ARCHITECTURAL RECORD

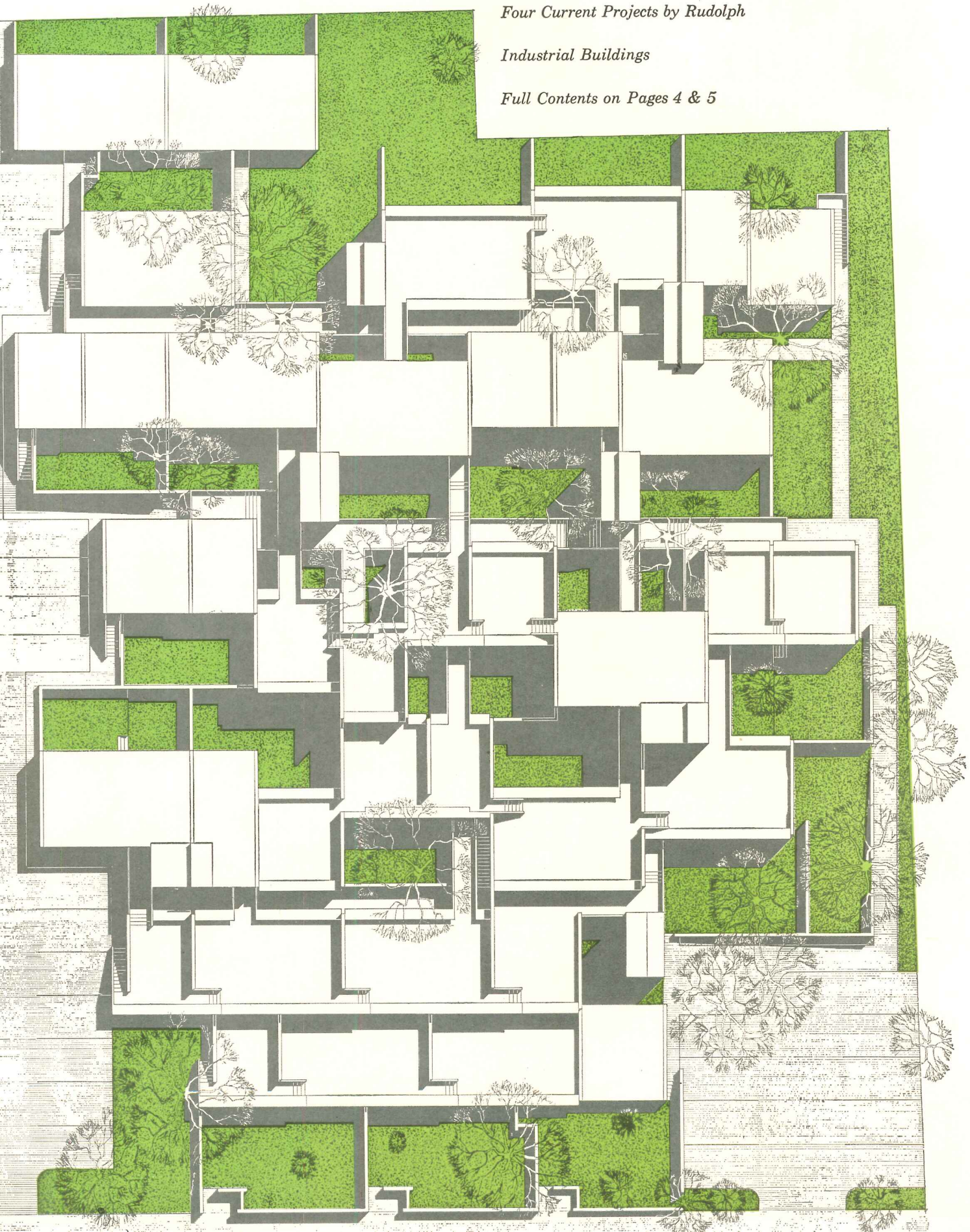
3 *March 1961*

Building Types Study: Apartments

Four Current Projects by Rudolph

Industrial Buildings

Full Contents on Pages 4 & 5



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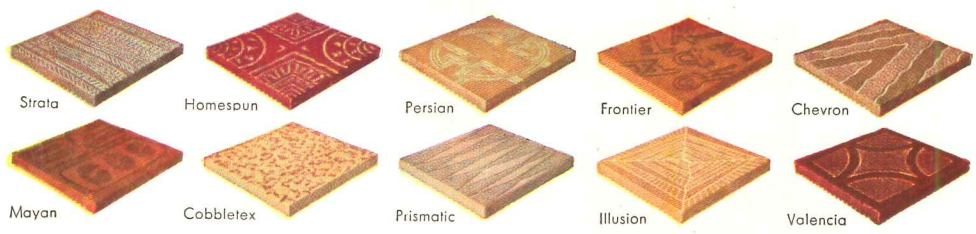

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CORROSION RESISTING ALLOYS & EQUIPMENT

LOEB DRAMA CENTER,
HARVARD UNIVERSITY

Architects: Hugh Stubbins and Associates, Cambridge, Mass.

Theater lighting, stage equipment and electro-mechanicals: George C. Izenour.

Rotary Rising Stages installed by Stanley Elevator Company, Nashua, N. H.

Hydraulic Stage Lifts built by Rotary

FOUR massive stage sections which travel vertically on smooth, quiet hydraulic plungers are the key to the most flexible theater yet built.

Harvard's new Loeb Drama Center, the product of the imaginative design of Architect Hugh Stubbins, is three theaters in one. Engineered by George C. Izenour, theatrical design engineer, the four stages can be raised and lowered by pushbutton control to produce three different seating arrangements and a number of different stage effects, as desired for various performances.

BUILT BY ROTARY—The Rising Stages were designed and built by Rotary Lift to the architects' and engineers' specifications. In the revolutionary plan for the Loeb Drama Center they are used in combination with movable seat sections and pre-set lighting and rigging systems.

Operating like hydraulic elevators, the Rotary Rising Stages move quietly, safely, without vibration. Two powerful hydraulic plungers assure ample support for the tremendous weight of each section. A unique equalizing system keeps each pair of jacks level at all times. Rotary's Oildraulic Controller, developed for elevator service, insures smooth transmission of fluid power from the efficient pumping units, and complete control over vertical travel.

STAGE LIFT EXPERIENCE—Rotary Lift was chosen for this challenging job because of its leadership in the manufacture of hydraulic lifting devices . . . modern passenger and freight elevators, industrial lifting equipment and Rising Stages for many entertainment centers throughout the country. Among Rotary's other Rising Stage installations are those at the Stardust Hotel in Las Vegas, Dallas Memorial Auditorium, McCormick Place Exposition Center in Chicago, Charlotte, N. C., Auditorium-Coliseum and the University of California.

The experience of Rotary engineers in this type of work is unequaled in this country, and can be most helpful to you on similar projects. See our catalog on Rising Stages in Sweet's Architectural File 23g/Ro or mail coupon below for more information.

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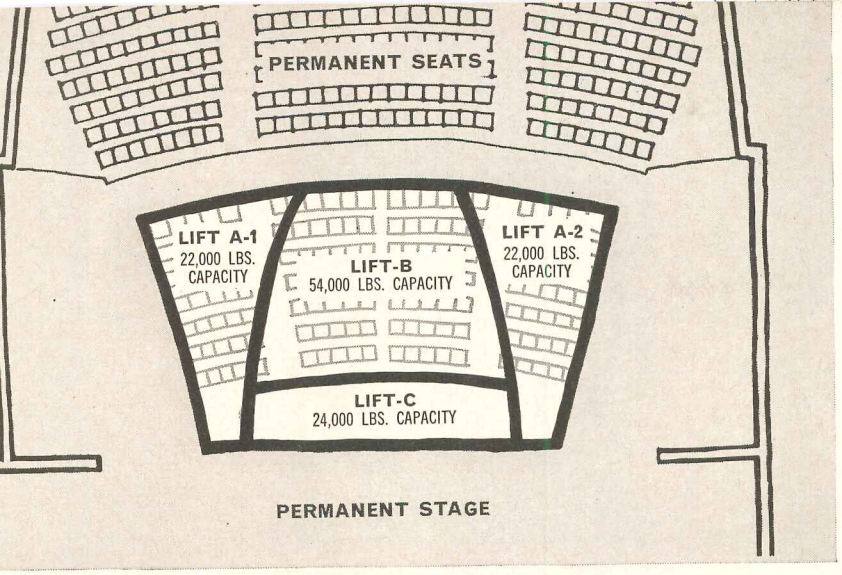
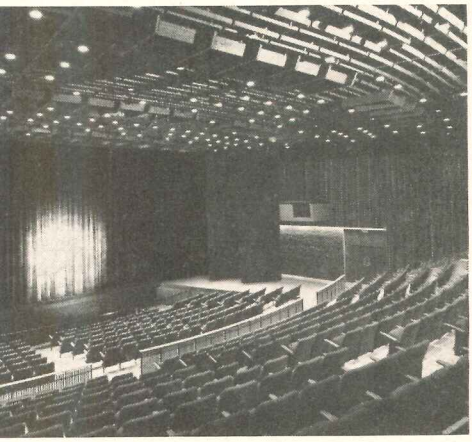


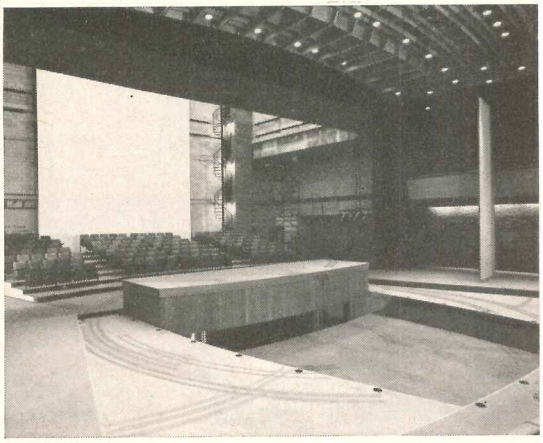
This diagram shows arrangement of the four Rotary Rising Stages in the Loeb Drama Center with pivoting seat sections in position. "A" and "B" Lifts have travel of 7′ each. The "C" Lift travels 14′–7″ and serves basement as well as intermediate landing and ground floor.

help create Harvard's "Automatic Theater"

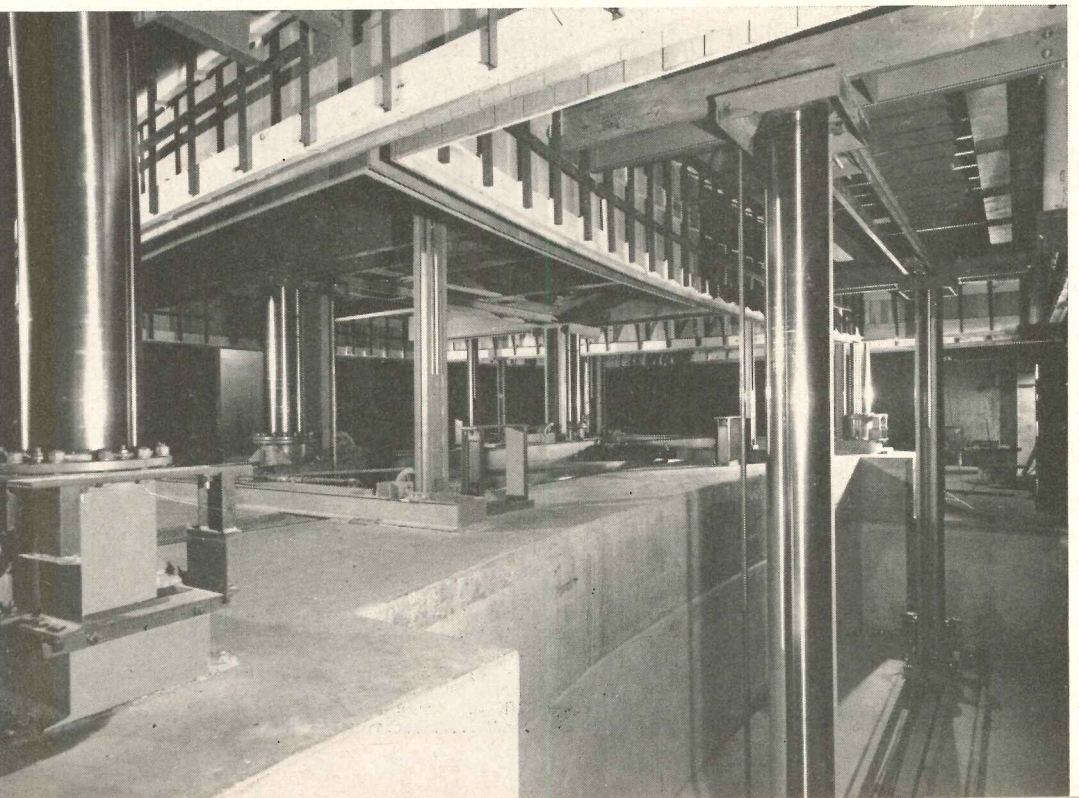


In conventional proscenium type auditorium, seven rows of seats nearest stage rest on "A" and "B" Lifts. These seats are mounted on platforms which move on aviation type wheels.

For Elizabethan staging, front seat sections split in middle and are pivoted 90° (note wheel tracks) so that "B" and "C" Lifts can be raised to create apron stage projecting into audience area.



Theater-in-the-round brings into use all four lifts (shown here at different levels to demonstrate flexibility) and front seat sections are swiveled 180° from their original position.



Hydraulic jacks which move and support the stage sections are shown here. There are two jacks per section, equalized by a cable-and-strut system which insures perfectly level surface at any point of travel. Each lift has its own Rotary Oildraulic electric pumping unit, controlled through Mr. Izenour's analogue console to permit interlocking and operational flexibility.

Photos by Clemens Kalischer

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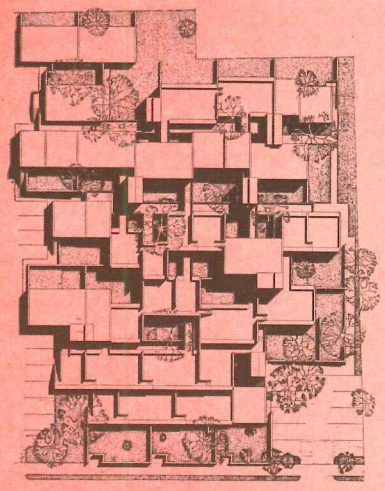

Cover:

Plan showing roof terraces and courts of the Yale Married Student Dormitory project by Paul Rudolph

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JAPAN'S NEW ARCHITECTURAL GENERATION

Continuing his peripatetic critical journeying for the RECORD, *John Burchard writes a long and provocative essay embodying the architectural observations of his recent trip to Japan. There are new stirrings in Japanese architectural circles, and next month's article will be illustrated with some of the significant architectural results to date.*

BUILDING TYPES STUDY: SPECIAL SCHOOLS

The special problems of special kinds of schools make the theme for this study; and the architects of nine different types of schools have contributed their testimony as to the problems involved and their own solutions. The schools involved will, of course, be shown — a state correctional school, a day care center for the underprivileged, a school for the gifted, one for the deaf, another for mentally retarded children, one for handicapped children and three for various religious denominations.

ON EDUCATING THE COMPLETE ARCHITECT

An important contribution to the "Image of the Architect" series is made in an article by Richard Llewellyn Davies, who has recently gone from his years of research at England's Nuffield Foundation to the headship of the Bartlett School of Architecture at University College, London. Professor Davies argues that patterns of architectural education must be revised to enable it to prepare today's architects for today's responsibilities: with decent attention to the science as well as the art of architecture.

