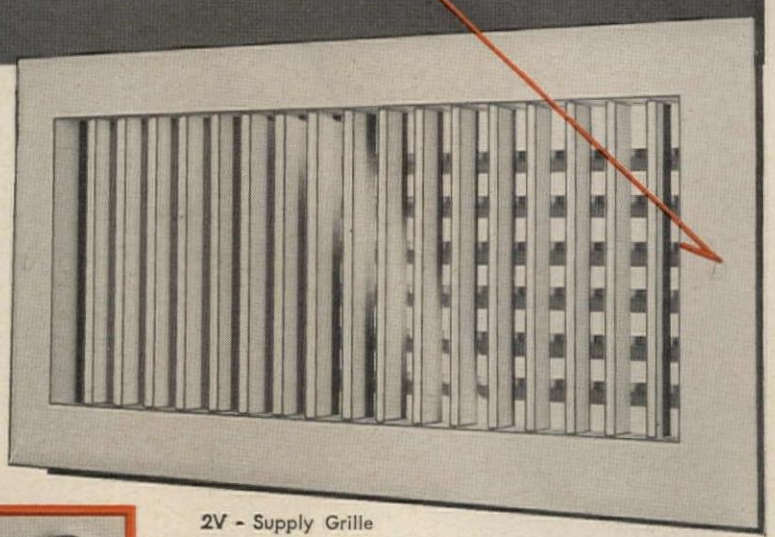
DESIGN
CONSTRUCTION
APPEARANCE

WATERLOO
REGISTERS AND GRILLES . . .

Are constructed by people who believe that even such a small thing as a proper screw hole, contributes to the overall finished appearance of a fine Waterloo Grille.

This is typical of the attention to detail that makes Waterloo Registers and Grilles the repeated choice of Architects, Engineers and Contractors.

For convincing proof call your Waterloo Representative or write Waterloo Register Co., Inc., P. O. Box 147, Waterloo, Iowa.

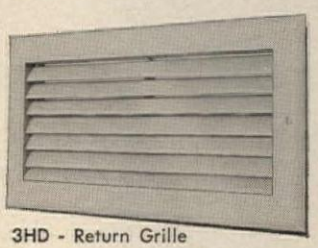


2V - Supply Grille

Not this . . . . . but . . . . . THIS!

Protruding screw heads give an unfinished look to the final installation of any grille.

Screw Holes properly countersunk, accommodate recess type screws.



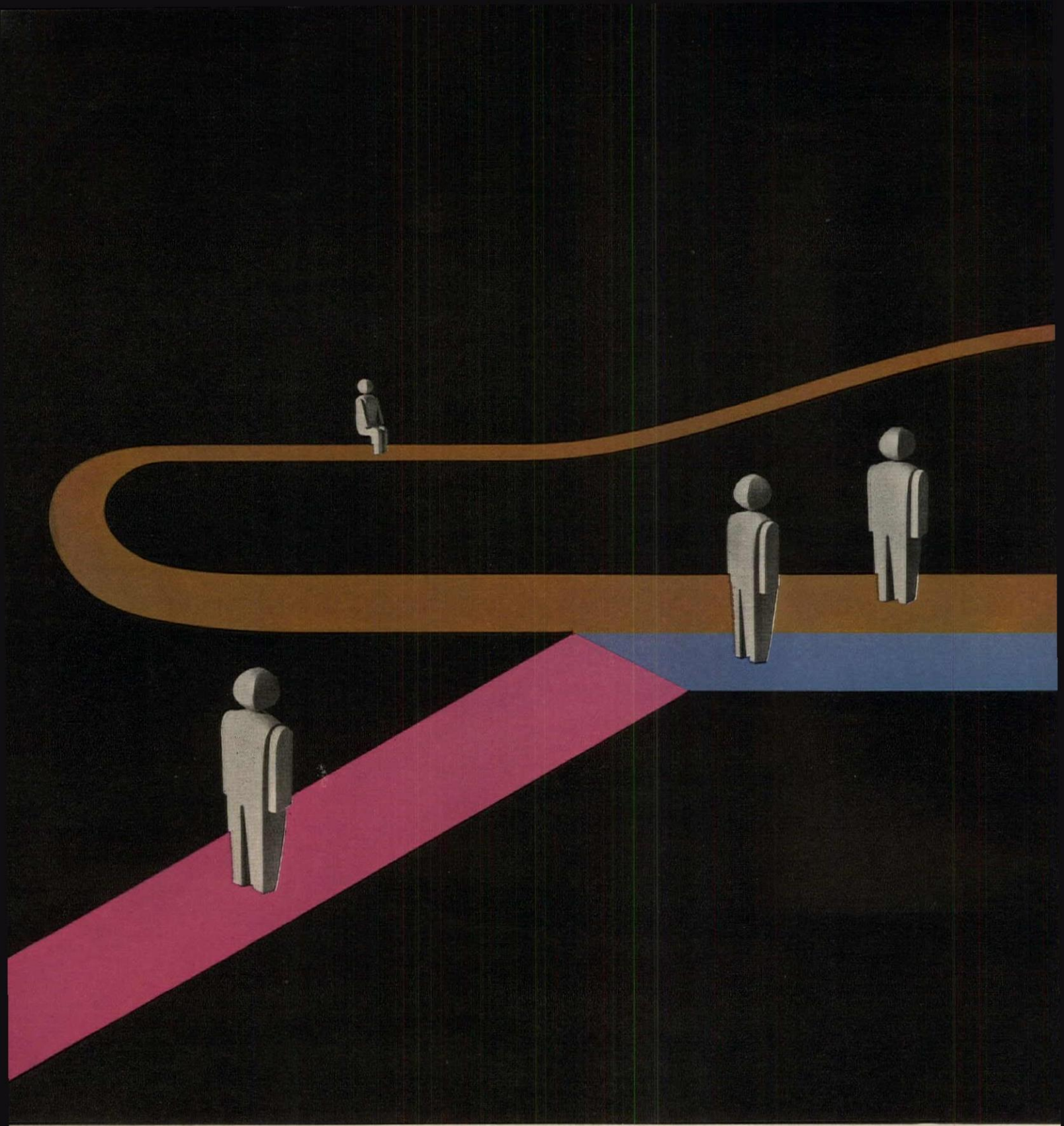
3HD - Return Grille

WATERLOO REGISTERS AND GRILLES
ARE BETTER THAN EQUAL
IN DESIGN, CONSTRUCTION AND APPEARANCE

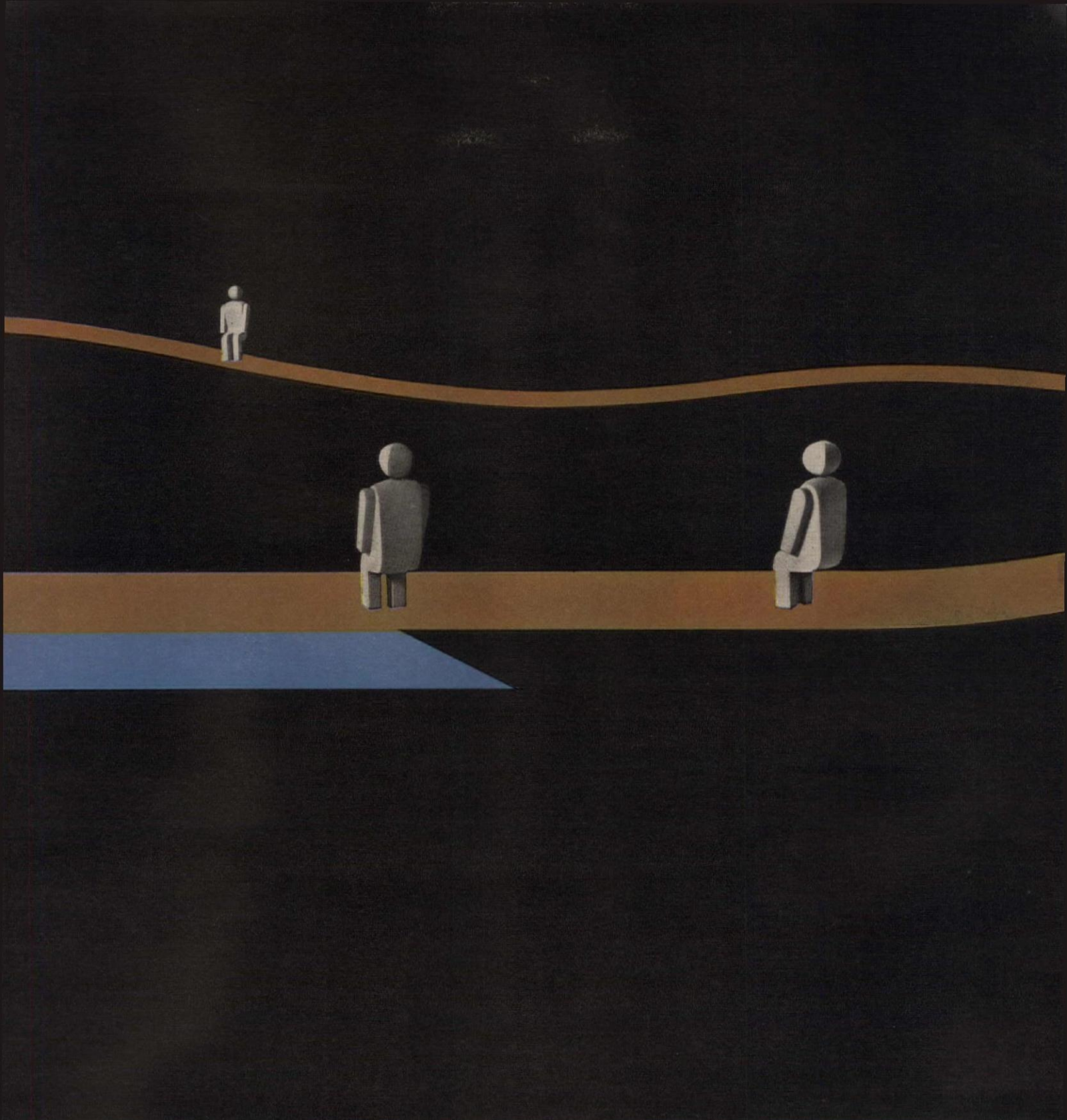
Member of Air Diffusion Council

WATERLOO REGISTER COMPANY, INC.
Waterloo, Iowa
A SUBSIDIARY OF
DYNAMICS CORPORATION OF AMERICA

For more data, circle 16 on Inquiry Card



Westinghouse ride system
will carry visitors
at the Bell System's
World's Fair Exhibit
on stairs that move...
floors that move...
even chairs that move.

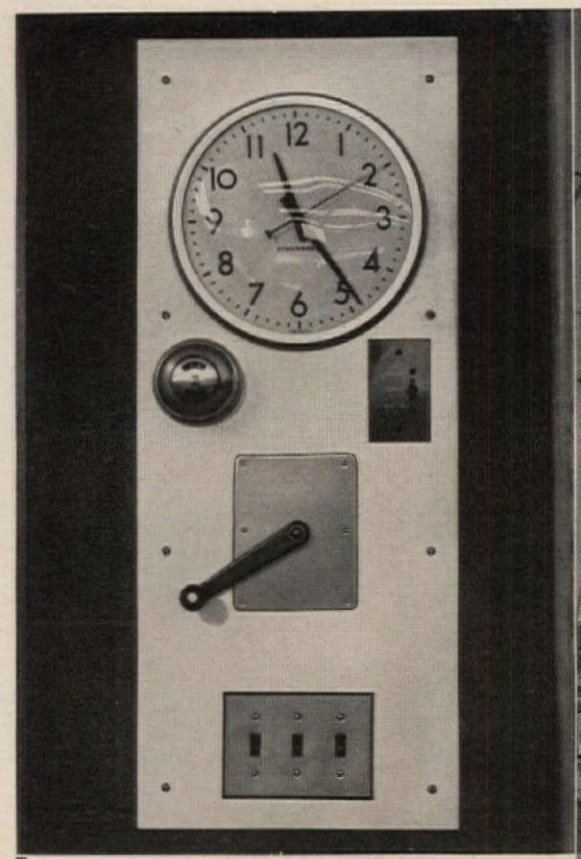


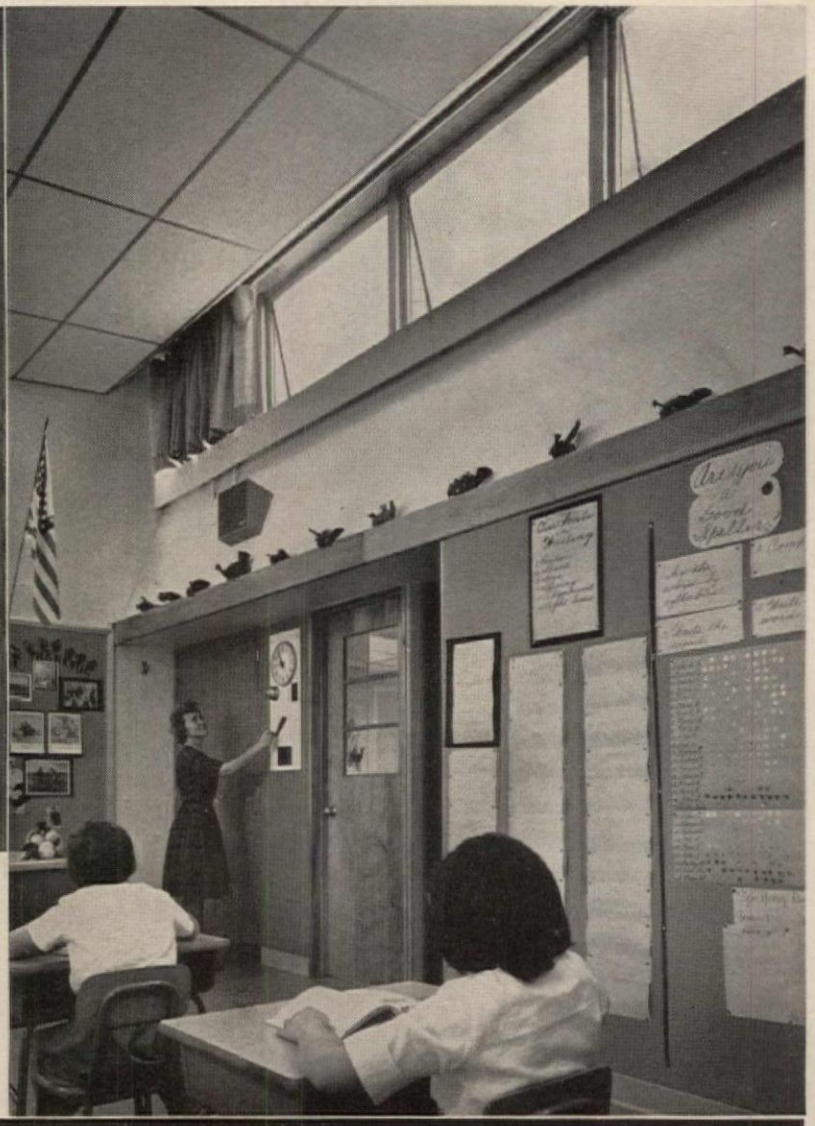
The Bell System is going to have the easiest-to-see show at the Fair. From one end of the building's floating wing to the other people will ride easy on the Westinghouse ride system.

Four Electric Stairways to take them up and down. Four Electric Walks to move them on the level. And two chair trains to carry them up, down and through the exhibit while the passengers and the chairs stay perfectly level.

Why don't you take a ride? And remember, if you need Electric Walks, stairways or elevators for your own building, the same engineering ability that went into this transportation complex for the Bell System can go to work for you. Call Westinghouse Elevator Division, 150 Pacific Avenue, Jersey City 4, New Jersey. You can be sure... if it's **Westinghouse**

For more data, circle 17 on Inquiry Card





Compact design by Architect Hazzard places classroom switches and controls next to entrance. Teleflex window control handle on panel operates windows above—installation is completely concealed. Flexible cable connects operator handle with controls on windows, permitting location of both "ends" anywhere you want them. Frequently surface-mounted, controls still are inconspicuous.

Doylestown Township Elementary School, Pa., by Stephen B. Hazzard, A.I.A.

PUT OPERABLE WINDOWS ANYWHERE YOU WANT THEM

Teleflex mechanical remote window controls eliminate design restrictions for you, while giving your client smooth, trouble-free operation. Teleflex controls make it possible to open windows no matter how high-up or otherwise inaccessibly-located they may be. Eliminate unsightly poles, ropes, chains and ungainly rack-and-pinion devices.

The best part: Not only are Teleflex remote window control systems functional, but they are neat and unobtrusive. For that matter, they can be *concealed* in almost any kind of wall construction. Controls and conduit adapt readily to existing buildings too—clean appearance, barely noticeable when surface-mounted. Installed cost is low because we *make* installation simple.

So there it is: Easy operation of out-of-the-way windows (louvres—anything), neat appearance (or no appearance), low cost through reliability and simplicity. Take a look at it in Sweet's Architectural Catalog File 18g/Te. Or write for a brochure: Teleflex Incorporated, Dept. R-42, Church Road, North Wales, Pa. 19454

TELEFLEX
INCORPORATED

For more data, circle 18 on Inquiry Card

AN URBAN SCHOOL DESIGNED BY PERKINS & WILL, ARCHITECTS
SPONSORED BY THE PHILIP CAREY MFG. COMPANY

PERKINS & WILL DESIGNS THE SCHOOL OF THE CITY

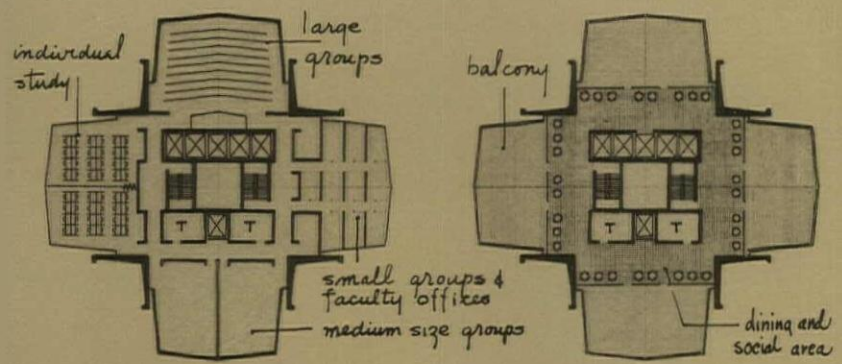
The city generates this exciting high school and community college.

Six compact school units, each on four floors for 480 students, are arranged vertically in a tower. The commons floor of each school group is served by its own elevator. In the low-rise building, and underground, are spaces for the specialized facilities which serve all six schools . . . administration, large assemblies, physical education, laboratories and shops, utilities and parking.

As in skyscraper office buildings, services for this urban school tower are concentrated in a central core with surrounding space open and flexible to accommodate the varied and changing educational program needs of today and tomorrow.

The tower, symbol of the city, identifies the school as a center for both student and adult. It occupies only 2 acres of valuable land.

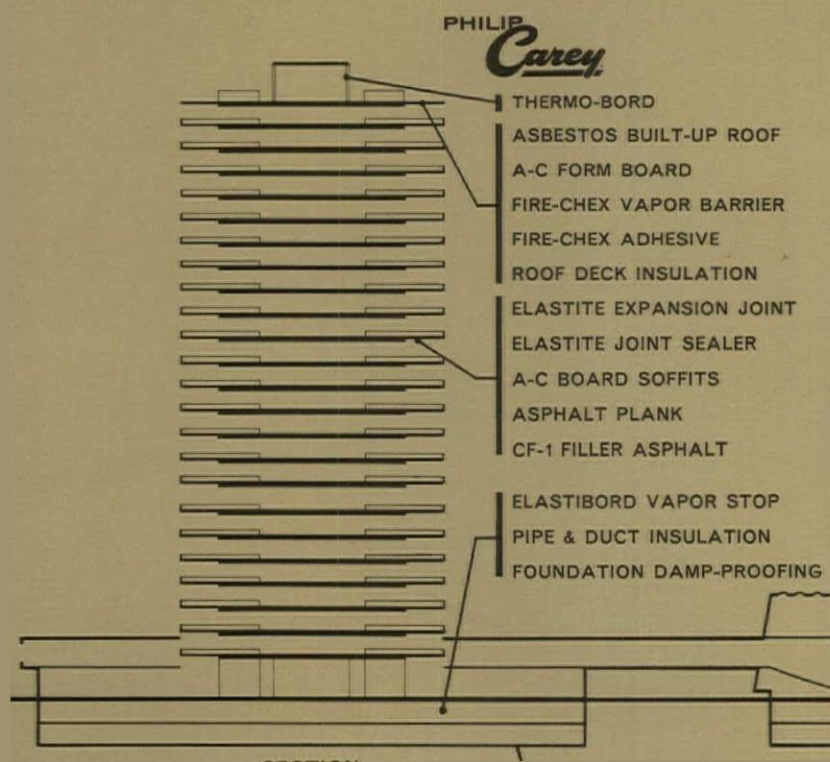
Perkins & Will partner, Charles William Brubaker, A.I.A., suggests that this design will prove a thought-provoking challenge to all school space concepts based upon today's widespread 50-acre suburban school.



INSTRUCTION FLOOR COMMONS FLOOR

The Philip Carey Mfg. Company is delighted to sponsor the presentation of this design prophecy to the architectural and educational professions. It is surely a stimulating key to the solution of a major problem faced by many of our cities. As they progress to better use of expensive urban land, architectural thinking of this high order can give real meaning to urban revitalization.

Throughout this school structure, many well-known Philip Carey building products can be specified with assurance. This is true both on the visible structural surfaces and in those hidden areas which determine the long life of a low-maintenance building.



In addition to the Carey products listed at the left, much convenience can be built in with Miami-Carey bathroom cabinets, framed mirrors and steel access doors.

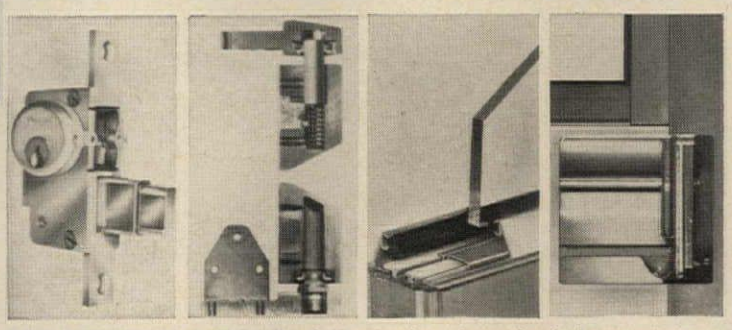
WRITE US for your personal file folder containing developed construction details of this Perkins & Will project, incorporating many Carey materials.

THE PHILIP CAREY MFG. COMPANY

CINCINNATI 15, OHIO

PHILIP Carey

Try this new one from Amarlite



GET MORE IN A DOOR! **1** Exclusive Amarlock has new recessed cylinder... eliminates unscrewing... offers extended bolt protection. **2** New pivots and butts have ball bearings and stainless steel pins. **3** Security clips... easily installed ... prevent removal of exterior stops without proof of entry. **4** Tie-rod constructed doors are welded at unexposed junctions of rails and stiles. New optional Staminawood Pulls now available... insert of resin impregnated wood compressed to high density. A touch of warm wood, to contrast with flawless anodized aluminum.

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DIVISION OF ANACONDA ALUMINUM COMPANY
MAIN OFFICE • P. O. BOX 1719
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AMARLITE®
ANACONDA ALUMINUM

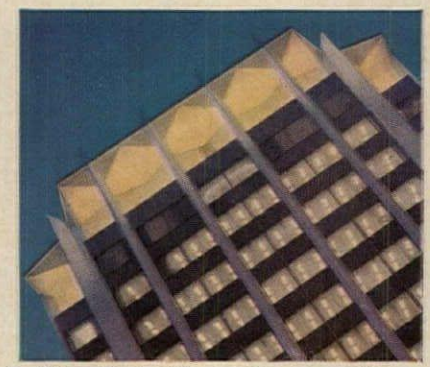
For more data, circle 24 on Inquiry Card

Would you have specified CORNING® Pattern #70 panels here?

If you think you have to settle for anything less than *glass* to get the new good looks of hidden-troffer lighting, look again.

There's all the permanence of glass and all the low-brightness prismatic control of our Pattern #70 in more than 6,600 of those 14″ x 4′ recessed fixtures.

And just because the shielding is glass, the panels will never discolor to distort the light, or sag, or warp, or buckle, or burn.



Building: United States Gypsum, Chicago
Architect: Perkins & Will, Chicago
Fixtures: Luminous Ceilings Inc., Chicago
Electrical Contractor:
Edward P. Allison Company Inc., Chicago

Aren't these good reasons for you to specify Pattern #70 for your next building?

Talk to your fixture manufacturers about the versatility and installed economy of Pattern #70, the single most popular shielding medium on the market. Building Products Dept., Corning Glass Works, 8502 Crystal St., Corning, N. Y.

CORNING
CORNING GLASS WORKS

For more data, circle 25 on Inquiry Card

WALTER A. TAYLOR, OHIO DEAN OF ARCHITECTURE

Walter A. Taylor, director of the School of Architecture at Ohio University and former director of the Department of Education and Research of the American Institute of Architects, died suddenly at his home in Athens, Ohio, on November 25, 1963, at the age of 64.

Mr. Taylor was a graduate of both Ohio State University and Columbia University and practiced in the firms of Hobart Upjohn Associates and Merrill, Humble, Taylor, both of New York City. He taught at a number of universities, including Columbia. As a registered architect in the states of Ohio and New York, he was active on many professional committees, including the Commission on Architecture of the Department of Worship and the Arts of the National Council of Churches, the American Society for Aesthetics, the Committee for Fulbright Scholarships, and the Royal Society of Arts (London).

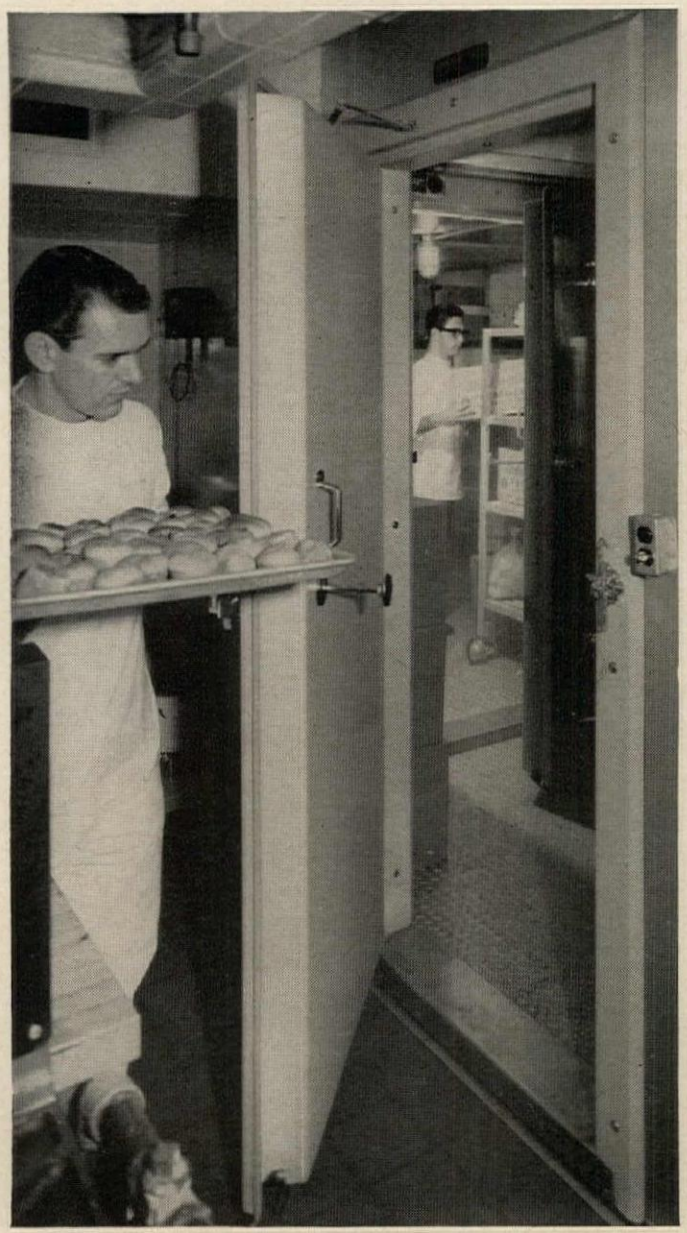
A unique aspect of Walter Taylor's career was the seven years he spent in China as a missionary-architect and teacher at the Central China University. His knowledge of Chinese art, culture and language was extensive, and his interest in other cultures continued throughout his life. At Ohio University he showed great interest in foreign students. Accordingly, a memorial fund in his name has been established at the University to set up a scholarship for foreign students.

Among the notable accomplishments of Mr. Taylor's tenure as A.I.A. director of education and research from 1947 to 1960 was publication of "The Architect at Mid-Century" (1954), a comprehensive report on the only major survey of architectural education and registration ever done in this country. This two-volume work was based on a 1950 survey conducted by the special A.I.A. Commission for the Survey of Education and Registration. Turpin C. Bannister, dean of the University of Florida, who edited this report, gave major credit to Mr. Taylor for effecting this "epoch-making survey." Dean Bannister also said Mr. Taylor ". . . pioneered in pushing practitioners beyond their parochial habits by organizing exciting programs for a series of national conventions, by stimulating contacts with other fields . . . and by meshing the bits and pieces of professional interests into a meaningful whole."

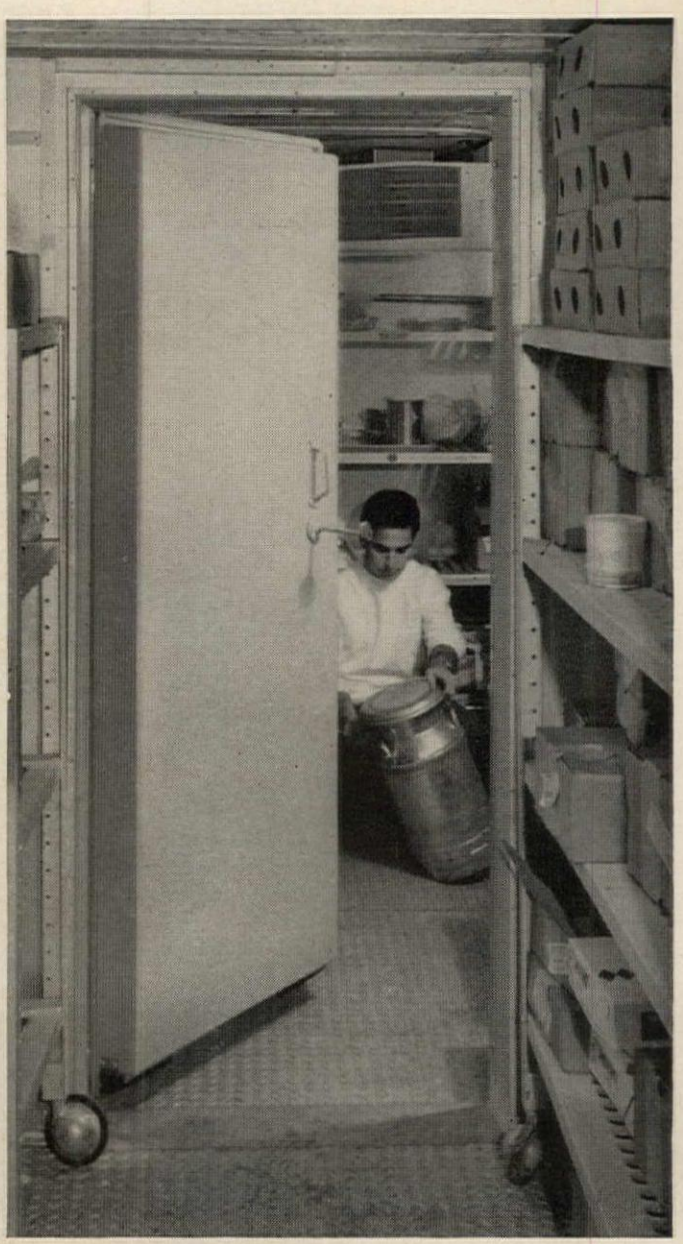
J. FLOYD YEWELL, ARCHITECT, AT 78

J. Floyd Yewell, architect and architectural renderer, of Hillsdale, N.Y., died November 14, 1963, in an automobile accident while en route to New York City to meet a client.

A graduate of the Maryland Institute School of Art and Design, Mr. Yewell studied architecture at Columbia University and was associated as an architectural renderer with the New York firms of Aymar Embury and Birch Burdette Long before establishing his own firm.



EASY OPENING Jamolite plastic doors facilitate rapid movement between kitchen area and cold room.



JAMOLITE FREEZER DOOR is equipped with Jamison Frostop® to prevent ice formation.

Jamolite® *Food Service Doors adopted by famous restaurant chain for top performance—smart appearance*

Many Howard Johnson restaurants have specified Jamison Jamolite cooler and freezer doors since shortly after their introduction as a new idea in food service doors.

At the Howard Johnson Restaurant, College Park, Md., Jamison Jamolite food service doors are making an important contribution to the efficient operation of this famous restaurant. Throughout the country, wherever restaurant or institutional food service operations require lightweight, attractive cooler or freezer doors, the specification is Jamolite.

These flush-fitting doors cannot warp. Installation is fast and easy. Foamed-in-place polyurethane insulation forms a permanent, rigid bond with the outer door shell. For complete details write for latest bulletin to Jamison Cold Storage Door Co., Hagerstown, Md.

JAMISON
COLD STORAGE DOORS

For more data, circle 27 on Inquiry Card

1217 Delaware Avenue Apartments, Buffalo, N.Y.
Owner-Builder: BCH Construction Corporation.

How would you have framed this building?

Backus, Crane & Love chose structural steel.

The problem was to shoe-horn 80 apartment units, with parking underneath, into a sloping lot only 132 feet wide, measuring less than an acre—and with a height limit to boot.

Their solution was "goalpost" design with continuous beams, and composite action of steel decking over the floor beams. Additional benefits: weight savings, shallow floors, generous cantilevers, wide spans, and only two rows of columns!

'Goalpost" design resulted in a maximum of shop-welded fabrication. Field erection took only 17 days.

BETHLEHEM STEEL

BETHLEHEM STEEL

Steel for Strength

light yellow, shade 103;

light green, shade 204;

light violet, shade 404;

dark violet, shade 408;

medium yellow, shade 106;

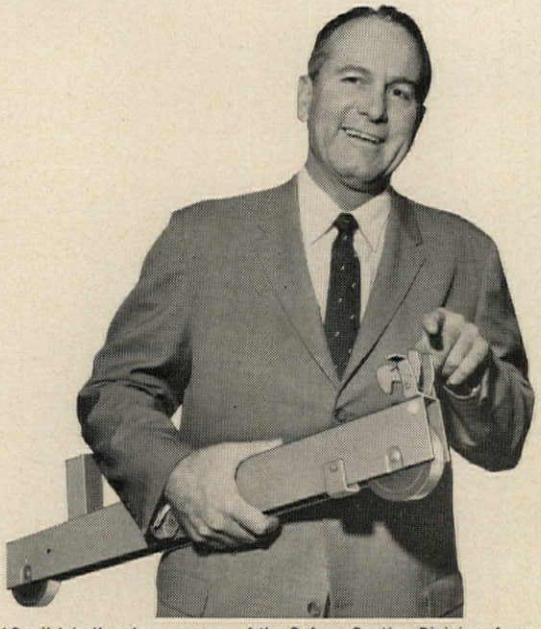
medium green, shade 247;

dark yellow, shade 110;

blue, shade 127;

dark green, shade 250;

"Ice", pattern no. 73; 1/8" thick, 49" x 120"



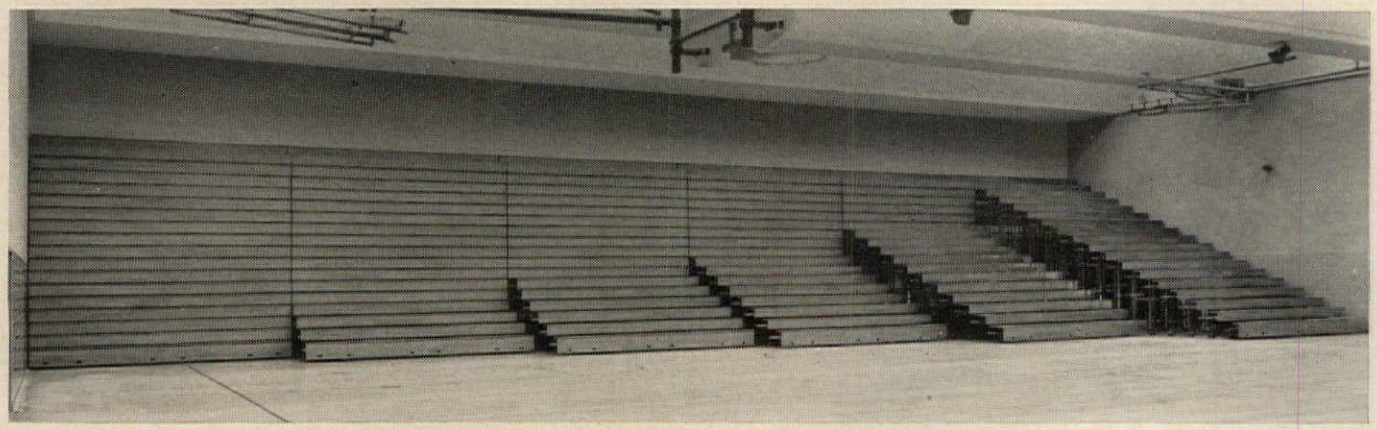
*Cecil Isbell, sales manager of the Safway Seating Division, former Purdue All-American and Green Bay Packer football star.

When you buy or specify

GYM SEATING

"Cec" Isbell explains why you should*

INSIST ON SAFWAY ROW-LOCKS



Marquette University High School, Vy. Rev. Jerome T. Boyle, S.J., Pres. Architects Brust & Brust, Milwaukee. Safway Gym Seats provide 3 full-size basketball courts when closed, 2808 spectator seats when open. Entire 18-row installation takes up only 36" on each side of gym when nested.

This exclusive **"Row-Lock"** is just one of several special features we have developed to make Safway Telescoping Gym Seats the strongest and safest on the market.

Located on the front of each wheel carriage, **"Row-Locks" automatically** engage each adjacent carriage as row sections are extended. With wheels thus **securely locked** in place under vertical columns, spectator loads are transferred directly to the floor and shock loads are evenly distributed throughout the entire structure. This **"Row-Lock"** feature, plus Safway's rugged design — with **4 horizontally and vertically-braced steel columns under each row** — provides the strongest seating structure known. Besides greater durability, it gives spectators a solid sense of security.

"Row-Locks" are automatically released "in sequence" — as each row returns to nesting position. This smooth closing action eliminates the problems encountered with random closing-type seating. It also lets you open **or close** as many rows as needed for any size audience — in one easy operation.

Safway Telescoping Gym Seats are available in a wide variety of types, heights, widths, and seat spacing. Let experienced Safway engineers help you with your seating plans. Write for Bulletin No. 161H.

SAFWAY GYMSEAT FEATURES: Few moving parts permit smooth and easy operation. • Rugged steel understructure with extensive bracing insures complete safety reliability under all operating conditions. • Hard high-gloss cabinet finish on seat and foot boards. • Spacious seat, toe and heel spacing for spectators' comfort. • Non-marking wheels prevent scuffs and scratches. • No bare metal touches floor.

SAFWAY®

SAFWAY STEEL PRODUCTS, INC.
6228 W. State St., Milwaukee, Wisconsin 53213

SA-6

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Another

CONCEPT IN **UVEX**®

NOW... SHOWROOMS GO HIGH STYLE!

...with high-lustre UVEX® Sheet

Do you sell a product that calls for an exciting, colorful showroom? Then take the lead from the makers of Top-Flite waffled foam carpet lining • Go to a creative sign maker and select panels of UVEX Sheet • Choose the just-right color and design to express your product, fit your décor • Now you're in business.

Remember! Insist on UVEX. Only UVEX Sheet forms so easily . . . offers such sparkle and toughness.

For further information, call in the EASTMAN man or write:

Plastic Sheeting Division
EASTMAN CHEMICAL PRODUCTS, INC.
Kingsport, Tennessee
Subsidiary of Eastman Kodak Company

Display room, Allen Industries. Formed pattern in yellow UVEX selected to feature TOP-FLITE waffled foam carpet lining.

Eastman **UVEX**® **PLASTIC SHEET**

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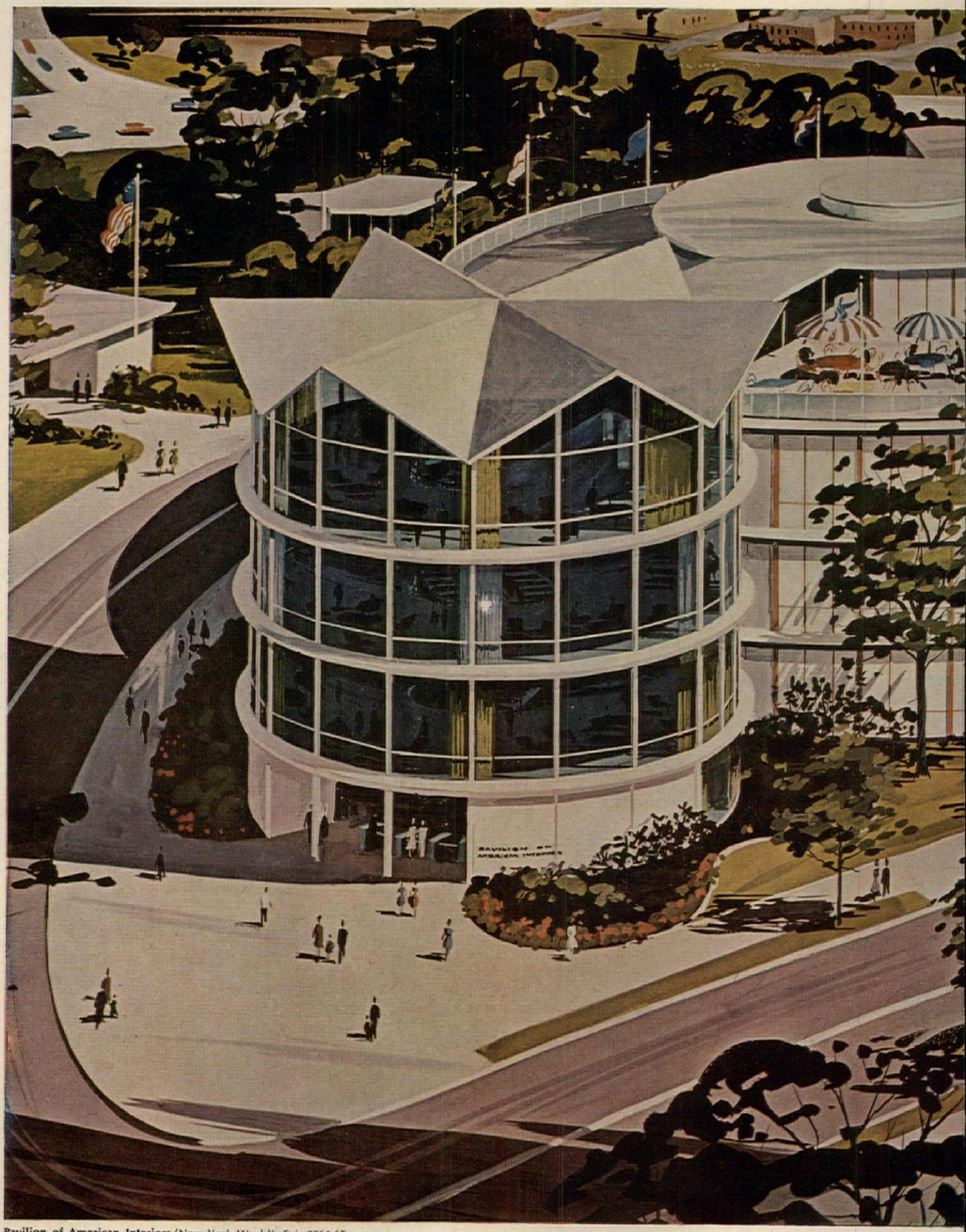


Pavilion of American Interiors/New York World's Fair 1964-65
Thomas H. Yardley, Architect/John Vassos, Associate/Werner-Jensen and Korst, Engineers/Waldvogel Brothers, Inc., Acoustical Contractor

See new Lo-Tone ventilating ceiling system at the world's fair

It heats, cools, beautifies and sound conditions —

The Pavilion of American Interiors, a $2,300,000 sweep of glass, steel and concrete, will demonstrate new Lo-Tone ceilings to an estimated 5 million people. Here is a preview of what the public will see at this New York World's Fair Exhibit.

About 70,000 square feet of Lo-Tone acoustical mineral tile and lay-in board will be installed. More than half of it will be Lo-Tone *ventilating* tile — the proven way to obtain effective room air distribution and sound control.

Lo-Tone ventilating ceilings offer the architect and engineer a combination of two important advantages in system design and control.

1. *Optimum air mixing and distribution.* Lo-Tone ceilings work according to the *jet orifice* principle. Specially engineered orifices in the ceiling tile create a balance between *air volume* and *air mass*. The air supply is discharged from the jet orifices, entrains air in the room and creates desirable room air motion.

Some ventilating ceiling systems distribute air through minute perforations in the tile. Tiny perforations can, indeed, move a *volume* of air. But they are too small to move an effective *mass* of air as Lo-Tone ventilating ceilings can. Without good air entrainment, discomfort often results.

Lo-Tone ceilings solve this problem with scientifically designed orifices . . . unobtrusive but highly effective.

2. *Quick, simple adjustment of air distribution after the ceiling is installed.* Lo-Tone ventilating products have adjustable metal control splines which are an integral part of the ceiling itself.

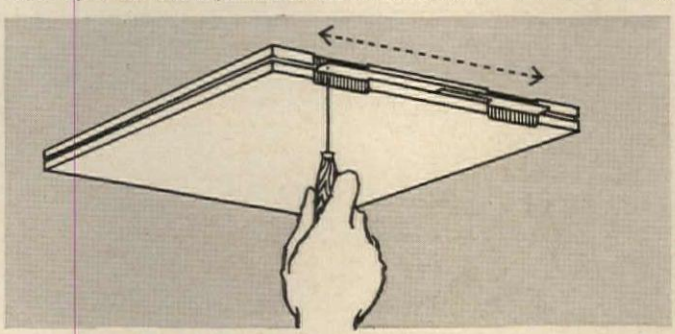
This permits the contractor to make final adjustments after the ceiling is installed, even after the tenant has moved in. Later, changes in air distribution can be made as room requirements change.

With Lo-Tone ventilating ceilings, adjustments are made from the room. It is not necessary to remove a single unit or to alter design.

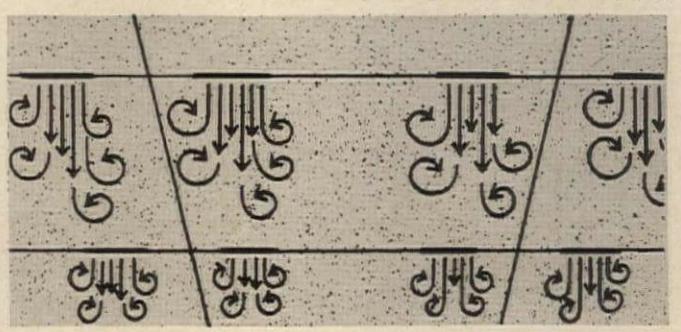
For additional information about how you can put these exclusive benefits of Lo-Tone ventilating ceiling systems to work for your clients (either tile or ceiling board), write Wood Conversion Co., St. Paul, Minn.

LO-TONE®
ACOUSTICAL VENTILATING CEILINGS

Close-up of Lo-Tone adjustable orifice which controls air mass and velocity.



Arrows illustrate how Lo-Tone ventilating ceilings distribute air efficiently.



For more data, circle 31 on Inquiry Card

This motel room is quiet— the glass is ACOUSTA-PANE®*

Golden State Motel† is located at the intersection of two very heavily travelled freeways in Burbank, California. ACOUSTA-PANE, a sound-retarding glass, was specified for panels and sliding doors to provide quiet by shutting out noise.

ACOUSTA-PANE is an exclusive Amerada product. No other glass can equal the effectiveness, economy and versatility of ACOUSTA-PANE for walls and partitions —where acoustical privacy is necessary and visibility is required or desired. See Sweet's Catalog, Section $\frac{7a}{Ac}$

*PATENT PENDING †George R. Harris, Architect

ACOUSTA-PANE SOUND RESISTANT GLASS

by amerada
Glass Corporation
3301 S. Prairie Avenue
Chicago, Illinois 60616

Write for "Principles of Architectural Sound Control" handbook, a valuable aid for the solution of acoustical problems.

For more data, circle 32 on Inquiry Card

CONCRETE FITS HIGH-RISE LIVING TO A TROPICAL SETTING . . . WITH A BONUS OF TWO EXTRA FLOORS

Coral Ridge Towers, Florida's newest and largest cooperative apartments, make the most of sun and sea on the glamorous Fort Lauderdale "Ocean Mile" beach. Concrete contributes importantly to the beauty and efficiency of the structure's modern design. Precast, sculptured balconies and stucco-finished walls combine crisply with broad expanses of glass. Behind the attractive façade, a concrete frame and flat plate floors provide not only rugged strength but a remarkable saving in floor-to-floor height. This made possible an increase from 14 stories to 16 within the local 150-foot limitation for high-rise buildings. For today's progressive architects, no other material provides the versatility of modern concrete.

PORTLAND CEMENT ASSOCIATION

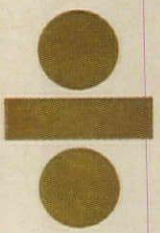
An organization to improve and extend the uses of concrete

THE BEST IDEAS ARE MORE EXCITING IN CONCRETE

Coral Ridge Towers, Fort Lauderdale, Florida. Owner: Coral Ridge Properties, Inc. Architect: Charles F. McKirahan & Associates, A.I.A., Ft. Lauderdale: Structural Engineer: D. E. Britt & Associates, Ft. Lauderdale. Contractor: Frank J. Rooney, Inc., Miami

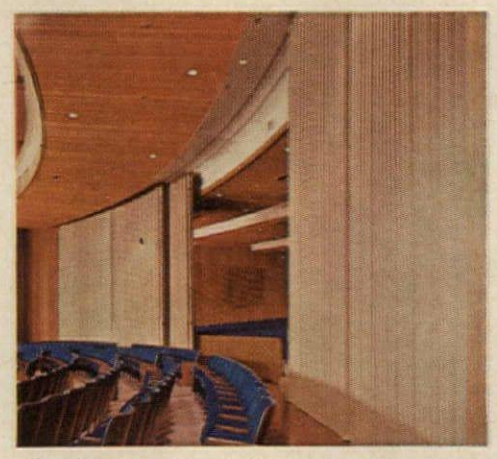
Take solid panels of anodized aluminum—or bonded enamel finished steel. Connect them with tough, extruded vinyl hinges. Result — a lightweight partition that will not support combustion . . . an instant wall engineered and built to withstand abuse. Glides easily out of the way on ball bearing trolleys. Track switches permit complete flexibility of arrangement. Aluminum available in heights up to 25 feet in lustrous lifetime anodized colors. In steel choose from eleven bonded enamel color finishes.

to add heavy-duty service with economy

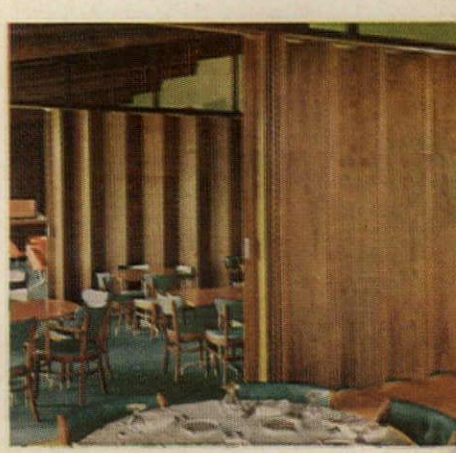


divide by modernfold Splen-door metal partitions

Splen-door—built to take abuse—finished to stay beautiful. Perfect for division of gymnasiums or cafeterias into smaller, usable spaces. Security models are available for protective closures in heavy traffic areas, too. For complete specifications see Sweet's File $\frac{16f}{Ne}$ or consult your nearby Modernfold distributor. He is a partitioning specialist.



Soundmaster—in exclusive new heavy duty vinyl—a myriad of textures, colors and pattern combinations. Seals off sound as it divides space.



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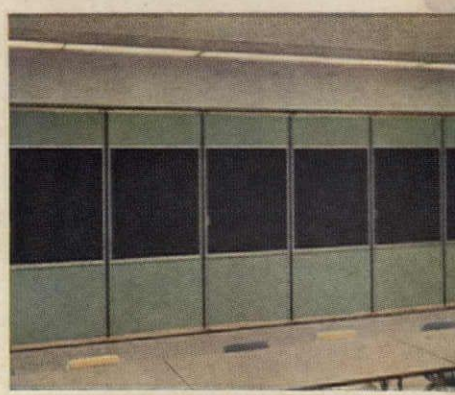

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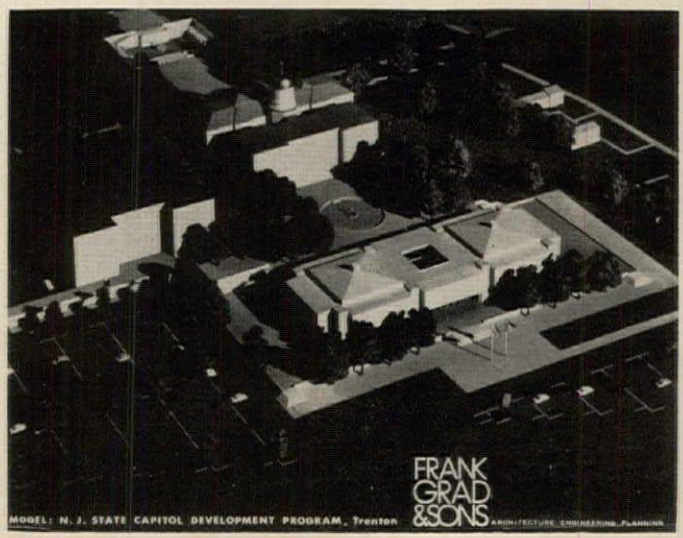
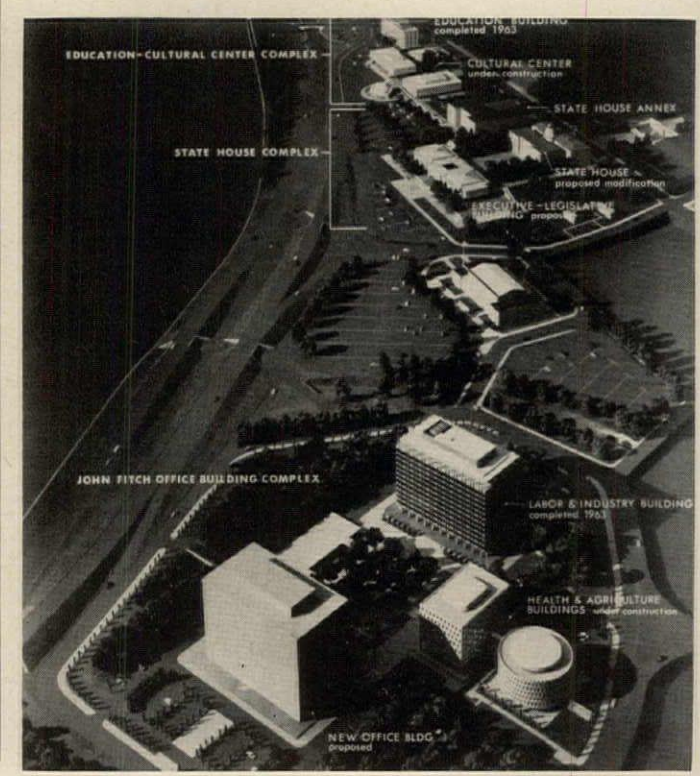


REPORT CONTINUES STUDY NEW JERSEY CAPITOL NEEDS

A new report by Frank Grad & Sons, Newark architects-engineers, formed the basis of last month's recommendations of the New Jersey State Capitol Development Commission for the future development of the State Capitol complex in Trenton.

To update the master plan adopted under a 1959 law, it recommended: (1) construction of a 530,000-square-foot high-rise building in the John Fitch Development area (*model photo below*); (2) demolition of the rear portions of the State House and erection of a 100,000-square-foot building for the governor's offices and facilities for the legislature; (3) demolition of one obsolete state office building; and (4) acquisition of a 6½-acre site for present parking and future building.



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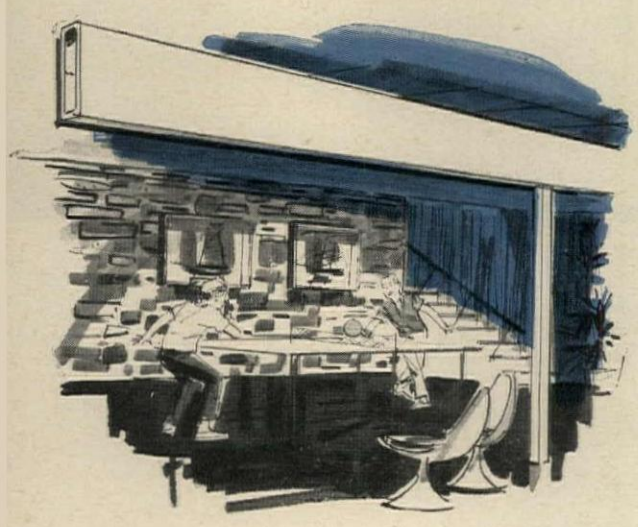

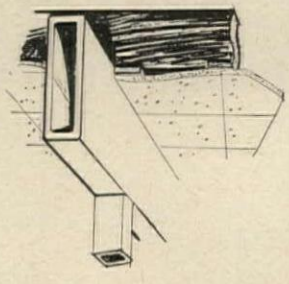

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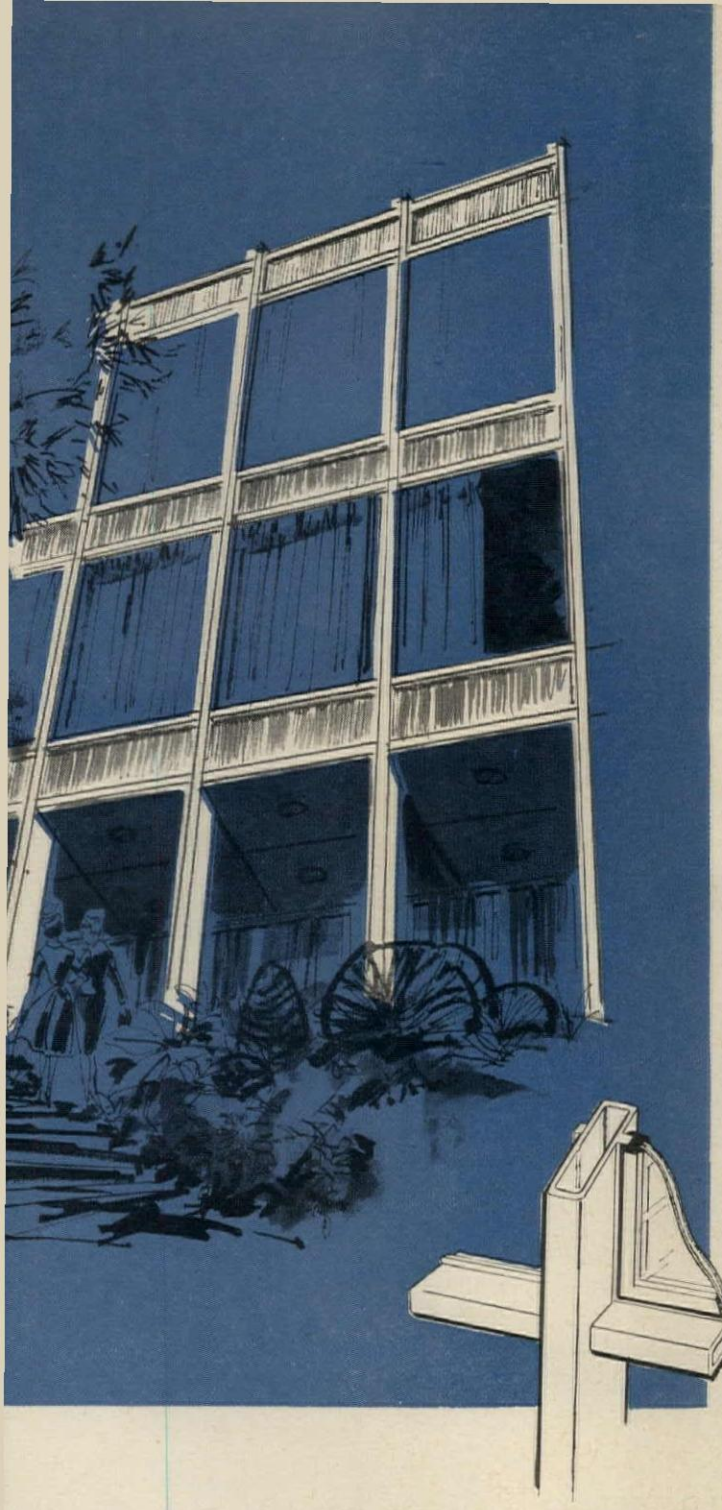

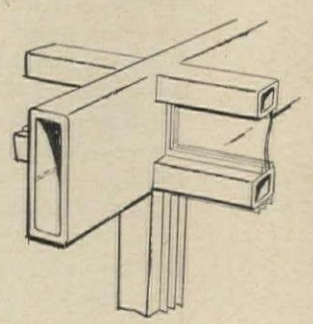

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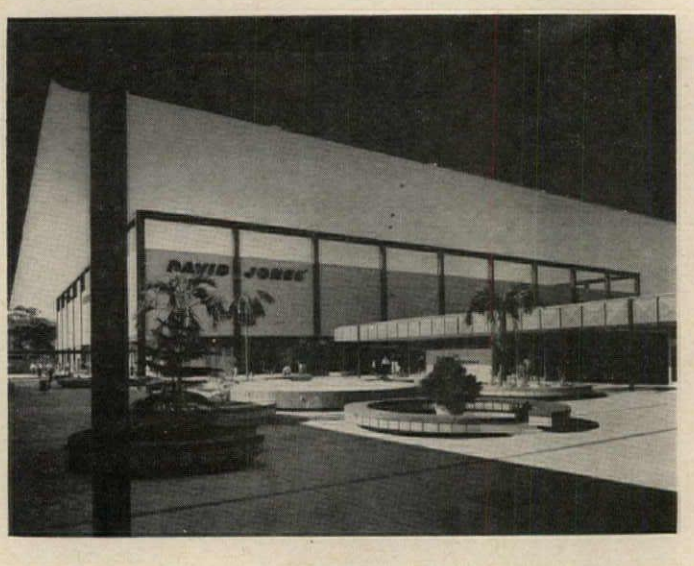

REGIONAL SHOPPING CENTER FOR AUSTRALIAN SUBURB

Warringah Mall Regional Shopping Center is built on a 28-acre site in Brookvale, about eight miles north of Sydney, with a population of 140,000 within 15 minutes' driving distance and 250,000 within 25 minutes' driving time. Architects were Alexander Kann, Finch & Associates.

Of the center's total area of 310,000 square feet, one department store occupies 160,000 square feet, another occupies 60,000 square feet, a five-and-ten chain store 30,000 and some 50 small shops the other 60,000 square feet. Parking areas accommodate 2,300 cars.

The department store for David Jones (*above*) is concrete-framed construction with a 30-foot-square column grid on two floors, capable of one additional floor extension. Exterior walls are white glazed ceramic block with concrete frames faced in black tile.

Covered walks connect all buildings. Flower boxes are placed to provide windbreaks, and also act as seats. The central mall contains a fountain as well as a circular platform for fashion shows, band performances and the display of special merchandise such as motor boats or cars. Mall areas are concrete slabs with tile dividing strips.

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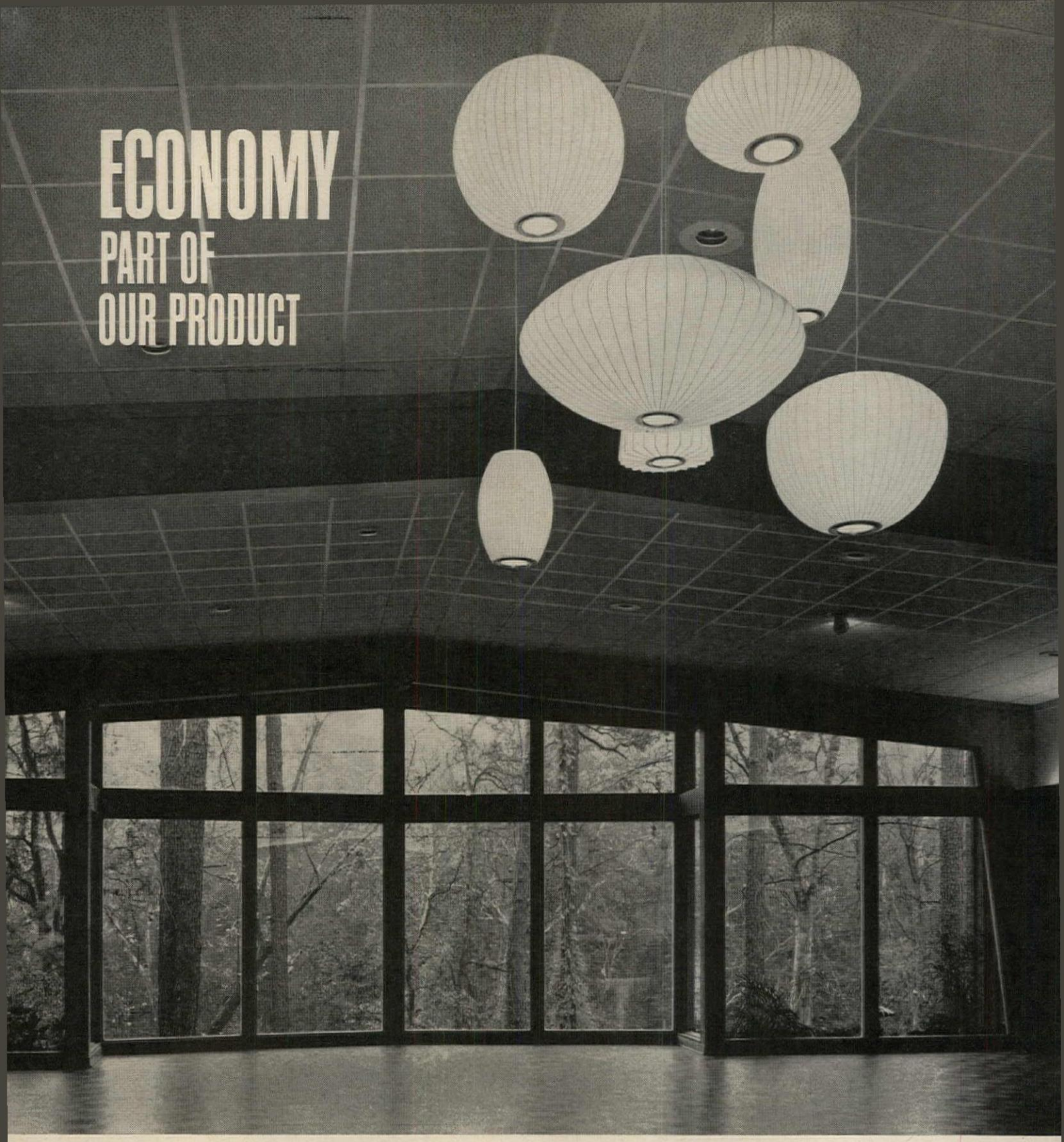
LCN CLOSERS, PRINCETON, ILLINOIS

Installation Details on Opposite Page



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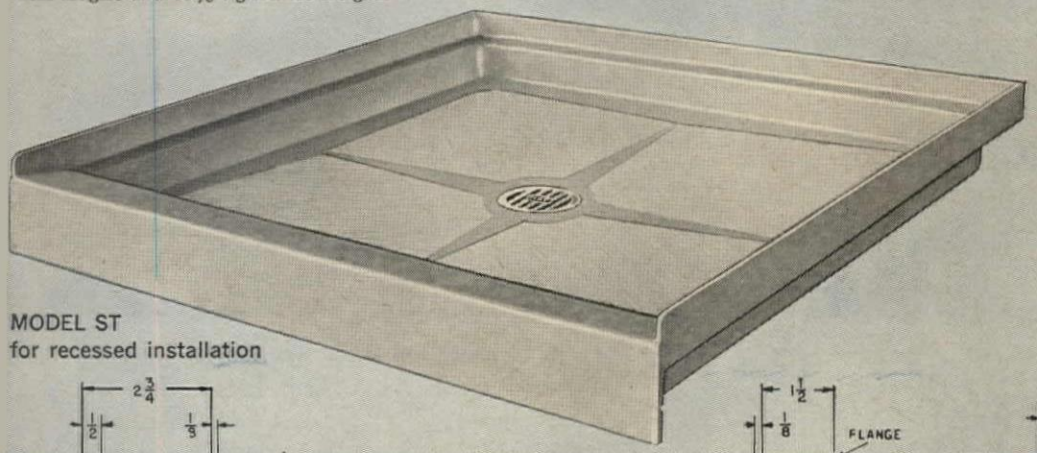
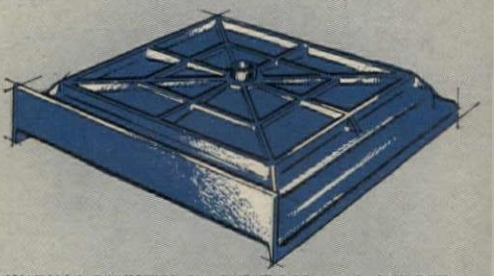
36" x 36"	36 ST	36"	36"
48" x 32"	48 ST	48"	32"
32" x 32"	32 DT	32"	32"
36" x 36"	36 DT	36"	36"

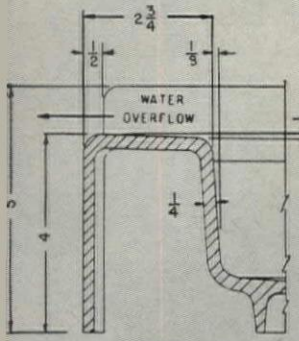
DRAIN CENTERED ON ALL MODELS



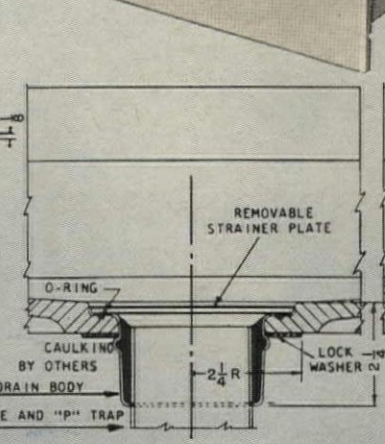
MODEL ST
for recessed installation

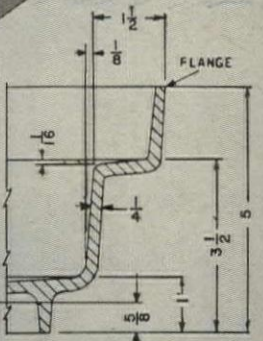


INSTALLS DIRECTLY ON SUB-FLOOR — NO SUB-PAN OR BACKING-UP REQUIRED. VIEW SHOWS ADEQUATE SELF-REINFORCING.



SECTION THRU THRESHOLD OF ALL MODELS





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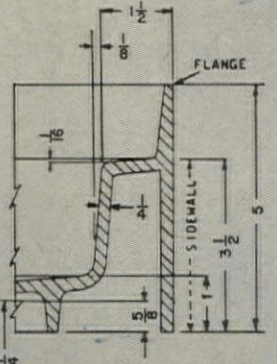
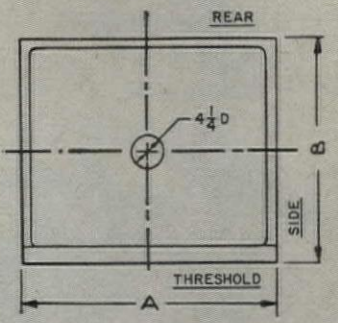


SECTION THRU SIDES DT MODELS



PLAN VIEW

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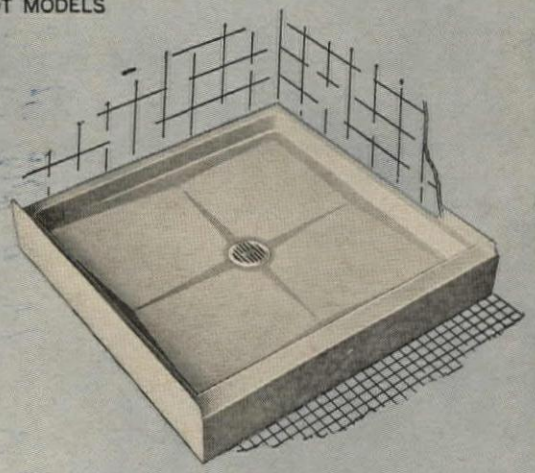

MODEL DT with flange to floor for right or left corner installation.

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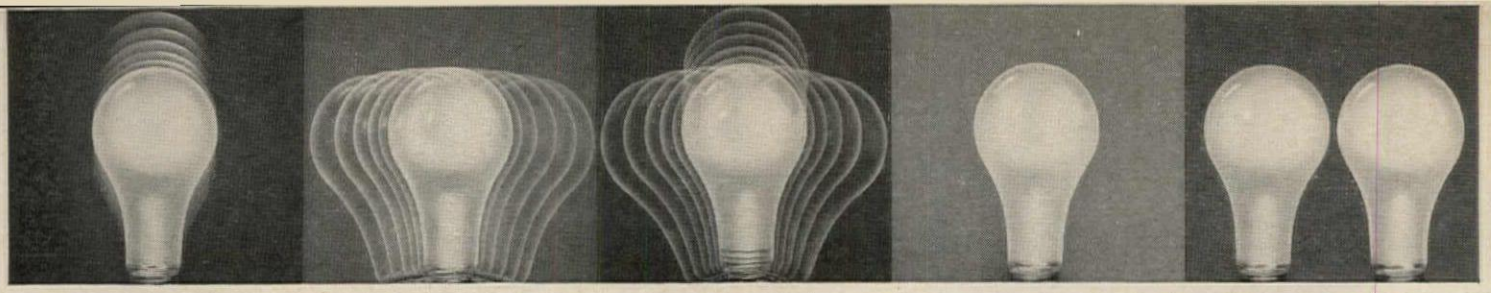

In places where lamps are subject to shock,

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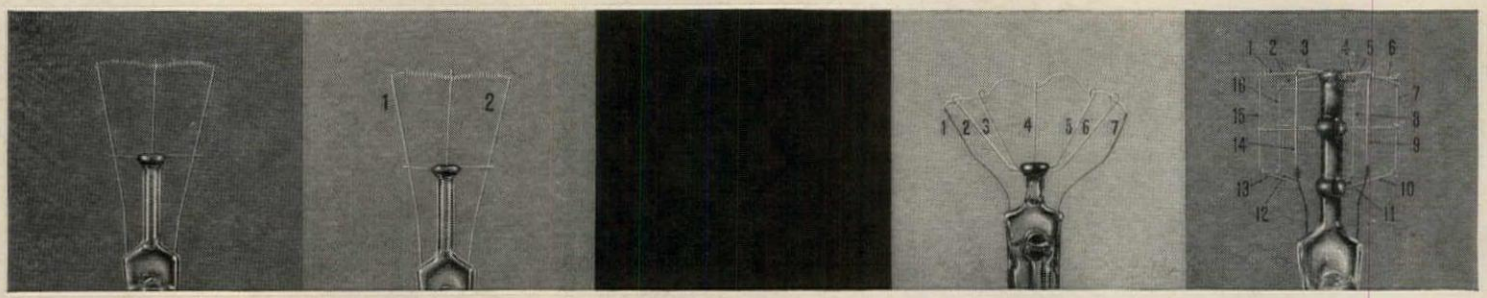
But these are terrific! See the difference?



Naturally not. All the important differences are inside, most of them having to do with things like filament supports.

In the ordinary incandescent lamp there are only two filament supports. And if you rough one up a bit . . .

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But in the Champion Vibration Service Lamp there are seven supports.

And in our tough Rough Service Lamp there are sixteen (count 'em) sixteen filament supports to handle all the everyday rough stuff you can dish out.

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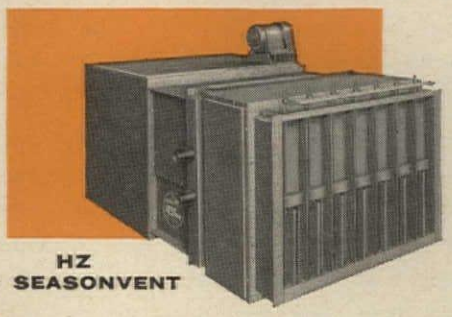

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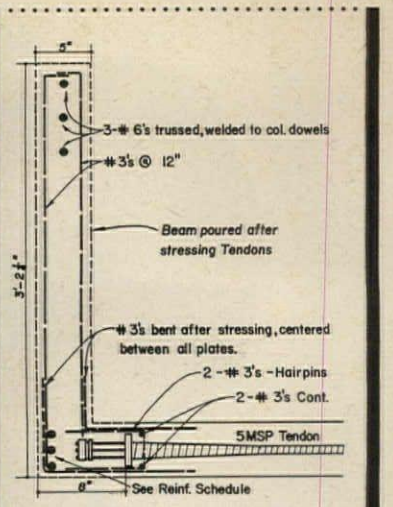

Detail of typical anchorage cover strip used as a beam serving as a wall to stiffen the building and help carry the wind load.

The Cliff House, Corpus Christi, Tex.
Owner: Morris Lichtenstein, Jr.
Architect: Hans and Bennett
Engineer: Wallace R. Wilkerson
Contractor: Braselton Construction Co.

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Riverfront, Florence, from "The Italian Townscape"

City Space

CITIES. *By Lawrence Halprin. Reinhold Publishing Corporation, 430 Park Ave., New York, 10021. 224 pp., illus. $15.*

In his prologue, Mr. Halprin, the landscape architect, announces his intention of dealing with the open spaces in cities. He has, in fact, considered all those facets of city planning ordinarily gathered under the rather inadequate label "amenities."

He has not suggested here any easy one-shot answer to the question of making the city not only livable but lovable as well. What he has done is to show ways this can be achieved. Some of the opportunities he indicates can be exercised only by large-scale planners: waterfront development, urbane freeways, major parks. Others may be exercised by architects and landscape architects: outdoor stairways, private plazas, fountains. Some would require public expenditure: street furniture, pavement, traffic signs. And some may be seized by each man for himself, as householder or as merchant: doorways, advertising, flower pots.

Mr. Halprin has selected nearly 500 illustations with catholicity, disregarding considerations of old and new, big and little, cheap and dear, nice and vulgar. If it's fun to look at, it's worth considering.

LIFE FOR DEAD SPACES. *The Development of the Lavanburg Commons. By Charles Goodman and Wolf Von Eckardt. Harcourt, Brace & World, Inc., 757 Third Ave., New York 17. 127 pp., illus. $12.50.*

Like Mr. Halprin, Mr. Goodman and Mr. Von Eckardt are also concerned with the problem of open spaces in the city; specifically, "dead spaces," those vast expanses of fenced-in grass so dear to the hearts of housing planners. The Fred L. Lavenburg Foundation, formed to develop methods of improving housing—as early as 1927 it built a nonprofit low-rent project in New York City—commissioned Mr. Goodman to design a commons for these empty spaces which would give form to the foundation's earlier concept of "The Village in the City."

Mr. Goodman's suggestion involves a complex of hexagonal pavilions, to be built with pre-manufactured components, which could be assembled in a variety of patterns. The pavilions, open and closed, would contain community and recreation facilities—playrooms, crafts workrooms, meeting spaces—as well as small businesses—bakeries, ice cream parlors, music stores. In addition to designing the components, Mr. Goodman has evolved 11 hypothetical plans for utilizing the pavilions: in public housing, over freeways, street corner development, among others.

Mr. Von Eckardt's text is a convincing argument for the need and possibility of humanizing and enlivening "projects." Helmut Jacoby has provided handsome renderings.

Italian Cities

THE ITALIAN TOWNSCAPE. *By Ivor de Wolfe; photographs by Ivy de Wolfe. The Architectural Press, 9-13 Queen Anne's Gate, London, S.W. 1, England. 280 pp., illus. 56 shillings.*

HILL TOWNS OF ITALY. *By Lucy Lilian Notestein. Little, Brown and Company, Inc., 34 Beacon St., Boston 6. 256 pp., illus. $6.*

Mr. de Wolfe's first contention is that townscape is not a question of planning the ideal city. It is a question of vision, literally. The lover of townscape cares not at all for social or moral judgments, but only for the pleasures revealed by the eye. No woman who has hauled a basket of wet wash would for one minute "cherish" the beauty of laundry drying in the breeze, nor could anyone with heart regard a beggar as a decorative embellishment to cathedral steps. But, the author suggests, the eye is selfish, and his concern here is with gratifying that selfishness.

His second contention is that Italian towns provide such gratification in abundance—a contention that would seem to be borne out by the multitudes of tourists happily ignoring Italy's sadder sights in order to see glories not visible at home.

Further, says Mr. de Wolfe, the Italian genius for civic excellence, visually speaking, is not confined to great monuments designed by great architects for great cities. Most of the illustrations he uses are from towns lkie Verona, Viterbo, Perugia, and others even smaller and less known.

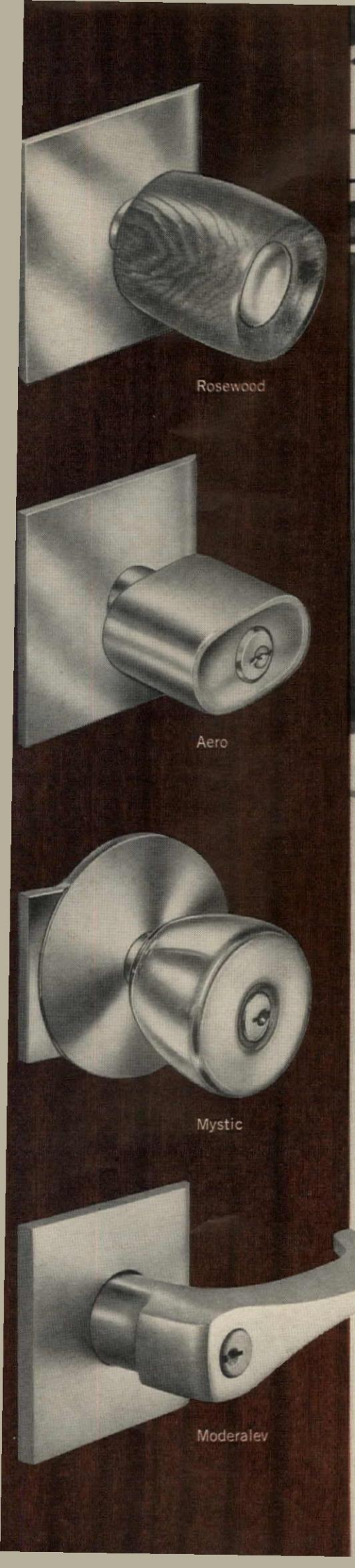
The photographs (designed purely as information, not as art) and the text together analyze Italy's bag of planning tricks with point and spirit. Mr. de Wolfe's text will probably distress readers who prefer polished and coherent prose; it is self-conscious and scrupulously idiomatic (the idiom, apparently, often that of the English schoolboy, quite outside American comprehension). Ignore it. Despite the beat writing, this is a highly interesting and suggestive book.

Miss Notestein, after a lifetime

continued on page 92

Doors are to
dramatize...

RUSSWIN



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Administrator: John Rasmussen Dietitians: Betty Diegel, Ruth Engewald
Architects: Stapert-Pratt-Bulthuis & Sprau Inc., Kalamazoo, Michigan

HP helps Michigan hospital serve food piping hot at the bedside

This was one of the important objectives Administrator John Rasmussen had in mind when he was planning the remodelling of the kitchen and overall food service of Hillsdale Community Health Center and its expansion to serve 100 beds instead of 62. The most interesting part of the improvement is the *HP System!* Shown in the above illustration are Pellet Heater and Portable Hot Food Units for tray-makeup right next to the Conveyor. About the food the *HP System* helps serve, the patients say: ". . . it's wonderful . . . piping hot . . . tasty . . ."! There are also eutectic dishes for keeping food portions cold.

Van can help *you* too!

For information about the *HP System,* contact your dealer or write HP SYSTEMS, 429 Culvert Street, Cincinnati 2, Ohio.

HOSPITAL FOOD SERVICE

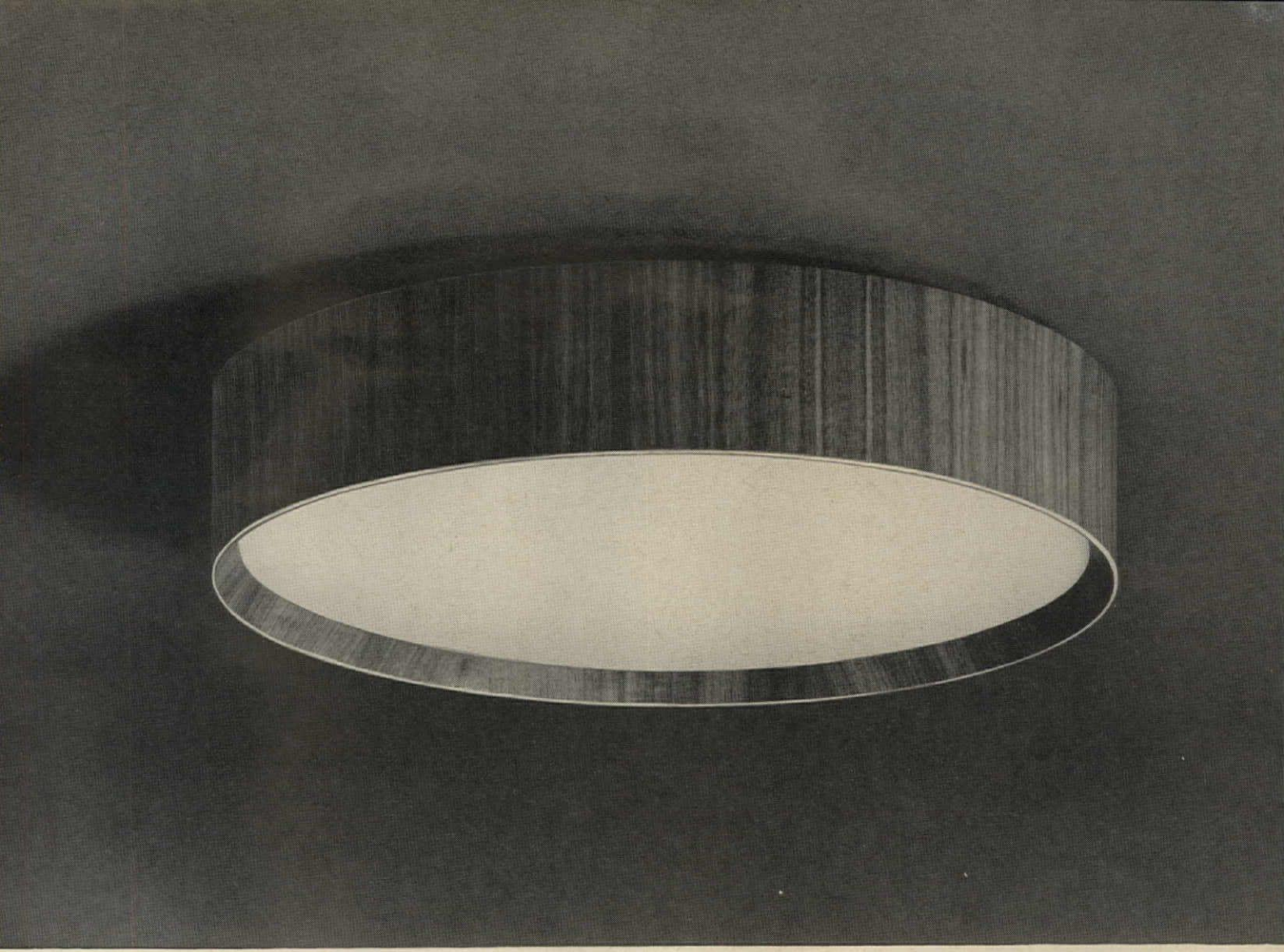
For more data, circle 53 on Inquiry Card

LIGHTOLIER®

New York, Chicago, Dallas, Los Angeles
fixtures are stocked and sold by the following Distributors:

ALABAMA Birmingham: Mayer Elect. Supply Co. **Huntsville:** Huntsville Elect. Supply Co. **Mobile:** F. E. Smith Elect. Co. **ARIZONA Phoenix:** Brown Wholesale Elect. **Tucson:** Beacon Lighting Fixtures Co. **ARKANSAS Little Rock:** Adcock Lighting & Supply **CALIFORNIA Los Angeles:** Gough Industries, Inc., Osipow Elect. **Oakland:** Incandescent Supply Co. **Sacramento:** Incandescent Supply **San Bernardino:** Tri-County Elect. Wholesalers **San Francisco:** Incandescent Supply Co. **Stockton:** Phillips & Edwards Elect. **CONNECTICUT Bridgeport:** B. M. Tower Co., Inc. **Hartford:** Beacon Light & Supply Co. **New Haven:** Grand Light & Supply Co. **New London:** United Elect. Supply Co. **South Norwalk:** Klaff's, Inc. **Stamford:** Marle Co. **Waterbury:** Starbuck Sprague Co., Suburban Supply Co. **DELAWARE Wilmington:** Tecot Elect. Supply **DISTRICT OF COLUMBIA Washington:** Maurice Elect. Supply Co. **FLORIDA Miami:** Farrey's Wholesale Hardware Co. **Tampa:** Tampa Wholesale Elect. **GEORGIA Atlanta:** Atlanta Lighting Fixture Co., Electrical Wholesalers, Noland Co. **Augusta:** Georgia Elect. Supply **HAWAII: Honolulu:** Hawaiian Light & Supply Co. **ILLINOIS Champaign:** Tepper Elect. Supply Co. **Chicago:** Creative Lighting Division-Elect. Wholesalers Elect. Supply, Efengee Elect. Supply Co., Englewood Elect. Supply Co., Harlo Elect. Supply Co., Hyland Elect. Supply Co., Metropolitan Elect. Supply, Steiner Elect. Co., Wholesale Elect. Supply Co. **Rockford:** Englewood Elect. Supply Co. **Springfield:** Springfield Elect. Supply Co. **INDIANA Gary:** Englewood Elect. Supply Co. **South Bend:** Englewood Elect. Supply Co. **IOWA Des Moines:** Weston Lighting, Inc. **KANSAS Wichita:** Architectural Lighting, Inc. **KENTUCKY Louisville:** Henry J. Rueff Co., Brecher Co., Inc. **LOUISIANA Baton Rouge:** Electrical Wholesalers, Inc. **New Orleans:** Interstate Elect. Co., Lighting, Inc. **MAINE Bangor:** Standard Elect. Co. **Portland:** Holmes Elect. Supply Co. **MARYLAND Baltimore:** Baltimore Gas & Light Co., Dorman Elect. **Brentwood:** National Elect. Lighting, Inc. **Hagerstown:** Tristate Elect. Supply Co. **MASSACHUSETTS Boston:** Boston Lamp Co., Mass. Gas & Elect. Lighting Co., United Elect., Henry L. Wolfers, Inc. **Framingham:** Framingham Elect. **Lynn:** Essex Elect. **Pittsfield:** Bland Elect. Supply **Springfield:** Eastern Elect. Supply Co., M. W. Zimmerman, Inc. **Waltham:** Standard Elect. **Worcester:** Atlantic Elect. Supply **MICHIGAN Detroit:** Madison Elect. Co., Michigan Chandelier Co. **Flint:** Royalite Co. **Grand Rapids:** Enterprise Elect. Supply Co. **Kalamazoo:** West Michigan Elect. Co. **Lansing:** Michigan Elect. Supply Co. **Pontiac:** Standard Elect. Supply Co. **Saginaw:** George Fisher & Sons, Inc., Standard Elect. Suppy Co. **MINNESOTA Minneapolis:** Charles A. Anderson Co., Northland Elect. Supply Co., Terminal Elect. Corp., Wholesale Lighting Elect. Supply Co. **St. Paul:** Lax Elect. Co. **MISSOURI St. Louis:** Graybar Elect. **Springfield:** Southern Materials Co. **MONTANA Great Falls:** Glacier State Elect. **Missoula:** Western Montana Elect. **NEBRASKA Lincoln:** White Elect. Supply Co. **Omaha:** Electric Fixture & Supply Co. **NEVADA Reno:** Western Elect. Distributors Co. **NEW JERSEY Atlantic City:** Franklin Elect. Supply Co. **Camden:** National Elect. Supply Co. **Cherry Hill (Delaware Township):** Flynn's Camden Elect. Supply Co. **Trenton:** Tab. Elect. Supply Co. **NEW MEXICO Albuquerque:** The Lighting & Maint. Co. **NEW YORK Binghamton:** Freije Elect. Supply Co. **Buffalo:** Buffalo Incandescent Light Co., Inc. **Glens Falls:** Glens Falls Elect. Supply **Geneva:** Gersh Elect. Supply Co. **Nanuet (Rockland Co.):** Rockland Lighting **Poughkeepsie:** Electra Supply Co. **Rochester:** Rowe Electric Supply Co., Empire Elect. Supply **Syracuse:** Superior Elect. Corp. **White Plains:** Wolar Lighting Corp. **NORTH CAROLINA Asheville:** Electric Supply Co. **Charlotte:** Independent Elect. Supply Co. **Durham:** Noland Co. **Greenville:** Sullivan Hardware Co. **Hickory:** Bryant Supply Co. **High Point:** Electric Supply Inc. **Raleigh:** Electrical Equipment Co. **Winston-Salem:** Noland Co. **NORTH DAKOTA Fargo:** Border States Elect. Supply Co. **OHIO Cincinnati:** B.&B. Elect. Co., F. D. Lawrence Electric Co., Richards Elect. Supply Co. **Cleveland:** The H. Leff Electric Co., Midland Elect. Co. **Columbus:** Elgee Elect. Co., The Loeb Elect. Co. **Lima:** State Elect. Supply Corp. **Springfield:** The W. W. Elect. Co. **Toledo:** Gross Elect. Fixture Co. **OKLAHOMA Oklahoma City:** Hunzicker Bros. **Tulsa:** Nelson Elect. **OREGON Portland:** Baker-Barkon Co. **PENNSYLVANIA Allentown:** Coleman Elect. Co. **Erie:** Kraus Elect. Co. **Harrisburg:** Fluorescent Supply Co., Schaedler Bros. **Hazleton:** Power Elect. Co., Inc. **Kingston:** Anthracite Elect. Supply Co. **New Castle:** Midwestern Elect. Co. **Philadelphia:** Gold Seal Elect. Supply Co., Logan Elect. Supply Co., Inc., Pyramid Elect. Supply Co., Inc., Rumsey Elect., West Philadelphia Elect. Supply Co. **Pittsburgh:** Allied Elect. Supply Co., Argo Lite Studios, Brown & Green, Wally Elect. Supply Co. **Scranton:** Lewis & Reif, Inc. **West Chester:** West Chester Elect. Supply Co. **Williamsport:** Lowry Electric Co. **York:** Graybill's **RHODE ISLAND Pawtucket:** Major Elect. Supply Co. **Providence:** Leavitt Colson Co., Tops Elect. Supply Co. **SOUTH CAROLINA Greenville:** Sullivan Hardware Co. **TENNESSEE Chattanooga:** Mills & Lupton Supply Co., Noland Co. **Knoxville:** The Keener Co., Stokes Elect. **Nashville:** Nashville Elect. Supply Co. **TEXAS Bryan:** Dealers Elect. **Dallas:** Rogers Elect. Supply Co. **El Paso:** E. & M. Supply Co. **Ft. Worth:** Anderson Fixture Co., Cummins Supply Co., General Industrial Supply Corp. **Houston:** Anderson Lighting Co., Marlin Associates, Worth Elect. Supply Co. **Lubbock:** Homer G. Maxey & Co. **San Antonio:** Central Distributor Co., Electrical Distributors Co., Tri-state Elect. **Tyler:** Dealers Elect. Supply **Waco:** Dealers Elect. Supply Co. **Wichita Falls:** R. & A. Supply **VIRGINIA Alexandria:** Capital Lighting and Supply **Arlington:** Dominion Elect. Supply Co., Inc. **Lynchburg:** Mid-State Elect. Supply Co., Inc., Noland Co. **Norfolk:** Atlantic Elect., Westinghouse Elect. Supply **Richmond:** Atlantic Elect. Supply Co. **WASHINGTON Seattle:** Seattle Lighting Fixtures Co. **WEST VIRGINIA Wheeling:** The Front Co. **WISCONSIN Appleton:** Moe Northern Co. **Milwaukee:** Electri-Craft Lighting, Lappin Elect. Co. **CANADA Edmonton:** Alberta Elect. Supply Ltd. **Montreal:** Ideal Elect., Gray Elect., L. D. G. Products, Inc., Union Elect. Supply Co. Ltd. **Toronto:** Revere Elect. Distributors, Toronto Elect., Union Elect. Supply **Winnipeg:** Dominion Elect.

