



ARCHITECTURAL RECORD

7 JULY 1964 • TWO DOLLARS PER COPY

BUILDING TYPES STUDY: INDUSTRIAL BUILDINGS

THE NEW TOWN OF RESTON, VIRGINIA

RURAL OFFICE BUILDING DESIGNED BY EERO SAARINEN

AN ARCHITECT'S GUIDE TO THE WORLD'S FAIR

FULL CONTENTS ON PAGES 4 & 5

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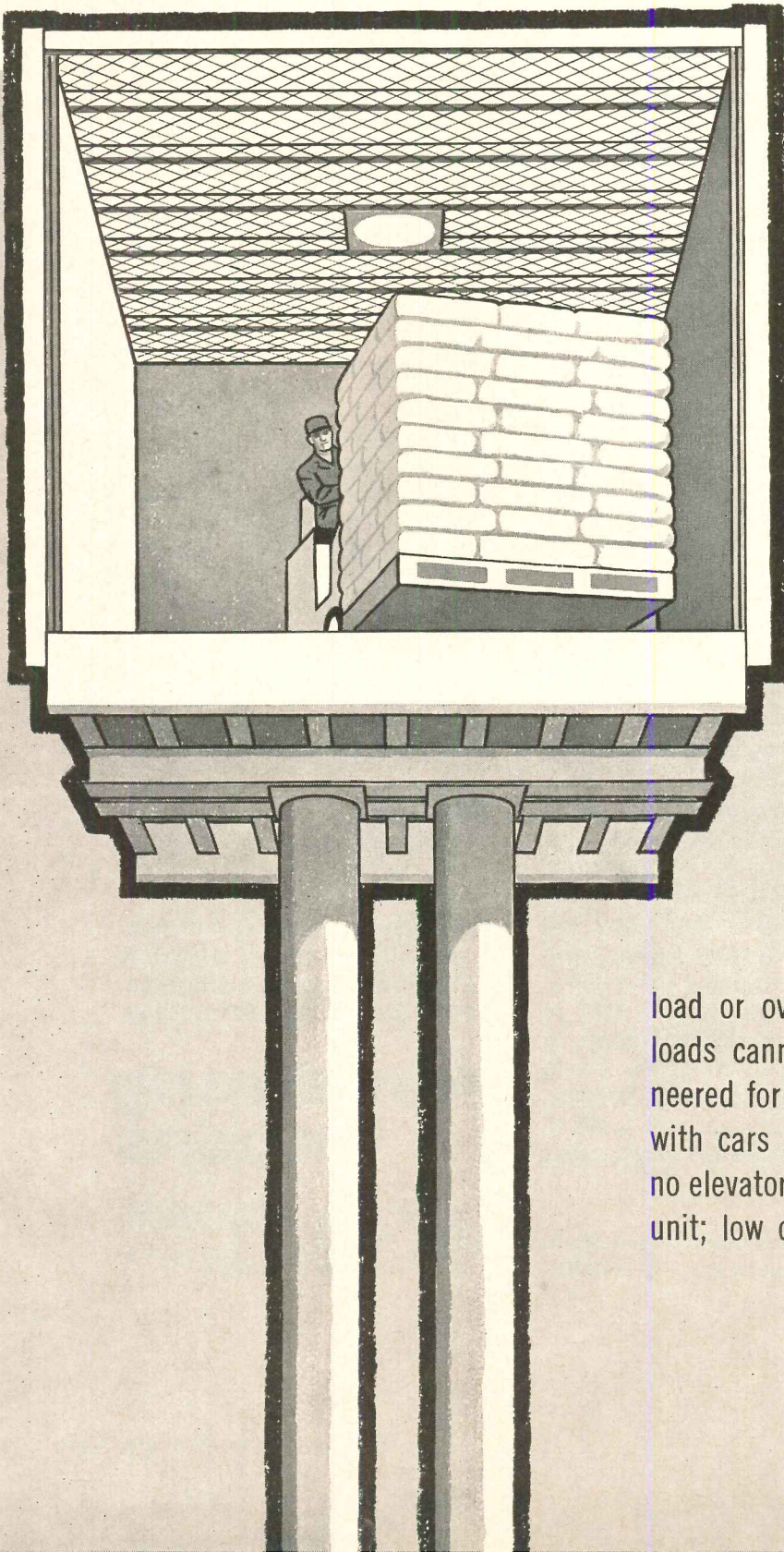
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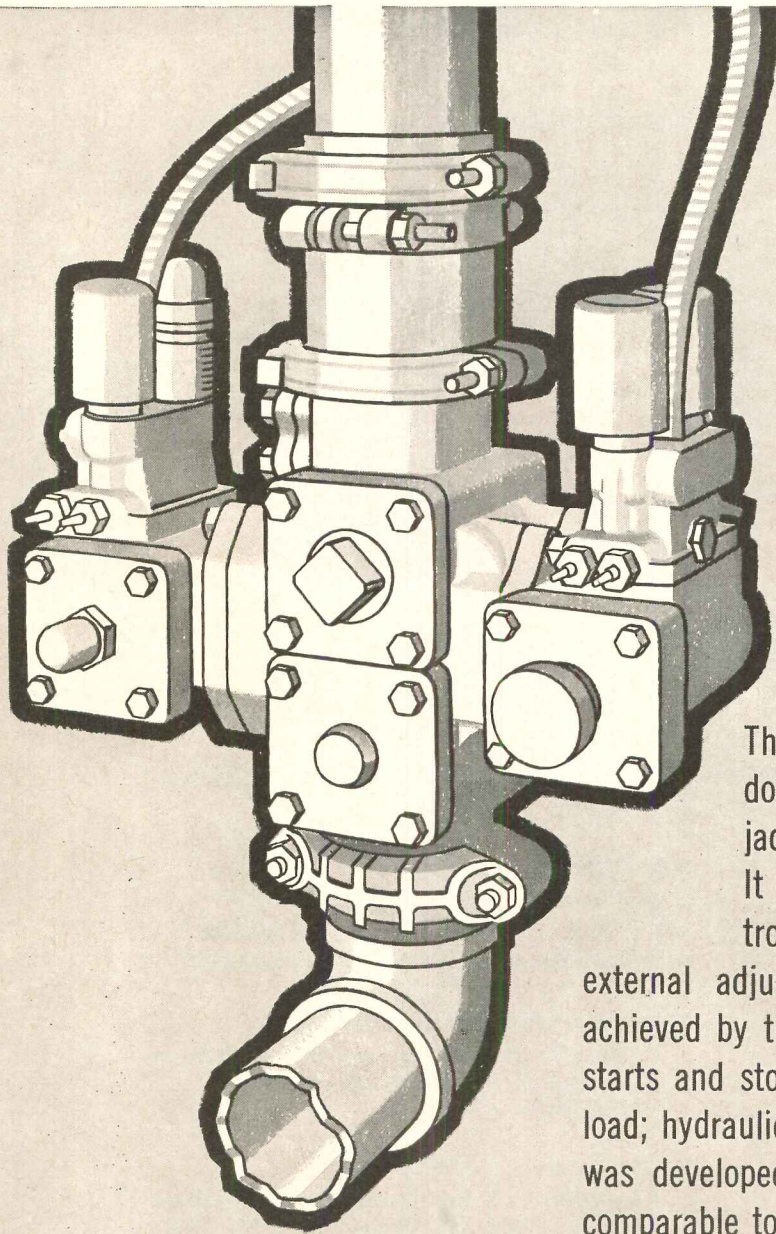
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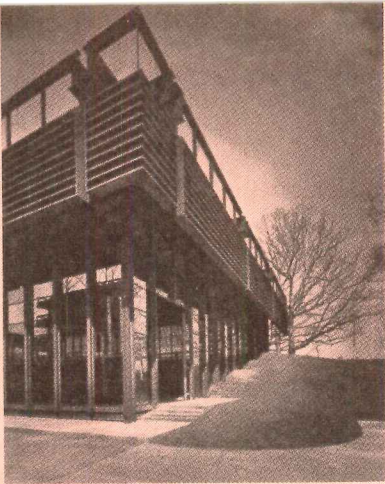
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Coming in the Record

NEW OPPORTUNITIES FOR ARCHITECTURE

Next month's Building Types Study on Apartments will approach the problems planning in the larger context of the problem of designing for urban living, and in the hopeful context of some indications that the role of design in the solution of this problem is getting important recognition in some important quarters.

HOW DOES THE WIND BLOW?

We really can't be sure, states architect Emil Szendy in his article in the Architectural Engineering Section. As office buildings grow even taller, larger lights of glass are used, and new cladding techniques are developed, the wind problem becomes increasingly important. The vagaries of the wind are hard to pin down, but an examination of research studies plus weather records indicates a range of reasonable wind velocities.

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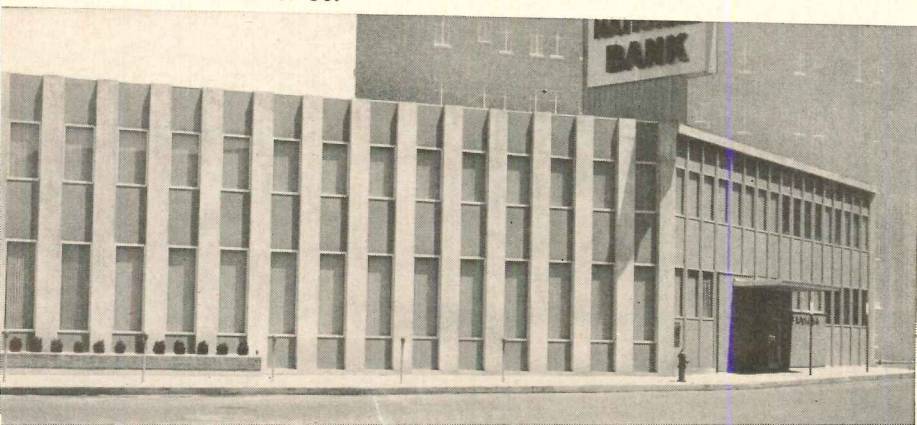
EFFICIENT PLANT, KANSAS—International Harvester, Wichita. *Architect:* Campbell Engineering Company. *Prime Contractor:* A. W. Soderberg Construction Company. *Masonry Contractor:* Kenneth D. King. *Masonry Cement:* United Cement Products Company. *Concrete:* Dolese Bros. Company.

QUIET CONVENT AND CHAPEL, NEW YORK—St. Theresa's, Ossining. *Architect:* Ferrenz & Taylor. *General Contractor:* Margotta Construction Company, Inc. *Lone Star Masonry Dealer:* Hudson River Yards Corporation. *"Incor" Concrete Block:* Castle Blocks, Inc.



AIR-CONDITIONED SCHOOL, ALABAMA—Central High School, Phenix City. *Architect:* Ted Sztowitz, A.I.A. *Prime Contractor:* Williams Construction Company. *Masonry Cement:* The Raiford Coal Company.

MODERN BANK, MISSISSIPPI—First National Bank of Meridian. *Architect:* Bank Building and Equipment Co. *General Contractor:* B. L. Knost. *Concrete:* Ready Mix Concrete Company. *Block:* Lyles Concrete Block Company. *Masonry Cement:* Kimbrell-Ruffer Lumber Co.



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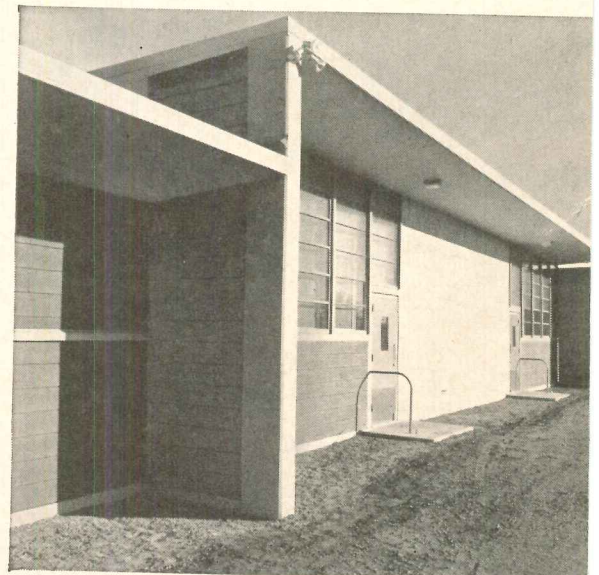
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RETRAINING CENTER, WASHINGTON—Yakima County Juvenile Detention Home, Yakima. *Architect:* Cowan & Paddock, *General Contractor:* Hills Construction Company. *Masonry Contractor:* Burl Thomas.



Time, Inc. Suspends Architectural Forum

By the time this reaches readers, most of them will know that Time, Inc. has announced that Architectural Forum is suspending publication. Thus a voice for architecture is silenced.

Most architects who have commented have reacted with shock and surprise. And regret. The shock and the regret I can share with them, but the surprise is a surprise to me. When the blow finally fell, there was a sense of shock, but I had been hearing of impending doom for 32 years.

The Forum was generally regarded as "a big and successful magazine," as one architect phrased it, but unfortunately the word "success" did not relate to its financial affairs. Each year, it seemed, there was a rumor that this time the Forum had to "get in the black, or else," but the cry of wolf-at-the-door had sounded too often to be really believed.

Why the losses? How could the Forum be a success and keep on losing money? In publishing parlance, the Forum chose to be a "horizontal" magazine, "The Magazine of Building." It sought, and achieved, a large and diverse audience. But a large and diverse audience is an expensive operation; the subscription price of a magazine never pays more than a small portion of the costs of publishing. The publisher of the horizontal magazine must then set advertising rates high enough to pay for high circulation, and the advertising world may, or may not, pay the price.

The horizontal magazine must pay another penalty—it can cover only lightly a specific area, in this case architecture. The Forum may have spoken for architects, but it didn't speak to them, and the professional circulation dwindled. Of its 64,000 total circulation, only 9,500 were architects (3,300 engineers).

ARCHITECTURAL RECORD started its life, back in 1891, as a horizontal, or general, magazine. It spoke about architecture to a general audience. For more than 20 years it supplied the lay public with critical pieces on architecture. But in the history of Dodge there is a little item dated May, 1914: "Dr. Michael A. Mikkelsen

became editor of the 'Architectural Record.' Decision reached to make the 'Architectural Record' a professional journal and less of a champion of architecture to the public." Well, "less of a champion" may not have been strictly accurate, for Mikkelsen championed at least one architect—when Frank Lloyd Wright was in a low period, in the twenties, Mikkelsen paid him a staggering sum for a series of articles, and thus was born the famous "The Nature of Materials." And FLLW was re-energized.

At any rate, for 50 years the RECORD has been working the other side of the street: the "vertical" not the "horizontal." It has been speaking to the profession. And its circulation figures reflect this concentration—20,500 architects and 10,700 engineers. The concentration appears in another fact about circulation: the RECORD sharply restricts its circulation outside of the profession. It is difficult to make most people believe that any publication restricts its circulation, but in business and professional fields many publications do.

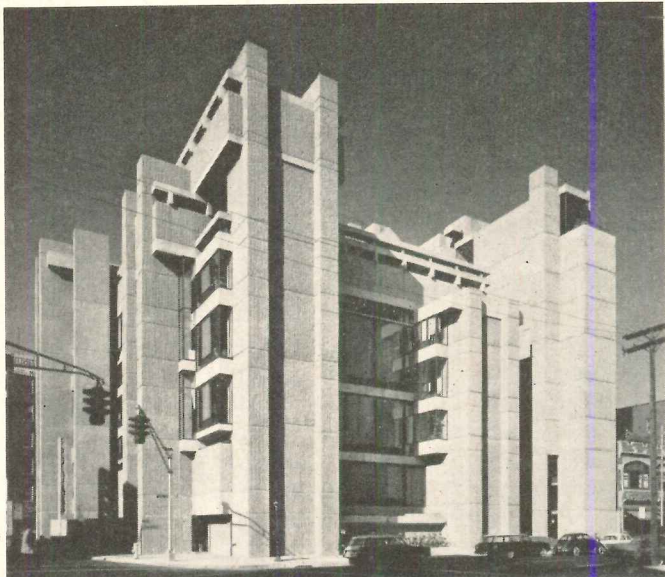
Both vertical and horizontal periodicals serve the field, but the vertical tends to penetrate more deeply into informational content, the other to fly farther out into generalization and publicity. Much oversimplified, the one informs while the other publicizes. When economic realities finally closed in on the Forum, architecture lost a good public relations medium.

Personally, I shall feel the loss of an adversary. In one way or another I have been in the position of competitor with the Forum for all of those 32 years. The two different approaches have not prevented our meeting in the middle with competitive intent. There are, of course, some others in the general melée of competition, but some of the fun will be missing.

P.S. At press time rumors are persistent that the Forum may move into a new incarnation, subsidized by its erstwhile parent, but published in some form of university.

—Emerson Goble

First Honor Awards



Joseph W. Molitor

School of Art and Architecture, 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

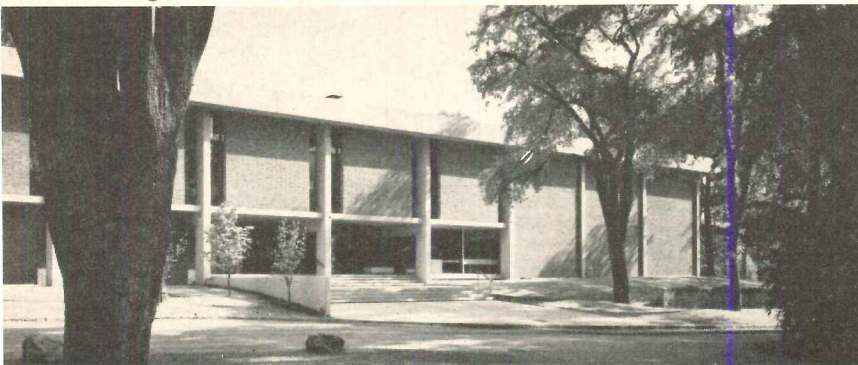
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**1964 A.I.A. AWARDS
 HONOR 16 PROJECTS**

Sixteen projects were premiated by a five-member jury of the American Institute of Architects in the highly competitive 1964 Honor Awards program. With a record number of 439 submissions of buildings completed in the past five years, the jury found such a "general high quality" that "the ultimate selection (was made) very difficult." Four buildings received First Honor Awards (shown on this page) and 12 projects were singled out for Awards of Merit (see pages 12-13). The jury was especially pleased to note that so many of the buildings were not only examples of distinguished design, but also that they clearly brought into view the architect's role in dealing with problems of function, economy, the solution of complex programs and the creation of "environmental harmony."

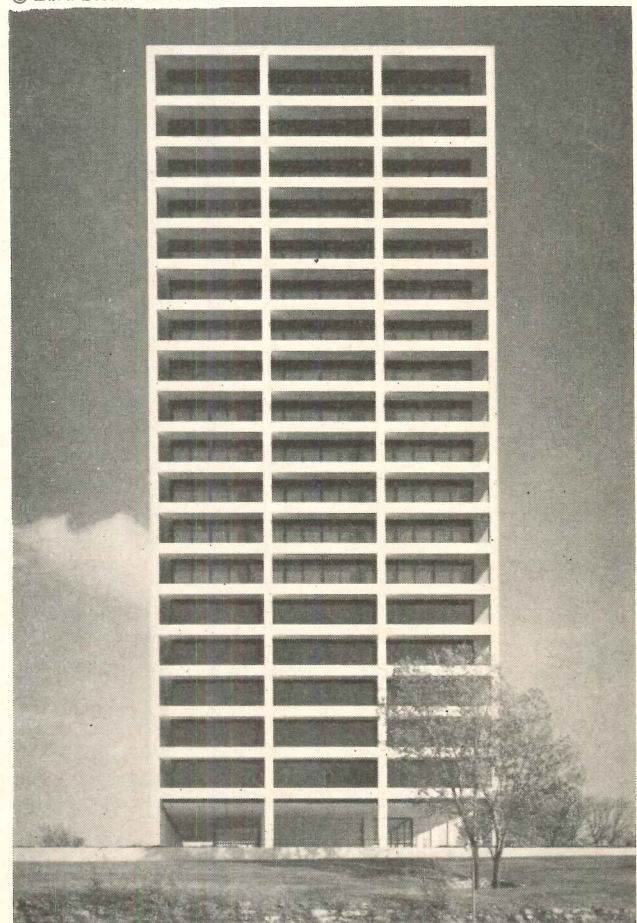
Their report stated that "each of the final 16 projects receiving awards exhibits a basic characteristic: a simple, strong and imaginative expression of a concept, resulting in a unified whole. Each reflects a self-imposed discipline by the architect, evident in his use of structure,

continued on page 12



Arts and Communication Center and Thomas M. Evans Science Building
 Phillips Academy, Andover, Massachusetts
 Architects: The Architects Collaborative
 Partner in Charge: Benjamin Thompson
 Structural Engineers: LeMessurier and Associates
 Mechanical Engineers: Francis Associates
 Acoustical Consultants (Art Center): Bolt, Beranek and Newman, Inc.
 Theater Consultant (Art Center): George Isenour
 General Contractor: George A. Fuller Company

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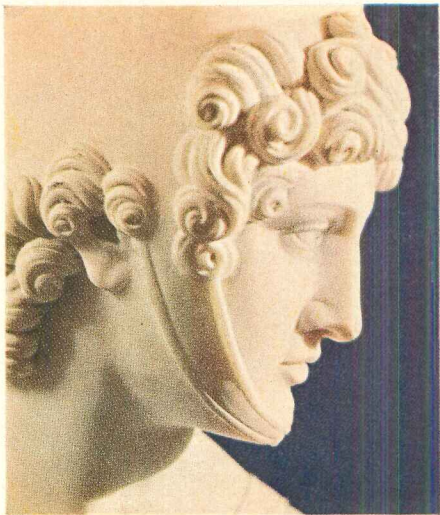
BMA Tower, Kansas City, Missouri
 Architects: Skidmore, Owings & Merrill
 Mechanical and Electrical Engineers:
 Black & Veatch, Consulting Engineers
 Owner: Business Men's Assurance Company
 General Contractor: Winn-Senter Construction Company



Emhart Manufacturing Company Headquarters Building
 Bloomfield, Connecticut
 Architects: Skidmore, Owings & Merrill
 Engineers: Paul Weidlinger and Weiskopf & Pickworth
 General Contractor: George A. Fuller Company

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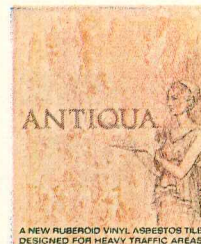
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A.I.A. Honor Awards Program

continued from page 10

his selection of materials, his responsiveness to the terrain, and his considered regard for the place of a building within a group."

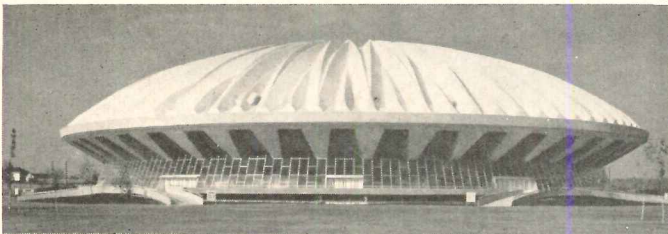
Furthermore, the jury "was gratified to find that so many of the award-winning projects reflected the architect's involvement with the environment extending beyond the individual building, beyond the immediate group of which it is a part, and on into the yet larger environment of the city as a whole. In this way the architect is demonstrating effectively the significance of his unique contribution as a responsible designer concerned with the environment as a three-dimensional reality composed of natural form and space, enhanced and completed by man-made form and space."

The report noted that "each selection lacks architectural cliches, avoids complicated and tortured structural effects, abhors the use of too many different materials and unmistakably reflects the function and purpose for which the project was designed. . . . The architects obtained character in the buildings by light and shadow, by the structure and material used, and not by inappropriate ornament or structural gymnastics."

Chairman of the jury was Charles M. Nes Jr., F.A.I.A., Baltimore, Md. The other members were: Charles A. Blessing, F.A.I.A., Detroit, Mich.; Mark G. Hampton, A.I.A., Tampa, Fla.; Eliot F. Noyes, F.A.I.A., New Canaan, Conn.; and Gyo Obata, A.I.A., East St. Louis, Ill.

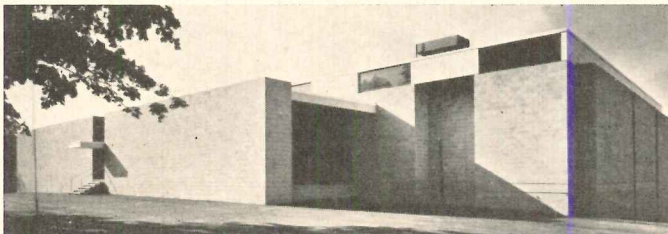
Awards of Merit

Hedrich-Blessing



Assembly Hall, University of Illinois, Urbana, Illinois
 Architects: Harrison & Abramovitz
 Structural Engineers: Ammann & Whitney
 Mechanical Engineers: Syska & Hennessy
 Acoustical Engineers: Bolt, Beranek & Newman, Inc.
 Landscape Architects: Clarke & Rapuano
 Lighting: Abe H. Feder
 General Contractor: Felmley-Dickerson Company

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Plant for Helen Whiting, Inc., Pleasantville, New York
 Architect: Ulrich Franzen
 Owner: Myron I. Sterngold
 General Contractor: James A. Jennings



Joseph W. Mottor

Constitution Plaza, Hartford, Connecticut

Architects: Charles DuBose (site planning and basic design of over-all project and components; general design coordination; landscaped plaza: north and south garages; east and west commercial buildings; research center; and brokerage house). Charles DuBose and Emery Roth & Sons, Associated Architects (100 Constitution Plaza office building). Charles DuBose and Curtis and Davis, Associated Architects (Hotel America). Fulmer and Bowers (Broadcast House). Kahn and Jacobs (One Constitution Plaza, for the owner). Carson, Lundin & Shaw (One Constitution Plaza, for the Connecticut Bank & Trust Company)
 Landscape Architects (landscaped plaza): Sasaki, Walker and Associates
 Lighting Consultant (landscaped plaza): Richard Kelly
 General Contractor: F. H. McGraw & Company

Bill Engdahl, Hedrich-Blessing

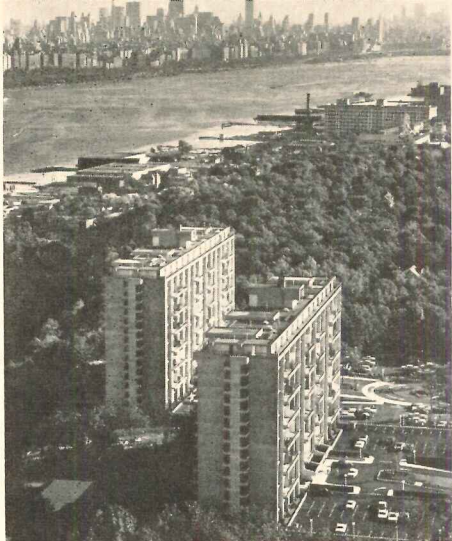


Memphis Metropolitan Airport, Memphis, Tennessee
 Architects: Mann & Harrover
 Structural Engineers: S. S. Kenworthy & Associates
 Mechanical and Electrical Engineers: Allen & Hoshall
 Graphic Design: Architectural Graphics Associates
 General Contractor: J. A. Jones Construction Company

Morley Baer



Carmel Valley Manor, Carmel Valley, California
 Architects: Skidmore, Owings & Merrill
 Landscape Architects: Sasaki, Walker & Associates
 Owner: Northern California Congregational Homes
 General Contractor: Williams & Burrows



Horizon House, Fort Lee, New Jersey
 Architects: Kelly & Gruzen
 Structural Engineers: Farkas & Barron
 Mechanical Engineers:
 Cosentini Associates
 Landscape Architect: Michael Burris
 Owner and General Contractor: Tishman
 Realty and Construction Company, Inc.



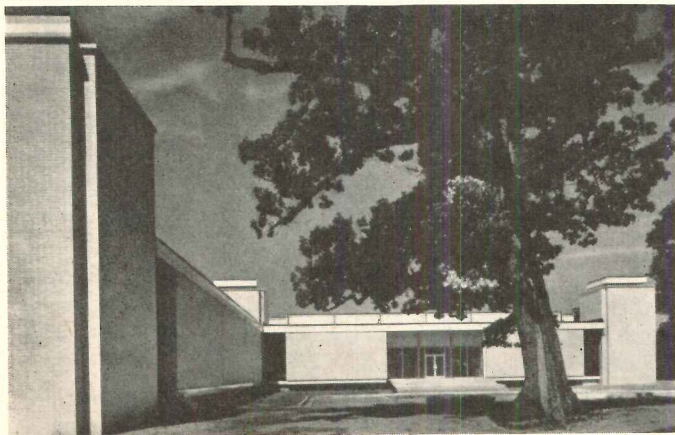
Julius Schulman

**Case Study House No. 25 for Arts and
 Architecture Magazine**
 Long Beach, California
 Architects: Killingsworth, Brady, Smith
 & Associates
 Owner: Edward Frank
 General Contractor: Stromberg and Son



Central Plaza Development, Canton, Ohio
 Architects: Tarapata-MacMahon
 Associates, Inc.
 Landscape Architects: Johnson, Johnson
 & Roy, Inc.
 General Contractor: The Melbourne
 Brothers Construction Company

Lawrence S. Williams, Inc.



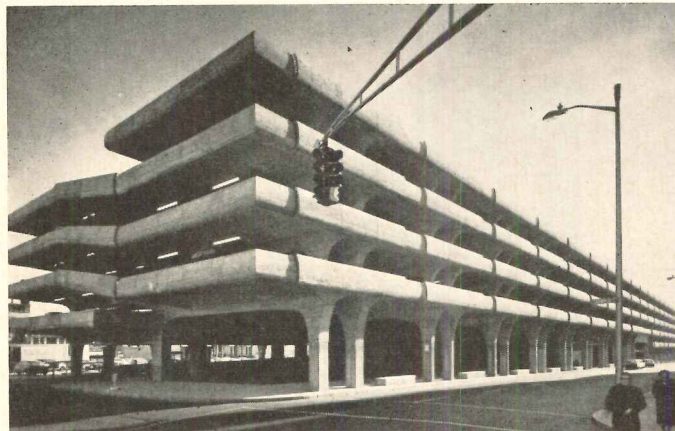
**Headquarters, Research and Production Laboratory for
 Molecular Electronics Division, Westinghouse Electric
 Corporation, Anne Arundel County, Maryland**
 Architect: Vincent G. Kling
 Structural Engineers: Allabach & Rennis
 Mechanical Engineers: Charles S. Leopold
 General Contractor: Kirby & McGuire, Inc.

Karl H. Riek



**St. Francis Square, Western Addition Redevelopment Area
 San Francisco, California**
 Architects: Marquis and Stoller
 Engineer: Eric Elsesser
 Landscape Architects: Lawrence Halprin & Associates
 Mechanical and Electrical Engineer: K. S. Oliphant
 Owner: ILWU-PMA Pension Fund Corporation
 General Contractor: Jack Baskin

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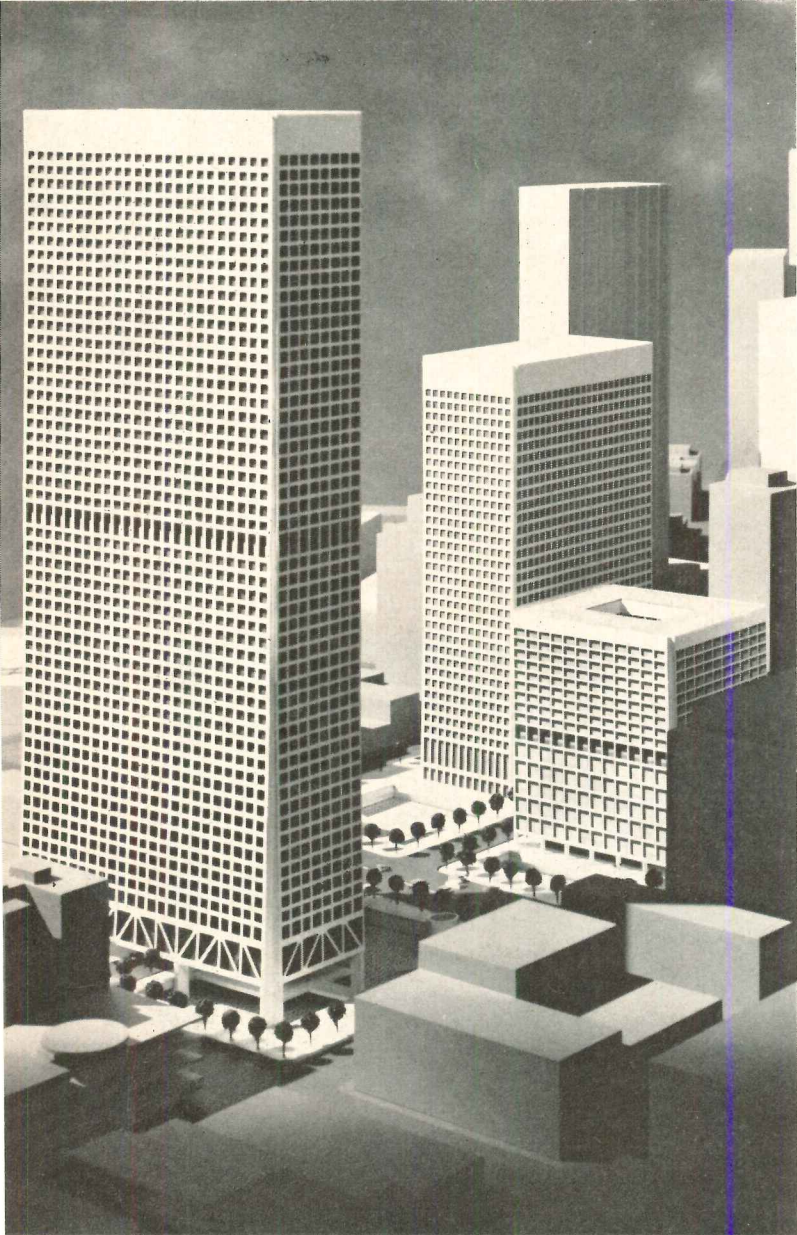


Temple Street Parking Garage, New Haven, Connecticut
 Architect: Paul Rudolph
 Structural Engineer: Henry A. Pfisterer
 General Contractor: The Fusco-Amatruda Company

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Residence, Dobbs Ferry, New York
 Architect: George Nemeny
 Owner: Ray Favata



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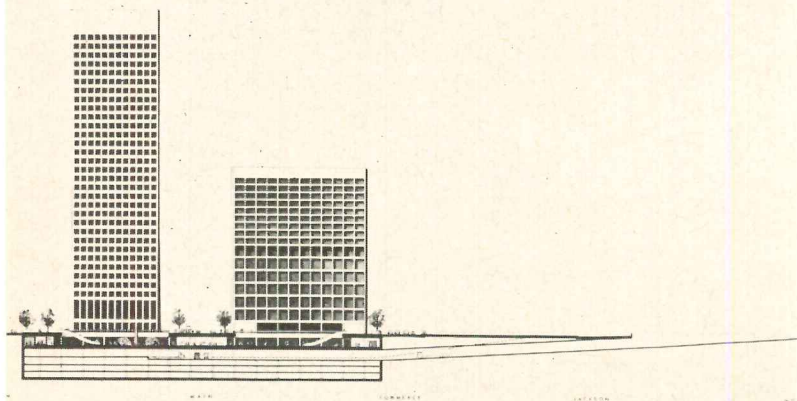
TEN-ACRE SUPERBLOCK PLANNED FOR DALLAS

A vast, privately-financed redevelopment project encompassing 10 acres of land in downtown Dallas has been planned as a single super-block sunk 15 feet below street level. A proposal for the revitalization of downtown Dallas was completed two years ago by the School of Architecture of Columbia University (ARCHITECTURAL RECORD, May 1962, pages 16-17). Now, the Dallas, Texas Corporation, owned by the Overton-Murchison interests of Dallas, has called upon the firm of Skidmore, Owings & Merrill, New York, in association with Harwood K. Smith & Partners, to develop a practicable and economically feasible scheme incorporating many of the Columbia Plan concepts.

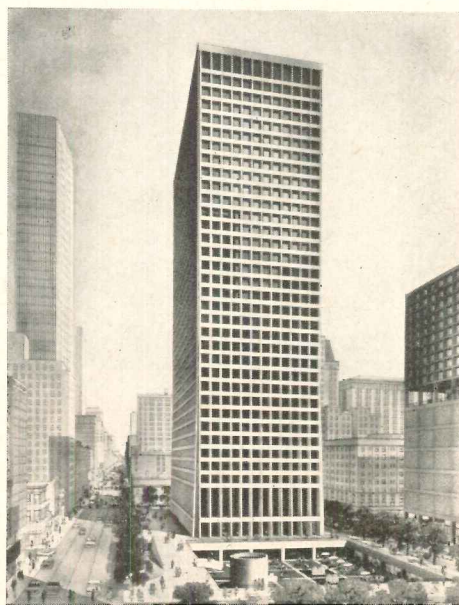
Ultimately to cost \$120 million, the project will be implemented in three phases and will include 2,400,000 square feet of office space, a 300,000-square-foot department store, a 400-room hotel, 225,000 square feet of retail shops, large open plazas, recreational and cultural facilities and a 3,500-car underground parking garage. It is expected that One Main Place, a 34-story, 450-foot-high, \$41 million office building, will be completed in the summer of 1967 and that by 1969 the entire project will be finished. On a plot of three acres, the first structure will cover only 25 per cent of the site, leaving 25,000 square feet for an outdoor plaza surrounded by 60,000 square feet of retail shops on the concourse below the street. The exterior of reinforced concrete with an exposed special aggregate will be a series of supporting columns tapering from the base to the top.

The construction of One Main Place will establish the three main principles upon which the over-all scheme is predicated: (1) to achieve "concentration without congestion" by separating the various forms of traffic movement; (2) to develop the concept of a "two-shift city" by programming the plazas for social activities after business hours; (3) to promote the development of neighboring sites by inviting peripheral buildings to connect under the street to Main Place.

Engineers are Paul Weidlinger, in association with Mullen & Powell, structural, and Herman Blum mechanical and electrical. Contractor is Henry C. Beck & Co.



Above: A section showing the five underground levels, extending 65 feet below street level, for pedestrian plazas, a tunnel for truck deliveries and three levels of parking. Right: One Main Place, first phase of the development



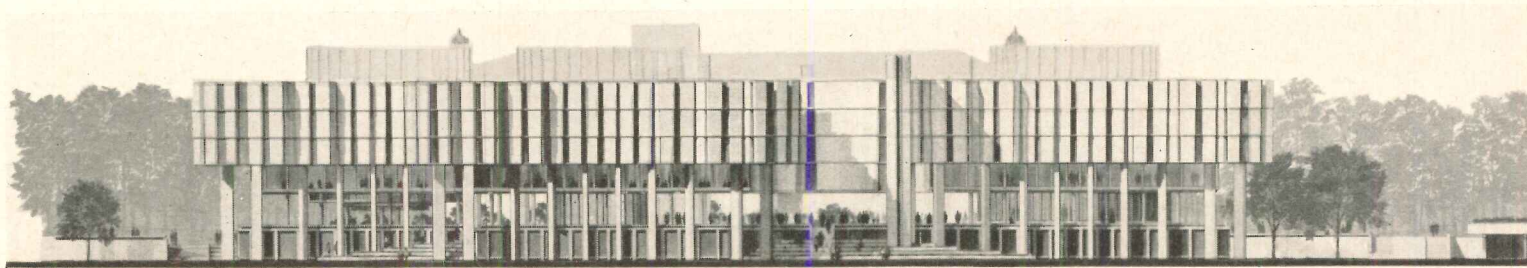
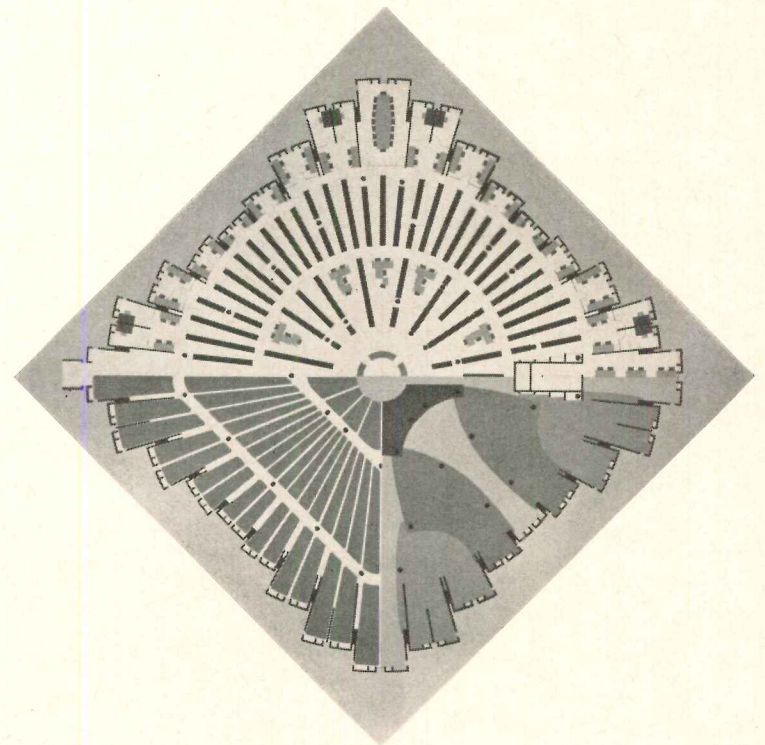
UNIVERSITY LIBRARY EMPLOYS RADIAL PLAN

By developing a new research library for Northwestern University as three separate though interconnected pavilions, architects Skidmore, Owings & Merrill found that the size of the facilities required (over 300,000 square feet of space housing more than 1,500,000 volumes) could be broken down in scale to relate architecturally to existing campus structures and future pedestrian traffic patterns as well as to relate more intimately the individual users to the library's specialized functions. The \$10 million "laboratory library" will be the key structure and intellectual hub of the university's new 74-acre Lake Campus located on filled-in land in Lake Michigan, integrating services for undergraduates, graduate students and faculty.

Students will enter the library through the main "lantern entrance" placed between the proposed south pavilion and the existing Deering Library, designed in Collegiate Gothic style by James Gamble Rogers. Below the concrete-terraced and brick-paved plaza, on the first floor, will be located the key services (reference and staff areas), and above the plaza, on the second floor, the pavilions will house the "core" collection of non-circulating books, the Reserve Room and the public and lounge areas. The basement will contain the newspaper and microtext collection, a data processing center and storage area with unfinished space for expansion.

The research collections on the upper three floors were designed by Walter A. Netsch Jr., general partner in charge of design of SOM's Chicago office, with an eye toward flexibility of space and privacy for self-study. The three pavilions, each approximately 135 feet square, will be connected by a diagonal circulation spine. In plan (see center right, alternate structural solutions showing floors and reflective ceilings) the stacks radiate from a central information point containing provisions for control and service. Interspersed between the stacks, students will find conveniently placed seats and tables. The perimeter of the upper floors is extended in a series of continuous varying bays, providing isolated areas related to the outdoors for seminars, faculty studies, carrels and typing rooms.

The exterior walls and columns will be sandblasted concrete. The interior materials of exposed concrete, plaster and glass were also chosen for reasons of maintenance and economy. Construction is expected to take two years and will start in the spring of 1965.



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*"I wouldn't build a warehouse
without your skylights,"*
says Mr. Harry C. Dickelman,
President of the General
Warehouse & Transportation Co.,
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Mr. Harry C. Dickelman, President of one of America's largest public merchandise warehousing companies, says his \$8,000 skydome installation pays for itself every 2½ years.

And he estimates that lighting his 60,000-sq.-ft. warehouse with skydomes, rather than with artificial light, will cut his electric bill by \$61,320 over the course of his 20-year lease.

That comes to about \$1-a-foot savings. He's planning another warehouse — 100,000 sq. ft. —

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

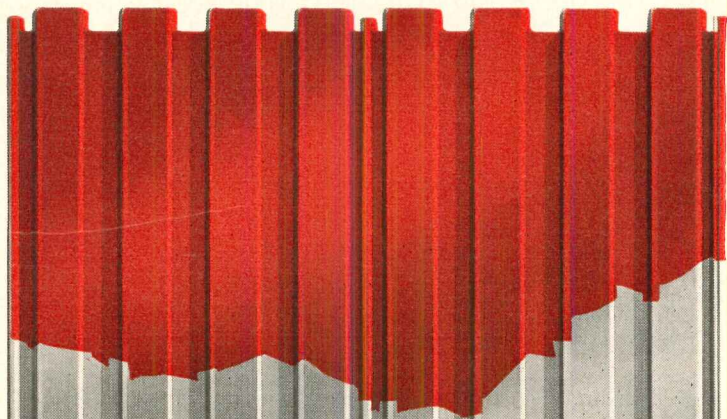
This case history is typical of the way Acrylite skydomes are cutting costs in industrial, commercial and educational buildings all over the country. Acrylite skydomes are made of tough acrylic plastic and durable aluminum. They're weatherproof, water-tight, shatter-resistant and virtually maintenance-free.

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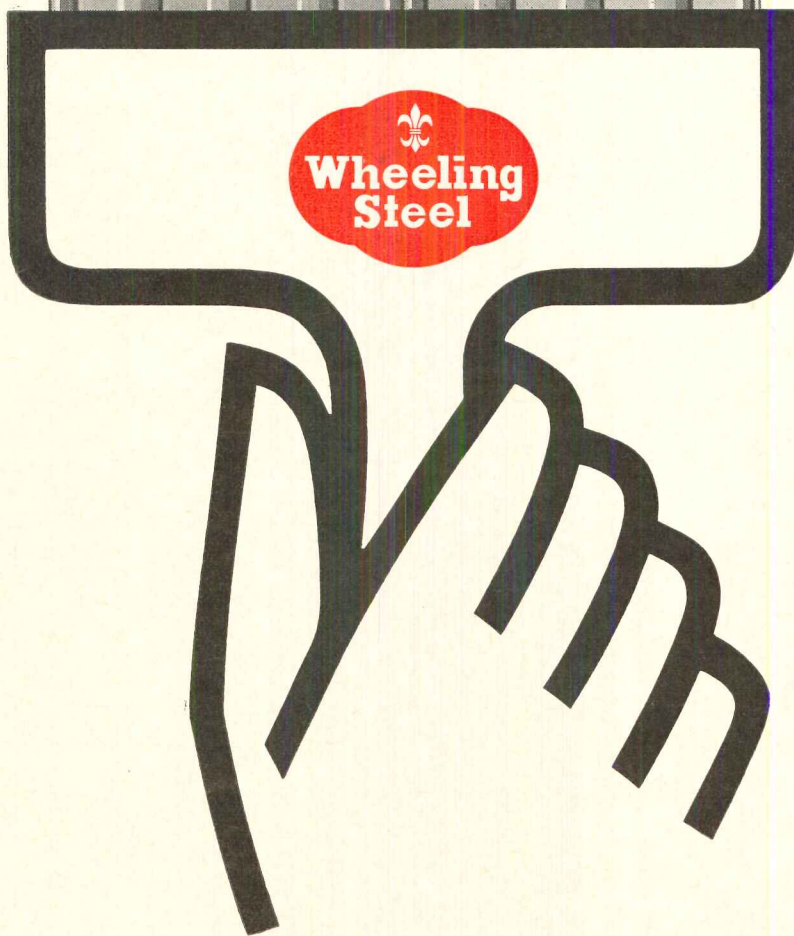


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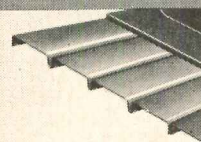
Get full details, including load tables, in Sweet's (File 2i/WH) or the big, new Wheeling Building Products File. See your Wheeling man or write direct.



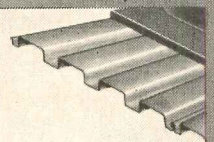
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1964 CONSTRUCTION OUTLOOK AT MIDYEAR

By George A. Christie, Senior Economist, F. W. Dodge Company, A Division of McGraw-Hill, Inc.

The short-term outlook for construction takes on even more than its usual importance this year. One of the main forces behind the three and a half year long period of general business expansion, the construction market is now considered by some observers to be over-extended, and to be one of the vulnerable sectors of the economy. Whether or not this is the case, just the sheer size of construction spending—representing better than one-tenth of all economic output—makes this sector a critical part of the over-all business outlook.

Dodge construction contract value provides the direct link between the current demand for building and the resulting expenditures for construction in the months following the contract reports. And for the immediate future, it's a good bet that construction spending will hold at close to the present record level. That much is indicated by the very heavy volume of contract value over the past seven months.

But what about the outlook for construction contracts in the remainder of this year? Can the extraordinary level of the past two quarters be maintained, or is the mild downward drift in the Index over the past few months an indication that a reversal is in the making? To answer this requires a closer look at the demand for individual types of building.

Nonresidential building, paced by substantial gains in manufacturing plants and hospitals, will show the largest percentage increase in 1964 of the three basic construction categories. The key to manufacturing contracts in 1964 is the McGraw-Hill survey of businessmen's capital spending plans, which have been revised upward substantially since last October. These plans are already being translated into orders for new construction. This year's contracts will likely reach \$2.8 billion for a more than 20 per cent gain.

Hospital contracts are also heading for an increase in the neighborhood of 20 per cent this year. Early 1964 experience has shown no letup in the sharply rising trend of the past few years, and soon the new

Mental Health Facilities Act will add its additional weight to the support already provided by Hill-Burton and other Federal hospital aid programs.

Educational building is also up sharply in 1964 in response to an urgent need for college and university classrooms. With the added support of the new Higher Educational Facilities Act, which takes effect at mid-1964, contracts for school construction will likely reach \$3.5 billion this year for a 5 per cent gain—the strongest advance in several years.

Commercial building in 1964 continues to be a tug-of-war, with gains in stores more than offsetting a decline in office buildings for a net increase of about 4 per cent. Among the remaining nonresidential building types, public building contracts will be down this year, religious will be up moderately, while social and recreational, and other miscellaneous building types hold about even.

Both apartments and single fam-

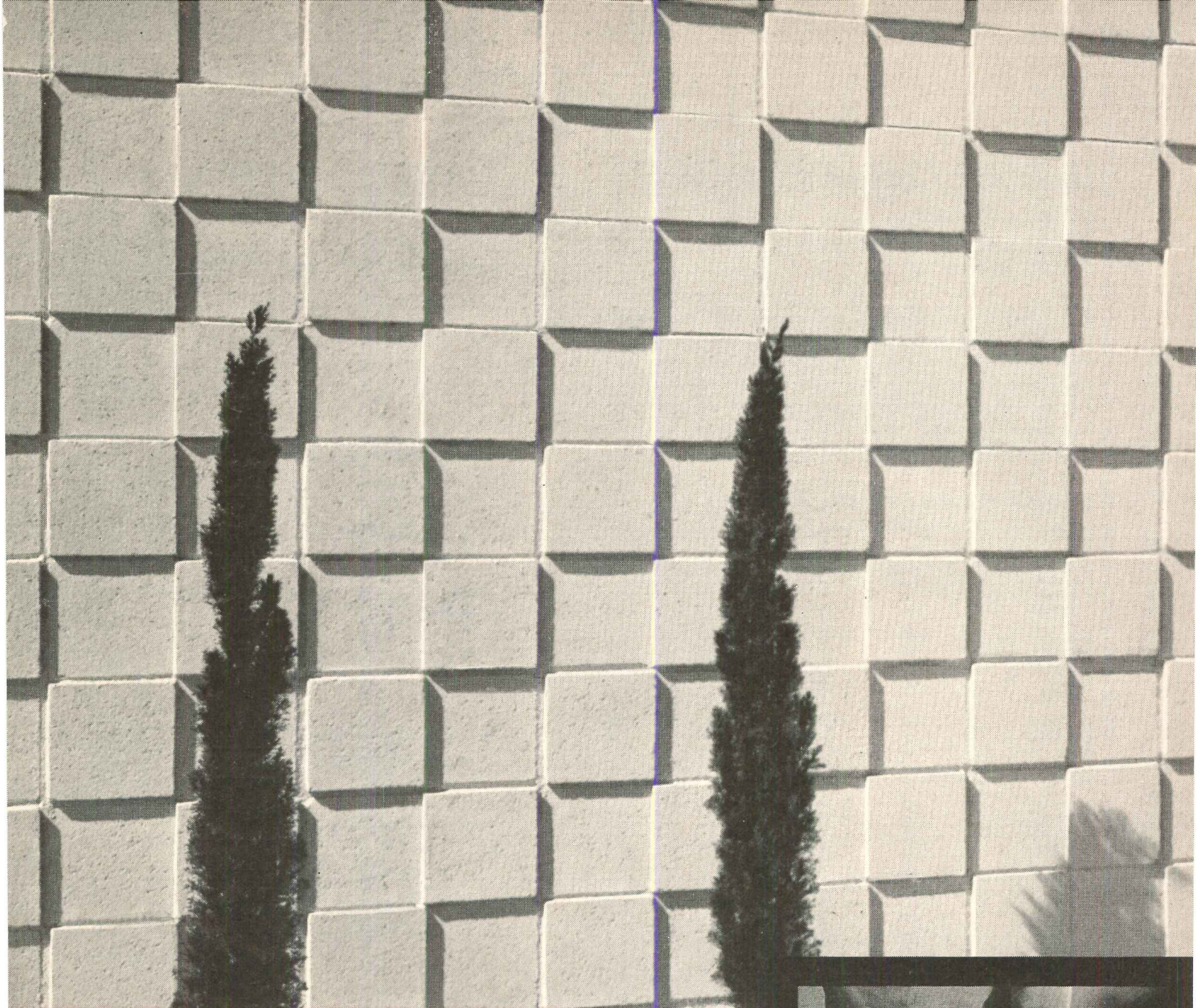
ily homes are due to show a gain in contract value this year, but for apartments the increase will be small compared to those of the past few years. Although the longer term demand for rental units remains strong, there are signs of a temporary excess of apartment space in some regions. An easing back from recent peak building rates will take place for a time, but single family demand should remain strong throughout the balance of the year. Total residential building will end the year with an over-all gain of about 5 per cent.

For all of 1964, total nonbuilding (public works, utilities, military, etc.) construction contract value will add to about \$11.1 billion, up 4 per cent from last year.

The value of all construction contracts in 1964 will amount to \$48.2 billion for a 6 per cent increase. The table below shows the revised 1964 Dodge outlook by individual building types:

REVISED OUTLOOK FOR 1964 F. W. DODGE CONSTRUCTION CONTRACTS

Type of Construction	Value of Contracts (Millions of Dollars)		Per Cent Change 1964/1963
	1963	1964 est.	
NONRESIDENTIAL BUILDINGS			
Commercial	4,445	4,625	+ 4
Manufacturing	2,274	2,800	+23
Educational	3,314	3,500	+ 6
Hospital & Institutions	1,485	1,750	+18
Public Buildings	964	875	-10
Religious	755	800	+ 6
Social & Recreational	648	650	—
Miscellaneous	493	500	—
Total	14,378	15,500	+ 8
RESIDENTIAL BUILDINGS			
One & Two Family	13,956	14,800	+ 6
Apartments	5,287	5,550	+ 5
Other Residential	1,259	1,250	—
Total	20,502	21,600	+ 5
NONBUILDING CONSTRUCTION	10,667	11,100	+ 4
TOTAL CONSTRUCTION	45,546	48,200	+ 6



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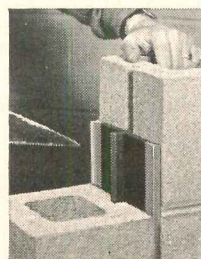
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- Phoenix, Ariz., P.O. Box 49
- Aurora, Ill., 260 S. Highland Ave.
- Seattle, Wash., 3310 Wallingford Ave.
- Minneapolis, Minn., 2653 37th Ave. So.
- Hamilton, Ont., Canada, 789 Woodward Ave.

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Building Construction Costs

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

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

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

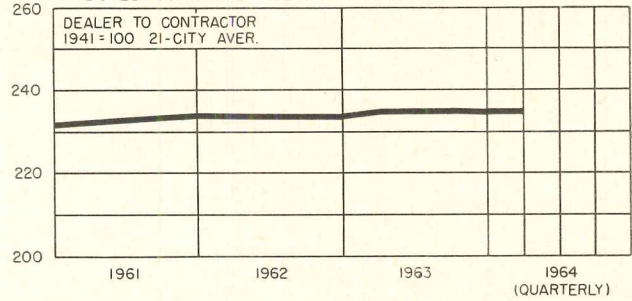
Metropolitan Area	Cost Differential	Current Dow Index		Per Cent Change Year Ago Res. & Nonres.
		Residential	Nonresidential	
U.S. AVERAGE—21 Cities	8.5	263.9	281.1	+2.55
Atlanta	7.1	297.6	315.6	+2.94
Baltimore	8.0	266.6	283.6	+2.16
Birmingham	7.4	244.5	262.9	+3.01
Boston	8.4	236.9	250.8	+2.61
Chicago	8.8	293.6	308.9	+2.66
Cincinnati	8.8	254.5	270.5	+2.45
Cleveland	9.3	266.2	283.0	+2.31
Dallas	7.8	250.2	258.3	+1.58
Denver	8.3	271.9	289.0	+3.77
Detroit	8.9	265.3	278.5	+2.84
Kansas City	8.3	238.1	252.0	+2.38
Los Angeles	8.4	266.8	292.0	+2.14
Miami	8.4	262.7	275.7	+2.91
Minneapolis	8.9	264.9	281.6	+2.42
New Orleans	7.9	240.2	254.5	+1.82
New York	10.0	272.5	293.1	+1.88
Philadelphia	8.7	264.3	277.5	+3.23
Pittsburgh	9.1	249.5	265.2	+2.50
St. Louis	8.9	256.6	271.8	+2.48
San Francisco	8.5	336.6	368.3	+2.82
Seattle	8.5	242.1	270.6	+2.33

B. HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES
 1941 average for each city = 100.0

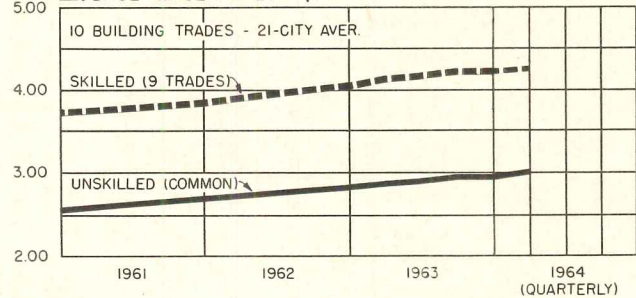
Metropolitan Area	1952	1957	1958	1959	1960	1961	1962	1963 (Quarterly)				1964 (Quarterly)					
								1st	2nd	3rd	4th	1st	2nd	3rd	4th		
U.S. AVERAGE 21 Cities	213.5	244.1	248.9	255.0	259.2	264.6	266.8	269.4	270.3	273.4	275.0	274.7	274.7	274.7	274.7	274.7	274.7
Atlanta	223.5	269.6	277.7	283.3	289.0	294.7	298.2	302.0	303.0	305.7	307.5	310.0	310.0	310.0	310.0	310.0	310.0
Baltimore	213.3	249.4	251.9	264.5	272.6	269.9	271.8	272.3	272.9	275.5	277.1	277.2	277.2	277.2	277.2	277.2	277.2
Birmingham	208.1	228.6	233.2	233.2	240.2	249.9	250.0	251.3	252.0	256.3	257.8	258.0	258.0	258.0	258.0	258.0	258.0
Boston	199.0	224.0	230.5	230.5	232.8	237.5	239.8	240.4	241.2	244.1	245.6	246.1	246.1	246.1	246.1	246.1	246.1
Chicago	231.2	267.8	273.2	278.6	284.2	289.9	292.0	296.4	296.4	301.0	302.8	302.2	302.2	302.2	302.2	302.2	302.2
Cincinnati	207.7	245.1	250.0	250.0	255.0	257.6	258.8	260.0	260.7	263.9	265.5	265.1	265.1	265.1	265.1	265.1	265.1
Cleveland	220.7	258.0	257.9	260.5	263.1	265.7	268.5	272.3	272.8	275.8	277.4	276.3	276.3	276.3	276.3	276.3	276.3
Dallas	221.9	228.4	230.5	237.5	239.9	244.7	246.9	251.5	252.2	253.0	254.5	253.7	253.7	253.7	253.7	253.7	253.7
Denver	211.8	245.6	252.8	257.9	257.9	270.9	274.9	275.0	275.4	282.5	284.2	282.6	282.6	282.6	282.6	282.6	282.6
Detroit	197.8	237.4	239.8	249.4	259.5	264.7	265.9	267.1	267.9	272.2	273.8	272.7	272.7	272.7	272.7	272.7	272.7
Kansas City	213.3	230.5	235.0	239.6	237.1	237.1	240.1	242.3	242.9	247.8	249.3	246.2	246.2	246.2	246.2	246.2	246.2
Los Angeles	210.3	248.4	253.4	263.5	263.6	274.3	276.3	279.1	279.7	282.5	284.2	284.0	284.0	284.0	284.0	284.0	284.0
Miami	199.4	234.6	239.3	249.0	256.5	259.1	260.3	262.4	266.7	269.3	270.9	270.1	270.1	270.1	270.1	270.1	270.1
Minneapolis	213.5	235.6	249.9	254.9	260.0	267.9	269.0	271.4	272.1	275.3	276.9	275.0	275.0	275.0	275.0	275.0	275.0
New Orleans	207.1	232.8	235.1	237.5	242.3	244.7	245.1	246.5	246.5	248.3	249.8	247.1	247.1	247.1	247.1	247.1	247.1
New York	207.4	240.4	247.6	260.2	265.4	270.3	276.0	280.9	280.9	282.3	284.0	284.8	284.8	284.8	284.8	284.8	284.8
Philadelphia	222.3	255.0	257.6	262.8	262.8	265.4	265.2	265.6	265.6	271.2	272.8	271.1	271.1	271.1	271.1	271.1	271.1
Pittsburgh	204.0	234.1	236.4	241.1	243.5	250.9	251.8	255.0	256.1	258.2	259.7	260.8	260.8	260.8	260.8	260.8	260.8
St. Louis	213.1	237.4	239.7	246.9	251.9	256.9	255.4	260.1	262.4	263.4	265.0	266.8	266.8	266.8	266.8	266.8	266.8
San Francisco	266.4	302.5	308.6	321.1	327.5	337.4	343.3	350.1	350.1	352.4	354.5	358.2	358.2	358.2	358.2	358.2	358.2
Seattle	191.8	221.4	225.8	232.7	237.4	247.0	252.5	256.5	257.8	260.6	262.2	260.1	260.1	260.1	260.1	260.1	260.1

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.

1. BUILDING MATERIAL PRICE INDEXES



2. BASE WAGE RATES \$/HR.



3. MONEY RATE & BOND YIELDS %

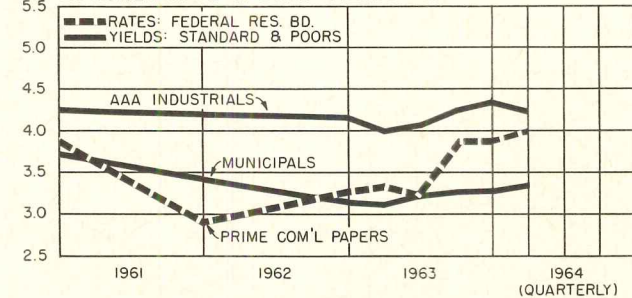
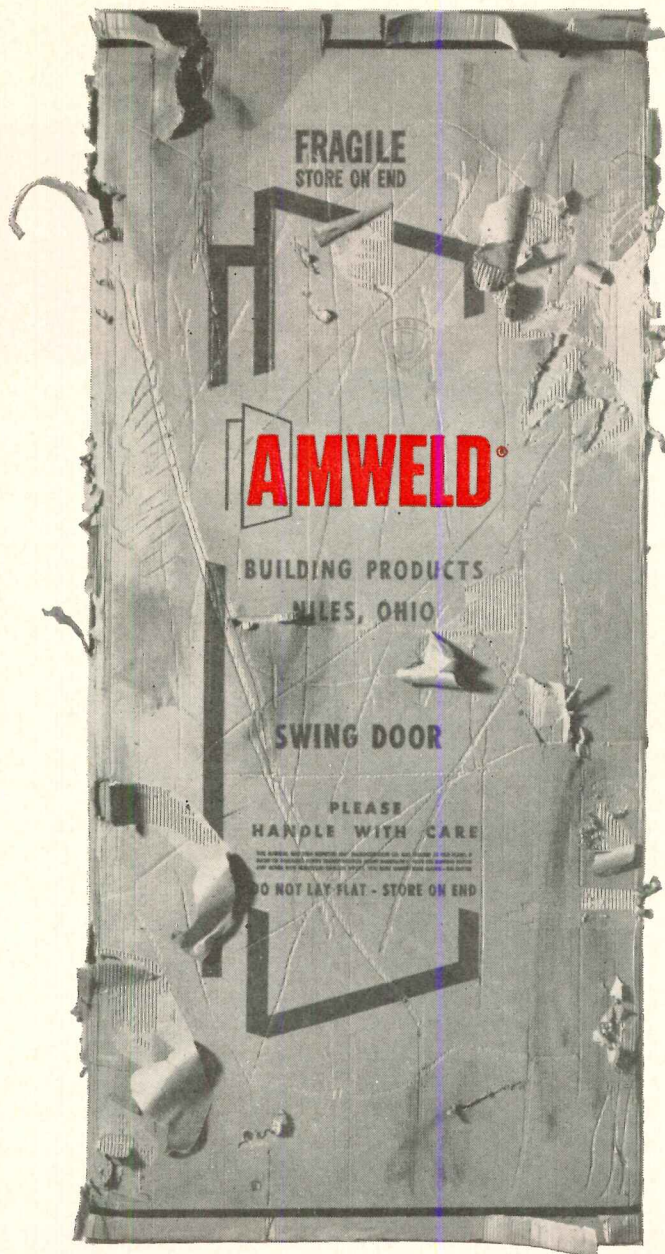


TABLE B. Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if index for a city for one period (200.0) divided by index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than those of the other. 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.



A Funny Thing Happened On The Way To The Jobsite!

We asked the truck driver to test this new protective carton especially created for AMWELD steel doors.

BOY . . . did he test it!

He really made a mess of the carton. But he never touched the AMWELD steel door packed safely inside. Our engineers said they had designed the finest protective carton in the industry. Now we believe them.

Every AMWELD "clean line" door is wrapped in this rugged carton. If it should get chewed up somehow on its way to you . . . the only thing you're likely to lose is the carton. And frankly (even though it is attractive) we recommend that you throw away the carton anyhow!

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24



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INSTANT ELEVATORING*

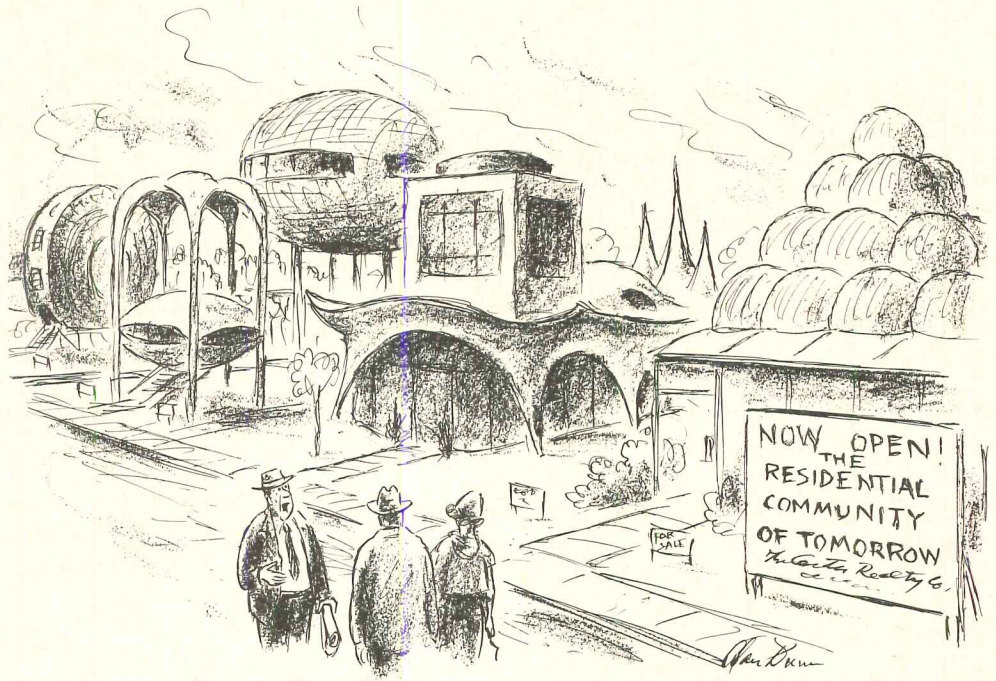
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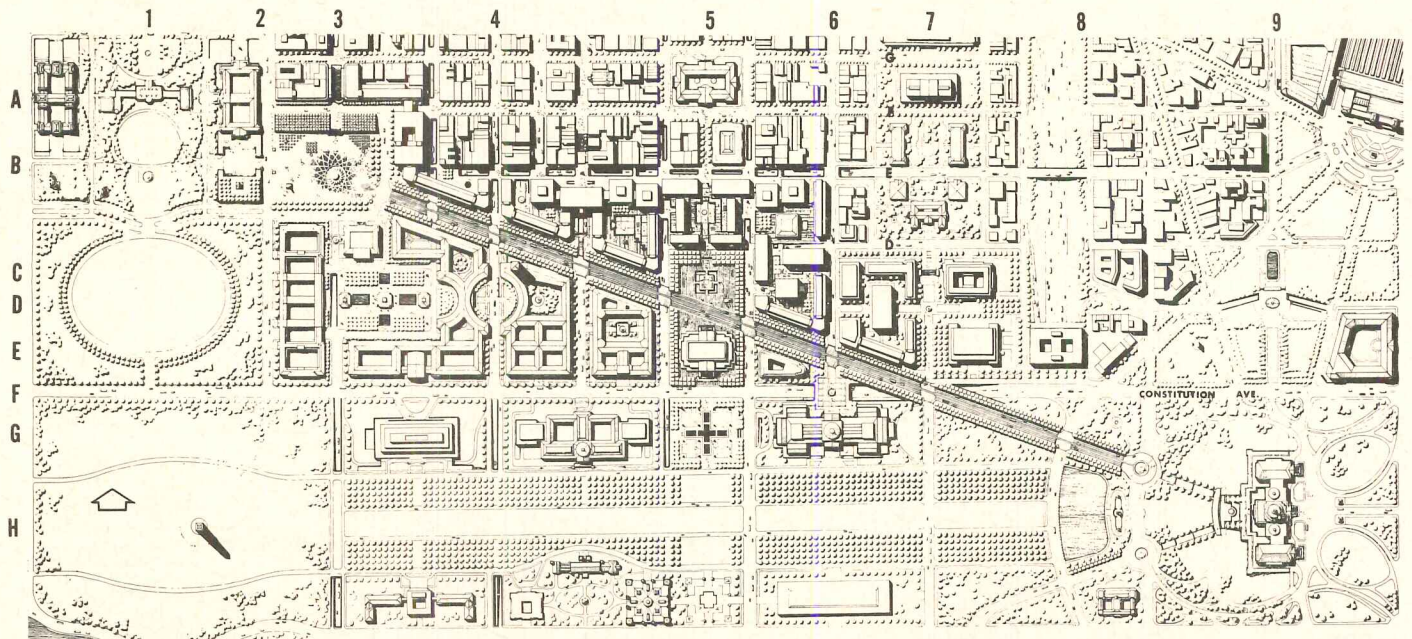
—Drawn for the RECORD by Alan Dunn

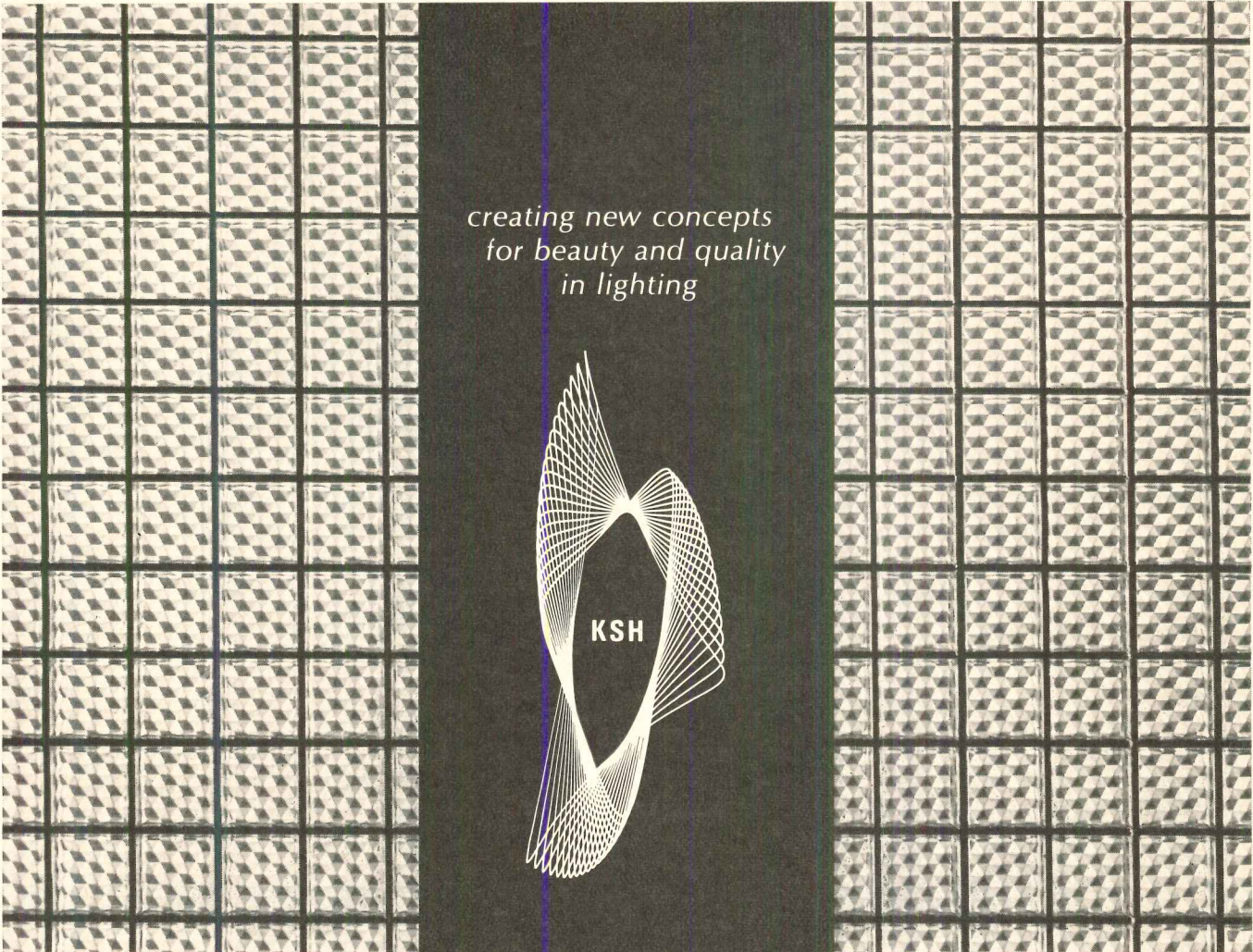
PLAN PRESCRIBES A GRAND NATIONAL AXIS FOR REDEVELOPMENT OF PENNSYLVANIA AVENUE

Whether or not L'Enfant's lofty dreams for the building of the Nation's Capital on a grandiloquent scale will find its next generation of architects in the 1960's is now a matter of governmental approval, for an over-all scheme for the rehabilitation of Pennsylvania Avenue and

adjacent areas has just been completed by a nine-member council appointed by President Kennedy in June, 1962. If the plan is carried forth, it will be a legacy from the late President, who, following the recommendation of a special Ad Hoc Committee on Federal Office Space

(ARCHITECTURAL RECORD, July 1962, page 26 et. seq.) sought to establish means for making Pennsylvania Avenue truly "the 'grand axis' of the city as of the nation." On the President's Council were: Nathaniel A. Owings, F.A.I.A., chairman; Fred
continued on page 26





*creating new concepts
for beauty and quality
in lighting*



THE NEW K-11 BY K-S-H "LATTICE IN CRYSTAL"

Beauty-wise, it is unique. Sharp-cut prisms in a lattice-like pattern of aluminum accents. Elegant is the word. Lighting-wise, K-11 could be called a contemporary eggcrate. The combination of lens and lattice provides superior lamp shielding that practically eliminates lamp images. And K-11 delivers high footcandles with low brightness; stays clean; washes easy. In $\frac{1}{4}$ " acrylic or polystyrene.

Remember, lighting is only as good as the lens you choose. And the best is the most economical. Specify K-Lite by K-S-H . . . available from most major fixture manufacturers.

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KLITE[®]
LIGHTING PANELS

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AGAINST
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YET
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SPECIFICATIONS

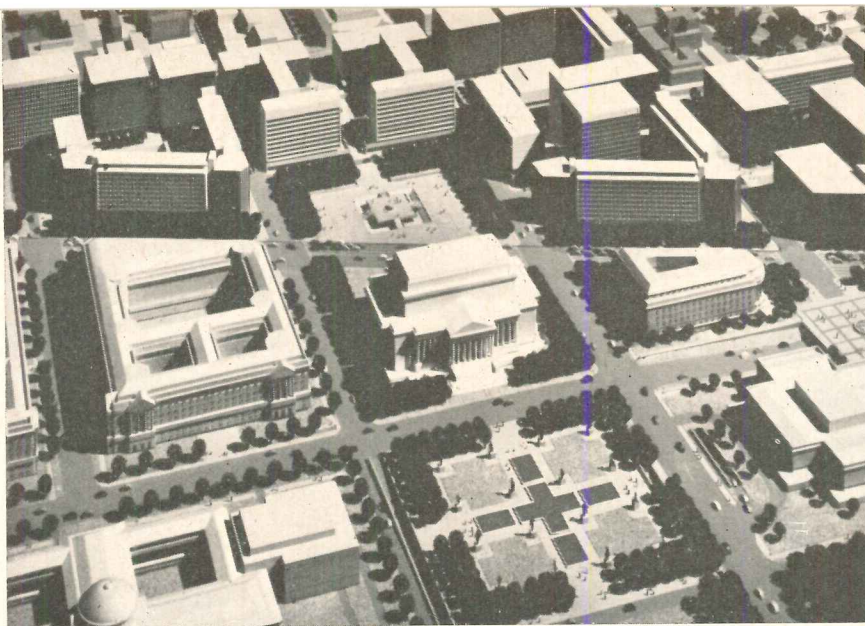
Model No.	10 ABC	Height	21½"
Capacity, Lbs.	10	Width	7"
Underwriters Rating	2 A16BC	Cylinder Dia.	5"
		Mounting	Hook
Wt., Filled	19½ Lbs.	Operating Temp.	-40° to +120°

Equal to 2½ gal. water and 4-5 lbs. CO₂ min.
Meets Gov't I.C.C. Specification 4B240ET.

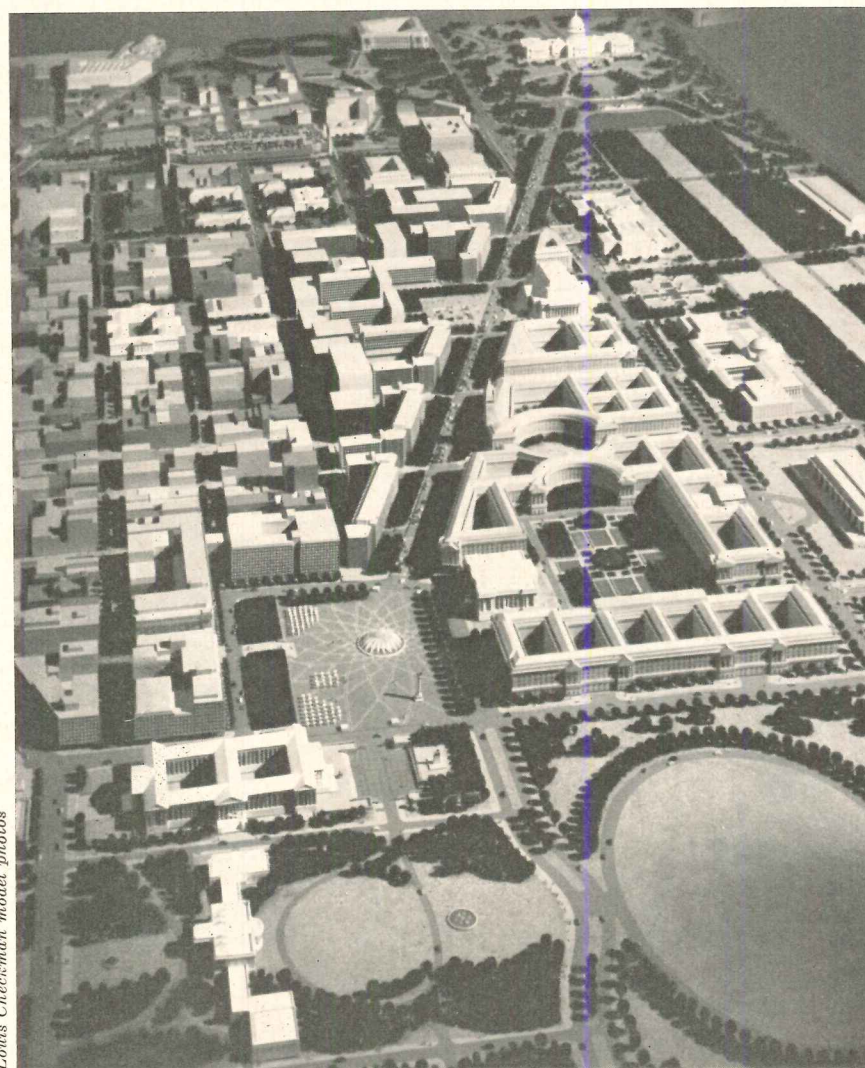
Here's the newest, most improved fire extinguisher ever designed. Allen's new ABC model fights any class fire—ordinary combustible materials (Class A); flammable liquids (Class B); or electrical wiring and equipment (Class C). Most important, Allen's ABC weighs only 19½ lbs. filled; is smaller than a 2½ gallon water extinguisher. And it's easy and quick to operate. A slight squeeze on the lever-handle instantly discharges fire-smothering dry chemical. Ask your Allen representative for complete specifications today, or write:

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Archives Building (center) as fulcrum of new north-south commercial axis



Pennsylvania Avenue, from the National Square (foreground) to Capitol Plaza

Louis Checkman model photos



Artist's sketch of the National Square, leading to the White House Gate

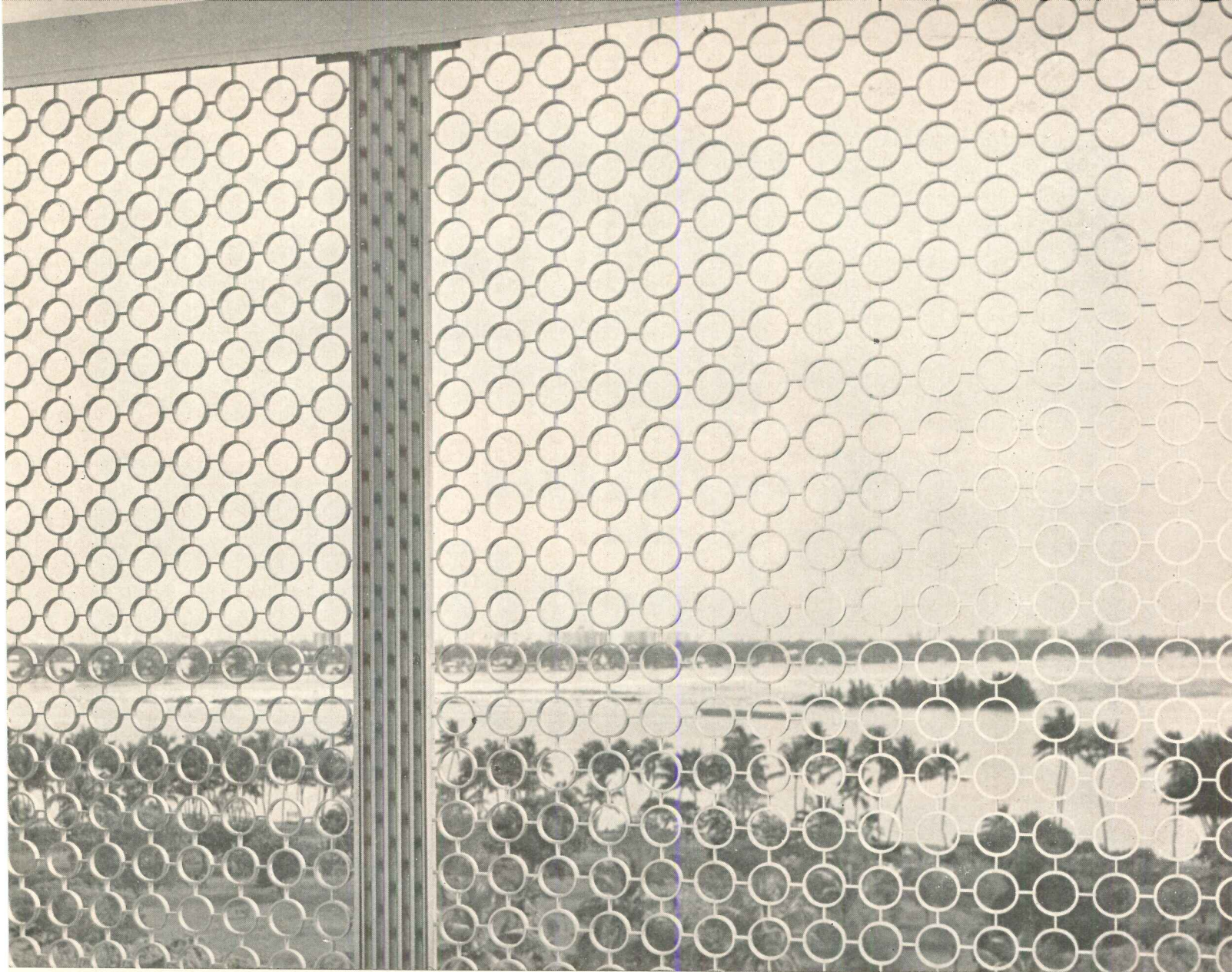
continued from page 23

erick Gutheim, president, Washington Center for Metropolitan Studies; Douglas Haskell, F.A.I.A., editor, Architectural Forum; Frederick L. Holborn, special assistant in the White House; Daniel U. Kiley, site and landscape architect; Daniel P. Moynihan, Assistant Secretary of Labor; Chloethiel Woodard Smith, F.A.I.A.; Paul Thiry, F.A.I.A.; Ralph Walker, F.A.I.A.; and William Walton, chairman, Commission of Fine Arts.

The Council followed the guidelines set down by the Ad Hoc Committee's report—to regard the Pennsylvania Avenue Project as a continuation of the work of the Federal Triangle begun in the 1920's; to emphasize the central role of the Capitol; to provide for a mixture of public and private activities; and to create an avenue that will be "lively, friendly and inviting, as well as dignified and impressive." Yet the Council's proposals extend far beyond these in scope, merging both linear and area concepts of planning with a "platform concept" for dealing with the problems of traffic, pedestrian circulation, land use and zoning.

Underlying their recommendation were six basic premises: (1) plans for the avenue should be related integrally to the development of adjoining areas with provisions for pedestrian movement on two levels, multilevel traffic circulation, underground parking, and the use of E Street as a feeder and service street; (2) as the Nation's ceremonial way, the avenue should be "a boulevard deep in trees, with a rich pavement like a welcoming carpet, its broad sidewalks stepped up in three stages like a grandstand"; (3) Pennsylvania Avenue should "do honor to its lofty destinations" by creating imposing terminations at the Capitol and at the White House; (4) the two sides of the avenue should be harmoniously linked by continuous building heights, colonnades and arcades (on the north side) and cross-links connecting to the central business district; (5) the avenue should be pleasant for both walking and driving; (6) the avenue should be re-

continued on page 272



Architect: Rader and Associates, Miami, Fla.

DECOR PANELS BY BORDEN

You are looking through Borden's Deca-Ring style Decor Panels out over Biscayne Bay, Miami, Florida. This is one of the views you would have if you parked your car in the multi-level parking facility in downtown Miami, where Borden Deca-Ring provides safety, ventilation and a touch of luxury with efficient use of materials.

The Deca-Ring screens are the only siding used on an otherwise stark concrete frame. Individual panels of Deca-Ring are outlined with Decor-Plank to give strength to the design.

Sturdy lightweight Decor Panels in their many types and variations are finding widespread use as facades for buildings, grilles, dividers and like applications. These practical aluminum panels provide safety, access for light and air, and enjoy a long maintenance-free life.

Write for complete information on this and the other Borden Decor Panels, including Deca-Gril, Deca-Grid, Decor-Plank and their many variations and subtypes.

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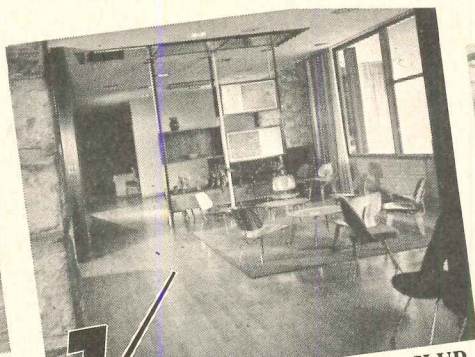
PLANTS AT: LEEDS, ALABAMA; UNION, NEW JERSEY; CONROE, TEXAS

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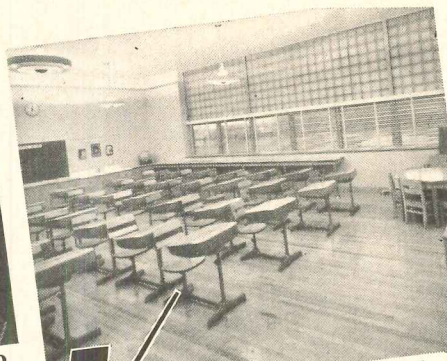
For more data, circle 11 on Inquiry Card



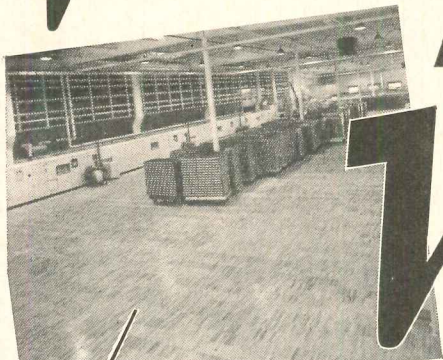
Versatility! GYMNASIUM



Versatility! COUNTRY CLUB



Versatility! CLASSROOM



Versatility! BAKERY

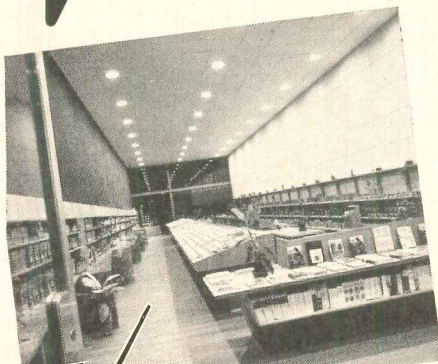
ALL FLOORED
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Versatile!

NORTHERN HARD MAPLE

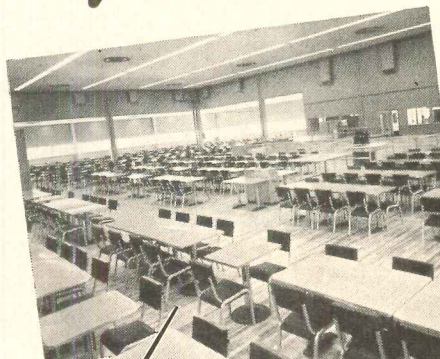


Versatility! WAREHOUSE

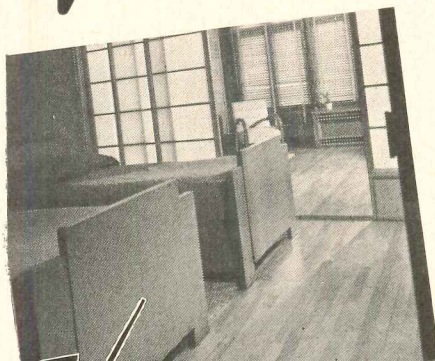


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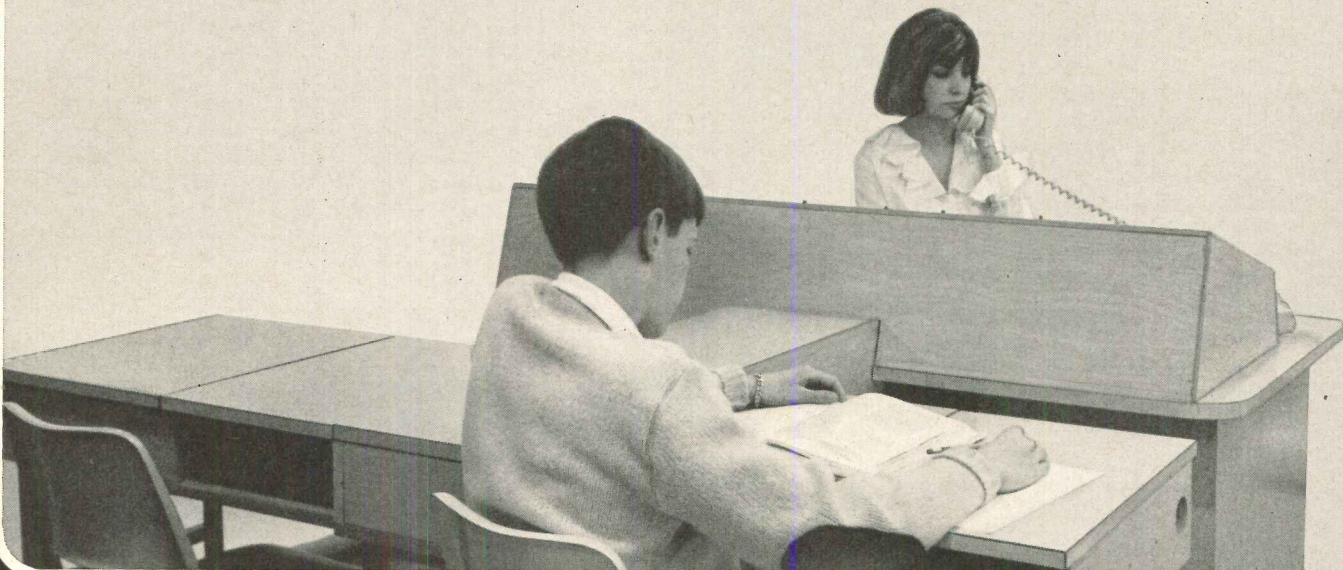
GD/E Electronic Communications makes fire alarm systems. With alarm bells. Smoke detectors. And something new: Vox Guide! Vox Guide fights panic and confusion with the spoken word. When a GD/E fire alarm rings, Vox Guide automatically cuts into the regular P.A. system . . . and cuts out all other sound. A continuous tape cartridge plays a pre-recorded emergency instructional tape. And calm, safe evacuation is facilitated. Can you think of a school, apartment, office, plant, or institution that should have the world's first—and only—automatic talking fire alarm? We can.

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Like an Electronic Educator that can switch in one minute flat from "¡No tengo ninguno dinero!"

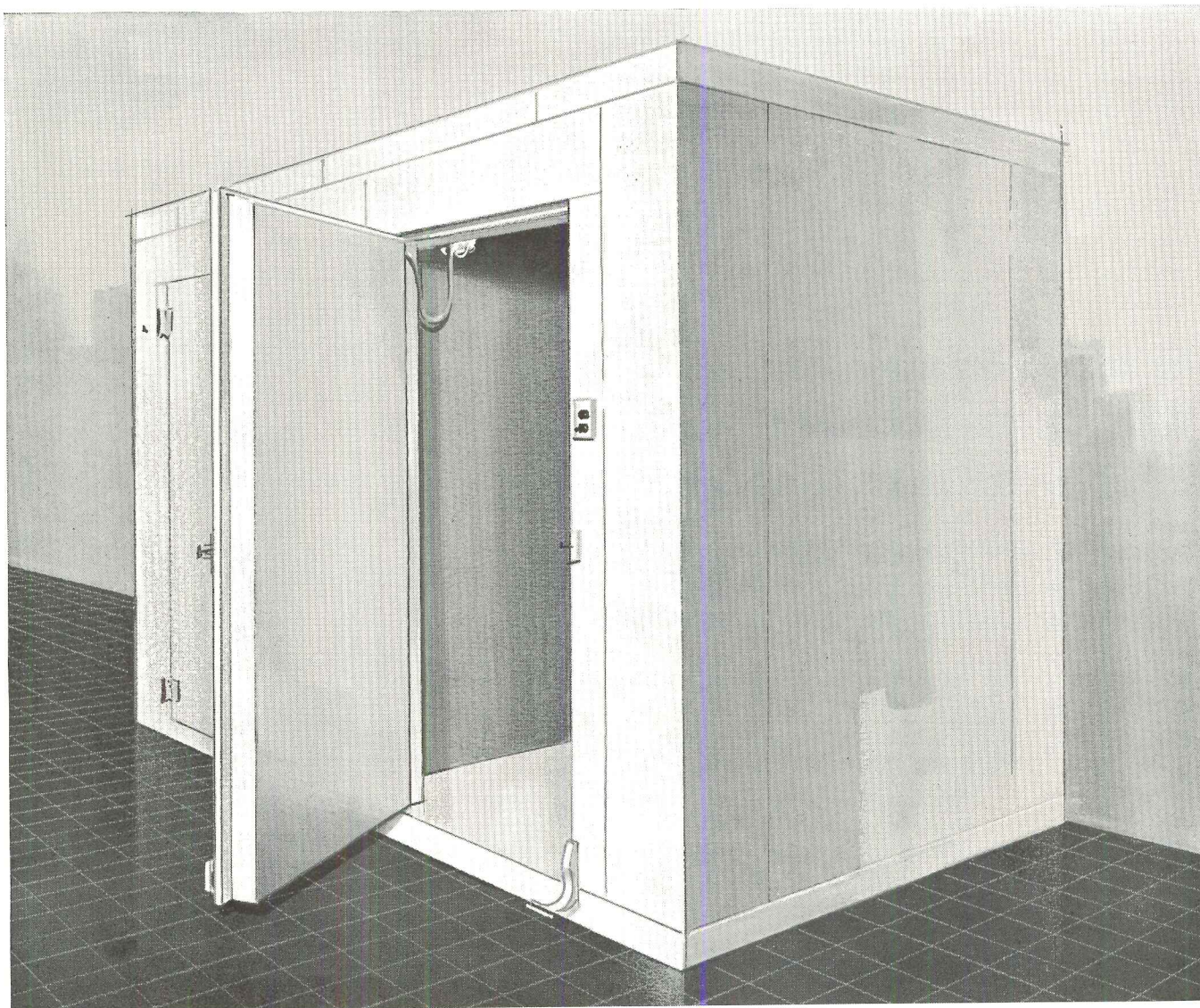


to: "Henry VIII was widely known as a big eater."



Must schools devote one classroom to languages only? Not since GD/E Electronic Communications developed the Convertible Classroom: an ingenious answer to a school's space problems. One minute, Spanish class. Every student has his own earphones, microphone, and controls. Every student is acoustically isolated by partitions. The bell rings. Instantly, earphones and microphones go into the desk, partitions fold down, and the Convertible Classroom is ready for history class, study hall, anything. It's flexible. It's convertible. We can install it in half a day. The new exclusive Convertible Classroom. From GD/E.

NOTE: For schools that require superior language teaching equipment at the lowest possible price, GD/E recommends the Mobile Electronic Educator. GD/E put wheels on this compact unit, so it can roll Spanish from class to class. Just the thing for elementary school language teaching... or budget-minded larger schools.



Bally walk-in refrigerator-freezer provides 372 cubic feet of storage space for the Bloomsburg, Pennsylvania, Area Joint High School, designed by the architectural firm of Wolf and Hahn.

HETROFOAM® GIVES 50 MORE CU. FT. STORAGE IN SAME FLOOR SPACE

Thin walls save space in this walk-in refrigerator fabricated by Bally Case and Cooler, Inc. It is insulated with Hetrofoam-based polyurethane—a foam so efficient 4" does the job of 8½" of ordinary insulation.

Hetrofoam-type polyurethane foams also help eliminate structural members which ordinarily occupy as much as 20% of the refrigerator area and result in paths for excessive heat leak. Foamed between metal skins, Hetrofoam-based polyurethane forms a tight bond and hardens to a self-supporting unit of high strength and dimensional stability.

Retards fire. Foams from Hetrofoam pass U.L. Subject 94 on both aged and unaged samples. They are rated non-burning by ASTM D-1692-59T.

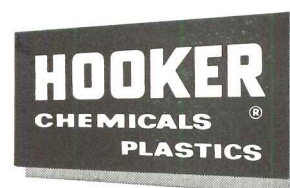
They are stable to heat and will not distort at temperatures as high as 300° F against one side.

Resists moisture. Hetrofoam-based insulation has a completely closed-cell structure. Moisture does not spread through it by capillary action.

Light in weight. Hetrofoam-based polyurethane foam between metal skins results in an extremely lightweight section. It greatly reduces shipping cost and makes assembly fast and easy.

For more information on Hetrofoam and its many architectural and construction applications, please write Durez® Plastics Division, Hooker Chemical Corporation, 8007 Walck Road, North Tonawanda, New York 14121.

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At work in Roanoke: THE **Armstrong** LUMINAIRE CEILING SYSTEM

Here, the first totally integrated ceiling system cost \$1.50 per sq. ft. less than a conventional acoustical ceiling with recessed lighting.

Increased efficiency is an obvious advantage of a ceiling that integrates lighting, air distribution and acoustical control. Not so obvious is the fact that Luminaire can also achieve significant savings.

Take the new Magic City Ford showroom in Roanoke, Va., for example. Luminaire cost \$1.50 sq. ft. less than acoustical tile with recessed lights; 43¢ sq. ft. less than acoustical tile with surface-mounted lights; 3¢ sq. ft. less than a luminous ceiling with no acoustical control. (All three alternative ceilings required separate air-distribution systems.)

The architect chose Luminaire primarily for its cost advantage, and because it provides the striking appearance and dramatic lighting he wanted for a showroom of new automobiles.

There were other reasons, too. Luminaire delivers uniform, draft-free air. Each 50" module is its own light and air-distribution source. All components are available from one supplier. Installation is fast. Maintenance is virtually nil: air movement through the ceiling makes it, in effect, self-cleaning.

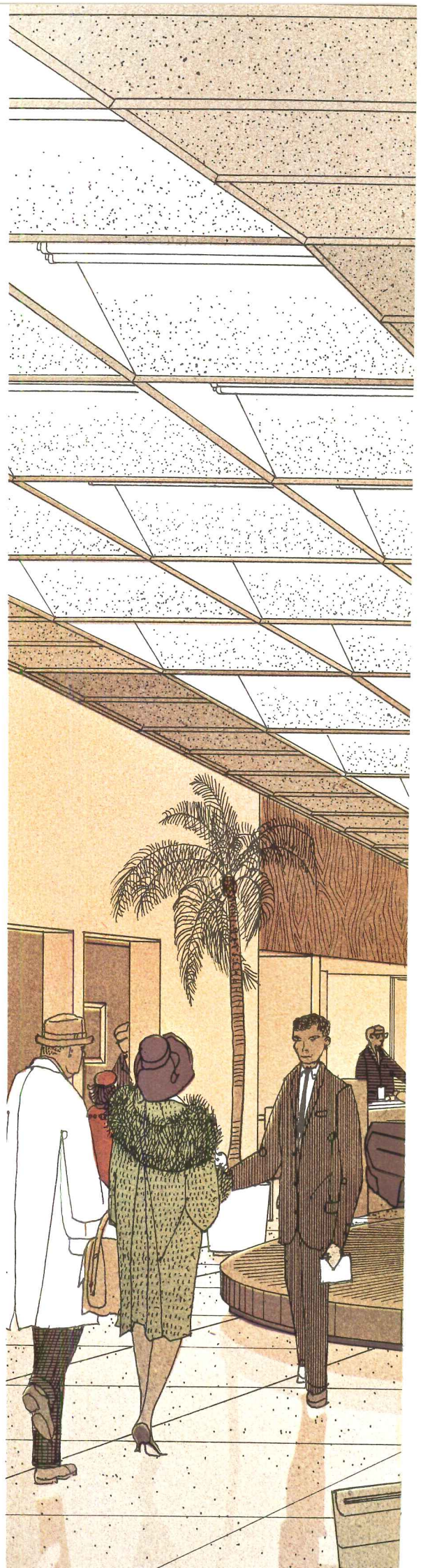
Here, the system is designed to maintain 130 footcandles. In other installations, it can provide from 50 to well over 200 footcandles—with lower wattages than conventional lighting.

Horizontal ceiling panels allow the system's adaptation to any size or shape room. At Magic City Ford, the system is installed on different planes to conform to the shape of steel frames. Because it can accommodate ceiling-high partitions, the system offers limitless layout flexibility. Further design variation is possible with the new B-48 modification. (This system achieves an open, folded-plate effect; creates continuous bands of light.) For complete information on both systems, write to Armstrong, 4207 Rock St., Lancaster, Pa.

Magic City Ford Corporation, Roanoke, Virginia.
President: Mr. Harry G. Johnson, Roanoke, Virginia.
Architect: J. Garry Clay, A.I.A., Roanoke, Virginia.
General Contractor: J. M. Turner & Co., Inc., Roanoke, Virginia.
Ceiling Systems Contractor: Shields, Inc., Roanoke, Virginia.

Armstrong CEILING SYSTEMS

For more data, circle #1 on Inquiry Card.



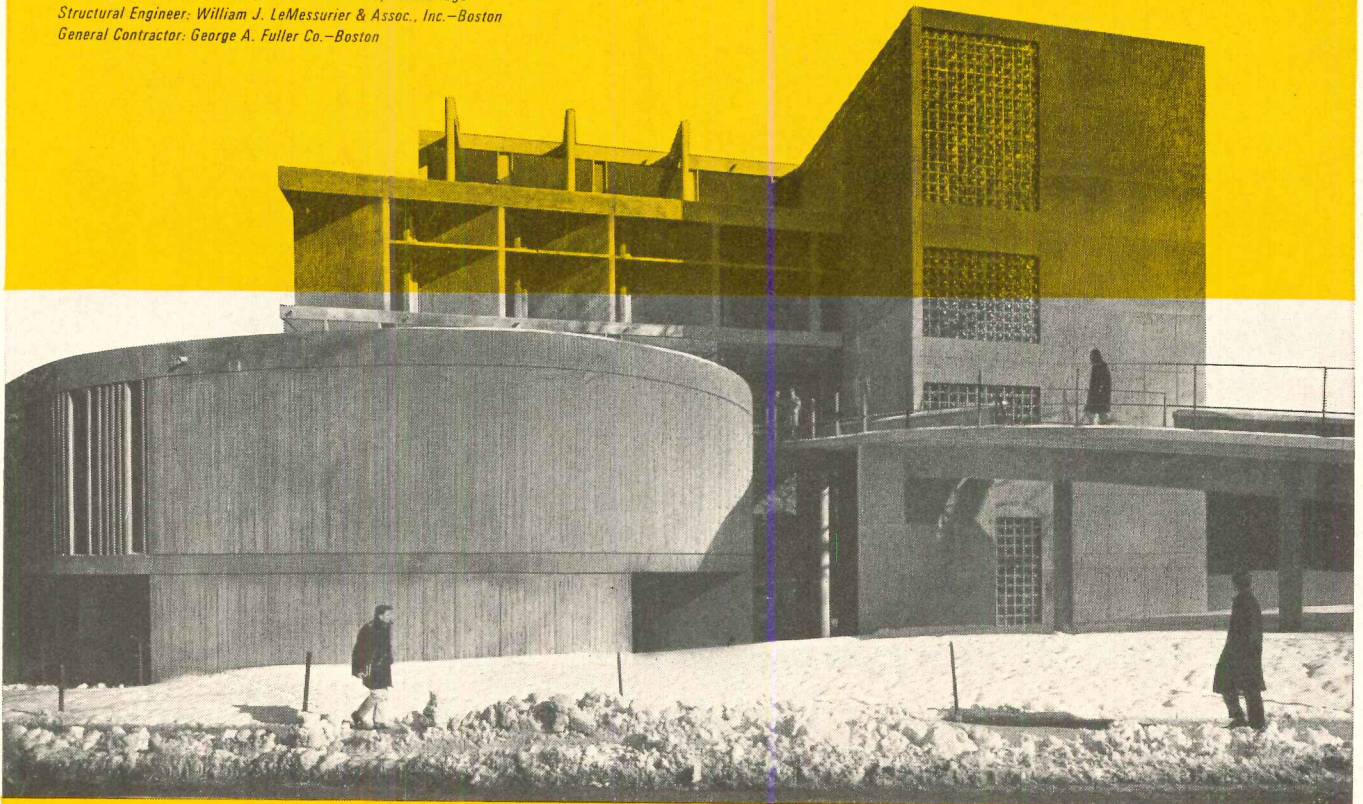


*Carpenter Center for the Visual Arts, Harvard University
Architect: Le Corbusier—France
Collaborating Architects: Sert, Jackson & Gourley—Cambridge
Structural Engineer: William J. LeMessurier & Assoc., Inc.—Boston
General Contractor: George A. Fuller Co.—Boston*

■ Le Corbusier chose reinforced concrete to execute his unusual design for Harvard's visual arts center. This versatile material was used for curved and straight walls, for floors, and the intricate "sun-breakers."

Only monolithic reinforced concrete permits architects to design with such complete freedom of expression. And for every type and size of building—for framing, wall surfaces, and facades—no other material has done so much to change the face of modern American architecture.

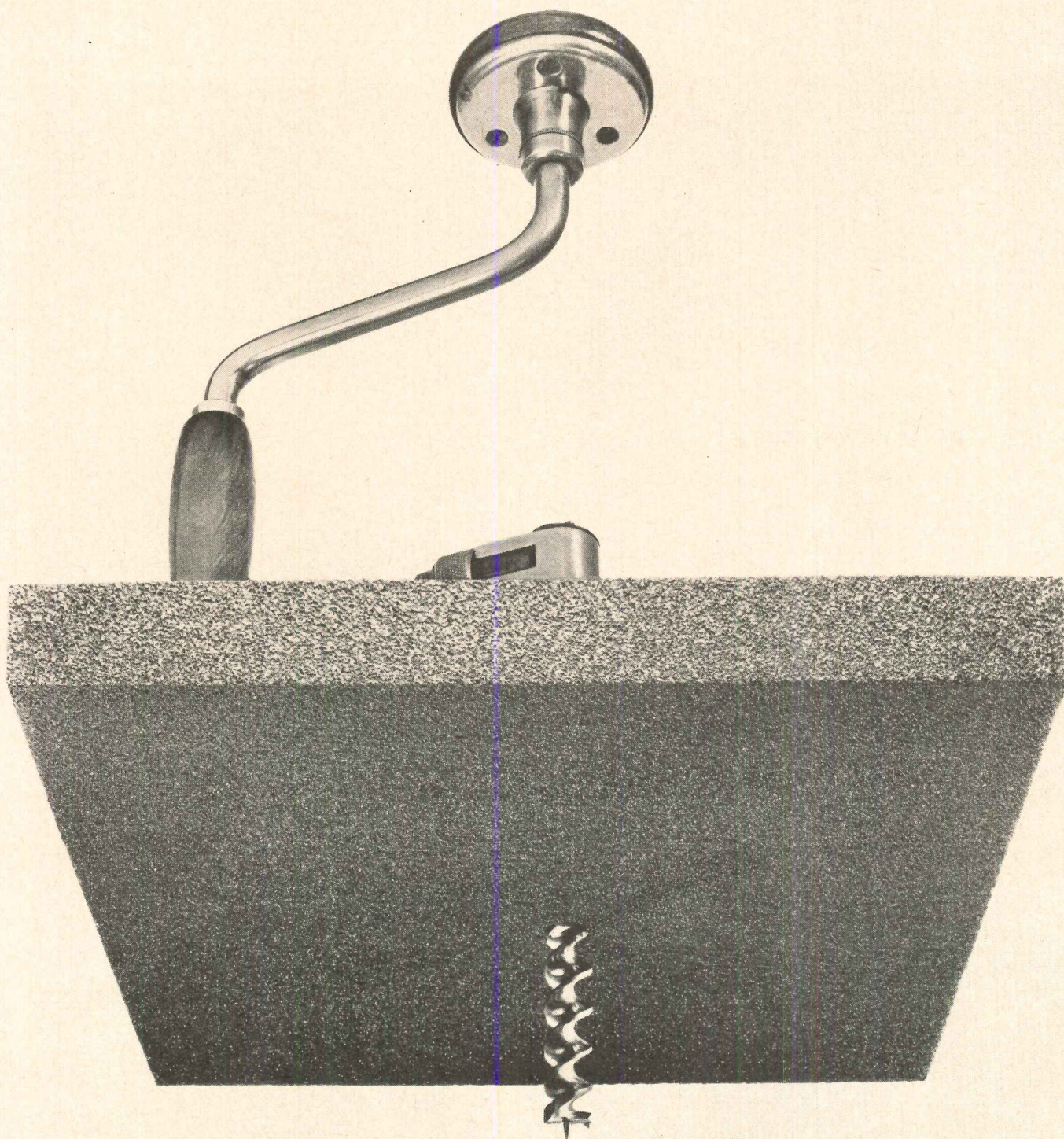
On your next project, be sure that you investigate the creative advantages as well as the many time and moneysaving features of this modern construction method.



Harvard's visual arts center expresses the complete flexibility of monolithic reinforced concrete design

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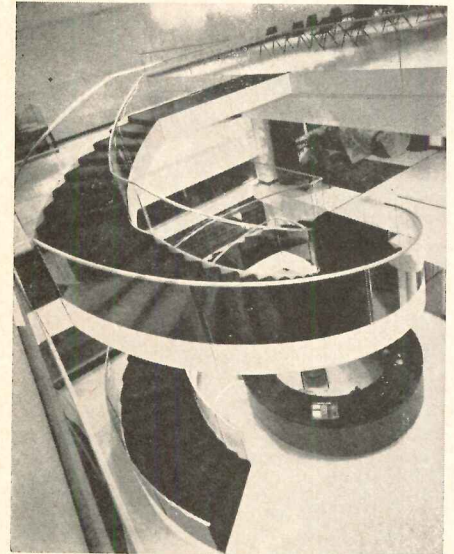
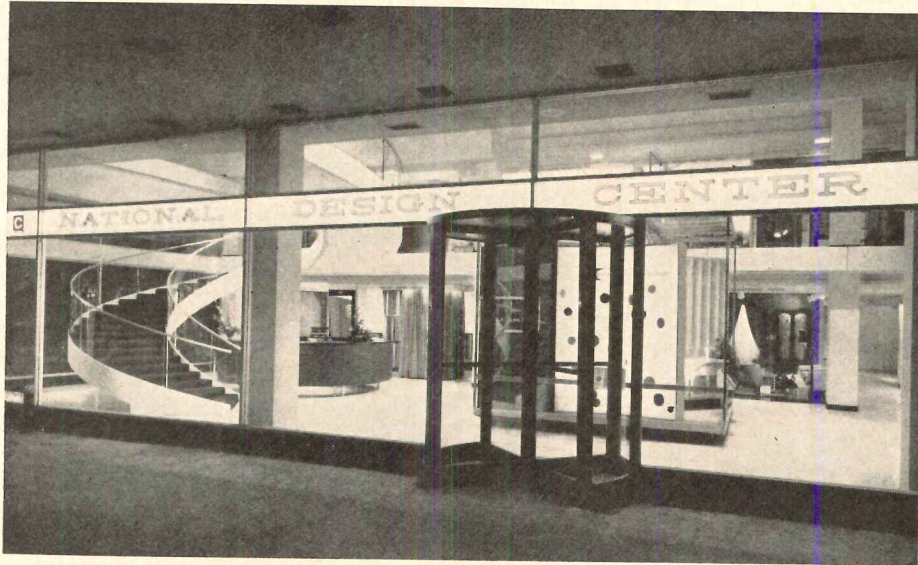
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Next time someone says an insulation is moistureproof, ask for its permeability rating. If it's not 0.0, like FOAMGLAS, the material isn't moistureproof.

When you're looking for a roof insulation that gives you guaranteed performance, you're looking for FOAMGLAS—now available in the popular 2' x 4' FOAMGLAS-BOARD roofing unit in 1½", 1¾" and 2" thicknesses. Write for our catalog.

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Harr, Hedrick-Blessing photos

MARINA CITY SHOWROOM REPEATS CIRCULAR THEME

The circular theme of Bertrand Goldberg's Marina City towers reappears as a central motif in his design for the new Midwest headquarters of the National Design Center, located in the Marina City office building. The floating staircase, bounded by clear lucite panels, spirals up from a circular information desk at its base,

linking three levels of space for exhibits and services.

The more than 40,000 square feet of display space will present a cross section of products ranging from home furnishings, household appliances and interiors, and decorative products for home and commercial use to architectural and building

products. Serving architects, builders, engineers, specification writers, designers, editors and consumers, the National Design Center offers a technical library, an information bureau, a private conference and meeting room (with seating for 500), technical seminars and national industry promotions.

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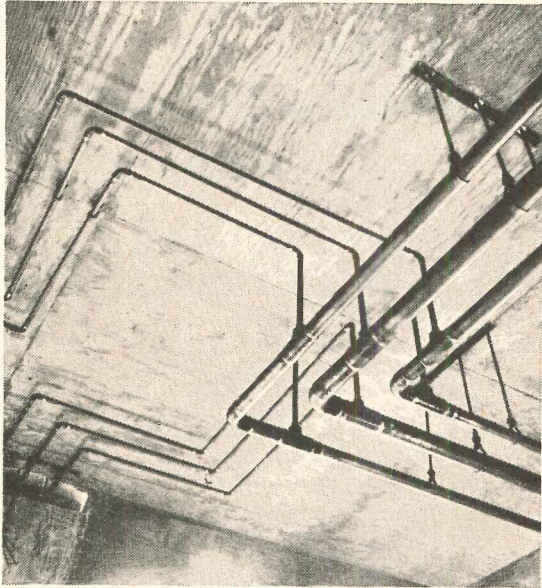


Over 17,000 feet of Streamline tube and 6,000 Streamline fittings were installed to handle the plumbing supply and drainage system as well as the complete hydronic heating-air-conditioning system in the Kingsley Hotel.

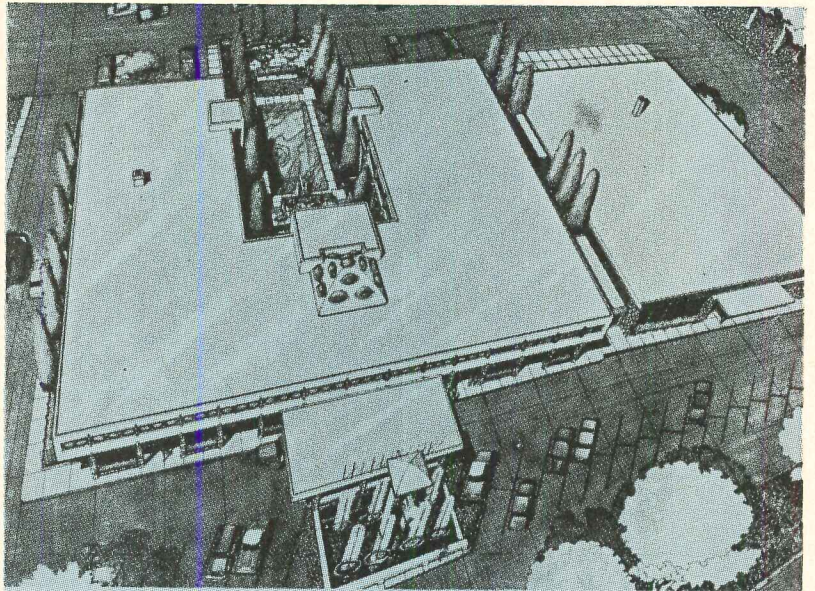
Behind the scenes at the fabulous new Kingsley Hotel... all *Streamline*[®] copper tube and fittings for supply and drainage plumbing, heating and air-conditioning systems

When architects, engineers, builders and plumbers compare materials, they find Streamline copper best for modern plumbing, heating and cooling systems. That's why Streamline copper tube and fittings were unanimously chosen for the luxurious Kingsley Hotel in Bloomfield Hills, Michigan.

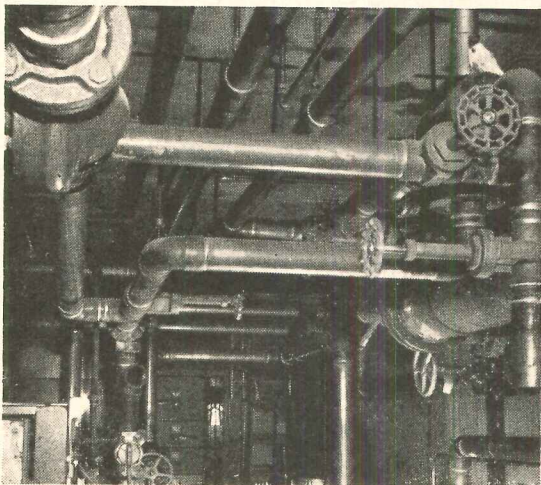
Only copper plumbing could provide such dependability and long service life free of rust, leaks and clogging. Yet copper costs no more (and often less) than a rustable system. With modern architecture, building materials and building methods, be sure to specify and install the modern plumbing material as well—Streamline copper tube and fittings for supply and drainage plumbing, heating and air-conditioning systems.