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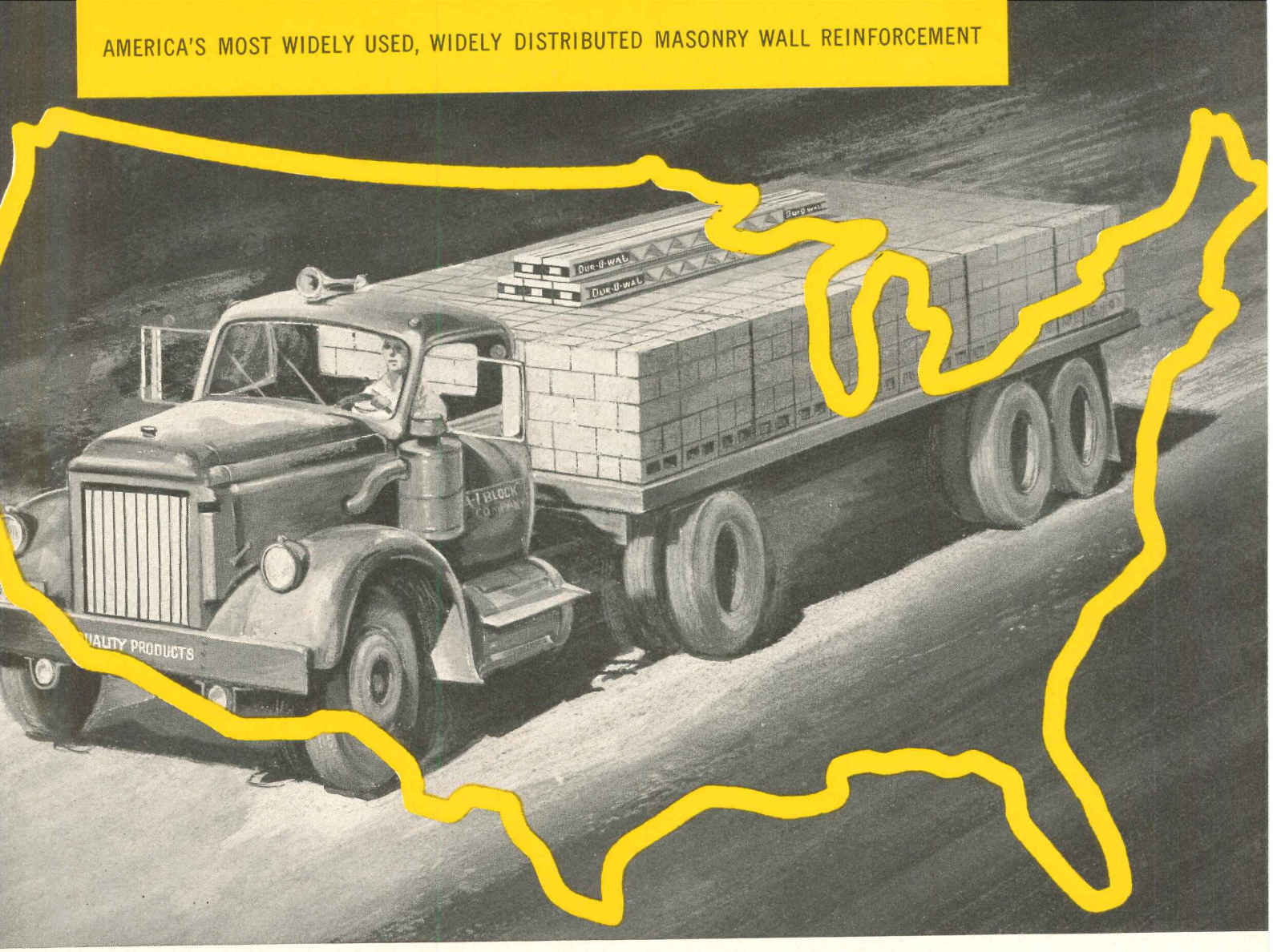

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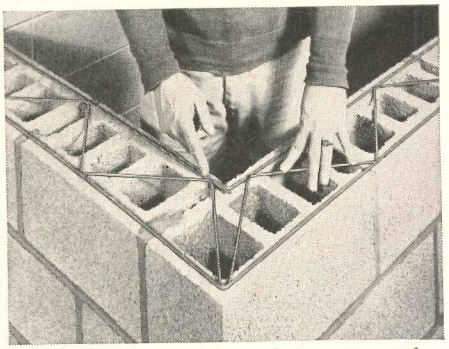

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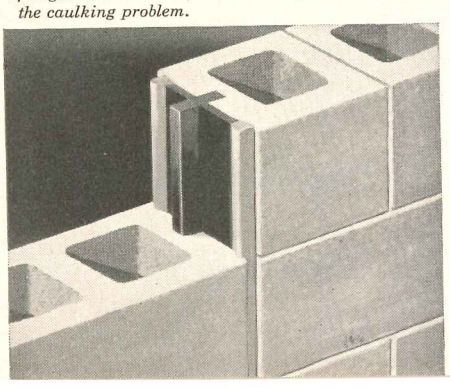

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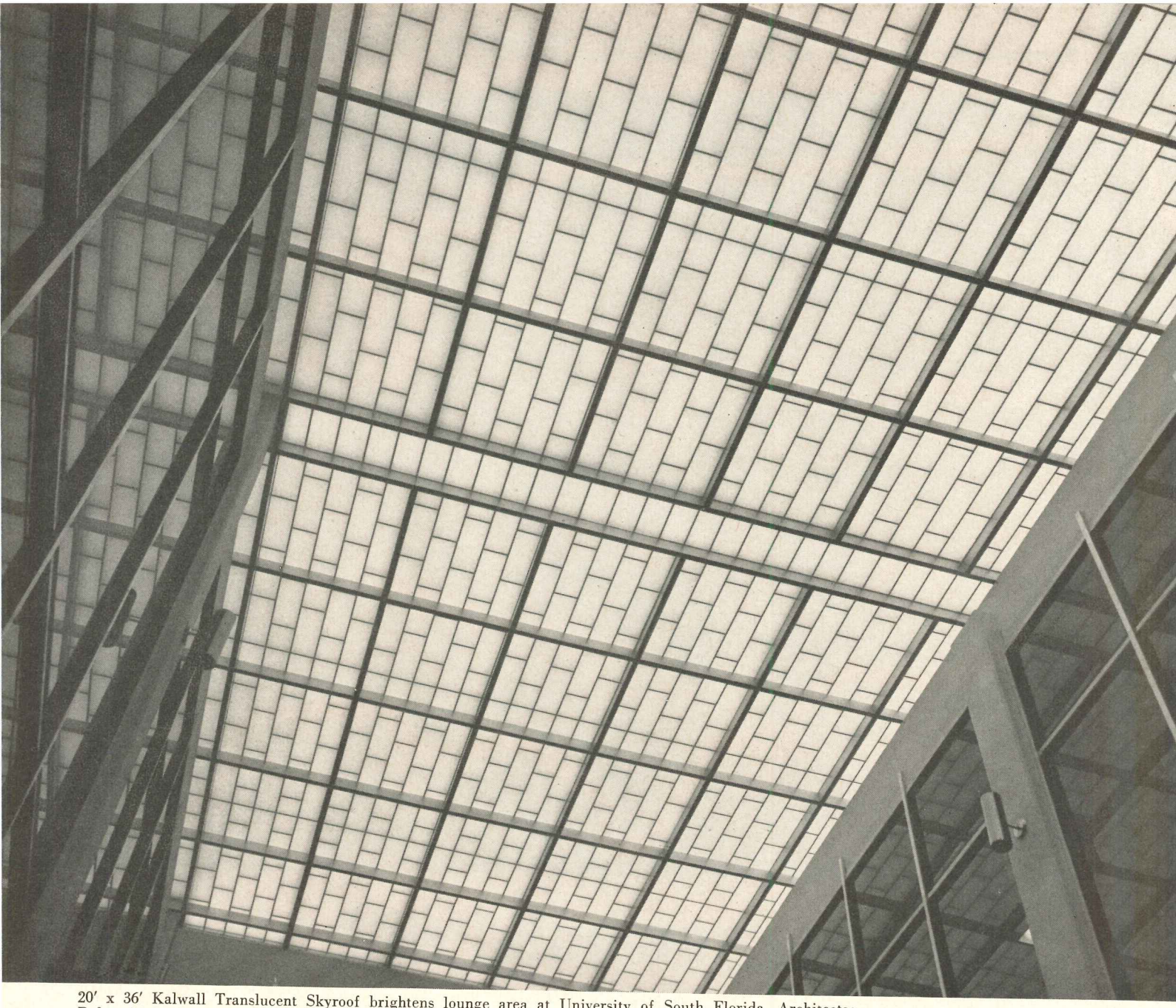

20′ x 36′ Kalwall Translucent Skyroof brightens lounge area at University of South Florida. Architects: Robert M. Little, FAIA and Associates; Guy C. Fulton, AIA. Contractors: W. H. Cooper Construction Co. Inc.

Casting new light *(daylight)* on interior design... Kalwall translucent Skyroofs

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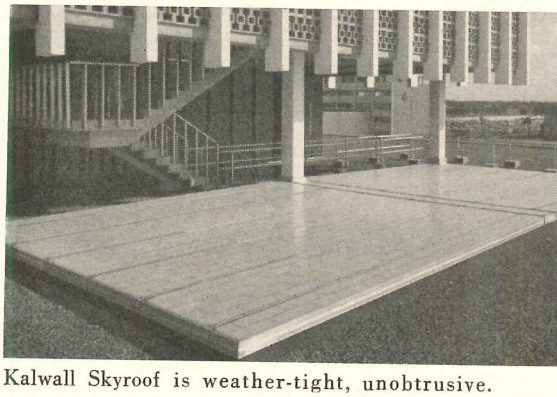

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"A Precise Language of Visual Communication"

As one who follows, with deep conviction, the star labeled "Communication," this observer has been known to speak out, sometimes gratuitously, in favor of more attention to this necessity of our world. I boggle, however, at one recent push in the general direction of communication.

It came from a release issued by Southern Illinois University, dealing with that new institution's design program:

"McHale (London 'visual designer and critic') whose primary concern is communication, cultural attitudes and 'understanding' among people all over the earth, has made his senior and graduate level students design three-dimensional constructions whose purpose is to present themselves—the real 'me'—in any terms they choose. The object, he says, is to 'make them engage their most complex selves, to give them a new awareness of their own identities. All designers need a true sense of self in order to understand others.' Understanding the peoples and cultures of other lands, he says, has become an urgent necessity for the complete designer, whose chief concern is with humanity and its universal requirements."

One student's visual production described a kiss in medical terms with the use of culture-laden petri dishes. Understands humanity, that boy.

Another summed up his self with a four-section pyramid whose various facets depicted stages of his life and mental development with photos and montages. Best communication device I can think of at this point is the cockney expression "Coo!"

"After the self-identification project," continues the release, "McHale challenged the students to take any object or act and run it through a descriptive process involving five different disciplines. The five might be medicine, music, sociology, mathematics and geography."

Would you just run that one through again for us, professor; something wrong with the communication, perhaps at this end.

But the communicative effort goes on, turning finally to methodology, if that is the word I want:

"McHale's final assignment will be a two-week long survey of mass communication, a re-appraisal of American television, magazines, newspapers, and other media 'as though it were a part of an alien culture.' The students will also comb foreign publications, particularly Russian ones, to try and find out how certain kinds of images are used in different cultures. McHale believes modern culture is carried in many channels outside the traditional ones of fine arts, literature and so on. To span the thorny barriers of languages, he says, "we must study the vast proliferation of new images—comic strips, popular entertainment heroes, and anything else that will give us clues for ways of building a precise language of visual communication."

Two weeks? Don't strain yourselves, fellows, in another year they'll have a computer that will do it for you in 45 minutes.

A precise language of visual communication? The world is waiting, lads, and the objective is worth more than two weeks. And I'll be ready to applaud any visible visual progress.

Emerson Goble

PIETRO BELLUSCHI INTERVIEWED BY ARCHITECTURAL STUDENT JONATHAN BARNETT

A serious architect is not searching for style but searching for answers. . . . Variety does not need to be confusion. . . . The great tool of the modern age is teamwork. . . . Style will come when society itself will have acquired spiritual greatness. . . .

Dean Belluschi, I wonder if you could begin by telling me a bit about how your architectural practice is organized.

My architectural practice is something that is very much my own, and I'm not sure that I would recommend it to anyone else. I suppose that I am most at home in the world of ideas. Although I was in active practice on the West Coast for 26 years, my chief interest is in discovering solutions to architectural problems. I am not so good at going out to the site and saying that this is wrong and that should be thus and so. Today I am a consultant, working with a number of architects on a great variety of different problems.

Do you feel that each building that you work on should be approached within its own frame of reference, or do you find a particular set of principles consistently applied will always produce the right answer?

The central point is to synthesize the many elements of the problem until you have a chemical crystal form that is typical for that solution.

Although methods of approach may be similar, I don't believe that the results will be uniform. After all, the individual is what he is.

Then you do not look to modern architecture for a uniform set of solutions that would form the basis of an architectural style?

To search for style is a foolish thing; a serious architect is not searching for style but searching for answers.

I am in complete disagreement with people like Philip Johnson who believe that the choice of form comes first.

Style is the result of searching very honestly for good answers. Of course they must have a spiritual content. That is a most important part of the question to be answered. But you cannot impose a form a priori, and you cannot be arbitrary about it.

Architecture must not be a search similar to that which produced automobile fins, jukeboxes or sculptural knickknacks.

If there cannot be stylistic uniformity, the relationship of one building to another must become the conscious concern of the architect.

I would certainly accept that conclusion. We are a pluralistic society. It is necessary to start from the back yard, as it were, by seeing what goes on around you. You bring a certain amount of variety to your approach in order to interpret the many aspects of today's society. Variety does not need to be confusion. There are various conditions of building just as there are different conditions of climate and soil. You wouldn't find a palm tree in the pine country.

Do you think that historical precedent in a particular building type is one of the conditions to be taken into account?

I believe that there is a continuity in human affairs. Sometimes one may jump too many at a time, as in a revolution, and break a leg. At other times we go along more smoothly.

There is always some precedent which may serve as a guide line. We cannot really create without knowing the past. The trouble with the nineteenth century was that it was overly preoccupied with the past.

With the superficial aspects of the past, at least.

That is still true today. Too many architects are preoccupied with the superficial aspects of things.

I noticed that in your introduction to the exhibition called The Form Givers you warned against merely transferring our attention from the historic styles to the more recent past.

Mies has long been searching for significant forms, and he is always consistent and never superficial. Others are fashion seekers. A fancy new package will draw attention . . . but then one can throw away a package but not a building.