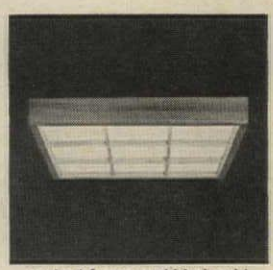
For more data, circle 54 on Inquiry Card



Some of the family are squares

Our newest addition, shown above, will also be seen in the best of circles. It will be looked up to for its genuine walnut veneer, self-illuminating wood bezel and regressed formed glass diffuser. Available now in five sizes plus a metal series in grey enamel.
Others in Lightolier's long and illustrious line of surface incandescents are oval, round or rectangular—metal, wood or glass—decorative or strictly functional. Like these popular members of the family:

cleanly styled modular lighting



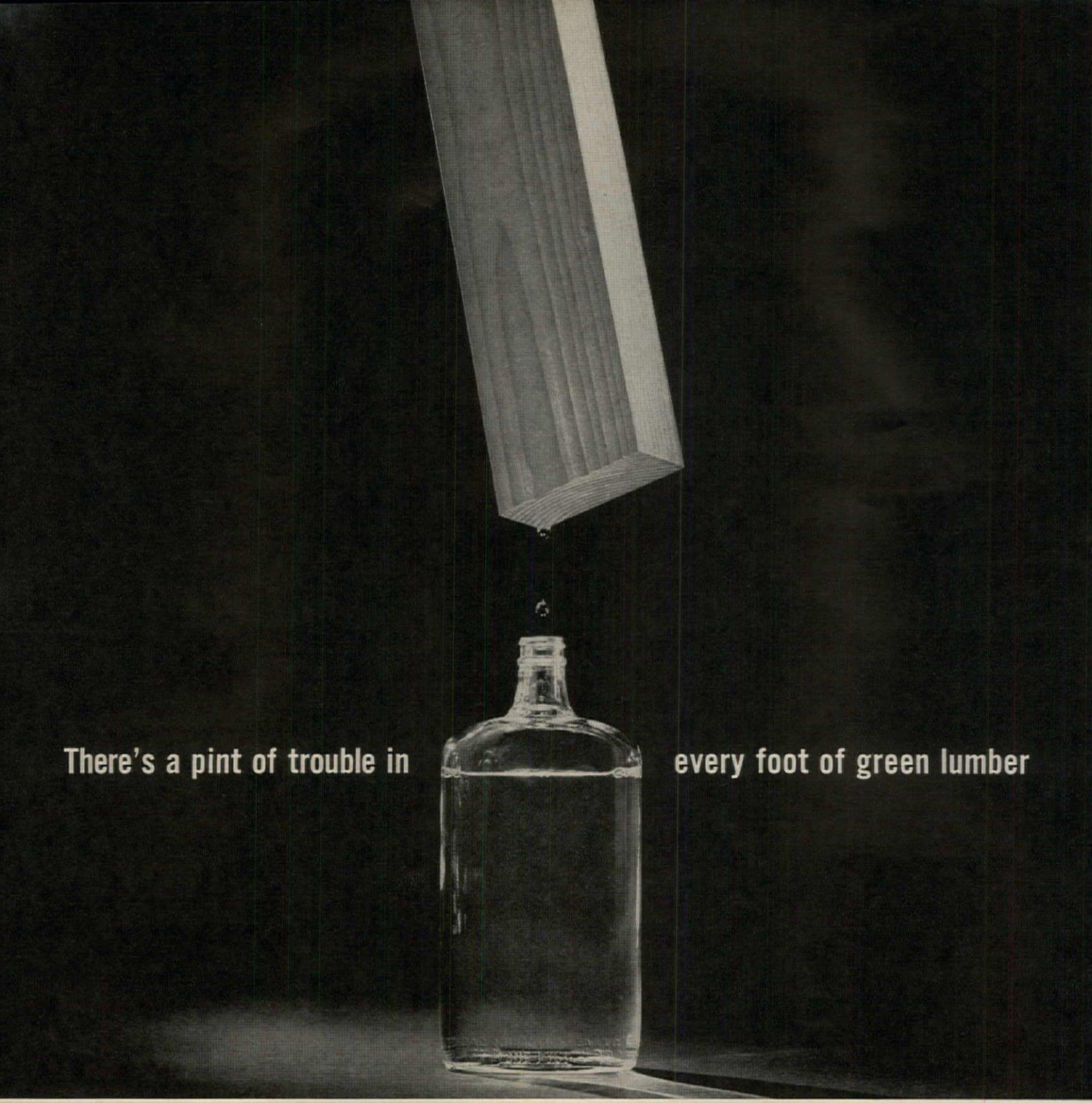
walnut frame and birch grid

completely luminous light source

And all of them are pretty simple

A touch of the finger and Lightolier's patented Torsiontite® spring releases and safely suspends the enclosure for cleaning or re-lamping.
For the name of your nearest stocking Distributor, see opposite page. For more information, write to Dept. AR-2, Lightolier, Jersey City 5, New Jersey.

LIGHTOLIER®



Weyerhaeuser evaporates trouble before you build

Water in lumber can be the No. 1 cause of construction problems. A house built with unseasoned lumber is saturated with water. More than 500 gallons of it.

Often this results in expensive call-backs due to cracks in walls and ceilings, nail popping, squeaky floors and sticky doors and windows. Kiln-dried lumber helps eliminate these problems. And new Weyerhaeuser Engineered Kiln-Dried Lumber performs even better.

Engineered Dry Lumber is precisely manufactured to exact sizes with a new 15 per cent average moisture content (19 per cent maximum). This results in slightly smaller sizes (1½" for framing, ¾" and ⅝" for boards), with absolutely no loss in strength and stiffness.

Try Weyerhaeuser Engineered Lumber on your next project and pocket the in-place savings you get from easier handling and trouble-free performance.

For more information, see your Weyerhaeuser dealer or write us at Box B-24, Tacoma, Washington.

The lumber selected to frame the House of Good Taste at the N. Y. World's Fair.

Weyerhaeuser
Engineered Dry Lumber

For more data, circle 55 on Inquiry Card

. . . does a client need signs?

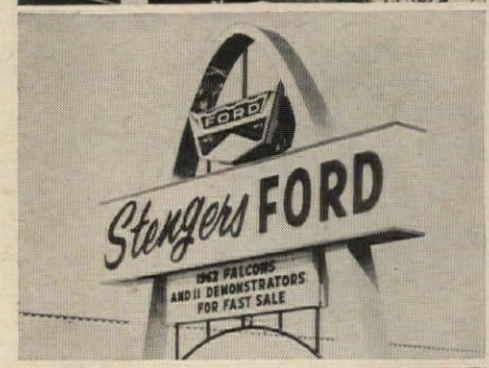
THIS FREE WAGNER FOLDER MAKES SELECTION SIMPLE

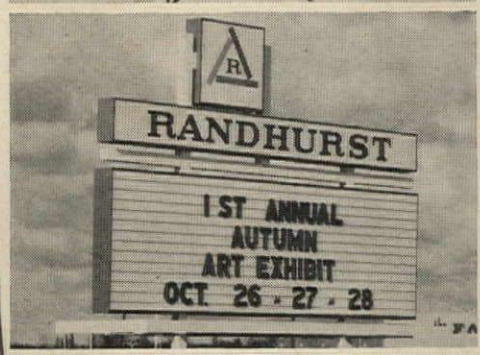
Wagner Changeable Letter Copy Boards will satisfy your customers' most varied requirements for attractive, highly visible signs.

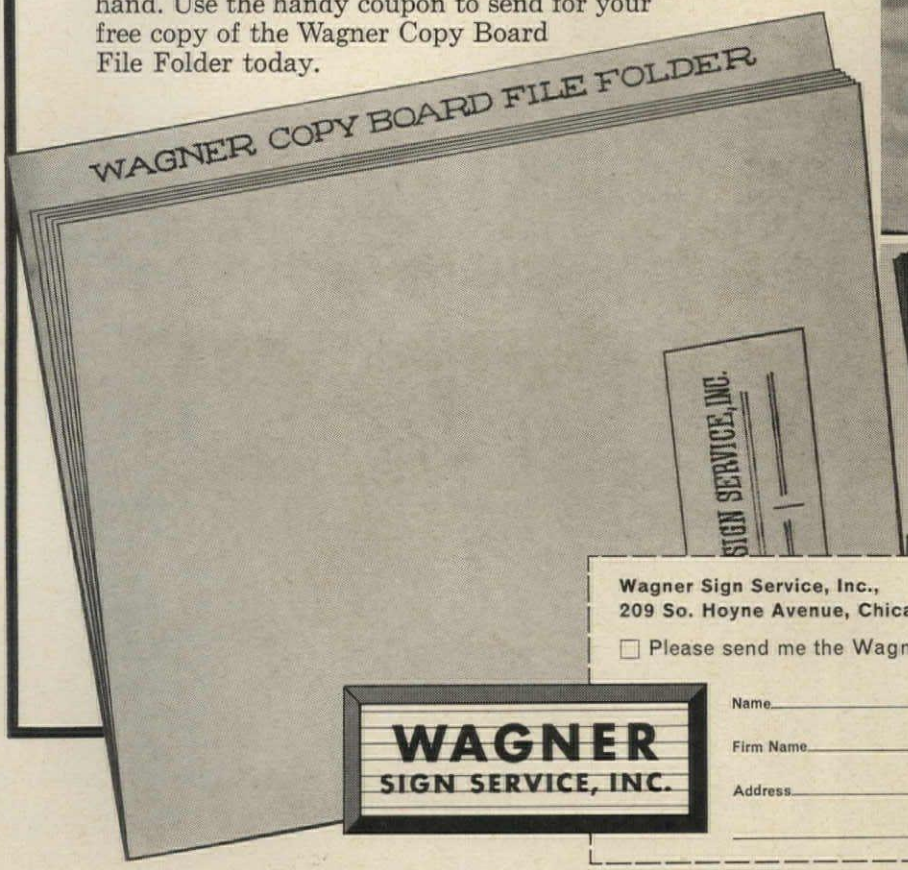
Up-to-the-minute timeliness, economy, and versatility are their outstanding advantages. The Wagner Copy Board File Folder, specifically designed to fit easily into your files, covers a wide variety and price range of copy board types, from large permanent frame-and-glass installations to economical Plasti-Bar signs.

Wagner Changeable Letter Copy Boards are being used as an integral building and grounds element in the design of Restaurants, Hotels and Motels, Theatres and Auditoriums, all types of chain and independent retail stores, Realtors and Savings Institutions, Churches, Industrial Safety and Municipal Promotion, and many other applications. In fact, whenever a message is to be communicated with high visual impact at relatively low cost . . . and the unique ability to change copy at will.

Be sure you have the complete Wagner story close at hand. Use the handy coupon to send for your free copy of the Wagner Copy Board File Folder today.







WAGNER
SIGN SERVICE, INC.

Wagner Sign Service, Inc.,
209 So. Hoyne Avenue, Chicago, Illinois 60612

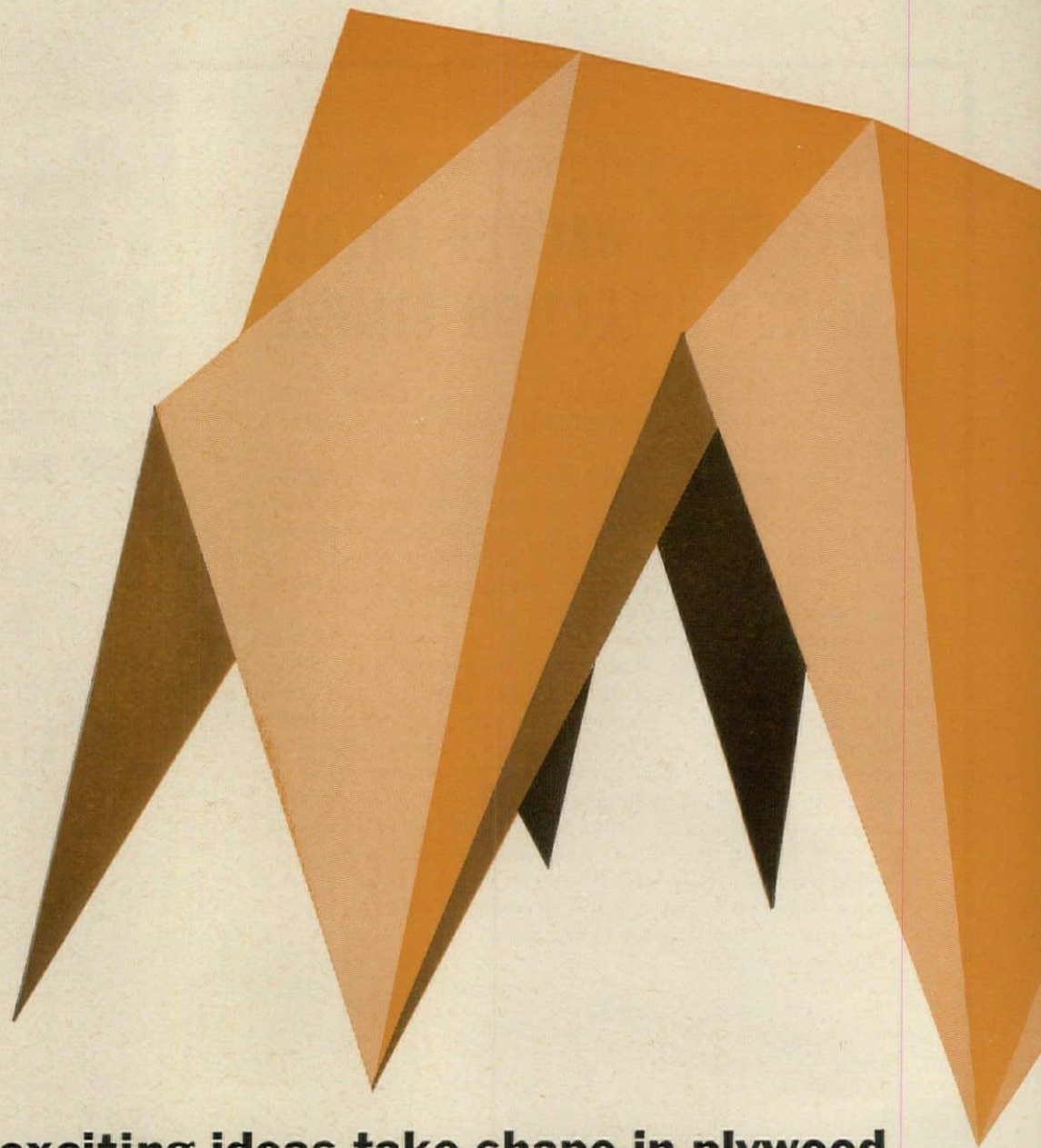
☐ Please send me the Wagner Copy Board File Folder

Name_____

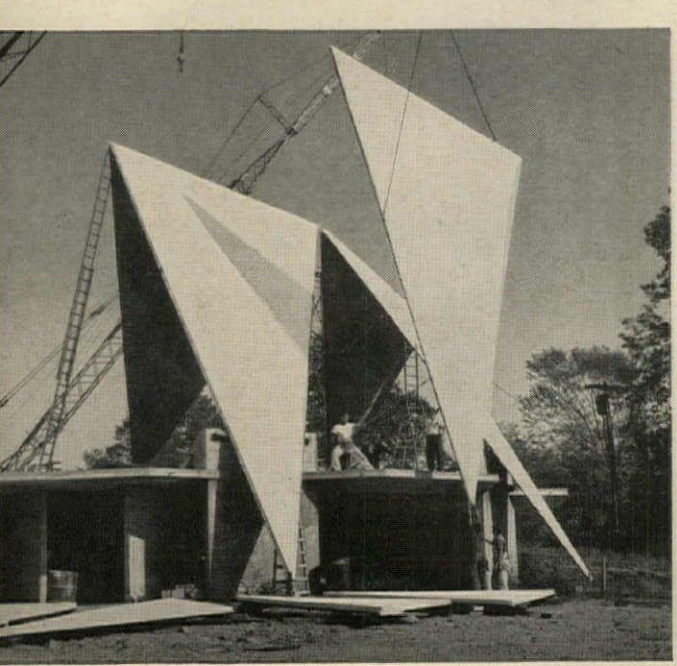
Firm Name_____

Address_____

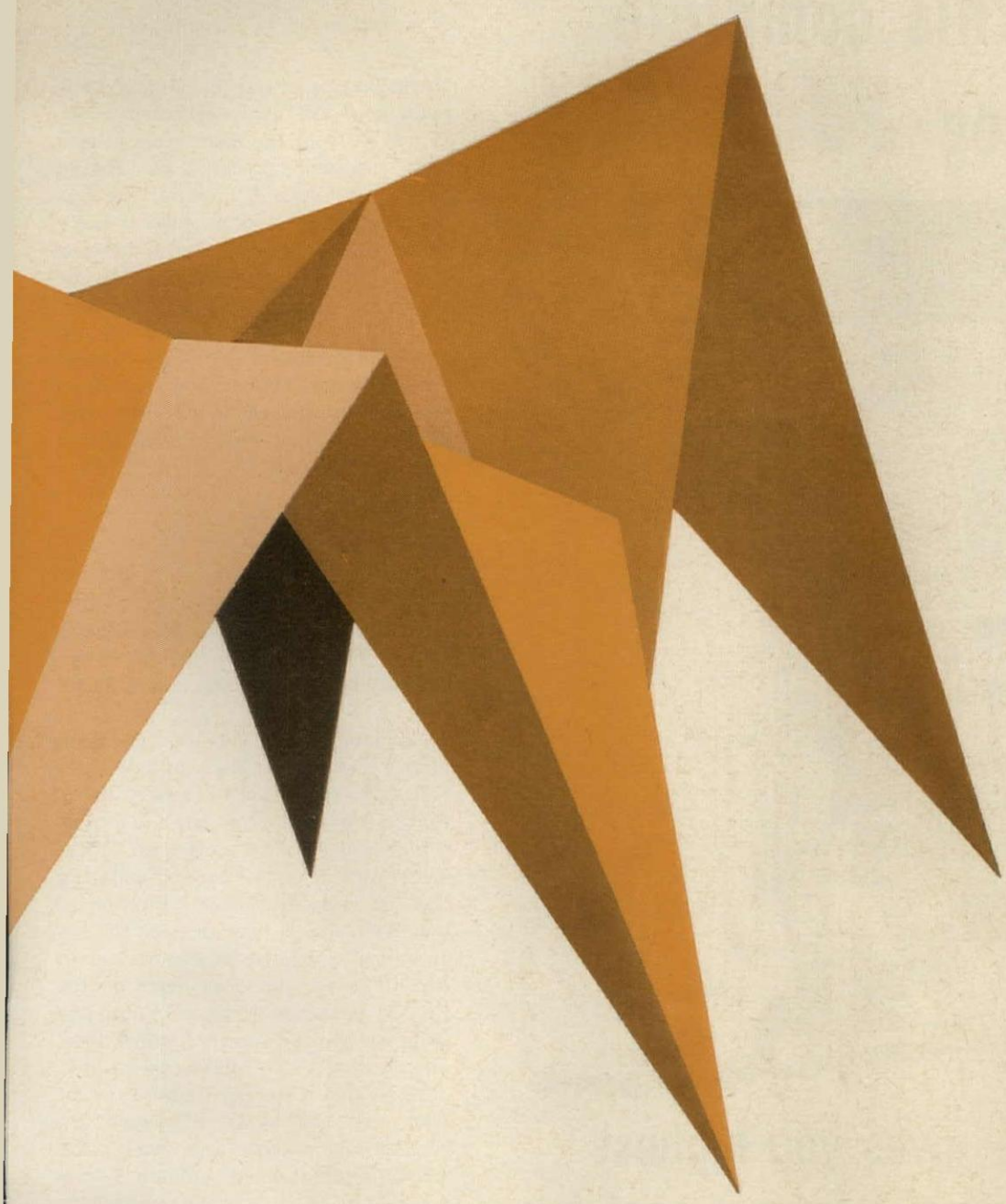
For more data, circle 56 on Inquiry Card



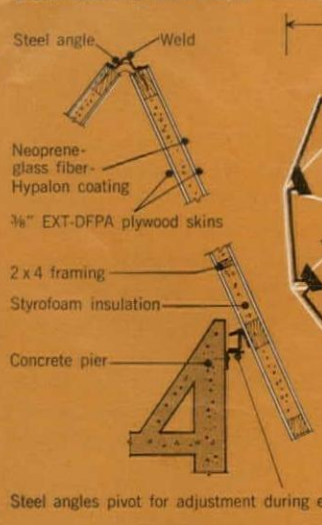
the most exciting ideas take shape in plywood



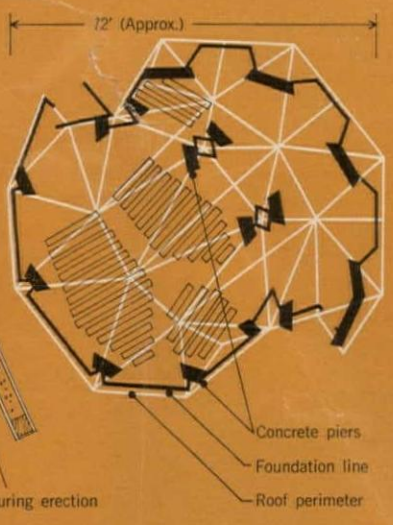
UNITED CHURCH OF WEST NORWALK, CONN. / VICTOR CHRIST-JANER & ASSOCIATES, ARCHITECT / ROBERT DAMORA, ASSOC. ARCH. / WERNER-JENSEN & KORST, ENGINEERS



PLYWOOD PANEL CONNECTION DETAIL



ROOF AND FLOOR PLAN



The soaring canopy of this church demonstrates again how modern plywood technology can turn a sophisticated design into practical reality. ■ Perhaps the most complex plywood space plane yet built, it is actually a variation of the folded plate. The roof becomes self-supporting by the interaction of inclined diaphragms—in this case 42 triangular stressed skin plywood panels. It shelters 5,000 sq. ft. and rises to 35 ft. at two points. ■ Plywood's size, strength and adaptability to precise fabrication made it possible to execute the design within a tight budget, and to erect the entire roof in seven working days. For more information on plywood folded plate systems, write (USA only) Douglas Fir Plywood Association, Tacoma 2, Wash.

DFPA®
TESTED QUALITY
PLYWOOD

ALWAYS SPECIFY BY DFPA TRADEMARKS

Required Reading

continued from page 84

spent "hunting" hill towns, has written a good old-fashioned travel book. If not quite in the same league with such Italian travelers as Henry James and Sean O'Faolain, she has nonetheless covered an area usually bypassed and has written a literate appreciation of the charms Mr. de Wolfe analyzes. For each of the several hill towns she discusses, she includes information on local countryside, customs, history and legend, as well as what amount to walking tours of the principal monuments of art and architecture.

City History

WASHINGTON. *Capital City, 1879-1950. By Constance McLaughlin Green. Princeton University Press, Princeton, N.J. 558 pp., illus. $9.50.*

Historians have been heard to complain recently that too many of their colleagues bend their efforts to broad theorizing about the city, and that too few dedicate themselves to the spadework of gathering and collating data on individual cities. Whether or not Mrs. Green provides all the sociological statistics these historians had in mind, she does describe the unique social, political, economic and geographic relationships which total one unique city: Washington, D.C.

In Volume II of her history of that city, she has again displayed the scholarship, clarity and readability which distinguished Volume I (reviewed in ARCHITECTURAL RECORD, September 1962, page 66).

NEWPORT: PLEASURES AND PALACES. *By Nancy Sirkis. The Viking Press, Inc., 625 Madison Ave., New York 22. 160 pp., illus. $10.*

Newport, Rhode Island is an odd place: it is a town which ought to be dead, twice over. It did die at the end of the Revolution, when its political and commercial importance dissipated. It did die after World War I, when its gargantuan "cottages" were abandoned (some of them, at least) for lack of funds and interest. But despite its rather self-conscious em-

continued on page 100

Compact copper tube saved 50,000 cubic feet and $40,000 on one job alone

When the 15-story San Diego County Hospital (not illustrated) was designed, the architects and mechanical engineers planned on copper for water lines, oxygen service, and sanitary drainage. By deciding on copper at the design stage, they saved piping space, gained floor area, and cut installation costs.

When you specify copper, your savings can be compounded throughout the project and throughout the life of the building. Copper is light and compact: about one-fourth the weight of cast iron for the same job. Copper is easy to install. Rust-free. Good looking. Durable. And copper's advantages apply to buildings of any size.

You're the key man in achieving these savings. Specify copper plumbing at the start. "The Specs Call For Copper" is a new Anaconda filmstrip presenting the advantages of DWV Copper Tube in commercial construction. It can be shown right at your desk. Mail the coupon and arrangements will be made to your convenience. Anaconda American Brass Company, Waterbury, Conn. 06720. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

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☐ Please send me booklet, "It Pays To Specify Copper."

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Drenched, deluged and wind-whipped

Compact copper tube saved 50,000 cubic feet and $40,000 on one job alone

When the 15-story San Diego County Hospital (not illustrated) was designed, the architects and mechanical engineers planned on copper for water lines, oxygen service, and sanitary drainage. By deciding on copper at the design stage, they saved piping space, gained floor area, and cut installation costs.

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Waterbury, Conn. 06720

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☐ Please send me booklet, "It Pays To Specify Copper."

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Drenched, deluged and wind-whipped

...at hurricane force and still weather-tight!

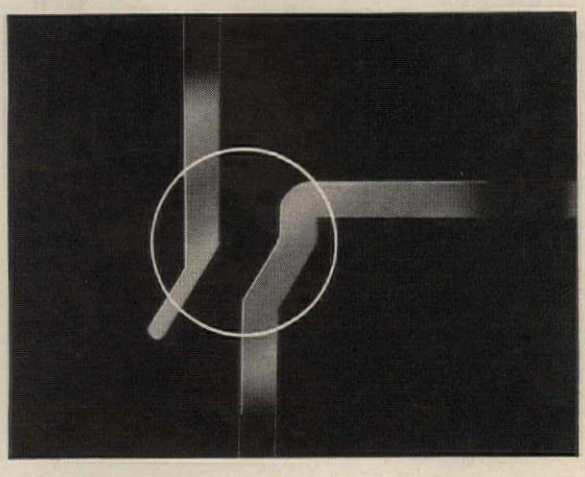
Independent Laboratory Tests Prove Kawneer Sealair Windows* Solve Weathering Problems!

The new Sealair window is weather-tight even when subjected to winds and rains of 70 to 80 miles per hour according to recent tests by an independent laboratory.

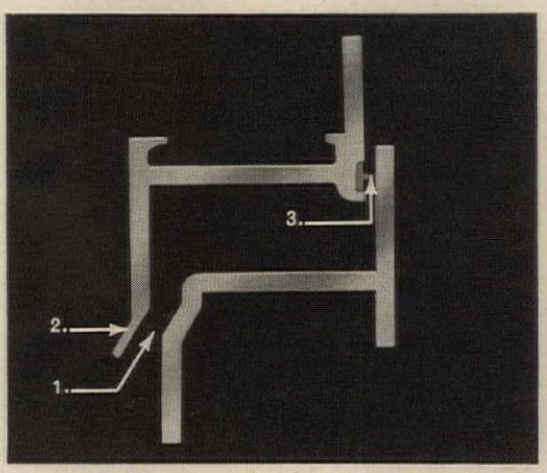
In these tests, the Sealair was installed in a weather test chamber. The window was water drenched as inside pressure was lowered to represent severe weather conditions. Sealair did not leak even when the static load reached 25 p.s.f. Many conventional windows leaked at 3 to 7 p.s.f. The superior weathering performance is the result of a Triple Weather Guard including an exclusive Pressure Equalization Slot. This Kawneer innovation is the most important metal window design change in recent years.

In air infiltration tests, the new Sealair was again far superior, at less than .2 c.f.m., well above industry standards. Here is a window so vastly superior that building interiors remain dust and draft free . . . reducing loads on heating and air conditioning systems. *Get all the facts about this remarkable window.* Write for your copy of the Sealair Window File.

Commercial and Monumental—Projected, casement and top hinged Sealair windows are available in commercial or monumental (2") series. Finish: Alumilite is standard—or, non-fading, abrasive-resistant, Anodic hard colors (light bronze, medium bronze and black) are optional.



Pressure Equalization Slot—Keeps water out. Pressure within the window sections is equal to pressure outside the building. No pressure difference . . . no partial vacuum . . . no leakage.



Triple Weather Guard—1) Pressure equalization slot, 2) integral drip, and 3) neoprene weatherstrip. The Sealair window offers triple weather protection. Weathering where needed, scientifically designed.

Kawneer

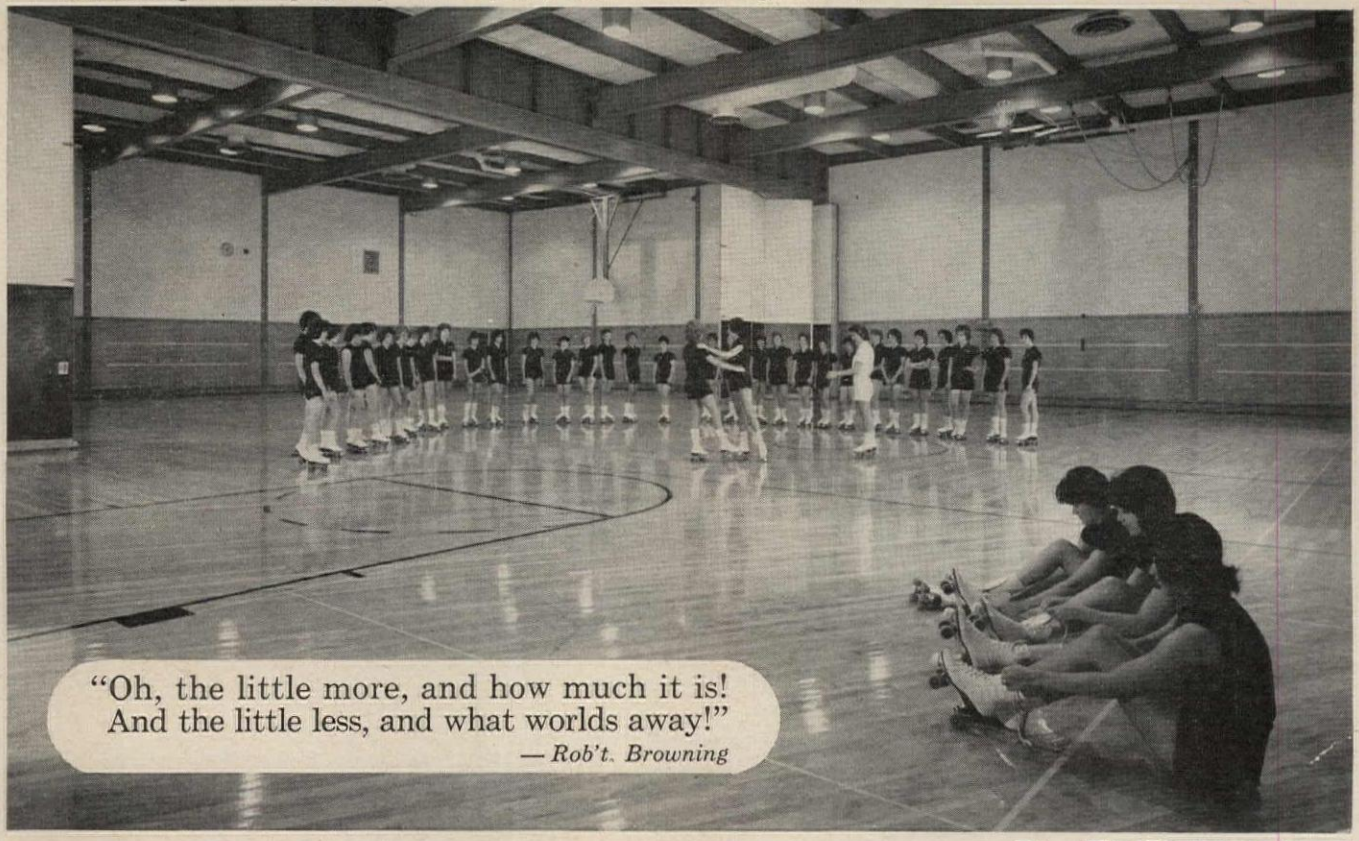
Kawneer Company, A Division of American Metal Climax, Inc.

Niles, Michigan • Richmond, California • Atlanta, Georgia • Kawneer Company Canada, Ltd., Toronto, Ontario, Canada

*Patent Applied For

For more data, circle 59 on Inquiry Card

Gymnasium, Evergreen Park, Illinois, High School. Architects: Perkins & Will, Chicago. Photograph by Bill Engdahl, Hedrich-Blessing, Chicago.



MORE of everything that a fine floor is for, *with* NORTHERN HARD MAPLE

This is the floor that gives you more! *And that's why more gymnasium floors are being laid with *Northern Hard Maple than with all other American hardwoods combined.* • The mills of member companies of this Association (founded 1897) are located in the northwoods, where the hard maple trees mature ever-so-slowly, toughening and compacting their beautiful wood. Millwork *must* be precise, checked against master gage blocks. Grading *must* conform to strict rules, impartially enforced by the Association's roving inspectors. Moisture content *must* be held within narrow limits. And never, *never* is mixing of species tolerated. • This industry-wide self-discipline, spanning 67 years, has made the letters MFMA, pressed into the underside of flooring strips, as valid and as worthy of trust as were the hallmarks of the ancient guildsmen. • So — to make sure your new floor is true Northern Hard Maple, specify explicitly: "MFMA Northern Hard Maple" and inspect the bundles on the job.

SEE SWEET'S (13H-MA) or write this office for Specification Manual and latest listing of MFMA-tested and approved floor finish products.

DON'T HESITATE to use your tough, mirror-smooth Northern Hard Maple floor for roller skating, for meetings, banquets, exhibits, dancing and other social activities! Survey evidence *proves* through case history how *an MFMA maple floor* can take it, with amazing maintenance economy. Ask for: "The Gymnasium as a Community Center".

Write: **MAPLE FLOORING MANUFACTURERS ASSOCIATION • 35 East Wacker Drive Chicago, Illinois 60601 • Suite 1050**

takes a lifetime to grow!

NORTHERN HARD MAPLE

— longer still to wear out!

* *Acer saccharum.* (Forgive us, please, if this seems pedantic! But there are at least thirteen other species of the genus *Acer* — the maple family. Several of these have no value as wood. And all are decidedly softer, less durable, than *Acer saccharum.* Ask your nearest friendly botanist; there's bound to be one in your neighborhood!)

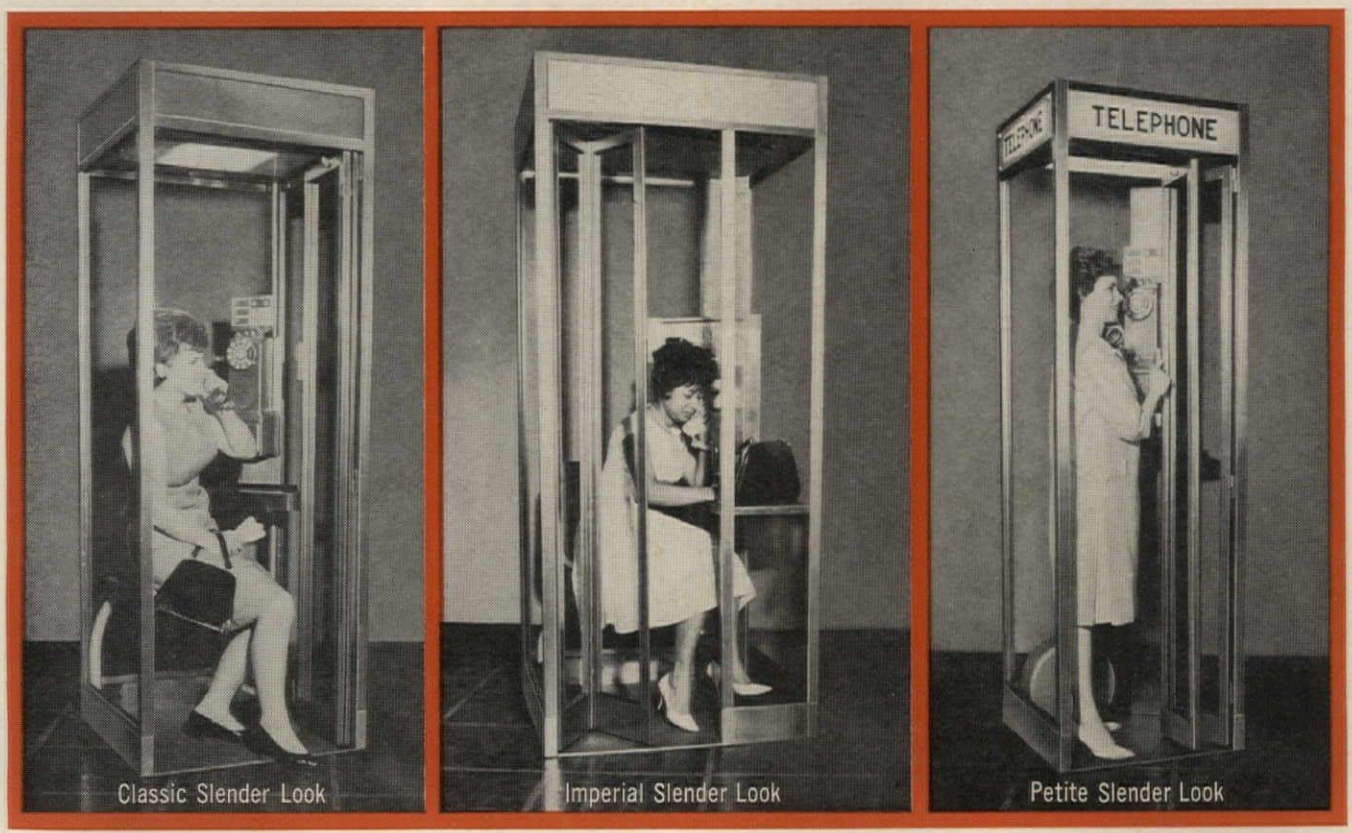
IN STRIP, BLOCK OR PATTERNED TYPES, NAILED, CLAMPED OR LAID IN MASTIC

For more data, circle 60 on Inquiry Card

The SLENDER Look

A new concept in stainless steel telephone booths to fit all size areas, in preferred locations . . .

by SHERRON



Classic Slender Look

Imperial Slender Look

Petite Slender Look

First thing you think of when you see a Sherron "Slender Look" booth is—elegance. Trim of line, it has a more open, brighter, all-glass appearance. An illusion heightened by its slim, gleaming stainless steel structural members.

The "Classic" model (30" x 30" base) is available with a designed-for-comfort seat.

The generously sized "Imperial" model (36" x 36" base) is equipped with a swivel-type bucket seat and features a full-length writing shelf.

The "Petite" model (26" x 26" base) is especially suited to niches too narrow to accommodate other fully-enclosed, full-service phone booths.

All "Slender Look" booths feature improved panel fluorescent lighting and dual fan ventilation.

All can be installed singly or in multiple groups, free standing or recessed.

There's a Sherron booth for every location and budget, available in bronze, stainless steel, or cold rolled steel.

SEE OUR CATALOG IN SWEET'S

INDEPENDENT

Sherron ACOUSTIC SEE-THRU STEEL—STAINLESS STEEL OUTDOOR AND INDOOR TELEPHONE BOOTHS

SHERRON METALLIC CORPORATION

1201 FLUSHING AVENUE, BROOKLYN, NEW YORK 11237 / Phone: 212 HYacinth 7-2820

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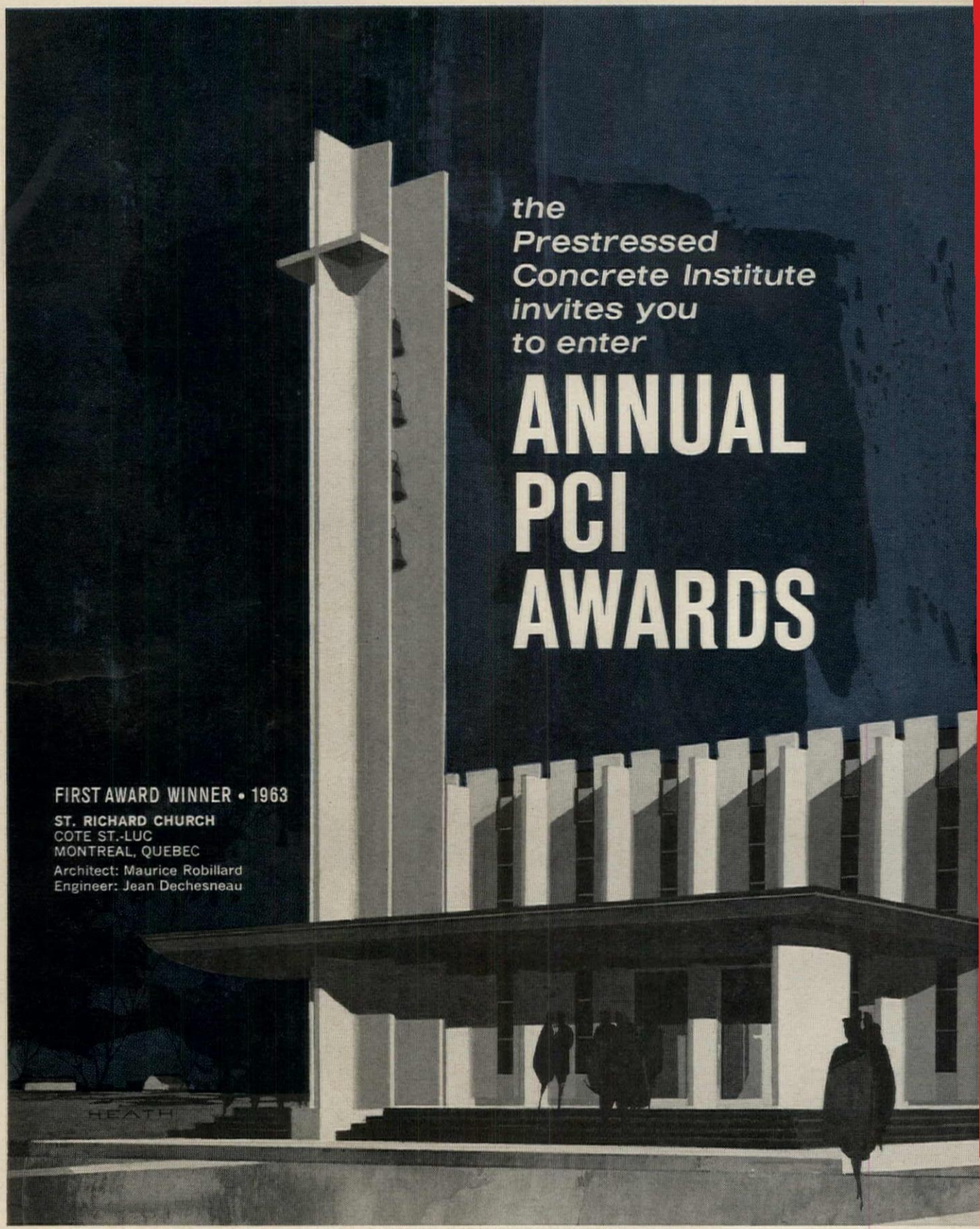

These PCI Active Members will be glad to give you copies of the PCI Awards Rule Book and full details:

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Purpose of the PCI Annual Awards program is to recognize creative design using prestressed concrete.

Any type of structure may be entered no matter what its size or cost. Entries will be judged on their contribution to the advancement of prestressed concrete. Originality demonstrated in architectural and/or engineering design involving applications or techniques of assembly, arrangement or use will form the basis of judgement. Any prestressed concrete project completed within the last three years, or substantially completed by March 31, 1964 is qualified for entry. Award Jurors will be nationally recognized architects and engineers.

Eligibility: All registered architects and engineers practicing professionally in the United States, its possessions and Canada are eligible to submit one or more entries.

First Award winner will be presented with a plaque testifying to the value of his contribution. An all expense paid trip for two will be provided so the winner may attend the PCI Convention in Washington, D.C., September 20 to 25 during which award ceremonies will be held. Other distinguished entries will be recognized with *Award of Merit* plaques.

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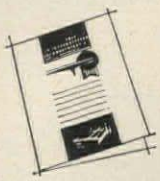
Get full details about the PCI Annual Awards program from your nearest PCI Active Member (see list below) or send in the coupon for your copy of the PCI Awards Rule Book.



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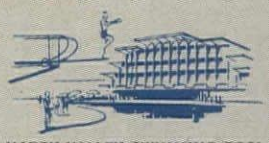

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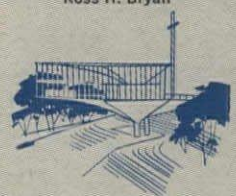

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Required Reading

continued from page 92

balming of social tradition (at-homes, private balls) and of its architectural heritage (paid admissions, guided tours), Newport retains, and increases, its vitality (Navy base, nubile debutantes, summer White House, Jazz Festival).

Miss Sirkis has depicted the life of Newport in a courteous text, befitting her youth, and rather sardonic photographs, befitting her talent. And while only a few of her photographs are strictly architectural, architecture has a way of pervading them as it does the life of Newport.

City and Country

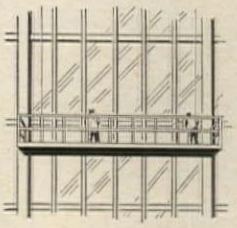
A PLACE TO LIVE. *The Yearbook of Agriculture 1963. The United States Department of Agriculture, Washington, D.C.; distributed by the Superintendent of Documents, Washington, D.C., 20402. 584 pp., illus. $3.*

Rounding out this sampling of books concerned with the problems of the city, this one is from an unlikely source: the U.S. Department of Agriculture. If anyone, apart from a few recalcitrant legislators, should still deprecate the urgency of urban problems, this interesting collection of articles should disabuse him.

To cite some of the circumstances noted here: when only a third of our population lives in rural areas, and less than a quarter of that third lives on farms, and only a fraction of *that* fraction derives its income solely from agriculture; when the country relies on the city for products, "culture," and employment (part- or full-time); when the city makes increasing demands on the country's land and water resources; and when the suburbs confuse entirely the traditional patterns of both urban and rural life and government, it becomes apparent—if, to repeat, anyone had doubted it—that urbanization is a truly national concern.

Besides articles on land use planning, in city, country and suburb, and on the impact of urbanization on government, education, religion, health and the aging, the collection also includes several articles on land use planning abroad.

HOW THEY'LL CLEAN 8⅓ ACRES OF GLASS IN DALLAS



They'll use a Turnbull Elevator Power Scaffold to service the 362,900 square feet (8⅓ acres) of external glass surface on the imposing new 50 story First National Bank in Dallas Building.

Turnbull Elevator Power Scaffolds are completely equipped and engineered to deliver maintenance staff safely and quickly to any point on the building.

High rise or low rise buildings, Turnbull Elevator Power Scaffolds can cut outside wall maintenance problems to a minimum.

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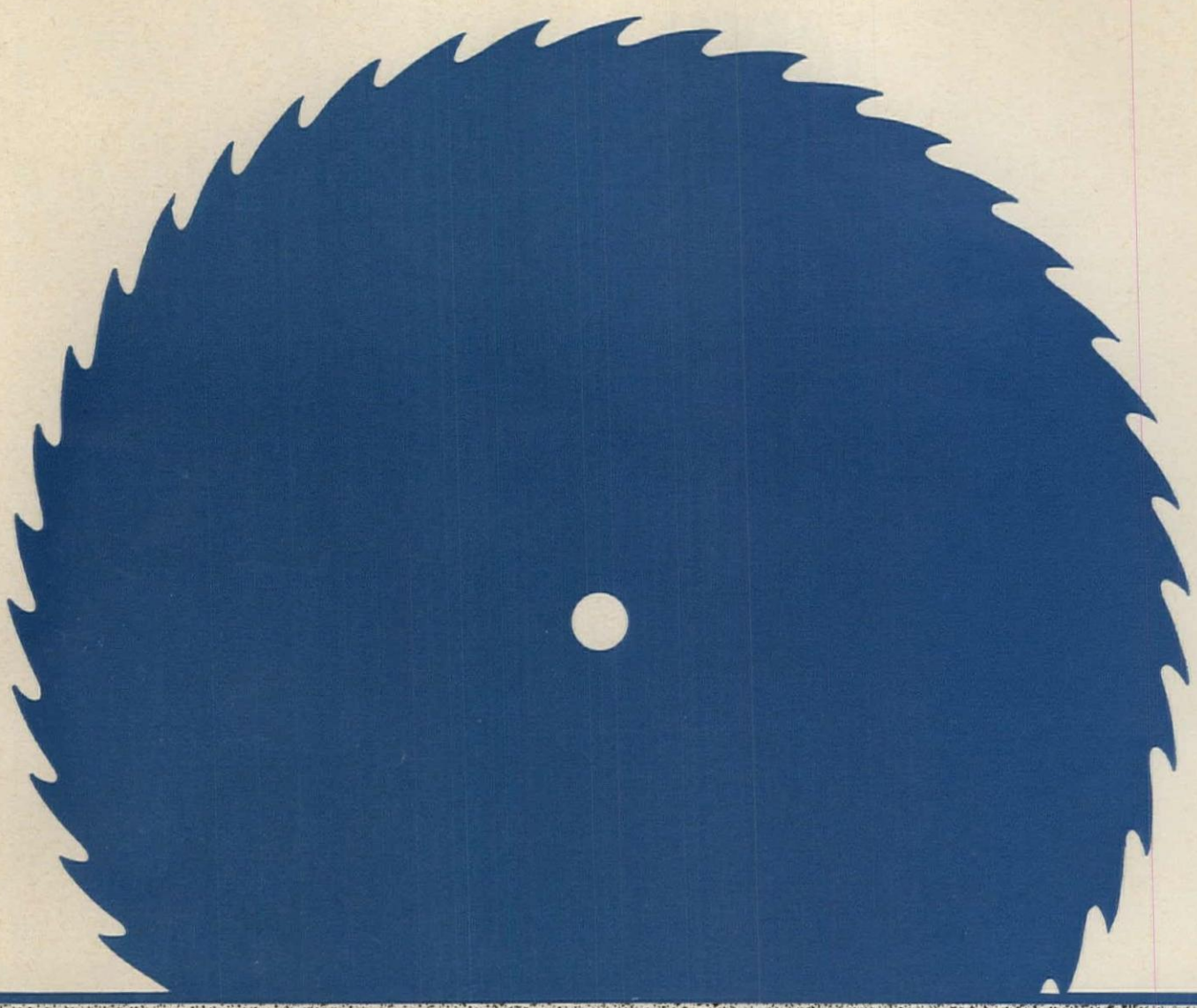

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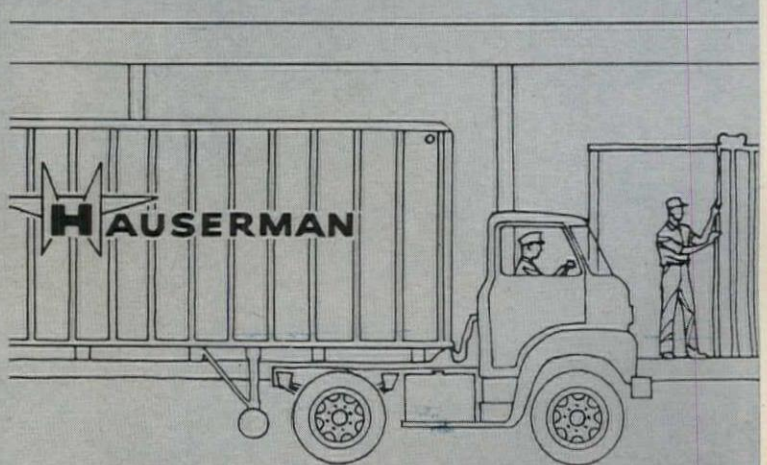

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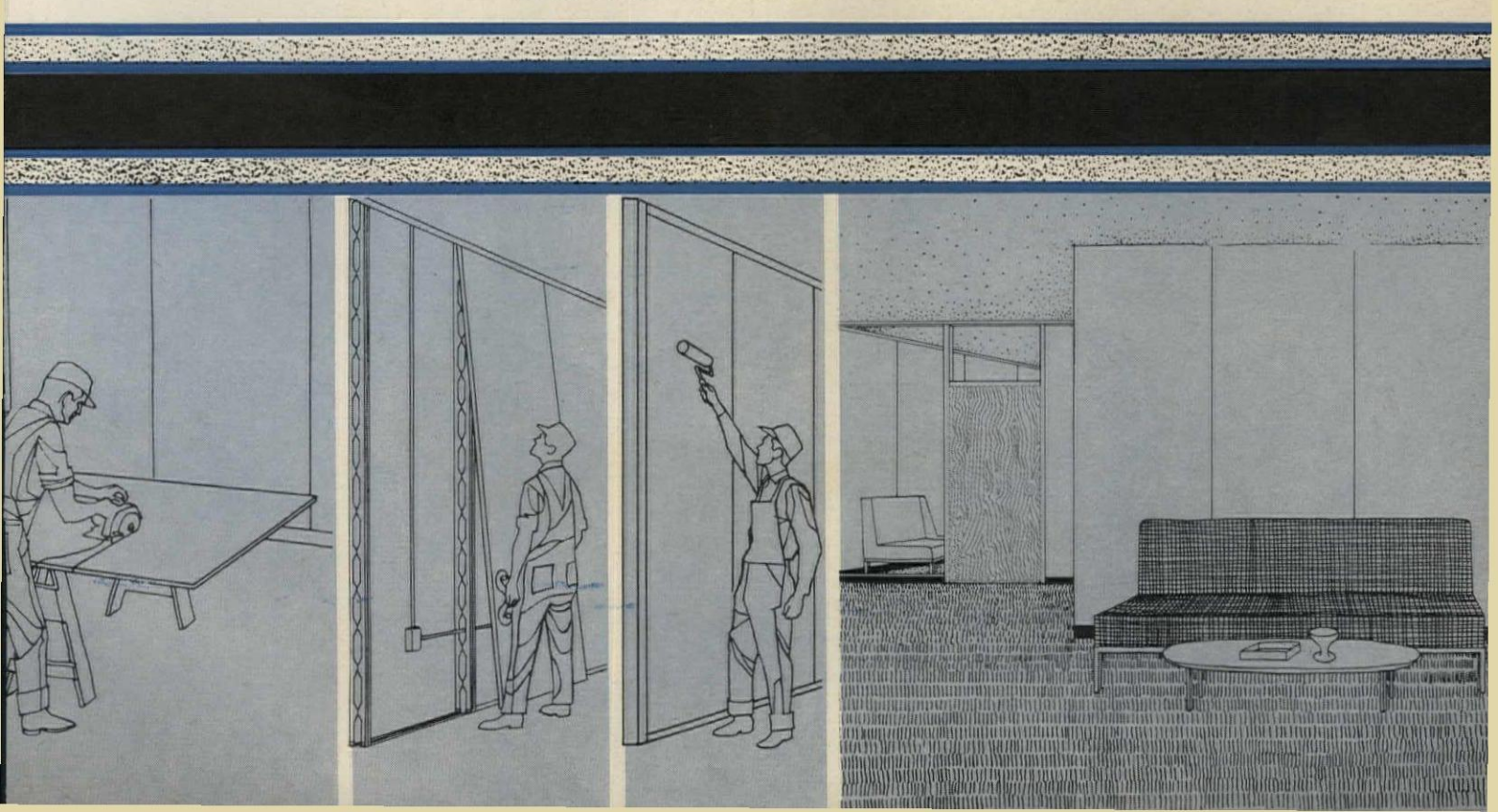
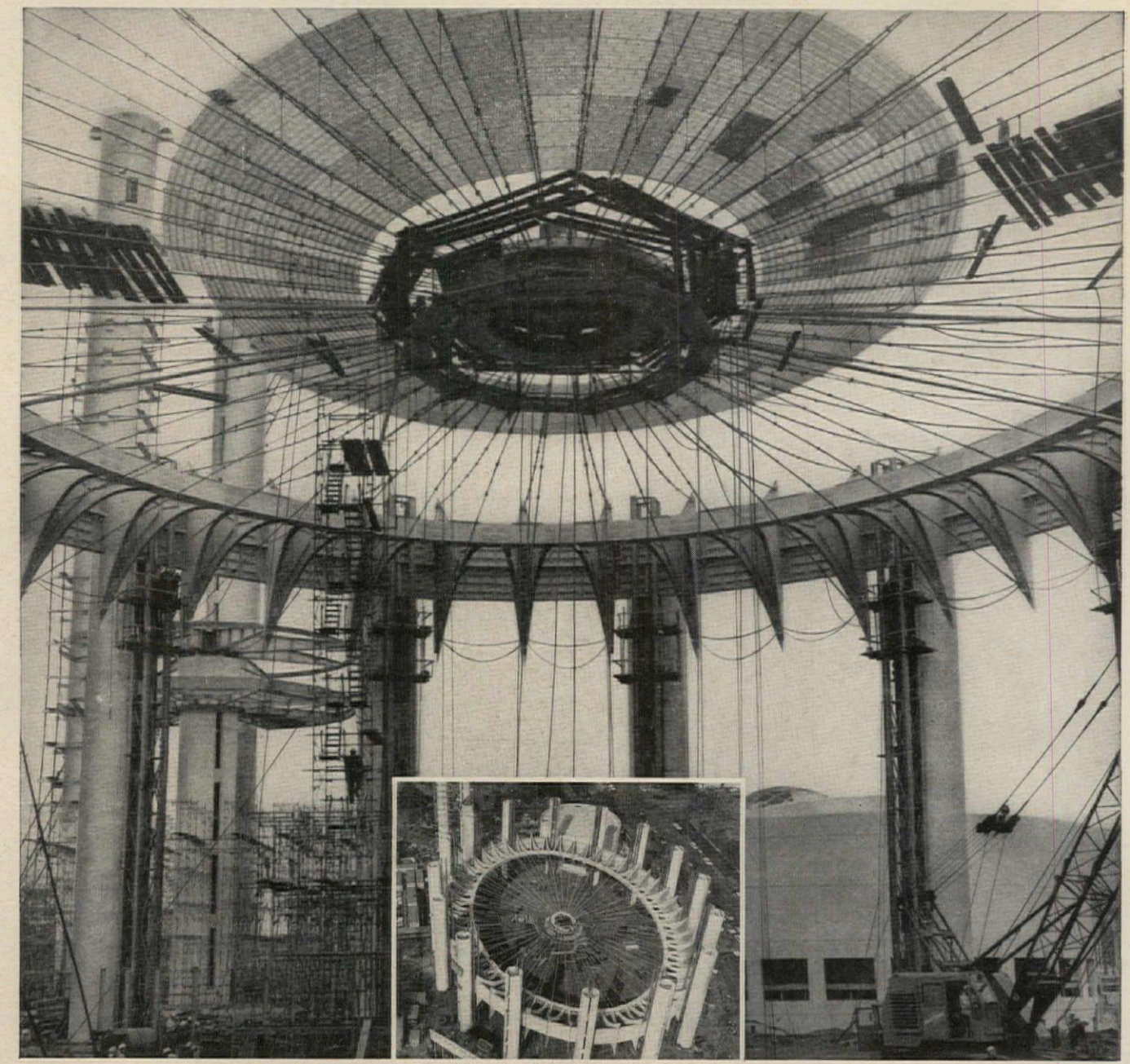


Architect: **Philip Johnson Associates;** Consulting Engineer: **Lev Zetlin & Associates;** General Contractor: **Thompson-Starrett Construction Co., Inc.;** Steel Fabricator and Erector: **The Ingalls Iron Works Co.** Construction supervised by **New York State Dept. of Public Works, Division of Architecture.**



NEW YORK STATE RAISES THE ROOF

Largest suspended roof in the World crowns N. Y. State pavilion at World's Fair. Named the "Tent of Tomorrow," this dramatic structure embodies a significant number of engineering advances. The 55,000 sq. ft. (350 ft. by 250 ft.) oval suspended roof, hydraulically raised to final 100 ft. high position, uses 96 Roebling-built suspension cables and provides an obstruction-free area. Its weight, 9 lbs. per sq. ft., is 71 lbs. per sq. ft. lighter than conventional steel construction, resulting in lighter and more economical foundation requirements.

Of primary interest is the construction feature that eliminates temporary scaffolding. This is made possible because of the lightness of the cables; they can be easily strung over large areas without temporary supports.

The above are but a few of the advantages that are inherent in the suspended roof. As an early advocate of suspended roof construction, Roebling has accumulated valuable data and experience on design and procedures. We welcome inquiries of any nature on suspended roof construction, whether it relates to plants, warehouses, auditoriums, arenas, transportation terminals, or other types of installations. Just write or call Colorado Fuel & Iron Corporation, Roebling Bridge Div., Trenton 2, N. J.

CF&I STEEL **ROEBLING**
CABLE-SUPPORTED STRUCTURES

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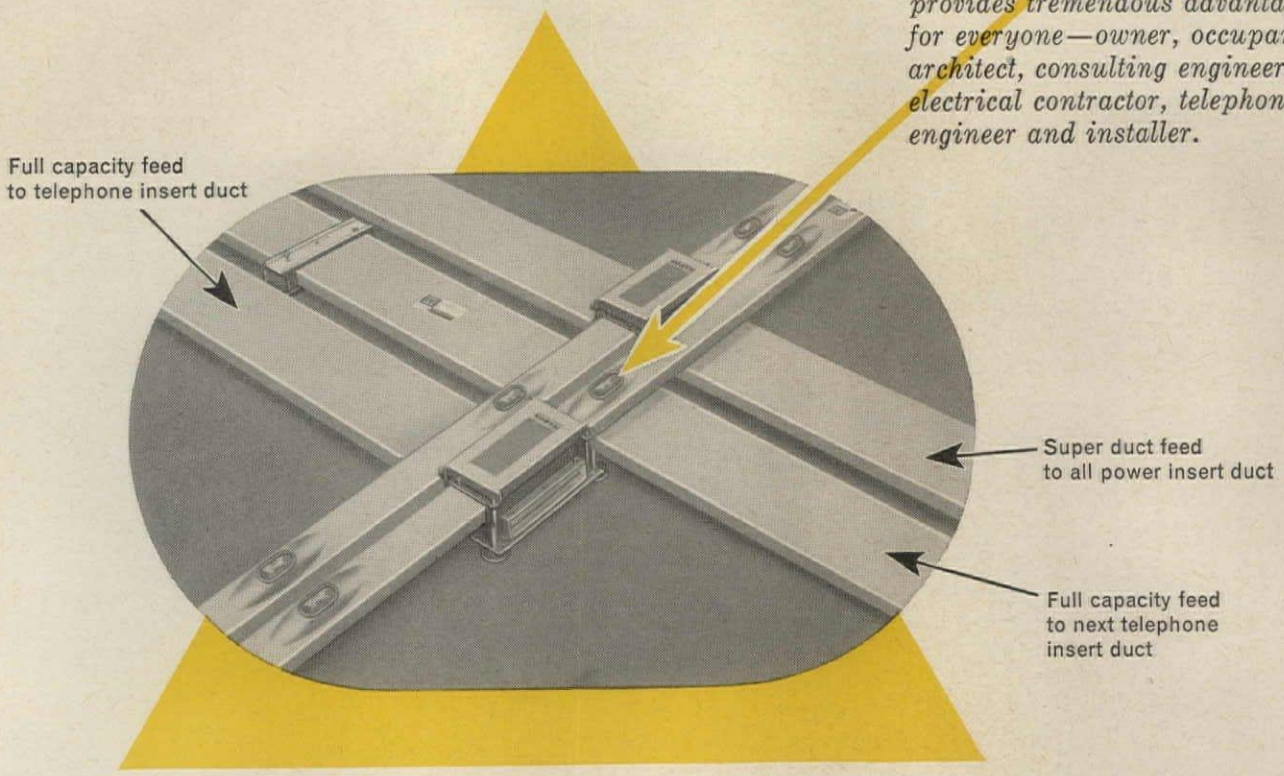

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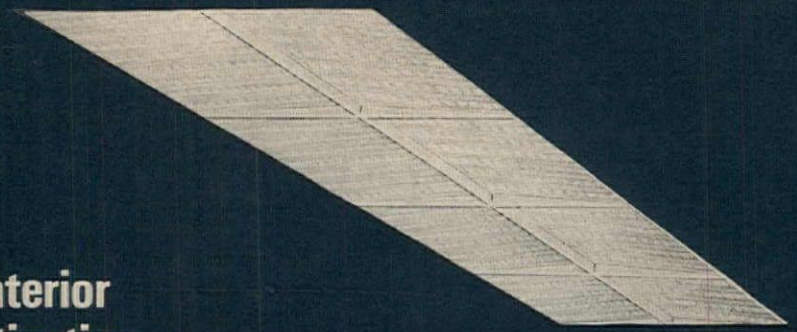

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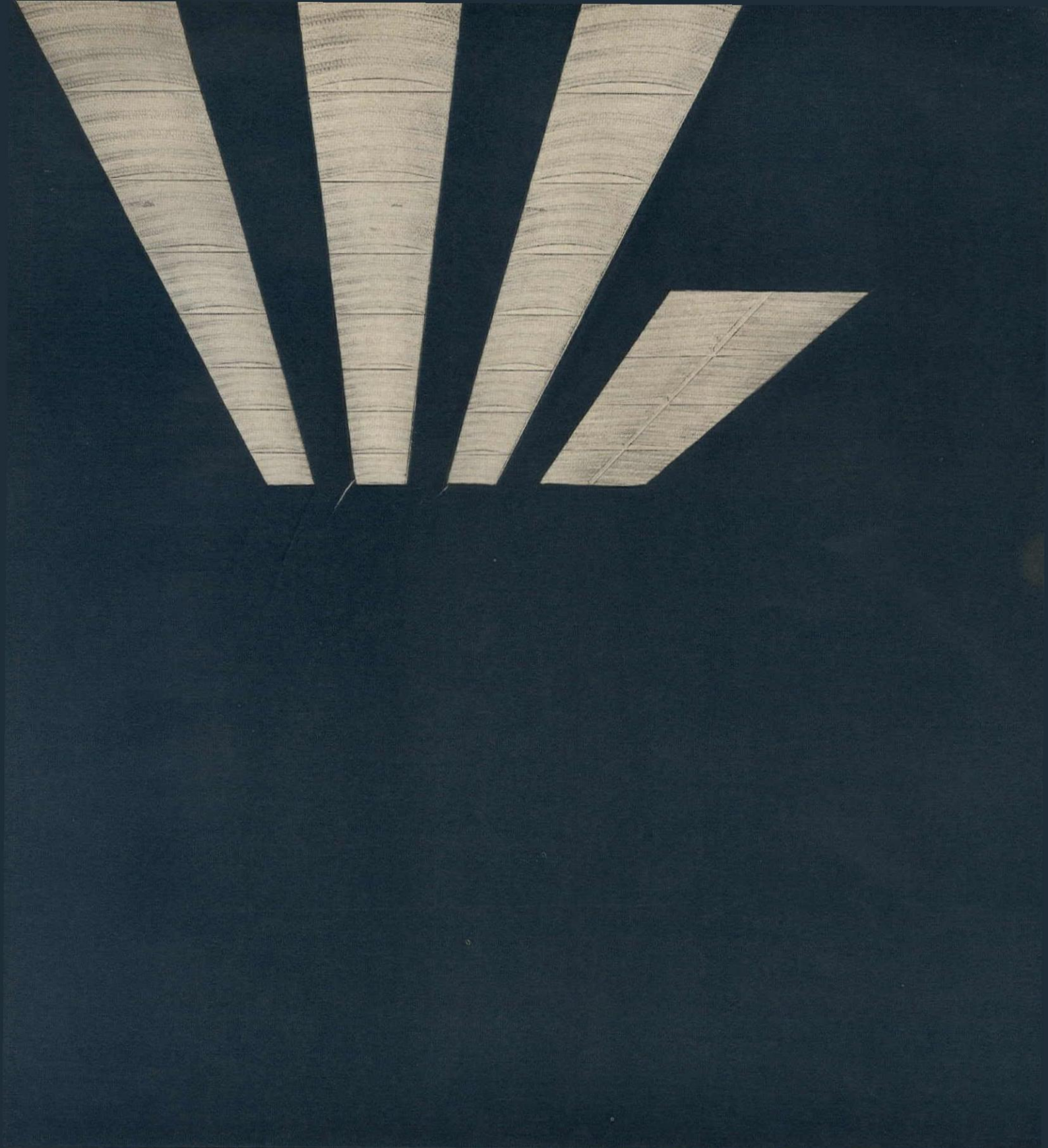

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You will find our photo portfolio definitely worthy of your interest. It contains a wide variety of exciting full-color photographs of new interiors using our regressed CONTROLENS. Perhaps it may help you in planning your next lighting project.

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UUR 990

Trenridge Apartments, Lincoln, Nebraska. Architects: Sidney W. Campbell and Reginald E. Davies.

Creative use of Andersen Windows accents entry design of 126-unit apartment complex

Stock window units, proportioned in a two-story panel, combine beauty, comfort and dependability

In the new Trenridge Apartments, Lincoln, Nebraska, combination Andersen casement and picture windows are used to complement distinctive styling while adding extra value for owner and occupants.

For the owner, these extra-weathertight windows (more than 3 times industry standards) will mean significant savings in heating and cooling costs . . . and lasting tenant satisfaction. And occupants will like the way Andersen wood windows provide weathertight comfort the year around. (The entire project is equipped with Welded Insulating Glass.)

Andersen's complete line of windows offers maximum design flexibility for your next light construction project. There are 7 kinds of windows, 30 different types, and more than 600 cataloged sizes.

Check Sweet's File or write for Detail catalog and Tracing detail files. Andersen Windows are available from lumber and millwork dealers throughout the United States and Canada.

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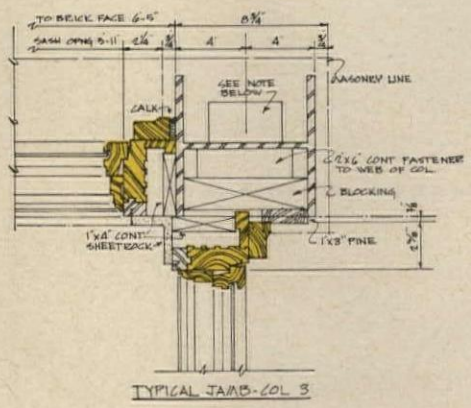
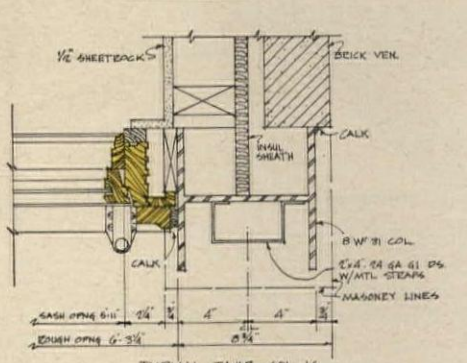
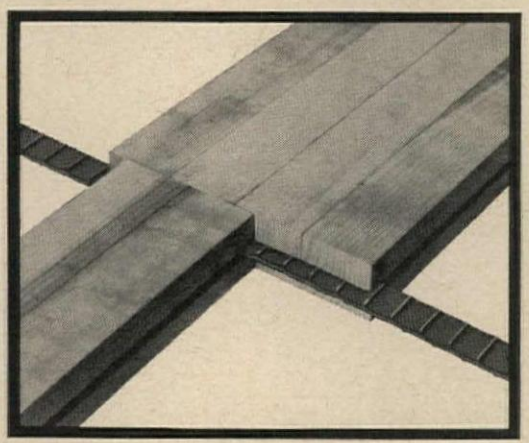


TYPICAL JAMB-COL 3



TYPICAL JAMB-COL 16

ROBBINS Ironbound* CONTINUOUS STRIP MAPLE FLOOR



Ironbound Continuous Strip Floor consists of individual flooring strips interlocked with steel splines and embedded in mastic. Result: unexcelled uniformity in smoothness and resilience. An underlayment of ½" cork gives extra resilience. Treatment with Woodlife preservative optional.

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In recreational and industrial buildings and many other areas, Robbins IRONBOUND is the most satisfactory of all floors for these reasons: Precision-milled from edge-grain Northern Hard Maple for maximum durability. Laid in mastic over concrete for uniform resiliency. Installed by expert, franchised floor contractors with guarantee backed by Robbins to assure complete satisfaction. From coast to coast, Robbins IRONBOUND Floors are giving trouble-free service in gymnasiums, auditoriums, industrial and institutional buildings with exacting floor requirements. For detailed data and the name of the nearest authorized installer, write: Robbins Flooring Company, Dept. AR 2-64, White Lake, Wisconsin.

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SUBSIDIARY OF E. L. BRUCE CO., MEMPHIS, TENN.

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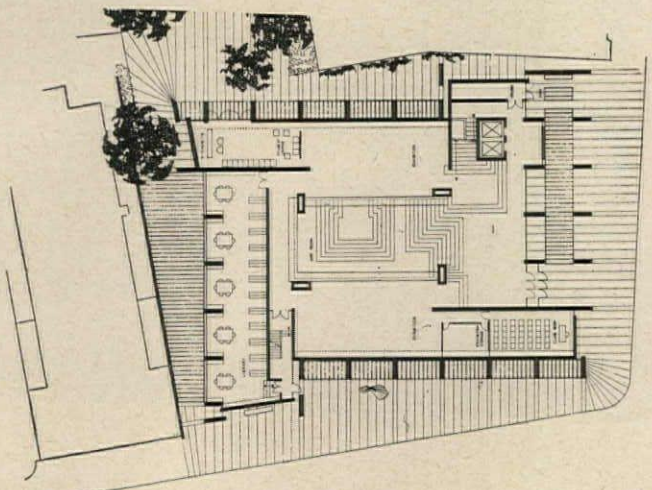
Joseph W. Molitor photos

1. View from Chapel Street

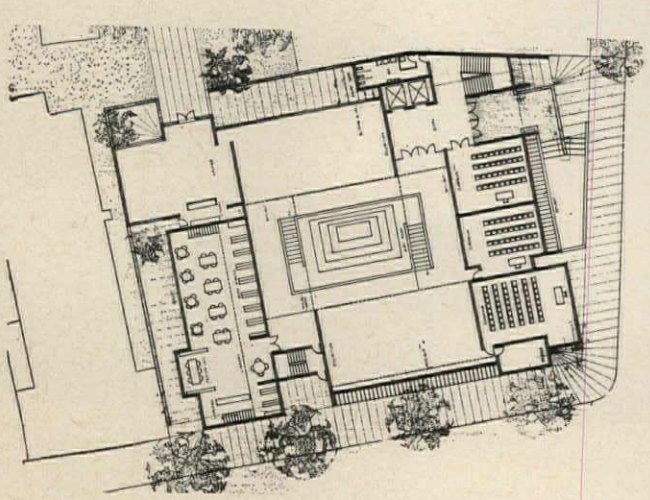
A School for the Arts at Yale

The Art & Architecture Building has much to teach the young architects, painters and sculptors who work in it. Architect Paul Rudolph exercised unusual control over the building's program which he shaped in terms of his primary concern with problems of space and scale. In an interview with writer Jonathan Barnett, Rudolph discusses his approach to the design

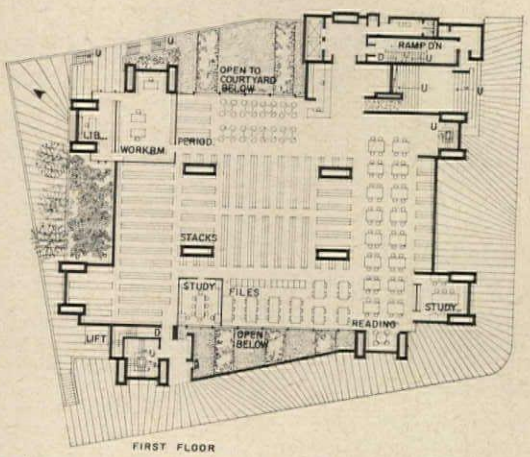
Corner at Chapel and York Streets



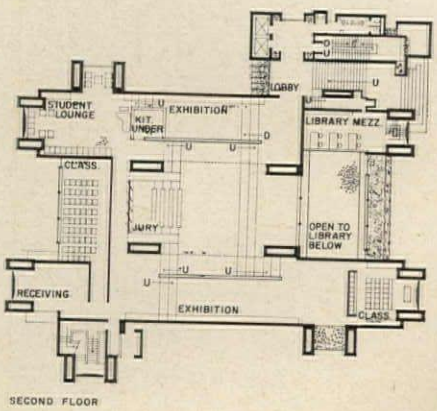
2. First stage of design.
Chapel Street at bottom of plan



3. Second stage of design



4. Final scheme at library level



5. Final scheme at main floor level

Art & Architecture Building, Yale University
New Haven, Connecticut

ARCHITECT: *Paul Rudolph*
STRUCTURAL ENGINEER: *Henry A. Pfisterer*
MECHANICAL ENGINEERS: *vanZelm, Heywood & Shadford*
GENERAL CONTRACTOR: *George B. H. Macomber Company*

Paul Rudolph's Yale Art & Architecture Building demonstrates that a monumental architectural character which, even in more romantic periods, was thought to be the exclusive property of a few special buildings, can be made a part of the experience of everyday life.

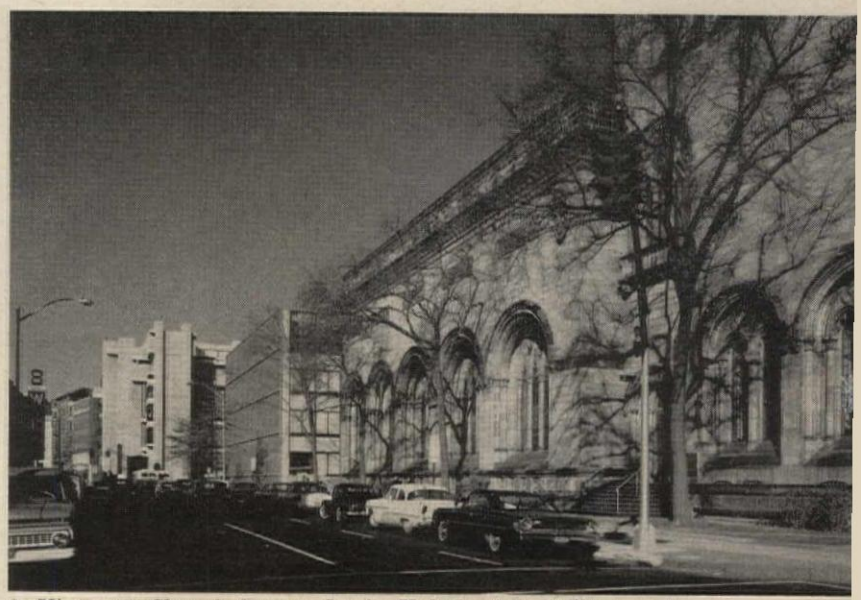
What was the primary, generating idea from which the building had started? "Well," said Rudolph, "there was always the notion that this was a building that turned the corner, that this was its role in the cityscape. This is an immensely difficult problem. For example, that bank in New York, the Manufacturer's Trust, has a similar site problem, but there the building is treated as if it were a pavilion, as if it were independent of its site. But two glass walls and two solid walls don't produce a pavilion; they produce a diagonal movement."

Because of this implied diagonal movement, Rudolph said he saw the walls of his building not simply as boundaries of the street, but as active participants in the streetscape, direction-forming elements that created a gateway to the campus. I asked him if he didn't think that his building was considerably more than a gateway; and if, in fact, it didn't rather subdue the Art Gallery by Louis Kahn which stands across the street from it.

Rudolph nodded: "I think the Kahn building is the perfect transition from one kind of architecture to another. If it were not for the understatement of his building, my own would not have been possible. That blank wall with those great lines on it leading, leading, leading, to what? I tried to recognize the role of Lou's building with my own, but I don't think he agrees with me about this." *(1)*

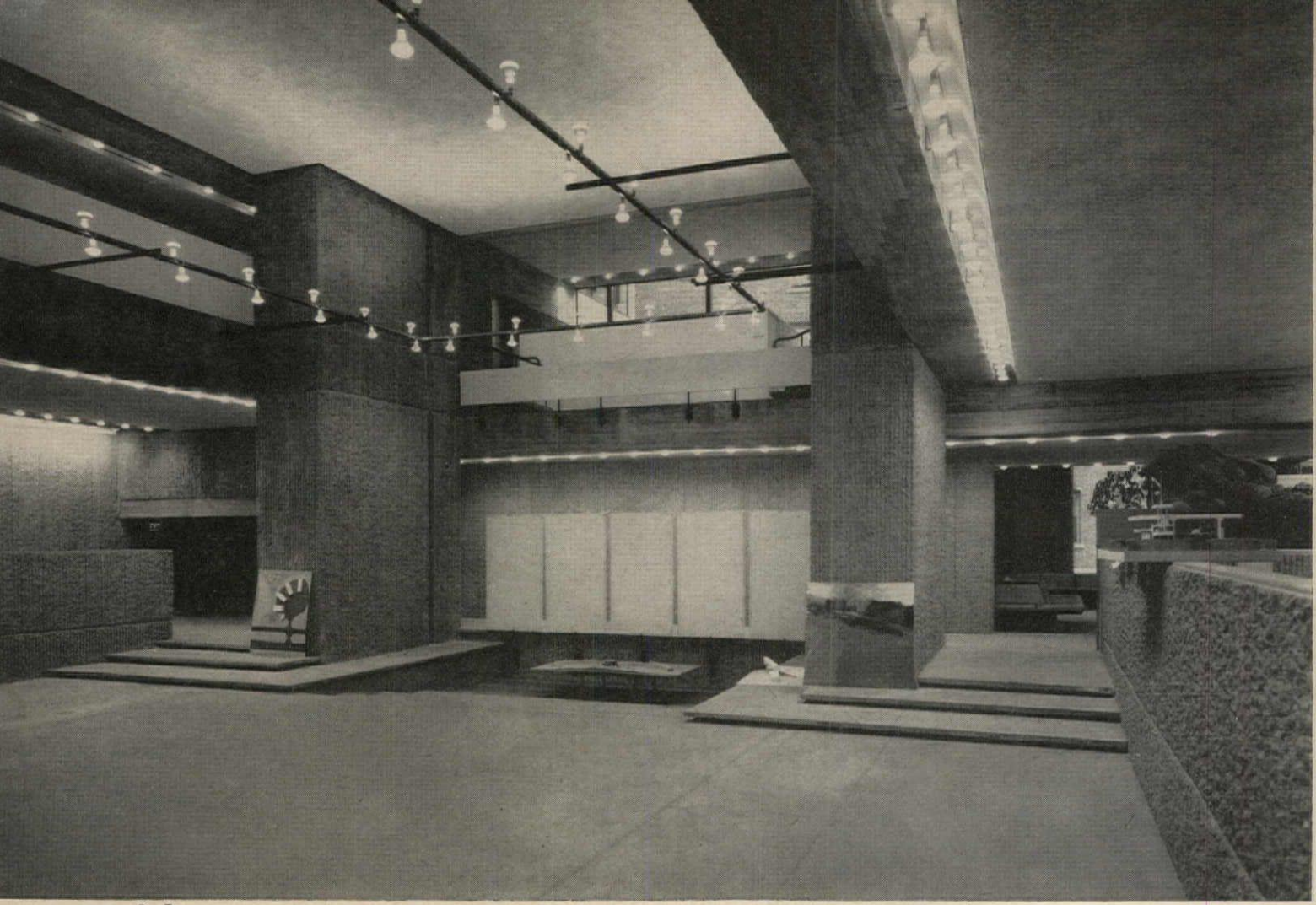
Rudolph suggested that we look at the presentation drawings for seven successive stages of the design, and at the innumerable intermediate studies, most of which seemed to have been drawn by Rudolph himself. He unrolled a large drawing showing the elevations of all the Yale buildings along Chapel Street, and pointed out that the main block of his building matched the height of the Art Gallery across the street, and that the tower portion corresponded to Bingham Hall on the other side of the campus.

"This probably doesn't mean anything really," he went on, "but one reason there are so many different levels in my building is that there are so many different heights around it. Actually, I wanted a building on several levels from the word 'go,' and it was



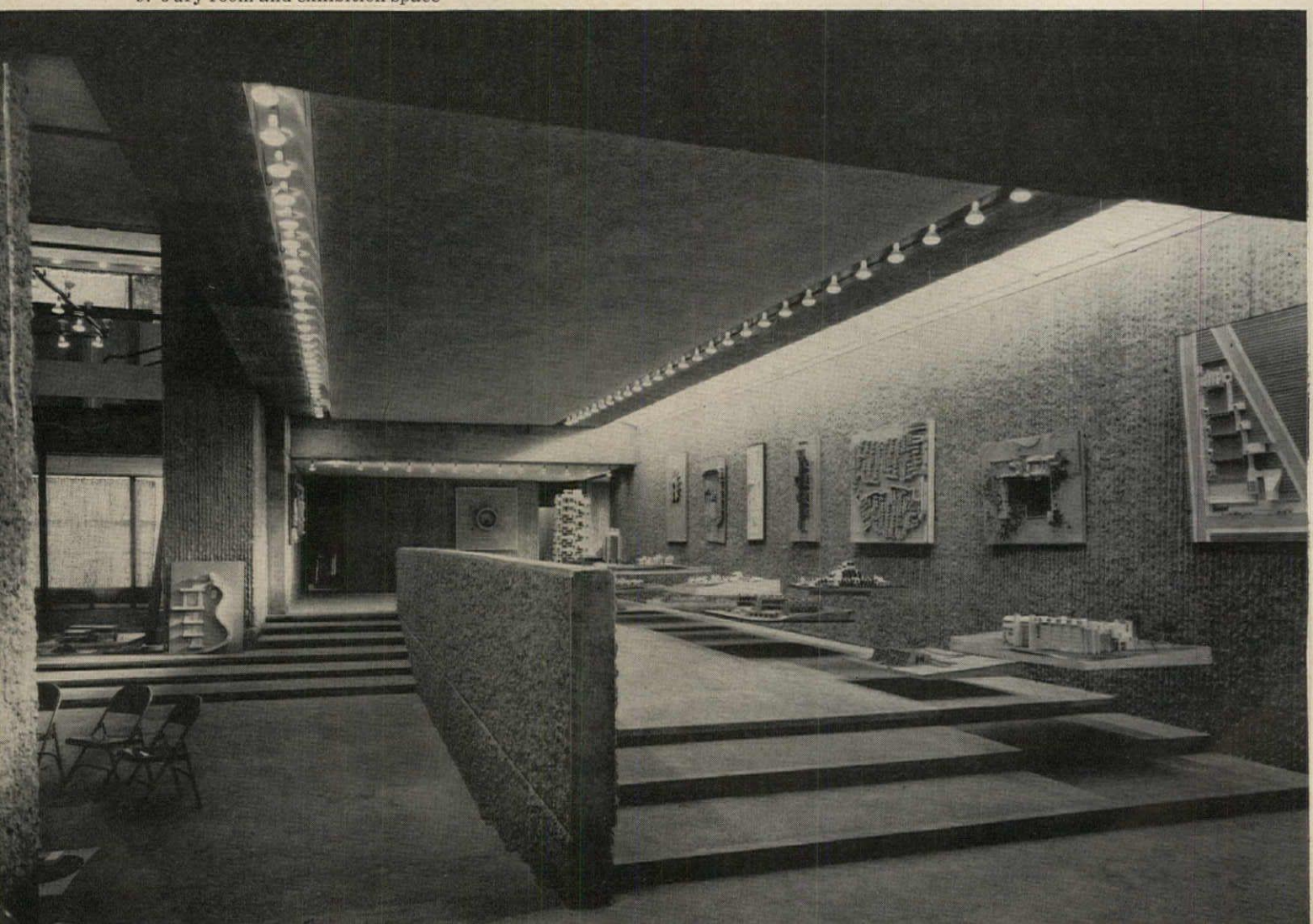
6. View up Chapel Street. Louis Kahn's Art Gallery and older Art Gallery are at right

7. Main entrance



8. Jury room

9. Jury room and exhibition space



the need to control the various levels that led me to make the large central spaces."