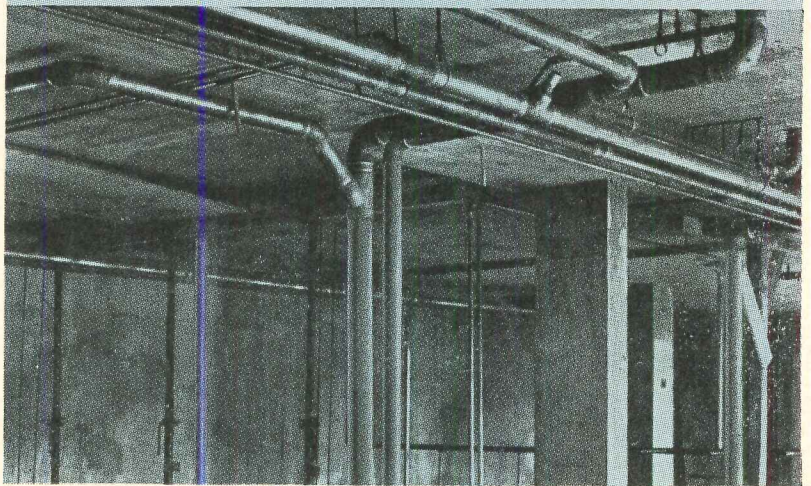
Only copper is so easy to handle on the job, or installs so quickly; only copper makes such a compact installation.



Kingsley Hotel in Bloomfield Hills, Michigan. **Owner:** F. N. Takis. **Architect:** Begrow & Brown, Bloomfield Hills. **Mechanical Engineer:** Jos. B. Olivieri, Associates, Detroit. **General Contractor:** Palmer-Smith, Detroit. **Mechanical Contractor:** Steve Kruchko Plumbing & Heating, Drayton Plains, Michigan.



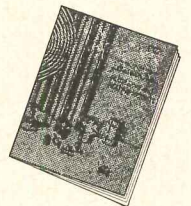
Three-pipe hydronic heating and air-conditioning was chosen for the luxurious Kingsley Hotel because it provides complete environmental control and economical maintenance. Streamline tube, fittings and accessories were utilized for this installation.



The Kingsley Hotel has 100 units, a beautiful central swimming pool, as well as spacious banquet and meeting rooms. This plumbing wall is in the lower level overlooking the pool.

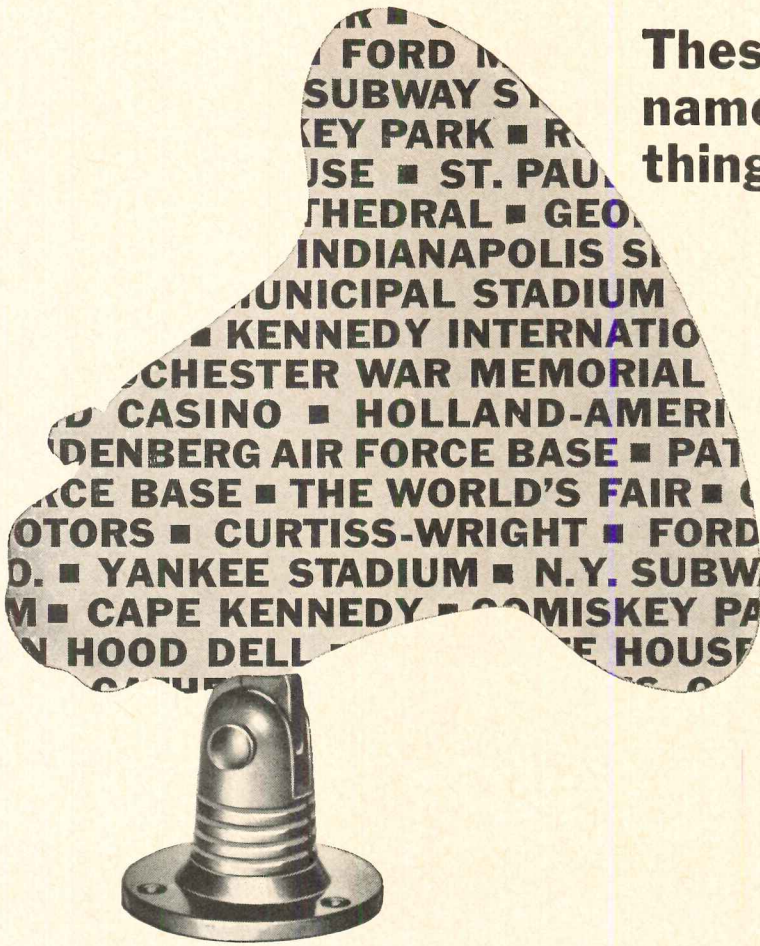
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How do you choose public address loudspeakers when you are called upon for a professional recommendation? You could make tests. You could listen to a number of brands. Or, you could specify University (more University speakers are used by commercial sound specialists than all other makes combined.) Reasons: High "A" (High Audibility) design provides a degree of intelligibility that has never been matched; and the kind of dependability that caused a missionary to tell us that after five years of outdoor use—in a torrential rain region of Africa—his University speakers never failed him! And we can quote you thousands of similar reports on University Speakers used throughout the world.

FREE! 66-page Sound Planning Handbook. Price: \$1.00—but free to architects and engineers. Write: Desk AR-7, LTV/University, Div. Ling-Temco-Vought, Inc., 9500 West Reno, Oklahoma City, Oklahoma.



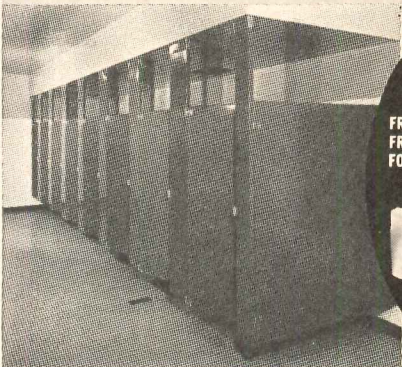
LTV UNIVERSITY

A DIVISION OF LING-TEMCO-VOUGHT, INC.

For more data, circle 34 on Inquiry Card

FIAT® TOILET ENCLOSURES FIRST IN FEATURES/PERFORMANCE/DELIVERY

- Quality of product and design backed by 40 years of manufacturing experience and experimentation.
- Years ahead engineering results in greater durability, lower maintenance costs and easier installation.
- Only FIAT offers you the advantage of 5 factories strategically located to save on shipping and expedite delivery.



See Sweet's 22b or write for Literature
FI



FIAT METAL MANUFACTURING CO., INC.
Michael Court, Plainview, Long Island, N.Y.

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SMITH-GATES EMBEDDED ELECTRIC SNOW MATS®

The Preferred System
for Snow and Ice Removal



FOR WALKS,
DRIVEWAYS, RAMPS,
PARKING LOTS, STEPS, ETC.

Embedded in Blacktop or Concrete, Smith-Gates Snow® Mats remove ice and snow efficiently and economically. Snow® Mats are fastest, easiest and least expensive to install because they come in a variety of PREFORMED lengths up to 60' in 6 voltages and 4 heat densities. Snow® Mats are quality-produced with finest materials by the world's largest manufacturer of electric heating tape. And Smith-Gates offers you complete engineering service.

SEECO-HEAT Mats, same as Snow® Mats except for lower wattages, are perfect to remove dampness and chill from concrete floors in basements, garages, bathrooms, kindergartens, etc.

"EMBEDDED IS FOR
KEEPS . . . SO KEEP
IT SMITH-GATES"



SMITH-GATES CORPORATION
FARMINGTON CONNECTICUT

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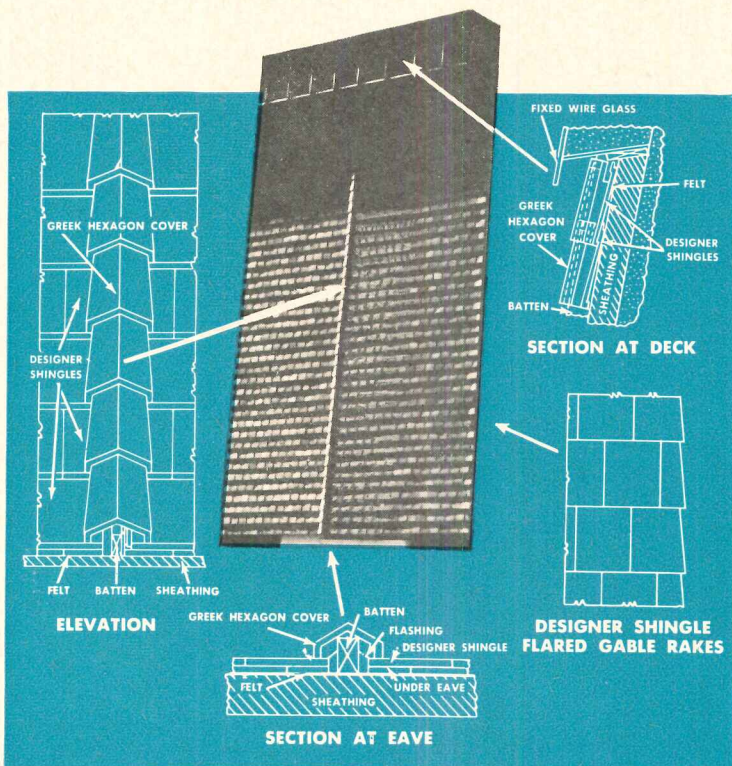


**Harris Memorial Methodist Church
Honolulu, Hawaii**

**Architects:
Wilson Associates, Inc., Honolulu**

**Roofing Tile:
Ludowici-Celadon**

When the Roof Becomes a Major Element in the Design...



Architects depend on Ludowici-Celadon tile roofing for versatility of texture and color . . . In this imposing edifice, modern Designer Gray is accented by the classic Greek tile motif for a pleasing effect . . . but equally important is the fact that the roof will retain its permanent beauty and enduring protectiveness for generations to come. We'd like to send you our free illustrated brochure.

For additional information, write Dept. AR

*** LUDOWICI-CELADON CO.**
75 E. WACKER DRIVE • CHICAGO, ILL. 60601

*Manufacturers of quarry tile, the nation's largest
producer of roofing tile and NAILON Facing Brick*

DESIGNER tile roofing is one of the several Ludowici-Celadon patterns and colors offering wide flexibility in exterior design. Here it is combined with Greek tile over the battens.

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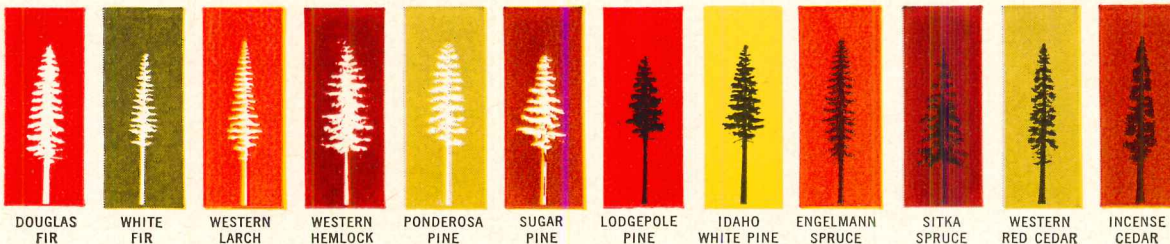
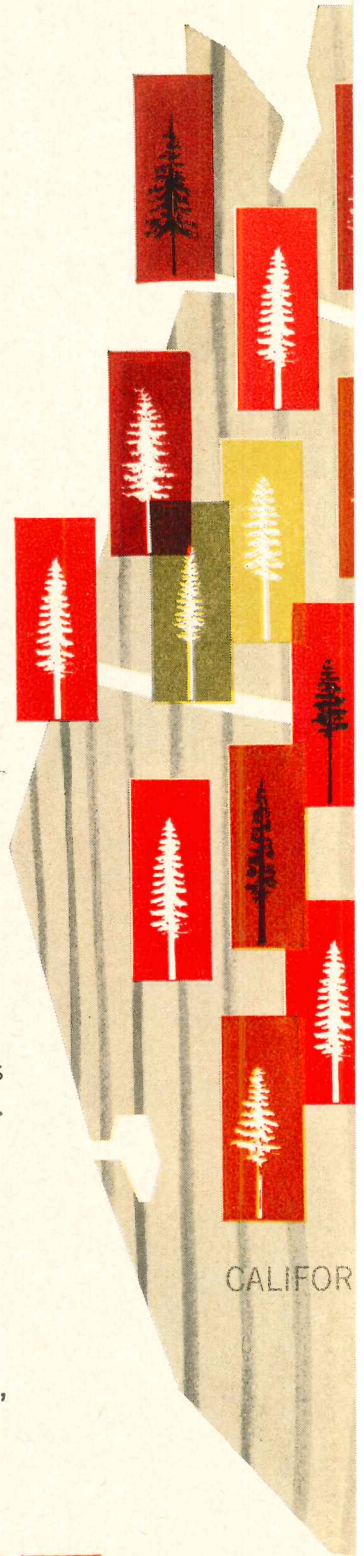
The leading mills in the entire Western
lumber producing area will soon be carrying a

NEW BRAND ON A BIG SPREAD

Now Western Pine Region lumber and Coast Region lumber will go to market under one "brand," under a new grade stamp: WWP, the mark of the new Western Wood Products Association.

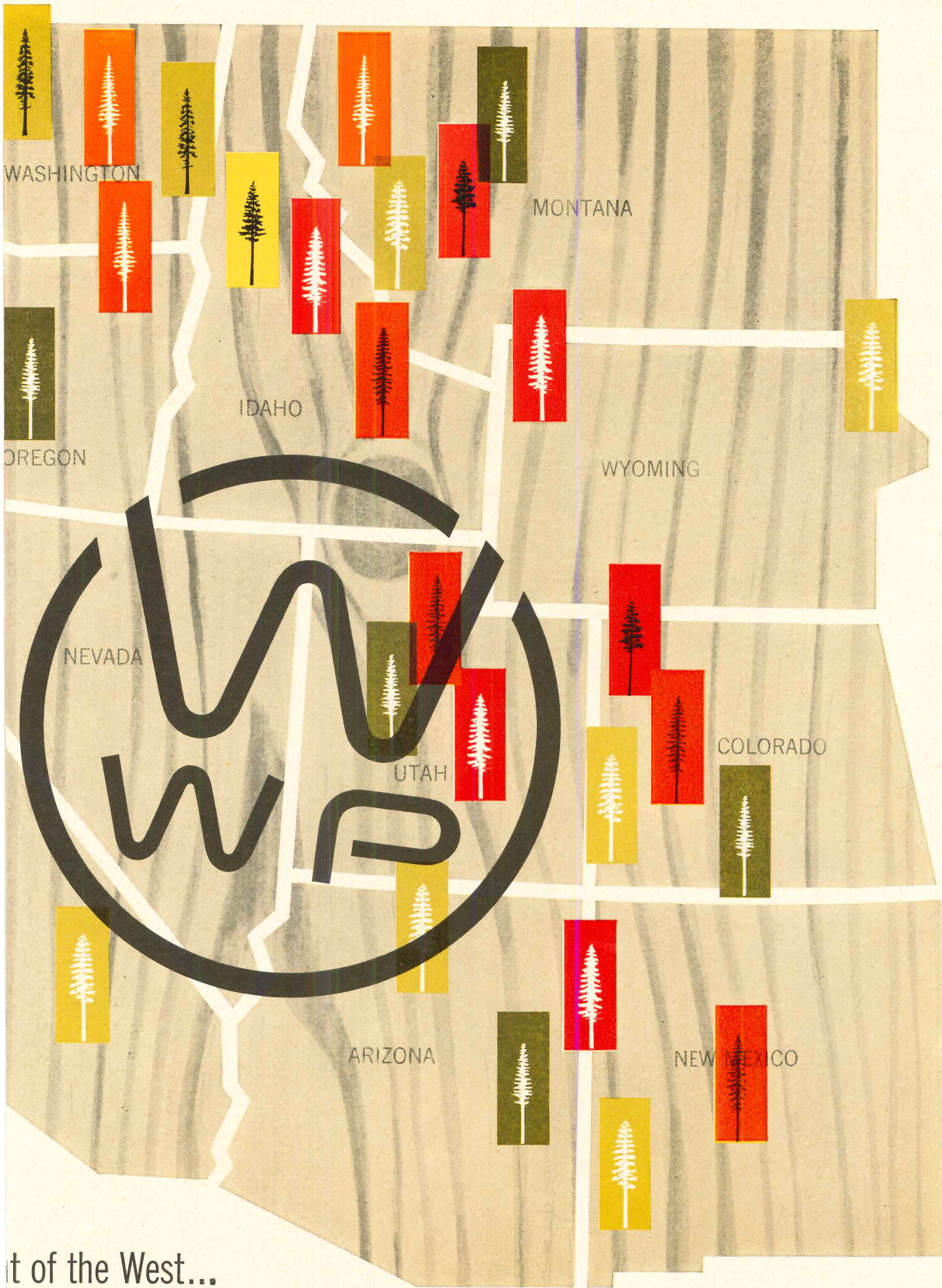
So?

- So this is the first step in a planned program to simplify and streamline lumber buying and specifying.
- Now, under one grading agency, the broadest range of woods for every construction use—from the strongest of all construction softwoods like Douglas Fir and Larch to the most workable of all finish woods like the Western Pines... from delicate mouldings to massive beams.
- Now you have new assurance of dependability from woods made in the United States and the greatest timber producing region in the world—the American West.
- Now here are the greatest and most versatile lumber production facilities of any timber producing region, a region that represents 65% of all softwoods produced in the United States.
- So now start looking for the new WWP grade mark. It represents the biggest, most significant development in lumber marketing since the beginning of uniform lumber standards.



WESTERN WOOD PRODUCTS ASSOCIATION
PORTLAND, OREGON





Best of the West...
The best brand!



It'll be buried up to its neck in concrete and steel. Why do we make it so pretty?

You are looking at the snazziest fastener since Union Pacific connected East and West with a gold-plated railroad spike.

This, however, is not a ceremonial gimmick. It's just our regular Ramset fastener. (Almost as common as nails in the building industry.)

A worker sticks it into the barrel of a Ramset tool, unceremoniously pulls the trigger, and POW! It's driven deep into concrete and steel by a powder charge.

Now, it does seem that our fastener's good looks are going to waste.

They aren't.

Take that pretty red plastic tip, for instance. Its job is to keep the fastener from wobbling off-line in the barrel. It makes every fastening a bull's-eye.

And the glamorous gold color? It's a coating of chromate. This, on top of zinc plate, gives our fastener *three times* more corrosion resistance than standard finishes.

(The fastener itself is made out of a new austempered steel which beefs up tensile strength to almost 310,000 psi — far greater than other fasteners.)

But the most important thing about a Ramset fastener is that it's fast.

It fastens steel to concrete, wood to concrete, wood to steel, and steel to steel *eight times* faster than ordinary varieties of fasteners that have to be drilled and plugged.


It means a worker can fasten, say, the miles of ducts needed for heating a skyscraper 50 stories high (ordinarily an eight-week job) in just three days.

If you ask us, this is what really makes our fasteners such beauties.

And, speaking of beauty, we *do* keep a few genuine 14-carat gold fasteners around.

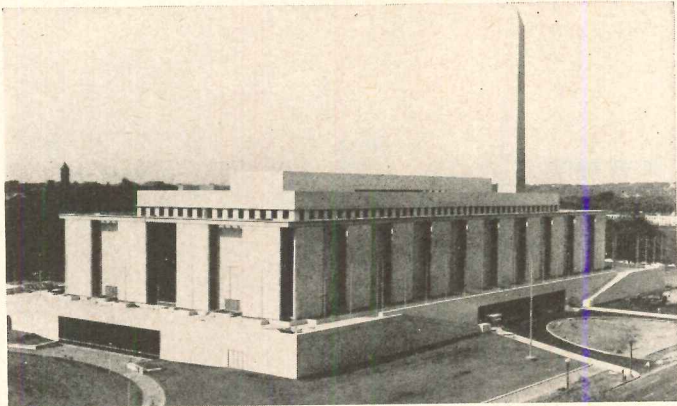
Just in case you want to use one at the opening ceremonies for your next building.

Ramset[®]

WINCHESTER-WESTERN DIVISION 

For more data, circle 39 on Inquiry Card

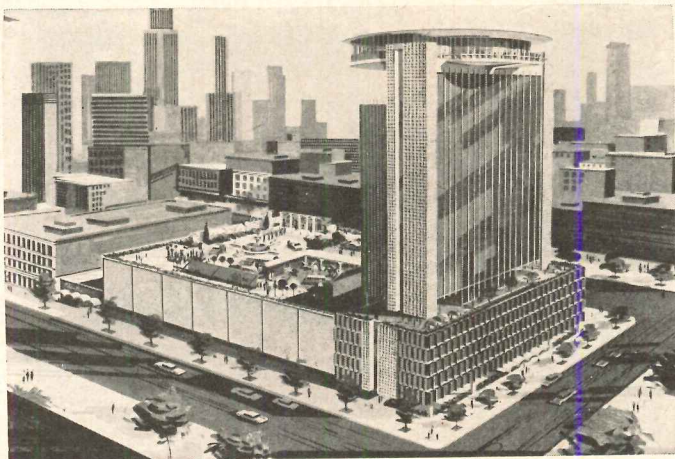
SMITHSONIAN OPENS \$36 MILLION ADDITION



The latest addition to the Smithsonian Institution, the \$36 million Museum of History and Technology, provides an expansive, five-floor exhibition area enclosed with a marble-sheathed steel structure with a total public area of 347,760 square feet. It extends 577 feet along the Constitution Avenue side and 301 feet along the 12th and 14th Street sides.

The architects, Steinman, Cain and White (successors to McKim, Mead and White), have provided open 50-foot spans between columns to give a large, uninterrupted wall expanse, with windows inset at right angles to reduce light glare.

CENTER FOR FILM INDUSTRY PLANNED IN MANHATTAN



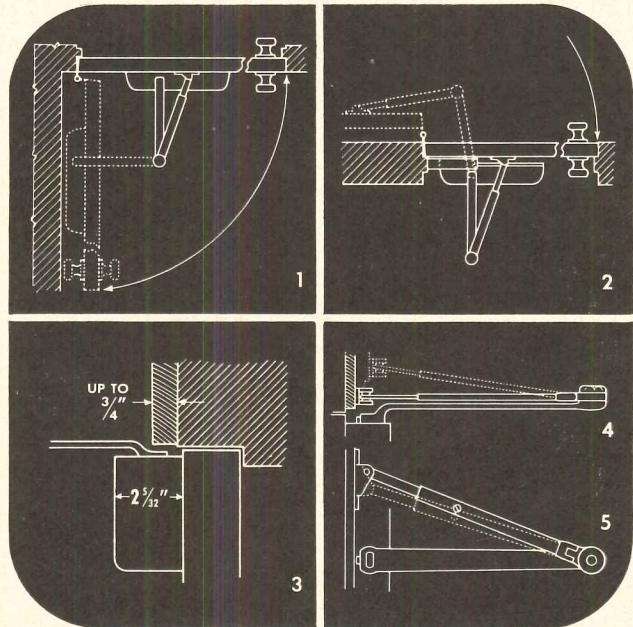
A speculative project of \$22 million to provide a centralized location in Manhattan for the film production industry is being undertaken by real estate developer, Allan Haymes. The architects of this 20-story tower and coliseum, which will include 57 air-conditioned sound stages, a theater, private club facilities and a rooftop supper club, are Herbst and Rusciano.

The site, an entire eastern blockfront on 11th Avenue between 45th and 46th Streets, totals 70,000 square feet. Completion is scheduled for summer, 1966.

Application Details

for Series 4010 SMOOTHIE® door closer
shown on opposite page
(See diagrams below)

- 1 In corners a "Smoothie" takes less space than most doorknobs between door and wall
- 2 Closer as shown in photo allows door to open 140°. It could be mounted on a No. 4010-11 bracket (diagram) allowing 180° opening
- 3 Arm of "Smoothie" is formed to avoid conflict with almost any trim
- 4 Joints in arm and shoe make it easy to vary height of shoe as needed for beveled trim
- 5 Power of closer may be increased or decreased by reversing position of shoe and/or varying spring adjustment



Comprehensive brochure on request—no obligation or see Sweet's '64, Section 19e/Lc

LCN

LCN CLOSERS, PRINCETON, ILLINOIS

A Division of Schlage Lock Company

Canada: LCN Closers of Canada, Ltd.,
P. O. Box 100, Port Credit, Ontario

For more data, circle 40 on Inquiry Card



DINING ROOM

Modern Door Control by
LCN
SMOOTHEE® Door Closers

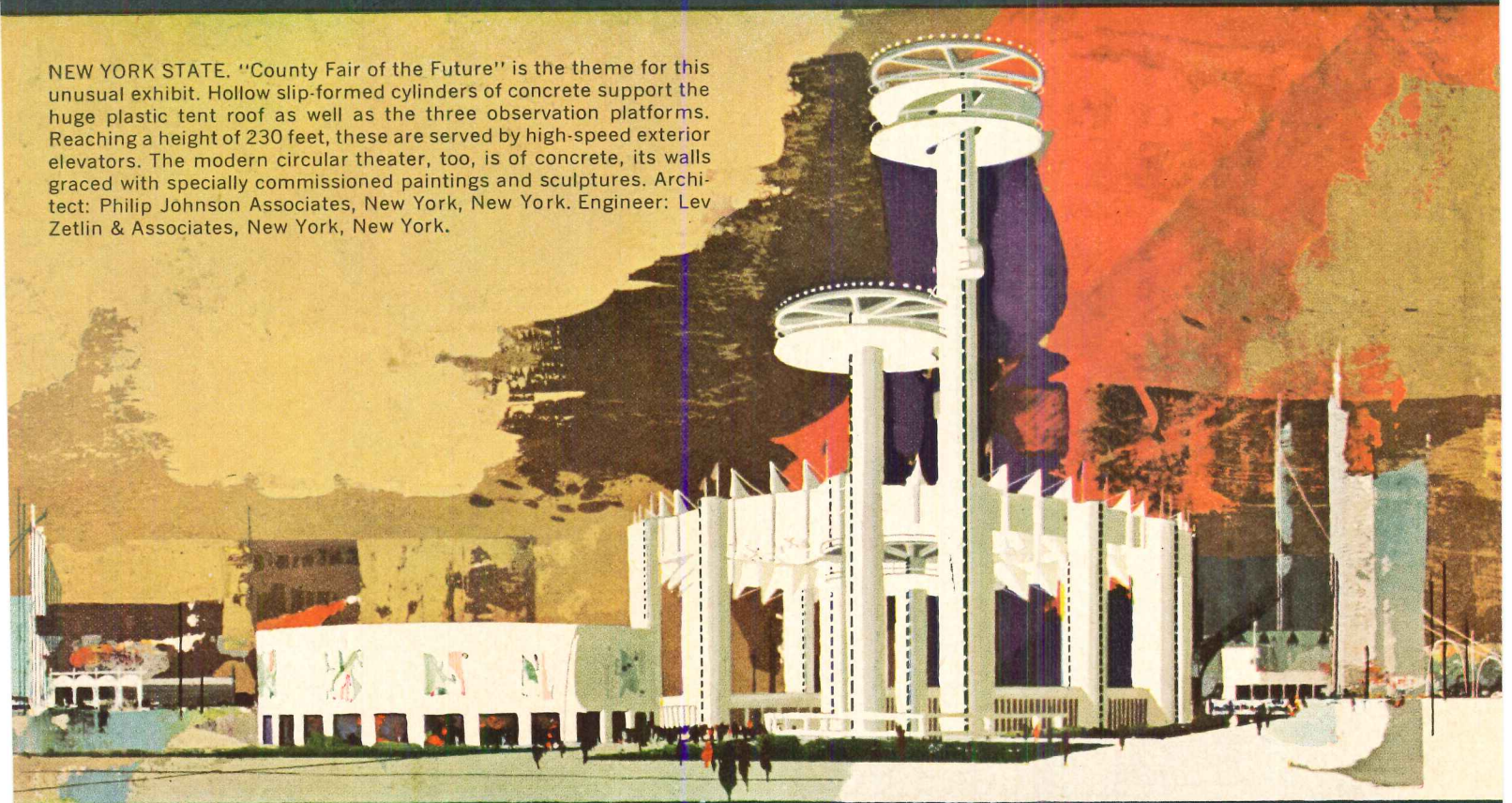
Indianapolis Motor Speedway Motel
Speedway, Indiana

Daggett, Naegle & Associates, Inc.
Architects

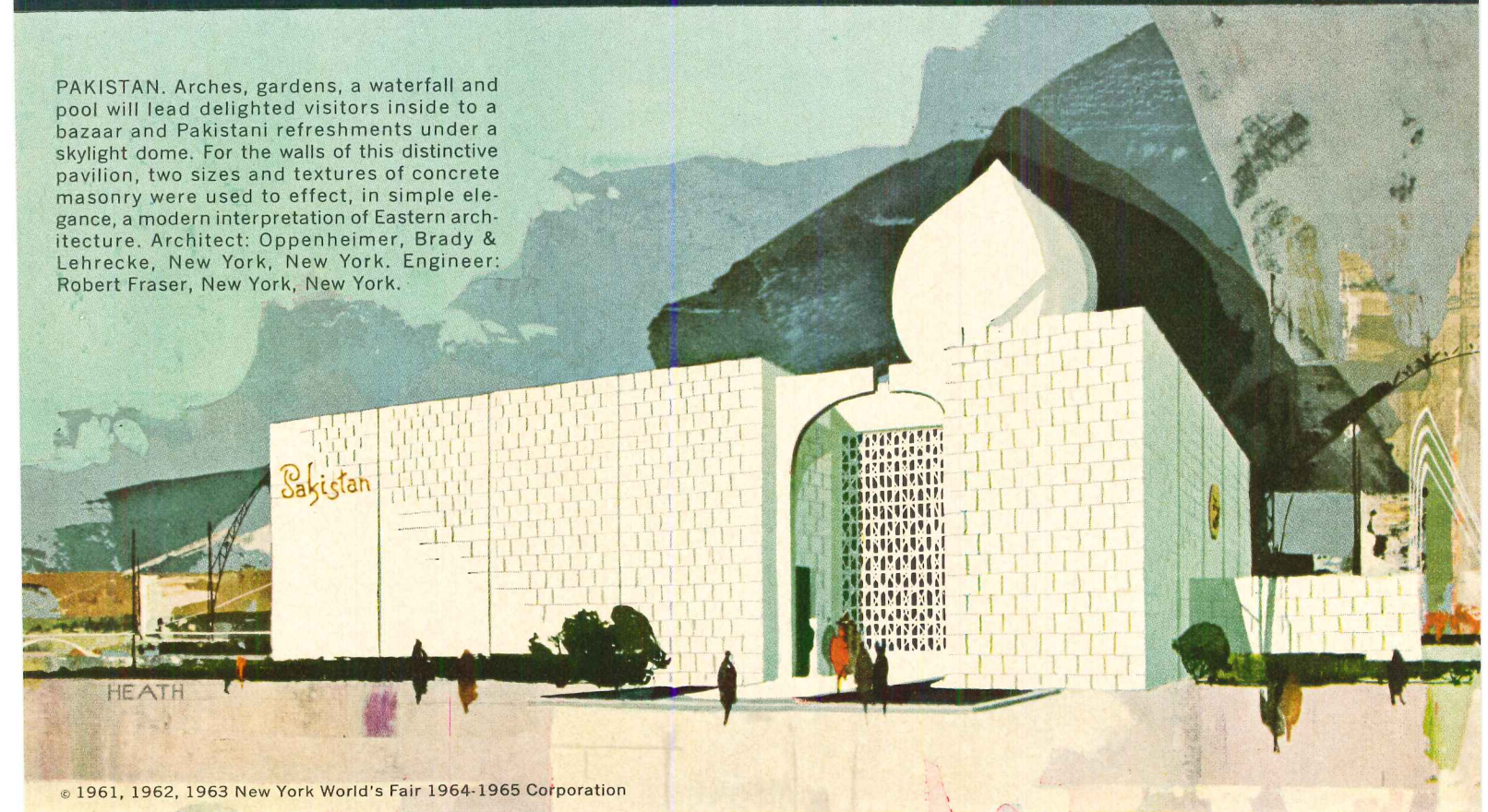
LCN CLOSERS, PRINCETON, ILLINOIS
Application Details on Opposite Page

AT THE NEW YORK WORLD'S FAIR

NEW YORK STATE. "County Fair of the Future" is the theme for this unusual exhibit. Hollow slip-formed cylinders of concrete support the huge plastic tent roof as well as the three observation platforms. Reaching a height of 230 feet, these are served by high-speed exterior elevators. The modern circular theater, too, is of concrete, its walls graced with specially commissioned paintings and sculptures. Architect: Philip Johnson Associates, New York, New York. Engineer: Lev Zetlin & Associates, New York, New York.



PAKISTAN. Arches, gardens, a waterfall and pool will lead delighted visitors inside to a bazaar and Pakistani refreshments under a skylight dome. For the walls of this distinctive pavilion, two sizes and textures of concrete masonry were used to effect, in simple elegance, a modern interpretation of Eastern architecture. Architect: Oppenheimer, Brady & Lehrecke, New York, New York. Engineer: Robert Fraser, New York, New York.




© 1961, 1962, 1963 New York World's Fair 1964-1965 Corporation

**EVERYWHERE YOU LOOK
AT THE WORLD'S FAIR
YOU SEE WHAT
VERSATILE CONCRETE
CAN DO**


From precast wall panels, gracefully sculptured, to soaring columns and imaginatively contoured roofs, to inviting promenades and bright reflecting pools . . . concrete dramatically demonstrates its far-ranging talents.

Everywhere the Fair's most-talked-about structures express the versatility and beauty of this modern material. They embrace almost every exhibit category: education, religion, international, government, transportation, science and industry.

THE BEST IDEAS ARE MORE EXCITING IN CONCRETE



EASTMAN KODAK COMPANY. Covering 69,000 square feet and enclosing two theaters and 26 exhibits, this attraction is a camera fan's delight. Concrete was used to shape the roof into an undulating "moonscape" where visitors can stroll and use the unusual sculptures as backgrounds for their own picture taking. A striking eight-story "Tower of Photography" is ringed with giant color photos. Architect: Kahn & Jacobs, New York, New York. Engineer: Lev Zetlin & Associates, New York, New York.



MORMON CHURCH. For the pavilion of the Church of Jesus Christ of the Latter Day Saints, double exhibition halls and theaters were built with panels and structural members of white precast concrete. A 120-foot replica of the famed Mormon Tabernacle Towers provides dramatic focus. After the Fair, the permanent precast concrete sections of the halls and theaters will be reassembled into new Mormon chapels. Architect: Harold Burton, Fordyce & Hamby Associates, New York, New York. Engineer: Strobel & Rongved, New York, New York.

They carry the great names of American business: Ford, General Motors, I.B.M., Equitable Life Assurance Society, A.T.&T., Travelers Insurance and so many more. They include the official buildings of thirty states, the Vatican Pavilion, the House of Good Taste, the Protestant Center, the United States of America building.

In the magnificent showcase of the New York World's Fair, the exciting new personality of modern concrete has stimulated a world of unusual beauty.

PORTLAND CEMENT ASSOCIATION

An organization to improve and extend the uses of concrete

#543 catch for pairs of large doors	#555 snap-in catch for metal doors	#558 snap-in catch for metal doors	#556 catch for 1 3/8" sliding doors	#557 catch for heavier sliding doors	#560 catch for cabinet doors	#570 catch for fine furniture
#590 catch for cabinet doors	#591 heavy duty catch for cabinets	#592 extra heavy catch for doors	#594 heavy duty magnetic door stop	#595 magnetic door closer assist	#600 catch fits into 5/8" bore in shelf	#602 catch fits into 7/8" bore in door

EPCO MAGNETIC CATCHES

to meet every need or specification!

The EPCO family of catches includes a style for every building need. Each features "touch" closing and secure holding power. Each is self-aligning to an enlarged strike, and to mount in diverse ways simply and quickly. Each is hand-somely encased and has lifetime magnets.

THE ENGINEERED PRODUCTS CO.

P.O. BOX 108 - FLINT, MICHIGAN - PH. CE 9-8689

#593 magnetic catch with extremely heavy duty holding power for large passage doors

FREE 32-Page Catalog on all EPCO magnetic catches, track and pulls available on request.

#1000 catch with plastic case

#1001 catch with plastic case

#1002 catch with plastic case

#1003 catch with plastic case

For more data, circle 41 on Inquiry Card

NEW HIGH STYLE CONCEPT IN SOLID PLASTIC SEAT DESIGN

BENEKE

1680
ELONGATED

High strength, injection molded plastic. Concealed offset hinges have metal posts and nuts—hold seat in "up" position without special mechanisms—check seat and cover from striking tank or valve handle. Exclusive "Unified Design" hides hinges—gives chair-like appearance—improves sanitation and eases cleaning. Available in major fixture colors and a complete range of open front, closed front; with cover and without cover models.

BENEKE

COLUMBUS, MISSISSIPPI CORPORATION

Write today for complete information, or see Sweets **26 a** Be

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CUSTOM LINE

ALUMINUM WALL MOUNTED HAT AND COAT RACK

Modern Aluminum Racks

Tailored to Fit Your Exact Specifications

The coat racks chosen for the "John Deere Administration Center", Moline, Illinois

- ★ Built to your specified length
- ★ Models to fill your multiple shelf requirement
- ★ All racks are adjustable in height
- ★ Can be wall mounted, ceiling hung or floor to ceiling mounted
- ★ Continuous inside or outside corners
- ★ Models with hanger bar or double pronged hooks

For complete information and specifications write for catalog. CL-52

VOGEL-PETERSON CO. • ELMHURST, ILL.

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Free! Benjamin Portfolio of outstanding Lighting Classics Installations, plus your copy of the 40 page Lighting Classics catalog. Mail this coupon today!

BENJAMIN Products
THOMAS INDUSTRIES INC.
207 E. Broadway, Dept. C2, Louisville, Ky. 40202

Send me your Portfolio of Lighting Classics Installations and catalog.

Name _____

Company _____

Address _____

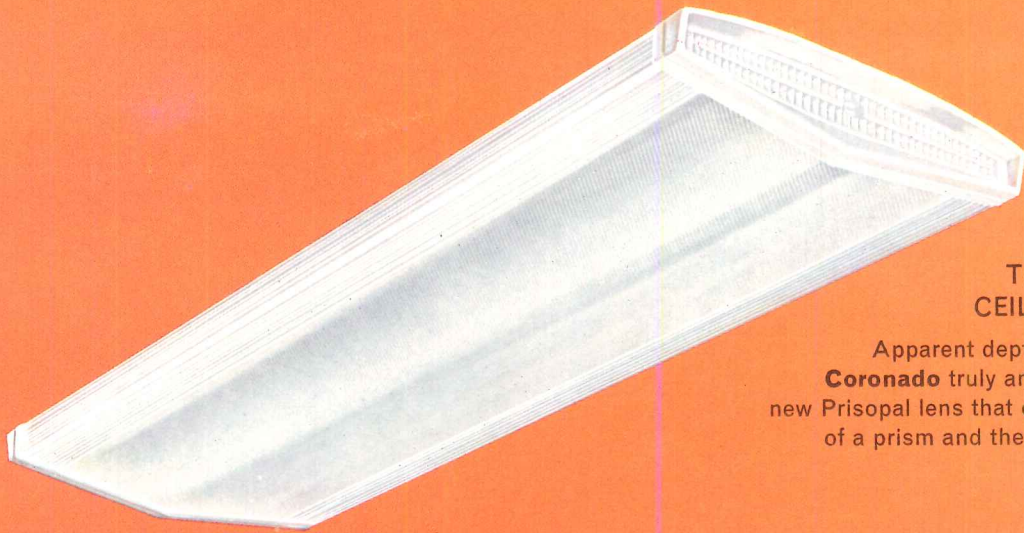
City _____ State _____ Zip code _____

Let Catalina II Capture Your Imagination

Perfection in modern design becomes a reality as Catalina II blends the smooth flowing lines of customized styling with exceptional illumination performance. Unmarred by metal rails or braces, unblighted by dust or insects, Catalina is a perfect

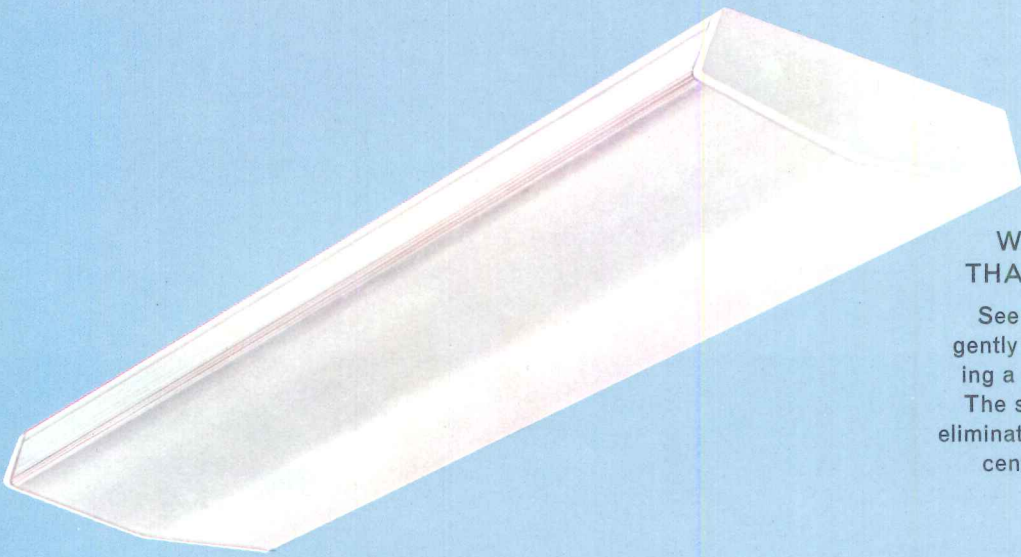
complement to modern offices. Double-wall polystyrene side panels are chemically welded to the diffuser, forming a one-piece assembly. If this isn't what you're looking for, see the Coronado, Caravel and Versateer units on the next page.





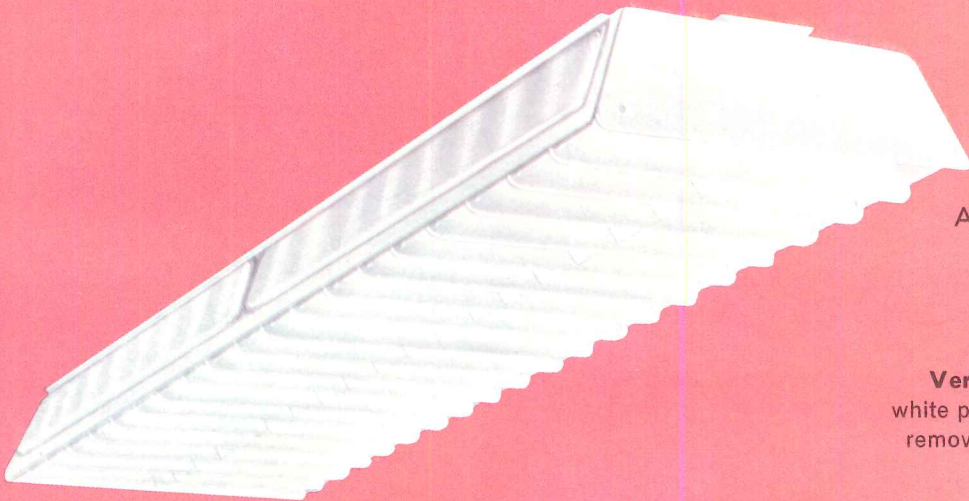
**TIMELESS BEAUTY IN A
CEILING-HUGGING DESIGN**

Apparent depth is only 2½ inches, making **Coronado** truly an unobtrusive light source. A new Prisopal lens that casts light with the efficiency of a prism and the softness of a white diffuser.



**WRAP-AROUND EFFICIENCY
THAT ACCENTS ANY CEILING**

See how the **Caravel** bends the light gently around its outer perimeter bringing a warming influence to any ceiling. The solid end construction completely eliminates light leaks. A new spring-type centering device keeps lens in place.

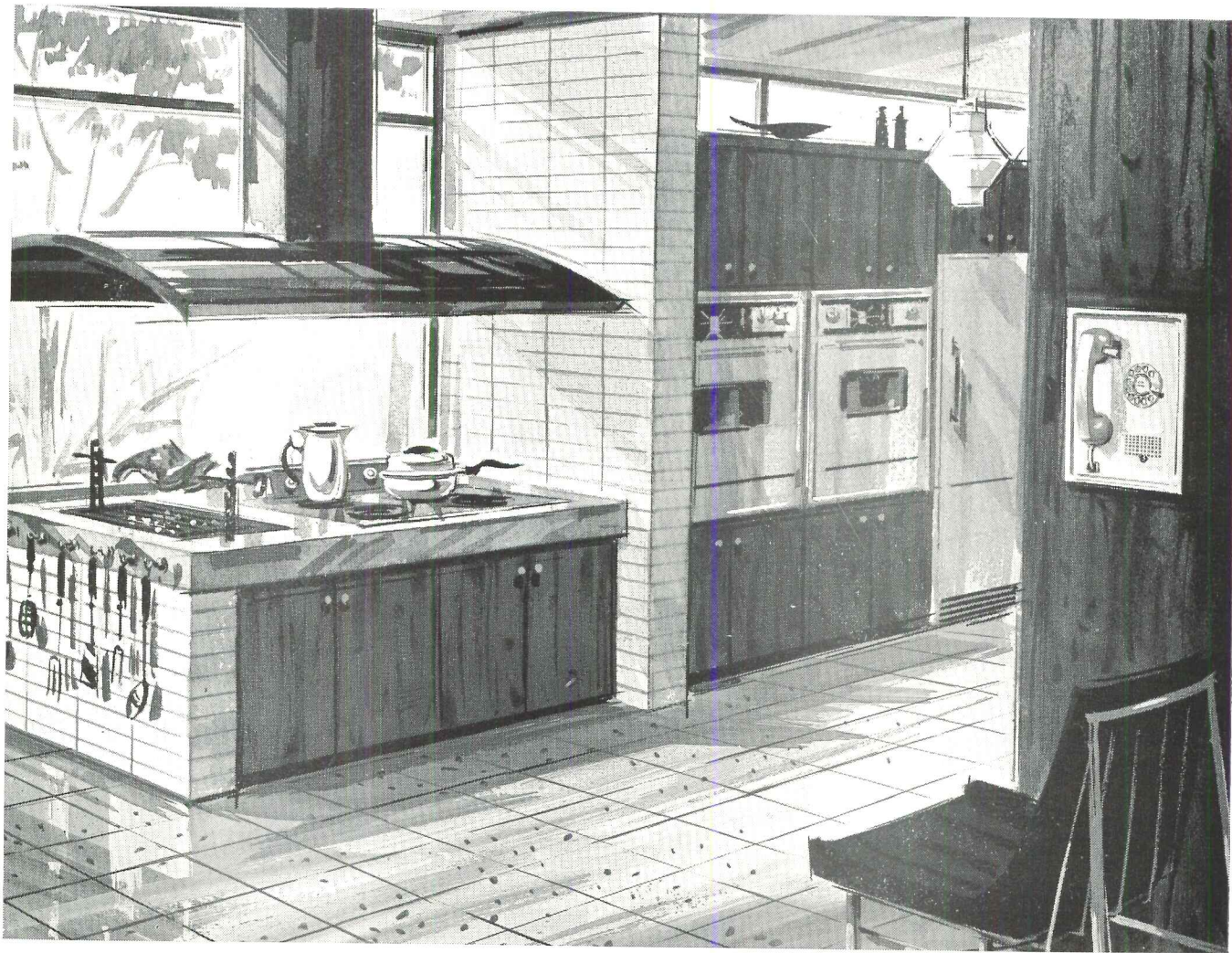


**A PERFECT COMBINATION OF
BEAUTY WITHOUT BOTHER**

Here's the recognized standard for schools, offices, stores, banks or any other commercial application. **Versateer** is available with steel or frost white polystyrene sides. The louvers can be removed for easy cleaning and re-lamping.

Don't forget to send in the coupon on the front page for Thomas Industries catalog and new portfolio of Lighting Classics Installations.

BENJAMIN PRODUCTS
 **THOMAS INDUSTRIES INC.**
207 E. Broadway, Dept. C2, Louisville, Ky. 40202



The attractive new Panel-Phone fits flush into the wall . . . adds to the total convenience of this functional kitchen. For help in telephone-planning your new homes, just call your local Bell Telephone Company Business Office and ask for the Architects' and Builders' Service. See Sweet's Light Construction File, 11c/Be, for other residential telephone installation ideas.



YOU CAN ENHANCE the beauty and practicality of the homes you design by providing for built-in telephone outlets and concealed wiring. Modern as tomorrow, they serve a dual purpose: to protect interior beauty and provide flexible arrangements for a family's ever-changing telephone needs.



BELL TELEPHONE SYSTEM

Serving you

For more data, circle 45 on Inquiry Card

For more data, circle 46 on Inquiry Card →

an entrance



Narrow Stile 190 Entrance Package
Slim modern design, for most stores and commercial buildings. Shown in Perma-nodic Medium Bronze No. 28. Seven Nar-row Line Frames and five closer options.

Furs Courtesy N. H. Rosenthal, Chicago

should be a thing of beauty

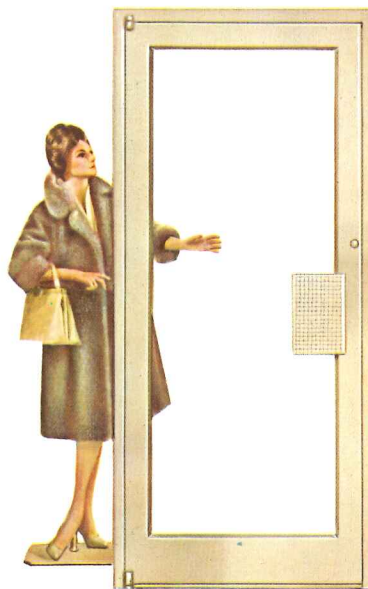
—and deliver precision performance at practical cost!

Beauty for keeps . . . that's Kawneer Permanodic* color . . . a new design tool you can use to add extra dimension to your expression. And it's available with *Kawneer Beauty-Rated, Duty-Rated Entrance Package*.

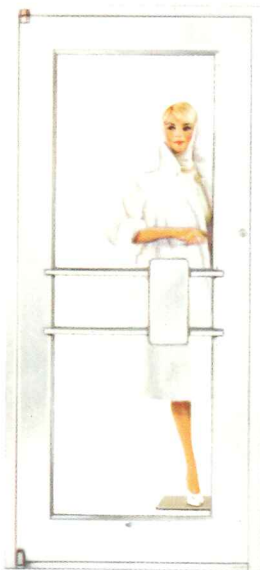
These anodic hard color finishes are created from alloys—not dyes—therefore are *non-fading, resist corrosion, abrasion, and dulling effects* of weather or industrial atmosphere.

The Kawneer door and framing are precisely engineered to give the best possible *performance as evidenced in tests by leading independent laboratories*. The entrance package will also give you the most attractive appearance—and affords a handsome savings. For performance, looks, and savings, specify a Kawneer entrance package.

Write Kawneer Company, Niles, Mich., for complete specification file, number P.E. 64.



Extra Duty 350 Entrance Package—Designed for extra abusive traffic as in institutions and schools. Shown in Permanodic Light Bronze No. 26. Seven Narrow Line Frames, and five closer options.



Wide Stile 500 Entrance Package—Massive design ideal for monumental and extra heavy traffic buildings. Shown in Alumilite No. 204A1R1. Seven Narrow Line Frames and five closer options.



Style Leader 125 Entrance Package—Specify when modern high style appearance is an important consideration and strength a necessity. Shown in Permanodic Black No. 29. Furnished with Kawneer-engineered Concealed Overhead Closer. Five Narrow Line Frame options.



Kawneer Company, a Division of American Metal Climax, Inc.
Niles, Michigan • Richmond, California • Atlanta, Georgia • Kawneer Company Canada, Ltd., Toronto, Ontario • Kawneer de Mexico, S.A. de C. V., Mexico City, Mexico • Kawneer Company (U. K.) Ltd., London • Kawneer GmbH, Rheydt, Germany • Showa Kawneer, Tokyo, Japan

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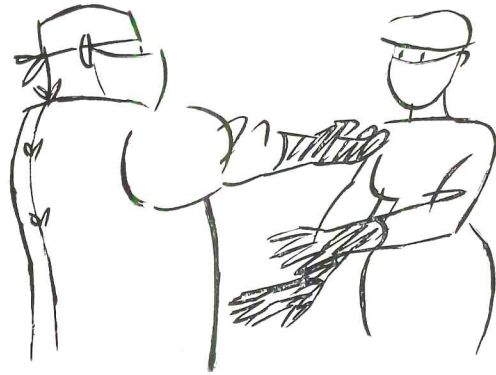
"Clamps,
forceps,
scalpel..."

"Clamps,
forceps,
scalpel..."



"LUCITE..."

"LUCITE,
Doctor?"



"Yes, that lighting shield has
turned yellow. Shields of
LUCITE stay CRYSTAL CLEAR,
YEAR AFTER YEAR."



"Where are
you going?"

"I've decided
to be a
lighting
engineer."



Helpful engineering data... for a tree lighting booklet and more information on acrylic lighting shields made from LUCITE, write: Du Pont Company, Dept. AR-7, Room 2507L, Wilmington 98, Delaware. (Du Pont does not make or sell lighting shields, but supplies LUCITE acrylic resin, or acrylic monomer to manufacturers of quality diffusers.)



LUCITE®

For more data, circle 47 on Inquiry Card

For more data, circle 48 on Inquiry Card ➤



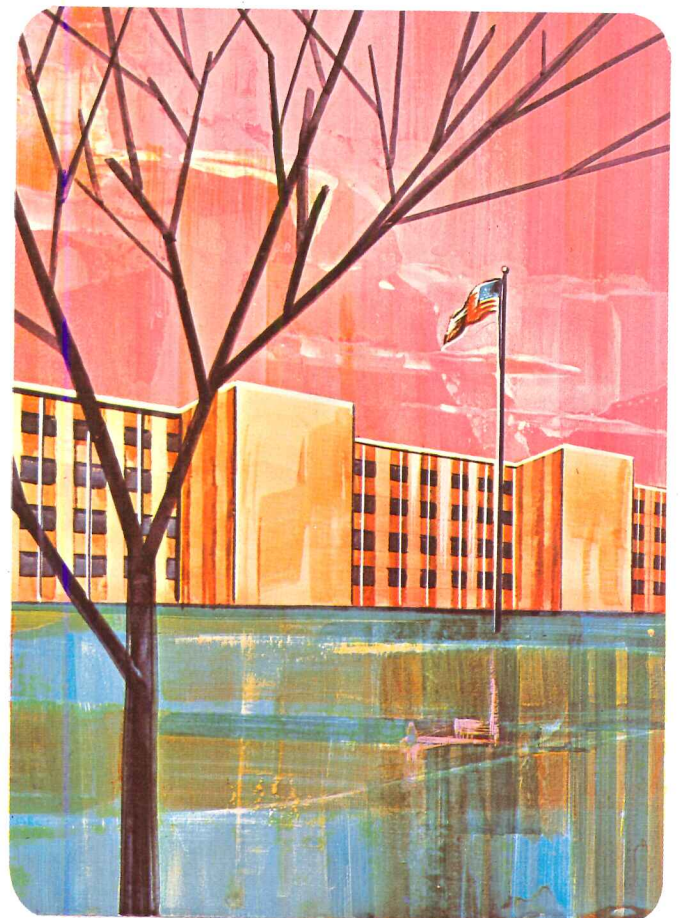
FEDERAL OFFICE BUILDING, Miami, Florida.



CORPUS CHRISTI STATE NATIONAL BANK, Texas.



AIR TERMINAL BUILDING, Edmonton, Alberta, Canada.



VETERANS HOSPITAL, Martinez, California.

What makes these buildings in four distinct climatic regions so alike but yet so different? How did Carnes contribute?

TURN PAGE FOR ANSWER.

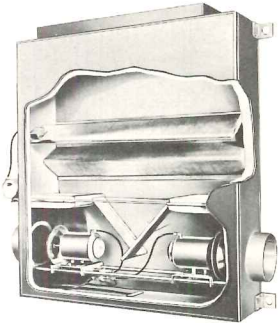
ANSWER:

Each has a Dual Duct Air Handling System, yet each utilizes a different type of Carnes (ATC) Acoustical Terminal Control Unit.

THESE ARE THE DIFFERENT DUAL DUCT ATC UNITS THESE BUILDINGS USE.

AIR TERMINAL BUILDING
Architects and Engineers:
Rensaa Minsos Associates

CARNES HIGH VELOCITY
ALL PNEUMATIC
CONSTANT VOLUME
ATC UNITS

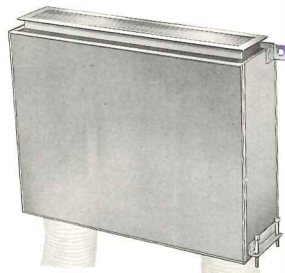


Features new simplified direct valve-to-motor connections. Eliminates troublesome mechanical devices, linkage, flappers, bladders, etc.; split service responsibility, maintenance, short circuiting. Assures trouble free lifetime service. Has non-stick resilient valve seats that are leak free. Units maintain a constant air volume $\pm 5\%$ despite duct static pressure variation of 1:8 or greater. Positive temperature mixing is assured with integral blender. Full 1" acoustic lining with leading edges metal protected to prevent delaminating. Designed with protected pressure drop sensing tips for accurate calibration; without obstructions or perforated metal across flow path. A selection of models is available in window perimeter and ceiling units in dual or single duct. Also High Velocity Units with manual volume control. For complete information,

Write for Catalog 1160.

CORPUS CHRISTI STATE
NATIONAL BANK
Architects: Vogler, Tanner Kipp
and Winston
Mechanical Engineer:
Alvin S. Vener
Mechanical Contractor:
W. R. Cook Air Conditioning

CARNES LOW VELOCITY
DUAL DUCT ATC UNITS

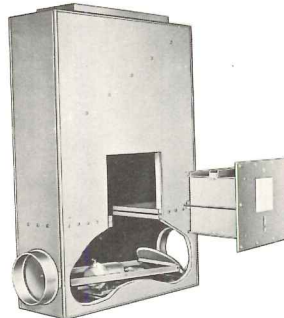


Units specially designed for low velocity requirements. Offer advantages of dual duct individual room control without the need for sealed ducts, high pressure fans required for high velocity. Units blend air for discharge at correct temperature into space area... attenuate noise... provide manual volume adjustment. Features: Capacities to 2000 CFM. Hot and cold valves are directly connected so thermostatically controlled motor opens one valve and closes the other simultaneously. Valve linearity holds to $\pm 5\%$ between wide open and closed positions. Full $\frac{1}{2}$ " acoustical lining. Resilient valve seals prevent leakage. Manual volume control with adjustable stem. A selection of models is available in window and ceiling units.

Write for Catalog E31F.

FEDERAL OFFICE BUILDING
Architects: Steward-Skinner &
Charles Giller Associates, Miami
Engineers:
Saul Neufeld and Associates
Mechanical Contractor:
Sam P. Wallace Co., Inc.
Sheet Metal Contractors:
E. F. Co., Inc.

CARNES MECHANITROL
CONSTANT VOLUME
HIGH VELOCITY
ATC UNITS

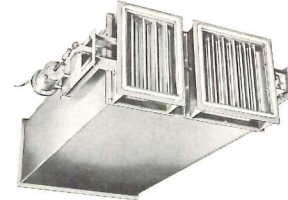


Carnes Mechanitrol Acoustic Terminal Control Units reduce velocities and pressures, proportion and mix hot and cold High-Velocity air, and deliver Low-Velocity air at constant volume to the room outlets. Hot and cold air valves are directly connected so that the thermostatically controlled pneumatic motor opens one valve and closes the other simultaneously. Air volume is maintained within $\pm 5\%$ despite inlet static pressure variations of 1:8. The Mechanitrol units have no flappers, curtains or bladders of rubber, synthetic or other materials to deteriorate over a period of time. All moving parts are stainless steel or nylon for lifelong trouble-free operation. Fibrous glass lining and baffles attenuate noise. Omission of perforated metal eliminates dust clogging. Factory-set CFM may be externally reset in field. Units come completely assembled, ready to install, including pneumatic motor furnished to Carnes by control contractor. Full range of sizes with side or end inlet; bottom or end discharge. Rated from 75 to 4000 CFM depending upon unit. Get full details.

Write for Catalog E20D.

VETERANS HOSPITAL
Architects: Hertzka & Knowles
Charles Luckman Associates
Confer & Willis
Mechanical Engineer: William-
son & Vollmer Engineers, Inc.
Mechanical Contractor:
Hickman Brothers
Sheet Metal Contractor: Atlas
Heating and Ventilating Co., Ltd.

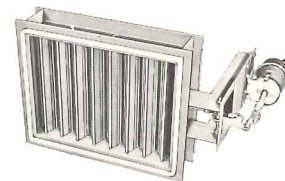
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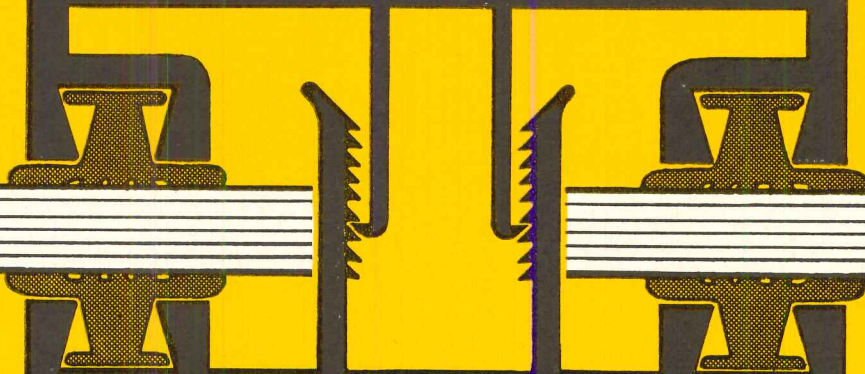


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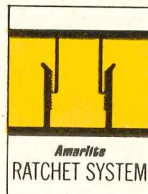
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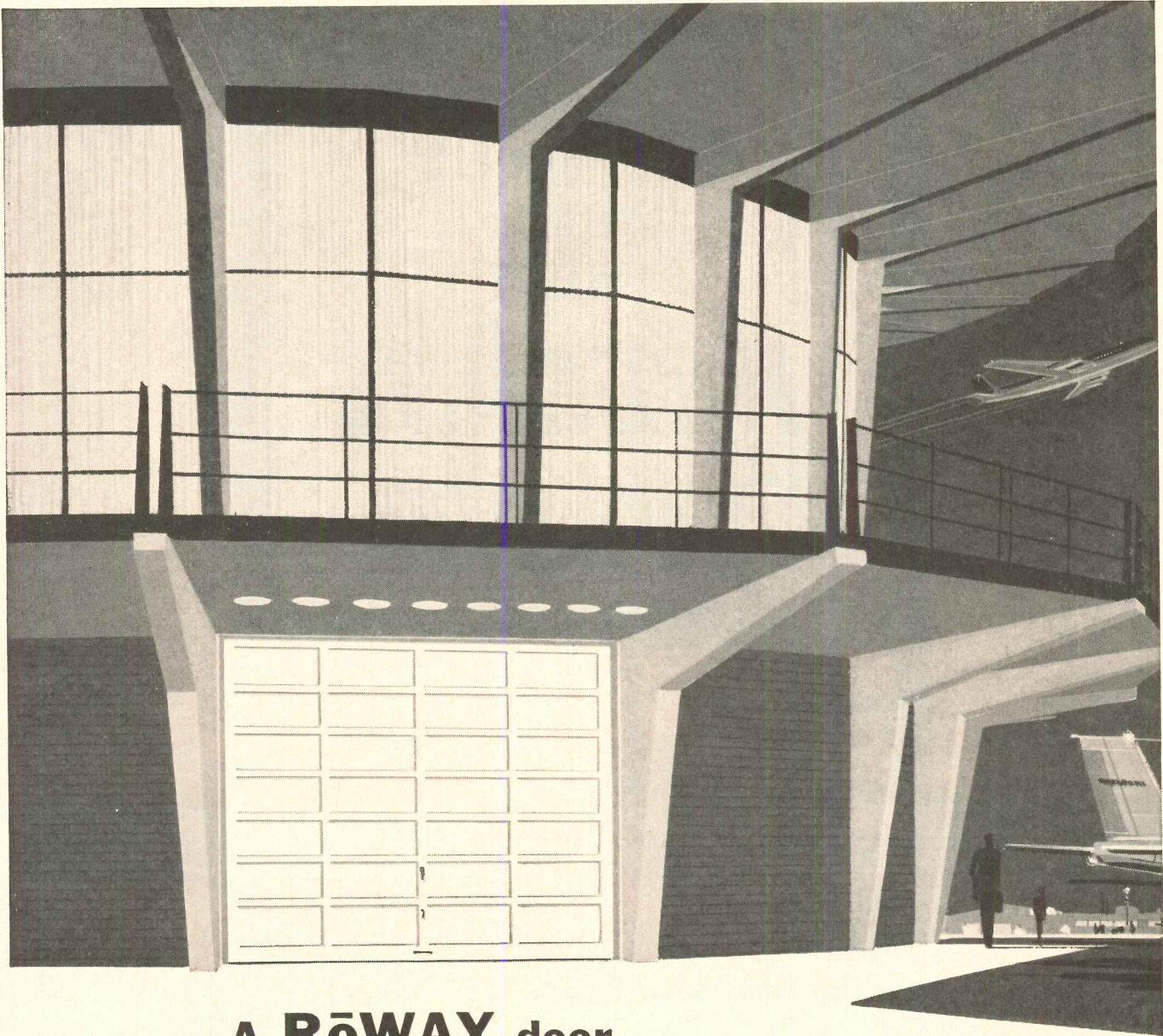


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Required Reading

A monthly roundup of reports on new books of special interest to architects and engineers

"The Draftsman who went to Australia"

WALTER BURLEY GRIFFIN. *By James Birrell. University of Queensland Press, St. Lucia, Brisbane, Queensland, Australia. 203 pp. illus. 105s.*

Walter Burley Griffin, the American architect who designed Australia's capital, was born in Maywood, Illinois in 1876. He studied architecture at the University of Illinois, and in 1900 joined Frank Lloyd Wright's office in Oak Park. Wright and Griffin worked closely together for five years, but the partnership ended in unhappy circumstances, of which no one ever knew the exact details. Birrell suggests that the disagreement was partly financial, but whatever the cause, the rift was sufficiently deep-rooted and bitter for Griffin's wife to accuse Wright of behaviour disloyal to the cause of "democratic architectural principles," and for Wright to describe Griffin in slighting terms as "the draftsman who went to Australia."

In 1912, Griffin won the world competition for the design of Canberra. He went to Australia and spent all but the last year of his life there. His last year was spent in India, where he was commissioned to prepare a design for the library of the University of Lucknow.

James Birrell gives a detailed account of Griffin's life and work, and also claims for him an originality and "brilliance of conception, the equal of Wright in many ways." The book is well written, and gives an interesting picture of Australian archi-

ture in the early part of the century, a subject about which few people know very much. The illustrations are on the dark side and are rather too small to do justice to Griffin's work.

While not all would agree with Mr. Birrell's admittedly partisan judgment of Griffin's work, there can be little doubt of his ability and his personal charm. The book succeeds in presenting him as a staunch upholder of the American modern movement, but also as an essentially Australian architect who still has a profound influence in Australia today.

Laboratories

LABORATORY PLANNING. *By James F. Munce. Butterworth & Co., Ltd., London; and Butterworth, Inc., 7235 Wisconsin Ave., Washington 14, D.C. 160 pp., illus. \$15.00.*

Stated aim of this book is to present the laboratory as an expression of functional architecture. Typical of its British origin are both the readability of its language and the excursive-ness of its coverage. The first chapters, for example, comprise a 14-page history of laboratories beginning with those of the alchemists. Similarly thorough, and perhaps more germane, are subsequent chapters covering today's practice in depth and detail from a discussion of basic concepts through the special character of various kinds of laboratories (industrial, institutional, radioactive, etc.) to detailed considera-

This Month's Books

REVIEWS

- James Birrell, Walter Burley Griffin . . . 72
Faber Birren, Color for Interiors, Historical and Modern . . . 95
Heinrich Engel, The Japanese House, A Tradition for Contemporary Architecture . . . 76
Andreas Feininger and Susan E. Lyman, The Face of New York . . . 72
Sutemi Horiguchi, Tradition of Japanese Garden . . . 84
Susan E. Lyman, The Story of New York . . . 72
Warner L. Marsh, Landscape Vocabulary . . . 72
James L. Munce, Laboratory Planning . . . 72
Stella Snead, Ruins in Jungles . . . 95
BOOKS RECEIVED . . . 102

tion of such topics as layout of services, fittings and finishes, structure and materials.

Landscape Architecture

LANDSCAPE VOCABULARY. *By Warner L. Marsh. Miramar Publishing Co., 1300 W. 24th St., Los Angeles 7, Calif. 316 pp., illus. \$8.50.*

A compendium of terms employed by present-day landscape architects will be of practical use to many concerned with landscape design or construction, regional conservation and community planning. More than 1,600 terms related to the profession of landscaping are defined and analyzed.

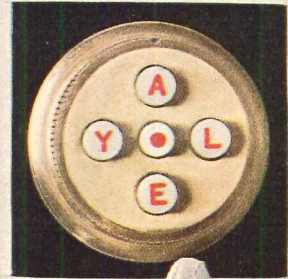
Background information on key aspects of the subject make the reading interesting as well as informative.

New York, New York!

THE FACE OF NEW YORK. *By Andreas Feininger and Susan E. Lyman. Crown Publishers, Inc., 419 Park Avenue South, New York, N.Y., 10016. Unpaged, illus. \$5.95.* THE STORY OF NEW YORK. *By Susan E. Lyman. Crown Publishers, Inc. 282 pp., illus. \$4.95.*

Like all great cities, New York is a source of endless inspiration to creative artists of all kinds. Much of the
continued on page 76

avant garde. A new kind of lock opens the door of the World's Fair House. The Yale Push-Button Lock needs no key. It opens at the touch of your fingertip. You simply press each letter, Y-A-L-E, the number of times required by your particular combination (like a safe or bank vault, except you push buttons instead of turning dials). It is designed to be used with any Yale mortise lock, past or present, and the number of combinations is virtually unlimited. The Yale Push-Button Lock beautifully combines maximum security in the Yale tradition with tomorrow's concept of lock engineering. It's the latest example of what we mean by Yale integrity of design. For the *avant garde* look in locks, specify Yale.



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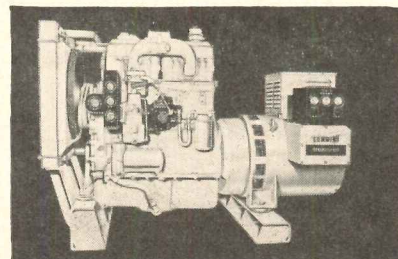



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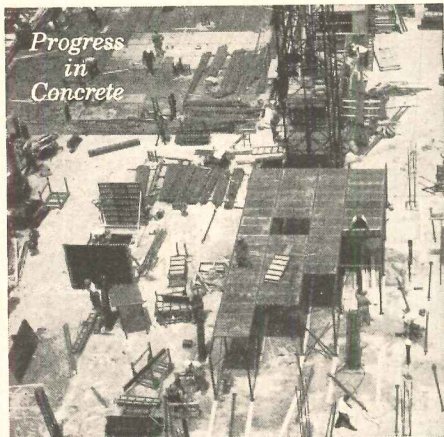
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MORE SAVINGS FROM SYMONS

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Required Reading

continued from page 72

visual excitement of "The Face of New York" has been captured by Andreas Feininger's camera, and he has also included comparative shots to show how much the city has changed over the years. The historical angle is supplied by a selection of lithographs and engravings and a text by Susan Lyman in the form of captions to the pictures.

A more detailed history of New York is given in Miss Lyman's book "The Story of New York," in which her abiding love for the city is unashamedly revealed. Her clear, narrative style takes us from 1524 when the Italian explorer, Giovanni da Verrazzano made a fleeting visit to Manhattan and was welcomed by Indians "clothed with the feathers of birds of various colors" who came towards him "joyfully uttering very great exclamations of admiration" and showed him where he could safely land his boat, to the present day with its skyscrapers, expressways and jet aeroplanes.

Neither of these books is strikingly original, but both are well worth their place in a library of books on New York.

Tradition and Creativity

THE JAPANESE HOUSE, A TRADITION FOR CONTEMPORARY ARCHITECTURE. By Heinrich Engel. Charles E. Tuttle Company, Rutland, Vt. 492 pp., illus. \$27.50.

In this book, difficult because of its complex intent and the author's unusual style, Dr. Engel aims at "making an architecture of the past seizable for the contemporary. It is an attempt to interpret the outstanding achievements of a prior architecture, not as forms with obscure causes and motivations, but as forms that actively state a particular order of values. By discussing architectural causes rather than merely comparing architectural forms, the analysis of Japanese residential architecture will deal with the core of the problems in contemporary architecture." His idea is "a confrontation of the characteristics of Japanese residen-

continued on page 84

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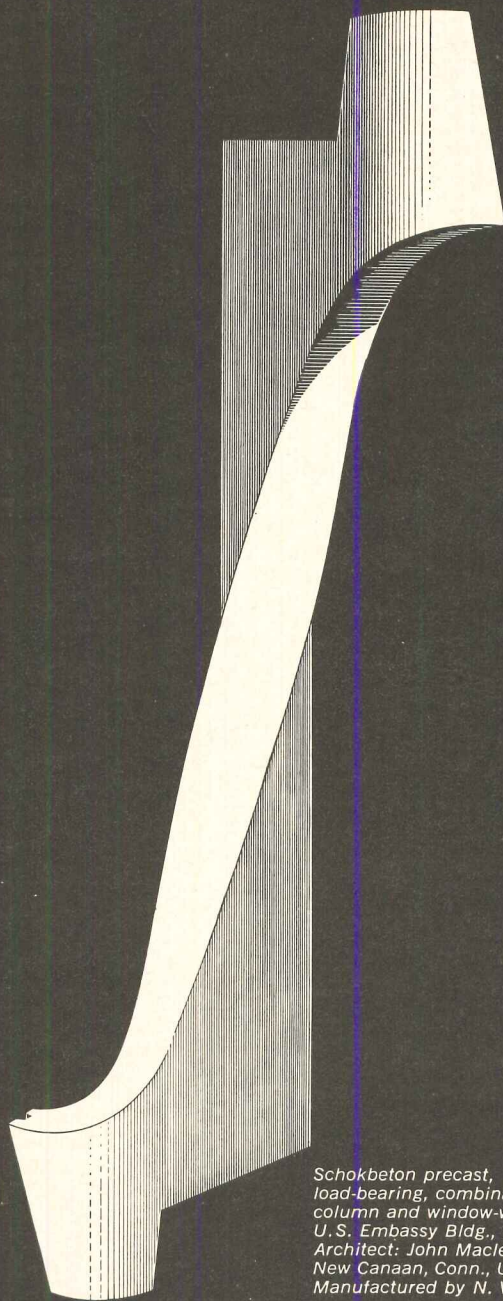
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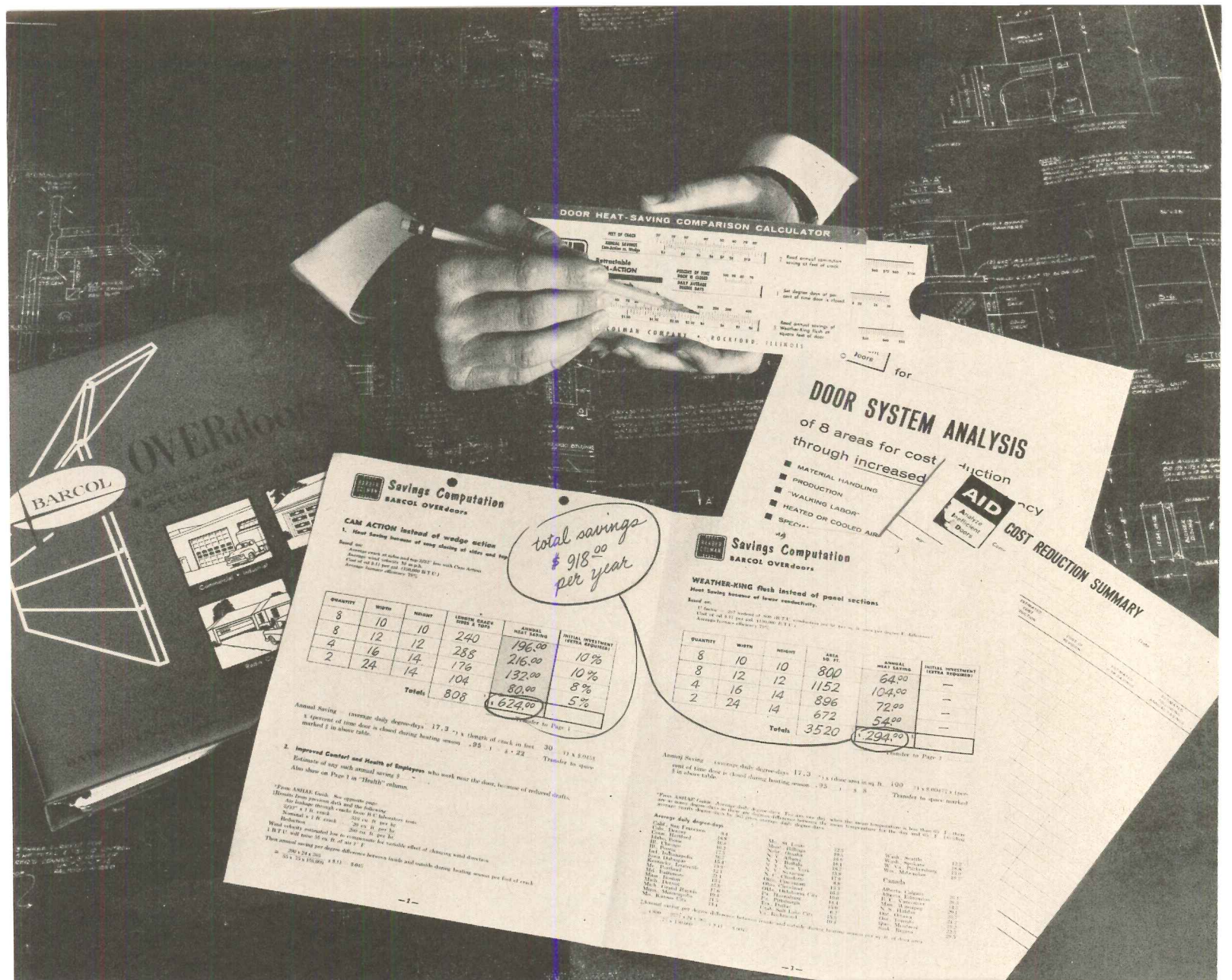
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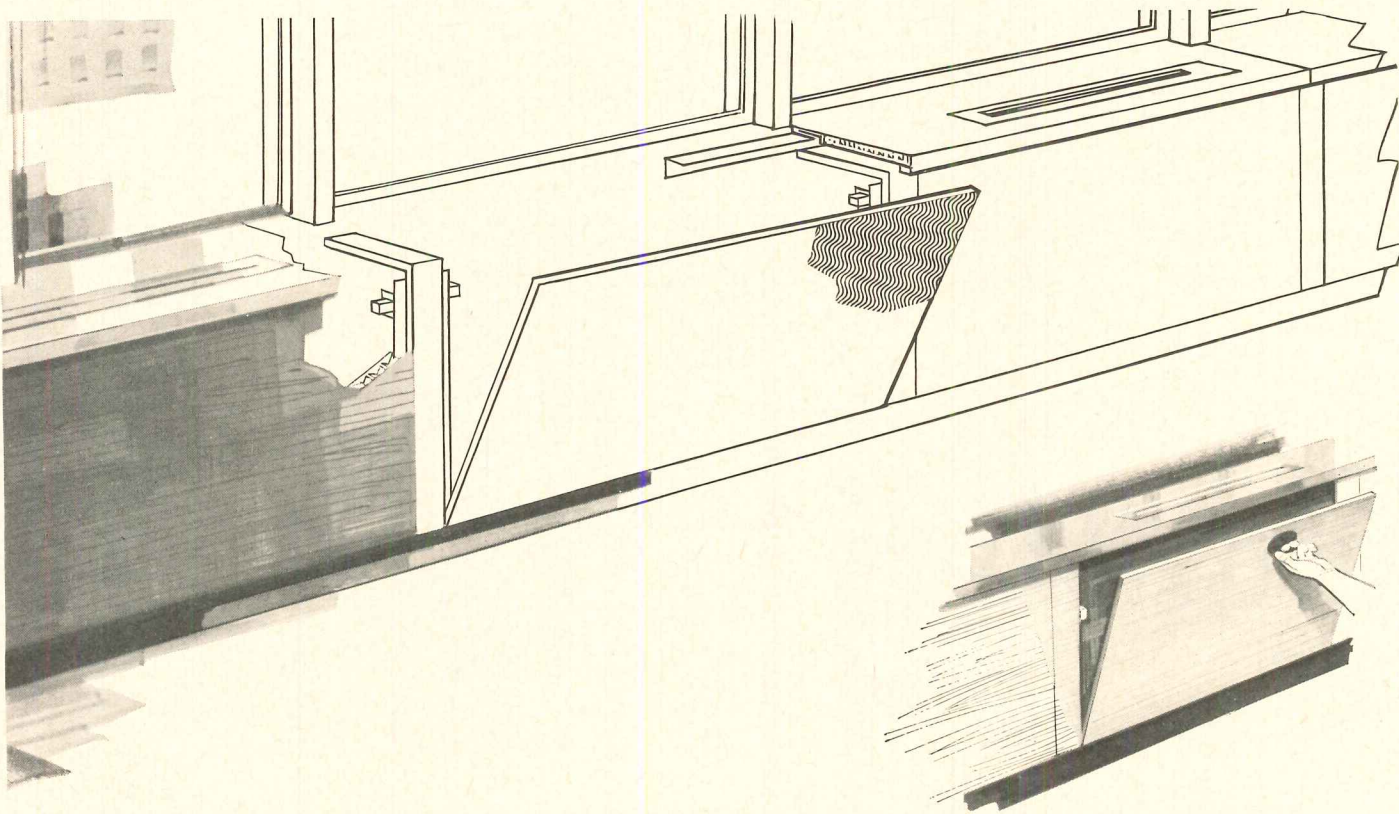
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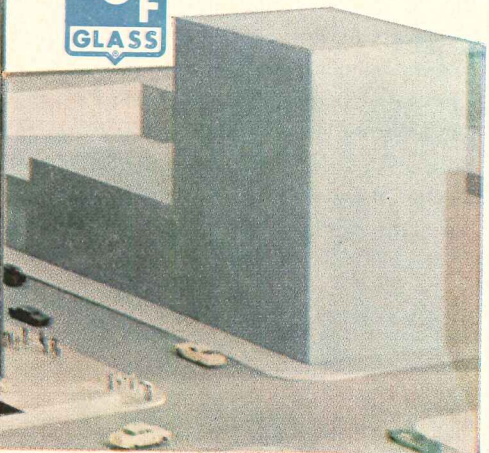
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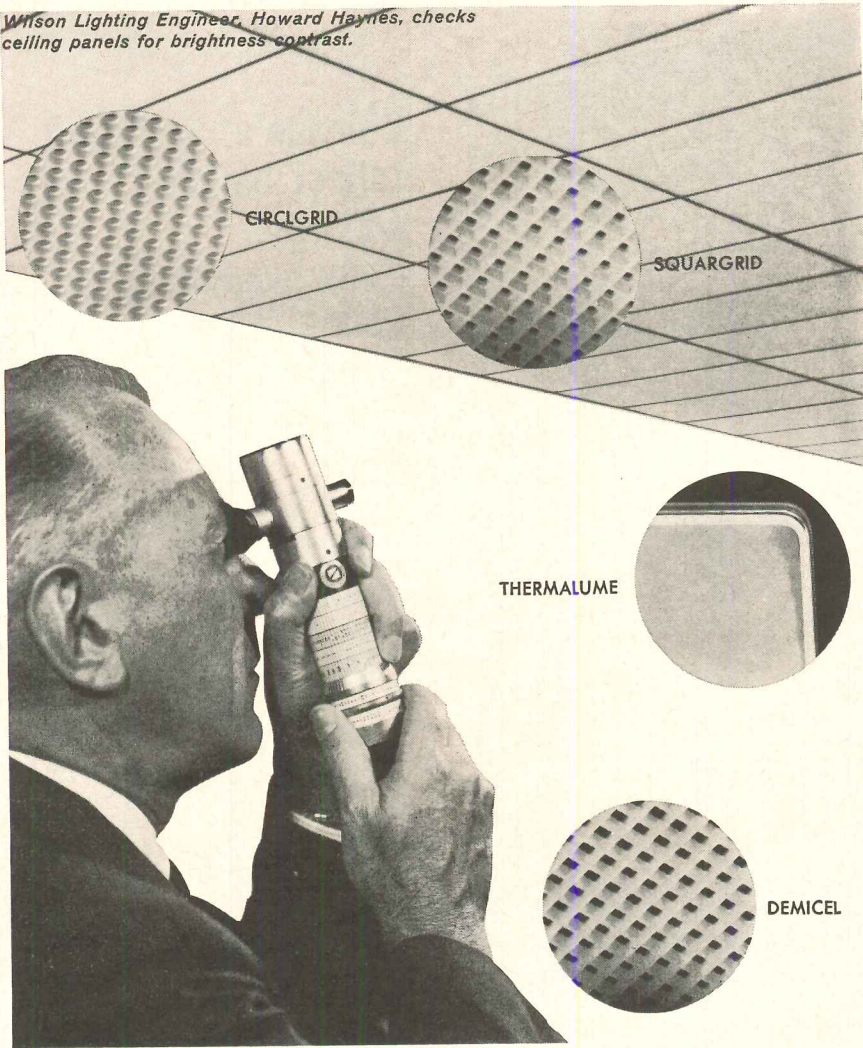


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Loebl, Schlossman
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Glaziers:
Curtain Wall —
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& Paint Mfg. Co.
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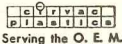
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Required Reading

continued from page 76

tial architecture with the respective phenomena in contemporary architecture . . . a confrontation to uncover the problems of contemporary living and building and directly inspire their solution . . . a task that cannot be accomplished through reasoning based merely on visual aspects, but requires a thorough study of the total formative and circumstantial factors."

In a foreword, Walter Gropius asserts that "this book should help to build a bridge between East and West. It is apt to abate the notorious presumption of Western man towards the older and deeper culture of the Orient. The author concentrates particularly on those features of the Japanese architectural tradition that appeal so strongly to the modern architect in the Western world. He shows that this is not just the result of a fashionable trend toward Oriental design motives, but that it is based on the recognition that certain discoveries in the realm of form creation have permanent significance for all branches of society. In revealing the meaningful cultural aims and the high craftsmanship of the Japanese domestic architecture as it evolved through the centuries and in laying bare the compelling motives that directed its development, the author never contents himself with offering a historical study only, but brings, instead, the traditional values alive for the present."

TRADITION OF JAPANESE GARDEN. By *Sutemi Horiguchi*. *The Kokusai Bunka Shinkokai, Tokyo*. Distributed by *East West Center Press, Honolulu 14, Hawaii*. 186 pp., illus. \$15.00.

Another handsome book on the Japanese tradition, this volume first discusses the historical development of the Japanese garden and then describes the differing types and the purposes for which they were created. The brief text is followed by a generous collection of excellent photographs of both public and private, ancient and modern gardens, with

continued on page 95

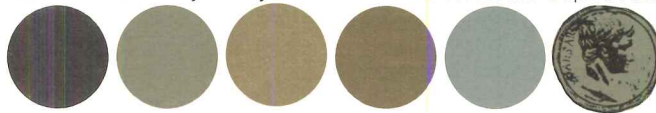


Portland Hilton Hotel, Portland, Oregon. Architect: Skidmore, Owings & Merrill, Portland, Oregon. General Contractor: Andersen-Westfall Company, Inc. KALCOLOR® aluminum fabricator: Fentron Industries

THESE FRAMES WILL WEAR WELL AT PORTLAND HILTON — THEY'RE SUNFAST KALCOLOR® ALUMINUM

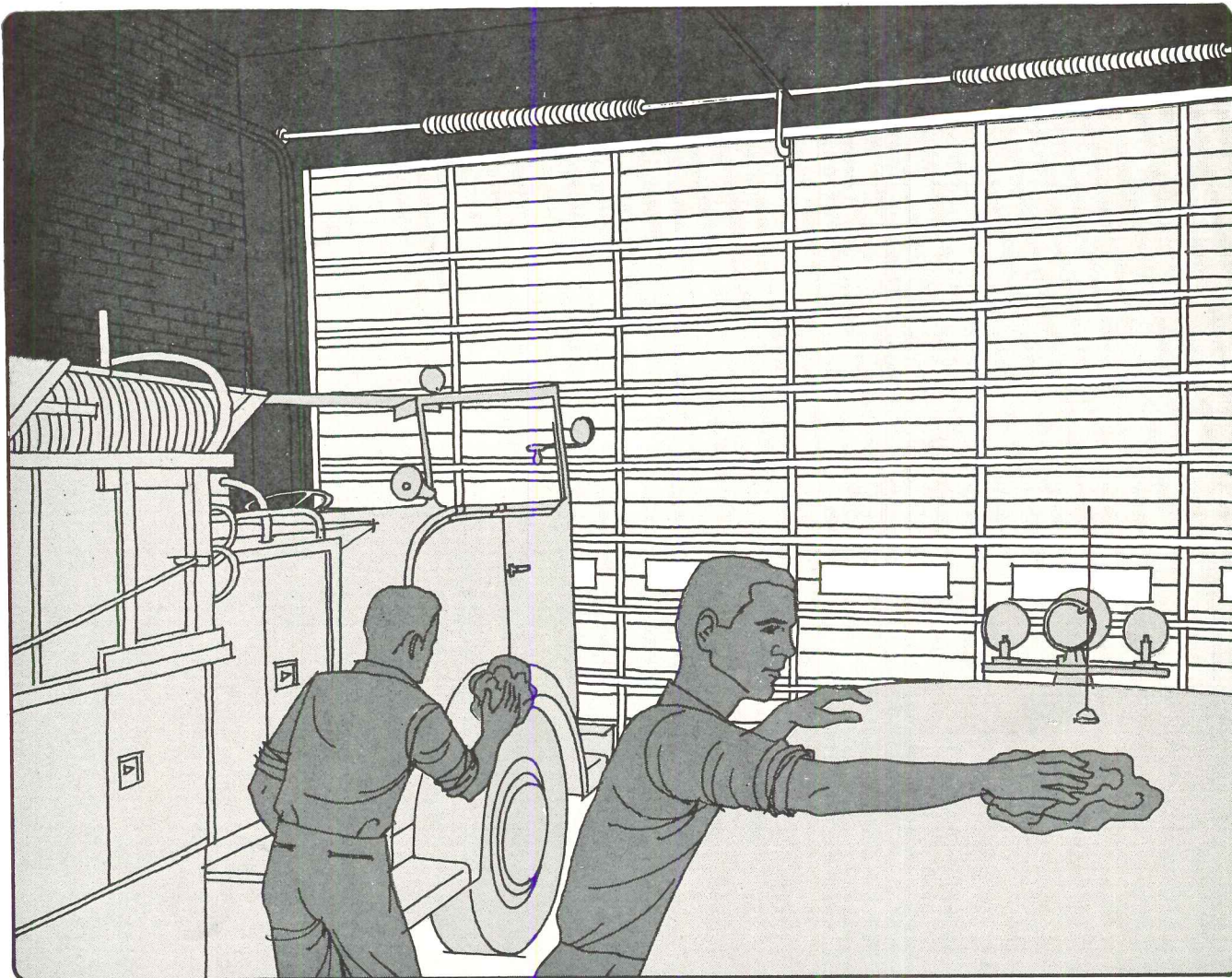


Guests at the new Portland Hilton will scarcely notice—its window frames are amber, its mullions antique gold. For this KALCOLOR aluminum is so much a part of the design — restful, relaxing, clean. Colors that wear so well visually are one advantage of KALCOLOR. Another is that this anodic coating wears extremely well physically—it is sunfast, highly corrosion-resistant, and twice as resistant to abrasion as ordinary sulphuric acid anodizing. Colors match consistently because they stem from alloy constituents (not dyes). KALCOLOR is the only anodized aluminum in a range of colors as wide as that represented in the circles below, already proven in existing exteriors. See Sweet's File 6a/Ka. To locate KALCOLOR products made by our independent fabricator customers call Kaiser Aluminum in your city . . . or write Kaiser Aluminum Dept. 845h, Kaiser Center, Oakland 12, California.



COLOR IN ARCHITECTURE . . . ACHIEVED WITH ALUMINUM

**KAISER
ALUMINUM**



function is only part of Filuma's® beauty

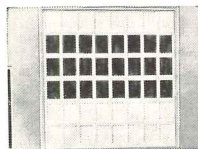
**building
design
bright spot**

Specify Frantz Filuma Garage Doors and give your clients a many-faceted bonus. First, there's the inherent esthetic beauty of their translucent fiberglass panels set in aluminum frames to give a dash of color outside while they let cheerful natural light *inside*. And because of better lighting inside, productivity and morale go up. Second, is Filuma's no-maintenance factor. Fiberglass panels are pressure sealed* into the aluminum frame . . . never pull loose . . . are shatterproof and weatherproof . . . never need paint. Your client just hoses them off to keep them bright as new. Special zinc-plated hardware won't rust. Rollers have hardened ball bearings and raceways for longer life, smoother operation. And Filuma is available in tan, coral, green or white in sizes up to 24 feet wide by 20 feet high. A special "one-man" movable centerpost lets you design opening widths to infinity. Specify the beautifully functional door . . . FILUMA by Frantz.

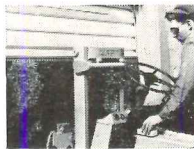
* Filuma Garage Doors Are Fully Protected Under U. S. Patent Nos. 194094, 3104699



Filuma is available in residential sizes, too.



Frantz also makes wood doors in all sizes.



Sedcon operators are engineered for Frantz.

See Sweet's Catalog or write for full details.

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The Nation's Foremost Manufacturer of Fiberglass/Aluminum Garage Doors

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As the world's largest producers of genuine mahogany, we import our own . . . entirely from Central and South America, and always have a good stock of both logs and lumber. That's why we can give you what you want, cut to specifications, when you want it.

You may finish genuine mahogany in virtually any color or degree of tone, and we can supply up to 20-foot lengths, 24-inch widths, and 4-inch thickness. This prestige product is available at prices competitive with many inferior woods.

So in much larger sizes, you can use the same wood that brought world renown to such names as Chippendale, Duncan Phyfe and Stradivarius . . . the same mahogany that remains unchanged, uncracked, unwarped in the Cathedral of Ciudad Trujillo built in 1514 . . . the same magnificent material chosen for the interior of the luxurious new Hotel Sheraton in San Juan.

And if it's slipped your mind, tests by the U. S. Forest Products Laboratory and Cornell University show genuine mahogany to be superior over other popular hardwoods in nearly all properties for mortising, boring, planing, warping, shaping and turning. So let your imagination go when you plan how to use it.

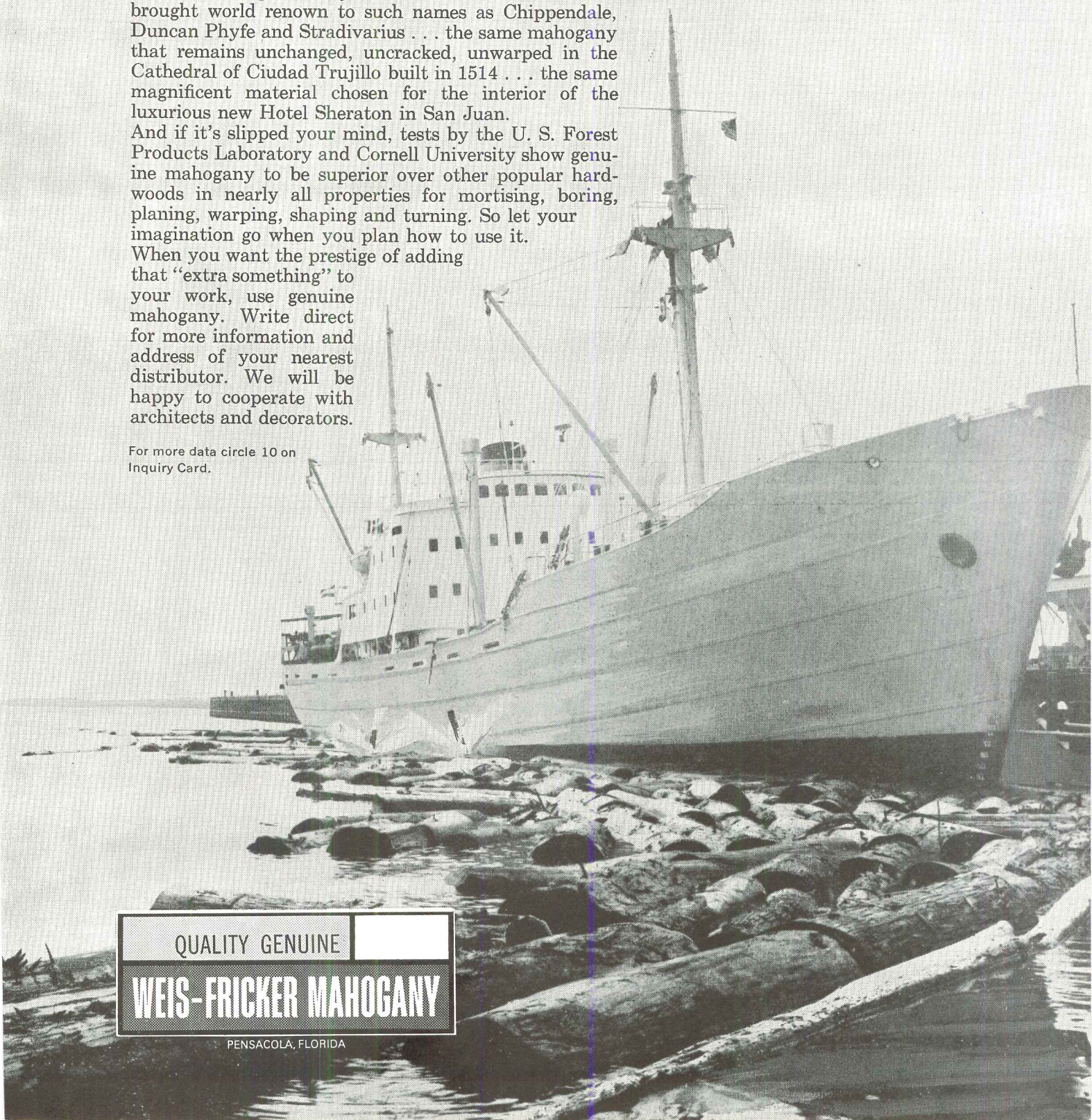
When you want the prestige of adding that "extra something" to your work, use genuine mahogany. Write direct for more information and address of your nearest distributor. We will be happy to cooperate with architects and decorators.

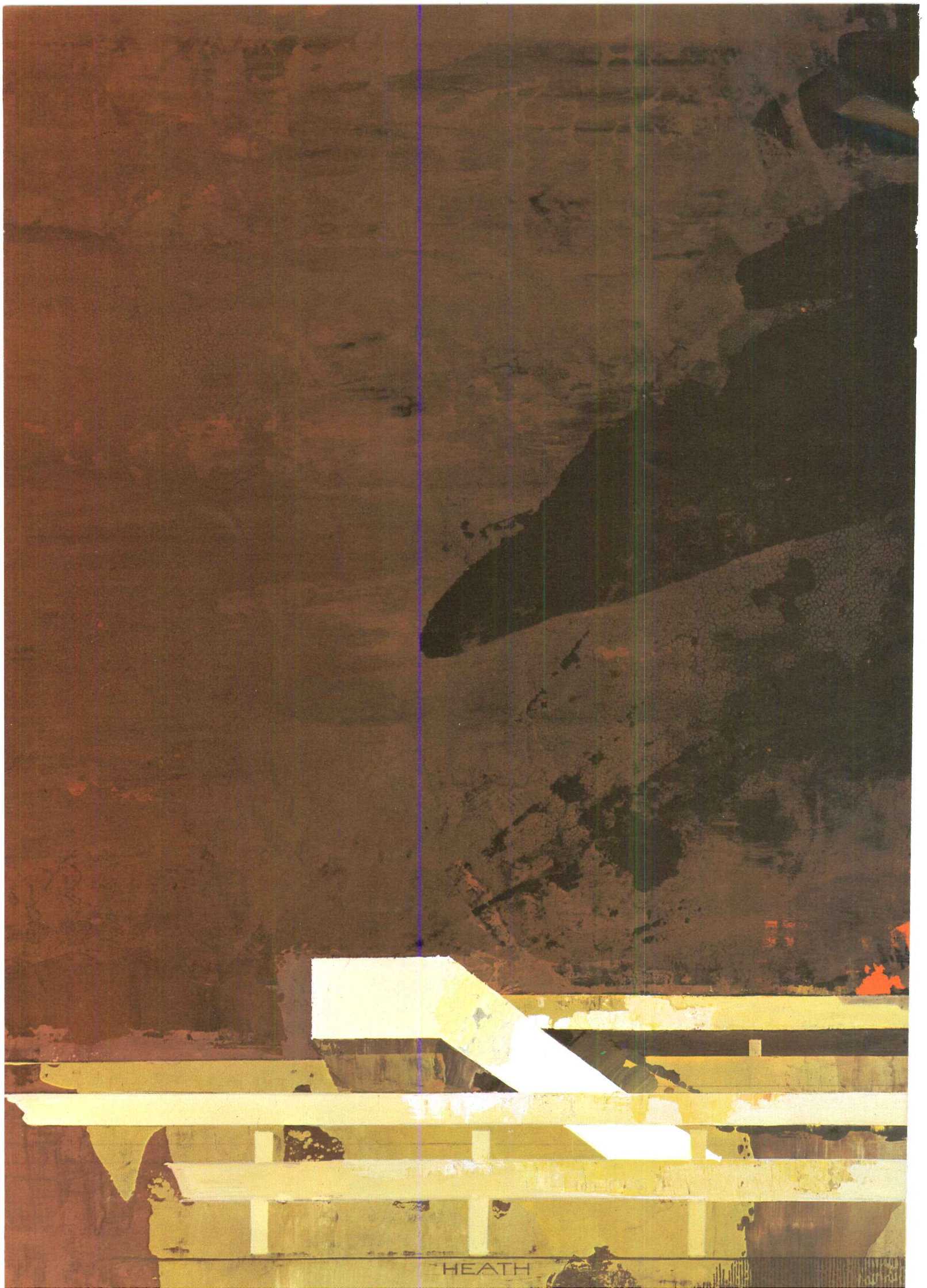
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HEATH



PAUL RUDOLPH

“The character of a building not only must reflect in line, space, contour and plane the role it is to play, but also in materials, finishes, colors and textures. Architects have found that one of the most expressive components they have to work with is lighting. Beyond its intrinsic value as illumination, lighting can do much toward establishing and sustaining the mood of a building. Its potential is far beyond anything suspected at this moment. We can look for some rather startling breakthroughs in illumination, within the next decade or so.”

Day-Brite is dedicated to the philosophy that there is much more to lighting than mere fixtures. It is our endeavor to provide architects and engineers with materials and methods which can make a vital contribution both to improved seeing conditions and the creative concept of imaginative and functional building design.



DAY-BRITE LIGHTING • A DIVISION OF EMERSON ELECTRIC
5411 BULWER AVE., ST. LOUIS, MO. 63147

Every inch an air mixing diffuser

A Foot...



A Yard...

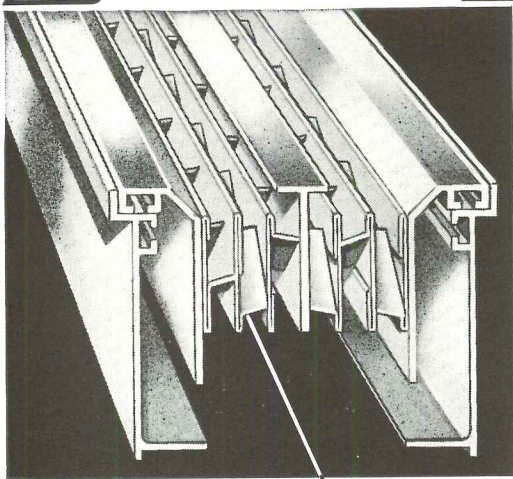


A Mile...



2 3/8" Actual Width of 4 Row Type "EF" Stripline

STRIPLINE...has no equal



If it does not have these built-in air mixing elements it is not a STRIPLINE diffuser.

When STRIPLINE is installed you can be sure that every inch, foot or mile of these air mixing diffusers, will deliver uniform, homogenized air with control movement in every cubic foot of space served.

Unlike slot type grilles, STRIPLINE has built-in air mixing elements incorporated for functional perfection... induce greater quantity of room air toward the diffuser... rapidly mix primary and room air... providing equalized velocities and temperatures in the zone of occupancy.

More than 250,000 feet of STRIPLINE is now in use. Not one foot has ever malfunctioned, your guarantee that the design of STRIPLINE and the authentic performance data available for the application of these air mixing diffusers, will assure noiseless, draftless air distribution.

Slot type grilles without air mixing elements are not diffusers and are incapable of performing these functions.

For complete performance data, types and sizing ask for catalog ES-105.

FEATURES . . .

- No visible attaching screws.
- Removable core simplifies installation.
- Design eliminates complicated and expensive duct connections while assuring equalized discharge.

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BETTER PRODUCTS FOR

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NEW STRUCTURE HOUSING ELECTRONICS FIRM

Highlights Skylights



COMBINES PERFECT WORKING DAYLIGHT WITH SAFETY

The objective of Granger Associates, Palo Alto, California and their architects to produce a high level of overhead light, as uniform and diffuse as possible at the working level, was effectively achieved by utilizing daylight admitted through skylights of Mississippi Wire Glass. The enterprise includes design, assembly and testing of highly technical elec-

tronic equipment and related engineering activities. The installation of 13,000 sq. ft. of translucent Smooth Rough Misco (wire) is responsible for an interior light intensity of 180 foot candles with only 5-10 foot candle variations across the daylighted area. Both the company and the architects are entirely satisfied with the results.

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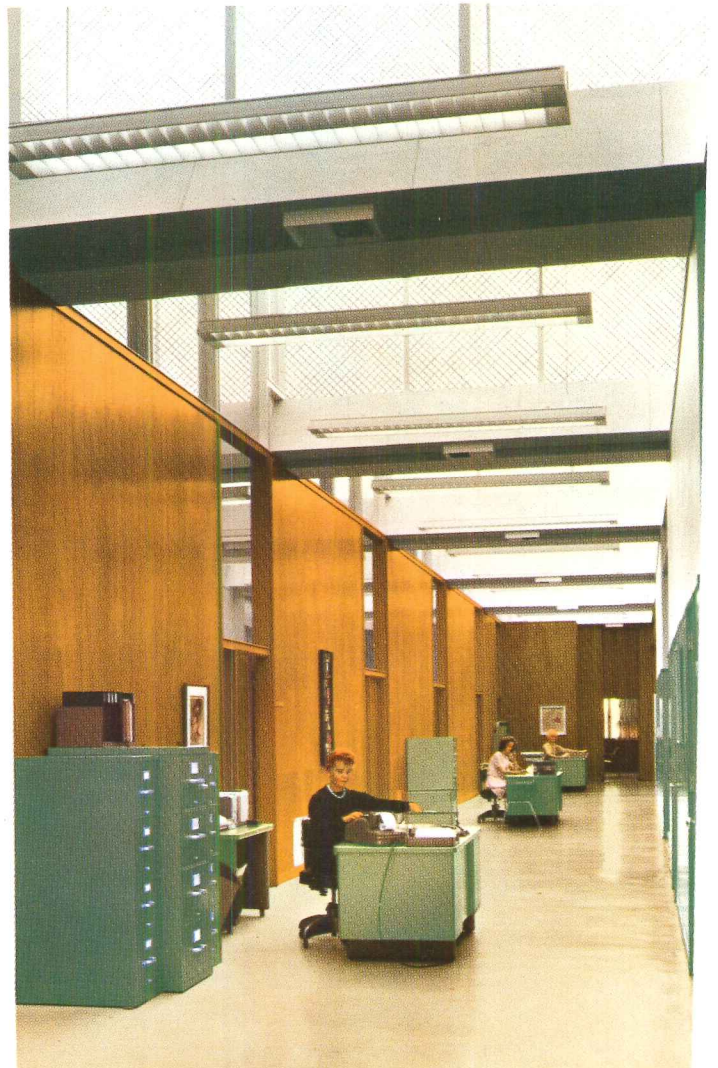
BUILT TO BE BRIGHTER — INSIDE AND OUT

Extensive glazing of translucent light diffusing Smooth Rough Misco floods working areas in this modern environment with great quantities of natural illumination . . . provides shadowless daylight that makes seeing tasks easier and accomplishes a feeling of spaciousness. And MISCO, the diamond-shaped welded wire netting in the pattern, capably performs its function as an approved fire retardant. Specify glass by Mississippi. Available in a wide variety of patterns, wired and unwired, at better distributors of quality glass.

Architect: Clark, Stromquist, Potter & Ehrlich,
Palo Alto, California

Contractor: Barrett Construction Company

Glazing: Ful-Trim Division of
Texas Aluminum Company




MISSISSIPPI
GLASS COMPANY

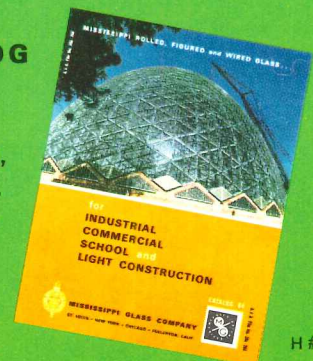
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Largest Domestic Manufacturer of Rolled, Figured and Wired Glass

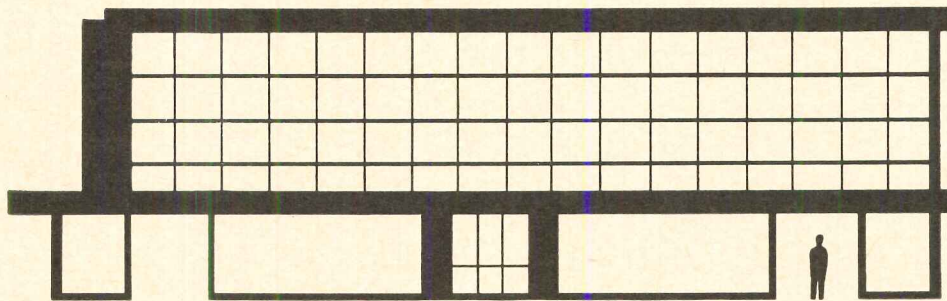
NEW CATALOG

Contains pattern descriptions, light distribution charts, transmission data. Send for your free copy today.

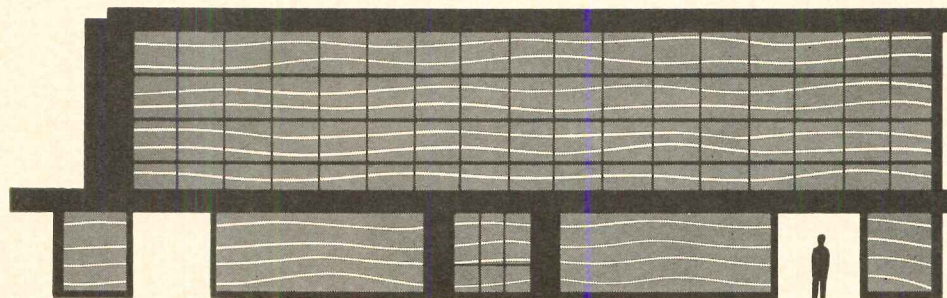
See our catalog in Sweet's 



H #2-64



Why Stockman's Motor Hotel installed Chrysler Airtemp



Stockman's Motor Hotel, in Kamloops, British Columbia, needed an air conditioning system that would be efficient, quiet, and occupy little space. Their selection, a chilled water system using a 100-ton Airtemp hermetic reciprocating chiller, met all three requirements. It's efficient—maintains comfort levels during Kamloop's hundred degree summer days. It's quiet—even at maximum load. And it's extremely compact—takes up only 19.2 square feet of floor space.

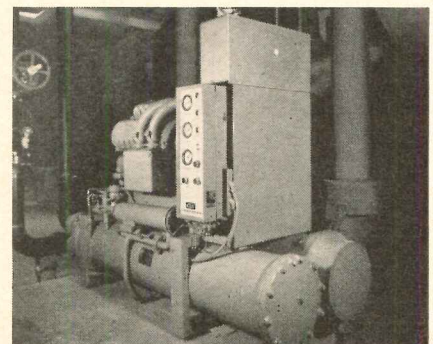
You, too, should consider Airtemp for your next air conditioning

need. Airtemp offers one of the broadest capacity ranges in the field. And all equipment is Chrysler engineered. Reliable. When it comes to assistance, Airtemp stands ready to help you with fully qualified technical representatives and detailed application data. For more information, write T. W. Kirby, Vice President—Marketing, Airtemp Division, Chrysler Corporation, 1600 Webster Street, Dayton 4, Ohio.

AIRTEMP DIVISION



CHRYSLER CORPORATION



This Airtemp hermetic chiller comfort-conditions Stockman's 18,000 square feet of public area, plus 80 guest rooms.

Mechanical Contractor: Fred Welsh & Sons Ltd. Vancouver, B.C.

Consulting Engineer: D. W. Thomson & Co., Ltd.

For more data, circle 67 on Inquiry Card

Every window in a curtain wall has its own particular variances, deviations, gaps and crevices. You've filled them with butyl rods. And stuffed them with caulking. It still rains in. Now maybe it's time you oozed them full of enormously expansive, permanent, stable, waterproof, economical, never-failing

GLOP



Technically, rigid polyurethane foam. You shoot it between windows and building columns with a gun. Appropriately called the glop gun. The glop expands and hardens instantly into what looks like great mounds of solidified shaving cream. Then you scrape off the excess. And there. Not a gap. Not a crevice. Not a variance or deviation in sight. Glop has molded itself to fit precisely. And permanently. The leak in the curtain wall building has been plugged. No more rain trickling in, and down, and around, and emerging heaven-knows-where. No more contractors playing the expensive and exasperating game of trickle tracking.

Glop saves money in other ways, too. The present multiple caulking operations are reduced to one. The tolerances of both window frames and columns become less critical. Heating costs are reduced. (In addition to being a better sealant, urethane foam is also a better insulator.)

Since both the building problem and the foam have been around for a while, how come you're just hearing about this? Because it finally occurred to somebody (*us*) that the two belonged together. The first curtain wall building to have windows foamed in position is the Security Life Building in Denver. The special prepolymers used were made from Olin raw materials by Phelan's Resins & Plastics, Burlington, Iowa. When the operation was over, Mr. George W. Skinner, Superintendent of the Harmon Construction Co., made a statement. "We say that we have solved the problem with urethane foam, and we say it unequivocally and without reservation." Not bad for homely old glop.

For more information, contact us.

ORGANICS DIVISION **Olin**
460 PARK AVENUE, NEW YORK, N.Y. 10022

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2. Identifies the occupants
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INDUSTRIES, INC.

6800 S. CHICAGO AVE. • CHICAGO, ILL. 60637
FINE CUSTOM BUILDERS' HARDWARE SINCE 1930

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Required Reading

continued from page 84

detailed descriptions of the individual plates.

Reference on Color

COLOR FOR INTERIORS, HISTORICAL AND MODERN. By Faber Birren. Whitney Library of Design, 18 E. 50th St., New York 22. 210 pp., illus. \$15.00.

The first half of this reference work on color for interiors is an analysis and codification of the historical uses of color in relation to architectural and decorative styles. The remaining pages are devoted to an explanation of the functional uses of color in modern interiors.

A professional colorist, Faber Birren has provided quite an array of paint samples which illustrate the story of color historically and explain the proper use of color as a functional element in modern design. Readers will not be unfamiliar with his recipes and taboos in respect to color specification, but nonetheless the book should remain a usable reference.

Jungle Ruins

RUINS IN JUNGLES. By Stella Snead. London House and Maxwell, a division of the British Book Centre, Inc., 122 East 55th Street, New York 22, N.Y. Unpaged, illus. \$12.95.

The relics of lost civilizations, whether in the form of paintings, sculpture, pottery, buildings or simply circles of stones, have for most people a strange magnetism. Stella Snead quite obviously shares this feeling, and her presentation of these monumental jungle ruins shows clearly the fascination which they have for her.

The main theme of the book is the relationship between the buildings and the natural world around them. A large number of the excellent photographs were taken to show the results of the "astonishing conflict between roots and ruin." Although nature is usually the ultimate victor

continued on page 102

For more data, circle 70 on Inquiry Card ➔

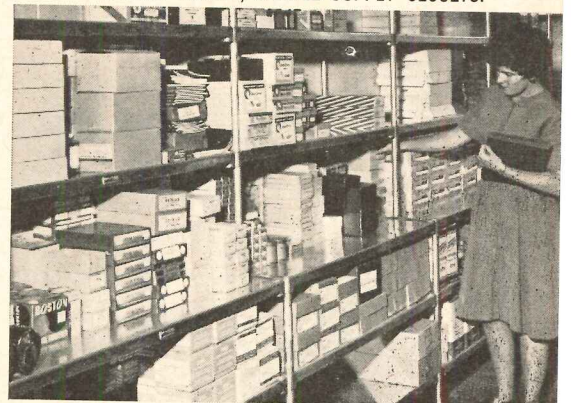
HOLD EVERYTHING...



FOOD SERVICE: KITCHEN STOREROOMS, PREPARATION AREAS, UTENSIL STORAGE.



HOSPITALS: CENTRAL SUPPLY, UTILITY ROOMS, MOBILE SUPPLY CLOSETS.



SCHOOLS: STATIONERY SUPPLIES, BOOKS, ART SUPPLIES, LUGGAGE.

...WITH

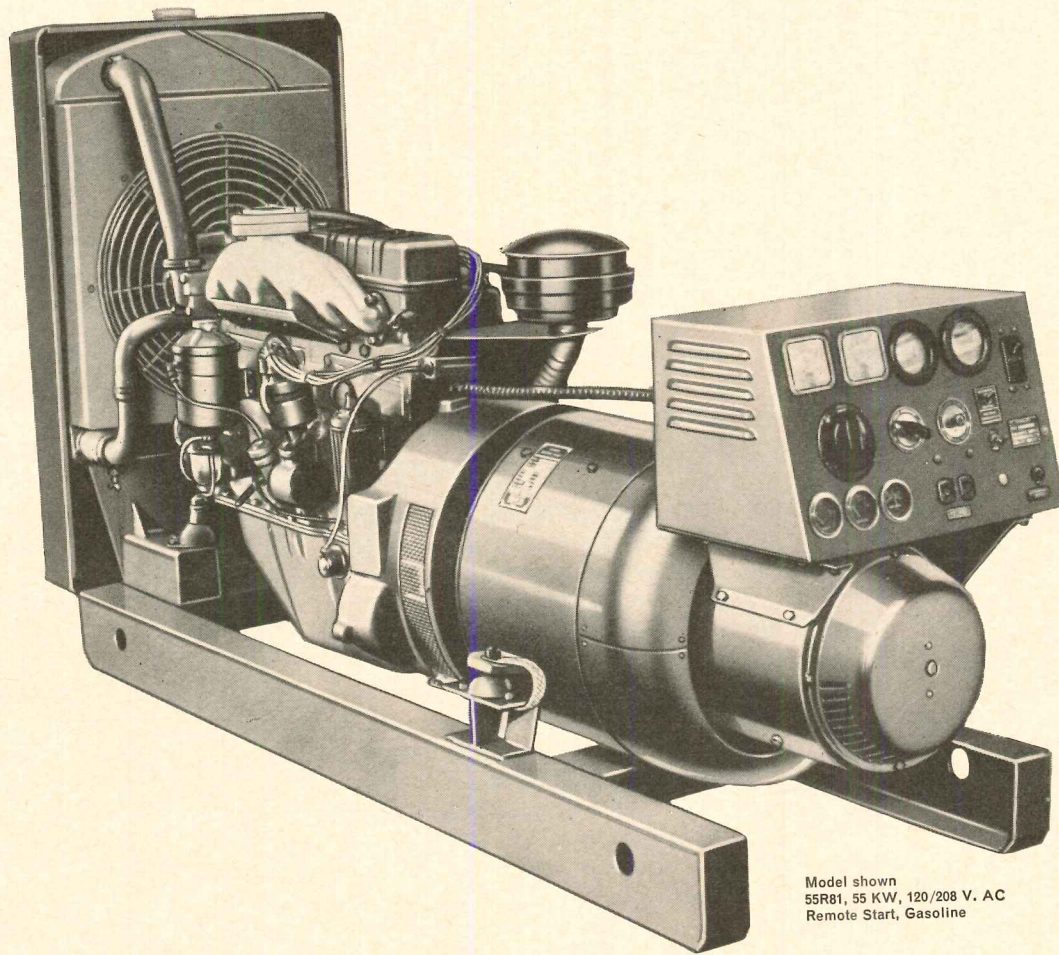
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A complete line of fluorescent lamp ballasts

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ADVAN-guard® ballasts have a built-in thermally actuated automatic resetting protective device, preset to trip out when the ballast operates at abnormally high temperatures from any internal or external cause. When the cause is corrected ADVAN-guard® resets automatically, preserves the ballast, prevents premature destruction, and adds years to ballast life.

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The Advance SOLID-FIL development design incorporates the principle of Drip-Free Unitized Ballast Construction. Coils, core and capacitor are encapsulated within the ballast housing with a polyester fill that retains a pliable consistency that does not become brittle with age or heat, permitting retention of its excellent thermal and sound deadening characteristics.

KOOL KOIL

KOOL KOIL, an exclusive Advance ballast design, incorporates the use of new grades of steel, insulations, wire and compounds. KOOL KOIL ballasts are guaranteed not to overheat capacitor insulating oil beyond manufacturer's warranty limits. They operate up to 15° to 20° C. cooler, provide up to 15% more light output and eliminate the use of costly radiators.



FUSE-LINK ballasts are equipped with a non-resetting thermal protector that opens when the ballast is subjected to abnormally high temperatures. Unlike ADVAN-guard® protectors that reset automatically and permit the ballast to resume normal operation when the trouble is corrected, FUSE-LINK protectors are destroyed and the ballast must be replaced.