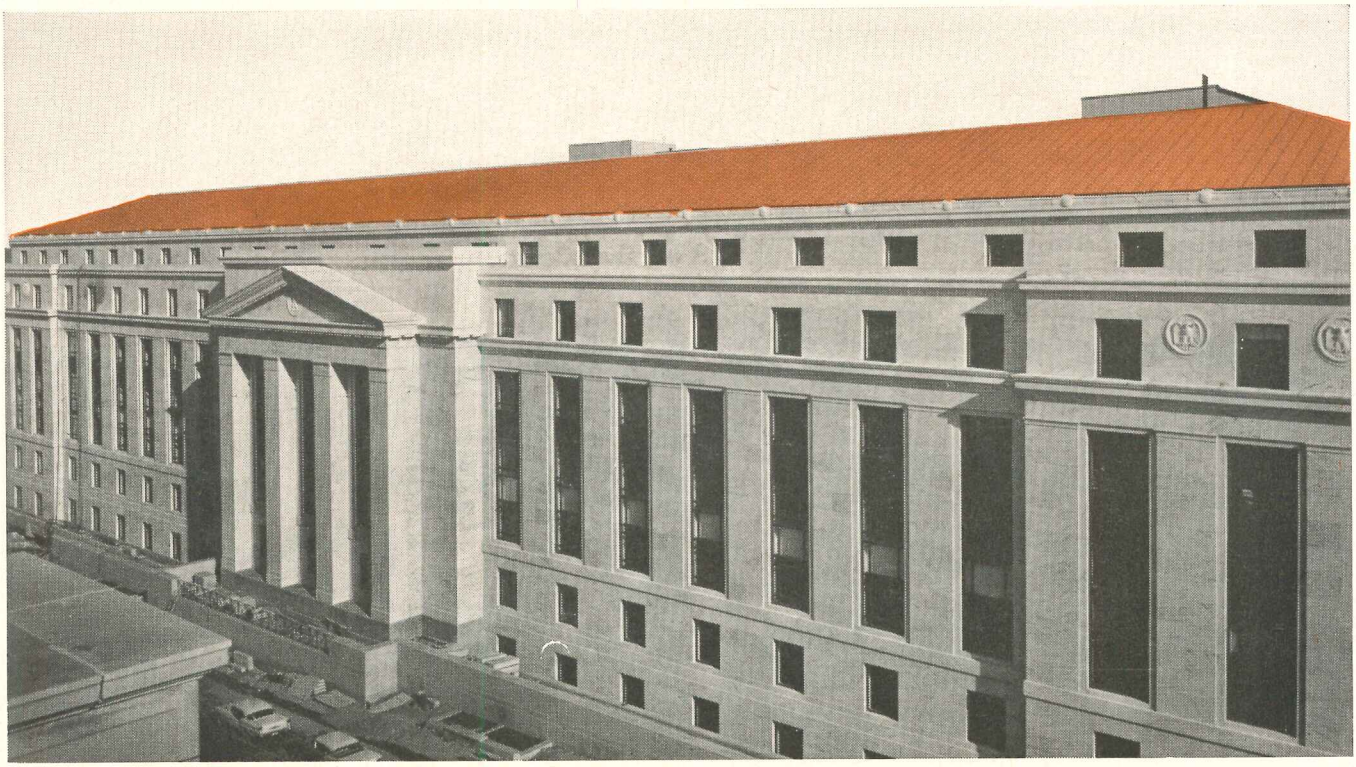
Our age is not a disciplined one. There is of course danger in a discipline that is imposed from without. But I believe that a true sense of discipline will in the end prove the solution and keep us from going in all directions at once.

How does one go about teaching architects, or architectural students, a sense of discipline?

Maybe Mies has a point: the architect should be trained in precise thinking, and let the imagination be subordinated to this process, at least at the early stages. The student definitely should not be allowed to start with the form without a logic to back it.

I don't want to be quoted as saying that form follows function. That is not only corny, but too easy a thing to say. Let us say that the student should learn to produce a defensible design, one that can be explained and understood in precise and logical terms, then he will have the conditions from which his esthetics will emerge. In a mature architect all these phases are simultaneous and indivisible.

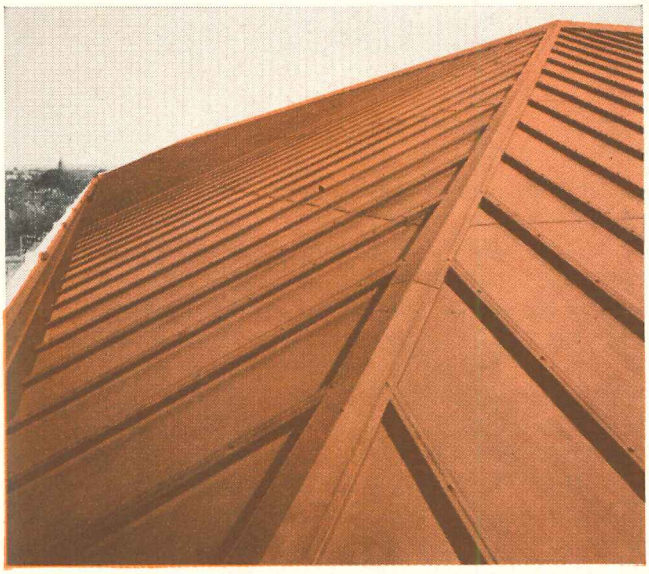
continued on page 347



Copper batten seam roofing on the new Senate Office Building, Washington, D. C.

New Senate Office Building has copper roofing for enduring protection

Approximately 75,000 pounds of Anaconda copper were used for the batten seam portion of the roof and the deep, boxed concealed gutter on the new Senate Office Building. In the nation's capital and in cities throughout the country, copper roofs are establishing records of long service and low maintenance costs.



The roof was fabricated and erected by the Overly Manufacturing Company, Greensburg, Pa. A modified "Overly" batten was formed from copper strip. Roofing sheets were formed from 20-ounce cold-rolled copper. Architect of the Capitol, J. G. Stewart. Architects: Eggers and Higgins, New York City. General Contractor: George Hyman Construction Co., Washington, D.C.

A realistic comparison of roofing costs requires the inclusion of two important factors—estimated maintenance costs over the years, and estimated serviceable life of the roofing material. Copper has proved its economy. Performance records covering many years of service show that expected long life and minimum upkeep are based on fact, not guesswork. Here is an example:

When the 47-year-old Grand Central Terminal Building was razed recently to make way for the huge new Pan-American Building, more than 150 tons of sheet copper were removed from the roof. The copper was still sound and beautifully colored by nature's patina. It is also worthy of note that the scrap value of the removed metal was considerably higher than the price for ingot copper prevailing when the roof was installed in 1913.

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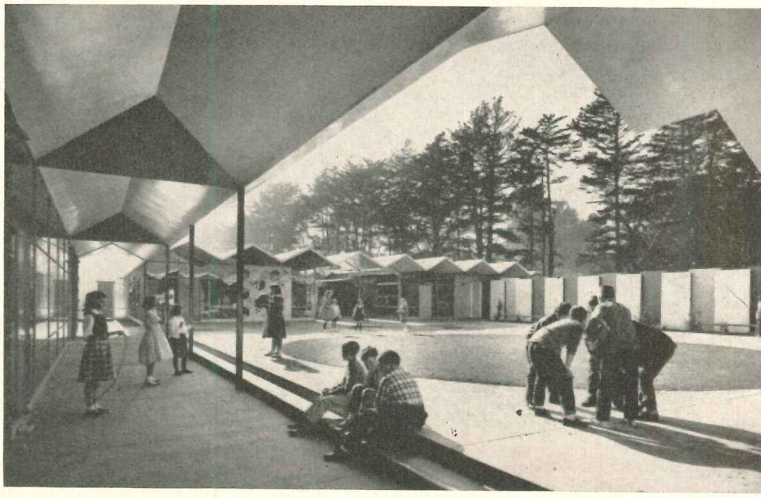
HONOR AWARDS

Baltazar Korab

Reynolds Metals Regional Sales Office Building, Detroit, Michigan. Architect: Minoru Yamasaki. Engineers: Structural—Ammann & Whitney; Mechanical—Cass S. Wadowski; Electrical—Henry J. Guthard. Landscape Architect: Eichstedt-Johnson Associates. Owner: Reynolds Metals Company. Contractor: Darin & Armstrong Company



Fernando Rivera Elementary School, Daly City, California. Architects: Mario J. Ciampi, Paul Reiter, Associate. Engineers: Structural—Isadore Thompson; Mechanical—Dan Vandament & Associates; Electrical—Harold Wright. Sculpture: Leonard Stanley. Owner: Jefferson Elementary School District. Contractor: Midstate Construction Company

A.I.A. ANNUAL AWARDS HONOR 18

For the 13th consecutive year, the American Institute of Architects has singled out for honors recently completed buildings in the annual Honor Awards Program. This year seven buildings received the top Honor Awards. They are shown on these pages. The Jury said they "went far beyond mere competence and achieved true significance."

In addition to the Honor Awards, the jury selected eleven Awards of Merit. Photographs of these buildings are shown on the following pages.

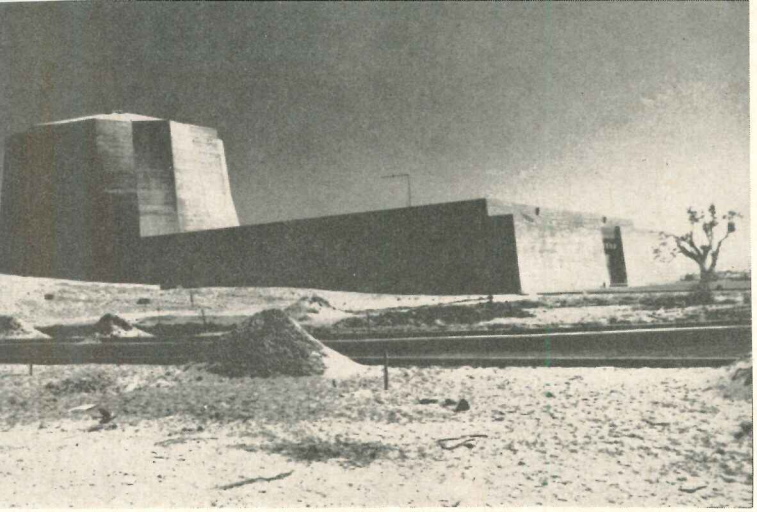
Chairman of the all-architect jury was Morris Ketchum, Jr., F.A.I.A. of New York. Serving with him were Fred Bassetti of Seattle; Richard D. Butterfield, West Hartford, Conn.; Arthur Q. Davis, F.A.I.A. of New Orleans and William L. Pereira, F.A.I.A. of Los Angeles.

Two hundred and seventy submissions were received from every region of the United States including Hawaii. Represented was almost every building type—residences, apartments, restaurants, recreation buildings, churches, schools, colleges, museums, stores and shopping centers, office buildings, industrial buildings, governmental buildings and large urban renewal housing projects. The Jury "was well pleased with the overall quality of the entries."

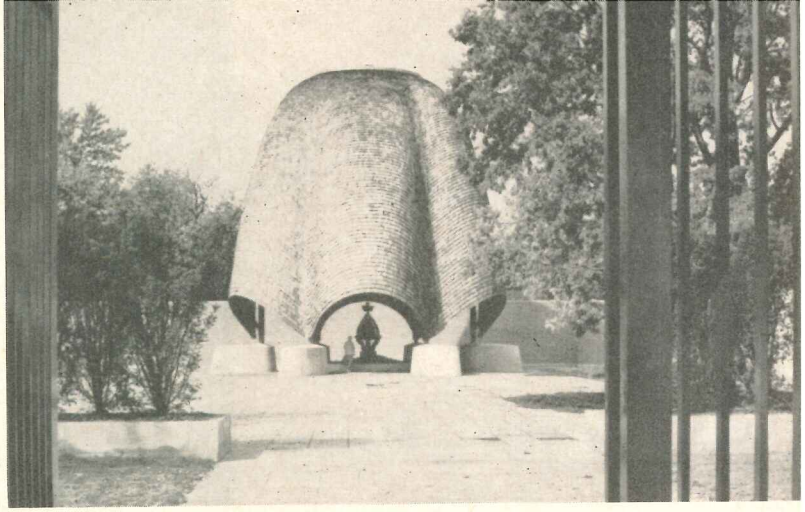
"Today's architecture, after a hundred years of progress, is still vigorously explaining new materials, new structural methods and esthetic solutions in every field of building," their report added. "The Jury hopes and believes that the projects selected for awards exemplify some of the best results of this imaginative process towards architectural maturity."

Certificates will be presented to the architects and owners of all awarded buildings at an Awards Luncheon during the A.I.A. Annual Convention in Philadelphia on April 26, and also plaques for awarded buildings.

Established to encourage the appreciation of excellence in architecture and to afford recognition of exceptional merit in recently completed buildings, the A.I.A. Honor Awards Program is open to any registered architect practicing professionally in the United States. Buildings entered, which may be anywhere in the United States or abroad, must have been completed within the past five years.

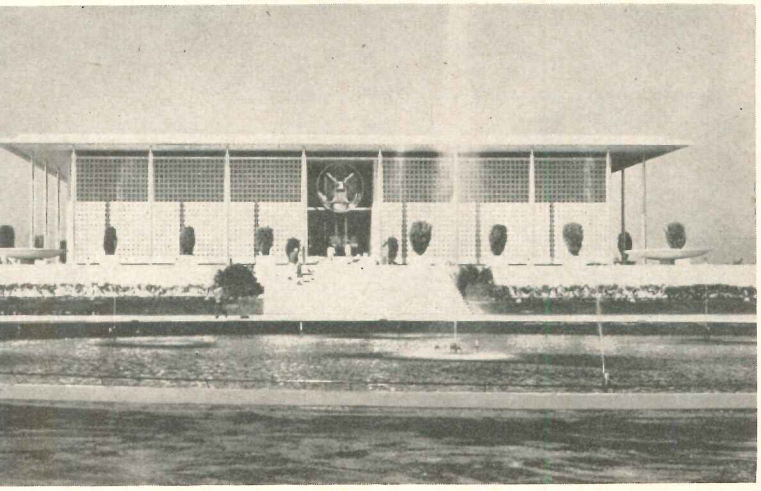


Nuclear Reactor, Rehovot, Israel. Architect: Philip Johnson. Engineer: Lev Zetlin. Landscape Architect: Lawrence Halprin. Owner: Government of Israel



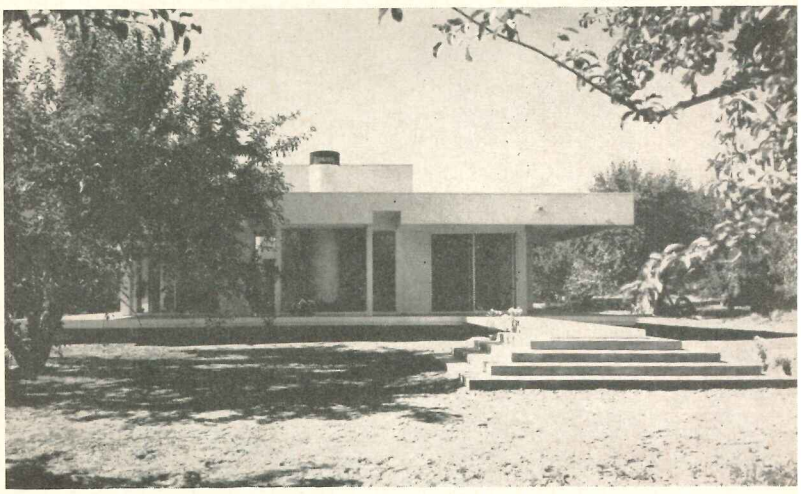
George Holton

Shrine, New Harmony, Indiana. Architect: Philip Johnson. Engineer: Wilcox and Erickson. Owner: Robert Lee Blaffer Trust. Contractor: Traylor Bros., Inc.