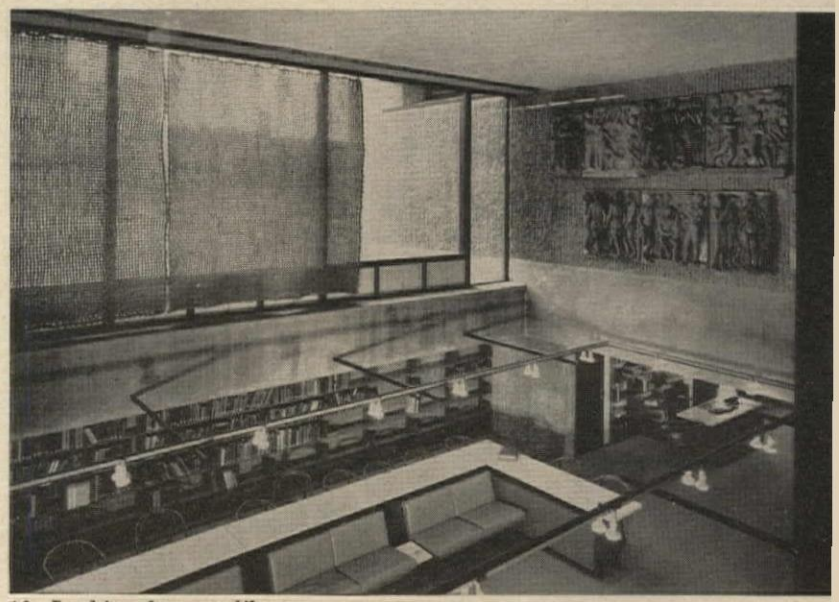
The different levels are grouped around the central spaces in a pinwheel form, that is, the building is composed of strips of peripheral area that Rudolph calls "trays" which lap over each other at their intersections. This overlapping embodies the diagonal movement that Rudolph felt to be the essence of the corner site, but it is a closed system that makes the placing of the entrance very difficult. As we looked through Rudolph's studies for the building, I could see that the basic concept had been established very early, and that most of the development was concerned with the placing of the entrance and the evolution of an appropriate exterior expression of the overlapping levels.

"I always felt that the entrance should not be right at the corner of Chapel Street. I was always very conscious of the importance of that corner, and wanted it to be as strong as possible." In the second stage of the design the entire building had been turned parallel with Chapel Street, pulling it away from the corner. "I got over that fairly quickly. I thought it would open up the space around the entrance, but it lost the other relationships." *(2, 3)*

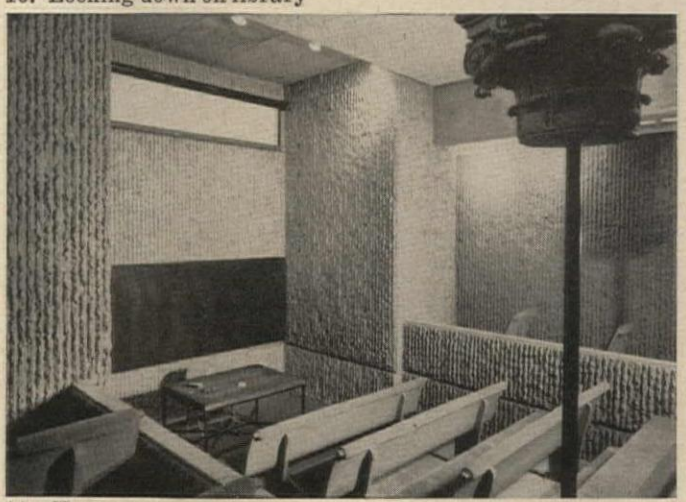
By the third scheme the entrance had settled into something closely approaching its final form, it and the main circulation tower had been pulled away from the pinwheel entirely and placed at the boundary of the site. The exterior expression, however, continued to go through many changes. *(4, 5)*

The columns do not go through the floor slabs but are placed alongside them, and the connection is effected through the reinforcing. I had heard a certain amount of discussion about the large number of bars that were needed to make this connection work, and I mentioned this to Rudolph. "If we were to do this over again," he replied, "I would make the column bite into the floor slabs, if only because of the factor of expense. The difficulty is that it would have enormously complicated the relationships inside." He paused for a moment. "Oh well," he went on, "there are a lot of things I am unhappy about in this building, but if the fluidity of walking through it comes off, if you really do experience the space the way I think you do, then I'll be satisfied."

As we left Rudolph's office and turned the corner onto Chapel Street, we came face to face with one of the most striking views of the Art & Architec-



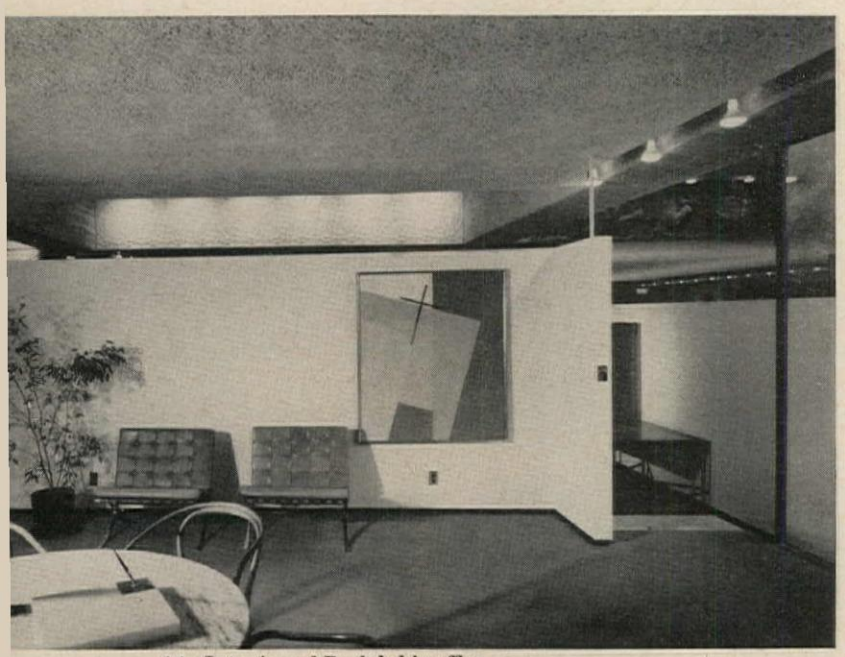
10. Looking down on library



11. Classroom

12. Lounge

13. Entrance to Rudolph's office



14. Interior of Rudolph's office

15. Conference room

ture Building, where a corner tower presents a terminus for the vista up this main shopping street. *(6)*

We crossed over at a point opposite the entrance. The entrance is a flight of stairs in a narrow defile between the building itself and the main elevator and circulation tower. At the main floor level it is completely open, that is, someone wishing to go to the elevator from the main floor must go outside and then in again. On the upper floors there are connecting links that form a solid concrete wall, a background for a Josef Albers relief in aluminum tubing.

Standing at the foot of the stairs we could see through the building. "This opening through the building, the view of the sky and trees beyond is very important," Rudolph said. "At one time I actually had glass bridges on the upper levels, which showed the articulation of the stair tower more clearly. But I think making them solid was right."

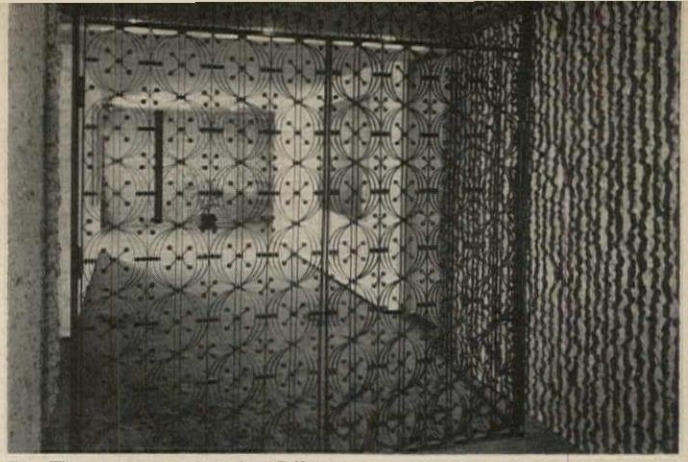
As we walked up the stairs, Rudolph pointed to the piers that partially divide them. "The nature of the entry is such," he said, "that I felt I could let the columns protrude into it. The two supports on opposite sides create a diagonal movement." *(7)*

Just inside the main entrance we found ourselves on the diagonal of a large two-story space suffused with soft, reflected light. Balconies housing faculty offices ran around the periphery and in the center was a shallow amphitheatre which is used for formal juries. *(8, 9)*

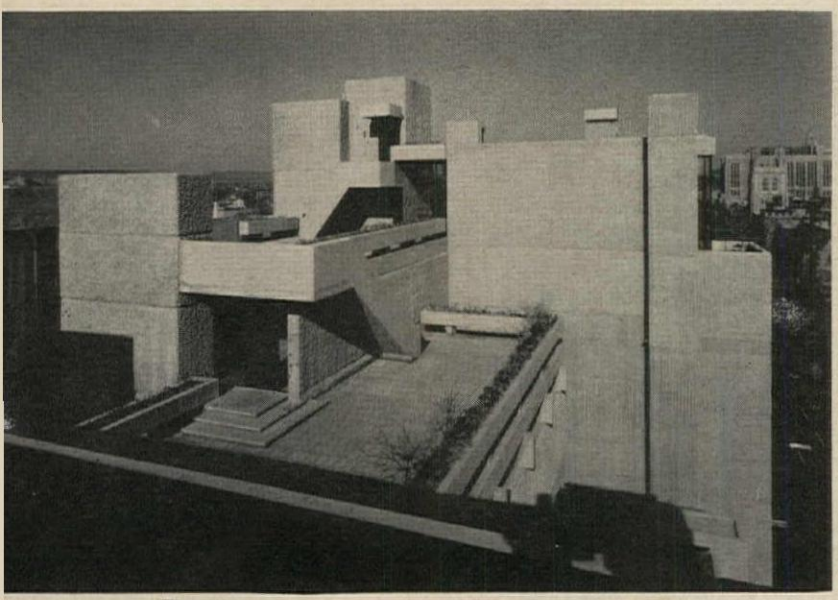
"The notion that the center of the school should be the jury room has come in for a certain amount of criticism," Rudolph said, "but I wanted to attract as many people as possible into this space. Presumably the painters will use it for juries as well as the architects, but they seem to be terrified of it." We walked along one side of the room which looks down into the Art Library through large glass panes. "I wanted the life of the library to come into this space, too." *(10)*

We entered a small classroom in the extreme corner of the building. "There are a lot of spaces in the building I don't like, but this happens to be one of my favorites. The notion was to create a bowl, an intimate space where everyone could see everyone. You can seat 32 people in here. I might add that this is also one of the most effective areas in terms of the lighting." We went back across the main room to a space diagonally opposite the classroom. "This is the student lounge, which I have placed

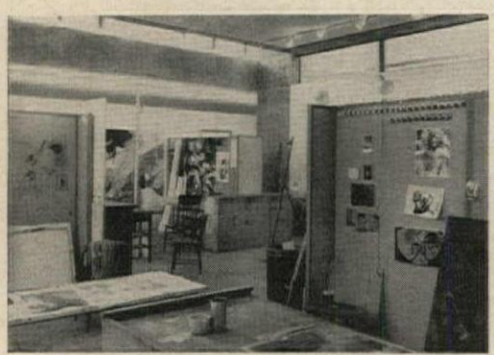
16. Architectural drafting room



20. Entrance gate to Art Library

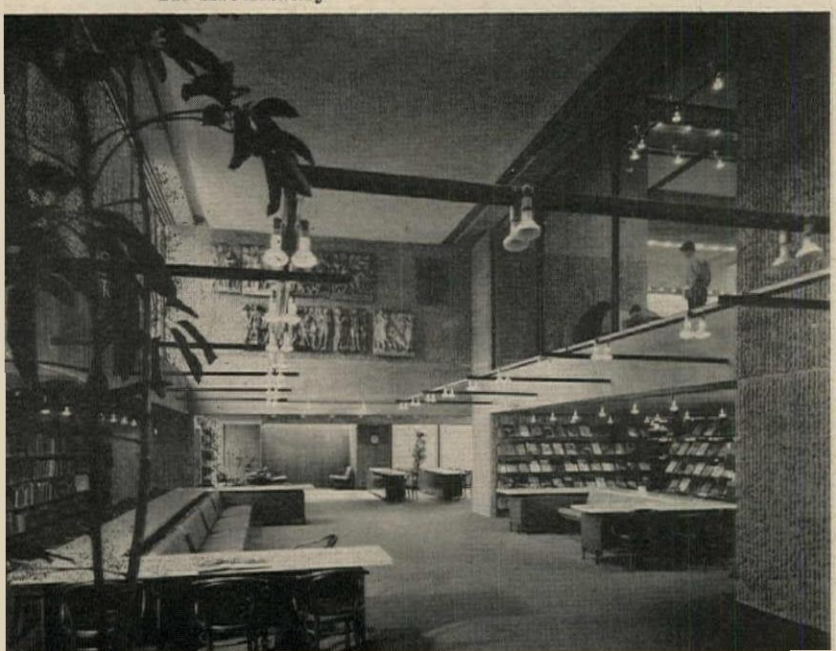


Terraces



17. Painting Studio

21. Art Library



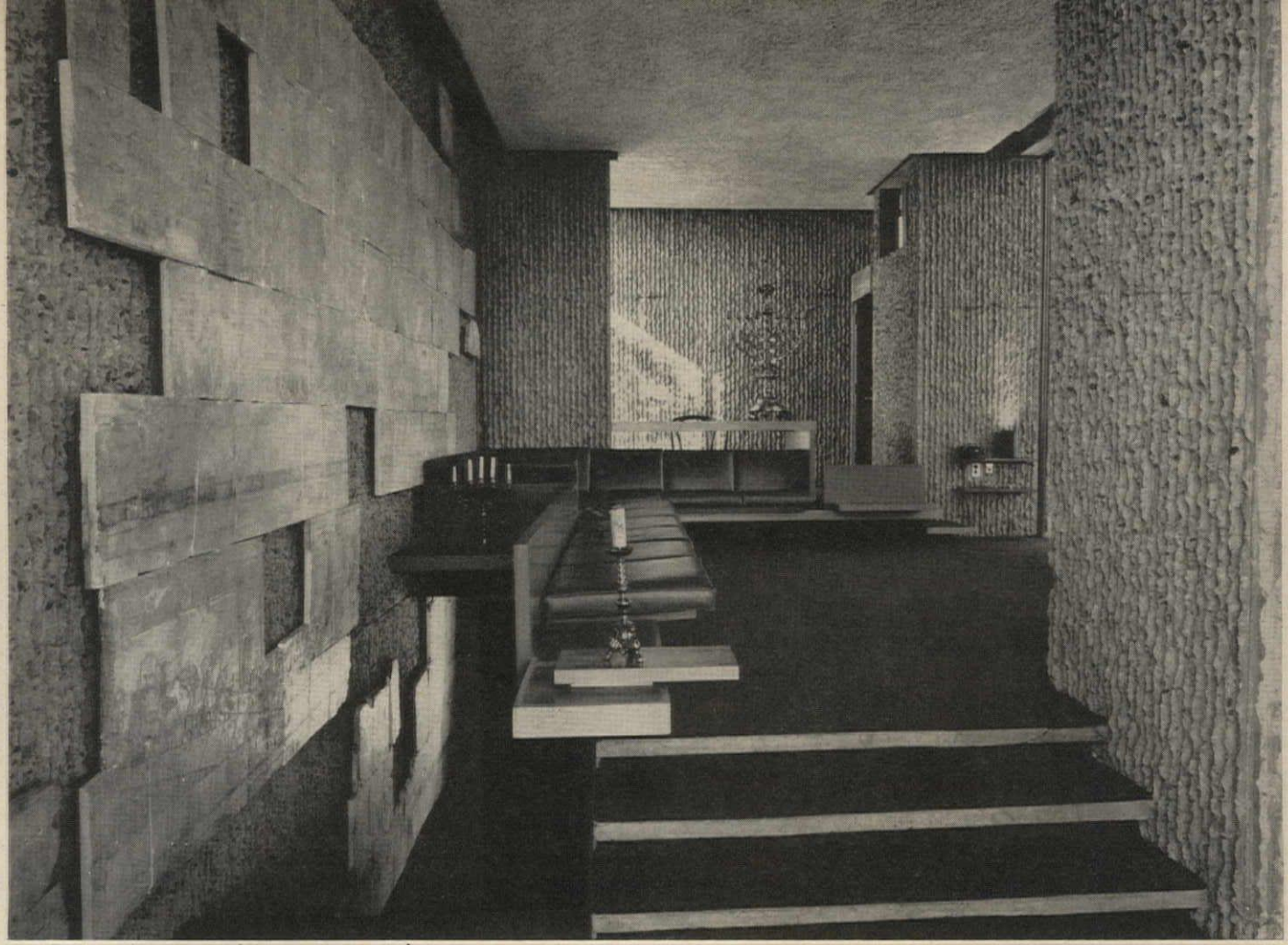
here as another way to bring people to the central area." *(11, 12)* We climbed a stair to the balconies and went on into the office Rudolph occupies as chairman of the department of architecture. "You will notice it is as far from the conference room as possible," he said. "It is three steps up, which is authoritarian, but there is no door, which is democratic: an ambivalent relationship." *(13)*

From Rudolph's office, across a low partition, one can see a band of ornament from Sullivan's Garrick Theater. It looks entirely at home. "The vistas through this building are very important," he said, "and everywhere, everywhere, everywhere, there should be something to see. In addition to the Sullivan ornament, I have over 200 plaster casts which I dug out of the bowels of Yale. When Gropius came to Harvard, he threw out all the plaster casts. Now we are bringing them back again." *(14)*

On the balcony overlooking the conference room *(15)*, I confessed that I had become thoroughly disoriented. Rudolph seemed surprised. He said that he had hoped that constant reference to a central space would keep people aware of their direction. "Of course, this building is not designed for the visitor," he went on, "and I do not think that a loft-type space is appropriate for everything. In this building there has been an effort to purposefully form the space."

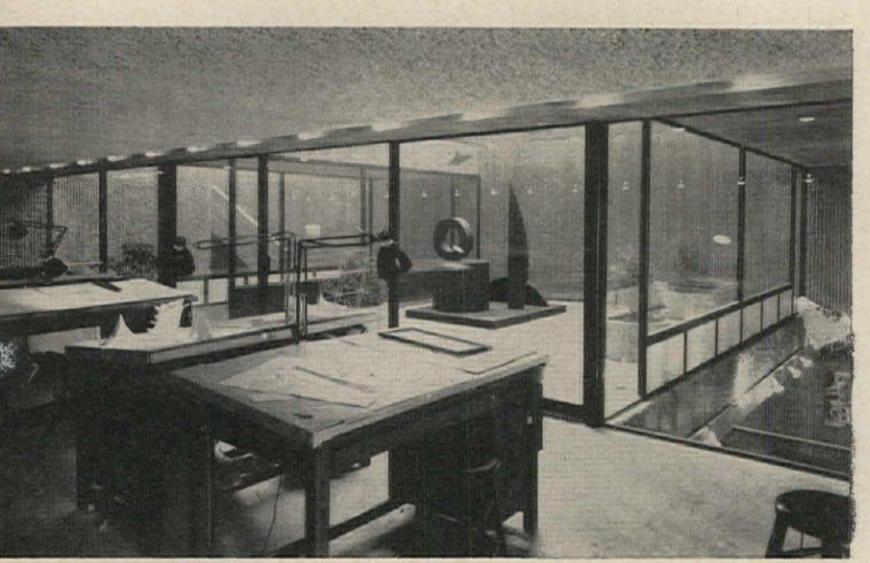
I remarked that not everyone would have given a classroom and studio building such a monumental treatment. "I do not regard this building as monumental," he said. "I think of it as being very human. I'm afraid that I would rather see most buildings without people in them, but really this is one building which seems to me to look better with people.

We went on up to the architectural drafting room, which is another two-story space with balconies around the periphery, the height increased even further by two large light-shafts that are skylit at the top. Whether or not one uses the word "monumental," it is surely one of the most noble spaces ever designed as an architectural drafting room. It contains within it a tremendous range of architectural experience, from the highly compressed spaces on the balconies, where the ceiling can't be more than 7 feet high, to the area under one of the light-shafts, where it is a full four stories to the skylight on the roof. Le Corbusier's Modulor snakes its way up one of the walls, the Modulor Man is inscribed in one corner, and Da Vinci's Vitruvian man in another. *(16)*

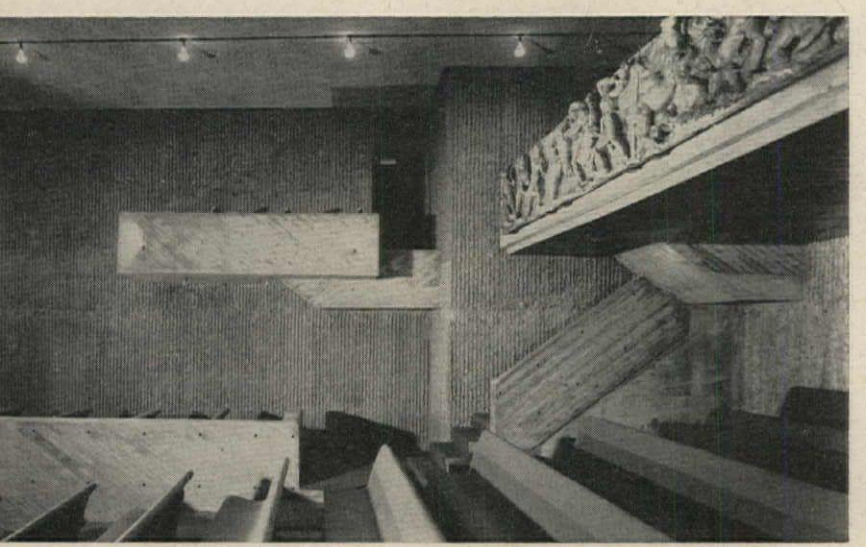


18. Guest suite as seen from entrance stairs

19. Guest suite

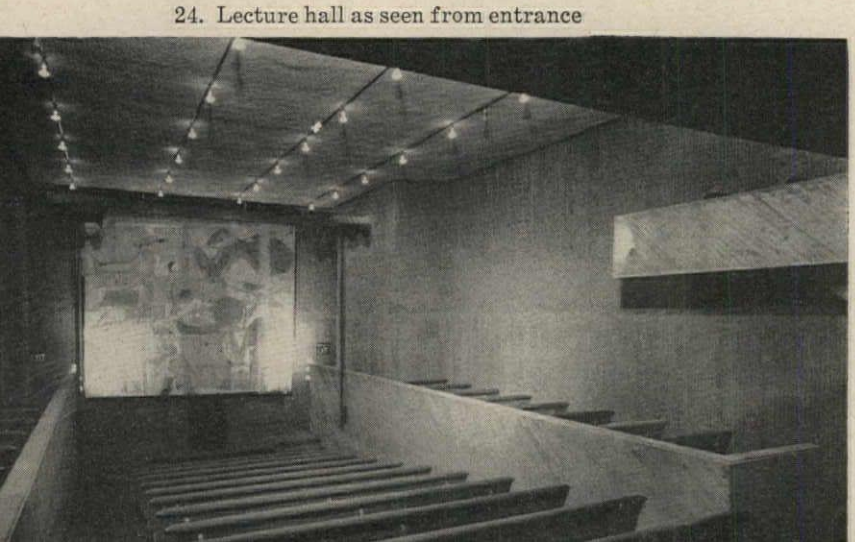


22. Graphic Arts drafting room



23. Lecture hall rear

24. Lecture hall as seen from entrance



In the painting studios on the floor above, however, the effect was entirely different. The painters seemed to have declared war on the building. The cargo netting on the great south windows had thrown impossibly distracting shadows; so it had been torn down and replaced with any old rag that came to hand, while the new curtains were on order. Each painter, jealous of his privacy, had surrounded his own area with partitions. Rudolph surveyed the result sadly.

"This is certainly complete chaos," he said. "I had envisaged that everything should go on in a free-flowing space. But the idea of privacy seems to be of the utmost importance. Architecture is very difficult." In earlier stages of the design, the painting studios had been grouped in such a way that they all received north light. Apparently in the final result other considerations became more important. *(17)*

We went on to the guest suite at the very top of the building, very elegant with its orange carpet, leather benches, and plaster casts of Egyptian wall paintings. Then down the main stairwell, past more plaster casts, to the Art Library on the ground floor. At the entrance to the library is a delicate, wrought-iron gate from Sullivan's Garrick Theater.

The Art Library itself is another very successful room, flooded with light, although the main windows are high on the wall. I commented on this, and Rudolph replied that it was precisely because the light came from the top that there was so much. *(18, 19, 20, 21)*

After the library, the rest of the tour seemed something of an anticlimax. The space devoted to the sculptors and graphic artists appeared perfectly adequate, and many of the rooms are cleverly lit by deep light wells; but they are disappointing in comparison with the charm of the Art Library or the noble proportions of the architectural drafting room. An exception is the lecture hall. It is very long and narrow, but broken up by an ingenious arrangement of balconies. *(22, 23, 24)*

As we walked back up the stairs, I remarked that the building was bound to cause a great deal of discussion and controversy within the profession. "I can understand people having reservations about this building," Rudolph replied. "After all, there have been so many terrible buildings done in the past; and I suppose that you would include some of mine in that category. But I don't think this is a terrible building at all, I'm really quite pleased with it."

ARCHITECTURAL DETAILS

2. MARCEL BREUER

Second in a series of presentation details of significant architecture by master architects

Approaching a building from a distance, we gradually shift our attention from the whole to the detail. The nearer we come, the more the detail gains in importance. We are still with the basic conception—we remember the over-all architecture, the form, the silhouette, the structural modulations; we are still guided by the general orientation of the building—but now, we see and touch and experience detail.

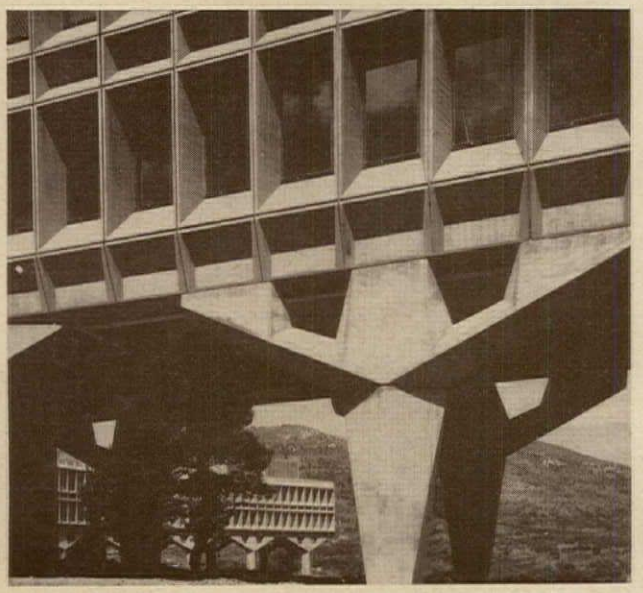
The architecture of past periods tended to lend melodies to the details; a column capital was a piece of sculpture in itself—a bit of art or decoration independent of the building. Today, our details tend to exist solely for the service of the whole structure, and become inherent particles of the whole.

While technical demands for details have in recent decades increased immensely—demands in regard to insulation, acoustics, fabrication, assemblage, time, maintenance, etc.—their individual and visual expressions have become more simple and more subordinated to the whole composition. So much so that details often fuse completely with the greater architectural form to the point where it is difficult to separate them. It seems increasingly nonsensical to say, "that might have been great architecture, if somebody had only worked out the details . . ." Today, this case simply does not exist—in practice or in theory.

The above is true only as a generalization, of course, with allowance for transitional variations and overlapping notions. Much depends on the nature of the building, and perhaps still more on the material that is used. At the present point in architectural history, when reinforced concrete flamboyance seems fashionable, one might say that no other material has the potential for such complete and convincing fusion between structure, enclosure and surface; between architecture and detail; between the minute great form and the great small particle.

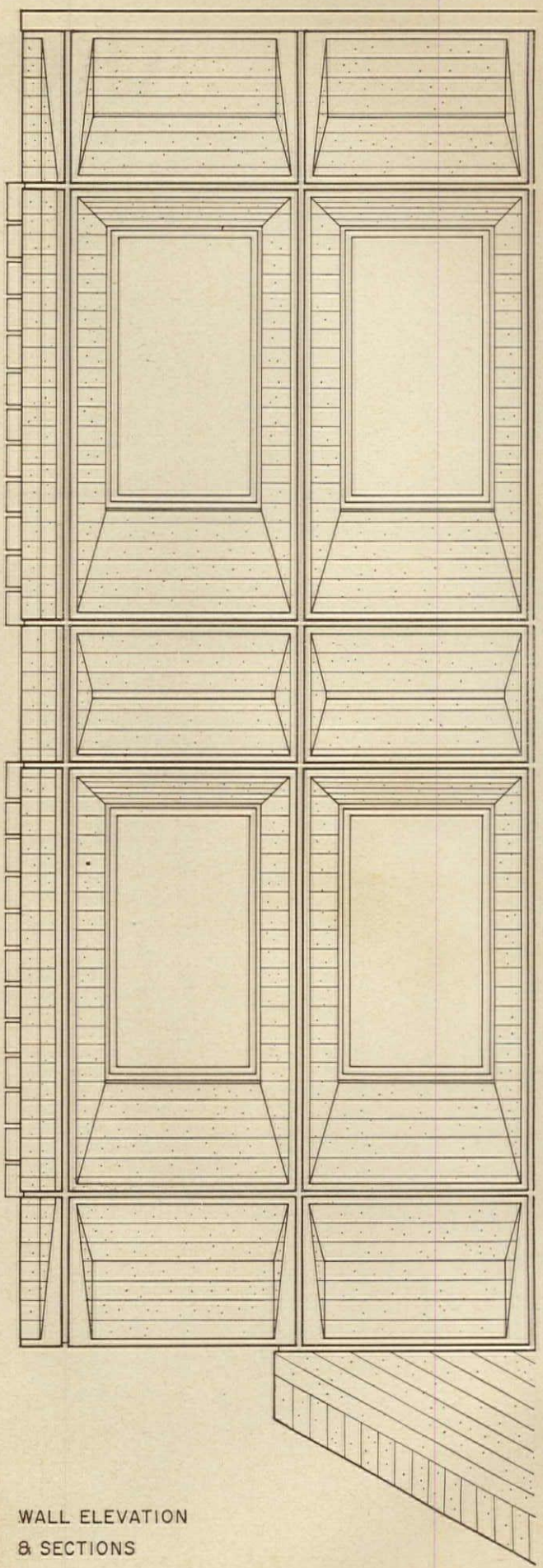
Marcel Breuer

MARCEL BREUER



CONCRETE WALL AND COLUMN
IBM RESEARCH CENTER
LA GUADE, FRANCE, 1960

This is a convincing example of the "fusion between structure, enclosure and surface; between architecture and detail . . ." that Breuer spoke of in the preceding text. This structural wall of concrete was prefabricated on the site in units about 6 by 10 feet. The molds were designed to permit the lifting out of completed units without dismemberment. The spreading columns were poured in place against 6-inch boarding to create a rough surface with a controlled texture. The columns were designed to gather the forces from the mullions above, except for the outer two of each bay, which are cantilevered. Appropriately enough, expansion joints for lateral movement are placed at their joining. The concrete mullions serve as structure and chase: permanent installations (lighting, plumbing, etc.) occupy the hung ceiling spaces; service lines for laboratories (steam, compressed air, etc.) are placed in recesses under the windows, enclosed by a removable asbestos cement panel



WALL ELEVATION
& SECTIONS
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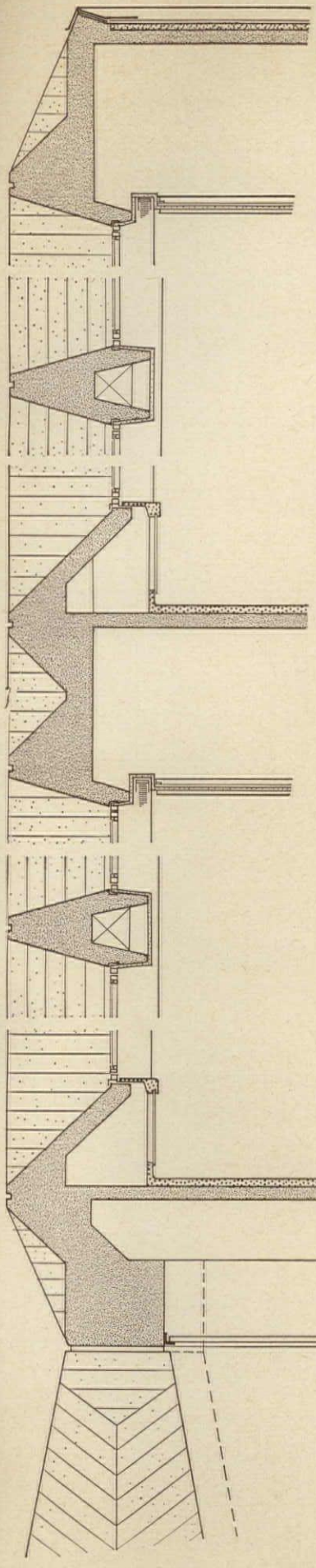
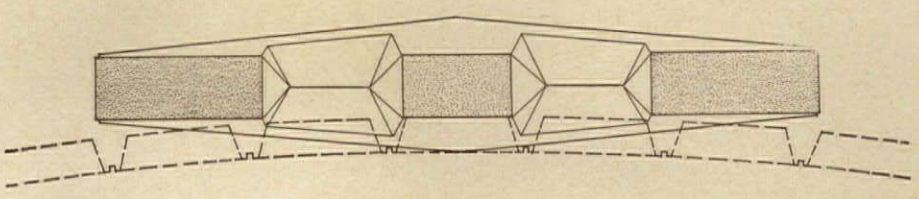
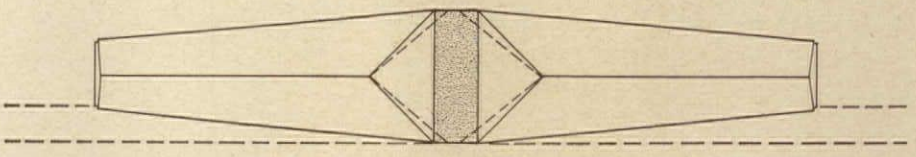
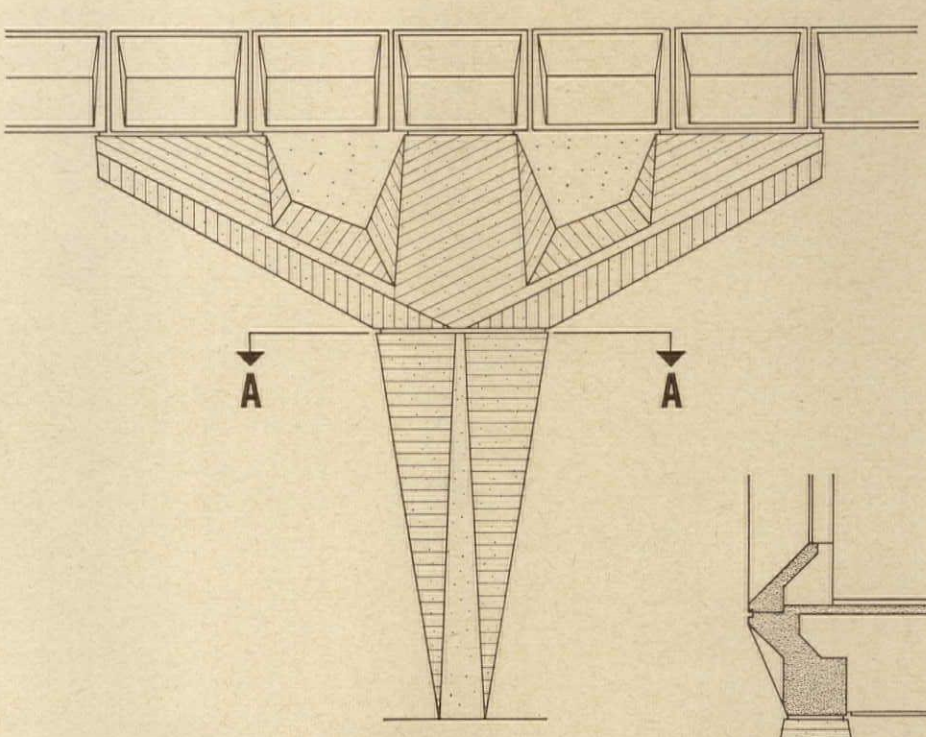


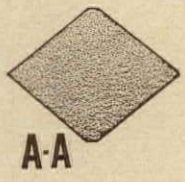


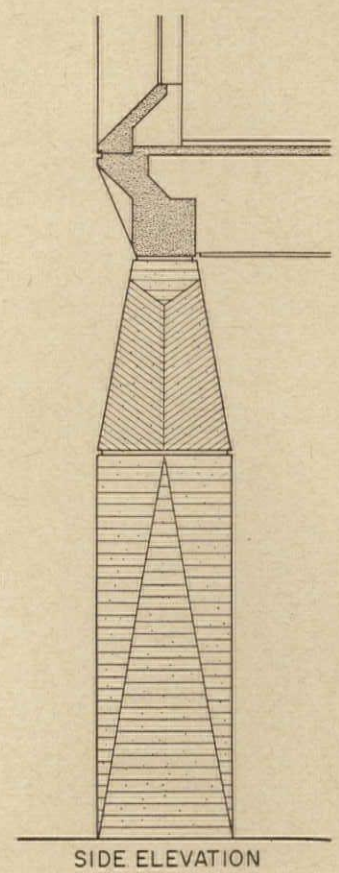
PLAN AT TOP



PLAN FROM BELOW







PIER DETAILS

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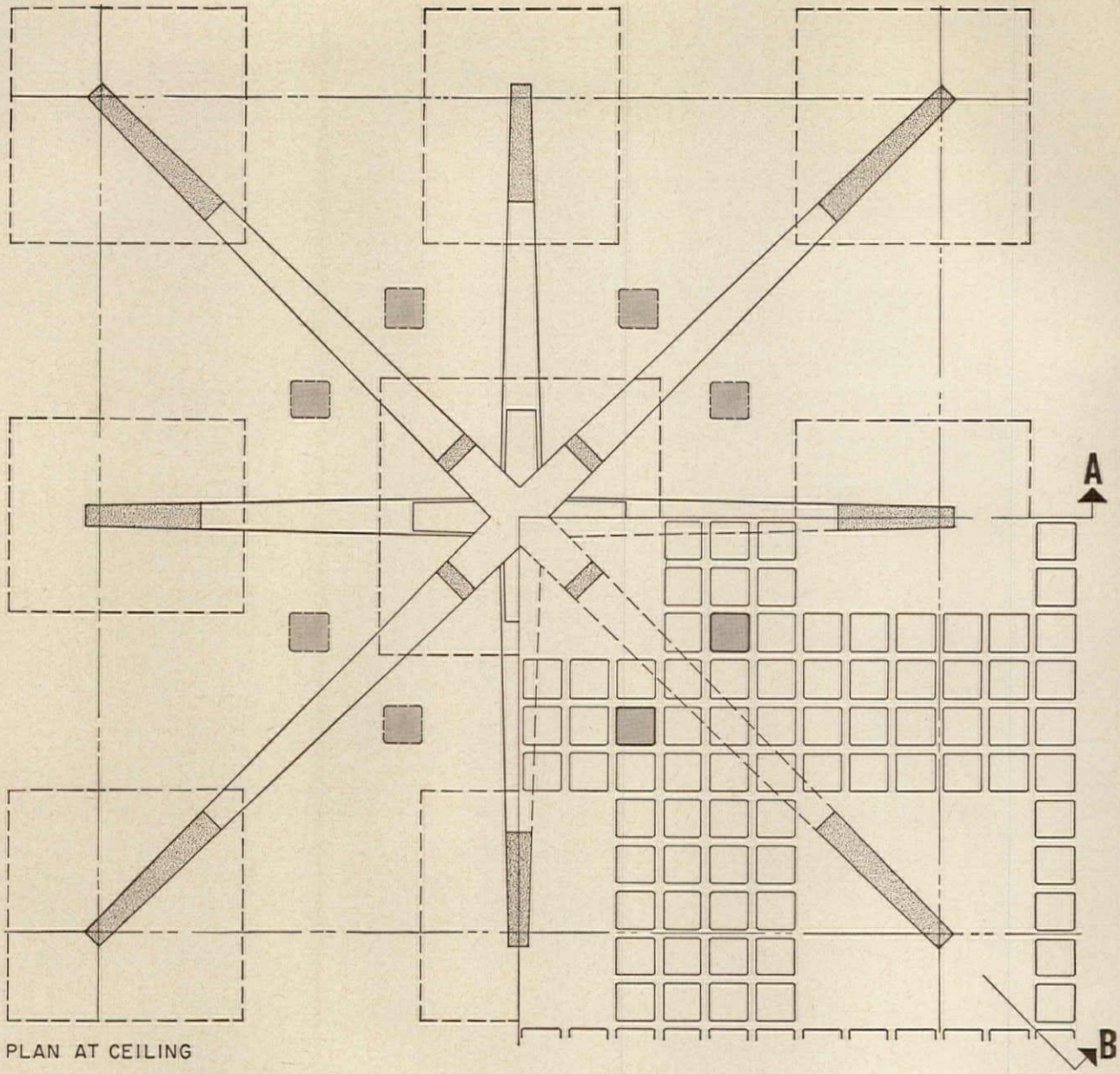
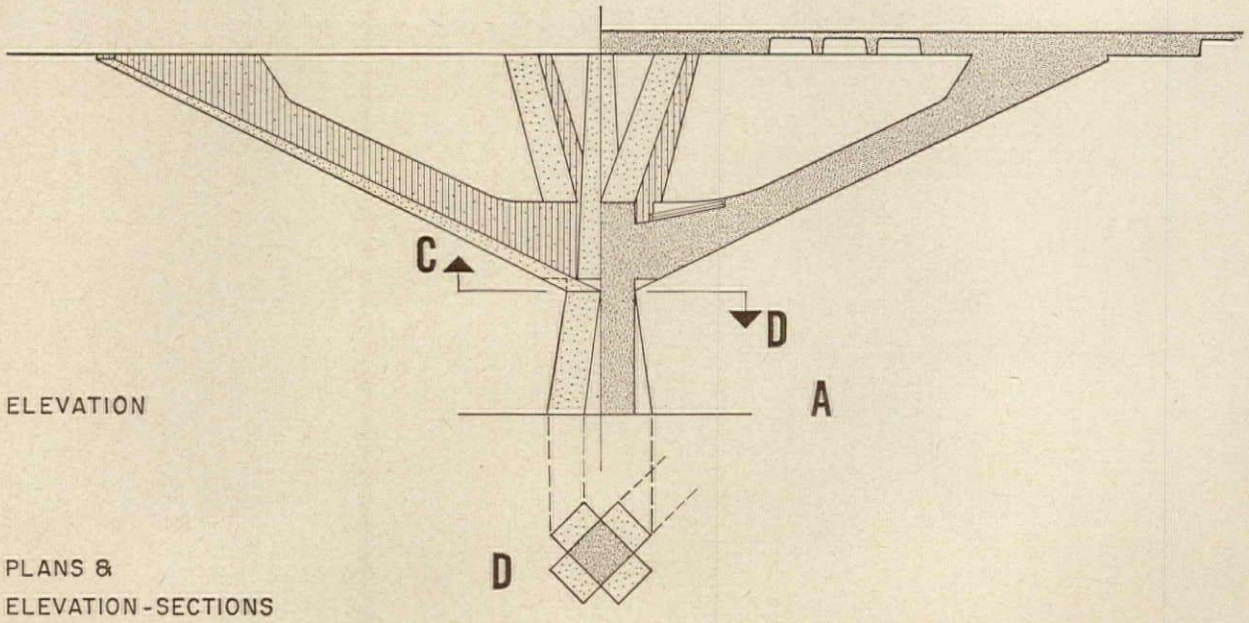
SIDE ELEVATION



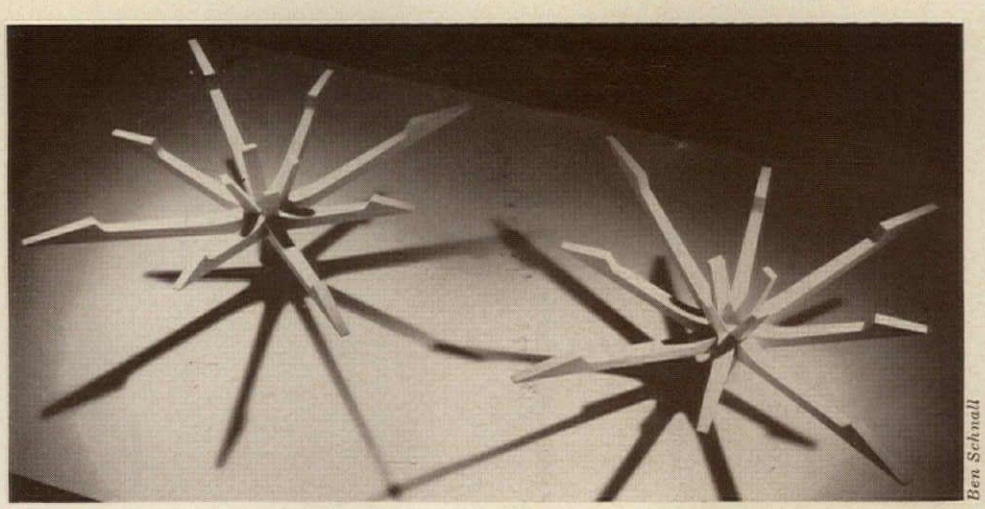
PLAN AT CEILING



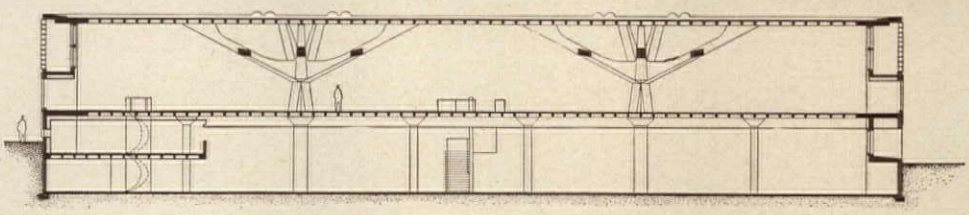
ELEVATION

PLANS &
ELEVATION-SECTIONS

SCALE: 3/32" = 1'-0"

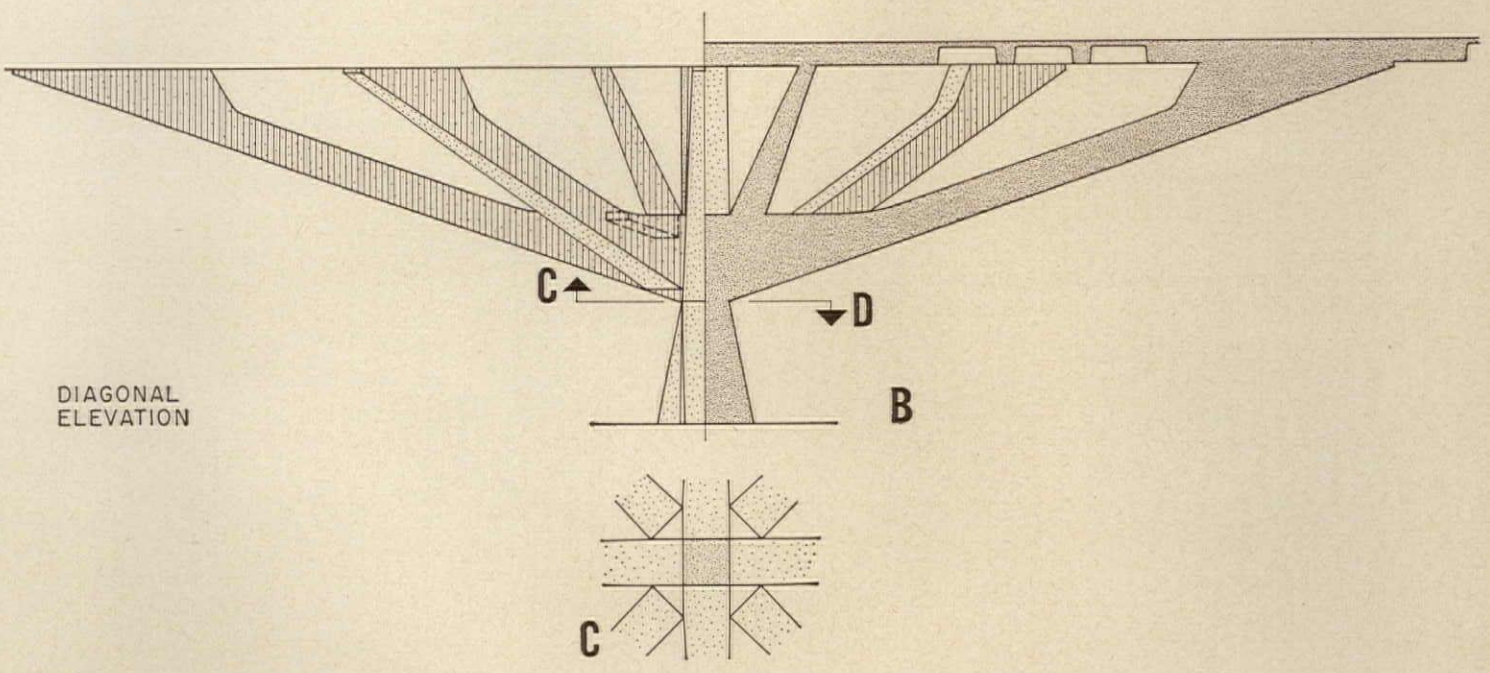


Ben Schnall

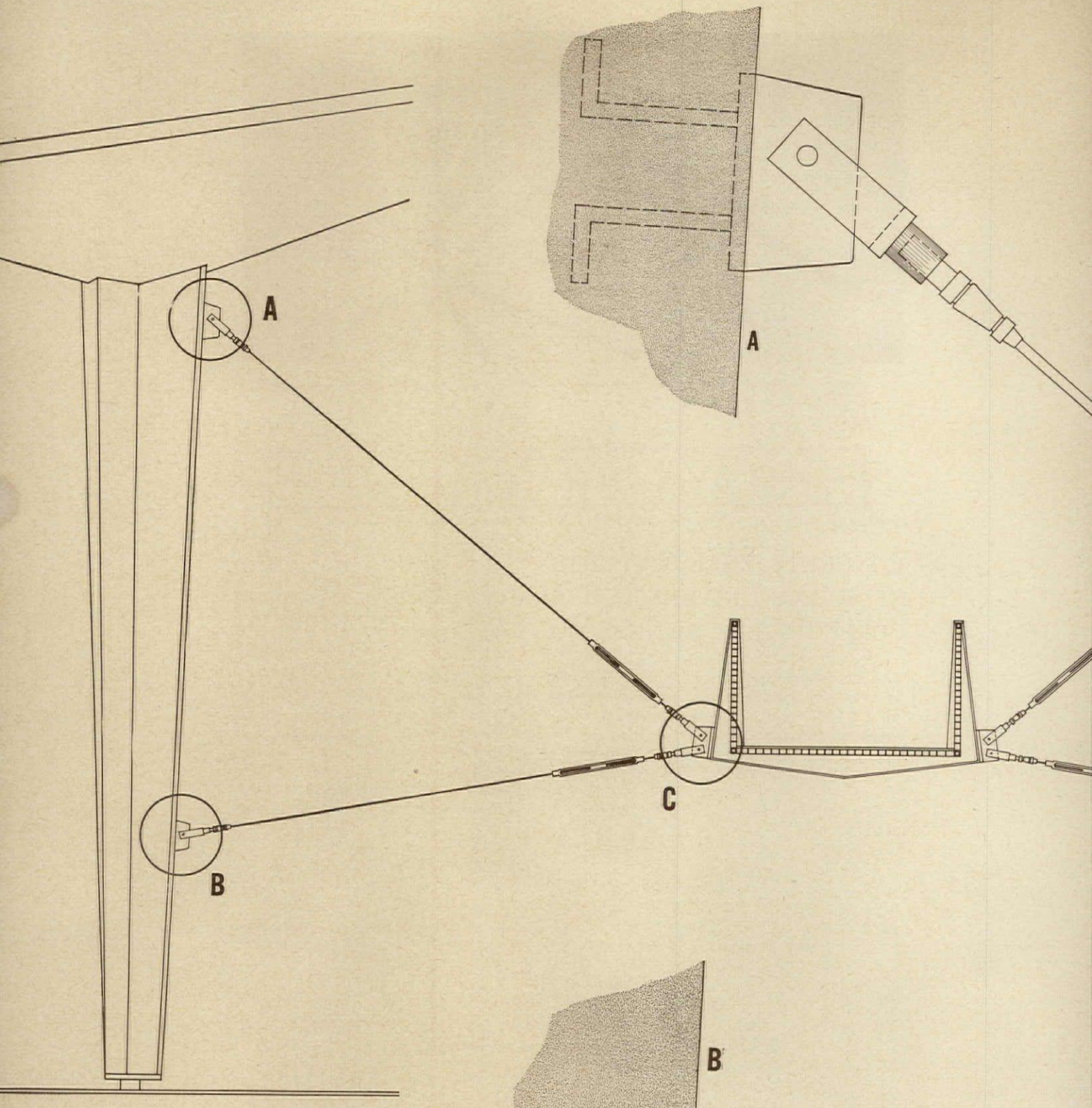


CONCRETE TREE SUPPORTS
ST. JOHN'S UNIVERSITY LIBRARY
COLLEGEVILLE, MINNESOTA, 1960

The idea behind these spreading concrete supports was to create a large, clear space (125 by 205 feet) for the main area of the library. The roof is supported entirely by the outside walls and the two spreading columns. The support extends eight arms to eight roof slabs that make a square pattern; four smaller members reach up like fingers to a square slab at column center; the remainder of the roof is of coffered construction. In Breuer's work, concrete is usually smooth for small surfaces (such as in ceiling), rough with a form-board pattern for larger surfaces. Interior concrete surfaces are bush-hammered when subject to touch; the hammering done on either a smooth or boarded surface



DIAGONAL
ELEVATION


A
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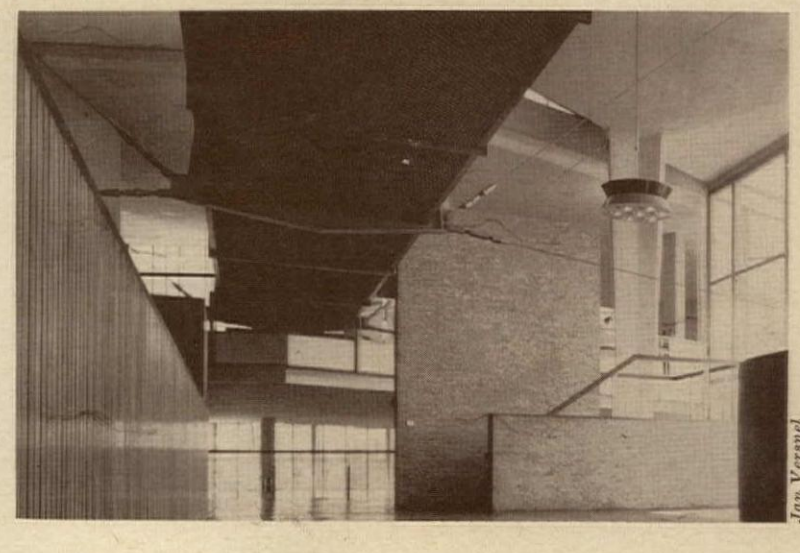
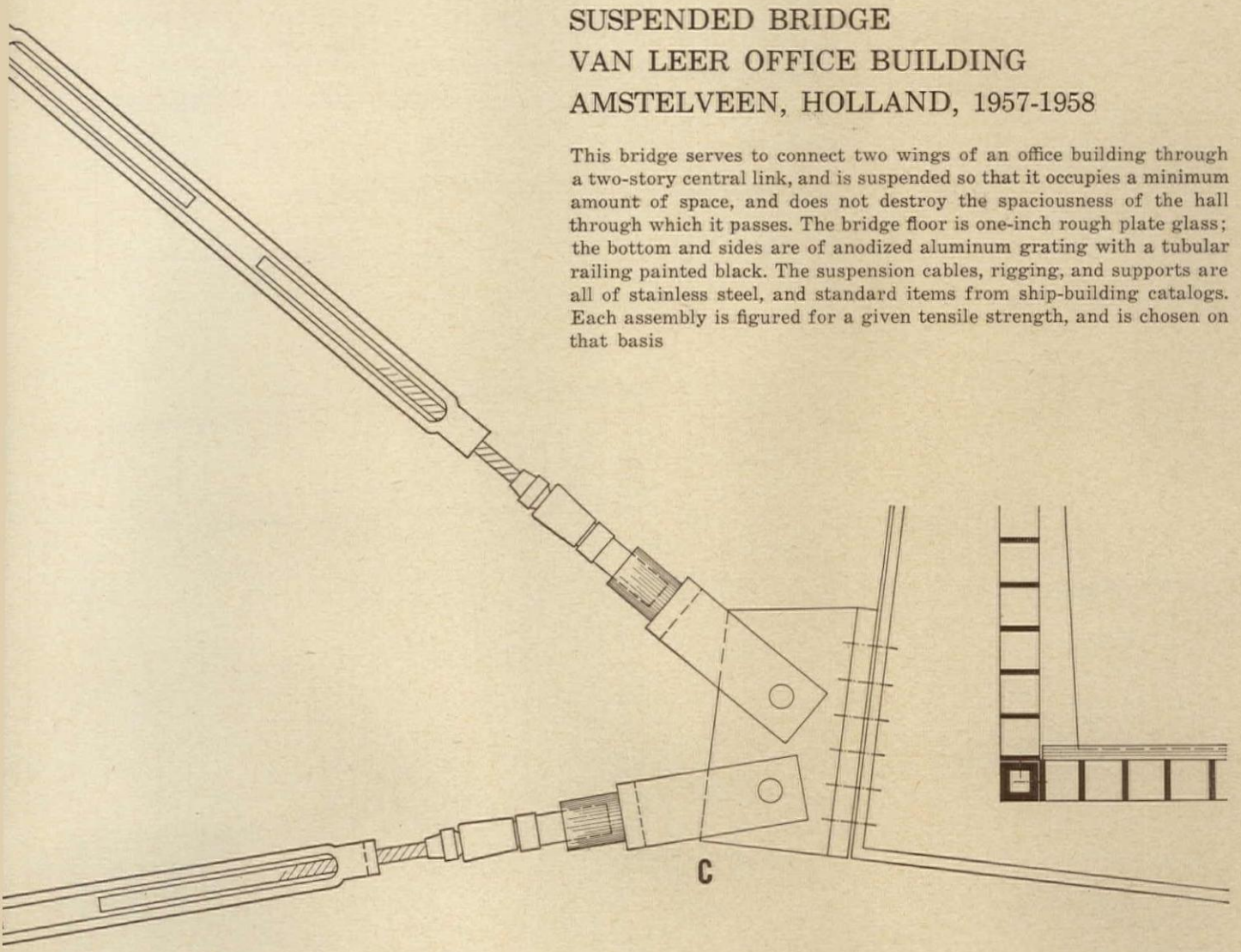
C
A
B
SCALE : 1/4" = 1'-0"



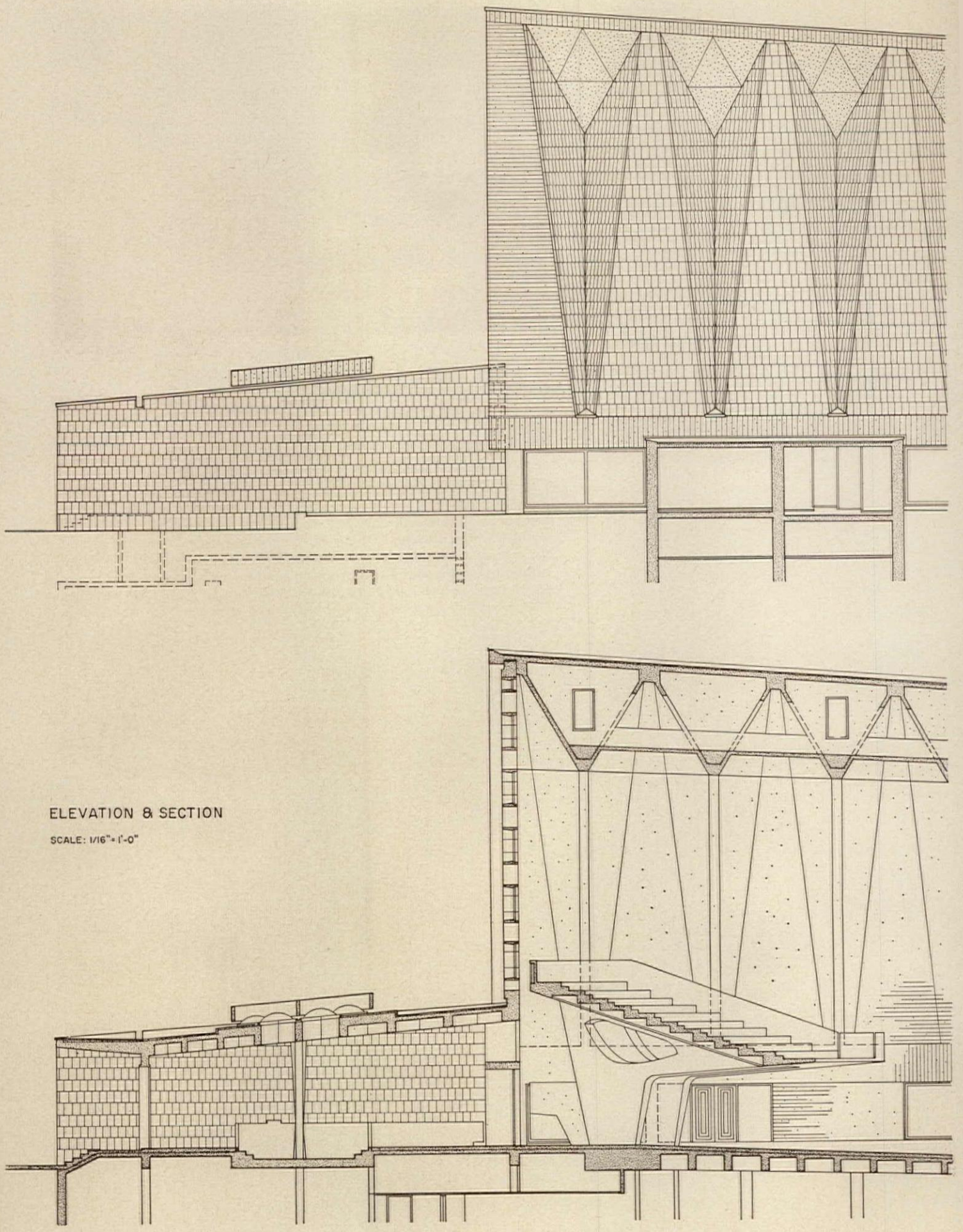
Jan Versnel

SUSPENDED BRIDGE
VAN LEER OFFICE BUILDING
AMSTELVEEN, HOLLAND, 1957-1958

This bridge serves to connect two wings of an office building through a two-story central link, and is suspended so that it occupies a minimum amount of space, and does not destroy the spaciousness of the hall through which it passes. The bridge floor is one-inch rough plate glass; the bottom and sides are of anodized aluminum grating with a tubular railing painted black. The suspension cables, rigging, and supports are all of stainless steel, and standard items from ship-building catalogs. Each assembly is figured for a given tensile strength, and is chosen on that basis

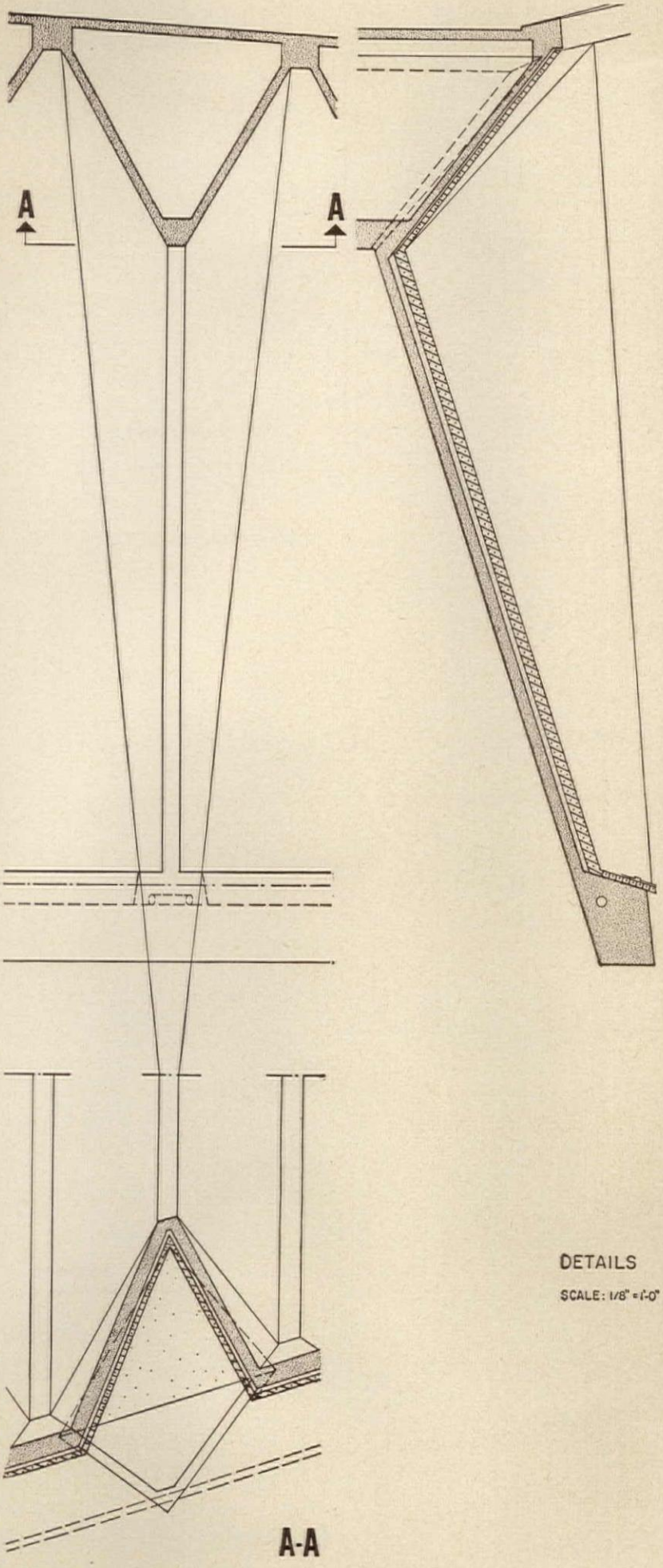


DETAILS



ELEVATION & SECTION

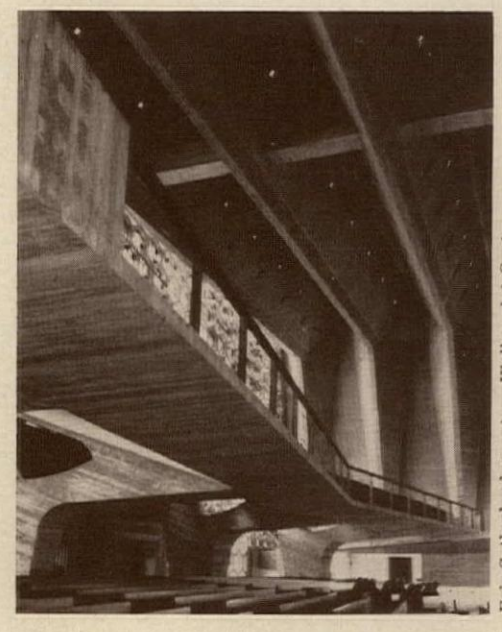
SCALE: 1/16"=1'-0"



DETAILS

SCALE: 1/8" = 1'-0"

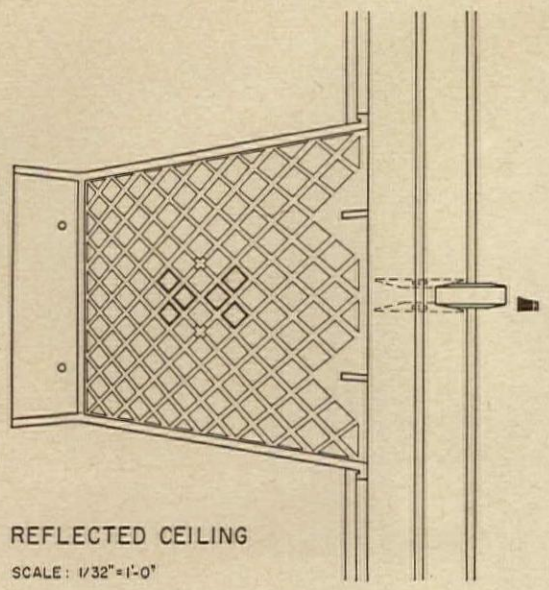
Shin Keyama



Eric Sutherland, courtesy Walker Art Center

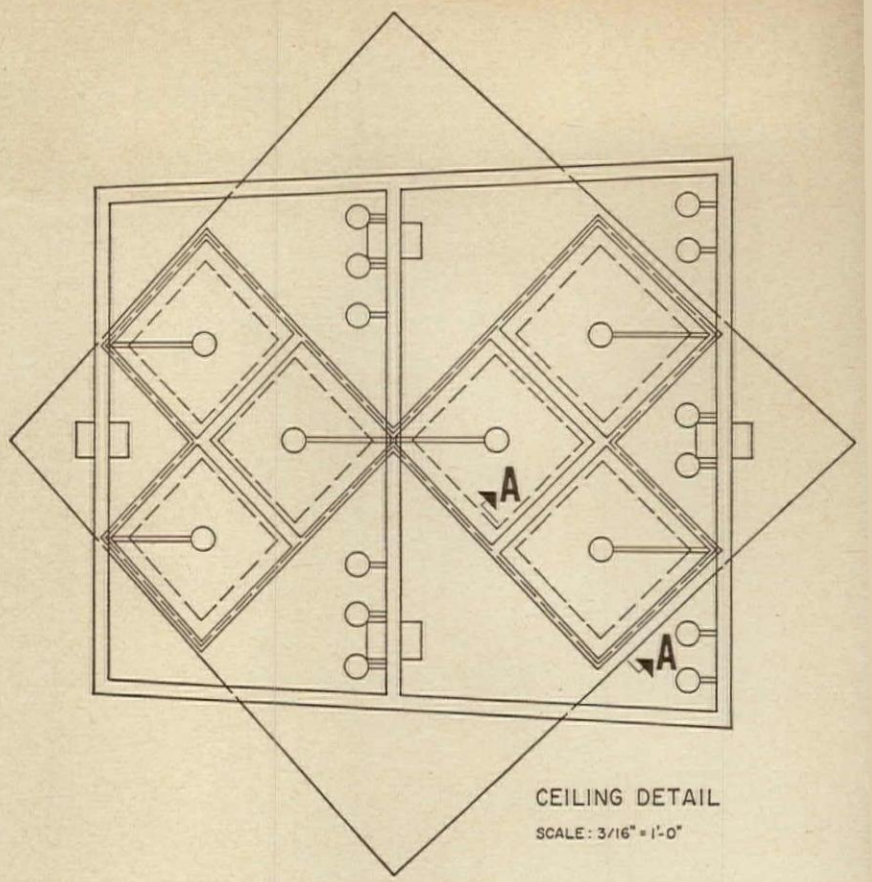
FOLDED PLATE ARCH ST. JOHN'S ABBEY CHURCH COLLEGEVILLE, MINNESOTA, 1953–1961

The powerful, folded plate bents of St. John's Abbey—of natural concrete with a rough, boarded texture inside, and sheathed with gray Minnesota granite outside—offer a stunning example of the complete integration of structure, form and detail. The granite sheathing is of two colors, intermixed at random, and is rough faced. The surface of the granite was subjected to heat, causing the quartz particles to pop out, creating a pitted texture. The compelling rhythm and strength of the bents is emphasized by the austerity of their surfaces, symbolic of the monastic life. The section at left shows the relationship of church and baptistry, which is shown in detail on the next page



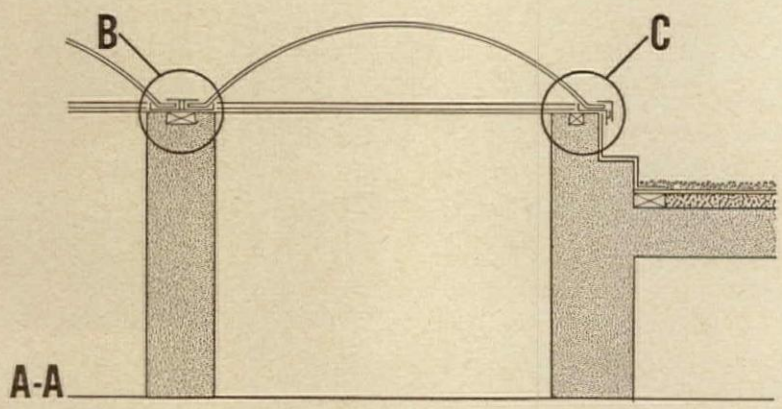
REFLECTED CEILING

SCALE: 1/32"=1'-0"



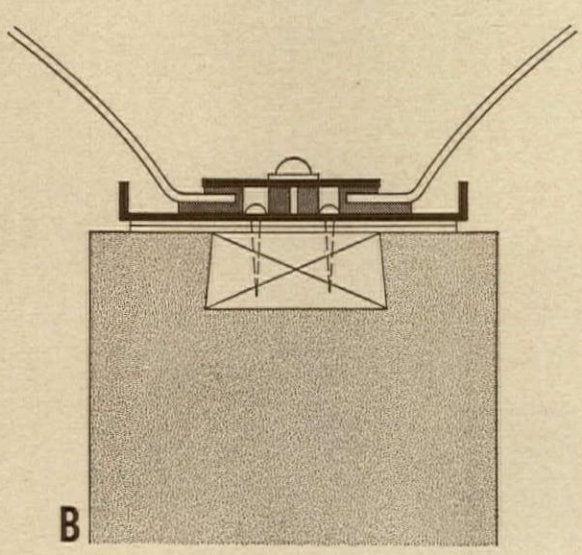
CEILING DETAIL

SCALE: 3/16"=1'-0"



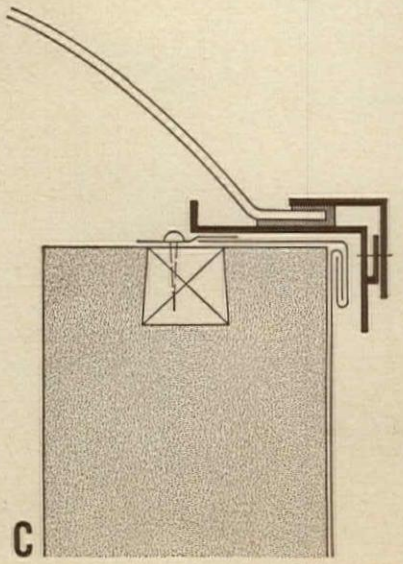
PLASTIC DOME

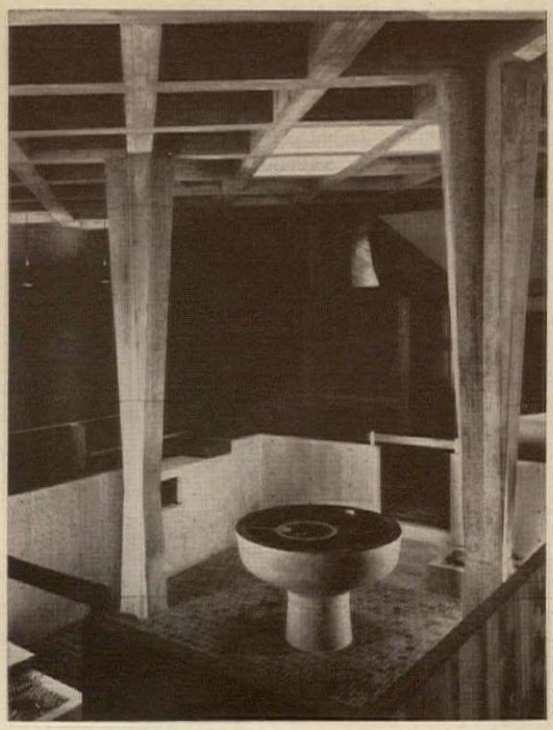
SCALE: 3/8"=1'-0"



PLASTIC DOME DETAILS

SCALE: 3"=1'-0"

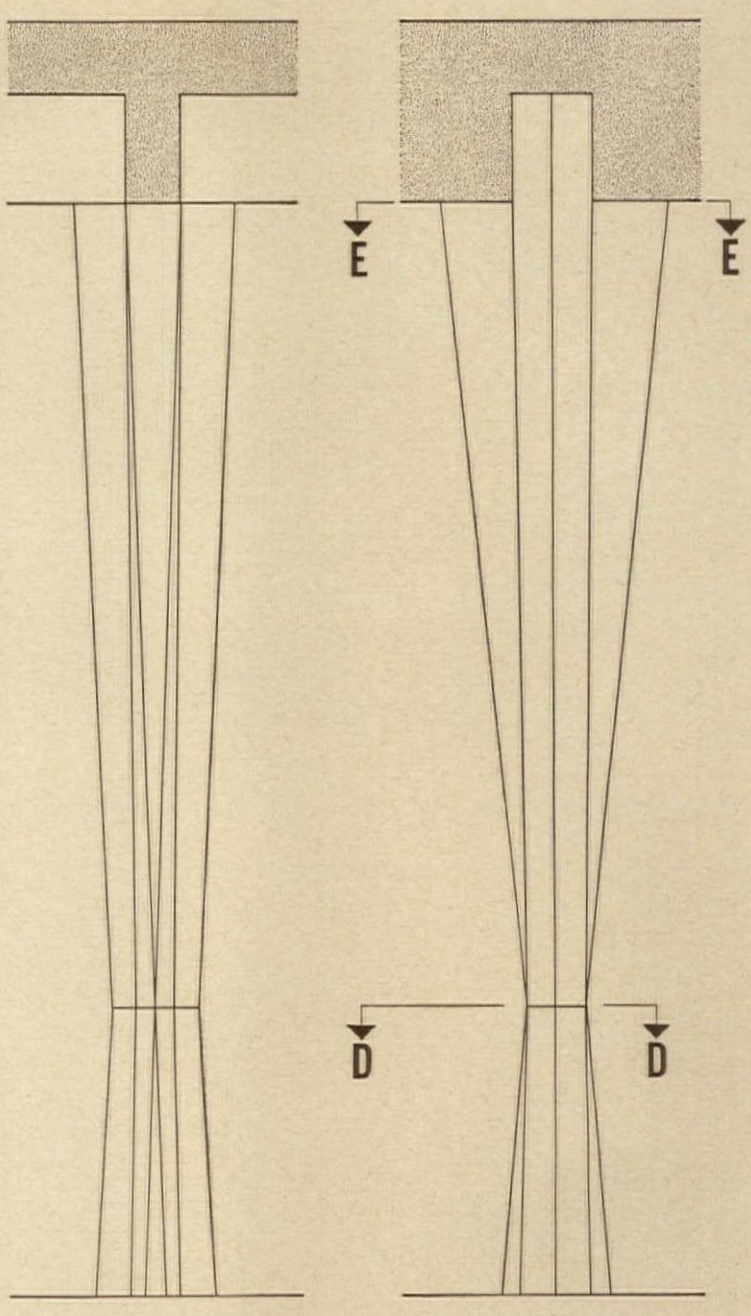




Eric Sutherland, courtesy Walker Art Center

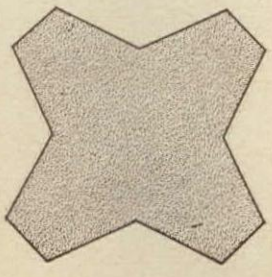
ATRIUM — BAPTISTRY
ST. JOHN'S ABBEY CHURCH
COLLEGEVILLE, MINNESOTA
1953–1961

Another example of concrete serving as structure, form and detail. Echoing tradition, the atrium-baptistry is top-lighted by plastic domes over the central, recessed font area. Artificial lighting (*plan on left page*) serves the same purpose at night. The font—designed by Breuer—is of bush-hammered granite. The columns are of bush-hammered concrete, tapered to a minimum cross section at the level of people, and warped to meet the ceiling beams. All column surfaces are hyperbolic-paraboloid in form



COLUMN ELEVATIONS

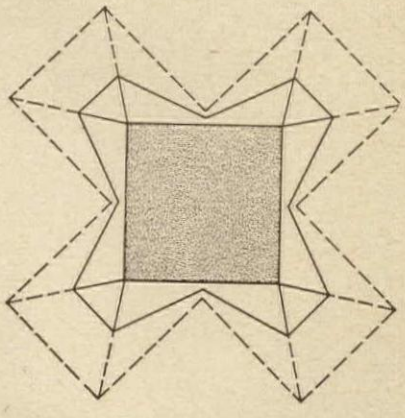
SCALE: 3/8"=1'-0"



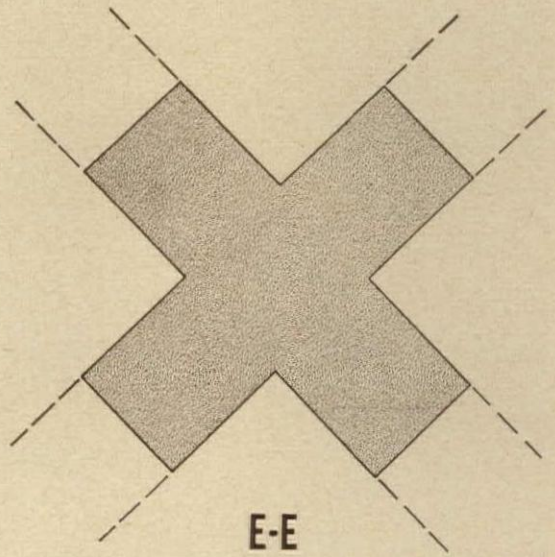
PLAN AT FLOOR

COLUMN DETAILS

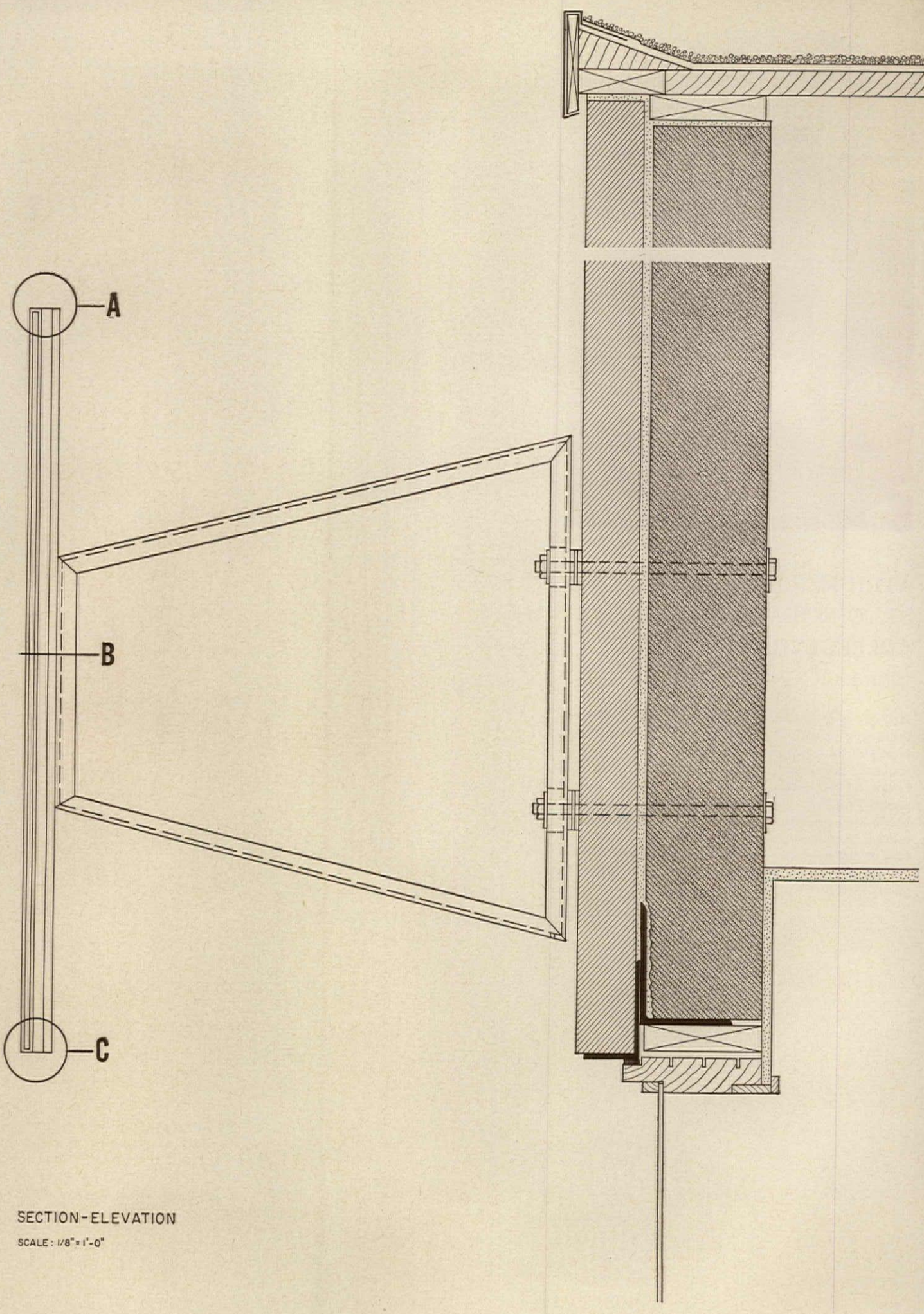
SCALE: 1"=1'-0"



D-D

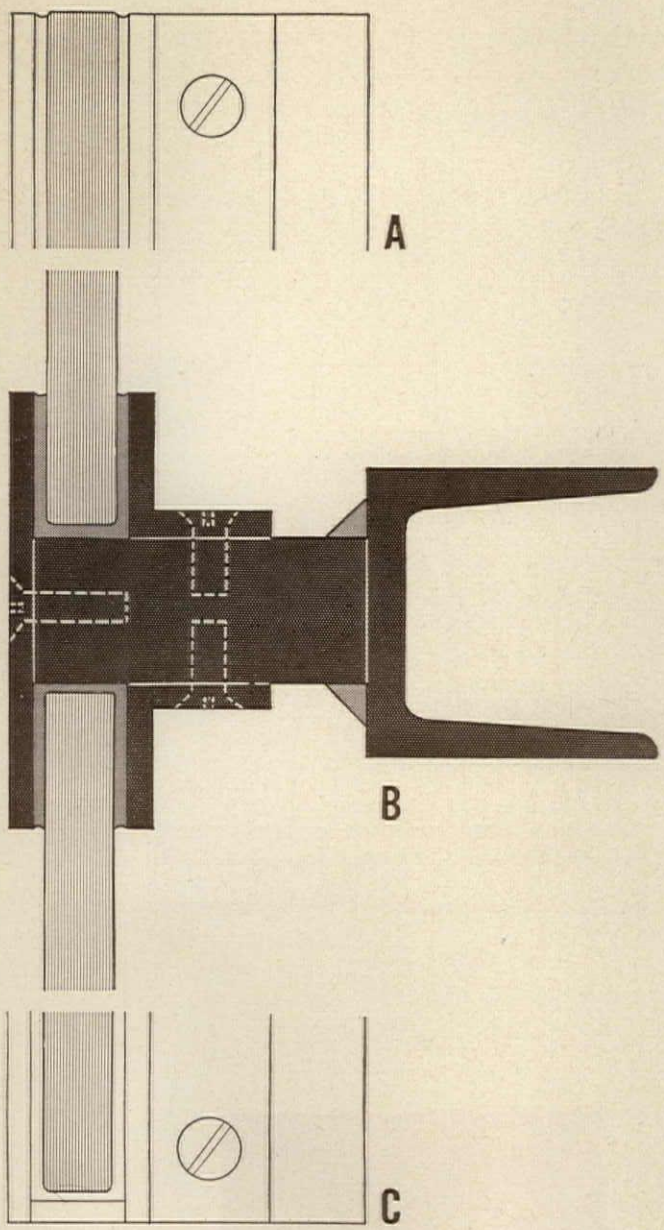


E-E



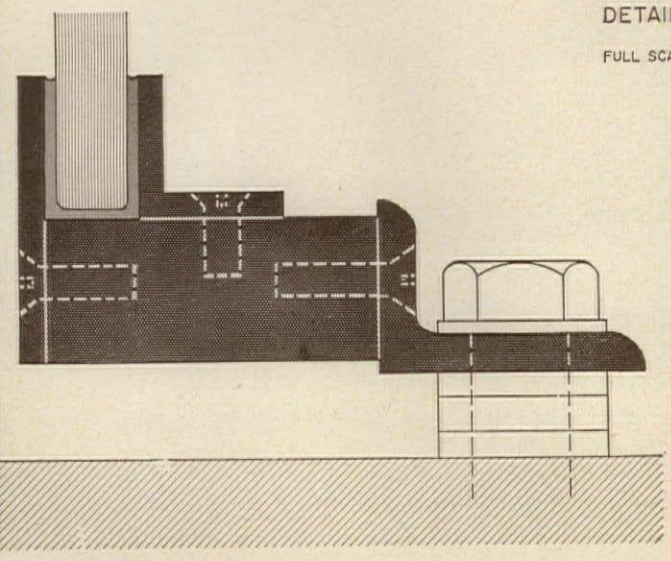
SECTION-ELEVATION

SCALE: 1/8"=1'-0"

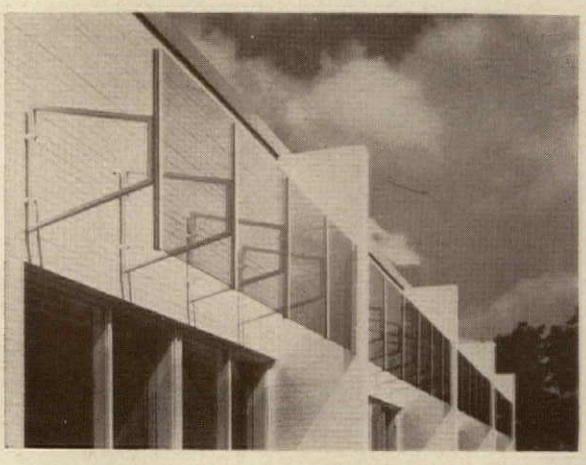


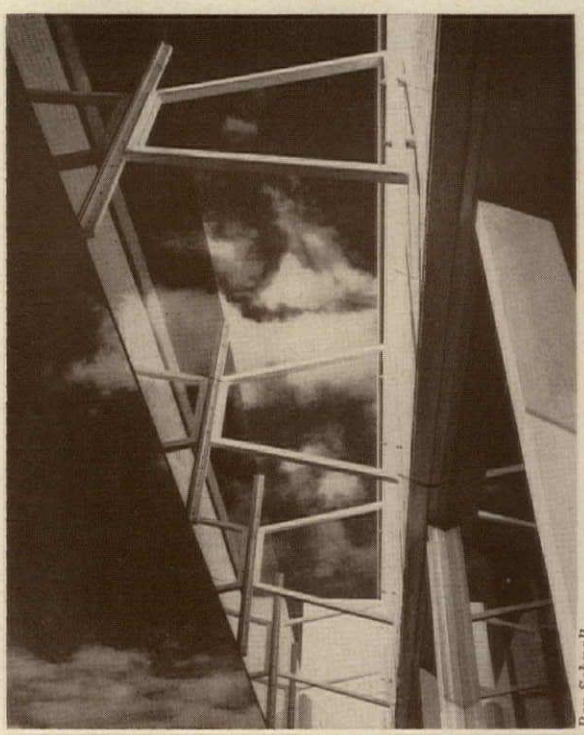
DETAILS

FULL SCALE



JAMB DETAIL AT BRICK FIN



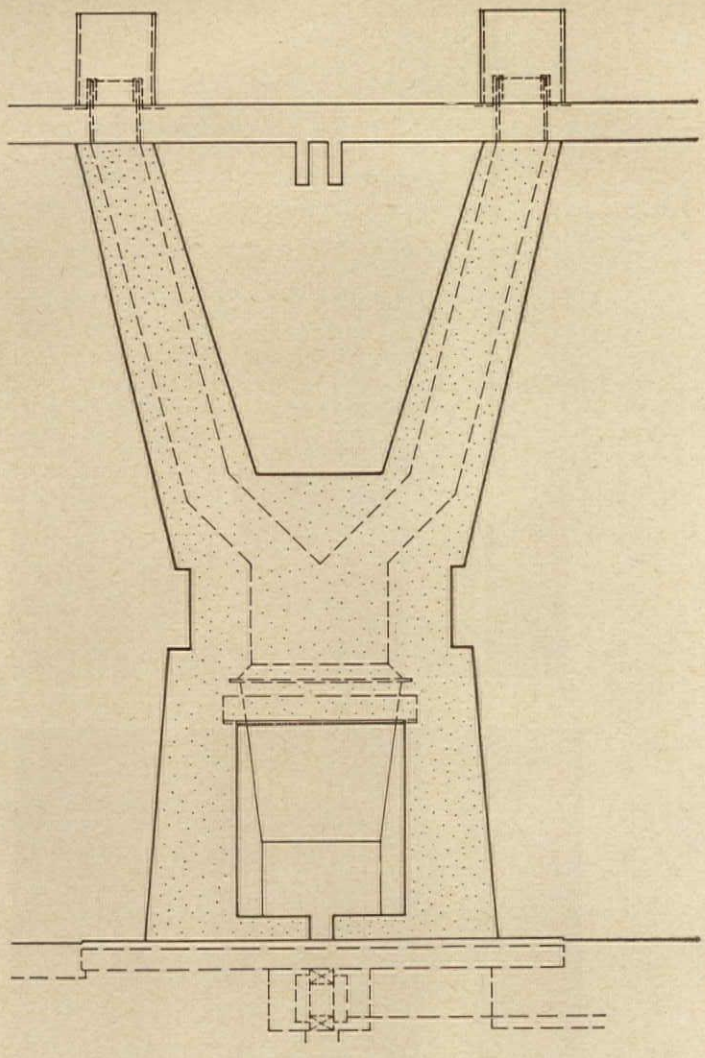


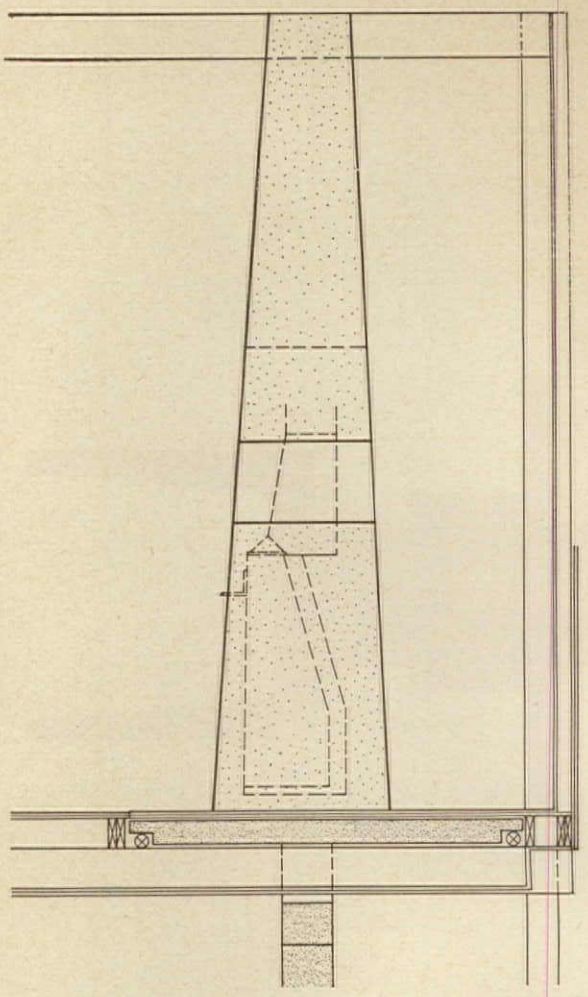
Ben Schnall

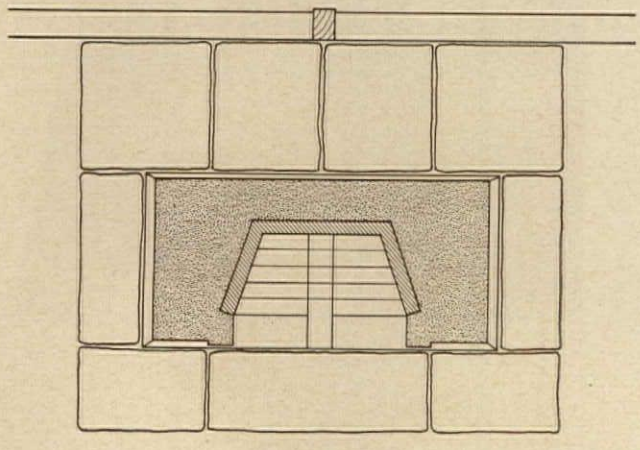
SUN FILTER
TORRINGTON MANUFACTURING
OAKVILLE, ONTARIO, 1953

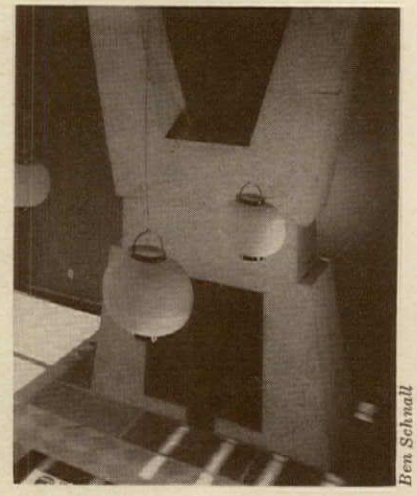
This device, of gray heat-absorbing glass supported by a framework of hot-dip galvanized steel painted dark gray, is described by architect Breuer as the first of the free-standing glass filters. The concept of the installation is that solar glass kept free of the building reduces the heat of the sun twice as effectively as the same solar glass in the wall. This occurs because the air space between the glass and the building carries away the heat. Position eliminates the radiant effect that would otherwise occur.