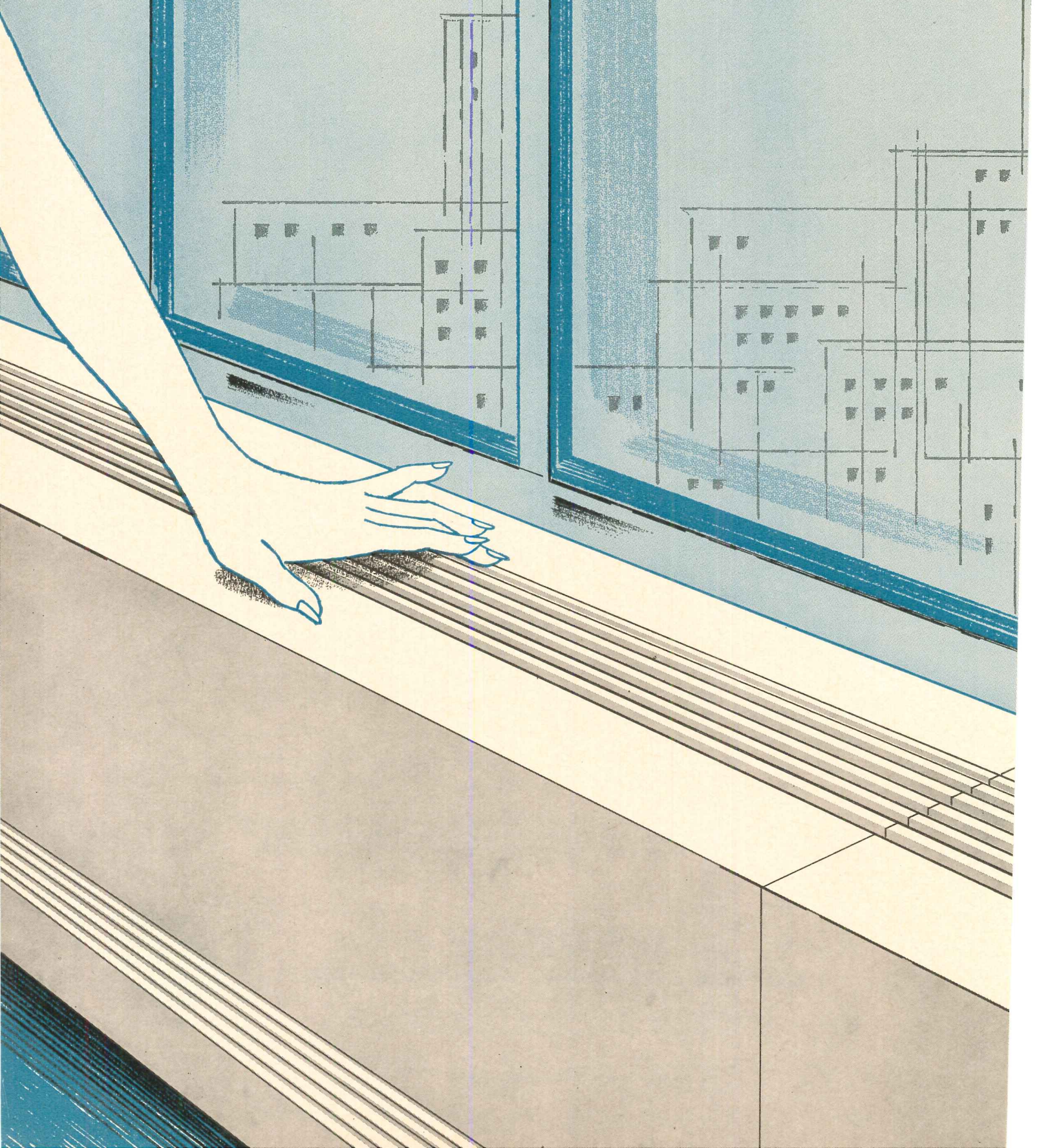
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THE LUXURY LOOK IN LINE

new—



linear diffuser enclosures

for convectors...forced air

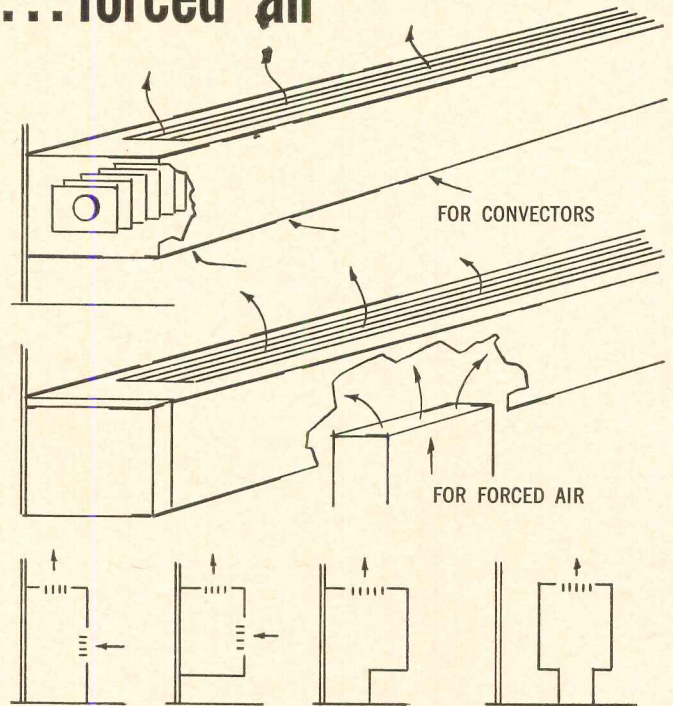
All Aluminum!

Here's new beauty in architectural design, new versatility for handling air distribution at the low sidewall and floor levels.

These new, ultra-modern-looking, all-aluminum Titus enclosures are perfect for convectors, radiators — forced air heating and ventilating units. Their attractive linear design can be used to harmonize with, or accent the overall architectural motif.

Titus diffuser enclosures have covers of heavy-gauge aluminum with extruded aluminum linear bar-type louvers (standard or fine-line) installed in top or side as specified.

Can be furnished in variable heights, widths or lengths as desired. Available in several types of finishes — including brushed satin, etched with clear lacquer finish, or clear Duracron baked finish. MAIL COUPON FOR COMPLETE DETAILS.



YOUR IMAGINATION is the only limit to the number of ways in which Titus aluminum enclosures can be used creatively in your plans. Use them as floor supported units—mounted to wall—free standing—or in any number of other ways.

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presents by sketches, the very latest in creatively designed Titus air distribution products for ceilings, sidewalls, floors. Write for your copy on your company letterhead today.

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- Please send copy of the new Titus ARCHITECTS' AND ENGINEERS' SKETCH BOOK (includes details on new Titus Linear Diffuser Enclosures.)
- Have Titus Representative call on me.

NAME

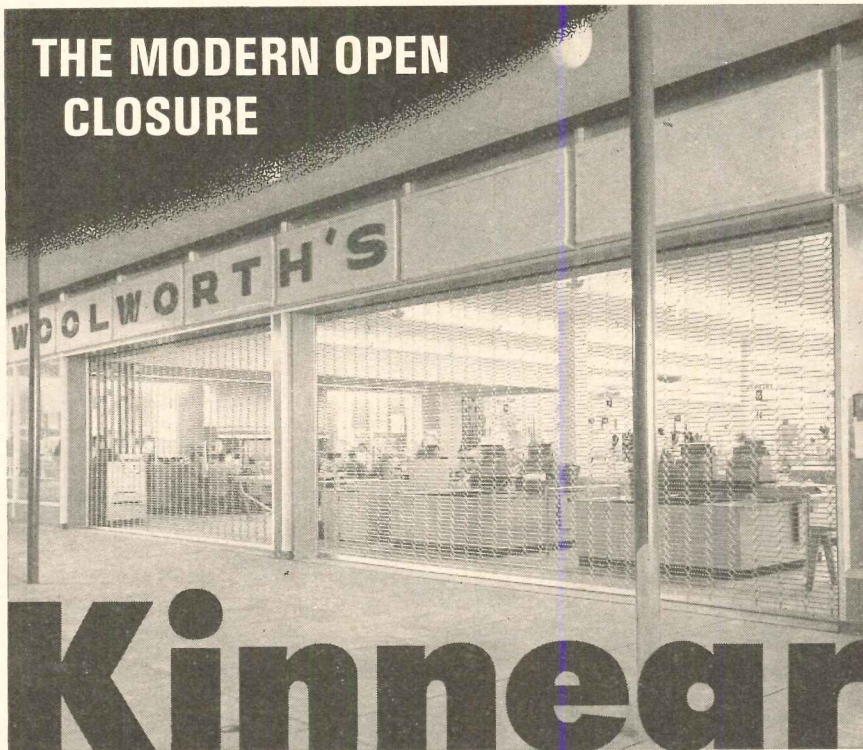
TITLE

COMPANY

ADDRESS

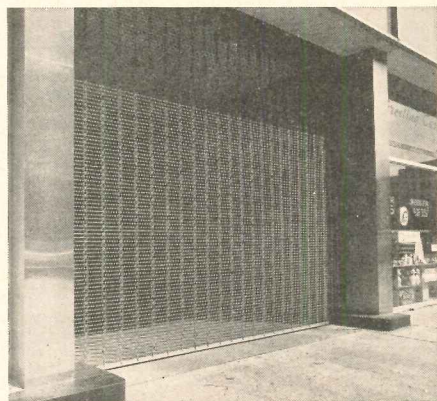
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ROLLING GRILLES



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KINNEAR[®]
ROLLING DOORS
Saving Ways in Doorways

Required Reading

continued from page 95

in this conflict, Miss Snead points out that "often victory seems to be indefinitely postponed. The stones are in fact held in place by the trees almost as frequently as they are split apart, and what at first appeared to be a ferocious struggle more closely resembles a love affair."

The book is divided into three parts, the first dealing with Hindu and Moslem ruins in India, the second with Southeast Asian Hindu and Buddhist temples and capitals and the third with the Mayan buildings of Central America. The text, though comparatively brief, is curiously evocative, leaving the reader to share the author's "deep curiosity as to why these buildings were deserted; what led the kings to leave one capital and to build another; what devastation, war or pestilence caused homes, fortunes and even gods to be abandoned that life might go on."

The appeal of this book is certainly not limited to architects or archaeologists, but they are among the many who will enjoy the mysterious story which it tells.

Books Received

MAN'S STRUGGLE FOR SHELTER IN AN URBANIZED WORLD. By Charles Abrams. The M.I.T. Press, Cambridge, Mass. 307 pp., illus. \$7.95.

BUILDING CONSTRUCTION INFORMATION SOURCES. By Howard B. Bentley. Gale Research Company, Book Tower, Detroit 26, Mich. 181 pp. \$8.75.

OUR URBAN PLANT. By Herman G. Bechman. The University of Wisconsin, University Extension Publications Committee, Extension Building, Madison 6, Wis. 66 pp. \$1.00.

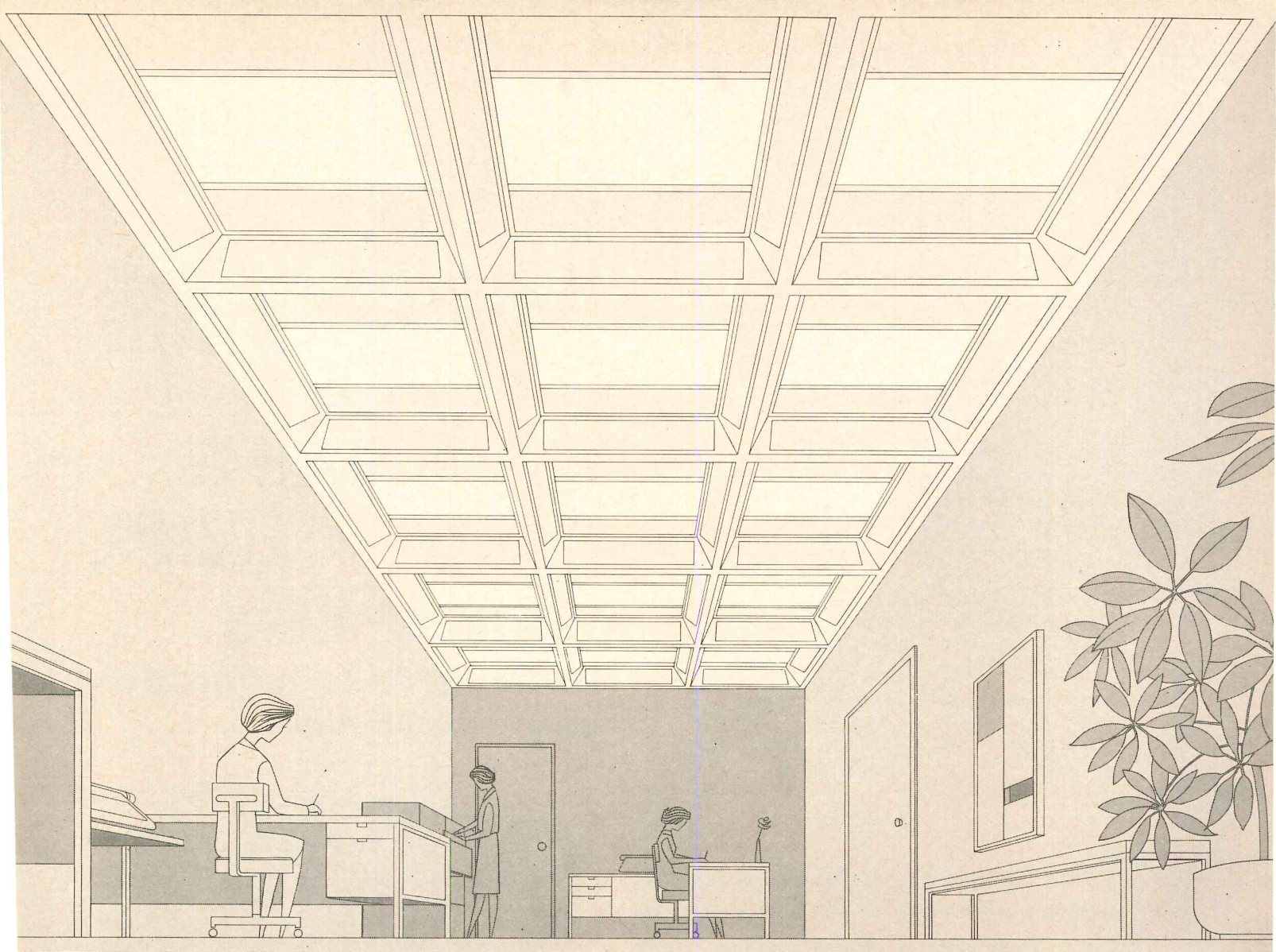
ARQUITECTURA ARGENTINA CONTEMPORANEA. By Francisco Bultrich. Wittenborn and Company, 1018 Madison Ave., New York 21. 164 pp., illus. \$7.00.

PROCEEDINGS OF SYMPOSIUM ON BEARING CAPACITY OF PILES. Held under the auspices of the Central Building Research Institute, Roorkee, India. New Age Printing Press, Rani Jhansi Road, New Delhi. 320 pp., illus. \$6.00.

THE FUTURE OF OLD NEIGHBORHOODS. By Bernard J. Frieden. The M.I.T. Press, Cambridge, Mass. 209 pp., illus. \$7.50.

THE ETERNAL PRESENT, VOLUME II: THE BE-
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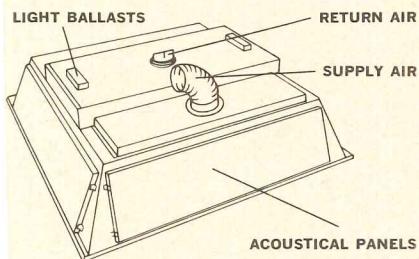
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SIMPLIFIED LAY-IN MODULES CUSTOM DESIGNED TO ANY ARCHITECTURAL AND ENGINEERING REQUIREMENT OFFER . .

**choice of module size and depth,
choice of acoustical material,
choice of lighting fixture type,
choice of Multi-Vent® air diffuser type.**



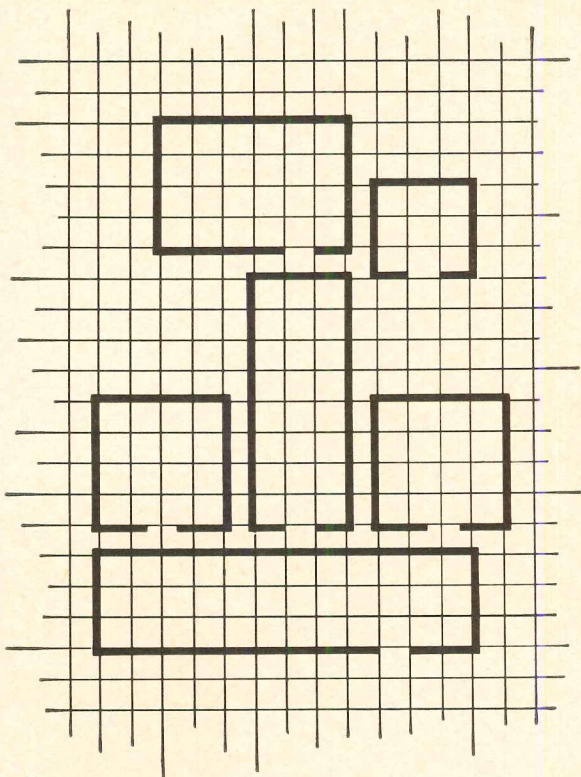
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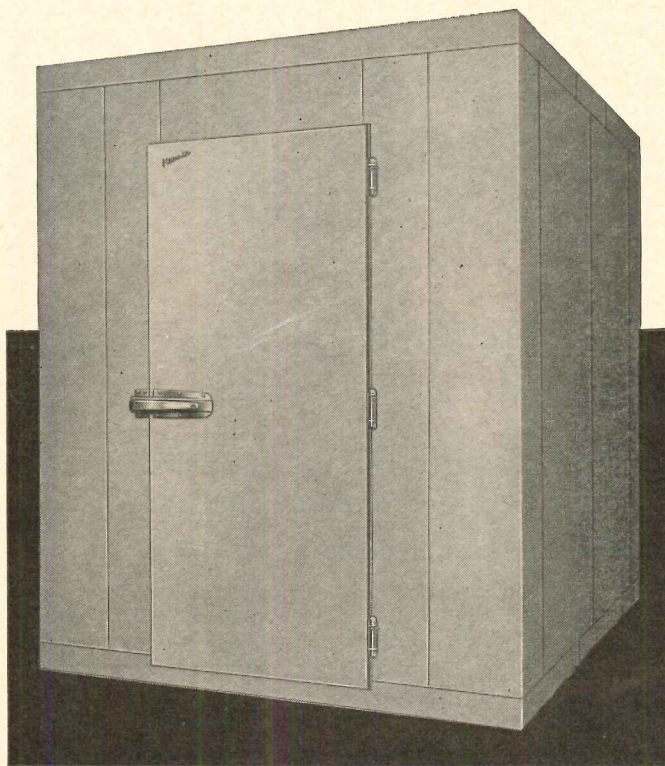
quickly provide refrigerated
space by the foot

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

The modular panels of Norris walk-ins are all-metal—no wood to absorb moisture—and extremely light weight. Standard exteriors are bonderized steel finished in grey baked enamel, interiors are 22-gauge galvanized metal, with custom exteriors or interiors optional at extra cost. Ideal for every institutional, commercial, or industrial refrigeration need, Norris walk-ins can be supplied with the proper self-contained or remote refrigeration equipment to meet any application.

Your Norris representative has full details, or write Norris for descriptive literature.

*Light weight—as low as 4½ lbs. per sq. ft.—
reduces freight costs!*



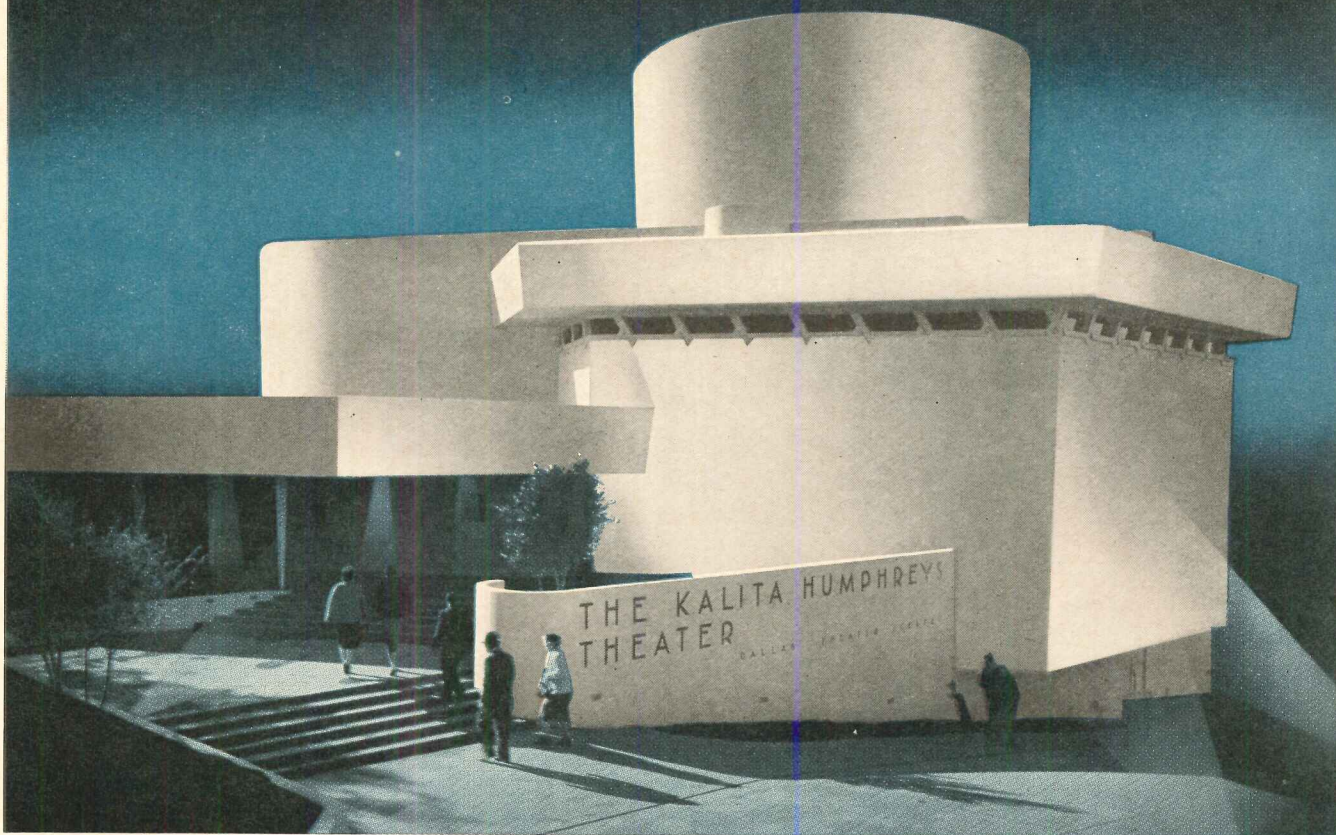
Norris
NORRIS DISPENSERS, INC.
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NORRIS — THE FIRST NAME IN MILK SERVING AND STORAGE EQUIPMENT!

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Secoton®

elastic waterproof coatings



The Kalita Humphreys Theater
Dallas, Texas
Talesin Associated Architects

impermeable vinyl membrane expands up to 300%—bridges and covers masonry breaks!

SECOTON vinyl coatings solve virtually every problem inherent in today's modern masonry structures — structures, for example, like the SECOTON-protected Kalita Humphreys Theatre in Dallas.

SECOTON forms a tough, seamless membrane that elongates up to 300% at 70 degrees F . . . remains flexible at temperatures as low as -30 degrees F . . . contracts and expands with normal structural movements . . . automatically bridges and conceals surface breaks. "Locks out" moisture — stops structural damage by preventing water from freezing and expanding in cracks and crevices.

SECOTON can be applied to a wide variety of materials — concrete, block, brick, tile and over most previously painted or waterproofed surfaces. Unexcelled for interior use — highly resistant to abrasion, provides complete scrubability, beautifully decorative, will not support combustion.

For catalog and handy "Spec Riter" see your local SECO representative or write to . . .



SURFACE ENGINEERING COMPANY
834 Ohio Avenue ST. LOUIS, MISSOURI 63103

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NEW!
compact design
... slim styling

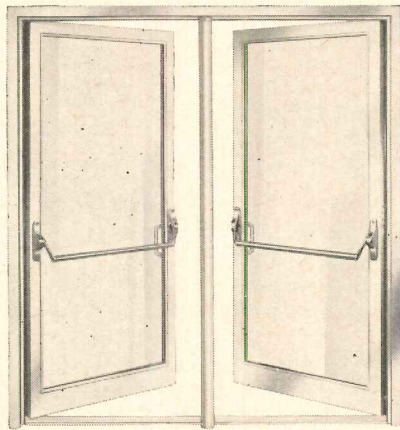
NEW!
space-saving,
side mounted
lever arms

NEW!

NEW!
strong, triple
core mullion

NEW!
modern,
compact outside
trims

two rim devices



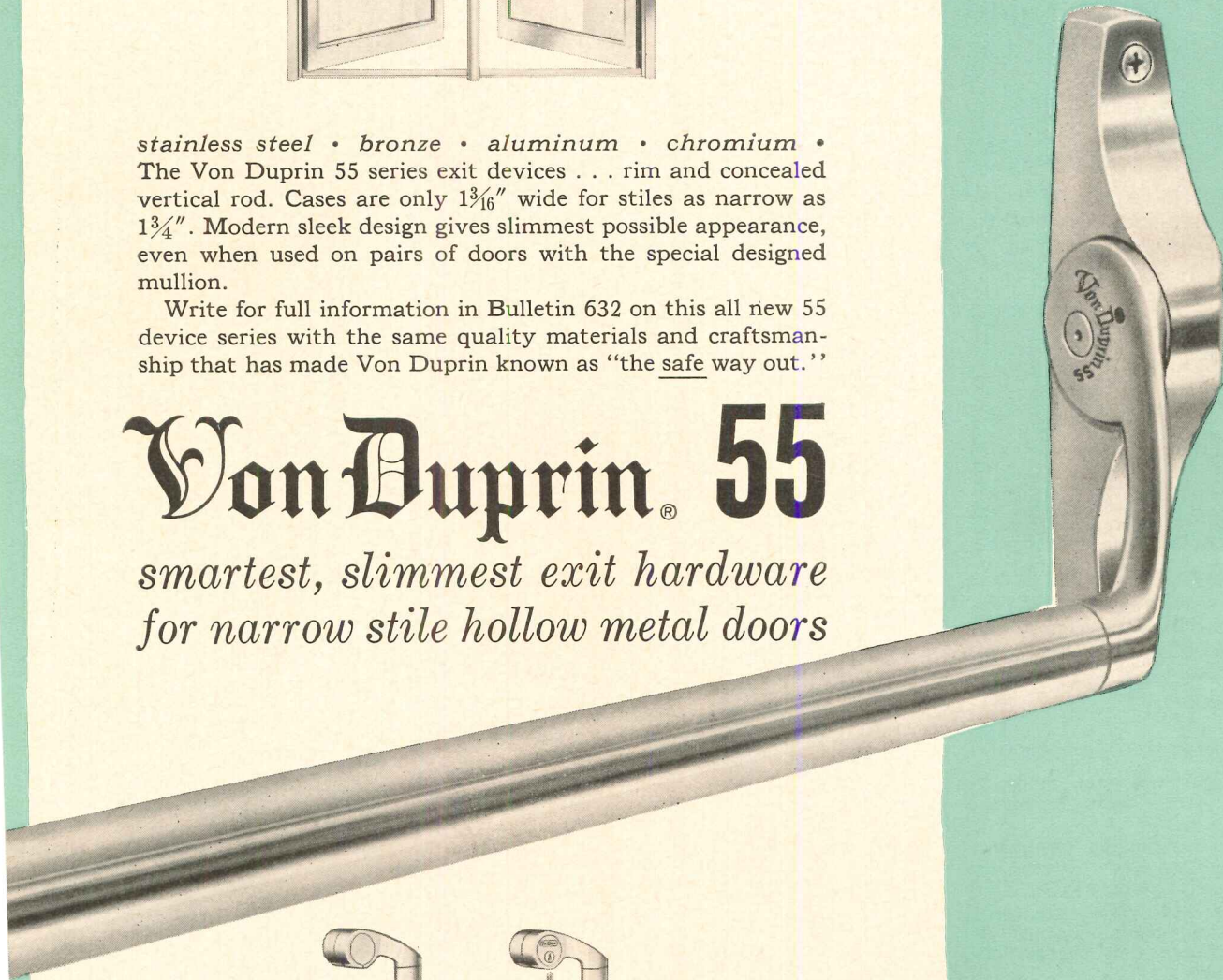
with 5554 mullion

stainless steel • bronze • aluminum • chromium •
The Von Duprin 55 series exit devices . . . rim and concealed vertical rod. Cases are only $1\frac{3}{16}$ " wide for stiles as narrow as $1\frac{3}{4}$ ". Modern sleek design gives slimmest possible appearance, even when used on pairs of doors with the special designed mullion.

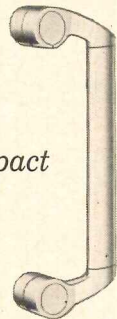
Write for full information in Bulletin 632 on this all new 55 device series with the same quality materials and craftsmanship that has made Von Duprin known as "the safe way out."

Von Duprin® 55

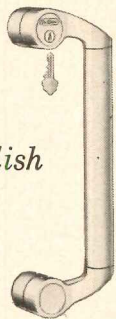
*smartest, slimmest exit hardware
for narrow stile hollow metal doors*



new! compact



stylish



outside trim

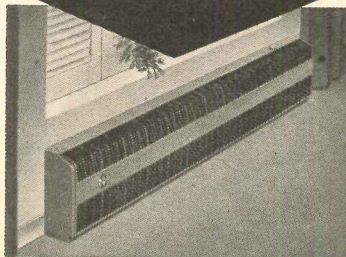
VON DUPRIN DIVISION
402 WEST MARYLAND



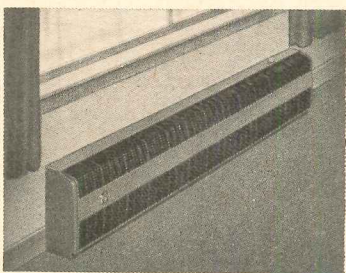
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SAVES
Add-on Room
SPACE!**



New freedom! Design entire outside wall of jalousie construction, if you wish—and still place the heat source where you want it!




Only Temco thin-line baseboards provide maximum, safe heat, yet fade into the background so well under windows and large glass areas. Floor space used by model GSB—only 4¾"!

MANY MODERN FEATURES INCLUDE:

- **Pre-engineered vent**, ready to install—no ducts, chimneys, flues.
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Send for Pre-Vent Line Folder
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TEMCO, inc.

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Nashville, Tennessee

FIRM _____

NAME _____

ADDRESS _____

CITY _____ STATE _____

GB

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Required Reading

continued from page 102

GINNINGS OF ARCHITECTURE. *By Siegfried Giedion. Pantheon Books, Random House, Inc., 22 East 51st St., New York, N.Y. 583 pp., illus. \$12.50.*

BEYOND THE MELTING POT. *By Nathan Glazer and Daniel Patrick Moynihan. The M.I.T. Press and Harvard University Press, Cambridge, Mass. 360 pp. \$5.95.*

MEGALOPOLIS, THE URBANIZED NORTHEASTERN SEABOARD OF THE UNITED STATES. *By Jean Gottmann. The M.I.T. Press, Cambridge, Mass. 810 pp., illus. \$3.95, paperbound*

NEW YORK: PEOPLE AND PLACES. *By Victor Laredo and Percy Seitlin. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. 192 pp., illus. \$12.50.*

LIGHTING AND ITS DESIGN. *By Leslie Larson. Whitney Library of Design, 18 E. 50th St., New York 22, N.Y.*

COMMUNITY PLANNING IN THE 1920's: THE CONTRIBUTION OF THE REGIONAL PLANNING ASSOCIATION OF AMERICA. *By Roy Lubove. University of Pittsburgh Press, Pittsburgh 13, Pa. 155 pp. \$2.25.*

THE HIGHWAY AND THE CITY. *By Lewis Mumford. Mentor Books, The New American Library of World Literature, Inc., 501 Madison Ave., New York 22, N.Y. 256 pp. 75 cents.*

FORMWORK FOR CONCRETE STRUCTURES. *By R. L. Puerifoy. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36, N.Y. 330 pp., illus. \$12.00.*

EXPERIENCED ARCHITECTURE. *By Steen Eiler Rasmussen. The M.I.T. Press, Cambridge, Mass. 237 pp., illus. \$7.95.*

PLANNING LIBRARY BUILDINGS FOR SERVICE. *Edited by Harold L. Roth. American Library Association, 50 E. Huron St., Chicago, Ill. 127 pp., illus. \$3.75.*

FLORENCE IN THE AGE OF DANTE. *By Paul G. Ruggiers. The University of Oklahoma Press, Norman, Okla. 194 pp. \$2.75.*

THE INDIVIDUAL AND THE CROWN. *By Hendrik M. Ruitenbeek. Thomas Nelson & Sons, New York, N.Y. 146 pp. \$3.95.*

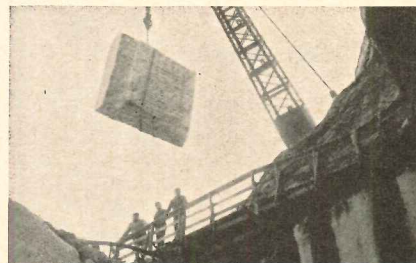
METRIC GUIDE FOR CIVIL ENGINEERS AND ARCHITECTS. *By J. K. Varshneya. Metric Publications, Katra St., Aligarh (U.P.), India. 144 pp. \$3.00.*

THE CHALLENGE OF MEGALOPOLIS. *By Wolf Von Eckardt. The Macmillan Company, 60 Fifth Ave., New York, N.Y. 128 pp., illus. \$1.95.*

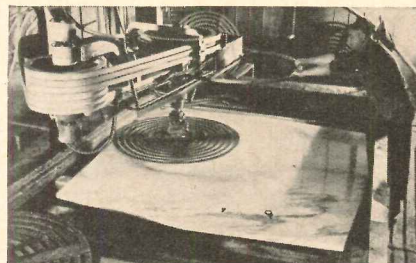
CYBERNETICS OR CONTROL AND COMMUNICATION IN THE ANIMAL AND THE MACHINE, *Second Edition. By Norbert Wiener. The M.I.T. Press, Cambridge, Mass. 212 pp., illus. \$6.50.*

GOD & GOLEM, INC. *By Norbert Wiener. The M.I.T. Press, Cambridge, Mass. 99 pp. \$2.95.*

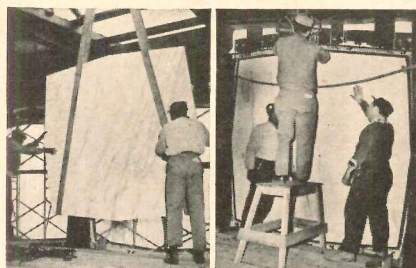
**MONTCLAIR
DANBY
GOES TO YALE**
for the
Beinecke Rare Book
and
Manuscript Library



Outsize blocks of marble were taken from our Danby quarry for this installation. 250 slabs with random, non-matched veining were specified by architects Skidmore, Owings & Merrill.



Sawn to thickness, then cut and shaped to 7' 11" at the wide points, each slab was honed finished on both sides to 1¼" and shipped, ready to install.



General contractors George A. Fuller Company developed a safe, accurate and rapid method of installation. The panels were lowered through the open roof down inside the structure, framed in neoprene gaskets, then swung into place.

For more information about other unique Vermont marbles, consult our nearest office. All our marbles, domestic and foreign, are U.S. finished for trueness to specification and delivery on time. The Vermont Marble Company invites all inquiries concerning the design, use and installation of marble and granite, and we welcome the opportunity to give complete technical assistance whenever possible.

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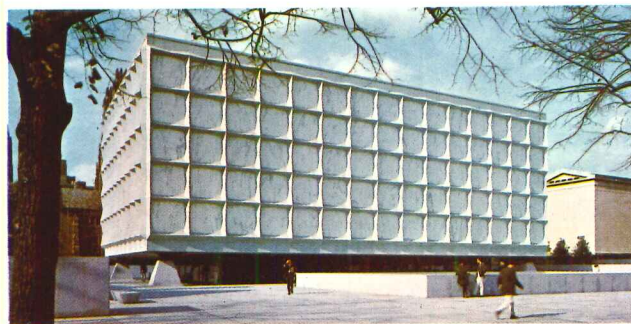
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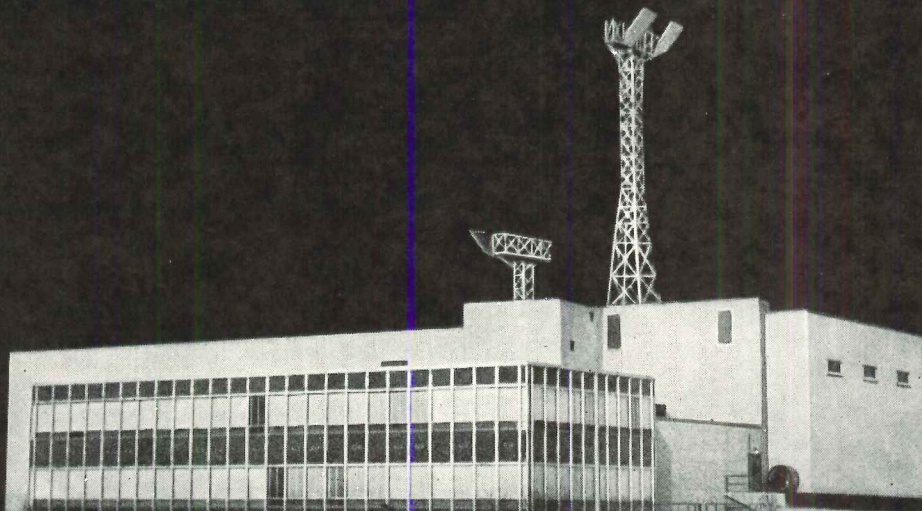
Beinecke 250 window panels of Vermont Montclair Danby Marble create a translucent building. Within this shelter rise the stacks of Yale University's Beinecke Rare Book and Manuscript Library.

Each more than 7' square, yet only 1¼" thick, these slabs of Vermont's Montclair Danby serve as a natural finish for the exterior facade as well as the interior walls. Admitting subdued daylight throughout the Library, they also serve to filter out the heat and the harsh rays of the sun, preventing damage to Yale's irreplaceable rare books and original manuscripts.

Vermont Marble Company — in its 85th year of service to the art of American architecture — is the world's leading producer, fabricator and importer of foreign and domestic marbles for every use. Proctor, Vermont.



Beinecke Rare Book and Manuscript Library at Yale University, New Haven, Connecticut. Architects: Skidmore Owings & Merrill. Contractor: George A. Fuller Company. Photographer: Ezra Stoller.



ARCHITECT: THOMAS B. BOURNE ASSOC. INC., WASHINGTON D.C. • CONSULTING ENGINEER: HUDGINS, THOMPSON & BALL, OKLAHOMA CITY, OKLA.
GENERAL CONTRACTOR: ARNOLD LIES CO., AURORA, ILL. • MECHANICAL CONTRACTOR: RUDDY BROS. INC., AURORA, ILL.

This FAA center maintains precision in the air... so does its Carrier Gas-powered air conditioning

At this FAA Route Traffic Control Center in Aurora, Ill., sensitive electronic equipment calls for close control of temperature and humidity. And that calls for Carrier and Gas! Two gas-powered Carrier absorption refrigeration units supply chilled water for air conditioning. The system maintains an ideal indoor climate in response to cooling load demands. Result: comfort for employees and a safeguard for critically sensitive electronic control gear. Gas, the

fuel of efficiency and economy, is used year 'round in the two-floor, 52,000-square-foot building. Costs come in at ground level!

Call your local Gas Company, or write Carrier Air Conditioning Company, Syracuse 1, New York.
AMERICAN GAS ASSOCIATION, INC.

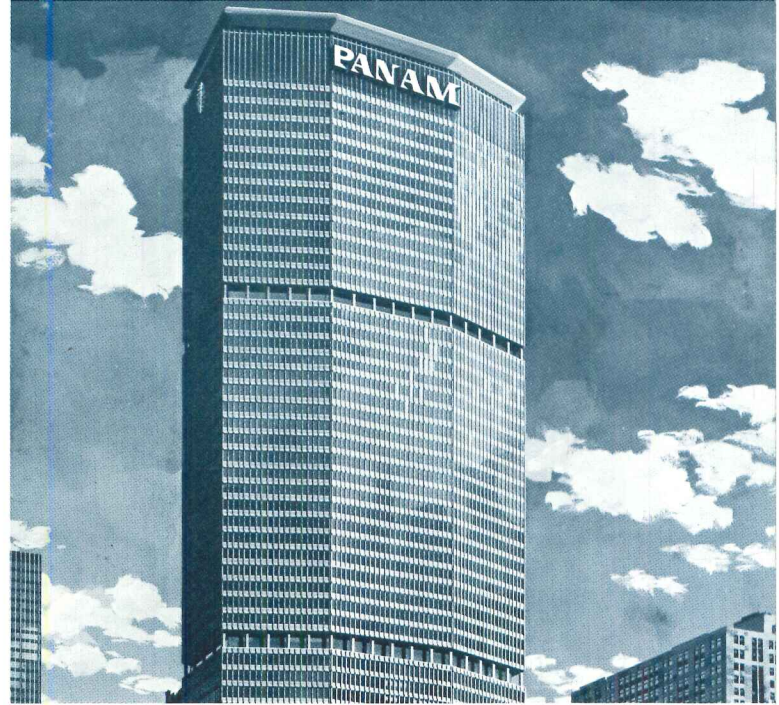


For heating & cooling...Gas is good business

SEE THE CARRIER GAS-POWERED ABSORPTION OPERATING EXHIBIT AT THE FESTIVAL OF GAS PAVILION—N.Y. WORLD'S FAIR 1964-1965

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IN Recent photograph of Weis Compartments installed more than forty years ago in the Trinity Methodist Church, Springfield, Massachusetts. This church was awarded first prize in the National Church Building Contest held in conjunction with the Conference on Church Architecture at Cleveland, Ohio, in 1930. Allens and Collens of Boston were the architects. Later improvements were supervised by the firm of Collens, Willis and Beckonert.

1923

WEIS COMPARTMENTS

AND The choice of color and the clean design of the Weis floor braced compartments chosen for the Pan-Am Building blend attractively with the interior decorating plan selected for the restroom area in this world's largest office building. Here, too, the service promise of a Weis Compartment will be proven in years to come. Architects, Emery Roth & Sons; Contractor, Diesel Construction Co.; Compartment installation by Henry Weis Mfg. Co., 112 East 31st Street, New York City.

1963

WEIS COMPARTMENTS

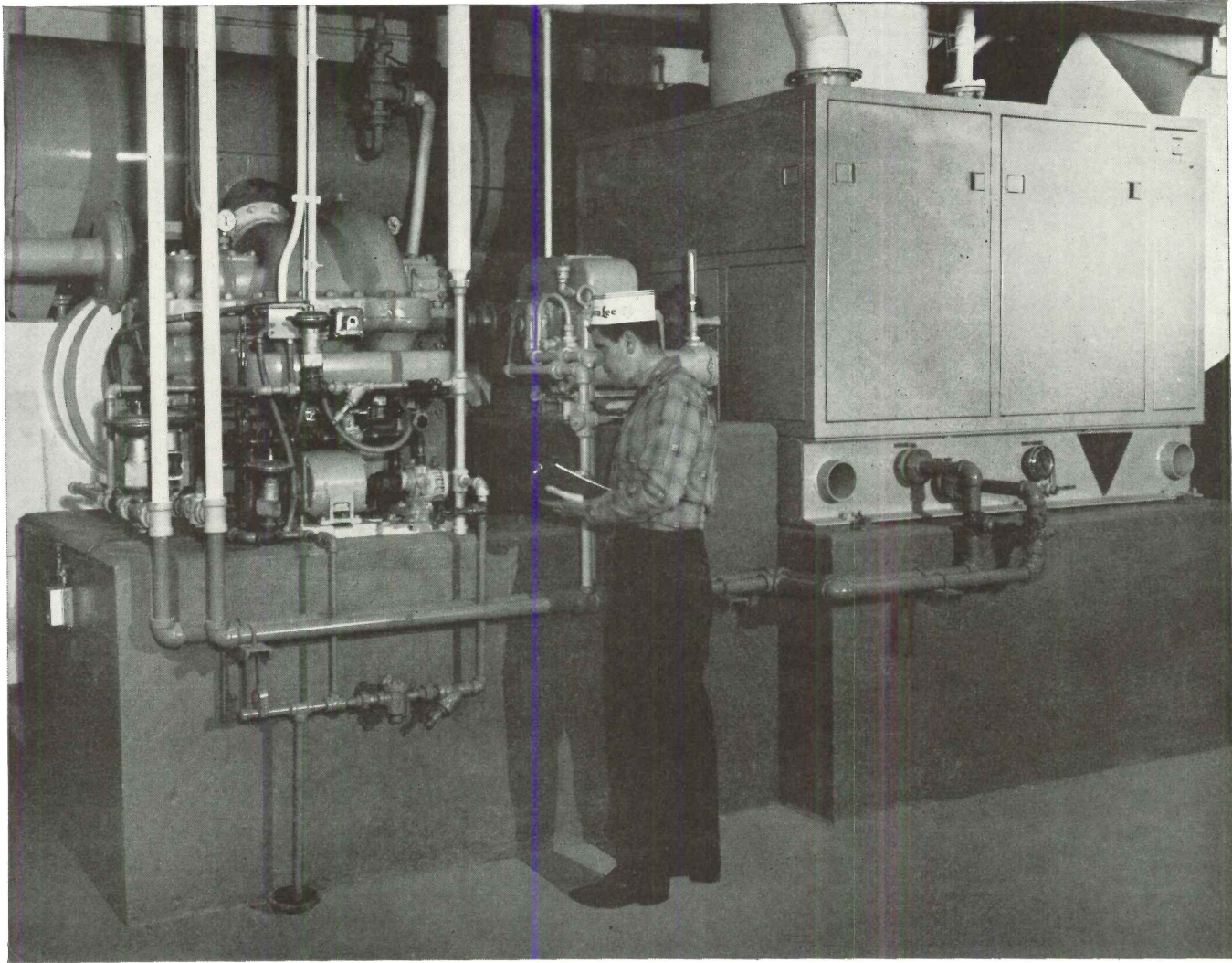


being seen in more and more places...old and new

HENRY WEIS MFG. CO., ELKHART, INDIANA



See Weis in Sweet's. Write for current catalog No. 35



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 850F 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-196, San Diego, California, 92112.



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For more data, circle 85 on Inquiry Card ➔



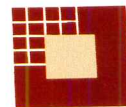
EXTRUDED QUARRY TILE RESISTS

IMPACT
ABRASION
DENTS
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...and does it beautifully for many lifetimes

QUARRY TILE BY
Summitville

Member: Tile Council of America, Inc.



TILES, INC.
Summitville, Ohio

GRACE

CONSTRUCTION MATERIALS

A. C. HORN PRODUCTS
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From the ground up!

Chemistry on the Job for Protection...
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FROM footings to roof decks . . . spillways to freeways . . . tunnels to bridges . . . it makes good structural sense to go all the way with Grace. You can plan on the convenience of a single dependable source for well over 200 construction and maintenance products in the Grace construction line-up.

From this one broad line, specifiers can select job-tailored specialty products to control, improve or protect most major phases of concrete construction. And, in many applications, purposeful compatibility of job-related products adds important designer/builder/owner cost savings and lasting performance.

Through its closely related construction families, Grace knows the field from cement to sealants. And every product in the line is backed by this over-all construction knowledge plus centralized Grace research more than 200 scientists strong.

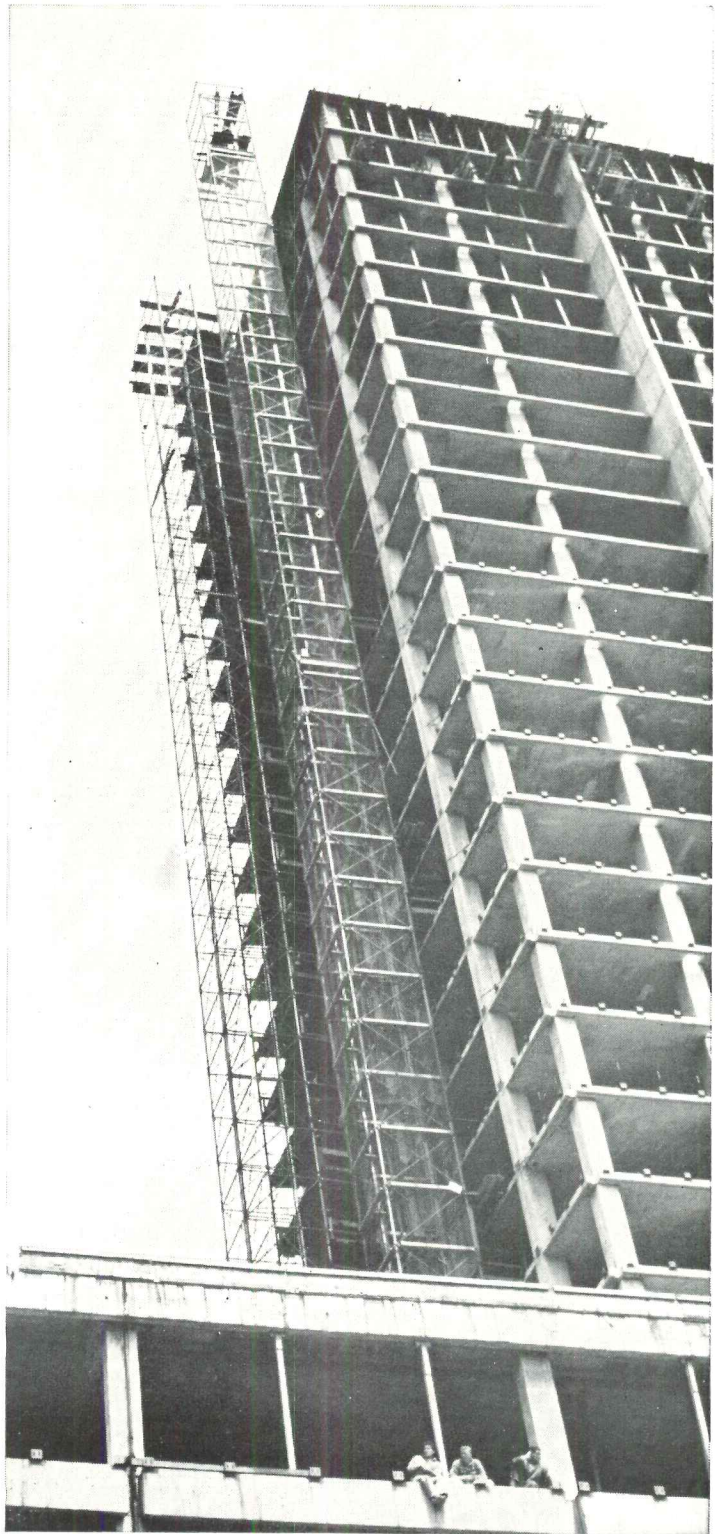
It pays to put Grace's construction chemistry and know-how to work making good jobs better . . . from the ground up!

For further information on any of the product lines listed below write Grace Construction Materials, 62 Whittemore Avenue, Cambridge, Mass. 02140



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CHEMICAL DIVISION
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CAMBRIDGE, MASS., CHICAGO, HOUSTON, LOS ANGELES, NORTH BERGEN, N. J.,
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CAULKS AND SEALANTS PRE-MOLDED JOINT FILLERS JOINT SEALERS FLOOR MATERIALS
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BONDING AGENTS TECHNICAL COATINGS SPECIALTY PRODUCTS

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You can keep ^{\$}131⁶¹ from going out the window



with solar control
by "Flexalum" Aluminum Blinds

\$131.61 for every 18 sq. ft. window in your building, that is. By reducing your cost of air conditioning.

Flexalum Aluminum Blinds control the heat of the sun in modern buildings with massive glass areas, so they lower the air conditioning capacity required. Lower it by a ton for each 136 sq. ft. of glass.

In dollars and cents this means a savings in original air conditioning of \$118.80 for every 18 sq. ft. window

* All figures for typical West exposure, New York City.

plus \$12.81 every year in operating savings and financing costs (7 times the cost of the blinds).*

Want proof? Send for your copy of the pioneer study: "Cost analysis of Solar Controls" by Alfred J. Jaros, Jr. of Jaros, Baum and Bolles, Consulting Engineers, New York. This article, from the July 1963 issue of *Buildings Magazine*, explains the most efficient way to handle the large glass areas in today's modern buildings.

Flexalum[®]

Bridgeport Brass Company
30 Grand Street, Bridgeport 2, Conn.

Please send me a copy of the Jaros study on solar control.

MR. _____

TITLE _____

FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

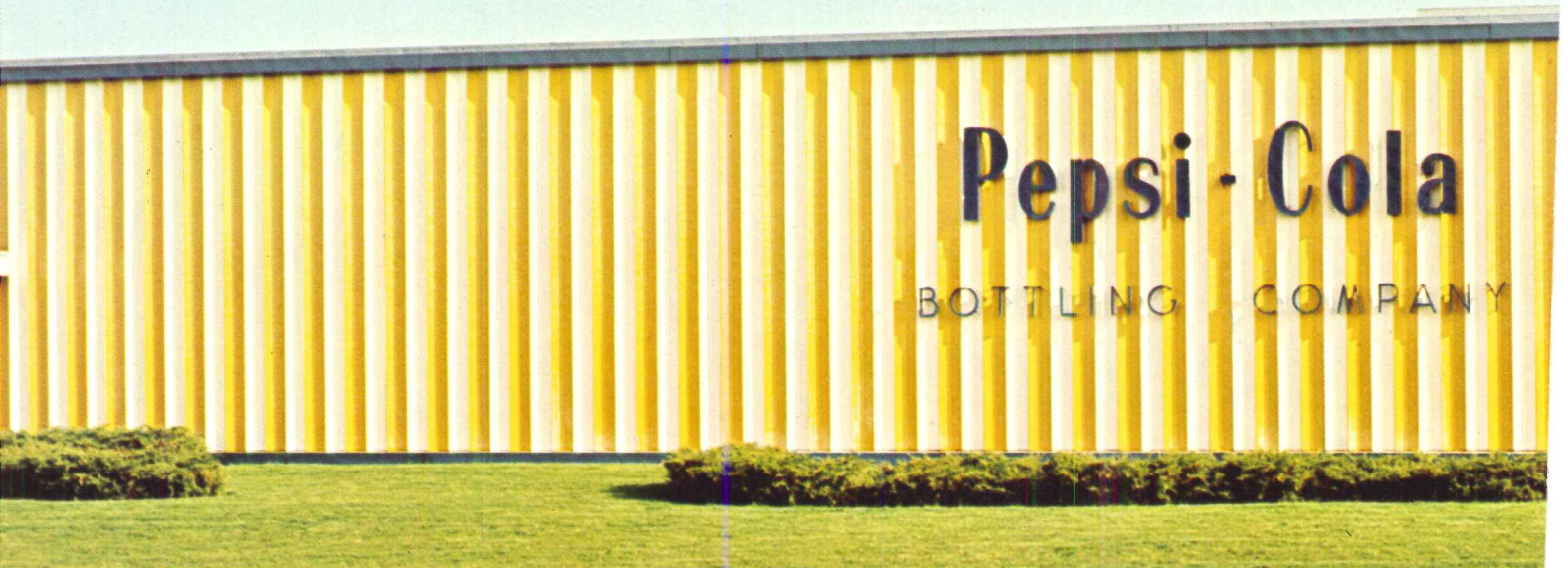
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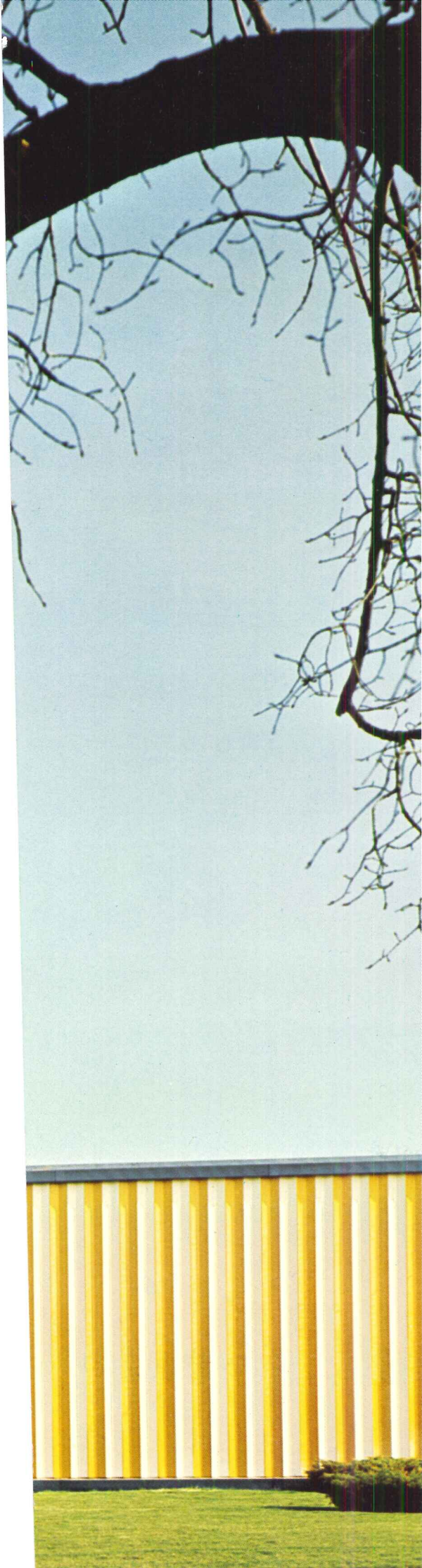
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Pepsi-Cola

BOTTLING COMPANY





good taste

Name of building: Pepsi-Cola Bottling Plant, Quincy, Illinois Architect: Hafner, Hafner & Stranckmeyer Name of owner: Pepsi-Cola Quincy Bottling Company Wall panel manufacturer: H. H. Robertson Company, Pittsburgh, Pennsylvania and Connersville, Indiana Approved applier: Michelmann Steel Construction Company, Quincy, Indiana.

Porcelain enamel/aluminum sheets come in a wide variety of colors, degree of gloss and shapes.

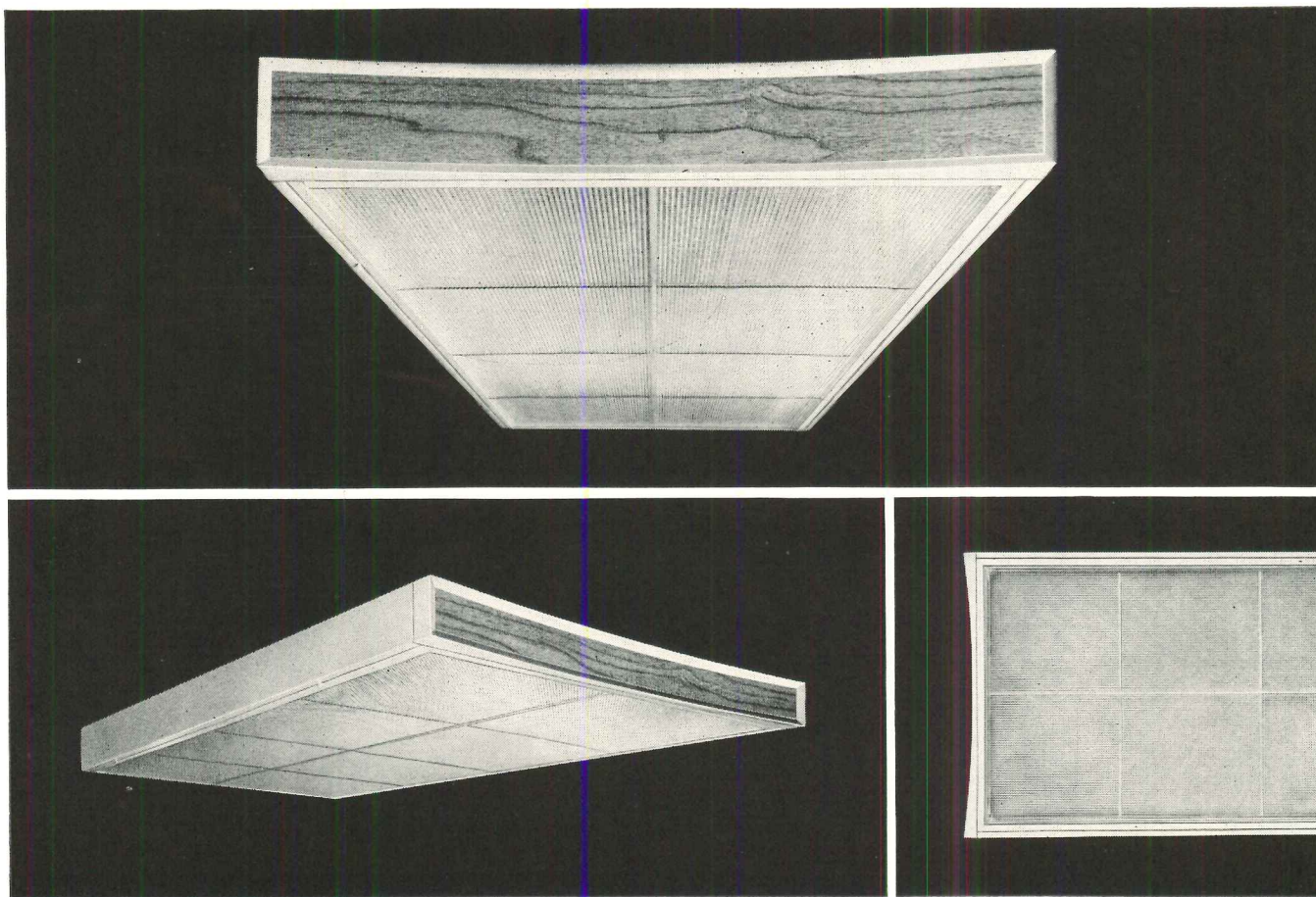


Some industrial buildings are blah. No sparkle. Or zest. Or zip to them. But not this bottling plant. Its exterior is porcelain enamel finish on aluminum sheets. Colorful, isn't it? And it'll stay that way. Won't wear off. Won't stain. Will stubbornly resist corrosion, abrasion, chemicals and weathering. So will the aluminum underneath. That's why it's the best metal to use with porcelain enamel. Consider this the next time you design a plant and want lasting color on it. If you'd like to know more about it, contact your nearest porcelain enamel/aluminum sheet fabricator. Or write Aluminum Company of America, 1698-G Alcoa Building, Pittsburgh, Pa. 15219.

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... THE HUNTLEY-BRINKLEY REPORT, ON NBC-TV



New LPI Versataire is the best choice for surface mounting



Shown with Holophane No. 6250 Prismalume® Controlens® diffuser

LPI's new Versataire Series II has a shallow profile with contemporary lines. It is UL-listed for direct surface mounting on combustible cellulose fiberboard ceilings, with no spacer brackets.

In continuous rows, modular Versataire units butt together precisely with no progressive lengthening along the row. They line up perfectly with ceiling tiles. Full-length door frames minimize separations in luminous surfaces between fixtures.

A decorative, moulded plastic end cap is offered in white or with a choice of wood-grain inserts.

Optional illuminated side panels use a long, narrow

prism for precise control of up-light to relieve ceiling contrasts. The prism permits side-mounted ballasts without adding to the depth of the luminaire.

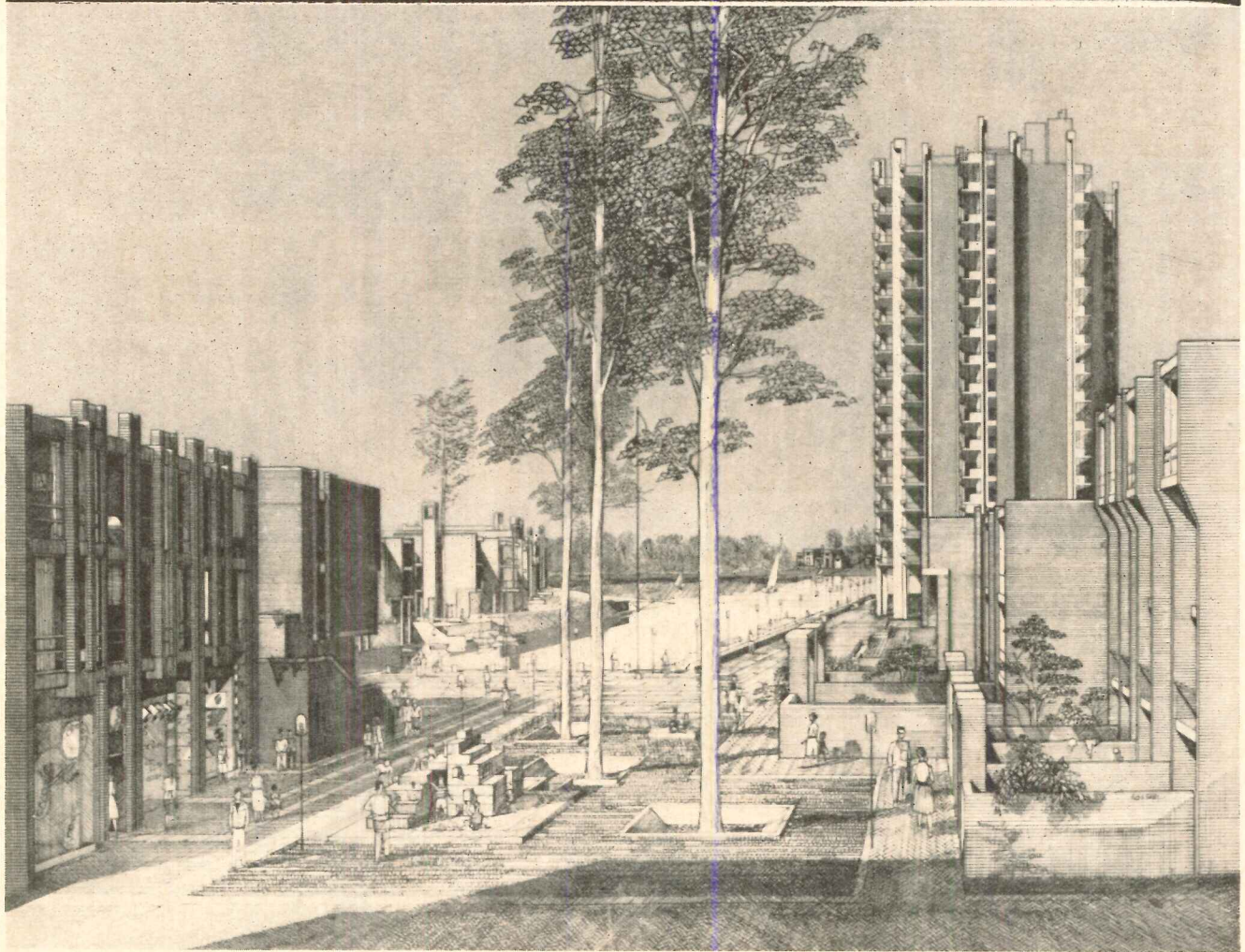
Versataire is offered in all standard sizes and with a complete range of diffuser types. Please call your LPI representative or write to us for full details.

LPI-4-213



Lighting Products Inc., Highland Park, Illinois 60036

For more data, circle 89 on Inquiry Card

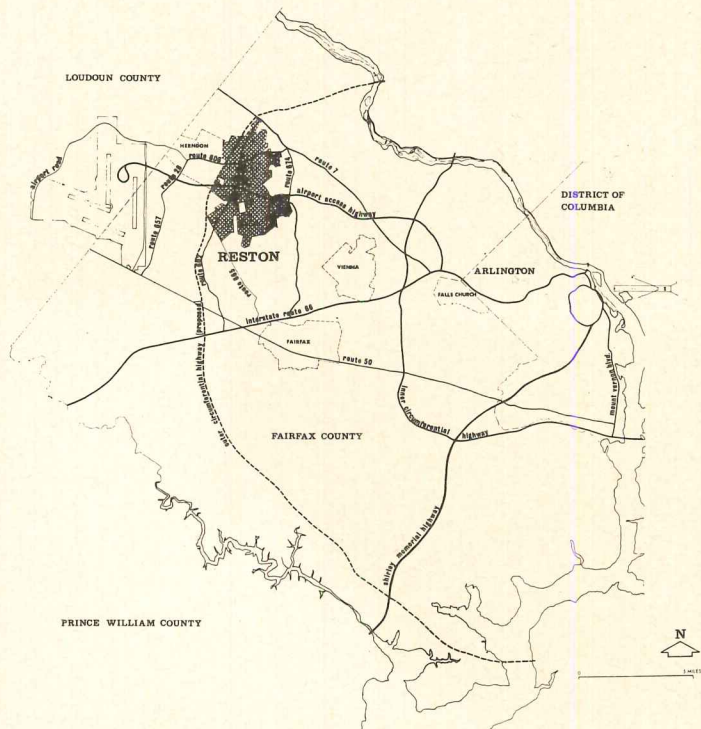


A view of the First Village Center at Reston looking toward the lake

RESTON

An Answer to Suburban Sprawl: Urban Living in the Country

Reston, Virginia, which will eventually house some 75,000 people on a wooded tract about 17 miles from Washington, D.C. is a satellite new town planned in terms of cluster development, which, in itself, would make it of considerable interest to the architectural profession. Reston, however, has the added importance of being a community, embracing the highest planning and architectural standards, financed completely as a profit-making private enterprise. The future of Reston will therefore be watched with great interest by architects and planners, who will be hoping for a clear demonstration that the highest design standards are also good economics.



Reston lies athwart the Dulles Airport access highway 17 miles from Washington, D.C. *Right:* The Reston Master Plan. Highway and railroad bisect the site from east to west, route 601 runs from north to south. The point of intersection determines the town center. "Density sinews," areas with 60 persons to the acre, wind through the site, are broken into seven village centers

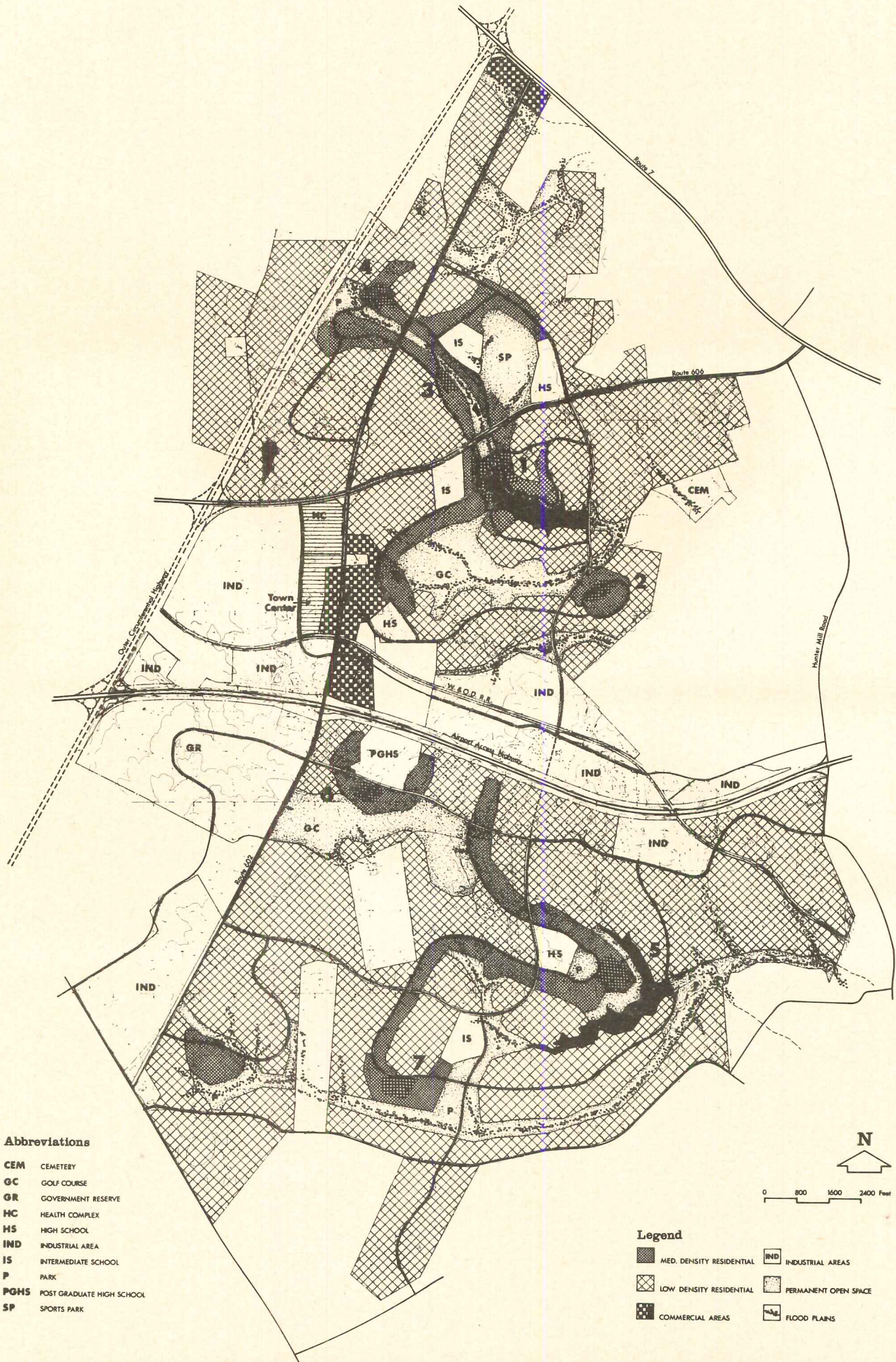
The new town is a familiar concept which now has taken on a new importance. The population explosion and the widespread use of the automobile have made it both more urgent and more feasible to spin off the growth of our major metropolitan areas into separate self-contained communities. There are presently about 75 new towns planned or under construction in various parts of the country and at least 46 American examples of planning by the theory of cluster development, which takes the new town principle of concentrating population in clearly defined areas and applies it to the design of housing.

The developer of Reston is a corporation headed by a New York real estate investor named Robert E. Simon Jr. (his initials form the first syllable of the town's name) who had become interested in the potentialities of large-scale development and had already been an unsuccessful bidder on another large tract in the Washington area when the Reston land came on the market. The 10-square-mile site of Reston had been held in single ownership since the 18th century by the distillers of a famous brand of bourbon, who used the woods as a source of lumber for barrel staves. It lies athwart the highway that connects Washington to Dulles Airport and is only

17 miles from the center of the city. It is therefore almost a self-evident location for a satellite town, and the land had already been so designated in the advisory Year 2000 Plan prepared by the National Capital Planning Commission and the National Capital Regional Planning Council.

A study prepared for Simon by Arthur D. Little, Inc. convinced him that the site, topography, prospective population and future economic growth all indicated that developing the tract as a planned community for 75,000 persons would be a sound investment. Accordingly the firm of Whittlesey and Conklin was retained to draw up a master plan.

Although Simon is a firm believer in securing, and following, expert advice, a number of his own ideas probably served his planners as a brief. Simon himself is an enthusiast of sports and of the outdoor life, and he feels very strongly that people who move to the country should be able to enjoy its benefits. He therefore did not want the growth of Reston to destroy the very rural amenities that its residents would seek. At the same time, as a private investor without any governmental support, he could not afford to succumb to the temptation of telling people how to live. For this reason, Reston must have far

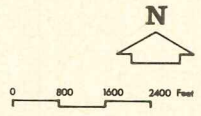


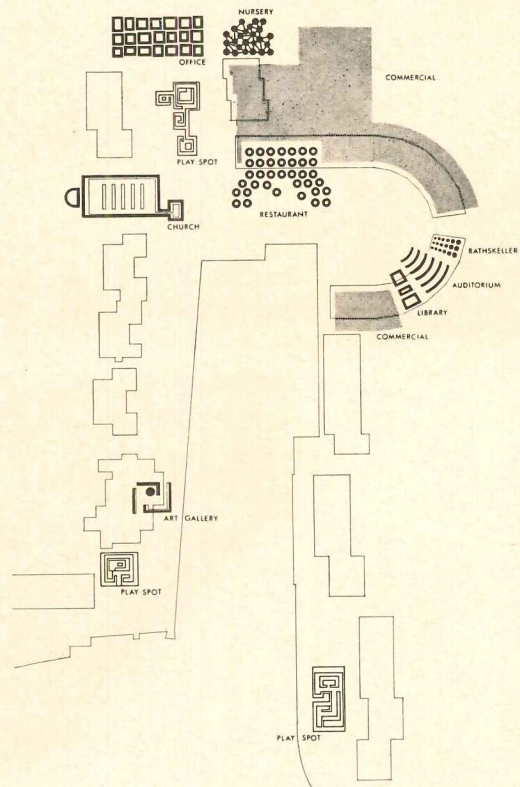
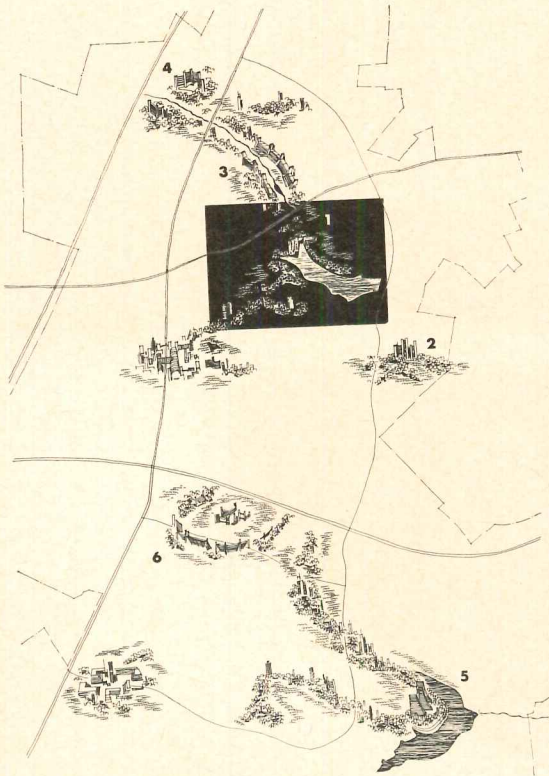
Abbreviations

- CEM** CEMETERY
- GC** GOLF COURSE
- GR** GOVERNMENT RESERVE
- HC** HEALTH COMPLEX
- HS** HIGH SCHOOL
- IND** INDUSTRIAL AREA
- IS** INTERMEDIATE SCHOOL
- P** PARK
- PGHS** POST GRADUATE HIGH SCHOOL
- SP** SPORTS PARK

Legend

- MED. DENSITY RESIDENTIAL
- INDUSTRIAL AREAS
- LOW DENSITY RESIDENTIAL
- PERMANENT OPEN SPACE
- COMMERCIAL AREAS
- FLOOD PLAINS





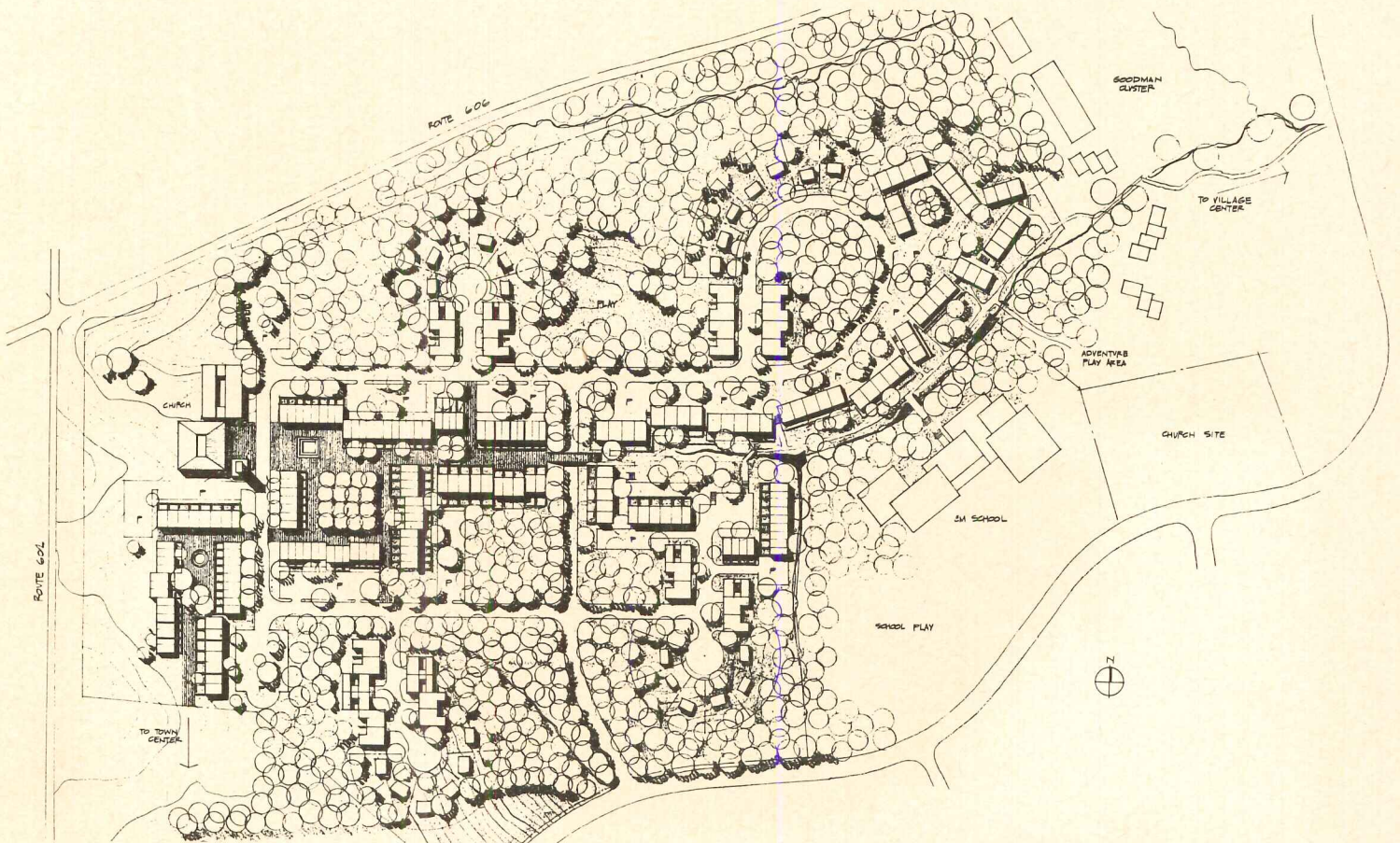
greater diversity and flexibility of growth than, for example, a new town like Stevenage in England.

The site of Reston is 6,750 acres of gently rolling woodland. Three water courses, a lake, and the many small hills and valleys give it a pleasantly varied character. In essence, the master plan for this tract is extremely simple. The Dulles Airport access highway and a railroad bisect the site from east to west. Route 602 runs from north to south, and its point of intersection with highway and railroad is the location of the future main town center. Also from north to south run what William Conklin calls "high-density sinews" of housing, surrounded by lower density housing and areas set aside for parks, recreation and various community functions. Land along the airport highway has been reserved for light industry and government offices. Automobile circulation is by loop roads around the periphery of each area; pedestrian circulation by walkways to, and through, the high density sinews.

The high density areas break down into seven smaller village centers, each related to a distinctive feature of the topography. (See drawing top of this page.) The first village center, which is now under construction, is being built around a hollow which

has been converted to an artificial lake. The village centers will serve for convenience shopping, but they are also planned to be focal points of community life and activity. The drawing (*above right*) indicates the range of facilities envisaged for the first village center. The high density areas will house 60 persons per acre in town houses and high-rise apartments, whose urban character will be set off against lakes and surrounding woodlands. Clusters of town houses at a density of 14 people to the acre will be related to the centers in the high-density sinews by pedestrian walkways, which will also relate the village centers to each other.

For those people who do not wish to live in an apartment or town house, house lots are available in areas that will have a density of 3.8 persons per acre. Each lot comes with a deed restriction limiting the location of the house and the placement of a service building such as a garage. The purpose of these restrictions is to insure that no house is built in a position where it blocks the best view of any other house. A number of these lots have already been placed on the market. Some have been sold to builders who are planning small tracts of speculative housing, others to individuals. (So far, no one



has complained about the deed restrictions.)

A total of 914 acres of land is reserved for developments that will provide employment for the residents. It is hoped that eventually a large proportion of those who live in Reston will also work there.

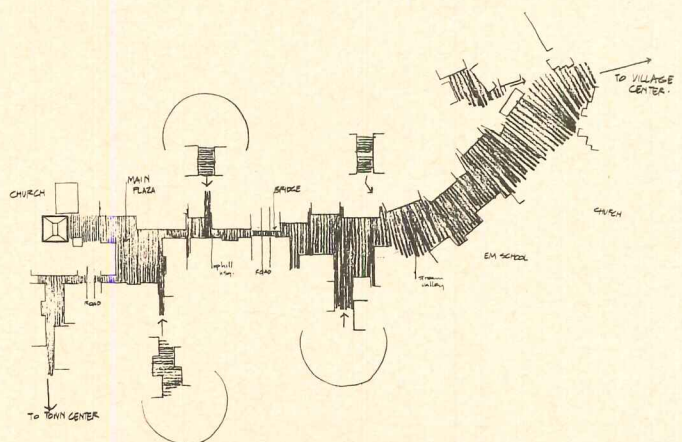
Recreation areas will be developed around each town center, and there will be golf courses and tennis courts available on a club basis. The total land area devoted to recreation and open space will be about 1,500 acres, or approximately 20 acres per 1,000 inhabitants.

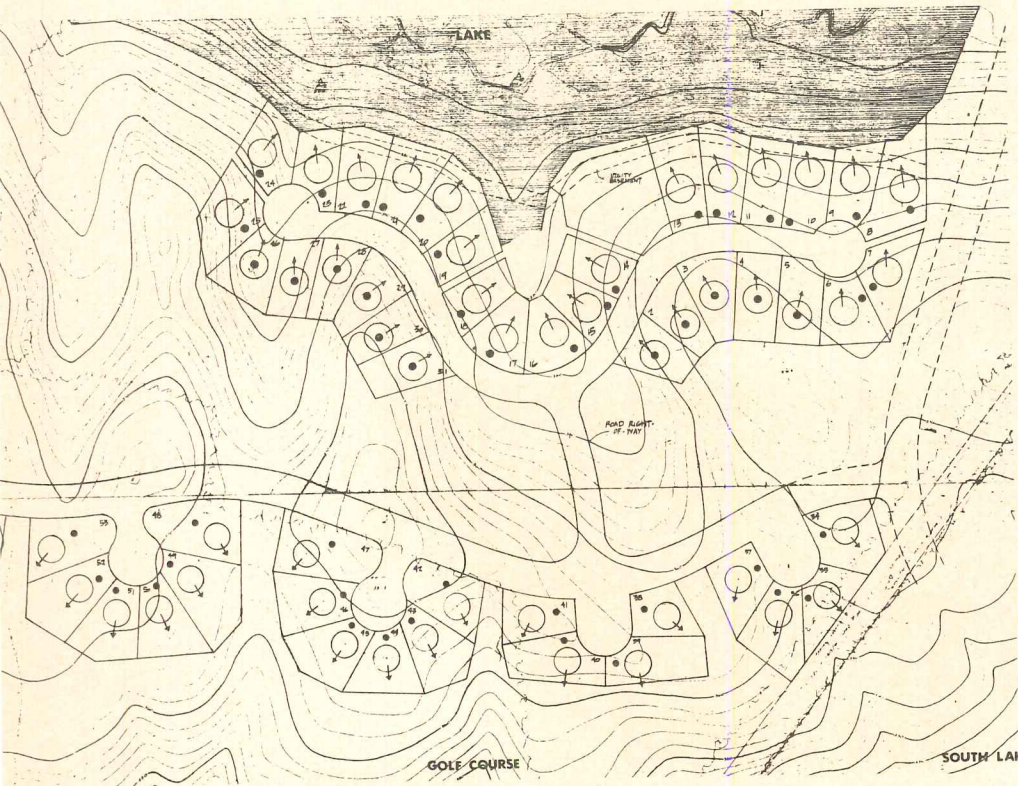
As this area of Fairfax County originally had two-acre zoning, it was necessary to seek a change in the law to permit clustering at the desired densities. Accordingly the planners developed with the county a model density zoning ordinance, which they called R.P.C. Zoning, Zoning for a Residential Planned Community.

In their description of the ordinance Whittlesey and Conklin made the following points:

1. By keeping the net lot area assigned to each individual housing facility to a practical minimum, R.P.C. Zoning permits a higher proportion of land to be devoted to public use. Density zoning permits combining the open space normally associated with

Whittlesey and Conklin have sought to devise new methods of planning notation. *Across-page left:* A drawing of the seven village centers that run through Reston with their character sketched in three dimensions. *Across-page right:* A diagram of the first village center indicating various types of community facilities. *Above:* A site plan of cluster housing, made before the area is assigned to an architect. *Below:* A space diagram of the same area





Left: Lots are also for sale in Reston. They are laid out following the principles of cluster development, and restrictions in the deed determine that the major part of the house must be within the circle and a service building, such as a garage, should be located at the dot. The purpose of these restrictions is to preserve the views, indicated by arrows

At right: Studies for road signs, street signs and house numbers by Chermayeff and Geismar Associates, who have been retained as graphic consultants to Reston. *At far right:* Designs for lighting fixtures and studies of lighting character for Reston by Seymour Evans Associates, who are the lighting consultants

each building type into common space more usable and attractive for the community as a whole.

2. R.P.C. Zoning permits the mixture of housing and commercial uses, and the introduction of high-rise buildings in close conjunction with courtyard houses, town houses and other building types.

3. R.P.C. Zoning makes possible the separation of vehicular and pedestrian circulation, providing safer travel for children to and from school and easy pedestrian access to shops and facilities.

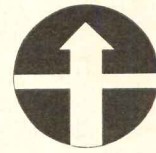
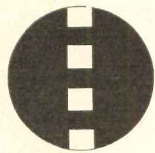
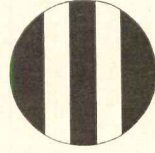
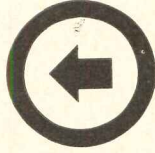
4. In low density development R.P.C. Zoning permits the clustering of dwelling units, creating a far more open appearance and preserving trees.

A new ordinance embodying these provisions was passed by Fairfax County, which has a very progressive planning commission. It now remains to be seen whether this type of urban living in the country will be accepted by the public.

The responsibility of the planners at Reston extends to the production of detailed studies of each area, considered and developed in architectural terms. In the case of the first village center, Wittlesey and Conklin were also the architects, and were able to exercise complete control over the design at every stage. The adjoining housing clusters

were designed by other architects, but the co-ordination was very close. The drawing on page 123 shows one of the planning studies for a third housing cluster related to the first village center which was done before the area was assigned to architects. Wittlesey and Conklin have been experimenting with new types of planning notation, like the space diagram of this area shown at bottom of page 123.

The planners also suggested the retention of consultants to produce consistent over-all design for Reston's graphics, lighting and street furniture. Chermayeff and Geismar Associates are responsible for designing and co-ordinating road signs, street signs, house numbers and even the markers on the golf courses. Seymour Evans Associates have envisaged the lighting of public areas as a series of related experiences. The roadways will be lit by floodlighting the trees along the edge of the road, and the distance back from the edge will be varied to create a variety of vistas. Different types of down-lighting will be used in the pathways and in parking lots to create overlapping pools of light, and in the town centers the overhangs of the buildings will be floodlit with supplementary lighting of similar quality to gas lamps.



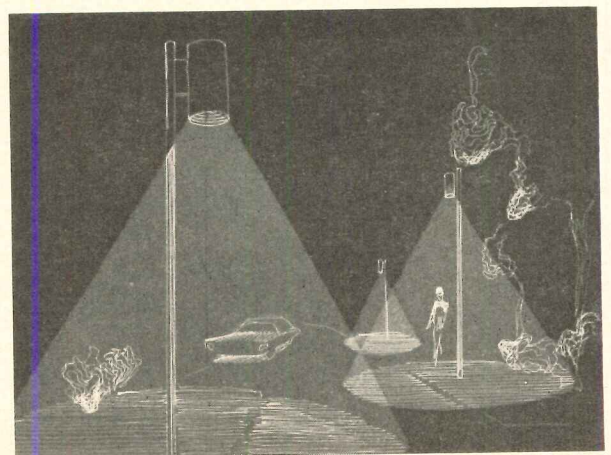
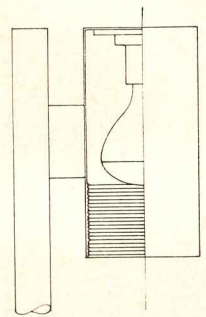
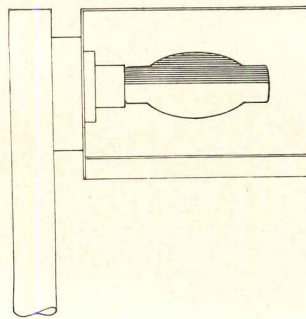
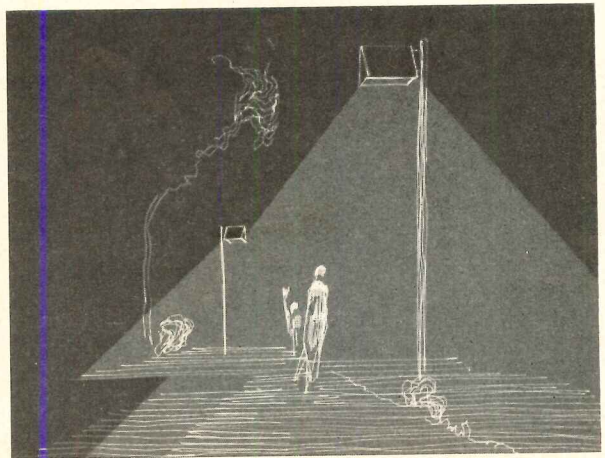
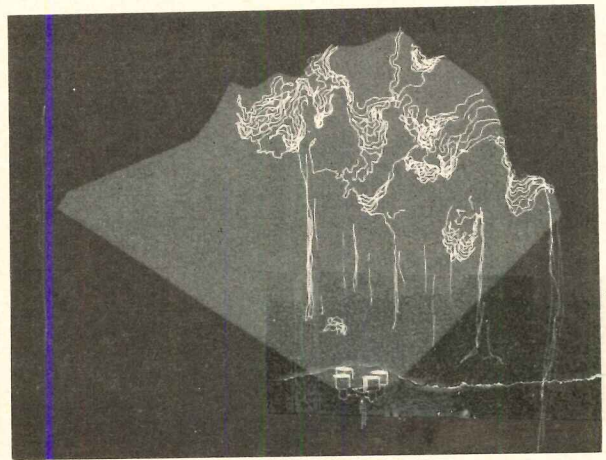
13

Arundel St
1-23

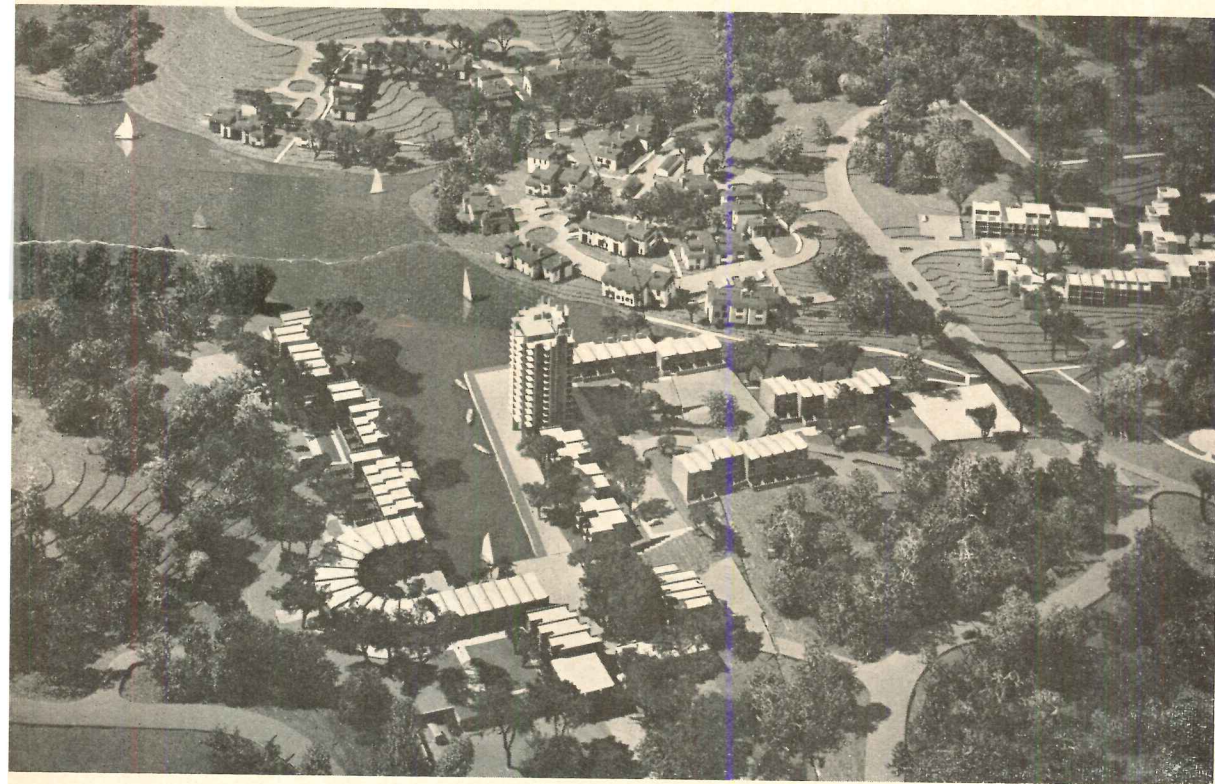
86

Private financing, although it requires the development of Reston to proceed in stages, has the advantage of insuring that the design of the town is closely attuned to the needs of the public. The developers' attitude could be characterized throughout as a desire to plant rather than to plan. The first building in the industrial area will offer rental space to light industry on a "seedbed" basis. As the industries grow and take hold, they will be able to purchase building sites and construct larger quarters. Similarly, tennis courts and golf courses will be offered on a membership basis—as the demand increases, more will be built. Other community facilities will be encouraged, but they will also be voluntary and self-supporting. The relative success of each housing type may change the present housing ratio of 70 per cent town houses and 15 per cent each of apartments and lots by the time the next village center is ready to be built.

It amuses Robert Simon that "the longhairs who usually endorse only a limited profit for a developer" all hope that Reston will prove a great financial success. But surely, if ever a speculative development deserved to make a handsome profit, that development is Reston.

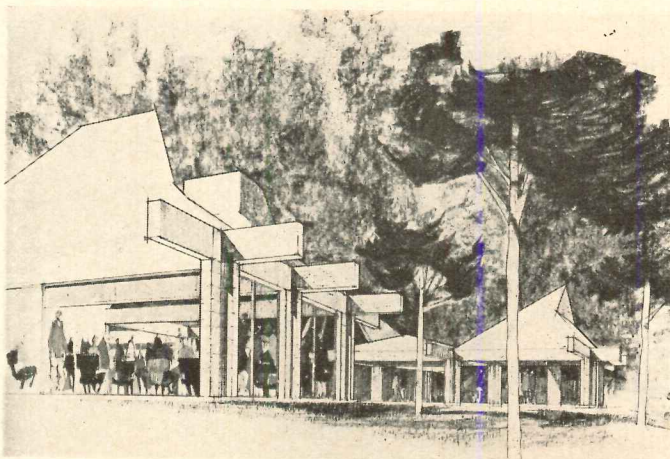


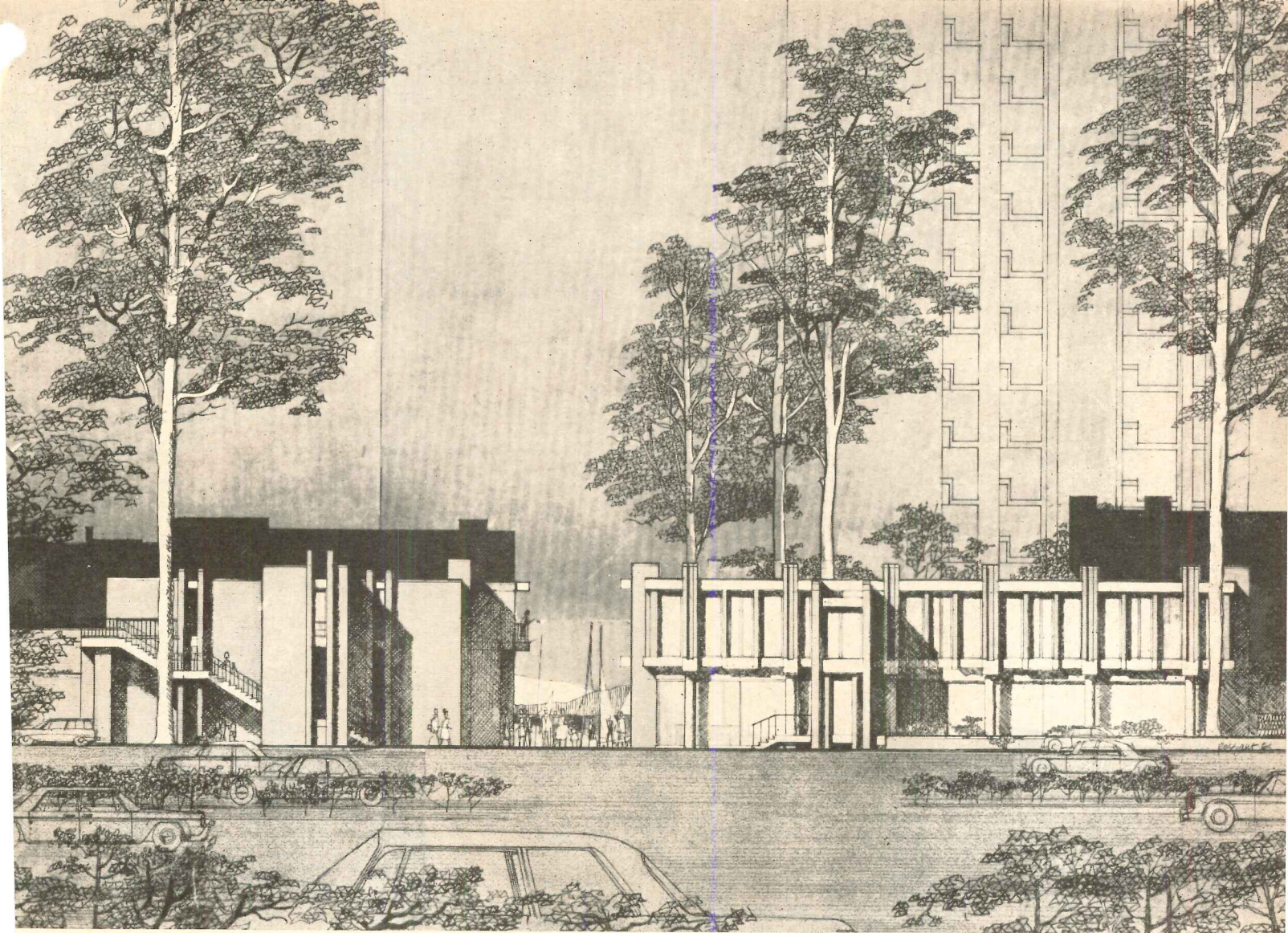
Reston, Virginia



Above: The aerial view of the model shows the First Village Center and the related clusters of housing which are described on the following pages

Below: Sketch for a golf club building being designed by Charles M. Goodman Associates

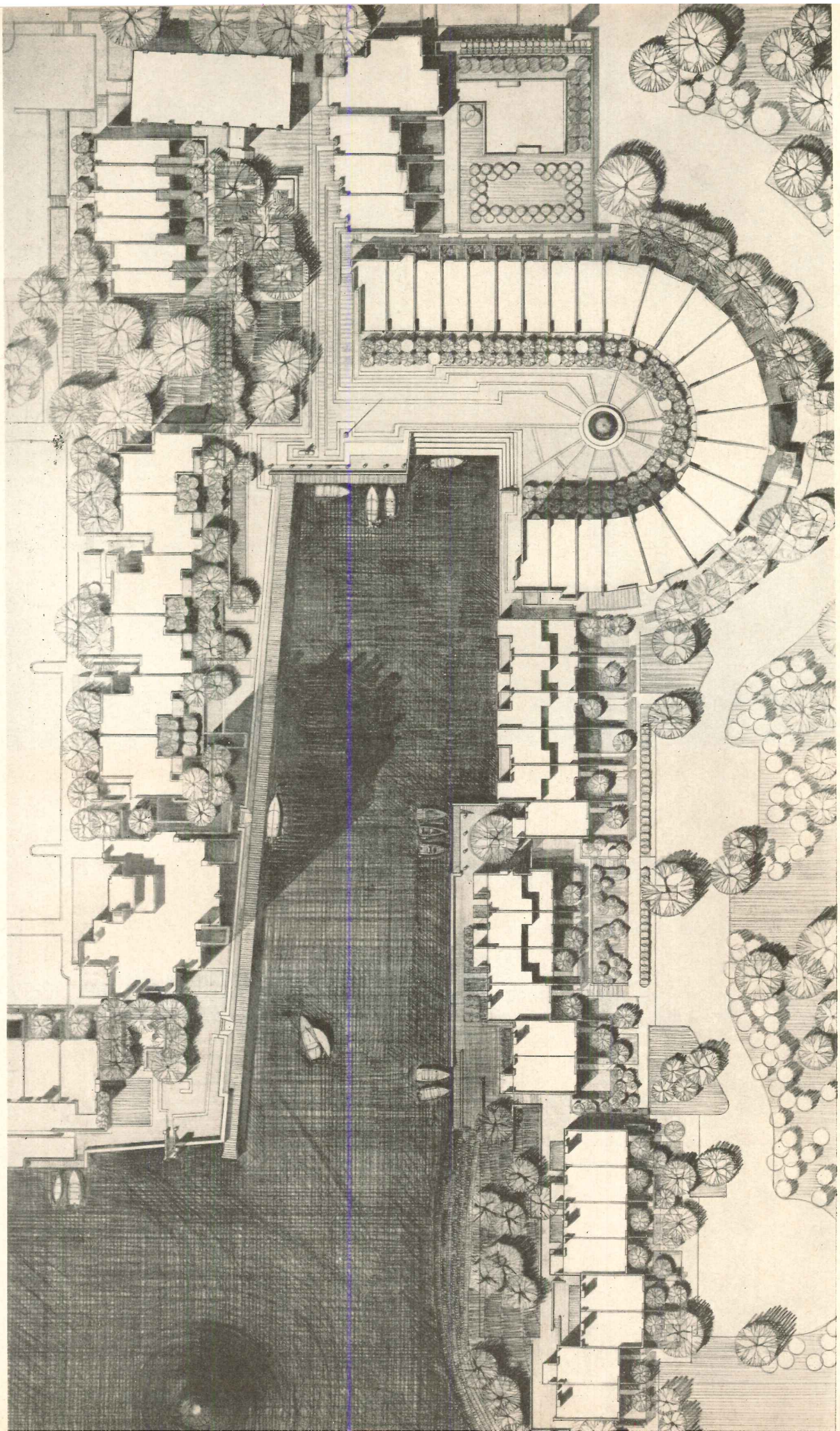


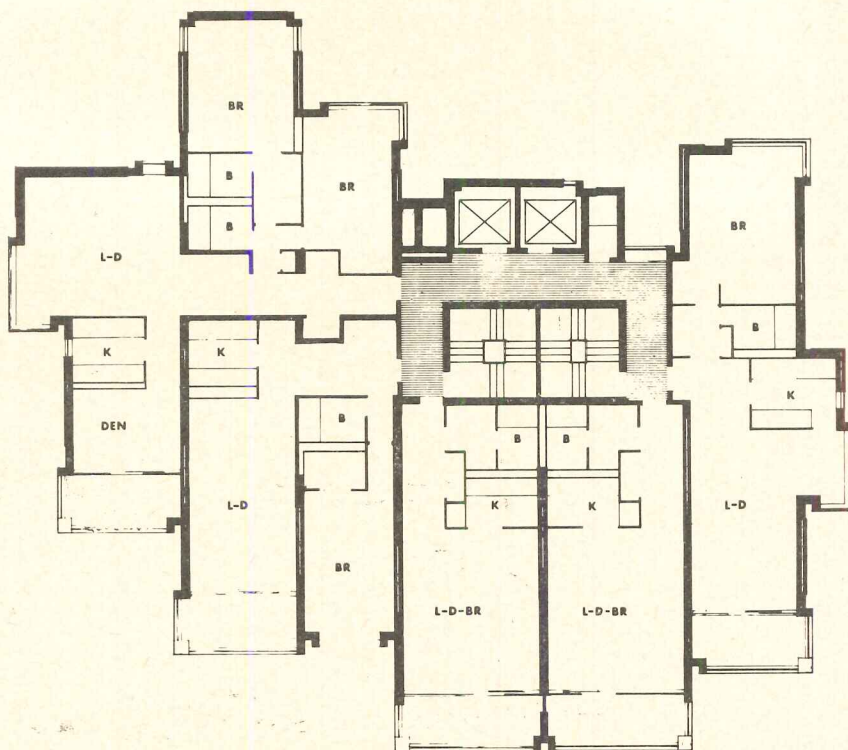
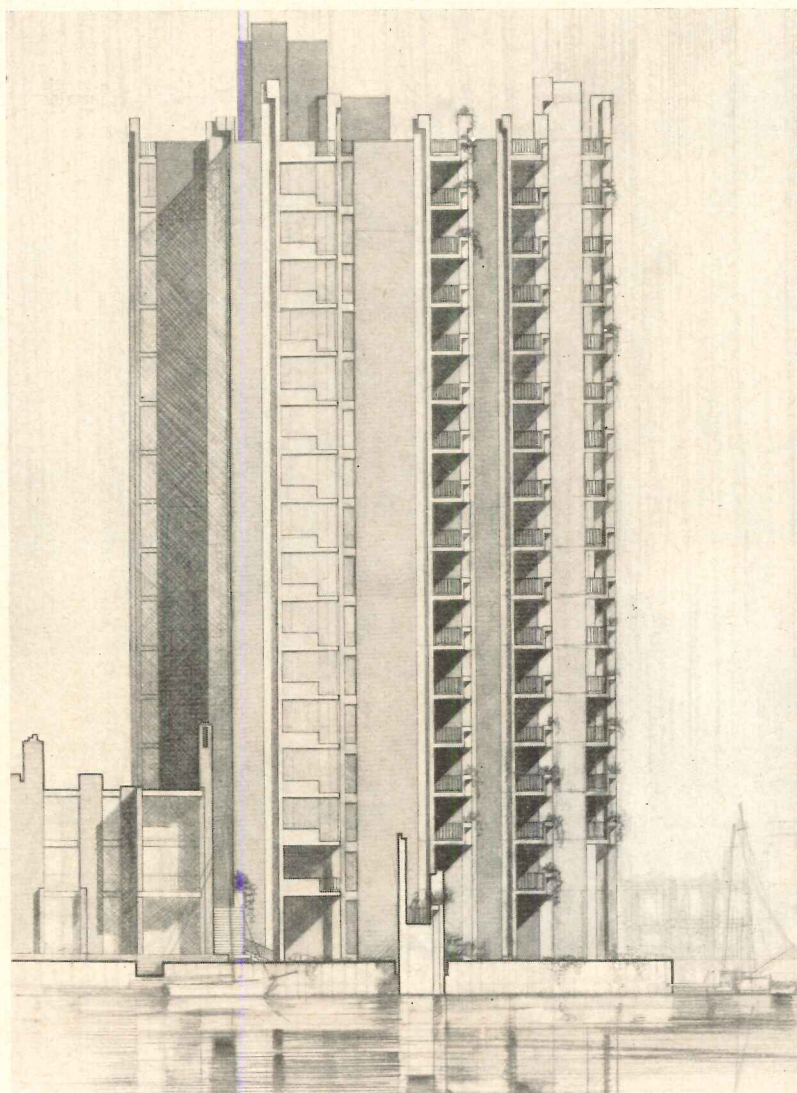


THE FIRST VILLAGE CENTER

ARCHITECTS: *Whittlesey and Conklin*

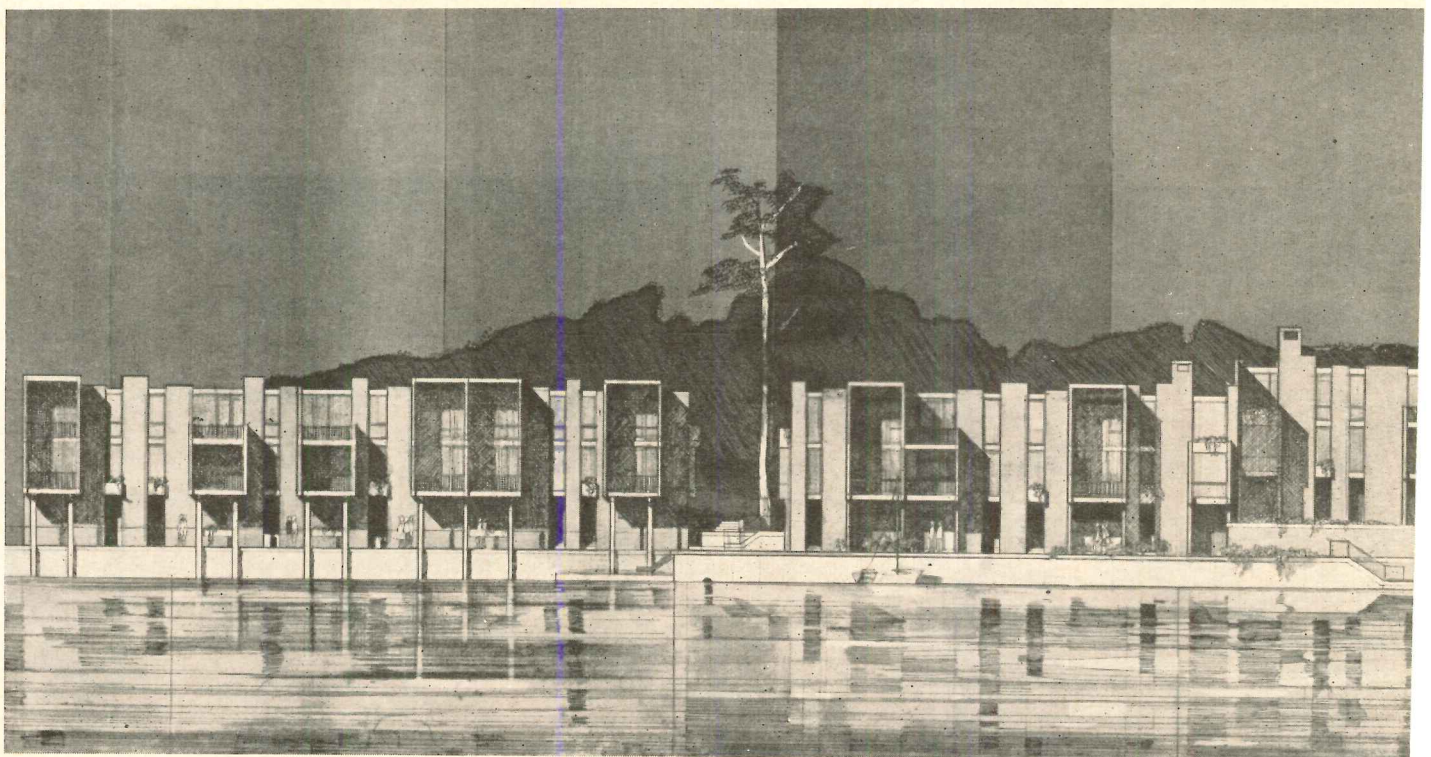
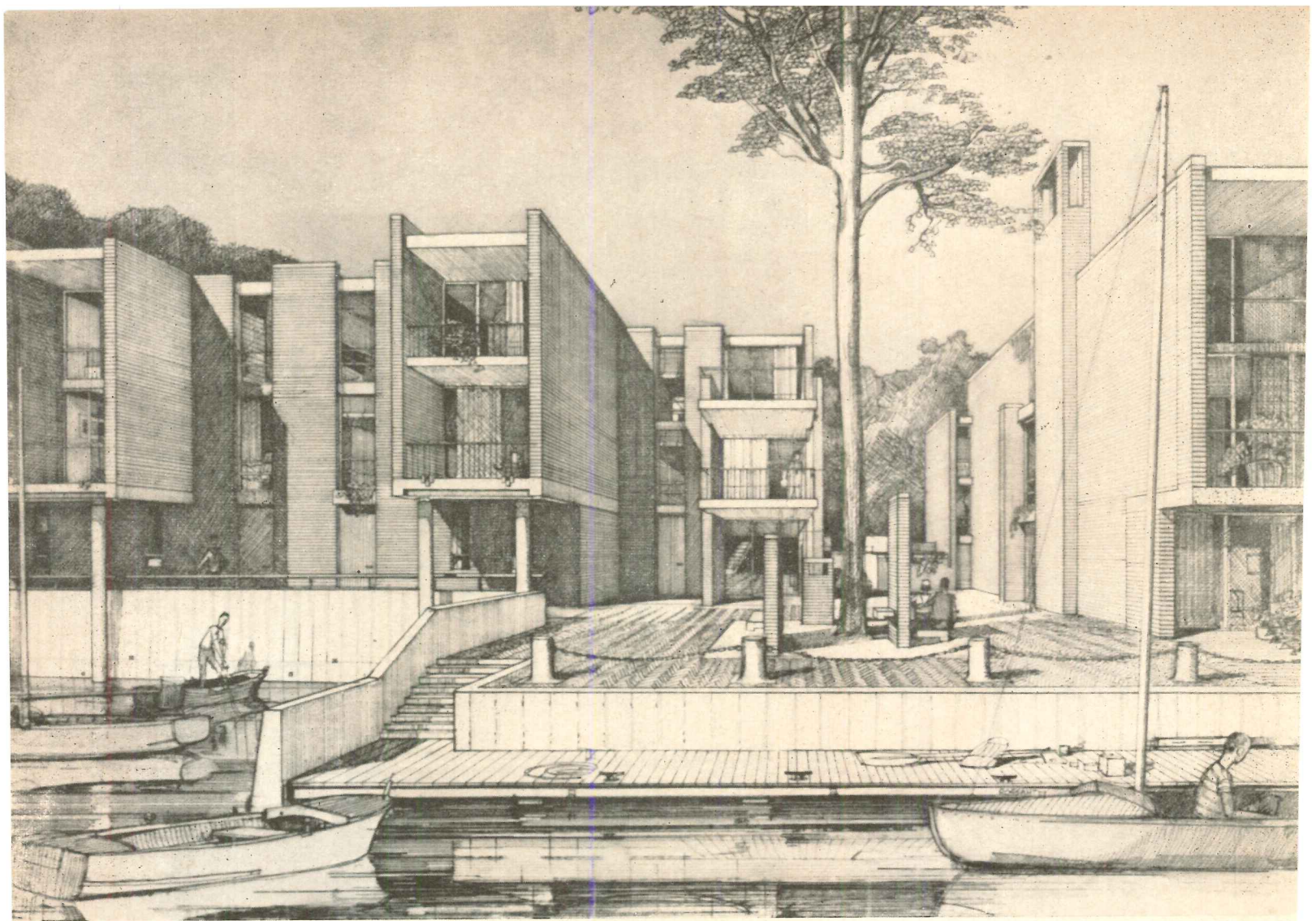
The First Village Center is designed to be as lively and as urbane a place as possible. A conscious effort has been made to infuse it with the excitement and atmosphere of a downtown area. Convenience shopping and community facilities are concentrated around a semi-circular plaza, along with a number of apartments and studios over the stores. The high-rise block at the head of the lagoon provides apartments for single people and small households, who can be expected to enjoy the convenience of living in the center, while overlooking the lake and the surrounding woods. The owners of many of the town houses will be able to tie up their boats outside their front doors, which should add further color and movement to the scene.