United States Embassy, New Delhi, India. Architect: Edward Durell Stone. Engineer: Peter W. Bruder. Owner: U.S. Government (State Department). Contractor: Sardar Mohan Sigh

Baltazar Korab



Summer House, Northville, Michigan. Architects: Birkerts & Straub. Owner: Mr. and Mrs. Alan Schwartz. Contractor: William Gruenwald

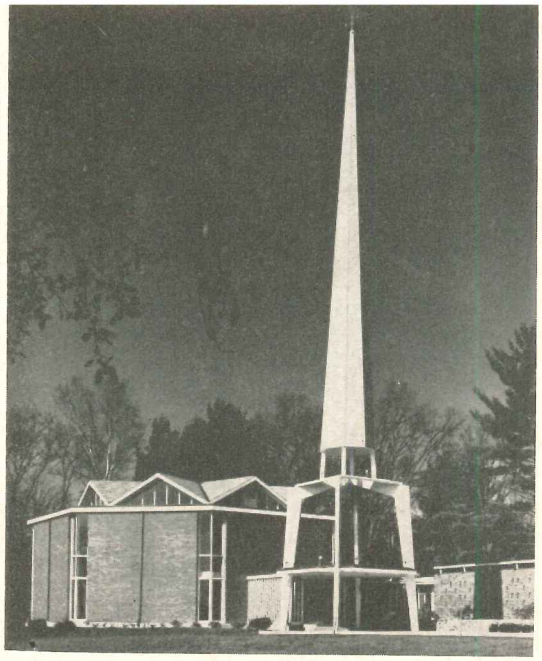
Ezra Stoller

Pepsi-Cola World Headquarters, New York. Architects: Skidmore, Owings & Merrill. Engineers: Structural—Severud-Elstad-Krueger Associates; Accoustical—Bolt Beranek & Newman; Mechanical—Slocum and Fuller. Landscape Architect: Skidmore, Owings & Merrill. Owner: Pepsi Cola Company. Contractor: George A. Fuller Company

MERIT AWARDS
continued

ANNUAL A.I.A. HONOR AWARDS PROGRAM

Maris-Ezra Stoller Assoc.



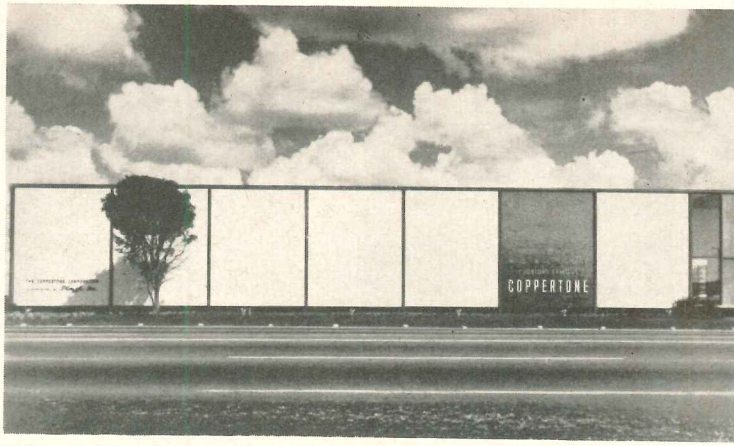
The Unitarian Church,
Concord, New Hampshire.
Architects: Hugh Stubbins and Associates.
Owner: The Second Congregational Society (Unitarian).
Contractor: A. Taylor Corporation

Roger Sturtevant

Chapel, Moline Public Hospital,
Moline, Illinois.
Architects: Henry Hill and John W. Kr
Associate. Structural Engineer: Isadore
Thompson. Owner: Moline Public Hospit
Contractor: Ericson Construction Compa

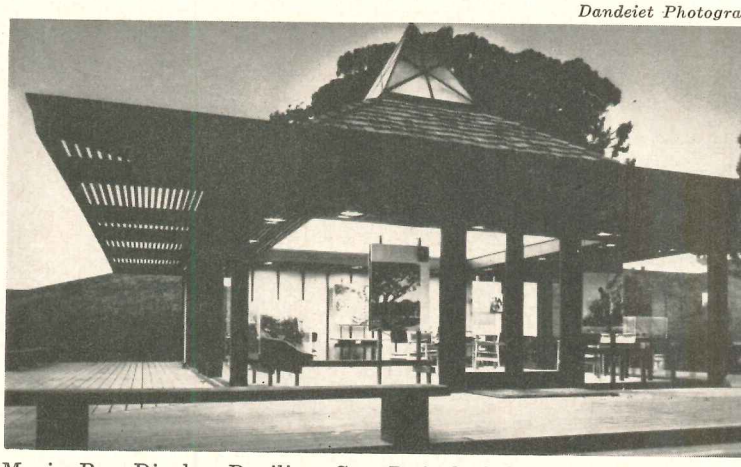
Morley Baer

Crown Zellerbach Building, San Francisco, California. Architects: Hertzka & Knowles and Skidmore, Owings & Merrill, Associated Architects. Structural Engineer: H. J. Brunnier. Owner: New York Life Insurance Company. Contractor: Haas and Haynie



Office & Warehouse, The Coppertone Corporation,
Miami, Florida.
Architects: Weed-Johnson-Associates. Owner: Plough, Inc.
Contractor: Edward J. Gerrits, Inc.

Dandeiet Photogra



Marin Bay Display Pavilion, San Rafael, California.
Architects: Bay Group Associates: Daniel H. Bushnell, Lun Chan, Ichiro Sasaki, Camiel Van De Weghe. Engineer: Structural—Chin & Hensolt. Landscape Architect: Eckbo, Dean & Williams. Developer, Builder: Latipac-Perini Company

Marvin Rand

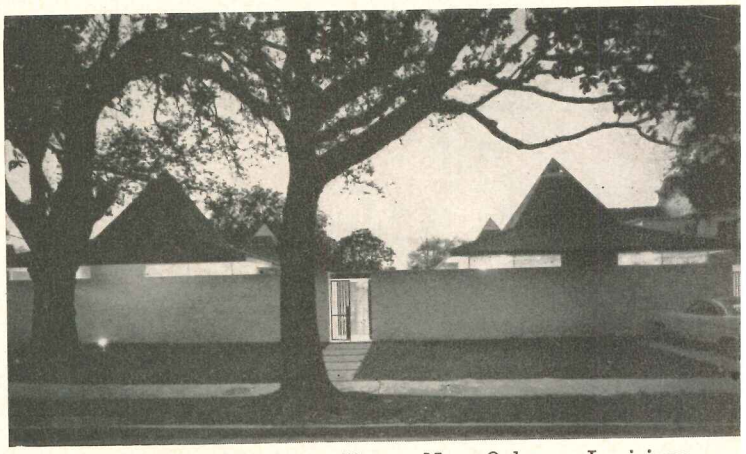
Office Building for a Development Firm, Long Beach, California.
Architects: Killingsworth Brady Smith and Associates. Owner: Cambridge Investments, Inc. Contractor: John Halas.
Decorator: John Nicholson for Frank Brothers

Guy Burgess

Denver Hilton Hotel, Denver, Colorado.
Architects: I. M. Pei & Associates. Engineers: Structural—Weiskopf & Pickworth; Mechanical—Jaros, Baum & Bolles.
Developer: Webb & Knapp, Inc.
Contractor: Webb & Knapp Construction Company

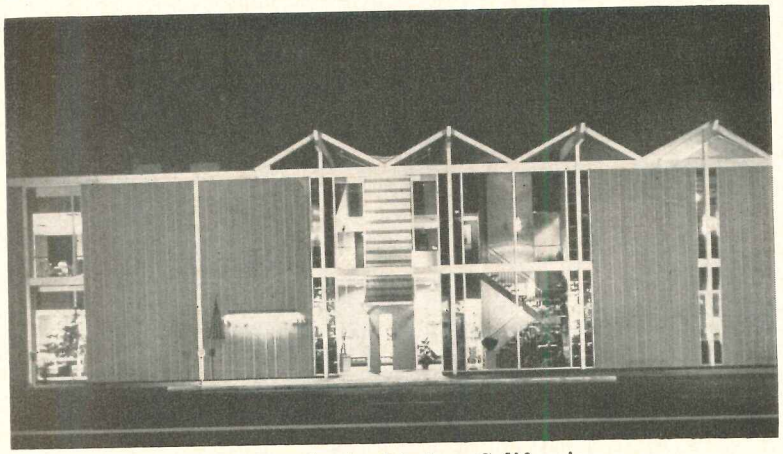
Willow Creek Apartments, Palo Alto, California.
Architects: John Carl Warnecke and Associates.
Landscape Architect: Lawrence Halprin. Owner: Willow Creek Corporation. Contractor: Howard J. White, Inc.

Frank Lotz Miller



Residence for Dr. Henry G. Simon, New Orleans, Louisiana.
Architects: Charles R. Colbert of Colbert-Lowrey-Hess-Boudreaux. Owner: Dr. Henry G. Simon.
Contractor: Goodyear, Inc.

Larry Frost



Ivory Tower Restaurant, Santa Monica, California.
Architects: Richard Dorman & Associates.
Structural Engineer: Albert E. Erkel & Associates.
Landscape Architect: Richard L. Dorman.
Owner: Leon Becker. Contractor: Jack MacDonald

Robert Stahman

Lincoln Commons Building, Lake Erie College, Painesville, Ohio.
Architects: Victor Christ-Janer and Associates.
Engineers: Structural—Henry A. Pfisterer; Mechanical and Electrical—Fred S. Dubin Associates. Owner: Lake Erie College. Contractor: George E. Payne Construction Company

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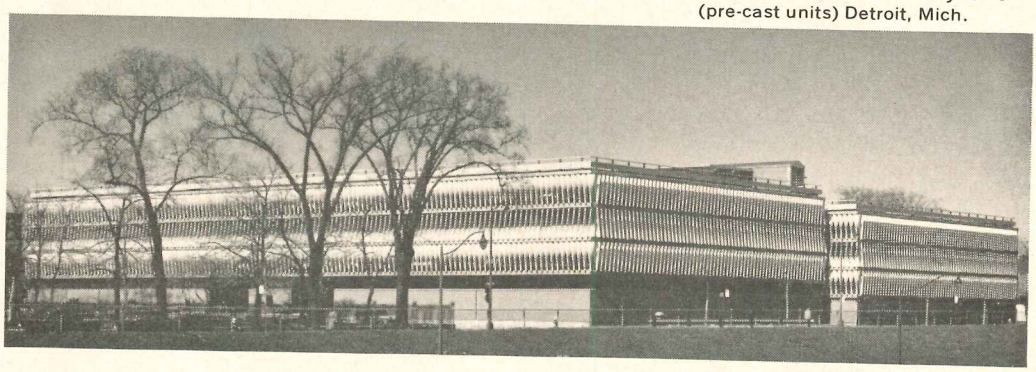
Architect: Albert Kahn Associates, Inc., Detroit, Mich.
Gen. Contractor: Darin & Armstrong, Inc., Detroit, Mich.
Sub Contractor: The Truscon Div. of Devoe & Raynolds (pre-cast units) Detroit, Mich.



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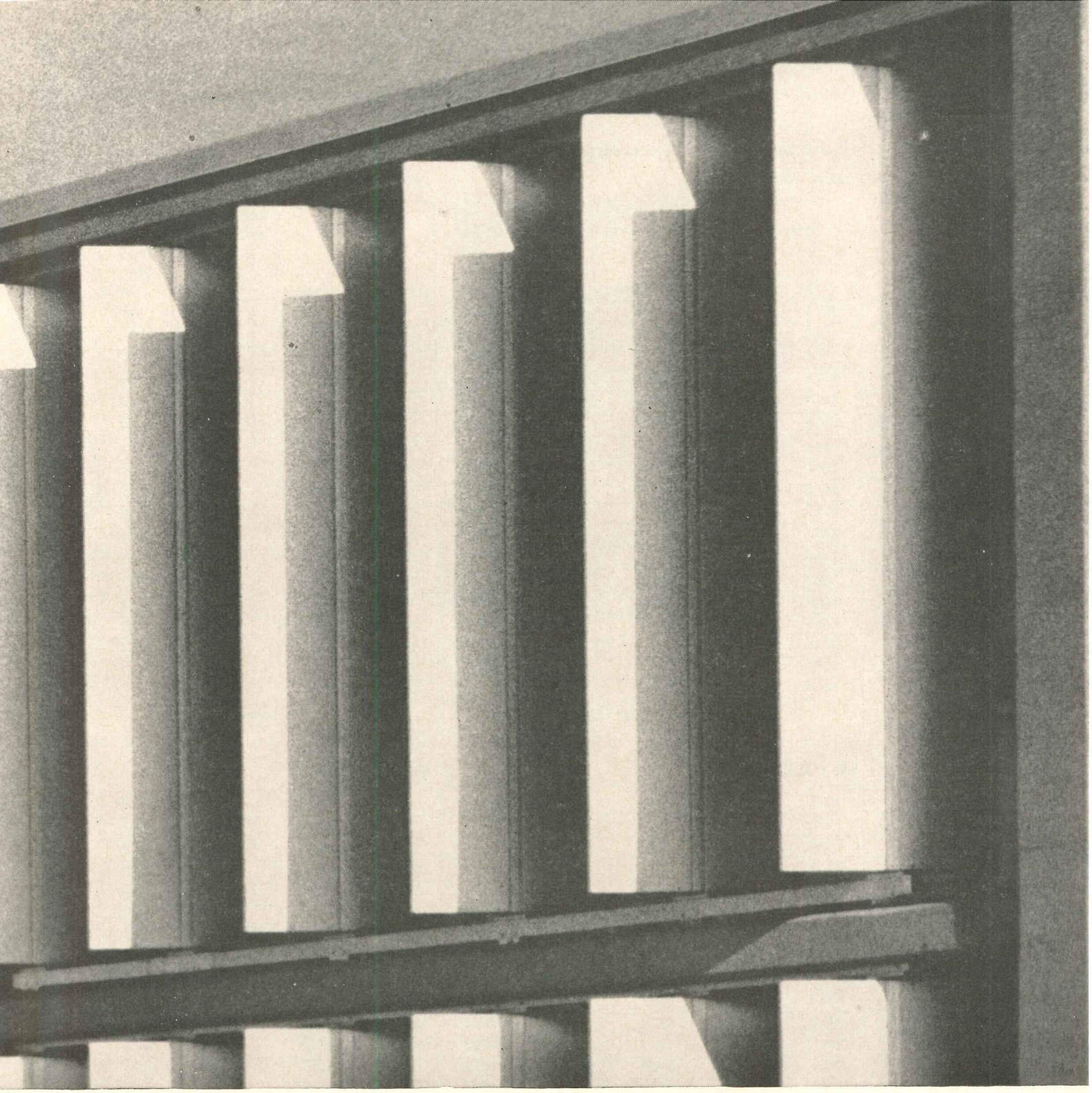
Architect: Weiler-Strang & Associates, Madison, Wisc.
Genl. Contractor: Kemper & Krueger, Freeport, Ill.
Sub. Contractor: Vernon Marsh, Freeport, Ill.