The same general type of sun filter, modified to suit the situation, has been used by Breuer on several more recent buildings, notably the UNESCO Headquarters in Paris

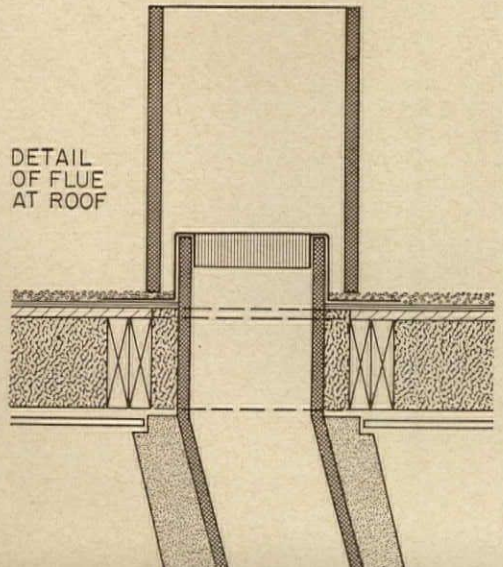






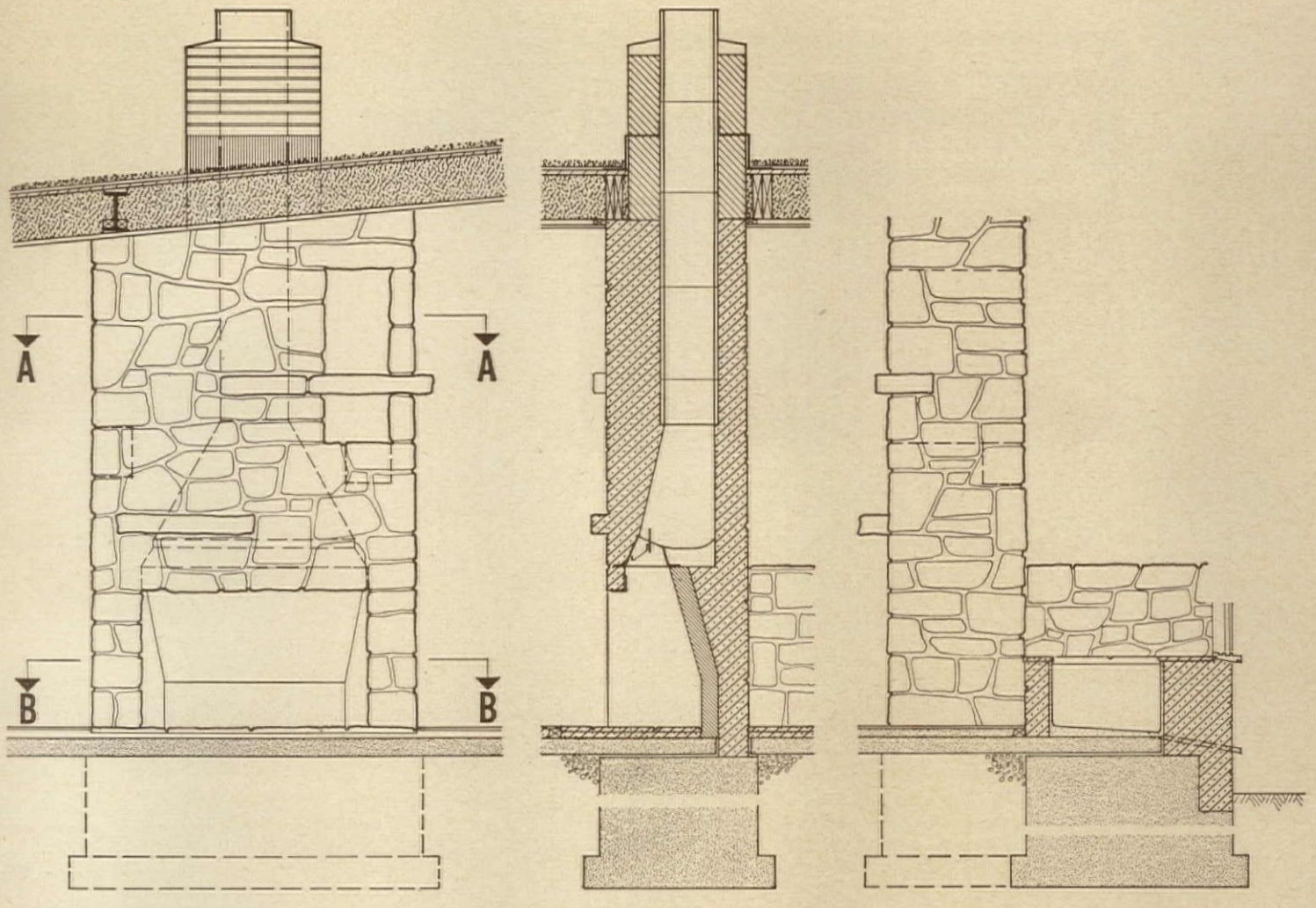


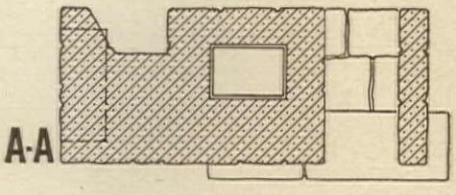
Ben Schnall

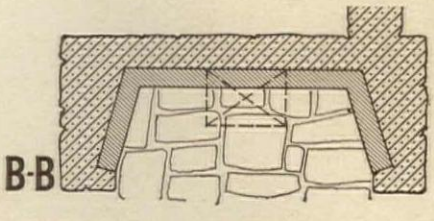


CONCRETE FIREPLACE
McMULLEN BEACH HOUSE
MANTOLOKING, NEW JERSEY, 1960

The form of this bush-hammered concrete fireplace resulted from splitting the flue to counteract wind currents. The form is a complete, continuous one with no joints. The central slot makes hearth sweeping easy







STONE FIREPLACE
ROBINSON HOUSE
WILLIAMSTOWN, MASSACHUSETTS, 1946-1947

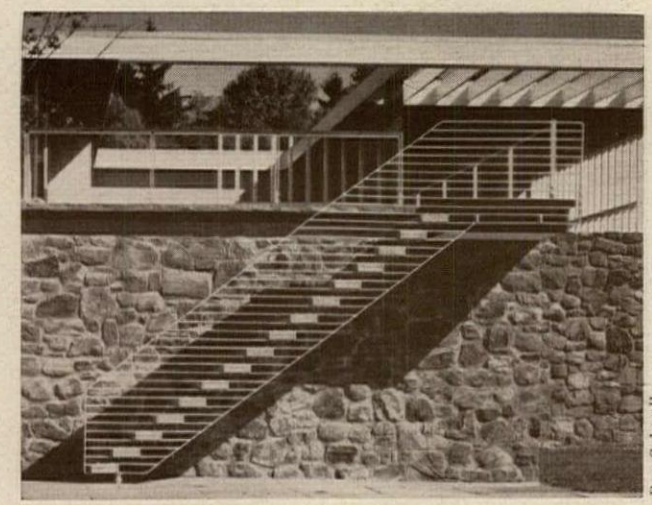
This free-standing fireplace of natural fieldstone is set against a window wall, so one can look at fire and view simultaneously. A log storage bin, located behind the fireplace, is arranged so the logs can be delivered from outdoors through an opening in the glass wall

FLUE DETAIL, OPPOSITE

SCALE: 1"=1'-0"

ALL OTHER DRAWINGS, BOTH PAGES

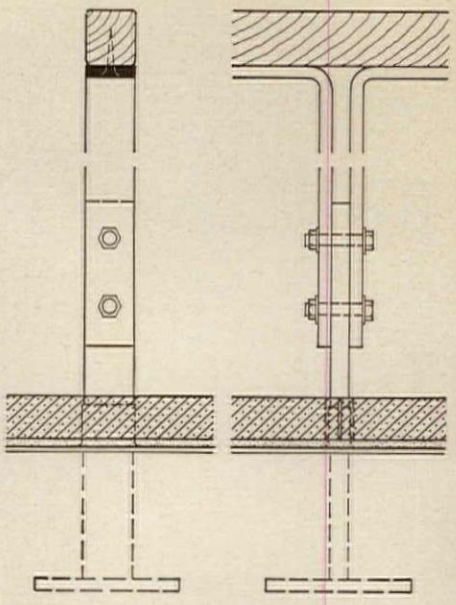
SCALE: 1/4"=1'-0"



Ben Schnall

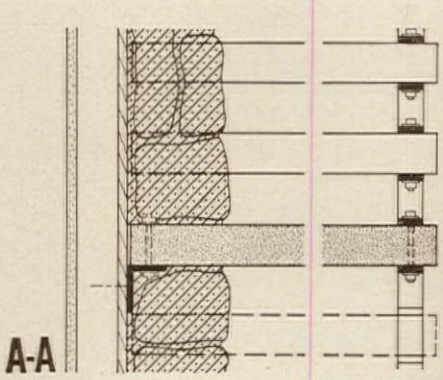
GARDEN STAIR
GAGARIN HOUSE
LITCHFIELD, CONNECTICUT, 1954

This ingenious stairway is typically Breueresque in character, handsomely playing the machine-like rectilinearity of the metal outer screen against the rough irregularity of the natural stone wall. The metal screen is made of hot-dip galvanized steel, welded into structural unity and painted white. The treads are of precast concrete, anchored securely into the masonry wall (A-A), and bolted, in turn, to the metal screen. Note how the design of the screen hinged on the riser height, with the dimension from top to top of horizontal members equal to one half that height. The treads were then made of a thickness to fill the space between horizontals. Details of the upper area handrail are shown at the top of the page

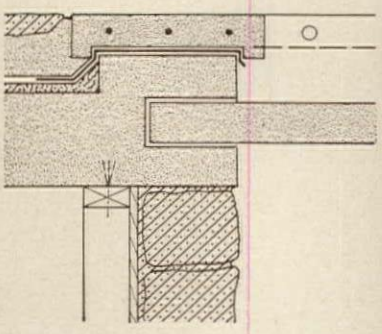


DETAILS, HANDRAIL AT TOP

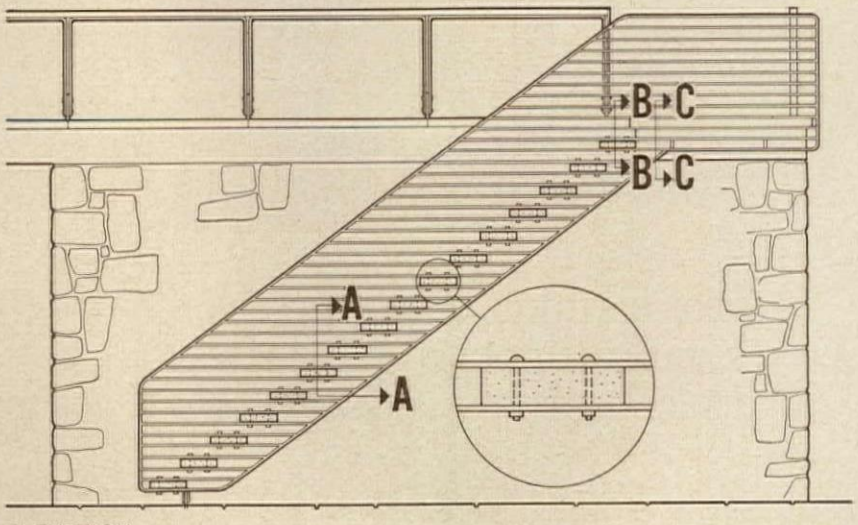
SCALE : 1 1/2"=1'-0"



A-A

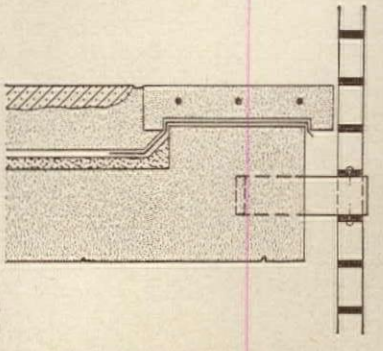


B-B



ELEVATION

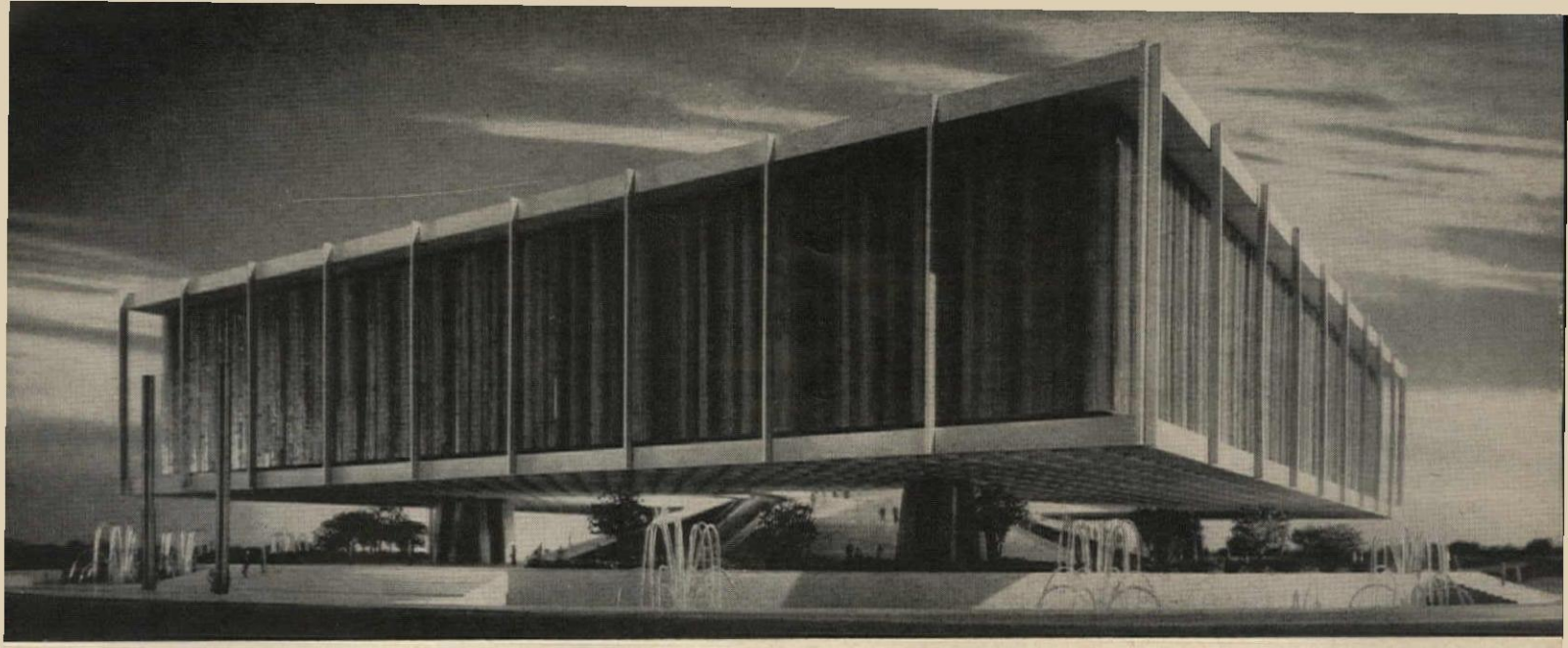
SCALE : 3/16"=1'-0"



C-C

STAIR DETAILS

SCALE : 3/4"=1'-0"



Pavilion of the United States of America. Architects: Charles Luckman Associates

PREVIEW: NEW YORK WORLD'S FAIR 1964-1965

A sampling of renderings and models

More than 180 architects and designers have made their diverse contributions to some 200 buildings for the New York World's Fair 1964-1965. The sampling* on these pages is precisely that. It carries no connotation of assessment other than to reflect the kind of free-wheeling innovation that has been the special character of "temporary" exposition buildings since Eiffel's famous tower.

There are two reasons why the New York World's Fair is where and what it is. Both are matters of public law, and they establish a framework within which, fair president Robert Moses suggests, any reasonable architectural or esthetic contemplation would seem constrained to operate. First, the site selected by a commission appointed by President Eisenhower is the same 646-acre New York City park in Flushing Meadow occupied by the 1939-1940 World's Fair. Thus, Mr. Moses points out, patterns of access, paving and utilities, either left over from the former fair or contemplated for restoration of the park to city use, rather firmly established layout of the new fair along lines similar to the old. Second, financing of the fair is such that each exhibitor must pay for building his own pavilion and demolishing it at the end of the fair. Under those terms, the fair management felt that no successful attempt could be made to dictate the architectural translation of corporate or national images. No plea is made for any kind of unity other than a thematic one expressing "man's achievements in an expanding universe."

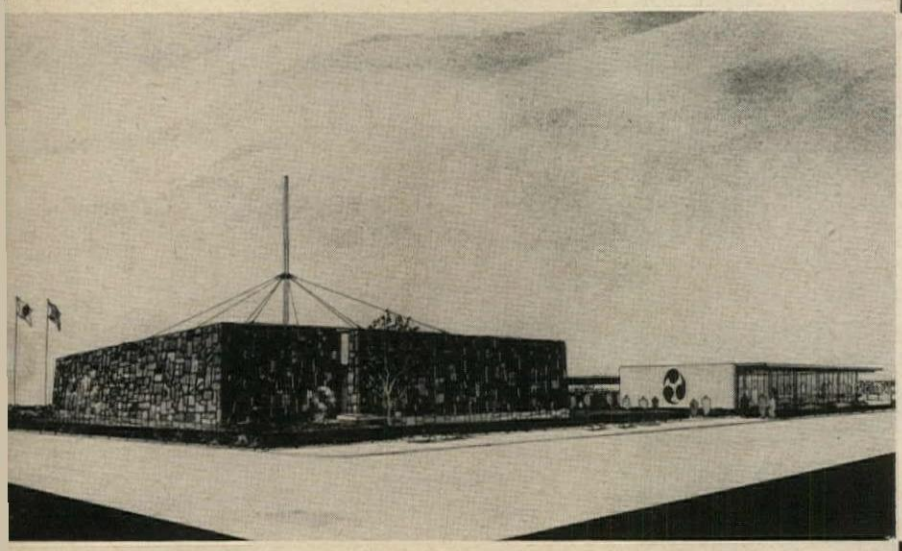
A fair, says Robert Moses, is a fair is a fair. But there is discipline. Plans must conform with strict performance codes for safety and soundness, and they must obey regulations regarding setback and height. Structures may occupy not more than 60 per cent of any plot and must be set back not less than 15 feet at the front, 10 feet at the sides. Height may not exceed 80 feet except by special permission. Plots must be landscaped subject to the approval of the Fair Corporation.

It is perhaps this combination of impermanence and structural discipline that sets the stage for architectural adventure: the most extended cantilever ever in a building; the first lamella dome of steel tube hoops; the largest air door; the monumental, the modern, the futuristic and flamboyant in a confrontation that may yet beguile even the perceptive eye. Superlatives and firsts are plentiful if marvels of architectural advancement are not yet apparent.

Unisphere®, permanent symbol donated by U. S. Steel Corp.

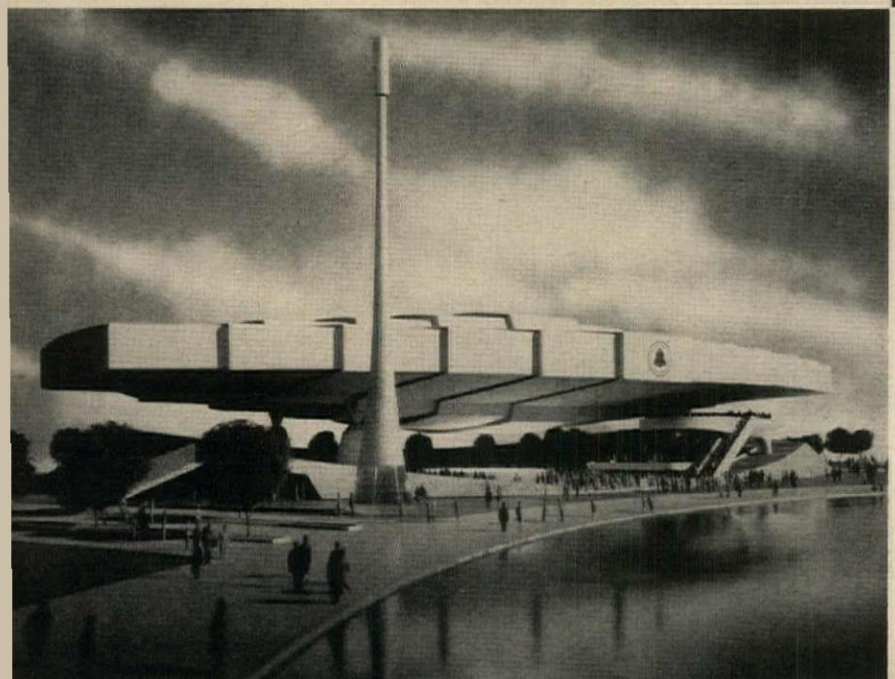
*A complete list of exhibitors including their architects, engineers and contractors is issued by the New York World's Fair Corporation, Flushing 52, N. Y., in their periodically mimeographed "Notes for the Construction Industry" available to the industry on request

PAKISTAN: Traditional Pakistani arches, pools and domes done in modern concrete and block construction house exhibits in three sections showing Pakistan's past, present and future. Native foods will be served in a canopied restaurant. Architects: Oppenheimer, Brady & Lehrecke Associates; exhibit designer: Hartwig Displays; general contractor: Sawyer & Dolfinger



JAPAN: The Japanese Government Pavilion sponsored by the Japan External Trade Organization consists of a windowless feudal rectangle of stone, sculptured by Nagare, connected to a contrasting modern structure of glass and steel. Roof is supported by a steel mast 80 feet high rising out of a central garden court. Architect: Kunio Mayekawa; associate architects: Oppenheimer, Brady & Lehrecke Associates; structural engineers: Crinnion & Crinnion; mechanical and electrical engineers: Myer, Strong and Jones; general contractor: Crow Construction Company

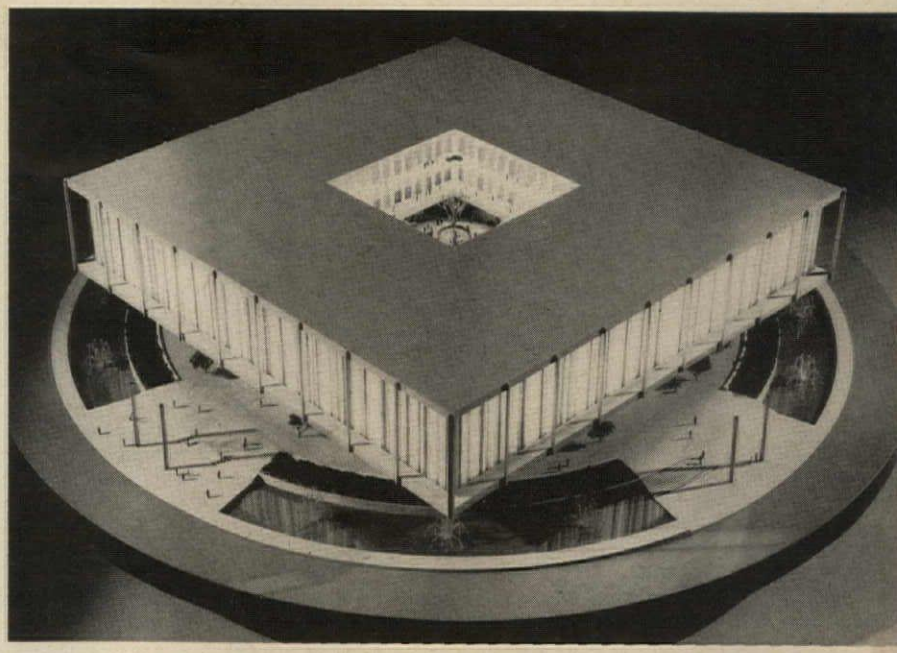
GENERAL ELECTRIC: A 200-foot diameter dome, first in the world to utilize offset hoops of steel tube in a curvilinear lamella design, spans a three-level show featuring six 234-seat theaters revolving around a fixed stage created by Walt Disney's WED Enterprises, Inc. The dome will be lighted externally with programed changes in color and pattern. Architects: Welton Becket & Associates; lighting: Hamel & Langer; structural engineer: Richard Bradshaw; mehcanical and electrical engineers: Syska & Hennessy; general contractor: Turner Construction Company



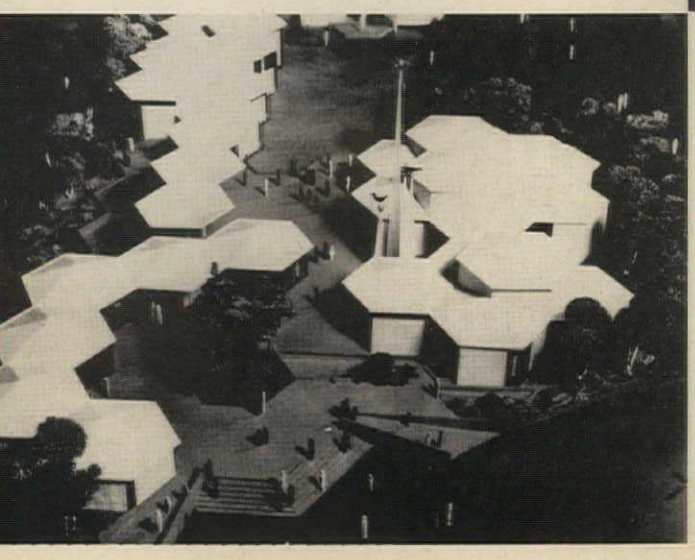
BELL SYSTEM: A floating wing 400 feet long and 200 feet at its widest section is raised 24 feet off the ground on four steel piers. Structure is basically two steel trusses with ends cantilevered 108 feet. Enclosure is fiber glass reinforced plastic molded to steel channels. Visitors will ride through two-level exhibit hall on moving chairs. Architects: Harrison & Abramovitz; structural engineer: Paul Weidlinger; mechanical engineers: Syska & Hennessy; electrical engineers: Charles W. Zweifel and Company; general contractor: George A. Fuller Company

UNITED STATES: This glass walled structure, 330 feet on each side and 84 feet high is raised 18 feet above ground level on four supporting columns. An enclosed inner court is designed to create an oasis from the bustling fair atmosphere. A new type of translucent glass wall is fabricated with thousands of pieces of vari-colored glass. Visitors will enter under the 75-foot cantilever section of the building. Near the center they will proceed up a pyramid of steps or use glass enclosed moving stairs.

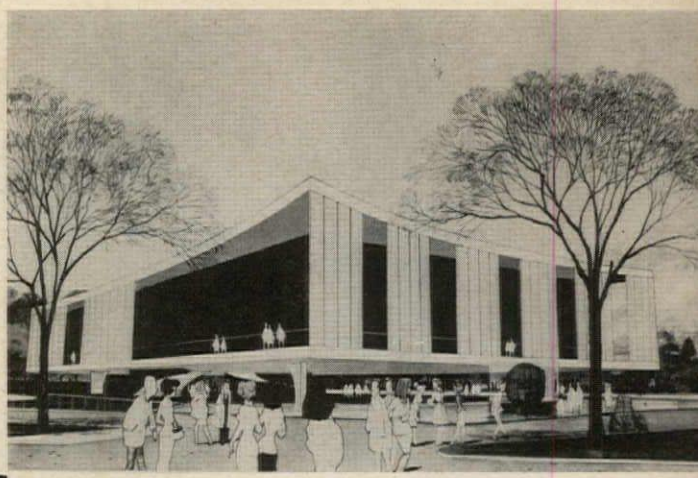
The structural system is composed of four inner trusses 57 feet high and 172 feet long and four outer trusses of the same height 330 feet long. Outer trusses are supported by hanger members which transfer the load to the inner trusses and then to the four supporting columns. Mechanical and electrical services are supplied through risers in columns. Mechanical equipment is housed under the pyramid of steps. Architect: Charles Luckman Associates (Leon Deller, design consultant, and Richard Niblack, director of design); structural engineers: Severud, Elstad & Krueger Associates; mechanical engineers: Slocum & Fuller; general contractor: Del E. Webb Corporation



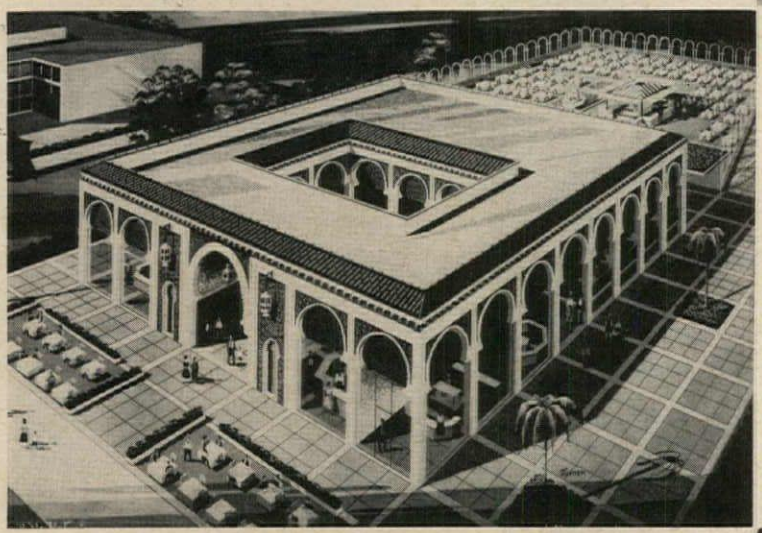
Louis Checkman (*also top photo, page 137*)



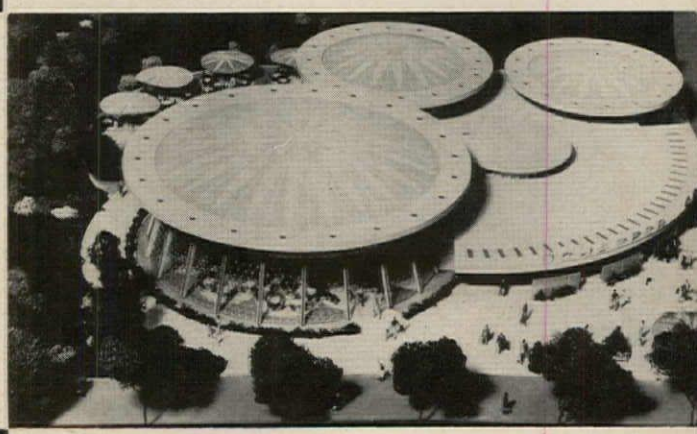
NEW ENGLAND STATES: A six-state pavilion with several individual structures will portray history, culture and industry of New England states. There will be a replica of a village green, a fish hatchery, a country store and a restaurant serving New England dishes. Architect: Campbell Aldrich Associates; structural engineers: William LeMessurier and Associates; mechanical and electrical engineers: Fred S. Dubin Associates; general contractor: Gilbane Building Company



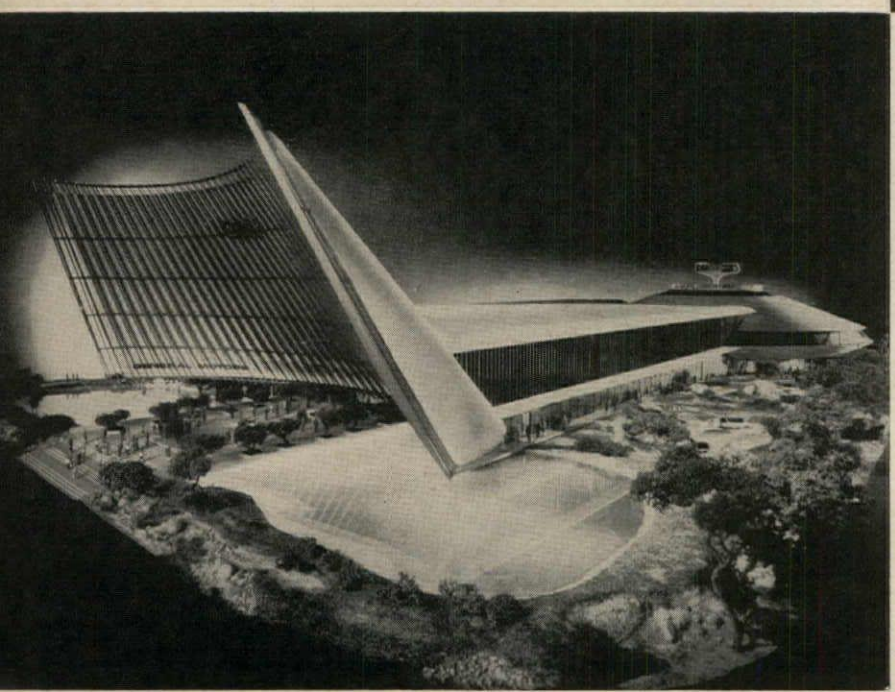
MEXICO: This three-story hall will use Mexican Tezontle, a reddish porous stone, and white marble. Front walls will be aluminum. The roof will have a translucent circular center. Architects: Pedro Ramirez Vazquez and Rafael Mijares; structural engineers: Lev Zetlin & Associates; mechanical engineers: Ian Grad Associates; general contractor: Starrett Brothers & Eken, Inc.



MOROCCO: Echoing the arches and mosaics of its native land, the pavilion of Morocco surrounds a central patio with a double arcade of exhibit spaces for its national products. Architect: Charles James Koulbanis; structural engineer: John Victor Olenek; mechanical and electrical engineers: W. A. DiGiacomo Associates



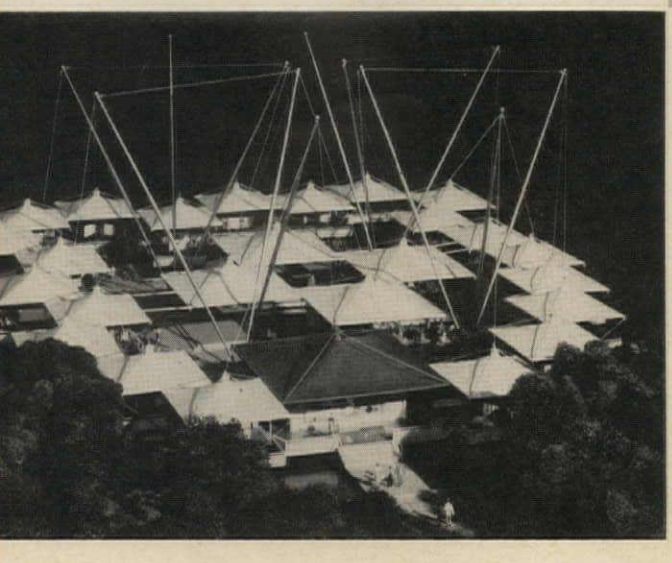
SCHAEFER: Roofs of the pavilion for the F. & H. Schaefer Brewing Company are air-filled disks of translucent vinyl coated fabric. The disks will be fabricated as balloons, installed in compression rings and inflated by concealed blowers. Exterior walls of figured transparent plastic will be supported by curved plastic coated exterior steel columns. Architects: Eggers & Higgins; industrial designers: W. D. Teague, Associates; structural engineers: Seelye, Stevenson, Value & Knecht; electrical engineers: Jaros, Baum & Bolles; general contractor: George A. Fuller Company



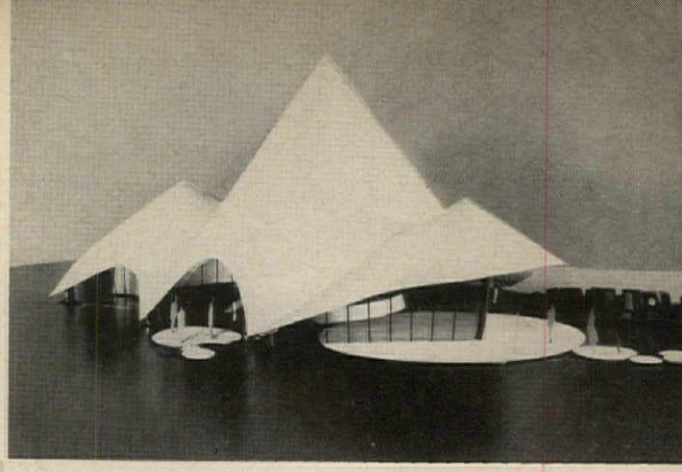
GENERAL MOTORS: With a 10-story canopy above its entrance, General Motors' Futurama will cover nearly three acres of a seven-acre site. A rectangular building 675 feet long and 200 feet wide will terminate in a 250-foot domed pavilion topped by a revolving time-temperature indicator. Architects and engineers: Albert Kahn Associates; designers: General Motors styling staff; electrical engineers: Fischback & Moore; general contractor: Turner Construction Company

ELECTRIC POWER AND LIGHT: Investor-owned electric utility companies will tell their story of free enterprise with musical shows housed in a Tower of Light Pavilion constructed of anodized aluminum panels rising in an irregular pyramid to a peak of 80 feet. Center of the building is an open court from which 120-foot prismatic pylons extend to frame a shaft of light beamed skyward. Architects and engineers: Synergetics, Inc.; show designers: Robinson-Capsis-Stern Associates; mechanical and electrical engineers: Cosentini Associates; general contractor: Slattery/James King

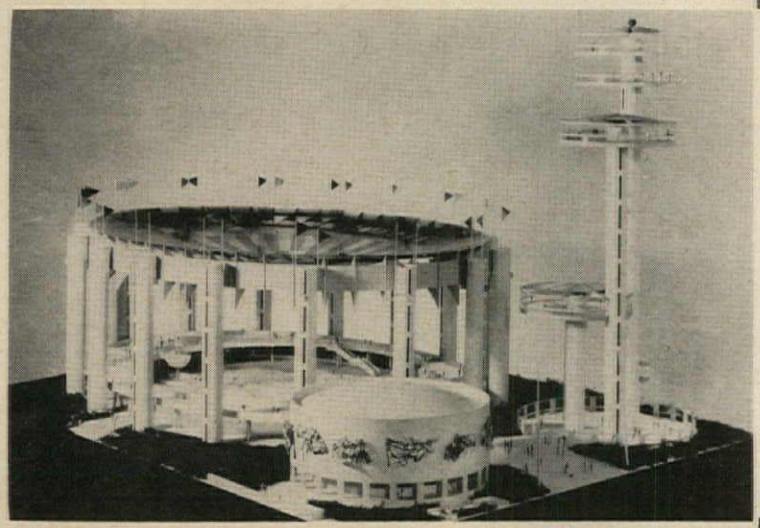
GAS INDUSTRIES: The Festival of Gas Building will be a totally air-conditioned, two-story structure 300 feet long and 134 feet wide. The largest air-curtain wall ever installed will control entrance and exit, and will enclose three sides of a 200-seat restaurant. Major area of the building will be enclosed with clear plastic installed in a manner similar to "invisible" store windows. Canopy roof will be of translucent material. Designers: Walter Dorwin Teague Associates; structural engineers: Purdy & Henderson; electrical engineers: J. S. Hamel, Inc.; general contractor: W. J. Barney Corp.



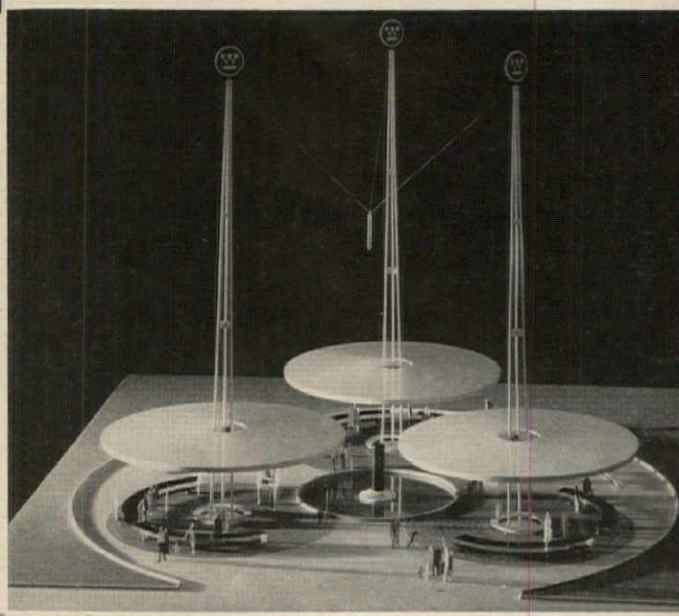
NEW JERSEY: A cluster of 21 pavilions represents the diversity of New Jersey industry. Open pavilions are concrete with pyramid roofs supported by cables from exterior masts. Architects: Collins, Uhl & Hoisington; designers: Peter Quay Yang, Inc.; mechanical and electrical engineers: Bliss & Hanle; structural engineer: Norman J. Sollenberger; general contractor: Harold A. Brandt



SIERRA LEONE: Three asymmetrical cones of prefabricated plastic structural panels are supported by six buttresses of steel where roof cones meet the ground. Basically rectangular building will be enclosed by heat-absorbing plate glass walls. Architect: Costas Machlouzarides; structural engineers: Strobel & Rongveb



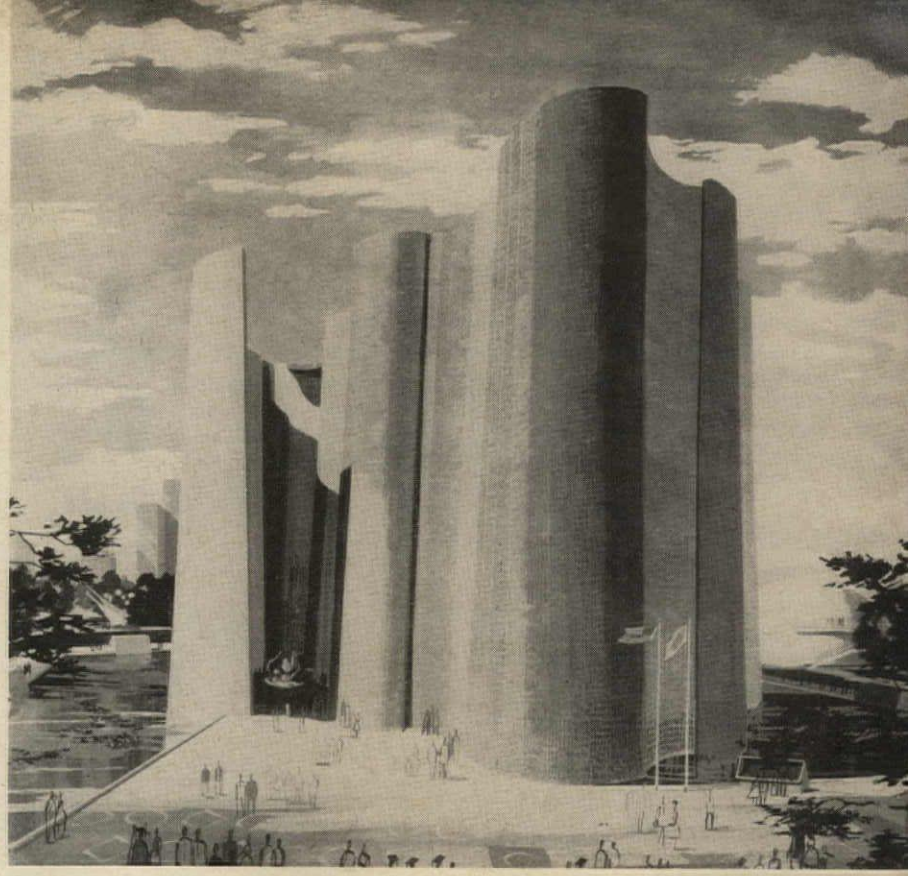
NEW YORK STATE: A concave roof of fiber glass reinforced plastic is held in place by cables fastened to peripheral columns. Visitors will ride up to the top of a 200-foot tower in glass-enclosed elevators which will travel on the outside of the tower. Architects: Philip Johnson Associates; mechanical engineers: Syska & Hennessy Inc.; structural engineers: Lev Zetlin and Associates; general contractor: Thompson-Starrett Construction Inc.



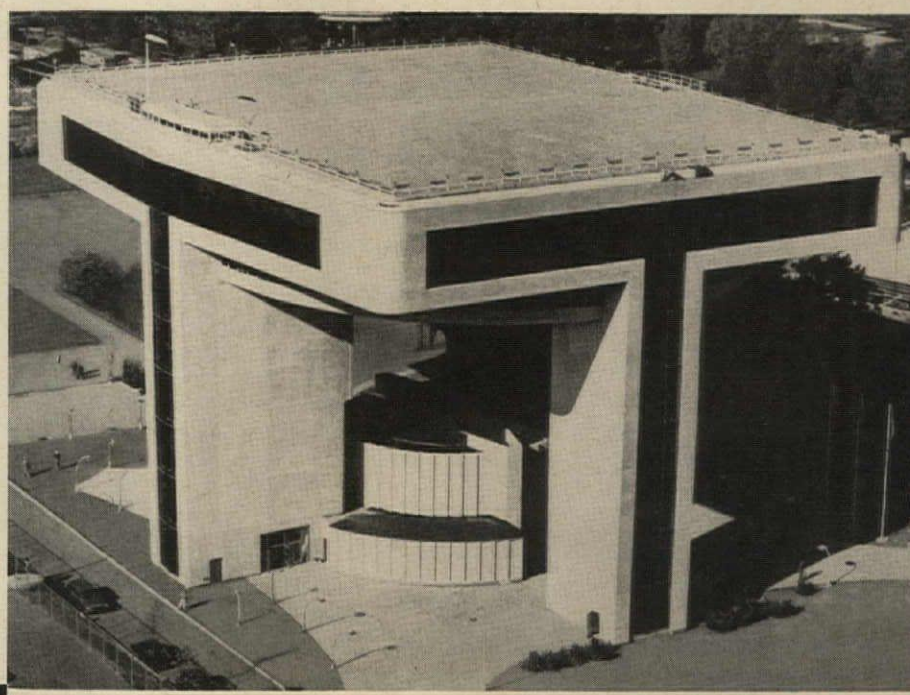
WESTINGHOUSE: A duplicate of the original time capsule from the 1939 Fair is suspended by three pylons over a marker on the spot where a new time capsule documenting the last 25 years will be deposited as a message to people living in 6939 A.D. Roofed areas around the marker will show content of both capsules. Architects: Eliot Noyes and Associates; engineers: Werner-Jensen & Korst; general contractor: Diesel Construction Company

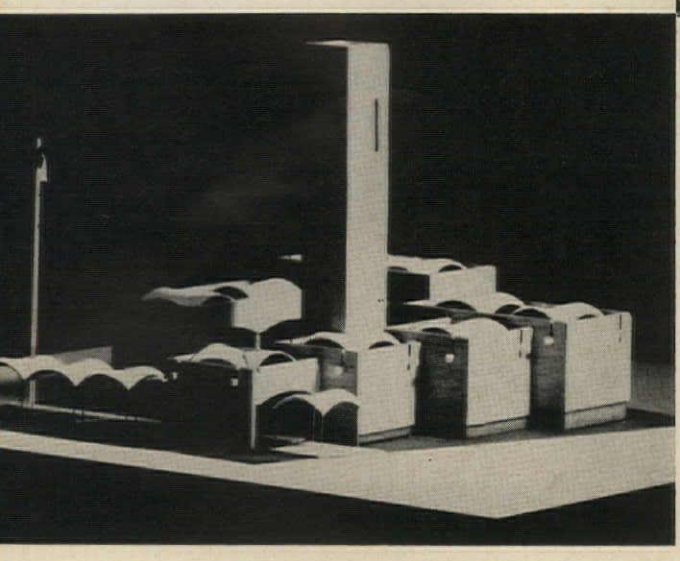
FORD: A glass enclosed circular pavilion 235 feet in diameter surrounded by 64 pylons adjoins a flared rectangular exhibit building more than 500 feet long through which people will ride in Ford automobiles viewing an exhibit created by Walt Disney's WED Enterprises. Architects: Welton Becket & Associates; structural engineers: Richard R. Bradshaw, Inc.; mechanical and electrical engineers: Syska & Hennessy, Inc.; general contractor: Thompson-Starrett Construction Company

HALL OF SCIENCE: One of the very few permanent buildings constructed for the fair is this museum of science built by New York City Department of Public Works. It is a reinforced concrete structure of curving walls containing a very high great hall in which visitors will view a simulated rendezvous in space of two full-size space vehicles. Architects: Harrison and Abramovitz; structural engineers: Amman & Whitney; mechanical and electrical engineers: Syska & Hennessy; general contractor: J. W. Barney Corp.



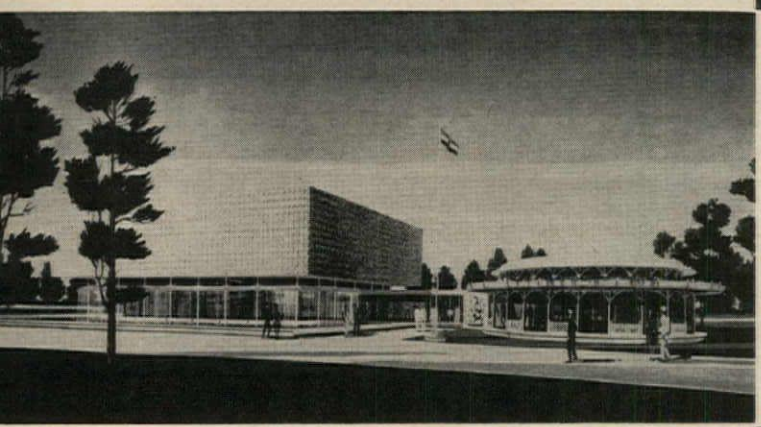
PORT OF NEW YORK AUTHORITY: First completed building at the fair, also to remain as a permanent heliport for Flushing Meadow Park, the 120-foot Port Authority Building contains an upper level "Top of the Fair" restaurant. Tapered columns contain elevators and mechanical services. An oval cocktail lounge occupies the level just below the restaurant. Helicopter service from the roof will connect the fair with Manhattan and airports in the metropolitan area. Architects and engineers: Port of New York Authority staff; general contractor: W. J. Barney Corp.



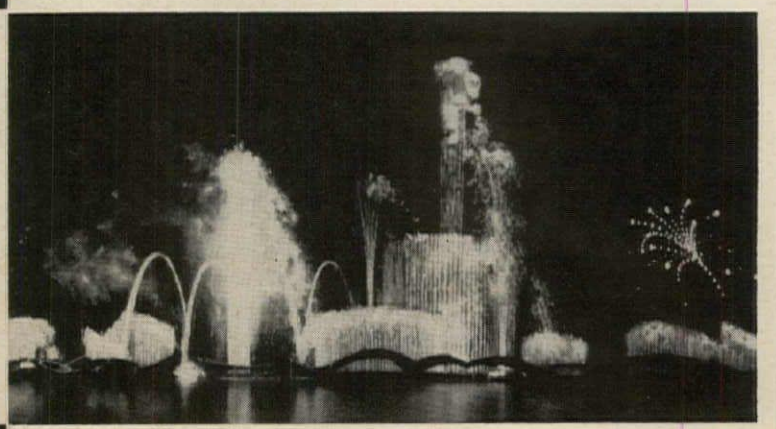


LEBANON: In an attempt to capture Lebanon's architecture in contemporary form, this pavilion is entirely constructed of Lebanese stone. Exhibits will feature tourist attractions, history and an open-air restaurant serving Lebanese dishes. Architects: Assem Salaam with Justin Henshell and Edwin A. Weed; general contractor: Gilles & Cotting, Inc.

IRELAND: Designed to reflect the ethnic links between Ireland and the United States, this pavilion will house cultural and historical exhibits. Focal point of the exhibit will be a large stone Celtic cross. Architects: Robinson, Keefe & Devane; designers: George Nelson & Company; mechanical and electrical engineers: Kelly and Morris Associates; general contractor: James King & Son



INDIA: Pavilion of India will portray the changing image of India through model photographs and museum pieces. Architects: Mansinh Rana with Stonorov & Haws; structural engineers: Garfinkel and Marenberg; general contractor: Gilbane Building Company



FOUNTAIN OF THE PLANETS: The largest automated fountain in the world, located in the 630-foot Pool of Industry will be a display of water curtains and jets in varying patterns synchronized with colored lights, music and fireworks programed electronically. A giant loudspeaker 16 feet in diameter is suspended in the center of the fountain. Fountain designers: Hamel & Langer; construction: The Lummus Company and Clarke & Rapuano

OTHER FOUNTAINS: The Solar Fountain (*upper left*) will comprise a golden bubble with sparkling glass insets and a 30-foot water column supporting a golden sunburst. The Lunar Fountain (*lower left*) will consist of a 10-foot high water bubble, there will also be an Astral Fountain featuring a 70-foot column of water enclosed in a star-studded rotating open-work cylinder. These fountains as well as one at the base of the Unisphere were also designed by Hamel & Langer. The Unisphere Fountain and its lighting system will be synchronized to rotate water and shadow patterns to simulate the rotating earth

SCHOOLS

BUILDING TYPES
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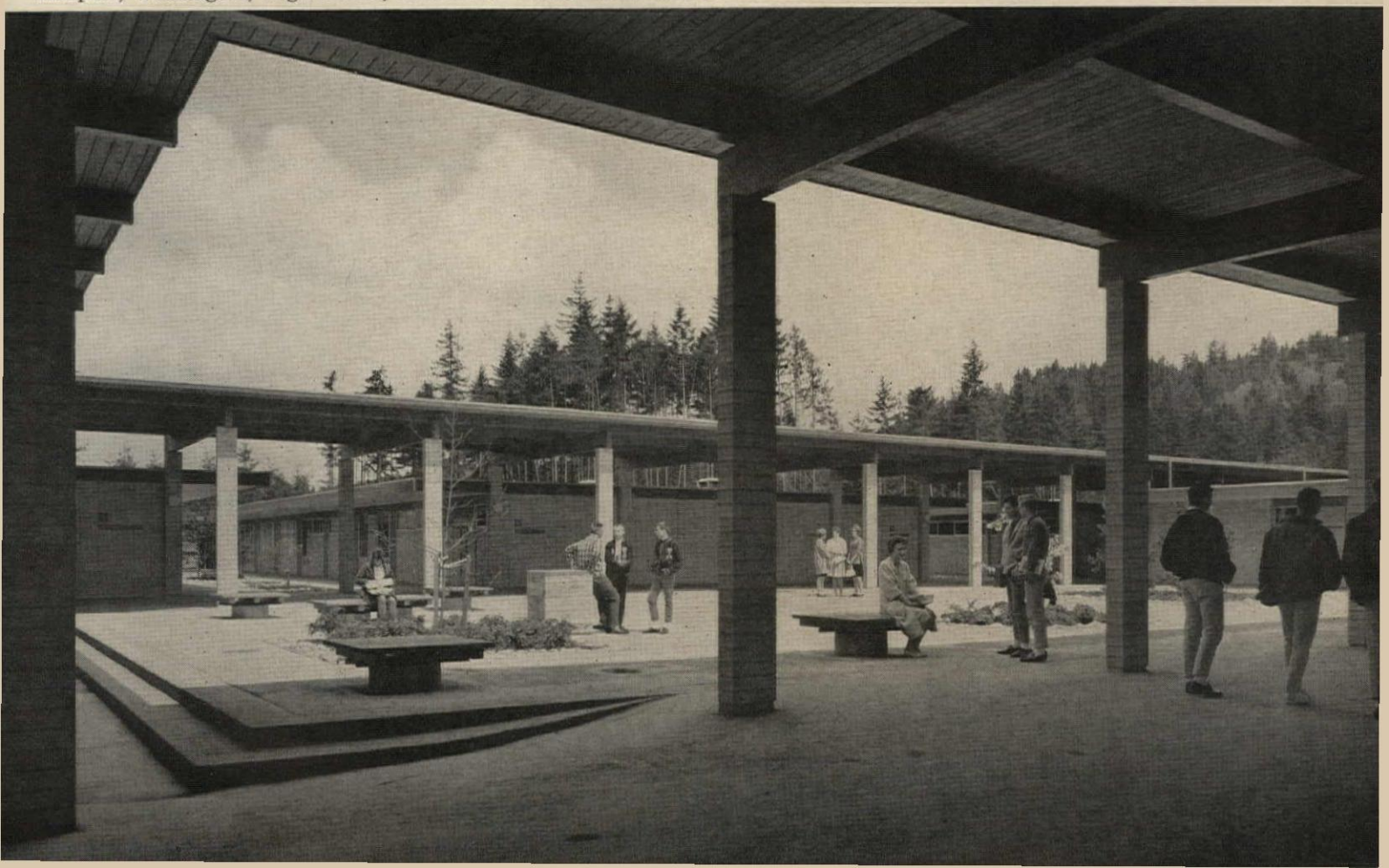
STUDY 328

The past year has been a remarkably active one in the school field: in construction, in enrollments—and in the impact of new educational ideas on school design.

Construction, moreover, bodes to continue, as indicated by the F. W. Dodge Construction Outlook for 1964: "No gain in physical volume, but a rising dollar outlay reflecting a higher proportion of secondary school and college building. A gain of 3 per cent is in order." Enrollments, Fred M. Hechinger reports in The New York Times, have set another record: "At the beginning of the academic year, 47.1 million pupils were enrolled in all schools . . . with about 35 million in the elementary schools (through eighth grade) and 12.1 million in the high schools."

In the area of design innovations, we are pleased to present on the following pages, excerpts from a nationwide series of interviews with some 47 architects, engineers and educators, conducted by Professor Henry Wright of Columbia University; plus a portfolio of schools which sum up much of the new thinking.

Issaquah, Washington, High School; architects, Young, Richardson & Carleton; Charles R. Pearson photos



Air-Conditioning, Architecture and Education

By Henry Wright

During a period of a little more than a year, I was privileged to make a nationwide survey of opinion among two-score architects and educators in 17 states on the subject of school air-conditioning and its effects on school design. The use of a tape recorder made it possible to conduct the survey in the form of a free interchange of ideas rather than as a pre-structured opinion poll. Nevertheless, as the interviews progressed, it was not long before a pattern began to emerge—a pattern which is reflected in the general organization of this report. The full transcript ran to something like a half-million words. All that was needed to make a book of it was a pair of scissors, a paste pot and ruthless selectivity.

It would be fatuous to say that the survey was conducted without preconceptions on my part. I began (and ended) with a distinct bias in favor of air-conditioning for schools, and it was inevitable that I should in some measure act as an advocate for this new factor in the school design picture. Some of the participants, as will be seen, held an opposite view, which, hopefully, may have been modified by the exchange of opinion. It has to be said, however, that the project throughout was free from commercial pressures of any kind. The Herman Nelson Division of the American Air Filter Company, its sponsor, made no effort to dictate, or even to influence, the appraisals expressed.

Representative excerpts are presented here in a highly distilled form.

THE SURVEY PANEL

ARCHITECTS AND ENGINEERS: *Joseph Amisano, Henry L. Blatner, William W. Caudill, Mario J. Ciampi, Ray D. Crites, Arthur Q. Davis, Alfred W. Day, Milo D. Folley, Woodie Garber, J. Brooks Haas, Mark Hampton, Vincent G. Kling, John A. Lattin, Herbert Lawton, Arthur E. Mann, John W. McLeod, Richard J. Neutra, Gyo Obata, Enslie Oglesby, Lawrence B. Perkins, John Rea, John Lyon Reid, William Rupp, J. Stanley Sharp, John A. Shaver, Lester W. Smith, Linn Smith, Richard G. Stein, Hugh A. Stubbins, Joseph Thomas, Robert R. Weber, Frederick S. Webster, Henry L. Wright.*

EDUCATORS: *Edward J. Anderson, Robert G. Andree, A. J. Foy Cross, Francis C. Darby, Glenn Fletcher, Milton Gabrielson, John W. Gilliland, Charles D. Gibson, Philip H. Hiss, C. L. Koehler, Jordan L. Larson, James D. MacConnell, Robert L. Miller, Robert F. Savitt*

Compactness—Pro and Con

The most widespread opinion expressed by the panel was that the policy advocating schoolhouses reduced to windowless "boxes," in order to save money for the addition of air-conditioning, constituted an unwarranted encroachment on architectural prerogatives. As the discussion developed—even though it was conceded that interior rooms and windowless areas would probably play an important role in future school design—most of the panel members felt that the designer should retain the freedom to create environments considerably more varied than those characteristic of some of the highly publicized "designs for air-conditioning" of the recent past.

JOHN W. McLEOD was perhaps the most forthright proponent of this attitude: "I hate to see the architectural profession bulldozed into designing schools without windows . . . We have been subjected to the theory that you can only afford air-conditioning if you take the windows out. I think we have enough evidence to indicate that you can have air-conditioning with or without windows."

And **WILLIAM W. CAUDILL** added: "People tell us that if you leave out the windows and make a compact building, you can get the air-conditioning free. This is a lot of hokum. We have been making compact buildings with natural ventilation for years."

A. J. FOY CROSS, the late educator, commented: "You can probably show that you can build schools with wise compacting and supply them with air-conditioning equipment and operate them—maintenance and all—for less than a standard school. I think this is demonstrable. But if it doesn't enhance the educational program, don't let's do it. If there are functions of windows or other features of windowed buildings that are really worth saving, I'd say: 'Let's keep them'. But so far I haven't found that there are."

LINN SMITH: "I don't believe in this economy kick justifying air-conditioning; I don't think a building ought to be designed around air-conditioning as the controlling factor. I think it's one of the tools we have if we need it."

As **ARTHUR E. MANN** put it: "I am firmly convinced that schools should have air-conditioning . . . We are fast approaching a 12-month school year, with summer sessions going on in almost every section of the country."

And **RICHARD J. NEUTRA** prophesied: "I have an idea that school buildings will be impossible without air-conditioning within the next 30 years, because, among other things, of the noise of air transportation."

WILLIAM RUPP: "The most wonderful thing about air-conditioning is the freedom it gives you. You don't have to worry about the fine points of orientation and ventilation. It relieves you of other problems as well—such as transmission of sound from one classroom to another."

HUGH A. STUBBINS: "We have found that the more compact building, even with courtyards, is less expensive. Perhaps it's because the services are more concentrated; there are fewer outside walls to lose heat or absorb it."

As **LESTER W. SMITH** put it: "All things being equal, compactness is something to strive for. Students can get around in a reasonable time between classes."

MILO D. FOLLEY: "I think there will be a development of interior spaces because of the educational program, so I think we are confronted with this thing whether we want it or not."

JOHN REA: "If you make a big box of some kind—even if you do it beautifully—you still get yourself into a whopping traffic problem in a big school."

VINCENT G. KLING: "I don't think that the all movable-wall, all overhead-light, all air-conditioned schoolhouse—with the only relief a pass at a courtyard when you're going from one class to another—is a very imaginative, much less an exciting, approach to this whole process of bringing out a sense of awareness in the children that they are part of an educational environment."

Several members of the panel had interesting comments to make on the relationship between compactness and the number of floors in the building.

WOODIE GARBER: "In one-story schools you can vary your ceiling heights for the type and size of rooms because you don't have anything over you but the sky. There are many compromises made in multi-story buildings—uneconomical compromises when it comes to the larger areas like cafeterias, auditoriums, gymnasiums, and so forth."

C. L. KOEHLER: "I feel that for the elementary school, one-floor plans are excellent; for junior high schools and high schools, we should go to a two- or three-story building for economical construction—with a minimum of fenestration—and with everything lined up so that you have a minimum of exterior walls, roofing, halls and windows."

ROBERT R. WEBER: "Comparisons that have been made show that once you step away from a one-story building, elevators, stairways and so forth are inefficient until you get beyond five stories—to justify the space used. There isn't any doubt that we have to go to more than one story on a lot of types of space, because of the economic pressure—trying to get the most for the dollar and still retain all the environmental values that are necessary."

For and Against Windows

Many of our panel members were convinced of the need for a direct connection with the outside, even though numerous qualifying factors were adduced.

As **HENRY L. WRIGHT** put it: "There is quite a movement on in our area toward the windowless school. Both as an individual and as an architect, I would have a visual strip for a change of concentration."

WILLIAM W. CAUDILL developed this still further: "We don't believe in windowless schools, nor do we believe in all-window schools—we believe in solving problems."

HUGH A. STUBBINS added: "Spaces for short-term concentration, lecture rooms, language studios, etc. might well be windowless. But, generally, I think occupants of interior space should have visual contact with the outside."

PHILIP HISS commented: "To design a school that will best serve the learning process, you need outlook, the feeling of changes outside the room. My argument is not that you cannot build a windowless school and have it pleasant—because I think you can. Theoretically, it's possible; in practice, it may not be, because in order to make a pleasant environment and still have it windowless, you probably will have to spend more money than if you put the windows or the courtyards in."

JOHN W. GILLILAND said: "I'm not quite ready to do away completely with windows in classrooms, although there have been times when I've come pretty close to thinking I was. There may come a time when you have mechanical failure, an emergency when you need to bring in some air, or enough light to see your way out of the building."

CHARLES D. GIBSON discussed the distraction argument: ". . . some distraction is not only good; it is necessary to the learning process."

JOHN A. SHAVER: "I think a student in a concentrated learning task needs to be unaware of external environmental conditions—I mean they should not distract him. I would say if you want a shot of sunlight, a change of temperature to stimulate him, it should come when he is moving from one task to another, from one area to another."

LESTER W. SMITH, along the same lines, adds this: "The teacher feels there are many things in the classroom that can be a distraction. One of them is to have openings to the corridor; another is to have windows you can see out of. A first-rate teacher doesn't have to worry about this."

WOODIE GARBER: "A lot of difference lies in the location of the building: a downtown location on a very busily traveled street suffers from having windows, just because they are required."

Many members of the panel, on the other hand, conceded that the need to see outside was probably much greater in the case of the elementary school pupil than in that of the secondary school student who, in any event, moves from room to room between classes.

ALFRED W. DAY, of **ARTHUR E. MANN**'s office: "I think that windows are the sort of thing you eliminate as you go up the grade ladder."

WILLIAM RUPP: "The elementary school, where the students spend nearly all day in one room, involves quite different considerations from the high school, where they change every 50 minutes."

In addition to the age-level distinction, members of the group called attention to the fact that the teacher's need for outlook may be greater than that of the pupil, especially in the high-school situation.

HENRY L. BLATNER had this to say: "I'm not sure we should go much further in eliminating windows from rooms in which a teacher teaches all day long."

GLENN FLETCHER pointed out that "the teacher's workroom and lounge can have windows, even though the classrooms do not, and that makes it a little more attractive for her to come to the workroom during unscheduled periods, while someone else can use her classroom."

A. J. FOY CROSS emphasized that: "There are certain activity areas in a building where we just don't want windows, even if we could have them *and* air-conditioning *and* all the walls."

The feeling was widely shared among both architects and educators that the type of wall-to-wall window so much employed in recent school design was on the way out; that whatever the need for outlook, it could be provided by considerably less exterior glass.

JORDAN L. LARSON's opinion was: "We can cut down the window size materially and still have some view from each classroom."

HUGH A. STUBBINS felt that: "We have too much glass in our schools; this has been forced on us to a certain extent by our codes, which call for lighting classrooms by the exterior wall. We have gotten around that by introducing either clerestory or top light, but this poses a whale of a problem, because it is expensive, adds heat load, and is difficult to adapt successfully for visual aids."

There was considerable comment on the size and shape of windows to offset the absence of conventional fenestration. The concept of "less glass" naturally raised the question of how it should be distributed.

J. BROOKS HAAS thought that a "vertical vision strip plan is much easier to install from a practical standpoint, and it gives the children a slice of grass, sky, trees, everything. If you put a horizontal slit up high, the overhang might kill it; you wouldn't see any grass."

LESTER W. SMITH had an opposite opinion: "A window that includes the horizon; a strip that goes from side to side."

As many people have pointed out, the tendency to reduce the amount of glass in the outside walls of our schools is being counterbalanced by an equally prevalent tendency toward provision of more interior windows, especially between classrooms and corridors.

LINN SMITH: "We are using more inside glass. We did some double-loaded corridor jobs—really quite traditional: from 5 feet up to the ceiling we put in glass, and the whole character of the place was changed. The fire marshal now requires wire glass in steel frame; we just can't butt the glass as we did before. But we're still continuing with it, and it's even more desirable if you don't have any outside windows."

HERBERT LAWTON, of **MARK HAMPTON**'s office added: "Skylights break up a long corridor, which can be deadly."

The matter of maintenance and glass breakage brought forth widely varying comments.

ROBERT F. SAVITT: "The more windows you have, the more maintenance problems you face. Window breakage reached a point where I bet we spend four or five thousand dollars a year repairing windows."

A. J. FOY CROSS: "We don't like to be on the spot of having to explain why we have to spend as much money per year on glass cleaning as we would on the couple of extra teachers we need."

Interior Courts

One way of achieving many of the virtues of compactness, without sacrificing a view of the outdoors, is through the use of interior courts. Some panel members even felt that the substitution of "in-look" for outlook had positive virtues of its own and provided more effective and efficient means of achieving visual relief than through perimeter windows, especially in air-conditioned buildings which do not require through-ventilation.

ROBERT F. SAVITT: "In planning our present junior high school and high school, we have deliberately provided for interior courts. We feel you can have a certain amount of 'quiet' activity within such areas, even when school is in progress."

WOODIE GARBER: "We have used courts for two reasons: first, we weren't sure we were going to get the State Code on windows changed; second, our intention was, as soon as we had got the code passed, to roof in the courts and simultaneously achieve heat and light control and have an indoor garden—which can be an elegant thing in a school. In the winter, you can face some classrooms into an interior area that is semitropical in its growth."

Other panel members had some reservations, particularly on maintenance difficulties.

HENRY L. BLATNER: "The danger in small courts in this part of the world is that they are regarded as back alleys rather than courts. There are great possibilities in them; they have a romance that open space doesn't have. If you're going to plan a building with a court as a basic design element, it must be accepted and maintained. But if the court is just a big, black-top area, it can be a pretty dreary kind of thing."

ENSLIE OGLESBY: "In our area an open court creates a vacuum and becomes a natural trash receptacle for stuff that is carried through the air. That's the reason why I like to further contain these areas."

Indoor-Outdoor Relationships

The popularity of the campus-type school, in which students are more-or-less exposed to the weather as they circulate between buildings, came in for a good deal of discussion. The experience of those in quite northerly areas seemed to indicate that the temperature changes involved were not only completely tolerable but even had a positive value—similar in some ways to that of the former practice of throwing open classroom windows for a few minutes of calisthenics.

EDWARD J. ANDERSON stated this point of view quite vigorously: "I think there is something nice in going from a relatively warm building into the outdoor cold. For instance, in our high school you go from a comfortable temperature to below zero at times. We find that most people can walk across dressed as they are—up to two or three minutes. We have arranged it so that the youngster can move from one to another area within two to two and a half minutes. Some of them wear their coats; others don't."

VINCENT G. KLING: "Open corridors work; we've done it and it works. You know who likes it even more than the kids? The teacher."

There was, however, some negative reaction, especially in areas with a good deal of wind and rain.

GLENN FLETCHER: "It's a problem in wet weather. We connect all the multiple buildings on the same campus with conversed passageways."

A number of panel members felt that if outdoor circulation is a good idea in schools in wintertime, it would be even better in summer, since it would permit the students to get "back in touch with outdoor conditions" and provide the same kind of variety and stimulation in reverse.

JOHN A. SHAVER: "We're doing some open corridors in air-conditioned schools right now, opening up the interior spaces of a couple of buildings. When a student is working at concentrated learning tasks, he should be unaware of temperature and his surroundings, distractions, and so forth. But when he goes from one space to another, it's good to have a change of pace that will stimulate him."

Besides singing the praises of outside space as such, several members of the panel were interested in the possibility of increasing its period of usefulness through radiant heating units and other temperature-control devices for unenclosed and partially enclosed space.

WILLIAM W. CAUDILL: "We believe in conditioning the outside. One school that we call the 'veranda' school right here in Houston, has an enormous porch, two stories high, about a block long, where there is just cover. We are lighting it at night, also heating it."

JOHN A. SHAVER: "In Colorado we have a physical education building where the physical education shelter is nothing but a steel network to hold the lights and the infrared heaters."

Changing Educational Requirements

HENRY L. BLATNER spoke for the entire panel when he pointed out that "you can't divide architecture from the basic purpose of the school, which is education. It is the educational program that should determine whether you are going to have a wing-type building or a series of buildings or one built around a resource center."

It became apparent, from what many of the panel members had to say, that new ideas in education are creating needs that can only be met by inside rooms and, in some cases, therefore require air-conditioning for their effective realization.

CHARLES D. GIBSON: "We are abandoning the one-teacher-to-30-student approach. A sensible staff utilization, plus re-orientation of instruction programs to meet the needs of the individual student is taking the place of the 30-pupil class. We are changing teacher-student grouping patterns completely."

ROBERT F. SAVITT: "We have got to forget the traditional concept of the square classroom; we have got to think of classrooms in many different sizes. If there is climate control, a lot of spaces in a building could very well be used."

One widely accepted idea involves a grouping of classrooms and seminar rooms around a specialized educational materials center, viz. the breaking up of the all-purpose library into a number of focal centers in various parts of the school.

HUGH A. STUBBINS has used this approach. "One of our recent designs is based on grouping classrooms around resource centers—one center each for mathematics, the sciences, English, and so on. This produced some rather large interior spaces without exterior lighting."

Many of the educators endorsed the trend toward providing work space for the teachers apart from the classroom, pointing out the over-all saving this makes possible.

GLENN FLETCHER: "In our secondary schools, we have a normal daily assignment of five class periods a teacher. The teacher who has a room assigned to her, will sit in that room during her off-periods. The teacher sits there rather than going to a central place where there would be desks, a comfortable work place next to the lounge. If you have a dozen teachers, that means you can cut out—even on the average assignment of five classes a day—two and two-fifths rooms."

EDWARD J. ANDERSON: "We debated whether to build individual offices for teachers or a room big enough to accommodate a half dozen or eight or ten. We found the former was too expensive. We designed some furniture that gave a sense of separation. You can go into one of these staff rooms now and there are eight or ten people in them, who can work without interruption."

Many panel members commented on the tendency toward larger and larger schools, and the need for some type of subdivision to counteract the disadvantages of bigness:

J. BROOKS HAAS: "We have followed the 'school-within-a-school' concept because of the basic feeling we have that this will cut down the movement of pupils. In the past they were shuffled 100 per cent in every period. In this design, we keep them within their school area about one-half of that time. So they're within a little group, which has a tendency to make them feel more part of a unit they can understand.

Another idea which came in for some discussion was that of the K-12 school, in which a student is part of a single school complex all the way to the college level, and possibly beyond.

PHILIP HISS: "We have lots of K-12 schools around the country if you want to call them that because they have an elementary, a junior high, and a high school on the same campus. But in a real K-12 school, you get into the kind of thing where 'K' and '12' mean nothing, because we are actually tending more and more to the ungraded type of school where we use the designations only to give the parents an idea of where the children are, and sometimes to orient the teachers. In the individualization of instruction that is my goal, getting rid of the grade structure is a great advantage. When students are allowed to progress at their own speed, maybe they can complete the work in 10 years; maybe it will take them 13 years."

There is an obvious connection between the provision of air-conditioning and the vast increase in the use of school buildings in summertime and for community functions the year round. As **ROBERT F. SAVITT** put it: "The day has long passed when our school plants can lie idle in the summer months. During the last several years almost one-fourth of our student population attended school during the

summer months, not only for the remedial type of program, but far beyond that."

JOHN W. McLEOD: "I think there's no question but that we are going to use our schools not only longer each day but also longer each year. They're going to do it here in Montgomery County; they're going to a 12-month school with the summer months more-or-less voluntary, hoping they can eventually go into a full 12-month program. I am convinced you cannot let these plants sit idle through months out of the year."

Still another factor having a bearing on the use of air-conditioning is the increased importance being assigned to the urban school, where the ability to exclude dirt and noise has overriding significance.

MARIO J. CIAMPI: "We're finding here today in a city like San Francisco (which isn't too big) that our major problems are not our suburban schools, but that it is the urban problem which is the most critical."

ROBERT G. ANDREE: "A light came on in my head when I suddenly realized that all was not suburbia; all was not unlimited space; that most of the schools of the country are in urban centers, and that most of those schools aren't going to be built—they're going to be remodeled."

JORDAN LARSON: "We should never overlook the idea of remodeling, rebuilding, reconstructing or refurnishing an older school, if it is still sound from a construction standpoint and fairly adequate as to size and space."

Concerning Flexibility

The eclipse of the "Carnegie unit" type of school, in which pupils and teacher are filed away in neat 30-pupil compartments along one or both sides of a corridor has led, among other things, to an almost universal demand for manipulatable space. In its most advanced form, it demands instant convertability—space which may be subdivided or combined "at will and at once," in the phrase of Harold Gores. This approach is admirably exemplified in the Berkeley Junior High School by Gyo Obata in which each cluster of four rooms may be altered, by simply pressing the proper buttons, into a simple unit or any desired permutation of the checkerboard pattern.

That such flexibility is not necesarily demanded by the latest educational approach, however, is shown by the lay-out of the Wayland High School (The Architects Collaborative), where teaching spaces ranging from rooms specifically designed for large-group instruction to small seminar spaces, surround the resource center. Flexibility at Wayland means built-in variety rather than mobile walls, although some of the partitions are so constructed that minor changes in plan are not precluded. This difference between two progressive, excellently designed schools represents two distinct aspects of the same theory: one, that the best pattern of space utilization could only be worked out through continuing experimentation and direct participation of the teaching team; and two, the school program has been predetermined and space arranged around it.

JOHN A. SHAVER suggested still another approach: "Flexibility means different things to different people. One thing we think you should expect from it is to get a building that stays out of the way of the program. One way you get that is by opening up interior spaces so that they are free of columns and equipment of other types and therefore capable of alteration."

Which of these approaches proves most viable, in a period of change such as the present, it seems certain that the demand for "flexibility" will persist, despite the numerous problems and inherent defects that were pointed out in the course of the discussion. As many of the participants observed, all approaches pose new problems from a climate-control and environmental-design standpoint.

Still another concept of flexibility holds that space division as it has been practiced is really unnecessary. A corollary to this proposition is that the degree of sound separation which teachers have demanded in the past is not actually warranted, provided a sufficient mixture of sound is present and visual space divisions exist.

HENRY L. WRIGHT: "John Lyon Reid has done a research project for the Educational Facilities Laboratories in this field, and he finds that the noise level that is ordinarily tolerated is a great deal more then one would think. And Charlie Gibson claims that the team-teaching arrangement may result in less sound annoyance because the teachers will be working together on the program."

All of the panel members, both educators and architects, were concerned with the importance of the schoolhouse as an environment for learning. Some stressed the esthetic and psychological considerations entering into designing a building where students can learn and teachers can teach with optimal effectiveness; others tended to emphasize visual, sonic, spatial and thermal factors. The consensus served to define the role that air-conditioning may properly play in schoolhouse design.

CHARLES D. GIBSON put it this way: "We have to begin with what we want to express in a building: what are the amenities of space, the educational values, the human values we are seeking? We must decide what priority we will give to various design factors."

He felt it was important to have a design team of competent people in the basic areas, with the architect in overall charge, relating and interrelating the design factors into each area until an acceptable total plan meets the criteria as nearly as possible. "This requires give-and-take among the mechanical engineer, the electrical engineer, the educator, the structural man and the architect. Technology and research in these fields move so fast that it's quite impossible for anybody to keep up with them all, so the team approach is necessary. School design should not be concerned with meeting the needs or products of industry; industry must find out what educational needs are and develop the equipment necessary to meet them."

JOHN LYON REID, in discussing air-conditioning as a means for making a better educational environment, observed: "We find that the working environment that results from some form of air-conditioning does make for noticeably better learning conditions. Although we have not yet collected a body of data to prove it, we know that young people learn better when environmental conditions are right for them. Air-conditioning must be considered as one of the components. Architecture cannot be considered as merely a matter of light, shade, form and texture."

Frank Lotz Miller photos

AIR-CONDITIONING FOR A 12-MONTH PROGRAM

South Terrebonne High School
Houma, Louisiana

ARCHITECTS:
Curtis and Davis and Associated Architects and Engineers

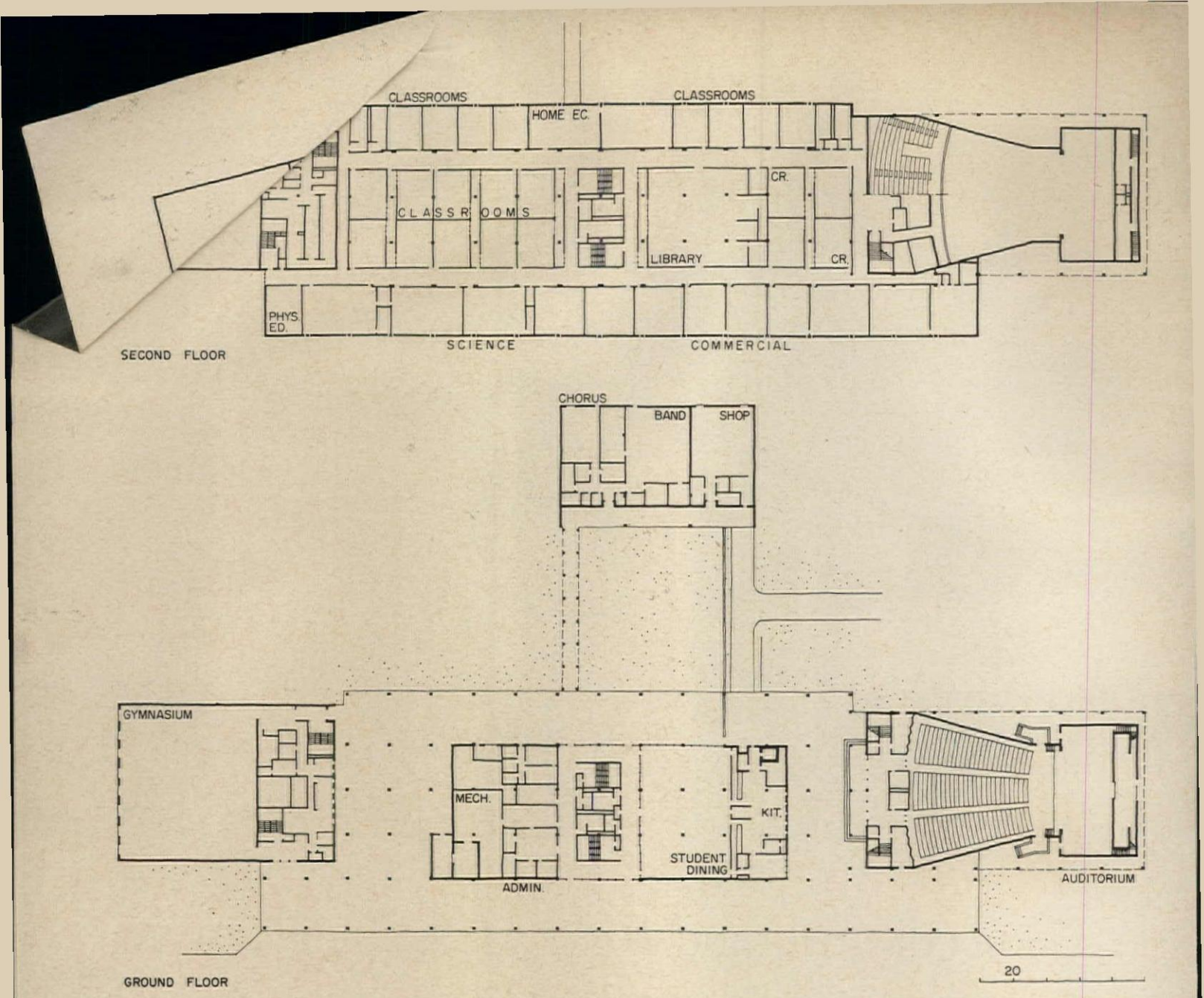
CONTRACTOR:
Southern Builders, Inc.

ENGINEERING CONSULTANTS:
Ogle-Rosenbohm and Associates (structural)
Cary B. Gamble and Associates (mechanical and electrical)

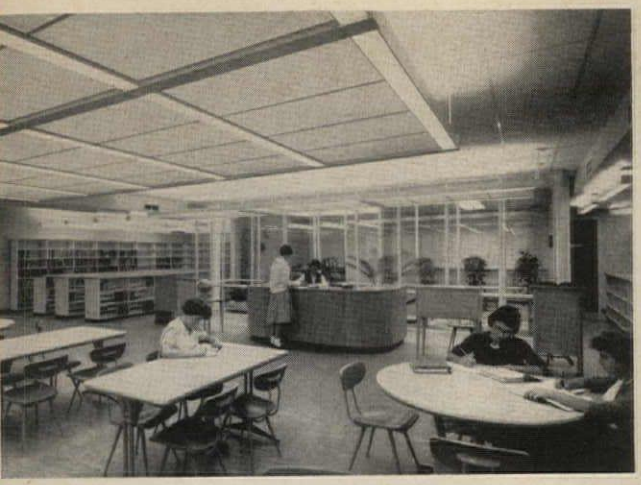
In planning ahead for the day when a 12-month school year will be incorporated, the school board for this rural high school enthusiastically adopted the architects' suggestion that the building be designed with air-conditioning at the outset.

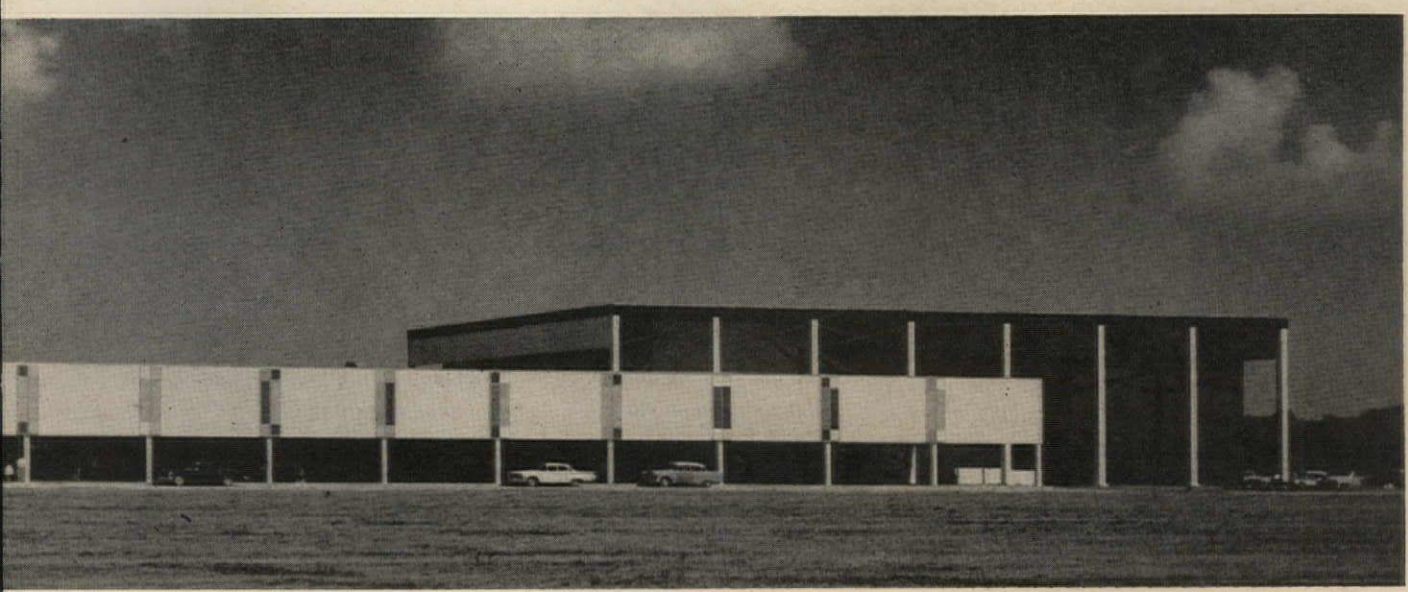
A compact scheme was evolved to minimize construction costs: the two big blocks for gym and auditorium flank a raised classroom section which has two double-loaded corridors, back to back. Below are administration, cafeteria and covered play areas. It was felt that windows should be minimized, but that each room should have some natural light and "view." To achieve this for the classrooms in the center of the building, a series of planted, skylighted patios were inserted between banks of rooms. The classrooms along the exterior walls have floor to ceiling strip windows and double jalousies with metal on the outside to ward off the sun. All the noisier elements (band, chorus, industrial shop activities) are grouped in a separate small building at the rear of the school.