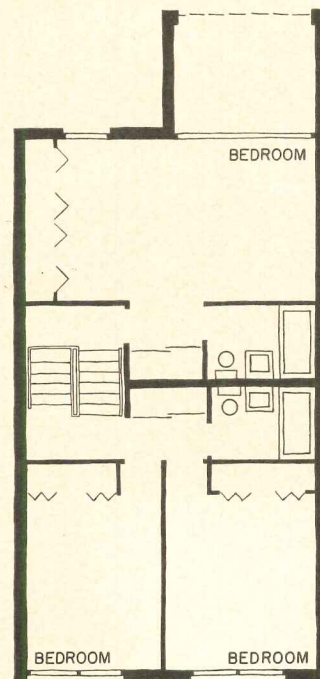


FIRST VILLAGE CENTER

Left: Plan of the First Village Center. The actual commercial and community center lies around the semi-circular plaza at the top of the drawing. The lake is formed into a lagoon and brought right into the heart of the area. *Right:* A typical floor plan and a side elevation of the high-rise block at the head of the lagoon



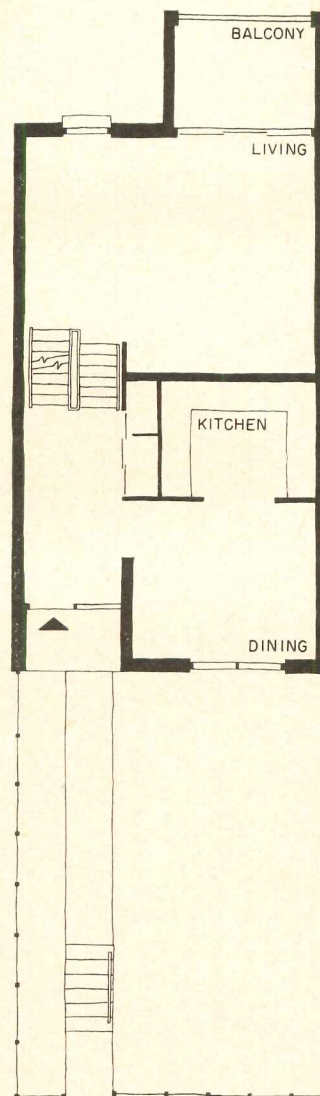
5



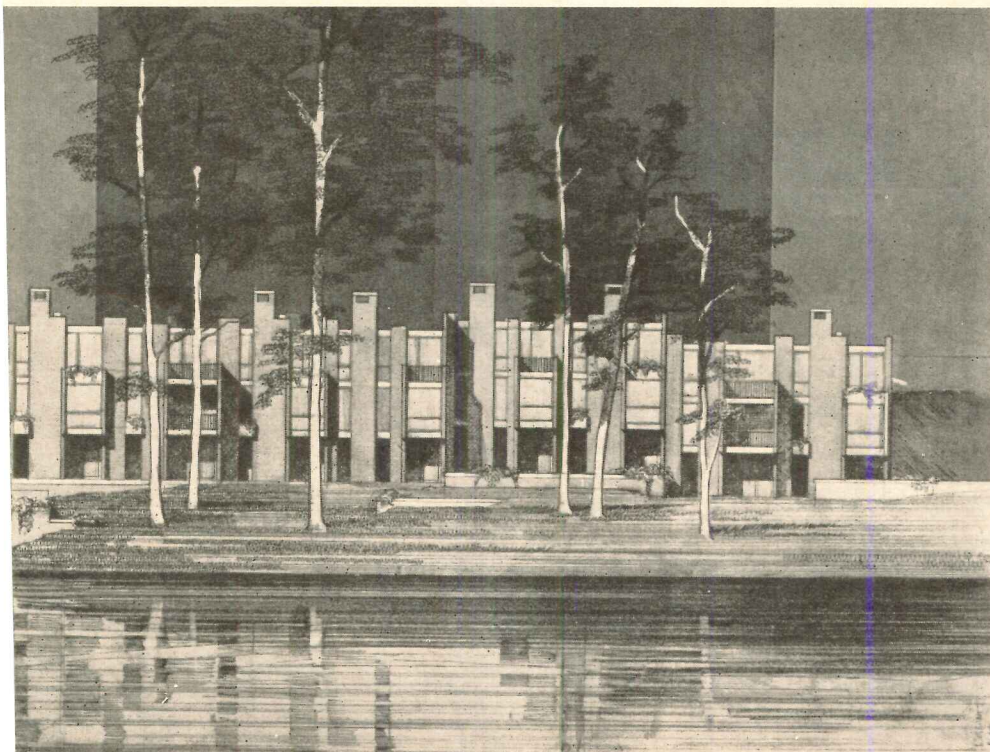
SECOND FLOOR

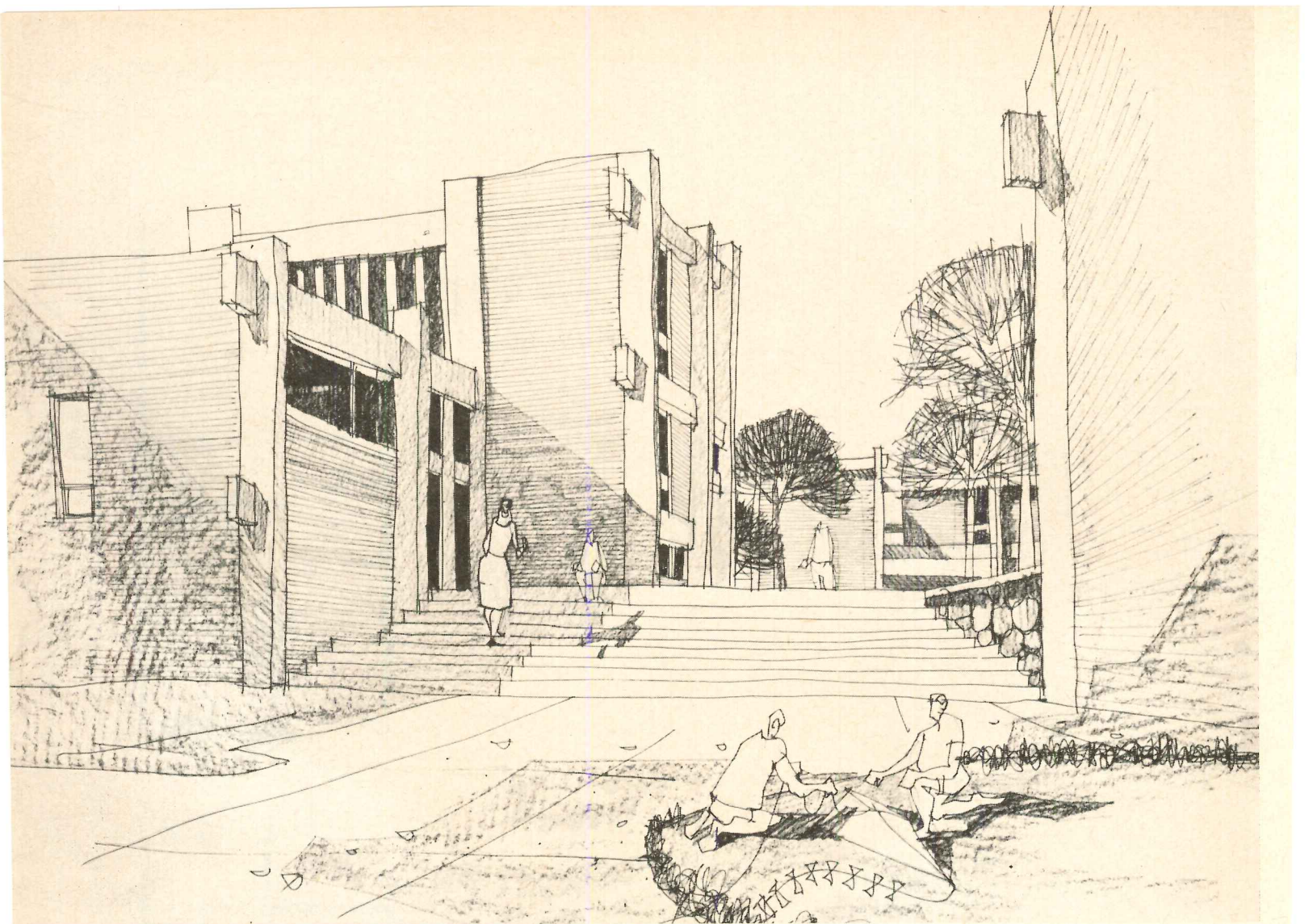
FIRST VILLAGE CENTER

Below: Elevation of the town houses opposite the high-rise block. *Left:* The perspective gives a good idea of their character and their close relation to the lake



FIRST FLOOR

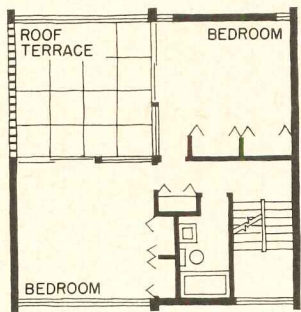
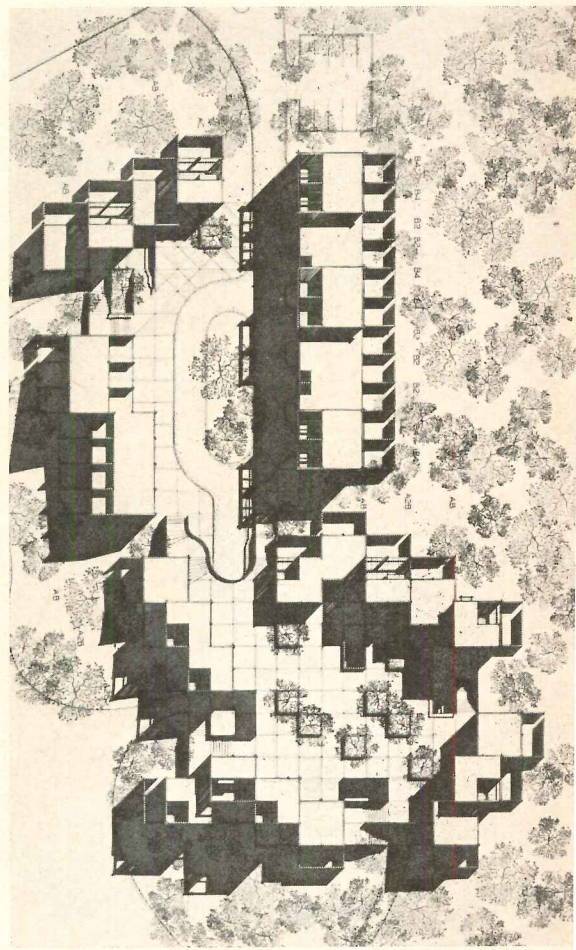
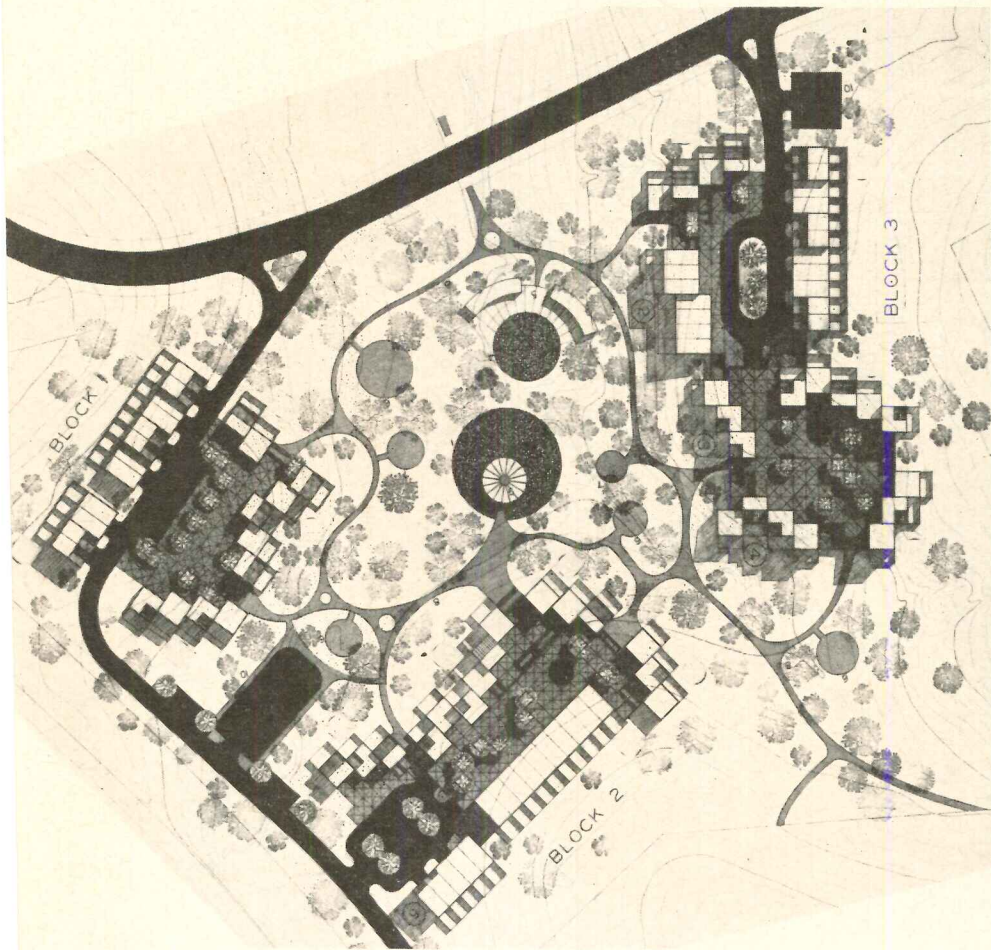




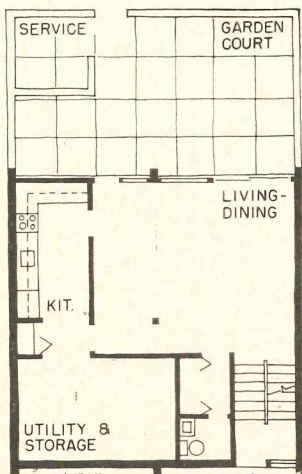
THE HILL CLUSTER

ARCHITECT: *Charles M. Goodman Associates*

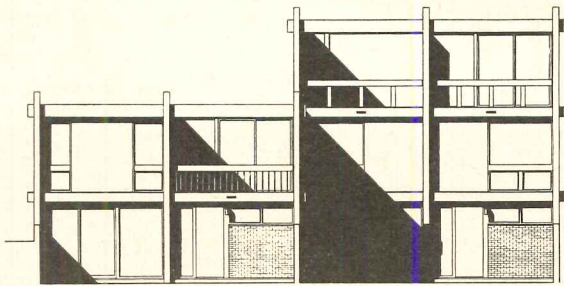
The Hill Cluster is comprised of three smaller clusters grouped around a central common. As the central space is naturally a flood plain, the landscaping employs the water courses on the site to form circular pools at different levels on the hillside, each pool being retained by a low stone dam. In addition there is a central area for community events and play areas, picnic areas and the like. The sloping site has been utilized to provide a covered garage under two of the clusters, the roof of the garage thus becoming an elevated plaza linking the houses. The third cluster has carports and parking at grade.



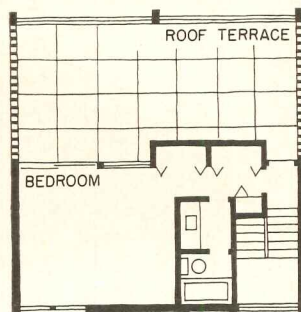
SECOND FLOOR



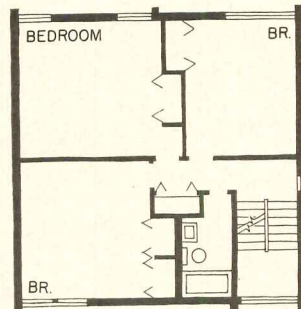
FIRST FLOOR



Elevation and plans of two typical houses. The plans are essentially the same, except that the three-story house has a bedroom instead of a terrace on the second floor and a bedroom and terrace on the third

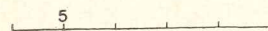


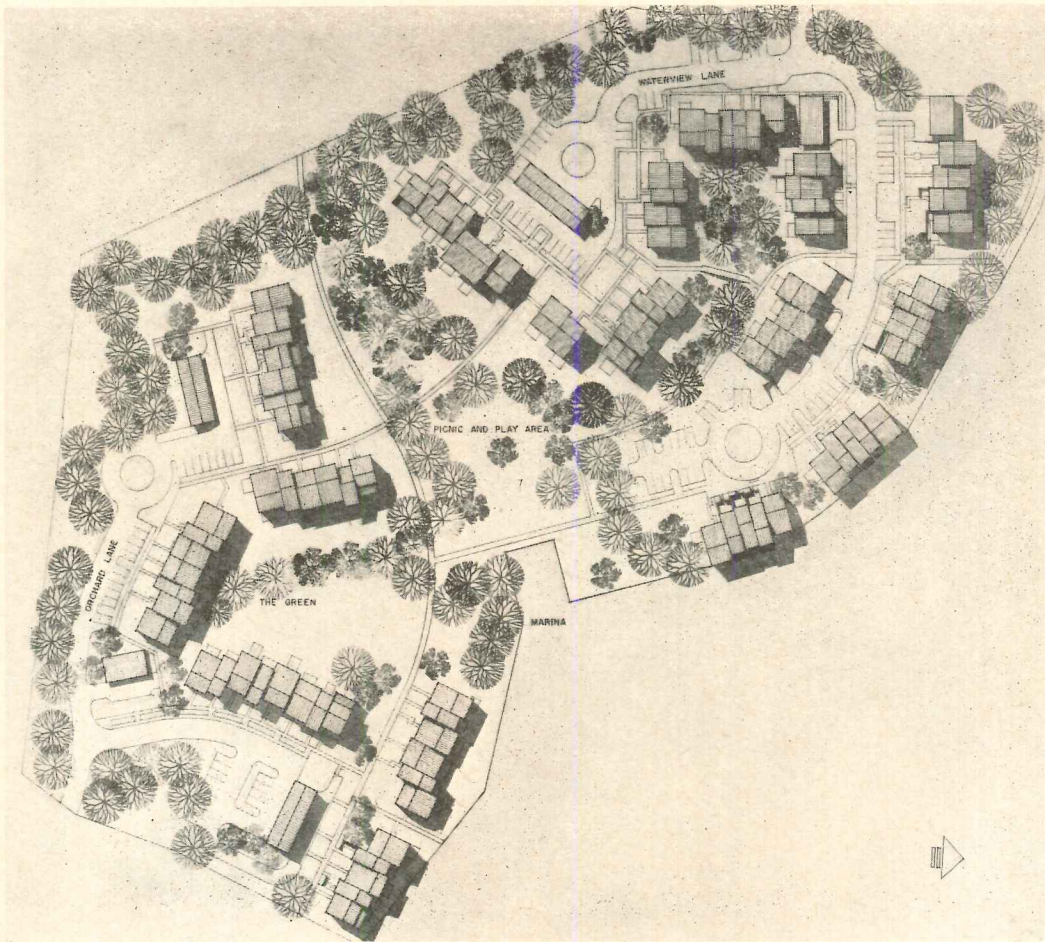
THIRD FLOOR



SECOND FLOOR

FIRST FLOOR DUPLICATES THAT OF 2-STORY UNIT AT LEFT

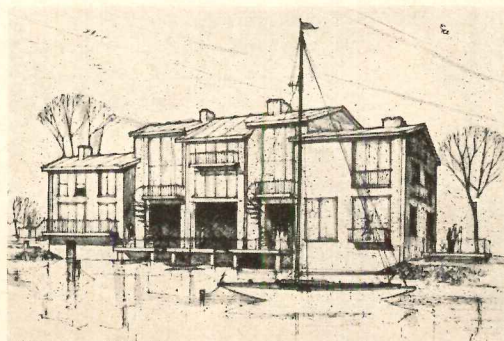
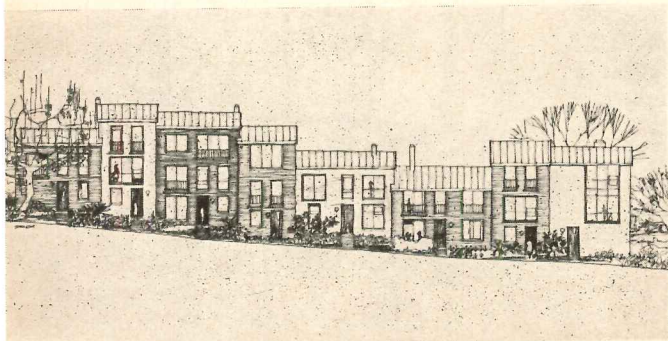
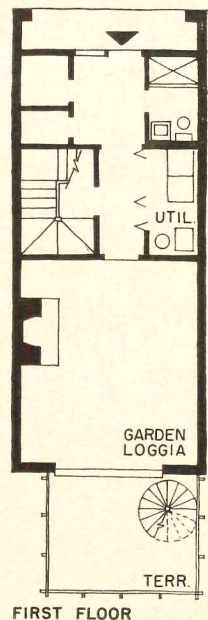
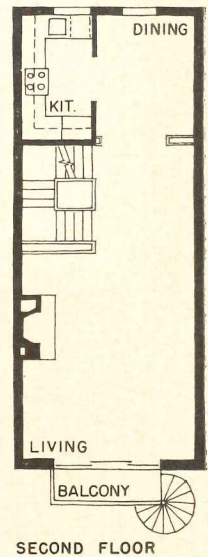
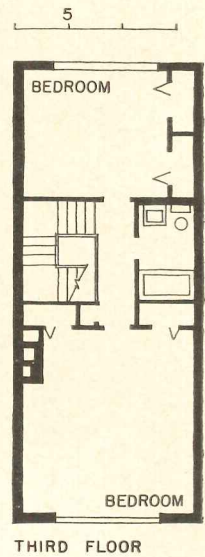




THE LAKE CLUSTER

ARCHITECTS: *Chloethiel Woodard Smith and Associates*

The houses in the Lake Cluster vary in size from 1,470 to 2,670 square feet, and some have as many as five bedrooms. Small balconies, circular stairs, decks, fireplaces, oriel windows, and skylights have been used to provide variety and give an individual character to each house. Houses built right on the water's edge have private boat docks directly off a loggia. There are 168 parking spaces for this 90-unit cluster. About half of them are in covered carports, the rest are in designated open spaces on grade.

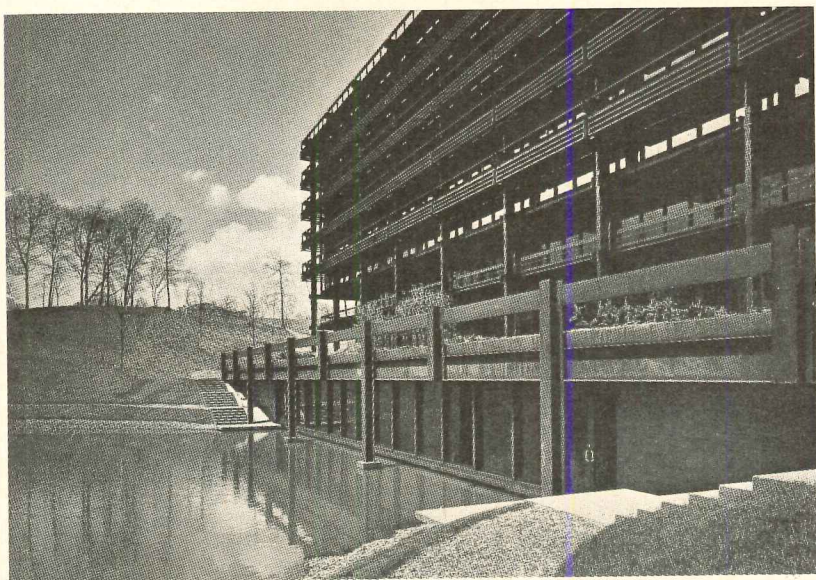
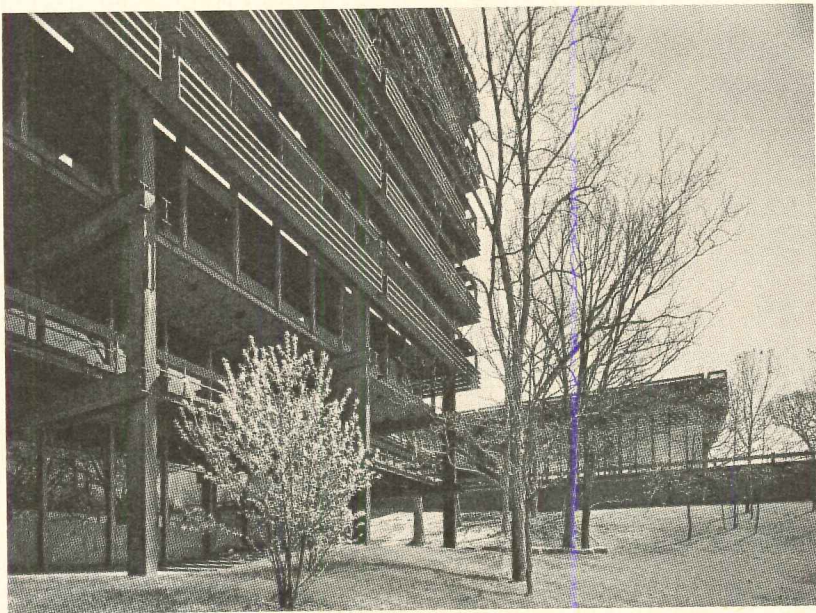




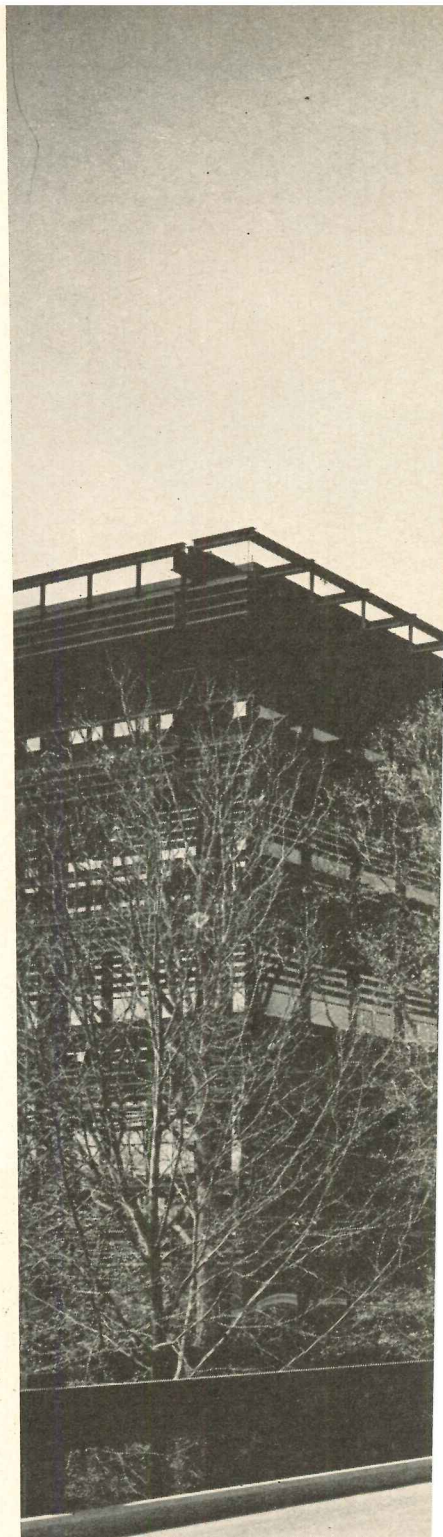
“Bold and Direct,
Using Metal in a Strong, Basic Way”

Eero Saarinen's design for the Deere & Company Administrative Center boldly expresses the essential nature of metal building construction, and pioneers the architectural use of a self-protective steel

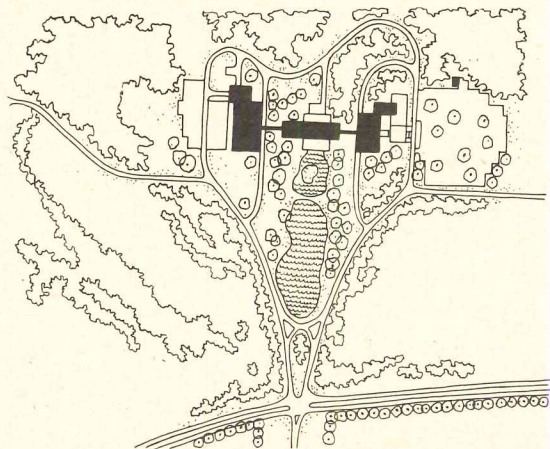
Deere & Company Administrative Center



Top: A view up the rise to the display building. *Above:* The south facade of the office building, showing terrace and pond. *Right:* The flying bridge from office building to product display building

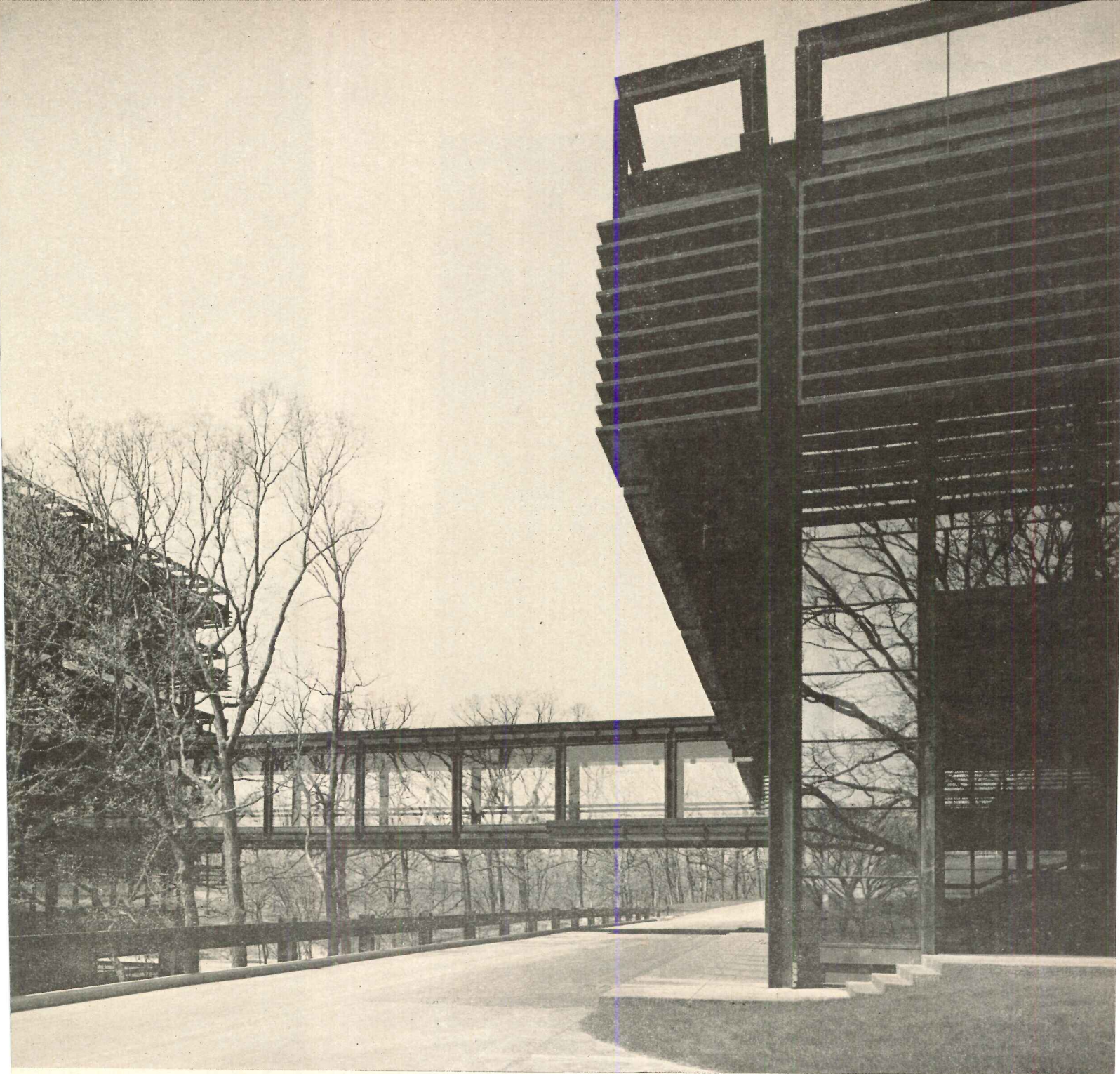


Roger Sturtevant photos



Disregarding the general tendency to make metal and glass buildings lighter, the late Eero Saarinen conceived the Deere & Company Administrative Center as a bold, direct expression of steel construction. In 1961 he said: "Farm machinery (*as made by Deere & Company*) is not slick, shiny metal but forged iron and steel in big, forceful, functional shapes. The proper character for its headquarters architecture should likewise not be a slick, precise, glittering glass and spindly metal building, but a building which is bold and direct, using metal in a strong, basic way.

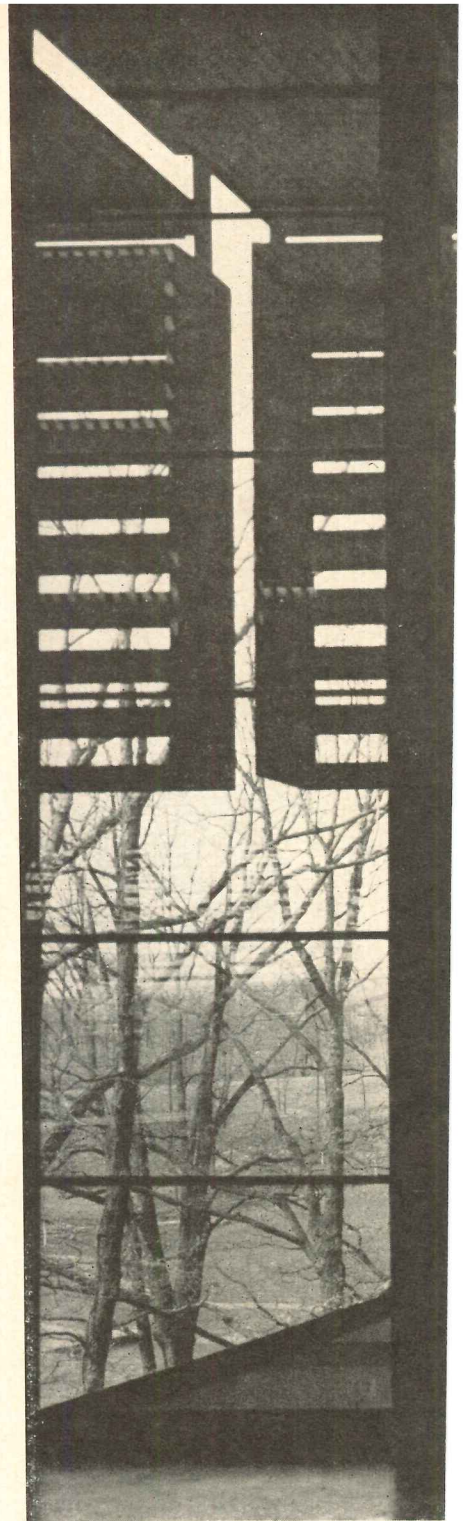
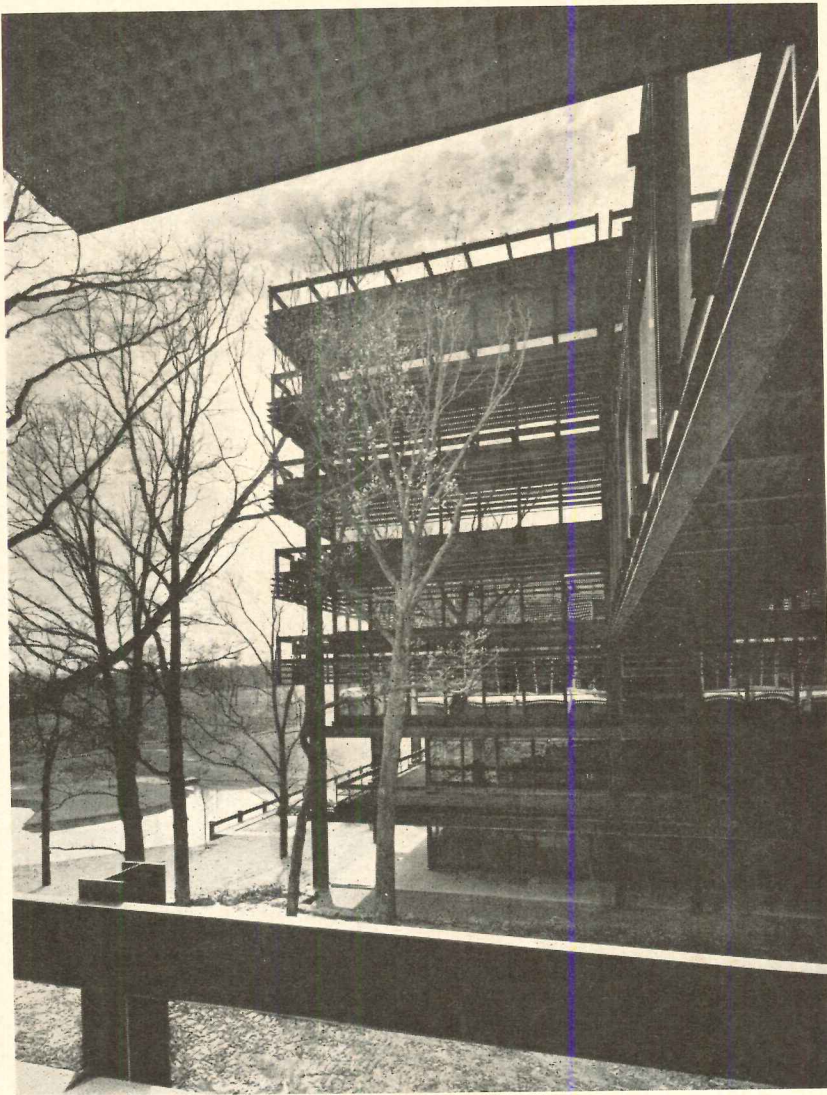
"Having decided to use steel, we wanted to make a steel building that was *really* a steel building (most



so-called steel buildings seem to me to be more glass buildings than steel buildings, really not one thing or the other). We sought for an appropriate material—economical, maintenance free, bold in character, dark in color. We located a high-tensile steel which . . . if left unpainted, forms a rust coating which becomes a protective skin. This coating . . . is a cinnamon-brown color which makes a beautiful dark surface.” The finished Deere buildings are handsome, masculine in character and at home in their setting.

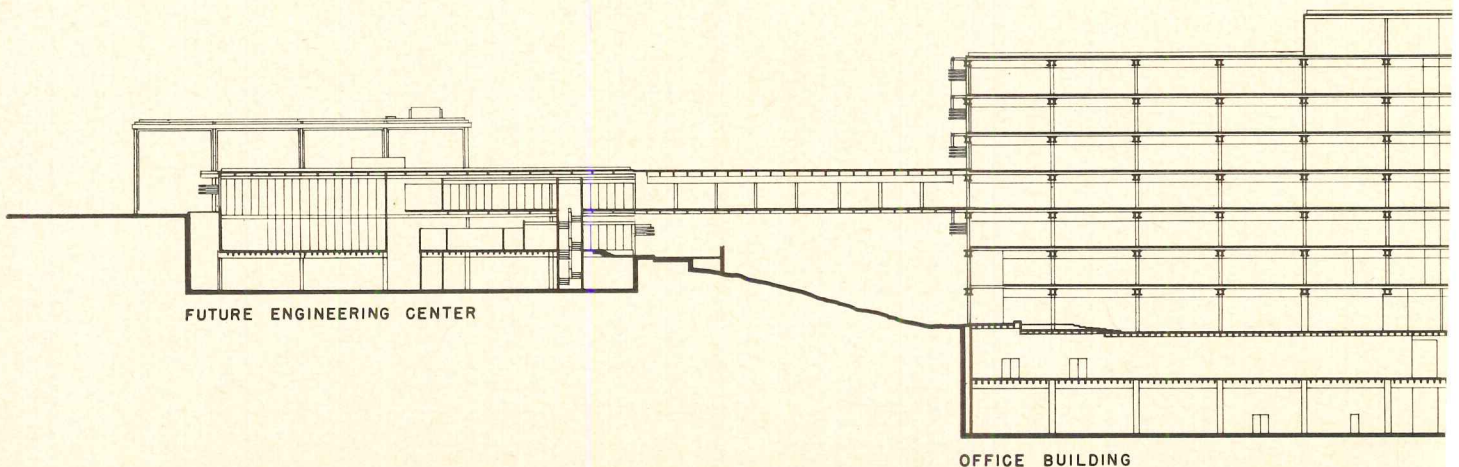
At present, the center consists of an office building, display building and auditorium. The seven-story office building is set across a wooded ravine, and is

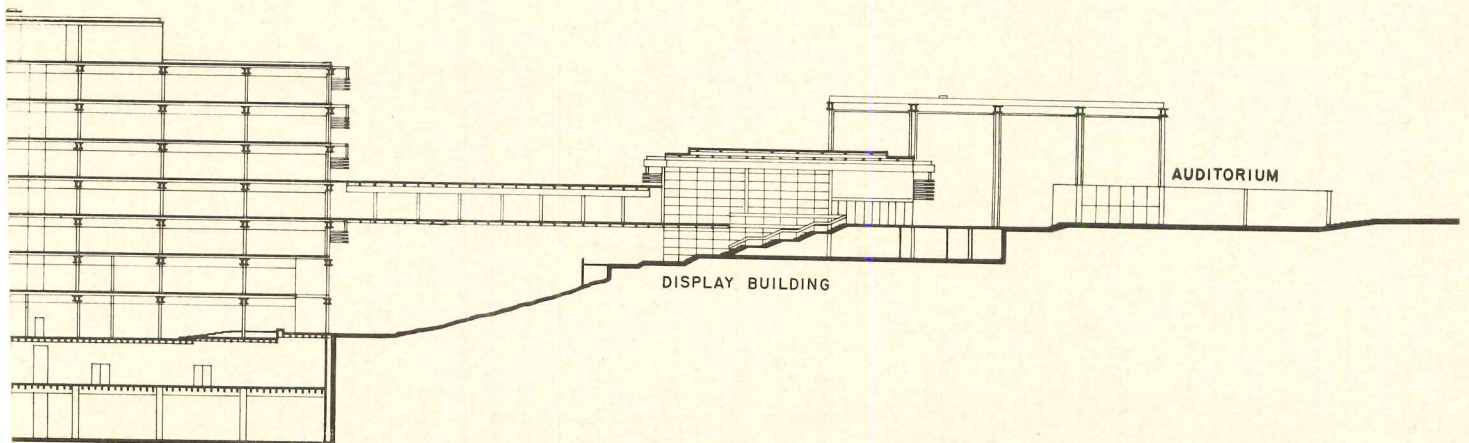
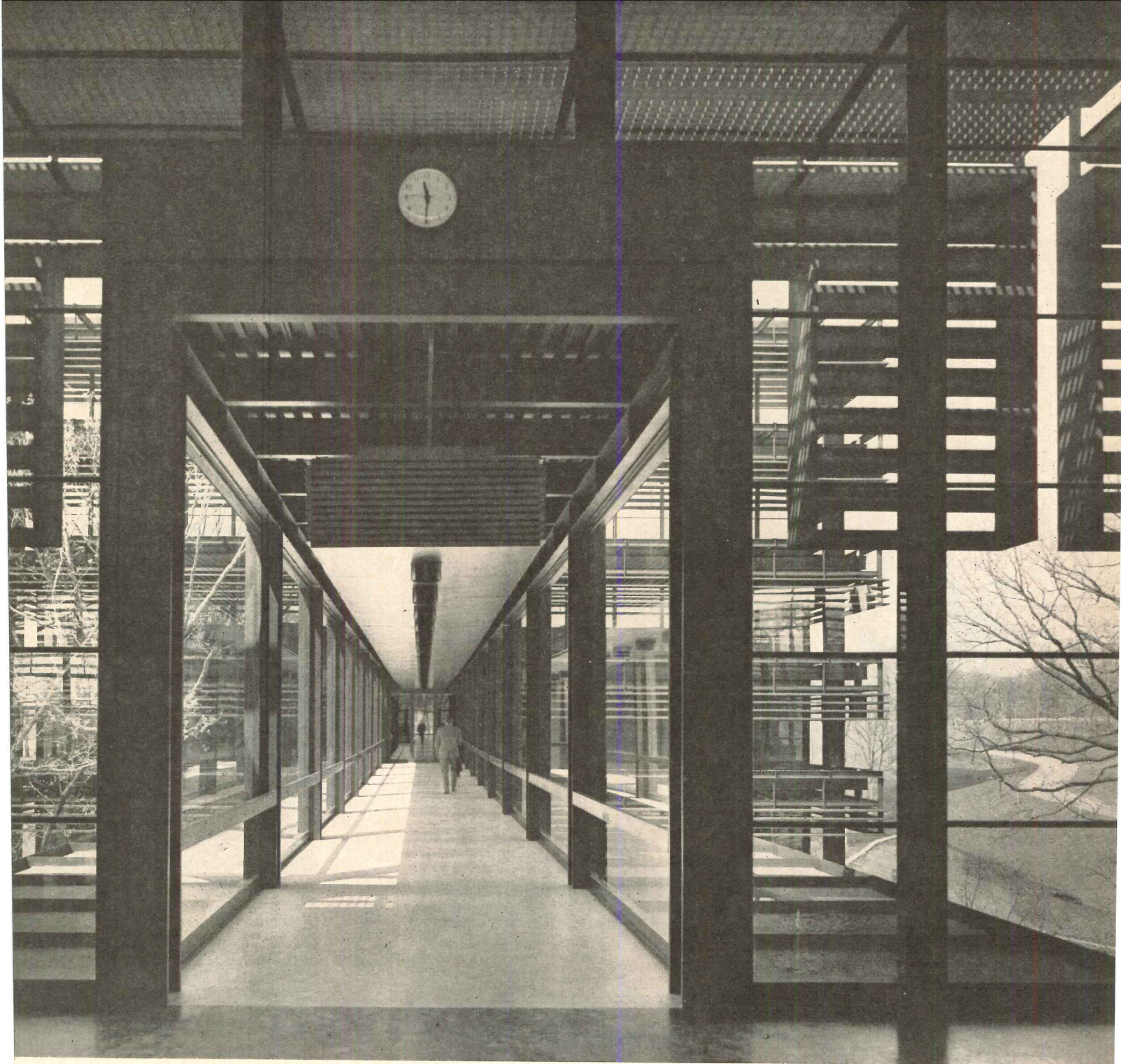
connected by a flying bridge at fourth floor level to the display building at the top of the slope. Future plans call for an additional office-engineering building at the top of the opposite slope, connected by a second flying bridge to the main office building. Entrance to the center is gained through the mezzanine of the product display building, which leads, in turn, to the glass enclosed bridge through the treetops, which joins the main office building at its middle floor. The office building faces south over a developed ravine containing two ponds, the larger of which is used as a spray pond for air-conditioning water. Plans call for a research building south of the present group.

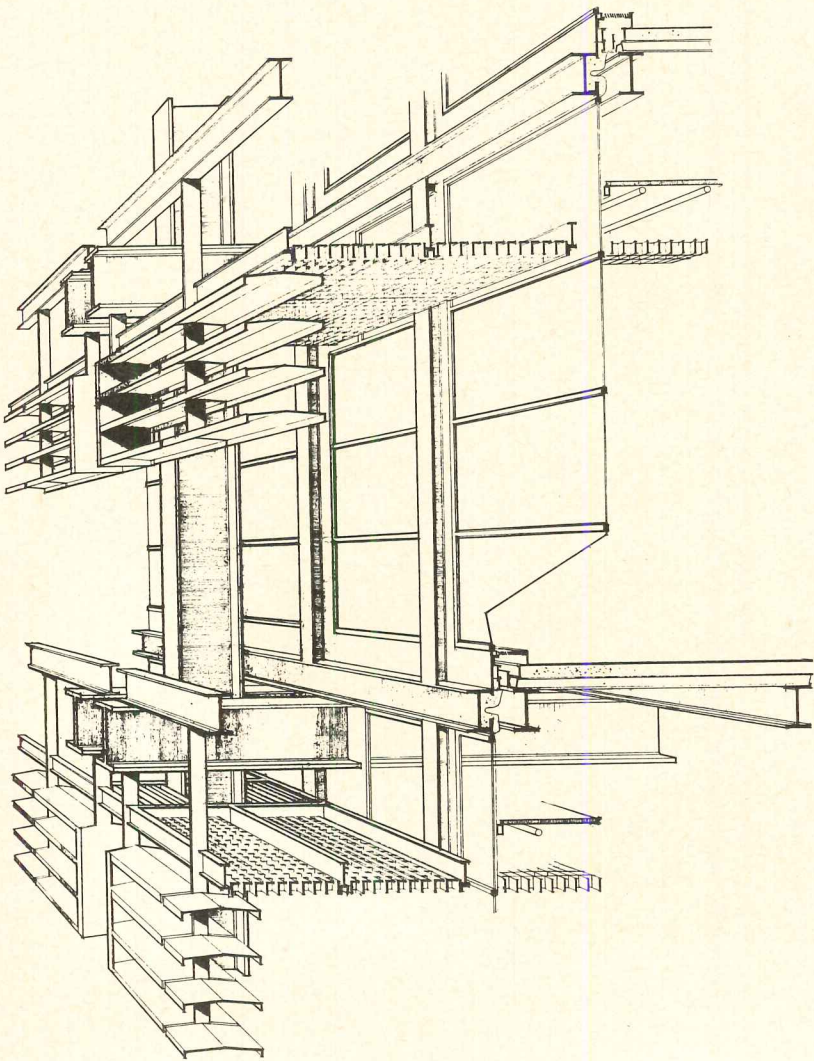


The section (*below*) shows the disposition of the buildings in relation to the ravine: the office building set crosswise and connected by glass enclosed bridges to the display building and auditorium, right; and to the future engineering center, left.

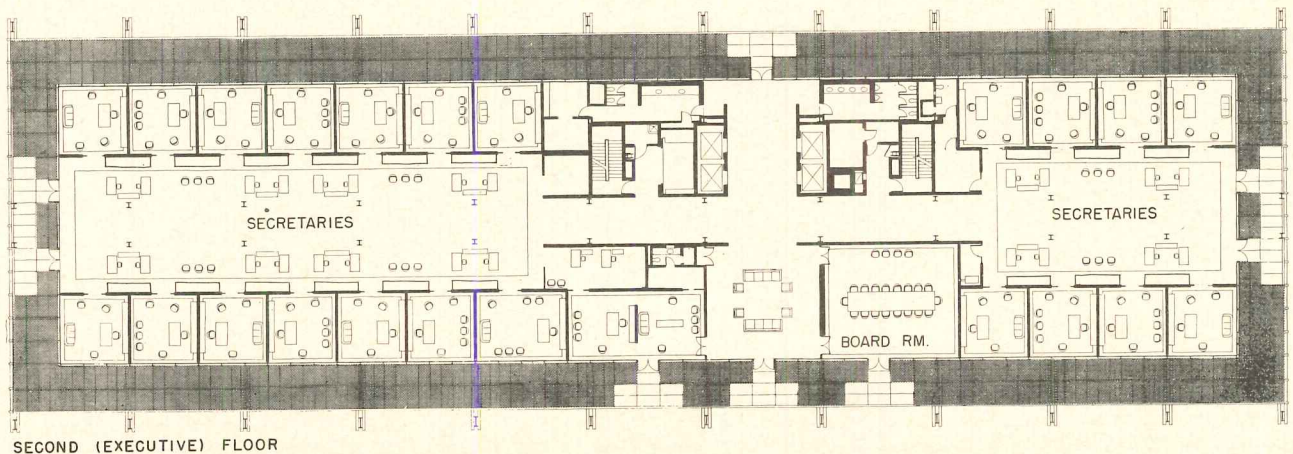
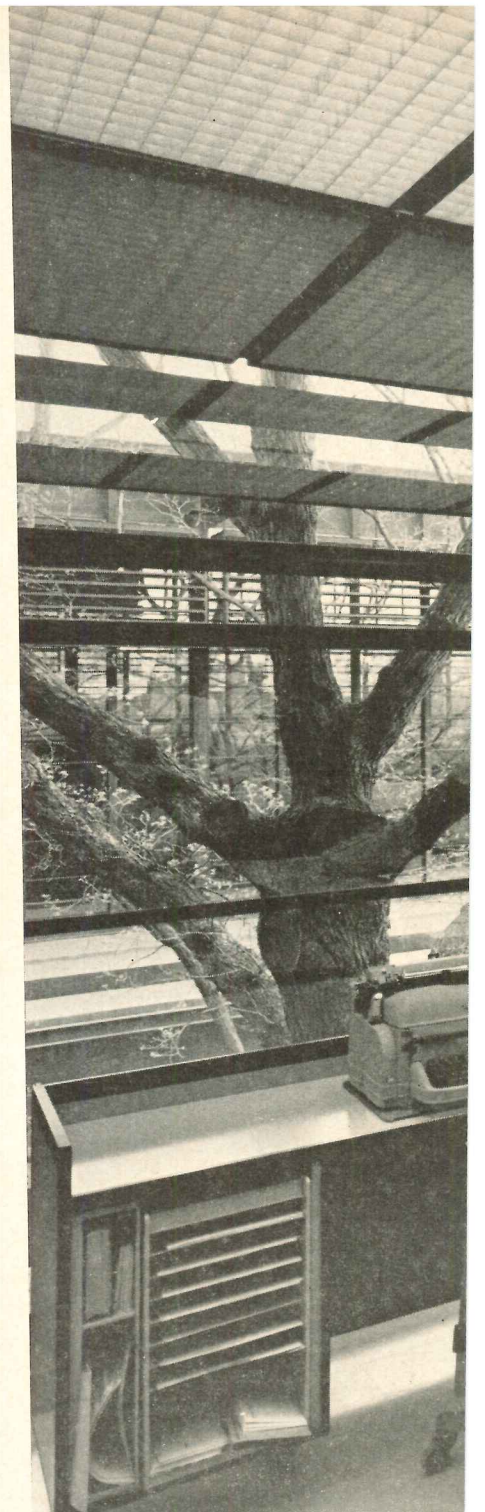
The photo (*above*) looks under the bridge to the office building, while the large picture (*right*) shows the view through the bridge to the office building, the route one takes as he enters the center. Note how the steel sunshades contribute to the character of the buildings

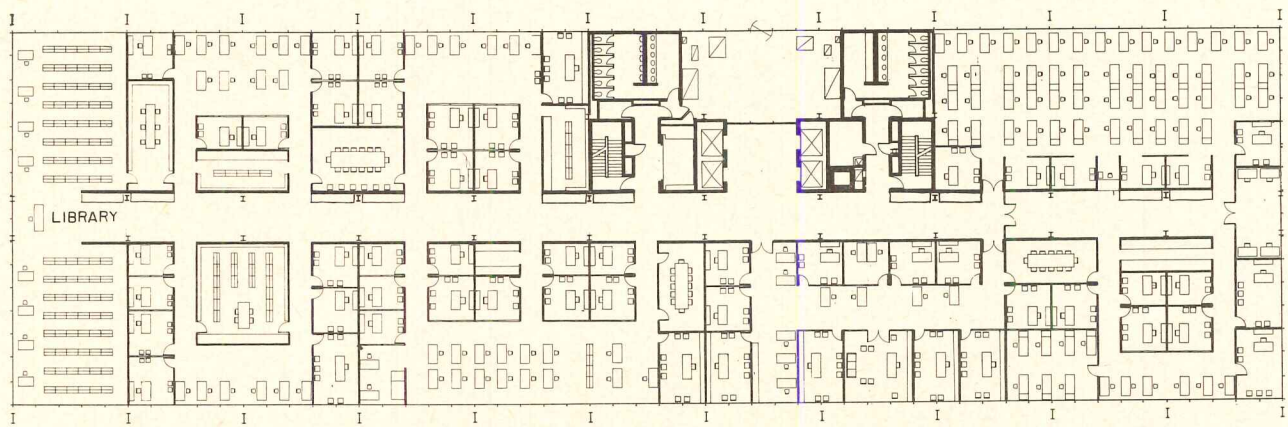






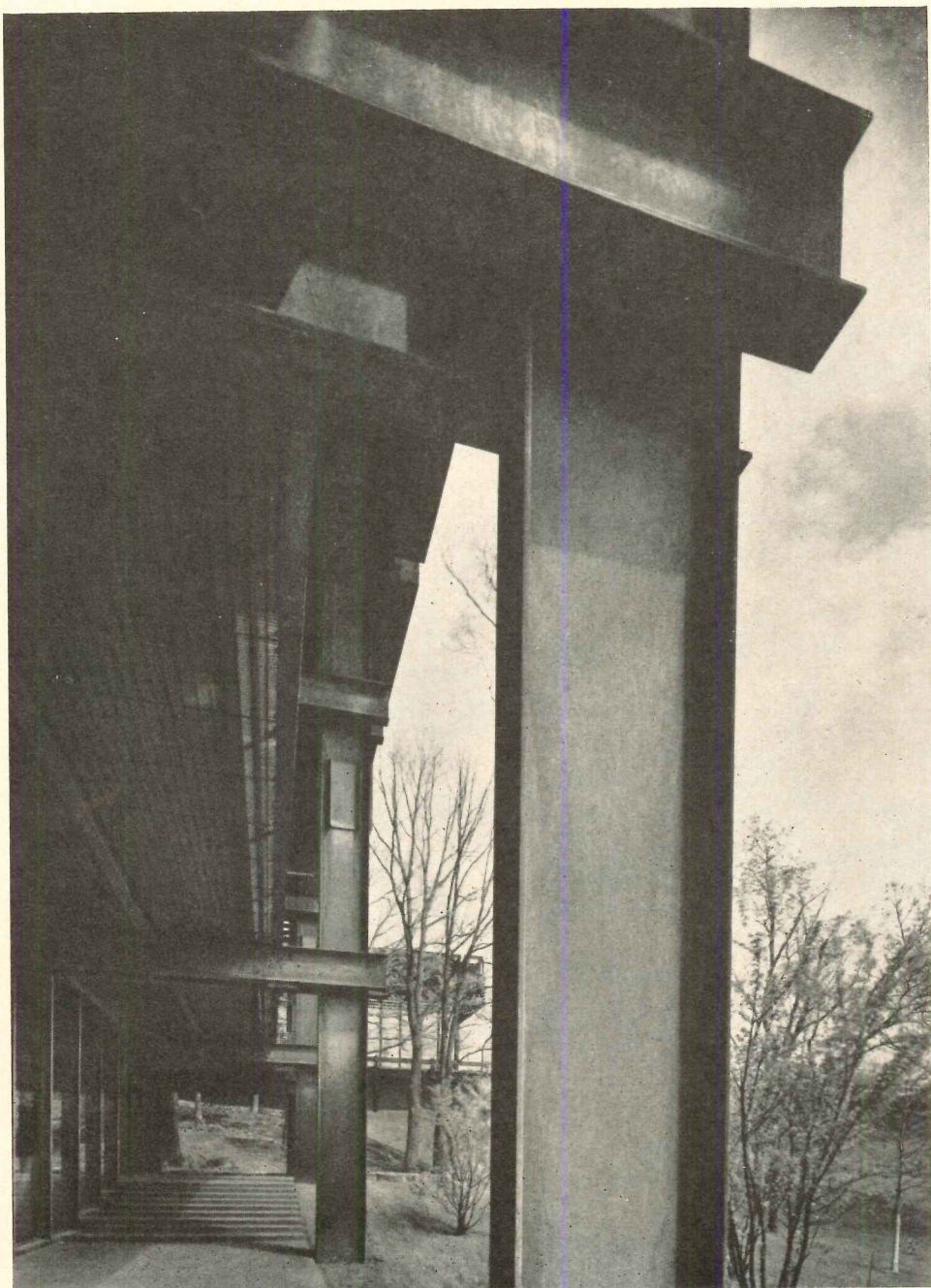
Concerning the metal sunshades, shown in detail (*above*), architect Saarinen said: "Having selected a site because of the beauty of nature, we were anxious to take full advantage of views from offices. To avoid curtains or Venetian blinds, which would obscure the views, we worked out a system of sunshading with metal louvers and also specified reflective glass to prevent glare." The photo (*right*) shows the pleasant effect achieved. Note in the plans (*below*) how general offices—as well as those of executives—have been located on desirable outer walls





TYPICAL FLOOR

Deere & Company Administrative Center



Deere & Company Administrative Center, Moline, Illinois

ARCHITECTS: *Eero Saarinen and Associates*

STRUCTURAL ENGINEERS: *Ammann & Whitney*

MECHANICAL AND ELECTRICAL ENGINEERS: *Burns & McDonnell Engineering Company*

LANDSCAPE ARCHITECTS: *Sasaki, Walker and Associates*

MANAGEMENT CONSULTANTS: *Booze, Allen and Hamilton*

ACOUSTICAL CONSULTANTS: *Bolt, Beranek & Newman, Inc.*

LIGHTING CONSULTANT: *Richard Kelly*

STAGE LIGHTING CONSULTANT: *Stanley McCandless*

TRAFFIC CONSULTANTS: *Barton-Aschman Associates*

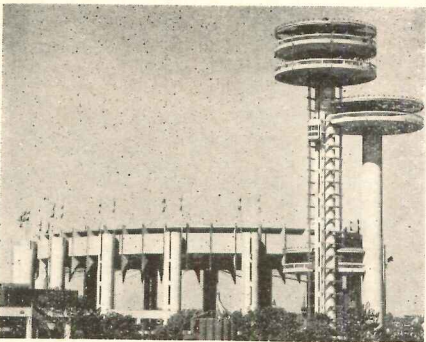
KITCHEN CONSULTANTS: *Harding-Williams Corporation*

GENERAL CONTRACTOR: *Huber, Hunt & Nichols*



Towers of the New York State Pavilion designed by Philip Johnson

Joseph W. Molitor photos



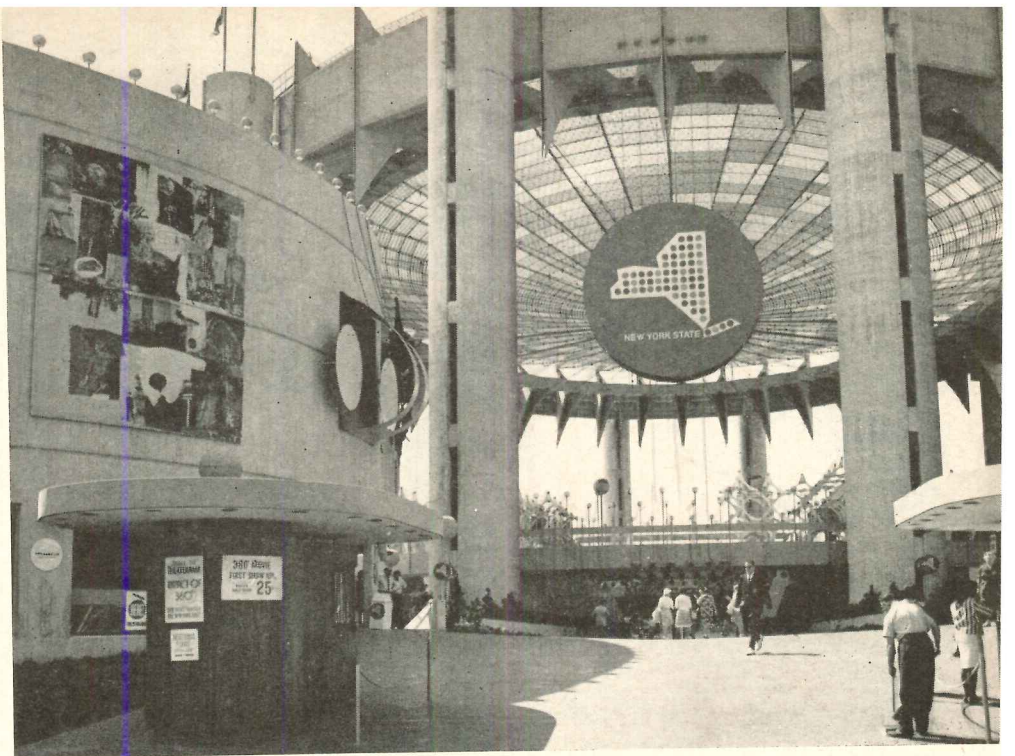
The New York State Pavilion

ARCHITECTURE AT THE NEW YORK WORLD'S FAIR

World's Fair: State Pavilions

Early in 1961 in an address given at Brandeis University, Robert Moses, president of the New York World's Fair, explained his position in regard to design and site planning for the Flushing Meadow site. "The Fair administration belongs," he said, "to no architectural clique, subscribes to no esthetic creed, favors no period or school and worships at no artistic shrine. . . . As a result of adopting this policy of leaving the architecture to the exhibitors and to the architects they select . . . we shall no doubt be charged with lack of central planning, imagination and daring." Ascribing such criticism to self-seeking, Moses added: "I get a little weary of the *avant garde* critics who see in a World's Fair only an opportunity to advance their latest ideas, to establish a new school of American planning, architecture and art and place their individual seal on one grand, unified, integrated concept . . . Fair officials have no position at all except as benign spectators." On another occasion he said: "We have no master plan except in the sense of a framework fashioned by highways, waters, topography and the inheritances from the first World's Fair and subsequent improvements."

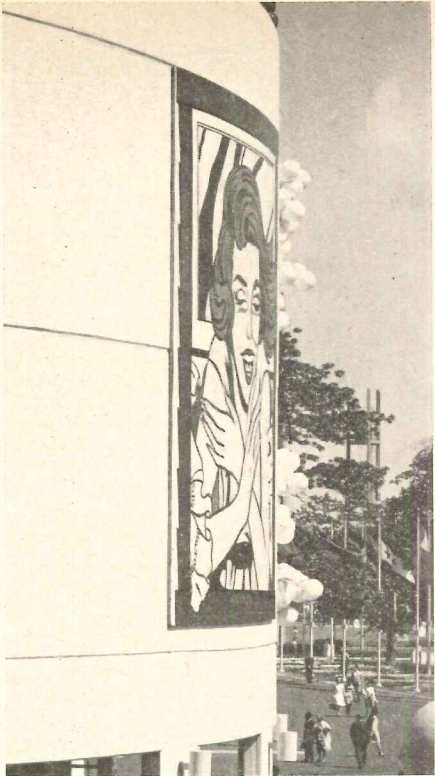
Now this architecturally *laissez-faire* Fair has welcomed the public to its sprawling 646-acre site, which is nine times bigger than the successful Seattle Fair of 1962. Those architects and planners who condemn Moses for his failure to plan anew, as manifested in the development of the latest Fair within the formal Beaux Arts site plan of the 1939-40 World of Tomorrow, have a chance to see if everything has turned out as badly as they expected. Those who believe the Fair Corporation should have imposed good design standards in addition to the new and carefully formulated building and health codes that were insisted upon can view the resulting visual chaos without surprise, for Moses himself said: "We cannot prevent the maker of condiments from building his pa-



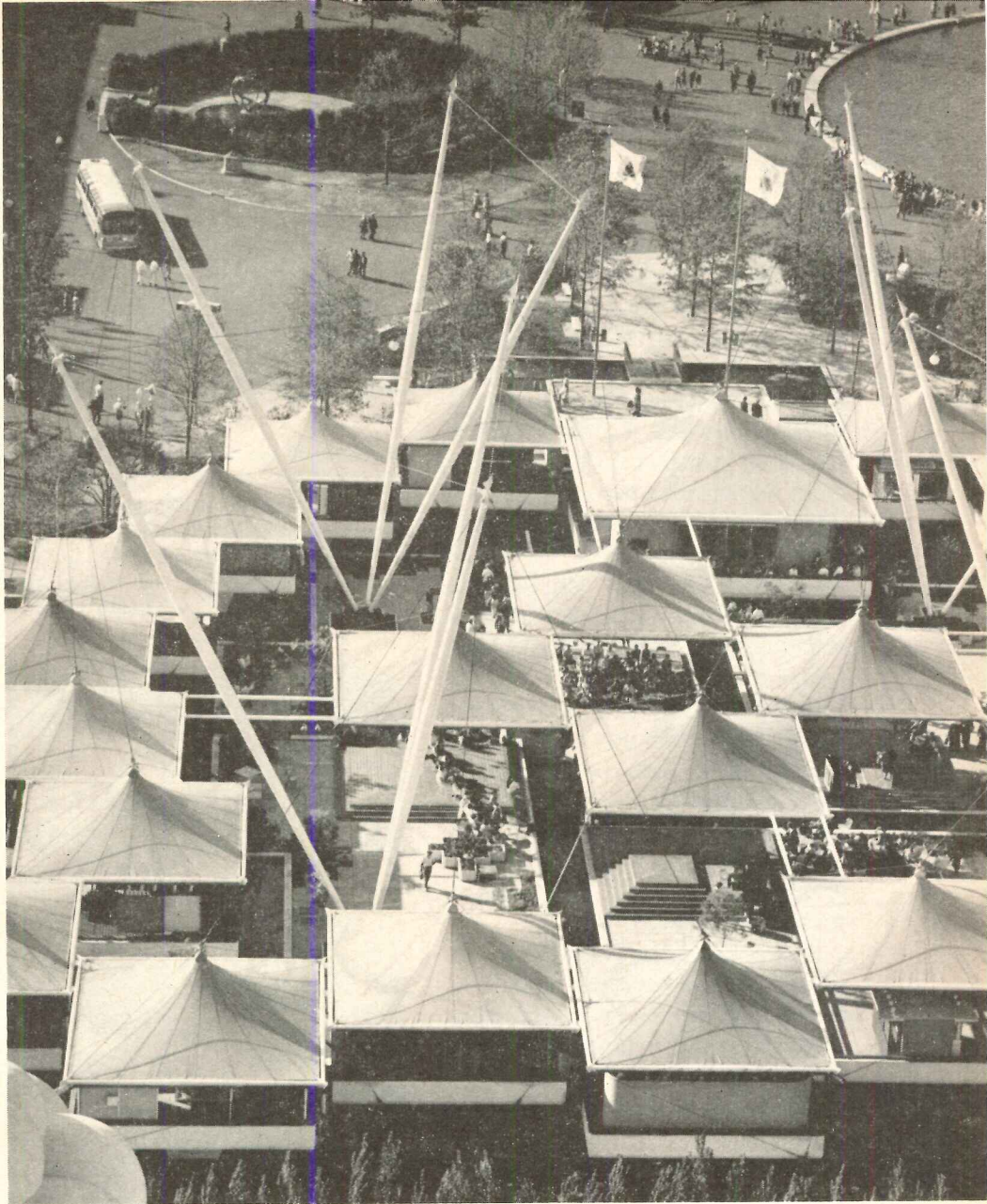
The New York State Pavilion. One of the Fair's most successful pavilions, this great tent has the gaiety of the circus and is in the best tradition of Fair design. It boasts the world's largest cable-hung roof which spans 350 feet in its longest dimension. Three observation towers rise 90, 185 and 250 feet respectively, and each has an observation platform 64 feet in diameter. Architect Philip Johnson has said that he strove to achieve "an unengaged free space as an example of the greatness of New York, rather than as a

warehouse full of exhibit material." In this great space bands play and school children parade on a great road map of New York State designed into the terrazzo floor. The building may become permanent. Governor Rockefeller revealed on opening day that the state had spent an extra half million dollars on the building's foundation just so that it could remain. Total cost of the pavilion was approximately \$11.5 million. It includes a circular theater called a Circarama, for the projection of a 360-degree film on the wonders of



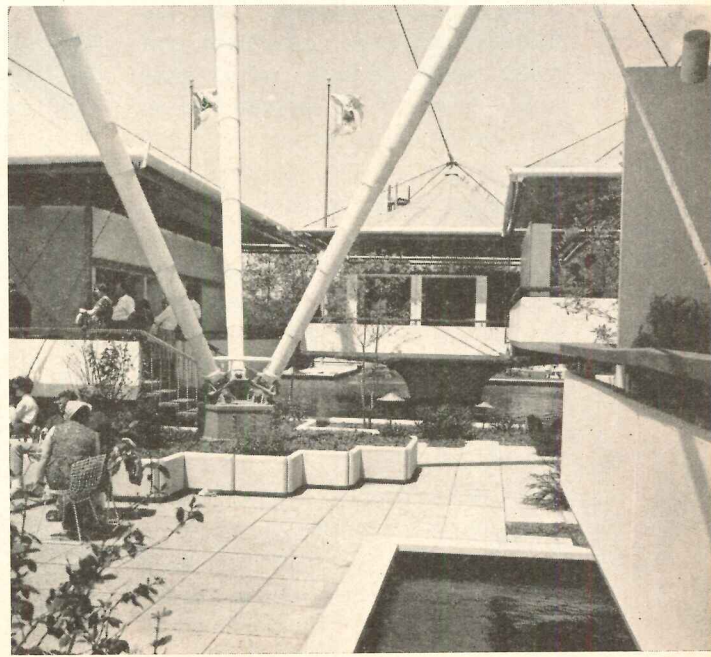
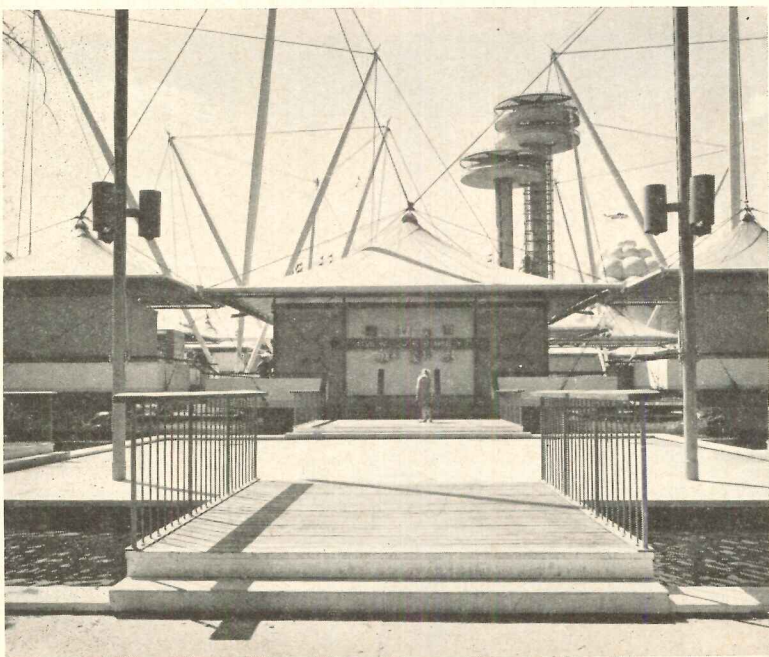


New York State. For the exterior of the theater Johnson commissioned some Pop Art which serves, by the contrast of its sinister overtones, to enhance the transient grace of the pavilion. (Johnson seems fond of this kind of juxtaposition . . . it can be found also in certain works, notably a sculpture by Bontecou, which he selected to offset the luxurious elegance of the New York State Theater at Lincoln Center.) Structural engineers: Lev Zetlin and Associates; mechanical and electrical engineers: Syska and Hennessy



The New Jersey Pavilion consists of 21 tent-covered island pavilions, each bearing the name of a county in the state. The winner in an architectural competition, it was designed by Peter Quay Yang Associates, Inc. and Collins,

Uhl & Hoisington. Norman J. Sollenberger was structural engineer; Bliss and Hanle and Charles Simpson and Son, mechanical engineers; Richard Cripps, landscape architect. Structure and exhibitions are show great finesse



Worlds Fair: International Pavilions

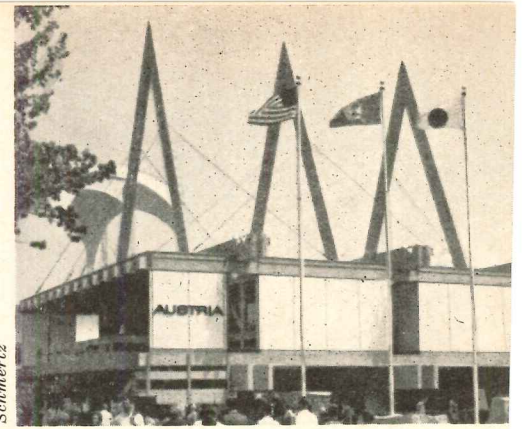
vilion in the form of a pickle . . ." While the masses are surging about having a good time, members of the somewhat smaller but rapidly burgeoning group which Moses considers *avant garde* can look about and decide whether the Fair's entrepreneurs are being punished in any way for their neglect of the art of architecture and site planning. Conversely they can decide whether the exhibitors who courted the muse are being rewarded by popular attention and financial success.

Certain pavilions are suffering from neglect, and it is tempting to ascribe these failures in part to their location on the old Beaux Arts plan. It can be argued that a better site plan would not have produced so many inaccessible forsaken spots.

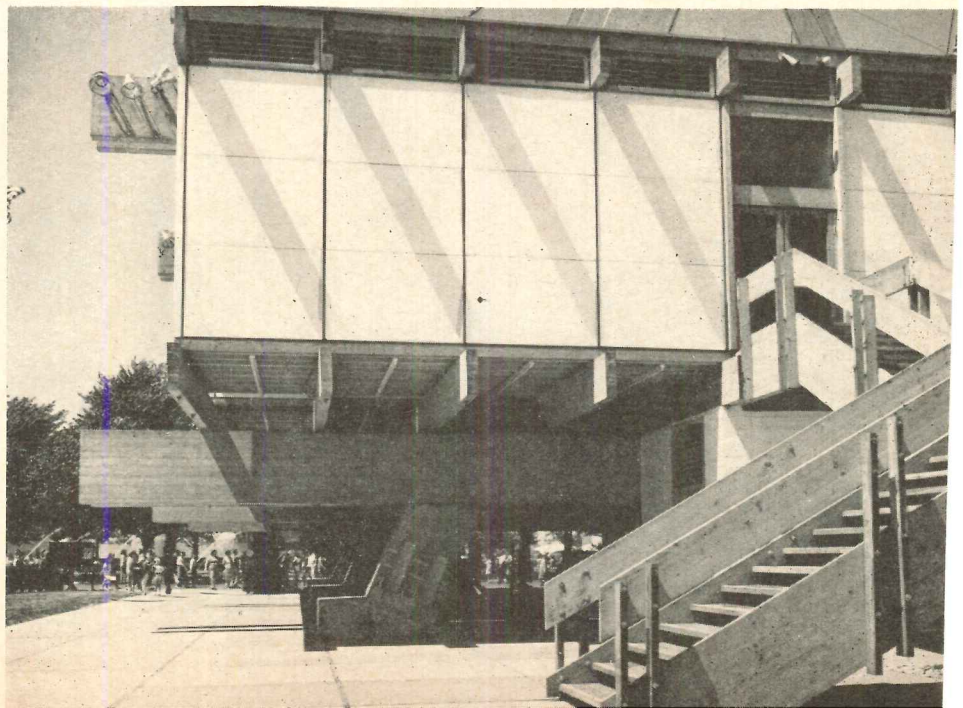
Moses had good reasons for insisting on the 1939-40 plan. Underground sewer lines and conduits were still in good shape. The asphalt roads were a bit cracked but repairable and best of all, the young trees planted along the avenues of 25 years ago are now mature and beautiful. One hundred and thirty-eight of them have now been moved to new locations on the grounds. Since the Fair site must be returned to park use, New York City spent \$25,000,000 for permanent improvements. The peripheral highway program got going with Federal and state funds. Other work included burying the Flushing River for 1,900 feet of its course, constructing additional roads within the site, landscaping unleased areas, augmenting the underground services, restoring old fountains, adding new ones and commissioning new sculpture. The sight of some of the sculpture will draw the viewer back in time toward the World of Tomorrow. Economy was the keynote in site preparation, possibly because the cause of the financial failure of the 1939 Fair in which investors recovered about one third of their money has been attributed to the

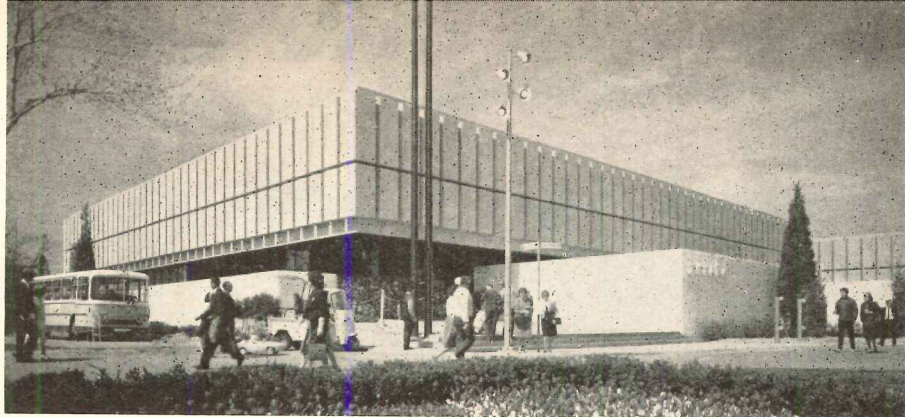


Pavilion of Denmark. Designed by Erik Moeller, the Danish architect, with the engineering firm of Werner, Jensen & Korst as consultants, this is a beautifully detailed structure which unfortunately crowds its site. Adults can leave offspring in a lovely children's garden



The Austrian Pavilion, designed by the Viennese architect Gustav Peichl, is constructed of oversize laminated native spruce members. Three arches rise at a steep angle to a height of 109 feet and support the suspended 1,274 square yard display area





Alex J. Langley

The Spanish Pavilion is considered by many to be the finest building and exhibition at the Fair. It was designed by the Madrid architect Javier Carvajal and meticulously attended to by the New York consulting architects Kelly & Gruzen. The contractors, Paul Tish-

man Company, Inc., took unusual pains in the collaborative effort to bring Carvajal's designs into conformity with the World's Fair building code and U. S. construction methods. Workmen were forced to construct the pavilion in nine months, of which only three

were available for interiors.

To the surprised and pleased visitor the pavilion seems authentically Spanish in all its details, from the handsome tile floor set in earth to the studied carelessness of the whitewashed plaster walls



Alex J. Langley

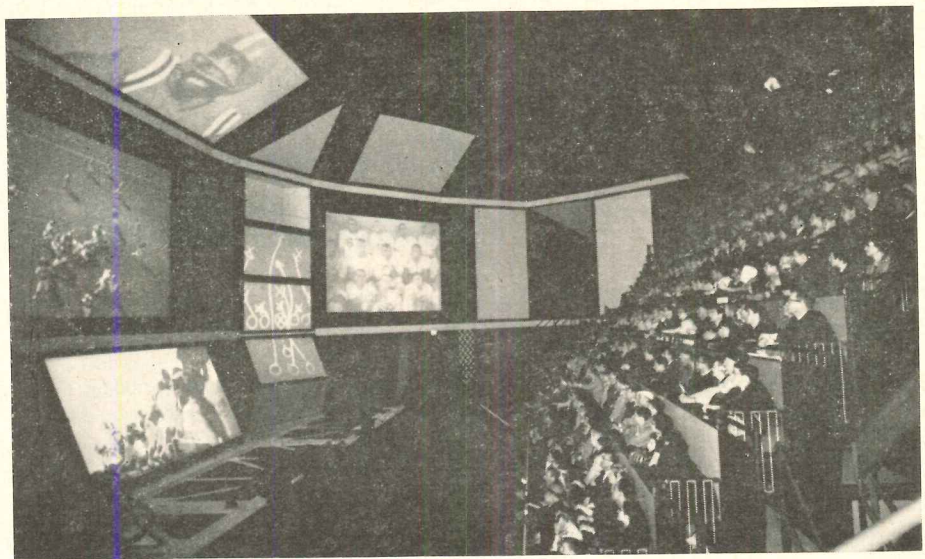
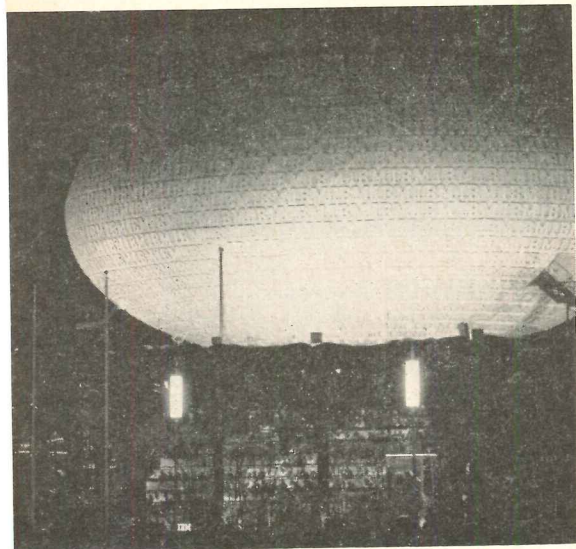


Alex J. Langley

The simple exterior does not prepare one for the dark, rich spaces inside which are punctuated by sun filled courtyards and skillfully lit displays. The Spanish Government has taken the World's Fair seriously and has sent her best. Great treasures from the Prado including five Goyas, an El Greco and a Velazquez have come to Flushing along with works of Miro, Picasso and Dali. The Pavilion has a uniform three-acre ceiling of 4-inch-square deeply stained wooden blocks attached in groups of four to light steel members. Air is circulated through the interstices of each group. At display points the blocks are replaced by hollow 4-inch-square aluminum tubes anodized to a deep bronze finish which contain lamps. These plunge down from the ceiling wherever needed. The entire system suggests possibilities of infinite variation of vertical elements

Alex J. Langley



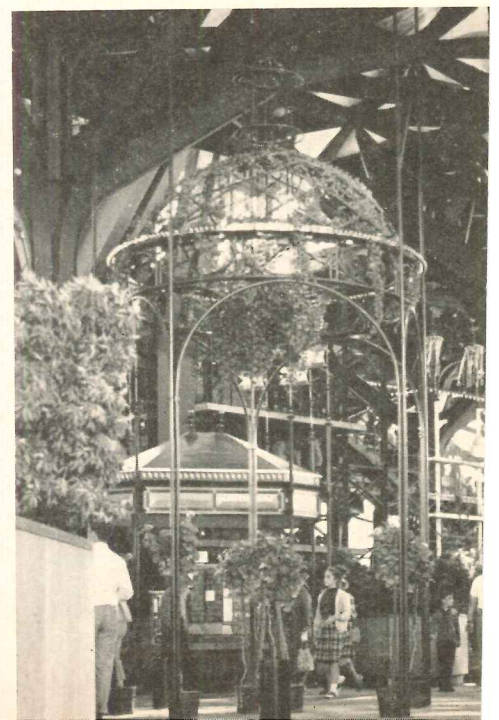
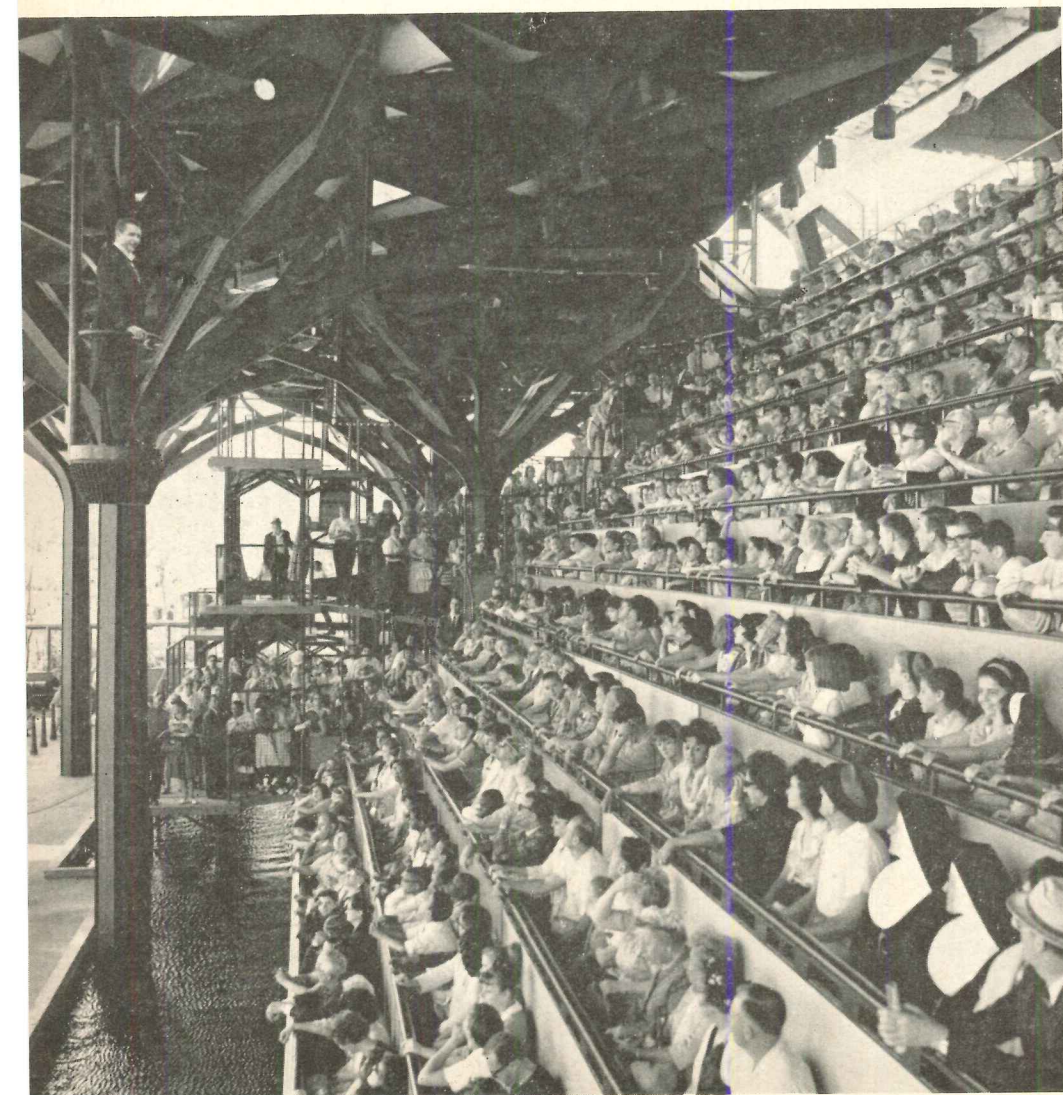


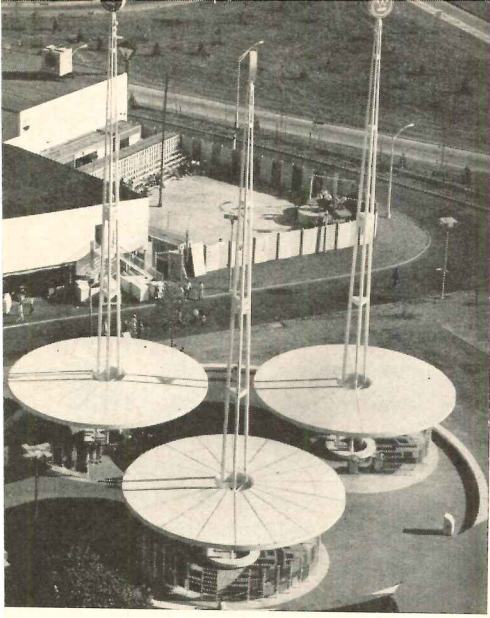
The IBM Pavilion is a brilliant work of architectural imagination, and it's not even a building. It is a great egg laid by a giant bird on the green plastic leaves of some wonderful steel trees that make a little 19th-century wooded park where long ago there was a Fair. One hates to think of Moses at a time

like this but had he not insisted that the fair be a free-for-all and that an over-all design not be imposed, the world would not have had this pavilion.

The late architect Eero Saarinen and designer Charles Eames were up to something interesting when they devised IBM's exhibit, and one suspects

that their client asked them to figure out a way to make computers less scary but to be subtle about it so that even somebody at the Fair with time on his hands, somebody replaced by automation perhaps, would come away from the exhibit with confidence in the future. The beautifully executed 19th-century design vocabulary of the little park kiosks in which the computer story is told recalls the sense of innocent wonder at the marvels of invention that prevailed in the Victorian Age. Thus conditioned to view progress as brightly as his forbears, the visitor is ready to climb into the "People Wall" and be lifted hydraulically into the egg. Inside a multi-screen movie demonstrates that a computer's mind works just like his own, only faster



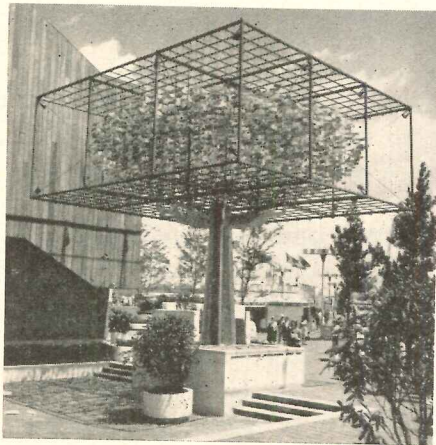
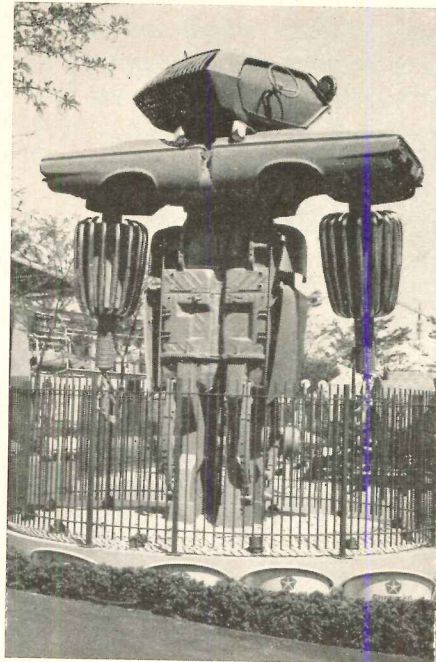


The Westinghouse Pavilion designed by Eliot Noyes is built on the site of the 1939 Time Capsule. The capsule to follow is supported 50 feet in mid-air by



three 100-foot masts. Included in the Westinghouse display is an exhibit of man's progress, designed by Architectural Graphics Associates

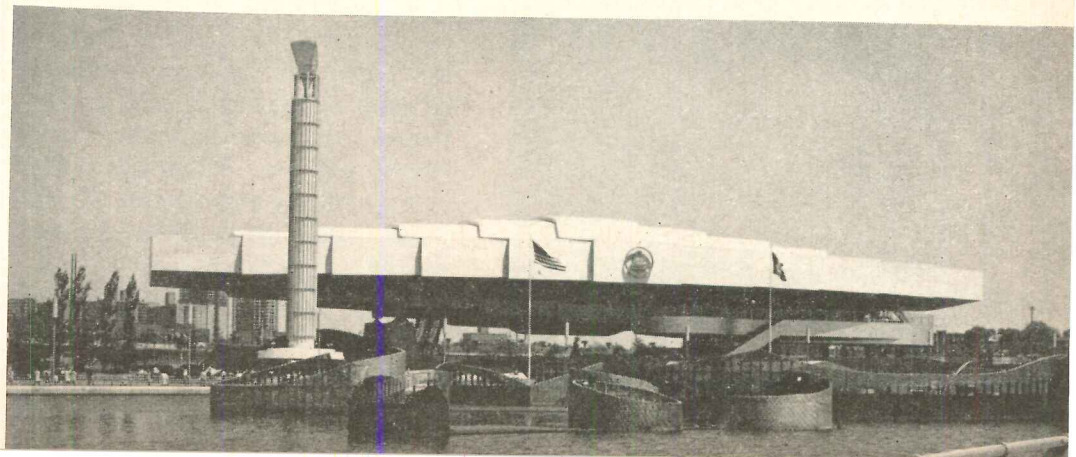
The Tower of Light and the General Electric Pavilion look best at night. The Fair should be seen in the evening, since it is imaginatively lighted

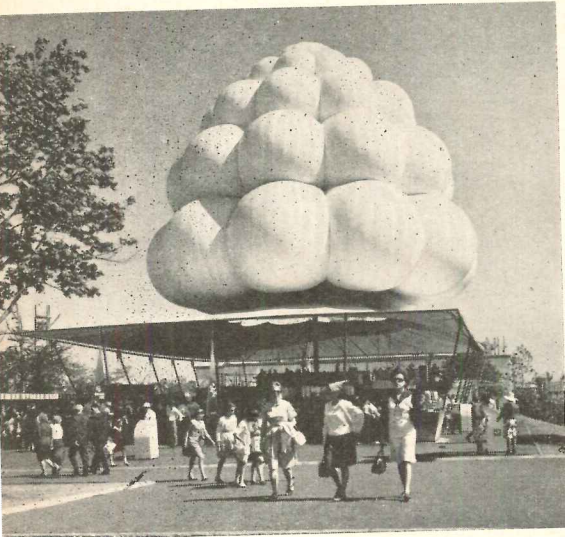


The Chrysler Exhibition, unlike its competitors in the transportation center, Ford and General Motors, elected not to go to elaborate lengths to educate or describe the future, but rather, simply to have fun with auto parts. George Nelson designed the exhibits. Some might have been done by Ferdinand Leger, while others are three-dimensional Artzybasheff

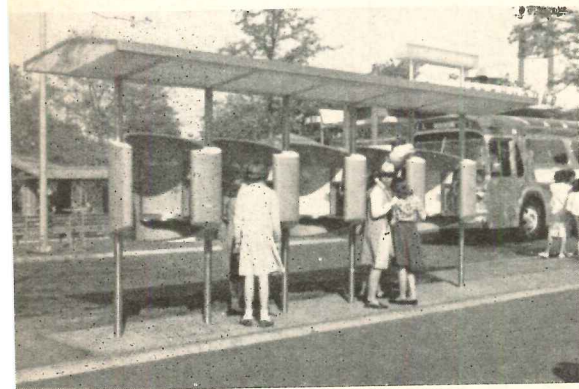
The Bell Telephone System building (below) designed by Harrison & Abramovitz and Henry Dreyfuss, has its mechanical system in one half of its 400-foot-long "floating wing" and its 3-D motion picture exhibit in the other. The 140-foot tower transmits TV programs. Structure, suspended 24 feet in air, is sheathed in large sheets of fiber glass, allowed by World's Fair code

The American Express Pavilion designed by Kelly & Gruzen features a money tree made of one million dollars net worth of the currency of many lands, all encased in plastic





Victor Lundy's pavilions for the Brass Rail snack bars (*above*) have been called "air flowers." They serve as landmarks throughout the Fair, and their strong design holds its own in the competition. Unfortunately no one of them is surrounded by a broad grassy lawn, which would have set off the design and pleased the picnickers



Schmertz

A new design for street telephones utilizing the push button system, appears throughout the Fair (*above*). The Port Authority's new heliport (*below*) will remain after the Fair has become a park. A restaurant is suspended below the landing platform



fact that it built too many of its own pavilions and contributed too much to the development of the land. Nothing that remained on the former World's Fair site was thrown away by Moses's planners except some park benches and a couple of rusty flag poles. The Theme Center remains in the same spot and the Unisphere, donated by U.S. Steel and developed from a sketch by Gilmore D. Clarke of Clarke and Rapuano, design consultants for the site, is built upon the foundations of the Perisphere.

Multi-lane expressways which existed in 1939 cut the site into three islands which are linked by footbridges. The formal Beaux Arts scheme separates pavilion groupings by categories: amusement (on the segment with poorest access); transportation (a well-attended plot linked to the Theme Center by two footbridges across Grand Central Parkway); and on the largest island, the Federal, state and industrial groups. In spite of excellent general Fair attendance, certain pavilions on the perimeters of these islands are not doing well and there have been several bankruptcies in the remote amusement area. An asymmetric informal scheme of mixed uses in which pavilions were grouped around interconnected plazas instead of strung along roads might have provided more good locations for exhibitors.

The 1939-40 General Motors Futurama predicted the separation of pedestrian and motor traffic in the World of Tomorrow, but 25 years later at the Fair of Today, pedestrians, full-size cross-country sightseeing buses, golf-cart type vehicles called "escorters", open air low-slung caterpillar-like conveyances, and service trucks all share the same roads. There are no sidewalks. The crowds fill the streets and the vehicles creep along them. No one has so far been injured.

The World's Fair in the beginning had a design board which

included Henry Dreyfuss, Emil Praeger, Gordon Bunshaft, Edward Stone and Wallace Harrison. They proposed that all exhibits be housed in one great structure surrounding a lake. They were inspired perhaps by Joseph Paxton's Crystal Palace at the first World's Fair in London in 1851. Moses rejected the scheme, Bunshaft resigned and the others remained to clean up the 1939-40 plan and establish certain standards of site use in terms of setbacks and height regulations. All resigned on the completion of this work except Wallace Harrison, co-designer of the 1939 Trylon and Perisphere, who remained on the 100-man board of directors and the eight-man executive committee of the Fair. It had been agreed that with some exceptions the maximum space to be allotted to a single exhibitor in the industrial area would be two acres, but this figure was cut to about one and one-seventh acres because of the rush of applications for commercial exhibit space. At one time the exhibition buildings were not to cover more than half the lot, later it was decreed that they could extend to within 15 feet of their lot limits. Landscaping plans were cut back, and the pavilions were jammed together. It is the crowding rather than the multiplicity of styles which gives the Fair its disordered look. A number of the pavilions would be charming on decent-sized plots, and a good half-dozen hold their own regardless of setting. For those persons who care only for architecture a few handsomely designed buildings are worth the trip to Flushing Meadow. No structures are boldly experimental and in spite of claims to the contrary, the Brussels Fair of 1958 has not been matched for daring. It is really not architecture's day at this Fair, but the crowds keep coming all the same, and in the words of Ogden Nash, "Nobody departs, until it closes, from the Promised Land of Mr. Moses." —Mildred F. Schmertz

TRADITION AND CONTINUITY IN ARCHITECTURE

Architectural Record has been presenting in a three part series a notable recent address by Walter Gropius. This is the last installment

Part 3

In the struggle for more effective urbanistic planning and design which would restore a sense of identity and balance to the total fabric of a city or a region, we must strengthen the fading image of the architect as a man who helps his community achieve these aims. It isn't enough for him to be rushing on stage with a fancy proposal that promises nothing so much as to be a monument to his own ego.

When we skim today's magazines, we find too little attention paid to the virtues of restraint and much too little consideration given to the effect the addition of a new building has on the over-all picture of a certain location. The observance of a definite hierarchy of buildings in their placement, their accessibility, and their more or less lavish treatment was exercised formerly by compulsion and order, coming usually from a central governing power. Unless we can replace this autocratic means of creating order out of chaos by voluntary action of an educated public, we shall never be able to follow up the city patterns of former times with an equally impressive and convincing one of the 20th century. Are we fearful of losing our cherished individual identity as architects if we abide by an agreed-upon common code for the development of a certain district? Is our sense for the orchestral quality of city planning so poorly developed that we constantly give in to the temptation of displaying ourselves as brilliant soloists, even when the situation calls for the production of the kind of carefully composed but undemonstrative civic architecture which is destined to become the connective tissue of a whole urban area?

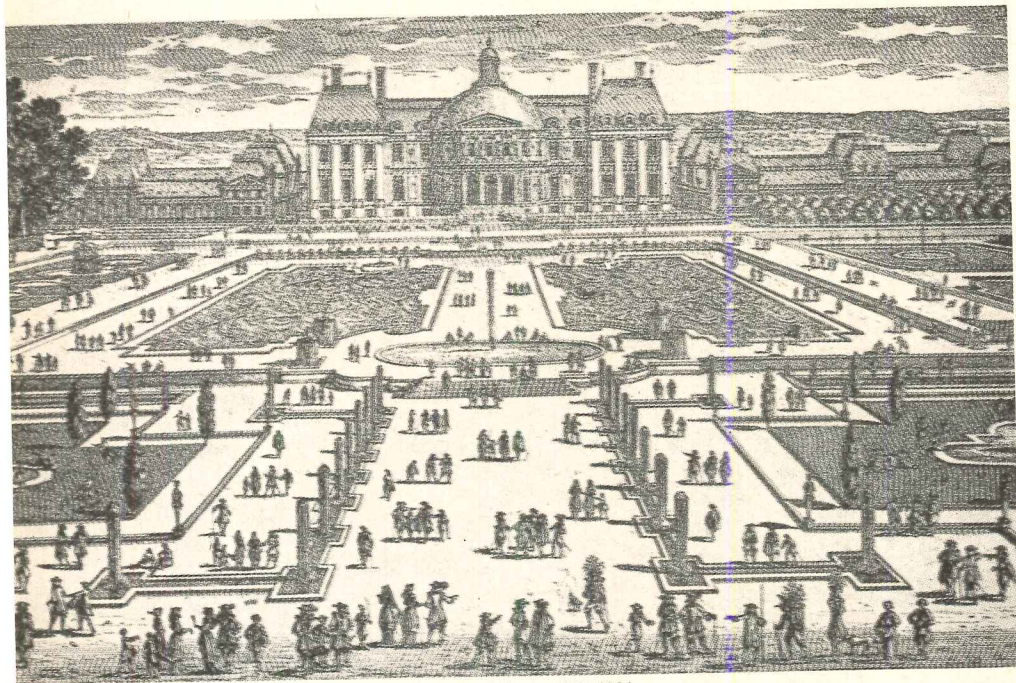
Past periods have striven wholeheartedly and by elaborate means to arrive at typical solutions for man's dwelling which managed to represent an ubiquitous and proud image of the prevailing character of their society. Why do we submit to being out-delivered and out-figured by commercial developers who answer a crying public need for shelter by providing monotonous stretches of repetitious housing without any organic neighborhood composition! In spite of all the technical means at our disposal and the know-how to apply them, architects have been guilty of furthering the public misapprehension that prefabrication in the housing field would reduce the individual owner to a mere number in the general

esteem. By derision and non-participation in this field, they have actively helped to bring about the fake individualistic housing which now disgraces most newly-opened tracts of land. Genuine variety without monotony could have been attained if we had taken greater interest and influence in the development and design of an ever more comprehensive production of standardized, component building *parts* which could be assembled into a wide diversity of house types. Instead the idea of prefabrication was seized by manufacturing firms who came up with the stifling project of mass producing whole house types instead of component parts only. The resulting monotony further deepened the horror of a nostalgic, and unguided public of a prefabricated future. Now, when prefabrication has almost wholly conquered the manufacturing of the construction parts of skyscrapers, we find ourselves still in kindergarten with respect to its application in the housing industry.

To really make a success of it, the infinite component parts of houses must be separately prefabricated and then assembled into units which differ in size and appearance according to the needs and wishes of individual families. Starting with normed dimensions, equally fitting parts can be manufactured in competition on the free market, resulting in a great variety of machine-made component parts at the disposal of architects and their clients. This method of approach, which I have proposed since 1910, still stands, I believe. Instead of the wild riot of uncontrolled forms and colors of individual houses competing with each other—which we are so well familiar with today—the emphasis would be redirected at the unification of a whole street to whose civilized, over-all appearance every individual house would be subordinated without, however, losing its individual accents by different size, detail, color and relation to open space. Harmonious integration, not regimentation, is the architectural goal.

All the preconditions to proceed successfully and simultaneously to fulfill our traditional obligations are there. If we don't act, it is our mind which is at fault, not the state of our material achievements.

After I have watched the coming and going opportunities over half a century, I confess to be impatient with our inertia and the recent tendency to



Chateau Vaux-le-Vicomte. Louis Le Vau, architect. 1655-1661

“The observance of a definite hierarchy of buildings in their placement, their accessibility, and their more or less lavish treatment was exercised formerly by compulsion and order, coming usually from a central governing power.”

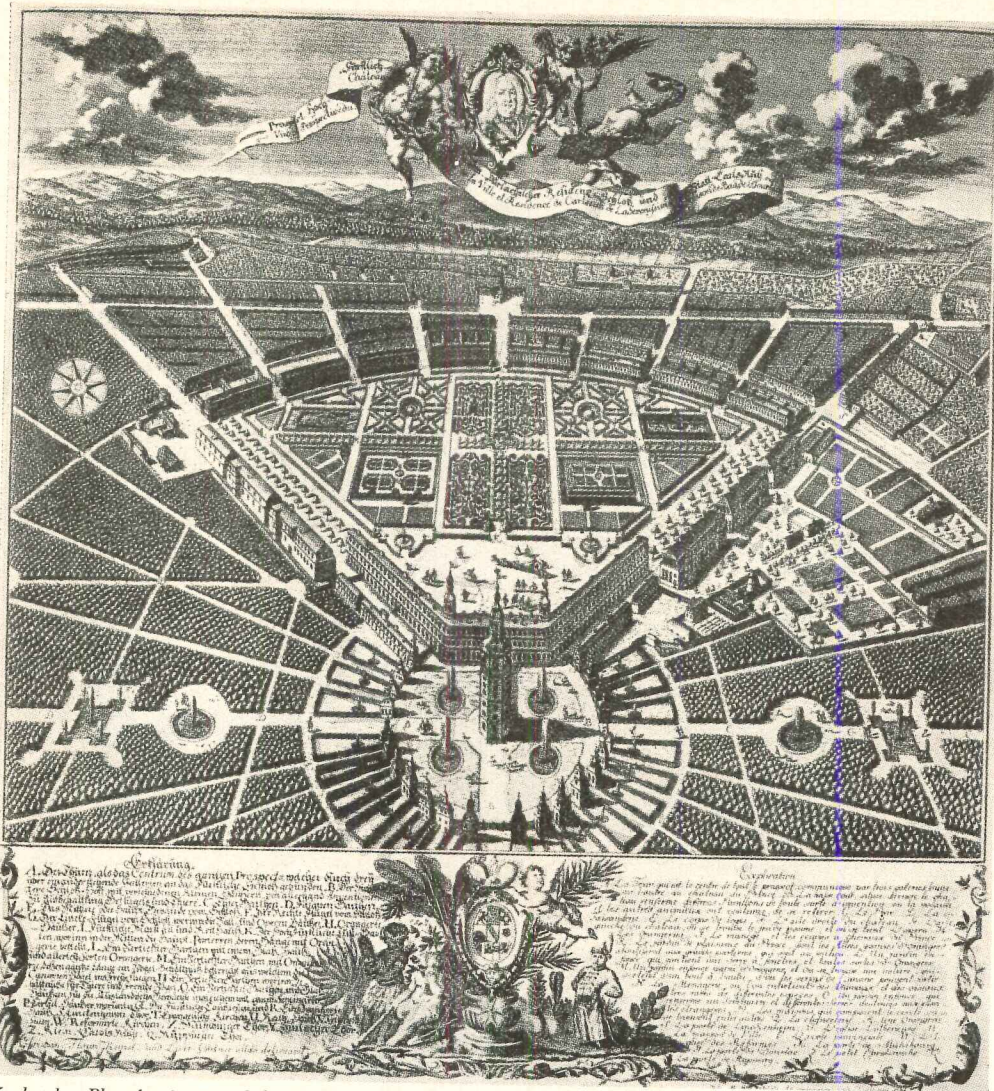
stand wailing at the grave of the 19th century. This belated cavalier attitude is unbecoming and sterile, and youth should close their ears to wailers and weepers who fear that their sophisticated appetites will never be sufficiently titillated by a straightforward, unsentimental approach to our present building problems.

Why, for instance, do we dissipate our strength by fighting battles for the resurrection or preservation of structures which were monuments to a particularly insignificant period in American architectural history, a period which, still unsure of its own mission, threw the Roman toga around its limbs to appease its nagging doubts. Pennsylvania Station in New York is such a case of pseudo-tradition. True, its space conception shows a certain grandeur, commemorating the time when railways were the latest and most powerful means of opening up the American continent. But it must be remembered that it was built at a time when Frank Lloyd Wright had already made his powerful and unmistakably indigenous contribution to architecture. Pennsylvania Station, compared to this, was only a throwback to the empty mannerism inspired by the dependence of the American businessman on European prototypes of the so-called “ageless masterpieces.” Today, of course, the spotlight of public attention has shifted from the railway gate to the jetplane port and the building has become a liability instead of an asset. Time is an irresistible creator as well as destroyer of shapes and values. Single buildings, even as whole towns, have a life and death cycle similar to that of human beings and, within this cycle of constant change and renewal, it is our ethical standards and principles which are the enduring factors and should

guide our decisions.

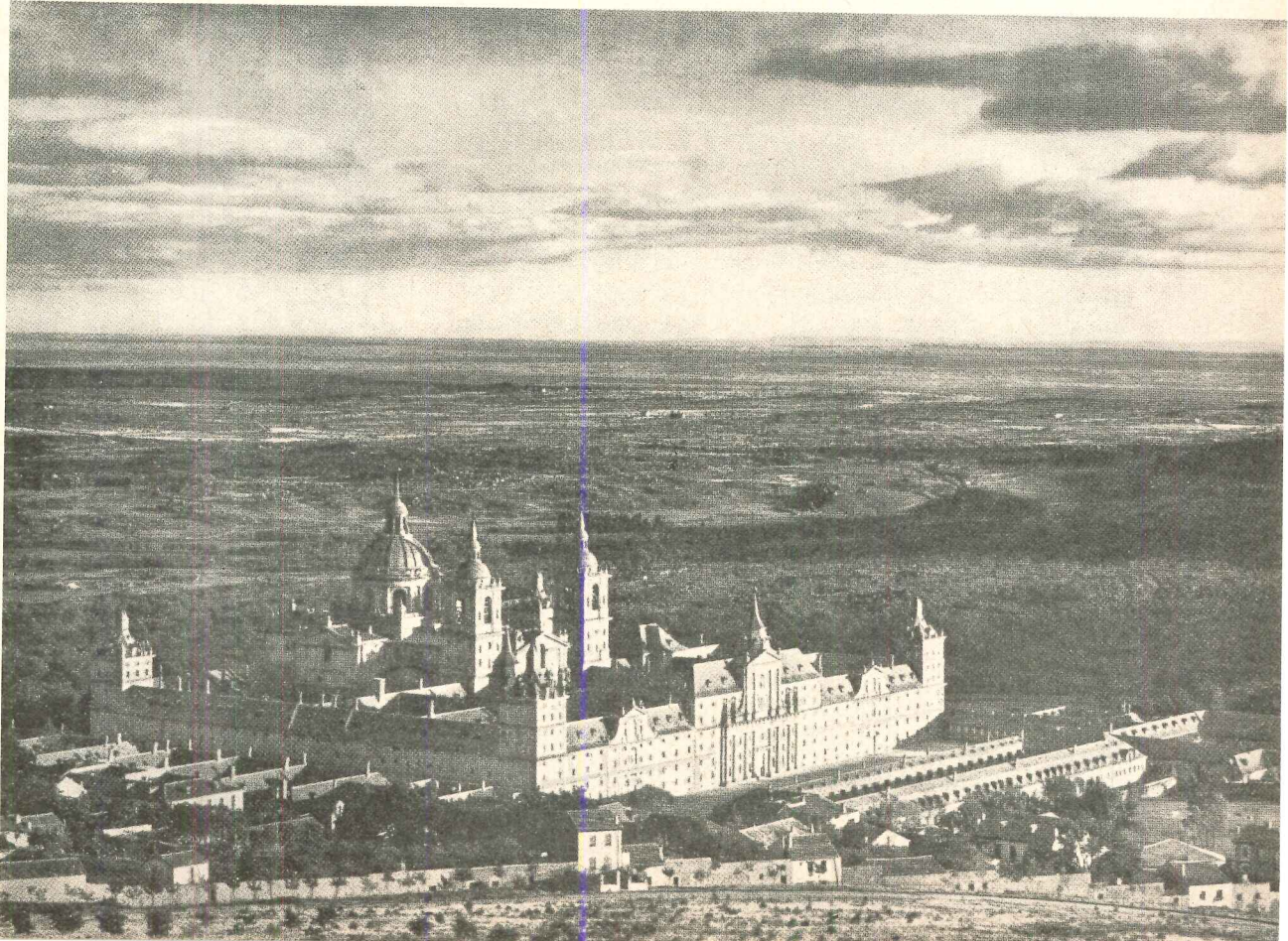
These, my thoughts, I found beautifully mirrored in a statement by E. C. Montague, a writer for the Manchester Guardian early in this century. It was quoted by John Burchard in a recent article and it deserves repeating: “People gush and moan too much about the loss of ancient buildings of no special note—‘landmarks’ and ‘links with the past.’ In towns, as in human bodies, the only state of health is one of rapid wasting and repair. . . . In the great ages of art, buildings have not been regarded as if immortality were their due. It is but an invalidish modern notion that any house which is handsome or has had an illustrious tenant ought to be coddled into the preternatural old age which the Struldbrugs of Gulliver found to be so disappointing. Cities whose health is robust are never content to live, as it were, on their funded capital of achievement in buildings or anything else; they push on; they think more of building well now than of not pulling down. And no cities are so excitingly beautiful as those in which architecture is still alive and at work.” Such is the wise attitude of a mature man whose love encompasses a whole cycle from past to present, who is accustomed to say “and” instead of “either-or.”

Not so our present commentators. The courageous act of creating new cities on virgin ground, for instance, has been deplored as a presumptuous attempt at cheating in the slow course of a natural development. By premature snap judgments, the very idea of attempting a job of such magnitude has been decried. Of course, the initial steps to build a new city can only provide a skeleton which future times will fill in with live tissue and with the cultural humus that will give it its specific character.



Karlsruhe. Plan for town and ducal palace. After the engraving of 1739. From "An Outline of European Architecture" by Nikolaus Pevsner. Courtesy Penguin Books

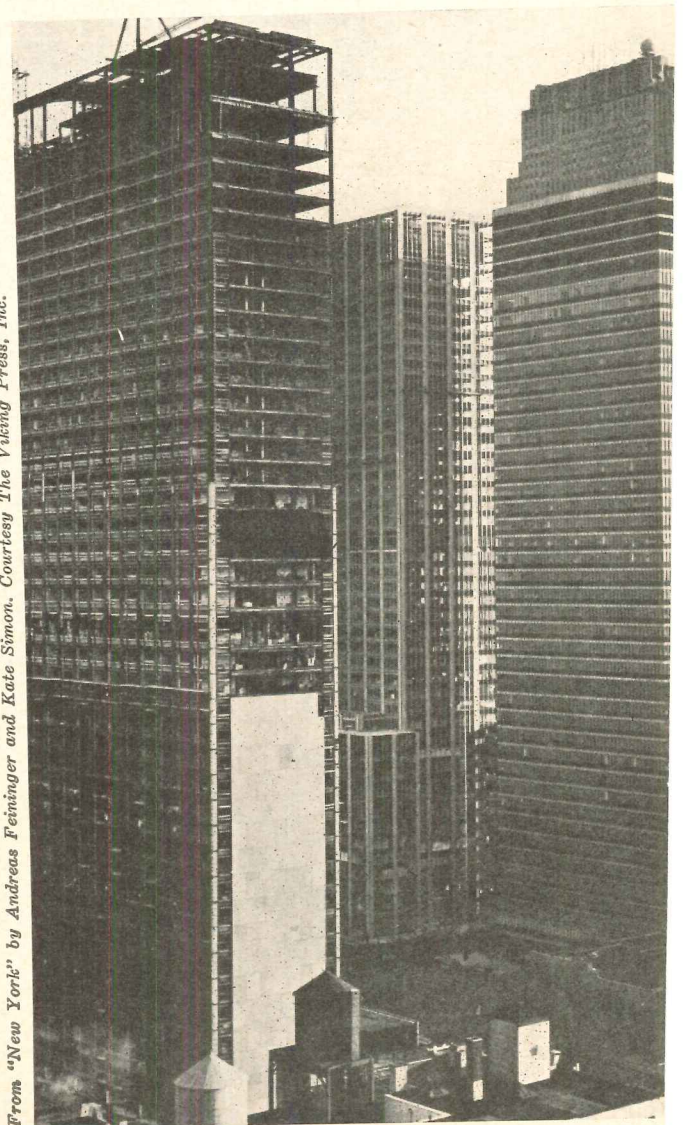
Escorial Palace-Monastery. Juan Bautista de Toledo and Juan de Herrera, architects. 1559-1584. From "An Outline of European Architecture" by Nikolaus Pevsner. Courtesy Penguin Books





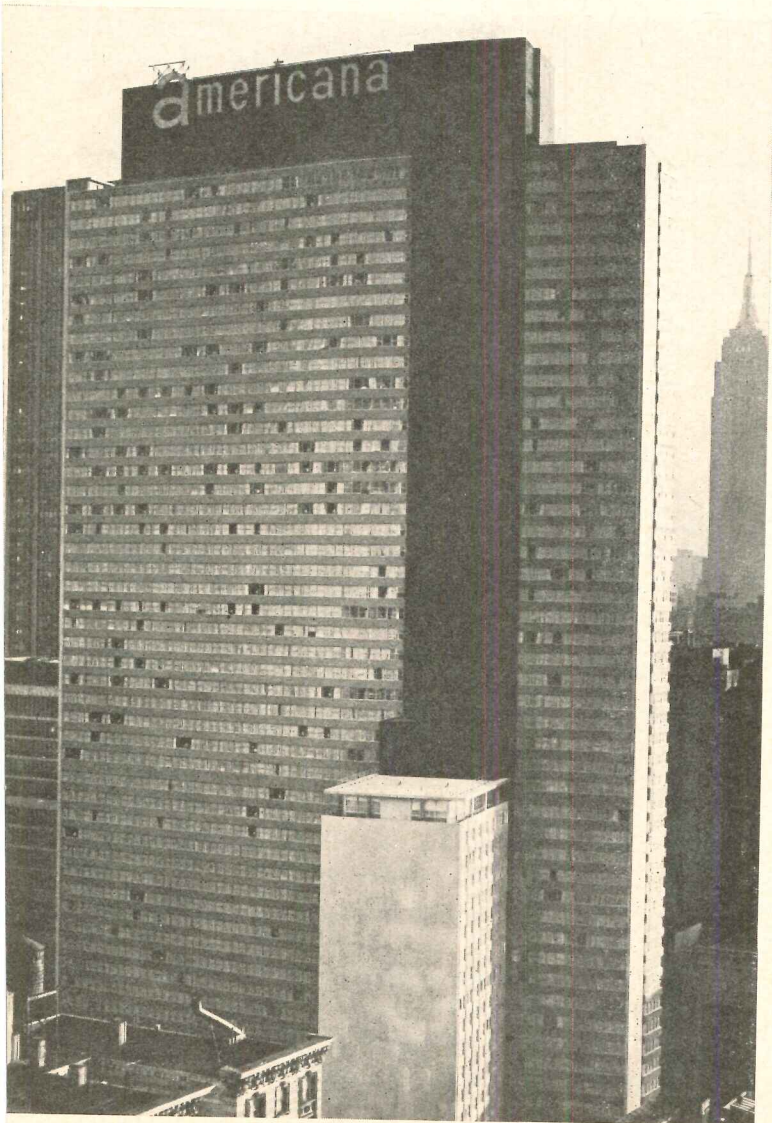
From "New York" by Andreas Feininger and Kate Simon.
Courtesy The Viking Press, Inc.

There are also bound to be formidable digressions from the original concepts since cities rarely rise from pure, unadulterated architectural blueprints; in fact they have usually been shaped—and not always to their detriment—not as much by plan as by sheer accidents of an unforeseeable nature with unforeseeable consequences. Loyalty and emotional bonds grow only from active long-term identification with a certain setting and no newly founded city ever started out with it at the beginning. Whatever true shortcomings may be found in a later verdict on cities like Chandigarh or Brasilia, it is the *deed* that counts and should be gratefully acknowledged. Someone must take the initiative, must pour the essence of his life into the new venture, not counting the cost and trust that future generations will carry on. Such confidence was the moral attribute of the great builders of the past from Samara to Constantinople to Kyoto, who all, one day, started from scratch in the middle of nothing. Every vigorous age has had its own vision of urban splendor. Why should we be deprived of it? There is so much in our civilization to be proud of and to permit us to be optimistic that we should end timidity and sentimentality when judging and deciding on its manifestations. The more positive and constructive the attitude of the average citizen will be towards our own period, the better and faster will the custodians of our visual environment, the architects and planners, be able to give it significant order and form. As things stand now, they are duly charged with the task to find new urbanistic patterns to be superimposed on the chaotic fabric of our cities and towns, but they are not given support by the people, nor the power of decision.



From "New York" by Andreas Feininger and Kate Simon. Courtesy The Viking Press, Inc.

From "New York" by Andreas Feininger and Kate Simon. Courtesy The Viking Press, Inc.