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

NEW YORK

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.6	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	274.9	271.8
1952	278.2	274.8	271.9	265.2	262.2
1953	281.3	277.2	281.0	286.0	282.0
1954	285.0	278.2	293.0	300.6	295.4
1955	293.1	286.0	300.0	308.3	302.4
1956	310.8	302.2	320.1	328.6	324.5
1957	318.5	308.3	333.1	345.2	339.8
1958	328.0	315.1	348.6	365.4	357.3
1959	342.7	329.0	367.7	386.8	374.1
Oct. 1960	353.6	338.5	380.5	399.1	380.9
Nov. 1960	354.0	338.9	381.0	399.5	381.3
Dec. 1960	354.0	338.9	381.0	399.5	381.3
	% increase over 1939				
Dec. 1960	186.6	176.9	191.5	199.5	193.1

ATLANTA

RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
82.1	80.9	84.5	86.1	83.6
72.3	67.9	84.0	87.1	85.1
86.3	83.1	95.1	97.4	94.7
199.2	202.5	178.8	178.8	178.8
189.3	189.9	180.6	180.8	177.5
194.3	196.2	185.4	183.7	185.0
212.8	214.6	204.2	202.8	205.0
218.8	221.0	212.8	210.1	214.3
223.0	224.6	221.3	221.8	223.0
219.6	219.1	233.5	225.2	225.4
225.3	225.1	229.0	231.5	231.8
237.2	235.7	241.7	244.4	246.4
241.2	239.0	248.7	252.1	254.7
243.9	239.8	255.7	261.9	262.0
252.2	247.7	266.1	272.7	273.1
260.0	253.1	276.9	285.4	279.1
259.8	252.9	276.6	285.2	278.9
259.8	252.9	276.6	285.2	278.9
% increase over 1939				
201.0	204.3	190.8	192.8	194.5

ST. LOUIS

1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.0	259.2
1954	266.6	260.2	263.7	273.3	266.2
1955	273.3	266.5	272.2	281.3	276.5
1956	288.7	280.3	287.9	299.2	293.3
1957	292.0	283.4	295.2	307.1	302.9
1958	297.0	278.9	304.9	318.4	313.8
1959	305.4	296.4	315.0	329.8	323.9
Oct. 1960	312.6	301.7	324.3	339.4	329.4
Nov. 1960	312.8	301.9	324.6	339.6	329.6
Dec. 1960	312.8	301.9	324.6	339.6	329.6
	% increase over 1939				
Dec. 1960	183.8	182.1	173.5	183.5	177.0

SAN FRANCISCO

90.8	86.8	100.6	104.9	100.4
89.5	84.5	96.4	103.7	99.7
105.6	99.3	117.4	121.9	116.5
218.9	216.6	208.3	214.7	211.1
213.0	207.1	214.0	219.8	216.1
227.0	223.1	222.4	224.5	222.6
245.2	240.4	239.6	243.1	243.1
250.2	245.0	245.6	248.7	249.6
255.2	257.2	256.6	261.0	259.7
257.4	249.2	264.1	272.5	267.2
268.0	259.0	275.0	284.4	279.6
279.0	270.0	288.9	298.6	295.8
286.3	274.4	302.9	315.2	310.7
289.8	274.9	311.5	326.7	320.8
299.2	284.4	322.7	338.1	330.1
303.6	285.6	337.7	355.7	344.1
303.4	285.4	337.4	355.5	343.9
302.0	283.6	337.1	355.3	343.5
% increase over 1939				
186.0	185.6	187.1	191.5	194.8

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

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

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

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

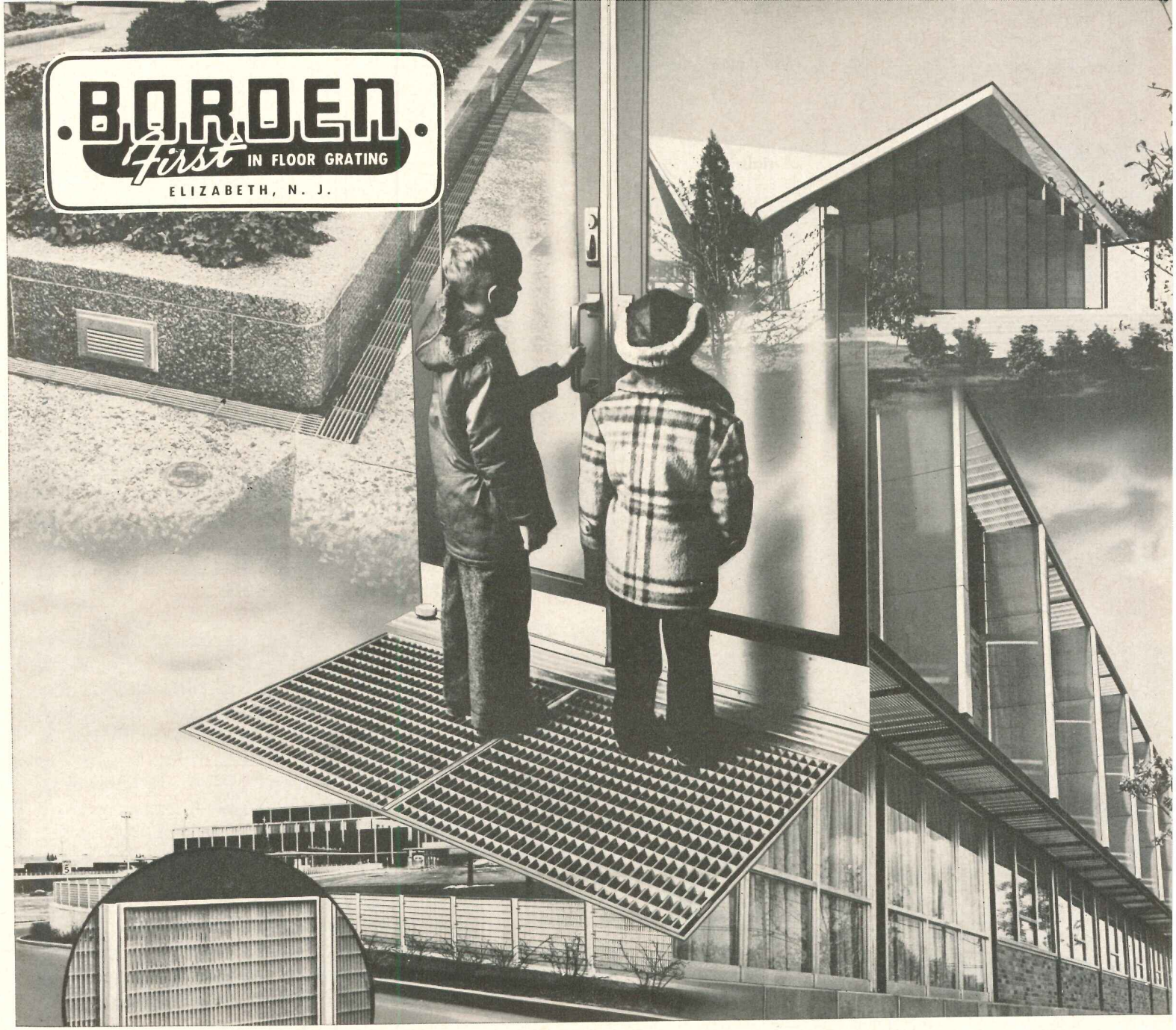
$$\frac{110-95}{95} = 0.158$$

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

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

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

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



New Architectural Uses for Aluminum Grating

Here . . . new applications for aluminum grating . . . exacting installations where quality equal only to BORDEN'S will do:

1 This shows BORDEN aluminum grating used in a system of drain trenches throughout Mellon Square Park, Pittsburgh, Pennsylvania.
Architects: **Mitchell and Ritchey,** Pittsburgh, Pennsylvania

2 BORDEN pressure-locked type grating, of gold-anodized aluminum, forms the facade of this dramatic new structure. The Congregation Beth El Synagogue, South Orange, New Jersey.
Architects: **Davis, Brody and Wisniewski,** New York, New York

3 BORDEN pressure-locked aluminum grating fabricated as foot scrapers for use at a school in East Orange, New Jersey.
Architect: **Emil A. Schmidlin,** East Orange, New Jersey

4 BORDEN pressure-locked aluminum grating used for maintainence-free fencing at J. L. Hudson's Northland Shopping Center, Detroit Michigan.
Architect: **Victor Gruen & Associates,** Detroit, Michigan

5 Sunshades of BORDEN pressure-locked aluminum grating permit passage of light and air while screening strong sunlight at the Lone Star Gas Company Office Building, Dallas, Texas.
Architect: **George L. Dahl,** Dallas, Texas

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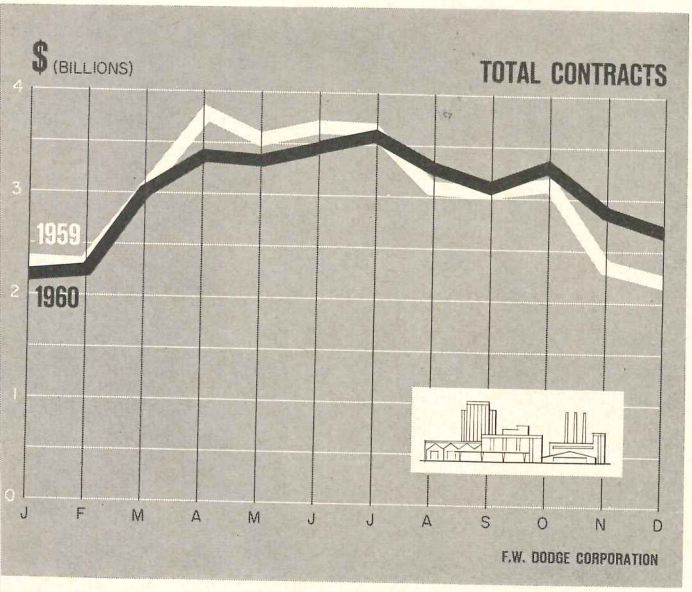
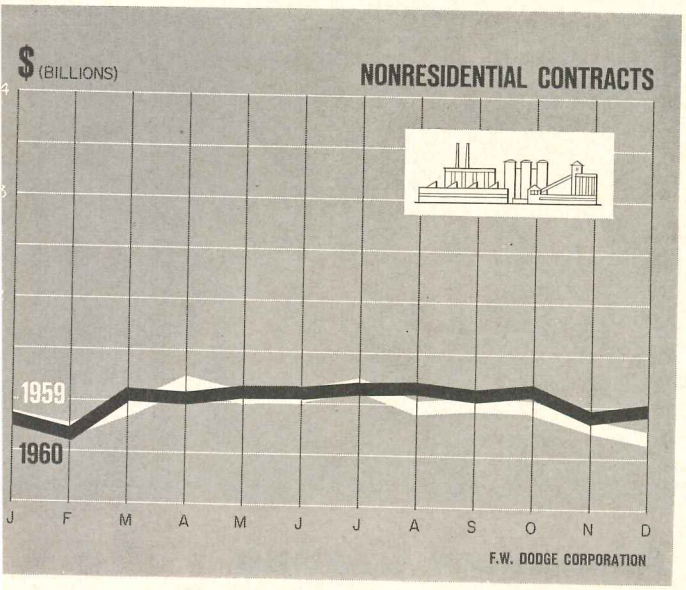
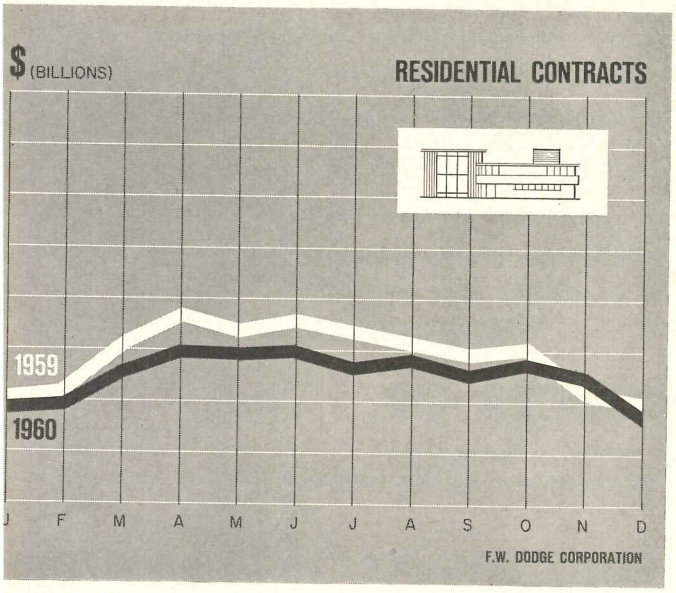
Current Trends in Construction







IN THIS SPACE last month, we guessed, on the basis of incomplete figures, that a sudden upsurge in construction contracts toward the end of the year put 1960 "very close to the record level of 1959." The final figures confirmed this, and a little more: to everyone's surprise, the 1960 total actually exceeded 1959 by a hair. Historians will note that the phenomenal postwar rise in dollar volume of contracts remained unbroken; an increase every year from 1947 on. It seems well to repeat what we have said before: in this time of economic uncertainty, the construction outlook is the brightest spot in the picture. Construction is by far the nation's largest fabricating industry, and it will be providing an upward push to business in general.

NOT ALL parts of the industry will be booming. But apartments, subject of this month's Building Types Study, promise to furnish one of the more active sectors. Despite the general decline in residential contracts in 1960, multi-family buildings did very well indeed. The contracts for apartments in 1960 covered 231,783 dwelling units, by far the highest figure reached in the postwar period. (Earlier data are not comparable, but it is possible that a larger number of apartment units was built in the mid-1920's, during the great multi-family building boom of that era. Not since then, however, have we seen anything like the 1960 activity.) In 1960, apartments accounted for nearly 21 per cent of all new dwelling units; this compares with 17 per cent in the two preceding years, and much smaller percentages in the years before that. The number of new apartment units in 1960 was more than double the total reported as recently as 1956.

WHY SHOULD apartments be booming now? There are several reasons. One is that they have been relatively neglected *for more than 30 years*. For the first half of those thirty years, all housing fared poorly; and for the second half, the emphasis has been overwhelmingly on suburban single-family units. Some would argue that disillusionment with Suburbia has caused many families to look longingly on city life. Perhaps so; but more likely as an explanation is the changing age structure of the adult population. There has been rapid growth in the number of elderly persons whose space needs are less and whose desire to cope with lawn-mowing and snow-shoveling has diminished. For the next several years, the most rapid growth in our adult population will be among the elderly, and among young adults, in their twenties. Families in both these age groups are likely to need, want and be able to afford smaller units, which by their very nature are likely to exist as apartments, rather than as single family homes.

GEORGE CLINE SMITH
Vice president and chief economist
F. W. Dodge Corporation

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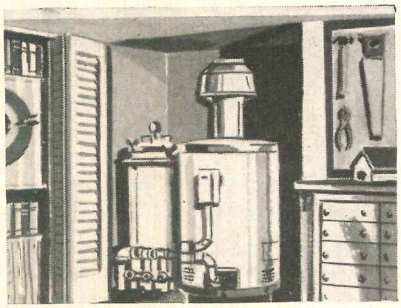

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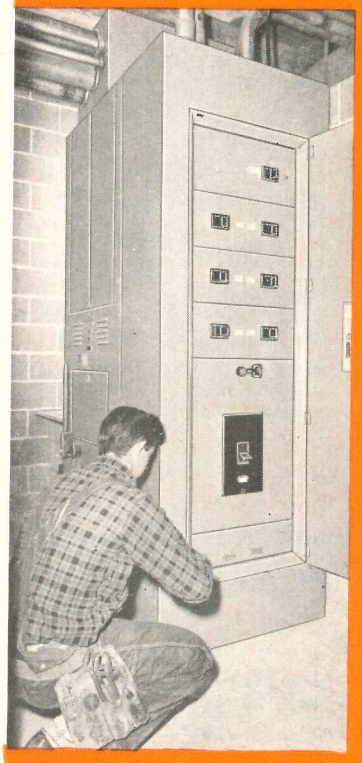

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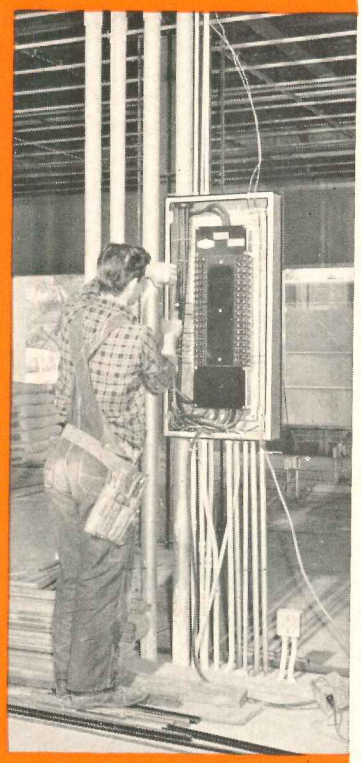

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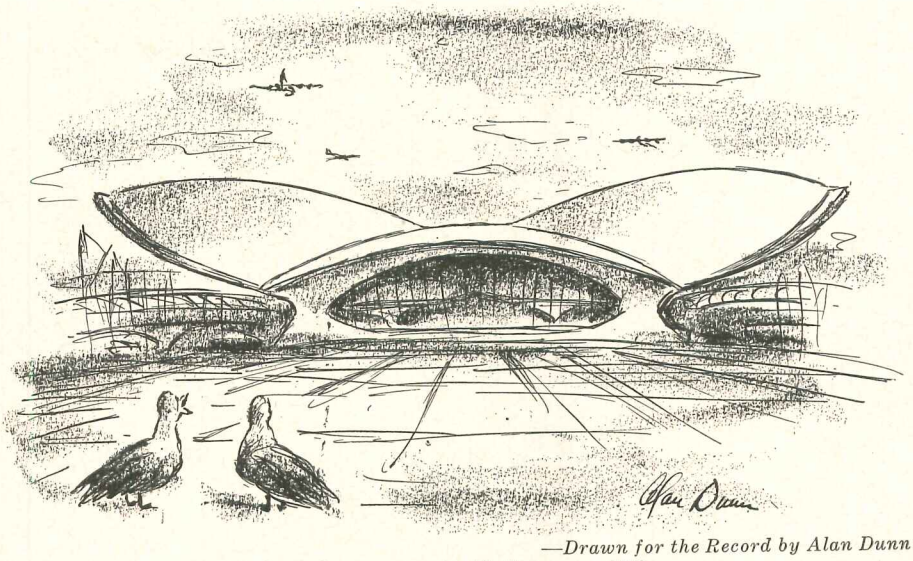


—Drawn for the Record by Alan Dunn

"A nice try, but notice how it never got off the ground?"