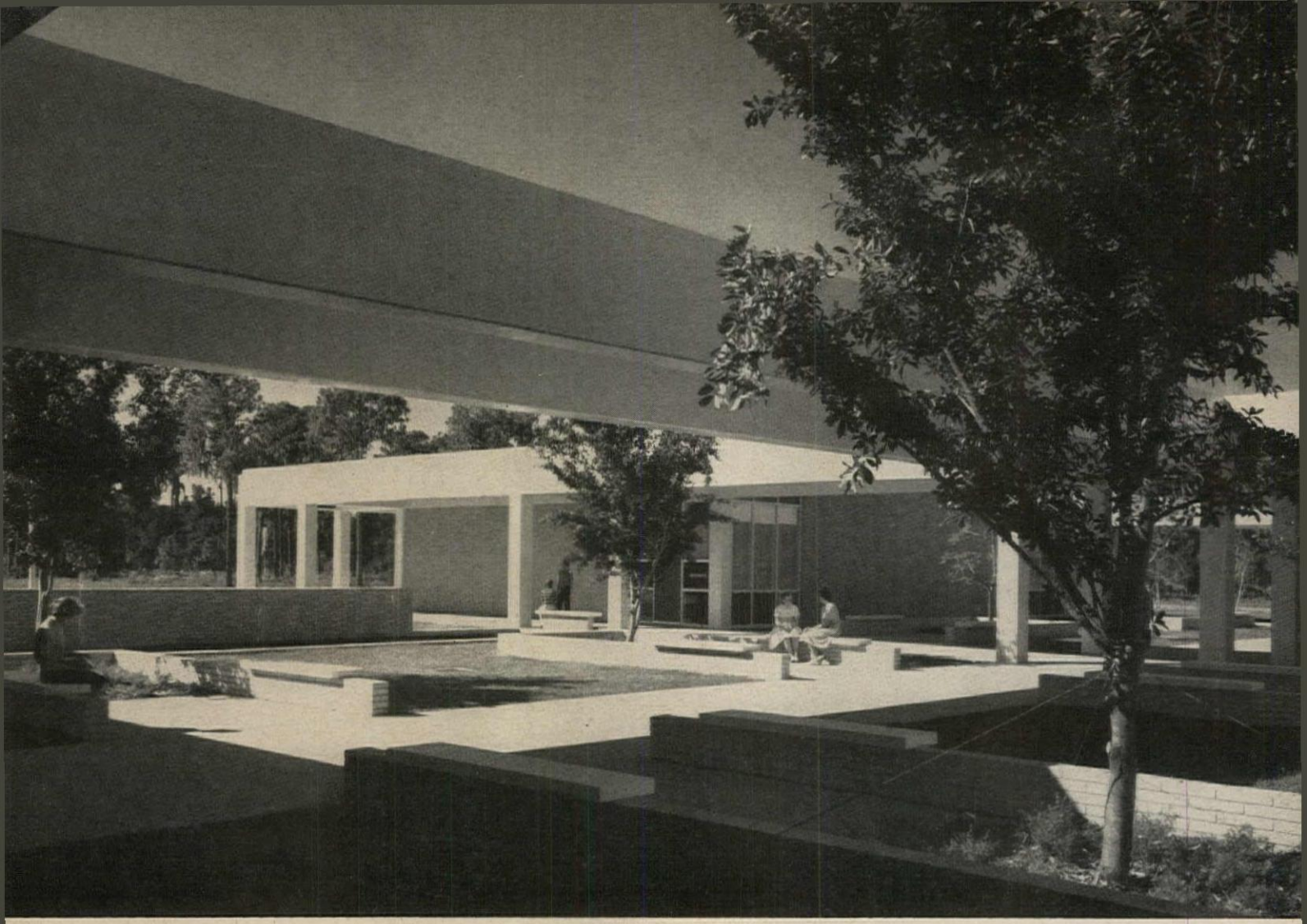
Individual air-conditioning units for classrooms facing the interior patios receive fresh air through screened openings in the skylights; air for the outside classrooms comes from openings in the floor. All units are designed for operation with 100 per cent fresh air to permit operation without heating or cooling on mild days. The administration area, cafeteria, auditorium and library have duct systems and air-handling units located near the area to be conditioned. All units are supplied with hot or chilled water from a central mechanical equipment room.



The structural frame of the South Terrebonne High School consists of steel columns, beams, bar joists and steel deck with concrete slabs. The exterior is white, ribbed aluminum and black brick. Color accents are added in plastic-coated panels above and below windows. Interiors are plaster, glazed tile







MASTER PLAN FOR CONSOLIDATED PUBLIC SCHOOL

McIntosh Student Center
Junior High School
Sarasota, Florida

ARCHITECT:
Mark Hampton

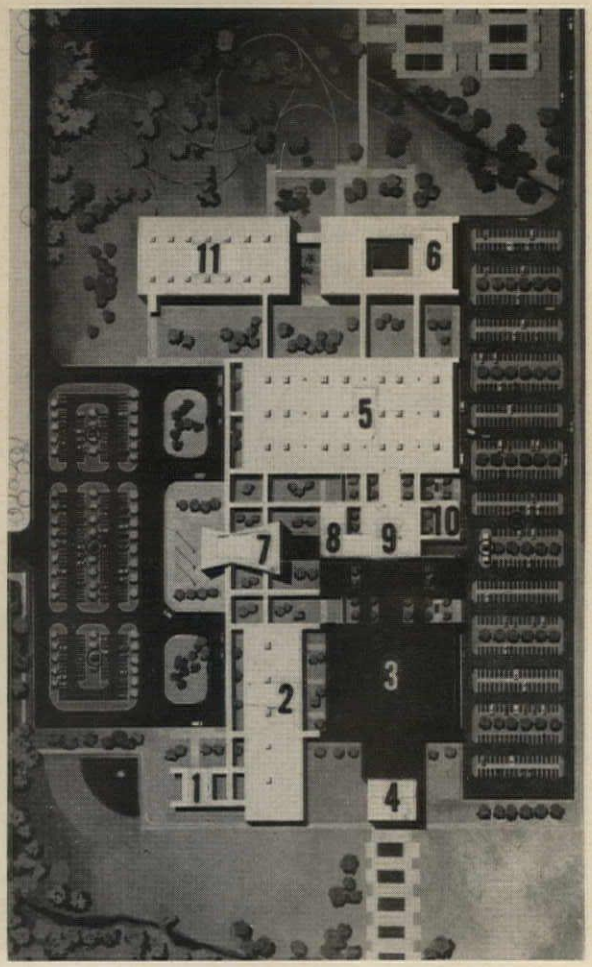
STRUCTURAL ENGINEER:
Randolph C. Jackson III

ACOUSTICAL ENGINEERS:
Bolt, Beranek & Newman, Inc.

CONTRACTOR:
C. A. Fielland, Inc.

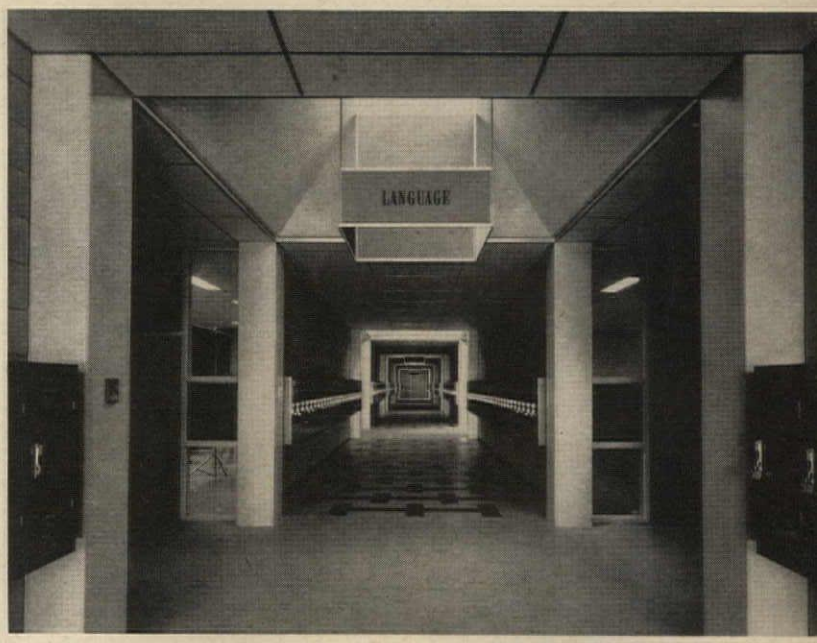
The junior high school shown here (shaded area on plan) is the first phase of a large complex that will be a complete educational facility for students from kindergarten through high school, and may possibly include a two-year school of advance study. The present buildings have a capacity of 1,300. The final complex will accommodate a total of 3,500 to 4,000 students. Each unit of the school will have its own identity, but certain facilities will be centralized: over-all administration, a central teachers' lounge and production center, the auditorium and the kitchen. It was decided that the entire school should be air-conditioned, have windowless classrooms, and use large windows in the library, dining and administration areas.

The plan of the junior high school uses semi-detached units for the areas with windows, and banks instructional departments around a grid of six skylighted corridors. Each department generally contains four classrooms with two multi-use rooms between each two classrooms. A fresh air chase to supply the unit ventilators forms a spine through each bank of rooms. Relief from the sensation of total enclosure was achieved through the use of warm materials, high light levels, and the use of accent colors. The instructional spaces vary in size: some accommodate small discussion or seminar groups, others are normal size for 30 to 35 students. In addition, there are spaces for assemblies of 120 students, and two dining areas double as lecture rooms for 200. At present, food is prepared at another school. The structure is of reinforced concrete columns and beams and steel bar joists. The exterior is lightweight cast brick and concrete block.

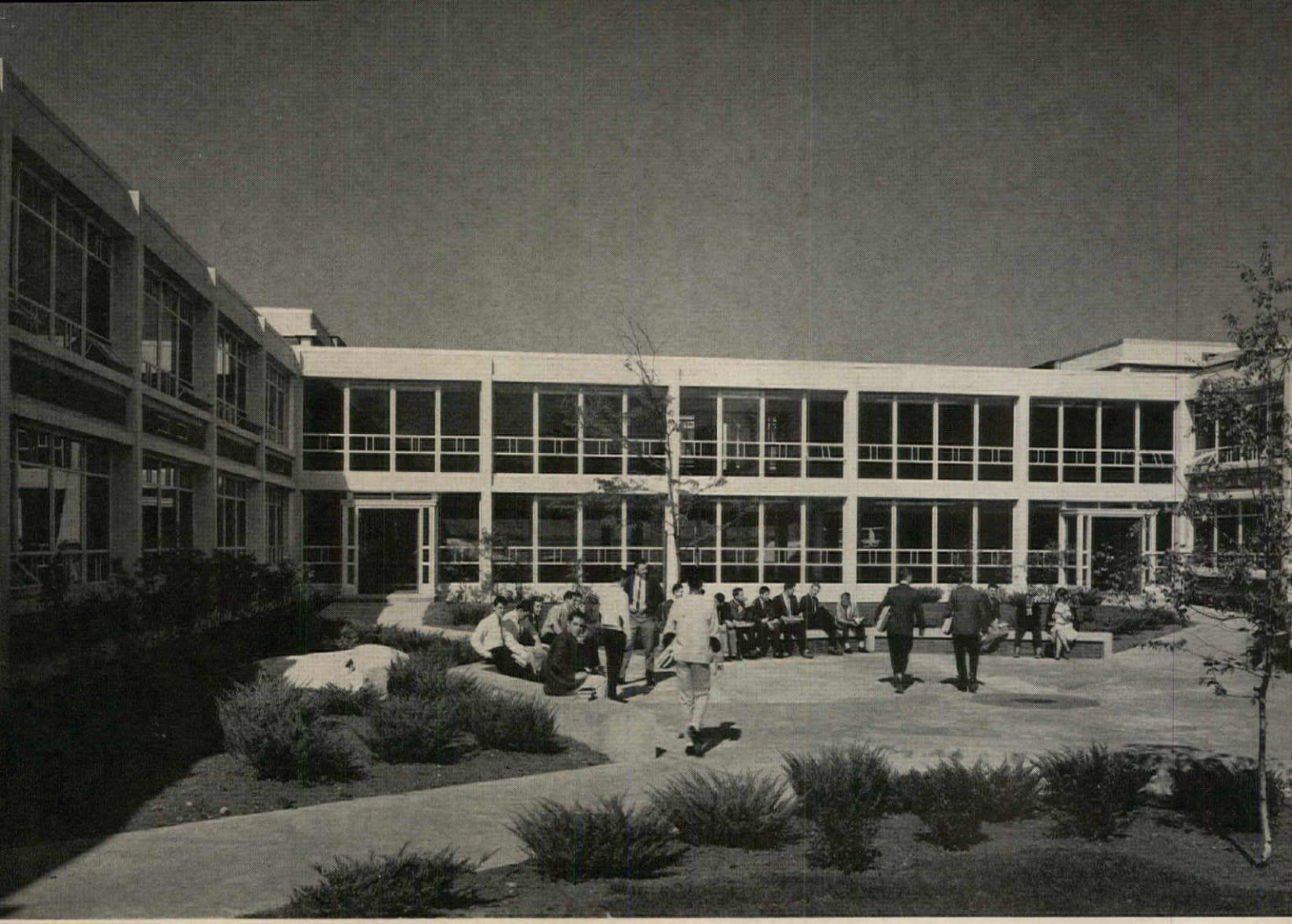


LEGEND

1. Kindergarten
2. Elementary school
3. Junior high school
4. Covered play area and lockers for junior high
5. Senior high school
6. Gymnasium, lockers, swimming pool
7. Auditorium
8. Administration
9. Kitchen
10. Mechanical equipment
11. Advanced study



Black-Baker photos



BIG, COMPREHENSIVE HIGH SCHOOL AT LOW COST

North Senior High School
Weymouth, Massachusetts

ARCHITECT:
Paul Coletti of Coletti Brothers

STRUCTURAL ENGINEER:
Anthony Sakakeeney

ELECTRICAL ENGINEER:
Edwin L. Steinbrunner

PLUMBING ENGINEER:
Daniel J. Sullivan

CONTRACTOR:
John Capobianco

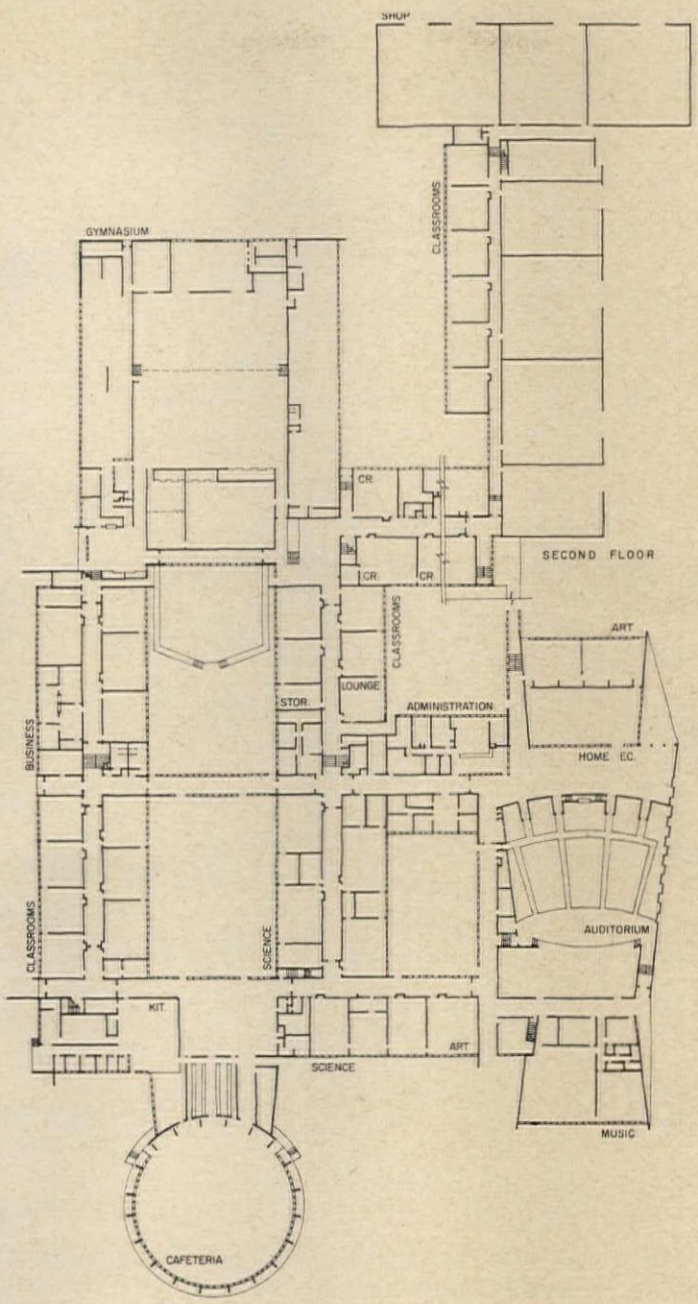
EDUCATIONAL CONSULTANTS:
Englehart, Englehart, Leggett and Cornell

Pleasant visual relief is provided by window-walled courtyards in this big, 196-room school for 2,000 pupils. Its size has made possible a very extensive curriculum, and up-to-the-minute equipment at a reasonable cost. The construction contract price of $3,685,993 ($13.65 per square foot) is, according to the Massachusetts State School Building Assistance Commission, $3.02 less than the average cost per square foot as compared to seven recently built Massachusetts high schools.

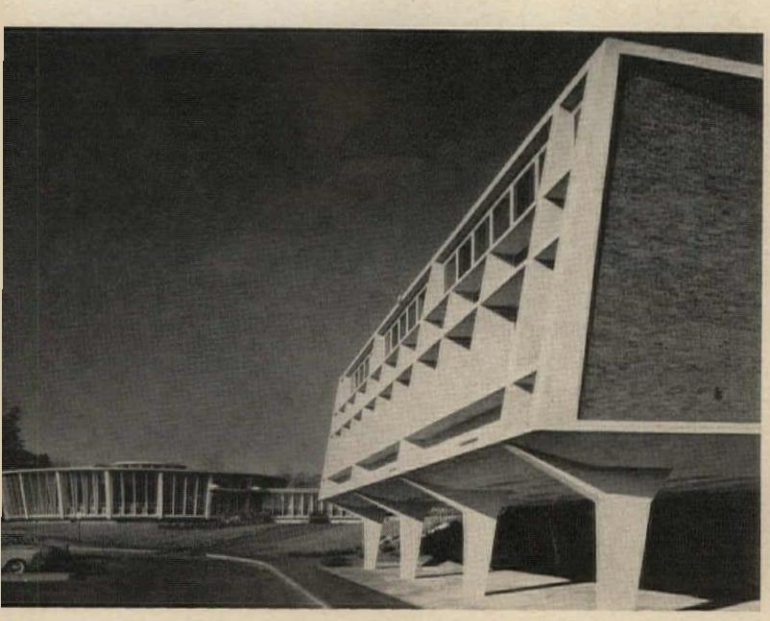
The school has complete facilities for general academic courses, science, vocational trades, the arts, language labs and physical education. All areas are designed to use new techniques such as closed-circuit television, audio-visual films, tape recorders, and large class lectures with master teachers. Television facilities include a soundproofed, air-conditioned studio for originating live and taped programs; it is also possible to originate programs from any classroom in the school.

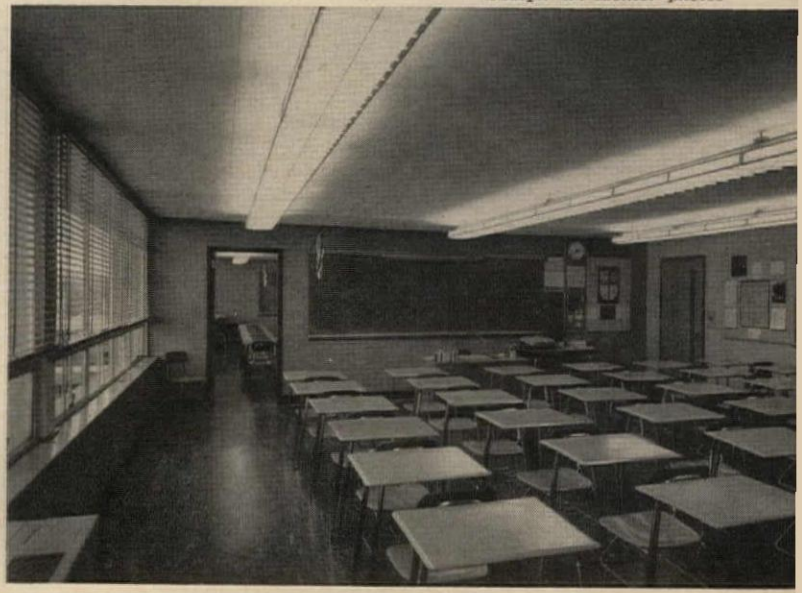
The plan of the school has been kept reasonably compact to control costs. All classroom sections are of two levels, placed around the courts. The large, high-ceilinged units such as gymnasia, auditorium and cafeteria are one story.

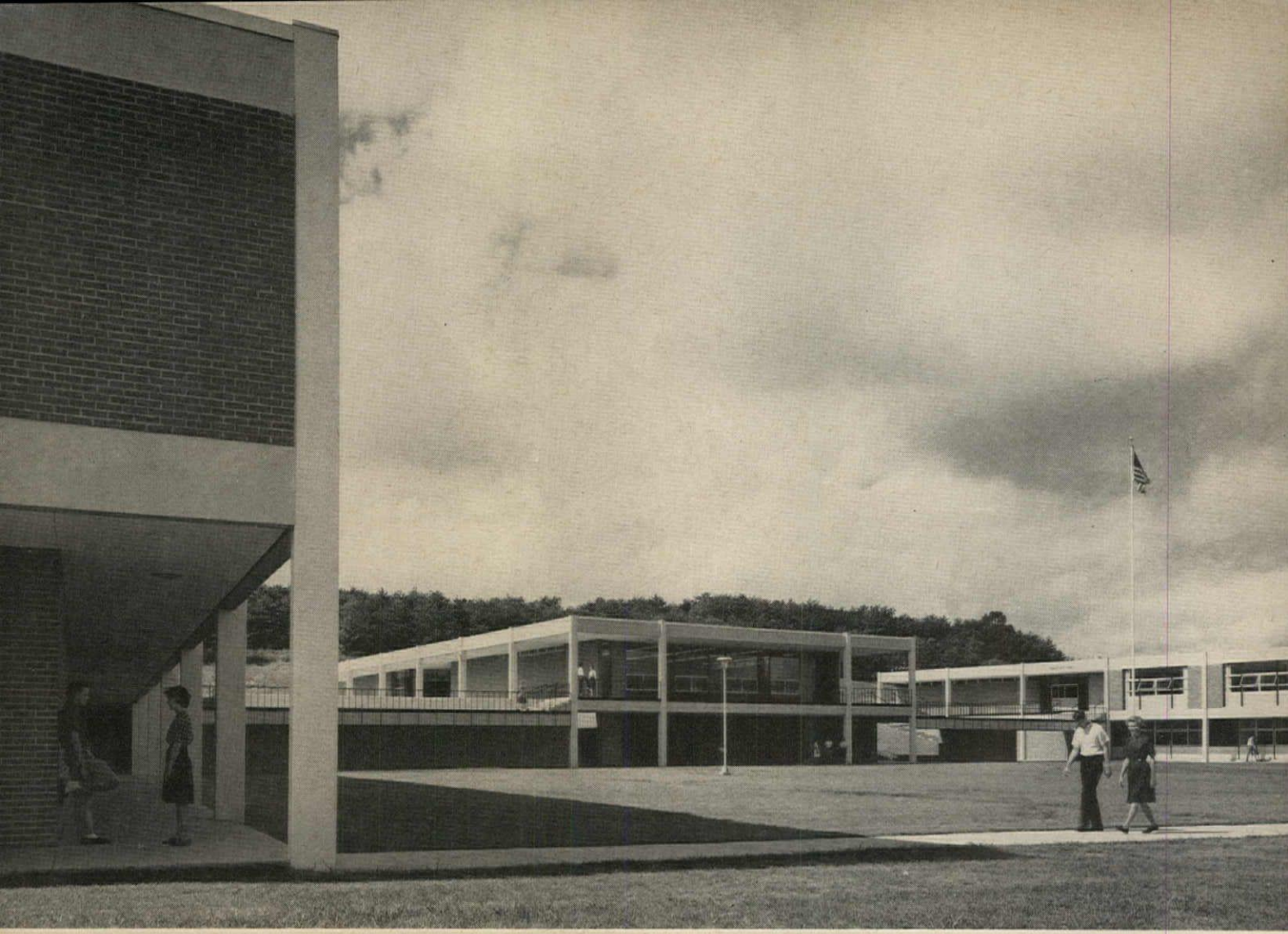
The structure is of reinforced concrete, with exterior walls of concrete and brick; interior partitions are largely of cinder blocks. Most floors are asphalt tile, except for terrazzo in all lobbies and wood in the gymnasia and on the stage. The heating system uses oil-fired steam boilers, and unit ventilators in the classrooms.



Joseph W. Molitor photos







SCHOOL-WITHIN-A-SCHOOL CONCEPT FOR ROANOKE

Patrick Henry High School
Roanoke, Virginia

ASSOCIATED ARCHITECTS:
Caudill Rowlett and Scott
Smithey and Boynton

MECHANICAL ENGINEERS:
Sowers, White, Carver & Rhodes

STRUCTURAL ENGINEERS:
Smithey and Boynton

LANDSCAPE ARCHITECT:
Stanley W. Abbot

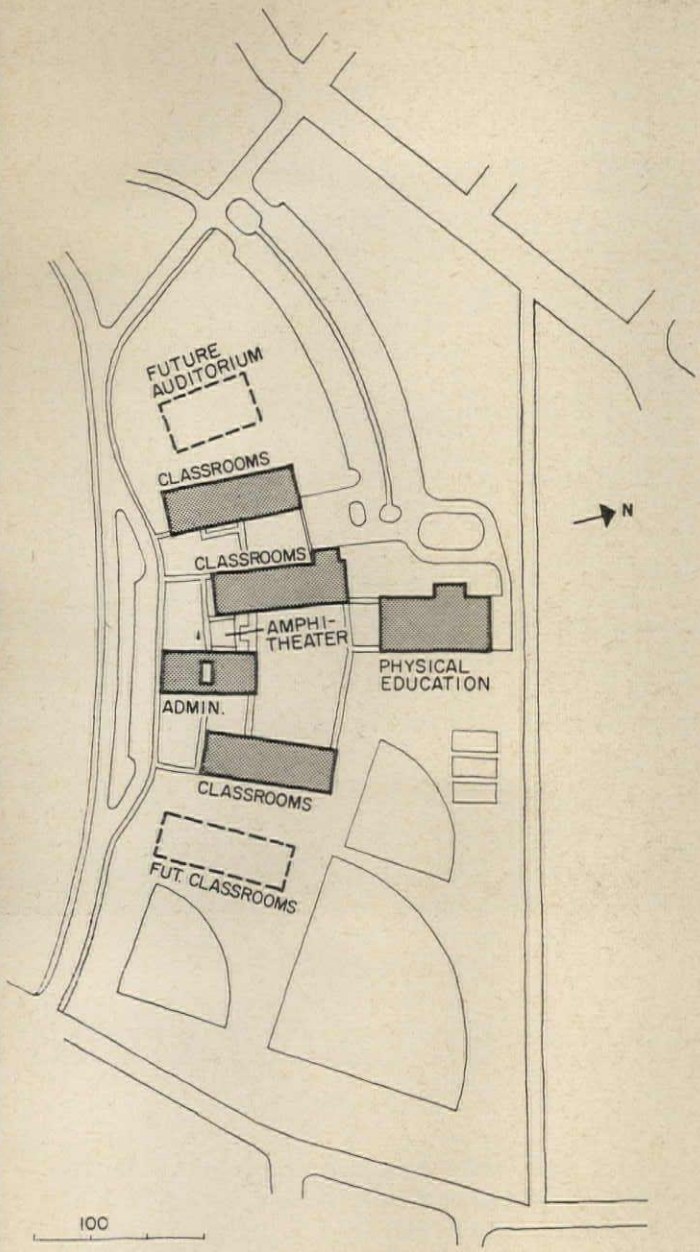
CONTRACTOR:
John W. Daniels Company, Inc.

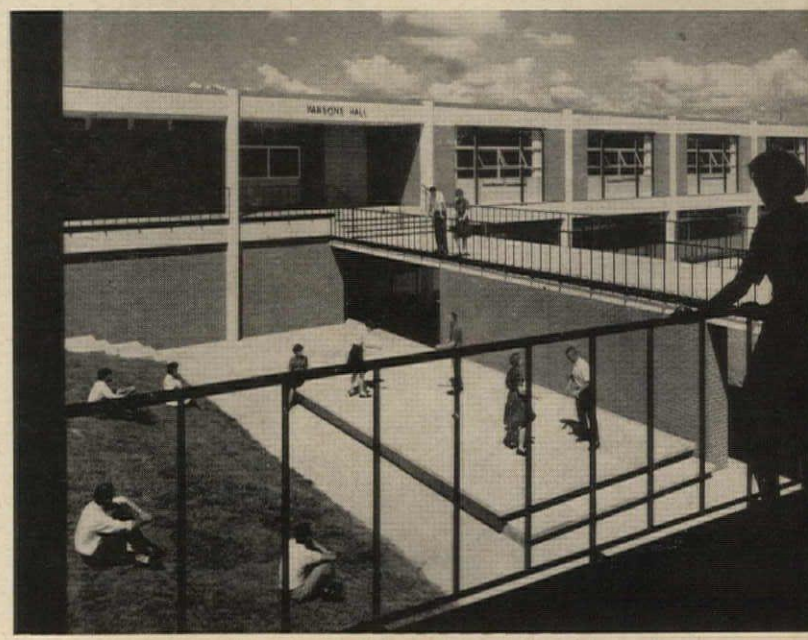
The campus scheme of the Patrick Henry High School places five completely detached buildings on a 100-acre site, which is being developed jointly by the school system and the city department of parks and recreation. The school is planned for an enrollment of 1,200 pupils divided into three little schools of 400. Two buildings form central facilities for administration and library, and for physical education. Spaces for expansion are planned flanking the present structures.

Each academic unit, or little school, has its own faculty, administrative and supervisory head, and classroom facilities. A unit remains a student's "home base" from grades 10 through 12. Each little school also has a section at the rear devoted to one of three groups of specialized courses shared by all: (1) band, music, business education and home economics; (2) cafeteria-auditorium and speech; (3) art, industrial arts and related subjects.

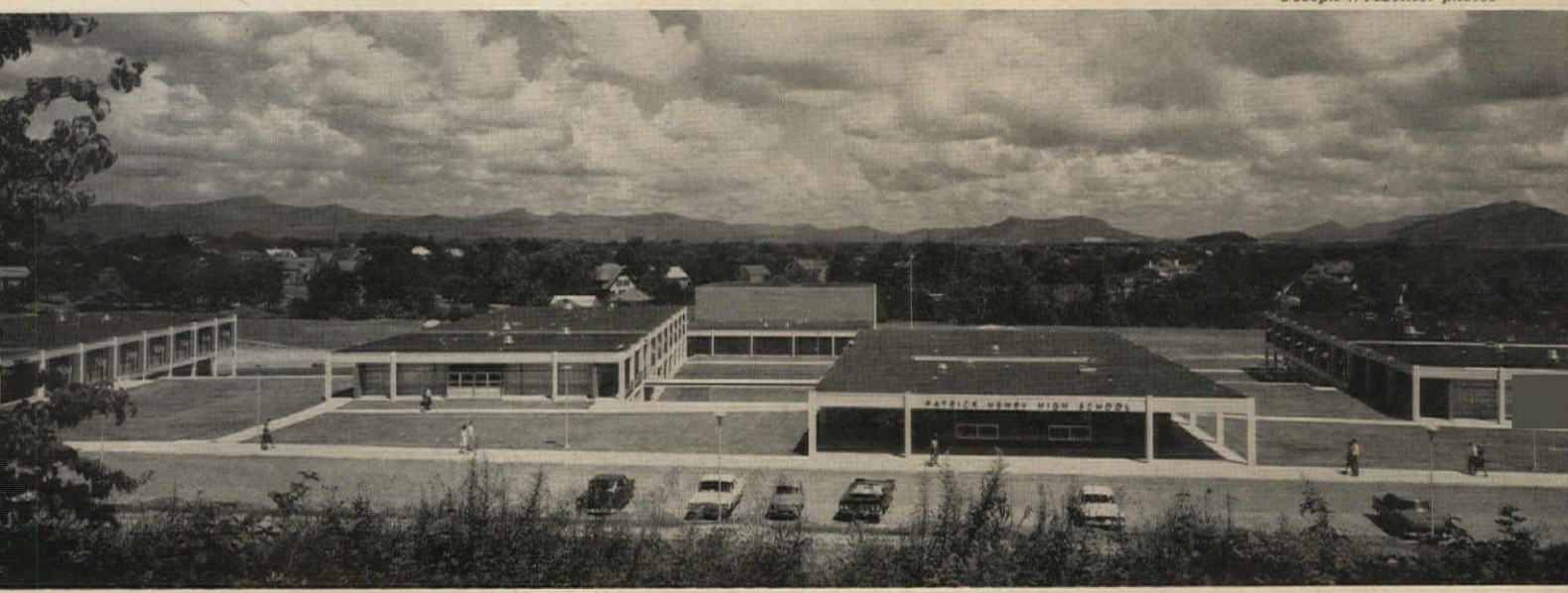
A special feature of each little school is a general education room having a floor area of approximately 3,000 square feet. This area provides a place for large group instruction, individual study (with special furniture for the purpose), and also serves as a common area for the unit. Offices, conference rooms, and storage facilities flank this area.

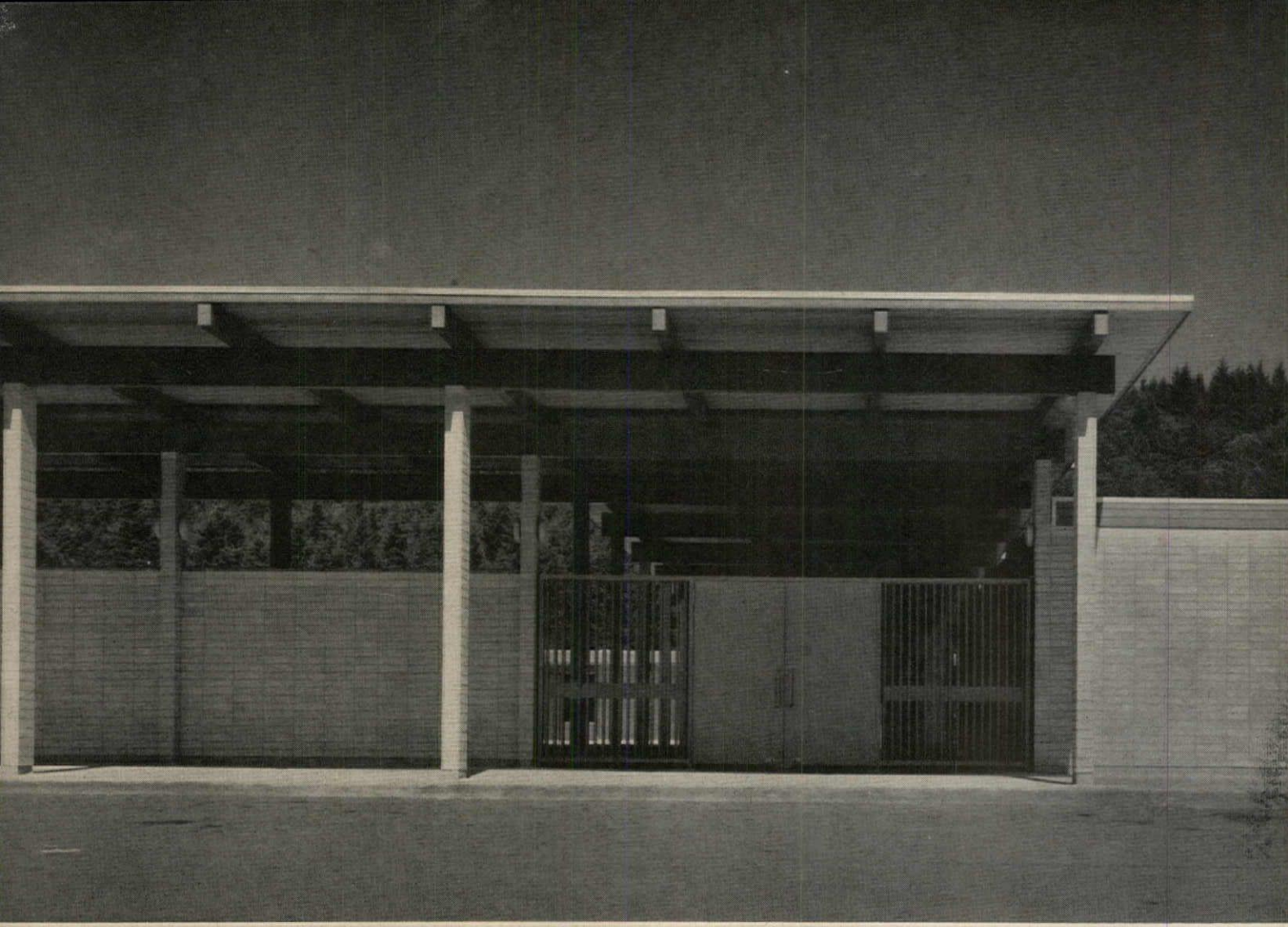
The structure has exposed columns of precast concrete, with interior columns and beams of fire-proofed structural steel. The upper concrete floors and metal roof deck are supported on steel joists. The exterior is surfaced with brick and porcelain enameled aluminum window walls.





Joseph W. Molitor photos





COMPACT SCHOOL USES COURTS FOR CIRCULATION

Issaquah High School
Issaquah, Washington

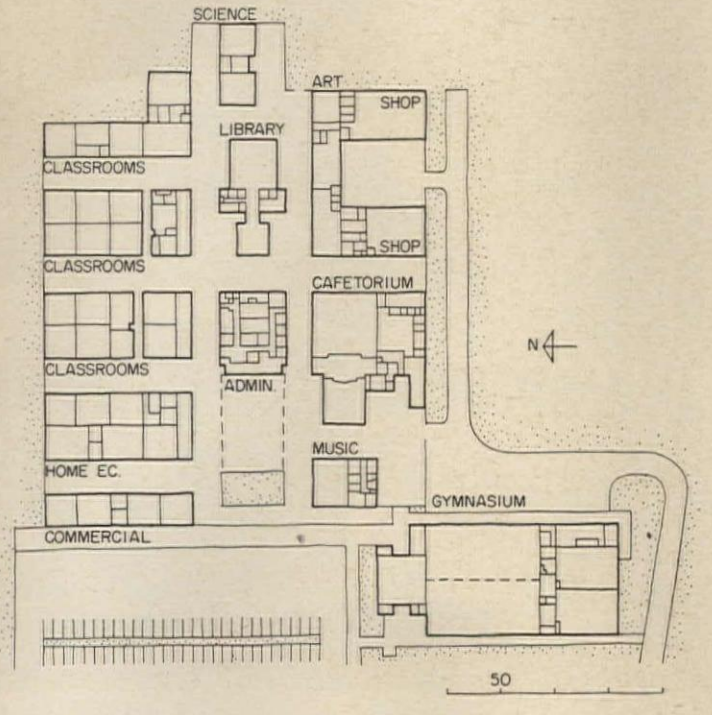
ARCHITECTS:
Young, Richardson & Carleton
Phillip L. Jacobson, project architect

CONSULTANTS:
Radcliffe, McConald and Uglem (structural)
James B. Notkin & Associates (mechanical)
Beverly A. Travis & Associates (electrical)
John Byers & Associates (food services)
Robin M. Towne & Associates (acoustical)
Dorothy C. Hussey (landscape)

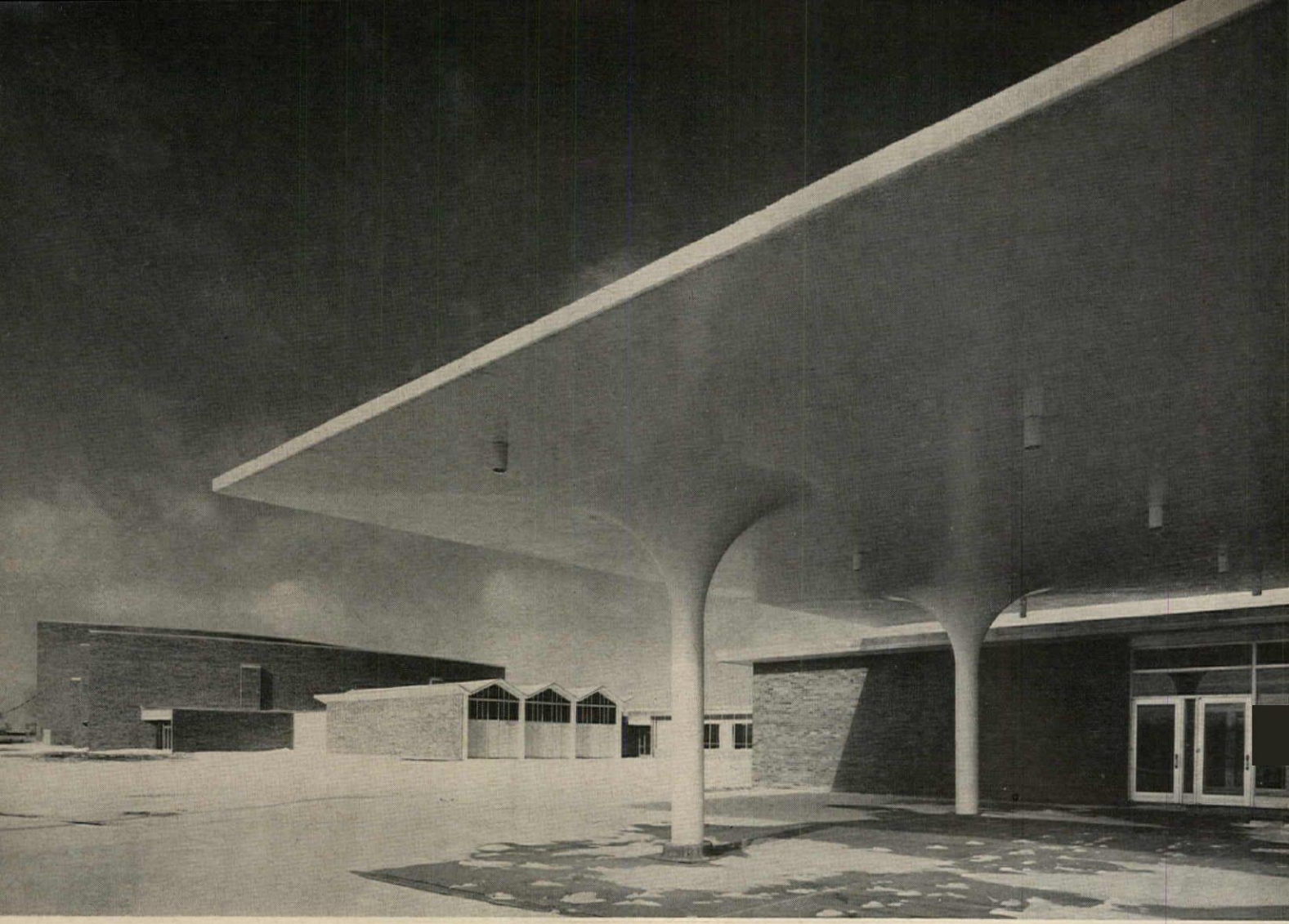
CONTRACTOR:
Alcan Pacific Company

The design goals of this compact, one-level school were to provide a departmentalized, economical and low maintenance facility, along with a suitably pleasant environment. These objectives were achieved by tightly clustering groups of structures, made of simple materials, around well-sheltered circulation courts. The exterior of the school is largely windowless masonry, with a minimum number of controlled entrances and exits, to discourage vandalism.

Educational departments are assembled as groups of classrooms and supporting facilities. Each academic teaching group (social studies, language arts, science, etc.) has its own sub-library seminar room and staff offices. These areas are placed to the north of the compound, with main library and administration in the center for control and access, and noisier functions to the south. The latter include vocational arts, kitchen-cafetorium, music and the gymnasium, and are located directly adjacent to the service road. The gymnasium is accessible from outside the closed portion of the campus, and can be operated as a separate facility when required. As the lot slopes from the north to the south, the floor elevation of the southern buildings are lower than the rest of the campus. As these generally require more ceiling height, all roofs are in the same horizontal plane throughout. The structure is of concrete block, with roofs of stressed-skin plywood panels and 2-inch T&G decking on glue-laminated beams. Floors are concrete slab on grade with resilient tile. Interior walls use a sound-insulated drywell system.



Charles R. Pearson photos



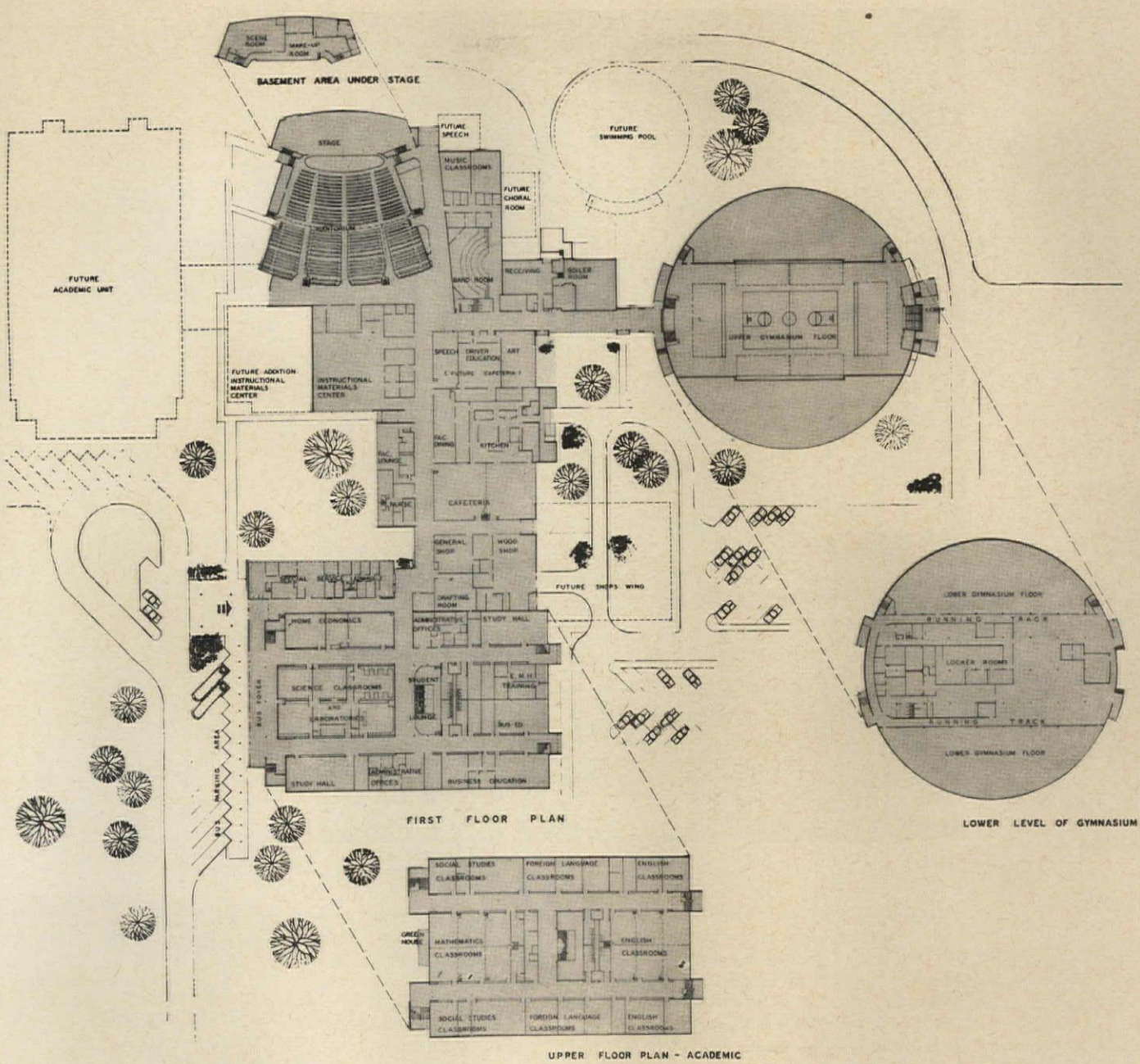
CONTROLLED ENVIRONMENT FOR TEAM TEACHING

Glenbrook South High School
Glenview, Illinois
ARCHITECTS:
Nicol and Nicol
ENGINEERS:
Arthur W. Nelson and Associates, Inc.

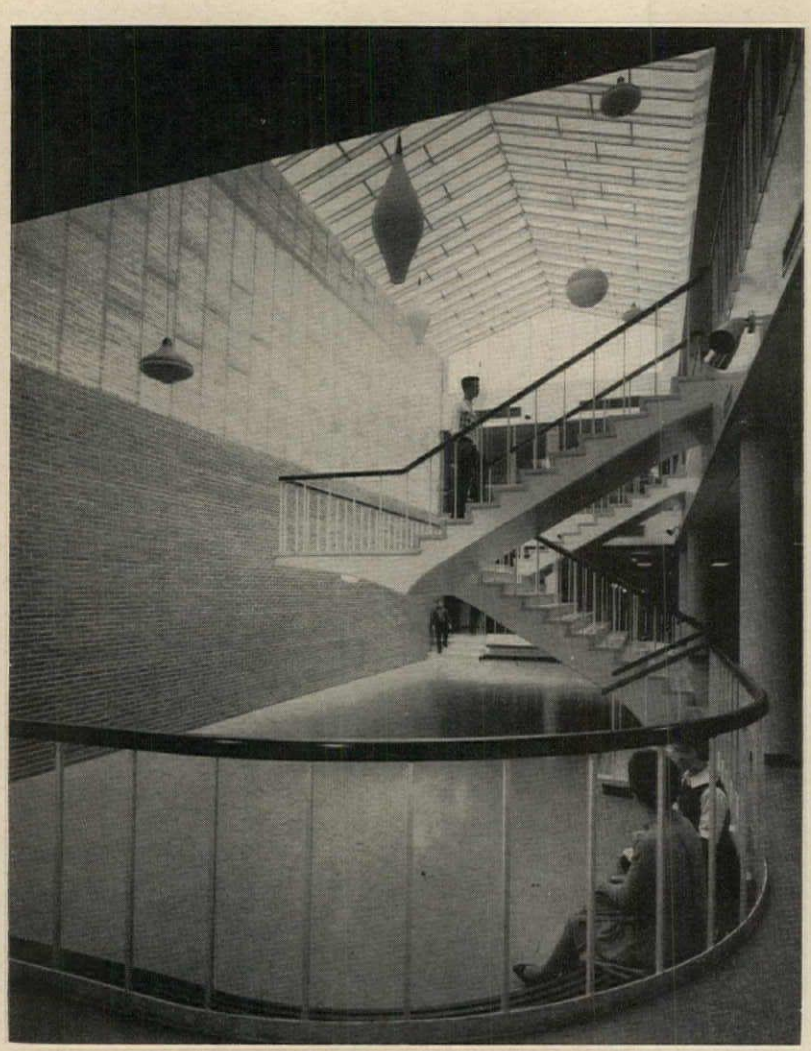
A great number of the newer planning ideas are consolidated in this suburban high school. The program is based on a "school-within-a-school" concept, in which the large school gives the advantages of a better library, science facilities, shops, music and physical education areas than is usually feasible in a small school. However, students will be taught in small "schools" of 600 students each for all liberal arts courses; they will have the same rooms, counselors and teachers for all four years. There are two small schools in this first stage of construction, and two will be added later in accordance with the master plan.

Team-teaching is provided for in a number of divisible room arrangements. The building has two groups of six classrooms each which can be opened by folding partitions into spaces of 56 by 72 feet, or portions of that. The 400-seat cafeteria is divisible into two areas, and provision is made for the support and housing of future folding partitions in the auditorium to divide it into areas seating from 200 to 700 people. The auditorium will later be expanded to 1,500 seats for school and community use.

Facilities are included for both college-bound and terminal students, as well as a special section for the educable mentally handicapped. The building is completely air-conditioned by horizontal ceiling-mounted heating and cooling units. All classrooms are windowless, but for a change-of-pace, windows are included in halls, offices, cafeteria, library and the field house gym. Facilities are planned for a heavily-attended summer session, and an eventual 12-month school program.



Bill Engdahl, Hedrich-Blessing photos



A feature of the Glenbrook South High School is a two-story, skylighted student lounge (*above*), planned to give a "visual change-of-pace" from the windowless instruction spaces (*below*). Audio-visual materials for use in the flexible classrooms are distributed from a special instructional materials center in conjunction with the library. The structure is of reinforced concrete or structural steel, with exteriors of face brick and quartz-faced precast concrete panels

Architectural Engineering

Total Energy Systems

The total energy concept is becoming an increasingly important utilities planning consideration in large building projects. Two recent research and pilot projects exploring the possibilities of total energy systems include electricity and natural gas as the single fuel source. The consulting engineering firm of Fred S. Dubin Associates is undertaking a study to evaluate the economics and feasibility of a total electric approach for a 10-million-dollar luxury apartment project in Brookline, Massachusetts. And in a Chicago, Illinois, suburb, a natural gas total energy system was developed jointly by the Northern Illinois Gas Company and Thompson Ramo Wooldridge, Inc. for the 129,000 sq ft NI-Gas General Office. The two companies are cooperating to develop compact, on-site turbine energy systems for mass production. In their modular turbine system, natural gas is used to light, heat and cool the building, run all electrical equipment, and for cooking in the cafeteria. A "load-sequencer" programs the flexible four-turbine system automatically to meet varying energy demands. The turbines drive electric alternators; exhaust heat from the turbines is discharged to boilers, producing steam for the building's hot water, heating and absorption air-conditioning systems. Potential turbine customers are large industrial plants, stores, shopping centers, office buildings, hospitals and other volume energy consumers. Two other examples of natural gas turbine total energy installations are a 2,300 pupil high school in McAllen, Texas and a 24-acre shopping center in Little Rock, Arkansas.

Wired Concrete

A new concrete reinforced with closely-spaced short lengths of wire fibers mixed with the concrete itself is being studied by Dr. James P. Romualdi, professor of civil engineering at Carnegie Institute of Technology, under a grant from the National Science Foundation. According to Dr. Romualdi, the use of thin wires instead of large steel bars prevents small flaws such as cracks and holes from enlarging, thus making the material highly resistant to repeated applications of loads and thermal shock. As a result, a superhighway of the future may be built of concrete one half or less the thickness used now, yet have much greater strength and resistance to cracking. Other applications Dr. Romualdi sees for the future are exterior building panels which would be thinner and easier to shape, and underground piping systems of thinner, more leakproof concrete.

Stop The Hill I Want To Stay On

How can a gradual landslide threatening a row of houses built on a landfill terrace atop a steep slope in Des Moines, Iowa be stopped? A chemical "brake," which would increase friction along the shear plane is one way, according to Richard L. Handy, Iowa State University soil engineer. Other costly solutions had already been tried but the fill continued to slide downhill over a layer of fluid muck produced by rain and melting snow which had accumulated between the permeable fill and impervious shale. Handy, together with Wayne Williams, a Des Moines subsoil analyst, "seeded" two residential lots by boring holes down to the shale at 5-ft intervals, dropping a dose of chemical into each hole, and hoping self-diffusion would do the rest. In their most recent series of test bores the engineers found that shear-zone strength had increased up to 400 per cent next to the holes and an average of 50 per cent over the entire treated area. Not only had the slide been halted but the cracks had grown smaller, an unexpected benefit caused by expansion of the chemical. While Handy and Williams have reason to believe they have found a low-cost remedy for landslide problems, they can't declare the treatment a success until spring, when thaw and rain give the fickle landfill its strongest urge to wander.

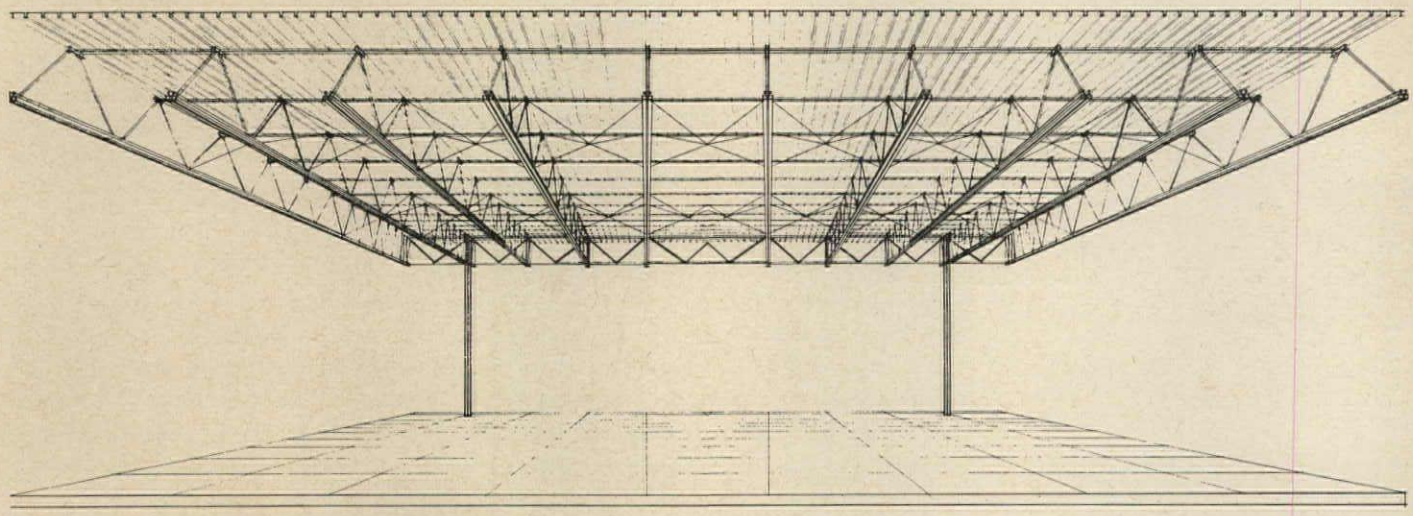
This Month's AE Section

SCHOOL COMPONENT DESIGNS, COSTS REVEALED

Architects and engineers can now examine the initial results of California's components program

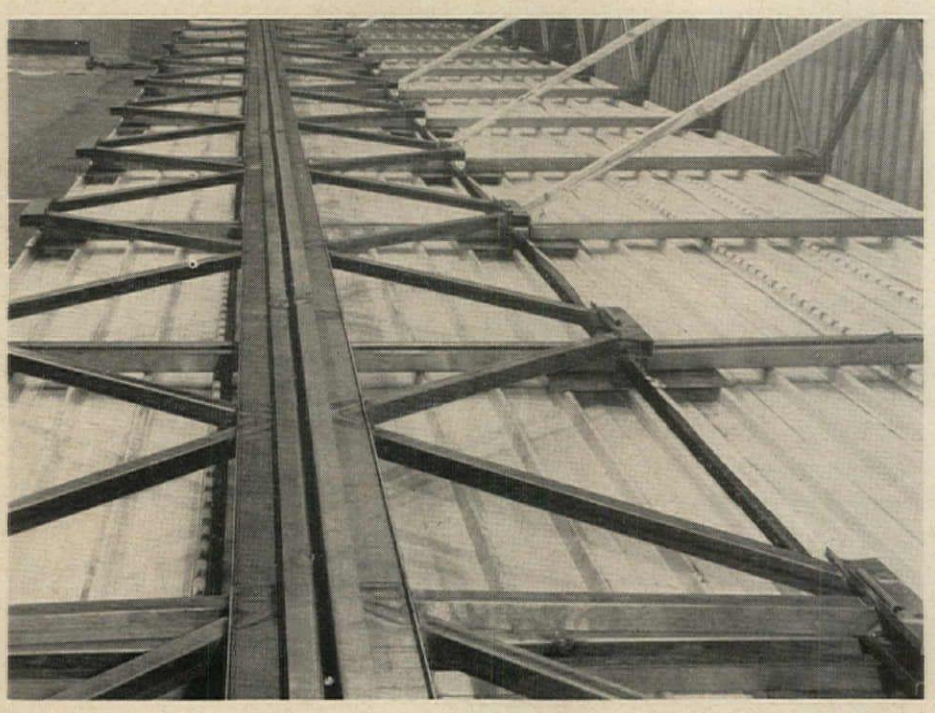
It is now possible to make some appraisal of building product manufacturers' designs and prices for standardized components for a likely $30 million worth of California primary and secondary schools. Designs were unwrapped when manufacturers' bid proposals for components which included structure, mechanical system, lighting-ceiling, and interior partitions were opened December 3 by staff of the School Construction Systems Development (S.C.S.D.) project located at Stanford University. S.C.S.D. is a joint venture of the Stanford School of Education and the University of California Department of Architecture, and is supported by $257,000 in grants from Educational Facilities Laboratories, Inc. of the Ford Foundation.

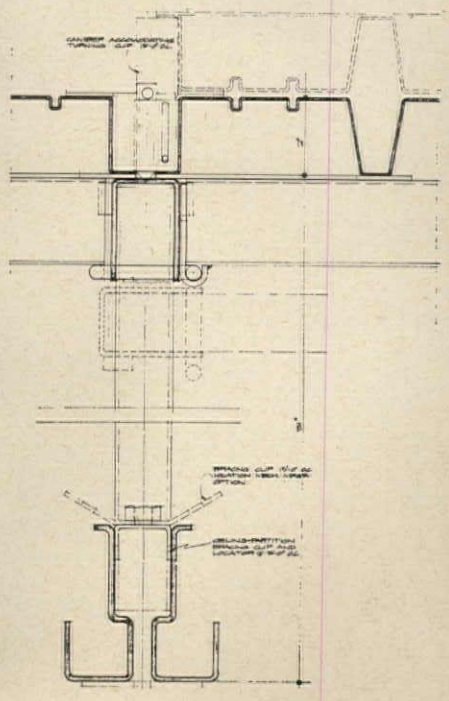
Twenty-six different companies, about half of them national in scope, participated in bids on the four components based on performance specifications issued to them last July by

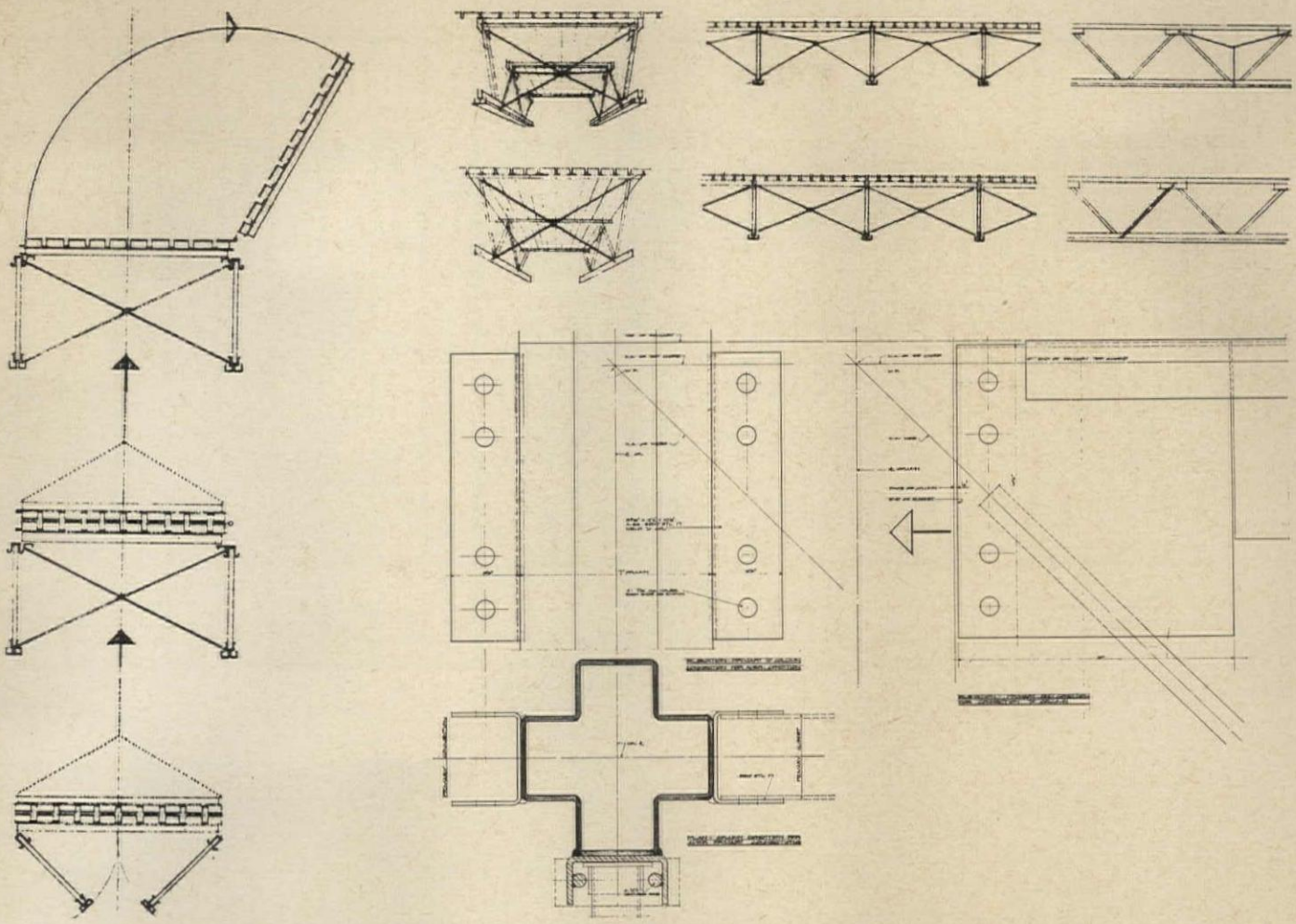


INLAND STEEL PRODUCTS COMPANY

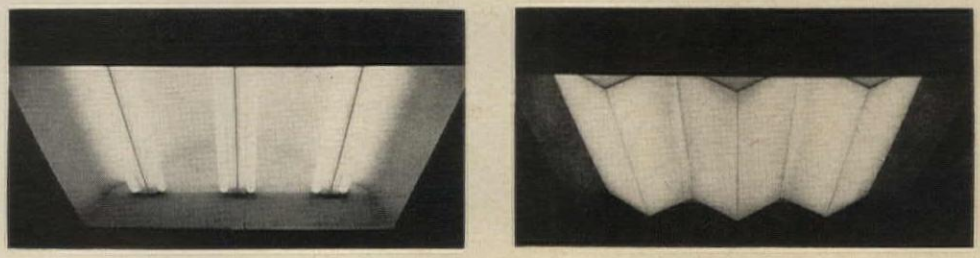
Low bidder in the structural category was this system in which the ribbed metal roof deck serves as the top chord of the long-span steel trusses. Trusses and metal decking are hinged to allow system to fold flat for shipping. Bottom chord acts as wireway

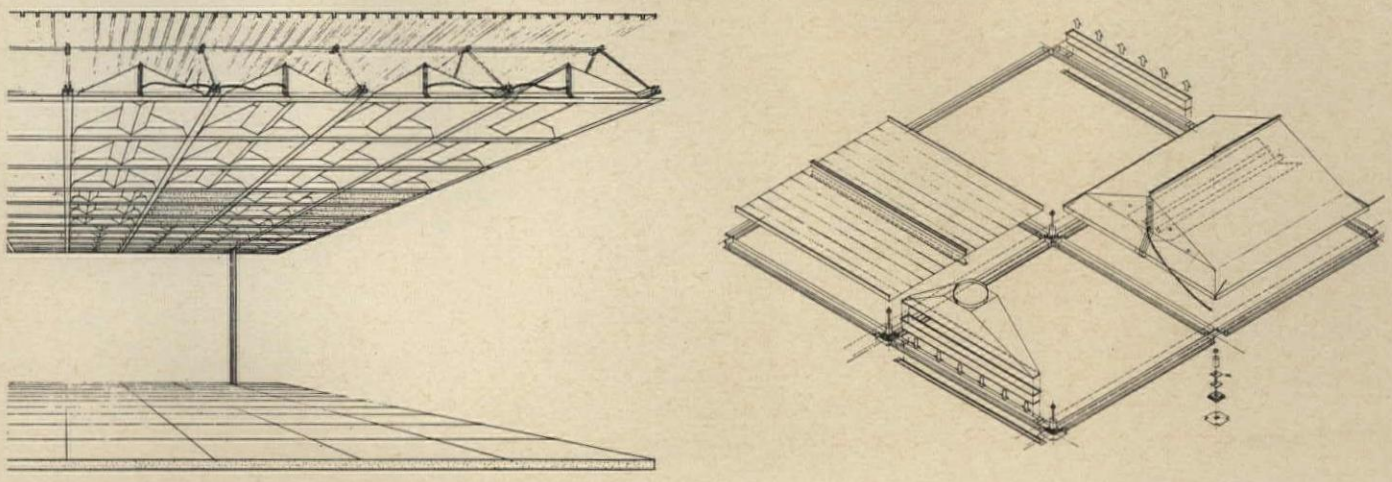


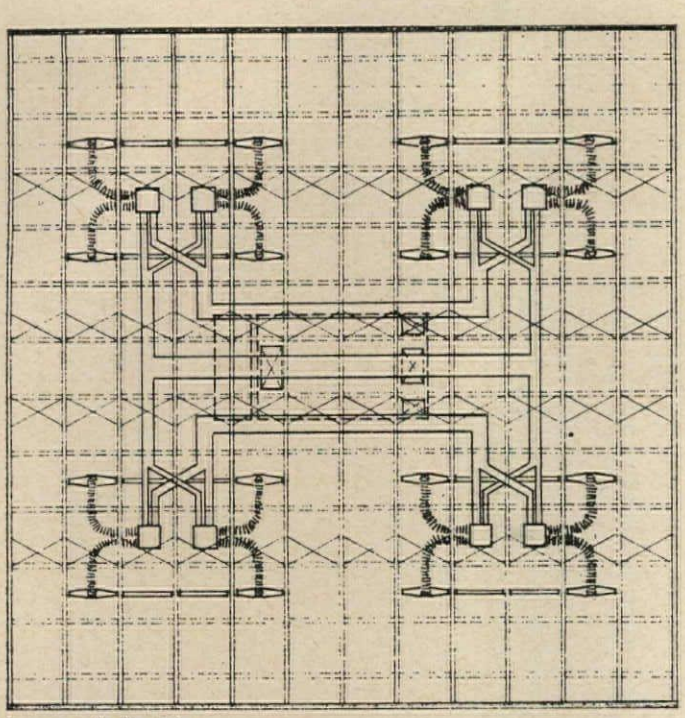




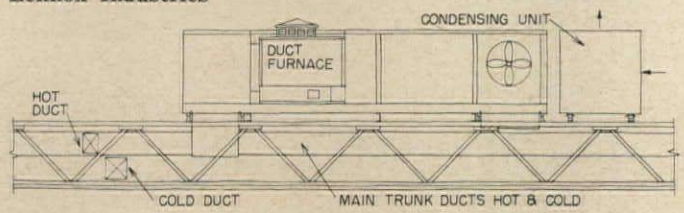
Erection sequence for roof structure is shown (*above left*). Cross-bracing of trusses (*above*) can be either tetrahedral or diagonal. Columns are cruciform shaped and have gussets for bolted connection of trusses; can be fire-protected with intumescent coating. Metal cavity infills (*below*) act as light reflectors and support for mineral fiber fireproofing. From two to six lamps can be installed, and various light diffusing media can be employed. Air supply or exhaust units can be located at any cross module

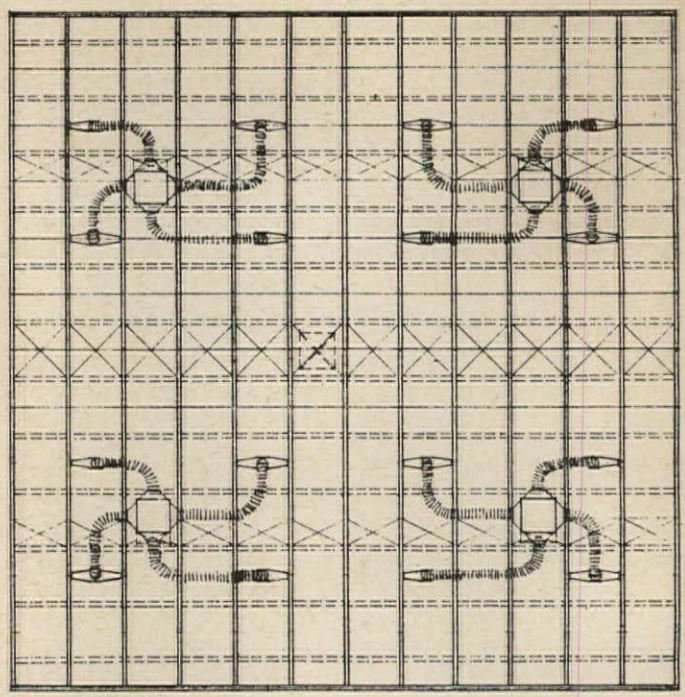




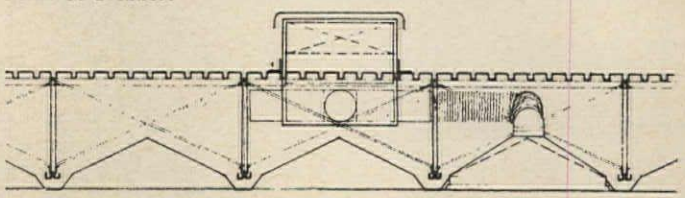


Lennox Industries



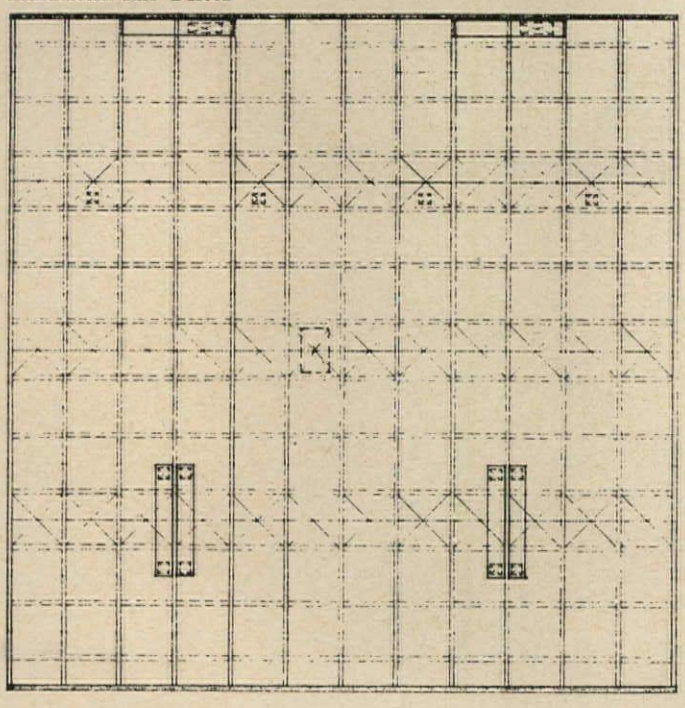


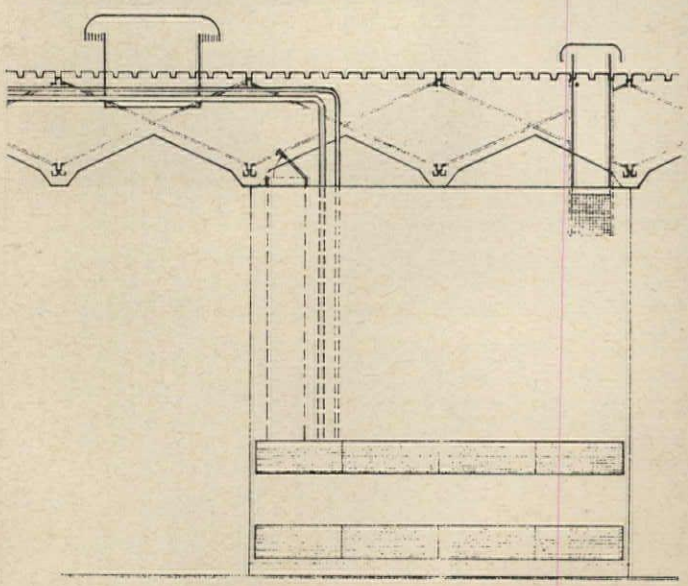
John J. Nesbitt



Lennox Industries, John J. Nesbitt, Inc. and American Air Filter made proposals compatible with the Inland and Butler structures. Here reflected ceiling plans and sections show location of equipment and ductwork within the *Inland* ceiling "sandwich." Lennox designed a new roof-top package containing a 15-ton cooling unit and gas-fired heater, with motor operated dampers. Nesbitt offered a new roof-mounted fan-coil unit containing four separate coils surrounding a centrifugal fan, with water flow of each coil controlled by a modulating valve, providing four control zones. American Air Filter bid two systems: (1) unit ventilators with supply air ducted from the roof (*below*); (2) roof-mounted unit ventilators

American Air Filter





S.C.S.D. (See the RECORD, January 1964, pages 167-169.) Contract awards were made on January 9 to Inland Steel Products Co. for structure and lighting-ceiling; Lennox Industries for heating, cooling, ventilating; E. F. Hauserman Co. for fixed and demountable partitions; Western Sky Industries for panel type operable partitions; Hough Mfg. Corp. for accordion type partitions. The extent of manufacturers' interest, the varied approaches they took in integrating system components, and the fact that bids came in on the low side have greatly encouraged the S.C.S.D. staff.

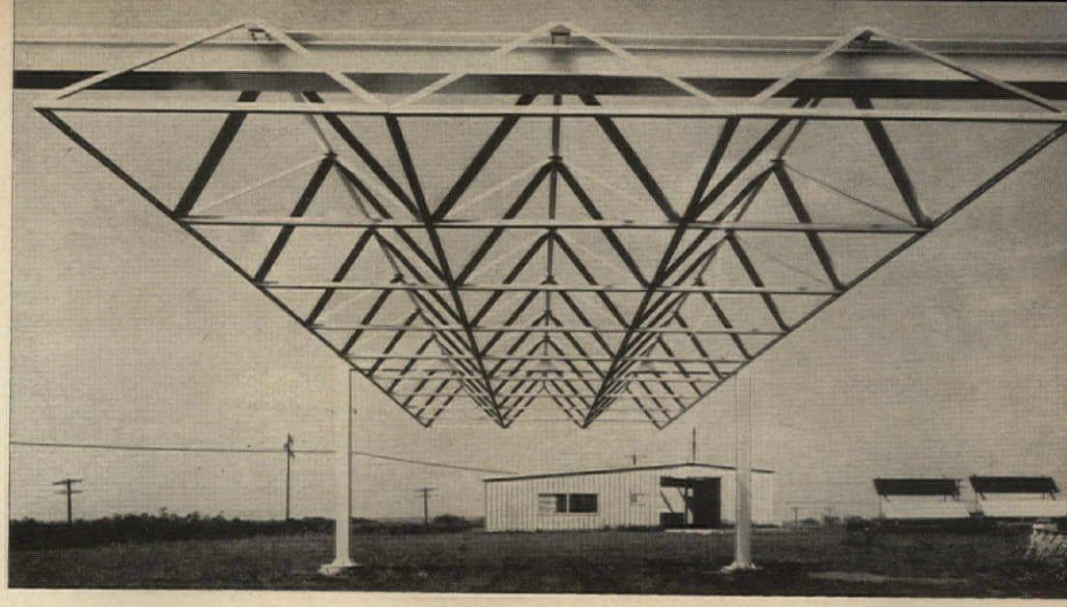
Manufacturers' bids for components in place were even lower than S.C.S.D. target costs. These were based on the cost of building a traditional state-aid California school. For example, the typical cost of structure for a state-aid school is $3.24 per sq ft. The bid submitted by Inland Steel Products Company was $1.81. For mechanical systems, typical California cost is $1.90 with very little air-conditioning, if any. The low bid submitted by Lennox Industries, Inc. was $2.24 per sq ft, and this provides for 54 per cent of the space to be air-conditioned. Included in the price is a five-year maintenance contract. In the lighting-ceiling category, the state-aid figure is $1.58 per sq ft, and Inland's low bid was $1.31.

The traditional California school was estimated by S.C.S.D to cost $16.74 per sq ft, and S.C.S.D. hopes to shave this by at least $1.50 by using the components approach. The four components make up about half of the total cost.

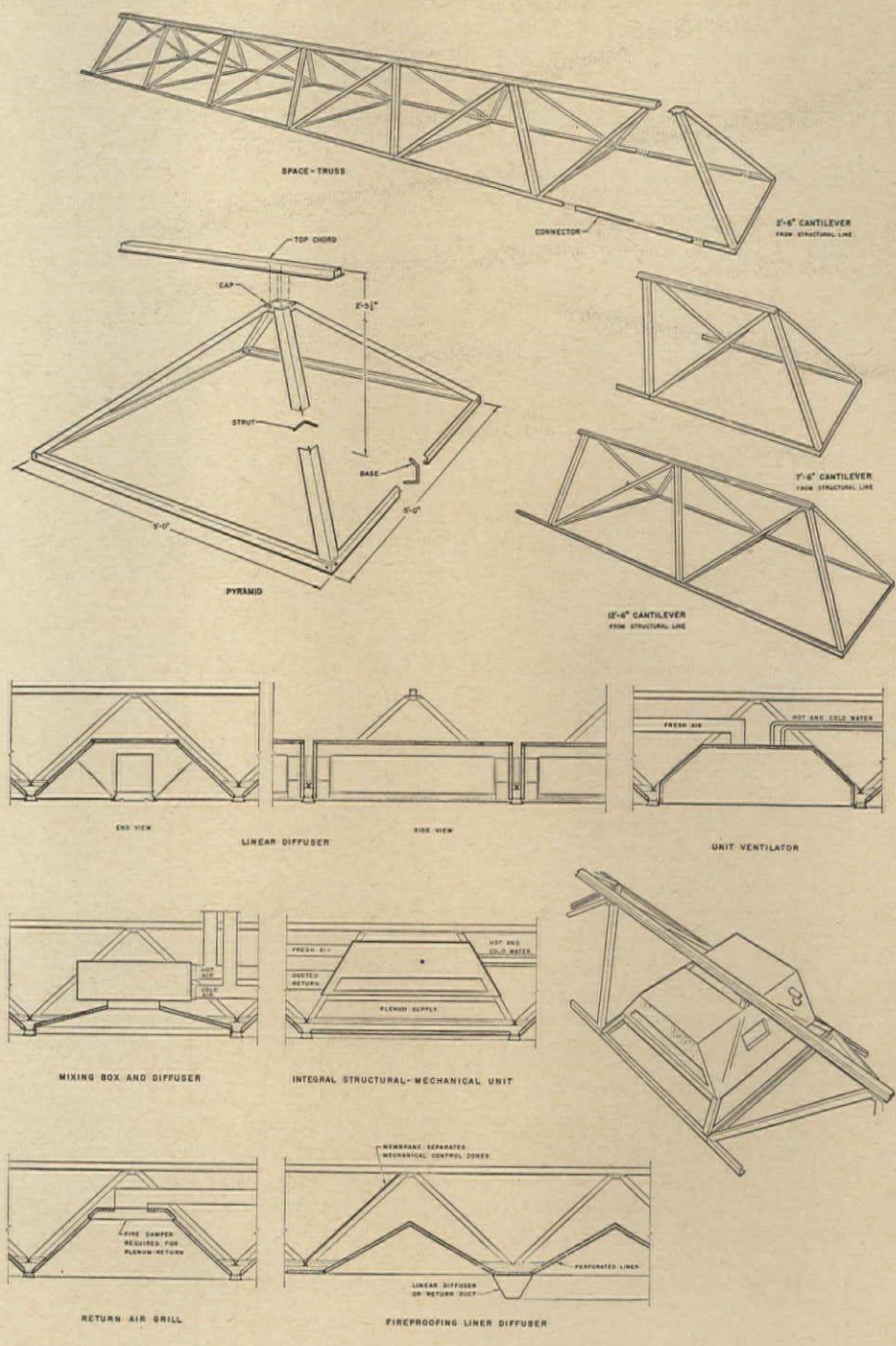
In order to make sure that the four components will go together as designed, to permit tests of various sorts to be made to iron out any unexpected kinks, and to give those responsible for design and construction an opportunity to see the components installed, manufacturers will build small mock-ups on their own, and then a 4,000 sq ft complete building will be erected next year.

In addition to the anticipated cost savings, the components can provide improved quality features such as long-span structures for interior flexibility, air-conditioning and low-brightness illumination.

The components will be employed in the construction of 22 elementary and secondary school projects



BUTLER MANUFACTURING COMPANY
Steel pyramids are interconnected in groups to form a three-dimensional truss system spanning a 30-ft bay between rigid-frame bents. Beams are enclosed within the trusses. Compatibility with various mechanical systems is shown *(below)*



planned by 13 California school districts for construction between September 1966 and December 1967.

While the component systems bid may not seem strikingly different from many products now in use, when looked at as complete systems the individual components have the sought for advantages of being compatible with and related to one another.

The systems offered include brand new products as well as combinations and modifications of existing elements. In structure both steel and concrete systems were proposed. Mechanical systems involved self-contained packaged equipment, unit ventilator type systems and a variety of air distribution techniques. A large number of geometrical shapes in ceiling cavities offer considerable latitude in ceiling appearance, while serving as light reflectors and a means for providing fire resistance.

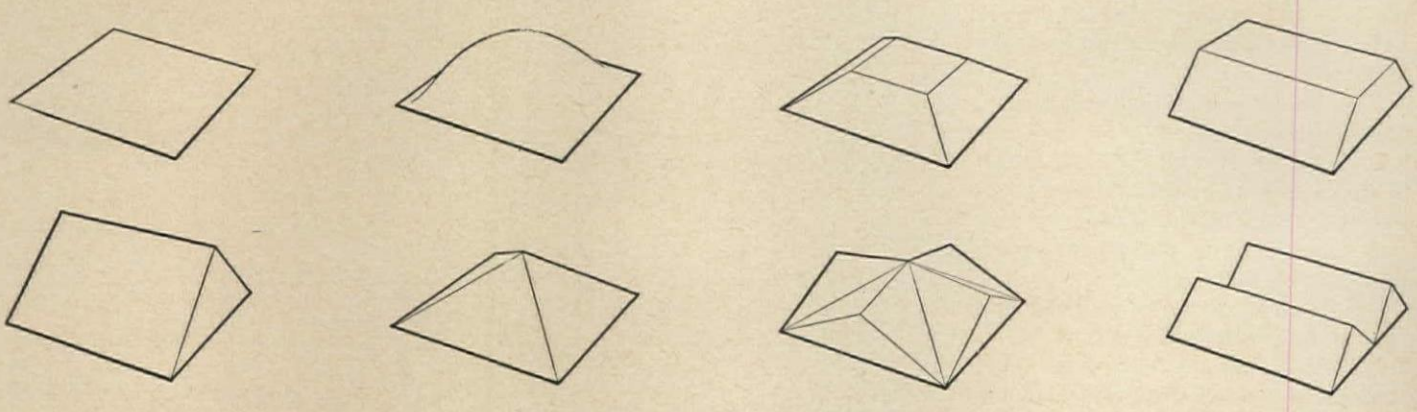
The British Precedent

S.C.S.D.'s project is frankly patterned after British experience in prefabricated school construction. It began in 1945 with the Ministry of Works' emergency building program called HORSA, the initials standing for Hutted Operation for the Raising of the School-leaving Age. "Huts they were, huts they looked and huts they were conceived as—shelter to keep the wind and rain out," according to one British writer. "Their virtue," he states, "was speedy erection with the minimum of skill." The huts didn't allow any flexibility in planning. Any number of 8-ft 3-in. fixed-width units could be added to the length like railroad cars, but corners could not be turned and placing two huts at right angles demanded special, awkward details.

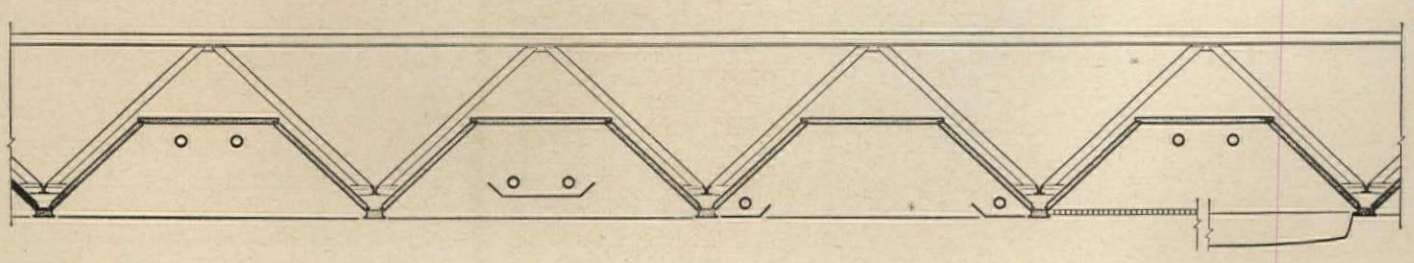
Being dissatisfied with this approach, the Hertfordshire County Council persuaded the Ministry of Education to allow them to embark on a program of prefabrication using factory-made components designed for assembly into buildings of varying plans. To accomplish their goal, Hertfordshire brought together an educator, an architect, a social scientist, an industrial designer, an architect engaged in building research, and a quantity surveyor, all working under the patronage of the county architect. The first prototype school was occupied late in 1946. The next year eight schools were built, and 21 more a year later. In 1962 their 200th school was constructed. Most of the schools were designed using a structural steel frame developed by the H.C.C. architects and a steel fabricator.

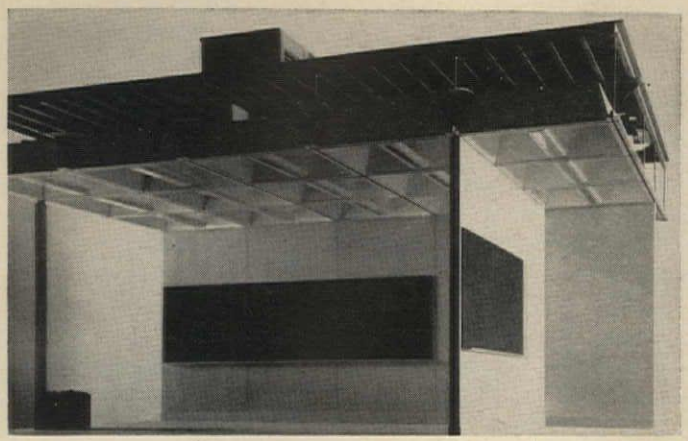
H.C.C. has effected significant savings in the cost of building components through the technique of bulk bidding. Competitive bids are taken for all standard components which will be used in the county's building program for one or more years. At the rate of 12 schools per year this means about $14 million worth of building. Annual bids are used for all but the structural and heating systems. For these two components, nominated manufacturers supply the products. These contractors were chosen initially by competitive bidding. In return for their considerable expenditure of research money to develop products in collaboration with the county architect, it was agreed that their components would be used over an extended period of time.