“And no cities are so excitingly beautiful as those in which architecture is still alive and at work.”

This confusion and paralysis have arisen because the average citizen, ignorant or uninterested in the visual aspects of his civic background, does not participate in the attempts to solve environmental urban problems. He is not aware of his co-responsibility nor of his own power in a democracy to make his voice count. But now that our material Utopia has arrived and we are largely free of want and relieved from heavy physical toil by our machines and by automation, he should be able to bring his intellectual and spiritual potential to full fruition. This needs, of course, a great educational effort. Only through education, still the greatest adventure in life, can the public's receptivity to cultural interests be sharpened and eventually be channeled into new group consciousness. Communication between maker and user would thus be restored and the fear and hysteria which have gripped so many unfortified minds today may give way to participation and response.

In the absence of such a state of mutual response and of commonly valid standards, the best an honest designer can do is to contribute to the development of such standards by taking the most direct, straightforward approach in solving his problems. This may seem like a self-evident demand, but it has become, in fact, almost a rarity nowadays. In explaining such a direct approach I had better begin by stating what it is *not*. The word "directness" here is not meant to stand for the expressionistic immediacy of momentary inspiration. It describes, rather, the attitude of a man who has been able to empty his mind of prejudice and all nonessential considerations and has thereby arrived at a state of new innocence which allows him to penetrate to the very core of his task. Knowing that significant form does not originate at the beginning of a design process, he embarks on a passionate search for an answer in which all relevant factors, social, visual, technical and economic, have been brought into balance. The original impulse for the design may come from anyone of these provinces, but it takes a long and systematic training to get into the habit of seeing all factors involved simultaneously and in their mutual relationships, concentrically instead of sectorially. The famous demand to design "from the inside out" is just as one-sided as that of designing "from the outside in." Rigidly applied, either approach leads to artificial manipulation of space and form, that is, to formalism of one kind or another. Instead, the architect should make a constant attempt to reconcile opposites—the inward and the outward, the solid and the void, unity and diversity. Only comprehensive thinking all the way through the designing stage, while keeping a sharp self-discipline and consistently discarding the unessential, will produce a direct and forceful architectural statement. Whether the design result will later be considered a work of art depends on the architect's innate poetic gift to

touch off an emotional response in the beholder beyond his appreciation of the practical usefulness of a structure. The order arrived at by an extraordinary artist does not present a closed, logical system, as it is found, for instance, in mathematics. It remains rather an open process, a paradox in suspense, eternally unfathomable, and therefore forever fascinating. We need only remember the systems of seemingly logical sequences of proportion in Greek temples which were in some instances suddenly and unaccountably disregarded by their architects. The immeasurable, the irrational, the accounted for in a work of art seems to be its immortal ferment which makes it unique. This cannot be described or taught. *It is!* It makes the phenomena of life and life's continuity comprehensible to death-bound man, and it creates the milestones of tradition.

When I have tried here to outline an approach to design as I see it, I want to put the greatest emphasis on the necessity to integrate every new building, its shape and scale of design, with the environment of which it will be a part and to give it a character commensurate with its place in the social order.

Permit me to illuminate this demand by an analysis of the recent competition for the Boston Architectural Center. The task of this competition was to design a school building on a small corner lot 60 by 100 feet within the existing context of Newbury Street under hard budget limitations. Of the 89 competitors who took part, many gifted architects misjudged the scope of the given task. They went far beyond it and designed busy monuments to their personal talents instead of striving to make a good contribution to the quiet civic architecture characteristic of this neighborhood. Fortunately the winners of the competition had kept their ego in good control, avoiding ambitious over-dramatization which would have destroyed the unity of the street. Such an attitude of consideration towards the whole environment, combined with an unprejudiced, fresh design approach represents a true sense of tradition and respect for continuity. To develop this attitude in the new generation of architects would seem to me the foremost goal of architectural education.

I should like to leave you with the words of the modern Greek poet Seferis which might serve as a memento to every architect:

"All I want is to speak simply;
for this grace I pray
For we have loaded down even the song
with so many kinds of music
That gradually it sinks.
And our art we so decorated
that beneath the gilt
Its face is eaten away.
And it is now time for us to say
the few words we have to say
Because tomorrow our soul sets sail."

ARCHITECTURE AS TOTAL COMMUNITY: THE CHALLENGE AHEAD

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

By ALBERT MAYER

in consultation with CLARENCE STEIN

4. UNDERLYING DYNAMICS OF SOCIAL-PHYSICAL DEVELOPMENT

(second of two parts)

The Rising Cost of Community

The spiraling cost of producing community, in terms of land, finance, construction, is another major aspect of the underlying dynamics.

One of the most relentless obstacles to our quest for good living in the 20th century, desperately immediate for those of low and middle-low income, and seriously so for almost all of us, is the constant rise of house costs, whether by way of purchase price and carrying charges, or by way of rental. There are three components operating here, exacerbated by the steep population growth. They are:

- Land prices, which have risen most steeply.
- Financing costs and inefficient over-all administration of the development-building industry.
- High cost of the building process itself, seemingly permanently with us—so far at least, periodic Sunday newspaper magazines' predictions to the contrary notwithstanding.

The measures taken so far to bring down the over-all costs are chiefly these. Financing costs have been brought down from what they used to be, for parts of the market: by direct government subsidy, by lower interest rates, by partial real estate tax exemption. As for land prices, only that tiny part has been lowered that enters into urban renewal. As for costs of actual construction, two cost-reducing measures have been developed, both bad. Actual living space has been terribly crowded down: both vertically, by oppressively low and lower head-room; and

in horizontal area to the point where there simply isn't room for the various family functions—a great, an alarming, social detriment. This harsh diminution of actual livability, to say nothing of reasonable comfort, not only characterizes public housing, but goes fairly far up the income line. The other cost-saving device is poor construction quality, also a function of the get-in and get-out or non-continuity character of developer private enterprise, described above. There has been a limited but genuine cost reduction in a few cases, notably that of Levitt, by volume, process-standardization and pre-assembly.

In other words, the only substantial reduction has been in cost of finance in a not very wide portion of the low and middle-low income range. So, what else to do?

Land costs have risen spectacularly, because of population explosion, because of new accessibility, because of speculation, because of suburban zoning requirements for larger lots: an exclusionary device. Land which used to represent a normal 10 per cent of total house price is now over 20 per cent. In my view, we must face up to and adopt the real remedy: large-scale land purchase by a government body (e.g., the state, or specially created regional bodies) in strategic areas, as a balance wheel or stabilizer. The legitimate rise in intrinsic value due to development then becomes an accumulating social asset. Sweden, and particularly the city of Stockholm, have additionally proved the impor-

tance of the flexibility that this makes possible, so that the optimum planned use may be achieved, unbound by the sacred zoning principle that similar land must be treated similarly when the living reality may indicate one plot to be densely developed and another equally well situated to be left open. In the discussion of New Towns, additional potent reasons will be seen for the ineluctable necessity of some metropolitan-wide public body acquiring, holding and developing land.¹

The matter of actual inherent building costs has never yet been squarely faced in this country. The combination of the characteristically small-volume builder, the immobile craft unions, the short work-year and the attempt to compensate for it by constantly rising hourly wages and continuing policy of lessening productivity all contribute to the constantly rising curve. These and other factors contribute to pricing a large part of the consuming public in its lower income levels out of the market for good housing, except for the relative handful of units of heavily subsidized public housing. Their heavy unit subsidies prevent a really significant total of satisfactory homes becoming available.

Swedish Experience as Beacon

In Sweden, they have grappled with this complex of factors and have developed answers which cry out for analysis and creative study by us. Jerome Liblit has written a striking article² from which I now quote:

"This country has not established the kind of housing institutions which are able to plan long-range programs or assume responsibility for continuing development. In this respect, the Scandinavian countries seem to have done a much better job. . . .

"The most important housing advances in Scandinavia, however, have not received much attention. These advances have been in the organization of the housing industry itself. Sweden has one-twentieth of our population, yet one housing organization produces more than twice as many residential units each year as our largest private developer. The organizations (Svensk Riksbyggen and H.S.B.) are private, but nonprofit in character.

"The 25,000 relatively small building contractors in the housing field at this count are in no position to conduct meaningful research or exercise real leadership. Certainly, this has contributed to a steady rise in building costs and the continuing shortage of housing of low- and moderate-income families.

"A long-term continuing housing program might go a long way toward persuading labor to cooperate in a program of wage stabilization and to increase productivity.

"In Sweden, where construction workers can count on sustained employment, the Building Trades Union itself encourages mechanization. The unions boast that due to automation the income of their members has more than doubled in the past ten years. . . .

"H.S.B. was the first society to be organized on a permanent basis with plans for a continuous building program. H.S.B. started with one society in Stockholm; today it has 1,400 affiliated societies in 188 communities throughout the country. . . . The national association maintains a technical research department and has discovered and promoted significant innovation in the housing field. . . . The H.S.B. movement currently has plans to provide 60,000-70,000 housing units throughout the country in the next five years. The essential feature of H.S.B. is that it is not motivated by speculative profit. Its sole purpose is to provide the best quality housing at the lowest cost. Any savings it is able to achieve are passed on to the consumer. Yet H.S.B. is not a public agency. . . ."

This is heady, exciting reading. Here again, it is LATER THAN YOU THINK. Is it not absolutely imperative and long overdue that an organized authoritative study be made which might through perfectly rational and non-revolutionary methods, revolutionize our productivity and production of housing? With this documented Swedish experience as a starting point, why in heaven's name do we not move with some imagination and with utmost determination?

To pick up the original refrain: TREND, or MASTERY? Oh, for a touch of the questing psychology of the underdeveloped country, to leaven our complacent self-confidence!

*"The matter of actual inherent building costs
has never yet been squarely faced in this country. . . ."*

Research, and "Homemade Research"

One hesitates to take up this matter at all, because research is so fashionable and so *de rigueur* that there is almost nothing for which a grant is not available.³ But let us cover a few special aspects.

For one main thing, there is the question of the totality of costs which go to make up rent or its equivalent. We have already discussed this. We all know that unless we can crack this one, and as long as subsidy per habitation remains so high, we will never solve the question of adequate housing and environment for a very large proportion of our people. Nor will just research, however heavily financed and however cogent the indicated results, get anywhere, unless some leaders of the building trades unions should be willing to help initiate it, and can be involved, by being convinced that the possible answers can so increase the volume of effective demand that their constituents will gain, not lose, by it. Perhaps a well-laid plan for research in this field could be preceded by a totally uncommitted study trip to see what, for example, the Swedish building revolution has really accomplished, as good as it sounds, and what the real implications are.

Another research need is exploration of how to involve people. Near the beginning of the last article the importance was emphasized of people's creative involvement in process; it was asserted that this very involvement itself was a great builder of persons, and of personal-civic morale, long before the beneficial physical end-product became available, and probably even more important. If those for whose use or comfort or stimulation the planning is supposed to be worked out are not participating in the thinking and formulation from the start, and even before, and then involved in the travail of accomplishment, their participation after development may be nil or even may be negative. Everyone grants this. To state this thought more positively, the very same physical planning product will in fact accomplish its aims the more deeply and fully, and even go beyond them, the more there has been creative involvement of people. The people's sense of pride, of spiritual ownership, not only forwards the planning-development, but this spiritual-social dimension is itself so important a part of living that

this must be a major aim of planning-development, to a much greater extent and depth than I think is the case now.

This is easy to say, and probably every one would give it lip-service. And there are some wonderful examples of what it can accomplish, from the Washington Park urban renewal described in a previous article, to the intimate cases of the local "Neighborhood Commons" in which, under the imaginative technical guidance and sympathetic social sense of Dr. Karl Linn, local people create a tangible part of their own environment. These PLUS case histories are reasonably well explored and documented. But unfortunately there are a horde of negative cases, running from a simple ignoring of the human possibilities, to the kind of case where their creative participation was initially encouraged, but dashed through ineptitude or hurry, or because both sides were unskilled. Negative cases are not adequately recorded and documented. The whole field needs much more skilled research and insight, and training of leaders on both sides. There are, of course, genuine limits to the potentials of the process, and these too should be explored.

While we need some massive research, we very much need continuous, running, built-in evaluation-research. Incredibly, organizations like PHA, URA, FHA, with their vast "laboratories" of accumulating developments, have no social scientist observers-evaluators, no administrative analysts for this evaluating purpose.⁴

However, the main point I want to make concerns "homemade" research: that is, that practically ev-

¹ Stockholm has been purchasing large areas since the end of the 19th century. Most of it has now been carefully developed, on leasehold. During this period, over 500,000 acres have been acquired. The city of Copenhagen has likewise, since about the same time, acquired large amounts of vacant land inside and outside the city, which for the last number of years has had the large value of some 40 million Danish crowns. It has a carefully circumscribed policy of disposition and development.

² Libbit is director of research for the Association for Middle Income Housing. The article appeared in the Sunday edition of the New York Herald Tribune, on Dec. 22, 1963.

³ Except, of course, one's own specific important project, for which money is absolutely not to be had. This is an axiom.

⁴ And, by the way, this is part of a situation which I have experienced in work in the U.S. and in working for other governments abroad. Huge "project budgets" are voted and implemented, with absurdly inadequate staff in the agency, qualitatively and quantitatively. The project wastes of this legislature—satisfying habit of slashing administrative payroll—are incalculably more than the miserable little saving.

ery facet of our work should be "researched" by ourselves, that without formal and formidable research, we should be our own personal researchers. The fact is that we let a lot of important and significant raw material go unobserved and lose its projective value.

How many architects later at some regular intervals visit their housing projects to see how social and recreational spaces are really used as compared with the creative intention, or have circulated around *any* projects to get a first-hand impression for their guidance? How many architects or social workers or *anybodies* have been interested to see whether rooms were furnished anything like the way the blueprint showed, and whether other dimensions and shapes might have been better?

These are simple illustrations. But they point up two things: that we ought to get into the habit of cultivating this kind of homemade research, so as to be able to do with less of the elaborate type of research; and that by this process we get the vivid personal feel of things which we cannot adequately distill from formal statistical research. The warm direct field contacts equip one with a kind of sixth sense or corrective—that of personal judgment constantly stimulated and renewed. Most of us accept entirely too much at second hand and statistically. One doesn't want either an obscurantist disregard of research or, because of the availability of research, a second-hand watered-down contact with the problem.

Traffic and Transportation

For this section, we will shift metaphors. Certainly, traffic and its problems cannot be thought of as a "submerged" underlying factor. It is obnoxiously well known. Also, it may be less an "underlying" factor than a result, though of course it is quite heavily both. Our opening article metaphor is here more appropriate: we are, probably, shooting at the wrong target, and with the wrong ammunition.

In general our quests and studies and experiments are concerned with such matters as individual car vs. mass transit; adequate parking in the best locations; separation of pedestrians from vehicles and

vehicles of different functions and speeds from each other by methods of up to six different levels (Dallas). Even more sophisticatedly, we are considering the esthetics of location and motion. All involve clever and imaginative (and expensive) technological solutions, some of which or a minimum of which will be required in any system. But it is all based on two major assumptions: that the volume of cars and of traffic will continue and accelerate their steep rise; and that technology can, naturally and of course, solve anything. In traffic, we always keep expecting that the next hundred billion dollars will solve what the last hundred billion only made worse.

But the guest of honor is absent at this fancy dress party. The heart of the issue is urban and metropolitan development which will minimize the *need* for traffic, which will place living and working and recreation in such physical relation to each other that the up-trending curves will bend, somewhat or greatly.¹ Thus the fancy remedies will be used as needed—and of course they will be much needed—to help solve a solvable problem, and will not be excessively relied on to solve the insoluble.

One may find a relevant evolution in the history of flood-control policies. The earliest remedies against floods were dikes or levees. Where a bigger flood breached or overflowed existing levees, stronger and higher ones were placed; and they were carried farther up the river. And so forth. Finally it dawned on those responsible that this wasn't getting us anywhere, and that indeed some of these remedies were actually *causing* bigger floods. So, for some decades now we have proceeded with main attention to *diminishing the flood volumes to be dealt with*. Gully-plugging, small dams, afforestation near the headwaters and below, larger dams down river. Dikes and levees at the mouth, yes. But now they are only part of a full system, neither the only nor major part. . . . The crux is: diminution of volumes to be handled, whether water or automobiles.

Planning to REDUCE Traffic

We must apply this lesson, we must drastically change our approach. Through our development policies and measures we must build in a lesser *need*

*"In traffic, we always keep hoping that the next
hundred billion dollars will solve
what the last hundred billion only made worse. . . ."*

for traffic, and then solve the *irreducible* volumes. In our naive reliance on technological remedies, we pay little attention to the full cure.² Urban renewals in the city have missed the opportunity for being the first installments in such cures, indeed often intensify the problem. Each urban renewal should provide its small increment of improvement, as part of a whole ultimate plan. Beyond the city limits, and now in the city, the Interstate Highway System is not only unintentionally and naively anarchic and devil-take-the-hindmost in this regard; but by its seemingly virtuous cost-benefit ratio, it actually *increases* concentration.³

Again (and again this increases costs), our new highways, our currently-being-widened throughways (widening which had to be undertaken to improve original heralded major "solutions"), and our three-, four-, five-level interchanges: these are sized to meet peak traffic loads. For the rest of the day and the week they have much more capacity than needed. Policy and actions such as a combination of integrating work and living locations, and a determined policy of staggered working hours, could seriously lighten this phenomenon. In the article on New Towns particularly, we will develop this subject more trenchantly, and in other aspects. There, we can go into it not only critically, but creatively.

The Phenomenon of Giantism

We have spoken of the need for beginning to realize that efficient or inefficient urban layout and scale, and social satisfaction or dissatisfaction, are potent factors in our industrial-economic and productive efficiency and effectiveness; and of not merely local interest but of national economic concern and effect. One of the single most serious elements in this picture is the phenomenon of giantism, on several planes. One is the emotional patriotic attachment to unlimited city growth, and the phenomenon that so few people have made up their minds that this is an unhealthy thing: that it involves constant confusion and turmoil, that municipal equipment and facilities can never be definitely and satisfactorily provided, that friction of space and movement keeps becoming more difficult and expensive to handle.

It strikes me as anomalous that the industrialist-business class which, when the production of a plant outgrows its capacity, would never dream of patching around and erecting wings at odd points, but simply builds a new plant at a strategic point: that this man or this class calmly sees his city do just that. The city's "production costs" are reflected in taxes, and these influential people form Citizen's Budget Commissions. But I have never seen any that go to the root of things in the sense just indicated, which they are so very qualified to do.

This immature phenomenon of giantism crops up in various ways. In New York City at the moment there are two splendid or infamous examples of this. The Port Authority proposes, with the City Administration's blessing, to build two 110-story towers with a fabulous amount of rentable space, located in a downtown area already tremendously over-taxed as far as transit is concerned. Thousands of new people will be coming in. The Port Authority can of course create equally fabulous and costly additional communications facilities to somehow make this come out. So, why not?

Another example is Lincoln Center, the gigantesque collection of all elements in the performing arts in one \$150,000,000 center, located on the west side of Central Park so that one whole half of town has the worst possible time to get there: while several of its constituent units had been beautifully accessibly located. The Philharmonic's home was finished first, and on its opening night even that one alone produced a big traffic jam. Aside from this

¹ The Penn-Jersey Transportation Study is one exception, in that one of its alternate models is based on new juxtapositions of land uses. The Regional Plan Association of New York has just announced a projected program of study which seems to include this also

² One technological device may well make its contribution to the cure: substitution of communications media for physical trips

³ Obviously, the best *immediate* cost-benefit ratio will obtain where traffic and need are already heaviest. So, we pile still more traffic into already concentrated situations, accentuating and accelerating trend, instead of spreading or re-directing the load. We bask in these short-run, short-sighted economies and clevernesses. Again, the engineers and the bond-floating bankers are gleeful when traffic on a new turnpike exceeds projections. Actually, this is a negative index. Certainly profit, and certainly *early* profit, should not in these public undertakings be the criterion. Again: accentuation of TREND, or, MASTERY?

“If . . . Lincoln Center had spent only \$50 million, and the other \$100 million had been spent on, say, 50 local cultural centers, . . . there would have been possible a vital decentralization of excellence. . . .”

and the queer concept that a great super-crowd of 10,000 or more people constitutes the best or a proper way or atmosphere in which to absorb an art experience, consider this. If, heaven forbid, Lincoln Center had spent only \$50,000,000, and the other \$100,000,000 had been spent on, say, 50 local cultural centers at various sub-local points in districts of the city, there would have been possible a vital decentralization of excellence with tremendous but not so prestige-ful impact.

This particular aspect, as well as other aspects and specifics of giantism—and their implications—will be gone into later on, where closely appropriate. But this brief run-down seemed to belong in these two pivot articles.

Approaches to Racial Integration

The readers of this magazine are fully aware of this problem and its ramifications, without, in this selective presentation of topics, my including it in any full way. Aside from the moral and social imperatives, it is the most extreme case of metropolitan dis-economy, in terms of separation of places of living and work, and in terms of unnecessary duplication of facilities.

However, as this is the article on obscured factors, I would like to discuss one that I have not seen brought out anywhere. This is the matter of boycotts, of picketing, etc., whose purpose is a great speeding up of school integration, by trading pupils, by bussing, etc. I deeply agree with the objectives and sympathize with the insistent desire for speed. But I think we are defeating our own purposes. We know the tendency in any case for white families to move into the suburbs, mainly on account of better and less troubled schools there. Boycotting and its partner, picketing, may well hasten integration, but it *will certainly* drive more people into the suburbs. Thus, there may be a Pyrrhic victory: integration, but fewer and fewer people to integrate with.

There would seem to be two better courses of action:

Concentrate on the *suburban* schools, so that the white escape to them will not be any guarantee of surcease from the problems of our time.

Watch every urban renewal program, concentrate and test all of them against their color implications so that inherently the developments will develop mixed neighborhoods, from which will flow inevitably naturally mixed schools. This may not be so spectacular as the direct school boycotts, but will be infinitely more effective.

We have uncovered and explored a number of the fundamental underlying elements in our urban-metropolitan scene. Whether or not there is agreement on the author's value judgments, the important purpose has been to dig them out, so that each reader can be fully aware of them, and himself explore further. While a number of the implications I draw may seem radical in the unworried climate of opinion here, they are necessary if we are to accomplish our goals for the better life in any finite time. And they are all feasible within our system. They or similar ones have been successfully hammered out and carried through in one or more of the Western capitalist countries. They looked funny or way out when first proposed, and it took considerable time before they were accepted—which they now are by both major parties in these countries.

How much mental and spiritual flexibility do *we* have? Plenty, I think, if we can get under the wooden guard of complacency. Plenty, I think, if the issues are sufficiently cogently brought home. Plenty, I'm sure, if it can be made clear and convincing that there are moral or ethical components involved whose satisfaction can outweigh inertia and customary unquestioned habits of looking at things. In fact and indeed, there is an ethical-moral imperative which is probably far and away the major dominant factor in the dynamics of the situation. Probably it alone can cause the concerted action which just the intellectual proof alone seems forever unable to do. The question is whether the positive proposals made, and those still to come will appear desirable and important enough, vital enough, to warrant fully examining our invisible material and mental baggage, and then grappling with these underlying issues.

INDUSTRIAL BUILDINGS

A summary of observations by architects well known for their industrial work, illustrated by examples of current buildings

TRENDS IN INDUSTRIAL ARCHITECTURE

U. S. business as a whole expects to spend \$44 billion on new plants and equipment this year, 12 per cent more than in 1963, according to the 17th annual McGraw-Hill survey of business plans for new plants and equipment, released in April. Manufacturers will increase capital expenditures by 18 per cent and expect to invest more than \$3 billion annually in buildings over the next three years.

All this business means activity for architects. To review those characteristics of industrial architecture which require special consideration and to examine any trends apparent to notable practitioners in the field, prominent architects well known for their work in industry were asked for their comments. A summary of their responses to specific questions follows, and thoughtful commentaries in some detail are assembled in the four articles beginning on page 167.

Questions and Answers

1. *Commissions in foreign lands—are they increasing? What special working arrangements or unfamiliar criteria are encountered?*

Although there has been considerable activity for certain firms in overseas work, the general impression is that the volume of such work in Europe has leveled off in recent years. This is due in part to the increasing frequency of direct contact between large U. S. client corporations and those European architect-engineer firms who have gained competence in servicing them. The most frequent working arrange-

ment seems to be some kind of association with local architects. John Day of Albert C. Martin and Associates observes that there has been a good deal of preliminary work in developing countries on basic facilities such as highways, water supply and power generation which will mean a surge of development of industry in those countries. MacDonald Becket notes increasing commissions in under-developed nations where the principal problems are matters of dollar exchange, limited building materials and unfamiliarity of local workers with such relatively new innovations as precast panels. Probably the operating method least familiar to U. S. architects is the foreign handling of tenders and the requirement for quantity surveys in international bidding.

2. *Exotic conditions—are ultra-clean rooms, environment simulators, complete air conditioning, unusually high or low temperature operations posing new architectural problems? Any new pressures on esthetics or amenities?*

The general answer to both these questions is affirmative. Louis de Moll points especially to requirements in the electronics industry where large dust-free assembly areas are required and a large scientific and engineering staff calls for high light levels, acoustical ceilings and extensive employee facilities.

Philip Will Jr., says of his firm: "We find ourselves increasingly involved in design for exotic conditions in other building types which leads me to conclude that very few building types are now either simple

or clean-cut. Manufacturing plants include office space. Schools include laboratories. Laboratories include pilot manufacturing operations, etc., etc.

"It happens that one of our jobs is an agricultural school in Mexico. In addition to such routine problems as 'white' (clean) rooms, we find ourselves dealing with laboratories for radioactive materials, a fiber laboratory (where air movement must be at a minimum), plant rooms requiring such things as aspirator drains, and grain laboratories where grinding machines must be isolated so that vibrations do not disturb electronic microscopes and balances in adjoining laboratories. On this particular job, we ended up by employing a physicist as a consultant.

"One of our medical centers requires a hyperbaric chamber, and so it goes."

The space industries have called for a whole new emphasis on special conditions, at least in degree. As Mr. Becket points out, these so-called exotic conditions pose no really new problems. Most of them have been well developed in pilot stages in laboratories and other highly technical, non-industrial facilities.

3. *Automation—are there any points of special consideration?*

Automation is not a new problem for industry and is handled conventionally in programing and layout of the plant. Considerations of importance in this connection are the increase in ratio of electric power required per worker and the possible requirement for computer spaces in certain applications.

4. *Plant location—are there any discernible or general trends toward or away from highly developed areas, industrial parks, etc.? Are you increasingly engaged in searching for new locations as part of your service?*

Although there has been a migration of industry away from urban locations in recent history, there is some indication that this phase has been arrested. Each plant now chooses its location near the best compromise it can make among labor, raw materials and distribution markets. Louis de Moll looks for in-

dustry to take increasing advantage of redevelopment projects to remain in cities. Mr. Rossetti discerns a trend toward highly developed areas and industrial parks.

Although many large corporations have an experienced staff for the selection and development of new plant sites, many architectural firms are finding an increasing opportunity to perform that service as their competence to do so is demonstrated. Mr. Daniel's firm employs "all of the optimizing techniques available to mathematics and research" in an increasingly active service of surveys and researches for plant location. Mr. Day observes that the architect is especially well able to protect clients from realtors who are ". . . trying to peddle a particular site which is not in the best interest of the client."

5. *Plant size and character—any trend toward larger, more flexible or smaller, more specialized buildings?*

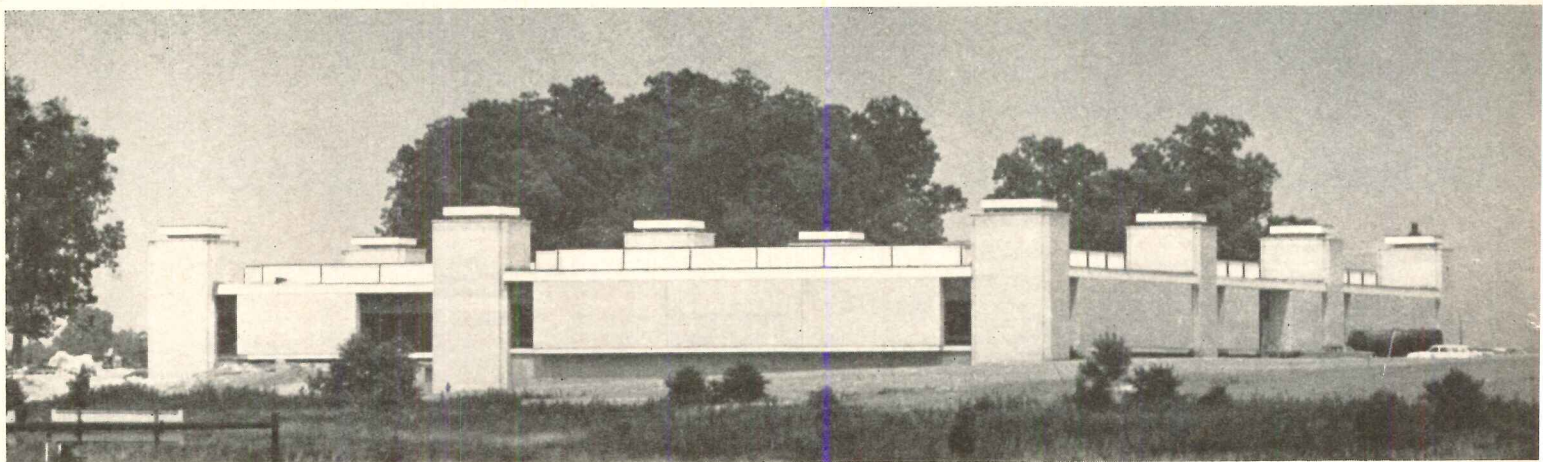
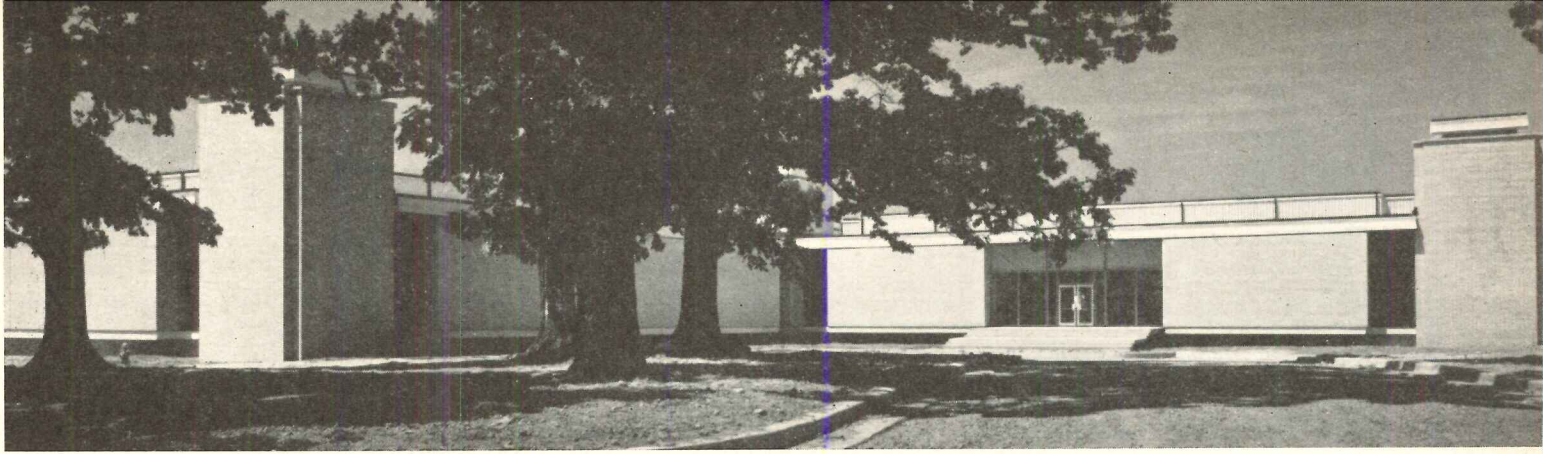
Most architects observe a trend toward smaller buildings grouped to form an industrial complex. This trend grows out of requirements for fire walls and for the degree of flexibility afforded by the moderate-size building not only in its industrial functions, but also in parking and transport arrangements for employes and materials. Mr. Heery says: "I am selling flexibility harder and harder to my industrial clients. I have always maintained that the only thing a manufacturer knows for sure about his process is that it will change. In the South there is a continuing trend toward larger plant facilities." Mr. King discerns a trend toward flexibility limited to that which is a reasonable capital investment. Mr. Day says: "Let's put the specialized operations in unspecialized buildings. The operation is almost bound to become obsolete before the building does."

6. *Clients—any significant change in their character or in your basic relationships with them?*

Clients are studying their problems more thoroughly now before calling in an architect, according to Mr. Rossetti. This is in general agreement with responses pointing to clients' increasing awareness of architectural services in addition to the "image building" services they have employed in the past. Mr. de Moll observes that the trend toward corporate mergers has developed large corporations who have started departments for plant development. In those cases, the architect's client becomes the construction division rather than the division which will actually use the building. This has the disadvantage of separating the architect from the ultimate occupant, but at the same time the architect has the advantage of working with a contracting group which is familiar with building construction costs and the architect's problem.

For observations summarized on these pages, we are indebted to the following:

MacDonald Becket; *Welton Becket and Associates*
Philip J. Daniel; *Daniel, Mann, Johnson & Mendenhall*
John Day; *Albert C. Martin and Associates*
Louis de Moll; *The Ballinger Company*
George T. Heery; *Heery and Heery*
Sol King; *Albert Kahn Associated Architects & Engineers, Inc.*
Richard Muther; *Richard Muther & Associates*
Louis Rossetti; *Giffels and Rossetti*
George Vernon Russell; *George Vernon Russell and Associates*
Philip Will Jr.; *Perkins & Will*



Lawrence W. Williams photos

TURRETED MODULES FOR ULTRA-FINE MANUFACTURING

*Molecular Electronic Division
Westinghouse Electric Corporation
Anne Arundel County, Maryland*
ARCHITECT: *Vincent G. Kling*

STRUCTURAL ENGINEERS: *Allabach & Rennis, Inc.*

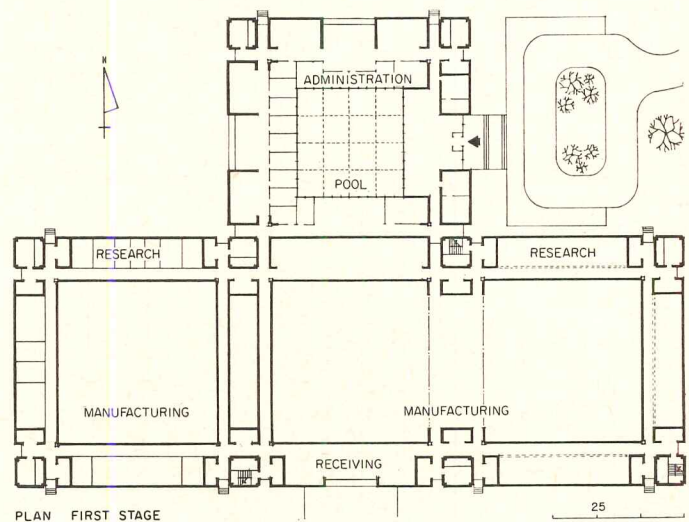
MECHANICAL & ELECTRICAL ENGINEERS:

Charles S. Leopold, Inc.

GENERAL CONTRACTOR: *Kirby & McGuire, Inc.*

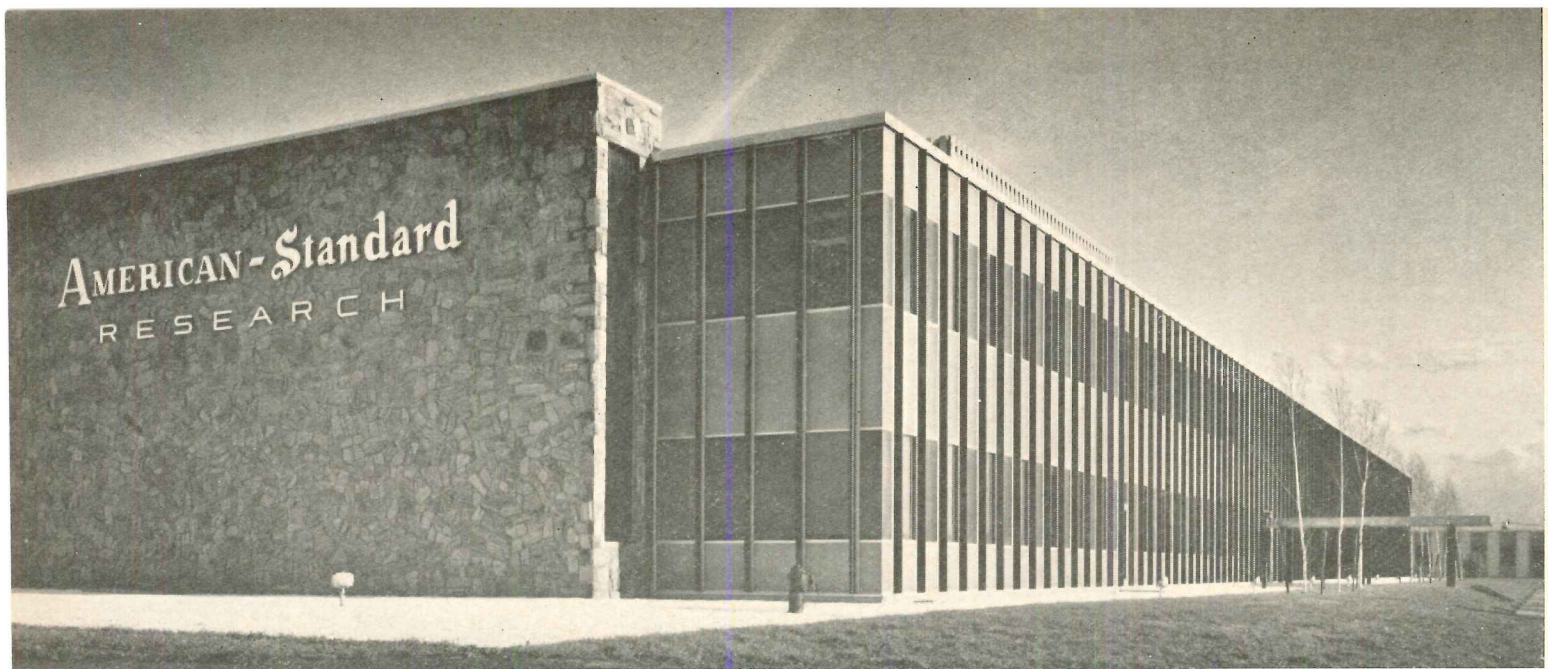
To manufacture ultra-small electronic devices, Westinghouse needed a building capable of maintaining extremely demanding atmospheric conditions and capable of being expanded to keep pace with a fast growing market. Vincent Kling's solution, winner of one of *Factory* magazine's top 10 awards and an A.I.A. award of merit, is a simply organized arrangement of square space modules each 90 by 90 feet, column free, 14 feet high in the center, surrounded by a lower-ceilinged band designed for office and service areas. The high-ceiling portion of the module, designed for either laboratory or production, is roofed with a steel truss space frame supported by four columns at the corners. Roof for the low ceiling perimeter area is formed by cantilevering the lower chord of trusses beyond the columns to the outer wall.

Towers rise 10 feet above the high roof line at each corner of the modules and serve as air intake or exhaust towers or to house washrooms and stairways.

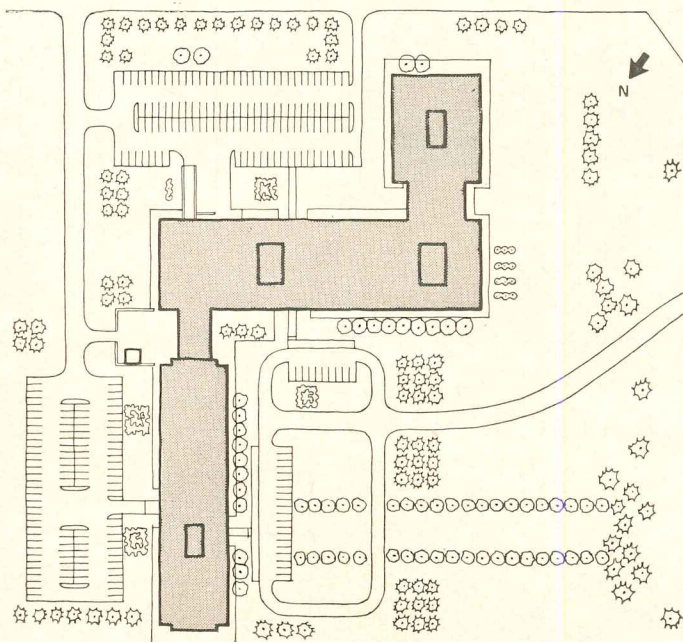


PLAN FIRST STAGE





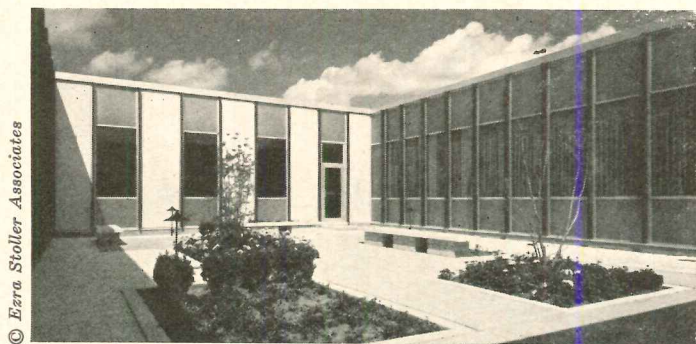
Joseph W. Molitor



UNIFIED IMAGE IN A THREE-UNIT COMPLEX

*Research and Computer Center
Piscataway Township, New Jersey*
OWNER: American Radiator & Standard Sanitary Corporation
ARCHITECTS: Frank Grad & Sons
STRUCTURAL ENGINEERS: Farkas and Barron
MECHANICAL & STRUCTURAL ENGINEERS: Vogelbach and Baumann
LANDSCAPING: Bye & Herrman
CONTRACTOR: Turner Construction Company

This research and administration center brings together three corporate elements, a large research group, a control and finance operation and a rather small plumbing and heating engineering group, in a three-part plan. Dominant on the site is a two-story research building connected by links to one-story wings in a Z formation. The research building is of reinforced concrete construction topped by a work slab enclosed by a pierced aluminum screen for outdoor experiments. One-story wings are of steel frame. Exterior color treatment is of amber and bronze hue panels framed in natural aluminum and supported by black aluminum fins. Panels in wing buildings are alternated with precast panels of white quartz aggregate. Administration and staff functions are grouped around landscaped courts. The reception area has a glass partition through which computer operation can be viewed.



© Ezra Stoller Associates



Joseph W. Molitor

7. *Consultants—*is there an expanding role for specialized consultants in industrial work?

Individual architects lay no claim to being all things to all people. The role of the consultant is a familiar one to them. The decision to employ an independent consultant or to build in-house staff competence in various fields of specialization grows out of the history and inclination of the individual firm. Certainly, as complexities increase, the opportunity for special services also multiplies. Richard Muther, a consultant in industrial management, points to an increasing activity in his firm in the area of plant-layout studies commissioned for both new and existing industrial plants.

Observing a tendency in some quarters to view the whole practice of industrial architecture as a kind of specialization, George Vernon Russell, perhaps obliquely underscoring the role of consultation, writes: "How can one be a specialist if the grist to one's mill includes self sufficient company towns, plants whose products are weighed in hundredths of milligrams, others which spew out ponderous machines; processes performed under microscopes with the tiniest of tweezers, others in which the smallest parts must be lifted by overhead cranes; forges, furnaces, degreasing areas, clean rooms, cold rooms, rail-heads, runways, board rooms, powder rooms, laboratories, libraries and lunch rooms?"

"In fact, the so called field of 'industrial architecture' seems to come close to epitomizing the dictionary definition of architecture as 'the art or science of constructing edifices for human use.'"

INDUSTRIAL ARCHITECTURE— PROVING GROUND FOR COMPREHENSIVE SERVICES

By J. Roy Carroll Jr., Principal
Carroll, Grisdale & Van Alen

In the complex and stringent economy of industrial plant design and location, the coordinating role and special insights of the architect provide an opportunity for invaluable services to clients. Mr. Carroll gives examples.

The industrial building is particularly interesting to architects because its challenges and demands have forged and tempered new architectural skills. The result of this experience has been the organiza-

This article is condensed from an address delivered by Mr. Carroll as president of the American Institute of Architects before the Industrial Development Research Council

tion of a significant body of professional knowledge, and the establishment of several major programs of potential value to all clients of architecture.

The industrial building cannot be created or intelligently located except by economic analysis. When it is built, it is usually built in a hurry. Before it is finished, it may have to be expanded. In the end, its failure or success can be measured only by what it contributes to the productivity and profitability of the industrial process.

Yet, while profitability is strongly affected by the design and construction of the physical plant, it also rests on many other complex factors that involve the architect but occur well in advance of the decision to build. Profitability must take into account the assembly of land, a comparative study of available sites, the area transportation system, water resources and problems of waste disposal, sub-surface soil conditions, the local tax picture, the short and long-term financing of construction, and the characteristics of the market for the product to be manufactured. An analysis of these and other factors may be needed to determine whether the facility should be built at all and, if it is built, whether the manufacturer should own it or lease it. The answers to these questions will heavily influence the nature of design, selection of material and method of construction. There are considerations in many of these matters that are peculiarly suited to the kind of study that an architect is trained to make.

For example: A West Coast aero-space firm retained a very capable architect to design a \$5 million light manufacturing and research facility in a new industrial park. The architect began his assignment with a feasibility study of the site and uncovered some disturbing facts about traffic problems. It showed that the saturation point of cars on the surrounding roadways would be reached by development of the park even if the client's plant were *not* to locate in that area. The architect expanded his report to include recommendations for roadway changes which would substantially raise the traffic saturation point. This report was presented to the county and state highway departments and was accepted by those officials. The changes are being made in the road system and the plant is being finished.

Another example involves an Atlanta firm that was retained by a Georgia rubber company. The architect first helped the company select a site from among four possibilities. Then he arranged a leasehold acquisition which was in keeping with the client's financial needs and desires. He collaborated with the client on process engineering and a materials handling system. He found out how to eliminate several costly items of equipment. He created a master site development plan for the industrial park. Finally, he designed an efficient, handsome and very economical building.

An architect was asked to design a plant in Canada

that would produce a million pounds of copper wire a month in varying sizes and to determine the total capital expenditure such a plant would require. The architect worked with the client to establish the production equipment that would be needed: the plant flow and layout, and the needed buildings and support facilities.

The architect even wrote the specifications for the plant machinery. His report forecast the capital expenditures for land improvement, buildings and all production equipment. A breakdown of these basic costs enabled the client to make arrangements to sell the building upon completion and lease it back. All costs were predetermined and became a part of the contract for the architect's services. Thus, the final contract was a single one which permitted the client to deal with a single man, the architect, and hold him responsible for any and all phases of the building process.

The points I have tried to make with these case histories are these: the competent architect can often offer the client a fresh and sometimes penetrating insight into processes or methods. The qualified architect, to be competent in this work, must exhibit both design and managerial skills in the coordination of many professions and trades which must be brought together to build a complicated structure.

I hope it has been obvious that I am not talking about single individuals who embody the combined gifts and insights of the Almighty. I am talking about the heads of architectural offices which have many professionals, technicians, and specialists whose skills are coordinated by the architect. Some of these architectural offices are very large, with many hundreds of employes and a great variety of skills under one roof. Some are very small, and utilize consultants or professional collaborators. The firm which handles complex industrial projects today is also likely to be trained in finance, real estate, feasibility studies, site selection and development, land and highway planning, materials handling, operations

programming and even process engineering. There is a relatively new term for this. We call it *comprehensive services*. It is *not* a new concept. It is simply the formal organization of these elements into a complete and available service.

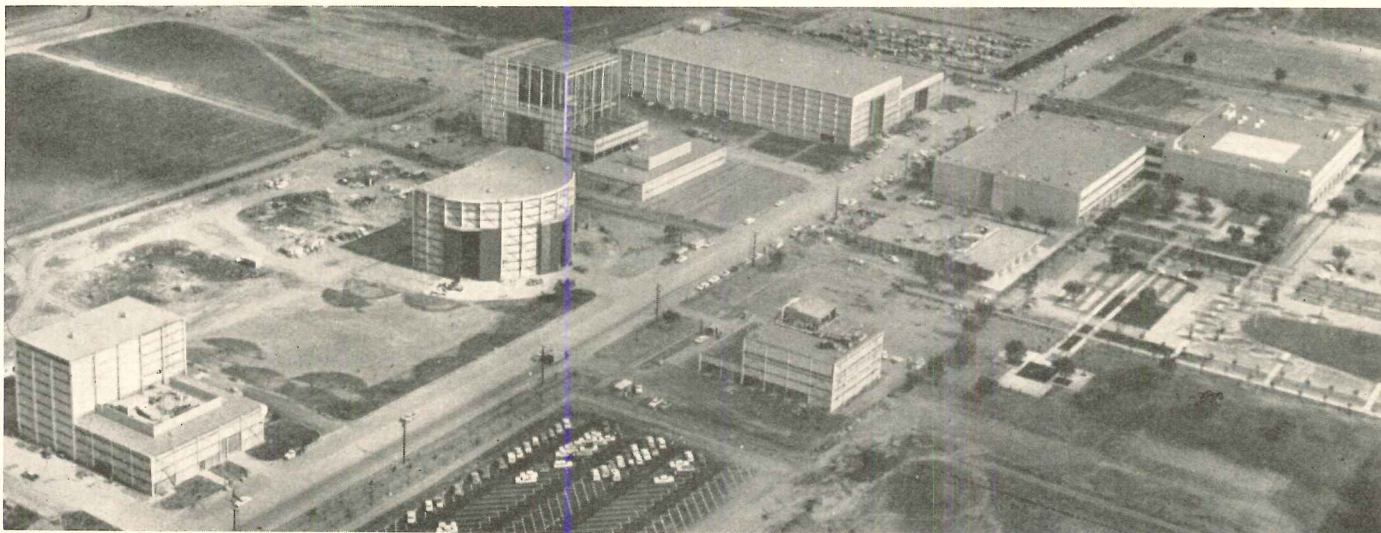
THE ARCHITECT'S EXPANDING ROLE IN INDUSTRIAL DESIGN

By Frank L. Whitney, President
Walter Kidde Constructors, Inc.

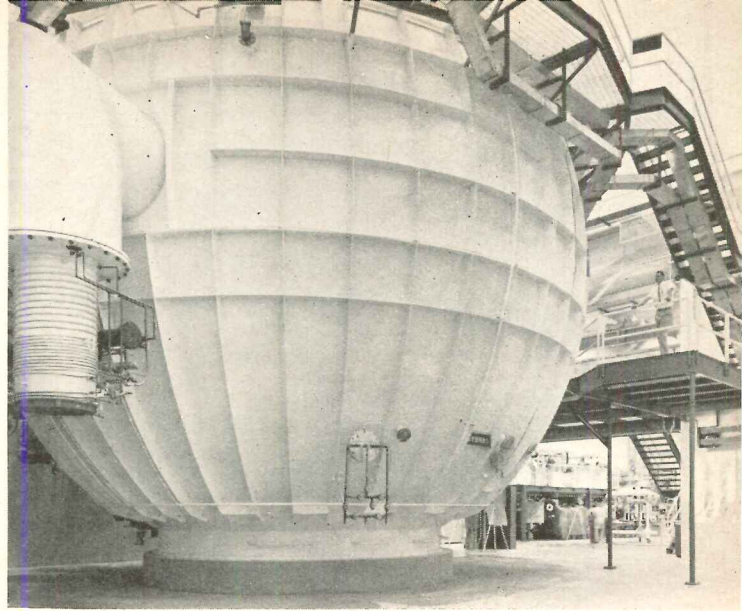
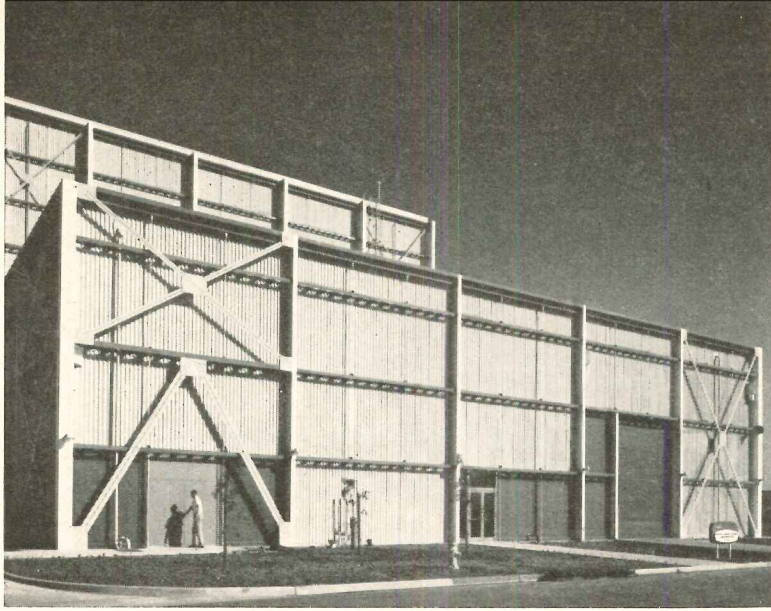
Increasing demand for controlled environments for people and for production are generating new kinds of industrial buildings. Mr. Whitney cites industry's increasing requirement for architectural design and speculates on the ultimate result of trends toward separate buildings for production facilities and for the people who operate them.

Two trends dominate the design of industrial facilities today: first, corporations seek increased product quality control. This applies not only in food and drug industries but across the entire industrial front. Second, manufacturers want improved working conditions for personnel, both to increase worker productivity and to attract those skills required to operate today's complex production tools.

Both trends stem from technological advances in automatic production and environmental controls. The best way to control the quality of a product is to control the environment in which it is produced. And the best way to control working conditions is to control the environment in which the people work. Both require sophisticated electrical and mechanical systems which are increasingly identified with both the



Douglas Engineering Development Center (see opposite page)



SPACE INDUSTRIES' DEMANDING CRITERIA

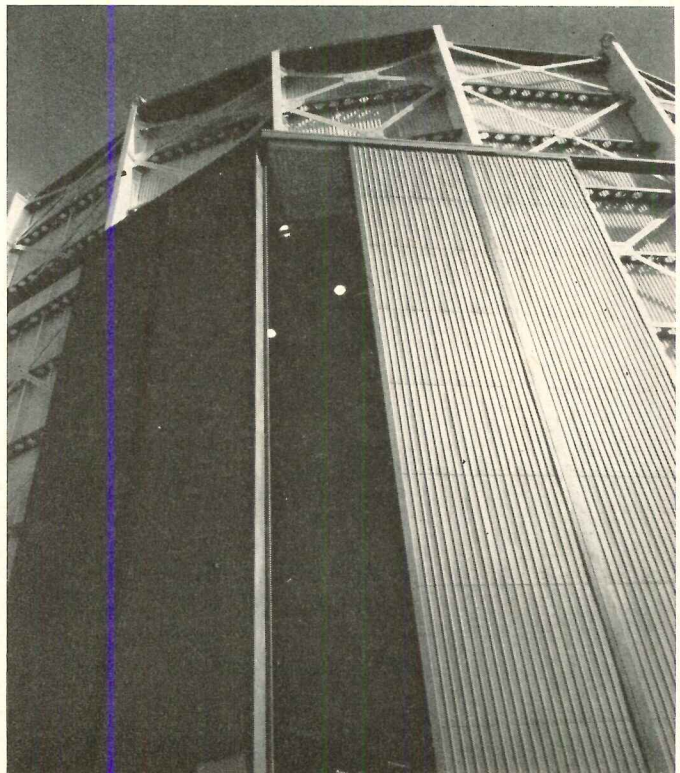
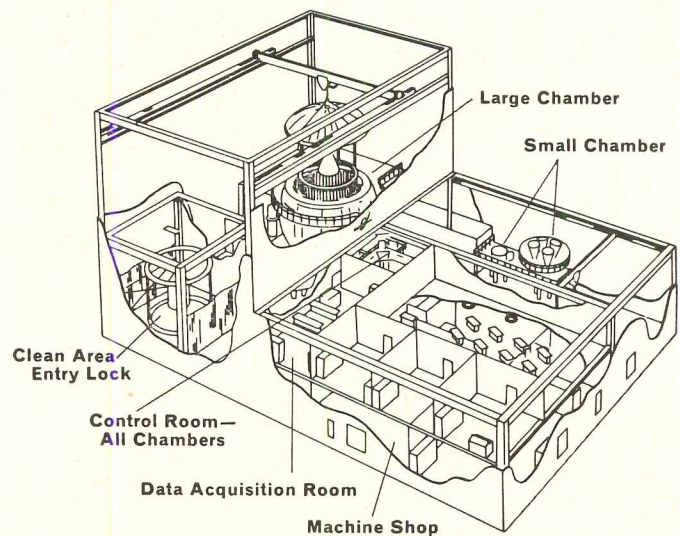
*Donald W. Douglas Engineering
Development Center
Huntington Beach, California*

OWNER: *Missile and Space Systems Division
Douglas Aircraft Company, Inc.*

ARCHITECTS & ENGINEERS:
Daniel, Mann, Johnson & Mendenhall

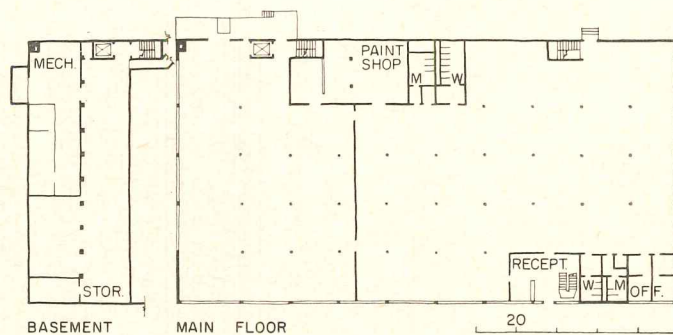
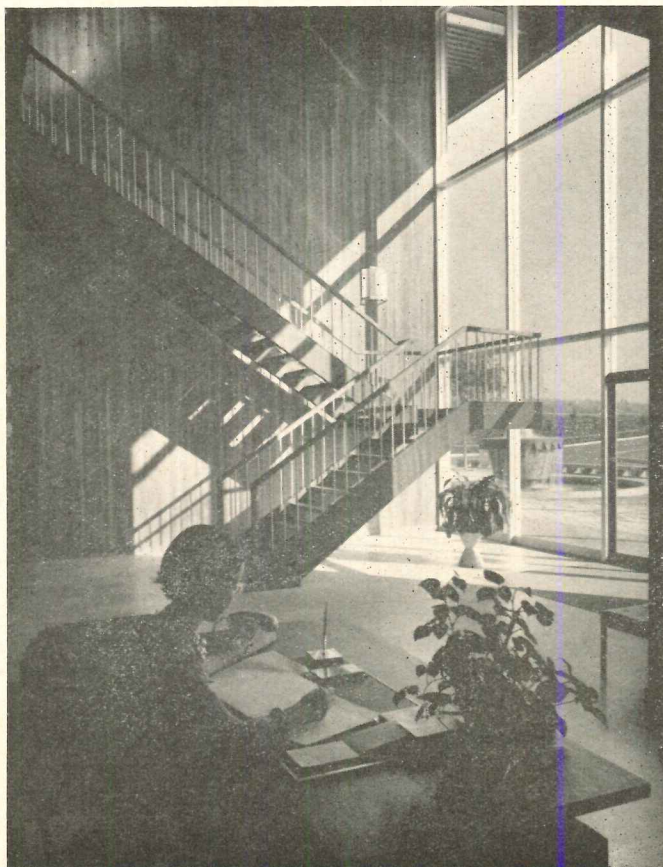
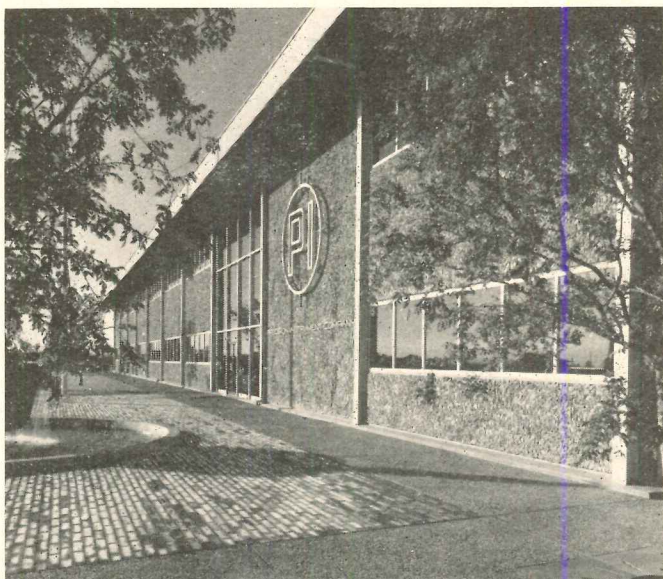
This nine-building space system center is the initial phase of an ultimate complex of 17 structures planned for its 245-acre site. Sizes and shapes of buildings reflect the special problems of space industries research. A 39-foot spherical test chamber capable of submitting a full-size prototype satellite to most of the conditions of outer space is housed in a high bay section of a space simulation laboratory building. Ceiling above the test chamber is 90 feet high to permit test specimens to be lowered into the chamber. Specimens enter the building through an airlock to prevent contamination or excessive loss of pressurized, conditioned air within the building.

A semicircular laboratory will test vertically assembled specimens which enter the building through steel doors 90 feet high. Semicircular shape of the building is to permit expansion by completing the circle around the existing control core. Other buildings in the center include engineering and production facilities.





Phil Palmer photos



EXPANSIBLE SPACE IN AN INDUSTRIAL PARK

*Precision Instrument Company
Palo Alto, California*

ARCHITECTS: *Wurster, Bernardi and Emmons*

LANDSCAPE ARCHITECT: *Lawrence Halprin*

STRUCTURAL ENGINEERS:

Gilbert-Forsberg-Diekmann-Schmidt

MECHANICAL AND ELECTRICAL ENGINEERS:

Gayner Engineers

CONTRACTOR: *Johnson and Mape*

Construction Company

New quarters for this manufacturer of industrial tape recorders is located on a 10-acre plot in Stanford Industrial Park in such a way as to permit 200 per cent expansion of facilities and parking. Current phase has two full floors and a partial basement for a total area of 67,584 sq ft. Exterior walls are of exposed aggregate concrete panels. Roof is vermiculite concrete over corrugated steel. Interior flexibility is accomplished through movable steel partitions and cellular steel floor. The building is completely air conditioned with suspended acoustical ceiling serving as a return air plenum.

production and the human values of basic planning. Many electrical engineers, for example, are now illuminating engineers who talk about the psychological and physiological impact of light and color on personnel and productivity.

Cost analyses prepared by our estimating department bear out these trends. Ten years ago, electrical and mechanical systems accounted for less than 40 per cent of the total costs of a facility. Today, they account for more than half—and the rise has been sharp in the past eight years. In 1955, mechanical and electrical considerations represented 38 per cent of total costs; in 1957, 42.5 per cent; in 1961, 47.5 and in 1963 they rose to 54.5.

Despite the emphasis on internal artificial environments, the attitude of major industrial clients is anything but anti-architecture today. While some may seem to desire only to build monuments to themselves, on the whole their zeal for good architecture is genuine.

Is the knowledgeable architect adjusting his concepts to meet this new emphasis on mechanical and electrical environment control? He certainly is. He is designing facilities that express architecturally their own special internal environment and the mechanical installations that make them work.

The new Endo Laboratories building on Long Island, N. Y. is a good example of the creation of special internal environment for working conditions. This combined manufacturing, research and administration building was designed by Paul Rudolph and engineered and built by Walter Kidde Constructors. Close coordination between engineering and architecture was required to make the building a success.

The building has been called "windowless," but that designation isn't completely accurate. The facility pays quiet deference to outside orientation through landscaped ramps and terraces open to employees during work breaks. But its most salient feature is a series of concrete bays that create a sculptured effect on the perimeter. At the top, these bays are fitted with a translucent plastic skylight that bathes the work area with a soft, natural light.

Architectural expression of mechanical functions is becoming more prevalent, although it is not new to industrial plant design. Processing facilities have long been characterized as "open air." Economics dictate this type of design, and the evidence is now mounting to show that economics may also dictate comparable designs for manufacturing operations.

We can detect a trace of this in another Paul Rudolph design, this one for IBM Components Division now under construction in East Fishkil, New York. Again, I am familiar with this because Kidde Constructors served as engineers. (See illustration.)

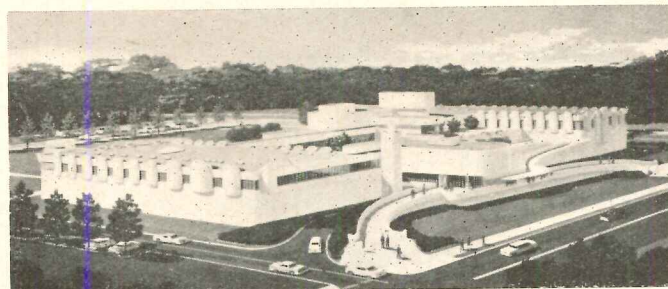
As time goes by, even more forceful expressions will appear on drawing boards—awaiting the client daring enough to pick them up. The question is

not so much whether it will happen, but where it will lead.

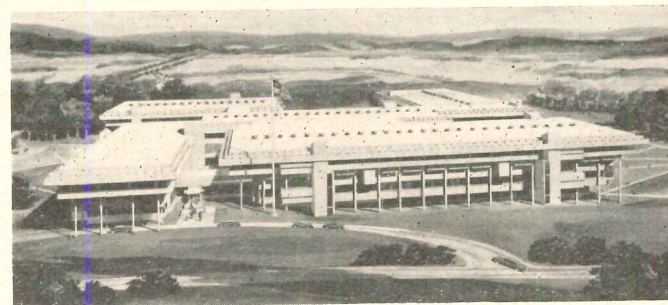
Projected to its logical conclusion, the trend to controlled environments for products and people leads eventually to two different kinds of facilities: one for production equipment and the other for people who operate that equipment.

Economics are on the side of separating the two functions, and the technology to do it is here. Processing facilities and some of the recent fully-automated electric generating stations already point the way. When applied to manufacturing facilities, this design concept provides maximum in flexibility.

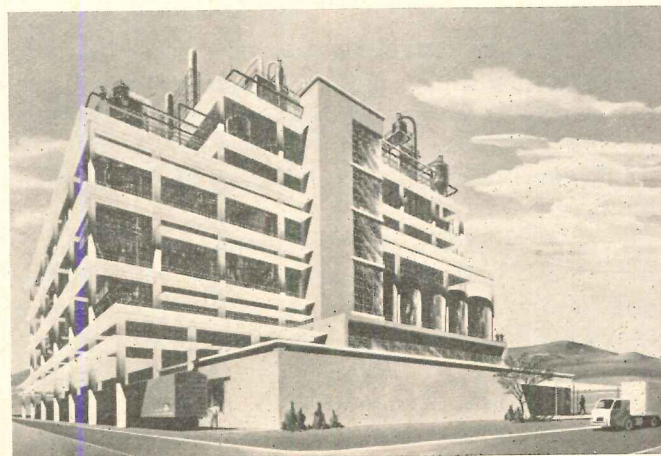
How far away from the production facility can we put our personnel? If we can put them in a separate facility on the corner of the same tract, then we can put them 100 to 1,000 miles away. If a large manufacturing corporation can operate a cluster of pro-



Endo Laboratories, designed by Paul Rudolph, engineered and built by Walter Kidde Constructors



IBM Components Division, East Fishkil, N. Y., also by Rudolph and engineered by Kidde, another step toward functional expression (solid wall for mechanicals on second floor under cantilevered office space on top floor)



Imaginative ultimate in manufacturing process expression as conceived by Frank L. Whitney

duction plants from a central control tower, it may be able to operate plants in such widespread cities as San Francisco, Birmingham and Hartford from a single control center in Chicago.

The control center will create its own internal working environments for people. And the plants, virtually unmanned, will create their own absolute environment for quality production. Some of the equipment at these plants will be completely exposed—representing the ultimate in the expression of mechanical installations architecturally.

Such a manufacturing facility presages great social changes. But contemplating such things is part of the plant architect's job.

THE AUTOMOBILE INDUSTRY ACCENTUATES TRENDS IN INDUSTRIAL DESIGN

By John J. Andrews, Associate
Smith, Hinchman & Grylls Associates, Inc.

The conservative influence of extreme economy and urgent schedules encounters the opposing need for change and growth in a trend-setting resolution of forces especially notable in the automobile industry. Mr. Andrews describes the elements of change and points to some of their effects on practice in this country and abroad.

A good deal of the industrial plant design work handled by Smith, Hinchman & Grylls is for the automobile industry. This is an industry which is accustomed to changes, as any used car lot will testify. But certain strong pressures tend to resist architectural adventures in their building programs. It is, in fact, something of an architectural and social triumph that the observable trends in this great industry point toward increasing use of the talents of private, independent, architect-engineer firms. Even the huge automotive corporations who maintain large building design and construction staffs of their own are finding that the varied experience, favorable work loads and flexibility of staff of independent design firms are better meeting their needs and at lower cost.

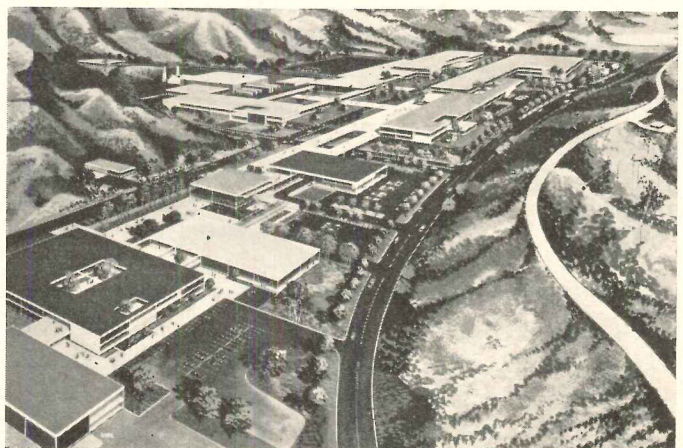
Very often, buildings are commissioned for automobile production schedules which have already been set up for a given year. Hence, the design work absolutely must be carried out in about a third of the time normally assigned to the enclosures of equivalent space in other kinds of buildings. This limits innovation. Another restrictive influence is the tyranny of the budget. While all buildings are designed to some sort of budget—hardly ever a flex-

ible one, buildings in the automobile industry are budgeted strictly as enclosures for the manufacture of a specific number of items in a given period of time, and the cost of the building must be transferred to the cost of the product within a fairly well-known and very competitive range. Thus, the influence of schedule and budget place a premium on repetitive elements in the design of automotive manufacturing facilities and on the experience of the designer.

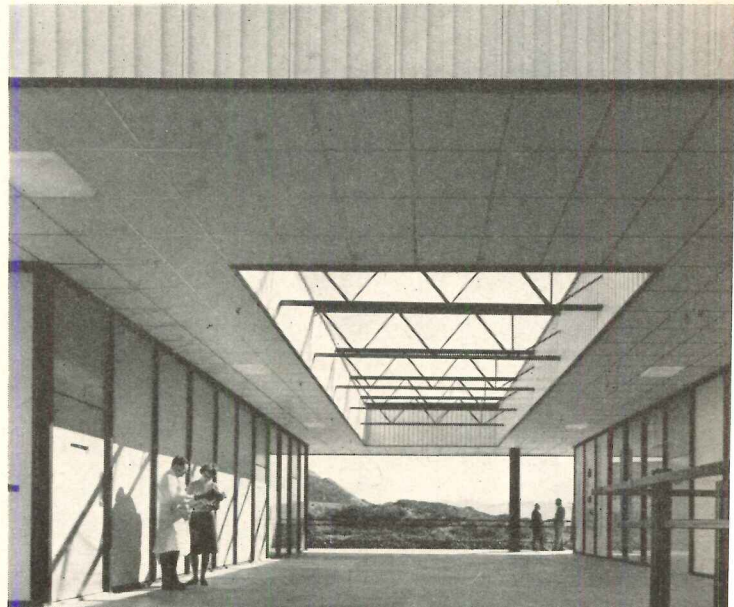
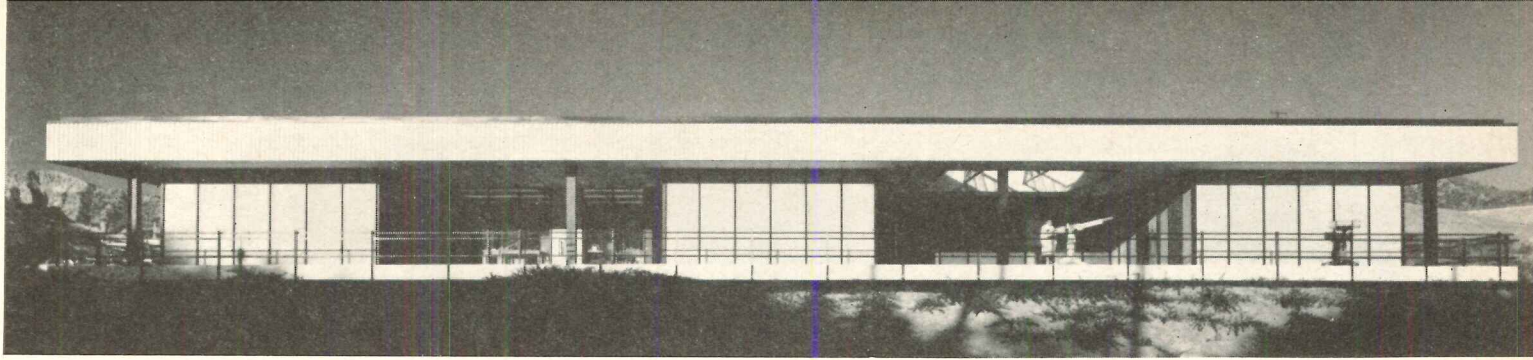
But change is inevitable, and restrictive influences are giving way to some new conditions both in the general economy and in the demands of labor. One of the effects of economic change has been specialization of the function of individual automotive plants sited separately and at various distances from the ultimate assembly plant. A decade or so ago, automotive facilities were usually huge establishments where bodies, engines, gears and axels were manufactured and assembled. The trend now seems to be a separation of those functions and the construction of separate plants to perform them. Partly, this is due to the desire of manufacturers to remain near areas of labor supply in spite of diminishing availability of large industrial tracts.

The location of new sites in highly visible situations near superhighways and the requirement for related office space in or attached to each plant have spurred the interest of owners in the appearance and amenities of the plant. Some of this interest has to do with the advertising value of the establishment in its exposed situation. Part of it has to do with the attractive surroundings nowadays expected by workers, as well as the manufacturer's desire to provide more desirable working conditions, thus attracting better workers with the resulting improved production.

The factory labor force also, voicing its demands through powerful unions and supported in its position by state labor departments and insurance companies, is expecting and receiving increasing attention to amenities having to do with safety, indus-



Ultimate development of William Pereira's research and development center for Lockheed (see opposite page)



Jack Lazer photos

SCIENCE ON A CENTRAL COURT

*Basic Science Laboratory
Lockheed California Division Research Center
Rye Canyon, Los Angeles County, California*

OWNER: Lockheed Aircraft Corporation

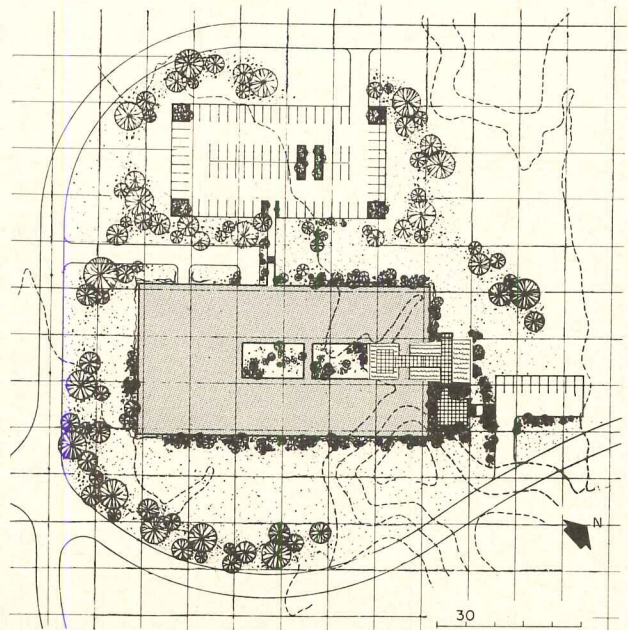
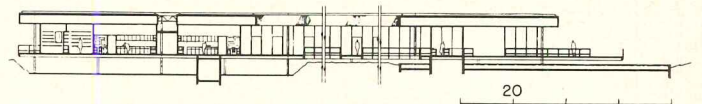
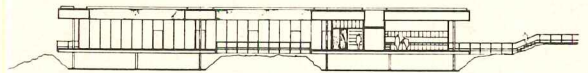
ARCHITECTS & ENGINEERS:

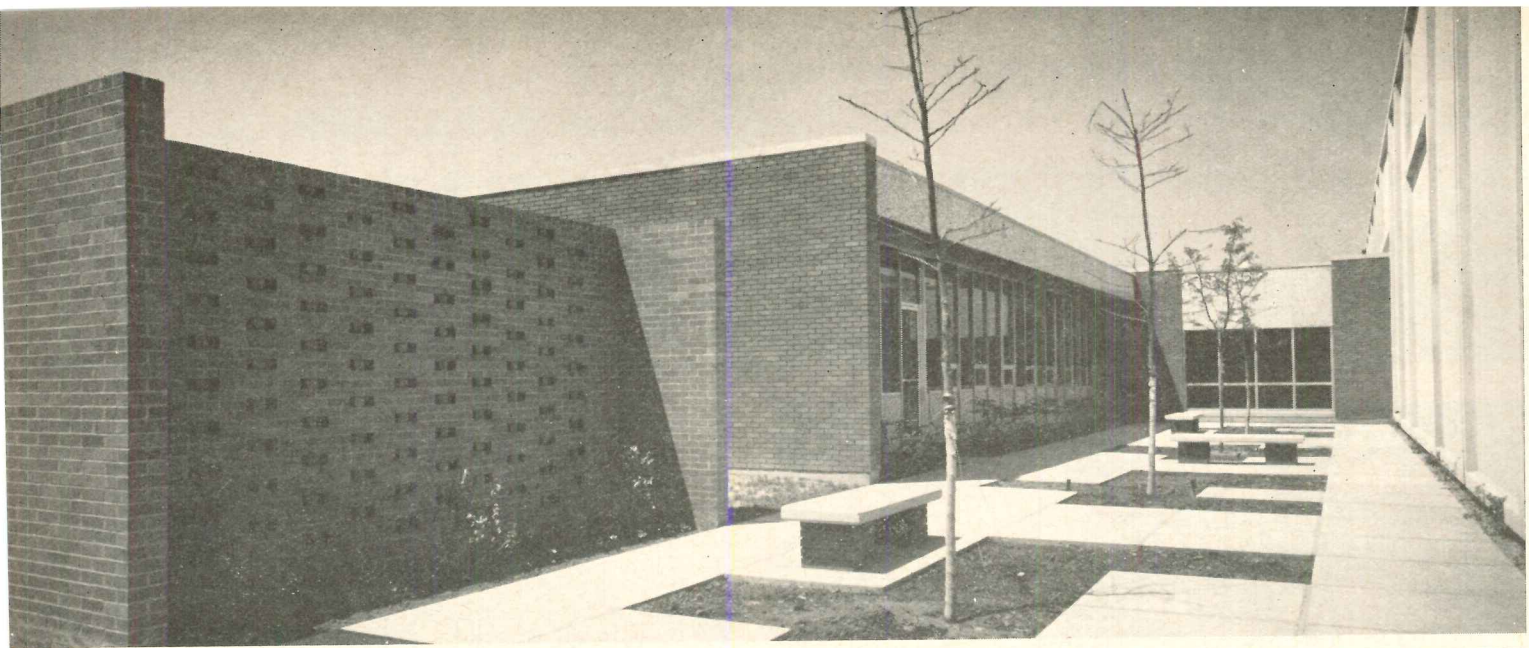
William Pereira and Associates

First phase of a research center in basic science is this laboratory and office building. It is centrally located on a 200-acre site in the foothills of the San Gabriel mountains. Laboratories and offices are on a single floor raised above grade to allow access to service and storage areas below. A landscaped berm surrounds the building to conceal the service level. This gives the building an appearance of floating which is enhanced by a system of reflecting pools near the main entrance. Interior and exterior courts allow for future expansion without adverse affect to the overall design.

Laboratories back against a service "spine" which includes all exposed utilities allowing for flexible laboratory requirements. Individual heating and air-conditioning systems for each office and laboratory are suspended below the floor slab.

Structure has concrete floors, aluminum mullions, plate glass with insulated steel and cement asbestos panels. Interior ceilings and exterior soffits are 2-foot modular removable panels.





Gabriel Benzur photos



A CONVERTIBLE PLANT FOR JET ASSEMBLY

*Turbo Jet Assembly Plant
Winder, Georgia*

OWNER: *Rohr Corporation*

ARCHITECTS & ENGINEERS: *Heery and Heery*

MECHANICAL ENGINEER: *Britt Alderman*

CONTRACTOR: *Thompson & Street*

Major problem in design of this jet engine assembly plant was the diversified operating requirement for easy change-over depending on the client's sub-contract commitments for manufacture, assembly or various processing. An open, high-bay plant of steel frame and precast concrete panels with epoxy finish brick and metal window wall permits utmost flexibility in the plan. The office wing of exposed aggregate panels is detached and separated from the plant by a courtyard. Expansibility is provided by concrete wall panels designed to be easily moved and re-installed on a new structural frame.

trial hygiene, cafeterias, etc. There is increasing attention, for example, to lighting, color, ventilation and lavatory facilities. None of these is allowed to dominate the primary production objective, and the changes in their emphasis tend to be accomplished in rather small steps over the years, but the influence is real and the trend is toward the human values.

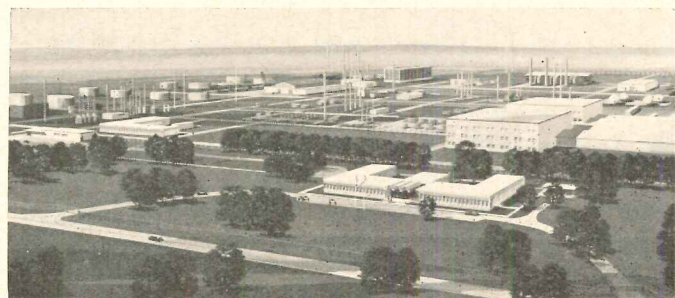
Foreign Experience

The foreign experience of Smith, Hinchman & Grylls points up some interesting characteristics of practice. In Europe, for example, our impression is that as experience is gained by European architects and engineers in the design and construction of industrial facilities for U. S. firms, commissions tend to be placed directly with foreign designers rather than through associated U. S. design firms.

In a recent experience in South America, however, it was found that there were no native firms with combined architectural and engineering capability such as those engaged in much of the industrial work in the United States. Commissioned by Ford to build a large plant in Argentina, we talked separately with Argentine architects and engineers and ultimately brought them together as a separate operating firm called Smith, Hinchman & Grylls & Asociados Argentinos.

Design work for the Argentine plant was done in the Detroit office. In order to relate it to Argentine codes and regulations, principals from each of the Argentine offices of the associated firms worked in Detroit during the design phase. The language barrier posed some difficulties. The specialized language of electrical, mechanical, structural and architectural fields was such that no single Spanish-speaking expert seemed capable of the degree of translation accuracy required in this kind of integrated design work. A bilingual specialist was required in each field, and the over-all translation was supervised by a South American law student. The relationship with the Argentine associates has proved invaluable and is being enthusiastically pursued on other projects.

Another difficulty was posed by Ford's requirement of a firm, lump-sum bid. Working under Ar-



Pasa-Petroquimica Argentina complex by Smith, Hinchman & Grylls & Asociados Argentinos

gentine contracting practices, arriving at the lump sum was difficult at best, but the problem was compounded by a revolution which occurred in Argentina at bid time. It was solved with much intercommunication and the provision of escalator clauses in the contract.

A third difficulty derived out of the Argentine requirement that native building products be used wherever they were available. Argentine manufacturers, although capable of producing products similar to those made in the United States, do not provide the same background of research and application data having to do with such qualities as strength, weight and heat transfer. We found ourselves setting up a product research bureau and even supervising the manufacture of certain items in Argentine plants.

The plant was completed without undue delay. The experience was an enlightening one, especially in the realization that Argentine architects and engineers are extremely capable and energetic people and that barriers of language, custom and distance can easily be surmounted when people of good will are working toward a common goal.

DEVELOPMENTS IN INDUSTRIAL CONSTRUCTION

By Sol King, President

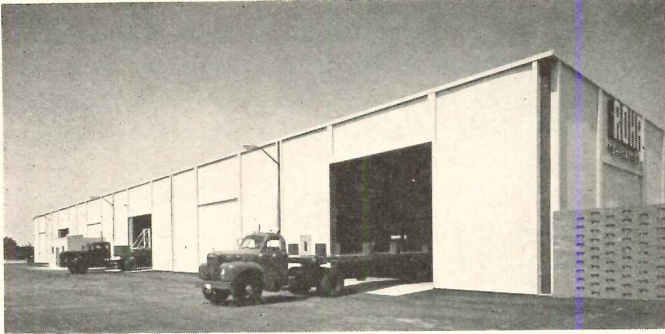
Albert Kahn Associated Architects and Engineers

Scarcely a school, hospital or structure of any kind exists that does not show some characteristics of modern factory design. Tracing the development of the structural forms of industrial buildings, Mr. King examines some of the criteria for today's facilities and the directions of current trends toward flexibility, smaller buildings and comprehensive architectural services.

During and following World War I, the assembly line forced the obsolescence of multistory industrial buildings and triggered the exodus of industrial facilities to the suburbs where large one-story buildings could be designed to house many operations and also to provide for complete flexibility and ease of expansion. The larger bay sizes required hastened the introduction of structural steel framing. The configuration of the buildings became almost square. This created problems requiring specialized solutions that were to have an extraordinary impact on architecture.

Condensed from a paper delivered to the International Seminar on Industrial Architecture conducted under auspices of the International Union of Architects in Budapest, Hungary, June 1 to 10, 1964

Gabriel Benzur



Back of the Rohr plant (page 174) shows removable concrete panels which can be re-assembled on future plant extension

Economic considerations dictated the maximum use of daylight and natural ventilation, both of which were provided by means of the saw-toothed monitor which was gradually replaced by different monitor forms. Bay sizes were increased to generally 40 or 50 feet square with 18-foot clear height from floor to bottom chord of the trusses.

But the use of monitors created serious maintenance problems, and natural daylight did not provide the uniform light needed for efficient plant operations. Furthermore, when the wind was static natural ventilation could not exhaust properly. Finally, during World War II blackouts, it became necessary to paint all monitor sash to conceal artificial lighting. These developments hastened the introduction of completely artificial lighting and mechanical ventilation.

Present trends indicate higher and higher lighting intensities to 100 footcandles or better, and an astronomical increase in the electric power required per worker as automation spreads.

Structural Trends

The years to come will require even greater flexibility and larger unobstructed spaces. To meet this demand, steel production will introduce lighter alloys permitting less structural dead load and greater spans. In addition, computer techniques will bring significant improvement in speed, accuracy and economy of structural design.

Plants designed to make the products of modern commerce are, in a sense, machines themselves, often as complex as the products they produce. But as long as plants house people, they must respond to the human needs and scale of their intended user—man himself. Major emphasis must be placed on ample and attractive employe facilities consisting generally of clean, well-lighted and ventilated locker rooms, conveniently located wash rooms and toilets, cafeterias and dining or canteen areas, first aid rooms, ample parking facilities, etc.

Housing employe facilities at the periphery of the building, preferably on the first floor of an area

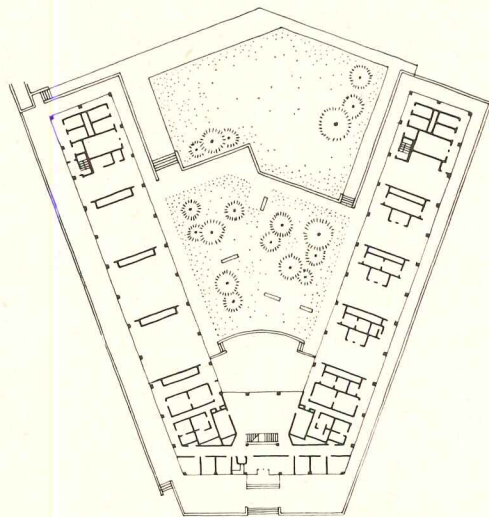
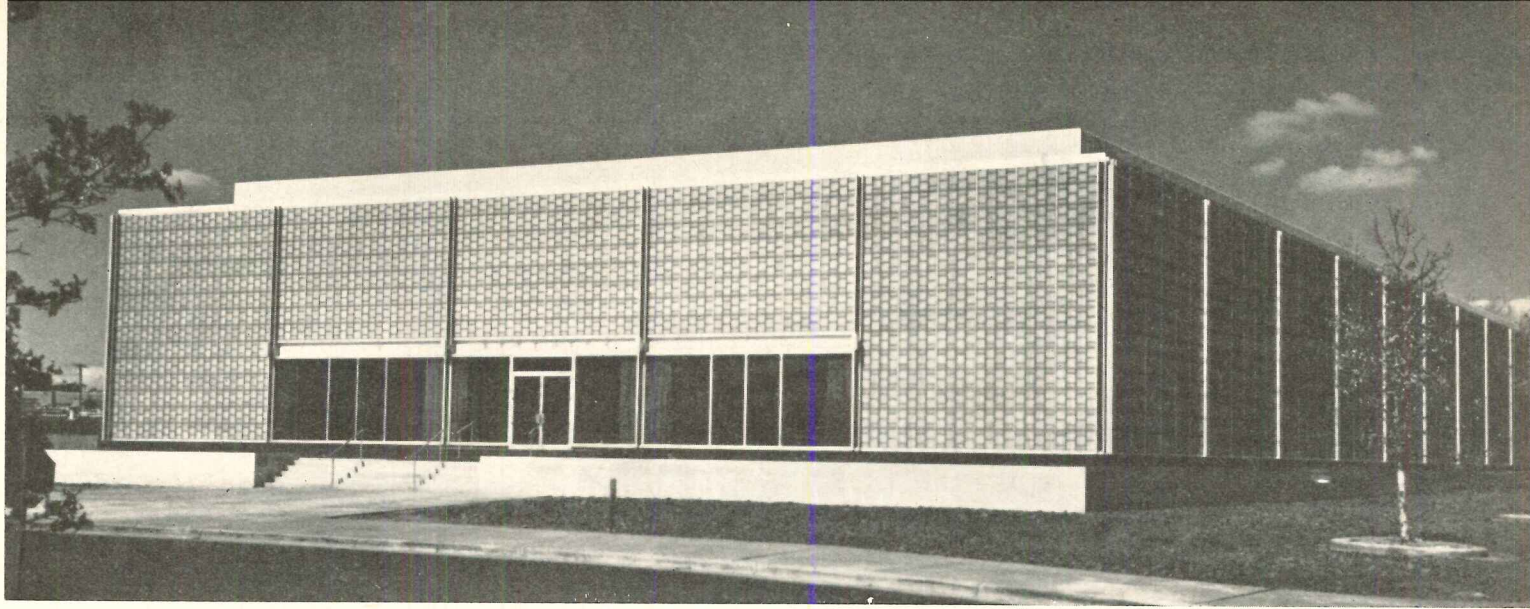
specially constructed for the purpose, affords the most compact and convenient arrangements possible. As a general rule, toilet rooms should be so spaced that no worker need walk more than 200 feet to reach one. It is generally good practice to provide only limited toilet facilities in the locker area and only limited wash facilities in local work station toilets. Locker room space usually averages 3 to 4 square feet per employe. Although showers should be provided where dirty processes or health safeguards make them essential, experience has shown that where work is only moderately dirty, most workers prefer to get home quickly.

Total cafeteria area per employe will generally average from 10 to 12 square feet, exclusive of kitchens. There is a trend today toward canteen type food service consisting of vending machines installed, supplied and serviced by an outside food service organization. It is the job of the architect and the engineer to so design the plant as to make the burden of upkeep minimum. If a plant's basic plan is carefully designed it should be possible for the owner to: (1) expand without serious interruption to production; (2) change to new models without major plant alterations; (3) turn from one industry to another without excessive plant adaptation. All this enhances both the utility and sales value of a plant.

It should be pointed out, however, that recent trends reflect a desire to limit flexibility so that it is commensurate with a reasonable capital investment based on the life of the building.

The architect-engineer firm is not a manufacturing or production layout consulting service nor need it be, and the organization which claims to be able to move in on the owner and tell him how to manufacture his product is wrong, in our opinion. Serving a host of clients engaged in the manufacture of an equal host of products, the a-e firm cannot possibly be expert in layout of equipment and production procedures for all, or to keep abreast of all the new and constantly changing developments in producing these products. But he can make himself an invaluable adjunct to the manufacturer's organization by studying his layout, offering suggestions as to flow of material, providing flexibility in the plant structure to permit ease of changeover, and utility services to permit connections to be made promptly after the changeover.

In very recent years there appears a definite trend toward reducing the colossus of the heavy industrial plant into smaller buildings of varied functions, grouped to form an industrial complex. This trend is motivated by the need for reducing fire hazard and risk, and is one direct consequence of insurance company insistence on the division of large unobstructed areas into compartments through the installation of fire walls. This trend should exert a beneficial influence in the creation of buildings designed to human scale.



FIRST FLOOR

OPEN PLAN FOR A GLASS-PANELED LAB

*The Beardsley Research Laboratory
Elkhart, Indiana*

OWNER: *Miles Laboratories, Inc.*

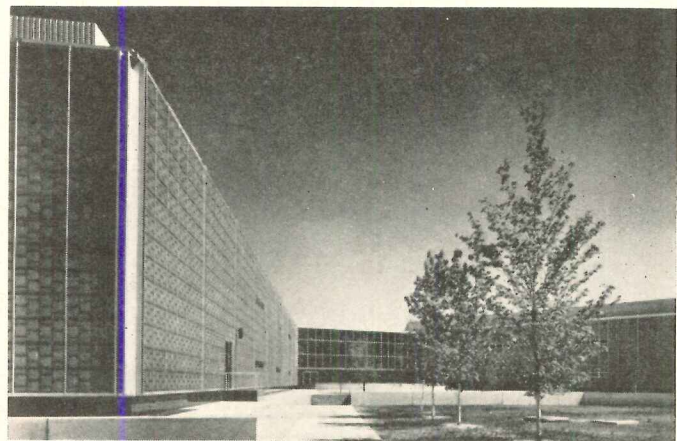
ARCHITECTS & ENGINEERS:

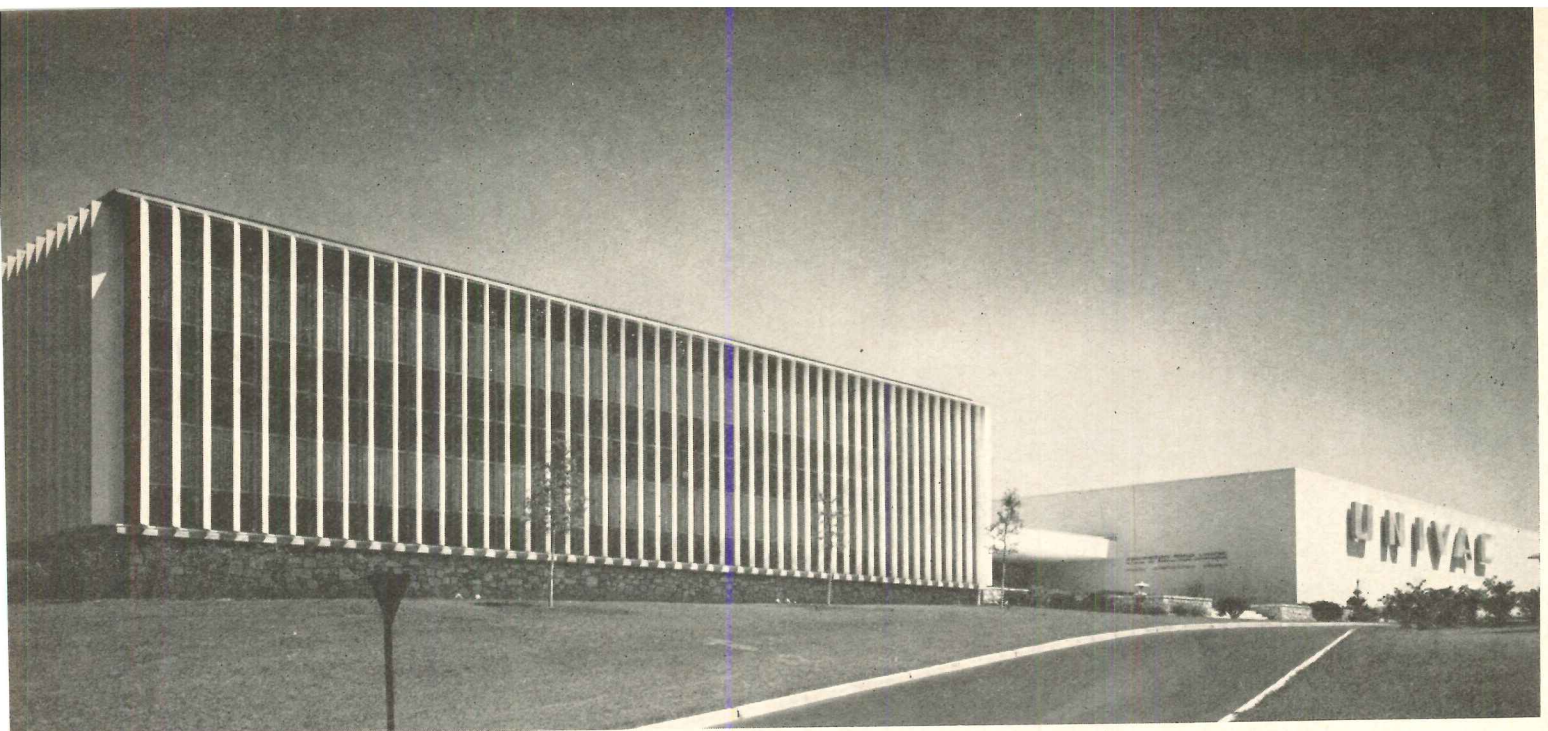
A. M. Kinney Associates

CONSULTING ARCHITECT: *Charles Burchard*

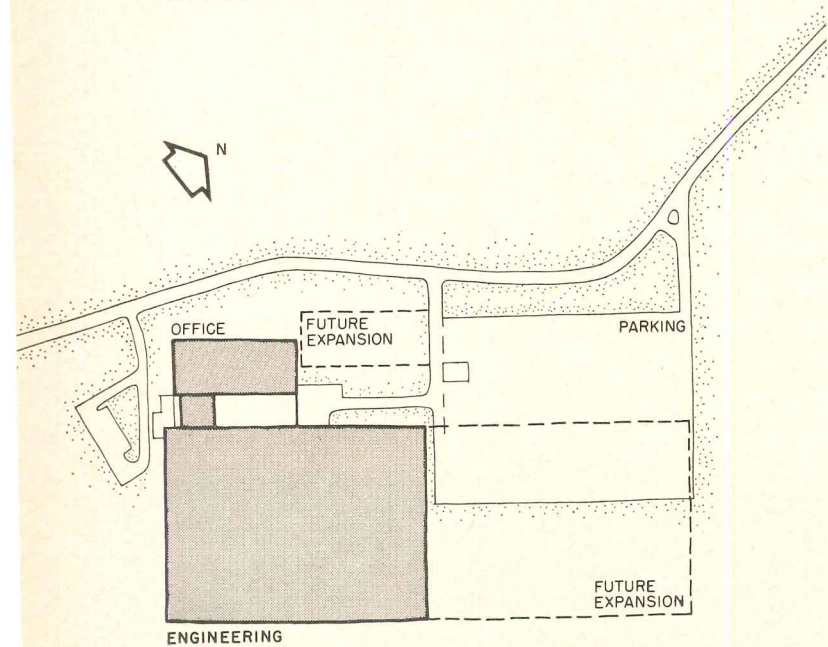
The Beardsley Research Lab is the first unit of a proposed research campus for Miles Laboratories. Architects devised an open plan rather than a conventional series of rooms on either side of a corridor. The plan was to encourage interchange between scientific disciplines organized on the basis of research task forces.

Mechanical cores are turned at right angles to exterior walls. Laboratory benches project from one side of each core. The other side is reserved for enclosed rooms where special conditions can be established and served by employees. Exterior walls are 2-inch-thick glass tiles pre-assembled in 2-by 4-foot panels. This provides maximum daylight and ties architecturally with other Miles buildings which make extensive use of glass block. Walls on the court side are clear glass.





Lawrence S. Williams photos



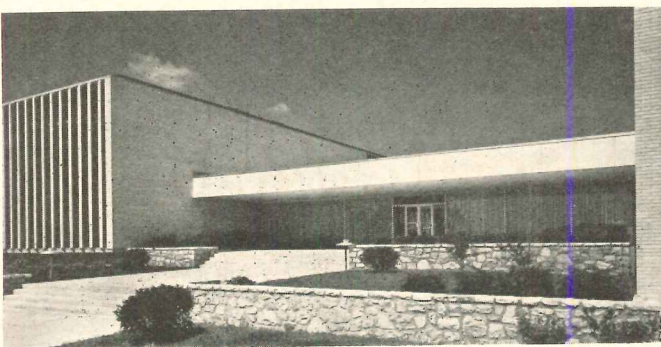
CONTROLLED CLIMATE FOR RESEARCH

Univac Engineering Center
Whitpain Township
Montgomery County, Pennsylvania
 OWNER: Univac Division of
Sperry Rand Corporation
 ARCHITECTS & ENGINEERS:
The Ballinger Company

This research and development center is comprised of a two-story office section of 68,000 square feet connected by a large glass lobby to a one-story engineering building of 240,000 square feet. These buildings and the paved parking area for 900 cars cover a total ground area of over 12 acres on a 100-acre site.

Vertical sun louvers on the south and west walls of the office building are 2½-foot-wide aluminum, spaced 2½-foot apart, free standing for their full height of 27 feet. The louvers on the south wall are adjustable with automatic control. To further reduce the heat load in the completely air-conditioned office and engineering buildings, 2 inches of water (230,000 gallons) are kept on the roofs during the summer.

A landscaped interior court with benches, walks, trees, plantings and a shallow reflecting pool is accessible from the office, lobby and employees' dining room.



Architectural Engineering

Air Conditioning Grows in College Buildings

By 1970 there will have been a tremendous decade of growth in the air conditioning of colleges and universities in the U. S., according to a survey of 303 schools conducted by Carrier Corporation. Sixty-six of these schools will install central refrigeration plants to pipe chilled water around the campus; an additional 152 schools will install individual machines in each building. Roughly half of the reporting schools will provide year-round conditioning in nearly all new construction. The percentage of new administration buildings to be cooled is the highest at about 70 per cent; dining halls, 63 per cent; science buildings, 60 per cent; and academic structures and teachers' offices, 53 per cent.

Abstracts on Odors

Information on the relatively unknown field of odors is being published in abstract form by the American Society of Heating, Refrigerating and Air-Conditioning Engineers. Compiled by Arthur D. Little, Inc., approximately 200 abstracts will be included in the 1964 volumes which are being published quarterly at a cost of \$20 per year. Earlier volumes for 1962 and 1963 are also available.

Data on Lightweight Concrete Properties

While large amounts of lightweight concretes are being used in construction, lack of data on long term creep and drying shrinkage has tended to cause concern about deformation and deflection over a long period of time. Greater confidence in the use of these materials should result from a recent study by the National Bureau of Standards Institute for Applied Technology which shows that high values of creep and drying shrinkage are not always associated with lightweight concretes; in fact, some lightweight concretes have practically the same mechanical properties of normal-weight concretes. It was observed that the creep at the age of two years can be estimated from 90-day results with reasonable accuracy. A total of 76 different concretes was tested, 63 made with 24 lightweight aggregates and 10 made with 5 normal-weight aggregates. The study, published as NBS Monograph 74, was made in cooperation with the Expanded Shale, Clay and Slate Institute, and is available from the Superintendent of Documents, U.S. Government Printing Office, for 30 cents.

Take Care In Model Testing

Work with small-scale structural models calls for very carefully designed and conducted experiments because even the significance of a test may be destroyed, not merely the accuracy. This warning appears in a paper on structural model testing appearing in the May issue of the Journal of the PCA (Portland Cement Association) Research and Development Laboratories. Other precautions: (1) don't hope the test will work; design it so that it will work; (2) don't fail to provide checks, particularly if new materials or new techniques are being used; (3) don't adopt experimental techniques used with other materials or specimen sizes without checking their validity; (4) don't fail to be suspicious of experimental results even after taking extensive precautions; (5) don't fail to read the literature before beginning model testing.

Specifications on Urethane Insulation

Specifications for urethane thermal insulation board have recently been developed by the General Services Administration, Federal Supply Service, and members of Society of the Plastics Industry which cover rigid cellular urethane insulation for temperatures ranging from -320 F. to +250 F. Three types of expanded urethane thermal insulation are included in the specification: Type I, preformed; Type II, preformed self-extinguishing; and Type III, preformed non-burning. Single copies of the specification are available from the Urethane Institute, c/o Society of the Plastics Industry, 260 Park Ave., New York, N.Y.

This Month's AE Section

STRUCTURE DELIVERS AIR AND CONTROLS LIGHT, p. 180. *VERSATILE STRUCTURES FOR APARTMENT FRAMING*, p. 185. *BUILDING COMPONENTS: A Trouble-Free Industrial Concrete Floor*, p. 193. *Products*, p. 195. *Literature*, p. 197.

STRUCTURE DELIVERS AIR AND CONTROLS LIGHT

There is growing evidence that architects, bothered by the separateness of structural and mechanical systems, are striving to achieve at the concept level a better melding of these disciplines. This approach obviously places greater demands on engineers in developing new systems that are not only compatible with one another, but which have improved functional advantages and favorable costs. Nonetheless, these systems can still use standard components, for the most part, while achieving greater integration.

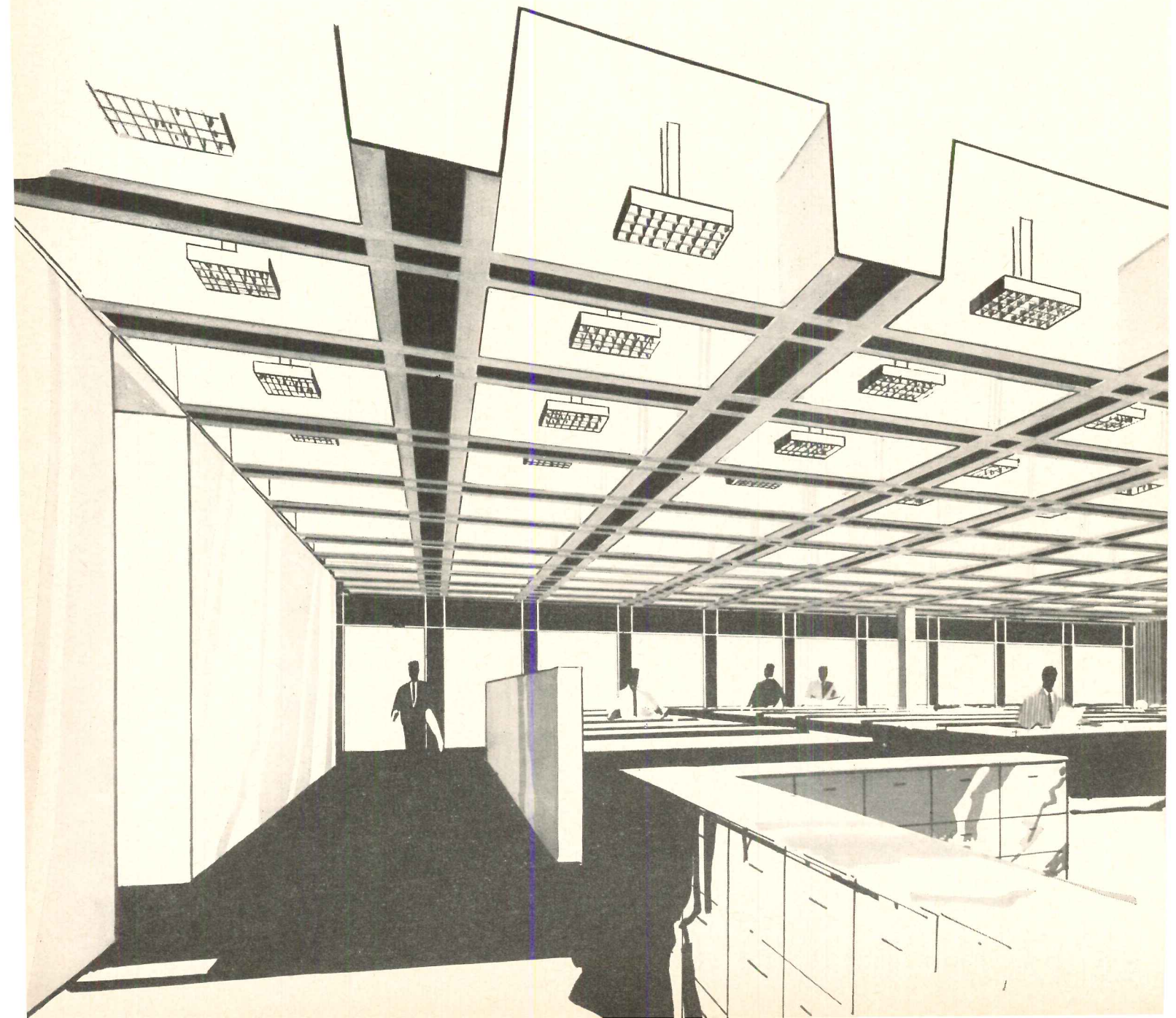
A four-story, 120- by 120-ft office

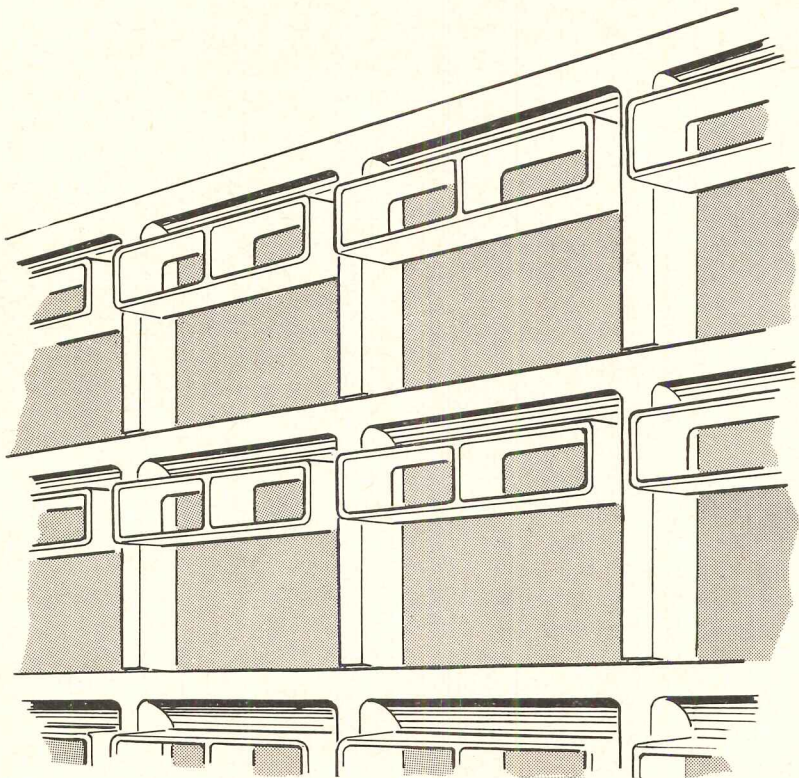
building planned for a new facility for the Cummins Engine Company exemplifies this trend in having a structural system which, itself, provides channels for air distribution and coffers for lighting.

The architect favored a three-dimensional, structural appearance for the ceiling rather than a suspended ceiling incorporating lights and air diffusers. But at the same time he wanted to avoid a spotty, checker-board effect. This meant that all coffers required light, that brightness of the coffers could not be too great, and that the brightness should be as

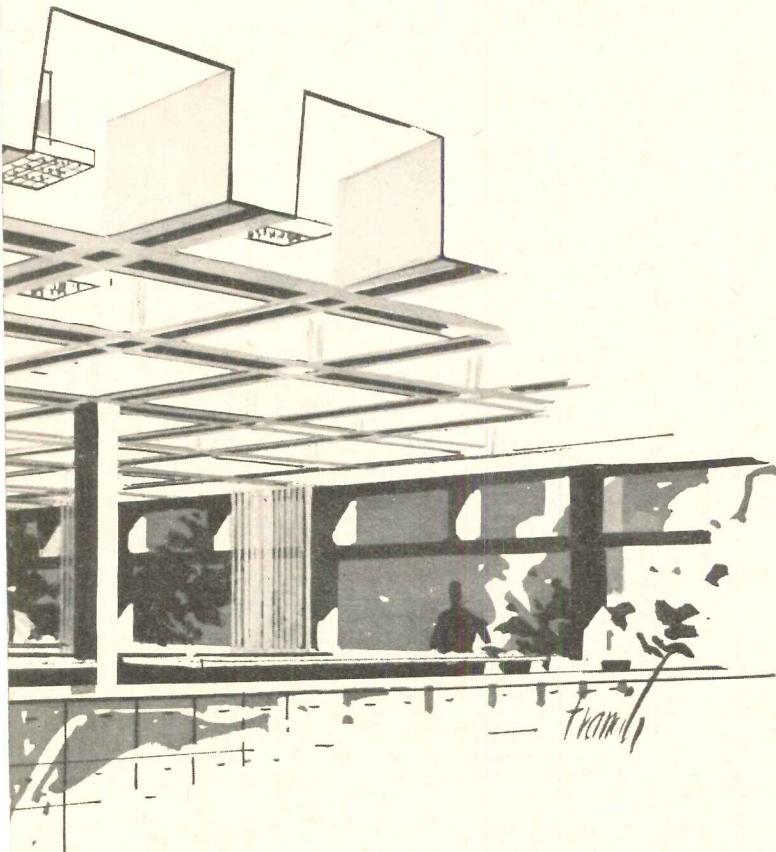
even as possible throughout the coffer.

The dual-duct air distribution system is unconventional in that the criss-crossed ribs of the floor structure distribute all the air to office spaces, making possible zone control on a modular basis. The engineers were able to use standard devices for controlling mixture of cold and hot air for temperature control. But they had to pay particular attention to methods and materials for insulating the air channels in the small spaces of the duct network, and for making sure that closure panels at the bot-





Concrete floor structure of four-story building is a two-way system with ribs placed in pairs so as to form channels for air distribution and deep coffers for lighting. Coffers will be evenly illuminated by fluorescent panel lamps. Early rendering shows metal covers between ribs in dark color. Actually they will be light colored to minimize contrast.



Building Research 64
Cummins Engine Company, Inc.
Columbus, Indiana

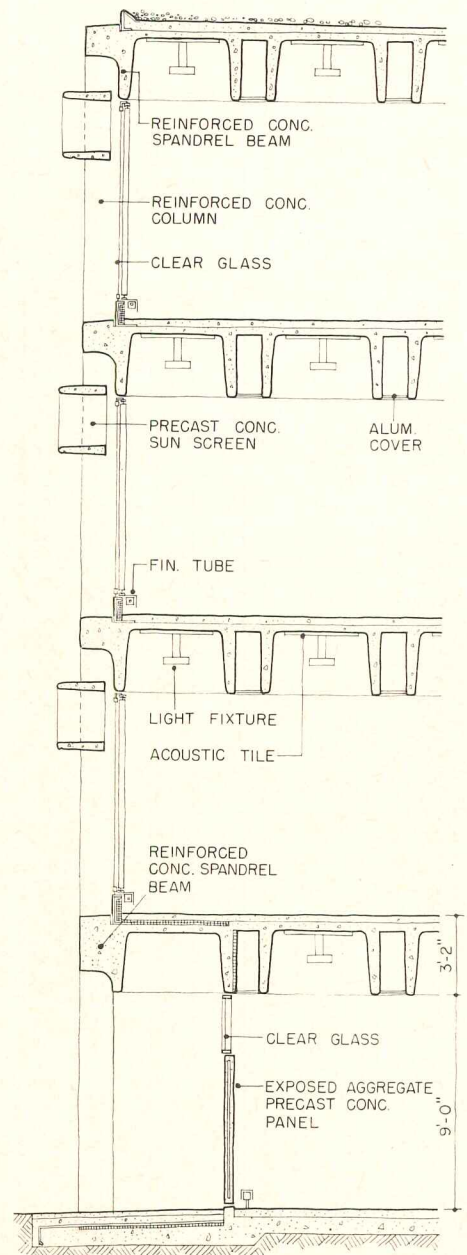
ARCHITECTS AND ENGINEERS:
Harry Weese & Associates
 ASSOCIATED ARCHITECTS:
J. Herschel Fisher, Pat Y. Spillman

STRUCTURAL ENGINEERS:
The Engineers Collaborative

MECHANICAL ENGINEERS:
Cosentini Associates

ELECTRICAL ENGINEERS:
Eitingon & Schlossberg

LIGHTING CONSULTANT:
William M. C. Lam



tom of the channels would be airtight.

A principal objective of the lighting design was to illuminate the coffers at low brightness in a way that would reveal the structure, but not conflict with it visually. This was accomplished by suspending 1-ft sq panel fluorescent lamps half-way down from the top of the coffers. All of the light from the bottom of the lamp comes directly into the room. Light from the upper surface illuminates the coffer directly and also indirectly by inter-reflection. Direct brightness from the bottom of the lamp is controlled by means of parabolic shaped egg-crate louvers.

Proportions of the coffer are such that it can be evenly lighted with the 1-ft sq lamp. Slightly over one-third of the floor depth is used for ducts. The ribs of the floor structure

are pierced every 6 ft by holes 19 in. wide by 14 in. deep to permit mixture of hot and cold air and distribution of this air to particular zones. These ribs are in a sense Vierendeel girders, and particular attention had to be given to design for shear stresses near columns and secondary bending stresses above and below the holes.

Since the office building is planned for an additional four stories, the exterior columns were reinforced with steel plate cores to keep down their size.

Adjoining the office building is a 450-ft-long testing building. An interesting feature here is the way ductwork and lighting have been handled in two corridors. Corridor ductwork is tipped on the bias and set within wedge of the delta trusses which support the roof. Indirect

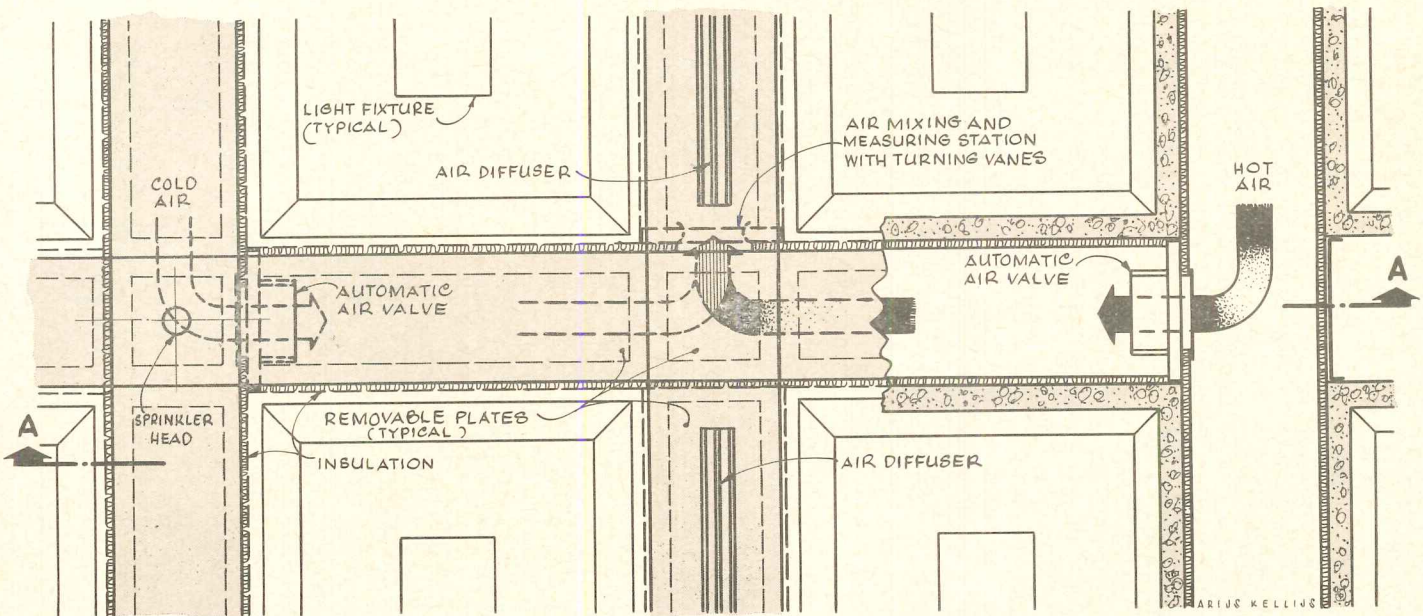
lighting is provided by fluorescent strips mounted on the sides of these same trusses. (See sketch page 184.)