A.I.A. Lists 46 New Fellows

Forty six members of the American Institute of Architects will be advanced to Fellowship in the traditional investiture ceremonies at this year's national convention of the A.I.A. in Philadelphia. The ceremony will be held on Wednesday, April 26, at the Philadelphia Museum of Art and will be followed by the President's Reception. The 1961 Fellows are as follows:

Richard L. Aeck, Atlanta—Design.
Arthur T. Brown, Tucson—Design.
Franklin S. Bunch, Jacksonville—Service to the Institute and Public Service.
Richard D. Butterfield, West Hartford, Conn.—Design.
Arcangelo Cascieri, Lexington, Mass.—Education.
Bartlett Cocke, San Antonio—Service to the Institute.
Cornelius M. Deasy, Los Angeles—Service to the Institute.
Thomas F. Ellerbe, St. Paul—Design.
Donn Emmons, San Francisco—Design and Service to the Institute.
Carney Goldberg, Boston—Design.
Bernard J. Grad, Newark, N.J.—Design
Olindo Grossi, New York—Education.
Victor D. Gruen, New York—Design and Public Service.
Alonzo J. Harriman, Auburn, Maine—Service to the Institute.
Robert F. Hastings, Detroit, Mich.—Service to the Institute and Public Service.
Richard J. Heidelberger, Hempstead, N.Y. —Service to the Institute.
Charles F. Hummel, Boise, Idaho—Public Service.
Edward D. James, Indianapolis—Service to the Institute.
Sidney L. Katz, New York—Education.
John L. King, San Francisco—Design and Public Service.
Carl Koch, Cambridge, Mass.—Design and Science of Construction.
Roland L. Linder, Denver—Service to the Institute.
John P. Macelwane, Toledo—Public Service.
William Mooser Sr., San Francisco—Service to the Institute.
Samuel Z. Moskowitz, Wilkes-Barre, Pa.—Service to the Institute.
Eliot F. Noyes, New Canaan, Conn.—Design
Richard W. E. Perrin, Milwaukee—Education and Public Service.
Charles E. Peterson, Philadelphia—Education and Literature.
George F. Pierce Jr., Houston—Service to the Institute.
Frederic H. Porter Sr., Cheyenne, Wyo.—Service to the Institute.
Russell S. Potter, Cincinnati—Education.
Beryl Price, Philadelphia—Service to the Institute.
Ladislav L. Rado, New York—Design.
Miss Eleanor Raymond, Boston—Design.
Edwin T. Reeder, Miami—Public Service.
Eberle M. Smith, Detroit—Design, Science of Construction, and Service to the Institute.
Moreland G. Smith, Montgomery, Ala.—Design.
Herbert H. Swinburne, Philadelphia—Service to the Institute.
William B. Tabler, New York—Design.
Thomas C. Vint, Washington, D.C.—Public Service.
Joseph Watterson, Washington, D.C.—Literature.
Harry M. Weese, Chicago—Design.
William B. Wiener, Shreveport, La.—Design.
Leonard Wolf, Ames, Iowa—Education.
Worley K. Wong, San Francisco—Design.
Philip N. Youtz, Ann Arbor, Mich.—Education, Literature, and Science of Construction.

Mies Awarded Kimbrough Medal

Ludwig Mies van der Rohe has become the first architect to receive the J. Lloyd Kimbrough Medal, an honor conferred upon him by the American Institute of Steel Construction, Inc. for his "integrity of design and his dedication to the honest expression of structure." The award was made at the February meeting of the Chicago chapter of the American Institute of Architects.

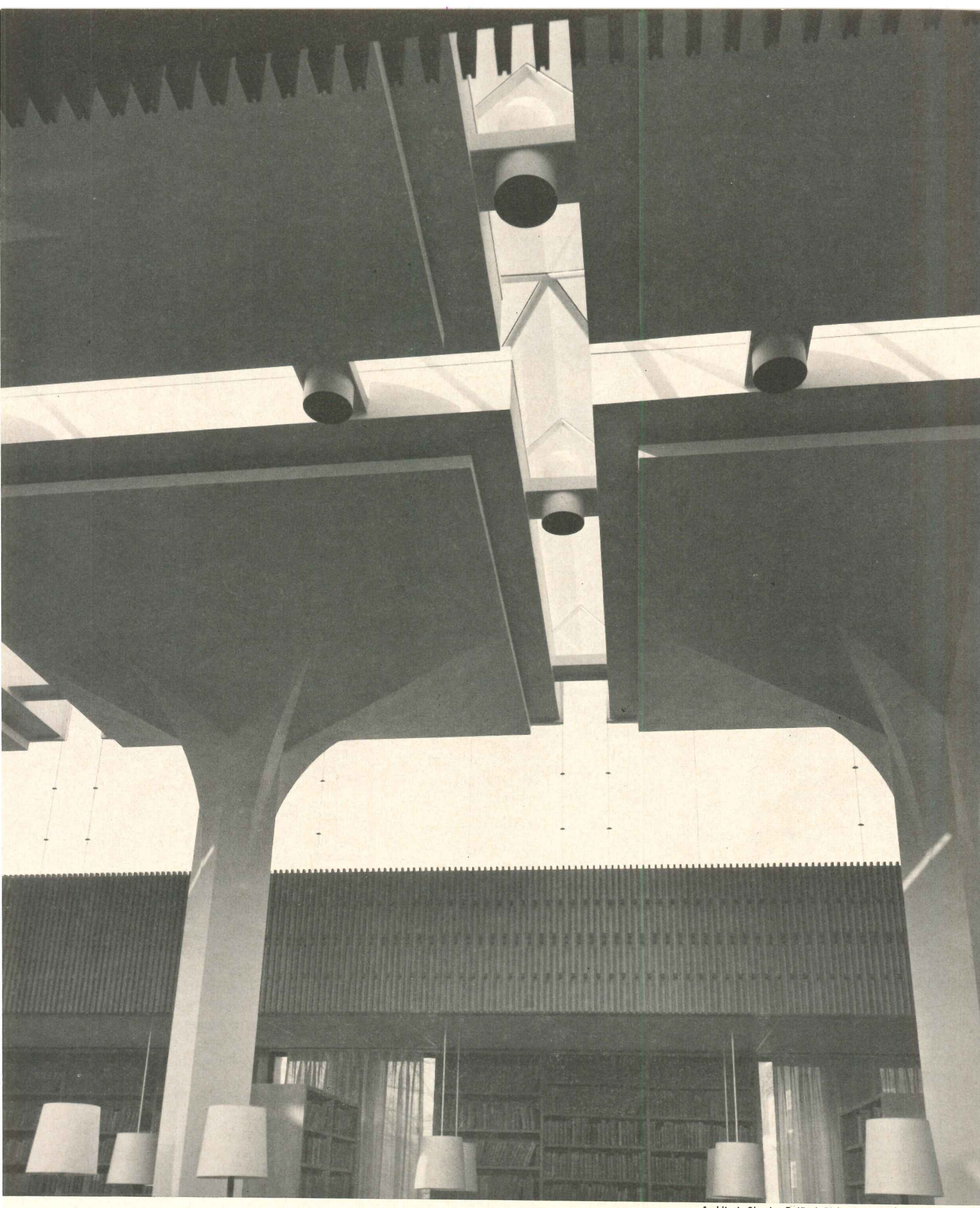
The A.I.S.C. Committee on Awards stated that "he had done more to further public awareness and appreciation of the esthetic possibilities of exposed structural steel than any other architect."

Established in memory of the A.I.S.C.'s first president in 1938, the Kimbrough Award is granted to an individual who has made an outstanding contribution to the structural steel industry in the design or construction of structures in steel. In its 22-year history, the medal has been conferred on: Hon. Robert Moses, Commissioner of Parks for New York City in 1941; Dr. David B. Steinman, civil engineer and bridge designer, in 1957; and Gen. Lief J. Sverdrup, bridge engineer and builder, in 1959.

Reynolds Award Jury Picked

Members of the 1961 R. S. Reynolds Memorial Award jury have been announced by Edmund R. Purves, Executive Director of the American Institute of Architects, which administers the $25,000 annual international award for "a significant work of architecture, in the creation of which aluminum has been an important factor." They are: Paul Thiry, F.A.I.A., Seattle; Minoru Yamasaki, A.I.A., winner of the A.I.A. First Honor Award in 1959, Birmingham, Mich.; Samuel T. Hurst, dean of Alabama Polytechnic Institute's School of Architecture and the Arts, Auburn, Ala.; Hugh Stubbins Jr., F.A.I.A., Cambridge, Mass.; and Henrique E. Mindlin, Honorary F.A.I.A., architectural editor of the magazine *Brazil — Architecture Contemporary*". The jury meets in Washington in early March. The Award will be presented during the A.I.A. convention in Philadelphia, April 24-28.

continued on page 39



Architect: Shepley Bulfinch Richardson & Abbott, Boston, Mass.

LEVERETT HOUSE LIBRARY, HARVARD UNIVERSITY. Each pillar-supported roof section is surrounded by ribbons of daylight — evenly diffused, glare-free. This achieves airy openness above, naturally illuminated privacy below. Execution of this concept was made possible with Wasco custom-designed continuous triangular Skydomes — molded of acrylic, the shatter-proof, weathering plastic. Wasco welcomes other opportunities to combine daylighting with advanced architectural ideas. Write Custom Engineering Department, Wasco Products, Inc., 5 Bay State Road, Cambridge 38, Mass.

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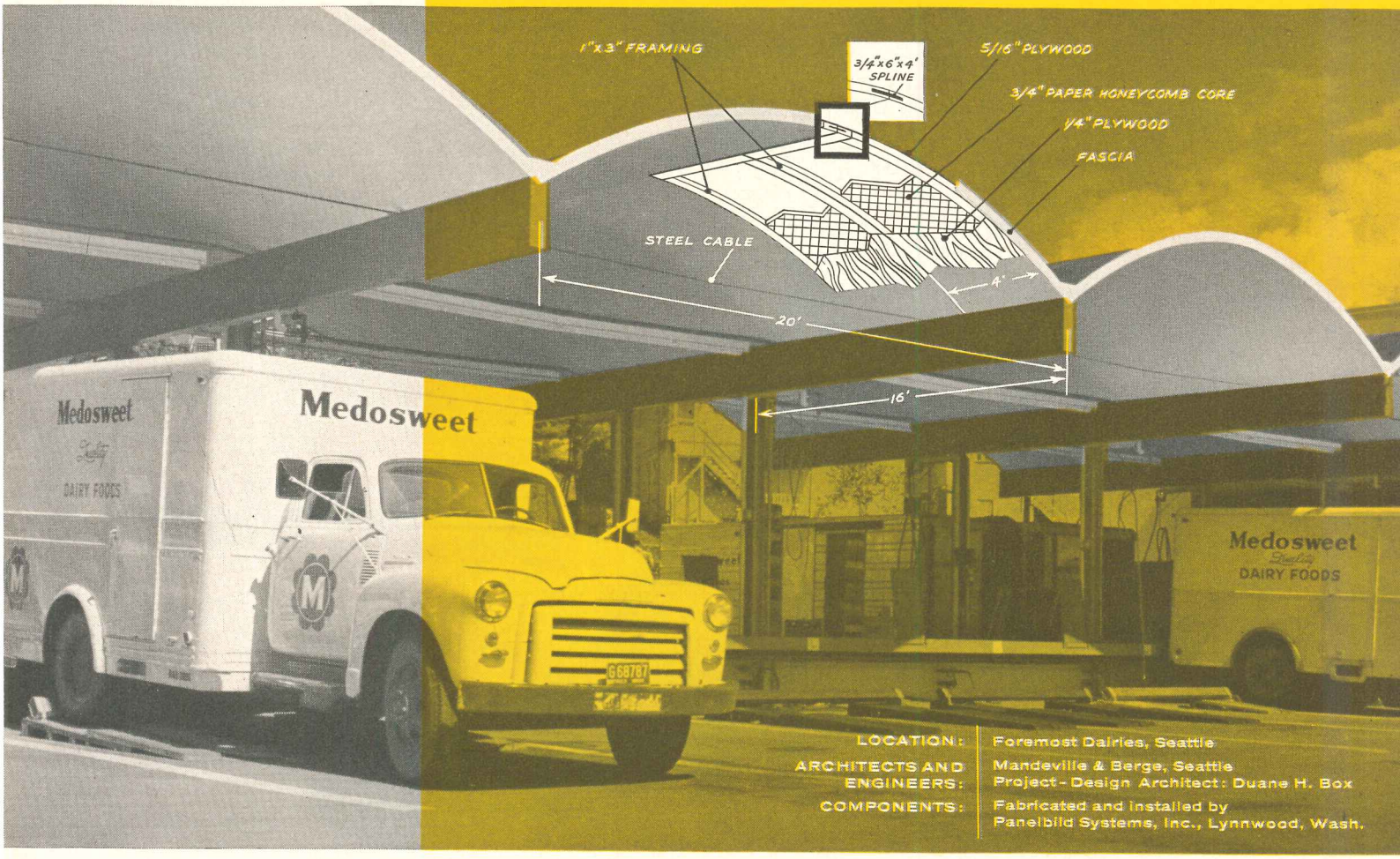

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Project-Design Architect: Duane H. Box

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In this application, 12 bays, 20 x 40 ft., and two half bays shelter 48 loading stations along a 260-ft. conveyor platform. Vault supports are beams and steel columns. Roof components are 4 x 13-ft. curved stressed skin fir plywood panels, used in pairs (spline jointed at midpoint of the vault) to form an arch with a 16-ft. radius and a 2½-ft. rise.