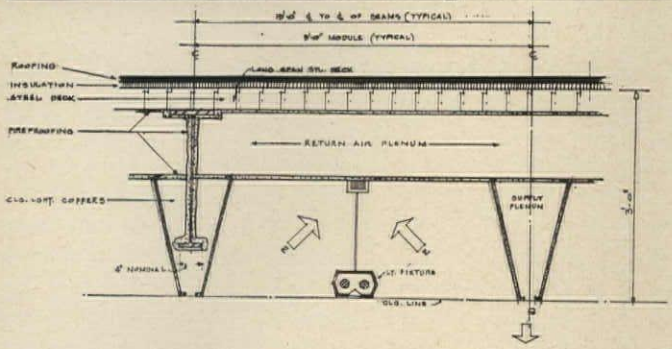
In 1949, the Ministry of Education entered the picture and originally sponsored four separate systems developed through cooperation of different manufacturers. One factor aiding the development of all of

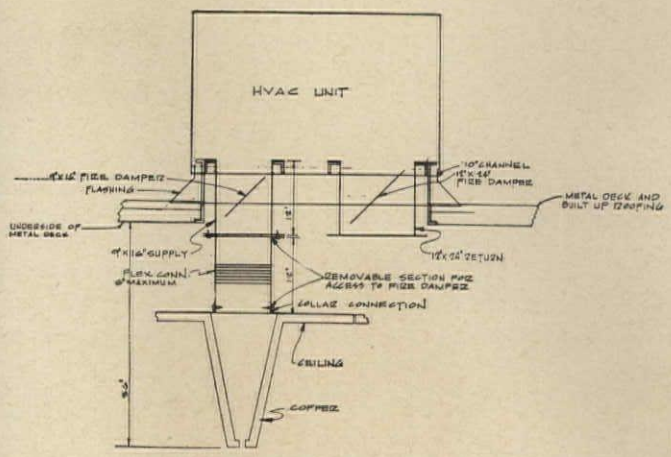


The *Butler* structural system can accommodate a variety of multipurpose, variable-shaped ceiling liners. Whether flat, curved or truncated, they will conform to a one-hour fire rating. In addition to protecting the steel, the liners will give reflectivity for lighting, furnish sound absorption and attenuation, and provide accessibility to the ceiling for relocation and maintenance of mechanical equipment. The lighting can be direct, indirect, diffused or offer a luminous ceiling plane as illustrated in the sketch (*below*)



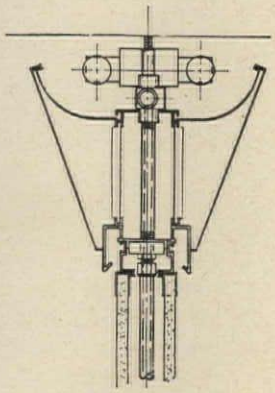


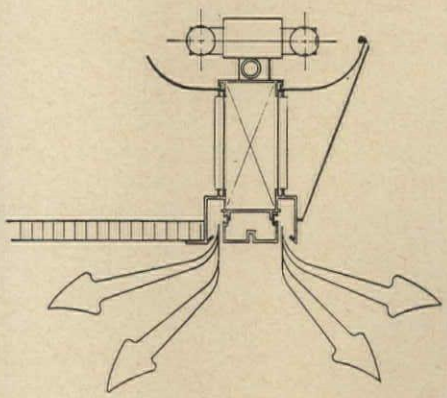




WESTINGHOUSE—KAISER—CAINE/PERLIN

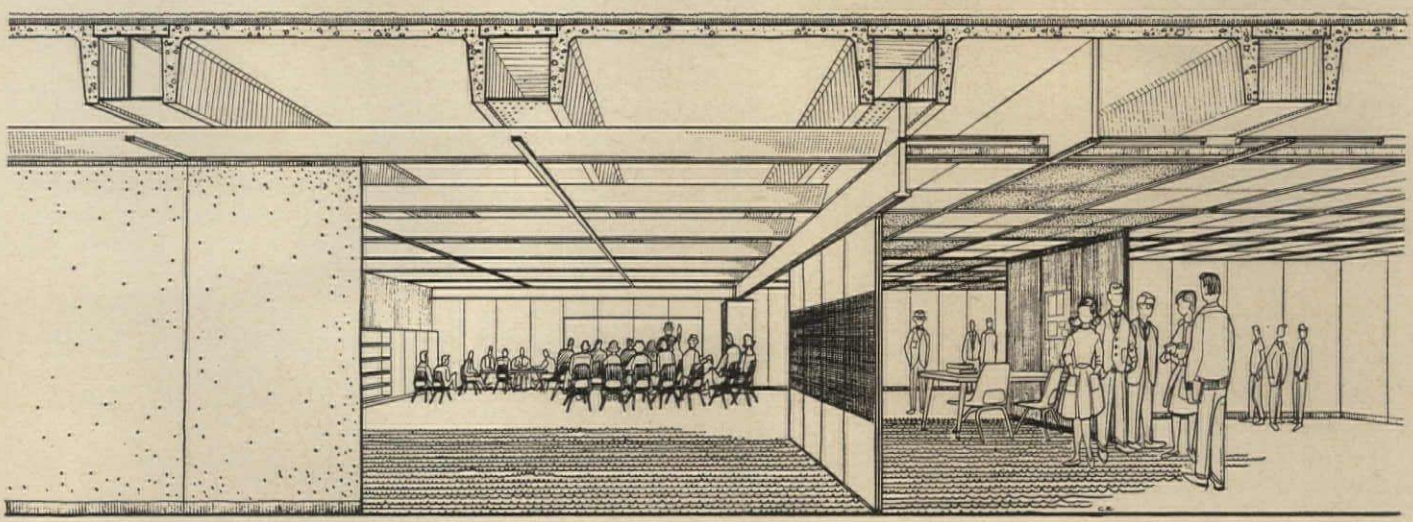
The structure is a conventional steel frame covered by long-span metal decking. Webs of beams are provided with openings to allow passage of ducts, pipes and wiring. Air-conditioning is by small package heat pumps mounted on the roof. A coffered ceiling provides light and acoustical control and is designed to serve as supply air plenum spaces. While a pendant light fixture is shown here, many arrangements are possible





ENVIRO

In a joint effort, a group of California manufacturers offered a prestressed channel slab roof structure doubling as space for ducts, and a multipurpose device which serves as a light fixture, acoustical absorber, wireway, air diffuser and partition retainer



these prefabricated systems is that schools are subject only to a national code and not to local codes.

The concept of a number of local authorities joining hands to reap the cost benefits of large-scale mass production grew out of a school prefabrication program of the Nottingham County Council initiated in 1955. Experience there showed that the volume they alone could consume was not enough for a manufacturer to achieve economical production. The group of authorities called themselves Consortium of Local Authorities Special Program (CLASP) and their 1962-1963 program comprised 90 school projects.

While the S.C.S.D project is much along the lines of British programs, it differs in at least two respects. First of all, no actual systems were designed by S.C.S.D. in contrast to some of the British groups. No doubt the S.C.S.D. staff presumed that its approach would allow the largest number of manufacturers to participate, which would minimize political hazards, as well as remove a burdensome load from its staff.

Some observers feel, however, that while the current project has produced seeds for progress, greater technological breakthroughs might have resulted, components might have been more fully integrated, and even greater economies might have been possible if S.C.S.D. had assumed basic design job while collaborating with industry. These observers also point out that this might have had a greater chance of circumventing manufacturers' understandable reluctance to break away from profitable product lines.

The second respect in which S.C.S.D. differs is that a much greater degree of interior flexibility was called for in room sizes, shapes and potential for rearrangement of them. Also since the American public expects more precisely controlled environmental conditions through electric lighting and mechanical equipment, these components, perforce, had to be more complicated to design than the more simple daylight-electric light sources, open window ventilation and simple heating accepted in Britain. Whereas the use of long structural spans called for may have improved the economics, the high degree of flexibility placed a ceiling on cost savings in mechanical components.

Reactions of Designers, Contractors

While reactions of the 10 architectural firms participating in the program ranged from enthusiasm and a fascination with the possibility of the new approach, to a more neutral wait-and-see attitude in one or two instances, S.C.S.D. is faced with several hurdles with contractors and labor organizations. Also, S.C.S.D. may find some consulting engineers concerned about being pinned down to only one system, feeling that there is little latitude for engineering design.

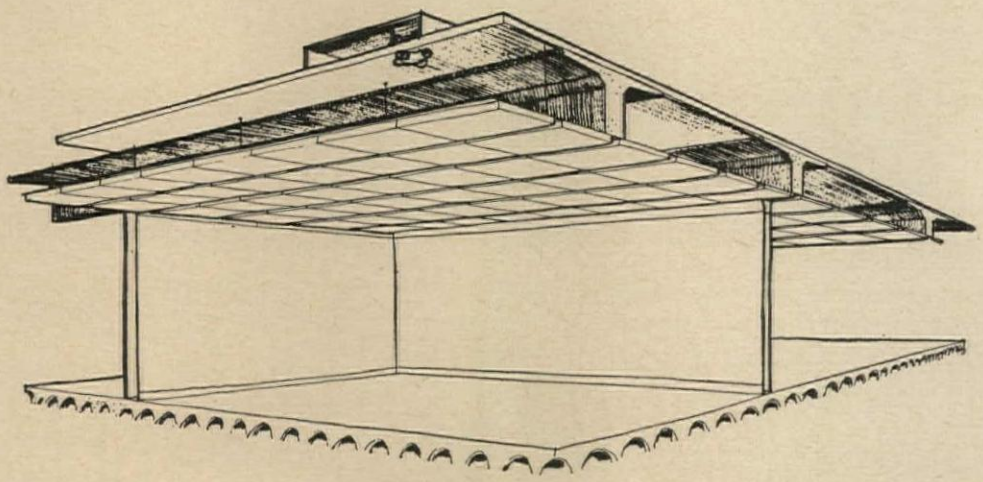
One subcontractor organization, the Plumbing-Heating-Cooling Contractors Association of California has shown enthusiasm for the project, while expressing some concern that bidding might be limited to the large contractors. On the other hand, the Ninth District Council of National Electrical Contractors Association, while declaring itself in favor with the over-all objective and asking its members to bid the work, criticized the awarding of contracts directly to manufacturers.

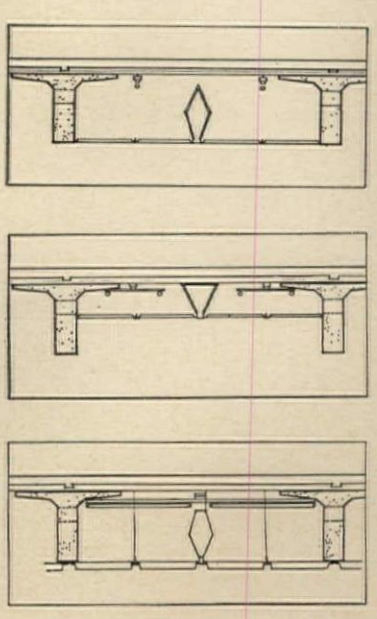
The participating architects' reactions were of this nature: one architect said he was impressed by the broad concept of large components manufactured by industry in precise ways under controlled conditions so that field operations are at a minimum. He questioned the anticipated cost savings the first time around, but likes the idea of industry searching for better ways of doing things and by using architectural guidance. He said that perhaps some of the architects are concerned about individual expression and flexibility within the fixed products and materials, but he is sure no two schools will look alike.

Another architect thought that perhaps design might suffer from basic decisions made beforehand which could confine the designer.

The fact that no concrete structural system will be available disappointed a third architect. He has no worry about infringement upon freedom of design, and, in fact, will use some of the components in schools outside the S.C.S.D. program.

A structural engineer familiar with the program thinks that industry's strong interest in fabrication problems of structures has brought forth designs which a structural engineer probably would not have developed on his own.





CAMSCO

This organization (California Association of Manufacturers of Modular School Components) presented a package including long-span prestressed T's, underfloor air distribution, compatible lighting and partitions. Interior zones get air from roof ducts

LIBRARY AIR-CONDITIONING DESIGN

By Alfred Greenberg,
Consulting Engineer

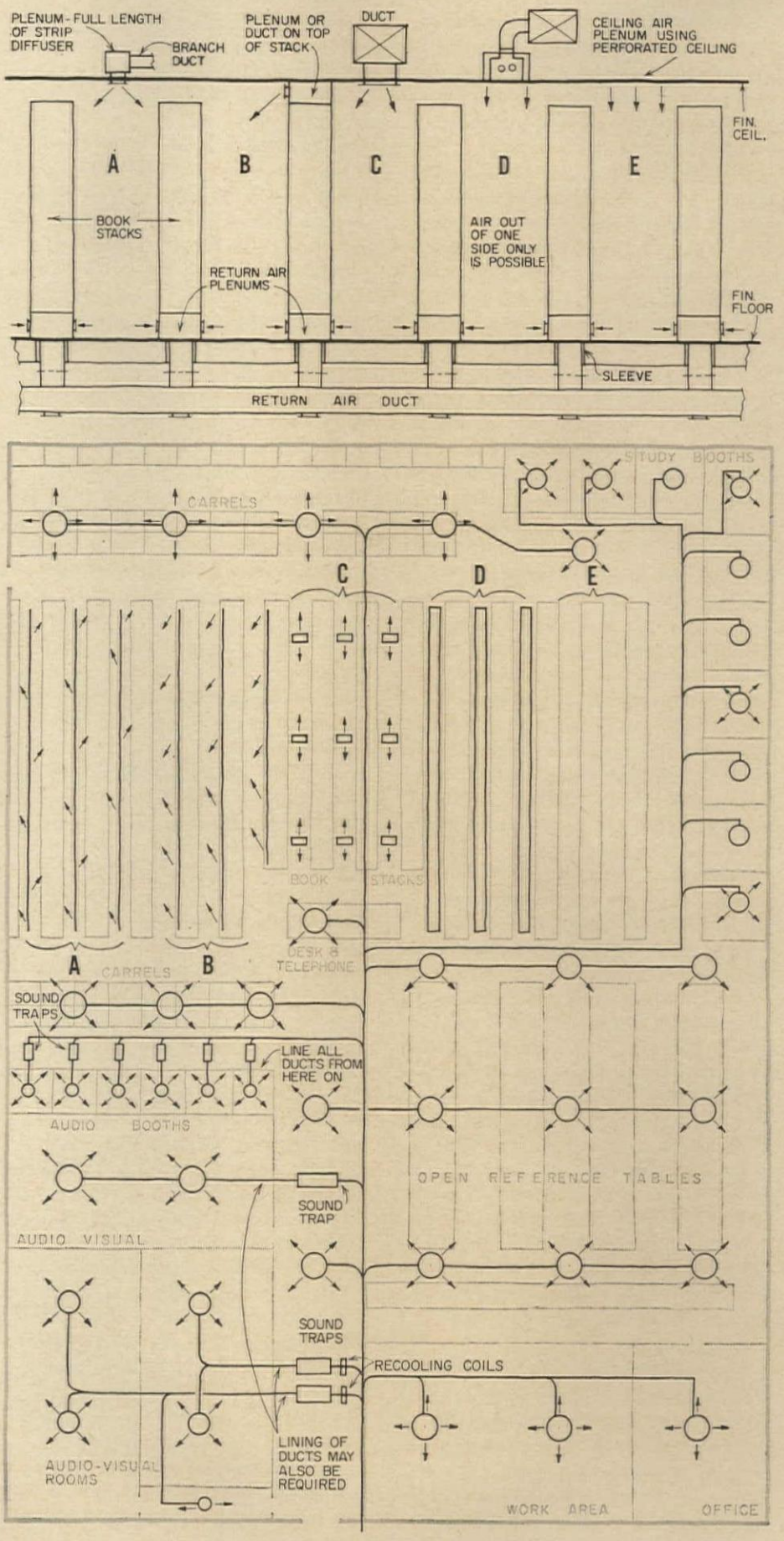
When one considers the social and cultural importance of libraries, it is surprising to find a comparative dearth of information in the literature on their proper air-conditioning requirements. A growing concern for the preservation of books and manuscripts plus a rising popular interest in and usage of the facilities of libraries has developed a trend whereby most new buildings are designed with air-conditioning. Many existing libraries have installed air-conditioning for at least a part of their facilities, although a larger number have outgrown their quarters and moved to larger, air-conditioned spaces.

The temperature and humidity ranges which are best for books generally fall within the human comfort range for air-conditioning, and rapid changes in temperature and humidity are more harmful than the maintenance of reasonable limits at all times.

The concept of a library must be assumed to include all available means of recording information including books, records, tape, film, etc.

Air Conditions. The most precise information on what temperatures and humidities should be maintained for various types of paper, tape or film can usually be obtained from manufacturers. While each grade and classification may require somewhat different conditions for optimum life and ease of handling, generally cases satisfactory results will be achieved if the environment is kept year-round in the range from 70 to 80 deg F and 40 to 55 per cent r.h. Since this range is also suitable for human comfort, complications in design are avoided.

Air motion should be kept below 25 fpm to prevent drafts on people who may be sitting motionless for several hours.



Hypothetical library plan *(right)* gives schematic layout of air distribution to various areas. Ducts to audio-visual rooms require sound traps to maintain privacy. Any one of several methods may be used to supply air to stacks, shown here by letters A, B, C, D and E

Since libraries are usually rather quiet, the noise level of the air-conditioning system in reading areas should be no higher than NC-30 to 35. However, a lower level may actually create a feeling of a noisier environment because it may not be loud enough to mask the background sounds such as page rustling, foot shuffling, chair moving, etc.

Air Cleanliness. Keeping the books clean is an important but tedious and time consuming task. Tapes, films and records are generally stored in compartments or cases, so they do not present a problem. Since libraries have to keep their maintenance costs low, it would be wise to consider the use of high efficiency air filtering apparatus with at least 85 per cent efficiency based on the National Bureau of Standards atmospheric air discoloration test. This type of filtering will cost more initially, but the lower total owning and operating costs plus increased book life will generally save money in the long run.

The congregation of large numbers of people in libraries and the constant handling of books by these people create the potential for contamination and spread of disease. In the quest for suitable means for destroying airborne bacteria which will not be harmful to humans, it will also have to be ascertained that no damage will befall the books, tapes, films and records.

Systems Applicable. It is recommended that all-air systems be designed for libraries in all those areas where steam or water damage may ruin books, tapes, etc. Most piping systems have a life of from 20 to 30 years. Libraries last much longer.

Design Application. There are various types of libraries but in general they consist of stack areas, working and office areas, reading rooms, rare book vaults and small study rooms. Many of the newer libraries also contain seminar and conference rooms, special exhibit areas, and perhaps even an auditorium. This indicates a wide diversity of functions that requires careful analysis to provide proper continuous environmental conditions.

Stack Areas. The stack areas (usually in interior spaces) have a relatively low lighting intensity and a low ratio of people to floor area, thus the air-conditioning load is not heavy. However, sufficient air must be circulated to maintain uniform temperature conditions throughout the stacks. At least four to six air changes per hour are required. If the supply and return pattern is as shown in the sectional drawing, then the lower limit may apply; otherwise six air changes should be used. Where the ceiling is used as a return plenum or has return registers, the air circulation at the lower part of the stacks is not as positive. Therefore the supply and return air pattern should be designed so that the returns are sufficiently far from the supply outlets to prevent short circuiting of the air. If the book stacks are located adjacent to an exterior wall, then a perimeter air-conditioning system should be designed to act as a buffer in order to maintain constant stack environmental conditions. The perimeter air can serve to provide some of the stack ventilation requirements.

Areas that are used exclusively for stacks may have a noise level of NC-40 to a maximum of NCA-40. Where reading areas and stacks are combined or open to each other the noise level should be maintained at NC-30 to NC-35.

Office Areas. Office areas are treated in the same manner as those in office buildings. The work areas, however, might use special binding glues and other materals that may require a separate exhaust system including hoods to eliminate odors.

Reading Rooms. Most people in the library are usually located in the reading rooms which also often contain the various reference indices and files. Lighting intensities may be high, a certain amount of traffic is usually in progress and these rooms may be located anywhere within the building. Therefore, air-conditioning load is variable and room or zone control is desirable. Reading rooms will generally require from 8 to 12 air changes per hour. Air movement should be below 40 fpm to prevent drafts on people reading at tables.

Small Study and Listening Rooms. Small study and listening rooms present a somewhat different problem. They consist of rows of small rooms (50 to 100 sq ft each) located either at the exterior or in the interior, and each room is usually occupied by just one person. The lighting and people loads are relatively low and can be considered constant. When the rooms are located above grade and on the exterior wall, the glass, if used, presents the largest load. It is variable but the same for each room on that wall. Therefore, a simple design expedient is to put all the rooms of each facade on one zone and control the air conditions from an outdoor thermostat. If the rooms are below grade or contain no exterior glass, the air conditions may be controlled from a preset, adjustable thermostat located on the zone discharge duct.

Hours of Use. Many libraries, especially college libraries, operate up to 16 hours a day and may run the air-conditioning equipment about 5,000 hours a year. Such constant usage requires that heavy duty, long-life equipment requiring little maintenance be selected.

Night Control. All book areas and especially the perimeter and roof areas should be on night thermostat and humidistat control to maintain reasonably constant environmental conditions at all times. This can generally be obtained by intermittent cycling of the air-handling systems except on very cold days in buildings having large areas of perimeter glass. Then the systems should be run all the time.

Vaults. Library vaults are small compared to the total building size but contain the most valuable items. These may often require closer temperature and humidity control than the general book areas; hence it is desirable to furnish a separate refrigeration compressor and air-handling system for the vaults. This system should be capable of operating 24 hours a day and should have alarms which indicate that the environmental conditions are other than those required.

Special Rooms. When the library contains seminar and conference rooms, audio-visual, record and tape listening rooms and special exhibit areas, then individual environmental room control is called for. Seminar and conference rooms may have heavy smoking so 100 per cent exhaust should be provided. The other rooms listed may require a slightly quieter environment. Separate temperature and humidity controls should be provided for record and tape storage rooms.

The location of the mechanical equipment rooms and air-handling equipment should be as remote as possible from the reading areas in order to minimize expensive sound and vibration isolation measures.

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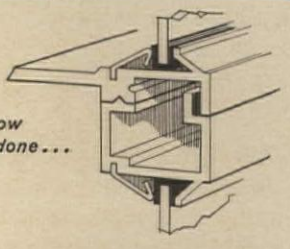

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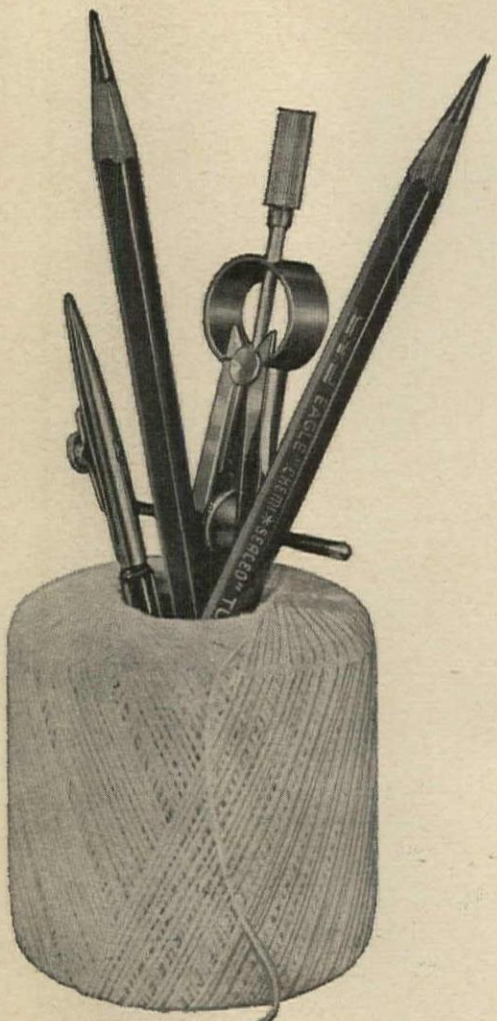

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Unravel the muddle before it starts. Call the linen supply man* nearest you. He'll show you how your client can save money, time and space by arranging for all his linens on a money-saving, pay-as-you-use basis.

He's the greatest little knot-unraveller you'll ever meet!

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For more data, circle 72 on Inquiry Card

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Steel

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6310

FLUID ROOFING SYSTEMS OF SYNTHETIC RUBBER

Part 2: Application to concrete decks and use of concrete fills

Cracks in roof decks are potential troublemakers for roofing materials, and the new fluid-applied synthetic rubber systems are no exception. Even though these elastomers can stretch up to four times their original length, the opening of hairline cracks may be many times this. Thus prevention of cracks in the substrate immediately below the synthetic rubber is of paramount importance.

Thin Shells

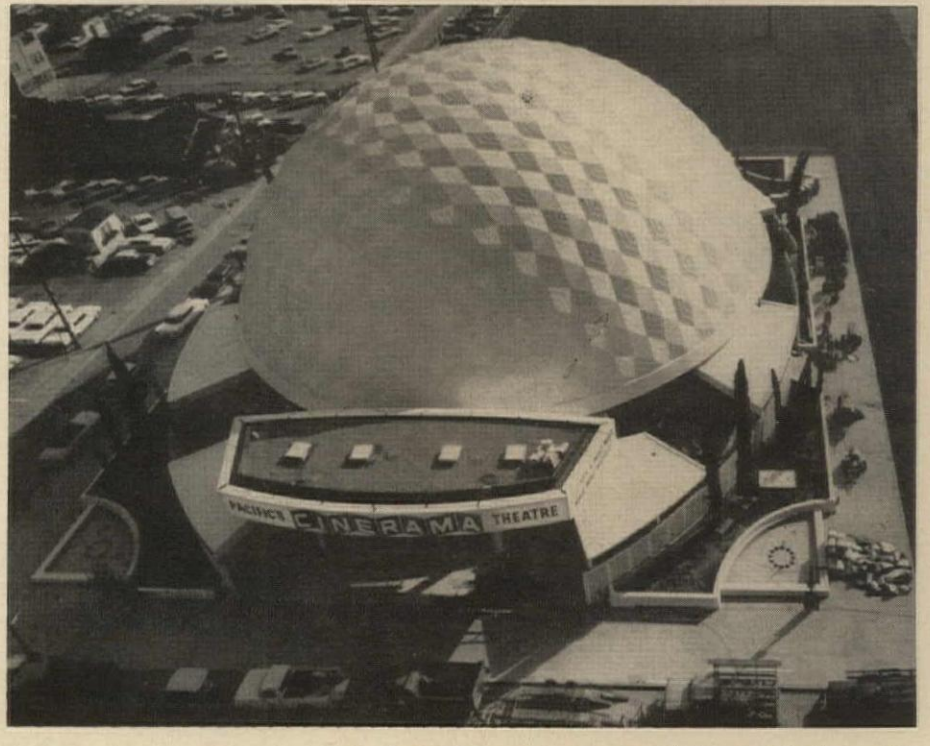
Concrete thin shells can be designed and built so that cracks do not develop, even though some tensile stresses exist in all thin shell shapes. In certain types of concrete shells such as undulating curved roofs and bent-plate roofs, providing adequate reinforcement at the crests to prevent cracking may be impractical. When these roofs are long in a direction perpendicular to the axes of the shells, they are subject to considerable thermal expansion. And if this displacement is prevented by rigid supports, movement due to thermal expansion will be vertical rather than horizontal. This may result in cracking along the crests. In this situation expansion joint covers should be provided in the roofing membrane.

When folded-plate sections are precast units, suitable joint details must be provided and the neoprene/HYPALON membrane must be adequately reinforced or covered with expansion joint materials.

Structural Concrete Slabs

Sloping or Level Planar Roofs. These decks are usually classified as structural slabs and are more subject to cracking than thin-shell roofs. Top surfaces of the slabs are in tension over supports and in compression at midpoint areas. In areas under tensile stresses due to loading, thermal shrinkage exerts additional tensile forces. Thus, not only must a slab be structurally sound, but proper precautions must be taken to distribute shrinkage stresses over the entire deck area.

To minimize thermal shrinkage cracking in decks of this type, con-



This article is based on technical information developed by the Elastomer Chemicals Department, E. I. du Pont de Nemours & Company

tinuous temperature steel should be provided in both directions near the top surface of the slab. Construction or contraction joints may be provided along selected column lines in both directions.

Selection of spacing is the responsibility of the designer. One satisfactory approach is to provide continuous #4 temperature reinforcing steel in both directions near the top surface of the slab on 12-in. centers, both ways.

Contraction joints can be made by damming off sections of the pour (cold concrete joints) or by sawing the partially hardened slab through the temperature steel. To be effective, joints should be sawed as soon as the concrete slab has sufficiently hardened.

Expansion joints extending across the width of the deck should be provided in roofs of great length. Normally each expansion joint is made continuous through the supporting structure, at least to the floor below.

Thin-slab Poured-concrete Roofs. Although decks of the thin type (2 to 2½ in. of concrete supported on high-rib lath or wire mesh on bar joints) present difficulties for neoprene/HYPALON roofing, they can be made suitable by providing a lightweight concrete fill or substantial reinforcement in the roofing membrane.

This type of deck is structurally sound, but generally sustains considerable cracking both during hardening of the concrete and after it has set.

Precast Concrete Slabs

Short-Span Precast Slabs. Neoprene/HYPALON membranes can be used over roofs of this type but decks must first be provided with lightweight concrete fills. (This is true unless slab design provides a mechanical method of holding the surface plane flat and rigid.) The number and variation in width of joints and the non-uniformity of individual precast units are major reasons for this requirement. However, when a reinforced fill is used, such a deck is satisfactory.

Long-Span Precast Slabs. Long-span slabs of the non-prestressed variety are unsatisfactory decks for neoprene/HYPALON even if provided with a fill. The reason for this is that differential movement occurs between slabs in a vertical direction.

Camber is difficult to control in a non-prestressed slab during fabrication. This results in considerable variation in elevation of erected units. Although this factor may not hinder adequate roof support, it varies the thickness of the fill required over each individual slab and thus imposes differential slab loading. Slabs of this type are subject to "creep" (or plastic flow of the hardened concrete) which causes dimensional changes and sagging. As a result, differential movement is always reflected through the fill and causes serious cracking. The Neoprene/HYPALON membrane cannot maintain integrity under deck cracking of this severity.

Long-Span Prestressed Slabs. These decks are also subject to creep. However, if uniformity of camber can be maintained, they are satisfactory with or without a fill.

Poststressed, Cast-in-Place Slabs. Decks of this type are usually satisfactory with or without a fill. Stress applications can be readily controlled in these roofs and a uniform and even top deck surface can be attained. Creep may still be a factor, but its effect is minimized. If the concrete is uniform and well placed, and if stress application is uniform, loss of camber due to creep should also be uniform. Differential movement will thus be virtually eliminated.

Design of Concrete Fills

Lightweight Aggregate Fills. Lightweight fills consisting of vermiculite and expanded slag, clay, and slate aggregates form acceptable surfaces for neoprene/HYPALON roofing. They must, however, be of adequate thickness, suitably reinforced and provided with contraction joints. When installed over decks that trap water, provisions for venting should be made. Fills of this type may be used over any of the following types of decks: fluted metal decks; short-span precast concrete slab decks; long-span prestressed and poststressed precast concrete slab decks; precast vermiculite concrete and calcium silicate decks; thin-slab poured concrete over mesh on bar joists; shredded-wood decks.

Fill should be at least 2 in. thick. Reinforcing should consist of 6- by 6-in., #10 by #10 welded wire fabric, or its equivalent, positioned at or just above the center of the fill. Fabric should be lapped at least 6 in. and wired.

Contraction joints ⅛ to ¼ in. wide should be provided along selected column lines in both directions. This work should be done as soon as the fill has achieved sufficient hardness and before the concrete cures. Saw cuts should be deep enough to sever the reinforcing mesh. If the column spacing makes intermediate joints necessary, they should be cut along lines positioned between quarter and third points of the span.

When a fill is used on metal decks, contraction joints should also be provided along all end joints of deck units and wherever the deck units change direction.

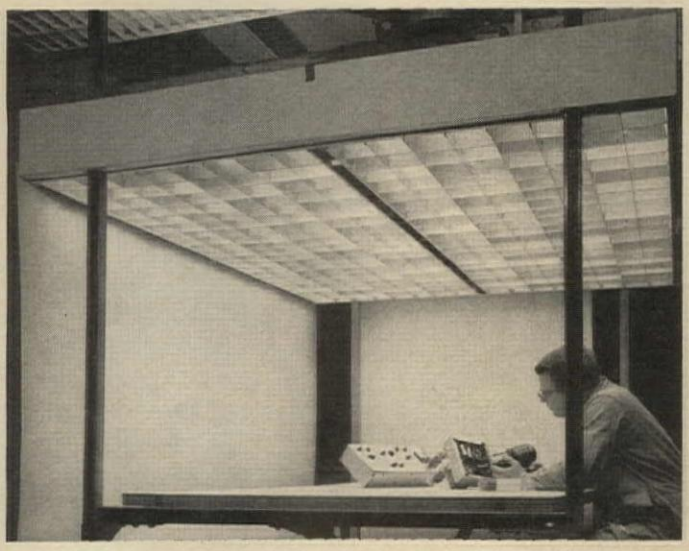
Fill concrete consisting of expanded slag, clay or slate aggregates should be proportioned so that it has compressive strength of approximately 1,000 psi. Minimum water-cement ratio should be used. Maximum coarse aggregate size should be ¾ in.

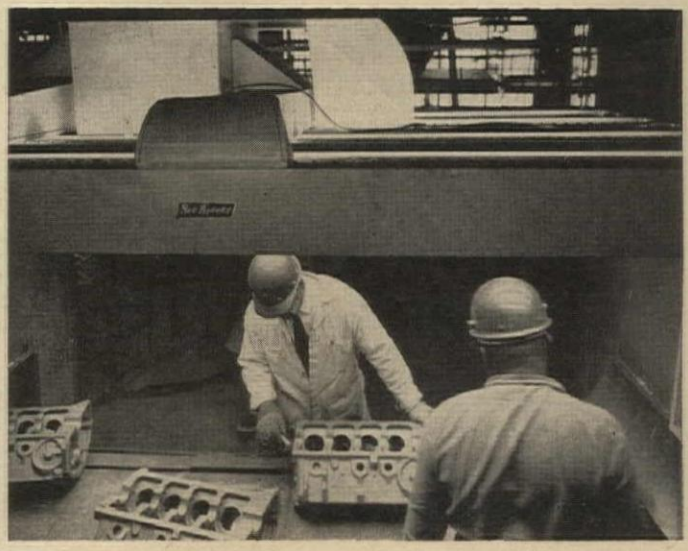
Fills consisting of vermiculite aggregate concrete should be proportioned not leaner than one part cement to four parts of aggregate. Water content should be held to the minimum. Although these fills have a much lower thermal expansion coefficient than other types of lightweight concrete, reinforcing mesh is frequently used. Contraction or expansion joints should be provided in the manner described above. To facilitate drying, venting channels through the fill are sometimes provided.

Foamed Concrete Fills. Foamed concrete fills have been found to be satisfactory materials for Neopren/HYPALON roofing. They may be used with the same deck surfaces as lightweight aggregate fills. Before a foamed concrete fill is placed, all deck openings through which the fluid foam might flow should be sealed.

Foamed concrete should have a minimum density, when cured, of about 40 lb per cu ft. Placement should be as recommended by the fill manufacturer. A foamed concrete fill needs no temperature steel reinforcement.

For more information circle selected item numbers on Readers Service Inquiry Card, Pages 207-208





HIGH INTENSITY LIGHTING FIXTURE HAS BUILT-IN AIR CONDITIONER

The *See Breeze* fixture, which has a self-contained air conditioner, is designed to provide a high level of fluorescent lighting without discomfort from glare, heat or humidity. The area serviced by one unit varies with the mounting height—at 9 ft the fixture will provide over 700 fc directly underneath, and an average intensity of 500 fc at the tabletop level over a 12- by 12-ft area.

The fixture is manufactured by Paramount Industries, Inc. Preliminary work was done by the Product Planning & Application Department of the Large Lamp Division at General Electric's Nela Park.

The unit operates eight PG, VHO or SHO lamps positioned on 9-in. centers. The lamps are shielded with a low brightness aluminum reflector. All reflecting surfaces including cross baffles constitute a near parabola with a 38- by 40-deg cutoff when using T17 lamps.

The integrated air-conditioning system consists of a ¾-ton air conditioner rated at 9,300 Btu. Cool air is emitted from a 2-in. opening down the center of the fixture. Warm air from over the lamps is drawn through four vented ducts containing the ballast, carried through the condenser and exhausted at the top of the air conditioner.

The *See Breeze* unit is approximately 6½ ft wide, 8 ft long and 8 in. high at the lighting section of the fixture. The air-conditioning unit and duct work extend up 16 in. on top.

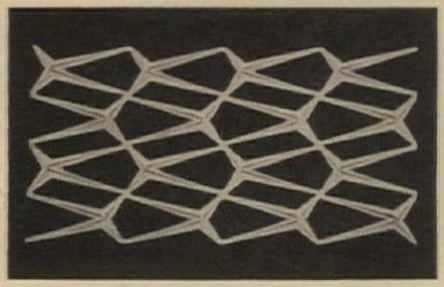
Lamps are accessible by dropping any one of the four reflector assemblies to a chain support position. Ballasts are serviceable from the top. This fixture is completely pre-wired with all U.L.-approved electrical components. *Paramount Industries, Inc., G-1080 N. Ballenger Hwy., Flint, Mich.*

CIRCLE 300 ON INQUIRY CARD

NEW TREILLAGE PATTERN WITH LATTICE EFFECT

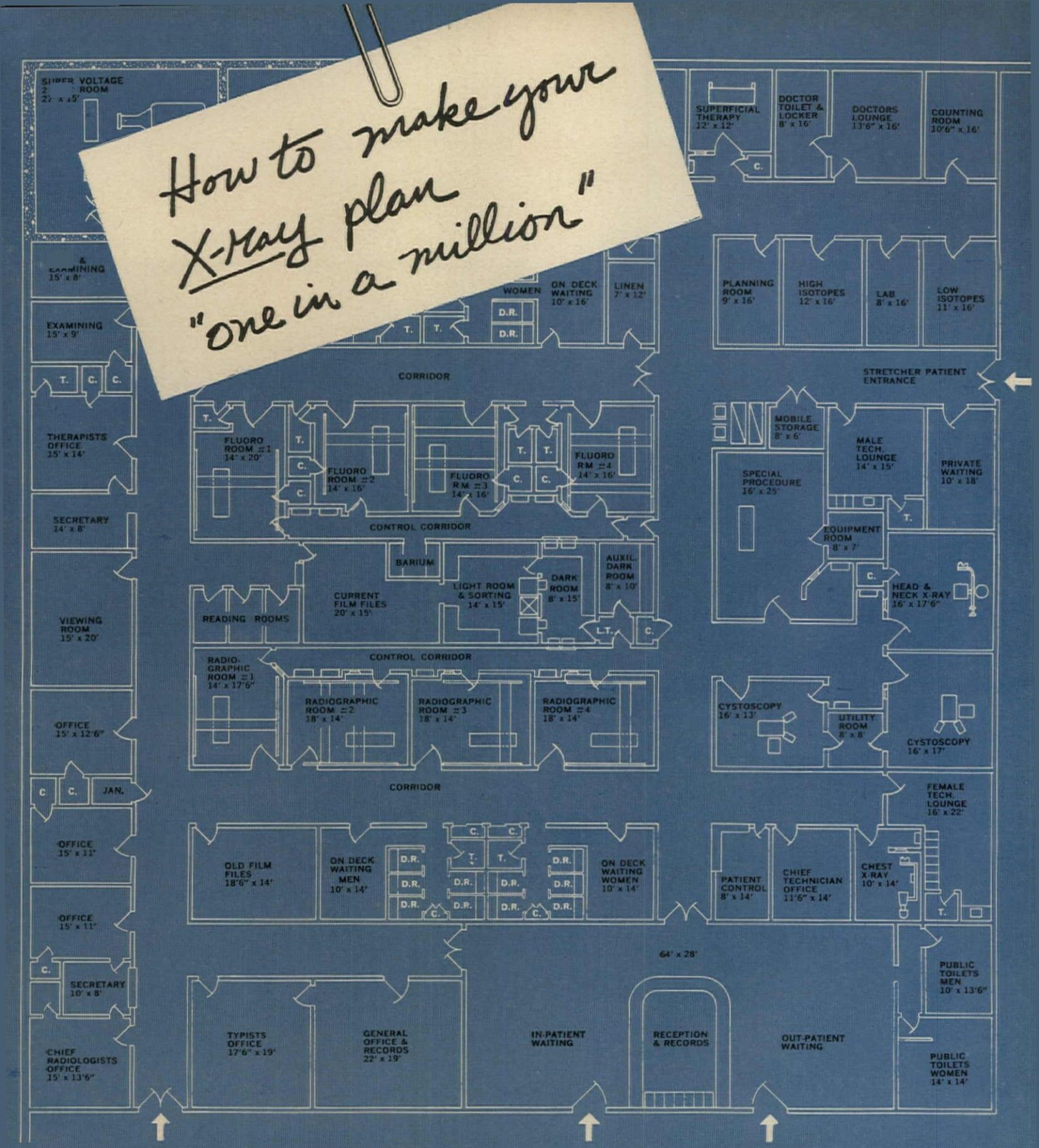
Lattice, a new treillage pattern which can be used either vertically or horizontally, has recently been introduced by Julius Blum & Co.

Lattice is suitable for both interior and exterior use and is available either in malleable iron or light-weight aluminum. Among the potential applications for the treillage are dividers, screens, grills, railing, columns and gates. Castings are double-faced and cleanly executed so that they may be employed for free-standing installations, *Julius Blum & Co., Inc. Carlstadt, N.J.*



CIRCLE 301 ON INQUIRY CARD

more products on page 186



The touch that makes x-ray floor plans *exceptional* can be yours for just a phone call or letter to your local G-E x-ray representative! Drawing from the wealth of resources and experience at his command, he will collect and evaluate background on patient flow, traffic patterns, radiological trends, space demands, and required radiation protection. If you request, he also will make or supervise preparation of detailed recommendations on x-ray department layout, wiring, power, plumbing, and related problems . . . drawing, when needed, on G-E X-Ray Installation Planning Service at Milwaukee. His unique knowledge and personal assistance can help you make every x-ray layout literally one in a million . . . individual, accurate, complete. To contact him, look for the G-E office nearest you under "X-Ray" in the Yellow Pages of your phone directory. Or write X-Ray Department, General Electric Company, Milwaukee, Wisconsin 53201.

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For more data, circle 75 on Inquiry Card

Office Literature

For more information circle selected item numbers on Reader Service Inquiry Card, pages 207-208

STEEL GABLES AND ARCHES

A new 50-page manual on steel gables and arches contains complete design calculations. The section on single span rigid frames is based upon plastic design theory, and the part on two-hinged circular arches uses elastic design methods of analysis. This design aid is the first of its kind to make use of plastic design analysis for rigid frames. *American Institute of Steel Construction, 101 Park Ave., New York, N.Y., 10017*

CIRCLE 400 ON INQUIRY CARD

AIR-CONDITIONING UNITS

A new 20-page brochure on self-contained multizone units contains photos and descriptions of the equipment. In addition, dimensional drawings and tables, typical engineering specifications, and heating, cooling and humidifier capacities are included. *Thermal Engineering Corporation, P.O. Box 19483, Houston, Tex., 77024*

CIRCLE 401 ON INQUIRY CARD

LIGHTWEIGHT CONCRETE AND SURFACE WATERPROOFING

A six-page brochure combines two A.I.A. files on lightweight cellular concrete and on concrete surface waterproofing. Weight-to-density graphs and specification tables of K-values for lightweight concrete are also explained. Uses of patented-process Elastizell-type concrete are also explained. Franchised installers for the product are located in nine major western cities. The second file covers poly-urethane elastomer waterproofing materials installed over roof-decks and balconies. *Elastizell Concretes of California, 2524 N. San Gabriel, Calif., 91777**

CIRCLE 402 ON INQUIRY CARD

DRAFTING MACHINE

A 12-page brochure describes the new Paragon *Auto-Flow* drafting machine. Nineteen photographs and seven isometric and engineering drawings illustrate the machine's new central control system and other features. *Keuffel & Esser Co., Hoboken, N.J.*

CIRCLE 403 ON INQUIRY CARD

ALUMINUM GRILLS

Data on the company's 12 patterns of architectural anodized aluminum grills are presented in chart form in a 12-page folder. Photographs suggest interior and exterior applications. *Klemp Corporation, 1132 W. Blackhawk St., Chicago 22, Ill.*

CIRCLE 404 ON INQUIRY CARD

CEILING SYSTEM FOR AIR DISTRIBUTION

Contents of a 24-page booklet on *Celo-Flow* ceiling systems for air distribution include: basic requirements, advantages, plenum treatment, design procedure and problem examples, beam obstructions, ventilating materials, and acoustical guide specifications including drawings. *The Celotex Corporation, 120 S. La Salle St., Chicago 3, Ill.*

CIRCLE 405 ON INQUIRY CARD

BACK BAR EQUIPMENT

A 36-page catalog and a 12-page price list is available on Carousel modular food service back bar equipment. Self-contained or remote gas and electric units, available in stainless steel or any color or pattern plastic laminate, are shown. *Progressive Metal Equipment, Inc., Whitaker & Rhawn St., Philadelphia 11, Pa.**

CIRCLE 406 ON INQUIRY CARD

APARTMENT HOUSE TELEPHONE SYSTEM

Data sheet contains complete specifications for the Couch apartment house telephone system TS 94B. The sheet lists different types of cordless and handset telephones with built-in transistorized amplifiers. Dimensional details and wiring diagrams are included too. *S. H. Couch Co., Inc., 3 Arlington St., North Quincy 71, Mass.*

CIRCLE 407 ON INQUIRY CARD

MERCHANDISING SYSTEM

A new system of merchandising counters with completely interchangeable components is described in a 35-page color brochure. The system is equally adaptable to walls, counters, low boys or island units. *L. A. Darling Company, Bronson, Mich.*

CIRCLE 408 ON INQUIRY CARD

STRUCTURAL PLYWOOD COMPONENTS

Stressed skin plywood panels, plywood curved panels, plywood folded plate roofs, plywood box beams and straight laminated beams are covered in a 12-page brochure, "Structural Plywood Components." Unusual component combinations, specifications and connection details are also included. *The Champlain Company, 45 Bartholomew Ave., Hartford 6, Conn.*

CIRCLE 409 ON INQUIRY CARD

STEEL CURTAIN WALL

A 1964 catalog explains the Erveen *Steel Seal* curtain wall system. Included in the brochure are architectural details, technical data, specifications and photographs of recent installations. The booklet also includes unique solutions to design problems, comparisons with conventional curtain wall construction and design possibilities within the system. *Ervite Corporation, 4000 W. Ridge Rd., Erie, Pa., 16505*

CIRCLE 410 ON INQUIRY CARD

DECORATIVE LAMINATES

A technical brochure on decorative laminates includes complete test data, details and suggested specifications for institutional, commercial and residential applications. *Panelyte, St. Regis Paper Company, 2403 S. Burdick St., Kalamazoo 34, Mich.**

CIRCLE 411 ON INQUIRY CARD

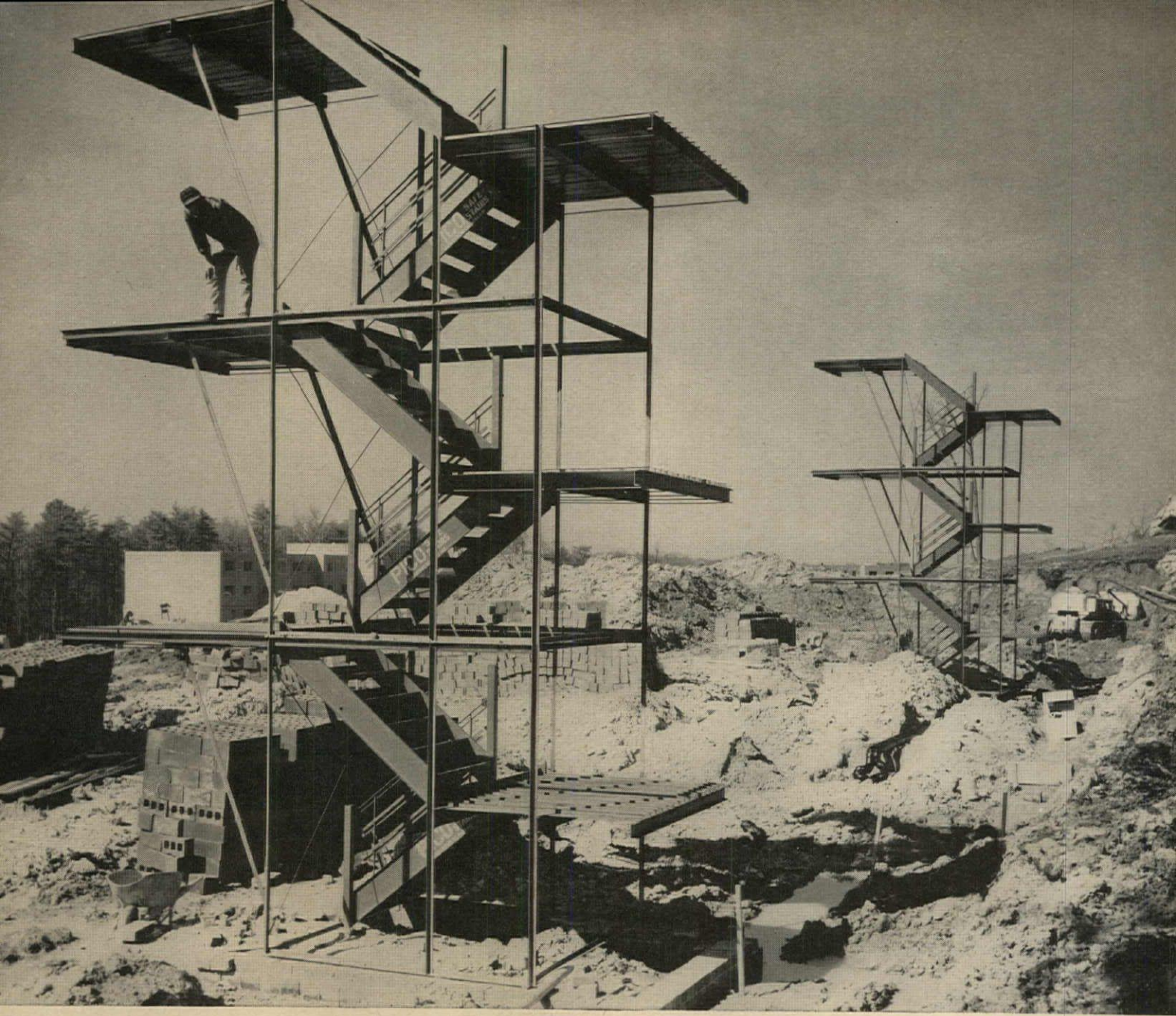
ACOUSTICS AND PLYWOOD

"Acoustics and Plywood," a new publication, describes the best methods of insulating against sound with plywood. The booklet is designed to show how plywood can provide adequate sound control with only minor changes in the normal construction methods. Separate sections on sound insulation and sound absorption and a comparison of sound ratings for typical plywood constructions with conventional building methods are included also. *Douglas Fir Plywood Association, Tacoma, Wash., 98401**

CIRCLE 412 ON INQUIRY CARD

**Additional product information in Sweets Architectural File*

more literature on page 218

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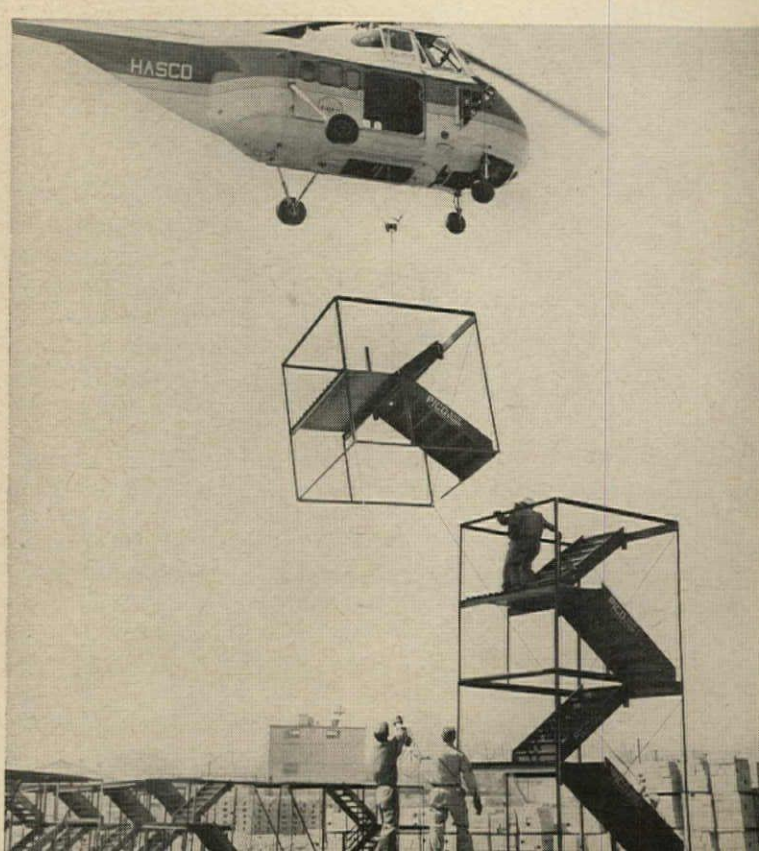
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STEEL'S SYMBOL OF
STRENGTH AND SERVICE

STEEL AND A UNIQUE PATENTED SYSTEM BUILD STAIRS BETTER...FASTER ..AT LESS COST

As new buildings keep mushrooming in the construction industry's race for space, new and better building techniques are in constant demand.

That's why the unique, patented Pico Safe Stairs Company (Hyattsville, Maryland) system for pre-erecting stairways in the plant is so important. Utilizing J&L Junior Channels and Junior Beams, their licensee has installed literally miles of steel stairways in the vast complex of new apartment and office buildings rising in Washington, D.C. Their unique design reduces overall cost of erection as much as 50%. Franchised manufacturers are being licensed throughout the Country.

Many other steel fabricators are using J&L lightweight structurals — Jal-Tread Floor Plate, sheets, small angles, pipe for hand rails and stainless steel for modern stair construction.

For more information on J&L products see your latest issue of Sweet's Catalog, or call your nearby J&L office, or write: Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh 30, Pa.

Jones & Laughlin Steel Corporation

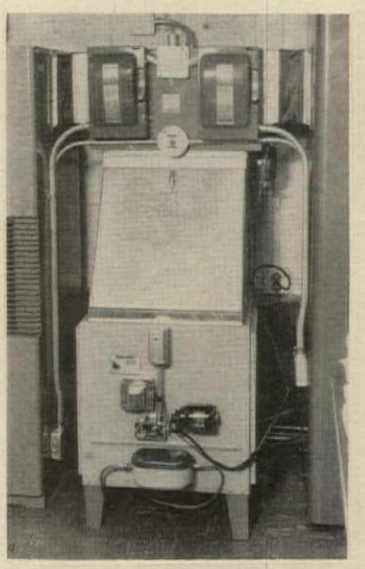
For more data, circle 76 on Inquiry Card

Product Reports

continued from page 181

COMMERCIAL HUMIDIFER

The *Model 160* drumatic humidifier can be installed independently or with various heating or air-conditioning components such as a blower, coil, heater or duct system. The humidifier adds pure water vapor to the air by utilizing an evaporator pad on a motor driven spoked drum which rotates in a pan of water. Water is forced through the drum where it is moistened and then sent into the heating system, or the area to be humidified.



Capacities are: 1.8 gal per hour at 1,000 CFM at 70 F and 7.56 gal per hour at 1,000 CFM at 175 F. The epoxy coated steel cabinet measures 22 by 22 in. and is 24 in. deep. *Skuttle Manufacturing Company, Milford, Mich., 48042*

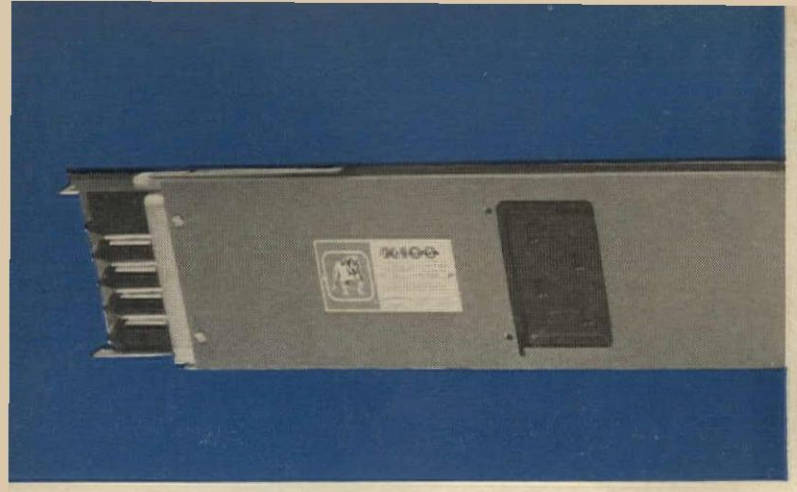
CIRCLE 302 ON INQUIRY CARD

PLASTIC PIPING

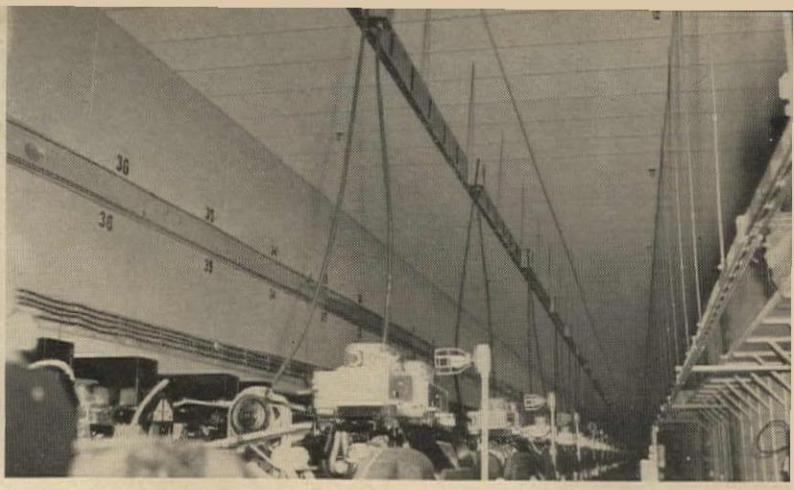
Pliaduct, a new type of flexible plastic pipe for general construction as well as highly specialized industrial applications can be flexed to the desired shape by hand. It remains bent in position and eliminates the need for couplings and elbows. The new lightweight pipe can carry air or gases under pressure or vacuum. It can be used for corrosive vapors, dust collection, irrigation, ducting in poured concrete, electrical conduit, drainage pipe, air-conditioning and heating ducts.

The pipe is made by a unique extrusion process which provides helical convolutions of a special profile of

more products on page 192



Our X-100 Duct goes anywhere.



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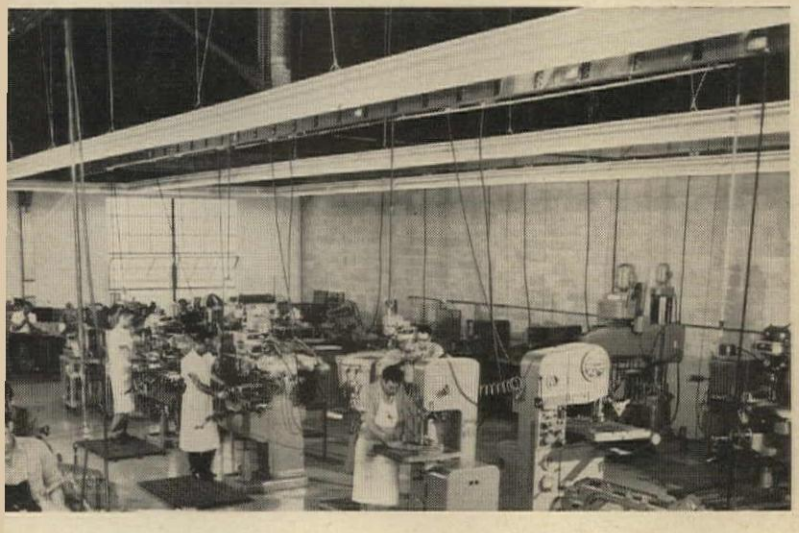

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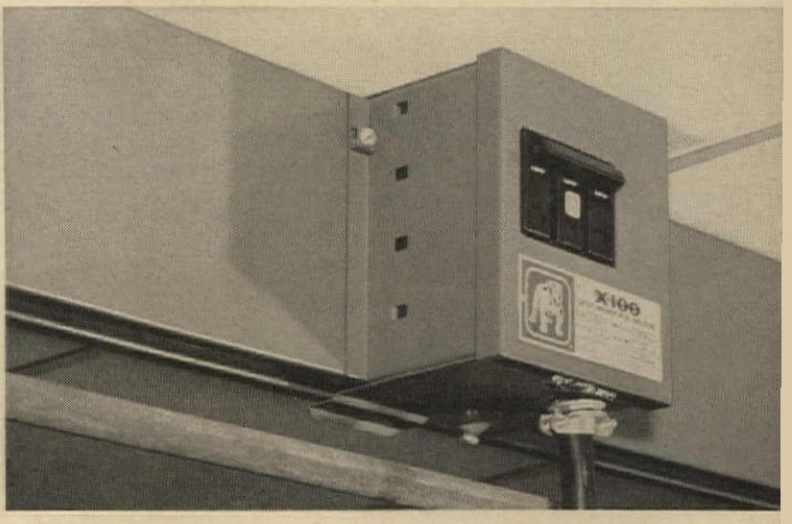


Everywhere.

It's hard to find a wiring job that our BullDog 100-amp duct won't handle more economically, more efficiently. That includes even homemade wire and cable jobs. Plugs, with fuses or breakers, plug in every ten inches. BullDog X-100® Bus Duct is in your local I-T-E distributor's stock. Call him. Today.

The BullDog Division of I-T-E manufactures electrical distribution systems for commercial and industrial installations, 600 volts or less.

I-T-E CIRCUIT BREAKER COMPANY

I-T-E also manufactures: Circuit Breakers Unit Substations Power Transformers Panelboards and Switchboards Bus Duct Systems Power Switching Equipment Power Rectifier Equipment Motor Controls Safety Switches Service Entrance Equipment Porcelain Insulators Fuses Utility Test Equipment

For more data, circle 78 on Inquiry Card

Why they call Geneva "the architects' cabinetry"

Hospital

Geneva cabinetry easily withstands long, rugged use in hospitals and medical laboratories. It offers the security of solid steel locking doors and drawers for equipment, medicines, narcotics.

School

Geneva installations can take years of abuse with little or no maintenance. They're ideal for home-making kitchens, laboratories, arts and crafts rooms, school offices, and other school applications.

WHEN YOU DESIGN WITH CABINETRY BY GENEVA . . . you know your clients have the finest in casework – smart, modern, long-lasting. And you have complete freedom of architectural expression. In design, go conventional, contemporary or modern: Geneva offers the industry's widest variety of sizes, shapes, types. In color, an almost unlimited choice – 21 decorator tones – baked on to stay. Now available for the first time – broad selection of rich-grained wood fronts on Geneva steel cabinets. Choose Cabinetry by Geneva for that important building you're designing–hospital, school, plant, commercial building or apartment! For more information see Sweet's Catalog (24b/Gev, 35a/Gen, 36a/Ge) . . . or call the Geneva distributor nearest you.

Plain Steel or New Exclusive

Impasto®

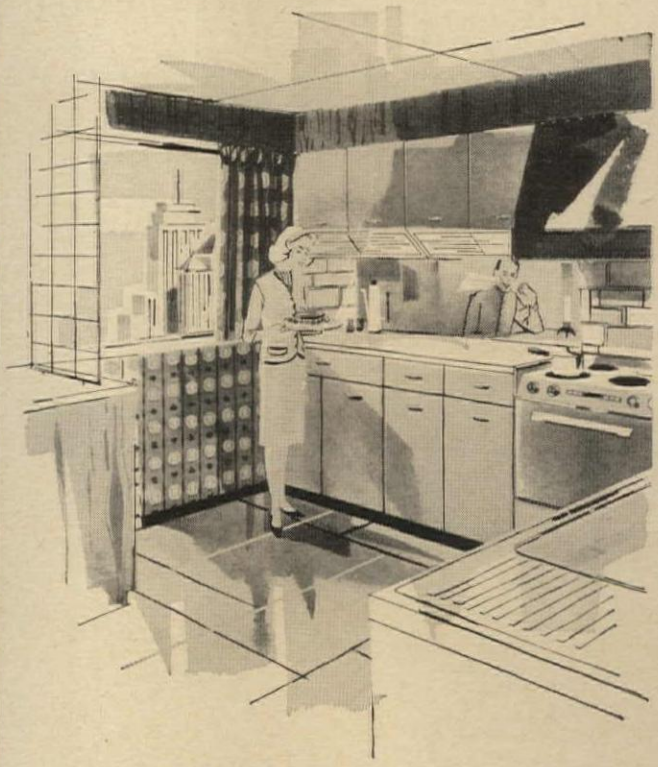
Picture steel etched with the texture of fine leather . . . in a choice of decorator colors. That's IMPASTO! Warm. Rich. Beautiful. An almost indestructible finish that won't chip, dent, craze, rust, or burn.

Steel Cabinetry by Geneva

GENEVA INDUSTRIES, INC., GENEVA, ILLINOIS – Steel Cabinetry For Schools • Churches Homes • Hospitals • Apartments • Laboratories • Commercial And Industrial Buildings Of All Types

Laboratory... Test Kitchen

Geneva steel cabinets complement appliances and food equipment, provide working and storage space for accessories. Food companies, publishers, ad agencies rely on Geneva equipment in test kitchens.



Apartment and Home

Geneva kitchen cabinets add fresh, functional utility to new apartment buildings; revitalize old ones! There are colors, styles and sizes to fit any kitchen layout. Geneva kitchens last for years with little or no care.

For more data, circle 79 on Inquiry Card

A three-minute reading of the message at right could save your new school thousands of dollars

What you should know about classroom unit ventilator warranties

This is straight talk about a very specific subject: warranties on classroom unit ventilators.

What is the Herman Nelson five-year warranty?

It is a printed document that specifically states the conditions under which parts *and labor* will be provided at no cost if Herman Nelson unit ventilators do not perform as represented due to defects in materials and workmanship.

The important thing about this warranty is that it is *specific;* it deals with a *specific* situation in *specific* terms—no ifs, buts or maybes.

What a warranty is not

You may hear something like this, "We don't have to warrant our equipment for five years; you know we stand behind our products for the life of the building." The truth is that only a manufacturer who *does* stand behind his product *can* offer a specific five-year warranty document.

Generalized statements printed in advertisements or made by salesmen are *not* warranties. For example:

"... experienced Service Engineers are on call to assure equipment performance for the life of the school."

This is not specific. It is not a printed, dated document. It does not necessarily bind the manufacturer to do anything more than have its Service Engineers "on call." In short, it is not a warranty and it is not "the same as" a warranty.

Here's another example:

"Far above the conventional guarantee on mechanical equipment is the _____ Company's proven policy of continuing interest and responsibility toward its product for the life of the building."

Specific? No. Documented? No. Do the words "proven policy" and "continuing interest and responsibility" provide your school with any security if something should go wrong? No.

It adds up to this: The *only* assurance you can have that the public funds spent on your school's unit ventilator equipment are protected would be a specific, bona fide warranty document.

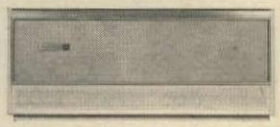
What the Herman Nelson warranty provides

Herman Nelson unit ventilators are warranted for five years from date of installation. The warranty is a nationally published document which is offered to *all purchasers* of Herman Nelson classroom unit ventilators; it is not merely a "device" used only in individual selling situations. Not only *all parts* but also the *labor* involved will be furnished at no cost to the school if there is any performance failure due to defects in material or workmanship determined after an inspection by authorized Herman Nelson representatives.

Read the Herman Nelson warranty

We'd like you to read the full and complete wording of the Herman Nelson unit ventilator warranty. If you'll drop us a request on your letterhead, we'll send you a copy (clearly marked "specimen only") so you can see for yourself the *difference* between "just talk" and documented fact. *And that difference could save your school thousands of dollars.*

Address School Products Department, American Air Filter Company, Inc., 215 Central Avenue, Louisville, Kentucky.



Herman Nelson
SCHOOL PRODUCTS DEPARTMENT
AAF

For more data, circle 80 on Inquiry Card

Product Reports

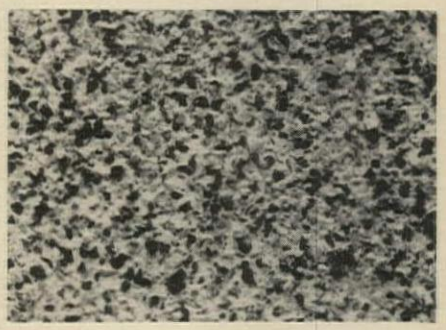
continued from page 186

rigid polyvinyl chloride. Since this is a continuous process, pipe of any length can be produced. The edges are made to interlock without the need for reinforcing wire. This interlocking feature permits as much as 40 per cent elongation and allows installation in both flexible and rigid configurations. Lastly, the ability to reduce or increase the pipe's diameter by twisting eliminates the need for tapered fittings between pipe of different diameters. *Dayco Corp., Dayton 1, Ohio*

CIRCLE 303 ON INQUIRY CARD

MARBLE AGGREGATE COATING

Aggretex, an inorganic, lightweight, non-cementitious coating, incorporates the properties of marble aggregates. It can be sprayed on any sound



masonry backing. The manufacturer reports it resists deterioration through oxidation and weather exposure. *Desco International Assn., P.O. Box 74, Buffalo 5, N.Y.*

CIRCLE 304 ON INQUIRY CARD

SIDE-OPENING FILES

The new *Pro-Files* have unique space-saving drawers which tilt out and extend only 6 in. File compartments are 28-in. across and can be stacked and banked. Floor space needed for a conventional letter-size drawer file is 833 sq in. whereas this cabinet takes only 518 sq in. Legal size *Pro-Files* are also available. *Yawman & Erbe, 1099 Jay St., Rochester 3, N.Y.*

CIRCLE 305 ON INQUIRY CARD

ALUMINUM WINDOW-WALL SYSTEM

Kawneer *AMS* is a new factory-fabricated window-wall system designed especially for apartments, motels and schools. The system has split mullion units which slide together easily and quickly, and neoprene glazing with

more products on page 196

To specify the best flashing at the lowest cost

Turn to Sweets 8h/Am Page 4

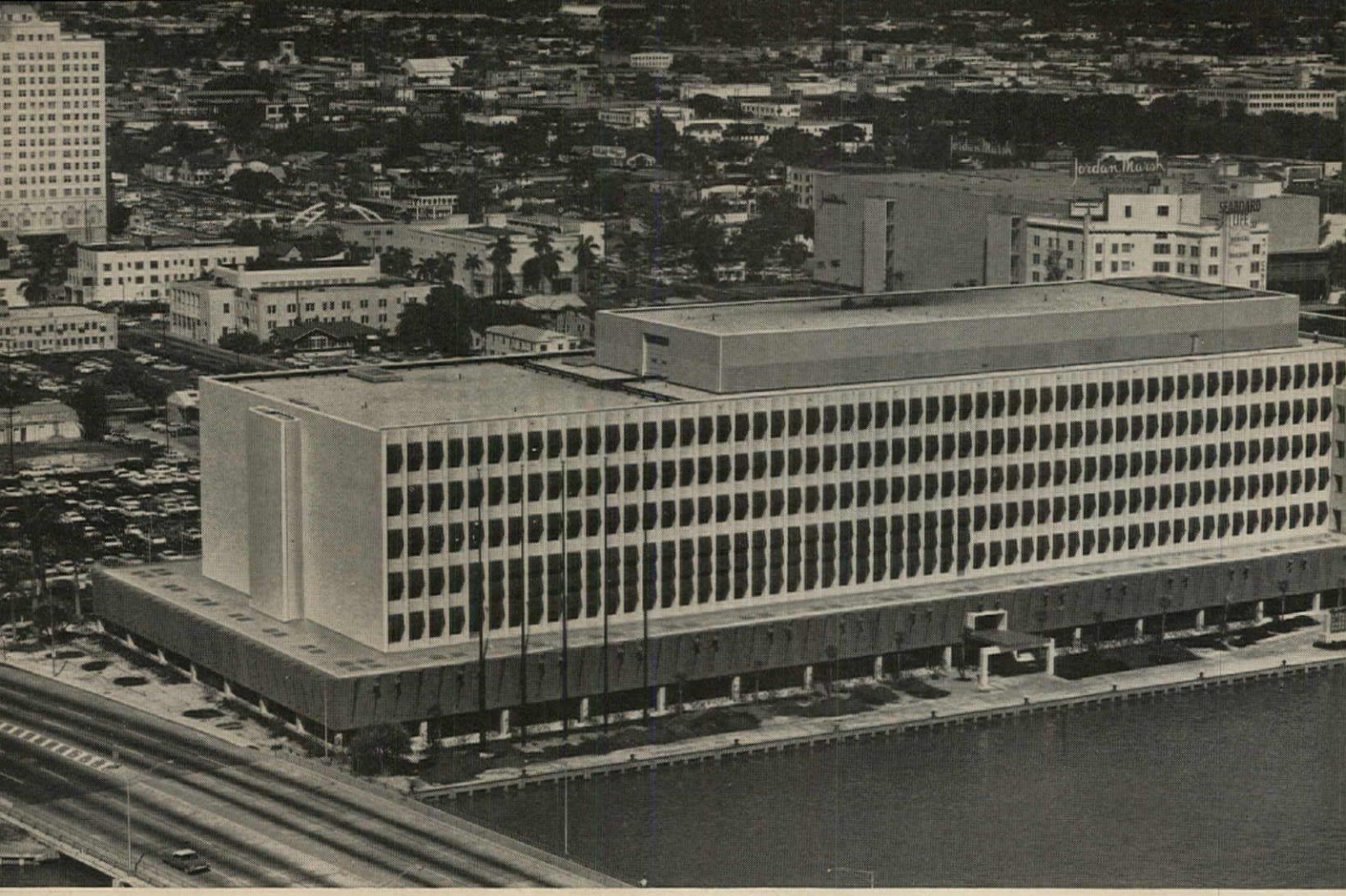
Copper for concealed flashings at only 12¢/sq. ft.! That's possible only with Copper Armored Sisalkraft®... a bond of pure electrosheet copper and reinforced Sisalkraft in 1, 2 and 3 oz. weights of copper per sq. ft. ■ This means — for just a few pennies difference — you can upgrade every flashing specification — providing **lifetime protection** against water and moisture penetration. Contractors like Copper Armored Sisalkraft, too, because it is extremely flexible, conforms easily to contours, cuts with shears, and bonds with mortar. ■ Send for your "Bookmark Sample" to put in Sweets 8h/Am — where you'll find all the concealed flashing and waterproofing specifications needed to give your clients the added value of **lifetime protection** for mere pennies. Write: American Sisalkraft, 73 Starkey Avenue, Attleboro, Massachusetts. Branches at Cary, Illinois and Tracy, California.

COPPER ARMORED SISALKRAFT

AMERICAN SISALKRAFT DIVISION

St.Regis PAPER COMPANY

For more data, circle 82 on Inquiry Card



How Republic Stainless Steel gives Florida's new Miami Herald Building

FUNCTIONAL BEAUTY WITH

Look for no premature loss of value or beauty in this new landmark on Miami's Biscayne Bay. Hundreds of thousands of pounds of Republic Type 316 ENDURO® Stainless Steel give this building functional beauty inside and outside, with the promise of maximum life expectancy and maintenance economy over the years.

Built by Florida's Miami Herald, the building is believed to be the second largest newspaper plant in the United States. The stainless was used in the main entranceway and in window framing, in escalator and elevator components, wall panel divider strips and railings, column covers and newspaper chutes, kitchen and office equipment, and many other applications.

The unusual use of Type 316 chrome-nickel stainless steel assures a proven defense against corrosion attack, a serious problem in Miami's salt-laden atmosphere. This is the same type of stainless used in process applications to combat highly corrosive salts, acids, dyes, and other chemicals.

The metal's resistance to impact, abrasion, and scratching promises lasting beauty and utility in The Miami Herald's fast-moving, round-the-clock publishing operations. Maintenance costs will be low because stainless steel requires no paint or special finishes, and eliminates the need for scouring. Dirt won't cling—is removed with simple soap and water cleaning—because stainless is smooth and nonporous.

Leading producer of stainless and alloy steels, Republic will help you select and apply the stainless steel best suited to requirements. Republic produces 45 standard types of ENDURO Stainless Steel, tailors others to meet special customer requirements. For information, contact your nearest Republic representative or write: *Republic Steel Corporation, Dept. AR-7389, 1441 Republic Bldg., Cleveland, Ohio 44101.*

REPUBLIC STEEL

Cleveland, Ohio 44101

You Can Take the Pulse of Progress at Republic Steel

For more data, circle 83 on Inquiry Card

REPUBLIC STEEL

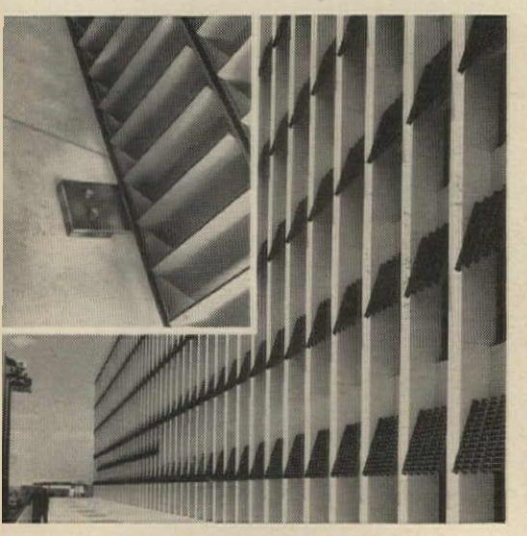
The Miami Herald Building, photographed from the air over Biscayne Bay. The building was planned by Naess and Murphy, Architects and Engineers. General contractors: Gus K. Newburg Construction Company. Architectural stainless fabricated and installed by Rippel Architectural Metals, Inc.

The building entrance at night. Note that vital storm-proofing is achieved by closely criss-crossing stainless mullions which anchor ½-inch-thick glass. Doors are stainless, too.

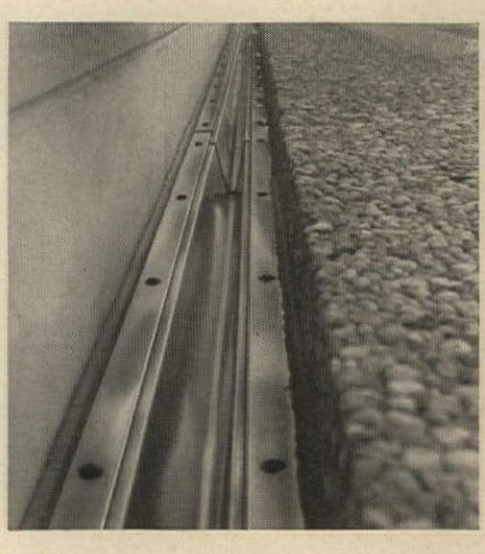
Strong, Modern, Dependable

View of part of The Herald's business offices offers a close look at the sturdy stainless window frames and the lavish use of stainless in railings.

GREATER LIFE EXPECTANCY



Of the 17,487 stainless-framed windows in The Miami Herald Building, hundreds are equipped with sunshades secured to the building with stainless steel anchors, plates, and bolts.



Worm's-eye view of a stainless expansion joint employed to seal the open space between The Herald's offices and press structure. Joint eliminates vibration caused when the giant presses roll.

Stainless in kitchen and backbar equipment helps keep The Herald's beautiful cafeteria sparkling clean at all times. Railing in foreground is fabricated from Republic Type 316 ENDURO Stainless Steel Flat Bar Stock.

Product Reports

continued from page 192

snap-on glass stops. The basic unit is a 12- by 8-ft module consisting of a 3-ft door section and two wall sections. The system will handle five different glass and panel thicknesses, ranging from ¼ to 1 in. *American Metal Climax, Inc., Niles, Mich.*

CIRCLE 306 ON INQUIRY CARD

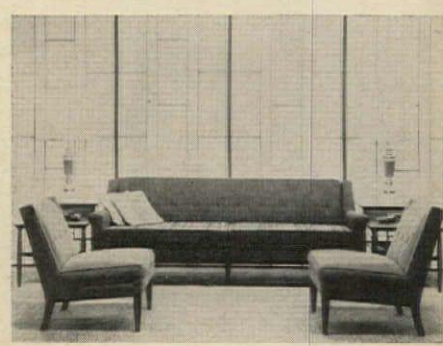
MODULAR STRUCTURAL CLAY FACING TILE

Brickplate, a hard-fired ceramic masonry material is manufactured in a variety of modular size units in both glazed and unglazed colors. Modular quarry tile in four unglazed colors is also available. Both products are designed with a dovetail backing which permits vertical applications such as the facings of buildings as well as such horizontal applications as floors and paving. *Gail International Corp., 582 Market St., San Francisco, Calif.*

CIRCLE 307 ON INQUIRY CARD

FIBER GLASS REINFORCED PANEL

Replasa—panel, a fiber glass reinforced panel, is a shatterproof, maintenance free glazing panel designed specifically for replacement of shattered and cracked panes of glass in top hinged continuous operated and fixed steel sash of any make or size.



The panel comes in a 24-in. width for either 23⅞-in. muntin bar outers or 24-in. muntin bar centers. *Structoglas, Inc., 11701 Shaker Blvd., Cleveland 20, Ohio*

CIRCLE 308 ON INQUIRY CARD

RECESSED LIGHTING UNITS FOR POURED CONCRETE

A complete new line of four incandescent rounds and four squares for poured concrete construction features dropped lens and dropped glass

more products on page 200

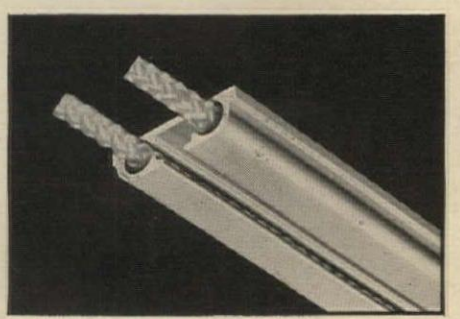
SILENT GLISS

the silent drapery tracks®

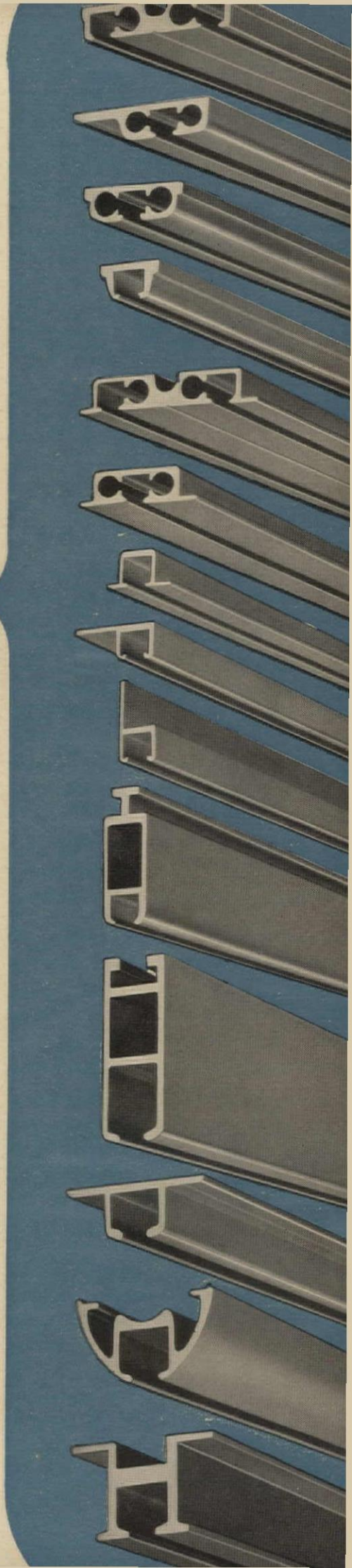
Whatever you may read, hear, or be told — one thing is sure: *there is no other track to equal Silent Gliss.*

The reasons are clear: ■ No other track has the patented system of cords traveling in separated, semi-enclosed channels (to prevent drooping, tangling, and other problems of tension systems). ■ No other track features the silence of satin-smooth rounded nylon carriers traveling in precisely fitted channels (no annoying "echo chamber" roller noise.) ■ No other track has the slim, trim lines of Silent Gliss (with the gracious contours of the thoroughbred).

Silent Gliss offers *fourteen* track styles to choose from: tracks for surface mounting, bracket mounting, or recessing . . . tracks for cord traversing or hand operation . . . tracks for cubicle, extra-duty or specialty use. All are shown and described in the complete illustrated catalog shown above. Write for full details today; address Dept. AR-2.



☐ Here is the *secret of Silent Gliss* . . . with its all-nylon cord, traveling in patented, *separated* channels. This means minimum maintenance, because there's no drooping, no tangling *ever*. It's one of the reasons why Silent Gliss is the *prestige* track, chosen for quality installations the world over.



SILENT GLISS, INC.

Distributing Companies

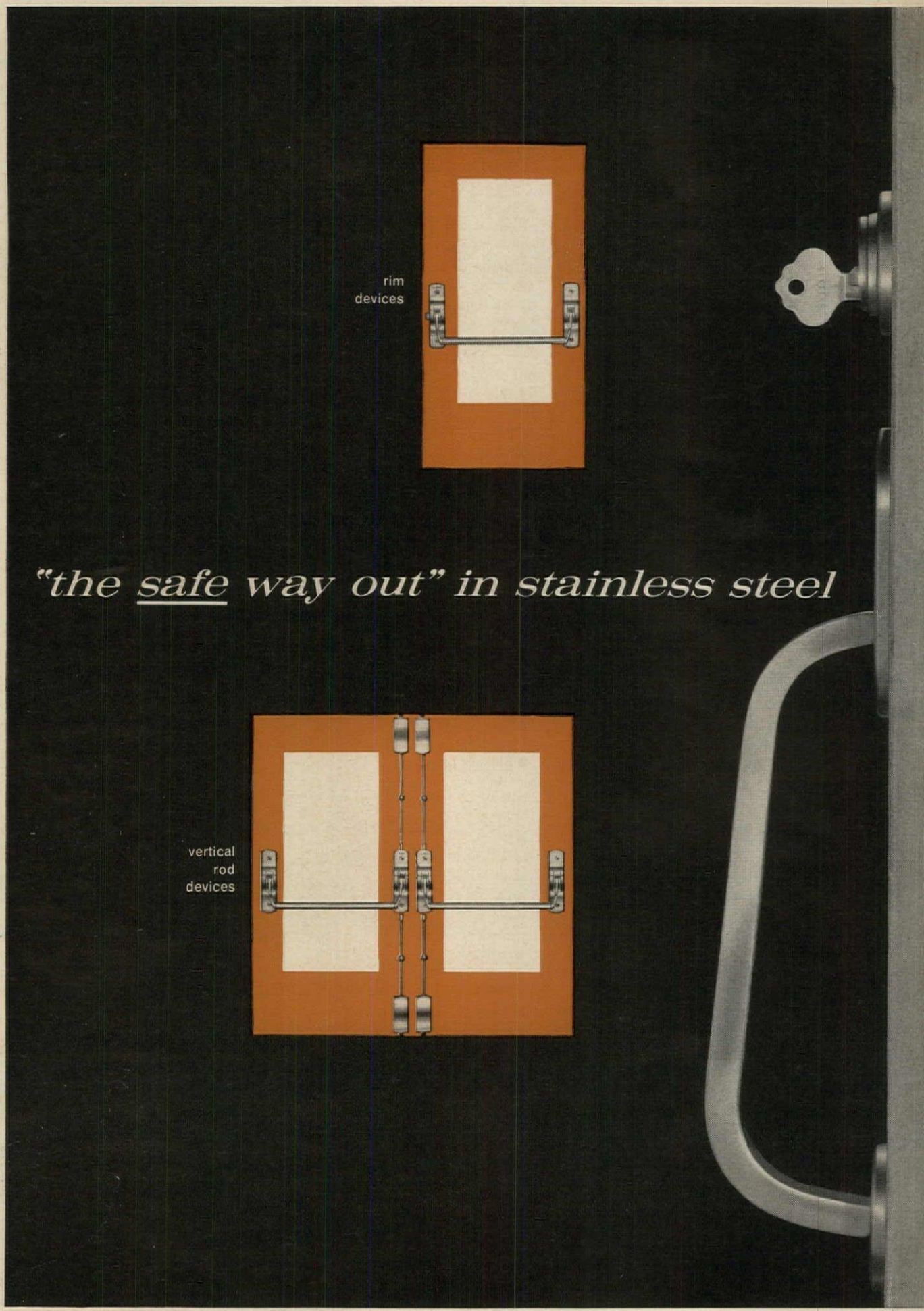
Angevine Co., Freeport, Illinois

Drapery Hardware Mfg. Co., Monrovia, California

THREE OF THE Newell COMPANIES

Manufacturers of Quality Drapery Hardware Since 1903

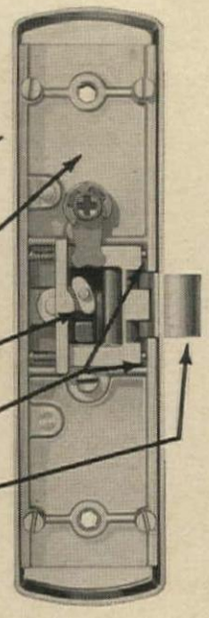
For more data, circle 85 on Inquiry Card


rim
devices
"the safe way out" in stainless steel
vertical
rod
devices

mortise lock devices

unmatched engineering quality

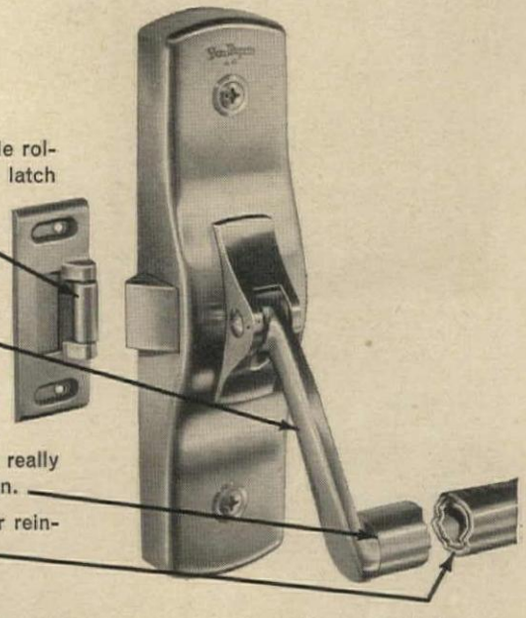
- Stainless steel housing covers are stamped and drawn from sturdy stock over 1/16" thick.
- Forged bronze chassis in lock stile case reinforces a full 75% of housing area. Minimum wall thickness of chassis is 1/8".
- Stainless steel master cam.
- Two neoprene bumpers between housing and chassis assure quiet operation.
- Stainless steel latch bolt and axles.



Von Duprin 66

unmatched design quality

- Stainless steel adjustable roller strike permits smooth latch bolt operation with minimum wear.
- Stainless steel forged lever arms with stainless steel axles.
- Hidden "wedge-tite" fittings, extending 1¼" into crossbar, exert full-circumference locking force on crossbar, and give a really smooth, uncluttered design.
- Stainless steel crossbar reinforced with steel tube.



For enduring beauty and lasting service, there is no equal to the Von Duprin 66 exit devices. Quality engineered . . . quality appearance . . . quality operation.