MECHANICAL SYSTEM DESIGN

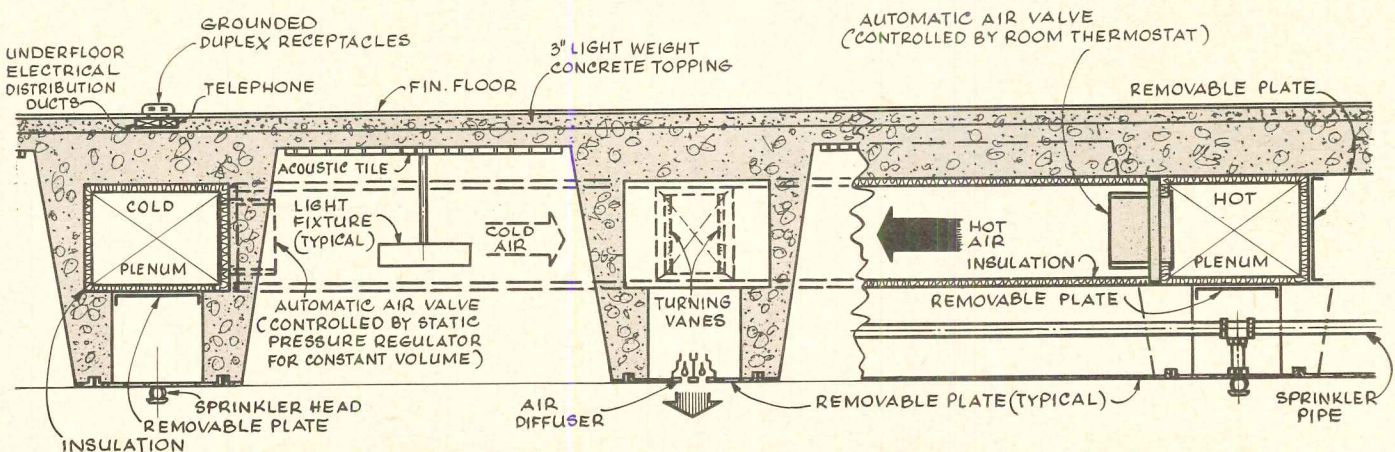
Following is a discussion by Cosentini Associates of the design problems and salient features of the heating and air-conditioning system:

The real challenge in design of the air distribution system was to take advantage of the wealth of concrete plenums available while providing for proper controllability and flexibility. The decision to use an all-air, double-duct system was made at one of our weekly design meetings. These meetings are a standard procedure in our office and involve discussion of all jobs with partners and associates.

Early in the design we were handicapped by not knowing exactly what



AIR MIXING AND DISTRIBUTION ARRANGEMENT



problems we might encounter in installing insulation, making the medium pressure hot and cold air plenums airtight, and installing automatic dampers, diffusers and apertures at reasonable cost and within practical working limits.

To get a better concept of the physical size and hence available work space inside the concrete channels, a full-scale plywood mock-up of a typical concrete channel was erected in our office.

The scheme finally selected, after many alternates were considered, consists of collapsible, prefabricated-to-size, fiber glass ductwork for insulation and sound absorption, combined with sheet metal baffle and closure plates for air tightness and accessibility. The fiber glass ductwork is squeezed through the 12-in. opening into the upper chamber where it expands back to the full size. It is then slid forward to meet the next piece. The metal plates are installed by using a flange, gasket and screw combination—the screw being applied to an insert previously power driven into the concrete.

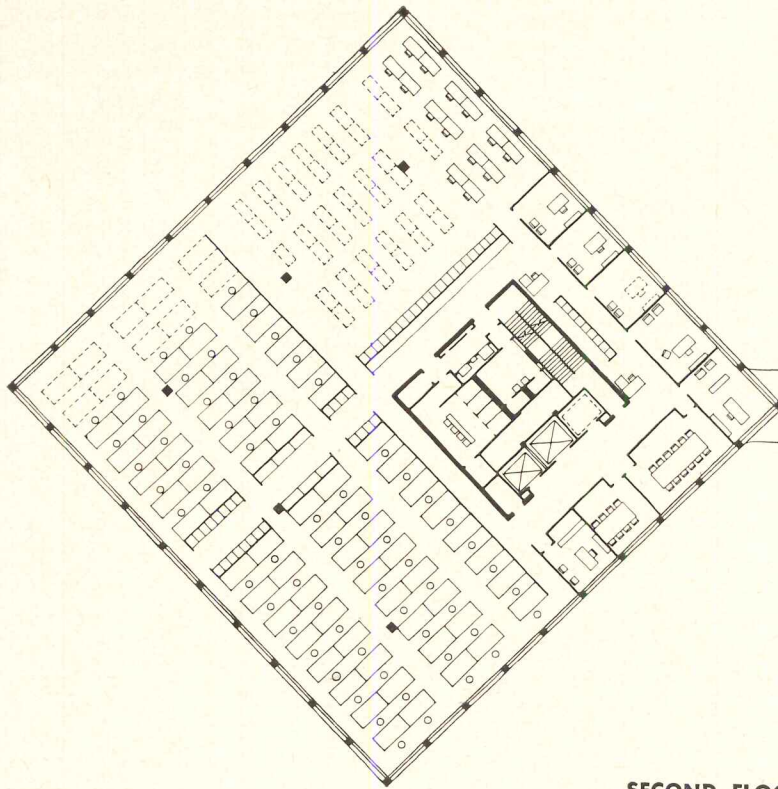
The final bottom closure of the concrete channels—which is the only visible part of the entire system—is a sliding metal plate, solid or incorporating the diffusers as required.

Since the bottom plates are easily removable and all other permanent closures on bottoms and ends of channels (sheet metal saffing plate, damper with a flanged plate, etc.) are of identical size, and hence interchangeable, changes to zoning, air distribution and partition relocation can be easily accomplished.

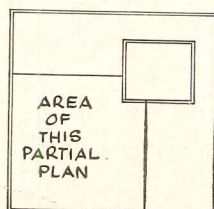
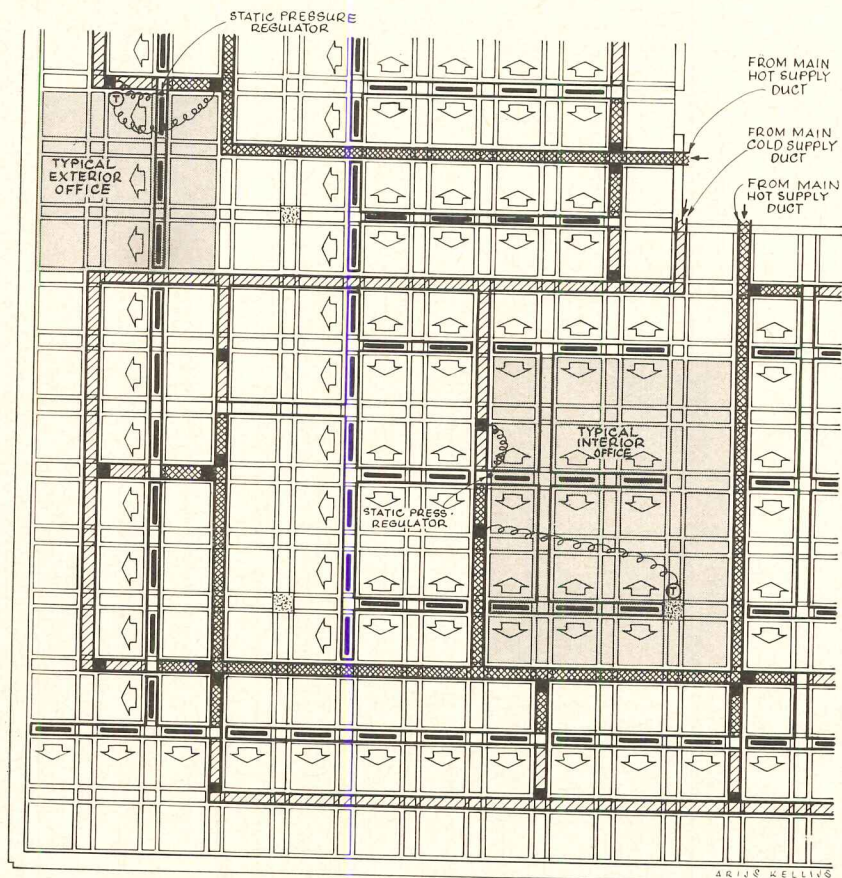
To provide for zoned temperature control while maintaining constant air volume a set of automatic air valves is installed discharging either hot or cold air into an acoustically lined "mixed air plenum" and from there to the ceiling diffusers. The air valve connecting to the hot plenum is controlled from a room thermostat for space temperature control, and the air valve connecting to the cold plenum is controlled from a static pressure regulator, maintaining constant total air volume to that zone.

To prevent downdrafts, a hot-water fin-tube radiation system is installed at the outside walls.

The supply air rig is a built-up, draw-through, two-fan, dual-duct unit. A two fan rig was selected because it is economical in initial cost

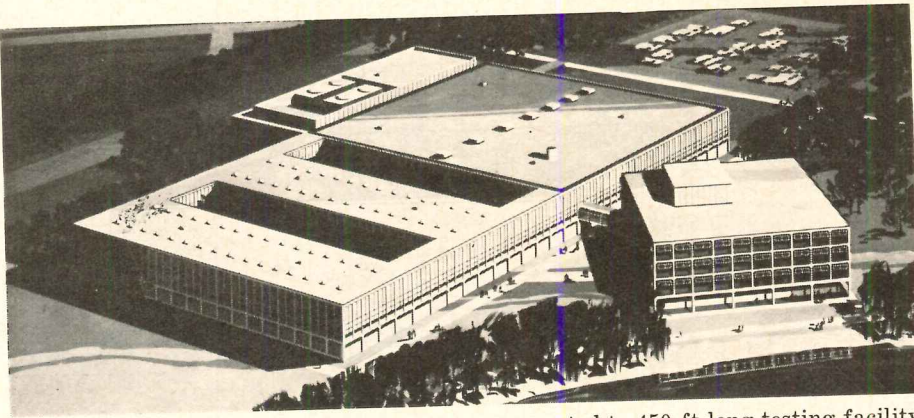


SECOND FLOOR PLAN



- | | | | | | |
|--|---------------|--|----------------------------------|--|-----------------|
| | AIR DIFFUSER | | MIXED AIR DUCT | | ROOM THERMOSTAT |
| | HOT AIR DUCT | | AUTOMATIC AIR VALVE IN HOT DUCT | | |
| | COLD AIR DUCT | | AUTOMATIC AIR VALVE IN COLD DUCT | | |

TYPICAL FLOOR DUCT LAYOUT

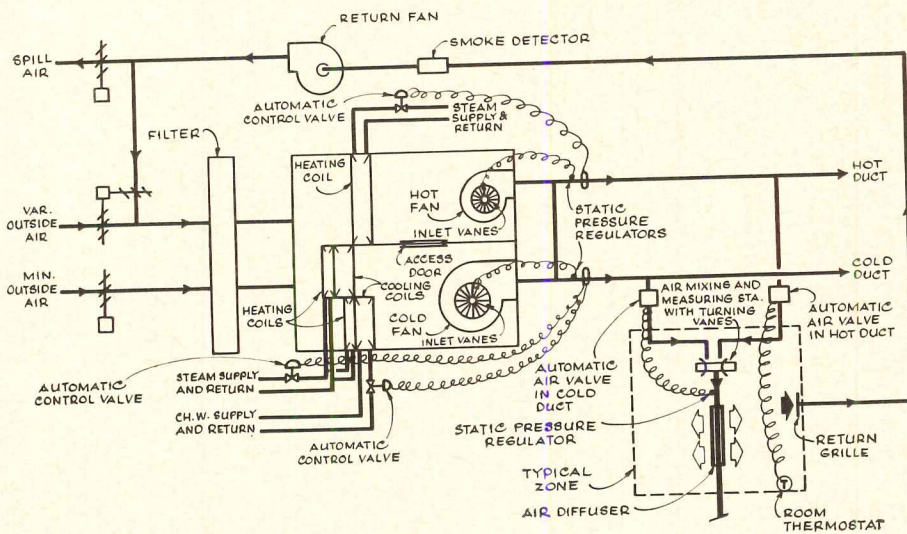


Four-story office building, 120 ft on a side, is connected to 450-ft-long testing facility by a bridge. Office building structure is designed to take an additional four stories

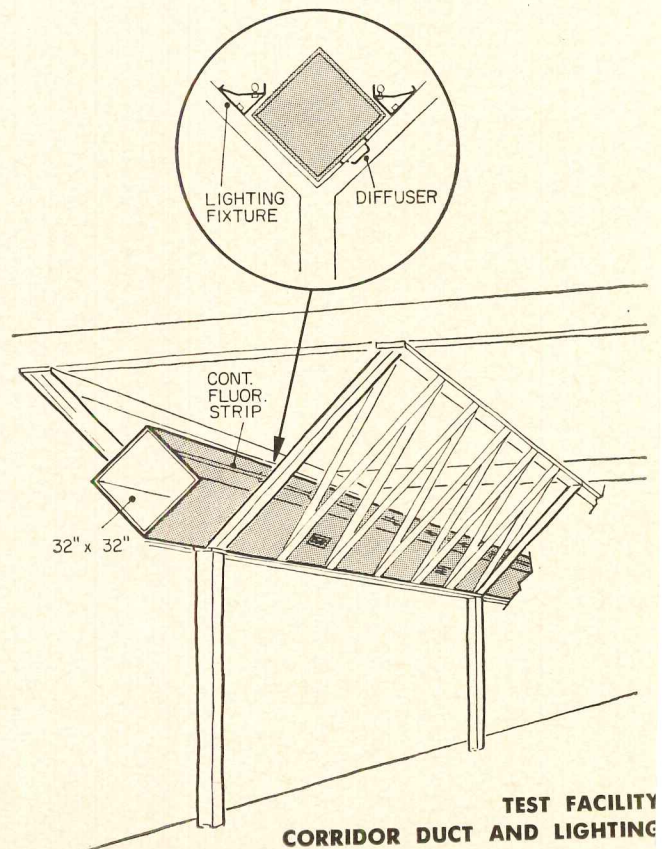
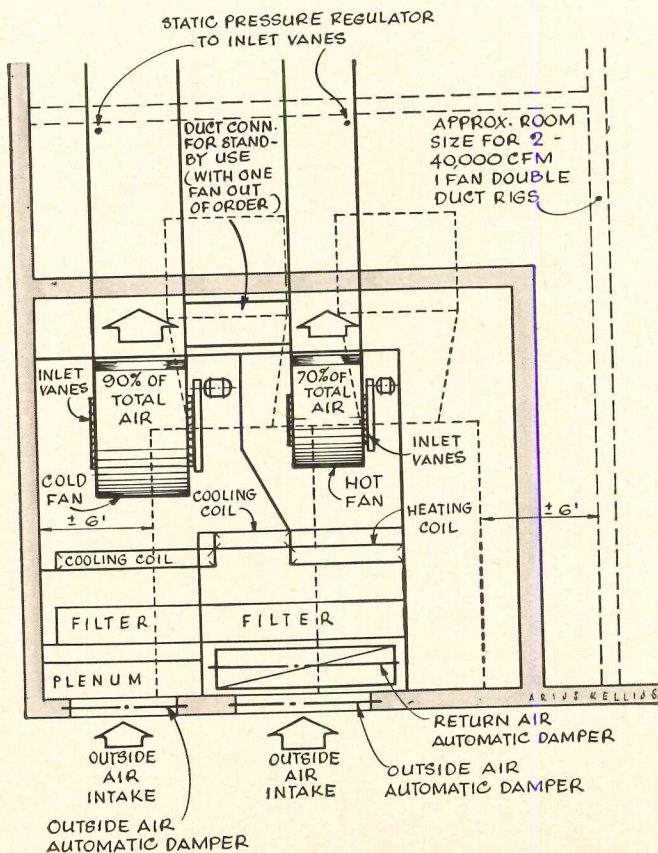
and operating cost. Although the installed fan capacity is 160 per cent of the building requirement (90 per cent in the cold fan and 70 per cent in the hot fan) the increased fan cost is more than offset in the reduction in cost of building one rig instead of the two single fan rigs which would be desirable in a building of this size. The use of a draw-through unit requires less floor space than a blow-through unit and results in much better air distribution over the face of the coils. A draw-through rig is possible only if there is a separate fan for each main duct (a single fan dual duct rig cannot be draw-through).

By installing automatic static pressure regulated inlet vane controls on each fan, the fan delivery will vary according to the demands for either hot or cold air. As the air quantity delivered by each fan is reduced, the actual horsepower required is reduced, thereby saving electrical energy.

The use of two fans in a single rig results in other features that are not usually possible. By interconnecting the fan inlet plenums, and providing a connection between the hot and cold fan discharges, a by-pass around either fan can be arranged if one fan requires extended servicing.



AIR HANDLING RIG LAYOUT AND AIR FLOW DIAGRAM

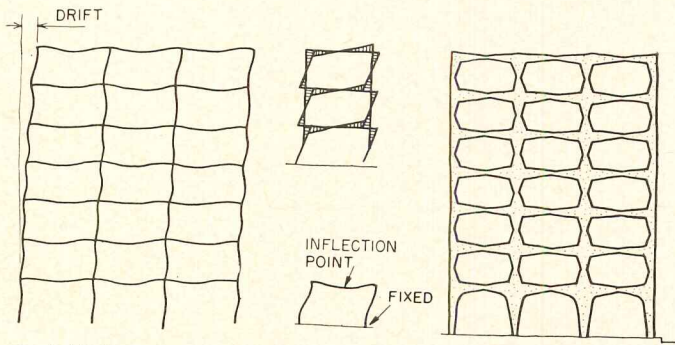


VERSATILE STRUCTURES FOR APARTMENT FRAMING

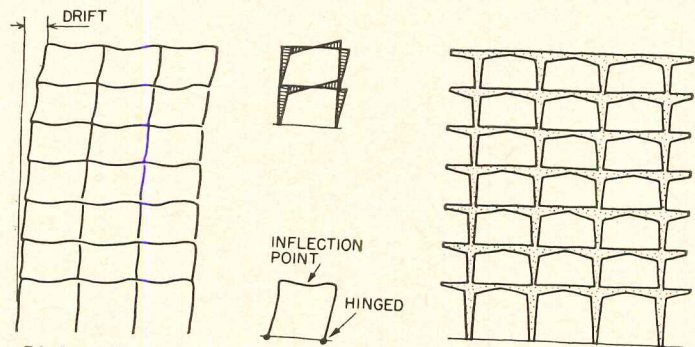
Second article in a series on concrete systems continues discussion of wind resistance

By R. M. Gensert, Consulting Engineer

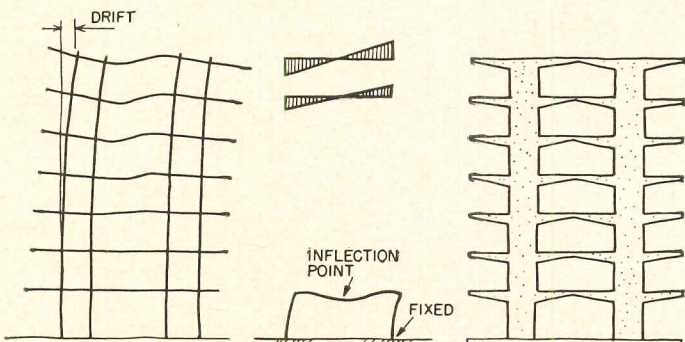
BEHAVIOR OF VARIOUS FRAME TYPES



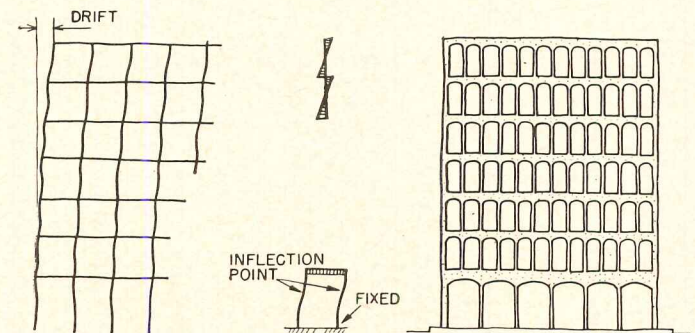
A rigid frame with all beam and column joints fixed will develop, as a general rule, inflection points at center span of all beams and mid-height of all columns. Thus, a series of star-shaped elements would express frame action of the building



If the columns are hinged at their bases, but fixed to the beams at their tops, we have a series of two-hinged rigid frames one on top of the other. The resulting effect would be similar to a series of T-shaped elements connected together

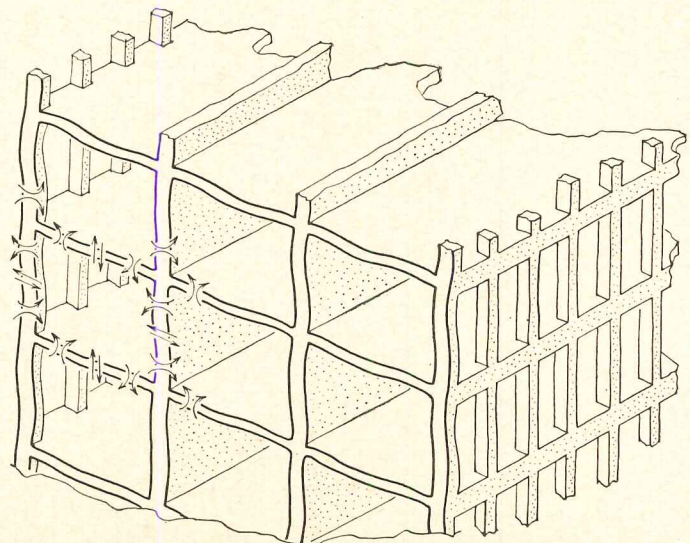


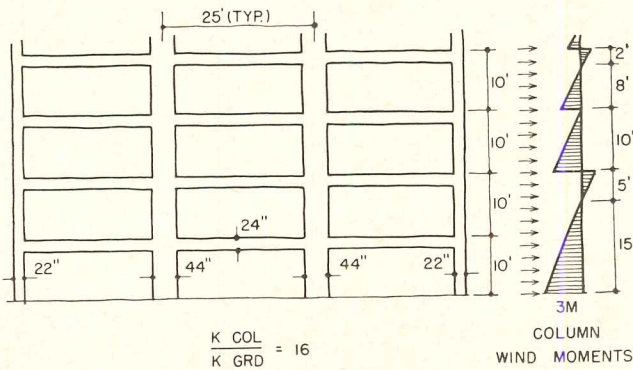
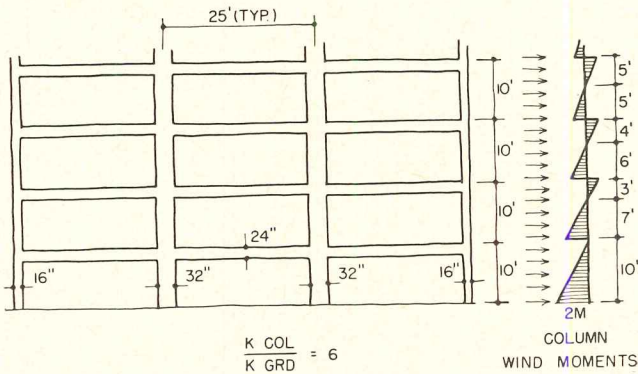
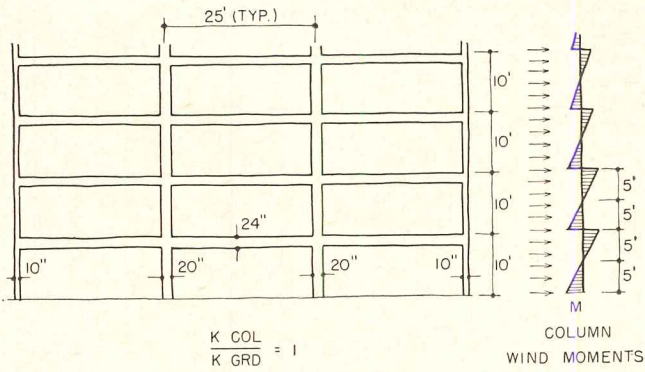
If the columns take all of the wind load as a series of cantilevered elements from base of building to top, their rotations will induce bending moments in the slabs. Slab bending denotes inflection points. The resulting building profile has interest



Deep beams with short spans could yield rigid frames having infinitely stiff beams when compared to the column stiffness. Accordingly, we must anticipate inflection points in the columns but not in the beams

Let's consider a building frame where exterior columns are exposed and the spacing is in the neighborhood of 4 to 6 ft. Further, if we make the spandrel beam integral with the columns, we will have a structure that is highly resistant to bending both in its plane and out of its plane. Resistance to in-plane bending will allow the exterior grid of beams and columns to accommodate lateral forces in the parallel direction of the grid. Out-of-plane bending resistance will allow the wall and floor slabs to resist vertical as well as lateral forces in the perpendicular direction of the grid





Effect of first floor frame stiffness

WIND MOMENTS IN COLUMNS

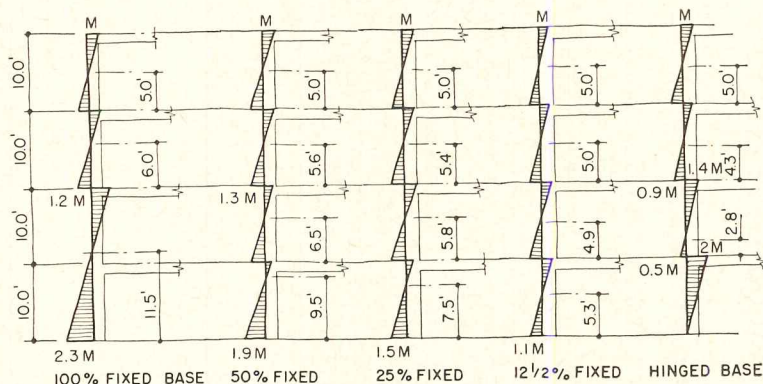
Concrete buildings resisting lateral forces by means of frame action are for the most part designed by some adaptation of the portal method. Thus the interaction between columns and beams or columns and flat slabs is primarily that of bending. The bending of a frame produces positive and negative moments with their accompanying points of contraflexure or inflection points. The magnitude of moments throughout the length of a beam or column will depend upon the relative stiffness of the adjacent members.

The basic portal method of analysis assumes that the stiffness of exterior columns is one half that of interior columns, since they carry approximately one half as much load. This method also assumes that the columns have approximately the same stiffness as the beams they support. These assumptions generally hold true for a typical building whose height is not more than eight times its width. However, the deviation may be large in the upper two stories and the lower three stories of a typical building within this limit. The reason behind this deviation stems from the large difference in beam and column sizes. In the upper stories, the columns are small since their axial loads are small, whereas beams are large since they must carry the same load.

A similar relationship occurs in the lower stories where column loads are heavy and beam loads are unchanged.

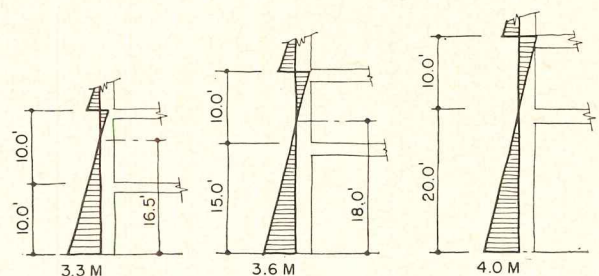
We can see from the accompanying moment diagrams that a ratio of column stiffness to beam stiffness of one in the lower story produces inflection points at the mid-heights of columns and the unity wind moment will be equal to M . A ratio of column to beam stiffness of six will place the inflection point at the top of the column and the wind moment is now twice as large. If the same ratio increases to 16, the inflection point is up in the next story; and the wind moment is now three times as large as that computed by the portal method. The modulus of the foundation will have a marked effect upon the rigid frame action of a structure as can be seen by the column moment diagrams (*below left*).

In a similar fashion, the height of the ground floor columns will also change the flexibility of the frame to give column-moments as shown in the diagram (*below right*)



$\frac{K_{COL}}{K_{GRD}} = 6.0$ IN ALL CASES

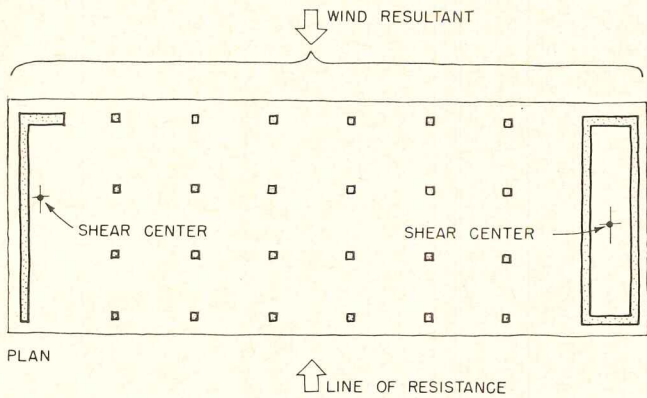
Effect of restraint of foundations



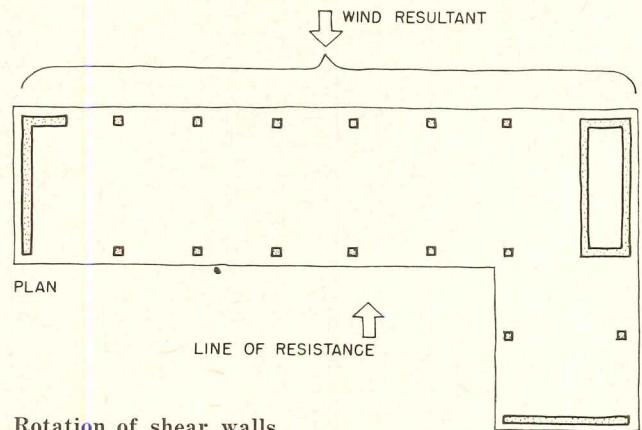
$\frac{K_{COL}}{K_{GRD}} = 16.0$

Effect of ground story height

BEHAVIOR OF SHEAR WALLS

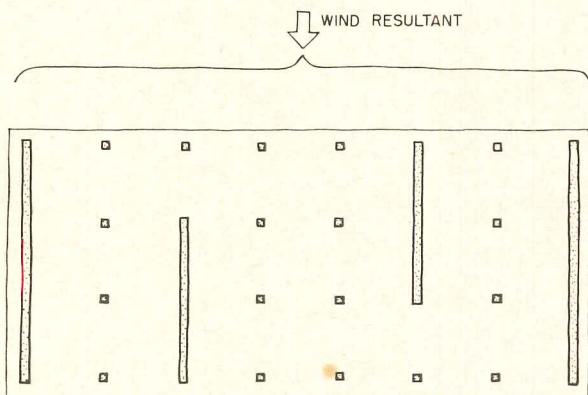


Translation of shear walls

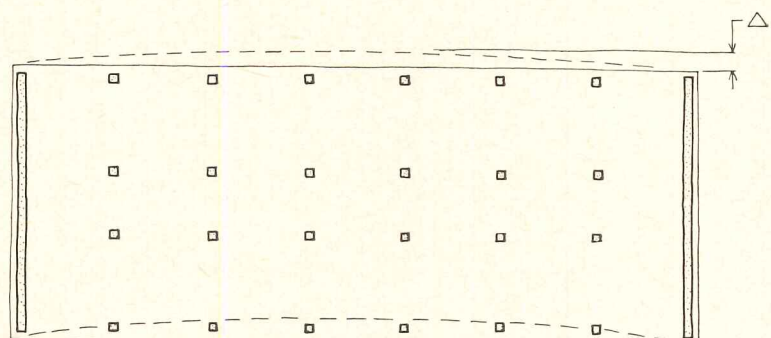


Rotation of shear walls

Translation of Shear Walls: If the floor slab acting as a horizontal girder or diaphragm reacts with the shear walls through their respective shear centers, they will not twist. In other words, the action is that of translation without rotation, and we have a uniform stress distribution in the walls. *Rotation of Shear Walls (above right):* The eccentricity acting and resisting forces produces torsional stress in the shear walls. The open section shear wall develops non-uniform torsional stresses, the resistance of which is that of two cantilevers—namely the two wall elements. The closed section shear wall develops uniform torsional stresses, and is more effective than the first wall

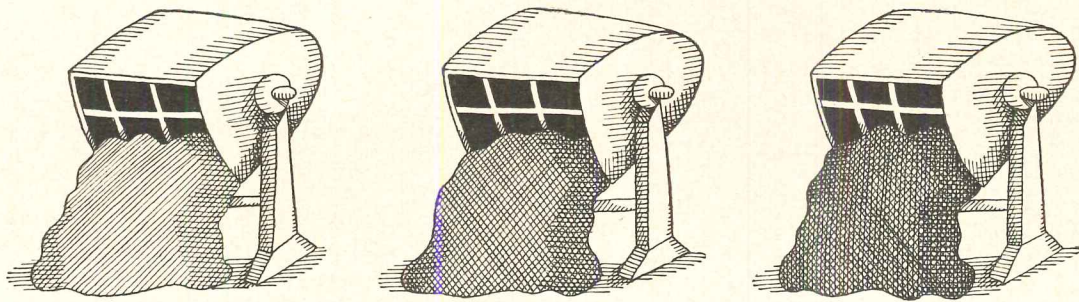


PLAN
Shear distortion of floor diaphragm

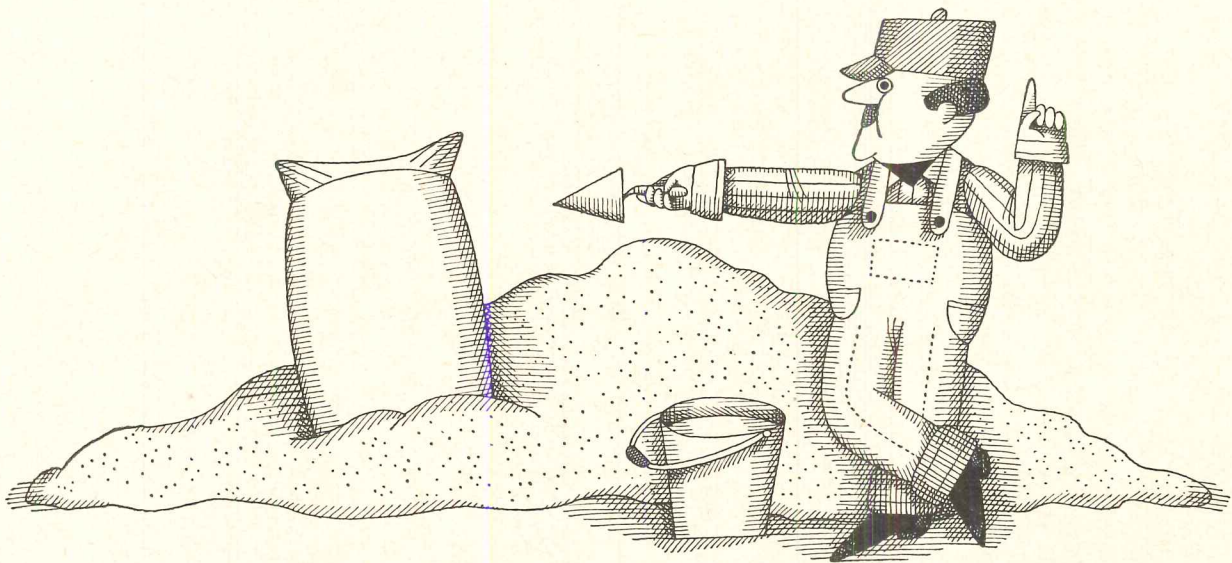


PLAN
Moment distortion of floor diaphragm

Shear Distortion of the floor diaphragm (above left) occurs when the floor is relatively deep, thick and without major openings. In this case, relative stiffness of walls and floors is unimportant, and reactions of diaphragm against walls develops shear stresses in the walls that are proportional to the reactions of a continuous beam on non-yielding supports. *Moment Distortion* of the diaphragm (above right) produces shear stresses in the walls that are proportional to the reactions of a continuous beam on an elastic foundation. Thus, the distribution of wind shears to the walls for moment distortion of the diaphragm will be different from the case of shear distortion of the floors. In this case, moment distortion of the diaphragm will induce displacement in the columns giving rise to secondary bending stresses in columns and floor slab



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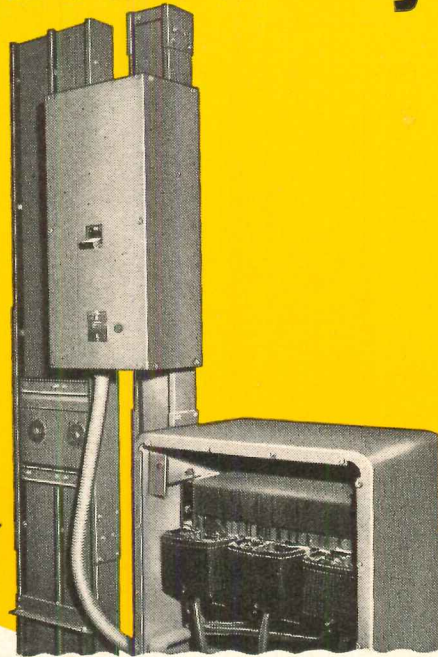
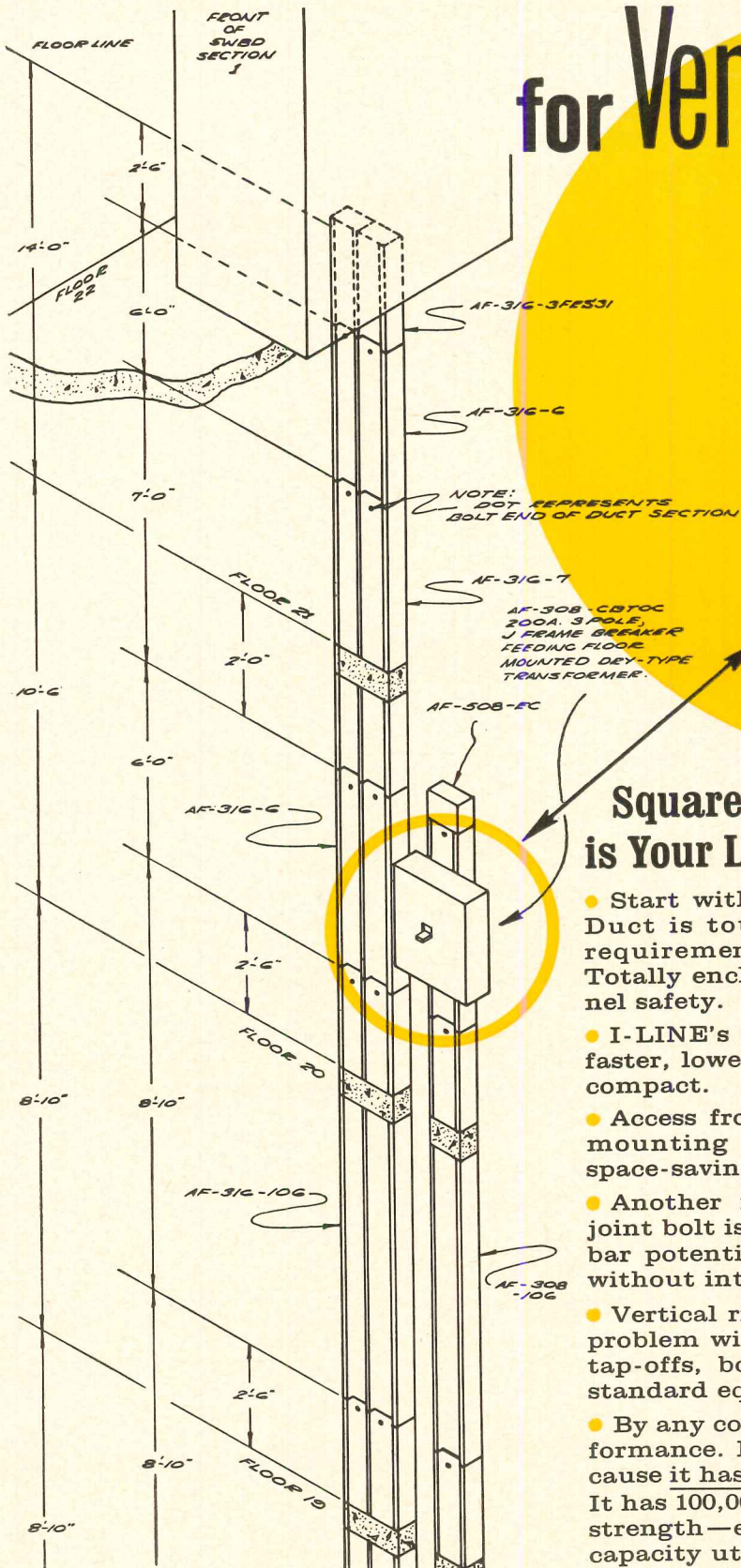
*LUSTRA-SPAN TRADEMARK MONSANTO COMPANY



In corrugated or flat sheets, both a snap to install. Sound ideal? Lustra-Span Vinyl panels are—for skylighting and vertical glazing. For more data and installation guide, write: MONSANTO, Building Products, Department 804XG, 800 North Lindbergh Blvd., St. Louis, Missouri 63166.

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A TROUBLE-FREE INDUSTRIAL CONCRETE FLOOR

By C. Benjamin Wigton Jr., President, Wigton-Abbott Corporation

On-grade industrial floor slabs can be designed and constructed so that they will be trouble-free in service. Recent testimony which bears out this fact is the success of on-grade floors in a manufacturing plant we designed for Carter Products, Inc. at Cranbury, New Jersey. From our experience on this and other jobs, it is obvious that floor slab problems need not be nearly so prevalent as they seem to be.

Just how extensive this trouble is was indicated by an ARCHITECTURAL RECORD survey (January, 1958) which showed that 61 per cent of the respondents were displeased with their on-grade concrete floors. Two years later a similar survey—this time taken by the American Institute of Plant Engineers—showed that floors were the third most troublesome item in plants constructed within the last decade. From personal observation and conversations throughout the country, the pattern of dissatisfaction seems to have remained unchanged.

In the Carter plant, however, there is full owner satisfaction for these reasons:

1. There are no cracks of consequence in the entire 220,000 sq ft of exposed concrete surfaces.
2. The concrete surfaces of red, green and natural colored deferred topping, and natural colored, stone hardened monolithic concrete are properly serving predetermined specific purposes in given areas.
3. The floors are not dusting, nor do they show signs that this is likely to happen.
4. The entire concrete floor system, including 44,500 sq ft which was finished to receive tile or terrazzo, cost only 89 cents per sq ft.

The reason for success seems to be that meticulous care was taken in the analysis, design, specification and construction phases. These are the details which seem to have made for success at Carter Products:

1. *Soil Bearing.* Generally the soil bearing was excellent. There was,

however, one area of about 50,000 sq ft in which the soil was wet down to about 2 ft. This was removed and replaced with bank run gravel and compacted in thin layers. The rest of the subgrade was compacted to 95 per cent optimum compaction and was fine graded to within $\frac{1}{4}$ in. of the established elevation.

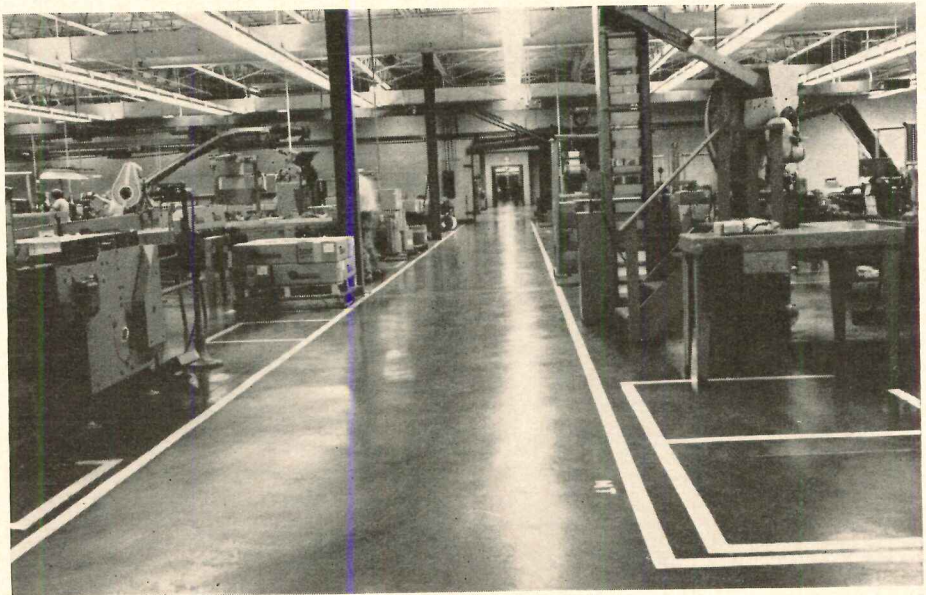
2. *Base Slab Strength.* There were two mix designs for the base slab concrete, one for the areas to receive the deferred topping, another for the areas to receive the stone hardened monolithic finish. Both designs called for a high stone content and a minimum amount of water so shrinkage would be minimized.

The mix design for the slab to receive the topping was as follows: 498 lb cement, 1,425 lb sand, 1,925 stone and 40 gal water per yard. This produced a 2,500 psi concrete.

To this base slab was applied a $\frac{3}{4}$ in. concrete topping wearing course. Because the topping was applied before the base slab had taken the shrinkage that results from moisture

loss, it was essential to keep the shrinkage differential between topping and slab to a minimum. Thus, the relatively harsh mix of the base slab provided a lower shrinkage factor—approaching that of the topping with its low water cement ratio. The shrinkage differential was inconsequential as proven by the crack free finish. The important feature of the topping was that immediately after screeding, water no longer needed for workability was removed from the mix. This reduced the slump of the topping mix from about 4 in. to zero in about 10 minutes.

The moderate duty areas received the following mix: 564 lb cement, 1,370 lb sand, 1,925 lb stone and 46 gal of water. This produced a 3,000 psi concrete. Then trap rock graded from $\frac{1}{8}$ in. to $\frac{3}{8}$ in. and coated with cement was spread over the wet surface at the minimum rate of $1\frac{1}{2}$ lb per sq ft and worked into the surface by a long handled wood float, mechanical floating and troweling, and hand troweling.



Packaging area of Carter Products pharmaceutical plant has 50,000 sq ft of green-colored deferred topping. Floors are crack- and dust-free and easy to keep clean

3. *Method of Pour and Joints.* The concrete pours were made as large as possible. They averaged about 7,000-8,000 sq ft daily. This was true of the base slab, topping, and base slab receiving the stone hardened monolithic finish. The pattern of the pouring was in strips, each strip the width of a bay. Pour length was determined by the area available or by the limitations of ready mix delivery. Each day's pouring was ended on column centers. Contraction joints in each strip thus poured were formed by saw cutting to a depth of 2 in. on column centers. These joints were filled with lead where appearance and cleanliness were important, and with epoxy where cleanliness was a factor. In the pallet storage area, the joints were not filled at construction joints (that is, along the perimeter of a day's pour).

Provision for the transfer of shear loading was made by the use of $\frac{3}{4}$ in. smooth dowels, 12 in. long on 12 in. centers. Construction joints also were saw-cut for the sake of appearance and filled as above.

In addition, where the deferred topping abutted stone hardened monolithic floor, the joint on the monolithic side was protected by steel angles 3 by 3 by $\frac{1}{4}$ in. anchored into the slab.

Column boxes were placed so that the point of each corner faced into sawed-in joints or the construction joints—a diamond pattern. Joints around columns are outside the column pedestal. This permits differential movement between the floor and column without causing undue stress. Joints at columns and walls were filled with a premolded asphaltic material.

We decided to use doweled construction joints instead of keys because dowels perform the twin function of weight transfer and slab restraint better than keys. Keys, because they are beveled, have a tendency to let the edge of the slab lift slightly when the slab dries and shrinks. Then, when a moving load passes over the joint, the edges depress under the load and spring back to their original position when the load passes to the other side of the joint. This movement causes joint deterioration. Dowels, because they are not beveled, and because they have greater shear strength, are more effective in holding adjacent slabs in the same plans and preventing joint deterioration.

"Strip pouring" was specified

rather than "checkerboard or alternate bay pouring" for two reasons. First, strip pouring is more economical. It permits a steady, uninterrupted progression of work. Checkerboard pouring, however, involves constant movement of men and materials from alternate bay to alternate bay. Also, for reasons explained below, the finishers must spend more time on joint areas than on open areas, thereby increasing the cost of the highest paid trade. The more economical use of labor may result in saving of about two cents a sq ft. Second, strip pouring reduces by half the number of construction joints per bay. This type of joint is the weakest part of any concrete floor; this reduction, therefore, is significant. The virtue of checkerboard pouring is that it divides the area into small panels and thereby lessens the possibility of shrinkage cracks. However, it also introduces the maximum amount of construction joints. A weakened plane, saw cut to one-third the slab thickness, is equally effective in controlling shrinkage cracks, and more effective in transferring loads across the cut than a construction joint. Additionally, because the cut is made after the floor surface or plane has been established, no height differential exists to be struck by truck wheels.

4. *Selection of Surface.* The selection of the surfaces themselves was perhaps the most interesting aspect of this project. Certainly, it is the aspect which has captured the interest of most of the people who have seen the installation.

In round figures, 50,000 sq ft received green concrete topping. This area is the packaging room. The green surface was selected to get away from the uninspiring look of uncolored concrete and because the concrete thus colored is easier to keep clean. This area has a large number of workers tending packaging machinery. Materials handling traffic from 4,000 lb capacity electric trucks is steady. An interesting "bonus" resulted from this selection because the color has had the psychological effect of "softening" the concrete floor in the minds of those workers who must stand during the working day.

About 8,500 sq ft of the concrete topping is in the boiler room and an area in which pills are coated. Selection of red-colored topping was made

to help promote high standards of cleanliness here as well as in production areas.

Other areas and the reasons for surface selection follow:

Receiving and shipping areas. Natural colored deferred topping because these were considered to be areas where heavy materials handling vehicles would be used.

Packaging supplies, finished goods and shipping area. Stone-hardened monolithic finish because the loads were expected to be less concentrated in these areas.

Maintenance. Natural colored deferred topping because the use here is fairly severe, involving oil and grease spillage.

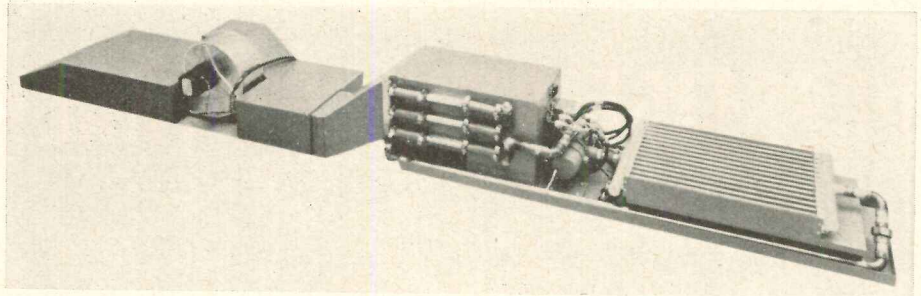
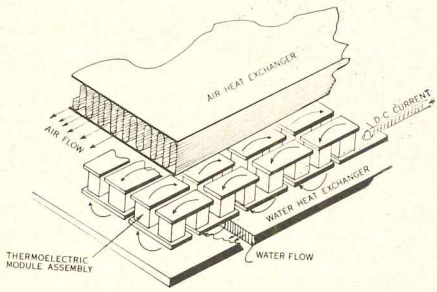
Chemical raw materials storage, creams and lotions manufacture, coating and tablet room. Natural colored deferred topping because the use in these areas can be severe and yet cleanliness requirements are high. *Women's locker room, men's locker room.* Green colored deferred topping; again, color because of its appearance.

All of the detailing and planning that went into this floor system could have gone out the window unless they were competently carried out on the job site. For this reason, a floor contracting specialist, the Kalman Floor Company, was brought into the project at an early date.

While it is possible to detail by specification or drawing many items, it is impossible to specify every detail. For example, the specification covering dowels can quite easily be policed on the job since there can be no dispute about the length and diameter of a steel bar. A more difficult item to specify in detail is hand troweling. To specify that a given number of trowelings necessary is unrealistic, since weather conditions may vary this requirement from day to day. It is only possible to specify a minimum acceptable number.

The problems encountered in the analysis, design, specification, and construction of the floor system at Carter Products are probably typical of many contemporary industrial floor requirements. But, it should be noted that the details pointed out here are not presented as cure-alls. Every floor should be considered as a separate project. Both engineering and operational aspects should be considered.

THERMOELECTRIC AIR CONDITIONERS USED COMMERCIALY



The first thermoelectric air conditioners to be produced and sold commercially have been developed by Carrier Corporation for the Johnson's Wax building in Wisconsin. Two systems have already been installed and a further 26 will be put in shortly.

The Carrier system, which eliminates the compressor and refrigerant coils characteristic of conventional air-conditioning units, operates by passing an electric current through a junction of two dissimilar materials, causing heating or cooling of the junction.

In the illustration (left) the curved arrows indicate how the current entering at right passes through the

multiple pairs of semi-conductor thermoelectric elements which are connected by copper strips to form an electrical circuit. Air to be conditioned passes through the heat exchanger at the top. The heat removed from the air by the thermoelectric assembly is rejected to water circulating through the heat exchanger on the bottom. This procedure can be reversed by simply changing the direction of the flow of current. The air is then raised in temperature by heat absorbed from the water circuit. Control is automatic and instantaneous, with the amount of cooling or heating determined by regulating the flow of electricity.

The photo (right), shows one of the

systems produced for the Johnson's building.

While recognizing that thermoelectric equipment is not competitive with standard units in normal situations, the company has found that it compares very favorably with conventional systems under the particular conditions for which it was designed. One of the main advantages is that the units can be slipped into place by removal of a small section of the ceiling, thus avoiding major structural and installation work. Moreover, the relatively few moving parts ensure low noise level and low maintenance costs. Carrier Corp., Carrier Parkway, Syracuse 1, N.Y.

CIRCLE 300 ON INQUIRY CARD

LINKING, STACKING CHAIR CONTOURED FOR COMFORT

David Rowland's objective in designing the GF 40/4 chair for The General Fireproofing Company was to provide practical, comfortable mass

seating in a stacking chair. (The GF 40/4 is designed primarily for use in auditoriums, lecture rooms and other mass seating centers, but it is also very suitable for home use.)

A clean appearance, strength and lightness of weight, and stacking and interlocking features, were the principal design criteria. This was achieved with a slender but durable frame of four steel rods. The metal seat and back panels are subtly contoured for strength and comfort—almost imperceptible bulges on each side of the lower curve of the back panel give support to the small of the user's back. Both seat and back panels are coated with a sprayed-on vinyl finish which has the appearance and texture of leather.

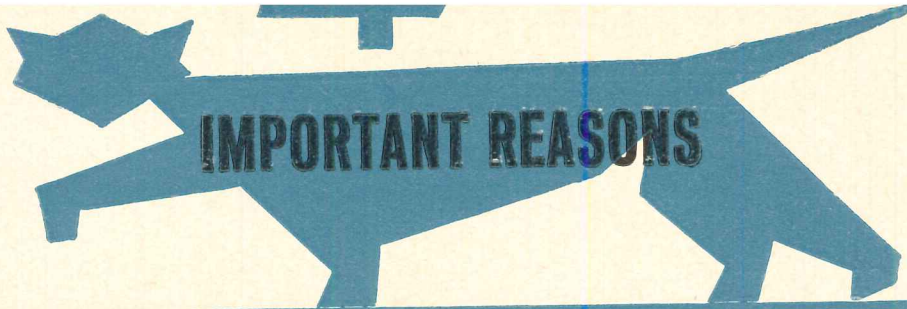


Forty of these chairs stack just 4 ft high. The chairs can be locked together in rows by means of a simple snapping device. Rows of up to six chairs can be stacked.

The chair is available in two finishes, chrome plated or with vinyl-organsol-coated legs. Seats are available in four colors. All finishes are weather resistant so the chair may be used both indoors and out. The GF 40/4 chairs are being used in the library and several other rooms of the remodeled Museum of Modern Art in New York City. The General Fireproofing Company, Dennick Ave., Youngstown, Ohio, 44501

CIRCLE 301 ON INQUIRY CARD

more products on page 214



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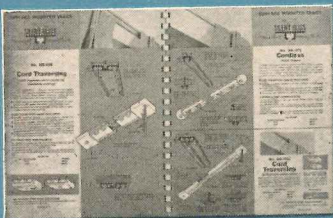
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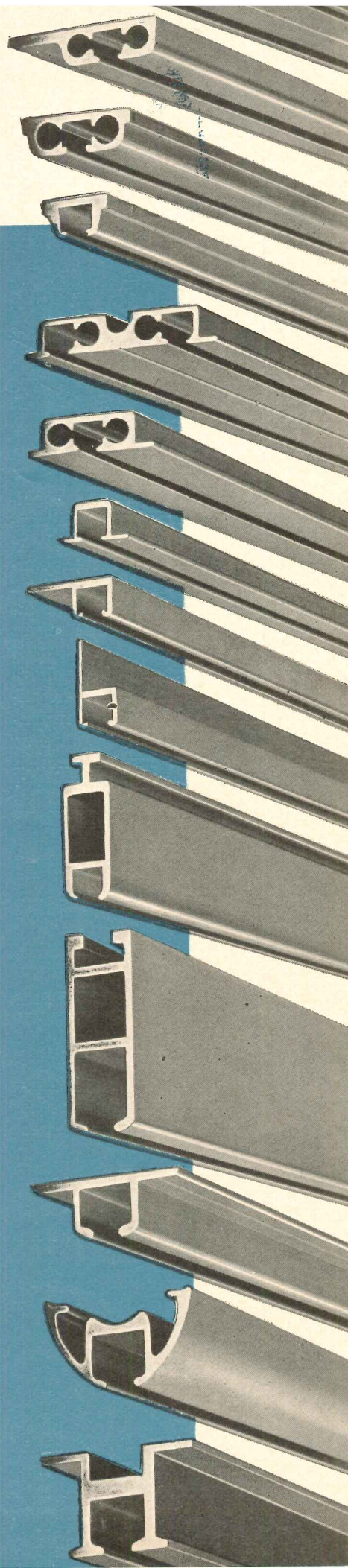
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For more data, circle 94 on Inquiry Card

For more information circle selected item numbers on Reader Service Inquiry Card, pages 257-258

CARPETS MADE TO ORDER

Some 40 designs for rugs and carpets are displayed in this brochure. All designs are available in any size and in a wide variety of color combinations and textures. Photographs of some of the carpets in typical room settings are included. *Bigelow Custom Carpets, Inc., 140 Madison Ave., New York, N.Y.*

CIRCLE 400 ON INQUIRY CARD

LIGHTING FIXTURES FROM FINLAND

The lighting fixtures described in this 24-page catalog are composed of cylindrical aluminum housings of various lengths, finished in black, white, copper and brass. These fittings were manufactured in Helsinki for use with the *Airam* bulb, or with a variety of hand blown glass shades which are also illustrated. *Tradco/Detroit, Inc., 1616 Ford Building, Detroit, Mich.*

CIRCLE 401 ON INQUIRY CARD

STEEL STORAGE EQUIPMENT

Industrial and commercial storage equipment including steel shelving, storage bins, cabinets, shop equipment, clothing lockers and book shelving are described and illustrated in a 48-page catalog. Specifications for each kind of equipment are listed in tables, and typical applications shown to help the reader select the most appropriate product for his purposes. *Penco Products Inc., 200 Brower Ave., Oaks, Pa.**

CIRCLE 402 ON INQUIRY CARD

INSULATED METAL WALLS

The use of *Nu-Line Q-Panel* insulated metal walls to give architects greater design freedom is the subject of a 16-page technical catalog. Profile, isometric and exploded drawings are provided to show how the concealed joint, long span panels are assembled without need for caulking. Load and span tables give complete information on deep face, extended lip and liner profiles. Cross-section drawings cover architectural, assembly and component details. *H. H. Robertson Company, Farmers Bank Building, Pittsburgh 22, Pa.**

CIRCLE 403 ON INQUIRY CARD

POSTS AND HANDRAILS

Comprehensive information on the company's extensive range of handrails, posts, panels and room dividers, is given in a 157-page catalog. The new *Railwood* line of handrails and sculptured wood posts is introduced in the first 11 pages of the catalog. A list of fabricators who have built Blumcraft railings is included at the back of the book. *Blumcraft of Pittsburgh, 460 Melwood St., Pittsburgh 13, Pa.**

CIRCLE 404 ON INQUIRY CARD

NEW FAN FOR PUBLIC AND INDUSTRIAL BUILDINGS

American-Standard's new *126 Square-Fan* for public building and industrial supply and exhaust, ventilation, processing and air-conditioning applications, is described in a 28-page illustrated bulletin. Applications for the fan are listed, and features and operating characteristics are discussed and illustrated. One page of the bulletin is devoted to fan selection procedures, including an example problem carried through by stages to an appropriate solution. Outline drawings, rating and dimensional tables are also provided. *American Standard, Industrial Division, Detroit 32, Mich.*

CIRCLE 405 ON INQUIRY CARD

STAINLESS STEEL IN STAIRWAY DESIGN

"Stainless Steel Architectural Data Sheet No. 7" illustrates and gives design and structural details of five interesting stairways, each of which exemplifies the use of a different stainless steel mill form. Staircases illustrated include the free-standing, constant-rise helicoidal staircase in the Canadian Imperial Bank of Commerce, Montreal; extruded stainless steel hand rails in the Bowery Savings Bank, New York and a handrail formed from stainless steel sheet in the Smithsonian Institution's Museum of History and Technology, Washington, D.C. *Committee of Stainless Steel Producers, American Iron and Steel Institute, 633 Third Ave., New York, N.Y.*

CIRCLE 406 ON INQUIRY CARD

UNDERWATER CURING EPOXIES

Technical data sheets are now available on two new underwater curing epoxies, *Concresive 1063* and *1078*, which can be used to coat, seal or bond a variety of materials underwater or in continuously wet conditions. The information given includes engineering details and descriptions of the product, typical applications, physical properties of the cured material, surface preparation, mixing, different application methods and clean-up techniques. *Adhesive Engineering Company, 1411 Industrial Rd., San Carlos, Calif.*

CIRCLE 407 ON INQUIRY CARD

GLAZING SPECIFICATIONS FOR VISION GLASS

A 12-page illustrated brochure provides a good basis for selecting the appropriate glazing sealants for a wide variety of jobs. The principal causes of glazing failures and the factors governing selection and placement of sealants are outlined. Minimum standards and basic recommendations for aluminum, steel and wood are also given. *The Tremco Manufacturing Company, 10701 Shaker Blvd., Cleveland, Ohio.**

CIRCLE 408 ON INQUIRY CARD

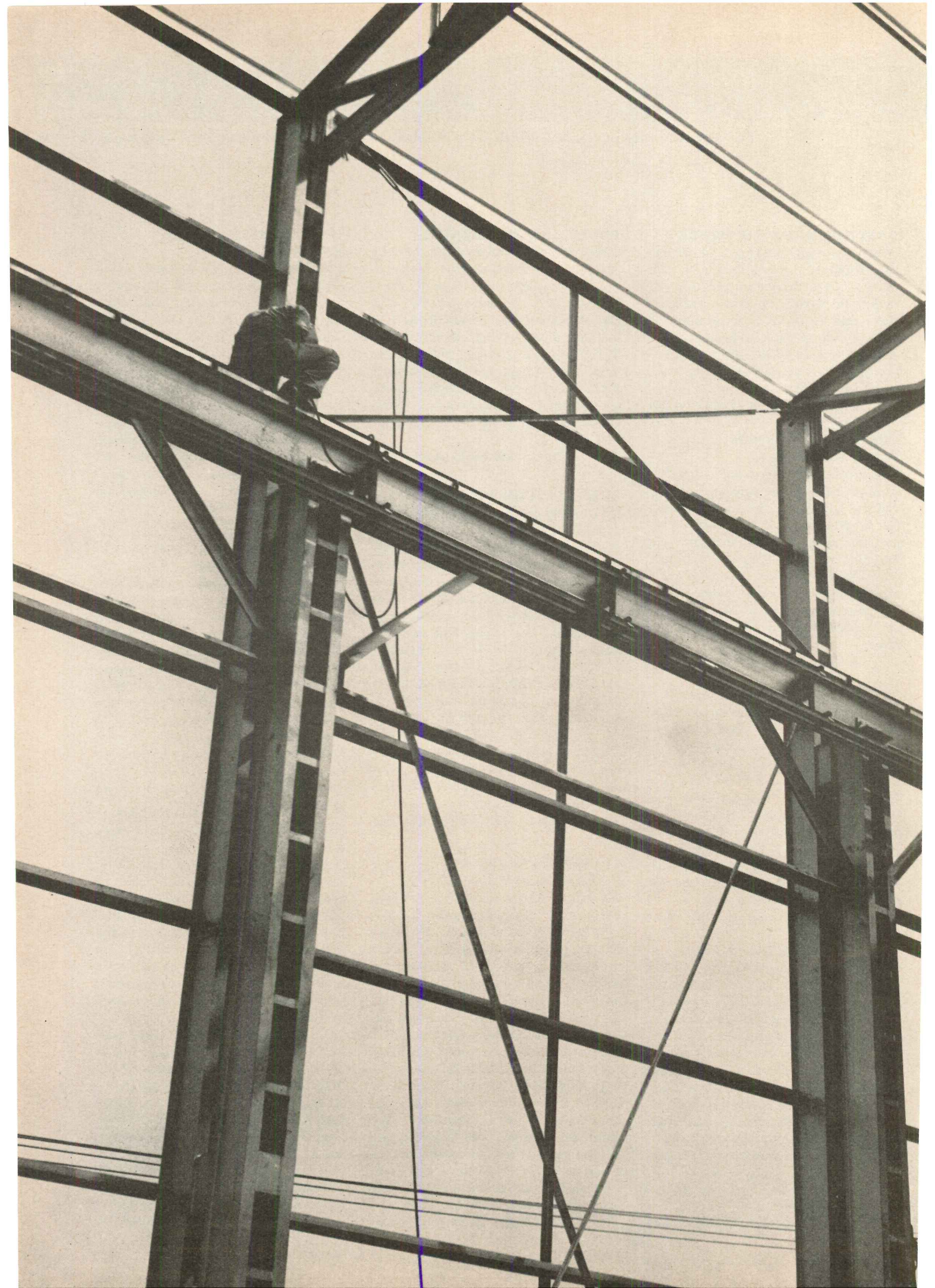
BASIC PARKING LOT PLANS

Parking lot plans and the latest types of wheel-stopping parking barriers are shown in a 32-page data book. Twenty basic plans that may be adapted to fit parking areas of virtually any shape or size are illustrated as well as six styles of barriers for parking passenger cars, trucks and buses. The barriers can be anchored in different types of surface to form a straight or curved line of any desired length, and are said to encourage orderly parking, while at the same time protecting adjacent buildings, fences or foliage. The dimensions of 33 different types of car are given including the angle for approach, departure and bottoming. *Harris Barrier Inc., P.O. Box 88243, Indianapolis, Ind.**

CIRCLE 409 ON INQUIRY CARD

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

more literature on page 202





STEEL'S SYMBOL
OF STRENGTH, LONG
LIFE AND ECONOMY

Builder saves 26 tons—\$8,000 using J&L lightweight structurals

Extensive use of J&L Junior Beams cut costs substantially in a building constructed for Kanawha Manufacturing Company, according to J. C. Morton, Assistant Chief Engineer for Holston Steel Structures, Inc.

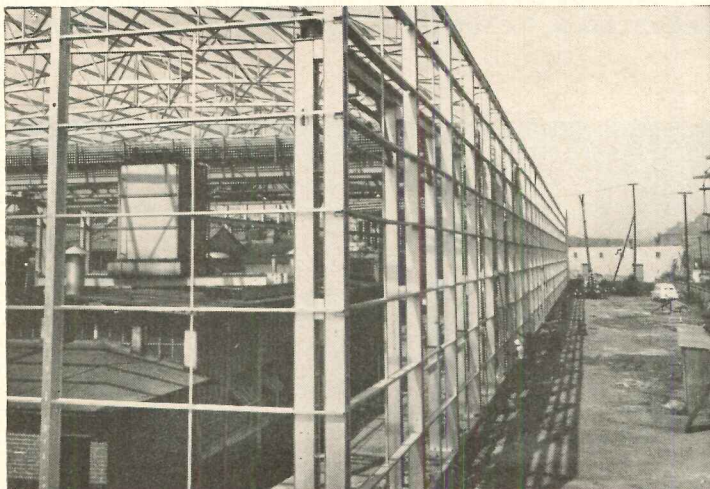
He said: "Each of the composite crane and building columns were fabricated from four 12" Jr. Beams weighing 11.8# per foot. Completed, the composite column weighs 2,100 lbs. compared to the formerly required standard steel column weighing over 3,000 lbs. For purlins and girts we used Junior Beams."

Bill Setzer, Holston Executive Vice President, added, "We spe-

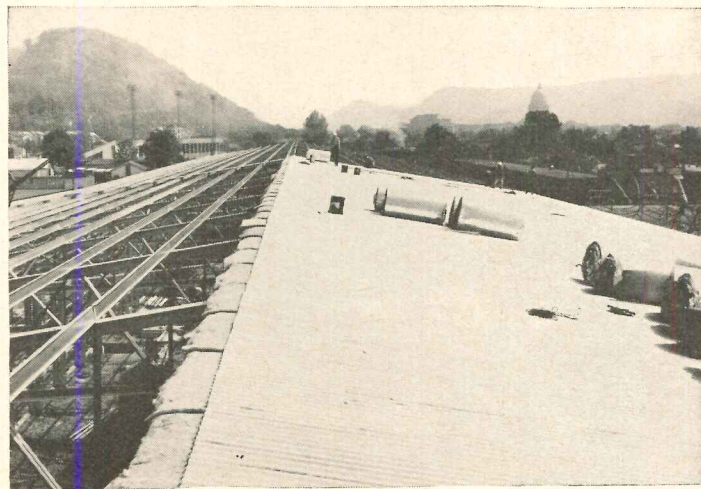
cialize in custom-made structural steel buildings. This is a highly competitive field. Therefore, we constantly look for new and more economical design, fabrication and erection methods. J&L lightweight structurals give us a wide building scope—that's why we use them whenever possible."

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For information on J&L lightweight sections, call your nearby J&L sales office, or write: Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh, Pennsylvania 15230.



J&L lightweight structural steel used in the composite crane and building columns reduced the steel weight by 26 tons.



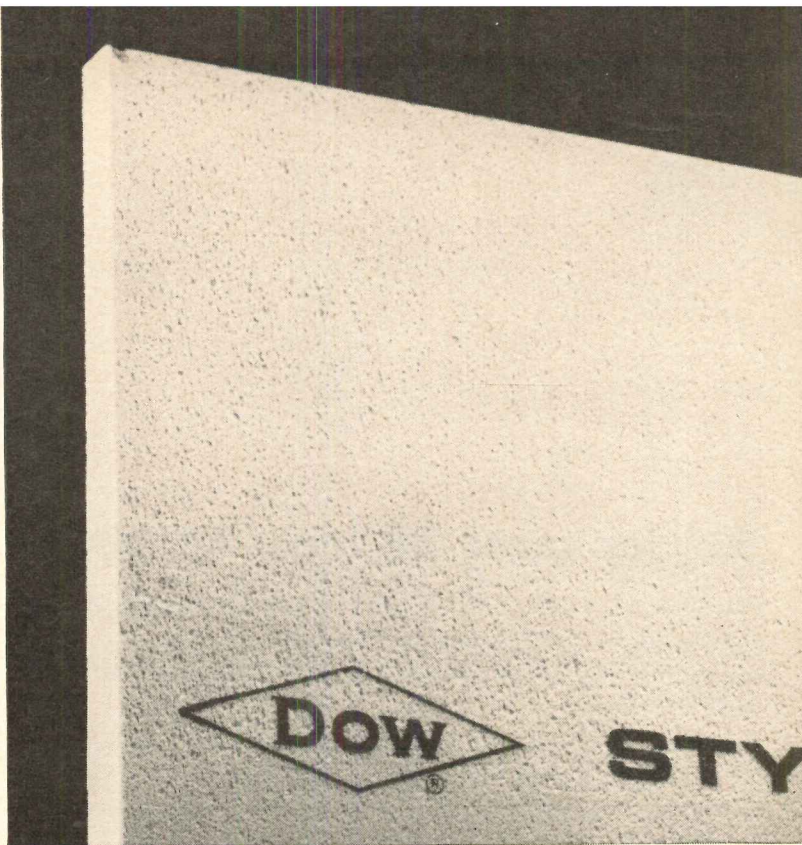
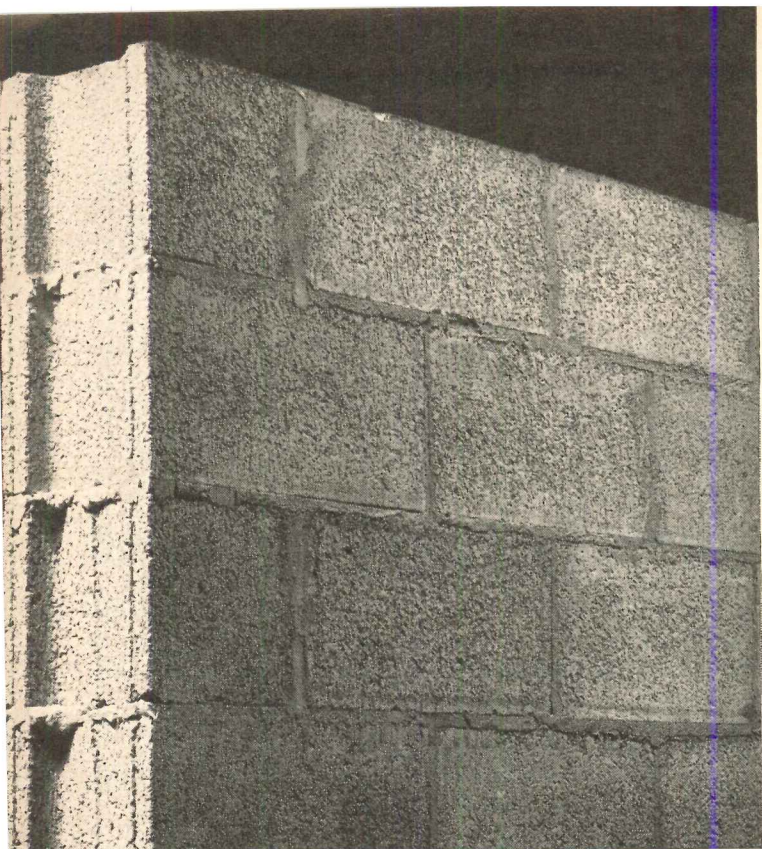
Junior Beam roof purlins were covered with aluminized steel sheets.

Jones & Laughlin Steel Corporation



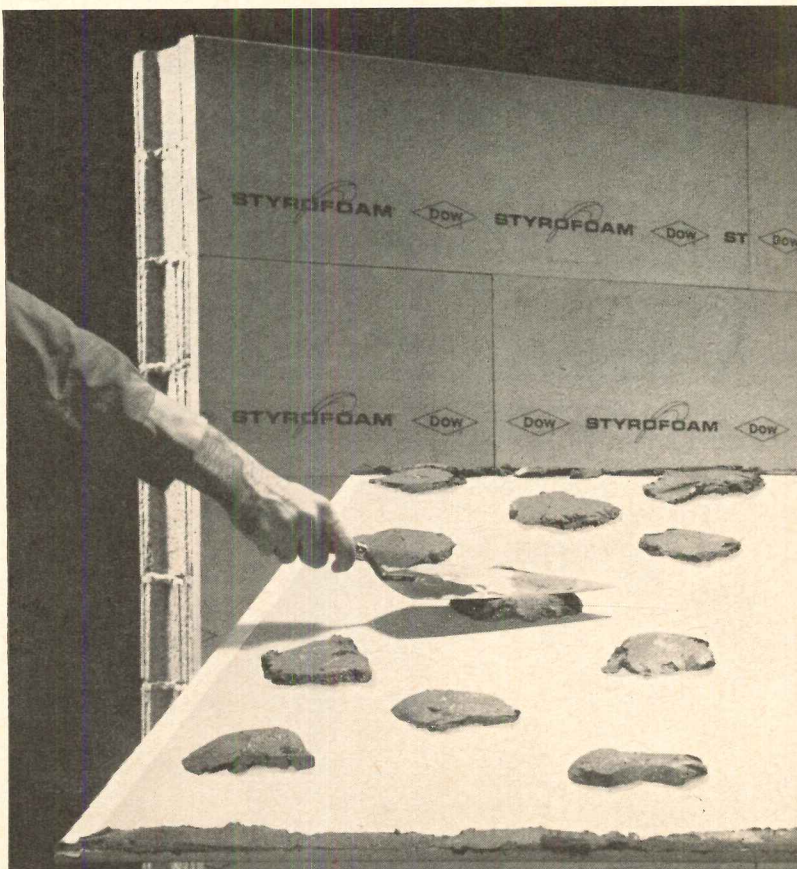
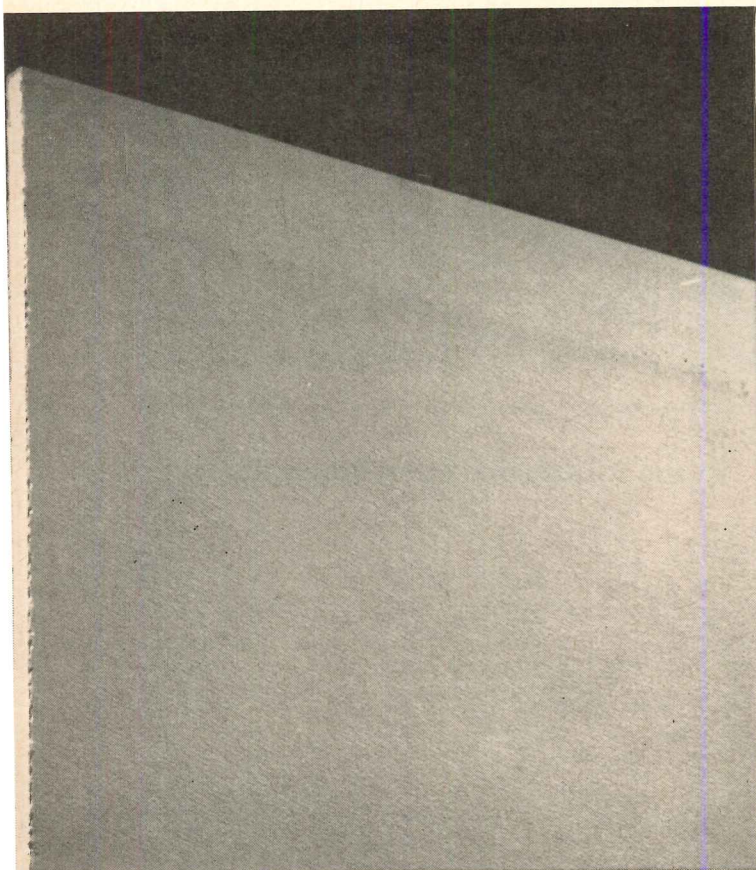
Two 12" Junior Beams extend 38' high to support the roof of the Kanawha Mfg. Co. industrial building, Charleston, W. Va. The inside two 12" Junior Beams extend 28' high to support the crane runway. Both J&L sections are joined together forming a composite column weighing 2,100 lbs. A single standard steel column would have weighed over 3,000 lbs.

For more data, circle 95 on Inquiry Card



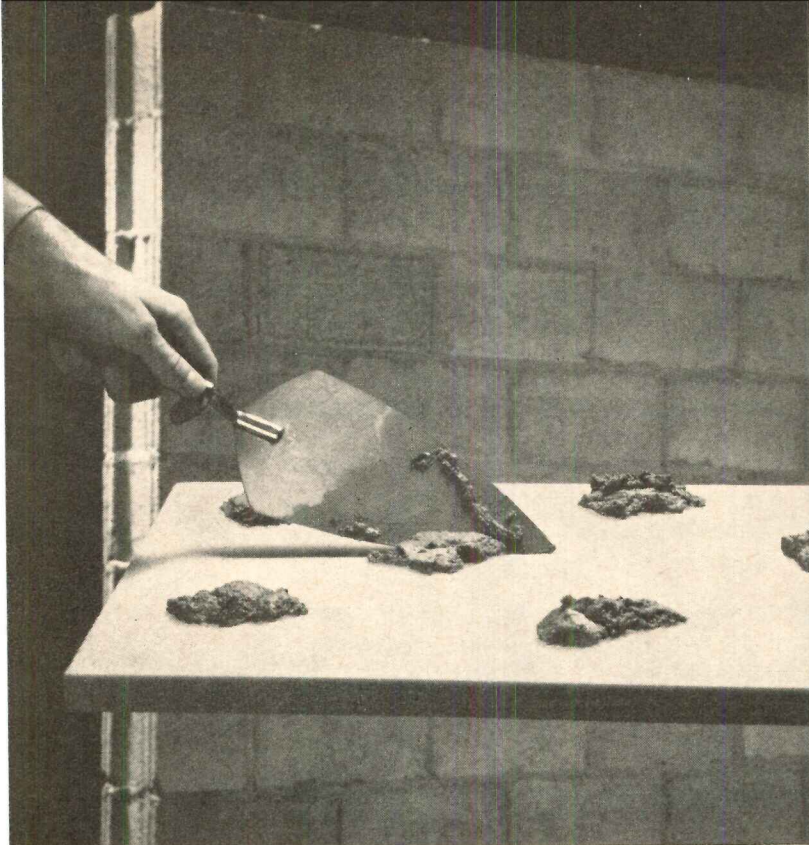
1. To insulate masonry walls economically:

2. Remember Styrofoam® FR insulation board and specify it. It prevents moisture absorption and migration; keeps its low "k" factor (0.26) permanently.

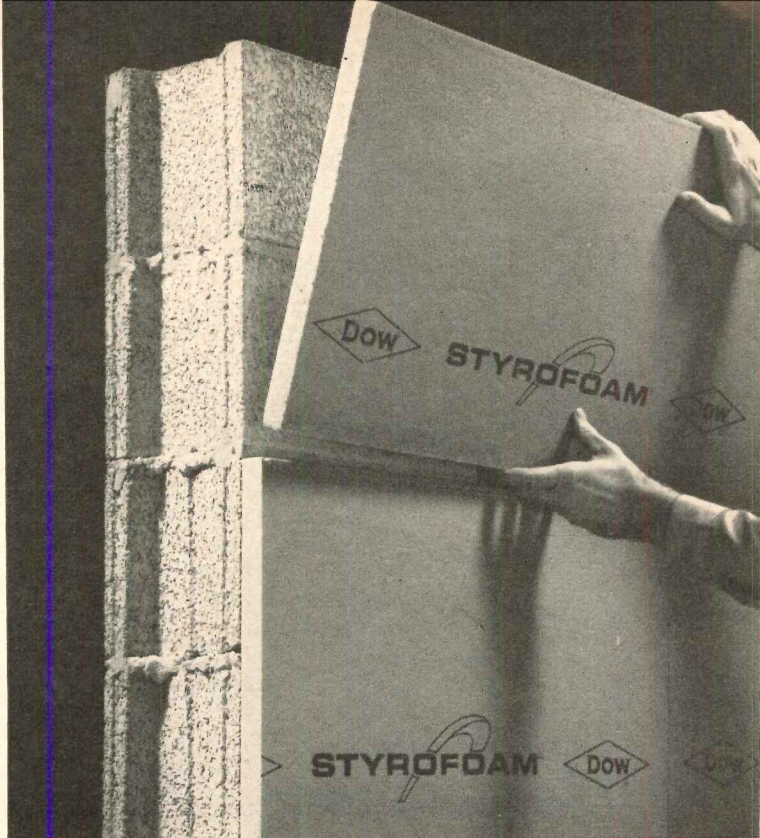


5. Take wallboard. (No vapor barrier, no furring. You get a solid, insulated wall at almost the same cost as a furred, uninsulated wall.)

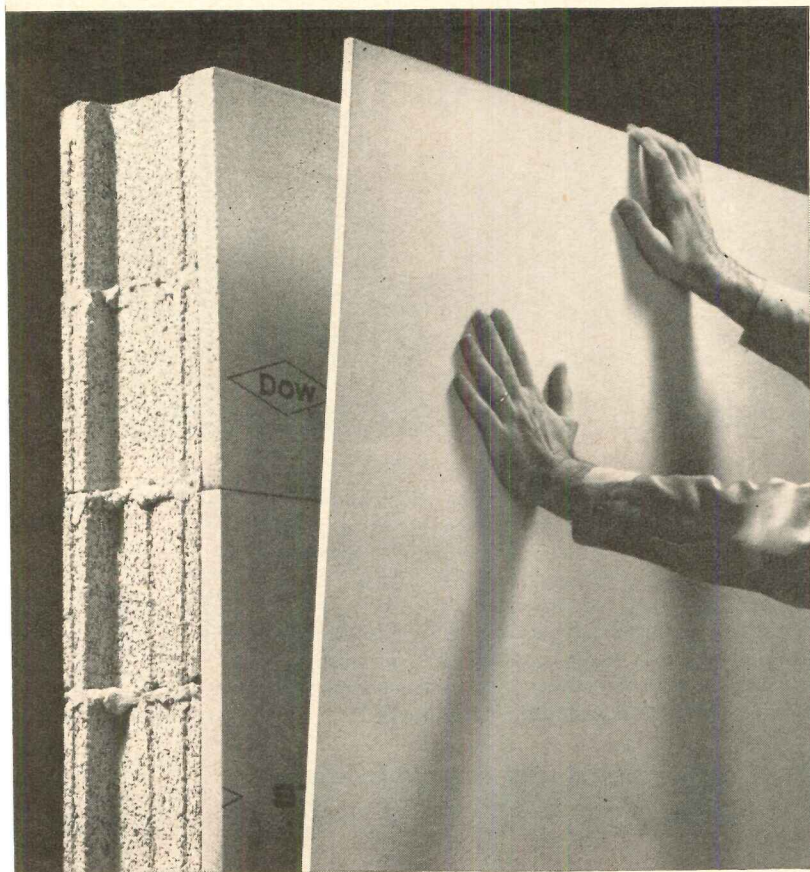
6. Styrotac goes on. Take your last look at Styrofoam FR.



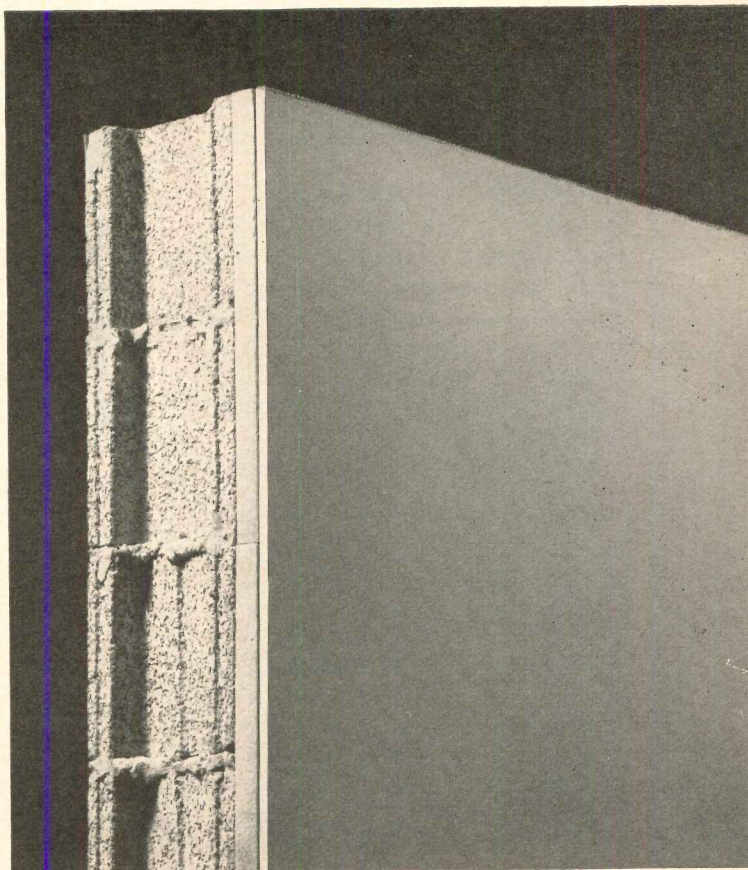
3. Spot-apply Styrotac® bonding adhesive.



4. Press Styrofoam FR into place. It installs fast, stays dry for year-round comfort.



7. Wallboard goes up. Finished wall (8-in. concrete block, 1-in. Styrofoam FR) has "U" factor of 0.16.



8. OK. Now forget it. Styrofoam FR won't absorb water, won't let moisture pass, won't need attention—ever! Any questions? See Sweet's Arch. File 10a/Do. The Dow Chemical Company, Midland, Mich.

For more data, circle 96 on Inquiry Card



Office Literature

continued from page 197

ALUMINUM SEALING DATA

"Polysulfide and Aluminum" is a portfolio of case histories which describe the use of polysulfide-base compounds in the sealing of aluminum structural parts. Articles are included to illustrate the use of the compounds to seal geodesic domes, insulate cold meat-packing rooms and seal corrugated roofing. A 16-page booklet describing aluminum as a structural material is also part of the portfolio. Thiokol Chemical Corp., 780 N. Clinton Ave., Trenton, N.J.*

CIRCLE 410 ON INQUIRY CARD

TEXTURED AGGREGATE PANELS

A combination of modern thermosetting resins, fiber glass and rock has been used to produce a new range of decorative panels, which can be used for interior and exterior walls, floors, screens and swimming pool surrounds. An eight-page booklet illustrates typical applications of Versa-Tex panels and includes color photos of some of the wide range of patterns and finishes available. Versa-Tex, Products Corp., 4625 Roanoke Parkway, Kansas City, Mo.

CIRCLE 411 ON INQUIRY CARD

FLUORESCENT LIGHTING

The complete range of the company's fluorescent lighting fixtures for commercial and industrial buildings is described in a series of data sheets which give complete specification and photometric data on all models. Sechrist Manufacturing Company, Denver, Colo.

CIRCLE 412 ON INQUIRY CARD

ADVANTAGES OF CARPETING

The American Carpet Institute has issued three information booklets setting out various benefits which can accrue from the use of carpets in a number of situations. One booklet deals with costs, the second with sound conditioning qualities, and the third shows how carpets have been used successfully in three public schools. American Carpet Institute, Inc., 350 Fifth Ave., New York 1, N.Y.

CIRCLE 413 ON INQUIRY CARD

*Additional product information in Sweet's Architectural File

more literature on page 206

more and more
great American architects
are using

MARMET

here are a few of the reasons:

Close liaison . . . between the architect's job captain, designers, the general contractor and MARMET's engineering staff, plant expeditors and field service men . . . from the moment of bid award to final execution.

Single source capability. As an engineering fabricator of all types of curtain wall, individual window units, entrance frames and doors . . . MARMET is able to render complete services and products for every fenestration need.

Laboratory checks on quality control. Full size sections are pulled from assembly lines for exhaustive testing in MARMET test laboratories. Components must exceed NAAMM standards for wind deflection, air or water infiltration before shipment.

More and more . . . experienced architects find that specifying MARMET is a long step toward successful execution of all fenestration components.

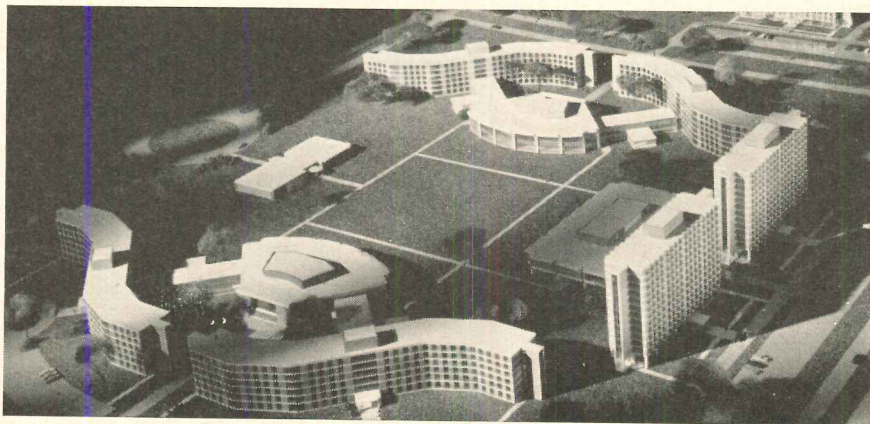


Photo by Baltazar Korab

A new way of living and learning is rising on Michigan State's Lansing campus. High rise student dormitories are arranged in unusual groupings with access to low level classrooms through connecting wings containing faculty offices. Each grouping of buildings provides facilities for a thousand students. One of the newest building groups is the East Campus section shown in the architect's model above. A number of buildings in this newest campus section will be completed with gleaming aluminum fenestration from MARMET.

MARMET

corporation

SWEETS CATALOG
OR WRITE MARMET

3a
MAR

300-O Bellis Street
WAUSAU, WISCONSIN

For more data, circle 97 on Inquiry Card

ARCHITECT:
RALPH R.

CALDER

ARCHITECTS & ASSOCIATES
Detroit, Michigan

Curtain Wall
by
MARMET CORPORATION

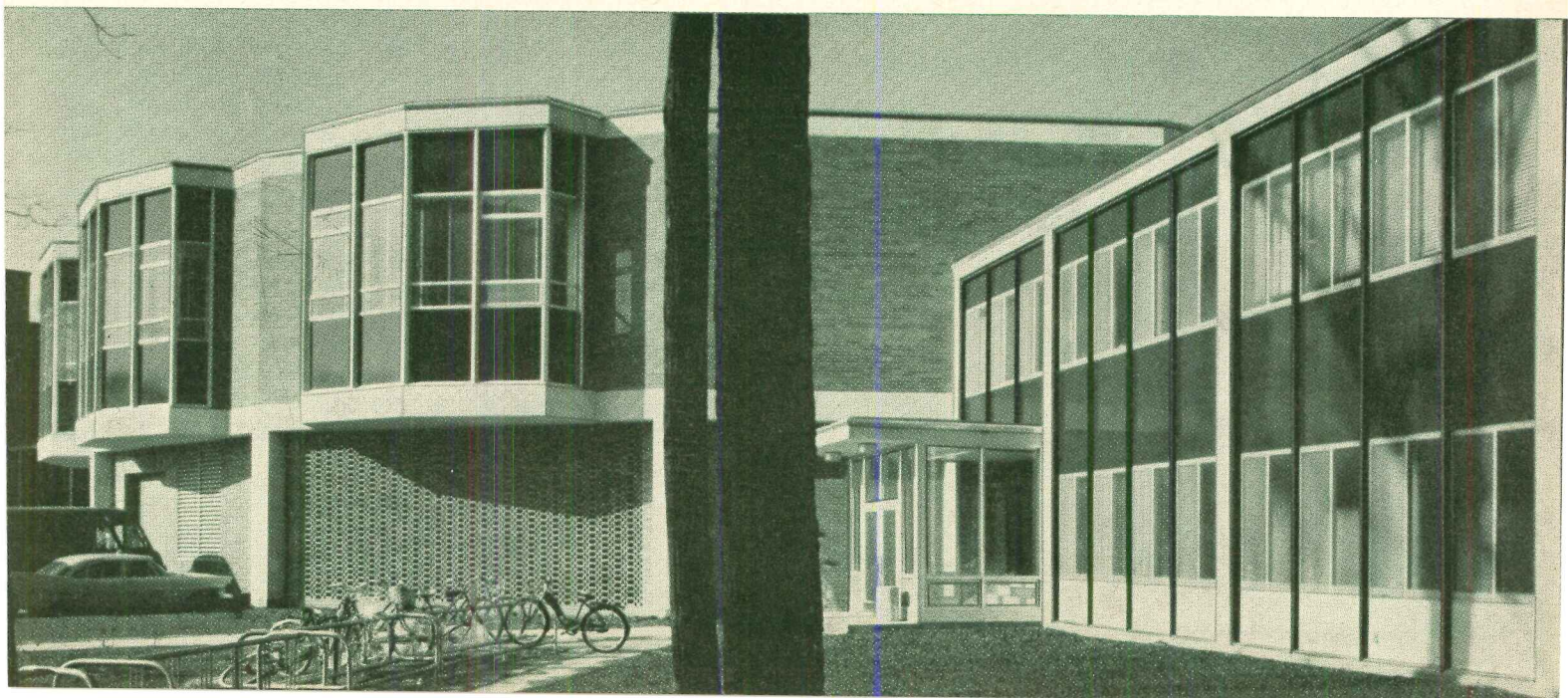


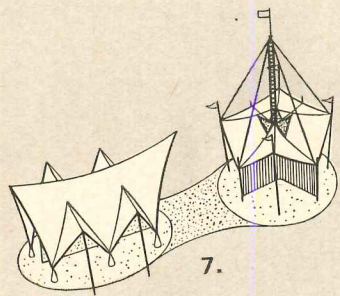
Photos by Dick Reed

MARMET goes to Michigan State

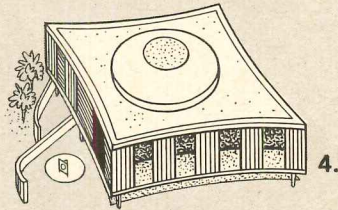
McDonnell Hall above . . . a typical high rise student dorm, illustrates the interesting contrast the architect has achieved with curtain wall against the sweep of masonry. The 5212 series rises resplendently from ground to roof at the point where the curving "dorm" building makes a gentle bend.

Dining rooms connecting to McDonnell Hall (below) have smartly shaped MARMET bays which match the 5212 series curtain wall on the high rise section. The contemporary entrances are MARMET 1000 series entrances with MARMET aluminum doors fabricated to the architect's specifications for extra wide style design . . . especially suited to the hurried goings and comings of student swarms.

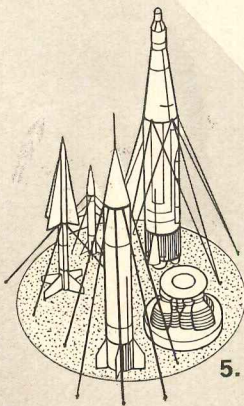




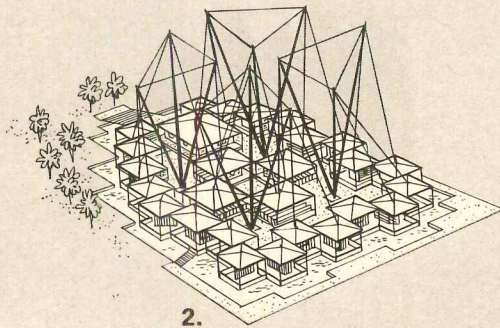
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4.



5.



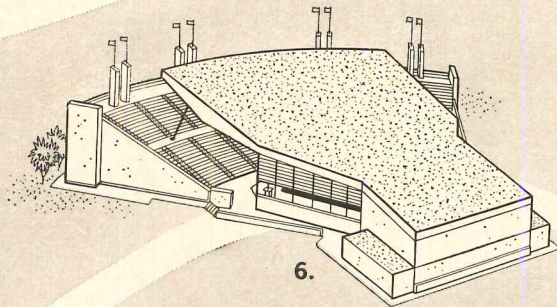
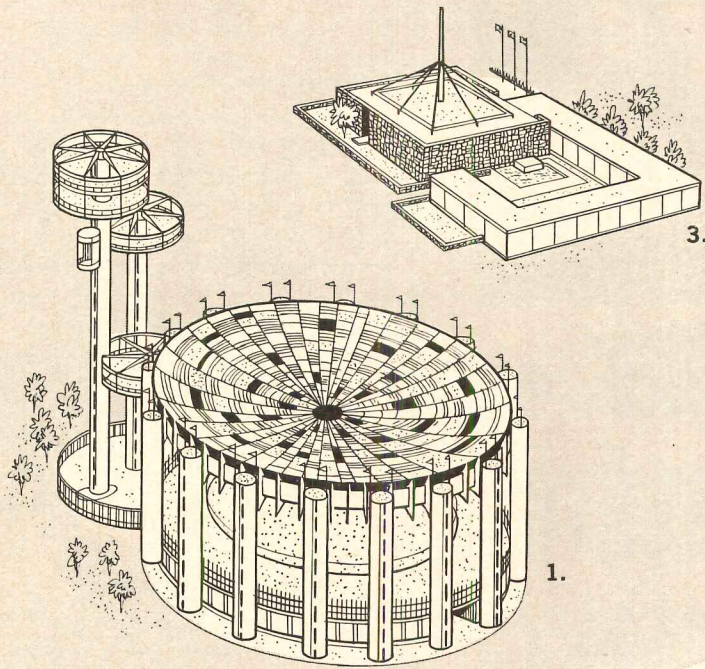
2.

CF&I-Roebling's guyed to the World's Fair

Seven of the Fair's many magnificent structures and displays employ CF&I-Roebling cable in their construction.

It's understandable that we're very proud to be so amply represented at this magnificent spectacle. Unquestionably one of the Fair's most exciting aspects is the aesthetic brilliance and technical elegance of its architecture and engineering. Innovations in design and construction permit the use of suspension systems in various spectacular and immensely practical ways.

The pavilions and exhibits shown here are a good representation of CF&I-Roebling's scope in suspension system applications, from the soaring suspended roof to the simple guying of space rockets. Our experience in the design and construction of all kinds of suspension systems goes back a great many years. It is at your disposal whenever you need it. The Colorado Fuel and Iron Corporation, CF&I-Roebling Bridge Division, Trenton 2, New Jersey.



© 1961-2-3 New York World's Fair 1964-1965 Corporation

1. NEW YORK STATE PAVILION 96 CF&I-Roebling cables support world's largest suspended roof which is elliptical in shape; 350 ft. x 250 ft. and is attached to sixteen 100-ft. high periphery columns. Cables are also used to suspend displays and lights. *Architect:* Philip Johnson Associates; *Structural Engineer:* Lev Zetlin & Associates; *General Contractor:* Thompson-Starrett Construction Co., Inc.; *Steel Fabricator & Erector:* The Ingalls Iron Works Company.

2. NEW JERSEY PAVILION 21 canopies suspended by CF&I-Roebling cables from twelve 80-ft. guyed booms. *Architects:* Collins, Uhl & Hoistington; *Structural Engineer:* Norman J. Sollenberger; *Structural Contractors:* North American Iron & Steel Co.

3. JAPANESE GOVERNMENT PAVILION Roof is suspended by CF&I-Roebling cables from an 80-ft. high steel mast rising out of a central garden court. *Architect:* Kunio Mayekawa Associates; *Associate Architects:* Oppenheimer, Brady & Lehrecke Associates; *Structural Engineer:* Fugaku Yokoyama Associates; *Associate Structural Engineers:* Crinnion Associates; *General Contractor:* William L. Crow Construction Co.; *Steel Contractor:* Simon Holland & Son, Inc.

4. MEXICAN PAVILION Cables used here to permit column-free interior. *Architect:* Pedro Ramirez Vazquez and Rafael Mijares; *Structural Engineers:* Lev Zetlin & Associates; *Structural Steel Contractor:* A. J. Frtischy Corp.

5. U.S. SPACE PARK CF&I-Roebling cables guy missiles to resist heavy winds. *Architects & Engineers:* Clarke & Rapuano, Inc.; *Contractor:* W. J. Barney Corp.

6. AMPHITHEATRE Cables brace canvas curtains and stabilize the roof by acting as lateral wind ties. *Consulting Engineers:* Ammann & Whitney; *Contractor:* George A. Fuller Company; *Structural Steel Fabricators & Erectors:* Elizabeth Iron Works.

7. LONG ISLAND RAIL ROAD EXHIBIT Roof frames supported by CF&I-Roebling cables. *Architect:* Daniel Chait; *Consulting Engineer:* Juster & Gugliotta; *General Contractor:* Horn Construction; *Pipe Framework Fabricators & Erectors:* Hallen Welding Service, Inc.

CF&I ROEBLING
STEEL CABLE-SUPPORTED STRUCTURES

For more data, circle 98 on Inquiry Card

REGLETS

Stop Leaks

Specify **SUPERIOR**
Cushion-Lock® REGLETS

Described in 4-page Bulletin CL-2, Superior Cushion-Lock Reglets offer a number of exclusive features such as no on-the-job caulking, which permit fast and leakproof installation of counterflashing and metal window frames under all weather conditions. The total "in-place" cost is low . . . usually less than conventional or improvised methods, because of the labor-saving advantages.

When you specify Superior Cushion-Lock Reglets, you can be assured of leakproof joints. Why take chances with inadequate or unspecified substitutes that may cause serious problems?

Shipped ready for application . . . Distributors in all principal cities.

SUPERIOR Concrete Accessories, Inc.

Main Office and Factory: 9301 King St., Franklin Park, Ill.
West Coast Office and Factory: 2100 Williams St., San Leandro, Calif.
Los Angeles • Houston • New York
Canadian Office and Factory: 230 Belfield Rd., Rexdale, Ontario

For more data, circle 99 on Inquiry Card

Office Literature

continued from page 202

NEW CONTOURS CAP

Detailed information about the A-4224 contours cap, suitable for capping draining-boards, trimming shower jambs and casings, and also to give a profile apron effect on window sills is given in a 12-page booklet. The cap can be set right over tile giving a neat contoured effect. The booklet contains clear line drawings showing typical applications of the cap. *International Pipe and Ceramics Corp., Ceramics Division, 2901 Los Feliz Blvd., Los Angeles, Calif.*

CIRCLE 414 ON INQUIRY CARD

PROTECTION FOR ASPHALT PAVEMENTS

Typical applications of *Jennite J-16*, a coal tar pitch emulsion coating for the protection of asphalt pavements, and *Vynatex 23* a vinyl emulsion coating available in five colors, are illustrated in a four-page pamphlet. The company has also issued a leaflet giving details of *Plasticon*, a dispersion of polymer resins, which has been developed for the repair of concrete surfaces. *Maintenance, Inc., Wooster, Ohio**

CIRCLE 415 ON INQUIRY CARD

LANDSCAPE LIGHTING

A range of lighting fixtures for outdoor use is presented in a 16-page catalog. The range includes wall brackets and post lights for outdoor living areas, multipurpose aluminum cone lights, and the *5300 Lumalite* series of colored fixture heads, suitable for a wide variety of purposes. *Prescolite Manufacturing Corp., 1251 Doolittle Drive, San Leandro, Calif.**

CIRCLE 416 ON INQUIRY CARD

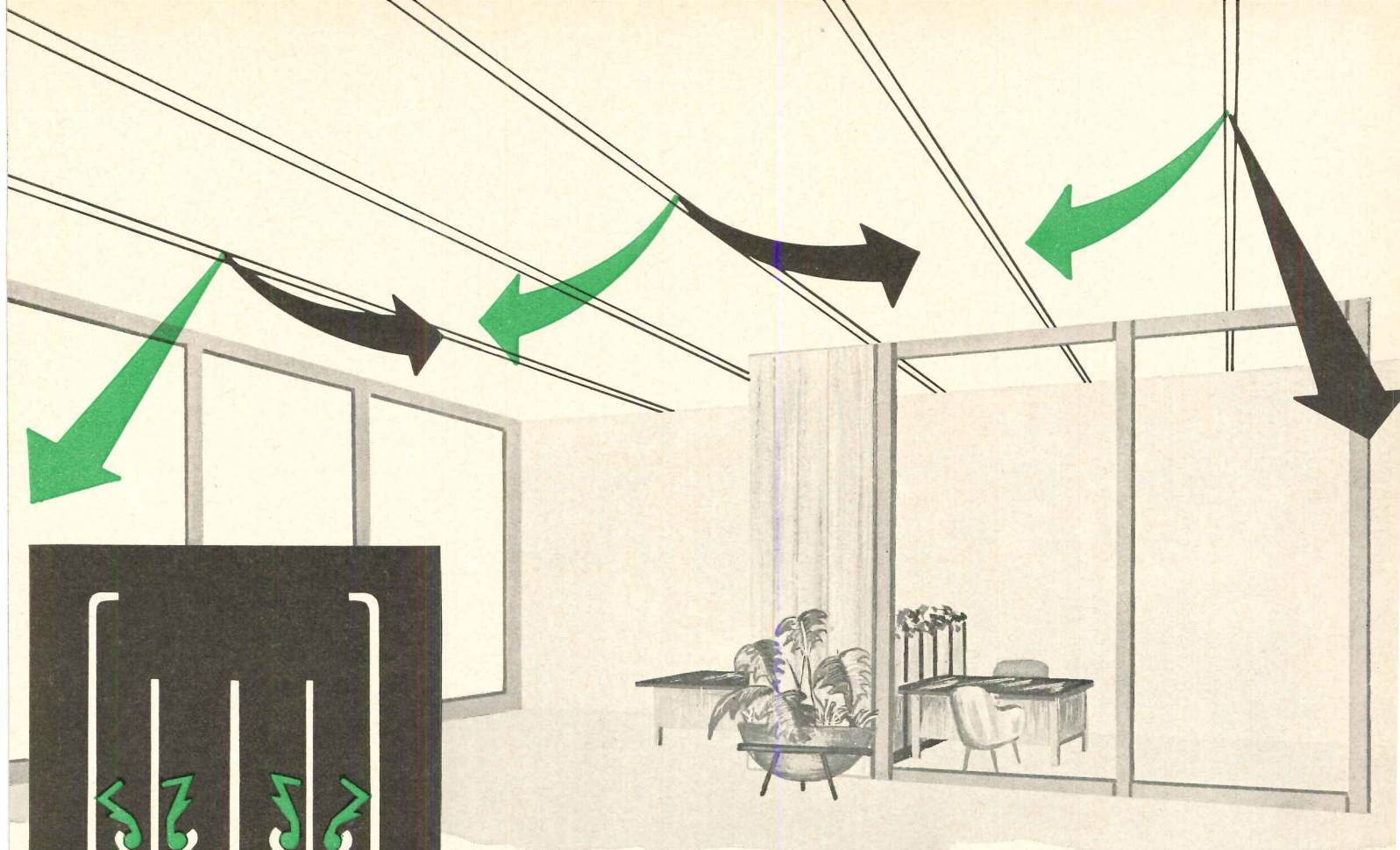
SCHOOL AND OFFICE FURNITURE

A wide range of modular desk combinations and chairs for secretarial, machine practice, school and business use is presented in a 14-page catalog. Classroom planning sheets are included for use with models suitable for schools. *Cramer Posture Chair Co., Inc., 625 Adams St., Kansas City 5, Kan.*

CIRCLE 417 ON INQUIRY CARD

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

more literature on page 210



ANEMOSTAT[®] DECORAIRE

DECORAIRE... the new Straight Line Adjustable Diffuser (SLAD) from ANEMOSTAT[®]... assures superior air diffusion with unlimited architectural design applications.

DECORAIRE is fully adjustable and features PCE, the new exclusive Pattern Control Element from ANEMOSTAT[®]. PCE is a combination damper and pattern control device. Simple and easy to operate, PCE allows for adjustment of air patterns a full 180° (horizontal left or right, vertical discharge, or any pattern in between).

Made of extruded aluminum with anodized finish and black coated inner assembly. **DECORAIRE** has no lefts or rights and alignment is positive at butt joints and mitered corners by a special key alignment feature.

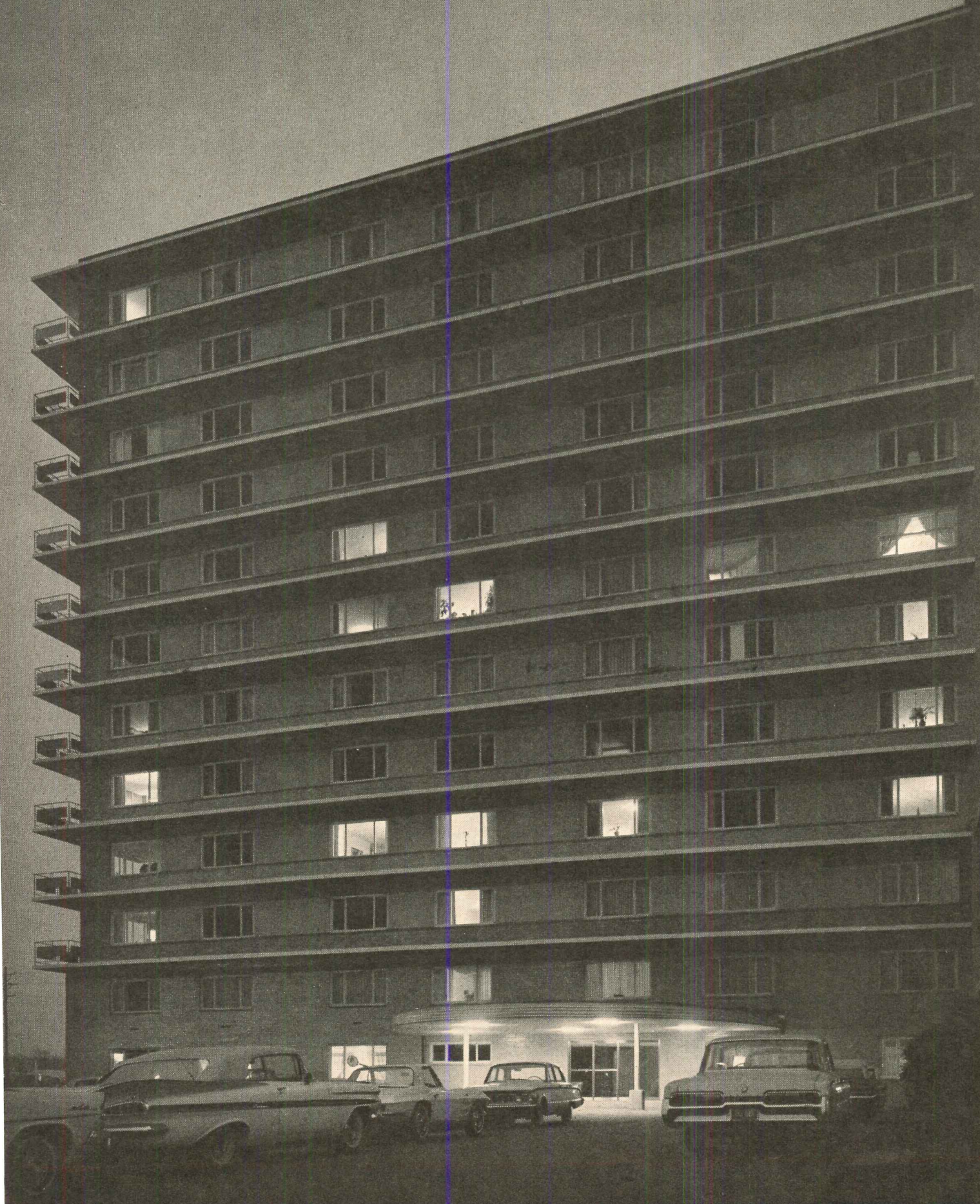
DECORAIRE, the ultimate in adjustable straight line diffusers, has been completely researched and tested in the ANEMOSTAT AIR DISTRIBUTION LABORATORY. Before you write that next specification, write for a copy of ANEMOSTAT Catalog 64S. Get complete performance and specification data on **DECORAIRE**... the new ANEMOSTAT Straight Line Adjustable Diffuser (SLAD).



ANEMOSTAT[®] PRODUCTS DIVISION
DYNAMICS CORPORATION OF AMERICA

Scranton, Pennsylvania

ANDERSEN PROVIDES THE WINDOW SOLUTION FOR ANY TYPE OF LIGHT CONSTRUCTION



Why Andersen

WOOD

WINDOWS

were specified for
this new 12-story hotel!

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

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

Since factory-assembled, stock Andersen Casements could be installed by the regular crew, instead of hiring specialists required to install steel windows, they were able to save about \$7 per window on installation costs! A total of more than \$1800 saved!

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

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

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

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

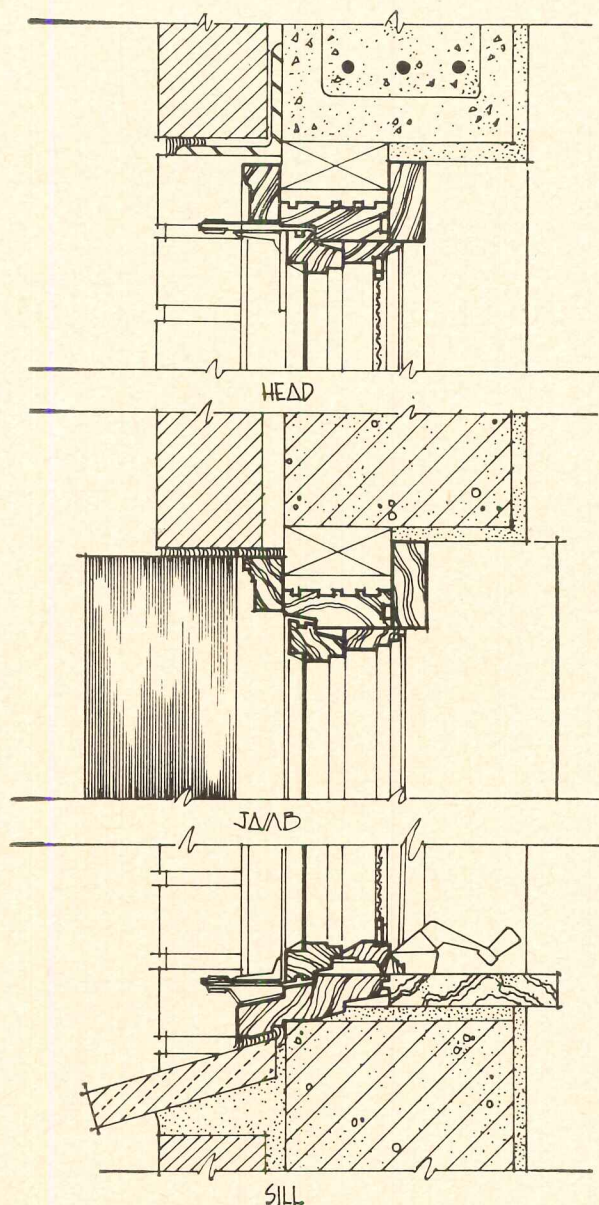
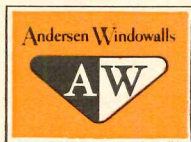
Or Andersen's **extra weathertightness** (up to 4 times tighter than industry standards for wood windows). This means you can design extra-large glass areas without sacrificing insulating effectiveness. And, owners can save substantially on heating and cooling costs.

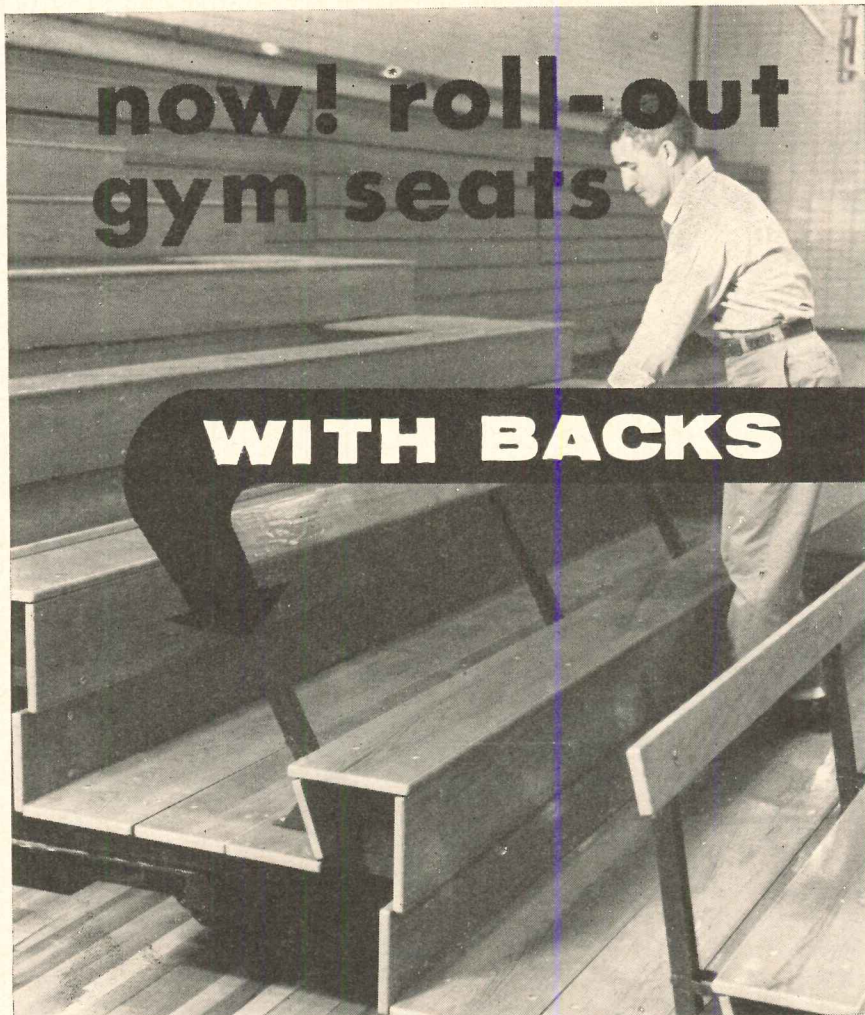
Check Sweet's File. Or, contact your local Andersen distributor for a Tracing Detail File. Andersen Windows are available throughout the United States and Canada.

Andersen Windowalls

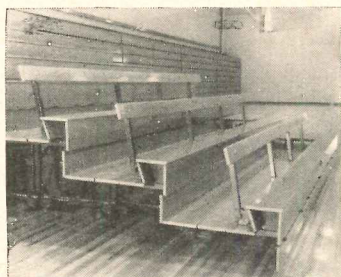
TRADEMARK OF ANDERSEN CORPORATION

America's Most Wanted Windows
ANDERSEN CORPORATION • BAYPORT, MINNESOTA





HUSSEY SAFE SEATING



Model 300 fully extended with back rests in place.

now has the added convenience of comfortable back rests, wider aisle space—a full 30"—and more knee room.

Back rests are permanently attached, no parts to lose. For quick storage back folds down, entire section is ready for easy closing.