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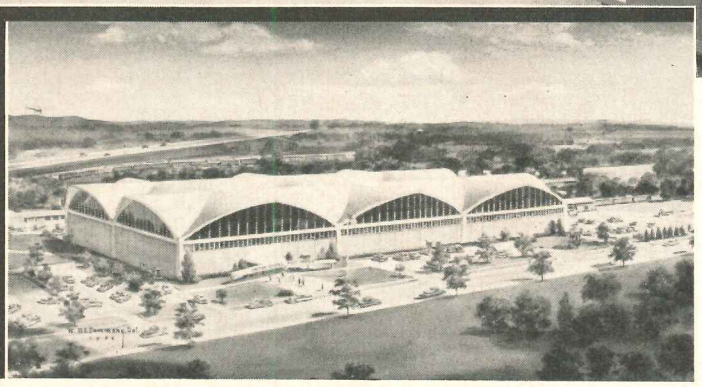

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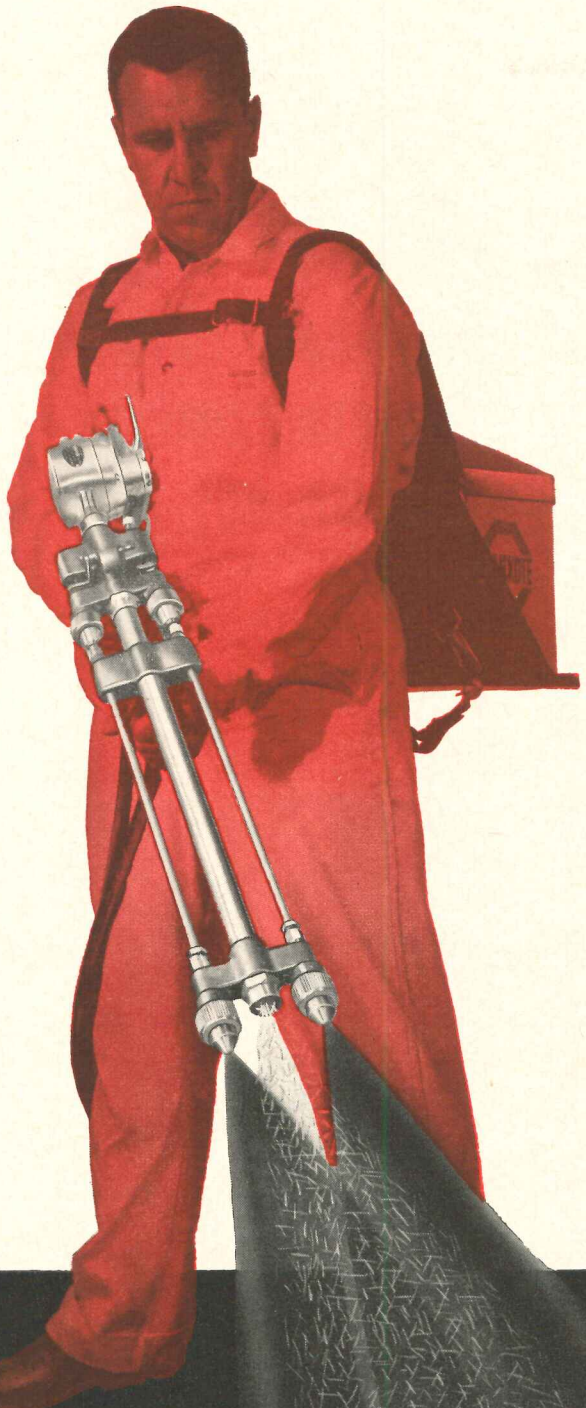

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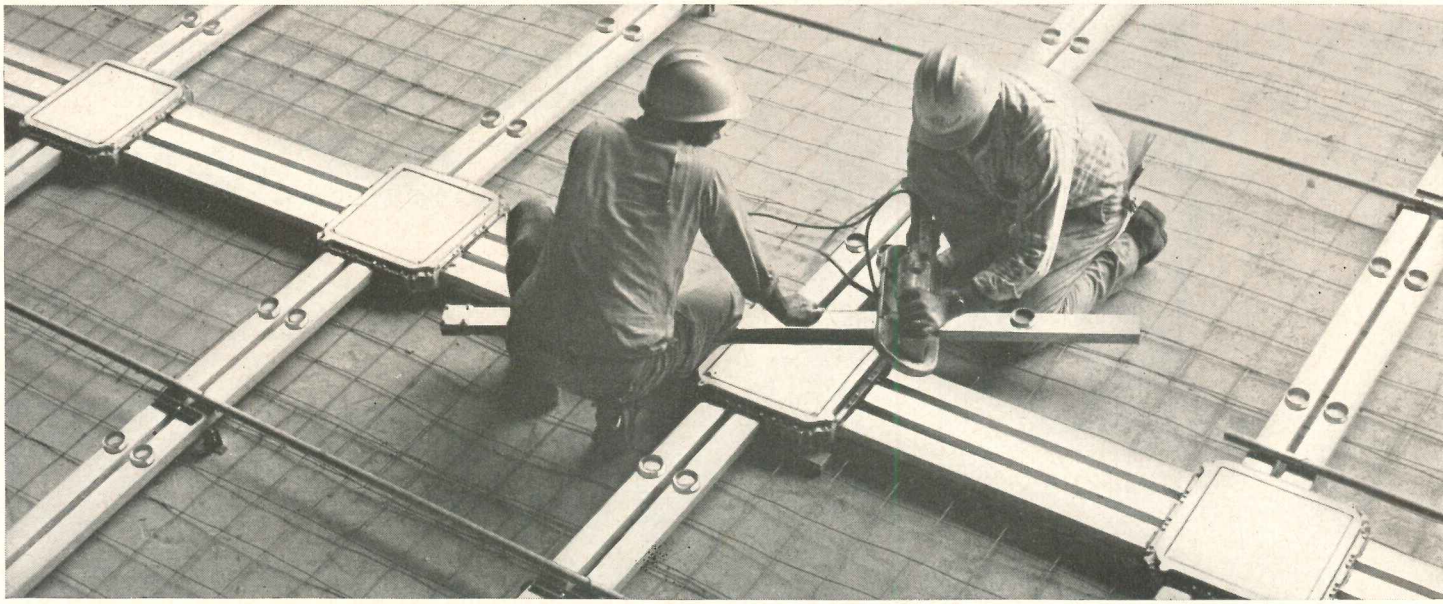

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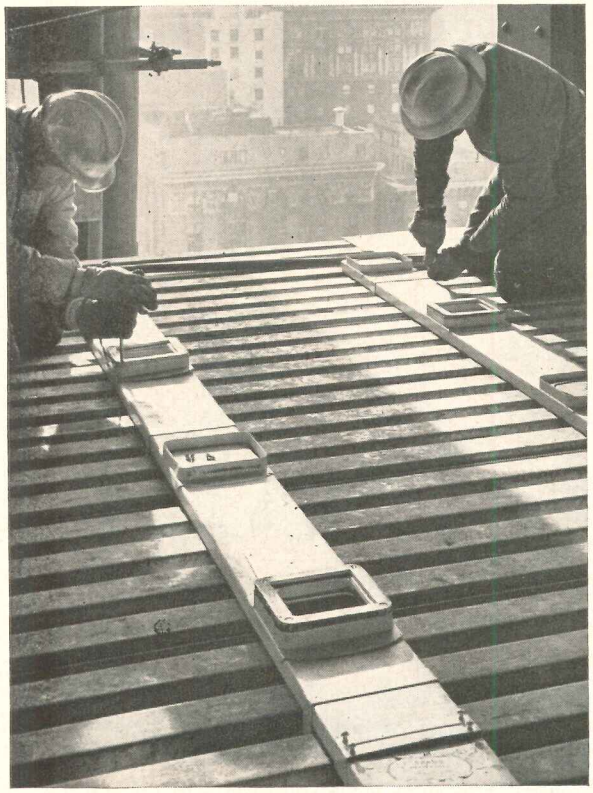

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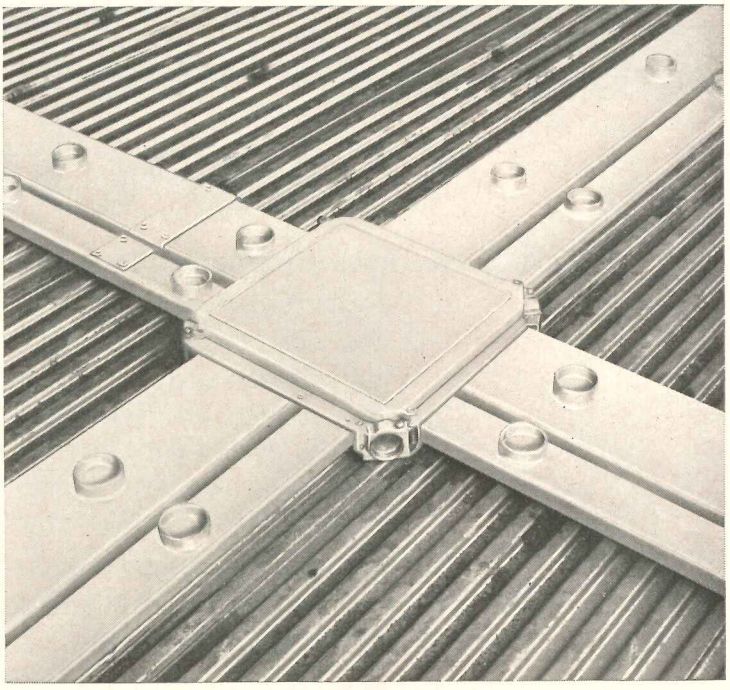

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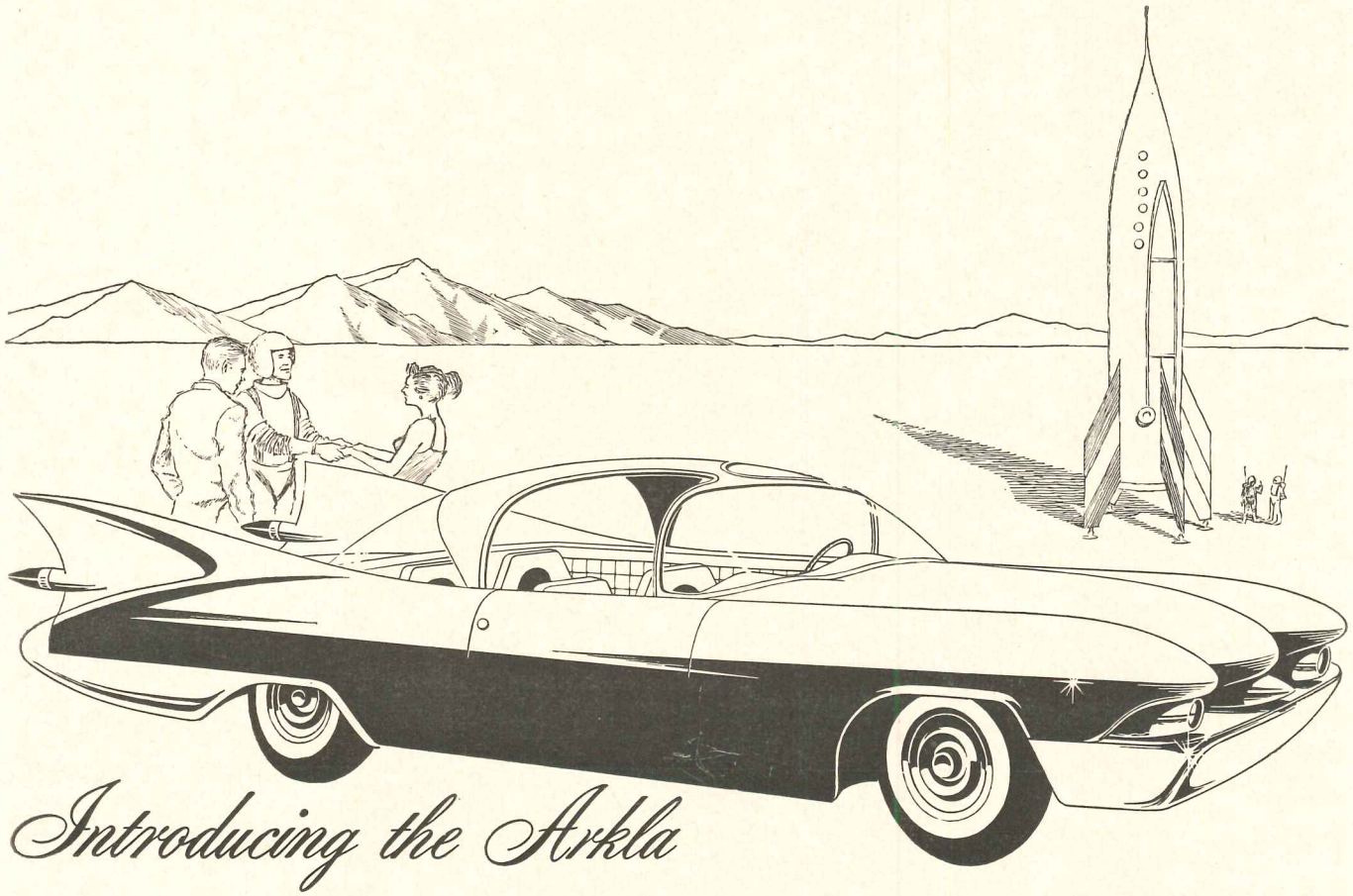

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If you find the comparisons above a bit hard to believe, we respectfully invite you to talk to your local gas company, or write Arkla Air Conditioning Corporation.

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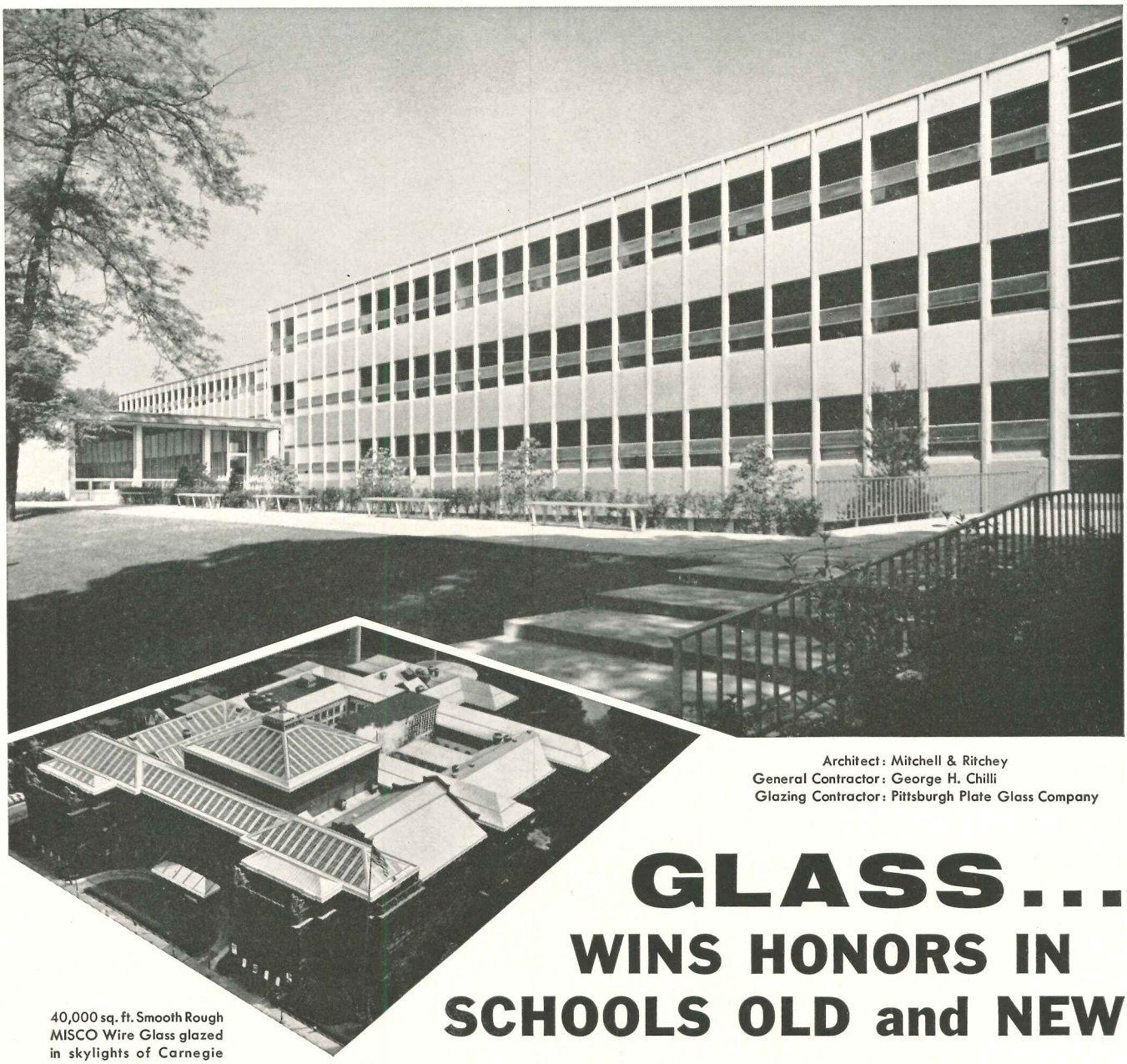


Architect: Mitchell & Ritchey
General Contractor: George H. Chilli
Glazing Contractor: Pittsburgh Plate Glass Company

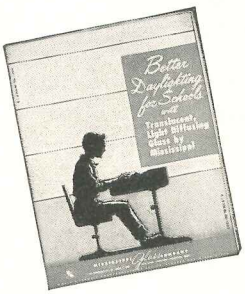
40,000 sq. ft. Smooth Rough MISCO Wire Glass glazed in skylights of Carnegie Institute and Library, Pittsburgh, Pa. Architect: Chas. M. & Edward Stotz, Pittsburgh, Pa. Skylight Contractor: Overly Manufacturing Co., Greensburgh, Pa.