Write for your copy of the 66 Bulletin . . . full details on the industry's pace-setter, the Von Duprin 66.

the safe way out

VON DUPRIN DIVISION • VONNEGUT HARDWARE CO.
402 W. MARYLAND ST. • INDIANAPOLIS 25, INDIANA

For more data, circle 86 on Inquiry Card

Product Reports

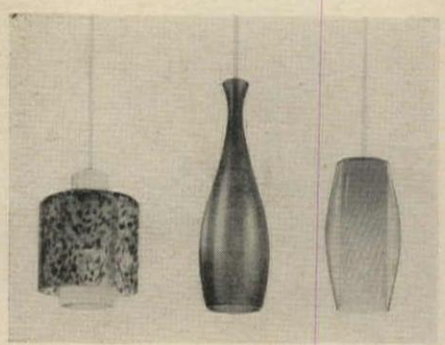
continued from page 196

units which are U.L. approved for use with a 200-watt lamp. The housings of the prewired, recessed units require a recessing depth of 3½ in.; thus, the units can be used in concrete only 4 in. thick. The fronts of the squares are 11 by 11 in. and the fronts of the rounds are 12⅞ in. in diameter. *Art Metal Lighting Division, Wakefield Corp., 1814 E. 40th St., Cleveland 3, Ohio*

CIRCLE 309 ON INQUIRY CARD

HAND BLOWN GLASS PENDANTS

Several series of decorative residential lighting fixtures in hand blown glass have recently been introduced by Thomas Industries Inc. Models



in the M-2174 line feature an inner opal glass cylinder with an outer glass shade of colored chips. Fixtures have a 10½-in. over-all height and a 7½-in. diameter. The M-2153 series feature a swirled inner cylinder of opal glass, encased, except at the bottom, by a colored outer glass. All pendants described have a polished brass ceiling canopy. *Residential Lighting Division, Thomas Industries Inc., 207 E. Broadway, Louisville, Ky.*

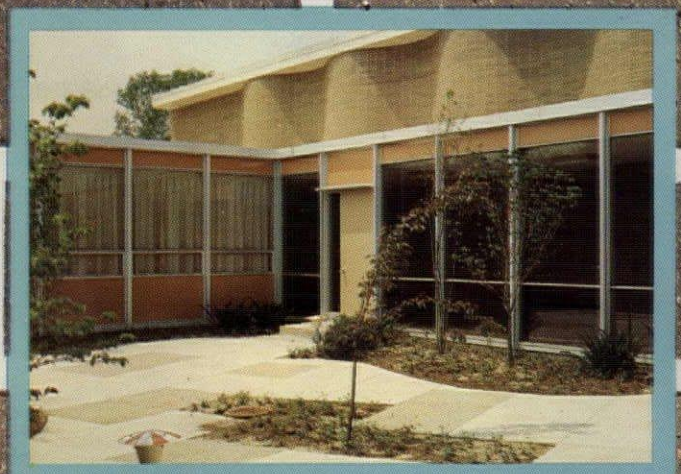
CIRCLE 310 ON INQUIRY CARD

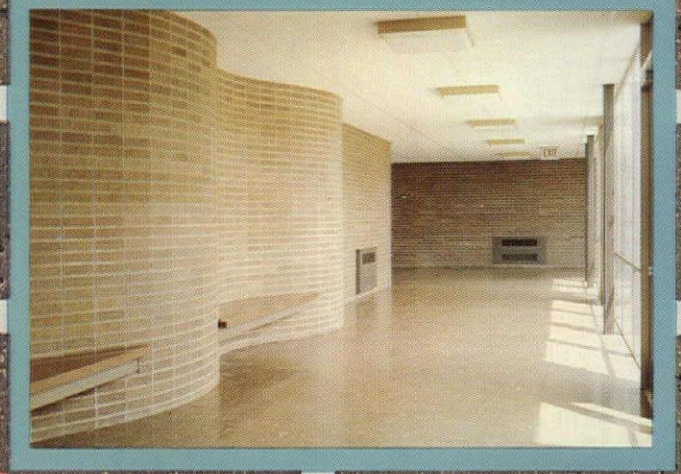
COMBINATION LOCK

A built-in, key-controlled combination lock, with a three-number setting, can be changed quickly when locker is reassigned. Five pre-recorded combinations, arranged in an irregular or staggered pattern, are possible with each lock. The S-545 uses one key for locker control and one for combination resetting. *Dudley Lock Corporation, 1436 Old Dixie Highway, Vero Beach, Fla.*

CIRCLE 311 ON INQUIRY CARD

more products on page 214

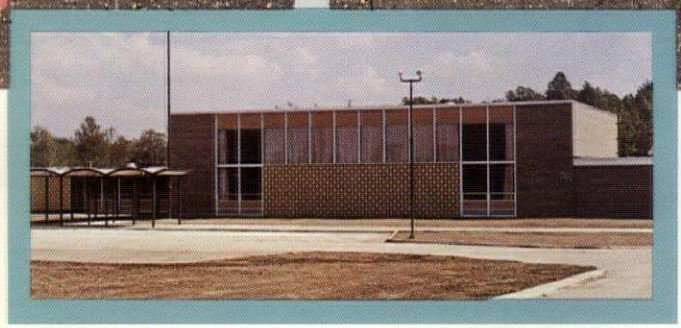




NOTHING INTERPRETS ARCHITECTURAL DESIGN LIKE TEBCO BRICK

A full range of creative expression is allowed when you specify Tebco, manufactured exclusively by the Evans Brick Company. Select from 37 colors; four textures, Smooth, Vertical Scored, Matte, and Velour; four sizes, Standard, Roman, Norman and Jumbo — actually 592 different combinations. Evans "million-brick-a-week" production assures dependable supply and consistency of tone and texture. Tebco conforms to all ASTM and FS standards.

Write today for full color Tebco Catalog. Select the brick that allows you freedom of expression.



Tebco Midnight Gray 53 WC Velour
Green Valley Elementary School, Parma, Ohio
Architect—Heine, Crider and Williamson, Berea, Ohio
General Contractor—Schirmer-Schneider Company, Cleveland, Ohio
Tebco Face Brick Supplied By:
The Ideal Builders Supply & Fuel Co., Cleveland, Ohio

TEBCO

THE EVANS BRICK COMPANY

General Offices: Uhrichsville, Ohio • Telephone: WAlnut 2-4210
Sales Representatives: Cleveland, Ohio • Columbus, Ohio • Pittsburgh, Pa.
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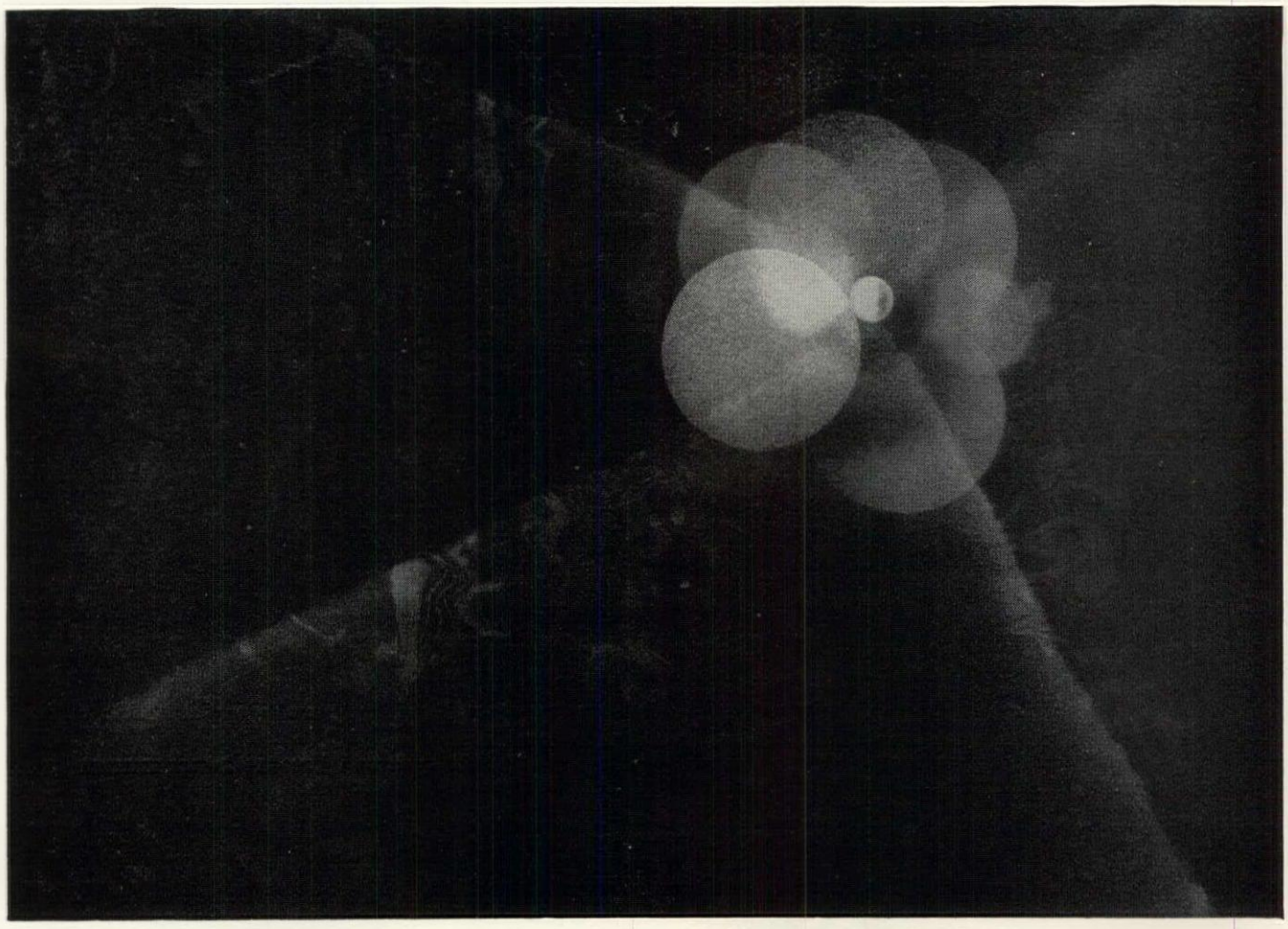
One of the nation's largest producers of Clay Pipe, Clay Flue Lining, Wall Coping, Plastic Pipe and related construction materials, with over 50 years of faster, friendlier service.

EB-361-57



NOT TO SEE—THIS IS PANIC!

It has happened and children have burned to death. A fire—a short circuit and no light—no air—no way to find the outside in this total blackness of a windowless school, all for light control when it is not necessary.

VENETIAN BLINDS FOR LIGHT CONTROL...

Regardless of the projector or student activity, any light level is possible with LEVOLOR Audio-Visual Venetian Blinds. And when the need for the projector is over, they can be opened to bring the glorious outside in again.

LEVOLOR BLINDS ARE FULLY ENGINEERED

Every component in a LEVOLOR Venetian Blind from the smallest tilter to the heavy bottom bar has been designed and manufactured from years of experience. Every part, right to the safety locking installation brackets are designed especially for schools. Why not get the facts on the LEVOLOR heavy duty (orange line) Venetian Blind? Write for The LEVOLOR Architects Manual.

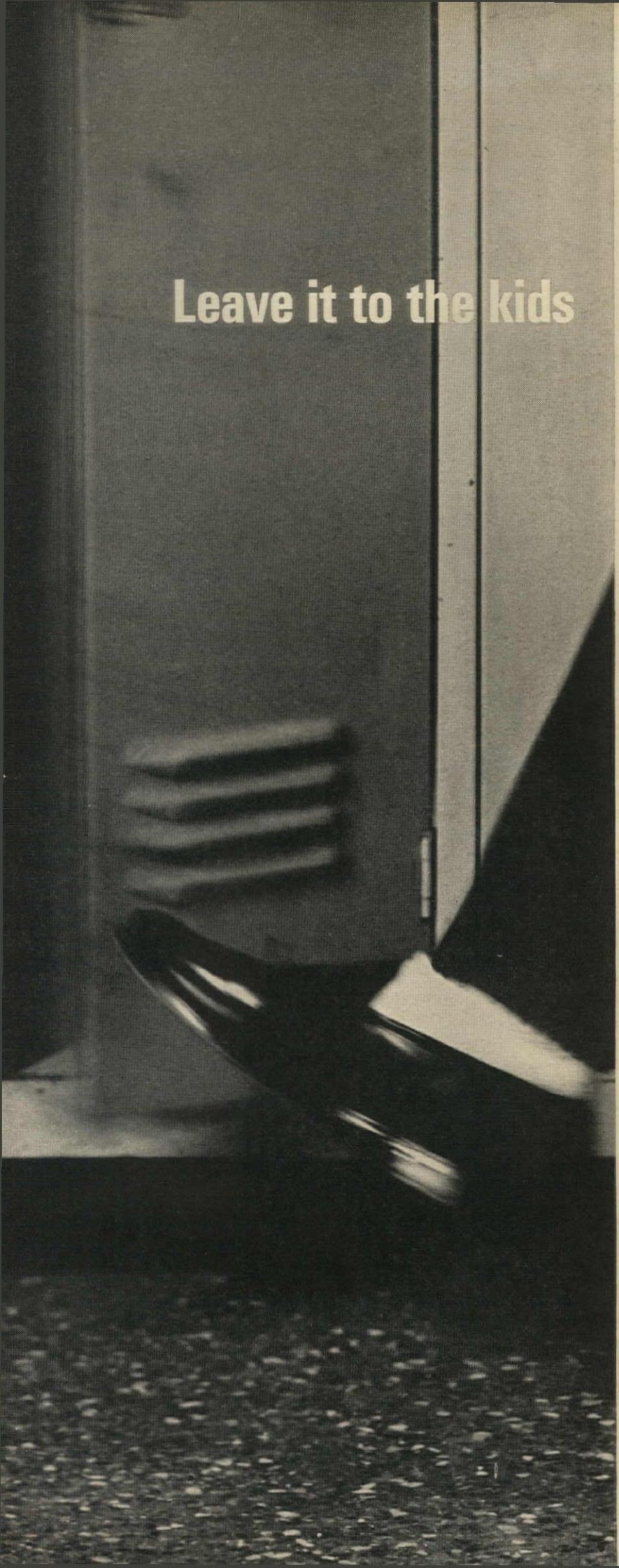
School Specification Div.
LEVOLOR LORENTZEN, INC.,
720 MONROE ST., HOBOKEN, N. J.

LEVOLOR VENETIAN BLINDS

AUDIO-VISUAL · MOTORIZED · OSCILLATING ROLLER · SPECIAL DESIGNS

← For more data, circle 91 on Inquiry Card

For more data, circle 92 on Inquiry Card



Leave it to the kids

(to find out what the grown-ups forgot)

This STEELMARK of the American Steel Industry on a product assures you it is made of modern, versatile, economical Steel. Look for it on products you buy.

Youthful exuberance is a service condition that can't be overlooked in locker design. We know. We were youngsters once, ourselves.

And that's why you'll find all kinds of kid-proof sturdiness built into Republic Lockers.

Extra durability in features like extra heavy spring-proof doors and frames. *Double* return edges on doors, for maximum rigidity. Never less than *three* five-loop hinges on standard height construction, two inches wide, welded to the frame and double bolted to the door. *And latches!* Did you ever watch a student hurtle a locker door shut? Remember the clanging thunderclap up and down the hall? You'll never hear it with Republic Lockers. We solved *that* problem with the largest rubber silencers used on any lockers made. (Our new kick-proof locker handle permits locking the door *before* it's closed, too.)

Count on the kids to test your choice of lockers—and count on us to give you a product that will take it. Whatever your locker need—standard lockers, box lockers, combination box and apparel lockers, or gym lockers—we can supply it. Ask for catalogs.

MANUFACTURING DIVISION
REPUBLIC STEEL CORPORATION
Youngstown, Ohio 44505

MANUFACTURING DIVISION
REPUBLIC STEEL CORPORATION
Dept. AR-7798, Youngstown, Ohio 44505

We'd like to see catalogs on Republic Lockers.

Name_____ Title_____

Company_____

Address_____

City_____ State_____ Zip_____

For more data, circle 93 on Inquiry Card

Remember Styrofoam.

OK. Now forget it.

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

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

But remember to specify Styrofoam next time you want an insulation that can't soak up water. An insulation that serves as its own vapor barrier. An insulation that won't rot, mold, deteriorate—ever.

To help you remember Styrofoam, we've included some information in Sweet's Architectural File 10a/Do and 8a/Dow. Or you can write us. The Dow Chemical Company, Plastics Sales Department 1310N2, Midland, Michigan.

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

For more data, circle 94 on Inquiry Card

DOW

Product Report

continued from page 200

CAFETERIA SERVING UNITS

A new line of cafeteria serving units features modular counter construction available as stationary individual units and portable individual units on casters. The units are available in stainless steel front paneling or any color or pattern of plastic laminate. *Progressive Metal Equipment, Inc., Philadelphia 11, Pa.*

CIRCLE 312 ON INQUIRY CARD

FOUR-WAY BATHROOM FIXTURE

A heater, ventilator, light and night light have been combined into a single unit (Model 659) for installation in bathroom ceilings.

Illumination is provided by two 60 watt bulbs with dropped lenses with a separate 7½-watt night light. The ventilation unit has been certified by the Home Ventilating Institute for 70 cu ft of air per minute with 1/10-in. of water gauge static pressure, adequate for removing odors and vapors from a bathroom up to 65 sq ft in area. The 1,320-watt heater element can supplement present bathroom heat or provide total heat where necessary. A single reversible motor is used for both ventilation and forced air heating. *Fasco Industries, Rochester 2, N. Y.*

CIRCLE 313 ON INQUIRY CARD

PLUMB AND LEVEL INSTRUMENT

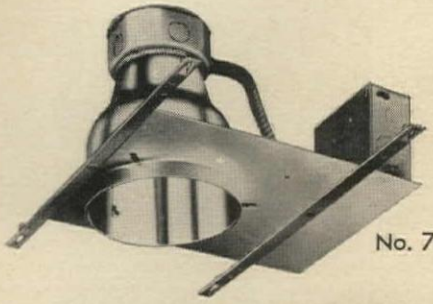
A new precision plumb and level instrument which measures angles directly and instantly has a simplified dial reading and is extremely sensitive and accurate to ½ of one degree, the manufacturer reports. It weighs 1 lb and looks like a small desk clock and stands on a grooved base. User gets angle measurement reading by placing the base of the *Inclinometer* on the surface being checked. The instrument takes rough handling and abuse, and is unaffected by temperature extremes. *Pro Products Company, P.O. Box 1955, Rockford, Ill.*

CIRCLE 314 ON INQUIRY CARD

Merely wonderful - - this new series of

REGRESSED RECESSED ROUNDS

by ART METAL



No. 76 Pre-wired Housing

Wonderful because:

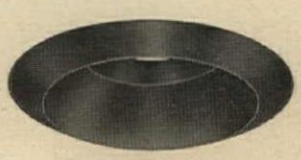
■ A single reflector housing of 18 gauge spun aluminum fits all ten fronts. Over-all depth is only 7½".

■ All ten aluminum fronts have matching regressed styling. When lighted, the regression is emphasized and the surrounding metal trim is visually minimized.

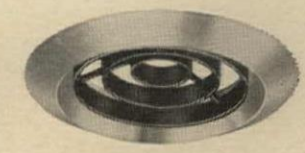
■ A pre-wired plaster frame is attached to the housing. Complete mounting equipment is included. No nails are required. 60° building supply wire is approved for use with all fronts. All fronts have an 8" diameter.

■ The variety of fronts and finishes is so exciting. Note particularly the cast louver with the unique "stepped up" concentric ring design. And the choice of metal finishes: matte black, white enamel, anodized aluminum, anodized brass.

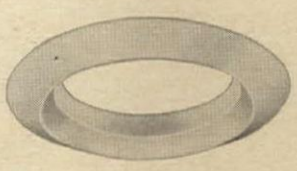
For the whole wonderful story, in sparkling color, write us today for your copy of Bulletin No. RR3-1063.



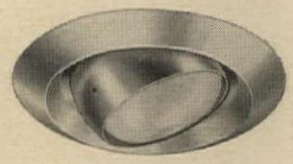
No. 7601
Concave Open Front
75 Watt, R-30



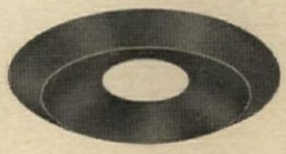
No. 7602
Louvered Front
75 Watt, R-30
or 100 Watt, A-19



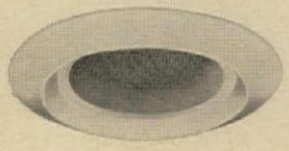
No. 7603
Concave Open Front
150 Watt, R-40



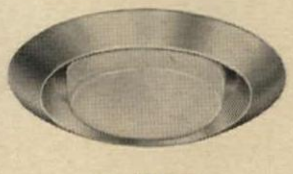
No. 7604
Eyeball
75 Watt, R-30



No. 7605
Concave Pinhole
100 Watt, A-19

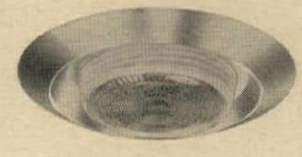


No. 7606
Flat Pebbled Glass
100 Watt, A-19



No. 7607
Drop Amtex Glass
100 Watt, A-19

No. 7608
All Glass Front
100 Watt, A-19



No. 7609
Drop Amcolens
100 Watt, A-19

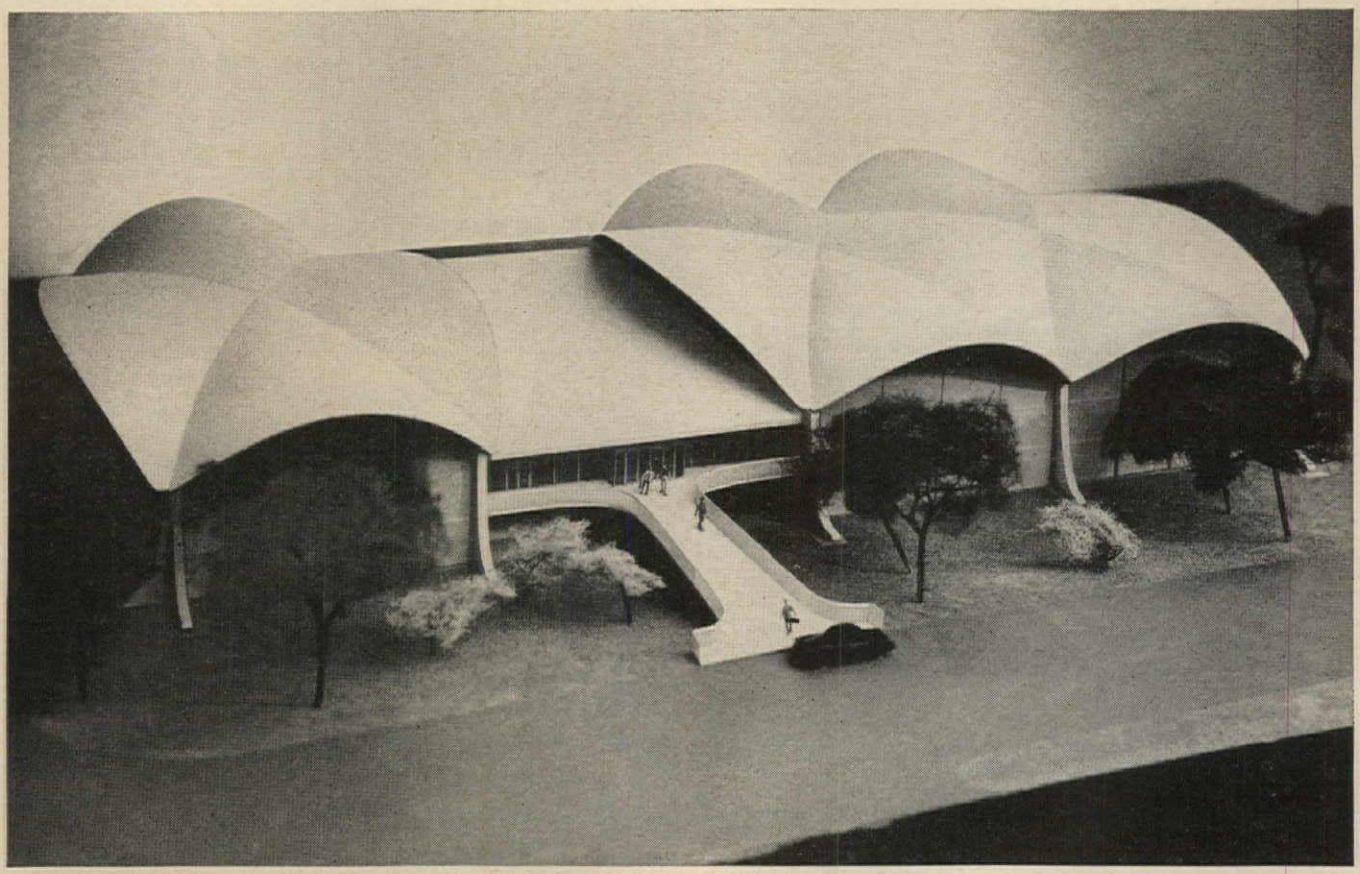
No. 7610
Drop Opal Glass
100 Watt, A-19

ART METAL
Lighting Division

WAKEFIELD CORPORATION
1814 E. 40th St., Cleveland, Ohio 44103

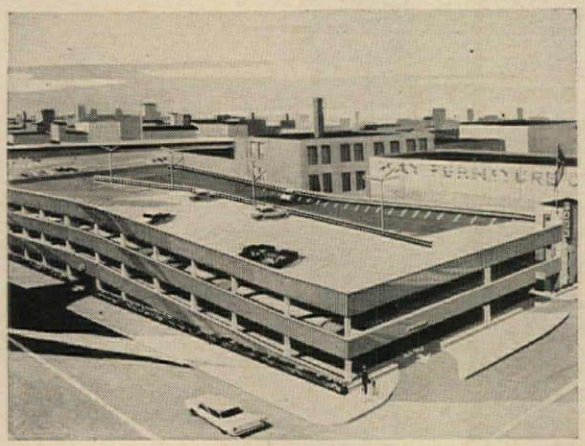
In Canada, Wakefield Lighting Limited, London, Ontario ®

For more data, circle 96 on Inquiry Card



CARLETON COLLEGE GYMNASIUM, NORTHFIELD, MINN.
To compensate for the thrust exerted by the roof at support points, the column tops of this dramatic new building are connected by post-tensioned tie cables supplied by Ryerson. This permits use of ties with relatively small cross-sectional area and makes it possible to apply the desired force very accurately. Since this building will be most frequently viewed from above (its site is lower than the rest of the Carleton campus), a handsome roof design was thought to be especially important. The intersecting parabolic groined vaults of the shell roof that resulted span a 6-lane Olympic swimming pool on the left and two basketball courts on the right. **ARCHITECT:** Minoru Yamasaki and Associates. **ENGINEER:** Worthington, Skilling, Helle and Jackson. **CONTRACTOR:** O. A. Stocke and Co., Inc.

NEW POST-TENSIONING APPLICATIONS SHOW



PARKING GARAGE, DAVENPORT, IOWA
Large column-free areas and low per-car-cost of this garage were achieved through a combination of several types of prestressed concrete construction in the framing. Columns are precast, conventionally reinforced concrete with built-in brackets at each floor level to receive precast tees. The tees are pretensioned to permit handling, then post-tensioned for live load and to provide a rigid-frame connection with columns. Slabs were poured in place, between and over tees, and post-tensioned for structural reasons and to create a crack-free surface. The latter feature prevents seepage of water and oil from cars through the slabs.
ENGINEER: De Leuw, Cather & Co.
CONTRACTOR: Priester Construction Co.

Here's one of the most efficient and versatile methods of structural framing available to you—cast-in-place or precast concrete post-tensioned by the Ryerson BBRV system.

This system permits longer spans at economical cost, provides good deflection control and often effects savings by reducing structural depth. And when you specify Ryerson post-tensioning you deal with one of the nation's largest suppliers of construction steels—a company with the resources and facilities to provide a complete service package. This includes:

Services for architects and engineers: Ryerson assists in feasibility studies on use of post-tensioning in specific projects. Provides preliminary cost data. Shares experience in structural design and layout. Furnishes details and specifications.

Services for contractors: Ryerson delivers shop-fabricated tendons, completely assembled and ready for placement. Also provided: equipment for stressing and grouting, technical job-site assistance, architect-approved drawings, stressing data and reliable labor estimates.

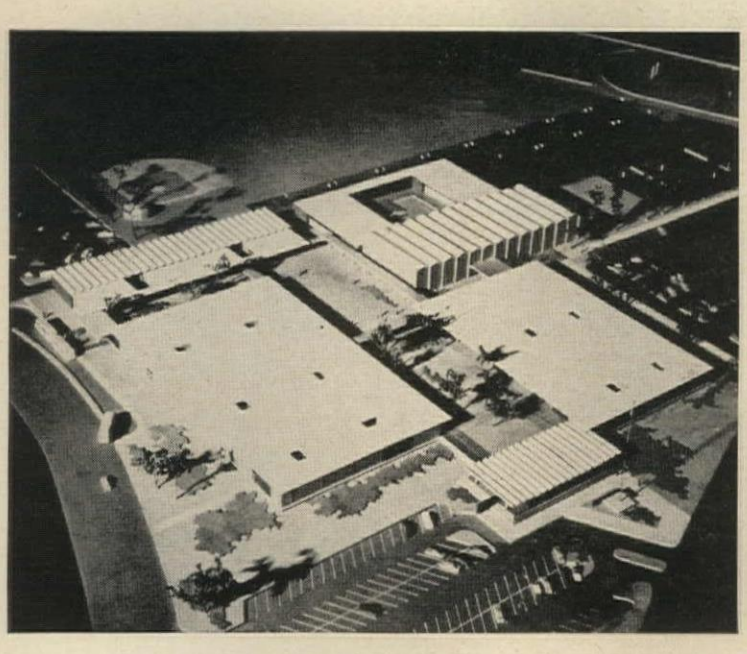
If you would like more information or help on a current project, call Ryerson or write to Box 8000-A, Chicago 80, Ill.

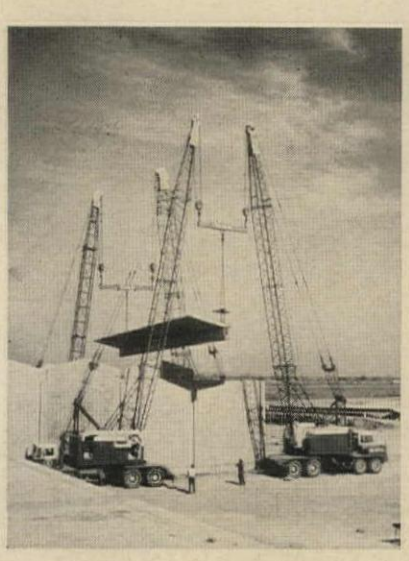
RYERSON

JOSEPH T. RYERSON & SON, INC., MEMBER OF THE INLAND® STEEL FAMILY

For more data, circle 97 on Inquiry Card

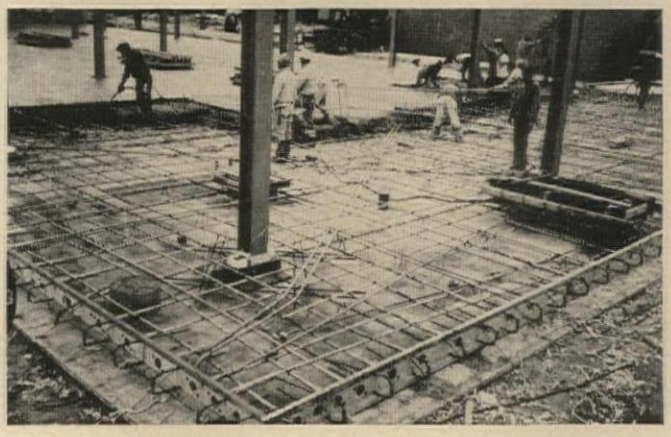
HIGH SCHOOL, CORONA DEL MAR, CALIFORNIA
All six major buildings in the complex making up this new school use Ryerson post-tensioning to achieve structures that are functional, esthetically pleasing *and* economical. The two flat-roofed buildings in the center (see model below) are one-story lift-slab structures with post-tensioned flat slab roofs of 10½" lightweight concrete. The larger slab measures 335' x 195' and was lifted in four sections. Bay size in both buildings is 34' x 28'. A third post-tensioned lift-slab structure (U shape at top center) uses 8½" lightweight concrete supported by WF steel columns. The three other buildings have sawtooth roofs formed by precast post-tensioned wing tees. (See photo at right.)
ARCHITECT: Blurock, Ellerbroek & Associates, William E. Blurock, Architect
ENGINEER: John Martin & Associates
CONTRACTOR: Nylin Hurd Construction Co.





ELEVEN TEES FORM THE ROOF OF THE GYMNASIUM
—each is 20-ft. wide, 101-ft. long, post-tensioned with two 40-wire tendons. Stem dimensions: 15" x 42". Here one of the units is lifted into place. 1-in. pour strips tie the tees together.

POST-TENSIONING TENDONS IN ONE OF THE TWO-WAY FLAT SLABS
—note wide tendon spacing and minimum of auxiliary reinforcing. This simplifies placement of utilities and pouring of concrete.



VERSATILITY OF RYERSON BBRV SYSTEM

N. Y. WORLD'S FAIR PAVILION FOR EQUITABLE LIFE ASSURANCE SOCIETY
Comparative cost studies on post-tensioning vs. conventional reinforcing in this structure showed the advantages of post-tensioning would cost no more. The 116' 6" longitudinal girders over the supporting columns are each post-tensioned with five Ryerson BBRV tendons—three 40-wire units, two with 28 wires. These girders span 61-ft. center to center of columns, leaving a 27' 9" cantilever at each end. They are L-shaped to support 13 T-beams which form the roof structure. The 94' tees combine pretensioning with post-tensioning by Ryerson. The pavilion exhibits will highlight population growth. A 45' map will record births and deaths as they occur in each state, and a huge illuminated sign will keep a running tally on total U.S. population.
ARCHITECT: Skidmore, Owings & Merrill
ENGINEER: Weiskopf & Pickworth
CONTRACTOR: Humphreys & Harding, Inc.

Office Literature

continued from page 183

APARTMENT LAUNDRY CENTER

A series of bulletins on apartment laundry centers cover the minimum needs, design, equipment requirements and floor plans. *Commercial Laundry Sales Coordinator, The Maytag Company, Newton, Iowa**

CIRCLE 413 ON INQUIRY CARD

DOOR CONTROL SYSTEMS

"Control Systems Manual, CD 3492" describes automatic, semi-automatic and interrelated systems for direct or remote control operation of industrial doors. The booklet itemizes the components necessary to each specific system. *J. Allen Harwood, Crawford Door Company, 20263 Hoover Rd., Detroit, Mich., 48205*

CIRCLE 414 ON INQUIRY CARD

HIGH STRENGTH STEELS

A set of four folders lists essential design-engineering and fabricating facts about USS *Cor-Ten, Man-Ten, Tri-Ten* and *Ex-Ten* high strength steels. Information on mechanical and physical properties, available product forms, applicable specifications and suggested welding and cold forming practices is grouped and tabulated for ready reference. *U. S. Steel Corporation, Rm. 6912, 525 Wm. Place, Pittsburgh, Pa., 15230*

CIRCLE 415 ON INQUIRY CARD

MONOLITHIC REINFORCED CONCRETE CONSTRUCTION

Advanced techniques in monolithic reinforced concrete construction are described in three new publications.

A 60-page illustrated manual entitled "Monolithic Reinforced Concrete Construction" compares different types of steelforms—steeldomes, flangeforms, adjustables and longforms—and explains Ceco steelform services, including erection and removal of steelforms. Complete sections on each steelform type cover size data, installation details and erection procedures by means of text, isometric details, cross-section drawings, concrete tables and photographs of diversified installations.

"Ceco Steelforms," a 20-page con-

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

more literature on page 222

Put the man from BARCOL in your starting lineup!

HE WILL PREVENT COSTLY DOOR PROBLEMS FOR YOU . . . SAVE MONEY FOR YOUR CLIENT!

As a door specialist, your Barcol dealer will work directly with you, or as your representative to your client — to help analyze and establish the performance requirements of overhead-type door equipment *at the preliminary planning stage.*

Consider him a member of your staging team.

Using the exclusive Door System Analysis Planning Guide, the man from Barcol will *analyze client requirements; identify the penalties of inadequate, inferior-quality doors; justify initial cost of door equipment and determine a firm, accurate budget figure* (with alternate choices, if required).

Remember, too, the performance of Barcol Overdoors and electric operators is certified to support your specifications.

Get to know the man from Barcol, he'll help you solve client door problems BEFORE THEY HAPPEN!

BARBER COLMAN

BARCOL

See Barcol insert, Sweet's Architectural File

BARCOL OVERDOOR COMPANY

SHEFFIELD, ILLINOIS

Subsidiary Barber-Colman Company, Rockford, Illinois

For more data, circle 99 on Inquiry Card

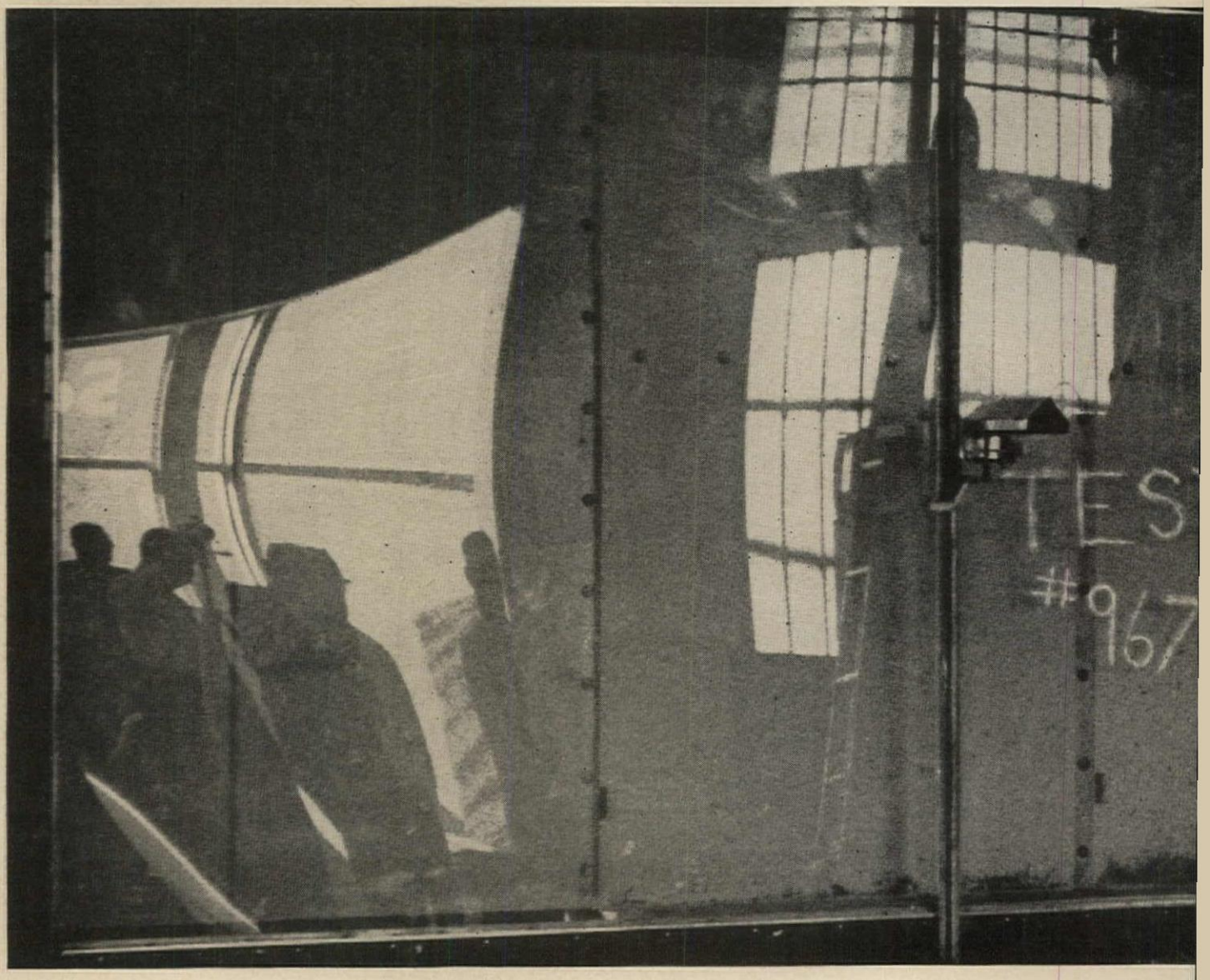
Bigger sizes of Heavy-Duty Plate confidence and safety as proven

L·O·F has conducted exhaustive tests on Heavy-Duty Plate glass so you can use it safely and with full confidence that you will meet code requirements. And we've lowered the prices approximately one-third so your clients can afford your most creative ideas.

Review the new test data shown here—for ¼" plate (for comparison) and for Heavy-Duty Plate in thicknesses from 5/16" to ½", inclusive. *Parallel-O-Plate*® is available in 5/16", 3/8", ½", 5/8", ¾", 7/8" and 1"; Heavy-Duty *Parallel-O-Grey*® and *Parallel-O-Bronze*® in 3/8" and ½"; and blue-green Heat Absorbing in 3/8". A bonus: you get impressive reduction of sound transmittance when you use Heavy-Duty Plate (see chart). Ask your L·O·F Glass Distributor about the new low prices on Heavy-Duty Plate. Then go ahead with those big ideas.

Libbey·Owens·Ford Glass Company

811 Madison Avenue
Toledo, Ohio 43624



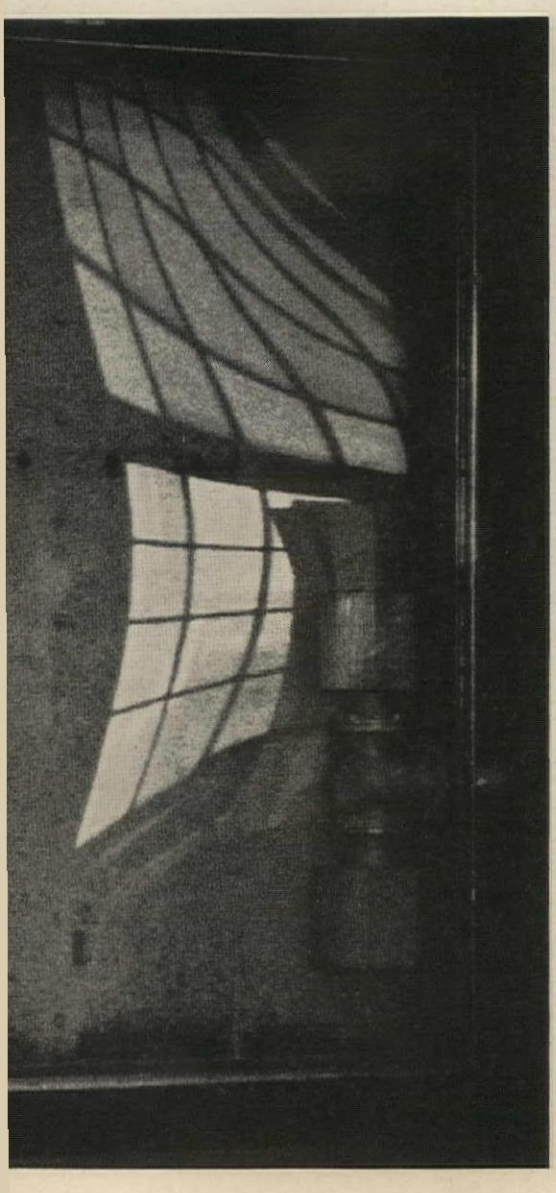
glass can be used with greater by L·O·F's new test data

	SIZES TESTED—P.S.F. DATA									
	72x72	48x120	72x96	72x120	96x120	72x168	120x120	96x168	120x168	120x240
¼"	30	27	23	18	13	13	11	10	8	5
5/16"	43	39	32	26	19	18	15	14	11	8
⅜"	62	56	46	37	28	27	22	20	16	11
½"	91	81	68	54	41	39	33	29	23	16

SOUND-REDUCTION DATA*

Thickness	Sound Reduction
¼" Plate	26.5 decibels
5/16" Plate	28.8 decibels
⅜" Plate	29.7 decibels
½" Plate	31.5 decibels

*Supplied by Geiger & Hamme, Consultants in Acoustics, Ann Arbor



1,000 Lights of Glass Tested to Destruction

Pressure limits for each size and thickness were actually measured in a pressure chamber — not estimated mathematically. Photo at left shows the degree of deflection in a ½"-thick light, 240" x 120". For each size in each thickness, 25 lights of glass — 1,000 lights in all — were tested to destruction in order to provide you with trustworthy p.s.f. data. The design loads shown above include a practical safety factor of 2.5 and are based on L·O·F's advertised minimum for each nominal thickness given. For data on thicknesses greater than shown above, write to L·O·F Technical Sales Service.

L·O·F GLASS — LIBBEY · OWENS · FORD — HEAVY DUTY PLATE GLASS

For more data, circle 100 on Inquiry Card

Office Literature

continued from page 218

densed catalog, illustrates the types and sizes of steelforms enumerated above. "Reinforcing Steel," a 16-page illustrated brochure, provides full information on types, grades, sizes, dimensions, weights and bar identification coding for standard and new high-strength steel reinforcing bars. Comprehensive data on column spirals, welded wire fabric and bar-support accessories is also presented. *Ceco Steel Products Corp., 5601 W. 26th St., Chicago, Ill., 60650*

CIRCLE 416 ON INQUIRY CARD

HORIZONTAL ROLLING ALUMINUM WINDOWS

Slidorol horizontal rolling aluminum windows are presented in a four-page folder through detailed diagrams and specifications. *IDA Products Company, 300 Miller, Detroit 11, Mich.*

CIRCLE 417 ON INQUIRY CARD

TWO-PIPE STEAM HEATING

The five principal types of two-pipe steam heating systems are explained diagramatically in a new fold-up wall chart, Form No. 763 TPS. Schematic piping layouts include: basic system with condensate pump, down-feed system, up-feed system, vacuum system and vacuum system with accumulator tank. The chart also covers piping definitions, and installation and connection information. *Hoffman Specialty Mfg. Corp., 1700 W. 10th St., Indianapolis, Ind., 46207*

CIRCLE 418 ON INQUIRY CARD

PACKAGED LIQUID CHILLER

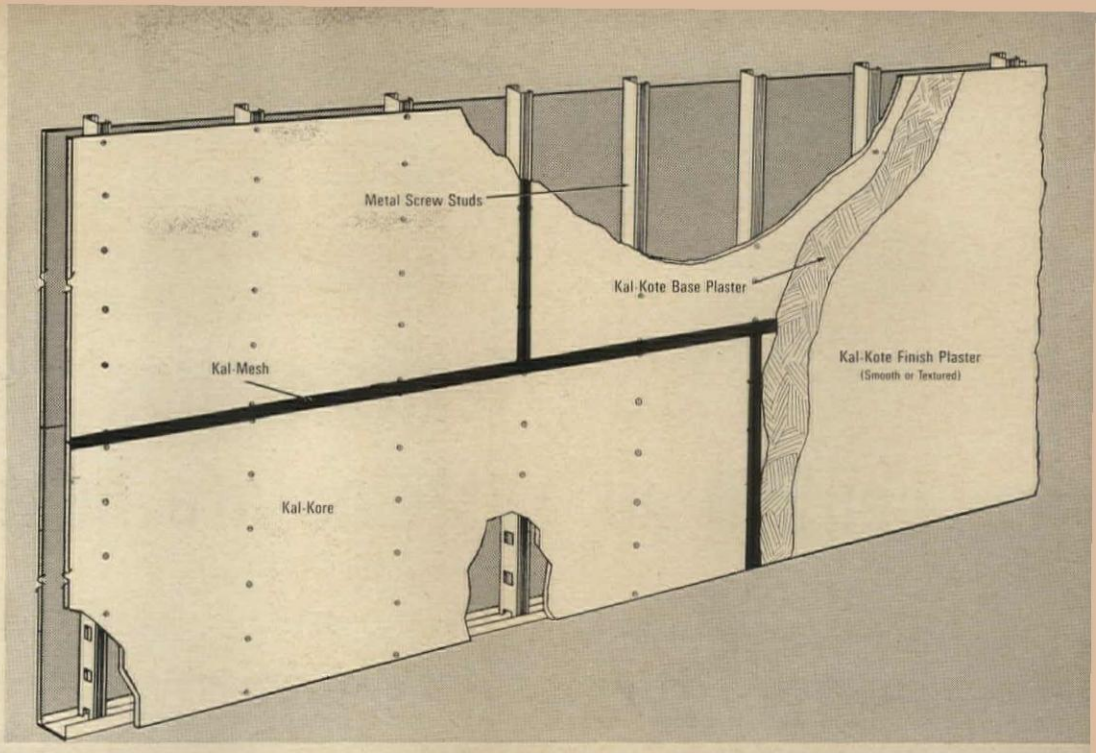
A comprehensive 20-page engineering manual (No. 96-519) describes and illustrates the company's newly developed line of *Flow-Cold* packaged liquid chillers of 40- to 100-ton capacity. Topics discussed include mechanical and engineering specifications, physical and dimensional data, selection procedure and capacity ratings. Text is supplemented by 19 different charts, schematic cross-sectional illustrations, diagrams and tables. *Acme Industries, Inc., 600 N. Mechanic St., Jackson, Mich., 49202*

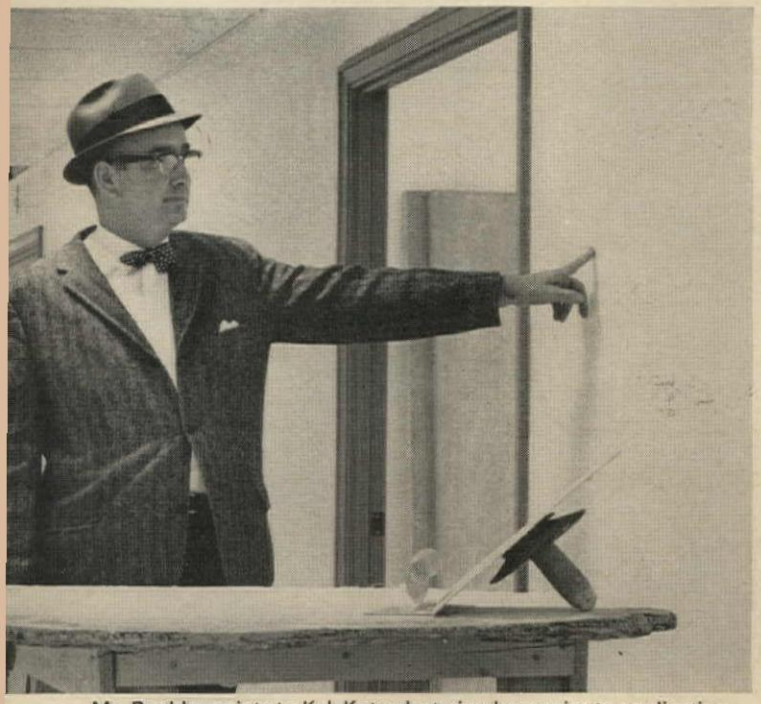
CIRCLE 419 ON INQUIRY CARD

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

more literature on page 226

Drawing shows construction of partition system used at Nursing Home Addition for Sisters of St. Joseph of St. Mark, Euclid, Ohio.
Architect: Charles J. Faroni, A. I. A.
General Contractor: R. P. Carbone Construction Company.
Plastering Contractor: Building Products, Inc., all of Cleveland, Ohio.





Mr. Baehler points to Kal-Kote plastering base prior to application of reinforcing mesh and fast-drying Kal-Kote gypsum plaster — a perfect surface for paint, wallpaper or vinyl covering.

Robert R. Baehler of Building Products, Inc., and Charles J. Faroni, architect, discuss plans. Some of the components for the Kal-Kote system are in the background.

The Gold Bond difference:

Metal screw studs and Kal-Kote plaster partitions go up 30% faster than conventional plaster systems

There was a deadline to meet at the 64-bed, 3-story addition to Mount St. Joseph Nursing Home. Partitions had to go up fast, but had to be top quality. The architect specified the Gold Bond Kal-Kote system because it delivers a Class A fire rating, has good sound-transmission reduction qualities, high impact strength, plus good appearance and low maintenance. Large 4′ x 8′ panels of Kal-Kote gypsum plastering base were attached to Gold Bond Steel Screw Studs. Joints were reinforced with Kal-Mesh, a high-strength fiberglass tape. The base and finish coats of Kal-Kote were then troweled on to ¼". "Took ⅓ less time than thicker, ordinary plaster," says Bob Baehler, "and it dries faster, too." Kal-Kote gypsum plaster can be painted, wallpapered or finished with vinyl wallcovering just 24 hours after application. Compare costs. Call your Gold Bond® Representative.

Or write to National Gypsum Company, Dept. AR-24, Buffalo, New York 14225.

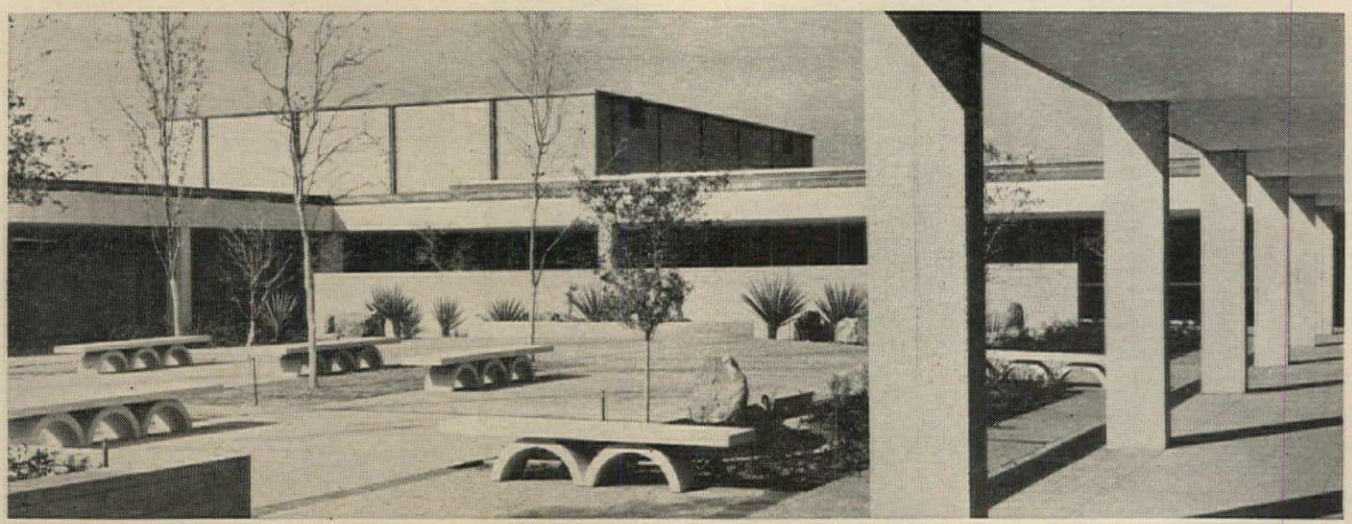
Gold Bond
LATH AND PLASTER

Gold Bond materials and methods make the difference in modern building

For more data, circle 102 on Inquiry Card

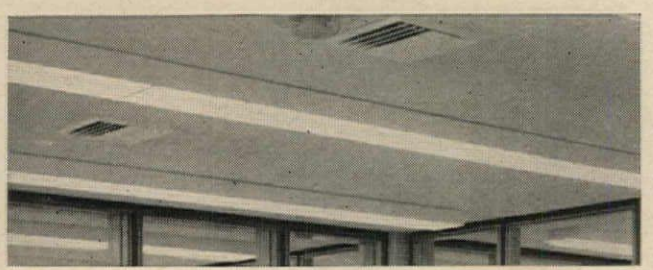
In West Texas or Upstate New York—central air systems are best for schools

Two schools of widely different design counter their rigorous climates with economical central air systems



Robert E. Lee High School, Midland, Texas

Located in hot West Texas, this 2200-pupil school is used summer and winter. During the summer session, it accommodates elementary as well as high school students. Architect: Preston M. Geren. Consulting Engineer: Yandell, Cowan & Love. Mechanical Contractor: Roche Newton Co. General Contractor: A. P. Kasch and Sons.



From several small mechanical rooms containing Carrier Multi-Zone Weathermakers®, centrally conditioned air is ducted to ceiling diffusers in each classroom. Each classroom has individual temperature control. Refrigeration is provided by two Carrier Automatic Absorption Machines powered by low-pressure steam boilers.

This school has complete climate control—heating, ventilating and cooling—with a central all-air Carrier Multi-Zone Weathermaker® system. This central all-air system is excellent for use in interior spaces and compact structures where downdrafts don't form.

The school is compact in design, with several closely related buildings grouped around a central court. The classroom and laboratory sections are compacted into separate squares. This affords flexible partitioning of interior space for classrooms, laboratories, teachers' offices and storage centers. The cost of the complete building: Only $12.10 per square foot including complete climate control.

The multi-zone and the induction systems used in these two schools are among the most common central air systems. Both offer these advantages:

1 Individual classroom temperature control with maintenance-free simplicity.

2 Complete positive air changes up to 10 times an hour to eliminate overheating, odors and stuffiness.

3 Uniform sound level of proper quality and intensity to mask noise.

4 Centralized, economical maintenance with no moving parts in the classrooms.

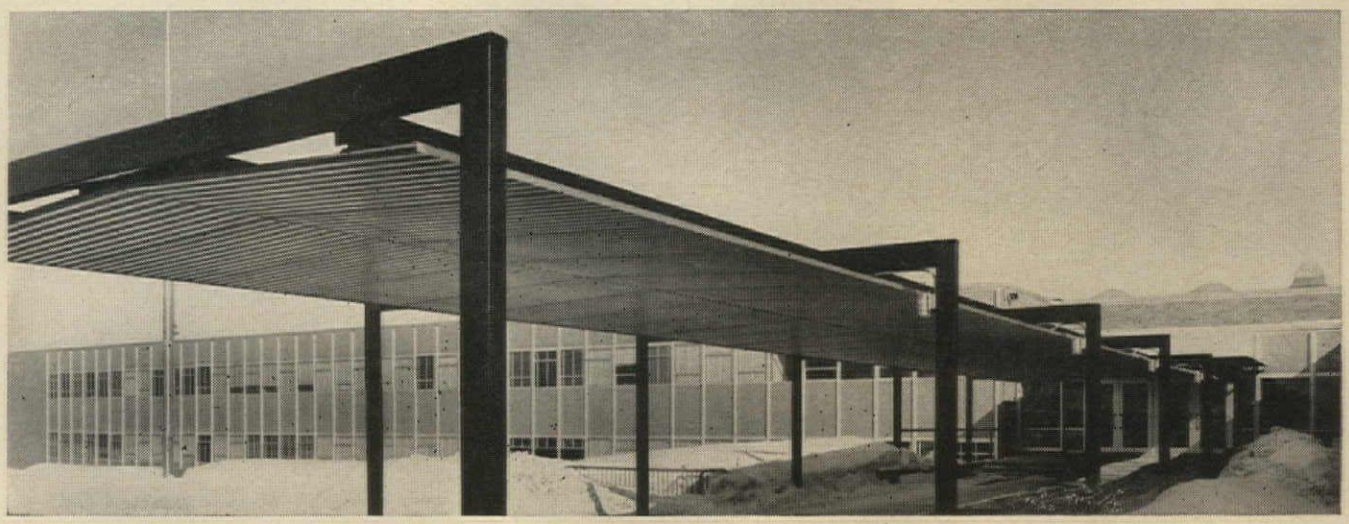
5 100% outside air for free cooling in the intermediate seasons.

6 Superior air filtration with optional air washing —no filters to change in the classrooms.

Whichever central all-air system is right for your school, Carrier offers a complete line of major components for it. From this broad line of matched equipment, the engineer can select the optimum combinations of initial and operating economy and best performance.

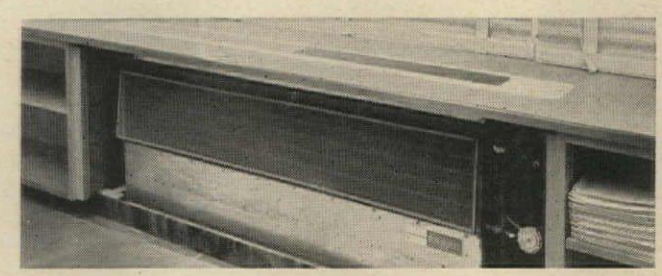
Equally important, Carrier has service to back up the installation and keep it in first-class operating condition. Our company and dealers maintain the largest and best-trained service organization in the business—over 12,000 men strong.

For complete information about Carrier central all-air systems for schools, call your Carrier representative. Or write Carrier Air Conditioning Company, Syracuse 1, New York. In Canada: Carrier Air Conditioning (Canada) Ltd., Toronto 18.



Gillette Road Junior High School, North Syracuse, New York

It provides 131,753 square feet for 1200 students. There are 38 classrooms, plus library, auditorium, 3 gyms, kitchen and 2 cafeterias. Architects and Engineers: Sargent, Webster, Crenshaw & Folley associated with King & King. Heating & Ventilating Contractor: H. H. & F. E. Bean, Inc. General Contractor: Angelo Gressani Construction Co.



Carrier Classroom Weathermaster® units, located under windows and controlled by a thermostat in each room, temper centrally treated air to the room's exact requirements. There are no fans, motors, dampers, outside air intakes or filters in the classrooms. Two large centrally located fan rooms handle practically all the classroom heating-ventilating.

The central induction heating and ventilating system designed with Carrier equipment for this school provides for the easy, low-cost addition of year-round air conditioning in the future. The system is ideal for use where outside walls and windows must be swept with warm air in winter.

The school is laid out on a court-type plan with two-story classroom wing and one-story classroom wing. Administration area is in the center. Auditorium, choral and band rooms and kitchen-cafeteria area are also removed from the wings. Even with provision for cooling, the system cost only $1.49 per sq. ft. Cost for the complete school: $14.68 per square foot, below average for the area.

Carrier Air Conditioning Company

For more data, circle 103 on Inquiry Card

Office Literature

continued from page 222

METAL DOOR FRAMES

A folder on metal door frames used in drywall construction includes information on the product's construction and installation procedure, as well as specifications and diagrams. *Steel Buck Corp, 68 Lombardy St., Brooklyn 22, N.Y.*

CIRCLE 420 ON INQUIRY CARD

VISUAL NURSES CALL SYSTEM

A six-page System Data Sheet HS1 on two visual nurses call systems contains complete specifications for system components including room stations, bath stations, operating room stations, corridor lights, duty and nurses station annunciators, flashing units and power supplies. Wiring diagrams are included also. *S. H. Couch Company, Inc., 3 Arlington St., North Quincy 71, Mass.*

CIRCLE 421 ON INQUIRY CARD

TELEVISION ANTENNAE

A 14-page brochure of television antennae and audio accessories explains where to install TV sockets and the advantages of flush-mounted lead-in sockets in dry wall installations. *Mosley Electronics Inc., 4610 Lindbergh Blvd., Bridgeton, Mo., 63044*

CIRCLE 422 ON INQUIRY CARD

STAINLESS STEEL FINISHES AND WINDOW FRAMES

Architectural Data Sheets No. 5 and 6, on stainless steel window frames for commercial and institutional buildings and on stainless steel finishes respectively, are available from the American Iron and Steel Institute. Sheet No. 5 lists the advantages of stainless steel window frames and considerations for preparing specification. Basic mill and proprietary finishes are described in Sheet No. 6. *Committee of Stainless Steel Producers, A.I.S.I., 633 Third Ave., New York 17, N.Y.*

CIRCLE 423 ON INQUIRY CARD

SOUND TRANSMISSION STANDARD

A standard for the measurement of room-to-room plenum air systems has been issued by the Air Diffusion Council. The standard, AD-63, provides a procedure to permit the testing of air flow devices including air diffusing light troffers with respect to sound transmission loss in room to room environment. *Air Diffusion Council, 333 N. Michigan Ave., Chicago, Ill., 60601*

CIRCLE 424 ON INQUIRY CARD

EXTRUDED PLASTICS

The second edition of Anchor's comprehensive brochure on plastic extrusions contains several articles on the design and application of extrusions. The illustrated 52-page booklet also has an improved condensed property table and short essays on the general characteristics of 17 thermoplastics used for extrusions. Over 1,200 cross-sectional diagrams of custom extruded profiles are provided in a special section, including over 500 new designs. *Anchor Plastics Company, Inc., 36-36 36th St., Long Island City, N.Y., 11106*

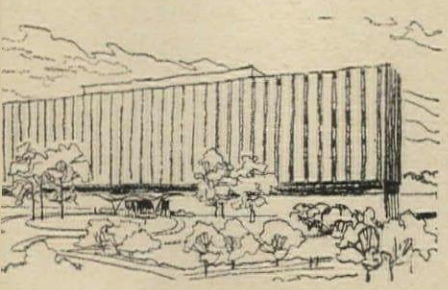
CIRCLE 425 ON INQUIRY CARD

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

more literature on page 230

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

You can talk to the top men at Ware Aluminum Windows, Inc.



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

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

This new building demonstrates a number of the advantages of using aluminum. For one thing, it will *stay* beautiful with low maintenance. Because aluminum curtain walls require less space than other materials, the hospital will have more usable space inside. And aluminum sections are easy to work with, saving construction time and costs.

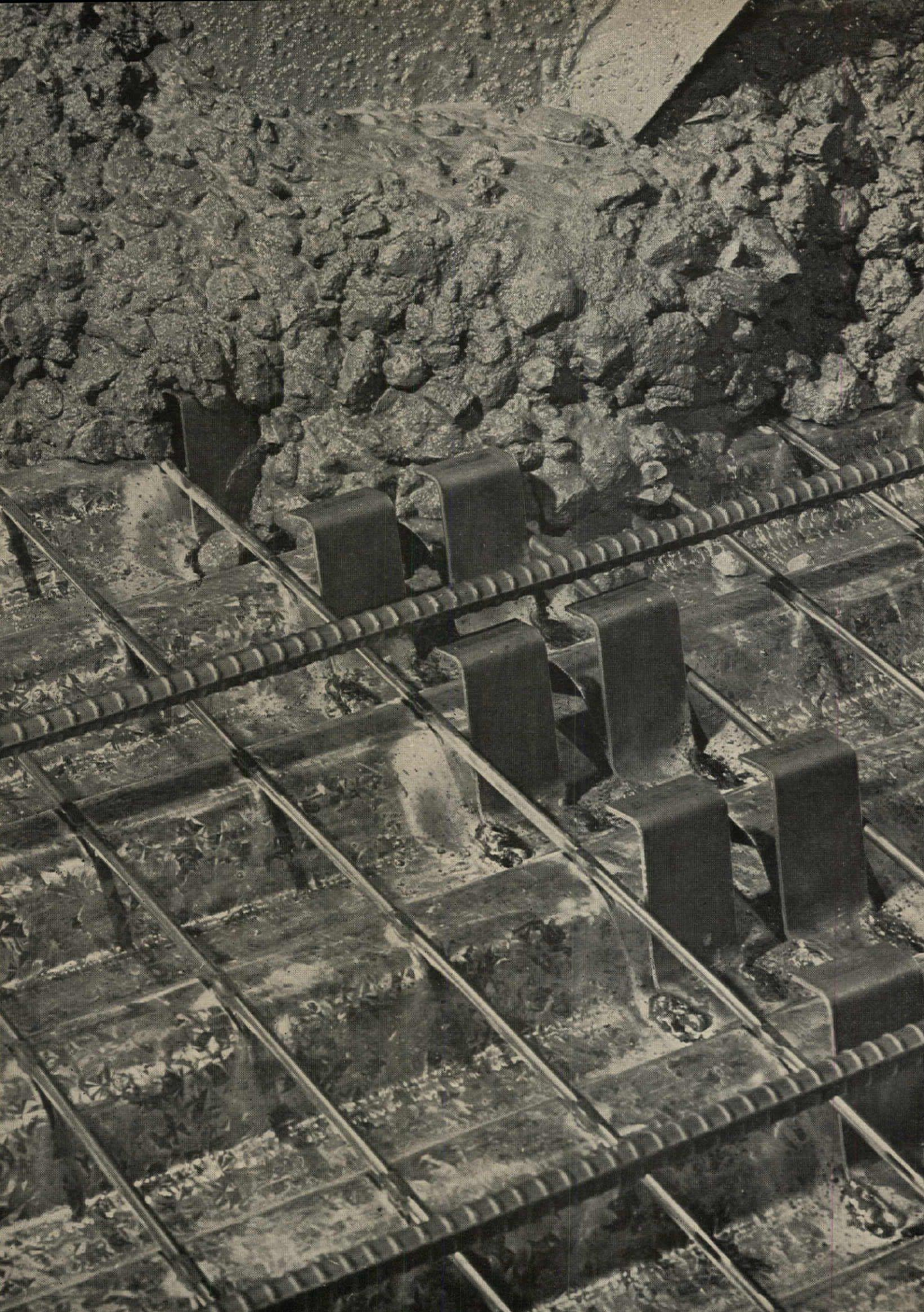
Like many independent aluminum fabricators, Ware insists on top-quality aluminum . . . aluminum alloys made and supplied by ALCAN®. For Aluminium Limited backs its product and the independent fabricators it supplies with quality control and research that's second to none in the world of aluminum.

ALUMINIUM LIMITED

ALCAN

Aluminium Limited Sales, Inc.
111 West 50th St., New York 20, N. Y.

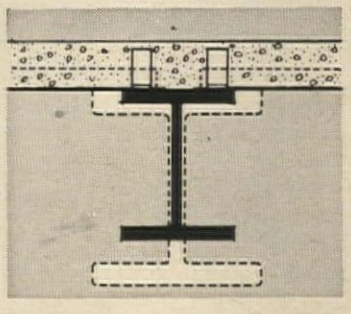
For more data, circle 105 on Inquiry Card



New Cofar® shear connectors reduce the cost of composite construction

utilizing new AISC specification

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

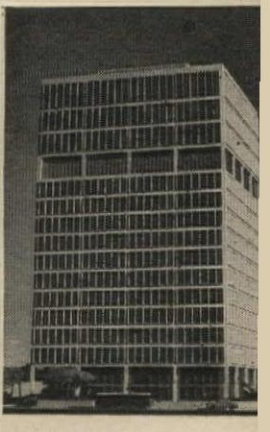


The main benefit of Cofar composite construction is the substantial reduction in steel tonnage because you get equivalent strength with lighter beams. Additional benefits are gained by: (1) Longer spans (2) More usable space with the same building cubage (3) Increased beam stiffness (4) Less deflection (5) Reduced building height.

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

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

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



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

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COMPOSITE CONSTRUCTION

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Steel

For more data, circle 106 on Inquiry Card

Office Literature

continued from page 226

EXPANDED METAL

A catalog of architectural expanded metal patterns includes specifications and suggested uses, such as sun control screens, interior grills and balustrade panels. *Reynolds Aluminum Supply Company, 756 W. Peachtree, Atlanta, Ga.*

CIRCLE 426 ON INQUIRY CARD

STATIC POWER SYSTEMS

A new bulletin, 6639, describes completely static stand-by alternating-current power systems for many applications. Diagrams show how the modular components are arranged to produce efficiencies and reaction times as required in specific applications. *Exide Industrial Marketing Division, The Electric Storage Battery Company, Rising Sun and Adams Aves., Philadelphia 20, Pa.**

CIRCLE 427 ON INQUIRY CARD

PLASTIC LAMINATE DOORS

Formica plastic laminate doors are subject of a new eight-page catalog which contains construction details and specifications for solid and hollow core doors and the company's line of fire doors, X-ray doors and louvers. *Dept. 3J16P, Formica Corporation, 4614 Spring Grove Ave., Cincinnati 32, Ohio**

CIRCLE 428 ON INQUIRY CARD

ELECTRIC INFRARED FIXTURES

Fostoria-Wakefield electric infrared comfort heaters and a new line of 30 deg and 60 deg symmetric and asymmetric controlled beam fixtures are described in a new catalog of 14 pages. Engineering information shows how large an area each reflector design covers at various mounting heights. *Fostoria-Wakefield, Dept. 101, 1814 E. 40 St., Cleveland, Ohio, 44103*

CIRCLE 429 ON INQUIRY CARD

BOILER UNITS

A new six-page bulletin (No. 88-1-49B) describes the newly redesigned *Kewanee* Type C 7L200 series boilers for low pressure heating of commercial and industrial buildings. The booklet includes tabulated data on ratings and dimensions of these boilers which are available in 12 sizes with gross output ratings ranging from 2,160 MBh to 14,400 MBh. *American-Standard, Industrial Division, Detroit 32, Mich.*

CIRCLE 430 ON INQUIRY CARD

VERMICULITE INSULATION

A new four-page folder discusses vermiculite masonry fill insulation for block and cavity walls. The booklet has tables of *U* values for various construction units and on-the-job installation photographs. *Vermiculite Institute, 208 S. La Salle St., Chicago 4, Ill.*

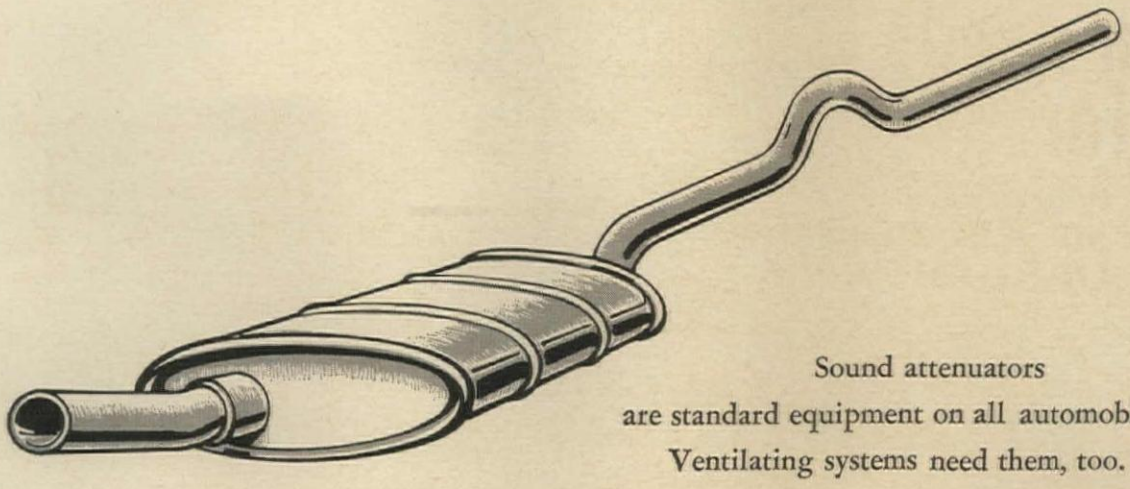
CIRCLE 431 ON INQUIRY CARD

SEISMIC JOINT COVERS

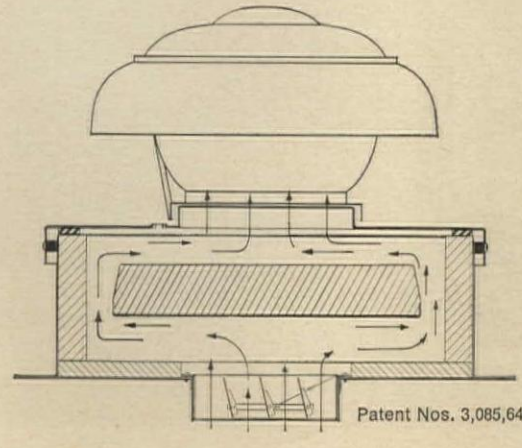
Aluminum and bronze expansion joint covers for floors, roofs and walls, are diagramed and described in a 20-page booklet. *Architectural Art Mfg., Inc., P.O. Box 3606, Munger Station, Wichita 8, Kan.**

CIRCLE 432 ON INQUIRY CARD

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



Sound attenuators
are standard equipment on all automobiles . . .
Ventilating systems need them, too.



Patent Nos. 3,085,647 and 3,110,357

JENN-AIR

JENN-AIR PRODUCTS COMPANY, INC.
1102 Stadium Drive • Indianapolis, Indiana 46207
World's largest producer of Power Roof and Wall Exhausters

For more data, circle 108 on Inquiry Card

Lupton Windows— Ideal For Today's And Tomorrow's Schools

Xavier High School offers just one example of today's country-wide use of LUPTON aluminum windows. Why? Because they provide abundant daylight, controlled natural ventilation, and attractive modern appearance.

And tomorrow's air conditioned schools will find LUPTON Master projected windows equally ideal for *their* needs. Unique design of ventilator sections gives weather-tight seal. Ventilators close along a single plane, making unbroken contact against weatherstrip of elastomeric vinyl around entire perimeter. The result is a low air infiltration rate of less than 0.2 cfm per ft. of ventilator

Xavier High School, Concord, Mass., contains 497 LUPTON Master Projected windows.

perimeter* compared to 0.5 cfm, the AAMA maximum allowable. In addition, these windows are adaptable to double glazing. The combination permits air conditioning systems to function most effectively.

Here's a new standard for quality and performance backed by an established company with over 25 years of window manufacturing experience. For fuller information on LUPTON windows and curtain walls, call your nearest LUPTON representative, see Sweet's Architectural File (sections 3 & 17), or write directly to us.

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MICHAEL FLYNN MANUFACTURING COMPANY

Main Office and Plant: 700 East Godfrey Ave., Philadelphia, Pa. 19124. West Coast Office and Plant: City of Industry (Los Angeles County), California. Sales Offices: San Leandro, California; Chicago, Illinois; New York, New York; Cleveland and Cincinnati, Ohio; Dallas, Texas. Representatives in other principal cities.

Under AAMA standard test conditions.

Architects: John M. Gray Co., Boston, Mass. Photography by Cortlandt V. D. Hubbard.

For more data, circle 109 on Inquiry Card

School Shelters

continued from page 26

Austin, Tex.; and Neil Astle, Architect, Omaha, Neb.

Winners of the Regional Second Prizes, carrying award of $1,000 each, included: James W. Minges, Engineer, Farmington, Conn.; Harold R. Roe, Architect, Toledo, Ohio; Ronald E. Ginn, Architect, Gainesville, Fla.; Charles William Brubaker, A.I.A., Kansas City, Mo.; and Albert M. Dreyfuss, A.I.A., Sacramento, Calif.

Winners of the Regional Third Prizes, carrying awards of $500, were: John Chornyak, Architect and Engineer, Greenfield, Mass.; William Crandall Suite, A.I.A., Washington, D.C.; Kirk R. Craig, A.I.A., Greenville, S.C.; Frank A. Dyszewski, Architect, Warren, Mich.; Arlyn A. Orr, assistant professor of Architecture and Architectural Engineering at Oklahoma State University, Stillwater; Thomas C. Porter, A.I.A., Des Moines, Iowa; and Wilsey, Ham & Blair, Architects, Millbrae, Calif.

In addition, the jury awarded five Certificates of Merit: Edgar T. Chatman-Royce, Architect, Paoli, Pa.; Charles E. Rogers, Architect, Mobile, Ala.; Ambrose M. Richardson, A.I.A., Champaign, Ill.; Elbert M. Wheeler, A.I.A., Enid, Okla.; and William G. Chamberlain, A.I.A., Stillwater, Okla.

Design Approaches

In its report, the jury observed a variety of planning concepts displayed in the entries:

"1. The shelter as an interior *core*, shielded with a buffer of peripheral rooms and walls.

"2. The shelter as a completely *underground* unit, either covered with earth or as a basement.

"3. The shelter as a *windowless* building above ground, with a completely controlled environment.

"4. The shelter built around a limited vista *court*, either as an underground or windowless building.

"5. The shelter with a *movable protective enclosure* that closed all glass areas.

"6. The shelter with a combination of *overhangs and shields* to achieve openness yet provide protection to glass areas.

"7. The shelter in a multistory building located *several floors above the ground and several floors below the roof*, using several layers of standard floor and roof construction to shield against both ground direct and roof contributions.

"8. The shelter at *natural grade* with raised earth terraces and elevated floor surrounding the shelter to provide mass shielding against ground direct contribution.

"9. The shelter as a system of *baffle walls*, achieving great openness while shielding the protected area geometrically.

"10. The shelter protected by *mechanical devices* which are closable when protection is required, such as hydraulically operated roof systems."

The jurors were William H. Byrne, former president of the American Society of Mechanical Engineers; William W. Caudill, F.A.I.A.; Harold D. Hauf, A.I.A.; Linn Smith, F.A.I.A.; and Paul S. Visher, Deputy Assistant Secretary of Defense for Civil Defense.

Once you lifted the chimney and trimmed the wick,

NOW...

You can specify HUNT ELECTRONIC dimming controls and trim the cost of relamping!

With Hunt Dimming Controls you not only get all the romance, mood and effect of the old Kerosene Lamp (minus the wick trimming), but you achieve the efficiency and flexibility necessary in modern lighting together with Economy... Economy in Relamping because incandescent bulb life is actually extended over 1,000 when burned at 75% of maximum rated wattage*... Economy in Operation because Hunt Controls consume only the amount of power burned by the lamp or lamps... and Economy in Installation because all Hunt Dimming Controls are designed around the Hunt developed Silicon Symmetrical Switch (SSS) resulting in a small, compact unit for manual controls of from 600 to 1800 watt capacities. In Hunt remote manual controls of 1800 to 2500 watt capacities and in larger remote motorized systems controlling up to 20KW, the units are housed in 4" x 8" x 12" NEMA 1 enclosures, surface mounted to save valuable floor space.

No matter what your lighting requirement you will find a Hunt Dimming Control or System in either an Incandescent or Fluorescent model to do the job.

For more complete information and specificational data on the fully guaranteed line of Hunt Electronic Dimming Controls and Systems, contact your local Electrical Distributor or the Hunt Representative in your area listed on the back cover of our Sweet's Catalogue... or write the people who bring you the Brightest Ideas in Dimming:

*General Electric's characteristics calculator for large and miniature filament lamps.

HUNT ELECTRONICS COMPANY

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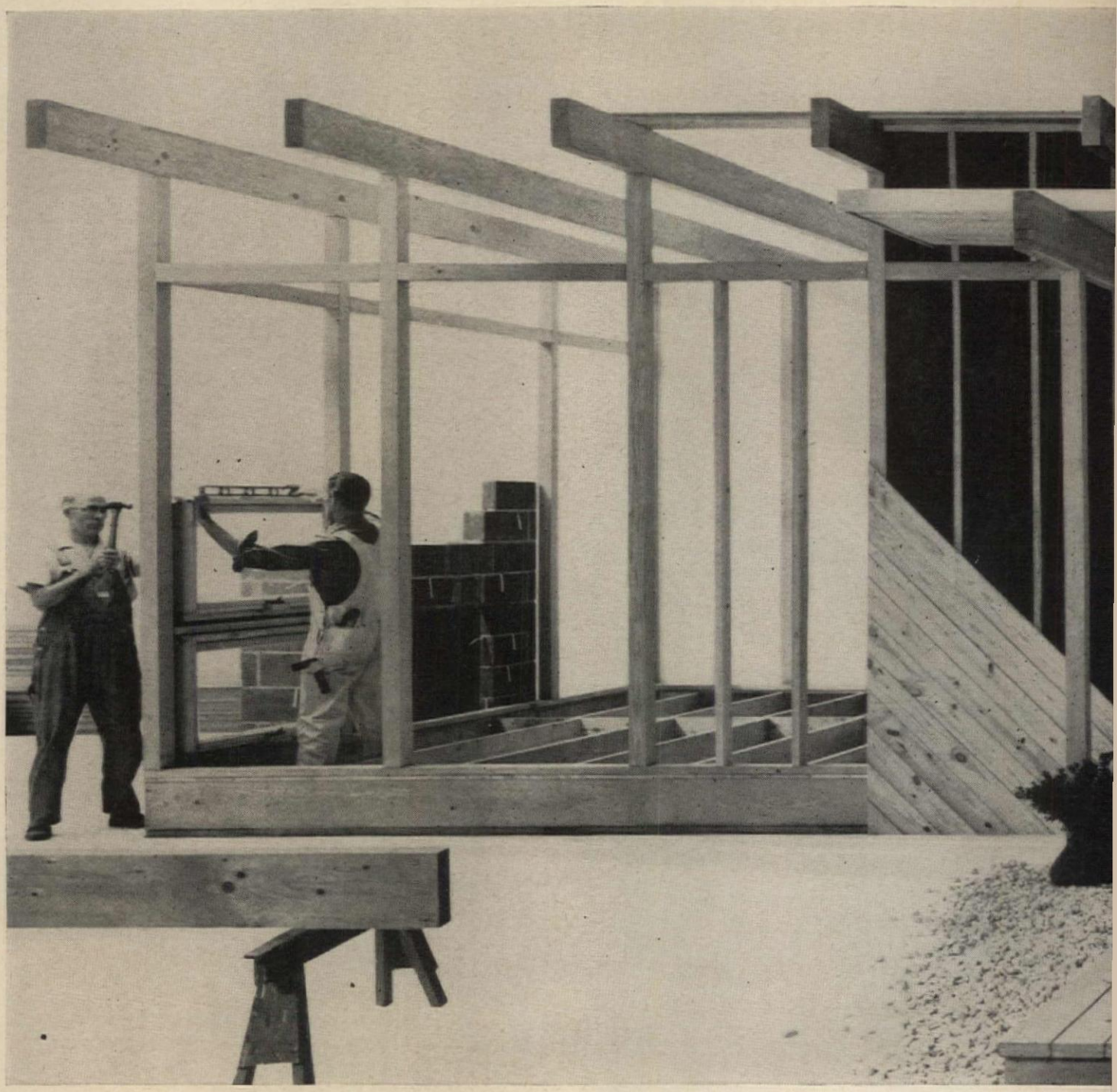


This is the house that WOOD built

In 1964, the National Wood Promotion Program is selling more than the virtues of wood. It's selling the values of home ownership . . . to millions of LIFE-reading families. And millions of them can afford to build *now*.

In this panoramic photograph, appearing in full color in the first LIFE spread, wood builds a house before the readers' eyes. From left to right, the ad shows the construction of a modern wood home and the kind of living it offers. From start to finish, it says this is the time and this is the way to build.

The new campaign, by promoting home building, can stimulate more building in the entire community . . . provide you greater opportunity to design the most compatible new structures of wood for living and learning, work and play.

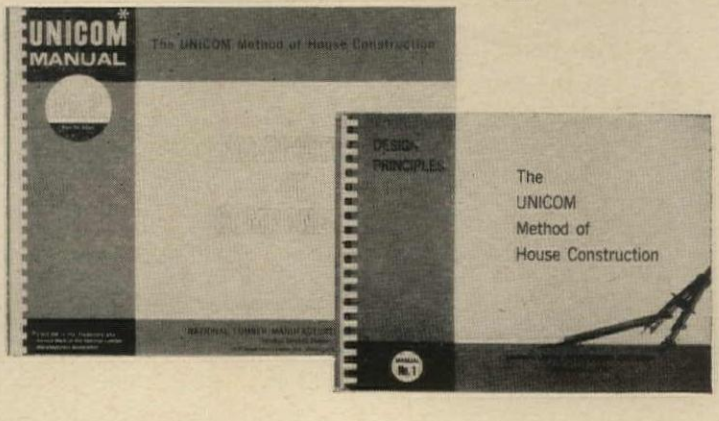
The worth of wood for strength and comfort is proved by generations of use. The warmth of wood is always understood. And, what's more important, the flexibility and economy of wood extend to every dimension of your planning, in any building you design to give individuals,

. . . to build demand for your plans

companies, and communities the most for their money. For more information on designing with wood, write:

NATIONAL LUMBER MANUFACTURERS ASSOCIATION
Wood Information Center, 1619 Massachusetts Avenue, N.W., Washington 6, D.C.

UNICOM MANUALS 1 & 2: "Design Principles" (122 pages) and "Fabrication of Components" (248 pages), graphically detailing the Unicom method of house construction. Single copies of either or both are available at nominal cost to those associated with or supplying the home building industry. Your request should be made under professional letterhead, and sent to UNICOM, National Lumber Manufacturers Association, 1619 Massachusetts Ave., N.W., Washington 6, D.C.



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On the Calendar

February

3-6 International Conference on Materials, American Society for Testing and Materials—Philadelphia

15-19 1964 National Convention, American Association of School Administrators—Atlantic City, N.J.

March

2-5 60th annual convention, American Concrete Institute—Rice Hotel, Houston; will reconvene at Monterrey, Mexico.

April

7-9 25th National Conference on Church Architecture, sponsored jointly by The Church Architectural Guild of America and the Department of Church Building and Architecture of the National Council of Churches of Christ in the United States of America; theme, "Faith and Form in Church Design"—Sheraton-Dallas Hotel, Dallas.

Office Notes

Offices Opened

James W. Foug, Architect, A.I.A., announced the opening of his office at 701 Welch Rd., Palo Alto, Calif.

Howard W. Geyer, Architect, A.I.A., has opened an office at 340 Delaware Ave., Delmar, N.Y.

Jay Goldberg, Architect, announced the opening of offices at 800 Peachtree St. N.E., Atlanta, Ga.

David Haid, Architect, has established an office for the general practice of architecture at 433 Briar Place, Chicago 57, Ill.

New Firms, Firm Changes

Ballinger-Bolles is the designation of a new association between **The Ballinger Company, Architects and Engineers** of Philadelphia, and **John S. Bolles, F.A.I.A.,** San Francisco, which will handle construction projects on a national basis.

Barrett, Daffin & Bishop, Architects-Engineers-Consultants, of 111 N. Gadsden, Tallahassee, Fla., have announced the appointment of **Wayne H. Coloney,** civil engineer, as an associate, and of **James D. Bullard,** architect, as a partner.

Gunnar Birkerts and Associates, Architects, of 287 E. Maple Rd., Birmingham, Mich., is the name of the newly reorganized firm. **Frank Straub,** formerly Mr. Birkert's partner, has established his own practice.

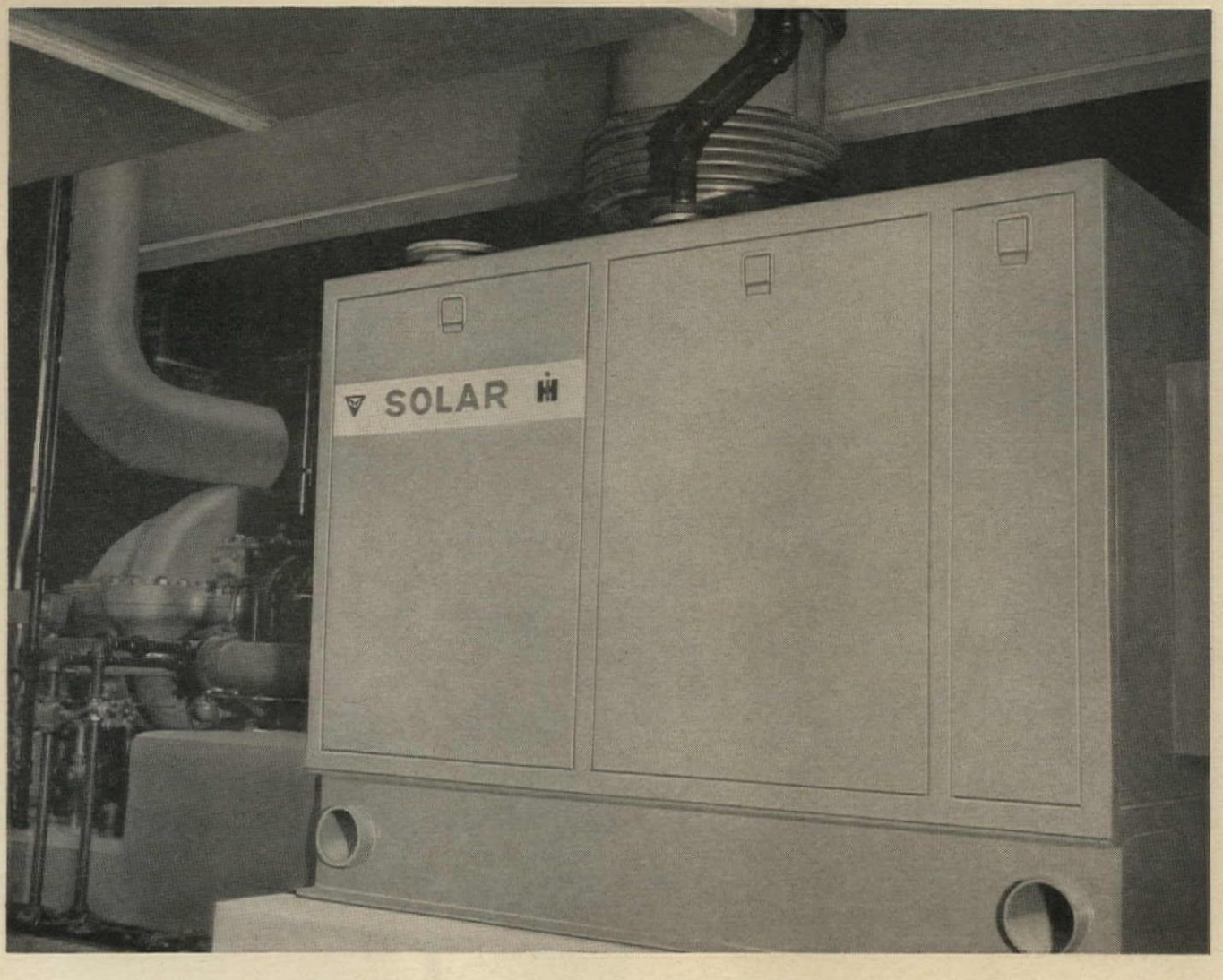
Henry J. Campbell, Jr., Consulting Engineers, located at 229 7th St., Garden City, N.Y., has announced the appointment of three staff members as associates: **Vincent J. Cerniglia,** project engineer; **Peter J. Seitz,** project manager; and **Robert J. Yonelunas,** project manager.

Chaix & Johnson Associates, Los Angeles architectural and store planning firm, has announced the promotion of two department heads to associate status. They are **Richard Hennessy** and **Edward J. Pace.**

Darby, Bogner and Associates, Inc., Architects and Engineers, have made **Rolf N. Irgens, A.I.A.,** a principal in the firm, located at 8801 W. National Ave., West Allis, Wis., 53227.

Donald H. Dunbar, A.I.A., and **Robert G. Gustafson, A.I.A.,** have formed a partnership for the practice of architecture. The partner-

continued on page 242



Gas turbines for food processing pioneered by new Kitchens of Sara Lee

Famous baked goods from the Kitchens of Sara Lee are now being frozen by a Solar Gas Turbine Energy System at the new 500,000 sq ft bakery now in operation in Deerfield, Illinois. These products are now coming off the assembly line in the most elaborate computer controlled processing system ever used in the food industry.

A Solar Gas Turbine Energy System was chosen for this fully automated new bakery that represents the last word in efficiency. Three 1100 hp *Saturn*® turbines drive centrifugal refrigeration compressors for cooling and freezing operations.

The exhaust gases leave the turbine at 860F under full load. This heat is ducted to waste heat exchangers which utilize it to generate high pressure steam for the plant heating and process requirements. Utilization of both shaft horsepower and exhaust heat simultaneously can result in system thermal efficiencies of 70% and above. Significant savings in power costs can be realized by employing a Solar Gas Turbine Energy System such as this.