HUSSEY MFG. CO., INC.
NORTH BERWICK, MAINE

For more data, circle 101 on Inquiry Card

Office Literature

continued from page 206

COOLING TOWERS

Aircoil cooling towers, designed to fit compactly into recessed corners or on small roof areas are described in detail in a 20-page booklet. Construction details and methods of selection are given, as well as a chart showing typical ratings for common conditions. *Baltimore Aircoil Company, Inc., P.O. Box 7322, Baltimore, Md.*

CIRCLE 418 ON INQUIRY CARD

CONCRETE ADMIXTURES

Maracon concrete admixtures are intended to reduce the unit water content and increase the strength, durability and density of concrete to the point where a reduction in cement content may safely be contemplated. An eight-page leaflet gives details of the different types of *Maracon* admixtures and illustrates their use in various buildings. *Marathon, Division of American Can Company, Chemical Sales Department, Menasha, Wis.**

CIRCLE 419 ON INQUIRY CARD

SCHOOL AIR CONDITIONING

A new illustrated folder "The Perfect Teaching Environment" explains the advantages of the *Edwards Baseboard-Valance* complete air-conditioning system for schools. A schematic drawing illustrates the method of installation. *Edwards Engineering Corp., 101 Alexander Ave., Pompton Plains, N.J.**

CIRCLE 420 ON INQUIRY CARD

DOORS AND PARTITIONS

Panelfold wood doors and partitions for institutional, commercial and residential buildings are on display in an eight-page color catalog. Specifications and a color chart are also included. *Panelfold Doors, Inc., 1090 E. 17th St., Hialeah, Fla.*

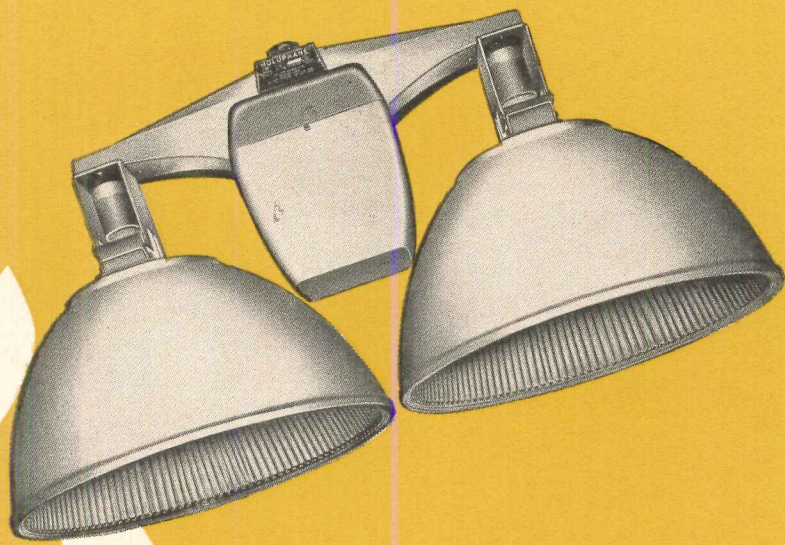
CIRCLE 421 ON INQUIRY CARD

WIRE CABLE TERMINOLOGY

A booklet containing a glossary of abbreviations of the wire, cable and portable cord industry, includes definitions of some 200 terms in common use by the industry. *International Telephone and Telegraph Corp., 320 Park Ave., New York 22, N.Y.*

CIRCLE 422 ON INQUIRY CARD

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



**For
higher
footcandles
from
higher
mountings**

HOLOPHANE Twin Prism-pack

This newest all-in-one luminaire delivers the best mercury lighting performance.

Combines twin prismatic reflectors with integral, constant-wattage ballast.

Out of the carton—onto the ceiling. Merely connect two wires—set unit in place—it's ready for use.

Tests prove that this luminaire with **two** 400 W. lamps is more effective than a **single** 1000 W. unit.

Prismatic reflectors guarantee highest efficiency, low brightness, permanence.

Most economical to install and maintain.

Write for complete data on TWIN PRISMPACK today...

HOLOPHANE Company, Inc.

Lighting Authorities Since 1898

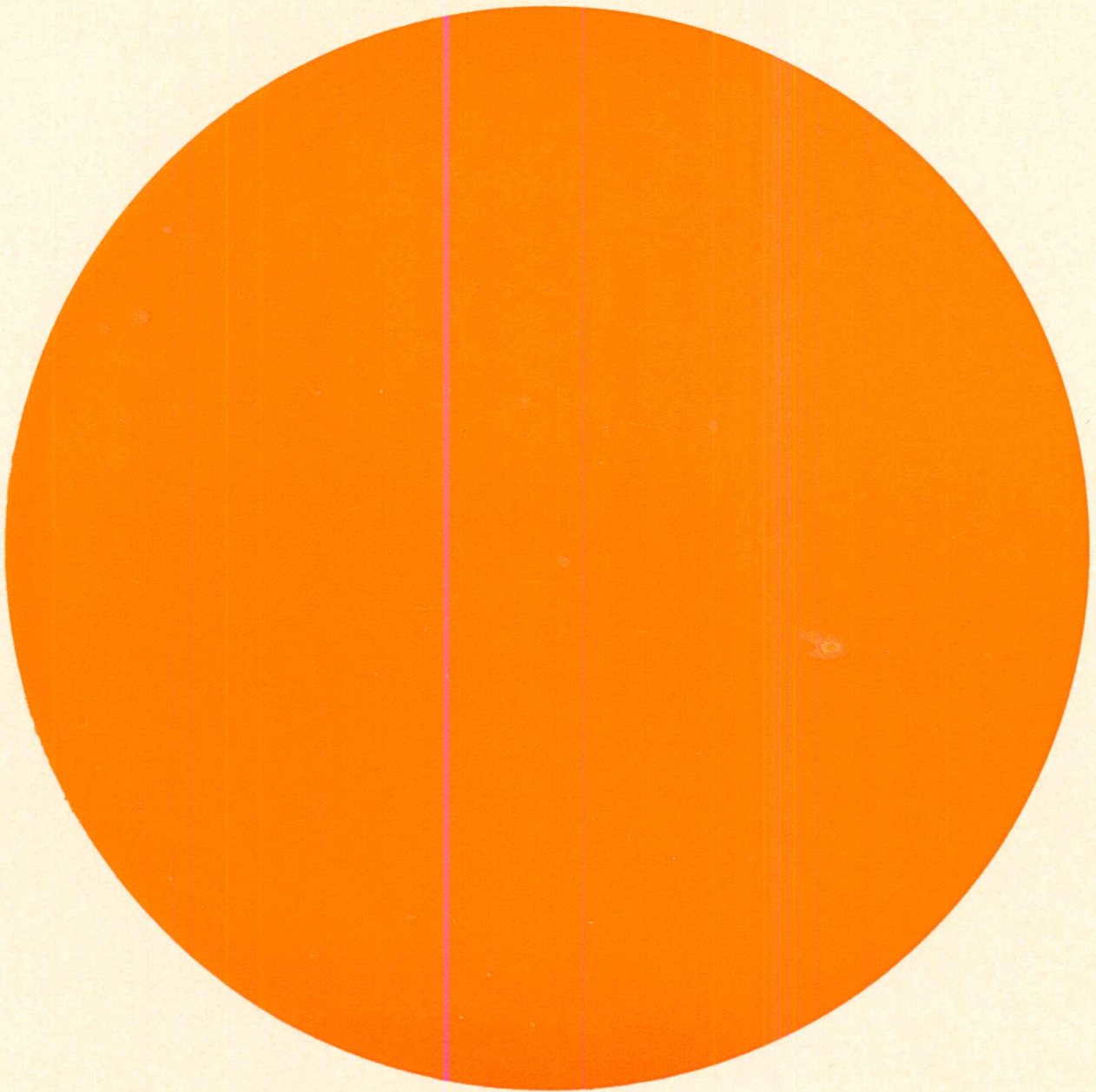
1120 Avenue of the Americas, New York 36, N. Y.



For solution of your lighting problems... Visit the Holophane Light & Vision Institute



For more data, circle 102 on Inquiry Card



**PPG makes
Glass
Conditioning
a workable
concept with the
most complete
range of
glass products**

The glass you select has a significant and measurable effect on the interior of your building. And it will have a direct bearing on heating, air conditioning and lighting requirements. Each exposure of every building presents a different environmental control situation. Each exposure may require a different glass.

Only PPG offers you a selection of 25 vision area glass products, each with individual performance characteristics to meet a given situation. Considerations of site, climate and orientation will deter-

mine which combination of glass products offers the most suitable properties to effectively control solar glare and heat. For further information on PPG products for Glass Conditioning, consult the PPG Architectural Representative nearest you. Pittsburgh Plate Glass Company, 632 Fort Duquesne Boulevard, Pittsburgh, Penna. 15222.

*Service Mark



**PPG makes the
glass that makes
the difference**

Glass Conditioning*

a new concept for increasing
indoor comfort through
selective use of glass

PPG PRODUCTS FOR GLASS CONDITIONING

		Maximum Heat Gain (BTU/hr./sq. ft.)	Visible Light Transmittance %	Shading Coefficient
HEAT AND GLARE REDUCING				
Regular Plate Glass	1/4"	200	88	.93
(For Comparison)	3/8"	190	87	.87
	1/2"	180	85	.83
Solargray®	1/4"	150	42	.67
	3/8"	130	28	.58
	1/2"	115	19	.50
Solarbronze®	1/4"	150	51	.67
	3/8"	130	38	.58
	1/2"	115	29	.50
Solex®	1/4"	150	75	.67
	3/8"	130	64	.58
GLARE REDUCING				
Clear Sheet Glass	7/32"		89	.96
Graylite™ 31	1/8"		31	.78
Graylite 61	3/16"		61	.91
Graylite 56	7/32"		56	.88
Graylite 14	7/32"		14	.67
Graylite 52	1/4"		52	.85
HIGH PERFORMANCE (Insulating, Heat and Glare Reducing)				
All Twindow products have a U factor of .6				
Clear Twindow®		170	77	.80
LHR™ Clear Twindow		120	43	.55
LHR Solargray Twindow		90	22	.40
LHR Solarbronze Twindow		90	25	.40
LHR Solex Twindow		90	32	.40
Solargray Twindow		115	37	.54
Solarbronze Twindow		115	45	.54
Solex Twindow		115	65	.54

For more data, circle 103 on Inquiry Card



CHANGEABILITY
in minutes...
with a 10/d nail!

DONN HIGHLANDER MOVABLE PARTITION SYSTEM...



"HIGHLANDER"
A thrifty combination of design latitude, function and appearance.

CHANGEABILITY... at any point

It's practical to divide a room, add a door, or change a wall surface with the Donn concept of hollow-core, movable partition systems.

Functional design combined with few basic components offers changeability, accessibility, and movability — AT ANY POINT.

So simple, you can do it with a 10/d nail!

- ACCESSIBILITY • MOVABILITY
- AFFORDABILITY • VERSATILITY

Write today for *Donn Catalog No. 35* with complete architectural details and specifications.



DONN PRODUCTS, INC.

700 BASSETT ROAD • WESTLAKE, OHIO 44091

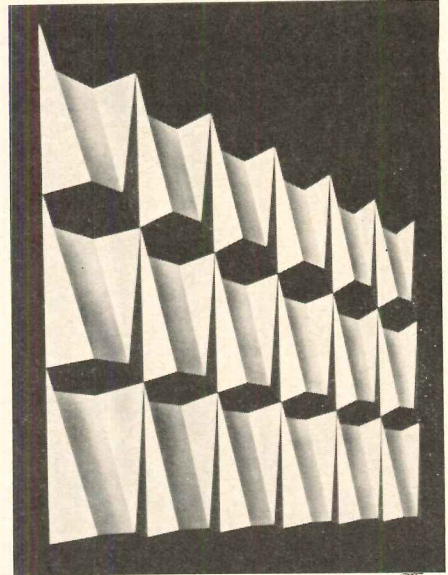
For more data, circle 104 on Inquiry Card

Product Reports

continued from page 195

ALUMINUM SCREENING

Designed as a refacing material for existing buildings, *Sol-Dec II* aluminum screening is available with a painted, anodized or porcelainized finish and in a wide range of colors. A variety of panel sizes can be provided up to a maximum of 2 by 42 in.



With an average per sq ft weight of only one pound, these panels are easy to install and are said to be able to withstand commonly accepted wind and ice loads. *Aluminum Company of America, 1501 Alcoa Building, Pittsburgh, Pa.*

CIRCLE 302 ON INQUIRY CARD

NEW DRYWALL RATING

Floor-ceiling drywall construction with a 2-hr fire rating is possible using only a single layer of a new 1/2-in.-thick gypsum wallboard called *Super X Fire Shield* available in 6-through 14-ft lengths, 4 ft wide with tapered edges.

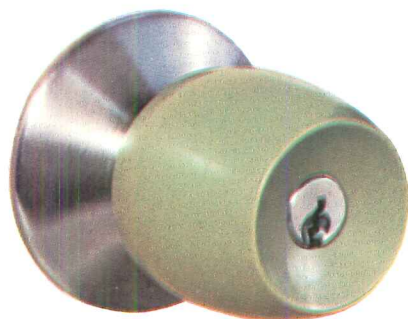
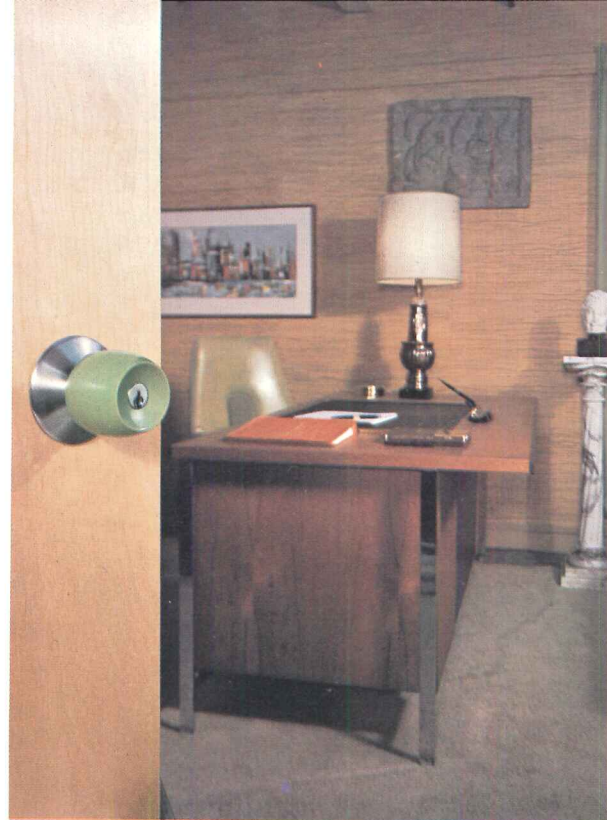
Special formulation of the wallboard core permits this performance when panels are attached by 1 1/8 in. Phillips head screws every 12 in. to furring channels spaced 24 in.

The construction rating is predicated on using a base of several inches of poured concrete on metal lath over bar joists; screw channels are attached to the lower cord of the bar joist. *National Gypsum, Buffalo 2, N. Y.*

CIRCLE 303 ON INQUIRY CARD
more products on page 226

Corinthian

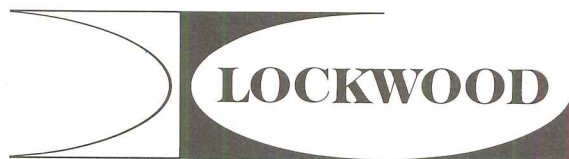
adj:
relating to the
most luxurious
and elaborate
of the three
Orders of Greek
Architecture.



CORINTHIAN. What more descriptive name could be given to Lockwood's new colored knob design?

Molded of tough, durable colored Celcon, an engineering plastic from Celanese, these knobs have a sculptured look and feel, and a warmth to the touch not possible with metal trim.

Wonderful design possibilities are yours with a complete range of beautiful colors from which to choose. Available as trim with all Lockwood commercial grade mortise and cylindrical locksets, this line gives you a lock, Corinthian in appearance, Spartan in performance.

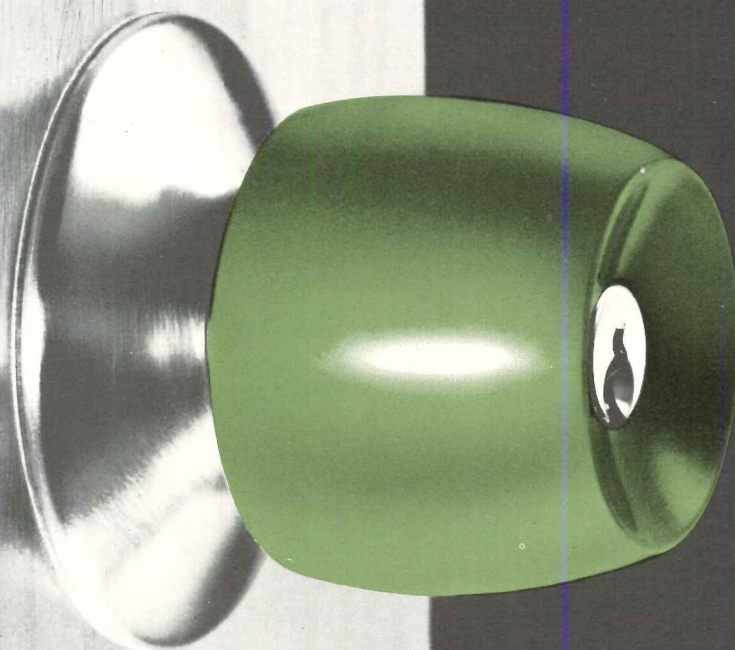


LOCKWOOD HARDWARE MFG. CO.
FITCHBURG, MASSACHUSETTS



celcon®

MAKES A MATERIAL DIFFERENCE



This Lockwood door knob is pleasant to touch
has permanent beauty
never needs polishing
won't rust, tarnish or discolor

It's molded of Celanese Celcon

Celcon, the Celanese engineering plastic, brings new beauty and function to architectural hardware. In these handsomely styled "Corinthian" door knobs by Lockwood Hardware Manufacturing Company, Fitchburg, Mass., Celcon adds a pleasantly warm touch, freedom from annoying static electricity shocks, and a wide range of permanent decorator colors from which to match or complement any building decor.

Celcon acetal copolymer practically eliminates maintenance, too. It never needs polishing, won't rust, tarnish or discolor—even in the most critical salt water atmosphere.

One look—one touch—will convince you that door knobs of Celcon add an impressive note of distinction to quality buildings such as hospitals, hotels, schools and other commercial construction.

That's why you will find Celcon replacing metal for door knobs, handles, rollers, hinges, latches, hooks and in a growing number of other fine hardware products. Celanese Polymer Company, 744 Broad St., Dept. C-1, Newark 2, N.J.

Celanese® Celcon®

Celanese Polymer Company is a Division of Celanese Corporation of America
Canadian Affiliate: Canadian Chemical Limited, Montreal, Toronto, Vancouver
Export Sales: Amcel Co., Inc., and Pan Amcel Co., Inc., 522 Fifth Avenue, New York 36

Celanese
POLYMER COMPANY

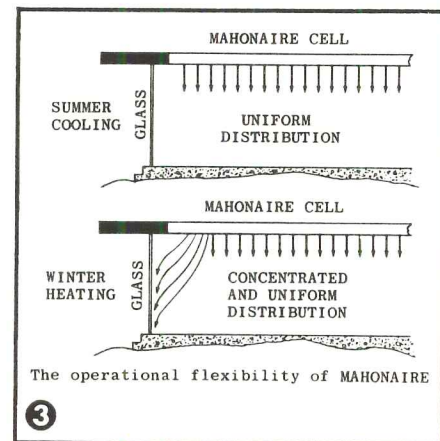
Mark of Mahon—INGENUITY



1 The just completed, Wickstrom Chevrolet showroom at Roselle, Ill., uses a good-looking MAHONAIRE Ceiling System for year-round comfort conditioning. Architects: Rydberg & Weinert, Chicago. Contractor: Ellington-Miller Co., Chicago.

2 Besides flexible air-distribution, the MAHONAIRE Ceiling System also provides structural support, recessed lighting, sound control and finished ceiling in one easy-to-use 'package.'

3 To keep large glass areas clear of frost in winter, Mahon *ingenuity* came up with a neat answer: The MAHONAIRE cells are equipped with lever-operated dampers to provide total operational flexibility (see sketch).



MAHONAIRE* Ceiling System—clearly better

The recently announced MAHONAIRE Systems for integrated ceiling and/or floor construction is finding ready architectural engineering acceptance. It is hardly surprising. MAHONAIRE answers many of today's building problems—efficiently, aesthetically, functionally and economically. It combines (1) heating or cooling air distribution; (2) air-diffusion channels; (3) structural support; (4) lighting receptacles; (5) sound control; (6) electrical facilities; and utility raceways into one low-profile cellular package. It's all accomplished . . . by design and *ingenuity*. The cost-saving possibilities are obvious and even include building-height reductions gained by cell modules as small as six-inches deep.

MAHONAIRE is a prime example of MAHON *ingenuity*. This same *ingenuity* works for you in your projects, be they car showrooms, schools, high-rise office buildings or any non-residential architecture. Sometime soon, you'll be specifying the completely proven Ceiling or Floor Systems. Find out about all the product benefits—its versatility, design, flexibility, easy erection—and, of course, what the *ingenuity* of Mahon can contribute to you. Write for your copy of detailed MAHONAIRE literature (or see Sweet's File). The R. C. Mahon Company, 6565 E. Eight Mile Road, Detroit, Michigan 48234.

*Patent applied for
MAHONAIRE is a trademark of The R. C. Mahon Company

MAHON

← For more data, circle 106 on Inquiry Card

For more data, circle 107 on Inquiry Card

Handsome steel parking garage



The Citizens National Bank Parking Garage, Decatur, Illinois, is a fine example of how to stretch space and cut costs without sacrificing good design.

The design called for four levels of parking, three drive-in teller stations for banking service, and access for pedestrian traffic to the adjoining bank from ground and second parking levels and to an adjoining office building from the third and fourth levels—all in a space that challenged the architects' skills.

Architects Spangler, Beall, Salogga & Bradley began by securing air rights over adjoining city sidewalks and vacating a little-used one-block-long street. Designing the frame to take full and economic advantage of available space, they chose steel for columns, girders and beams. Main girders of USS TRI-TEN (A441) Steel were cantilevered ten feet over the sidewalks and were tied in compositely with reinforced concrete decks. The balance of steel framing was A36. Both footings and columns were designed to carry six future levels over a portion of the structure.

The high strength steels and composite design provided greater headroom. Exposed steel columns, consistent with good fire protection practices, further increased usable space.

The entire design was kept as simple as possible, not only for economy, but to avoid confusion with a variety of adjoining structures. The spandrels match the color of the office and bank buildings. The exposed structural steel was painted black, and the slab and galvanized decking was left unpainted.

Total area is 79,260 square feet. Capacity—152 cars. Cost—\$4.73 per square foot. Conclusion: A steel framed structure can park more cars in less space, for fewer dollars. And it's easy to add more floors to a steel structure. United States Steel, 525 William Penn Place, Pittsburgh, Pa. 15230. USS and TRI-TEN are trademarks.



...for strength... low cost



costs only \$4.73 per square foot



Citizens National Bank Parking Garage, Decatur, Illinois • Architect Engineer: Spangler, Beall, Salogga & Bradley, Decatur, Illinois
Contractor: Fisher-Stoune, Inc., Decatur, Illinois • Steel Fabricator: Mississippi Valley Structural Steel Company, Chicago, Illinois



for...

HOTEL

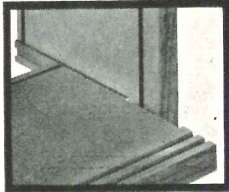
MOTEL

SCHOOL

HOSPITAL

HOME

complete
knock down
cabinets



send for literature

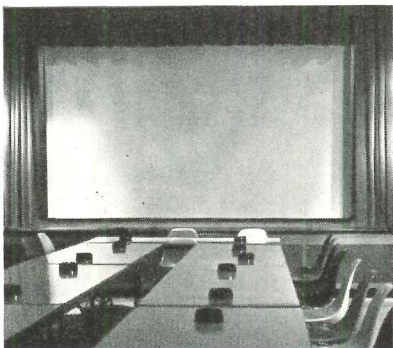


K-cabinet D-eluxe Wall Furniture

Tassell HARDWARE COMPANY
4135 Lake Michigan Drive, Grand Rapids Mich. 49504

FINISHED WITH TEXTOLITE LAMINATED PLASTIC
GENERAL ELECTRIC

For more data, circle 108 on Inquiry Card



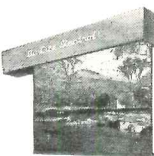
Rodman Public Library Alliance, O. enjoys the **BIG DIFFERENCE** in Projection with a...

DA-LITE® ELECTROL® SCREEN

The new Rodman Public Library in Alliance, Ohio was designed by the architectural firm of Bergemann & Associates to perform all the wider functions of a fully modern library.

In the beautiful Library auditorium which seats 100, audio-visual techniques are used for every kind of meeting from Boy Scouts, to school instructions, to local business men's groups.

A new 9' x 12' Electrol projection screen is installed on the ceiling. Electrically controlled from the projection booth, the screen is out of sight when not in use, lowers automatically at the touch of a



button and stops in opened position.

Superb reproduction of projected pictures on Da-Lite's unique White Magic II® Chemi-Cote® glass beaded surface assures effective visual presentations.

Da-Lite screens are available in a wide selection of sizes to fit every need. An Electrol screen can be recessed in ceiling or installed on wall or ceiling. Choose a Da-Lite screen—you get the big difference in quality—and the difference costs you nothing.

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perfection in
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NEWS

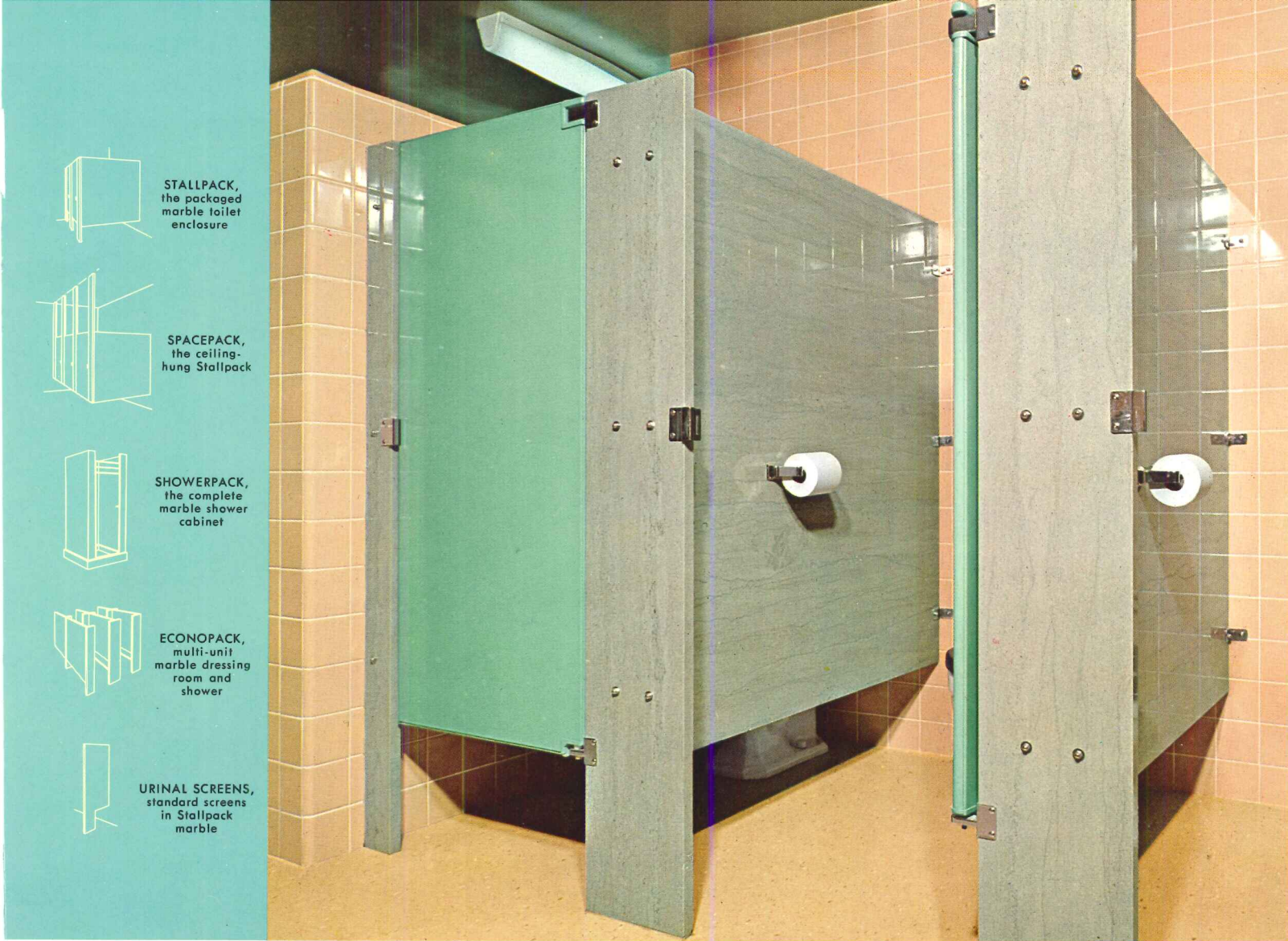
about a moisture barrier that takes a beating without damage!

Tells about super-strength Moistop that stands up under the kind of rough treatment most vapor barriers, including 6 mil polyethylene, can't take. Combines inertness of polyethylene film with strength of reinforced, waterproof Sisalkraft... resists tears, abrasion, puncturing for permanent protection under all floors — slabs, basements, crawl spaces. MVT Rating of 0.15 perms. Send for samples, today. American Sisalkraft Division — St. Regis Paper Company, 73 Starkey Avenue, Attleboro, Mass.

MOISTOP

A LAMINATION OF REINFORCED PAPER + POLYETHYLENE

For more data, circle 110 on Inquiry Card



3 Stallpack units, Metzler Hall, McPherson College, McPherson, Kans. Arch: Mann & Co., Hutchinson.

Stallpack[®] keeps solving partition problems with durable marble and rustproof hardware

A COMPLETE PACKAGE. Stallpack gives you the unique durability of solid marble partitions precut to standard size, pre-drilled ready to assemble, and offered in a package unit complete with door and chrome-plated non-ferrous hardware. These package units are ready to be shipped immediately.

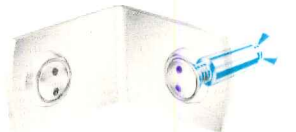
EASY TO SPECIFY. Just indicate water closets 2' 10" on centers on your drawings, then specify Stallpack. With that one easy specification you give the toilet rooms of your building the lasting beauty and trouble-free durability that cannot be had with any material but marble.

PERMANENT. Stallpack marble partitions will not rust or deteriorate. They will never need refurbishing. Washing with mild soap and water is all it takes to keep Stallpack marble partitions in

perfect, shining condition. Imagine the total savings in upkeep expense!

EASY TO CLEAN. These partitions are easy to keep clean because they are solid marble. Flush construction with solid marble leaves no inaccessible hollow places around the base of the stiles to breed germs and retain odors.

New!



THEFT-RESISTANT spanner head machine screws now fasten the exclusive Carthage Marble clip-angle. It takes a special two-pronged screwdriver to remove the screws. This slotted clip-angle saves hours of setting time because it adjusts to out-of-line floors and walls.

UNIVERSAL COLOR. Stallpack partitions are made of fine Ozark Grey Veined marble. This lustrous light grey marble blends beautifully with any color scheme, stays beautiful as long as your building stands!

ECONOMICAL. High sales volume enables us to polish Stallpack marble partitions on an automated production line and to purchase top quality doors and hardware in carload lots. Stallpack is priced to compete with other types of partitions, yet it offers the durability that marble alone can give. Over the years that durability will mean true economy for the building owner.

Specify Stallpack from Sweet's Architectural File, Section 22b/Ca, or write Carthage Marble Corp., P. O. Box 718, Carthage, Missouri 64836.

CARTHAGE MARBLE CORPORATION





**Integrated Mission Control Center
NASA Manned Spacecraft Center, Clear Lake, Texas**

**Centralized control center for the
direct support of manned space flight**

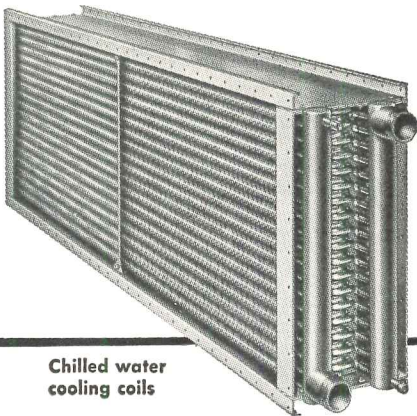
Kaiser Industries
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Hot Water
Heating Coils



Chilled water
cooling coils

AEROFIN INSTALLED

Modern smooth-fin design of Aero-fin coils permits ample heat-exchange capacity in limited space — permits the use of high air velocities without turbulence or excessive resistance.

Aero-fin performance data are laboratory and field proved. You can specify Aero-fin Coils at full published ratings.

AEROFIN CORPORATION

101 Greenway Ave., Syracuse 3, N.Y.

Aero-fin is sold only by manufacturers of fan system apparatus. List on request.

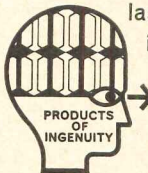
ENGINEERING OFFICES IN PRINCIPAL CITIES

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New venetian blind window from

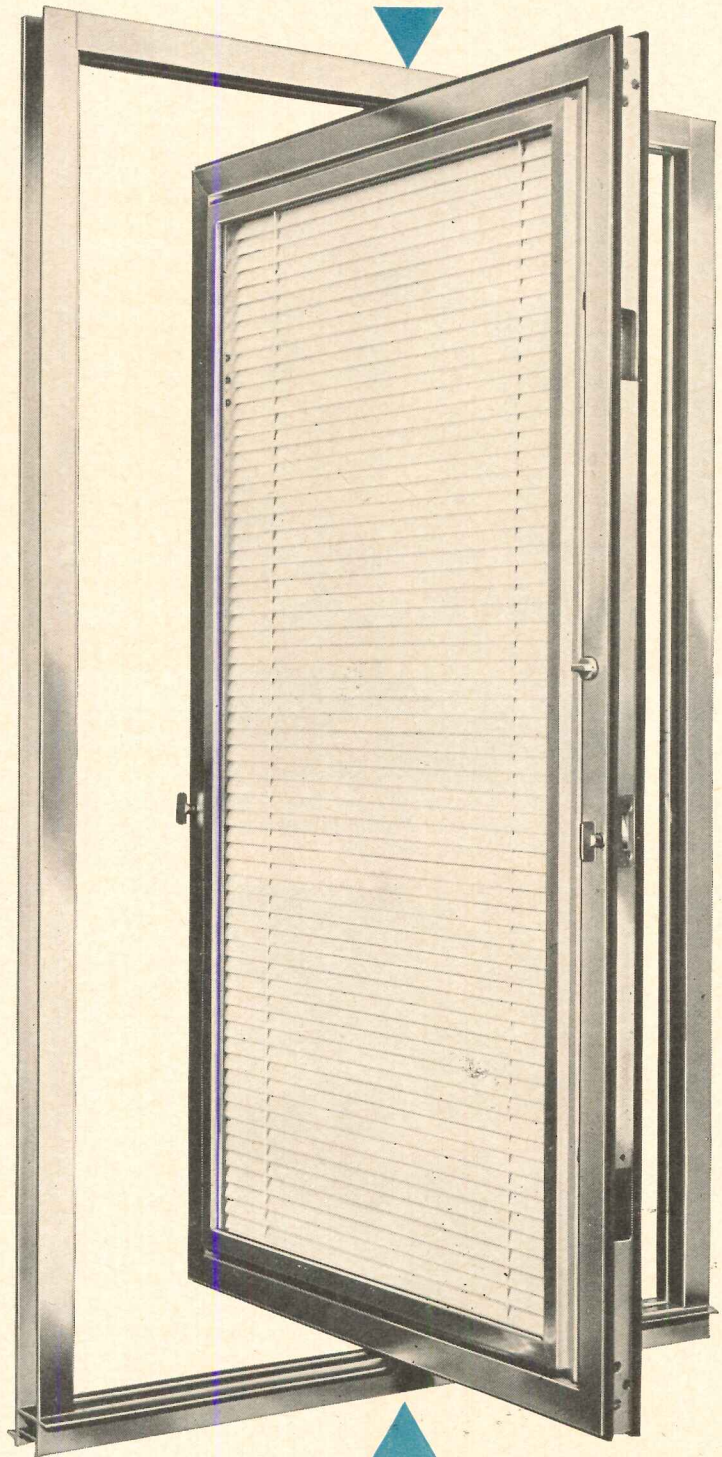
Adlake[®]

*Vertical pivot makes sense. You can revolve this window a full 360 degrees without raising the blind. Meanwhile, you control light, reduce noise and save on heat and air-conditioning. Even cleaning costs less. And Adlake vertical-pivot venetian blind windows will



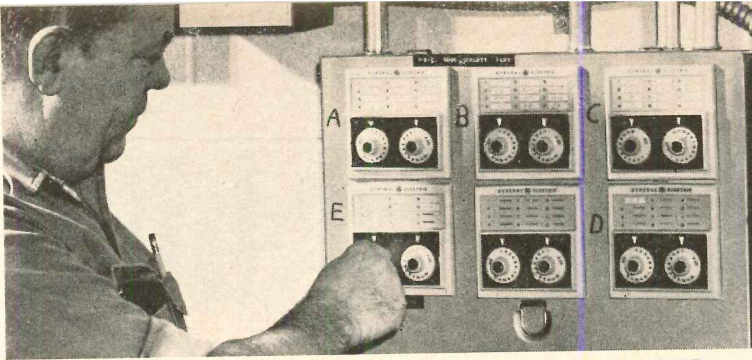
last the life of the building. Put them in your next fenestration. Contact your Adlake representative, or Adlake direct.

The Adams & Westlake Company
Dept. P-2107 Elkhart, Indiana
Phone: Area 219 JA 4-1141



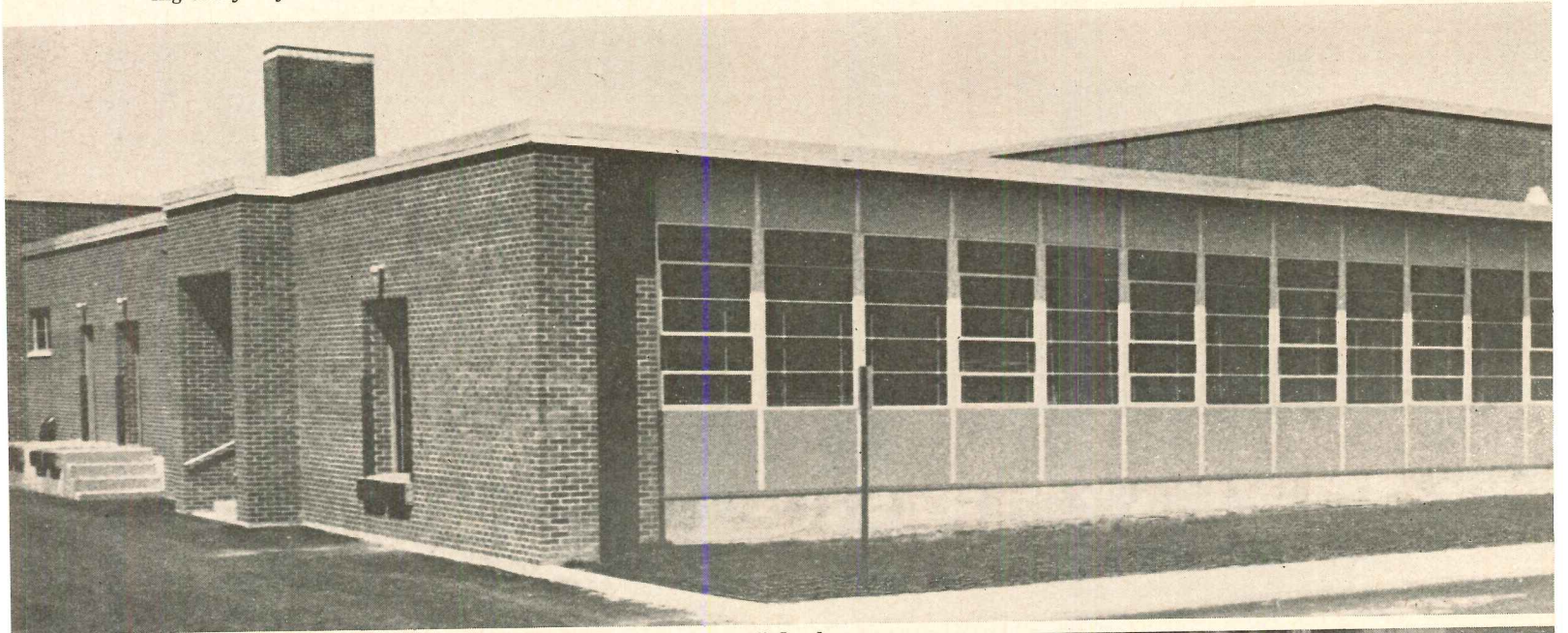
 **Vertical Pivot point is the important difference!**

For more data, circle 113 on Inquiry Card

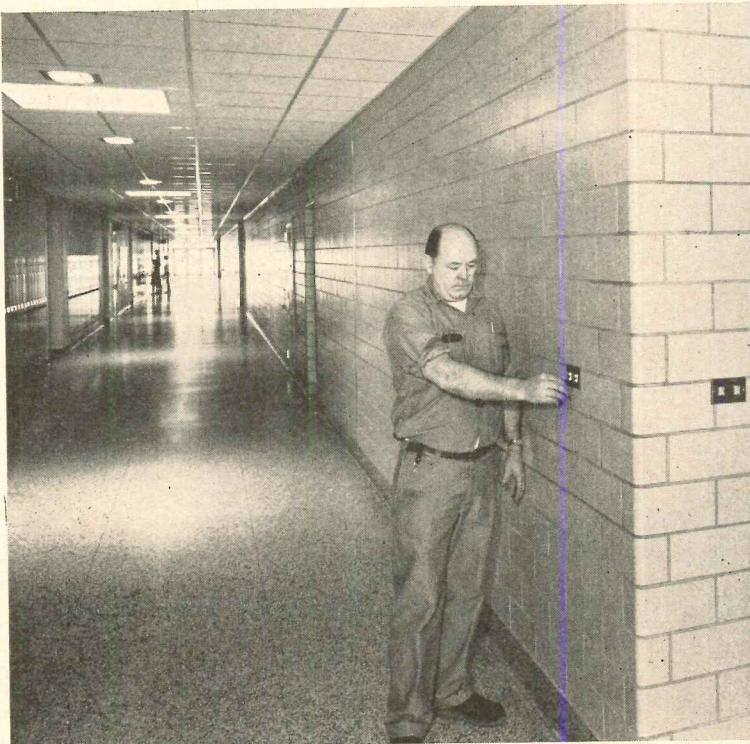


These six 12-position G-E Master Switches include ON-OFF positions for 37 exhaust fans and 10 floodlights spread over the 109,800-square-foot Horseheads (N. Y.) Jr. High School. They save Herbert Mellin, Head Custodian, some 2 to 3 hours of walking every day.

At Horseheads (N.Y.) DECENTRALIZED LIGHTS G-E REMOTE CONTROL



New Horseheads Jr. High School includes "anti-vandalism" floodlights mounted on the exterior of the building and centrally controlled by G-E Master Selector Switches.



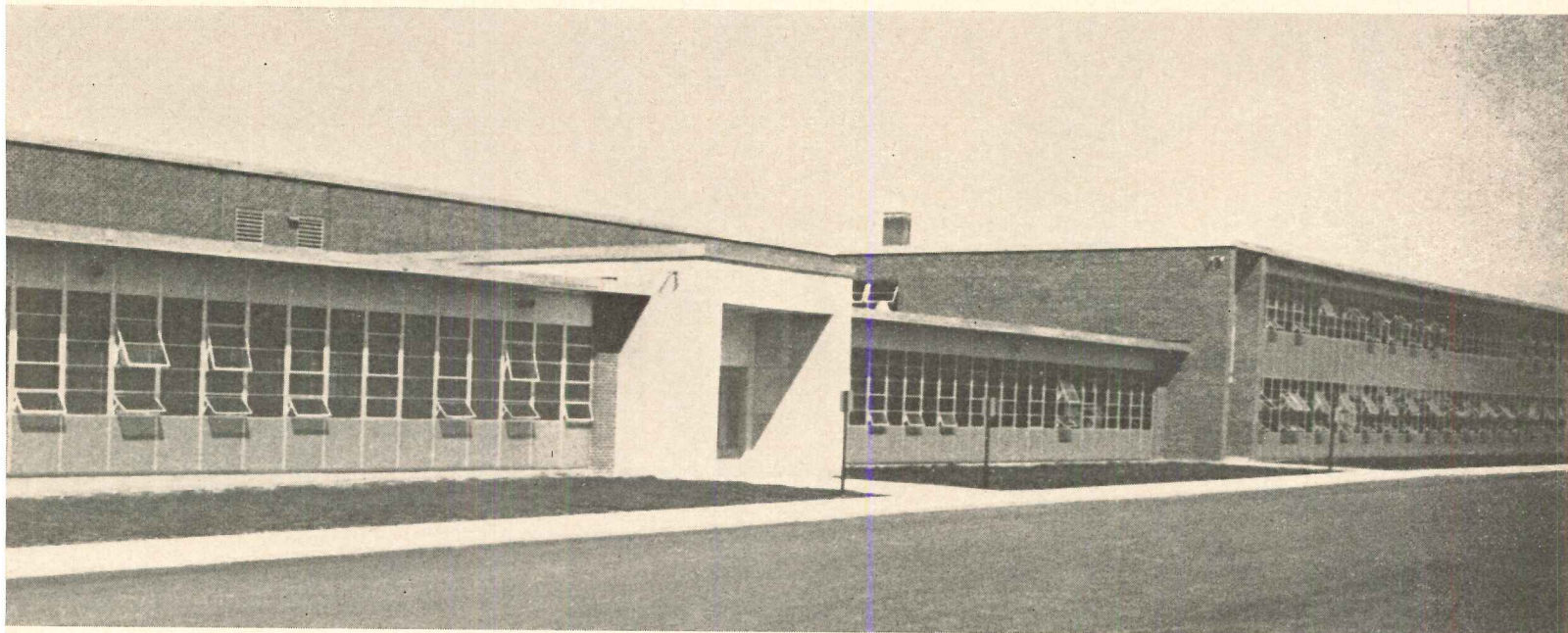
School's corridors and classrooms feature remote-control local light switches. Corridor switches are key-operated to prevent unauthorized persons from operating them.

All stage, auditorium, and cafeteria lighting for the school's "auditeria" are controlled conveniently with one compact group of built-in G-E Master Selector Switches.



Jr. High School . . .

AND FANS GET CENTRALIZED CONTROL AS WIRING ADDS BIG CONVENIENCE AT LOW COST



The new 109,800-square-foot Horseheads (N. Y.) Jr. High School uses 37 roof exhaust fans and is surrounded by 10 exterior "anti-vandalism" floodlights. According to Wilfred H. Sharrer, Electrical Consulting Engineer, centralized control for two widespread systems like these is practical *only* with remote control wiring.

The G-E Remote Control Wiring System eliminates two major roadblocks to centralization: First, it substitutes low-cost 24-volt wiring for the costly 120-volt wiring and conduit that otherwise would be required on all 47 lengthy switch legs. Second, the low-voltage switch legs do not require big, expensive switchboards.

Six low-cost 12-position G-E Master Selector Switches centralize both systems — and with

room to spare. This centralized switching saves the chief custodian some two to three hours of walking every day and that means yard lights and fans are ON less hours per day . . . saves cost of electricity.

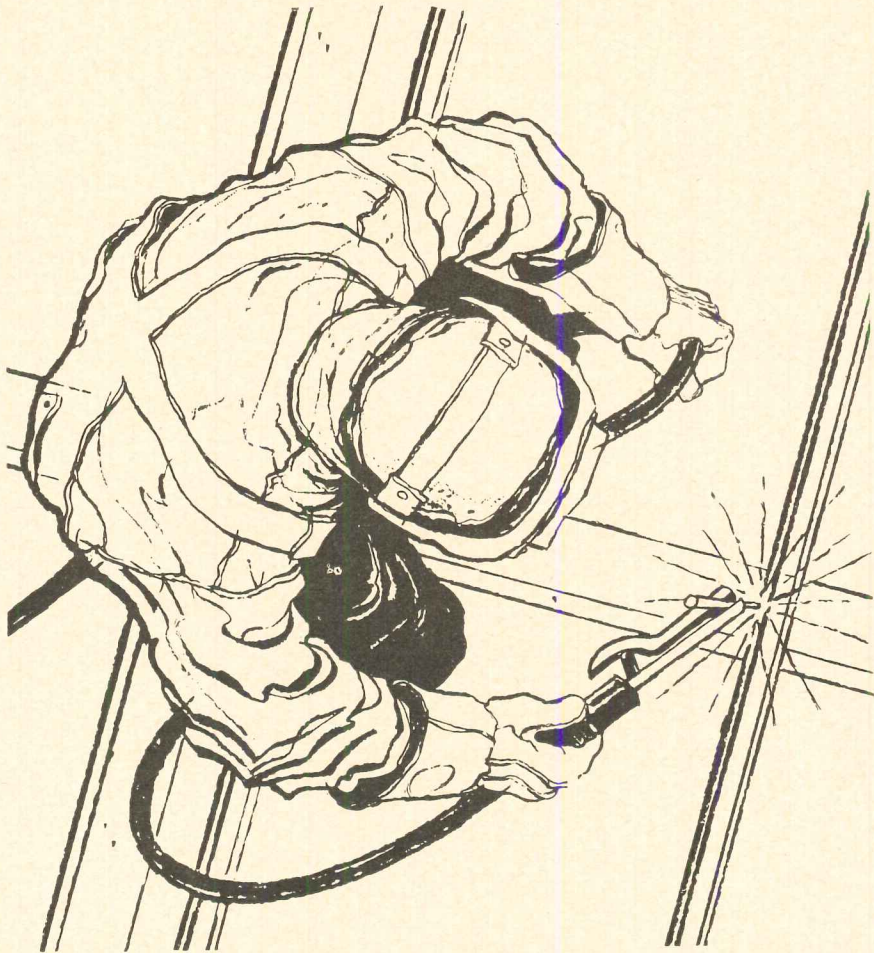
For complete information about the many advantages of General Electric Remote-Control Wiring in all types of commercial/institutional/industrial buildings, write today for your copy of the new General Electric Manual of Lighting Control Concepts. General Electric Company, Wiring Device Dept., Providence, R. I. 02907.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

Architect: Considine & Haskell, Elmira, N. Y. Electrical Consulting Engineer: Wilfred H. Sharrer, Syracuse, N. Y. Electrical Contractor: Terwilliger Electric Co., Elmira, N. Y.

For more data, circle 114 on Inquiry Card



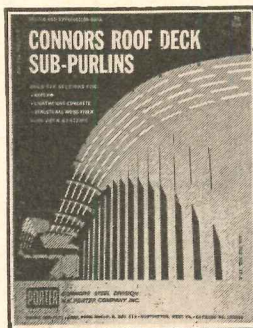
BULB TEE ROOF DECKS

ECONOMICAL, VERSATILE, FIRE-RESISTANT

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

PORTER

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



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

NAME _____

FIRM _____

Address _____

City _____ State _____

For more data, circle 115 on Inquiry Card

Product Reports

continued from page 214

DOUBLE-UNIT WATER FOUNTAINS

A new water cooler combination designed for the convenience of children and adults supplies drinking water at two height levels. *Tall 'N Small* is furnished in two models: *NSW 1B-T* with 8 gph capacity, and *NSW 2B-T* with 14 gph capacity.

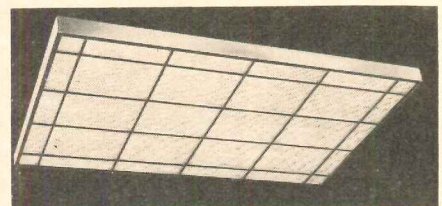


The width of the unit is 29 $\frac{3}{4}$ in.; depth is 14 $\frac{7}{8}$ in. Heights of this double unit are 31 $\frac{3}{8}$ in. and 21 $\frac{1}{2}$ in. *Sunroc Division TS, Glen Riddle, Pa.*

CIRCLE 304 ON INQUIRY CARD

SURFACE FLUORESCENT LUMINAIRE

A new line of extra shallow surface fluorescent luminaires features an extruded acrylic prismatic shielding which spreads a wide abundance of low brightness illumination. The panels are framed in bronze-colored anodized aluminum and have a



matching grid. *Diplomat* is available in 30-, 42- and 54-in. square sizes; and in two rectangular shapes, of 54 by 16 in. and 54 by 32 in. *Diplomat* can be used individually or spaced in continuous rows or patterns. *Lightolier, 345 Claremont Ave., Jersey City, N.J., 07305*

CIRCLE 305 ON INQUIRY CARD
more products on page 230



... in manufacturing a product
 ... in making a purchase
 ... in just being prepared

the determination to go first-class is a matter of planning!

value SOMETHING TO THINK ABOUT...
 IN PURCHASING UNIT VENTILATORS

Some manufacturers leave out value . . . needed essentials. They design their product around the "low bid." This may get them the order but *what* does it get the buyer?

However, if you are among the *value-conscious* businessmen who ask *first* "what do I get" and then "how much," check up on the Schemenauer Unit Ventilator — *Heating or Cooling*.

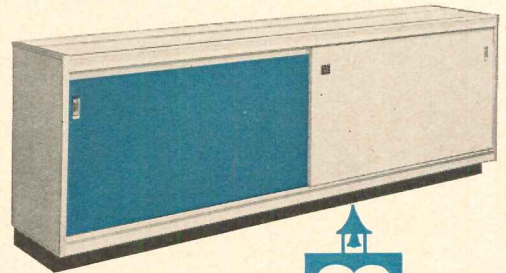
It's the *only* unit on the market today made to last longer, perform better and cost less to operate and maintain *the entire life of the classroom*.

We can *prove* this on *your* terms. It doesn't make any difference whether you're from Vermont or Missouri, hold a Ph.D. in engineering or are somewhere in between like the rest of us.

For *lasting value*, it pays to go first-class — and going first-class is *much more* than a matter of money.

As a starter, let us send you two "Eye Opener" Bulletins on unit ventilators. Just clip this ad to your card or letterhead and mail to us today. We thank you for this opportunity.

"Guaranteed the finest Unit Ventilator any amount of money can buy."



the heart of the school classroom

SCHEMENAUER
 manufacturing company
 HOLLAND, OHIO

For more data, circle 116 on Inquiry Card

Product Reports

continued from page 226

One of the most important specifications you can write will cover the vapor seal...

only **PREMOULDED MEMBRANE Vapor Seal with PLASMATIC® CORE** offers positive protection against excessive moisture for the life of the structure

The effective function of a structure and almost all of the products used within is dependent on the positive elimination of moisture migration into the structure. Dampness, condensation, paint and insulation failures, etc., can be eliminated if the structure is isolated from the site by a true vapor seal. Properly installed, **PREMOULDED MEMBRANE Vapor Seal** completely blocks every possible entrance through which moisture could enter the structure from the site. Provides a practical, permanent method of waterproofing vertical and horizontal concrete surfaces in all types of construction, including slab-on-grade, basement and crawl space.

For complete information request Catalog No. 753.

SEALIGHT®

PRODUCTS
FOR BETTER
CONCRETE
CONSTRUCTION

W. R. MEADOWS, INC.

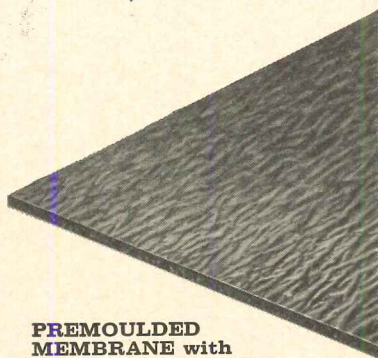
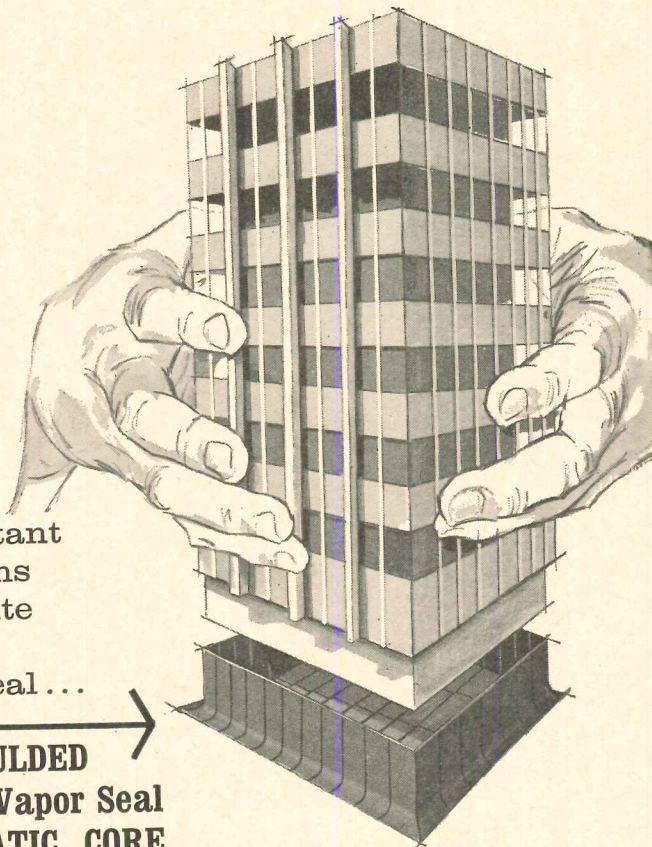
4 KIMBALL STREET • ELGIN, ILLINOIS 60122

W. R. MEADOWS
OF GEORGIA, INC.

4765 FREDRICK DRIVE, S. W.
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PREMOULDED MEMBRANE with PLASMATIC® CORE... the only vapor seal offering all these features...

- WATER AND VAPOR PROOF ... WVT RATING ONLY 0.0048 GRAINS/PER SQUARE FOOT/PER HOUR • DURABLE, FLEXIBLE AND STRONG ... WILL NOT RUPTURE OR TEAR UNDER NORMAL INSTALLATION TRAFFIC AND HANDLING • MONOLITHIC WHEN INSTALLED TO EXPAND AND CONTRACT IN DIRECT RATIO WITH THE CONCRETE WITHOUT BREAKING BOND • AVAILABLE IN 4' x 8' SHEETS AND ROLLS 4' WIDE TO 50' LONG • LIGHTWEIGHT, EASY TO HANDLE AND INSTALL.



CORNER SINK FOR L-SHAPED KITCHENS

Designed to fit in L-shaped kitchens, this stainless steel corner sink saves space and minimizes movement in the dish washing operation. The two bowls are standard size and feature contour shape and an easily cleaned stainless steel mirror finish. *Jensen-Thorsen Corp., Addison, Ill.*

CIRCLE 306 ON INQUIRY CARD

COMPLETE SYSTEM FOR SIDEWALL COVERING

The new steel *Stran-Wall* system consists of an exterior panel which provides the structure for the wall, an interior panel for use where metal paneling is desired and a sub-girt which ties the exterior and interior together.

Interior steel panels may be obtained with a vinyl laminated wood finish or a choice of 10 colors. Gypsum board wood paneling or any other collateral materials may also be



used. The company claims that this system provides greater flexibility of application than any wall system at present available for steel buildings. The system is designed to be easily insulated, if required, to meet precise climate requirements. *Stran-Steel Corp., National Steel Corp., 1202 Fannin Bank Building, Houston, Tex.*

CIRCLE 307 ON INQUIRY CARD
more products on page 234

For more data, circle 117 on Inquiry Card

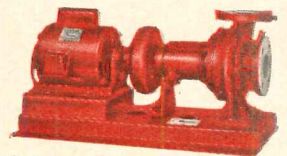
B&G *Hydro-Flo* PRIMARY-SECONDARY PUMPING

GIVES EACH TENANT COMPLETE CONTROL OF TEMPERATURE

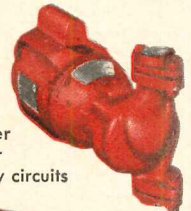


THE BUILDING: Crystal Tower, San Francisco, Cal.
OWNER: Crystal Court Apartments, Inc.
ARCHITECTS: Schram & White, A.I.A.,
San Francisco, Cal.
ENGINEER: D. Coddington, San Francisco, Cal.
BUILDER: Peter Kiewit & Sons Co.,
San Francisco, Cal.
CONTRACTOR: Mitchell Plumbing & Heating,
San Francisco, Cal.

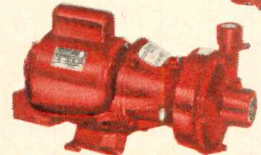
B&G products used in the hot water heating system in this modern apartment building include—



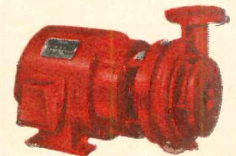
1 Universal Pump
for primary main



84 Booster
Pumps for
secondary circuits



1 Series 1522 Pump and
3 all-bronze Boosters
for domestic hot water



1 Series 1531 Pump
for pressure boosting



84 Flo-Control
Valves

324 Monoflo
Fittings



In this apartment building, the problem of providing comfort for *all* tenants is solved with a B&G *Hydro-Flo Primary-Secondary* pumping system. This method of zone control, as developed by B&G engineers, is proving the ideal way to provide automatic, balanced temperature control in multi-unit buildings. In the Crystal Tower, each apartment is on a separate zone, with its temperature individually controlled by a B&G circulating pump.

Zoning with pumps offers many exclusive advantages. Pumps do not require complex adjustments and assure positive control of circulation in secondary zones, even with high head pumps in the primary circuit. By designing the system with higher temperature drops, a substantial reduction in pump sizes and power requirements can be made.

For Primary-Secondary Pumping Design Data, write ITT Bell & Gossett Inc., Morton Grove, Illinois, Dept. IC-32.

ITT BELL & GOSSETT INC.
A SUBSIDIARY OF INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

For more data, circle 118 on Inquiry Card

THOUGHTS FROM A TEACHER ABOUT

“Comfortable students are better students. That’s the big reason why I like the Modine Valedictorian. It keeps classrooms fresh and perfectly comfortable all day long . . . whatever the weather outside.”

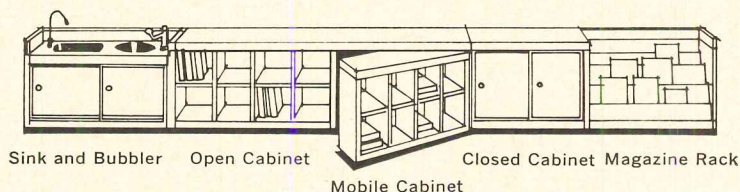
“And so smart looking. Clean, modern lines . . . beautiful colors and textures.”



Valedictorian unit ventilators are constantly alert, instantly responsive to students’ comfort needs. A unique “weather control center” adjusts automatically to changes in both indoor and outdoor conditions . . . dictates the unit’s total heating, cooling, ventilating and dehumidifying function. It is equipped for full air conditioning.

Valedictorian unit ventilators and custom-styled accessories are offered in a rainbow of colors. Baked-enamel finishes and colorful pebble-embossed vinyls are available in seven handsome, solid colors. You can also choose from a variety of leather-grained vinyls, gold-flecked textured vinyls and wood-grain vinyls.

A full line
of attractive,
functional accessories.



WRITE TODAY FOR
UNIT VENTILATOR
BULLETIN 1264

MODINE Valedictorian UNIT VENTILATORS

“Convenience is important too. Valedictorian accessories help keep everything handy and orderly.”

“And you know how kids are . . . school equipment has to take a lot of punishment. The Valedictorian does . . . stays bright and new-looking semester after semester.”



The Valedictorian's integrally styled accessories provide wall-to-wall beauty and utility. Features include: Smooth-sliding doors; sparkling aluminum door trim and pulls; adjustable shelving; easy to clean vinyl-clad steel tops; silent, out-of-sight casters for mobile units.

Valedictorian beauty is virtually student-proof. Heavily-reinforced, sturdy-steel construction! Chip-resistant chrome trim! Scuff-resistant, vinyl-clad front panels. All contribute to easy maintenance . . . along with such features as slide-out filters and pushbutton lubrication.

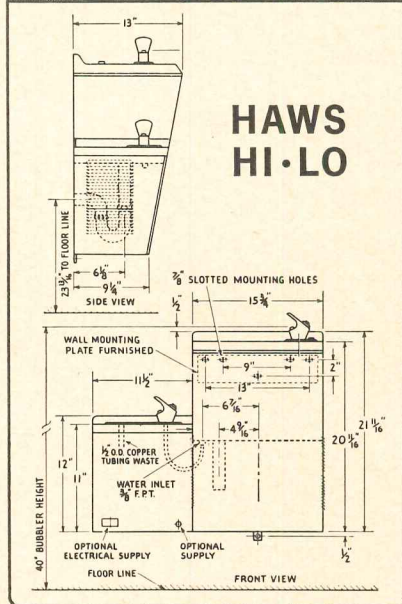
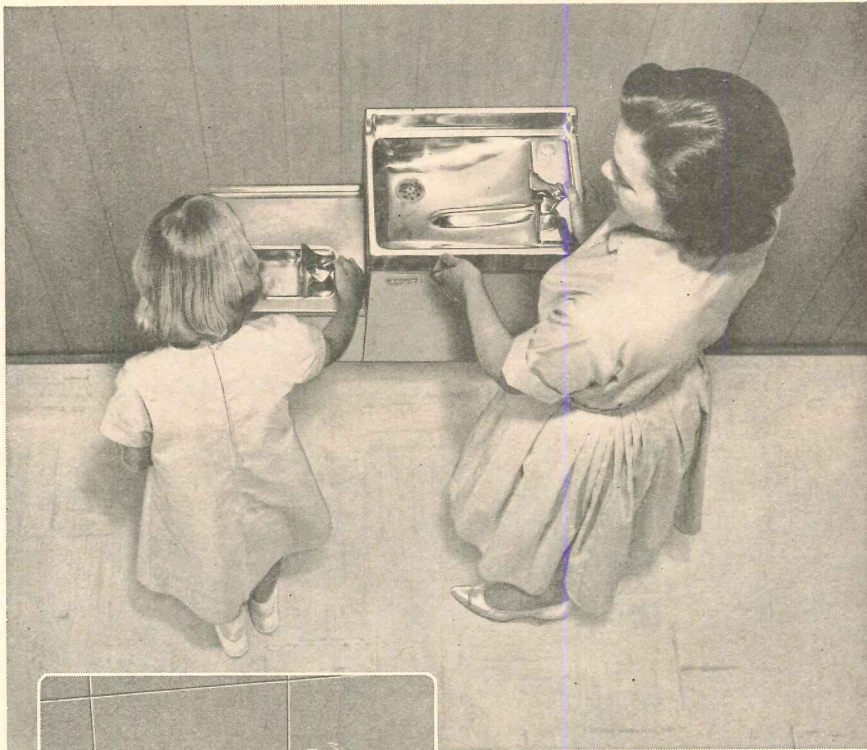


Modine MANUFACTURING COMPANY

1510 DeKoven Avenue, Racine, Wisconsin

The Valedictorian is more sensitive to classroom comfort than the student body!

For more data, circle 119 on Inquiry Card



Since 1909

HAWS DRINKING FAUCET COMPANY
Fourth and Page Sts., Berkeley, California 94710

manufacturers of wall and pedestal drinking fountains • electric water coolers
emergency eye-wash and shower units • laboratory fixtures • Haws flush valves

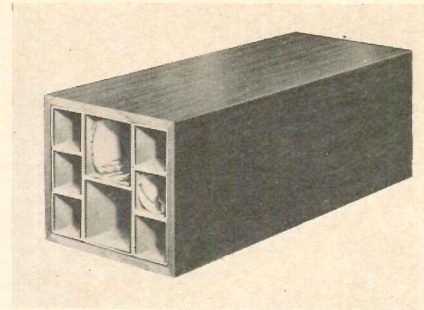
For more data, circle 120 on Inquiry Card

Product Reports

continued from page 230

DESK TOP TUBE FILE

A walnut-finished desk-top file provides six 2 1/8-in. and two 3 3/8-in. square tubes for filing rolled drawings, tracings, etc. The casing is 9 1/2 in. wide, 8 1/2 in. high and 23 3/4 in.

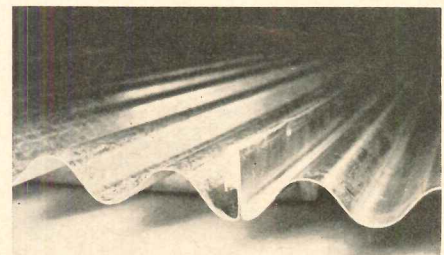


long. The fiberboard tubes are aluminum reinforced and open at each end. *Plan Hold Corporation, P.O. Box 90913, International Airport Station, Los Angeles 9, Calif.*

CIRCLE 308 ON INQUIRY CARD

ROOFING-SIDING JOINT

A new air-tight, water-tight joint for corrugated metal roofing and siding is said to permit lower roof pitches even down to dead level without leakage. *Rib-Seal* is a vertical rib

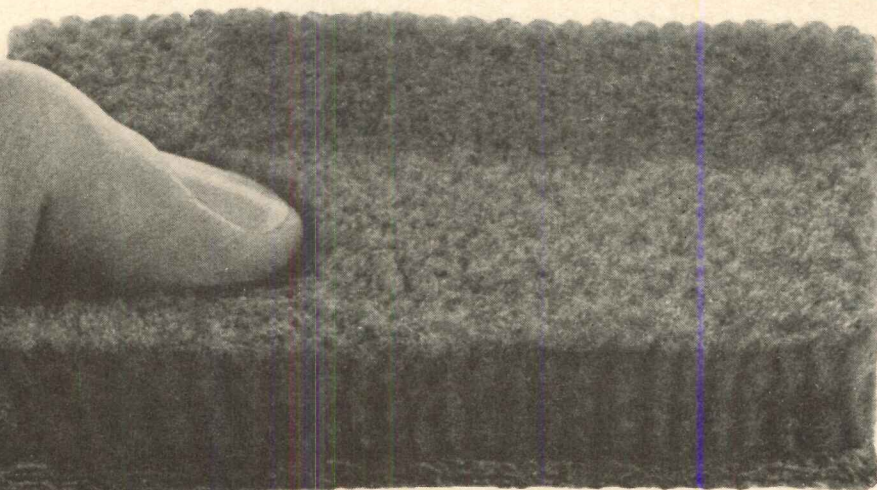
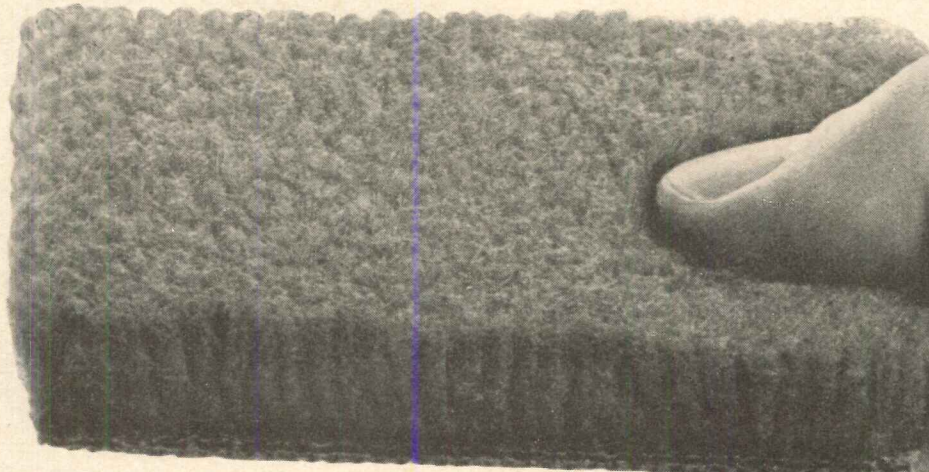


joint of nested male and female elements, embedded in factory-injected caulking, which rises above the corrugation crests. It replaces the standard method of joining in which the adjacent panels are lapped two corrugations and fastened every 16 in. with sheet metal screws. *Rib-Seal* is die-crimped every 36 in., eliminating drilled holes and sheet metal screws. Positive caulking seal prevent capillary action. *Elwin G. Smith & Co., Inc., 103 Williams St., Pittsburgh, Pa., 15202*

CIRCLE 309 ON INQUIRY CARD
more products on page 242

For more data, circle 121 on Inquiry Card →

**This is wool.
It's beautiful.**



**This is Acrilan®.
It looks like wool.
But it stays beautiful longer.**

For many reasons. Carpeting made with Acrilan acrylic fiber in the pile is more resilient than wool. It retains its deep pile longer. Resists shedding. Colors are purer and remain that way—Acrilan resists fading; Acrilan is easier to clean than wool.

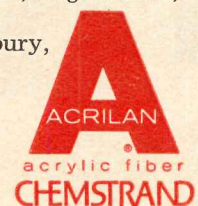
More?

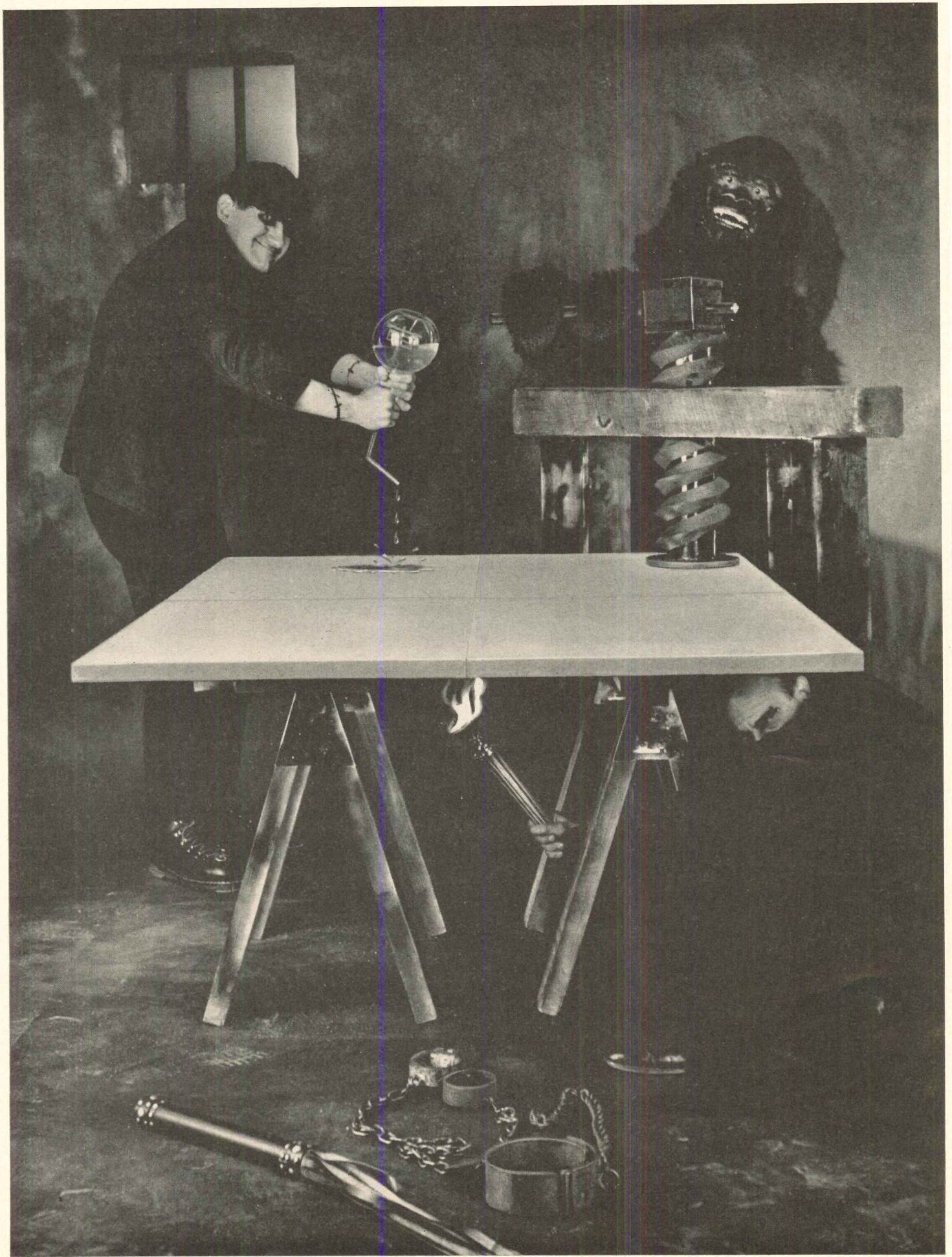
Acrilan is born moth-proof. Non-allergenic. Will never mildew. These are some of the reasons why architects all over the country are specifying Acrilan for important installations.

Let us tell you more.

Write Contract Carpet Merchandising, Chemstrand,
350 Fifth Avenue, New York 1, N.Y.

These are among the mills now licensed by Chemstrand for Acrilan: Barwick, Bigelow, Cabin Crafts, Callaway, Coronet, Crestline, Downs, Forrest, Hardwick and Magee, Hightstown, Karagheusian, James Lees, Loomweve, Magee, Masland, Monarch, Philadelphia Carpet, Roxbury, Wunda Weve. In Canada: Harding Carpets.





Harmless fun

(For J-M Fesco Board Roof Insulation)

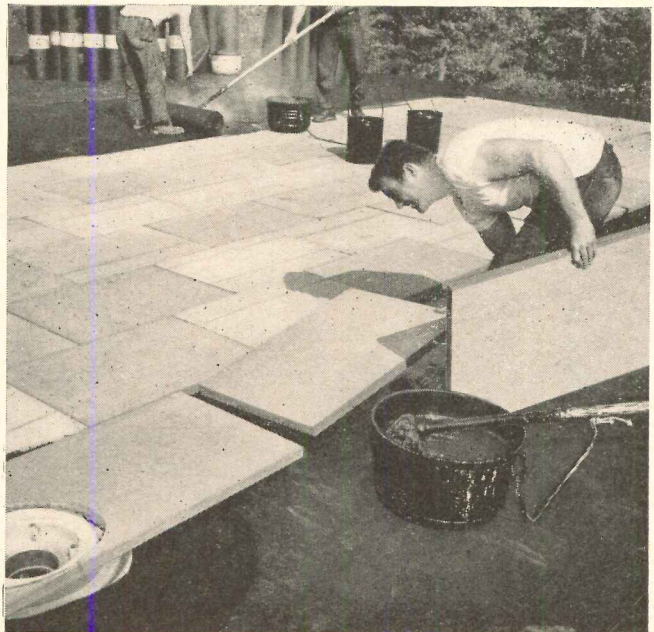
Surrender? Fat chance. Even an ordeal in a torture chamber can't faze Fesco Board. You can try to dampen its spirit . . . put the heat on . . . pressure it—yet Fesco Board remains imperturbable.

How come? The basic stuff Fesco Board is made of—Perlite. A very important and precious volcanic ore. Johns-Manville digs up this Perlite . . . expands it . . . anneals it (at 1700°F) . . . and transforms it into lightweight beads of volcanic glass.

These "beads" make Fesco Board fantastically durable. No matter how you punish it. Take fire, for example. Fesco Board is rated incombustible by Underwriters' Laboratories. And it's highly resistant to moisture absorption. Temperature, too. So much so, it lowers both original and operating costs of heating and cooling equipment. Yes, J-M Fesco Board is so effective, it actually pays for itself. In practically no time.

No wonder J-M Fesco Board is *the* roofing insulation preferred by many leading architects, engineers and owners as well as roofers.

For more information on J-M Fesco Board, write to Johns-Manville, Box 111, Dept. AR, New York, N.Y. 10016. In Canada, address Port Credit, Ont. Cable: Johnmanvil.



J-M FESCO BOARD, exceptionally light, is easy to cut and fit right on the job. Yet it's so rugged, it's not damaged by equipment or traffic.

Johns-Manville 

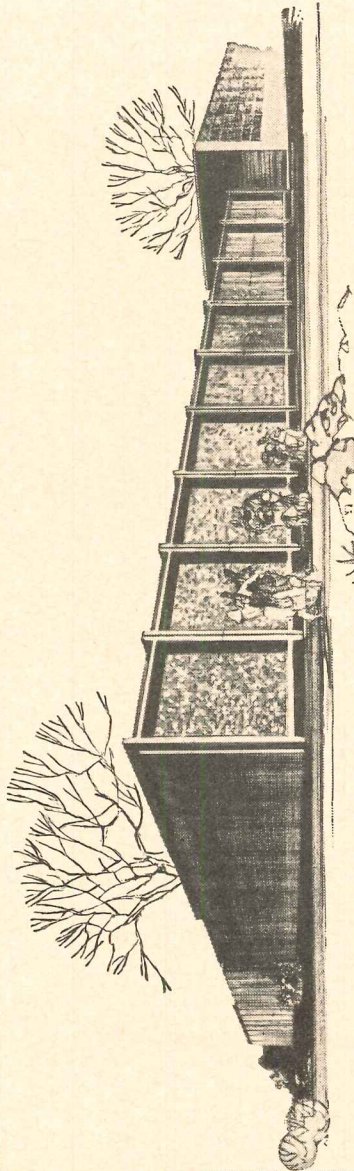
For more data, circle 122 on Inquiry Card

demountable classroom

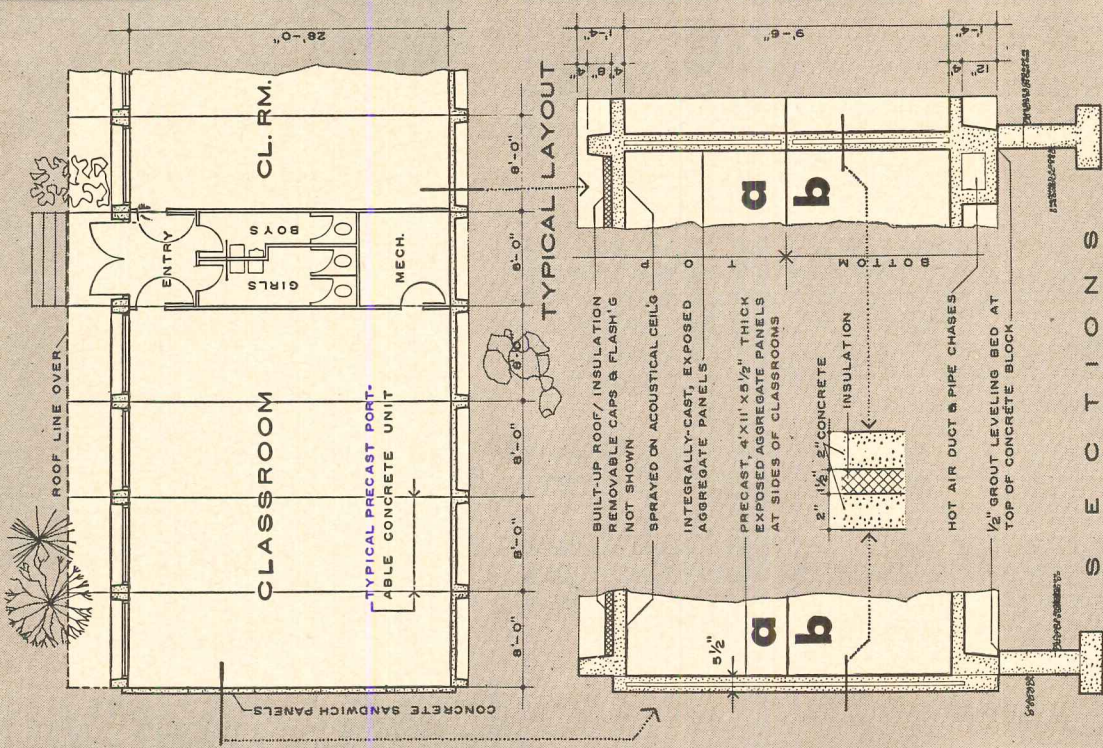
a.i.a. file: 4-a

Prepared as a service to architects by Portland Cement Association

Clip along dotted line



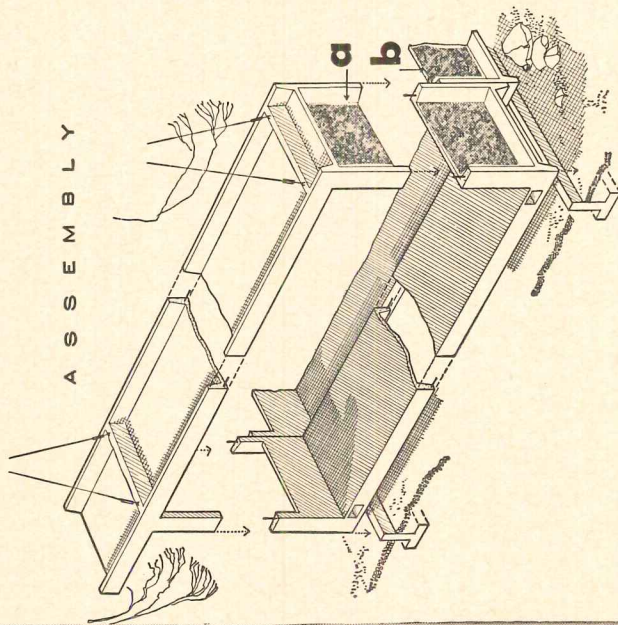
Pittsburgh Architects: John Pekruhn, A.I.A., Deeter and Ritchey, A.I.A., and Lawrence & Anthony Wolfe, A.I.A.
Consulting Structural Engineer: R. A. Zern, Pittsburgh



Entire classrooms precast in concrete make up the new addition to the Homewood Elementary School, Pittsburgh, Pa. The design brings beauty, extra utility and easy upkeep to what is usually a "temporary" type of construction. Moreover, a degree of portability is achieved which allows future transportation to another site at very nominal cost.

The concrete segments—each 8' wide by 28' long—include a roof or floor section combined with half of each side wall. The precast units were designed for mass production and contain all the essentials of classroom planning. Air ducts, concealed conduits and pipe chases provide a finished room without unsightly exposed utilities.

Oriented to enclosed, planted playgrounds, the structure is completed by a street facade of integrally cast exposed aggregate panels that enhance aesthetic values . . . keep out dust and noise . . . discourage vandalism.



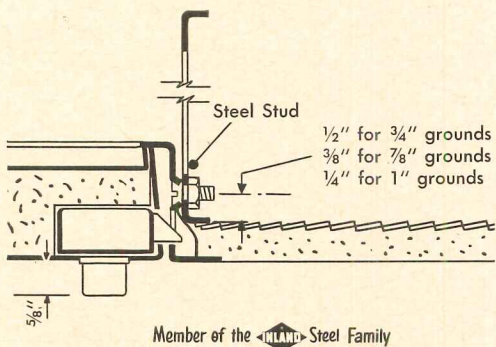
PORTLAND CEMENT ASSOCIATION

33 West Grand Avenue, Chicago, Illinois 60610
A national organization to improve and extend the uses of concrete



Entirely new
steel access
door has UL
1½-hour "B" rating

NEW MILCOR FIRE-RATED ACCESS DOOR



First access door to earn the Underwriters Laboratories 1½-hr. "B" Label — the Milcor Fire-Rated Access Door. You can specify it for service openings in plaster, masonry, tile, or wallboard construction. Sizes, 12" x 12", 16" x 16", 24" x 24", and 32" x 32".

Door has continuous hinge — and latches automatically. When closed and locked, door is semi-tamperproof, but unlocks easily with a screwdriver. The Milcor Fire-Rated Access Door is too new to be found in Sweet's now. Write for catalog page 734-4.

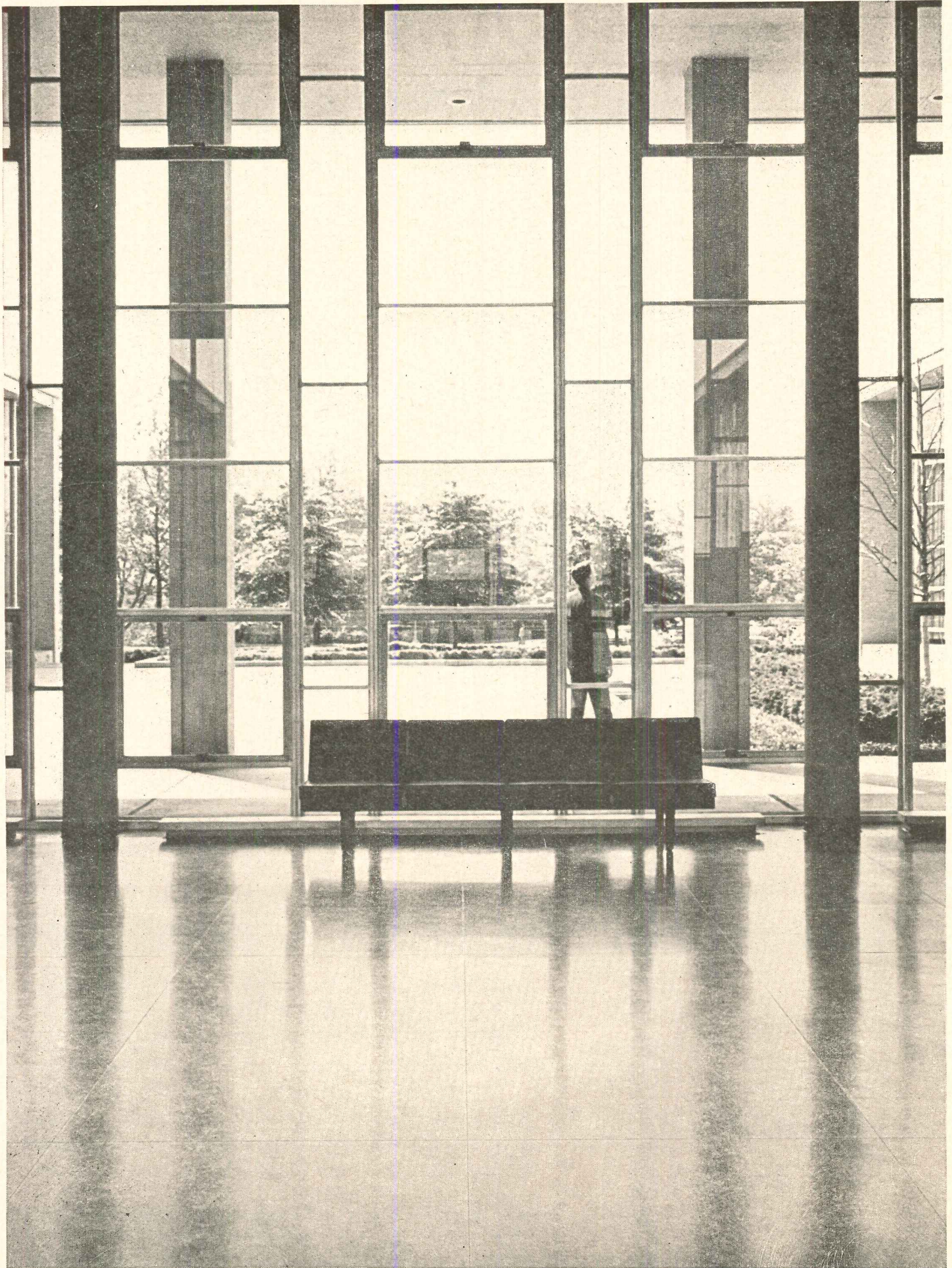
MILCOR®

BS-7

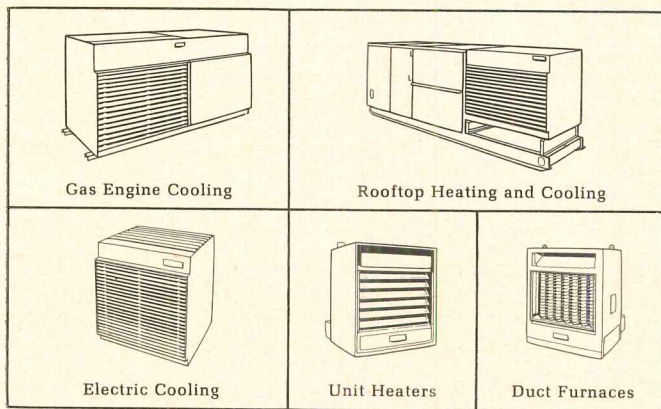
Inland Steel Products Company

DEPT. G, 4033 W. BURNHAM ST., MILWAUKEE, WISCONSIN 53201
BALTIMORE, CHICAGO, CLEVELAND, KANSAS CITY, LOS ANGELES,
MILWAUKEE, MINNEAPOLIS, NEW YORK, AND SAN FRANCISCO

For more data, circle 123 on Inquiry Card



After you've worried the design,
 worried the drawings,
 worried the bids
 and you're proud of what's up
 and the client's proud of what he has . . .
 realize that part of the beauty is comfort
 and part of the comfort is Janitrol.



It's the important part. And with Janitrol you can forget about the limitations some heating and cooling equipment impose on your designs. With Janitrol's flexibility the comfort lives up to the plan. Starting with small homes and individual apartments and working all the way up to most of your commercial and industrial jobs, Janitrol provides the right equipment at the right capacity. It's the broadest line in the industry and Janitrol backs it with an experienced field force to help you lick tough problems. Their job is to help you select the right equipment to fit your needs, handle layouts, and do whatever is necessary to get the job right.

Each time you create beauty, specify the beauty of comfort as well . . . specify Janitrol. Contact your Janitrol District Manager for full information on the complete Janitrol

line. The name's in the Yellow Pages.

JANITROL DIVISION
 Midland-Ross Corporation
 Columbus, Ohio Phoenix, Arizona



Janitrol gives you more to work with

For more data, circle 124 on Inquiry Card

Product Reports

continued from page 234

WASHROOM ASHTRAY FIXTURE

The *Tilt-A-Tray 804* ashtray which can be fastened to any wall surface by screws or epoxy adhesive has a flip-down device which empties the ash compartments into a receptacle. *Reserve-A-Roll Company, 602 Sul Ross, P.O. Box 66069, Houston 6, Tex.*

CIRCLE 310 ON INQUIRY CARD

BRIGHTER FLUORESCENT BULB

The *UHO Power-Twist* fluorescent lamp is said to be the brightest fluorescent bulb yet to be developed. Rated at 17,000 lumens, the *UHO Power Twist* has an estimated life of 15,000 user hours. The lamp is 96 in. long and fits all fixtures handling 1,500 ma lamps. It is listed as 215 watts and carries a two-year guarantee. *Duro-Test Corp., North Bergen, N.J.*

CIRCLE 311 ON INQUIRY CARD

INSULATED WATER ASSEMBLY SYSTEM

A new fluid piping insulation water assembly system for heating and air-conditioning use has been developed which consists of insulated rubber pipe particularly designed for use with any chilled water air-conditioning or heating system.

The pipe's insulation is in the cover which surrounds a synthetic rubber inner liner reinforced by a high strength synthetic close woven braid. The thermal insulating cover is 1/2-in. closed cell synthetic rubber.

This new insulated water assembly system is suitable for inside, outside or underground use.

Kirkcel insulated water assembly is especially adaptable for use in apartment houses, motels and in other smaller commercial structures, as well as for residential use where chilled water air-conditioning and heating systems are employed.

The product is available in a wide range of sizes, 3/4 to 3 in. inside diameter and in lengths of 5 to 50 ft, ready to install with pipe thread fittings. *Kirkhill Rubber Company, Dept. 102/Sales, P.O. Box 127, Brea, Calif.*

CIRCLE 312 ON INQUIRY CARD



New TALK-A-PHONE

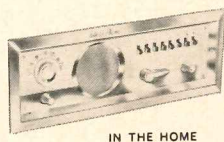
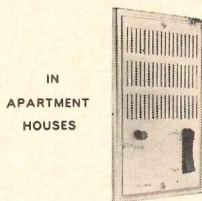
The Intercom with the "Built-in-Brain"

FOR OFFICE AND INDUSTRY

Distinctively styled, with more dependability and higher efficiency than any Intercom ever developed . . . yet sensibly priced. Meets every Intercom need of office and industry. Proportioned like a book to lie flat on the desk . . . only 3 inches high. Combines the look and feel of fine grained leather with the strength and rigidity of steel. Beautifully finished in charcoal gray with brushed chrome side panels.

- **Chief and Chief Redi-Power Universal Systems**, with normal and reserve high volume. Up to 20 watts when and as you need it.
- **Deluxe Systems**. Low-cost intercommunication for use anywhere.
- **Hi-Power Deluxe Systems**. Provide exceptional volume, economically.
- **12-Station Selective Wireless System**, featuring 6 separate 2-way conversations and Selective Paging with reply.
- **2-Station Wireless Systems**. Available in 6 separate channels.

TALK-A-PHONE . . . "Has Everything. Does Everything." The accepted standard of quality and dependability in Intercommunication for over a third-of-a-century.



IN APARTMENT HOUSES . . . Provides instant and direct 2-way conversation between any Apartment and Vestibule in buildings of any size. Whispers, shouts and normal voice are heard clearly under any conditions. Greater performance with these exclusive Talk-A-Phone features:

- Ample volume without "boom"
- Automatic privacy
- Individual volume selection for each apartment
- Built-in buzzer
- Naturalness of tone
- Simplicity of operation.

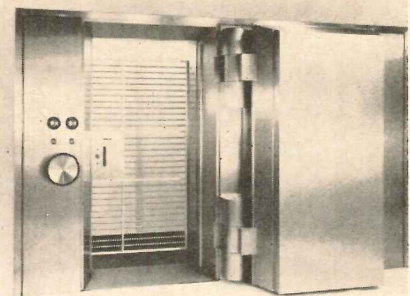
IN THE HOME . . . everyone in the family will enjoy the comfort, convenience and peace of mind this Talk-A-Phone Home Intercom-Radio System provides. From any room you can • Listen-in on baby, children or sick room • Answer outside doors without opening doors to strangers • Talk to anyone—upstairs and downstairs, inside and out • Enjoy radio in every room with the simple flick-of-a-switch. Distinctively styled. Beautifully finished. Easily installed.

Send for Free Catalogs... Dept- AR-7

TALK-A-PHONE CO., 5013 N. Kedzie Ave., Chicago 25, Illinois

BANK VAULT DOOR

An eight-ton bank vault door has been developed that unlocks itself and swings open at the touch of a button. The new Mosler door is completely automatic in operation; when the button is touched an electro-hydraulic system withdraws the



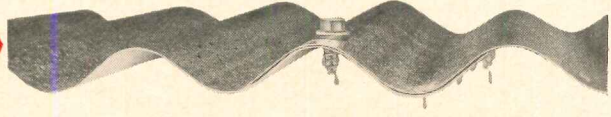
locking bars and opens the door. The design of the door was evolved in association with Skidmore, Owings & Merrill, Architects and Engineers. *The Mosler Safe Company, 320 Park Ave., New York 22, N.Y.*

CIRCLE 313 ON INQUIRY CARD

more products on page 246

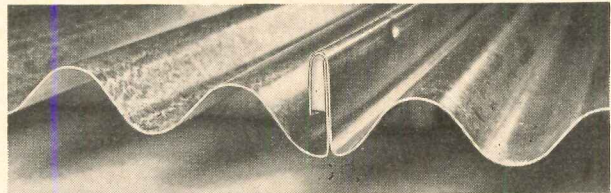
For more data, circle 125 on Inquiry Card

Would YOU buy a metal roof like this



Every screw fastener is a potential leak when expansion, contraction, vibration, snow load and wind load works it loose. Capillary action pulls water between the sheets on this old-style side lap, too.

when you can get a **LEAK-PROOF ROOF** at virtually the same cost?



Rib-Seal has no holes, no screws. Its factory-caulked, interlocking side joint is die-clinched. The seal is higher than the corrugation crests—water can't get in—even with low roof pitches of virtual dead level.

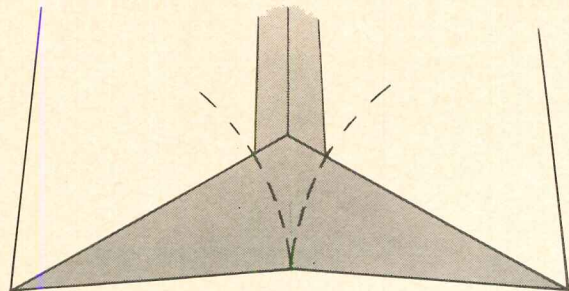
Compare ...

a lapped joint with a drilled hole and a sheet metal screw every 16 inches

...with

Rib-Seal*, a vertical joint nested in caulking, with no holes, no screws, no end laps for spans to 40 feet

Steep roof pitch has one main purpose—to minimize leakage. Leakage is already minimized—yes, *eliminated*—by Rib-Seal. You can drop your pitch to virtual dead level without chance of leaks, and save the gable end areas and up to 10% of roof area and the heat loss for both. You eliminate *all* the useless air space above the actual work space—an important factor in heating and air conditioning. And, of course, Rib-Seal is airtight, too.



Rib-Seal — another Smith “first” — is designed for both roof and wall installation. The new wider panel (up to 45”) reduces the number of side joints. Available in greater lengths, it eliminates end laps for roof spans to 40 feet or more. It costs substantially the same as old-style corrugated sheeting.

Rib-Seal has a vastly improved appearance in addition to absence of side lap fasteners. The high joint imparts an attractive architectural accent line to roof and wall. Rib-Seal has so many points of superiority, and none of disadvantage, its exclusive use is clearly indicated.

Rib-Seal is available in 2 $\frac{2}{3}$ " x $\frac{1}{16}$ ", 2 $\frac{2}{3}$ " x $\frac{7}{8}$ " and V-beam corrugations. You can get it in galvanized or aluminized steel, stainless steel or aluminum. It comes in all mill finishes, with Colorgard® the Smith factory-enamel in durable color, or with DuPont Tedlar® coating.

Insulated roofs and walls are provided by sandwiching rigid fiberglass insulation between an outside Rib-Seal panel and an inside flush panel or plain corrugated sheeting.



“Smitty builds walls for Keeps”

Write for Bulletin 64C or see Sweet's Architectural or Industrial Construction File 8b/Sm

ELWIN G. SMITH & CO., INC. Pittsburgh 2, Pa. / Detroit • Chicago
Cincinnati • Cleveland • New York • Atlanta • Toledo • Philadelphia



*Patent applied for

For more data, circle 126 on Inquiry Card

CAN THIS GOOD LOOKING WALL ALSO FOLD?

Indeed it can. The difference between a FAIRHURST FOLDING WALL and an "accordion door" is apparent. Quite evident is the beauty of its near-seamless facade of wood veneer, plastic or fabric. Less obvious is the real reason Fairhurst has been first in Folding Walls for over 35 years—the patented folding mechanism which assures ease of operation and positive closure without motors or exposed hardware. A FAIRHURST FOLDING WALL is always sound-retardant. It won't sag, warp or jam and can be made fire retardant if you wish. Check your SWEET'S FILE or WRITE DIRECTLY FOR COMPLETE INFORMATION.

TECHNOPLY CORPORATION Dept. A

Fairhurst DIVISION
TECHNOPLY CORPORATION

Mfrs of Folding Walls and Architectural Plywood
182-20 Liberty Avenue, Jamaica 33, New York

COLONIAL ROOM, ROOSEVELT HOTEL
Madison Ave., N.Y.C. (A Hilton Hotel.)



For more data, circle 127 on Inquiry Card



The new look of luxury that speaks in a whisper

Low silhouette! Elongated bowl! Quieter by far! That's the new Case No. 4100 Silhouette. The price? Just \$123.95*! Yet what features! Positively will not overflow. Flushes on 14 quarts of water. Operates on as little as 15 pounds pressure. Comes in 50 colors, plus sparkling black. Want more details? See Sweet's (26A) or write direct.

*Suggested consumer price in white

CASE MANUFACTURING
Division of Ogden Corporation
Dept. AR-764, Robinson, Illinois



For more data, circle 128 on Inquiry Card

**DESIGN THE HOUSE THAT
CLEANS ITSELF . . .**

it sells itself, too!

with

Vacu-FLO®
BUILT-IN CLEANING



plug in the hose . . .
dirt is whisked
through tubes to
power unit in
garage or utility
area: dirt collects
in receptacle . . .
"blue-air" is
exhausted outside

Manufactured by

H-P PRODUCTS, Inc.,
510 WEST GORGAS ST.
LOUISVILLE, OHIO 44641

Phone 875-5556 Area Code 216

For more data, circle 129 on Inquiry Card

DAP[®] FLEXISEAL[®]

Meets
Interim Federal Spec.
TT-S-00227a,
ASA Spec.
116.1-1960



Use Flexiseal for a permanent, positive seal in tough jobs like these

- Glass, Metal, Precast Concrete Curtain Wall Panels
- Porcelainized Metal Panels
- Tilt-up Panels
- Reservoirs, Storage Tanks
- Walkways, Patios
- Swimming Pools
- Expansion Joints and Conventional Sealing Applications

Specify DAP Flexiseal[®] 2-part, liquid polysulfide polymer compounds for the ultimate in caulking, glazing and sealing dependability. They assure trouble-free, absolute seals even when brutal conditions of expansion, contraction, temperature extremes and weathering can cause conventional sealants to fail. DAP produces Flexiseal compounds in one, premium-grade quality only. DAP quality control technicians keep a close check on every step in manufacturing to assure Flexiseal always meets or exceeds Interim Federal Specification TT-S-00227a and ASA Specification 116.1-1960.

Formulated with Thiokol* polysulfide polymers, Flexiseal stays rubber-like and resilient in Arctic cold and desert heat. *Balanced Modulus* guarantees tenacious adhesion throughout this extended temperature range.

The combination of durable flexibility and positive adhesion is the reason you can depend on DAP Flexiseal for long-term airtight, watertight seals in curtain wall seams and expansion joints... why Flexiseal gives the most dependable service in conventional caulking, glazing, sealing jobs, too. For complete information on all Flexiseal compounds and performance graphs, write for Flexiseal Technical Bulletin.

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

**Trademark of Thiokol Chemical Corp.*



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

For more data, circle 130 on Inquiry Card

Product Reports

continued from page 242

MIXING BOX TO COMBAT STRATIFICATION

A new concept in the design of air mixing boxes has been introduced in order to combat major problems of air stratification. The four problems which the new mixing box is said to combat are coil freeze up, water ham-

mer, uneven temperature of air leaving the heating coil and stratification discomfort in the occupied space. The company claims that this high efficiency box which is designed for use on *Trane* Climate Changers, large air-conditioning or heating ventilating air handling units and built up systems, will permit the introduction of 42 per cent outside air at 10 F with 75 F return air, compared to 17 per cent outside air with conventional types of mixing boxes.

The Trane Company, La Crosse, Wis.
CIRCLE 314 ON INQUIRY CARD

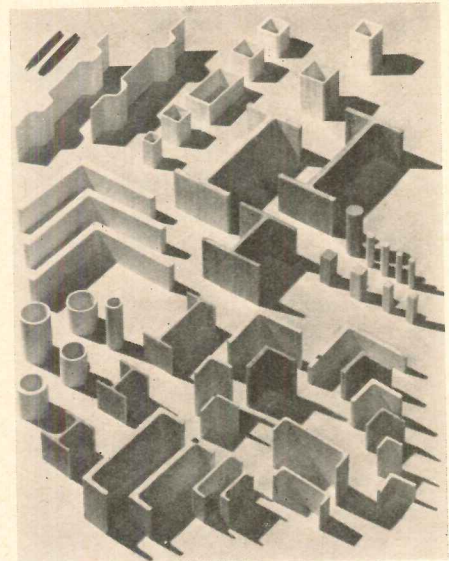
STRUCTURAL SHAPES IN FIBER GLASS

Fiber glass I beams, angles, channels, tubing and bars represent a new line of structural shapes introduced by Joseph T. Ryerson & Son. Manufactured by the continuous forming process, *eXtron* shapes are available in two grades—100 for most applications and 200 for applications where extreme corrosive conditions apply.

Redwood sidings help the architect give sympathetic treatment to professional buildings. For further information on redwood siding write: Dept. 33-A, California Redwood Association, 617 Montgomery St., San Francisco.

The Tongue and Groove siding shown is FactriSawn® a trademarked, Certified Kiln Dried product of these mills . . . SIMPSON TIMBER CO. • UNION LUMBER CO. • WILLITS REDWOOD PRODUCTS CO. • ARCATA REDWOOD CO. • GEORGIA-PACIFIC CORP. THE PACIFIC LUMBER CO. . . . which form the CALIFORNIA REDWOOD ASSOCIATION

For more data, circle 131 on Inquiry Card



These shapes are designed for structural applications requiring a combination of strength, light weight and a high degree of resistance to chemical corrosion.

Among the typical applications quoted by the company are hand rails in chemical plants, antennae parts and ladders in radar installations, tank supports and conveyor structural parts. Weight is about half that of aluminum; tensile and compressive strengths are 20,000 psi. *Joseph T. Ryerson & Son, Inc., Box 8000A, Chicago, Ill.*

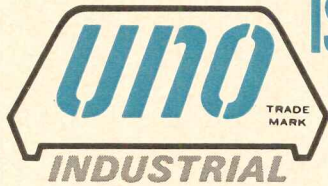
CIRCLE 315 ON INQUIRY CARD

NEW MEMBER FOR PERMALITE GROUP

Redco, California's largest producer of Perlite aggregates for the construction industry, has signed a franchise agreement with Great Lakes Carbon Corporation, and will now use the *Permalite* registered trademark for products formerly sold under *Redco* and *Panacalite* labels. *Building Products Department, Great Lakes Carbon Corp., 630 Shatto Place, Los Angeles, Calif.*

CIRCLE 316 ON INQUIRY CARD

6 "MAKES-SENSE" REASONS WHY



IS A LIGHTING NATURAL FOR YOUR PLANT

- 1** Utilizes 1500 Milliamp lamps for the 50 to 100 F.C. Industrial jobs.
- 2** Saves up to 20% in Installation Costs as proved by a St. Louis Electrical Contractor.
- 3** Saves up to 35% in Overall Costs compared to 40-watt Rapid-Start Systems.
- 4** Fewer Lamps (1 against 4 or 5); fewer Ballasts (1 against 4 or 5) to maintain. 1500 Milliamp lamps are more economical. 17' long unit with just two lamps and one ballast.
- 5** Engineered for today's lower ceiling heights.
- 6** Provides easy-ballast access for maintenance.

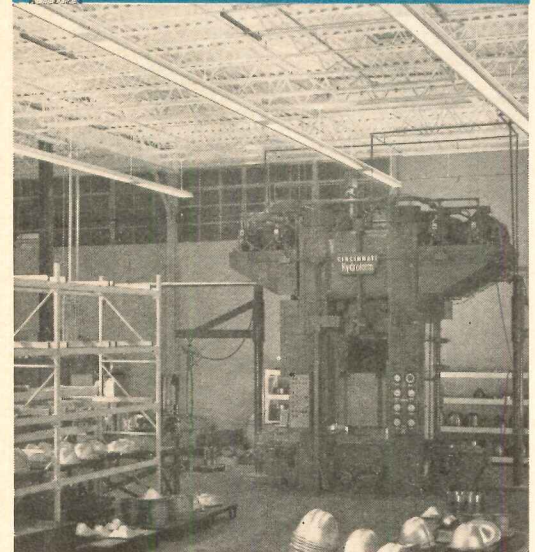
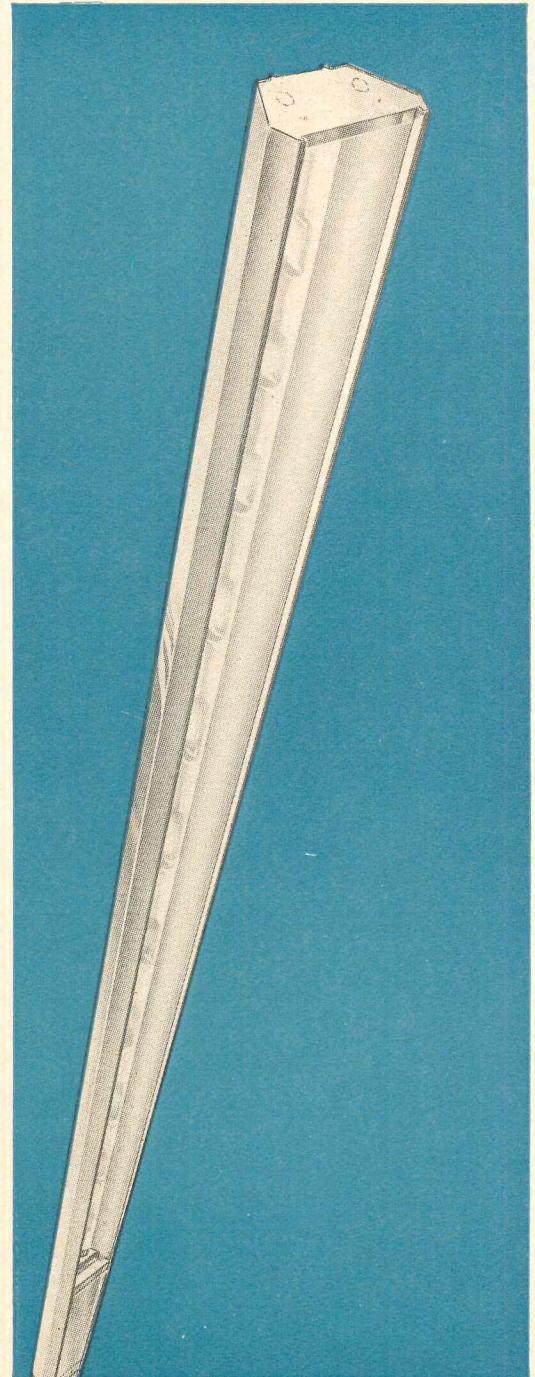


LIGHTING
Since 1902

THE EDWIN F. GUTH COMPANY
BOX 7079 ST. LOUIS 77, MO.

Uno — the new single lamp industrial luminaire for 800 or 1500 Milliamp lamps.

Write for your free copy of the new Uno brochure and cost comparison study.

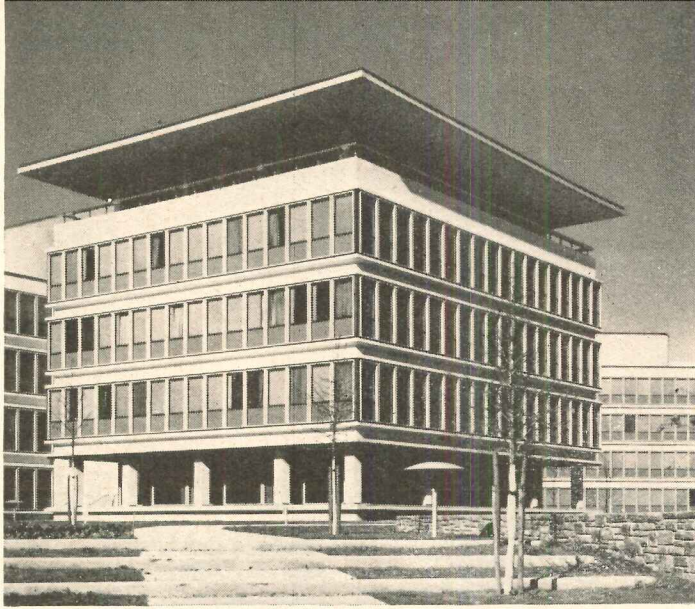


For more data, circle 132 on Inquiry Card

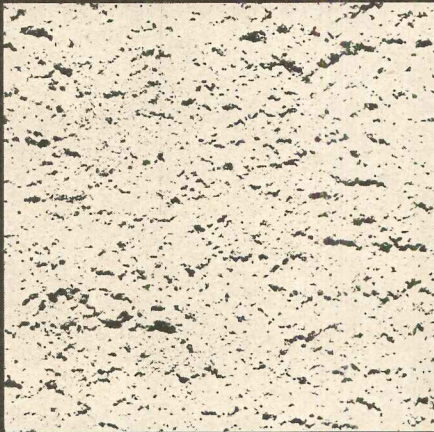
More and more top architects are going Gold Bond



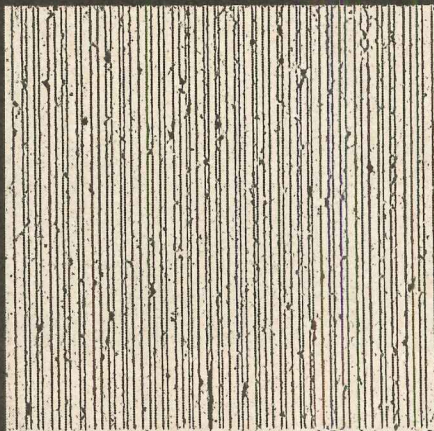
The Gold Bond difference: Unique qualities of Travacoustic tiles provide quiet and beauty to match the environment at American Cyanamid



*American Cyanamid Company, Wayne Township, N. J.
 Architect: Vincent G. Kling, F.A.I.A., Philadelphia, Pa.
 General Contractor: Frank Briscoe Company, Inc., Newark, N. J.
 Acoustical Contractor: Kane Acoustical Company, Fairview, N. J.*



Fissured Travacoustic
 (Used in the American Cyanamid Building)



Striated Travacoustic
 (Travacoustic is also available
 in three sculptured patterns)



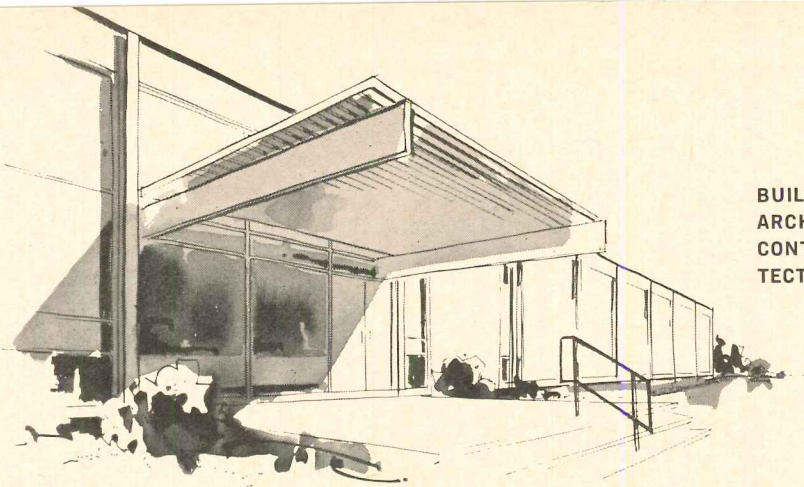
The 180 acres which surround the new American Cyanamid headquarters are heavily wooded. The area is quiet and beautiful. And so are the offices—from reception desk to board room. They all have ceilings of Gold Bond Travacoustic. The surface fissures vary in size and arrangement. And because no two tiles are exactly alike, ceilings have a pleasing, natural appearance. The white finish offers high light-reflection. Made from mineral wool, Gold Bond Travacoustic has a noise-

reduction coefficient rating of .70 or better and is dense enough to help reduce sound transmission from office to office. Travacoustic is rated noncombustible, and is available in fissured, striated or choice of sculptured patterns. For technical information, see your Gold Bond® Representative. Or write to Department AR-74, National Gypsum Company, Buffalo 25, New York, U. S. A.

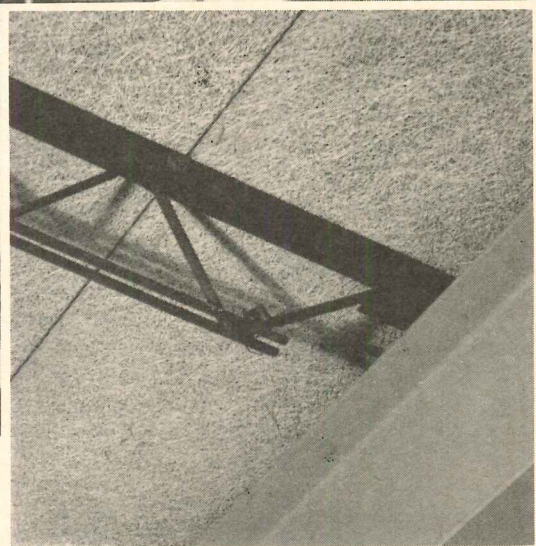
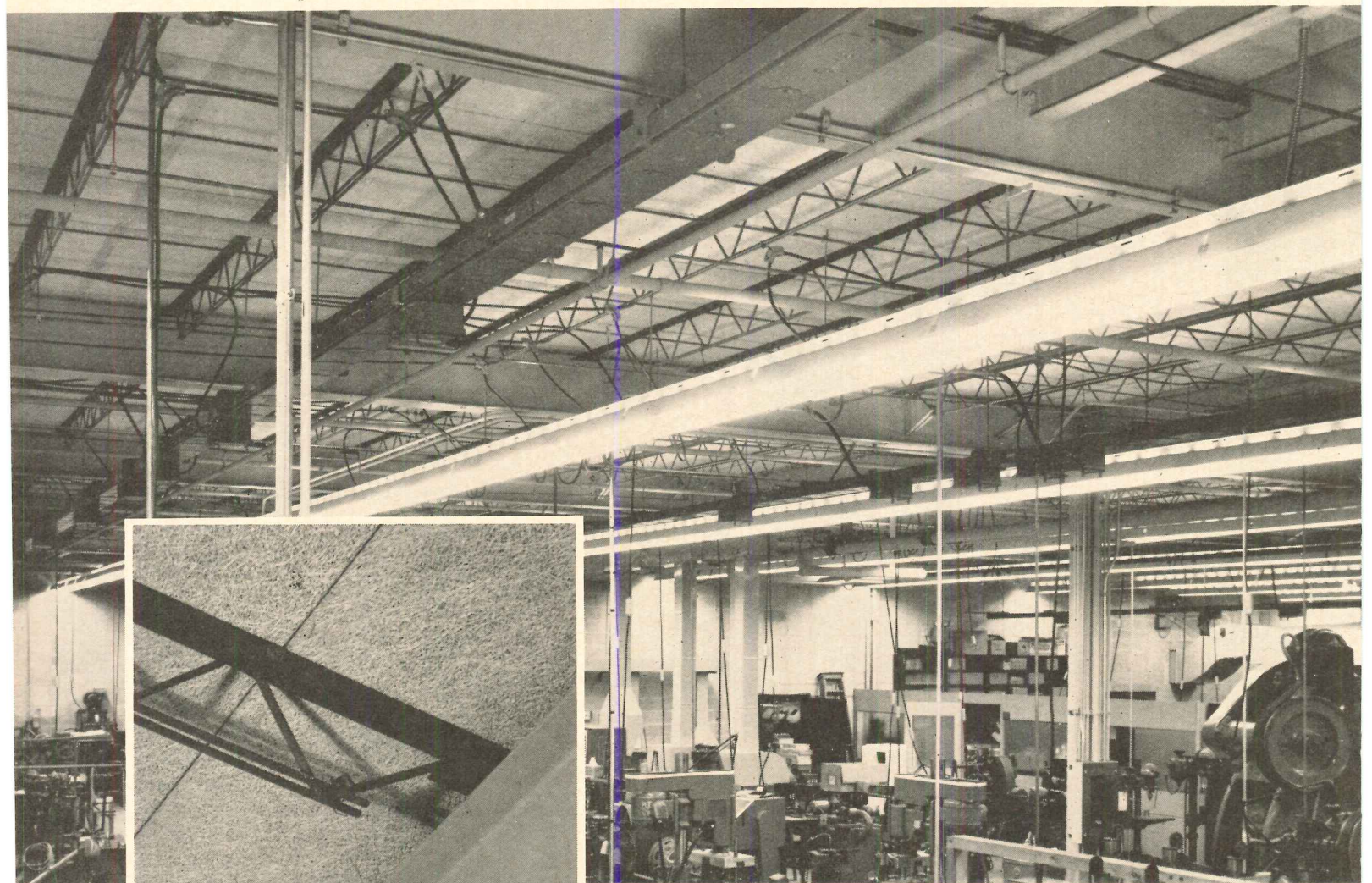


Gold Bond materials and methods make the difference in modern building

For more data, circle 133 on Inquiry Card



BUILDING: James G. Biddle Company, Plymouth Meeting, Pa.
ARCHITECT: The Ballinger Company, Philadelphia, Pa.
CONTRACTOR: Barclay White & Company, Philadelphia, Pa.
TECTUM ERECTOR: J. B. Eurell Company, Philadelphia, Pa.



**The Gold Bond difference:
Tectum deck and ceiling
completed in 512 manhours
at James G. Biddle Co.**

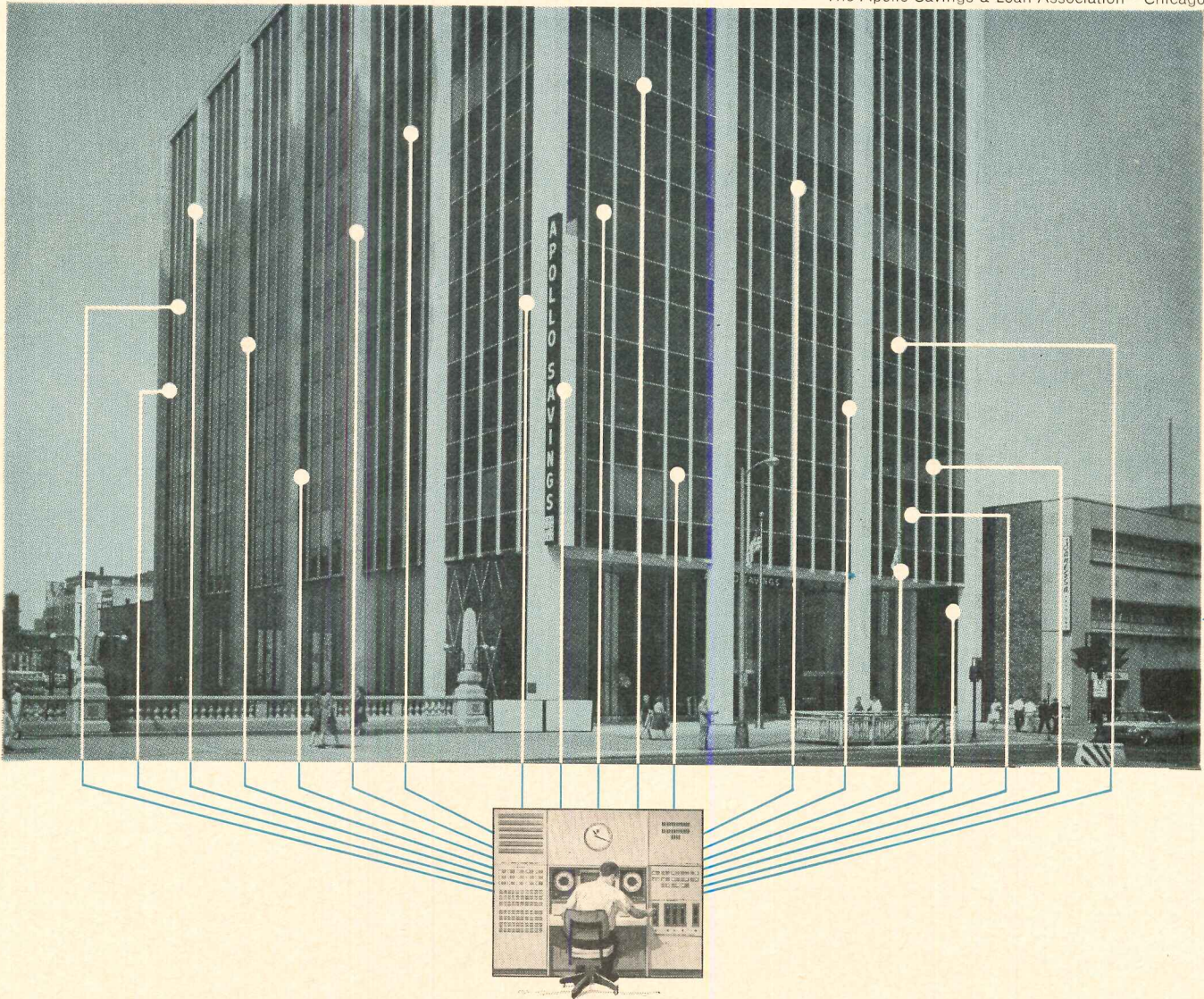
A value-packed Gold Bond Tectum roof deck contributed significantly to economical construction and the efficiency of the smart, new James G. Biddle Co. plant near Philadelphia. Two-inch Tectum planks are clipped directly to long span joists. 44,000 sq. ft. were installed in 512 manhours' time. Deck and ceiling of the factory were completed in 4 days. Structural framing is supported by steel columns outside the walls which are non-load bearing. Tectum is lightweight, insulating, sound absorbing and structural. No painting is required. Have you investigated the built-in economies of versatile Tectum? For complete information write National Gypsum Co., Buffalo 25, N.Y., Dept. AR764.



For more data, circle 134 on Inquiry Card

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Contains information on the operating economies and applications of automation in controlling all kinds of buildings. Send to Mr. W. N. Wray, Honeywell, Dept. AR7-102, Minneapolis, Minnesota 55408.

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TITLE _____

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Honeywell

The radiant ceiling panels of the IRC System are finished in baked enamel for easy cleaning. There are no floor-mounted, wall-hung, or window-sill units to clean or to get in the way.

ENVIRONMENTAL CONTROL IN HOSPITALS

Designing to meet a medical facility's special conditions of temperature, humidity, air cleanliness and circulation

The environmental requirements of today's hospital increase the demand for total air conditioning. Thirty years ago, air conditioning a hospital was big news. In fact, air conditioning *anything* was new and exciting; the concept of a controlled indoor environment had just dawned.

Many basic ideas now common in air conditioning practice were born in that period. Force-fed by the pressure of great building programs, they matured and were refined into highly efficient systems. But they had their limitations.

The vast volume of air used to heat and cool a large building required extensive mechanical equipment and ductwork. Wet refrigerating coils had a bad habit of accumulating and propagating airborne contaminants. These deposits tended to develop into colonies of bacteria and other micro-organisms which passed into the air stream during the system's operation.

Great strides were made by filter designers to reduce this hazard. But one weakness of the filter remains: it has to be serviced regularly and faithfully by human beings — and is subject to consequences of their vagaries.

Need for a New Approach

The basic ideas of the 1930's were great in their day, but we are now in the mid-1960's. The need now is for an up-dated approach to hospital comfort control —

one that takes into account the special conditions of the hospital.

Designing an air-conditioning system to satisfy these particular requirements differs from designing for other building types. Problems indigenous to hospitals are:

- (1) The need for 100% exchange of air.
- (2) Complete control of airborne contamination.
- (3) Temperature, humidity, and air movement favorable to a patient's health and comfort.
- (4) Cleanliness and ease of maintenance.
- (5) Economy—both in first cost and in operation.

There is a new awareness of air conditioning as a contributing factor in sanitation, as well as comfort. Obviously, it is inconsistent to spend time and money to create aseptic conditions in surgery and other critical departments by sterilization methods and then permit contaminating influences to exist in the air conditioning system.

Growth of New Technics

Technological advances over the past decade have placed at the disposal of the hospital architect new equipment, methods and procedures that are capable of improving environmental conditions in medical facilities — at the same time, contributing to economy of installation and operation.

One of the newest developments is the Inland Radiant Comfort System. Here is a completely new concept in total air conditioning specifically designed for the needs of the hospital.

This system combines three widely accepted, proven components into one engineered design: (1) a radiant-acoustic ceiling, (2) a chemical air conditioner, and (3) a cellular steel floor. Because of the integrated design, each component assists in the functioning of the others.



100% Exchange of Air

The arguments for and against using only *outside* air as an air-conditioning source, instead of recirculating *inside* air, are academic. If it weren't for its record of excessive costs (*until now*), everyone would prefer to start with outside air, condition it, feed it into the patient's room, then exhaust it. Outdoor air, by action of the sun and massive dilution, usually is less contaminated than recirculated air, both given the same degree of filtration.

Recirculating inside hospital air is a touchy procedure completely dependent upon filter efficiencies which can be variable, due to maintenance problems. Equally or more hazardous is to attempt flushing air completely in some parts of the hospital and not in others, depending upon balanced pressures to prevent cross-contamination.

No one prefers these compromise measures. They were forced upon hospital designers by the high cost of conditioning the large volumes of air required by conventional, all-air systems. To add the cost of conditioning outside air was to prohibit it.

This is no longer so, with the Inland Radiant Comfort System for hospitals. By efficiently handling only a small amount of air, the IRC System introduces 100 per cent outside air throughout the hospital and does it at no extra cost.

This contrasts with conventional air conditioning systems which generally are based on the principle of using large quantities of air, most of it recirculated. Decontaminating air in large quantities not only is impractical, but the fan horsepower to move such air adds to the expense of operation.

With Inland's modern system, it is practical to exhaust all air without recirculation. The air can be decontaminated very effectively, because of the small amount used.

Radiant Panel Ceiling System

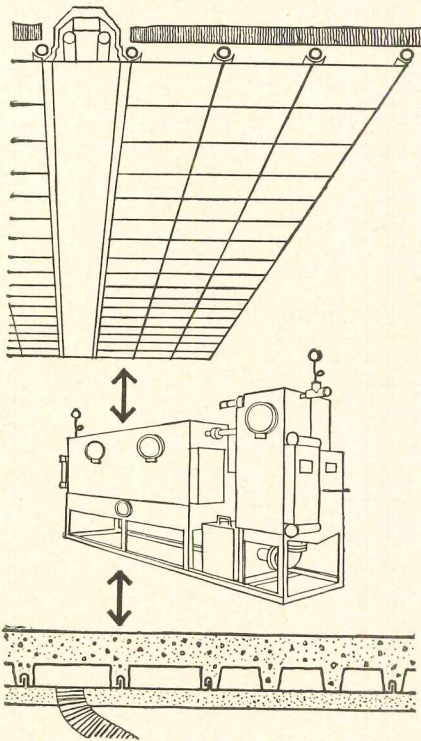
The inherent advantages of radiant-acoustic ceiling panels help to make this new Inland technology a sound approach to hospital air conditioning.

As its name implies, the radiant-acoustic ceiling heats and cools by the principle of radiant heat transfer and, at the same time, provides acoustical control to the room space.

Acoustical treatment is simple. Perforations in the aluminum panels, with glass-fiber insulation above, give this ceiling system an excellent acoustical rating — noise reduction coefficients as high as .90. Sounds disturbing to a restful atmosphere, e.g., the extra noise level during visiting hours, are dampened.

The radiant-acoustic ceiling acts as a single, wall-to-wall heat exchanger — heating when the thermostat calls for heat, and cooling when circumstances require. The ceiling heats in the same manner as the sun. Low-frequency waves of heat energy travel in straight lines from the ceiling to every part of the room, bathing all surfaces in warmth.

This steady, gentle comfort is patient-



The Inland Radiant Comfort System is made up of three basic components, carefully engineered to work together more efficiently than any one of them could work alone. The components are not new to architects and mechanical engineers. They are: (1) a radiant-acoustic ceiling, (2) a chemical air conditioner, (3) a cellular steel floor (optional in hospital construction).

All three of these components have long records of successful performance as individual products. It is the way in which they are used together — in integrated design — that accounts for the efficiency of the IRC System: The radiant ceiling handles virtually the entire heating and cooling loads in the hospital. The chemical air conditioner controls humidity and purifies the air. Reduced air volume makes it possible to use the cellular steel flooring for air distribution, eliminating tons of ductwork.

oriented. Physiologists have determined that more than one-half of our body heat is lost by radiation. Therefore, the most practical method of maintaining comfort is to control the rate of heat gain or loss by radiant means.

Here's where radiant heating is ideally suited to the needs of a hospital patient. It bathes his body in continual warmth, free of drafts. Even without a blanket, the rate of his body heat loss is kept at a uniform rate throughout the day and night. Because radiant heating is not dependent upon moving air to raise room temperature, there are no hot blasts from registers, no strong convection currents.

Radiant cooling obeys the same physical law of radiant energy transfer as radiant heating, but in reverse. Now, the ceiling is made cool and it absorbs heat from all surfaces in a room, including a patient's body. The human body loses heat most comfortably through radiation, without chilling drafts.

Only ventilation is required of the air system. Ventilating air is supplied at low velocity and held to desirable humidity levels.

Chemical Air Conditioning

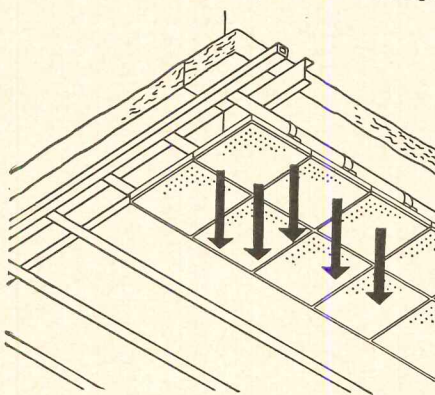
Chemical air conditioners have long been recognized as superior devices for controlling humidity and air purity in operating rooms, recovery rooms, and other critical hospital areas. In the integrated design of the Inland Radiant Comfort System, a Kathabar® Chemical Air Conditioner* treats the hospital's entire ventilation-air system.

Air is conditioned by a spray of lithium chloride. This traps up to 97 per cent of all airborne impurities.

Conventional air conditioners use refrigeration coils to cool and dehumidify the air. For many years, these wet coils have been recognized as breeding places for colonies of bacteria and micro-organisms.

Trouble arises when matter from these colonies blows off into the hospital's air stream. Elaborate filter systems have been designed to remove this contamination from the air, but their complete effectiveness frequently has been questioned.

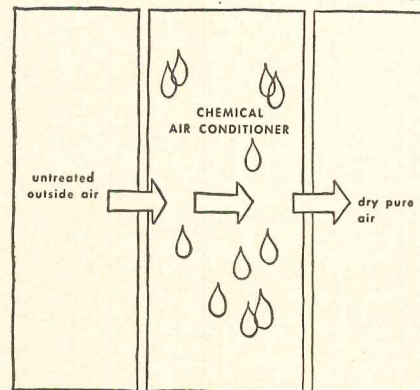
*Surface Combustion Division, Midland-Ross Corp.



The radiant-acoustic ceiling acts as a single, wall-to-wall heat exchanger. Heating and cooling are accomplished by means of aluminum panels attached to grids of water pipes hung in the manner of a conventional suspended ceiling. Hot or cold water is circulated through these pipes to heat or cool the panels. Heat loss and noise are reduced by an acousti-thermal blanket.

For more data, circle 136 on Inquiry Card

Advertisement



Chemical air conditioning removes the latent (humidity) load from incoming outside air. A non-vaporizing solution of lithium chloride with a great affinity for moisture is sprayed into the air stream. Condition of the air as it leaves the dehumidifier at a specified humidity level depends upon (1) solution concentration and temperature, and (2) temperature of cooling tower water.

fectiveness frequently has been questioned. Hospital administrators, bacteriologists, and others have been shocked at the contaminating effect of conventional air conditioning systems.

Substantial Construction Savings Possible

Where hospital plans include a steel frame, significant savings in construction costs accrue from the IRC System's third basic component, a cellular steel floor.

Ventilating air is carried through cells in Inland Cellufloor, eliminating tons of expensive ductwork. This not only saves money on materials and labor, it reduces the space required between floors. This can drop the total height of a multi-story building by as much as 5 per cent, without sacrificing a cubic inch of interior space. Obviously, there are consequent cost savings all down the line — including savings on the foundation, since building weight shrinks with the height.

There are other advantages to consider here, during the planning stage of a new hospital: The greater erection speed of steel-frame construction. The flexibility of electrification made possible only by a Cellufloor steel floor.

Breakthrough in Hospital Comfort Control

Of great importance to the hospital architect, the Inland Radiant Comfort System delivers all of its advantages well within the budget for an ordinary hospital air conditioning system. Key to its economy is its concept of three basic components working together. By balancing the high performance of these components through careful engineering, the IRC System saves on both first cost and operating costs.

Further information is available in a new brochure, "Breakthrough in Hospital Comfort Control." Write for your copy today. Address Inland Steel Products Company, Engineered Products Division, 4033 West Burnham Street, Milwaukee, Wisconsin 53201.

On the Calendar

July

1-4 Annual Meeting, National Society of Professional Engineers—Grove Park Inn, Asheville, N.C.

August

24-27 66th Annual Meeting, American Hospital Association—McCormick Place, Chicago, Ill.

30th National Technical Conference, Illuminating Engineering Society;

through Sept. 4—Fontainebleau, Miami Beach, Fla.

September

20-25 Tenth Annual Convention, Prestressed Concrete Institute—Mayflower Hotel, Washington, D.C.

22-25 Second Institute for International Engineering, sponsored by Consulting Engineers Council in cooperation with the University of Colorado, Boulder, Colo.

27-30 1964 National Planning Con-

ference of the Community Planning Association of Canada—Hotel London, London, Ont.

Office Notes

Offices Opened

Joseph L. Amestoy and Raymond A. Flanders have announced the establishment of **Amestoy & Flanders, Architects, A.I.A.**, with offices at 170 E. California Blvd., Pasadena, Calif.

Cashion-Horie, Architects, have opened offices for the practice of architecture at 800 North Park Ave., Suite 105, Pomona, Calif.

George A. Diamond has formed an architectural firm under the name of **George A. Diamond Associates**, 660 Madison Ave., New York, N.Y. Associates of the firm are **Richard J. Benedict, John F. Petroske** and **Lawrence M. Sehres**.

Edmund J. Glenny, Architect, A.I.A., has announced the opening of his own practice in offices at 533 Reymond Building, Baton Rouge, La. **Nancy Porter Heym** has joined the new firm as an associate.

Mays Leroy Gray, Architect, has announced the opening of his office for the practice of architecture. Address is Suite 227, Pepper Building, Tallahassee, Fla.

Merle A. Simpson, Architect, has opened an office for the practice of architecture in Suite B-6, Commodore Perry Hotel, Austin, Tex.

Myron A. Vigod, Architect, announced the opening of his office for the practice of architecture at 63 West Palisade Ave., Englewood, N.J.

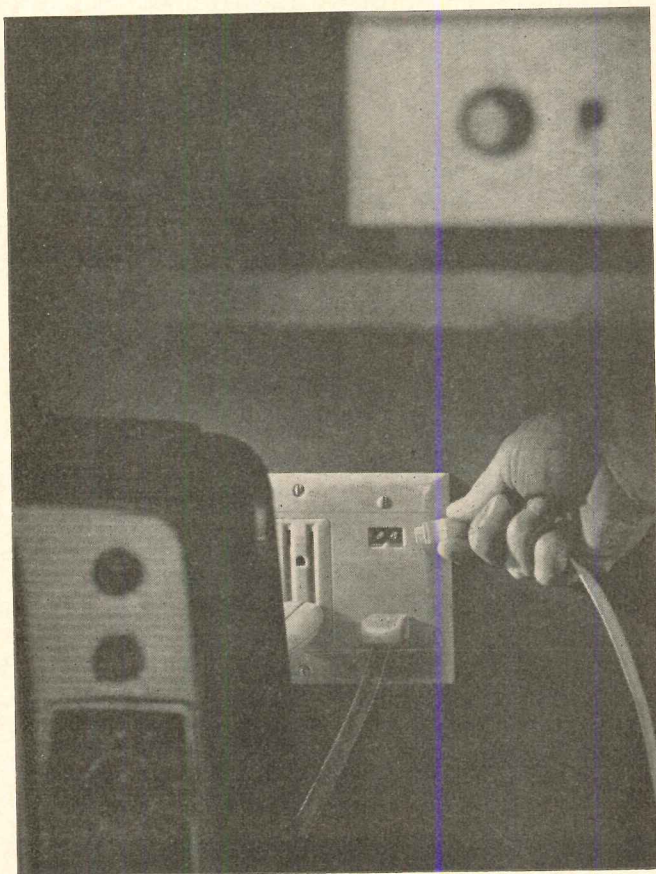
New Firms, Firm Changes

The Ballinger Company, Architects and Engineers, 1625 Race St., Philadelphia 3, Pa., have announced that **Lauri Kurki, Paul Nalon** and **Robert Wetmore** have become associates of the firm.

Gunnar Birkets and Associates, Architects, 1300 North Woodward, Birmingham, Mich., have appointed **Harold F. Van Dine Jr., A.I.A.**, to an associate design position and **Richard J. Pavlicek** to serve in associate production.

Bovay Engineers, Inc. have announced that **Ralph E. Landerholm, P.E.**, has joined the staff of its Spokane office.

continued on page 262



NEW TV-FM ANTENNA RECEPTACLES

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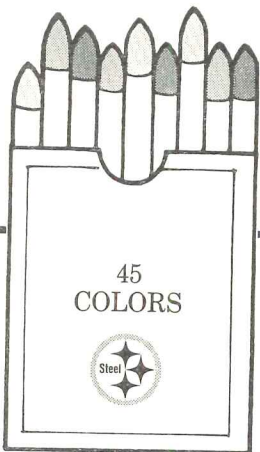
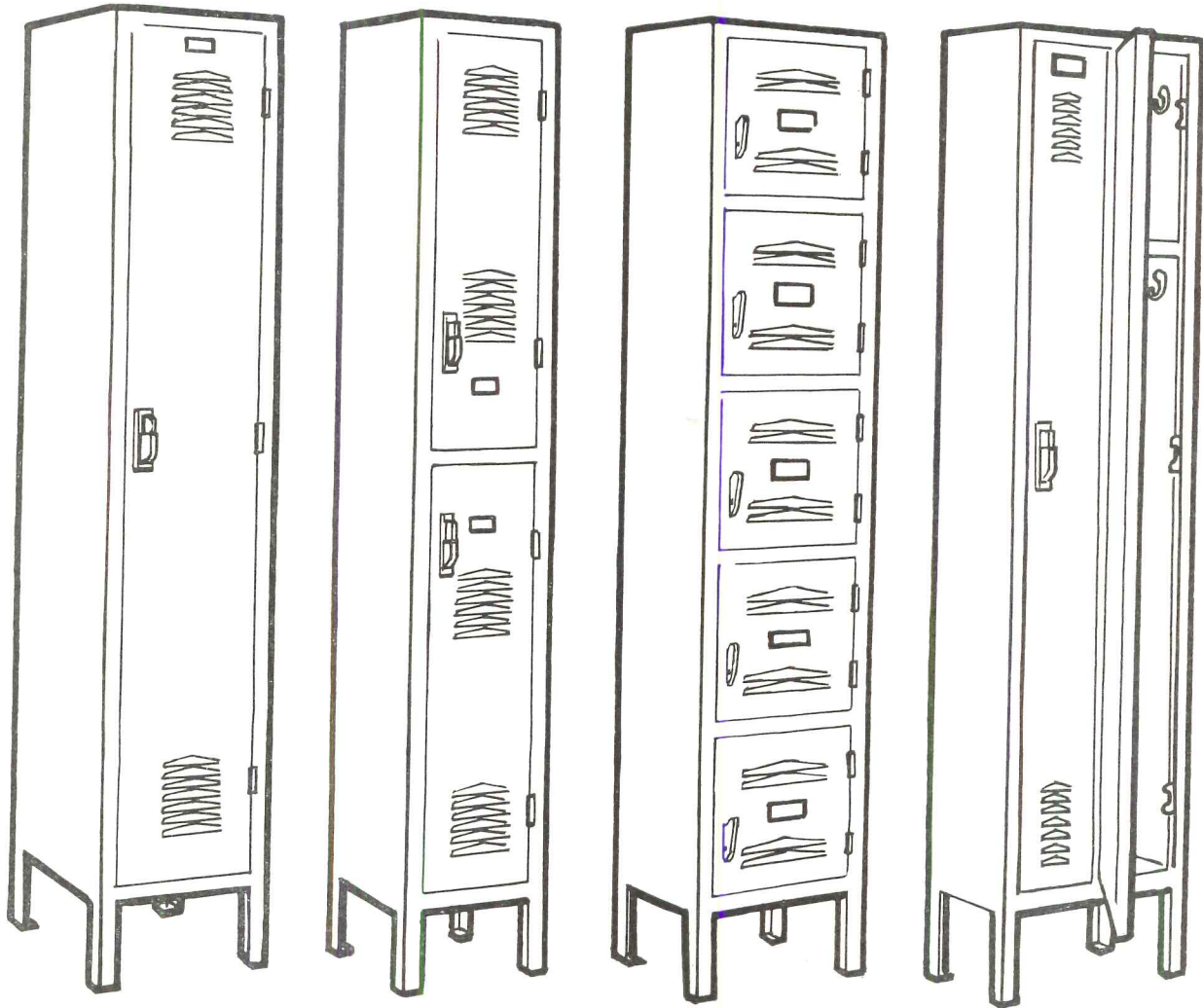
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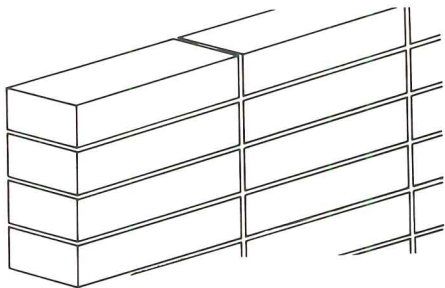
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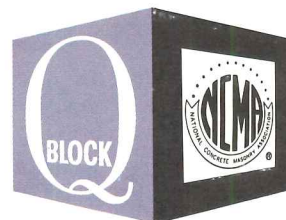
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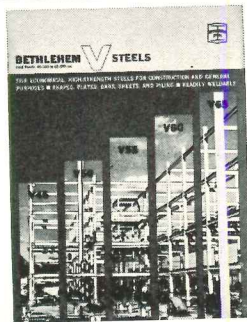
Steel for Strength

STRUCTURAL DESIGN NEWS

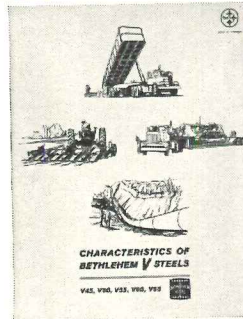
FROM BETHLEHEM STEEL

NO. 7

No. 1997.



No. 1957-A.



DO YOU HAVE THESE USEFUL NEW BOOKLETS? To help you save time and money in designing and engineering structures, Bethlehem provides a variety of technical and product information. A few of our latest publications are described below. Write on your letterhead for the booklets you want; we'll mail them promptly.



No. 1961.

Recommended Minimum Preheat for Arc-Welding of Bethlehem V Steels			
Welding Process	Welding Position	Welding Thickness (in.)	Minimum Preheat (°F)
Shielded Metal Arc (SMA)	Flat	1/2 to 1/4	100
		1/4 to 1/8	75
	Vertical	1/2 to 1/4	100
		1/4 to 1/8	75
	Overhead	1/2 to 1/4	100
		1/4 to 1/8	75
Gas Metal Arc (GMA)	Flat	1/2 to 1/4	100
		1/4 to 1/8	75
	Vertical	1/2 to 1/4	100
		1/4 to 1/8	75
	Overhead	1/2 to 1/4	100
		1/4 to 1/8	75

Recommended Electrodes for Manual Arc-Welding of Bethlehem V Steels			
Welding Process	Welding Position	Welding Thickness (in.)	Electrode
Shielded Metal Arc (SMA)	Flat	1/2 to 1/4	E7018
		1/4 to 1/8	E7018
	Vertical	1/2 to 1/4	E7018
		1/4 to 1/8	E7018
	Overhead	1/2 to 1/4	E7018
		1/4 to 1/8	E7018
Gas Metal Arc (GMA)	Flat	1/2 to 1/4	E7018
		1/4 to 1/8	E7018
	Vertical	1/2 to 1/4	E7018
		1/4 to 1/8	E7018
	Overhead	1/2 to 1/4	E7018
		1/4 to 1/8	E7018

No. 1944-A.



No. 1996.

No. 1997. Engineering data on new high-strength, low-cost vanadium-nitrogen steels (V Steels) available in structural shapes, plates, sheets, bars, and piling. Yield points 45,000 to 65,000 psi.

No. 1957-A. Properties of Bethlehem V Steels, including strength, notch toughness, weldability, aging, cold-forming, fatigue, and elevated temperature.

No. 1961. Values of allowable stresses for building design are shown for all five V Steels. Presentation follows that used in the Appendix to the AISC Specification.

No. 1944-A. Easy-to-read tables give recommended minimum preheat for arc-welding Bethlehem V Steels and recommended electrodes for manual arc-welding of V Steels.

No. 1996. Lists allowable axial loads for rolled column sections available in V Steels. Contains data on columns subjected to axial stresses or to combined axial and bending stresses.

No. 2004. Lists allowable uniformly distributed loads for rolled sections, available in V Steels, used as simply supported beams with adequate lateral supports.

Other New Booklets:

No. 1960-A. Brittle Fracture. Concise discussion on the phenomenon of brittle failure of steel, illustrated with helpful charts and drawings.

No. 2030. Hollow Structural Sections. Engineering data, plus dimensions and properties for all 146 sizes and gages of squares and rectangles.

No. 1902. Steel Strand Specifications and Standards. Enables engineers responsible for suspension systems to choose the correct wire rope or strand, and prepare specifications.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. Export Sales: Bethlehem Steel Export Corporation

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Office Notes

continued from page 254

Millard J. Archuleta Jr., A.I.A., partner in Burke, Kober & Nicholais, Los Angeles architectural and engineering firm, has been appointed vice president in charge of production.

Deeter & Ritchey, Architects, have announced the admission of

William H. Sippel Jr. as a partner in the firm.

The Engineers Collaborative have announced the creation of a new Mechanical and Electrical Research and Engineering Division with Leonard A. Bihler, associate in charge of the mechanical group and Donald Wolfe, associate in charge of the electrical group.

F. D. George and Robert H. Murtux have been elected directors and associate architects and John

G. Phelen has been elected a director and vice president of Fletcher-Thompson, Inc., architects and engineers of Bridgeport, Conn.

Fordyce & Hamby Associates, Architects, 717 Fifth Ave., New York 22, N.Y. have announced that David R. Dibner, an associate of the firm, has been admitted to partnership.

Donald E. Gibbs, A.I.A., has been named a partner in the architectural firm of Hugh Gibbs, A.I.A., in Long Beach, Calif.

Albert S. Golemon has announced that Charles F. Sullivan, Architect, has merged his practice with Golemon & Rolfe, Architects, Houston, Texas, and become a member of that firm.

William A. Halsey, A.I.A., has announced the formation of a new firm for the practice of general architectural design and architectural planning and programing located at 134 Mount Auburn St., Cambridge, Mass.

Heery and Heery, Architects and Engineers, Atlanta and Athens, Ga., have announced John A. Cochrane, A.I.A., Jack D. Haynes, A.I.A., William B. Holland, A.I.A., and Richard B. Ellis and Charles T. Owen, engineers, as new associates of the firm.

Gilbert A. Johnson, Architect, Rockford, Ill., has announced incorporation of the firm under the name of Gilbert A. Johnson, Kile, Seehausen and Associates, Inc. Fred J. Kile and Richard F. Seehausen are members of the firm and Paul Christianson, Russell Bennett and Richard Merhar are associates.

Louis Menk, A.I.A., has been elected to the Board of Directors of Albert Kahn Associated Architects and Engineers, and Charles J. Allen, P.E., has been made a vice president of the firm.

John D. Evans, Architect, has joined the architectural firm of Morris Ketchum Jr., New York, N.Y.

A new architectural firm, William Krisel & Associates, with offices in Los Angeles and San Diego has been announced by William Krisel, A.I.A.

Ernest J. Kump, F.A.I.A., has announced that Peter Kump, A.I.A., has become a member of the firm of Ernest J. Kump Associates, Architects.

William C. Blackstone has joined
continued on page 266

DUCK FEATHERS!



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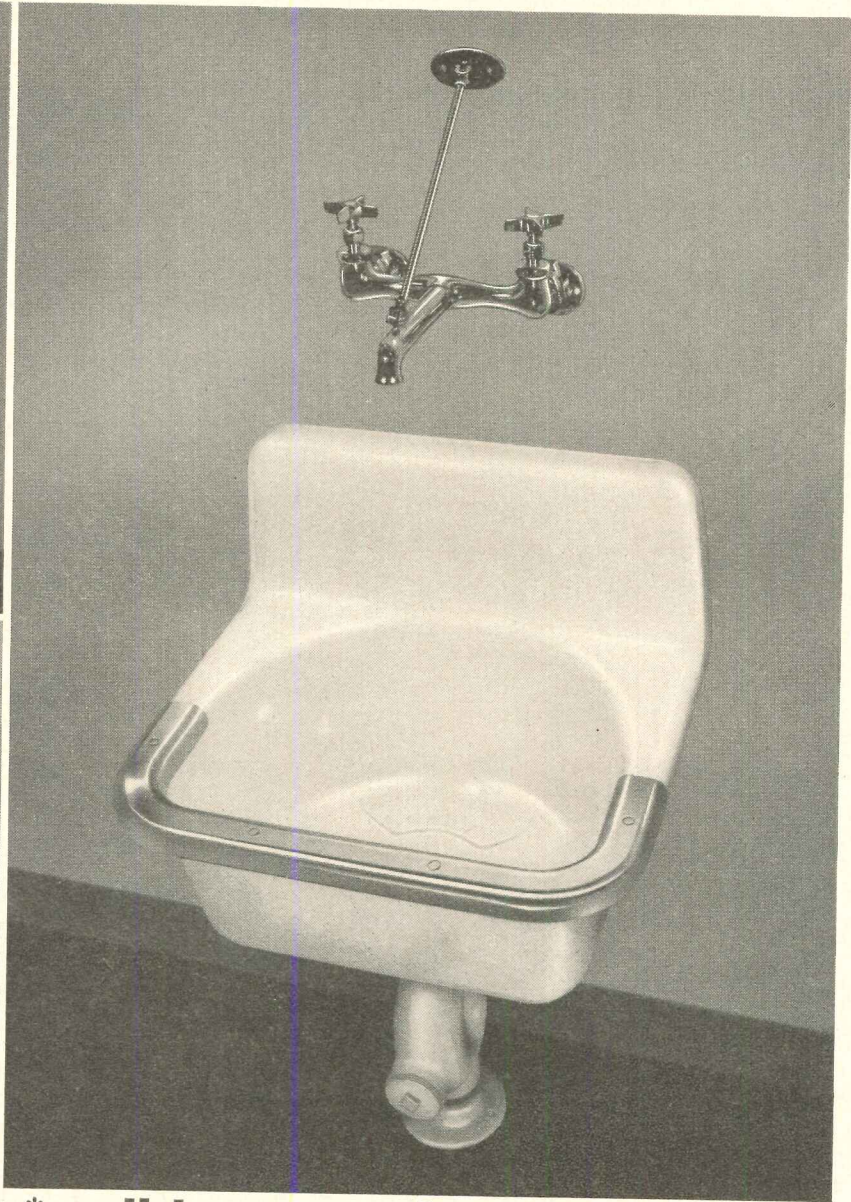
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NEW IN THE SERVICE SINK DEPARTMENT



New ledges (top picture) keep cleaning materials handy. Exclusive drain channels keep drain open with bucket in sink.

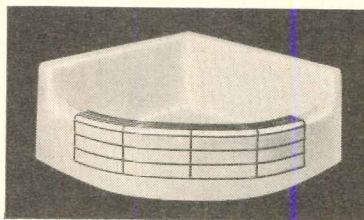


The new Akron* wall-hung service sink is the only one made with molded drain channels

This new American-Standard sink makes maintenance work easier, while requiring less maintenance for itself. The bowl can't fill up or overflow when a bucket is in the sink. The rim is flat—not rounded. Generous back ledges facilitate keeping brushes, cleansers, etc., at the ready. The streamlined design reduces the area requiring

cleaning, with no loss of useful working area. Made of lifetime cast iron with triple-thick vitreous enamel coating that defies acids, scratching and chipping. Optional stainless-steel guard. Call your American-Standard representative for more information or write American-Standard, Plumbing and Heating Div., 40 W. 40th St., New York, N.Y. 10018.

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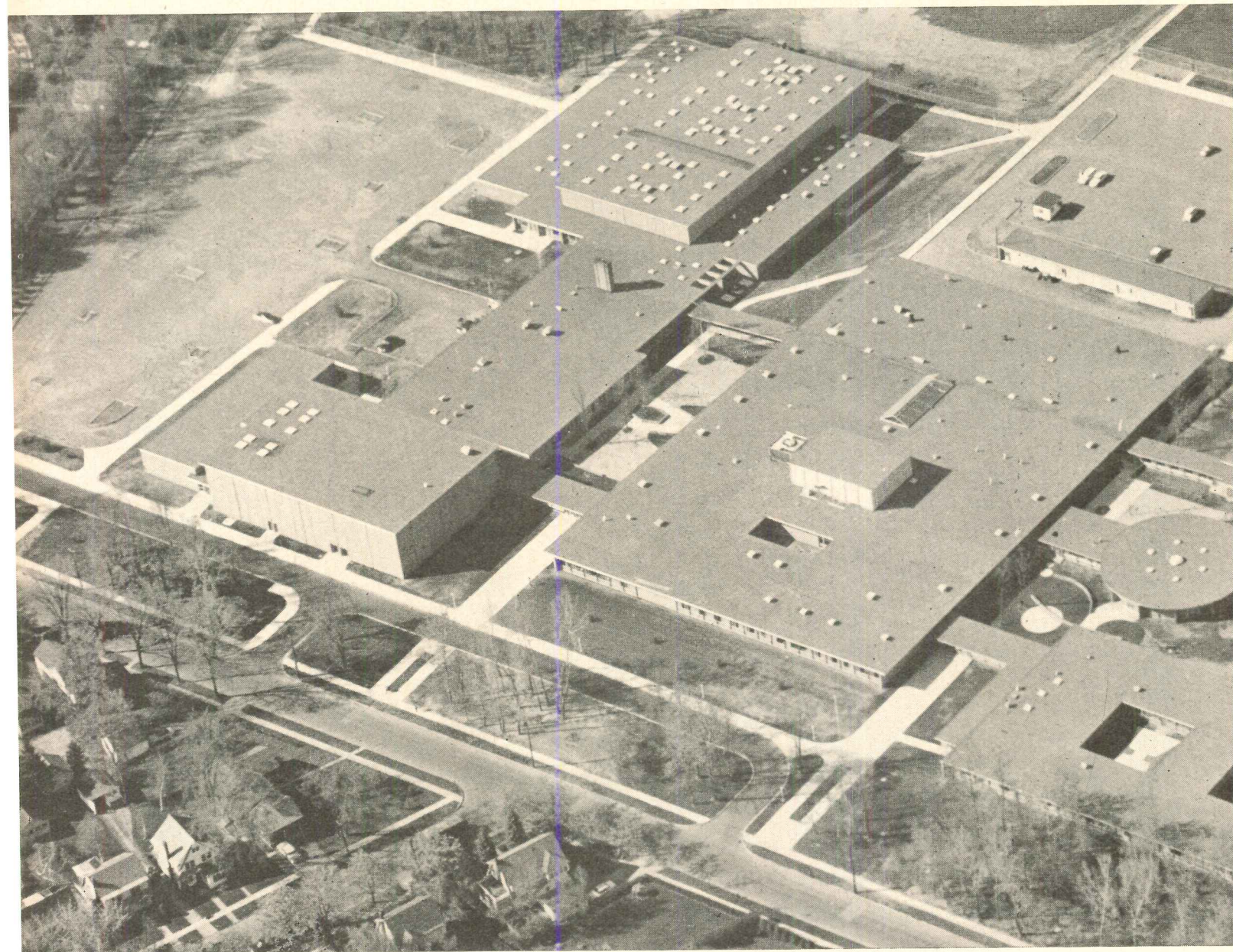


Exclusive Florwell* service sink fits in corner, cuts cleaning time by eliminating hard-to-reach undersink areas. Available with rim guard. Heavy cast iron; all exposed surfaces of acid-resistant vitreous enamel. Ideal for mop-truck use... minimizes stretching and lifting.



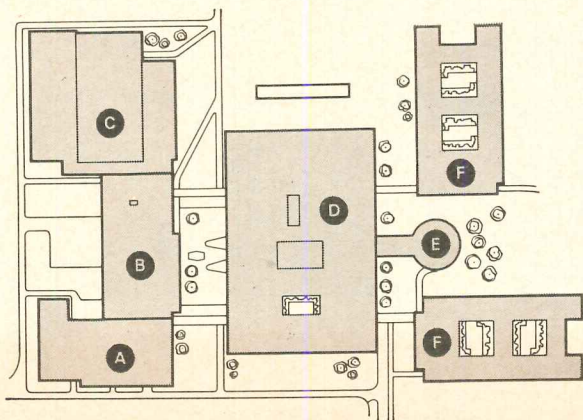
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Why architects talk to total school air



Linton High School, Schenectady, N.Y. Superintendent of Schools: Robert E. Murray.
Architect: Perkins & Will, Chicago. Consulting Engineer: E. R. Gritschke and Assoc., Inc., Chicago.

- A. Auditorium
- B. Cafeteria
- C. Gymnasium
- D. Core-Techs—shops; science and family-living laboratories
- E. Library
- F. Academic classrooms



How a school built for the 21st Century is air conditioned with Trane equipment

When Schenectady, N. Y. school planners began work on Linton High, they sought to create a school "that will still be functional in the year 2000." The result is a 15-acre series of one-story buildings covering over 258,000 square feet.

The school consists of six units . . . Core-Techs, Academic, Library, Auditorium, Cafeteria and Gymnasium.

Three units . . . Core-Techs, Library and Auditorium . . . are air conditioned—but not all at the same time.

Equipment capacity is ample to cool Core-Techs' interior classrooms and the Library simultaneously . . . but the system is designed so that the third unit, the Auditorium, can be cooled when classrooms are not in use.

For Schenectady, this meant a smaller investment in air conditioning equipment and greater operating economies.

Heart of the air conditioning system is a 235-ton capacity TRANE CenTraVac® hermetic centrifugal water chiller. Separate air handling systems are used in Auditorium, Library and each group of Core-Techs classrooms. Conditioned air is distributed through zone ducts to diffusers in all three units.

Trane for conditioning requirements



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TRANE is one of the very few organizations of manufacturing engineers with depth of experience in all the related fields of total air conditioning . . . in heating, cooling and ventilating.

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That's why TRANE equipment is selected for many complex air conditioning applications. For skyscrapers, jet planes and subway trains . . . homes, hotels and motels . . . ocean liners and railroad refrigerator cars . . . for schools and universities of many sizes, shapes and styles.

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Office Notes

continued from page 262

the Houston architectural firm of **Newhaus & Taylor, A.I.A.**, in the design and development department.

J. N. Pease Associates, Architects-Engineers, 2925 E. Independence Blvd., Charlotte, N.C., have appointed **Joel E. Stegall** as an associate in the firm.

I. M. Pei & Associates have announced that **Werner Wandelmaier** has become an associate and that two former associates, **Vincente Ponte** in Planning and **Dean McClure** in Urban Renewal, will continue to serve the firm as consultants.

John W. Pierce and **Walter S. Pierce, Architects**, 116 Newbury St., Boston, Mass., have announced that **Robert Kramer, A.I.A.**, has joined their firm as an associate.

Severud-Elstad-Krueger Associates, consulting engineers, have announced the change of the firm name to **Severud-Perrone-Fischer-Sturm-Conlin-Bandel** with the communications address, **Severud Associates**, 415 Lexington Ave., New York 17. They have named **Horst Berger** as an associate of the firm.

Arthur F. Sidelis, A.I.A., and **Jack E. Phillips, A.I.A.**, have formed a partnership for the practice of architecture. The partnership, **The Office of Sidelis, Phillips & Associates, Architects**, has established offices at 2660 South Street at Perkinswood Boulevard, Warren, Ohio.

Smith, Hinchman and Grylls Associates of Detroit have announced the appointment of **Furton Tysinger** as head of the department of interior design.

Robert Wanslow and **Billy R. Saxton** have announced the formation of a partnership for the practice of architecture located at 235 North Greenwood, Fort Smith, Ark.

Wilson and Terwilliger, Architects, 100 S. 12th St., Richmond, Ind., have appointed **W. Erb Hanson, Architect**, as a consultant in their Connersville office.

New Addresses

Ralph Anderson & Associates, Architects, 5765 North Lincoln Ave., Chicago, Ill.

Gunnar Birkerts and Associates, Architects, 1300 North Woodward, Birmingham, Mich.

Chaix and Johnson, Architects, 1666 W. 3rd St., Los Angeles, Calif.

Christian & Blake, Architects, A.I.A., 2925 Cahaba Road, Birmingham, Ala.

The office of **Crow, Lewis & Wick, Fairfield & Schmidt, Architects & Engineers**, 419 Park Ave. South, New York, N.Y.

Max R. Garcia, Architect, 555 Sutter St., San Francisco, Calif.

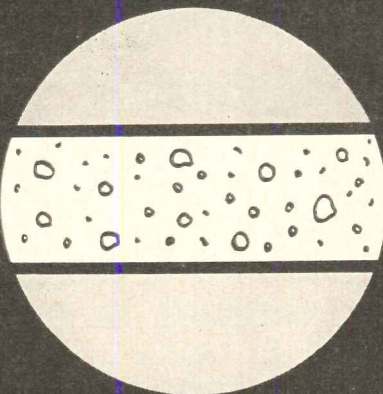
Holabird & Root, Architects & Engineers, 300 West Adams St., Chicago, Ill.

Ted W. Minnis, A.I.A., 801 Cass St., Monterey, Calif.

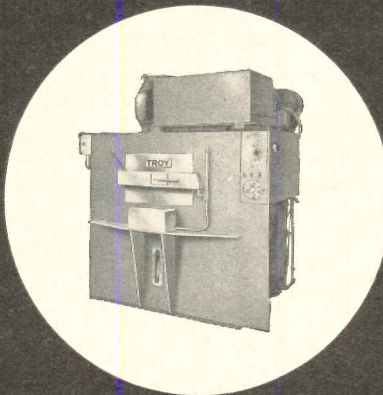
The Perkins & Will Partnership, Architects, 1030 15th St., N.W., Washington, D.C.

J. M. Schmidt Associates, Architects and Consulting Engineers, Suite 9, 670 No. 3 Road, Vancouver-Richmond, B.C.

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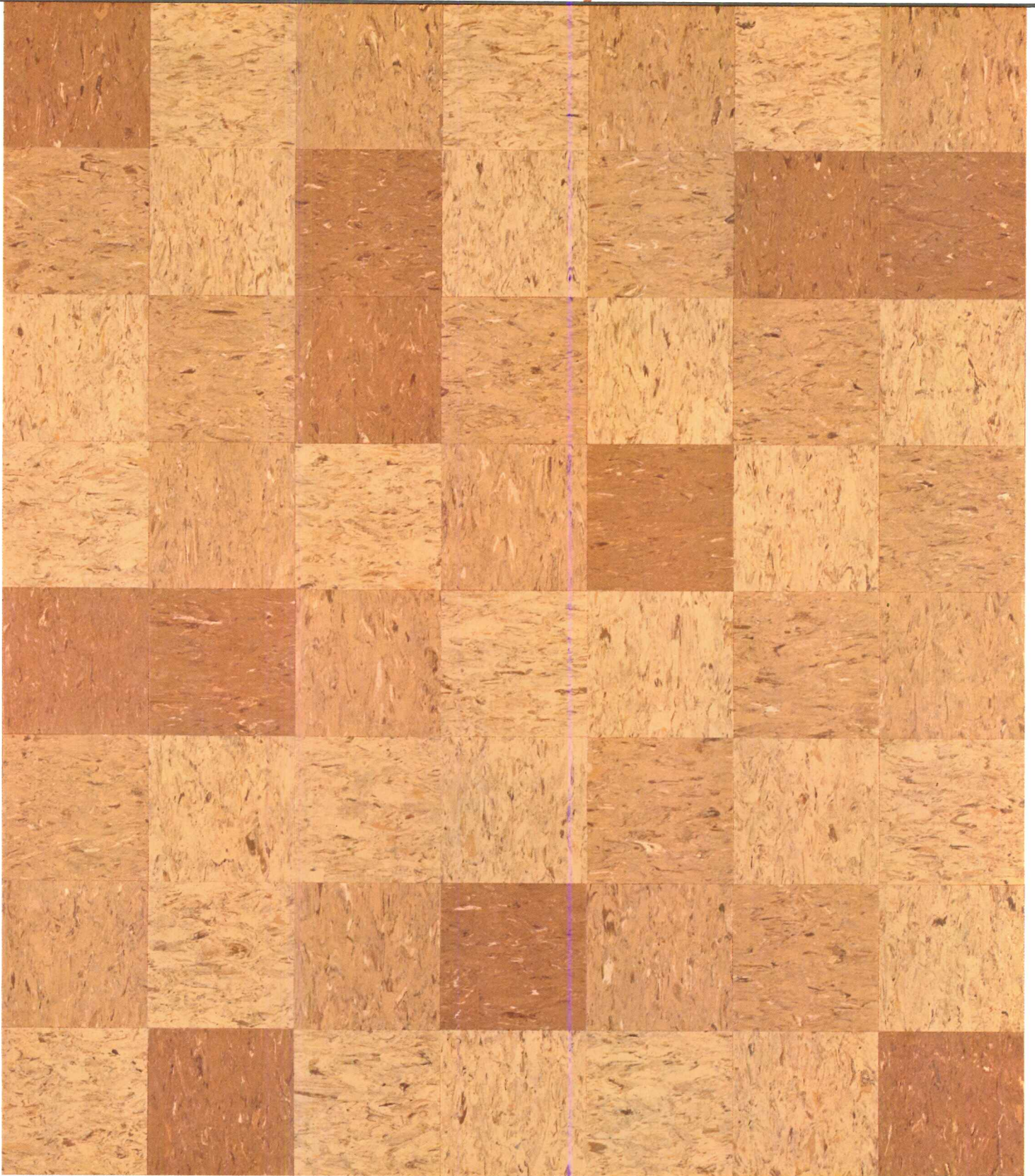


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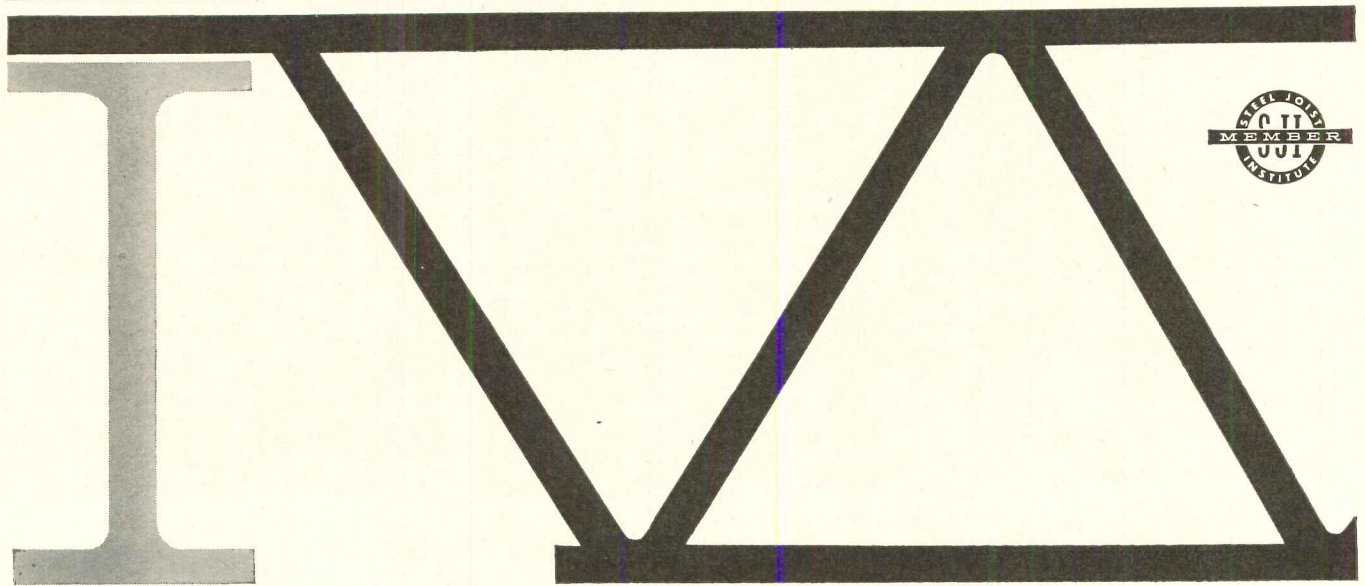
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Sheffield H-Series Joists of high strength steel used in roof structure for new Sears store

Roof structure of this new Sears Roebuck and Co. store consists of approximately 680 Sheffield Joists—of the high strength H-Series type. These joists are made with steel having 50,000 psi minimum yield point. The advantages of designing and building with H-Series joists are demonstrated in a weight comparison with the widely accepted J-Series joists. Equivalent strength J-Series joists would have weighed 31 more pounds each, a total of 21,000

additional pounds for the entire project.

This roof structure is another example of modern steel designed to provide maximum strength per pound—per dollar.

For complete data on Sheffield Joists, write for our latest catalog, or see Sweets Architectural File. All Sheffield Joists meet the specifications of the Steel Joist Institute. **Sheffield Division, Armco Steel Corporation, Department S-1314, 7000 Roberts**

Street, Kansas City, Missouri 64125.
Plants in Kansas City, Houston, Tulsa.

Sears retail store, White Lakes Shopping Center, Topeka, Kansas.

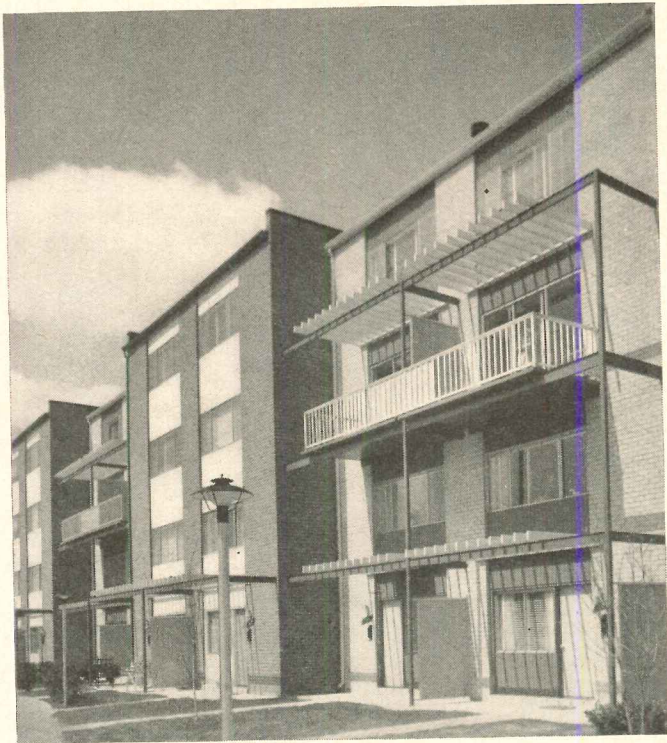
Architects: Tanner-Linscott & Associates, Inc., Kansas City, Missouri.

Structural Engineers: Bob D. Campbell & Company, Kansas City, Missouri.

Contractor: M. W. Watson, Inc., Topeka, Kansas.

Structural Steel: The Capital Iron Works Company, Topeka, Kansas.





Fairview Associates' Town Houses, West Hyattsville, Md.
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Food Service Doors
Carry NSF Approval . . .
as meeting high public health standards. Jamison cold storage doors are the leading specification for food service in institutions, schools, hotels, hospitals and cafeterias. Write for latest catalog.

Metal Clad Food Service Door
The new Jamison Food Service doors are made with a plywood front to which is attached a metal back pan, with the door and frame completely covered with stainless steel or aluminum. Polyurethane insulation is foamed-in-place, forming front and pan into one solid unit. Because of their lighter weight, these doors can often be installed where only minimum support is available.

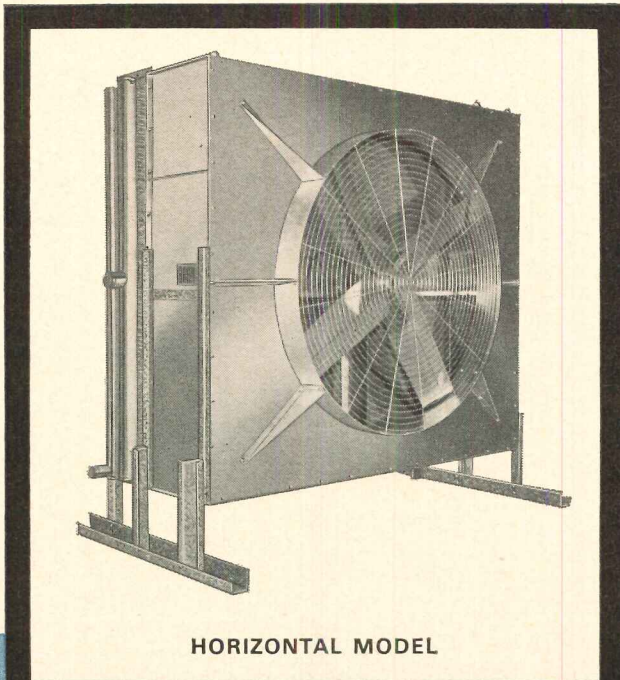
JAMISON
COLD STORAGE DOORS
Jamison Cold Storage Door Co.,
Hagerstown, Md.



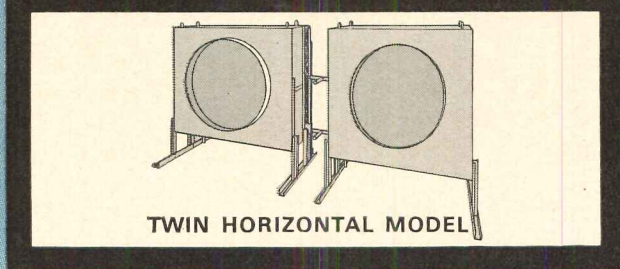


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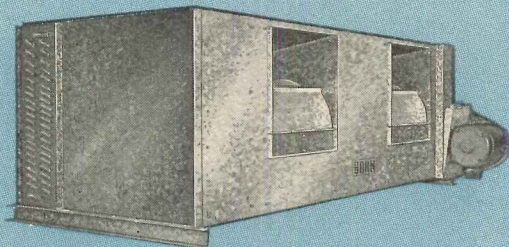
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SPECIFY
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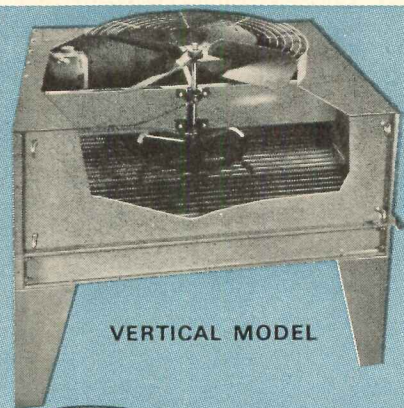
HORIZONTAL MODEL



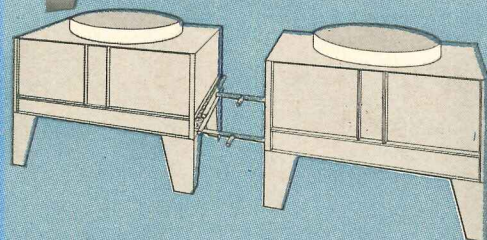
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TWIN VERTICAL MODEL

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Fan bearings are provided with "lube" lines extended to the outside so bearings can be easily lubricated. Single fan models are available in sizes from 7½ to 65 tons; the twin units cover the range from 60 to 130 tons. Twin units are shipped separately with proper manifold for field installation, thus making "rigging" easier.

The ceiling mounted model is designed for connection to supply-air and discharge-air ductwork and is available in sizes from 10 to 50 tons.

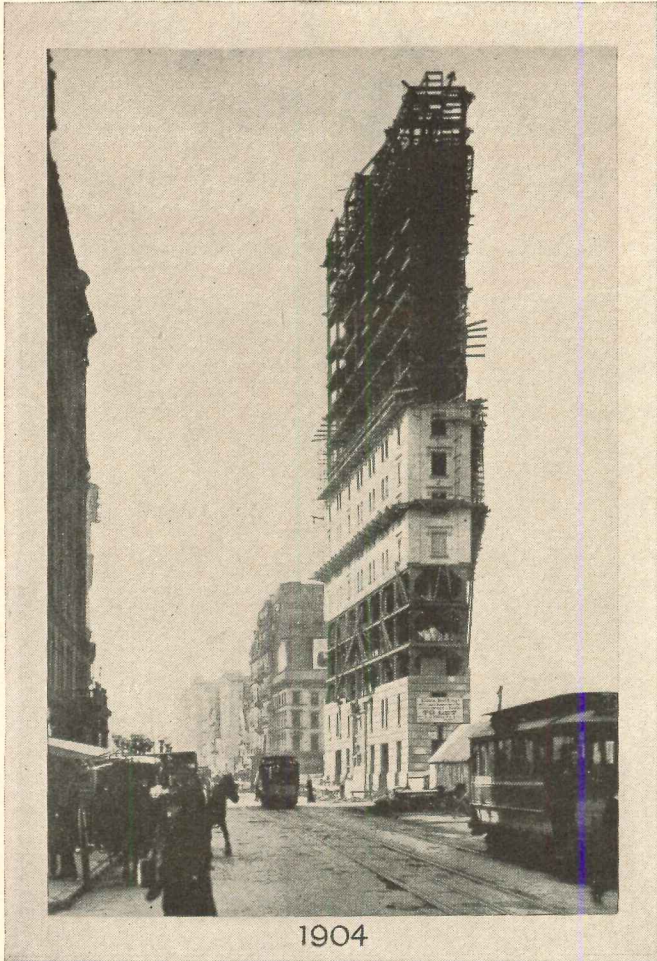
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1904

When its 3700-ton steel framework was erected in 1904 by American Bridge, the Times Tower was the tallest building in New York. Plenty of later buildings dwarfed the 24-story skyscraper, but few ever matched the fame the Times Tower gained from the electric news sign that flashed around its circumference and was seen daily by a million and a half people.

Regardless of fame, the old Tower outlived its day and was sold to Allied Chemical Corporation, which wanted "the crossroads of the world" as the site for its chemical showcase. Allied needed a building that not only looked modern, but one that could accommodate modern space and equipment needs. At the narrow Times Square corner, Allied planned a giant 10-story exhibit window. The serv-



1963

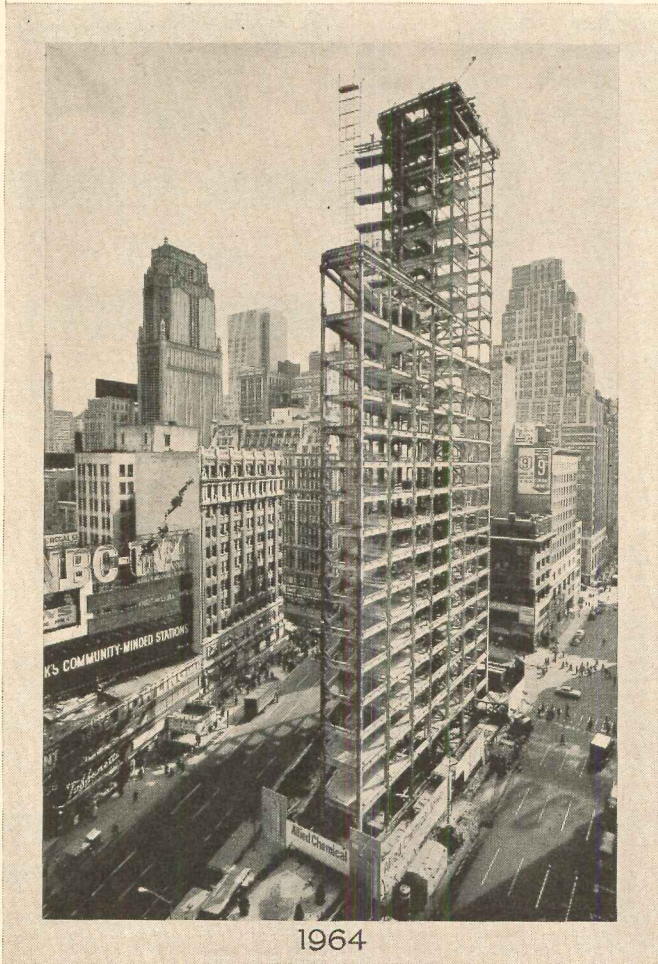
ice core needed enlargement; more stairs were required; partitions needed moving; floors and plumbing needed replacing; modern air conditioning had to be installed.

If the old Times Tower had been built of anything but steel, it would have been necessary to tear down practically the entire building. But instead of starting from scratch, Allied is dismantling virtually *everything but the steel skeleton*.

Although built by methods no longer used, the 60-year-old frame is still structurally sound, with more than enough built-in strength capable of handling the heavier demands of modern office use. Even at the giant window—where all beams between the 4th and 14th floors were removed—it was relatively easy to restructure the wind-

New skin, new guts, new name

... same steel skeleton



bracing system by transferring to adjacent columns. (Architects said they probably wouldn't even have attempted the window if the building were concrete.) The *only* corrosion that engineers found in the framework were slight spots on two columns, and these were so minor that no corrective measures were required. If the same building is remodeled 60 years from now, chances are it will be built around the same steel skeleton American Bridge erected in 1904.

Steel construction *always* makes remodeling less expensive, because *only* steel can safely be severed, extended, or bolstered without damaging a building's structural integrity. Steel construction is even more of a bargain now than it was 60 years ago. New high strength structural steels

cut costs and weight, because they are two to three times stronger than carbon steels. Rolled structural shapes replace old-fashioned built-up members, and weldable steels make bracing and fastening much simpler. New concepts, such as the combination of steels of different strength levels, facilitate architectural expression as well as cut costs.

American Bridge technical representatives will be glad to discuss your building and remodeling problems. Write: American Bridge Division, United States Steel, 525 William Penn Place, Pittsburgh, Pa. 15230.

Architects: Voorhees Walker Smith Smith & Haines. (Original Times Tower was designed by Eidlitz & McKenzie from which the firm Voorhees Walker Smith Smith & Haines was derived.)



**American Bridge
Division of
United States Steel**

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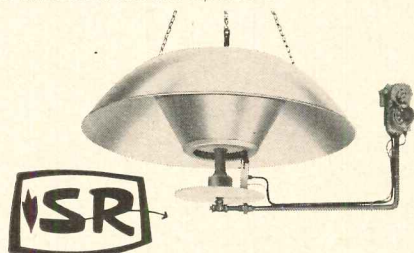


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Save up to 50% the costs of ordinary heating systems. Initial cost of heaters is low. Space-Ray requires no ducts or vents; no in-plant wiring; installation is simple, inexpensive. Space-Ray is being installed in a wide variety of size and type buildings, all over the country, for 25¢ per sq. ft. — and less. No moving parts; little or no maintenance. A. G. A. approved. Operates on Natural, L.P., Manufactured or Mixed Gases. Each unit 40,000 BTU.



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**OTTO R. EGGERS
DIES AT 81**

Otto R. Eggers, co-founder of the New York firm of Eggers and Higgins, Architects, and a Fellow of the American Institute of Architects, died on April 23 at the age of 81 in New Rochelle Hospital, New Rochelle, N.Y.

Mr. Eggers, who was semi-retired, had completed more than 65 years in the architectural profession, starting as draftsman, architectural delineator and designer. He was born in 1882 in New York City and received his early training at Cooper Union and the Hornbostel Atelier.

Selected as the first winner of the LeBrun Scholarship, instituted in 1911 for architectural study in Europe, he spent a year abroad sketching and studying the monuments of Europe's past. His early drawings and water-colors as well as architectural renderings of buildings he designed were shown in a one-man exhibition at the Architectural League of New York in 1957.

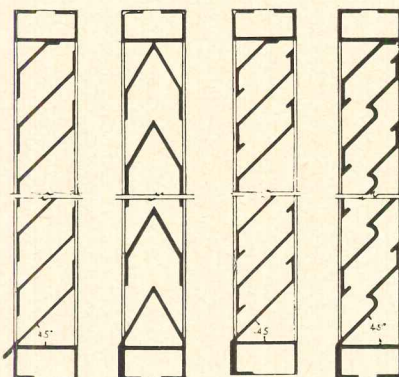
Mr. Eggers and the late Daniel P. Higgins were associates of architect John Russell Pope for a number of years. Upon Mr. Pope's death in 1937, they carried to completion work on the National Gallery of Art and the Jefferson Memorial, both in Washington, D.C., under the firm name of Eggers and Higgins, Architects.

Respected for his sensitive choice of materials and design talents, Mr. Eggers was instrumental in the design of the Payne Whitney Gymnasium at Yale University; Anabel Taylor Hall, Cornell University; Browning Library, Baylor University; Morehead Planetarium, University of North Carolina; Silliman College, Yale University; and the Theodore Roosevelt Memorial Wing of the Museum of Natural History, New York.

In 1930 Mr. Eggers was elected to the rank of Fellow of the A.I.A. He was a member of the Municipal Art Commission, the Architectural League of New York, the Society of Beaux Arts Architects (now known as the National Institute for Architectural Education), the Society of American Etchers, the Society of Graphic Artists, the American Federation of Art, among many others.

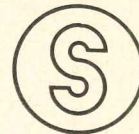
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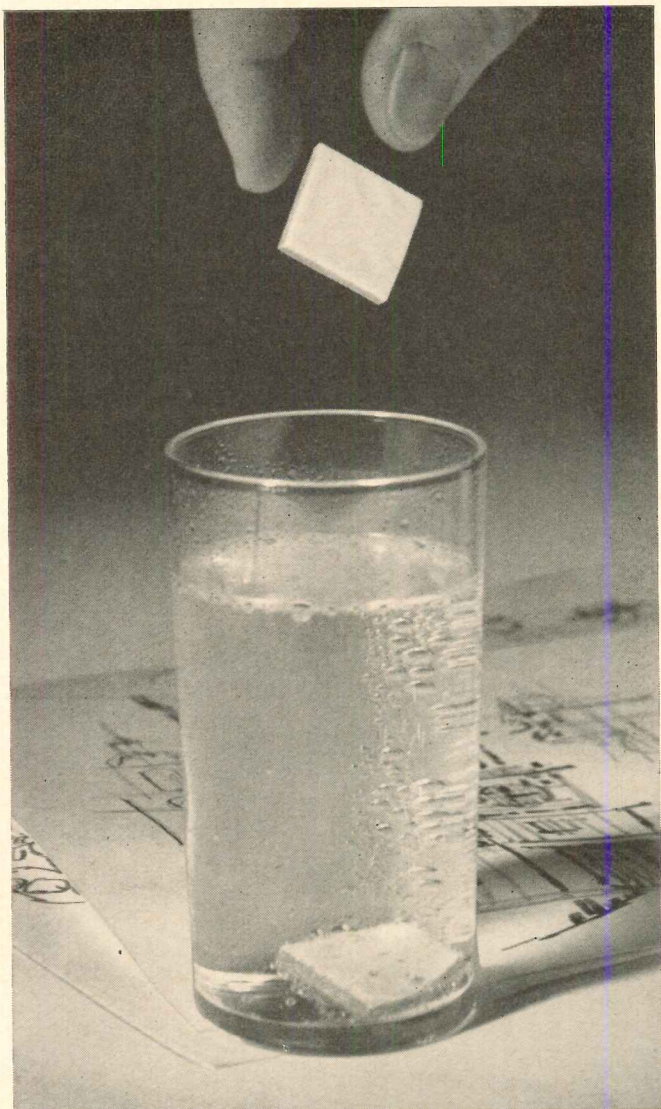
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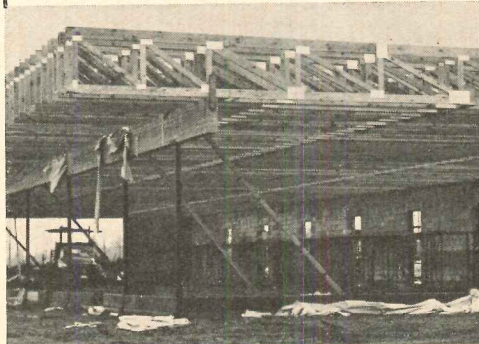
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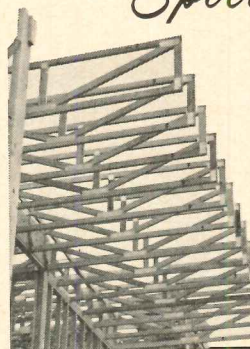
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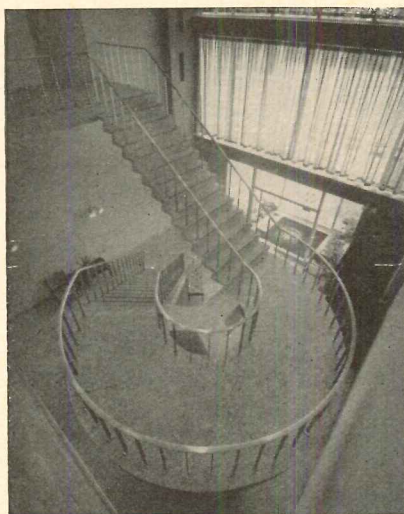
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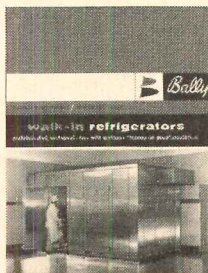
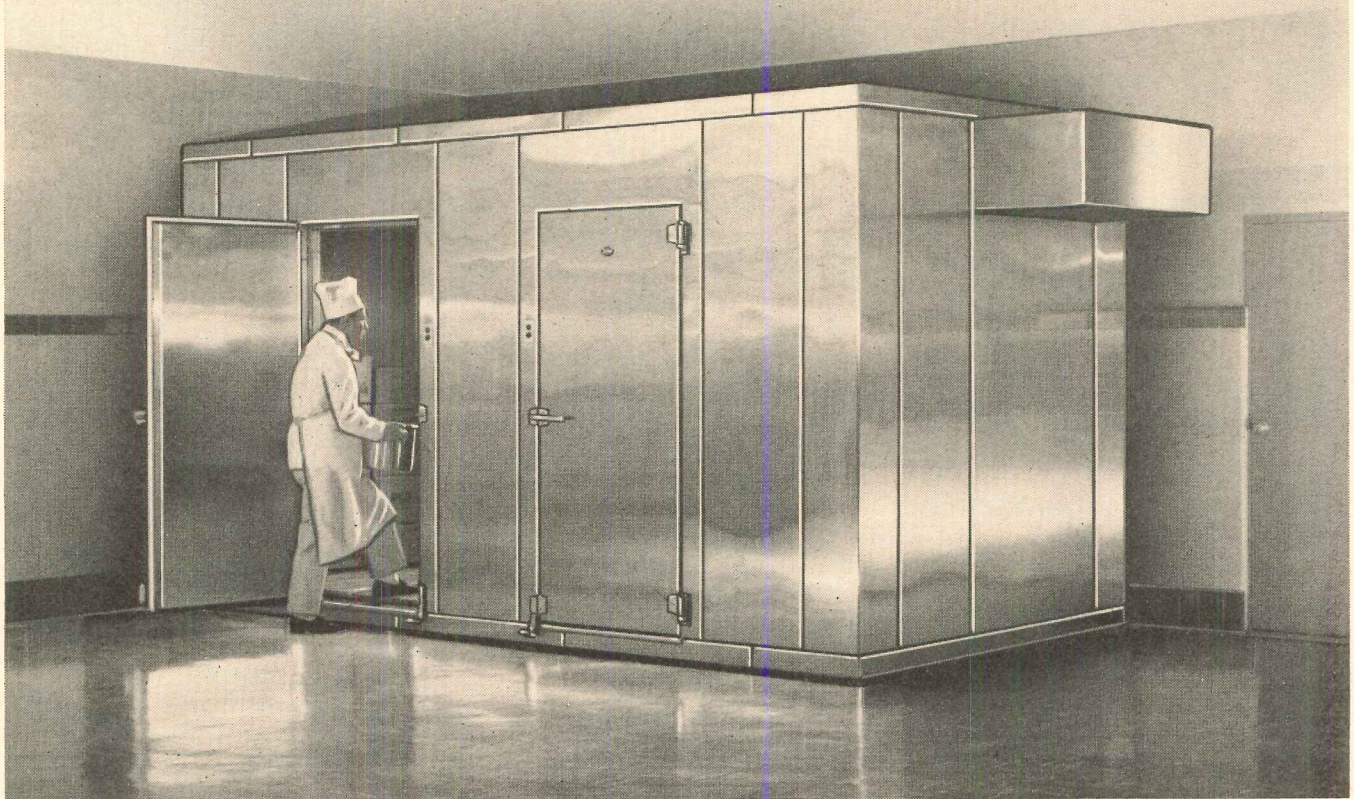


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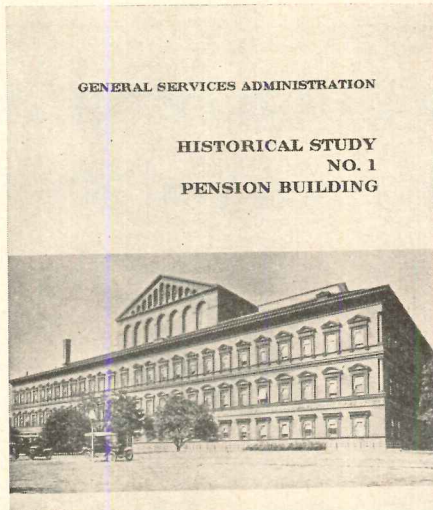
- Excludes up to 71% of solar heat
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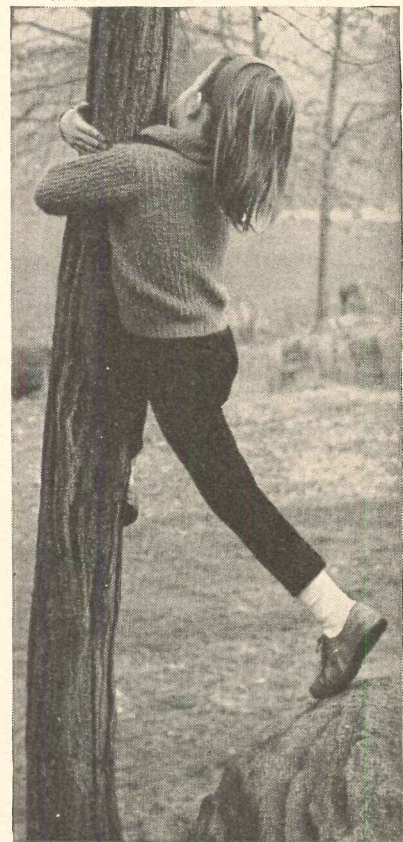
A 16-page booklet on the Pension Building in Washington, D.C., is the first of a series of historical studies to be published on notable buildings in the National Capital region. The project was initiated last summer at the behest of Commissioner Robert T. Daly, Commissioner of Public Buildings, General Services Administration as part of an overall program to record pertinent information about Federal buildings and to identify Washington's landmarks as a guide to preservation.

Out of an inventory of over 100 buildings, several were recognized as meriting special treatment. The Historical Study No. 2, which will deal with the Department of Agriculture-Administration Building, was released early in June.

Among others chosen for study are the Court of Claims, City Hall, the National Archives, the Treasury Building and the Old Post Office. Special reports will also be made on the history of Lafayette Square and the Federal Triangle.

The first study presents a concise account of the red-brick Pension Building, designed by General M.C. Meigs in the Renaissance Revival fashion of the post-Civil War era and built in 1882-85. Its spacious interior court, which is surrounded by tiers of galleries containing offices, was formerly the scene of seven Presidential inaugural balls. More recently it was called "one of the city's most interesting and evocative structures" (Guide to Washington Architecture, 1791-1957).

THIS SPACE CONTRIBUTED BY THE PUBLISHER



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may discover the
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But today
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The American Cancer Society is devoting more research money to leukemia than to any other form of cancer. Many different possibilities are being explored—viruses, anticancer drugs, early diagnosis, immunology, bone marrow transplantation.

Progress is being made. Lives are prolonged by many months, sometimes by years, with drugs and other therapy. The course of leukemia has been slowed and even temporarily halted by chemicals and blood transfusions.

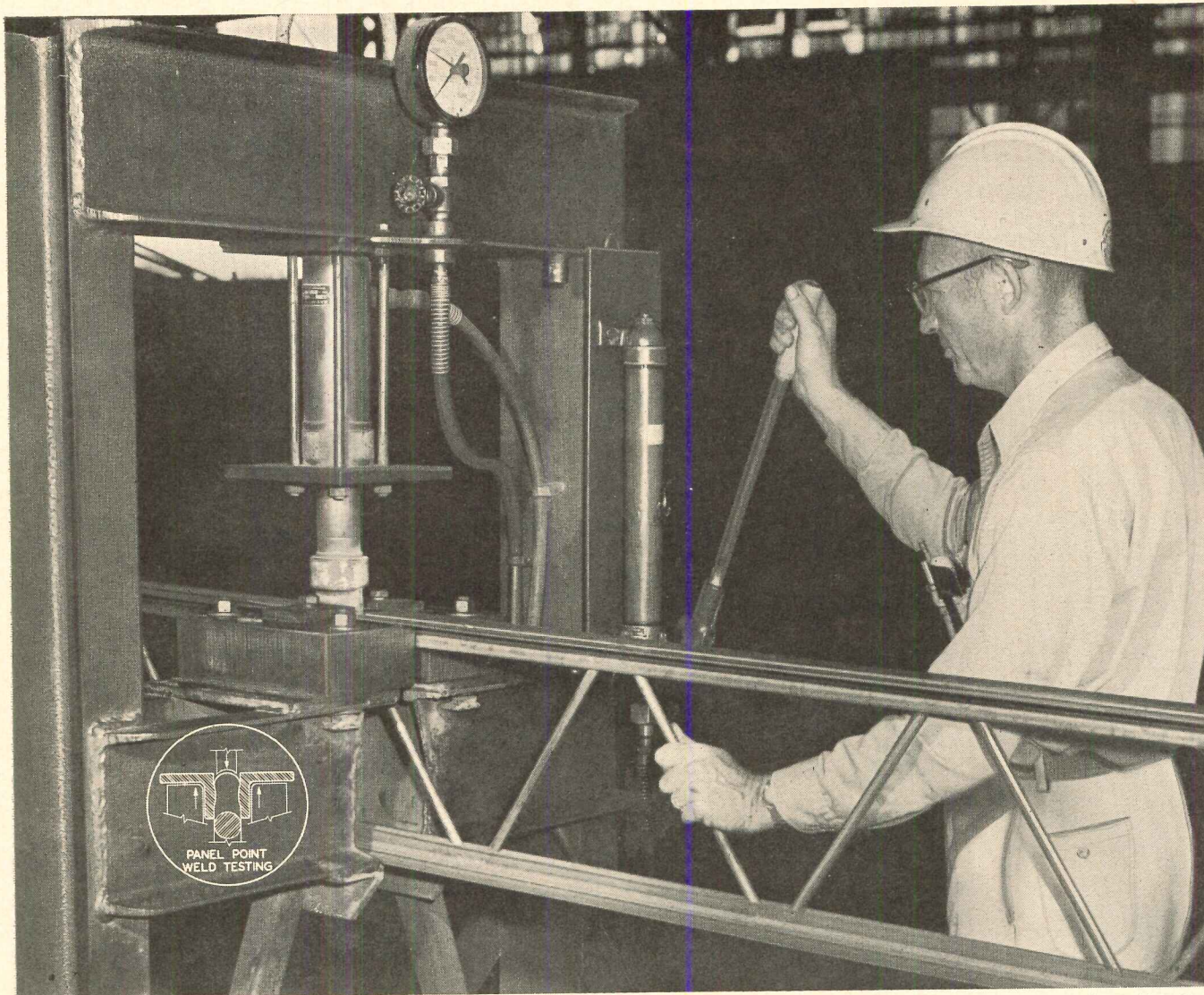
And today there is *hope*. Many research scientists believe that the next major breakthrough may be against leukemia. But much more could and should be done—now. This will take money—lots of money.

Your dollars will help bring closer the day of victory. Please give generously. Mail your check to **CANCER**, c/o your local post office.



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For 35 years Laclede Steel Company has produced quality steel joists conforming to Steel Joist Institute Standards. Laclede recognizes and respects the value of the Institute. Since 1928, SJI services and purposes have included the establishment of standards for proper joist designs, and the performance of research to improve design. It also serves as the one structural agency providing continuing service to architects, engineers and code authorities on the proper application of open web steel joists in all construction.

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... All high strength steel may be certified by test reports.

... All high strength or "H" Series steel joists are grade marked for job identification.

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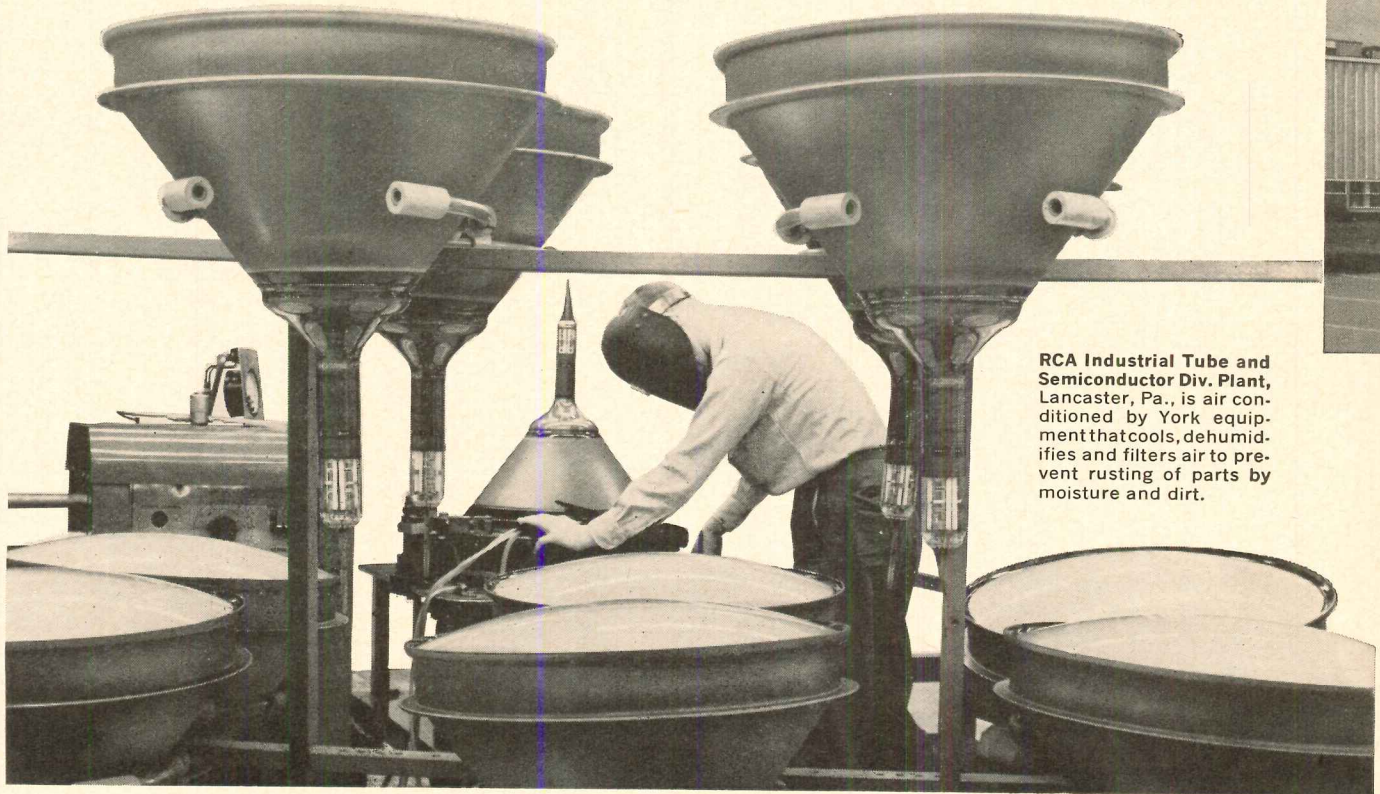
YORK Air Conditioning gives these companies a better climate for production!

A production increase of only about 1.5 percent will pay for a modern York air conditioning system, according to plant surveys in a wide variety of industries. And many plants report that year-round air conditioning has increased efficiency and output much more than this—so their air conditioning has more than paid for itself!

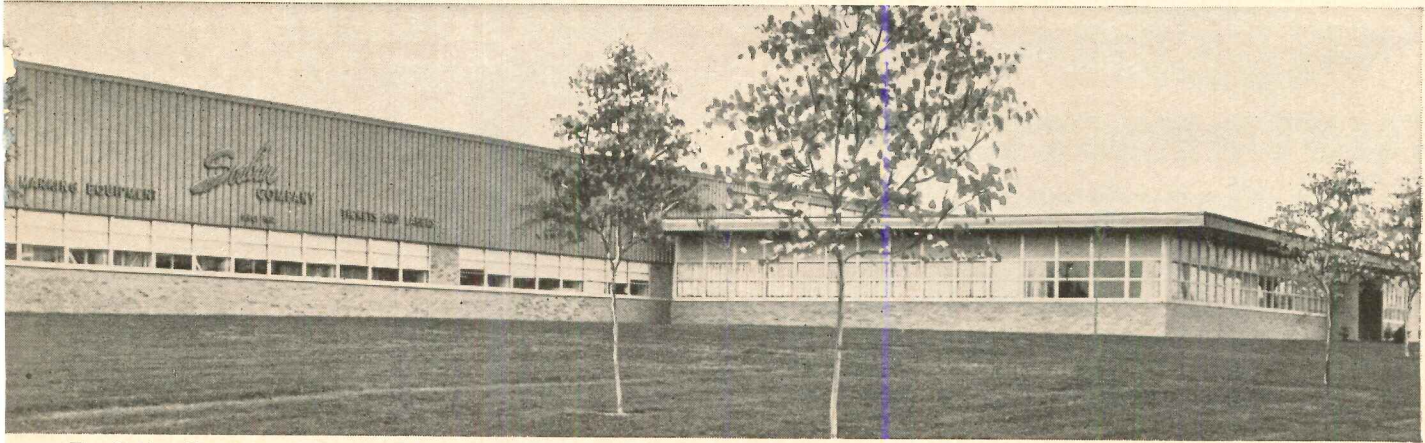
Extra benefits of plant air conditioning include reduced absenteeism, improved morale and elimination of hot weather slump in production. In many industries, control of temperature and humidity is

essential, to eliminate the problems of excess moisture, condensation, heat damage, and the static electricity that slows many production operations.

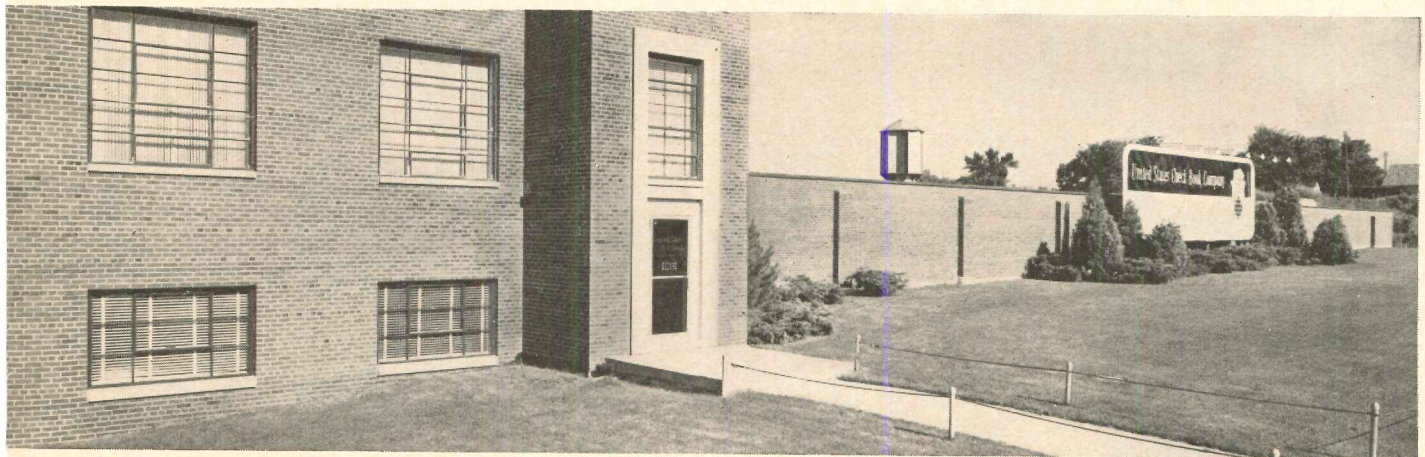
Want more facts? When you plan air conditioning for a new or existing factory, talk to York. Get complete specification data on York built-up and packaged systems from your nearby York Representative. Or write York Corporation, York, Pennsylvania. In Canada, contact National-Shipley, Ltd.; Rexdale Boulevard, Rexdale, Ontario. Get information on the York Certified Maintenance Program, and the York Lease Plan.



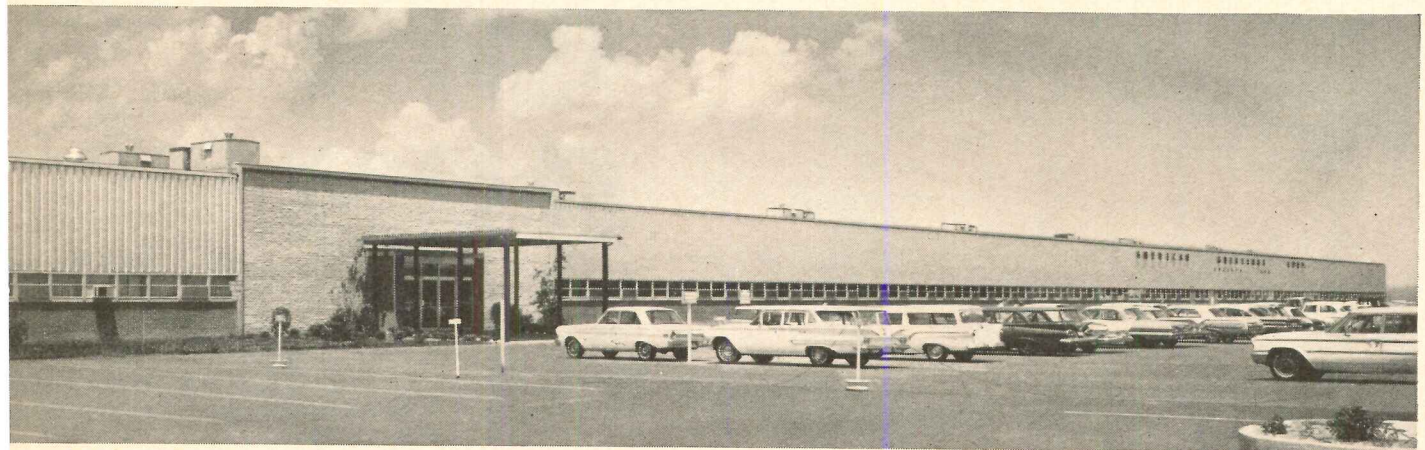
RCA Industrial Tube and Semiconductor Div. Plant, Lancaster, Pa., is air conditioned by York equipment that cools, dehumidifies and filters air to prevent rusting of parts by moisture and dirt.



The Soabar Company, Philadelphia, Pa., manufacturers of marking equipment, roll tickets, tags and labels. A York heat pump system heats and cools this plant. System also provides desired humidity control, essential in printing operations. Builders and Engineers, William F. Lotz, Inc., Philadelphia.



United States Checkbook Company, Omaha, Nebraska, is air conditioned by five York roof-mounted air conditioners that maintain desired temperature and humidity the year around. Since installation, plant operating and maintenance costs have been reduced 15 percent. System engineered and installed by Prawl Engineering Corporation, Omaha.



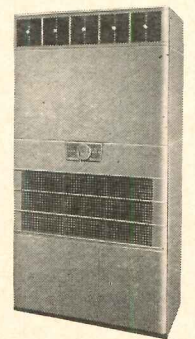
American Greetings Corp., Osceola, Arkansas, is air conditioned by 54 York Sunline rooftop units that heat, cool, ventilate . . . take no floor space. Engineer, Osborn Engineering Co., Cleveland, Ohio; General Contractor, McDaniels Bros. Construction Co., Jonesboro, Arkansas; Mechanical Contractor, Central Plumbing & Heating Co., Jonesboro, Arkansas.

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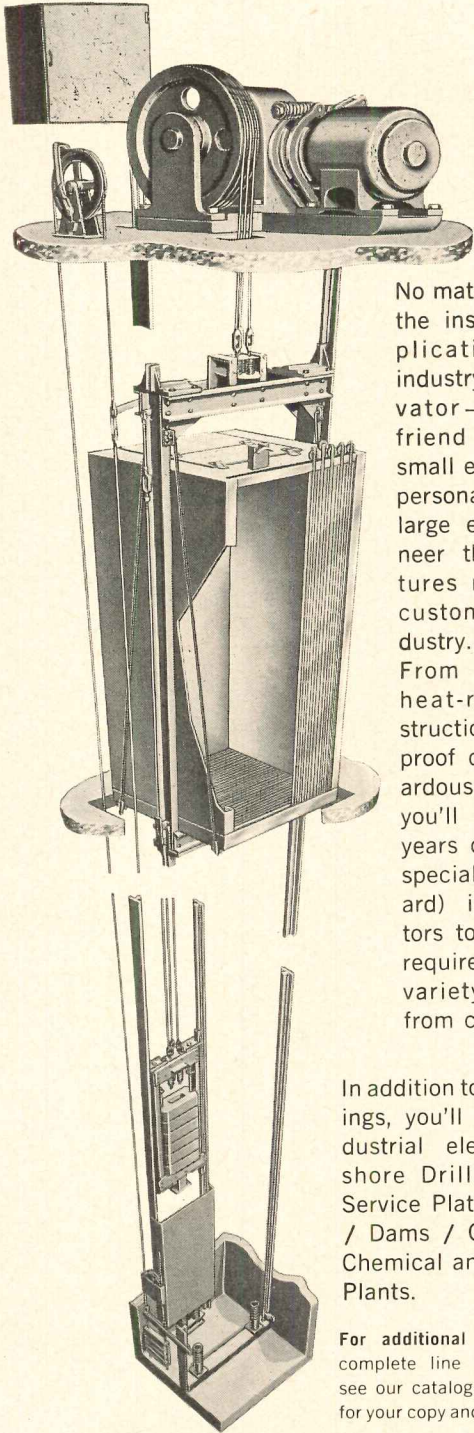
Cool part of a plant with one or more York Embassy air conditioners. Ideal for "clean rooms," offices and areas where electronic business machines are used.



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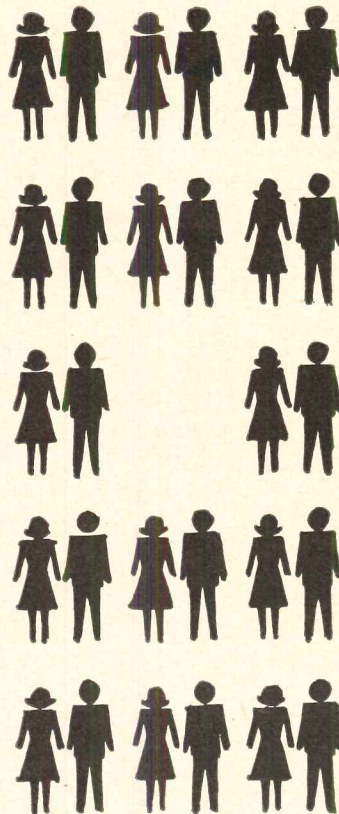
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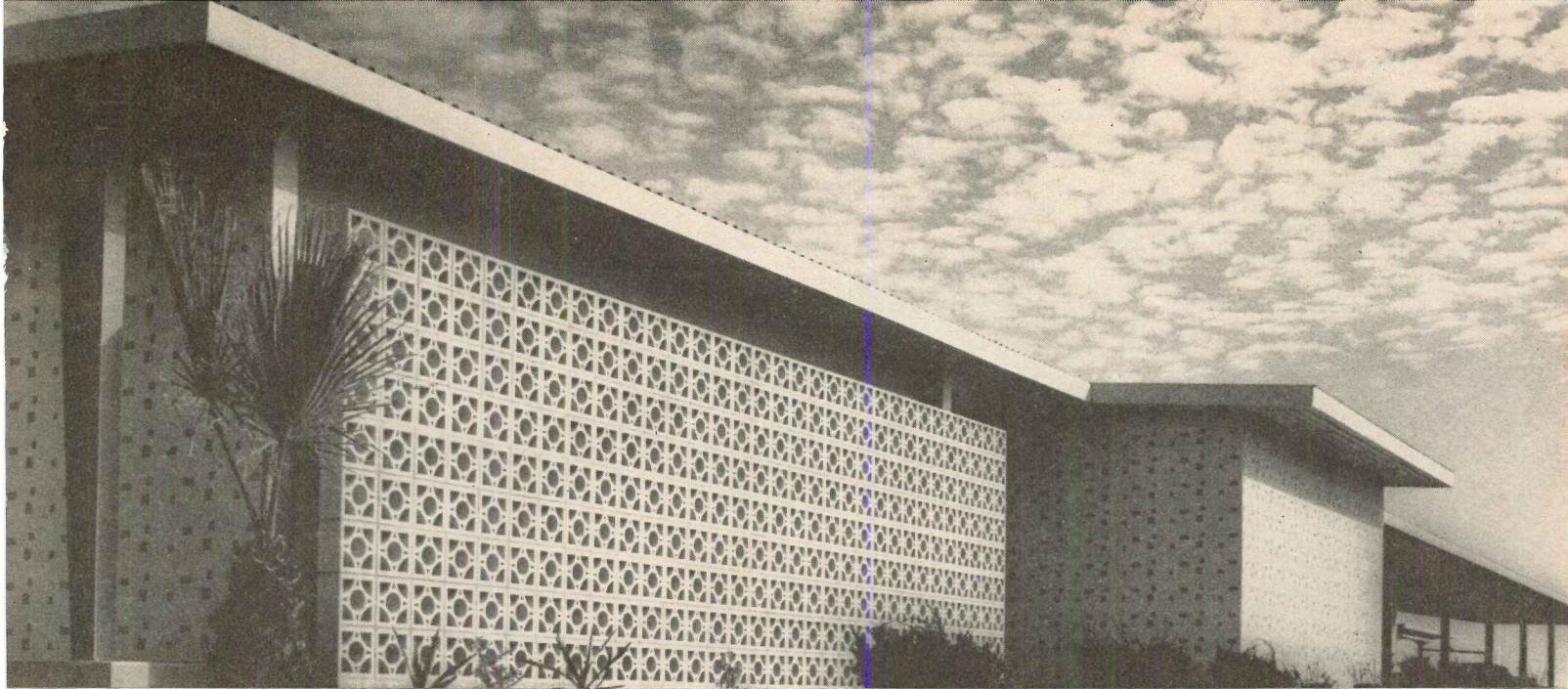
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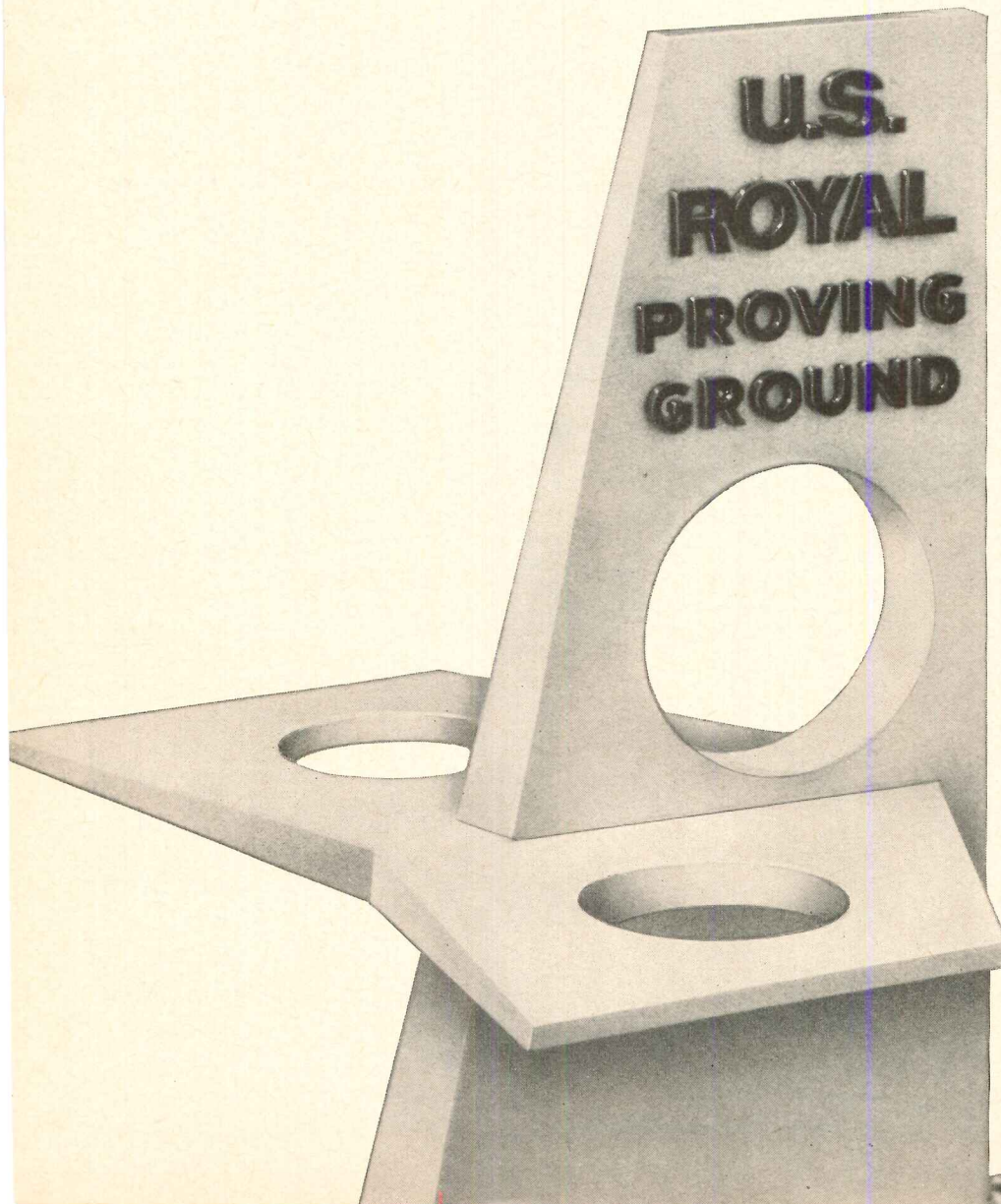


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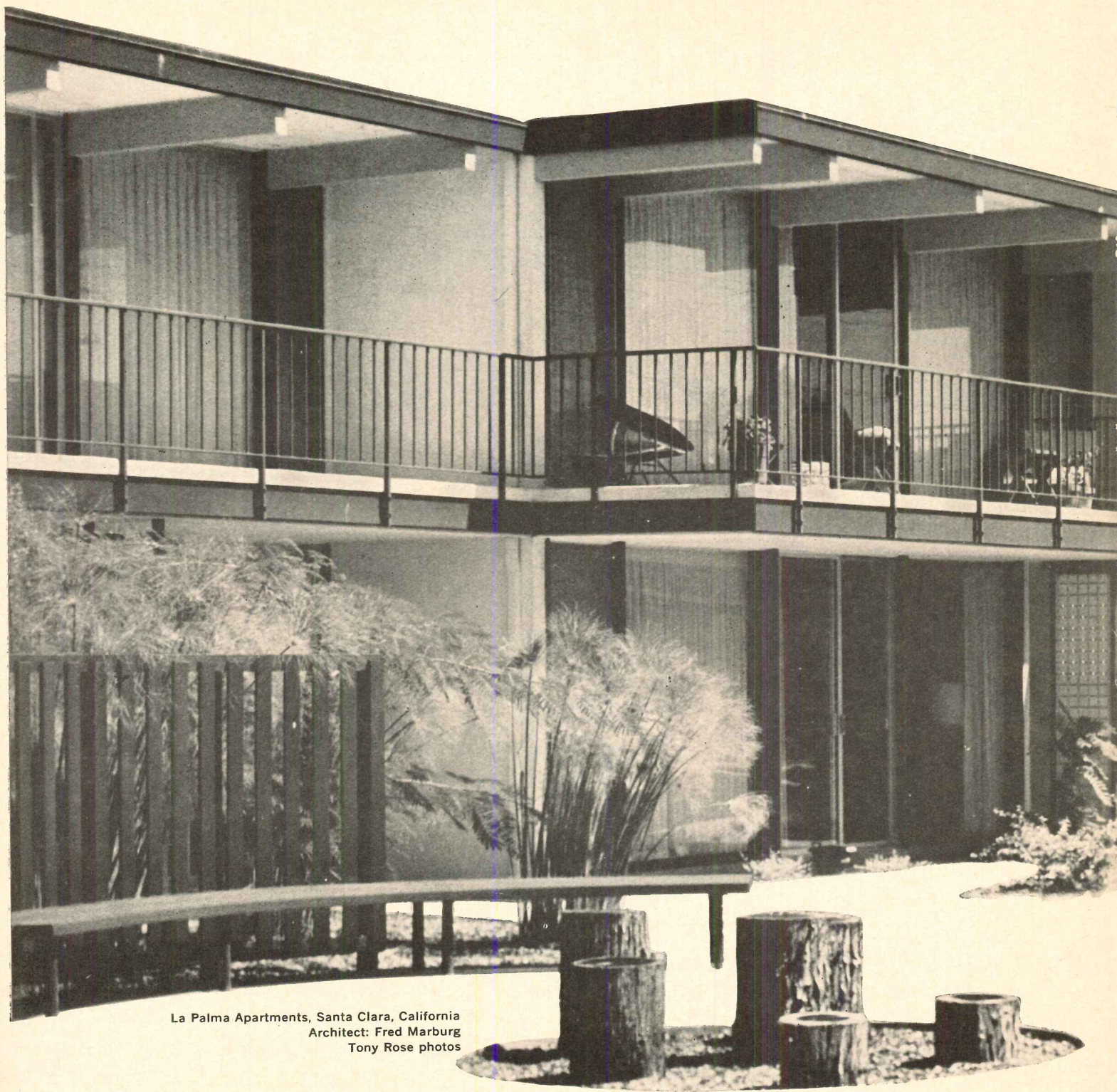
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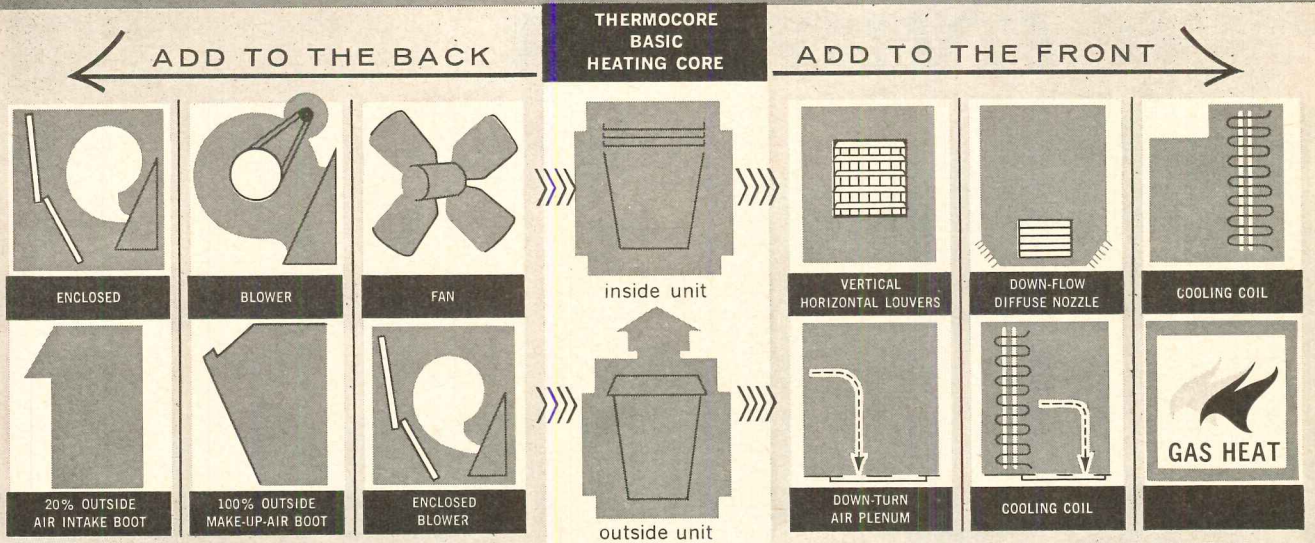


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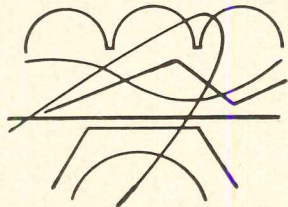
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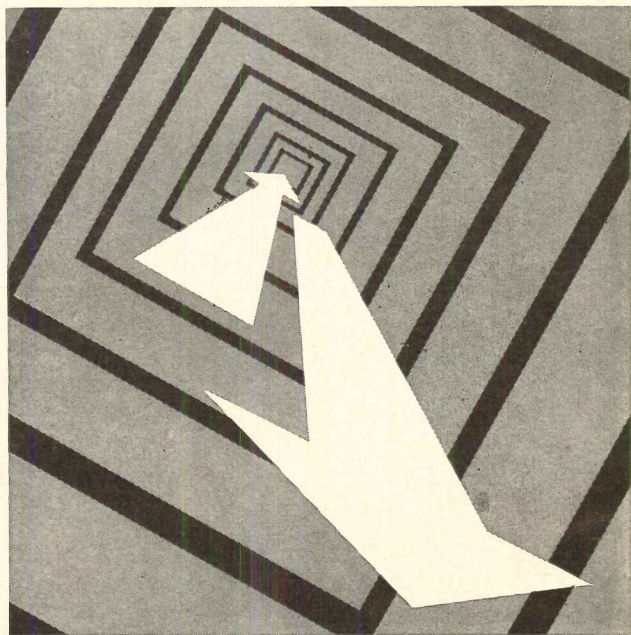
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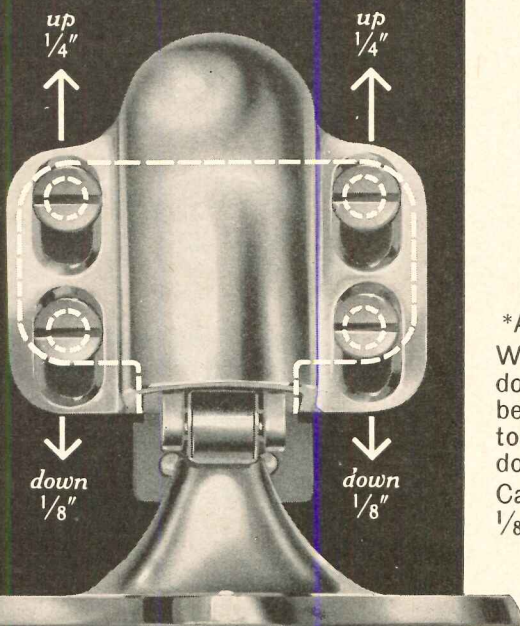
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F40 A*

FLOOR TYPE DOOR HOLDER

DOOR PORTION
ADJUSTABLE
AFTER INSTALLATION



ADJUSTMENT IS SIMPLE

1. Loosen four screws on door portion.
2. Raise or lower in $\frac{1}{16}$ " increments.
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*A AS IN ADJUSTABLE
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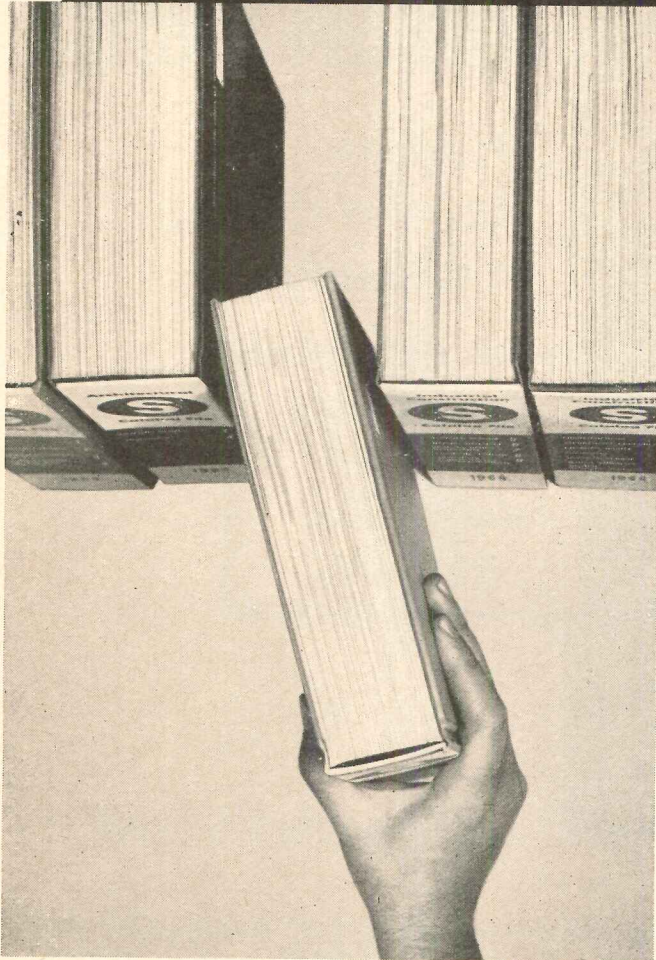
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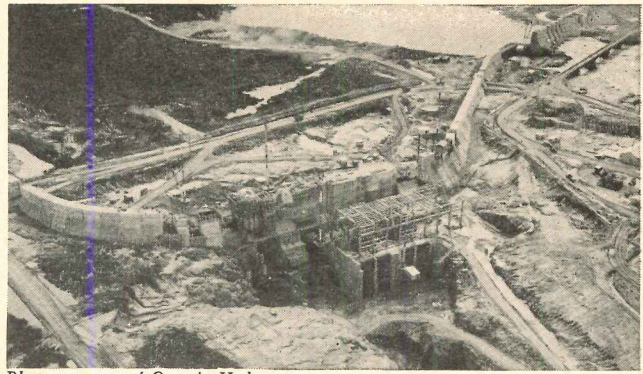


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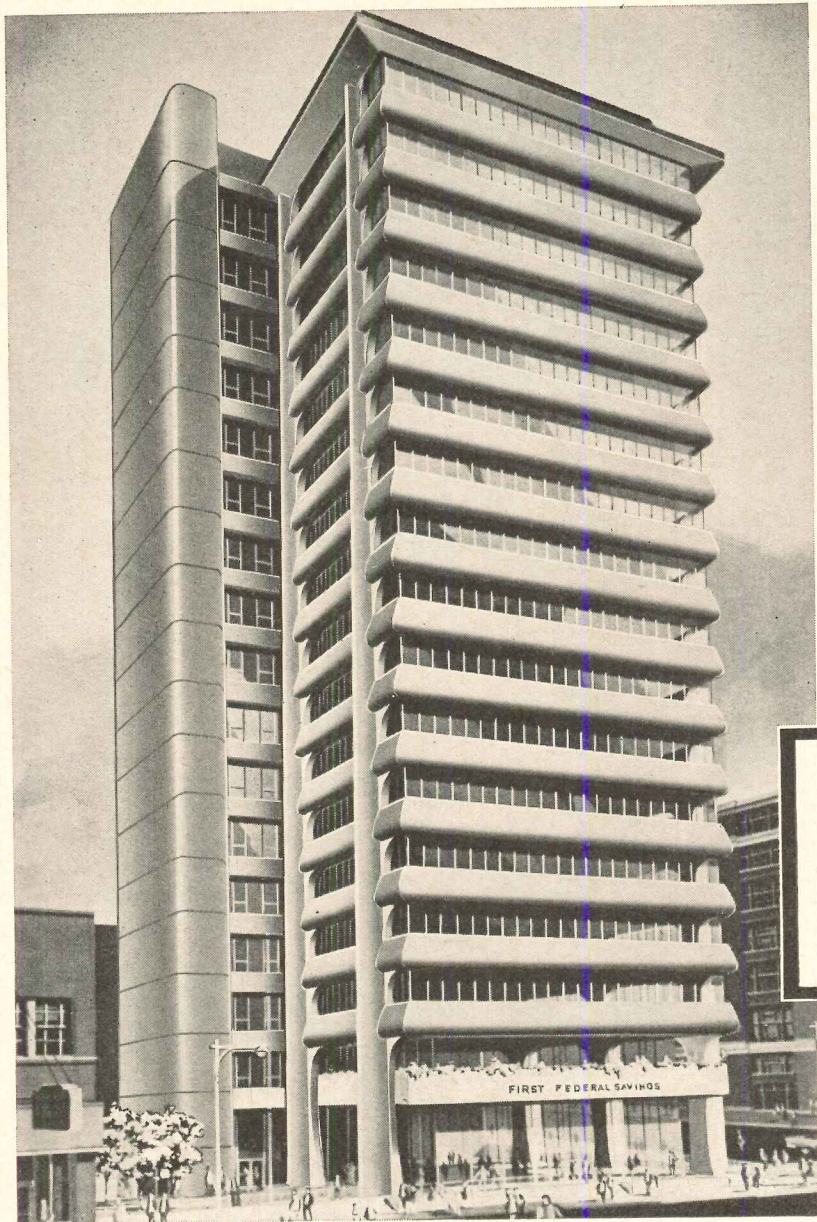
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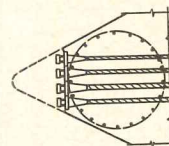
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