Other Systems in Use

Solar has installed other Gas Turbine Energy Systems and they are now operating successfully all over the country. Systems are available both in the 1100 hp—750 kw *Saturn* turbine size and in smaller 300 hp—200 kw size using the new *T-350* gas turbine. Typical systems include one used for heating, lighting and air conditioning at McAllen, Texas High School. At Standard Pipeprotection, Inc., Houston, Texas, a Solar Gas Turbine Energy System supplies electric power *and* hot air which is used directly without any processing to dry pipe.

Write for Information

For more information on how Solar Gas Turbine Energy Systems can save you money, write Solar, Dept. M-112, San Diego, California, 92112.

SOLAR

A Division of International Harvester Company

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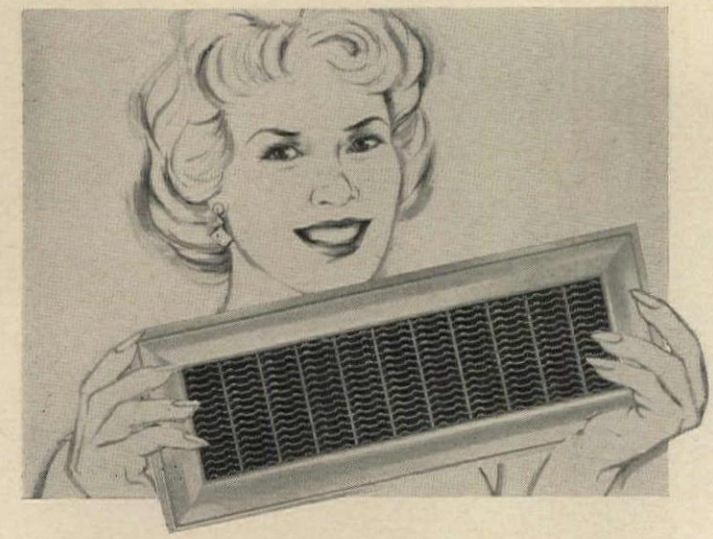
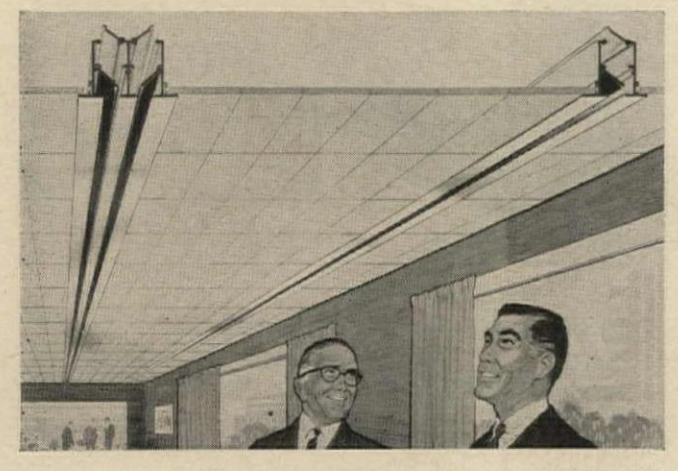


1. Make air behave . . . beautifully

You can combine the superior air distribution performance of Barber-Colman Uni-Flo sidewall diffusers with any one of a wide variety of attractive, extruded aluminum frame styles to make air behave *beautifully*—in more ways than one. Each frame style is functionally designed to blend inconspicuously with room decor.

Adjustable Uni-Flo core creates a controlled turbulence that thoroughly (and quietly) diffuses the conditioned air *before* it reaches the occupancy zone. This principle completely eliminates drafts associated with "streamlined" diffusers which can drop masses of cold air onto people in the room.

5 ways you can profit

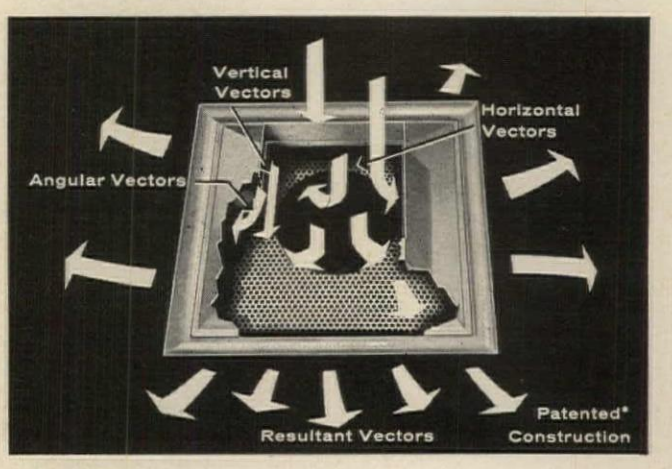


2. Provide complete air control

Barber-Colman Control-Line air diffusers give you everything the name implies—built-in control of air volume and pattern, plus linear design distinction to meet all architectural requirements, including the latest integrated ceilings.

These diffusers are available in single- or multi-slot designs to fit all capacity requirements. Air pattern is fixed or adjustable from vertical to horizontal throw, depending on model.

Construction is extruded aluminum—easy to handle, simple to install in ceiling, sidewall, or soffits. Mechanical interlocking permits assembly in continuous lengths.



3. Cut costly call-backs

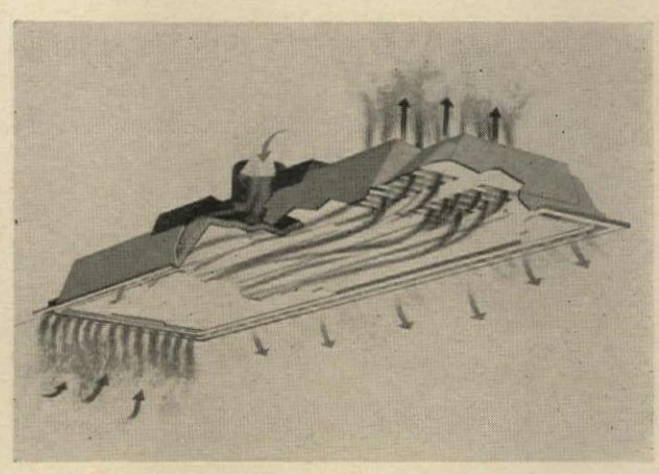
You make air go where *you* want it to with Barber-Colman perforated-face ceiling diffusers. Accurate selection data plus simple on-the-job adjustment avoids expensive call-backs. Patented design assures draft-free comfort at very low noise levels.

Vertical or horizontal deflection or one-, two-, three-, or four-way air discharge pattern can be set on the job—*without altering the exterior appearance.* Engineered air flow minimizes ceiling smudging—another plus benefit for your customers.

Available in recessed- or surface-type units for all types of acoustical, plastered, or metal pan ceilings.

Get the facts! *For more information on the profitable advantages of these and other quality engineered air distribution products, consult your nearby Barber-Colman field office.*

with BARBER COLMAN air diffusers



4. Simplify diffuser installation

Now, Barber-Colman diffusers are available mounted integrally with perforated metal ceiling panels in modular sizes to fit modern integrated ceilings.

Installation is easier, costs less . . . no cutting or fitting is required. Modular units drop easily into place and are supported by the ceiling grid. Perforated panel face blends in with ceiling panels. One-, two-, three-, or four-way discharge can be provided *without* altering the outward appearance.

Modular panels from 12″ x 12″ to 48″ x 48″ are available in both supply and return models, with or without fiber glass insulation.

5. Combine air distribution and lighting

Here's the *practical* way to provide efficient lighting and air distribution without detracting from integrated ceiling design.

New Clymatron 5-way air/light diffuser that lights, diffuses air, returns air, extracts heat . . . and acts as an air exchanger. The combination of functions it performs can be easily altered at any time to quickly meet changes in room or zone requirements.

What's more, the heat extractor function prevents lamp heat from entering the room . . . enables you to install more light, reduce air quantity requirements, and even integrate a thermostat in the fixture design.

BARBER-COLMAN COMPANY
Rockford, Illinois
In Canada: BARBER-COLMAN OF CANADA LTD.
Toronto, Ontario
. . . where originality works for you

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Office Notes

continued from page 238

ship, **Dunbar and Gustafson,** has established offices at 752 S. Monroe St., Monroe, Mich.

The Engineers Collaborative, of 8 S. Michigan Ave., Chicago, Ill., have named **Raymond B. Beebe, Rafael C. Cordero and Michael Nikcevich** as project engineers, in charge of many of the firm's special projects here and abroad.

Harley, Ellington, Cowin and Stirton, Inc., architects and engineers, 153 E. Elizabeth, Detroit, Mich., have made four appointments. **John F. Jones** is now project administrator. **William R. Pfaendtner** is assistant chief of the Architectural Department. **Rosaire J. LaPorte** becomes assistant chief structural engineer. And **Barry Anderson** has been placed in charge of the firm's Records and Reproduction Department.

James H. O'Neill, has joined the firm of **Clifford Holforty Associates, Inc., Consulting Engineers,** of Birmingham, Mich. The firm name has been changed to **Holforty Widrig O'Neill Associates Incorporated** with offices at 249 N. Hunter Blvd., Birmingham, Mich.

Daniel E. French, engineer, has joined the firm of **MacKnight & Kirmmse, Architects,** to form the new firm of **MacKnight, Kirmmse & French, Architects & Engineers,** located at 6443 Ridings Rd., Syracuse, N.Y., 13206.

Moran, Proctor, Mueser & Rutledge, Consulting Engineers, 415 Madison Ave., New York, N.Y., have changed their firm name to **Mueser, Rutledge, Wentworth & Johnston,** without change in personnel.

Arnold Blair Kominsky has been named an associate of **The Perkins & Will Partnership,** architects, with offices in Chicago, New York and Washington, D.C. Kominsky, who has been a member of the Chicago staff since 1957, has served as job captain, structural engineer and specification writer, primarily on educational projects at the college level.

New Addresses

New Addresses

Boyken & Moss, Architects, 335 George St., New Brunswick, N.J., 08901

Geddes Brecher Qualls Cunningham, Architects, 2101 Pine St., Philadelphia, Pa. 19103

Smith-Entzeroth Inc., Architects-Planners, Pierre Laclede Bldg., 7701 Forsyth Blvd., St. Louis, Mo., 63105

Corrections

The new address of Rex Whitaker Allen & Associates, Architects and Planning Consultants, was incorrectly given in the August 1963 "New Addresses" section as 693 St. Mission St., San Francisco. The correct address is 259 Geary St., San Francisco, Cal.

In the RECORD'S coverage of the 1963 Awards Program of the Prestressed Concrete Institute on pages 12 and 13 of the September 1963 issue, the name of Vincent G. Kling was omitted as a member of the judging panel, and the name of Arthur Quentin Davis was mistakenly included.

Photography by Hedrich-Blessing

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Natural Beauty from within . . . "Living" Light from without with Super Skylighting

Engineering Features

- Continuous ridge skylight, 24′ by 60′ with glazed gable ends.
- Ridge curbs, rafters and cross bars of extruded aluminum alloy 6063-T6.
- Continuous extruded neoprene sealing gaskets.
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- Self-supporting.

Super Sky puts the accent on Nature through bold, functional skylighting . . . helps you relate indoors to outdoors with form and beauty . . . provides a brilliant new dimension in architectural lighting.

Let Super Sky's engineers work on your next project. From *your* plans, we design, fabricate and erect the skylight . . . and even *guarantee it!* Write today for detailed drawings, engineering data, estimates and suggestions. No obligation, of course.

For more data, circle 120 on Inquiry Card

SUPER Sky PRODUCTS INC.

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PHONE: CHestnut 2-2000
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Steel for Strength

STRUCTURAL DESIGN **NEWS**

FROM BETHLEHEM STEEL NO. 5

WHY COMPOSITE DESIGN IS OFTEN BETTER DESIGN

All across the country, architects and their associated engineers are turning to composite construction to achieve a variety of better structures — economically. Composite construction is giving them stronger, stiffer structures ... structures better able to handle vibrations or impact from machinery or moving loads. It's decreasing beam depth and building height. It's making economical use of rolled sections for longer spans. And it's saving steel tonnage. Here are just a few examples.

Redesigned using composite...steel tonnage cut 5%. Original design of this handsome two-story Lord & Taylor department store in Jenkintown, Pa. called for a conventional steel frame. Composite redesign, undertaken to cut framing costs, pared steel tonnage some 5%...saved about $10,000 according to the architect-engineer.

Composite design of 3-story warehouse saves $25,000. Composite design and A36 steel won out over concrete in the 253,000 sq ft South Carolina warehouse for Spring Cotton Mills. Increased stiffness of the composite structure, needed to support very heavy loadings on its three floors, was a prime factor. Composite design cost some $25,000 less than conventional steel design.

Composite design cuts cost of parking ramp to $1,250 per car... compared to average cost of $1,700 to $1,800 per car for reinforced concrete parking ramps. Architects-engineers for the 1,000-car ramp for Buffalo store of Sears, Roebuck & Co. report a 20% reduction in steel tonnage using composite design and higher-stress A36 steel.

New Handbook on Properties of Composite Sections. Does your engineer have a copy of Bethlehem's handbook, Properties of Composite Sections for Bridges and Buildings? If not, have him get in touch with the nearest Bethlehem sales office, and ask for our steel design file on composite sections.

(Names of the architectural and engineering firms responsible for the projects named above will gladly be furnished on request.)

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. Export Sales: BETHLEHEM STEEL EXPORT CORPORATION

The man with the brandy snifter ...and the product that won't drink a drop

You can lead this roof insulation board to water but you can't make it drink. PERMALITE® stays dry permanently. (*Wet* insulation is *no* insulation. *Dry* insulation—PERMALITE—returns the same yield on your clients' dollar year-in, year-out.)

Immerse it totally in water. PERMALITE absorbs less than 2% of its volume in 24 hours.

PERMALITE stays dry all the way through. Cellular structure prevents wickup—which means moisture pickup. Moisture cannot enter at any one spot, then telegraph itself over a wide area of roof.

Why so dry? Because PERMALITE rigid mineral roof insulation is formed of expanded, hermetically sealed perlite.

Because PERMALITE stays dry permanently, it helps you save for rainy days. Thermal efficiency is constant 5-10-15-20 years after installation.

So let us set our sample to soak in your office and see what happens.

Write us. The man with the brandy snifter sells the *total* roof insulation board. It's PERMALITE. It's permanent.

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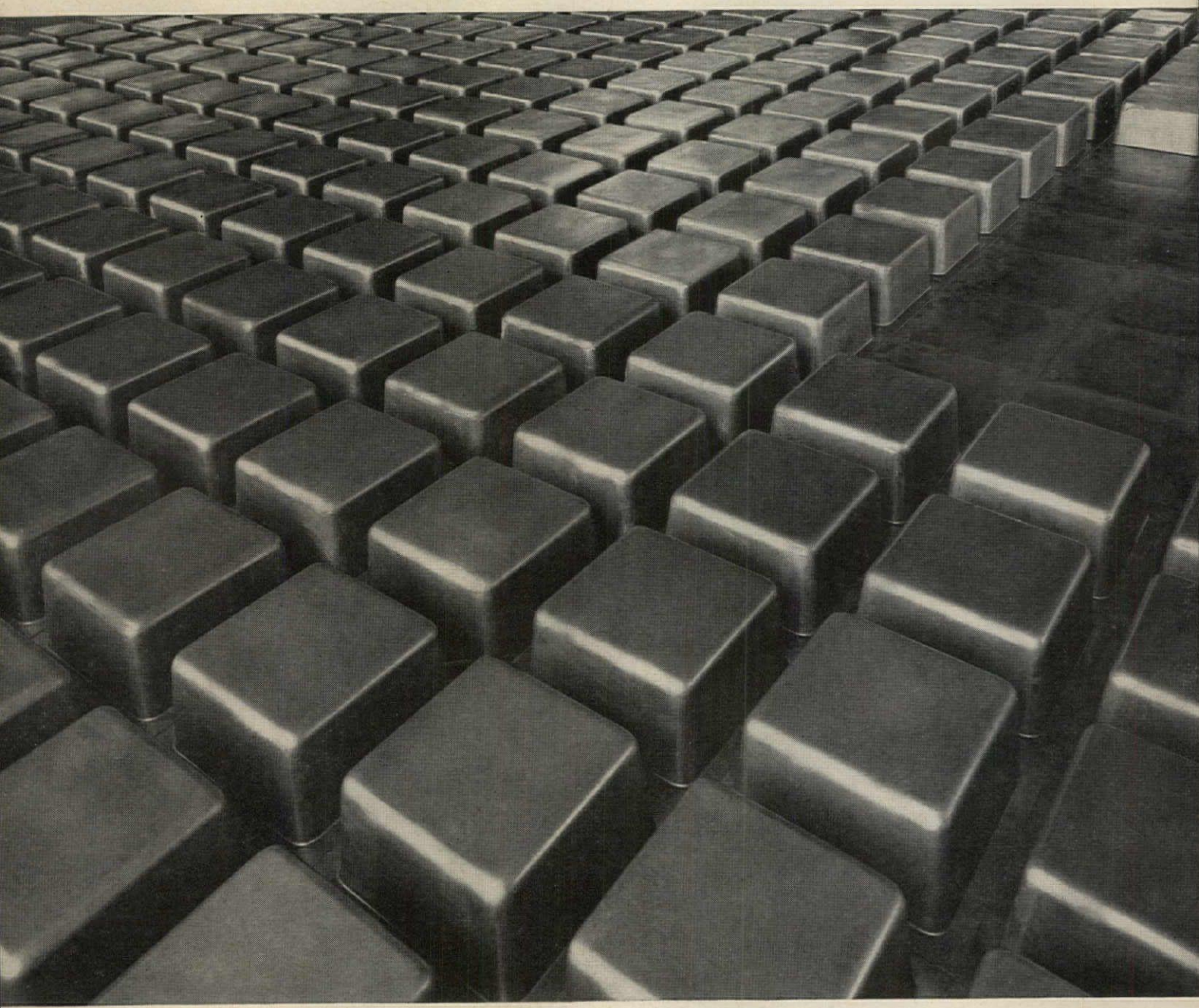
Phone FR 2-5445

Another **CECO** first!

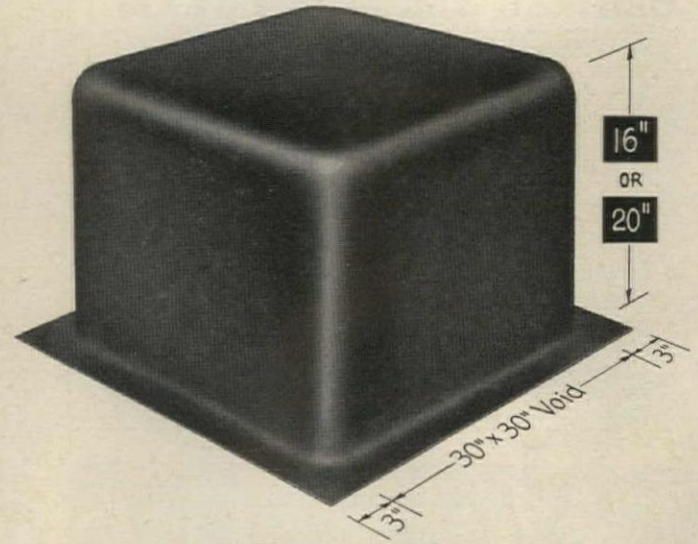
Deeper Steeldomes fill the need for longer spans... stronger waffle slabs!



***Longer** spans . . . **stiffer** floors . . . **heavier** loads . . . now made possible with CECO'S new Deep Steeldomes. This is a typical layout of 16" deep 30" x 30" Steeldomes ready for placement of reinforcing steel. For full particulars, see your Ceco man or fill out the coupon.*

Now you can design spans in the 50-ft. range... in *monolithic* reinforced concrete waffle flat-slabs... using Ceco's new 16″ or 20″ Deep Steeldomes. Combined with Ceco's regular depths, these Deep Steeldomes offer architects and engineers a complete range of standard Steeldomes to meet the needs of any project.

All Ceco Steeldomes—from depths of 4″ through 20″—are one-piece units—the best for waffle construction. More rugged and rigid. No excessive deflection—no excessive concrete — no excessive clean-up problem. And the ceiling finish of the last-poured slab is as good as the first.



Ceco's two new Deep Steeldomes are 16″ and 20″ in depth.

CECO'S FULL LINE OF STANDARD STEELDOMES

SYSTEM	30″ x 30″ voids	19″ x 19″ voids
MODULE	36″ x 36″ overall	24″ x 24″ overall
DEPTH OF DOMES	8″, 10″, 12″, 14″, 16″ and 20″	4″, 6″, 8″, 10″ and 12″

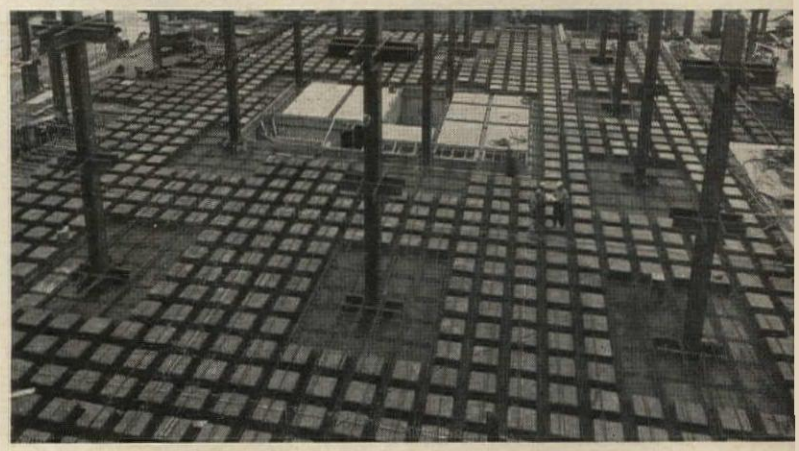
Waffle flat-slabs formed with Ceco Steeldomes make the most efficient use of concrete and steel—reduce deadload over comparable systems—give additional savings throughout the structure in beams, girders, columns and footings.

Ceco Steeldome Service is backed by more than 500 million square feet of Steelform experience. Among currently-let projects using Ceco's Deep Steeldomes are Technical classroom building, M.I.T. campus, Cambridge, Mass.; Residential hall, Illinois State Normal University, Normal, Ill.; and Mormon Temple Plaza parking garage, Salt Lake City, Utah. Ask for information about Deep Steeldomes.

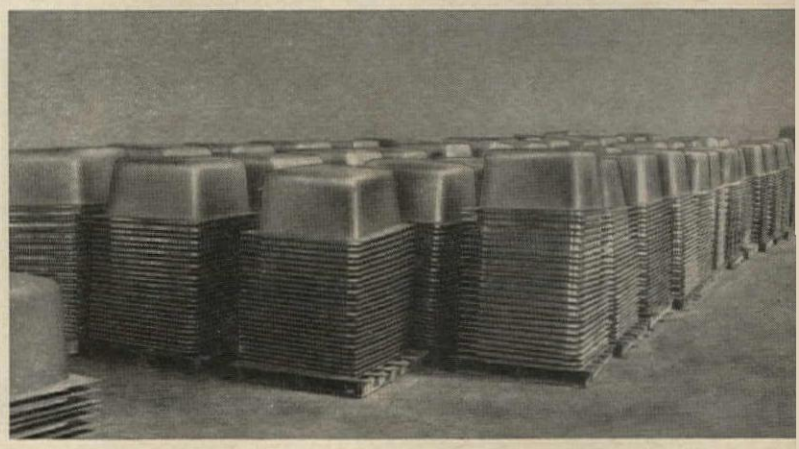
CECO
Steeldome Construction

expansive? yes! / expensive? no!

The new Mormon Temple Plaza Parking Garage under construction in Salt Lake City. Here Ceco is forming nearly three-quarters of a million square feet with 16″ or 20″ deep steeldomes. Church of Latter-day Saints, owners / George Cannon Young, architect / George S. Nelson, engineer / Jacobsen Construction Company, general contractor. Write for data about Deep Steeldomes.



Below—Typical supply of Ceco's new Deep Steeldomes



CECO Steel Products Corporation
5601 West 26th Street
Chicago 50, Illinois

Sales offices and plants in principal cities

☐ Please tell us more about Ceco's Deep Steeldomes.

CECO

We are interested in studying the use of monolithic reinforced concrete construction for the following project:

name _____ title _____

firm _____

address _____

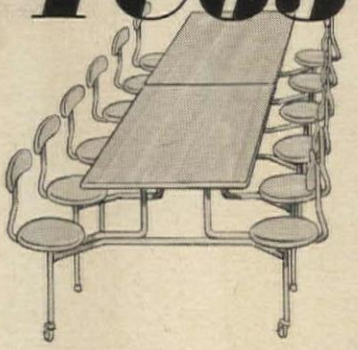
city _____ zone _____ state _____

AR

For more data, circle 171 on Inquiry Card

For more data, circle 170 on Inquiry Card →

Why the Sico TC65 makes all folding table-bench combinations obsolete



(including ours)

The TC 65 brings an entirely new concept to portable tables and seating for multiple purpose rooms. It's individual seating, and it's exclusive with SICO.

To say that this makes all other tables obsolete sounds like a strong statement. It is especially strong when you consider that SICO also makes the finest folding table-bench combination on the market too — the BY 65. It also sounds like it might be "sales talk" too, but it's not, and we have some mighty strong, logical arguments to back up our claim.

First let's take a look at portable table and seating equipment and see how it progressed up to the present state. Then when we show you all the additional advantages of the SICO TC 65, we think you will agree that anything else is old-fashioned and out of step with modern school ideas.

Portability — the first step In places where space is at a premium, such as schools, architects and administrators have long seen the advantages of using the one area for a variety of purposes. In the morning, it is a gymnasium, at noon a cafeteria and in the afternoon an auditorium. The key was portable seating and tables that could be removed and stored.

The folding chair goes back a long way and we have all swayed back and forth on one of the early models. If you have ever cleared a room of chairs you know how slow the process was. Large tables with folding legs came next. But a large table needs a sturdy base and the folding legs just didn't do the job. They probably caused more spilled milk than we care to think about.

For multi-purpose rooms to be practical, something more was needed and the industry came up with heavier tables that were more sturdy. They handled the weight by putting the tables on wheels and introduced the center fold so tables could be wheeled through doors and stored upright.

The seating problem With folding tables, schools were still faced with loose individual seats. Anyone who has seen a room of these seats after school children used them knows the havoc that results. Aisles disappear and traffic accidents abound. Still more spilled milk. Then too, each chair must be handled individually — custodial expense was still high.

Controlled seating introduced Attaching benches to the folding tables seemed like the answer. Aisles remained open. Order came back to the lunch room. Since the benches folded and rolled away with the table quickly and easily, custodial costs for converting a room or for floor upkeep came down to a very practical level.

Folding table-bench success The folding table-bench combination grew in popularity and is still being ordered today by a large number of schools. Our SICO BY 65 is still the finest example of this type unit. But while SICO led the way, we still recognized its limitations.

If you have ever watched a roomful of children you will know what we mean. Benches lead to pushing and shoving. Little kids get a little room. And more spilled milk.

And benches still have to be stepped over. Adults have complained about picnic tables for years so why should we make the children be different?

The SICO TC 65 is born SICO wanted to provide the benefits of individual seating without losing the quick mobility and controlled seating of the table-bench combination. The result is the SICO TC 65. As you see, the chairs are attached right to the table for handling ease.

Each chair is scientifically placed so each pupil is *guaranteed* the proper amount of room for eating or study. The TC 65 is made in six models so kindergarteners or adults can slip in or out as easily as a dining room chair.

Guaranteed space and easy access result in more turnover per table. Consequently less chairs are needed — as many as 10%. Less chairs mean less cost. Ask for a SICO Analysis of your needs for the specific saving.

With the TC 65, the chairs and legs fold right with the table in one compact unit. Lift the lever and legs rise for easy sweeping underneath — there's no maze of legs to sweep around.

SICO quality — top to bottom The TC 65 is built with a unitized frame of 14-gauge structural steel that stands up to rough abuse without becoming wobbly. Zinc chromate metal surfaces resist chipping and cracking. Stools and backrests are specially refined wood impregnated with melamine resins for strength and a smooth, snag-free surface. (And we're searching for even better materials.) Tops are tough Melamine plastic surface with a 40-lb. center core. And there are no banded edges to catch food and dirt.

If you still aren't convinced the SICO TC 65 is superior we will be happy to sell you a SICO Folding Table-Bench combination.

SICO

See our catalog and specifications in Sweet's Architectural file 36a/Si

SICO INCORPORATED, *5215 Eden Avenue South, Minneapolis 24, Minnesota*

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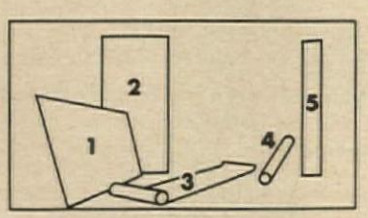
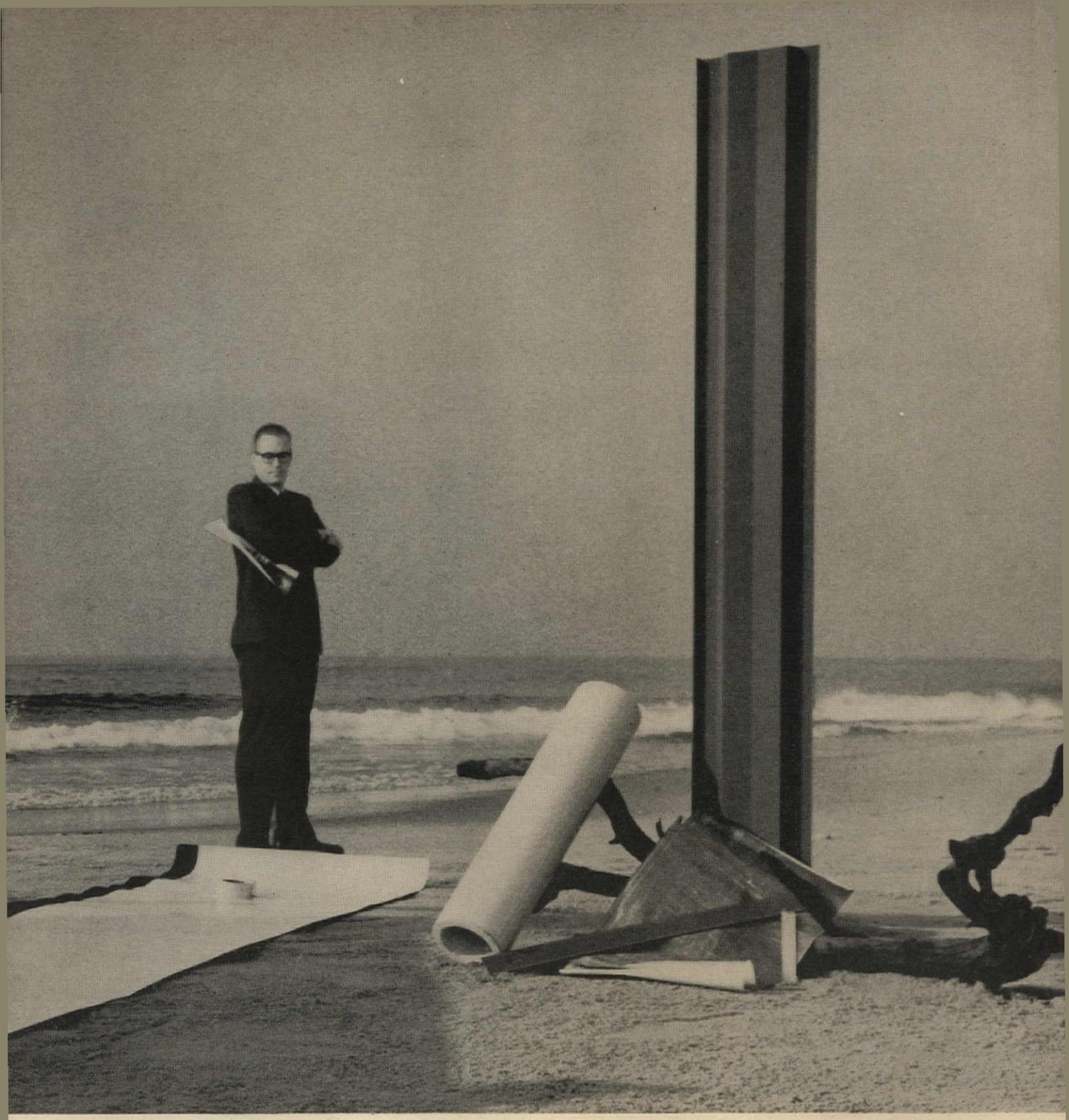
Now available: a wide range of products surfaced with Du Pont TEDLAR®



TEDLAR* PVF Film is a tough, long-lasting film-finish. How long will it last? We frankly don't know, because we haven't been able to wear it out yet. However, we predict that when TEDLAR is properly bonded to a stable material, it might last up to 25 years or more without re-finishing. TEDLAR also provides outstanding resistance to fading and chalking. To keep your next building new-looking longer, consider these five products:

1) ARCHITECTURAL CURTAIN WALL consists of two fiberglass panels laminated to an aluminum frame assembly. TEDLAR on these panels prevents erosion, retains color and light-transmission, stands up to weather. Assembly shown is made with "Filoclad" fire-resistant panels by Filon Corporation.

2) ARCHITECTURAL RE-FACING PANEL gives existing buildings an attractive new exterior with long life, low maintenance, long-term freedom from painting. Shown: "Egyptian" pattern, postformed in aluminum by Architectural Manufacturing Company of America, who can supply accessory framing and installation components as well as re-



the film-finish that may keep buildings looking new for up to 25 years

facing panels in a variety of sizes and designs, all surfaced with TEDLAR.

3) ONE-PLY ROOFING MEMBRANE surfaced with TEDLAR, covers any slope, any shape from folded plate to compound curves. Name: Ruberoid T/NA 200. Applied with conventional roll-roofing techniques. Pliable, very lightweight, highly reflective. Stays white through any weather.

4) MULTI-PURPOSE INSULATION JACKETING surfaced with TEDLAR. Covers tanks, process vessels, pipelines. Name: Ruberoid T/NA 100. Despite severe climate or corrosive atmosphere, stays white, highly flexible, virtually fireproof. Can be field-installed or factory-applied. Tape of TEDLAR seals joints. Shown here: rigid pipe insulation.

5) METAL WALL PANELS offer modern architectural look with excellent insulation. Surface of TEDLAR gives all-weather protection and decoration. Shown: "Shadowall"† Type D, roll-formed aluminum panel by Elwin G. Smith Company. Other types available (insulated or uninsulated; factory- or field-assembled) with finish of TEDLAR.

MORE INFORMATION. For more details about any of these products or for more information about TEDLAR, write E. I. du Pont de Nemours & Co. (Inc.), Film Department, Box 206A, Wilmington, Delaware 19898.

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*Du Pont registered trademark. †Elwin G. Smith Co. registered trademark.

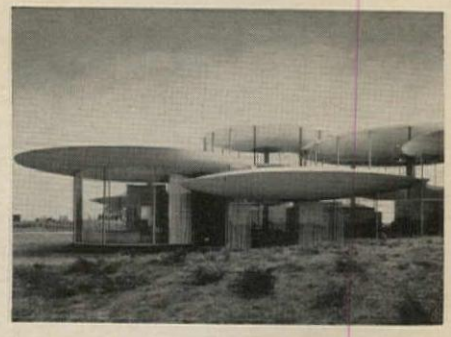
BETTER THINGS FOR BETTER LIVING... *THROUGH CHEMISTRY*

BANK CAPITALIZES ON UNIQUE DESIGN

The State Capitol Bank of Oklahoma City has capitalized on customer reaction to its "flying saucers" by creating the slogan "Bank for the future at the bank of the future."

The architects, Bailey, Bozalis, Dickinson, Roloff, were specifically asked to throw away "typical" thinking and design to "update banking procedure"; their clients were impressed with the operating efficiency of and public interest in a round bank housed in a geodesic dome which the same firm had designed in 1956.

Julius Shulman Photos



The result is a facility which, when expanded, will provide for a diamond-shaped tellers' station in the center of the structure, with officers located around the perimeter of the floor and bookkeeping below the tellers. Television is presently used at one drive-in station and the future plan provides for all four stations to be operated from the bookkeeping area by television.

The bank contains slightly more than 6,000 square feet of floor space, with a full basement.

Structure consists of 17 pipe columns and roof saucers (light steel frame ribs covered with 2 inches of Portland cement plaster), with glass for flat walls and acrylic plastic for the curved ones.

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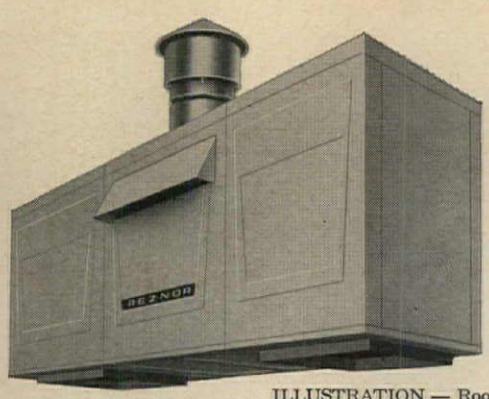

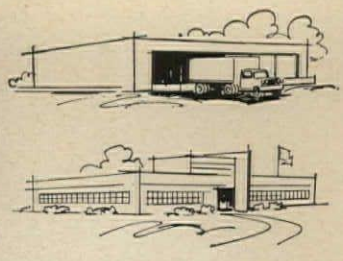

ILLUSTRATION — Roof mounted heating/cooling coil unit.

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DEPENDABILITY . . . top performance . . . with over 75 years of gas heat specialization for the building industry. Designed for either inside or outside installation. That's THERMOCORE! REZNOR'S new concept! A basic, automatic heat core to which matching components — from the simplest to the most complex — are added. THERMOCORE'S new razor edge styling in tawny color harmonizes with all modern interiors. Write today for latest THERMOCORE Catalog.

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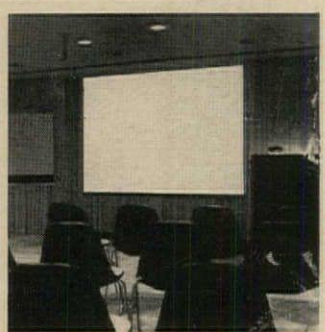
when architects buy audio-visual equipment the screen, most often, is



Shown is the 8 ft. electrically operated Da-Lite Electrol® projection screen installed recently in a conference room in the Apollo Support Department of General Electric's Daytona Beach plant.

DA-LITE®

For important conferences, the Da-Lite projection screen at General Electric plays a useful role. Out of sight when not in use, the electrically operated screen lowers automatically at the touch of a button. Superb reproduction of projected pictures on Da-Lite's White Magic II® Chemi-Cote® glass beaded surface is assurance of effective visual presentations.

Experts in the audio-visual field recommend the Da-Lite Electrol for unsurpassed performance. Electrols have been giving trouble-free service for over 26 years.

Da-Lite Electrol screens are available in a wide selection of sizes to fit your needs. They can be recessed in the ceiling or installed on wall or ceiling. Choose a Da-Lite screen—get the *Big Difference*—and the difference costs you nothing.

Write for specifications, prices and name of nearest franchised Audio-Visual dealer.

perfection in projection since 1909

Da-Lite Screen Co., Inc., Warsaw, Indiana

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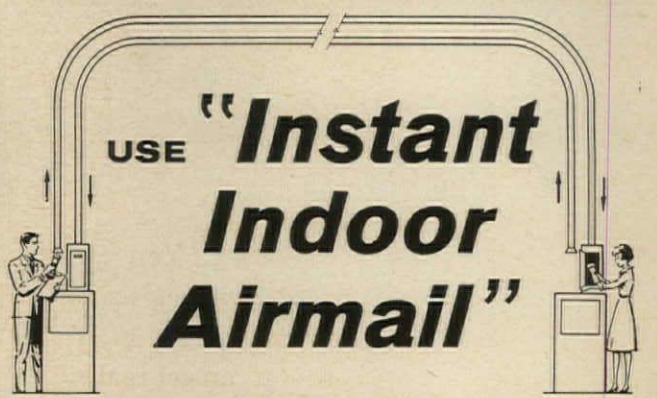
How to provide efficient internal communications:



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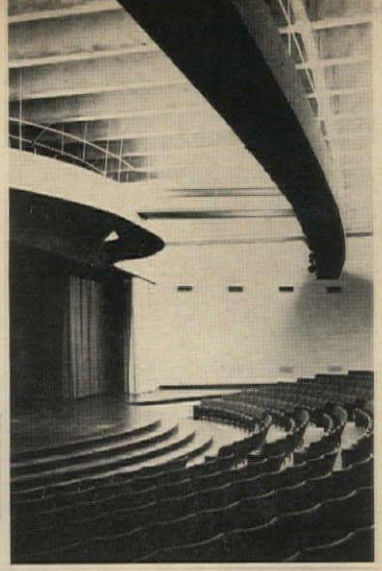

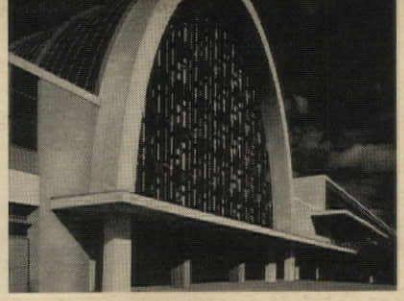

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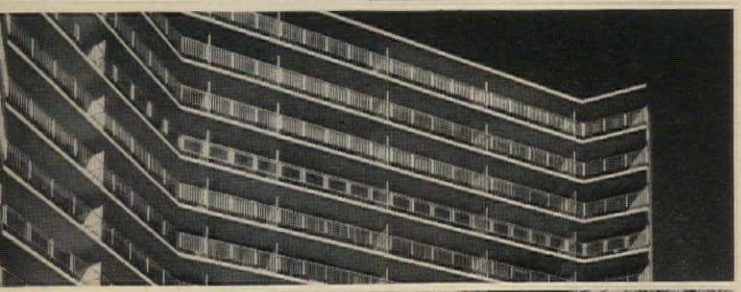
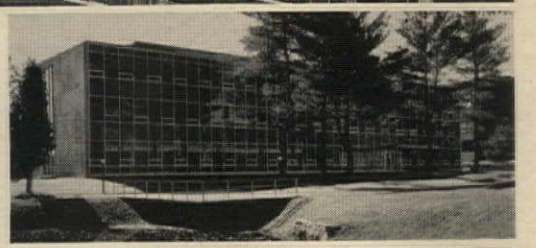
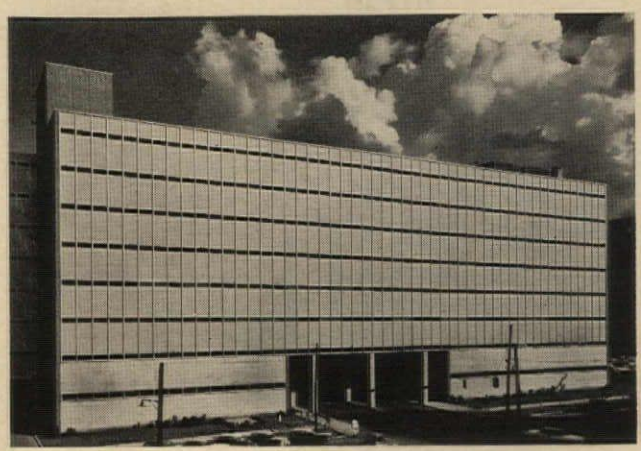




in schools, churches, commercial buildings, apartment houses, hospitals, and homes.

There must be a reason. You can find out for yourself just why—get in touch with "The Man from Devoe" in your area. You'll learn how you can get real advantages from his paint "know-how" and experience. He can offer you technical data on paint formulae and maintenance, give you and your consultants expert color selection and matching assistance—even provide the professional knowledge you need in choosing special finishes designed for use where corrosion, erosion or other exceptional factors must be considered. For these services—and many others, down to on-the-job supervision of deliveries—just call the Devoe office nearest you. There is no charge for the services of "The Man from Devoe."



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NAME ARCHITECTS IN CANADA TO AID 1967 EXHIBITION

John C. Parkin of Toronto heads an 11-member committee of Canadian architects named to advise the Canadian Corporation for the 1967 World Exhibition to be held in Montreal in the Canadian Centennial year.

The function of the committee will be to make recommendations through the corporation's chief architect, Edouard Fiset, on architectural and related matters.

In addition to Mr. Parkin, members of the committee are: Douglas Shadbolt of Halifax; Walter M. DeSilva of Charlottetown; Etienne J. Gaboury of Winnipeg; Guy Desbarats, Claude Beaulieu, and John Bland of Montreal; Gilles Côté of Quebec City; James E. Secord of St. Catherines; K. Izumi of Regina; and Geoffrey Massey of Vancouver.

The committee had its first sessions January 13-14 at the Corporation's headquarters in Montreal and discussed the basic concepts for the exhibition as put forward in the master plan recently submitted by the exhibition authorities to the Government of Canada and the Government of Quebec.

DESIGN DILEMMAS 1964 ASPEN TOPIC

Architect Eliot Noyes of New Canaan, Conn., is program chairman of this year's International Design Conference in Aspen, Colo., to be held June 21-27, and the subject will be "Design '64: Directions and Dilemmas," with the subtitle, "a discussion of freedoms and restraints in design, architecture and visual communication."

This year for the first time the International Design Conference is operating from a permanent headquarters, the Walter Paepke Memorial Building in Aspen, and with a full-time executive secretary, Mrs. Merrill Ford.

Information about this year's conference may be obtained from Mrs. Ford at I.D.C.A., Box 1247, Aspen, Colo. Information on travel and hotel reservations is available through Aspen Travel Service, Box "X" in Aspen.

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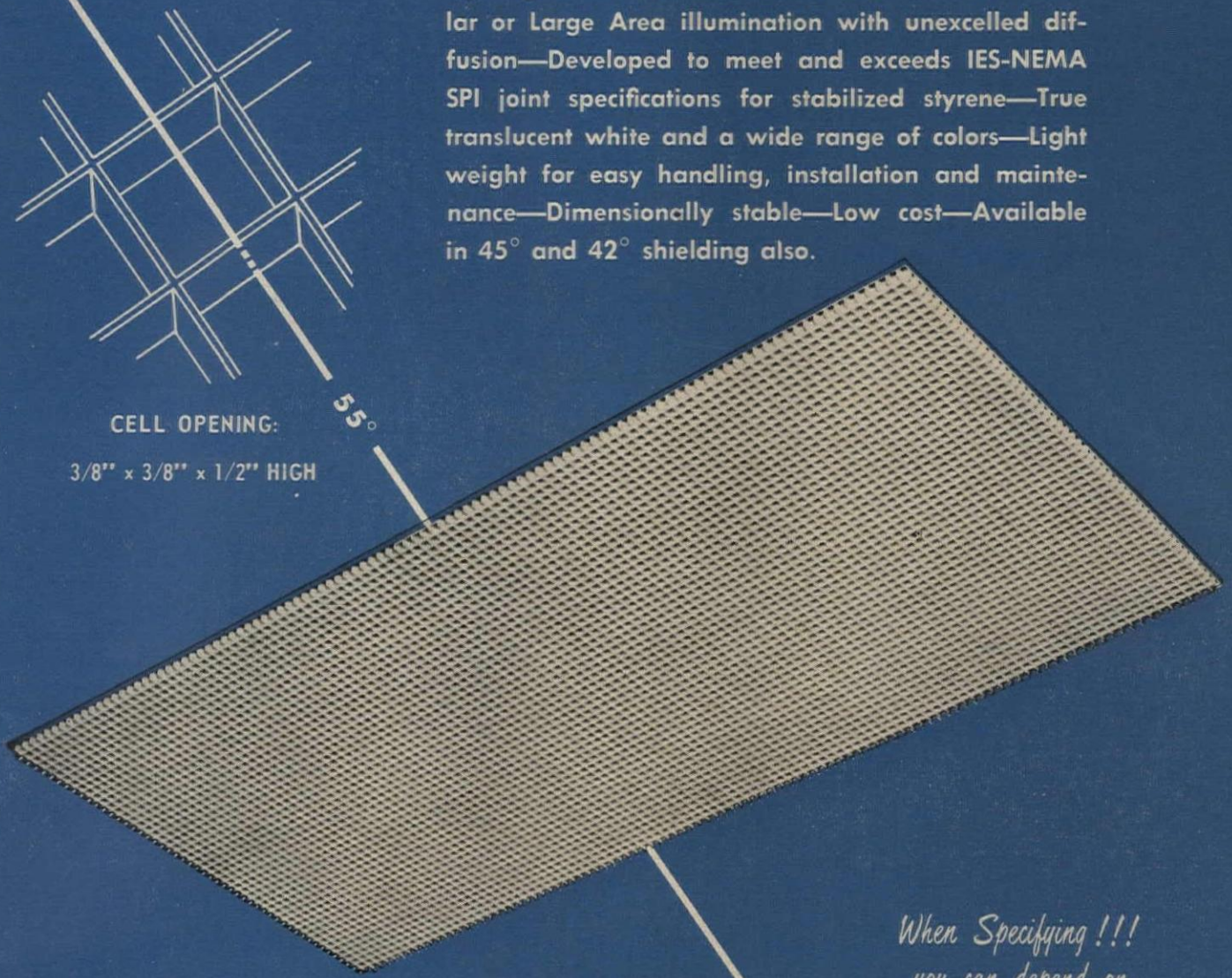

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Light shielding louvers is our *one and only most important product*, developed, designed and manufactured by American louver, consultants to the lighting industry since 1939, assuring you the finest in Plastic Louvers.

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Concrete floors last longer, look better

There are more than 20 Sonneborn floor treatment products designed to preserve and protect concrete floors. A Sonneborn specialist will recommend the right floor treatment based on specific floor uses— in the planning stage.

...if they're treated right!

No one product or system can possibly fill the specific needs of all concrete floors without the risk of underdesign or the excessive cost of overdesign.

Because of the growing demand for more specific answers to the tough problems you face in concrete floor treatments, Sonneborn has developed a highly specialized line of products and integrated systems.

Your clients' floors may require liquid chemical hardening, metallic or non-metallic hardening, epoxy sealers, bonding agents, epoxy surfacing and dustproofing compounds.

Our specialists study the needs of the job and give you specific and detailed recommendations. They see to it that only quality-controlled materials are used. If the floor treatment is on contract, they supervise the application of the recommended system.

To complete Sonneborn's custom-designed service, a thorough inspection of the floor is made.

For complete information, consult Sweet's Architectural File, or write Sonneborn Building Products, Inc., 1700 South Mt. Prospect Rd., Des Plaines, Illinois.

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HARTFORD BANK BUILDS DOWNTOWN

The new headquarters of the Hartford National Bank and Trust Company, to be built on a 1.5 acre-site in downtown Hartford, Conn., will include a 25-story tower above a 20-foot-high base containing a 20,000-square-foot banking floor, a lobby and employe facilities, and a second structure with extensive retail facilities and three levels of parking for 150 cars. Welton Becket and Associates are the architects, in association with Jeter and Cook of Hartford. General contractor is the George A. Fuller Company.

A specially developed textured aggregate precast, pre-glazed window wall, with bronze-tinted glass sections 9 feet 8 inches high by 3 feet wide, will enclose the office tower. The structural system supports the tower on four broad, L-shaped columns with an 8-foot-deep girder at the base carrying the exterior columns and window wall loads. Bronze-clad steel inverted "U" bend mullions along the base help carry the girder load.

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I have used masonry cement
for stucco and
cement plaster work
with excellent results"

30 years a plastering contractor, John W. Thomson, Jr. now heads the firm founded by his father in 1918. He is president of CPLIA (Contracting Plasterers and Lathers International Association) and past president of the Contractors and Plasterers Association of Southern Florida. John W. Thomson & Son, Inc. is well known for expert work throughout the state.

Point View North is a 13-story structure with reinforced concrete frame, floors and roof, with concrete masonry stuccoed walls. Owner: Paul Dennis, New York City. Architect: Charles F. McKirahan & Associates, Ft. Lauderdale. Structural Engineer: D. E. Britt & Associates, Miami Beach. General Contractor: Frank J. Rooney, Inc., Miami. Plastering Contractor: John W. Thomson & Son, Inc., Miami.

For uniform results and highest quality, more and more architects and contractors are choosing masonry cement for all exterior plaster and stucco jobs. With masonry cement, everything except the sand and water comes in one bag. Portland cement, air-entraining agents, plasticizers, water repellents come scientifically proportioned and interground. Because no other materials are added, inspection and job quality control are easier. Uniformity of color and strength is assured.

And because of its controlled ingredients and air entrainment, masonry cement plaster provides improved workability and durability. There is better water retention and less segregation of materials. Plastic shrinkage and cracking are minimized.

All masonry cement made by member companies of the Portland Cement Association meets high specifications and is produced under rigid laboratory and production controls. For more information, write for free literature. (U.S. and Canada only.)

Portland Cement Association

Dept. A2-8, 33 West Grand Ave., Chicago, Illinois 60610
An organization to improve and extend the uses of portland cement and concrete

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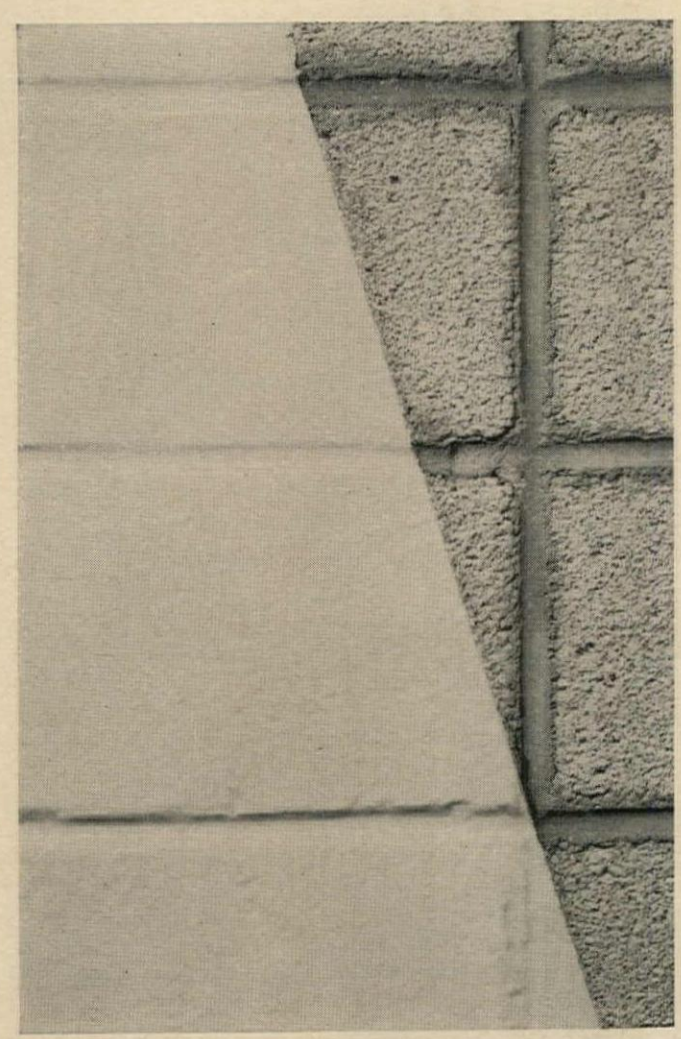

O'Brien's New *Mira-Plate*

The miracle strength epoxy that goes on like paint, looks and lasts like ceramic tile!

Here's superior protection and tile-like beauty—at a fraction of tile's cost. O'Brien's MIRA-PLATE beautifully coats everything paintable—including new or previously painted plaster, brick, concrete, wood, metal. Ideal for heavy traffic areas. Superior to paint. Defies wear, weather, chemicals, fumes, peeling, and cracking. Unique waterproofing properties defy moisture. Brush it, roll it, or spray it on—and MIRA-PLATE may be recoated or retouched at any time. Many popular colors and attractive fleck patterns. Ask your O'Brien dealer, your painting contractor, or simply send the coupon.

To: The O'Brien Corp., Dept. AR-2
South Bend 21, Indiana

Please send me complete information about MIRA-PLATE, your miracle-strength coating that goes on like paint, looks and lasts like ceramic tile.

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

The O'Brien Corporation, South Bend 21, Indiana • Baltimore • Oklahoma City • San Francisco • Los Angeles

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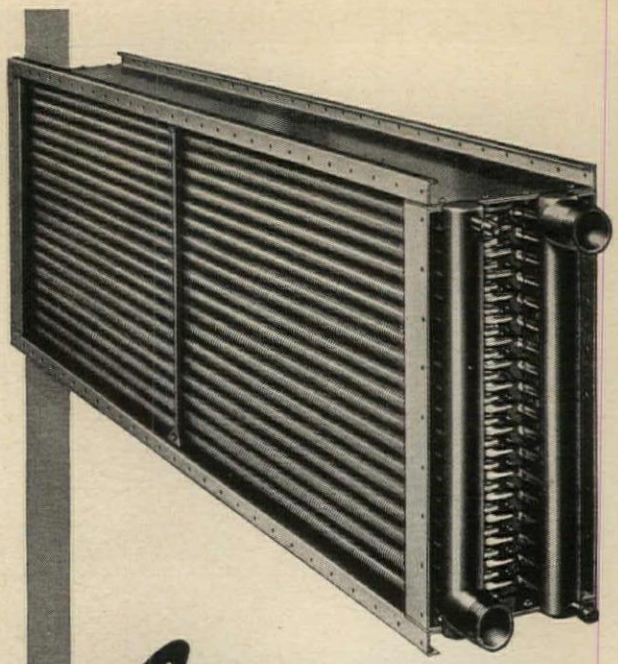


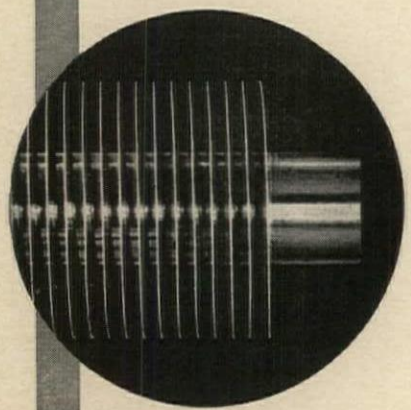
AEROFIN

Smooth-Fin Coils offer you:

Greater Heat Transfer
per sq. ft. of face area

Lower Airway Resistance
—less power per c. f. m.

Aerofin smooth fins can be spaced as closely as 14 per inch with low air friction. Consequently, the heat-exchange capacity per square foot of face area is extremely high, and the use of high air velocities entirely practical. Tapered fin construction provides ample tube-contact surface so that the entire fin becomes effective transfer surface. Standardized encased units arranged for simple, quick, economical installation.



Aerofin is sold only by manufacturers of fan system apparatus. List on request.

AEROFIN CORPORATION
101 Greenway Ave., Syracuse 3, N. Y.
ENGINEERING OFFICES IN PRINCIPAL CITIES

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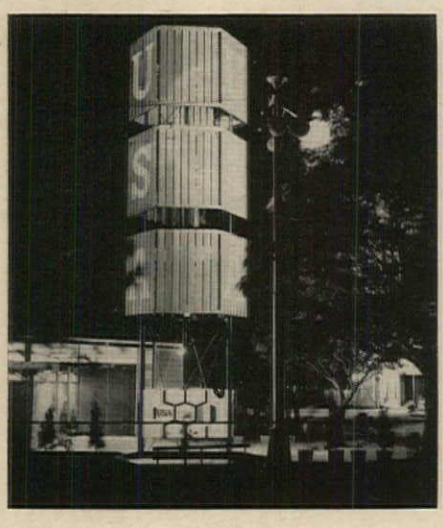
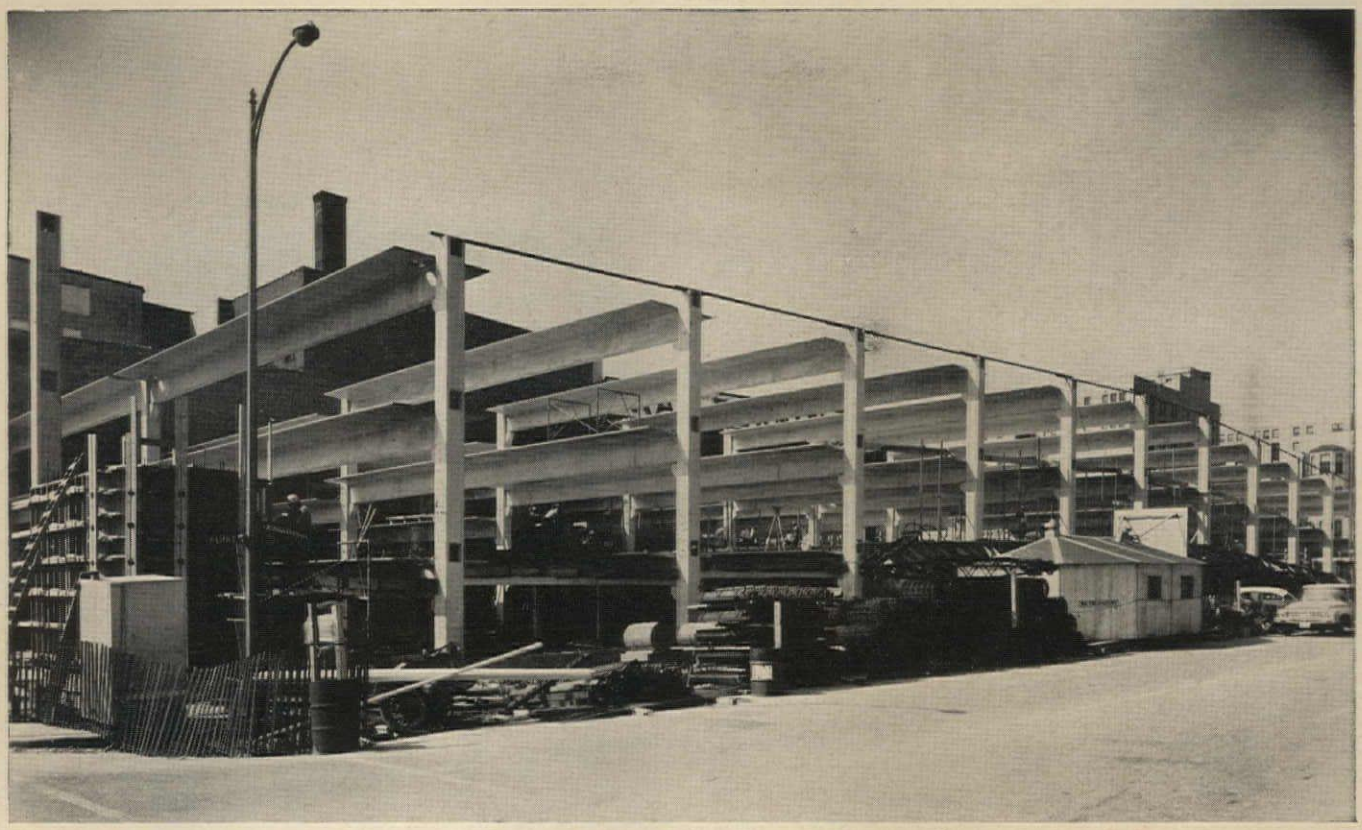
HEXANGLES ARE U. S. SYMBOL AT SYDNEY FAIR

A lightweight, prefabricated, demountable building surrounded by hexangles, including a 40-foot hexangle "theme" pylon, represented the United States at the Australian International Trade Fair in Sydney last summer and fall, and may be used again by the Department of Commerce at other fairs. Architect is Robert Martin Engelbrecht.

The U. S. exhibition area included a landscaped entrance plaza with hexangle reflecting pools, a low administration building composed of clusters of hexangle floor areas and main exhibition hall.

The main exhibition hall featured exhibits, also designed by Mr. Englebrecht, of 37 American manufacturers shown in one or more of 65 hexangle exhibit areas. Structure of the hall is composed of aluminum extrusions acting as continuous clamps and weather seals to hold the stressed skin plywood roof and wall panels of translucent white plastic sheets bonded to an aluminum frame.





PRESTRESSED PRODUCER: **Prestress Concrete of Iowa, Inc., Iowa Falls, Iowa**
ENGINEERS: De Leuw, Cather & Co., Chicago, Illinois
CONTRACTOR: Priester Construction Company, Davenport, Iowa
OWNER: City of Davenport, Iowa

Giant Prestressed T's span 60 feet in new 460-car garage

The new Perry Street Parking Garage in Davenport, Iowa, is a three and a half level structure, with a capacity of 460 cars. Giant Tees of prestressed concrete span the 60-foot increments between columns. The sections are 8 feet across the top of the Tee, 32 inches deep.

This is another application of prestressed concrete that solved a design or construction problem quickly, efficiently—and at low cost. Job records are fast establishing the ability of prestressed concrete to handle the every-day assignments as well as the unusual jobs.

Prestressing strand used in the Tees is Union TUFWIRE Strand. TUFWIRE Strand and other Union Wire Rope Products are made by **Sheffield Division, Armco Steel Corporation, Department S-1093, 7000 Roberts Street, Kansas City, Missouri 64125.**

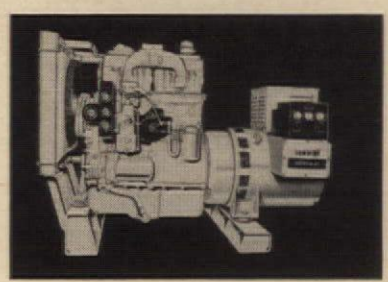
ARMCO Sheffield Division

For more data, circle 142 on Inquiry Card

Power off... show goes on!

From mid-1957 to mid-1963 WLAC-TV, Nashville, lost primary power for a total of 7 hours and 18 minutes—precious time for any broadcaster. Every minute was saved by their Cummins Standby Generator Set. Emergency or not, this set has been tested under full load every week since its installation. *It has never failed to start!*

Be ready for emergencies. Call your Cummins Distributor. He'll show you why Cummins sets are most dependable, quickest to start, and least expensive to run. He sells, warrantees and services the whole unit...diesel, generator and controls—50 to 400 KW, 50 or 60 cycle. Cummins Engine Company, Inc., Columbus, Indiana.



Specify Cummins

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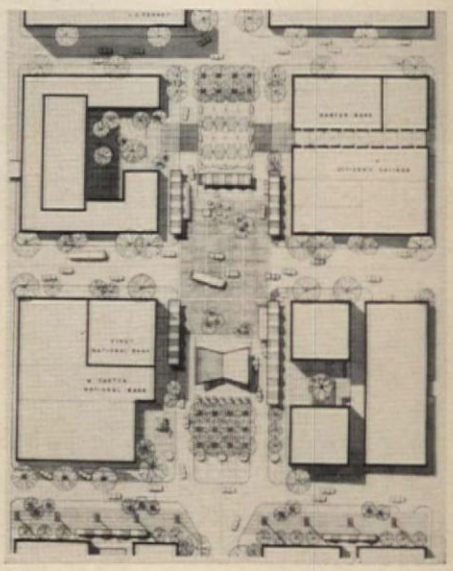
DESIGN OF PLAZA HONORED BY A.I.A.

Tarapata-MacHahon Associates, Inc., of Bloomfield Hills, Mich., have received the First Honor Award in the annual design competition of the Detroit Chapter, American Institute of Architects, for the design of the Central Plaza Development of Canton, Ohio, on which they collaborated with Johnson, Johnson & Roy, Inc., of Ann Arbor; Lawrence, Dykes, Goodenberger and Associates, Canton, Associate Architects; and C. B. Paumier Jr., planning and design coordinator.

Central Plaza was redeveloped from Canton's "Public Square," a two-block area 500 feet in length with a 160-foot-wide right-of-way, as a center to attract people and activity. It now has an exhibit building, an indoor-outdoor cafe, a skating rink in winter and an area where large groups can assemble for ceremonies, musicals and other events.



The Iron Curtain isn't soundproof.

If you owned a radio set behind the Iron Curtain, what sort of programs would you hear?

From Communist sources, endless propaganda. Newscasts that twist—or suppress—the truth about home conditions and the world outside. Commentaries and criticism that are really just "commercials" for a single product—Communism.

Fortunately, however, the Iron Curtain isn't soundproof.

Try as they will, the Communists can't keep out the voice of Radio Free Europe. Nor can they prevent us hearing what they themselves tell—and don't tell—to their captive peoples.

Radio Free Europe speaks daily, in their own languages, to millions of listeners in Poland, Czechoslovakia, Bulgaria, Hungary and Romania. But—first—it monitors all the radio stations in these five satellite countries, and studies all their magazines and newspapers. It analyzes what they give out as news, and notes the lies, distortions and omissions.

These are then exposed—with tremendous impact—in RFE's own newscasts.

Radio Free Europe lets its audience know what is *really* happening in their enslaved countries—and right in their home towns. It answers Communist accusations. Spotlights rifts and failures. Reminds these 80 million captive people that they still have friends. And suggests some ways in which they *themselves* can help to regain their lost personal freedom.

Radio Free Europe is a private American enterprise, supported by voluntary subscriptions. To combat Communism by getting the truth through the Iron Curtain, many businesses and corporations contribute to RFE's funds. If your company is not among them, won't you mail your check (which is tax deductible) to:

Radio Free Europe, Box 1964, Mt. Vernon, N.Y.

Published as a public service in cooperation with The Advertising Council.

Business Aid To Education: Let's Broaden The Base

The total amount of financial support that American business corporations are giving to our colleges and universities is increasing rather impressively. But the number of companies contributing to this expansion is woefully small. If business support of higher education is to attain the proportions it clearly should attain, there must be a large increase in the number of companies participating — and soon.

The Council for Financial Aid to Education estimates that business firms contributed about $200 million to education last year. This was up from a total of about $178 million in 1960; and preliminary indications are that business-giving will exceed $200 million this year. As a total, this is a relatively impressive figure. It becomes more impressive when viewed against the fact that it will be about two and one half times as much as business firms were giving to education ten years ago.

A Flaw In The Picture

But there is a grave flaw in this picture of business-giving to higher education. The giving is concentrated in relatively few business firms that provide large sums, while hundreds of thousands of firms do little or nothing at all. Of the $200 million contributed to education by business in 1962, the Council for Financial Aid to Education found that about $70 million, or more than a third of the total, came from only 150 companies, each of which contributed more than $100,000. In fact, increased giving by large corporate contributors accounted for most of the total increase in corporate giving between 1960 and 1962.

There are no figures comprehensive enough to determine precisely how many business firms contribute to the support of higher education in the United States. But studies indicate that virtually all of this aid comes from less than one per cent of U.S. business establishments.

New sheet vinyl floor

Armstrong DORELLE VINYL CORLON

designed and priced for commercial interiors

This new sheet vinyl floor offers long-term beauty and performance and costs only about 70¢ sq. ft. installed.

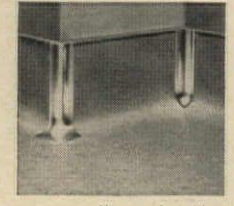
Dorelle Vinyl Corlon meets needs of modern commercial interiors where traffic is heavy but color and design are important, too. And it costs only 70¢ sq. ft. installed—far less than other commercial-weight sheet vinyl floors. This is a tough, long-wearing vinyl floor, developed to take the pounding and scuffing of millions of feet, yet stay fresh looking with normal maintenance. In most characteristics—resistance to abrasion, indentation, alkali, and staining; recovery from compression by heavy furniture and the indentation of spike heels; economy of maintenance—this new vinyl floor is superior to battleship linoleum.

SCALED FOR COMMERCIAL USE

The colors and design of Dorelle were planned specifically for commercial interiors. Its seven colors, all soft or neutral, are coordinated with Armstrong Vinyl Cove Base and Armstrong Wall Corlon. The subtly grained design is scaled to give a monolithic effect in large areas. Colors and design go uniformly through the thickness of the vinyl to the backing.

EASY TO MAINTAIN

Because Dorelle comes in 6′ rolls up to 90′ long, it can be installed with a minimum of seams and



can be coved or flashed up the wall to eliminate baseboard crevices—important advantages in hospitals, "white rooms," and other interiors where cleanliness is essential. Dorelle is resistant to grease, dilute acids, and most alkalis and chemicals. All these qualities make Dorelle easy and economical to clean and to keep clean.

INSTALLED AT ALL GRADE LEVELS

Its Hydrocord Back (available only on Armstrong floors) allows Dorelle to be installed above, on, or below grade, except where excessive alkali or hydrostatic pressure makes the installation of any resilient floor impractical.

MORE INFORMATION

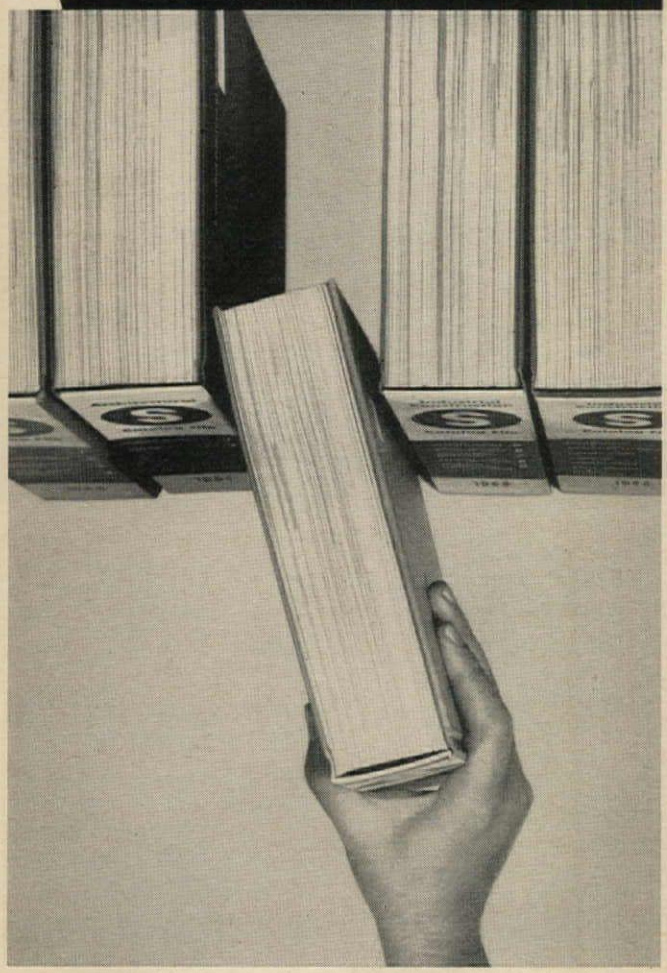
For more information on Dorelle —or on any of Armstrong's wide range of commercial floors—contact your Armstrong Architect-Builder Consultant at your Armstrong District Office. Or write directly to Armstrong, 301 Rock Street, Lancaster, Pa.

Dorelle, Corlon®, and Hydrocord® are trademarks of Armstrong Cork Company.

Armstrong VINYL FLOORS

A-IC-LC*

TELLS YOU WHERE TO REACH FOR BUYING INFORMATION!



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SWEET'S CATALOG SERVICE,
F. W. DODGE CO. 330 W. 42ND ST. NEW YORK 36, N.Y.
DIV. OF McGRAW-HILL INC.

the cost of your "omission"

No architect or engineer would *knowingly* force his client to pay the price of his "omissions."

Ask yourself this: Do we appreciate the enormous amount of money our client will be *forced* to spend on paper or cloth towels when we fail to provide the wiring for and specify electric hand dryers?

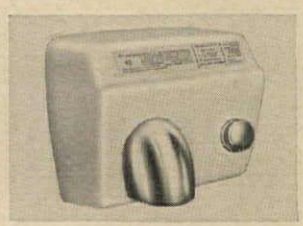
The facts: Your client will spend *nine times more* for paper or cloth towel drying than for electric drying.

Equally important, he will be *forced* to use methods of drying that are obsolete, inconvenient and (by medical documentation) dangerous to health.

When you provide the space, the wiring and specify the name and features of a *good* electric dryer, you save your client the cost, time, the trouble of "after the fact" installation—which he is usually ill equipped to do . . . and rarely does.

A little thing? Is it not this attention to "little things" that makes the difference between an architect who considers the result of his "omissions" as diligently as those of his "commissions" in answering the *total* requirements of his client.

Specify the world's most respected dryer....



WORLD
ELECTRIC
HAND
DRYERS

WORLD DRYER CORPORATION
616-22 West Adams Street Chicago 6, Illinois

☐ *PLEASE SEND MORE INFORMATION*

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ADDRESS_____

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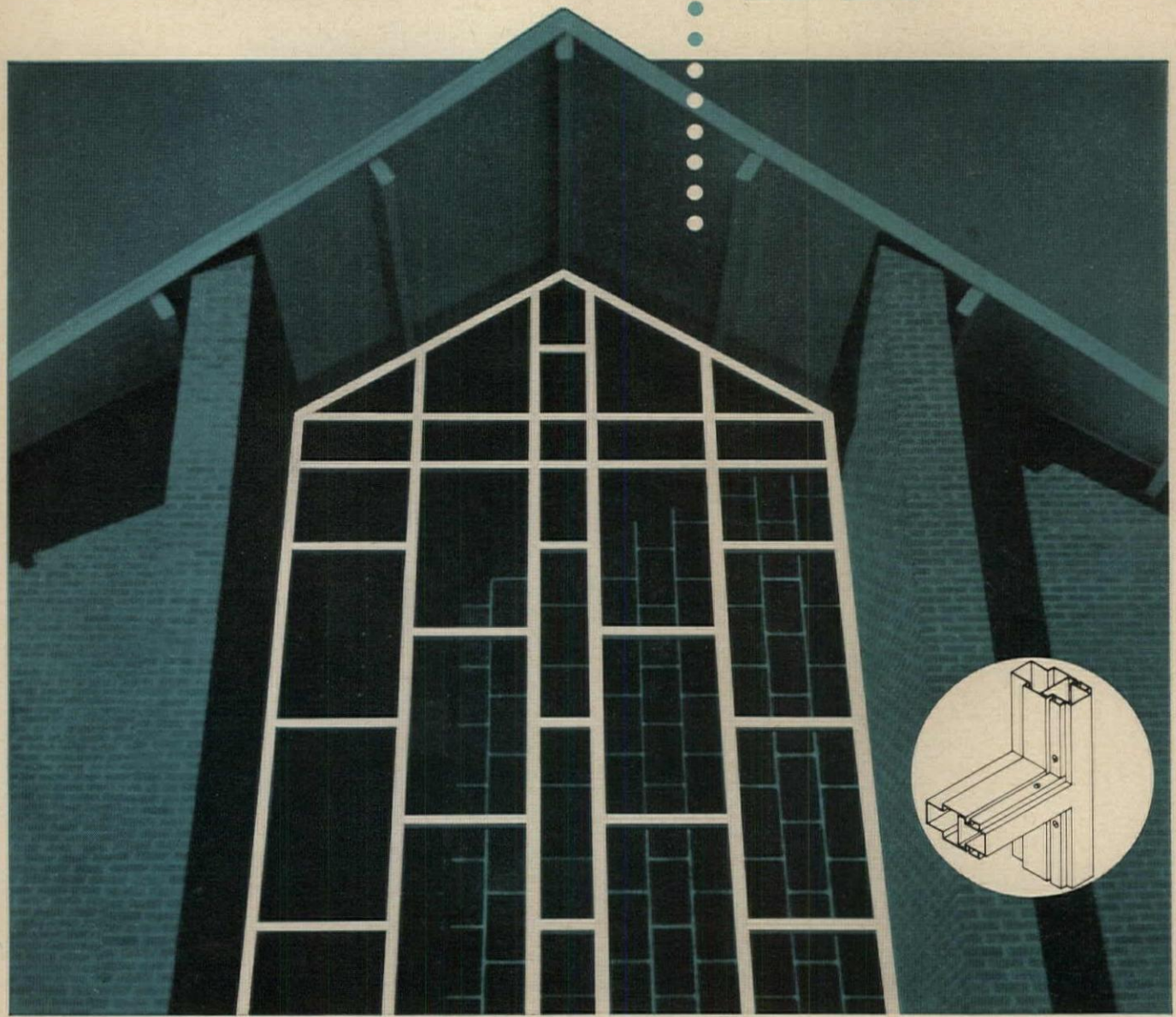
steelcraft metal door frame idea no. 11 in a series



Blanchard Baptist Church, Blanchard, La.; Peystone & McKelvey, Architects; Whitaker Construction Co., Contractor; Ideal Building Materials, Inc., Steelcraft Distributor.

VERSATILITY UNLIMITED... FROM STANDARD DOOR FRAME SECTIONS

STEEL Craft

finest name in metal doors and frames

Here's an inspiring example of the kind of sophisticated design ideas that can be fabricated to your specifications by your STEELCRAFT distributor—right from his stock of pre-engineered standard metal door frame sections.

This is another of the many advantages gained from the use of Steelcraft metal doors and frames. Write for other ideas . . . and the name of your technically trained Steelcraft distributor.

The Steelcraft Manufacturing Company, 9017 Blue Ash Road, Cincinnati 42, Ohio, U.S.A.

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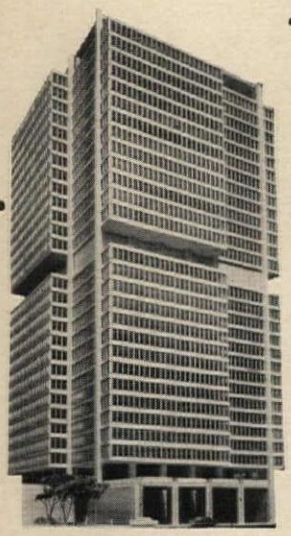
eads to another... *and another...*

ARCHITECTURAL RECORD

Advertising Leadership

For seventeen years in a row more building product advertisers have placed more advertising pages in Architectural Record than in any other architectural magazine. The Record's margin of leadership over magazine two: 66 per cent. (twelve months, 1963.)



Top Verifiable Market Coverage

The Record's architect and engineer subscribers are responsible for planning over 88 per cent of the total dollar volume of all architect-planned building, nonresidential and residential—a fact documented by *Dodge Reports*.

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RECORD
ADVERTISING
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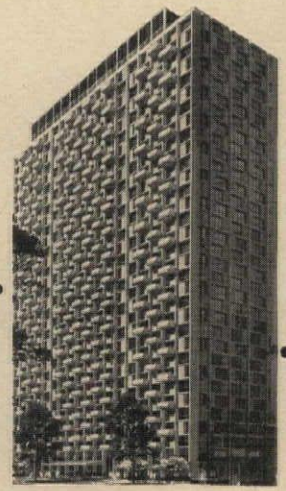
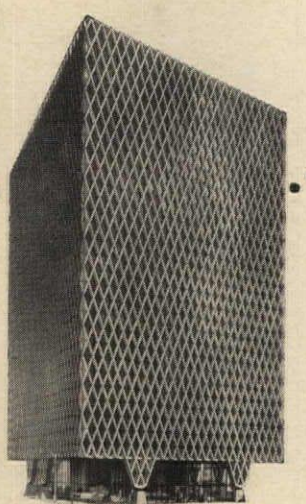
When one top advertising value

you're on the track of the leader



Editorial Superiority

The Record publishes more editorial pages than any other architectural magazine. Moreover, its content is continuously attuned to the current activity and interests of architects and engineers with the aid of *Dodge Reports* and the most intensive audience research in the field.



Preferred Readership

Architects and engineers have voted Architectural Record "preferred" in 178 out of 195 studies SPONSORED BY BUILDING PRODUCT MANUFACTURERS AND ADVERTISING AGENCIES. And the Record's renewal rate is the highest in its field by far.

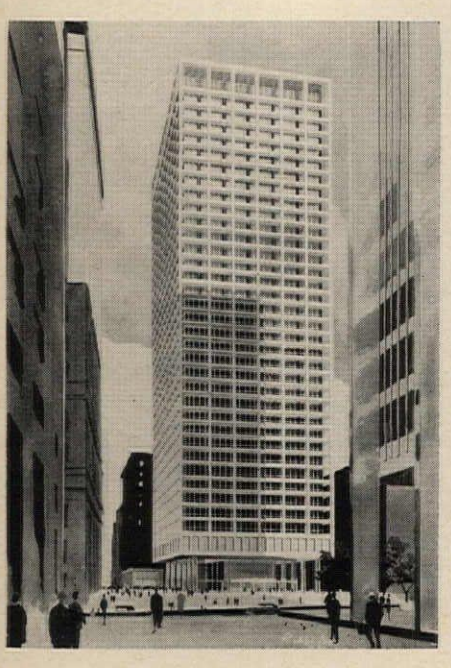
Circulation Leadership

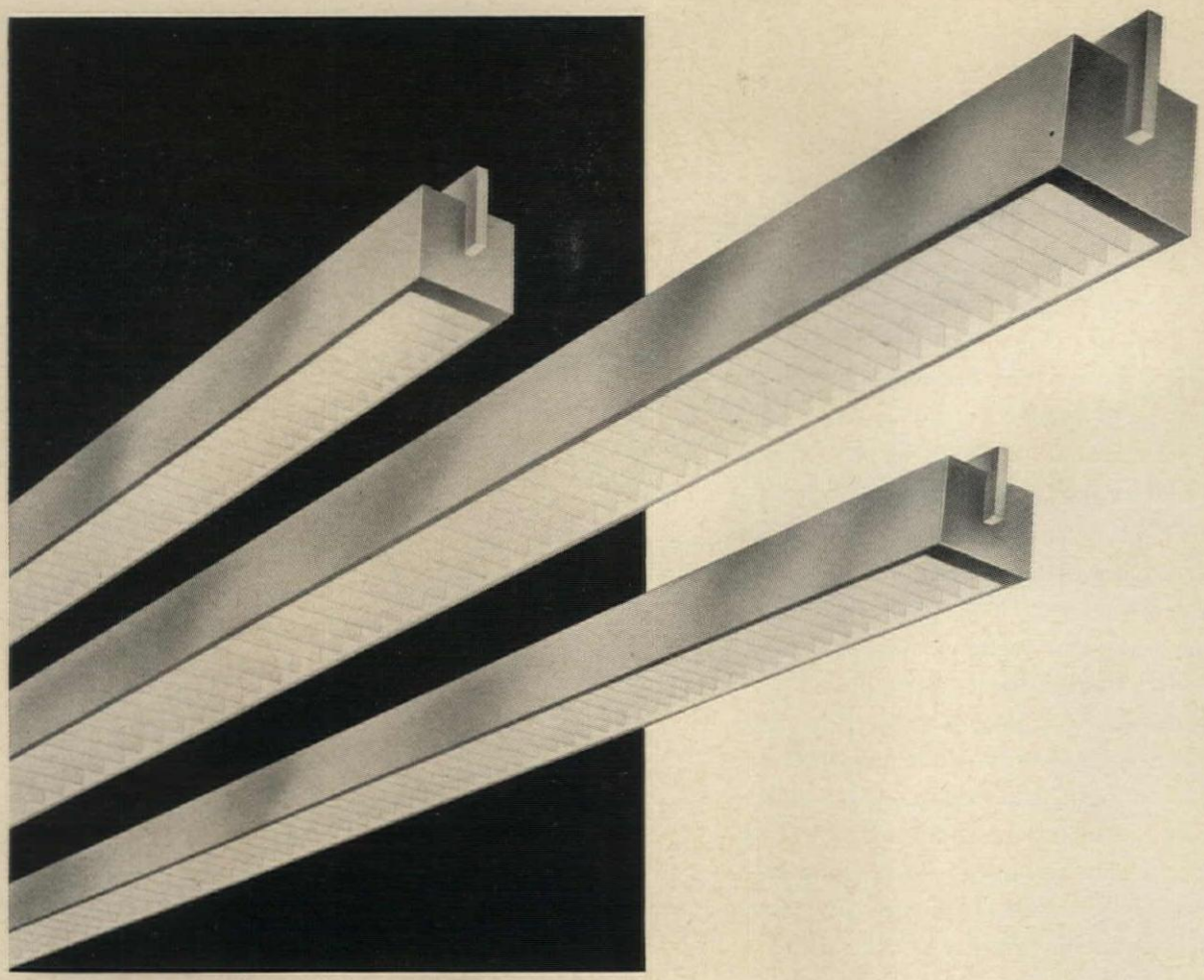
The Record delivers the largest architect and engineer paid audience of any architectural magazine in the four primary building markets: (1) architectural firms (2) consulting engineering firms (3) commercial, industrial and institutional organizations and (4) government.

NEW SKYSCRAPER CONTINUES A MALL

The 40-story office building to be erected at 140 Broadway in New York City for Lawrence A. Wien, Harry B. Helmsley and the Estate of Erwin S. Wolfson has been designed by architects Skidmore, Owings & Merrill to continue the pedestrian mall of the adjacent Chase Manhattan headquarters building, which is also their design.

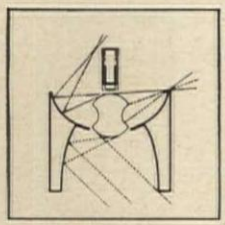
The new building, to cost an estimated $45 million, will cover about 40 per cent of the nearly 60,000-square-foot plot, with plazas occupying the rest. Individual floors will contain 24,000 square feet of rentable space.



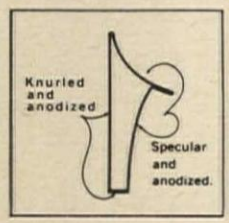


POWER-BEAM

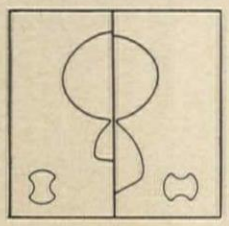
New Power-Beam fluorescent lighting fixtures by Smithcraft blend perfectly with modern school interiors, and give older schools a modern glow. But these highly efficient fixtures have much more than good looks. Their polished specular reflectors distribute comfortable, glare-free light semi-indirectly in just the right proportions for comfort, dimension, and character. Cognizant of the growing importance of visual aids in modern classroom procedure, Smithcraft can supply Power-Beam fixtures with a low intensity lighting level which is 20% of full level. These lightweight aluminum fixtures are long-lasting, easy to install, and easy to maintain. And they offer many unique pattern possibilities. For details, see your Smithcraft representative or write:



Two aluminum tubings provide strength for extremely rigid reflector assembly. Also aluminum are the baffles, which permanently lock the reflector assembly together, and the wiring channel, which contains fixture or branch circuit wiring.



Lighting distribution scientifically controlled for maximum efficiency and low brightness. There is 45° x 45° shielding. Thermal airflow design keeps unit cool and clean.



Choice of two distribution patterns, either of which may be changed to the other during installation. With grooves of Power-Groove lamps facing outwards, distribution curve is wider with 77% up and 23% down. With grooves up and down, the curve is narrower with 66% up and 34% down.

Smithcraft

SMITHCRAFT CORPORATION, CHELSEA 50, MASSACHUSETTS
SMITHCRAFT OF CANADA LTD., MONTREAL, P.Q., CANADA

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Unused Capacity For Business Giving

At the present time, there are more than four and three quarters million business establishments in the U.S. A great many of them, of course, are one-man establishments which are not able to help higher education financially. But there are tens of thousands of others which have unused capacity to help.

> Inquiries by the Council for Financial Aid to Education indicate that almost half of the nation's 500 largest industrial corporations have no programs to help our colleges and universities financially. With combined profits after taxes of almost $2 billion in 1961, these firms represent an imposing, untapped potential for help. And so do tens of thousands of smaller companies. Their gifts would be smaller, but their numbers would compensate for necessarily smaller amounts by coming in much larger numbers.

The Council for Financial Aid to Education has set a goal of $500 million for annual corporate aid to our colleges and universities by 1970. Very conservatively estimated, the total expenditure for higher education at that time promises to be $9 billion to $11 billion a year. This makes $500 million a relatively modest share in the support of educational operations so vital to the welfare of the nation and the business community.

Needed— A Much Broader Base

But if this goal is to be reached, the base of corporate support must be broadened. This means more and more effective work by the colleges and universities in seeking support from smaller companies. It means more readiness by more firms to listen with understanding and sympathy, and then to use their capacity to give financial support accordingly.

Viewed narrowly, it is in the selfish interest of business firms to help our colleges and universities financially. By doing so, they give essential support to basic research, centered in the universities, upon which the business system depends heavily for the opening of new scientific frontiers. Financial support for higher education also helps to insure a continuing supply of well trained graduates which business firms must have to insure their own continuing success.

By making it tax exempt, the federal government, in effect, assumes half of the cost of financial aid for higher education by business. But this fiscal fact does not detract from both gratitude and respect which business firms can win for themselves by providing such aid. And in the last analysis, if financial aid is not provided voluntarily, it can confidently be expected that business will ultimately provide much of it involuntarily, through taxation.

Viewed in terms of the broad public interest, the business community has an opportunity to play a key role in providing our colleges and universities with the financial strength essential to assurance of their successful development which, in turn, is basic to the success of the nation.

There are few, if any, financial operations that can pay larger returns in advancing the national interest, as well as the more immediate interest of the business community, than that of seeing our colleges and universities receive steadily increasing financial support from more and more business firms.

This message was prepared by my staff associates as part of our company-wide effort to report on major new developments in American business and industry. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or part of the text.

Donald C. McGraw

PRESIDENT

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