GLASS...
WINS HONORS IN SCHOOLS OLD and NEW

Architects favor extensive use of glass for school modernization or in new modern buildings. New construction like Donner Hall, men's dormitory at Carnegie Institute, employs Mississippi Coolite, Heat Absorbing, Glare Reduced glass to brighten rooms with daylight without the discomfort resulting from excess solar heat. Coolite complements interior and exterior appearance, makes rooms seem larger, more restful and cheerful.

In existing structures such as Carnegie Institute and Library, skylighting has been used to flood interiors with eye-easy daylight. In this impressive installation, translucent, light diffusing Smooth Rough MISCO Wire Glass provides shadowless, natural illumination, otherwise impossible with the building's existing vertical glazing.

When you build or remodel your schools, make modern daylighting part of your plans. Specify glass by Mississippi. Available in a wide range of patterns and surface finishes to meet every requirement and budget need.



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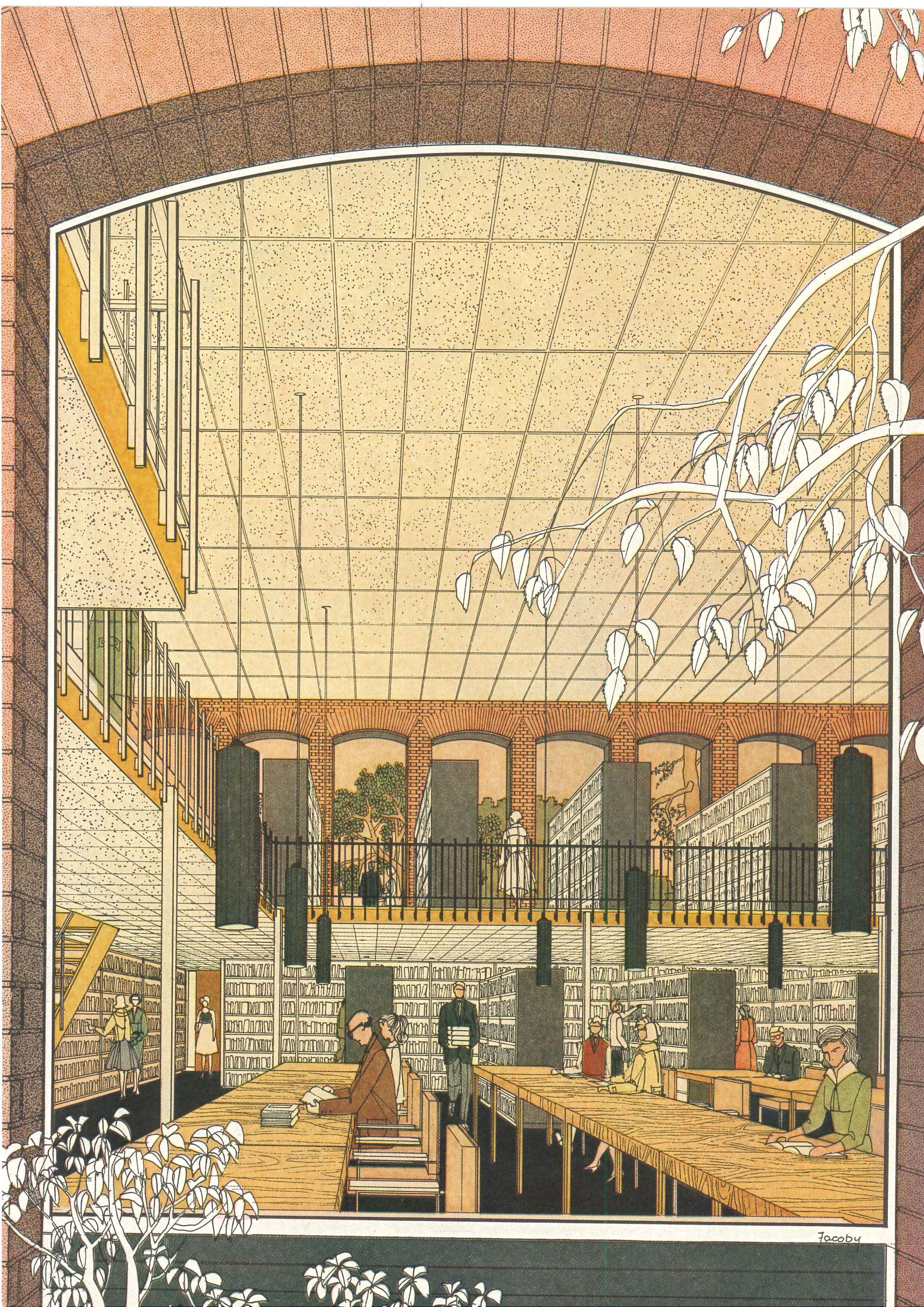

Jacoby

From Armstrong: a giant step in fire-retardant ceilings

Now, for libraries: two types of Acoustical Fire Guard—12″ x 12″ tiles and new lay-in units

The main ceiling of the library on the left has the new Acoustical Fire Guard *lay-in* ceiling. The first floor ceiling, which you see just below the mezzanine, is of Acoustical Fire Guard *tile*.

This was the first time-design-rated acoustical tile. Since it was first introduced by Armstrong two years ago, millions of feet have been installed.

The new lay-in system is another great advance in fire-retardant ceilings. Here's why.

Unique New Suspension System

Because of a new type of suspension system, the Armstrong Acoustical Fire Guard lay-in ceiling combines the advantages of an exposed grid system—economy and fast installation—with those of a time-design-rated acoustical ceiling. Here's how the lay-in units work with the specially designed Fire Guard Grid Suspension System* to protect the structural components of a building.

Ceiling Withstands 2000 Degrees

The lay-in unit — because of its composition — can withstand exposure to flames and 2,000-degree heat. The new grid system, designed exclusively to support these units, will resist this same intense heat by allowing its members to expand, thus holding the lay-in units firmly in place. This suspension system is the first to be combined with a lay-in ceiling unit to offer rated fire protection. Both the lay-in unit and the grid system carry the U.L. label.

Underwriters' Laboratories, Inc., has given the Fire Guard lay-in ceiling system a beam protection rating of three hours. Floor-ceiling assemblies combining it with bar joist and slab, as well as with beam and steel floor construction, earned two-hour ratings. In areas which require more protection, Acoustical Fire Guard *tile* can be used. It has U.L. ratings of up to *four* hours.

Cost Low, Savings High

In most cases, the new lay-in ceiling will cost even less than ordinary plaster ceilings on metal lath. And like tile, the new ceiling can save builders up to *two months*' construction time. This means that a building like this library may open two months earlier.

A Choice of Design

The Acoustical Fire Guard lay-in ceiling is now available in both the Classic and Fissured designs. There are two nominal sizes: 24″ x 24″ x 5/8″ and 24″ x 48″ x 5/8″.

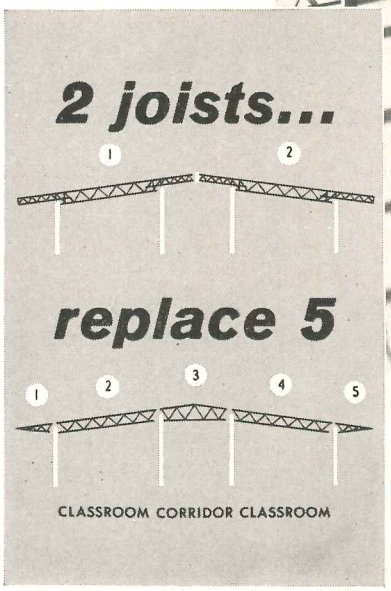
For more information about either Acoustical Fire Guard tile or lay-in units, call your Armstrong Acoustical Contractor (he's in the Yellow Pages under "Acoustical Ceilings") or your nearest Armstrong District Office. Or write to Armstrong Cork Company, 4203 Rock Street, Lancaster, Pennsylvania.

* Patent pending

Armstrong ACOUSTICAL CEILINGS

First in fire-retardant acoustical ceilings

Architectural design and rendering by Helmut Jacoby



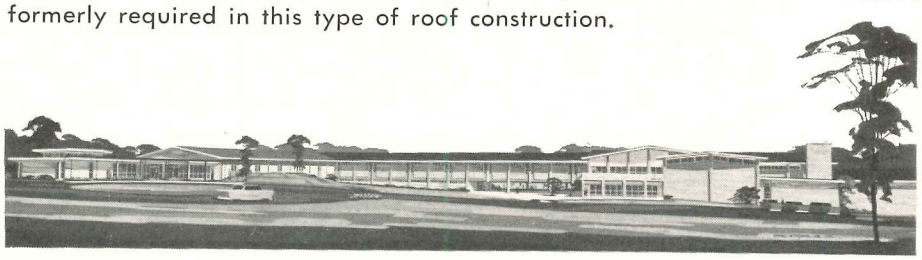
LACLEDE 34′ OPEN WEB STEEL JOISTS

cut time and cost in new school construction

Ladue Junior High School in suburban St. Louis is an excellent example of the way economy and style can be blended in today's school construction.

Cost saving was a pre-eminent factor in architect William B. Ittner's design of this low-flung structure, with its long straight runs, free of costly jogs and bends. Further economy was achieved by allowing the rolling terrain to fall away from the single continuous ridgeline, rather than to follow the contours of the ground with multi-level roofs.

This design concept was based on the selection of open web steel joists as a versatile, economical structural material. Laclede 34′ joists, with special shallow-depth ends, were used to provide an unbroken slope from ridgeline to cantilevered overhang, two joists replacing the five structural elements formerly required in this type of roof construction.



General contractor on the project was Kloster Company. Neal J. Campbell was consulting engineer.

6070

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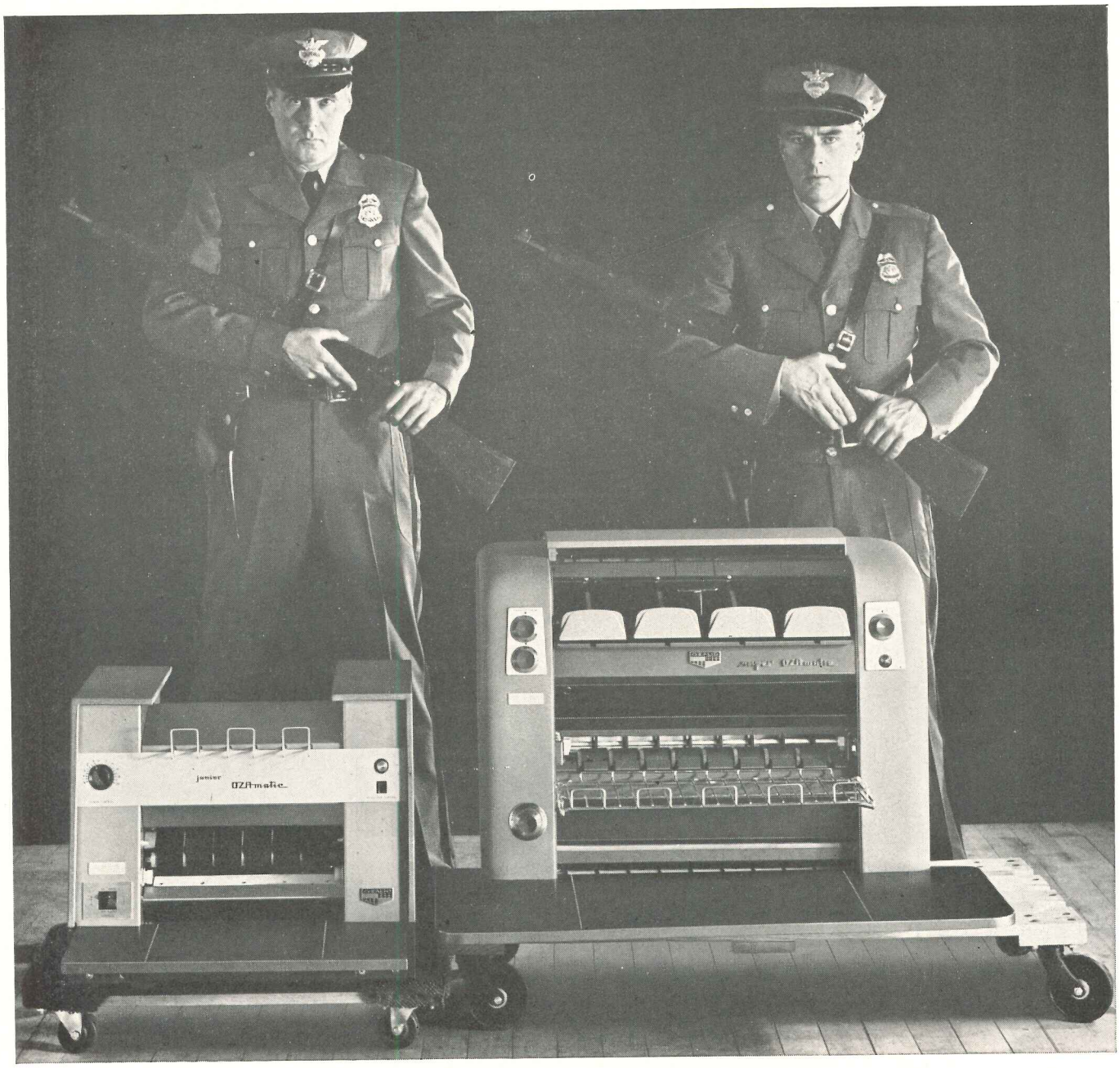

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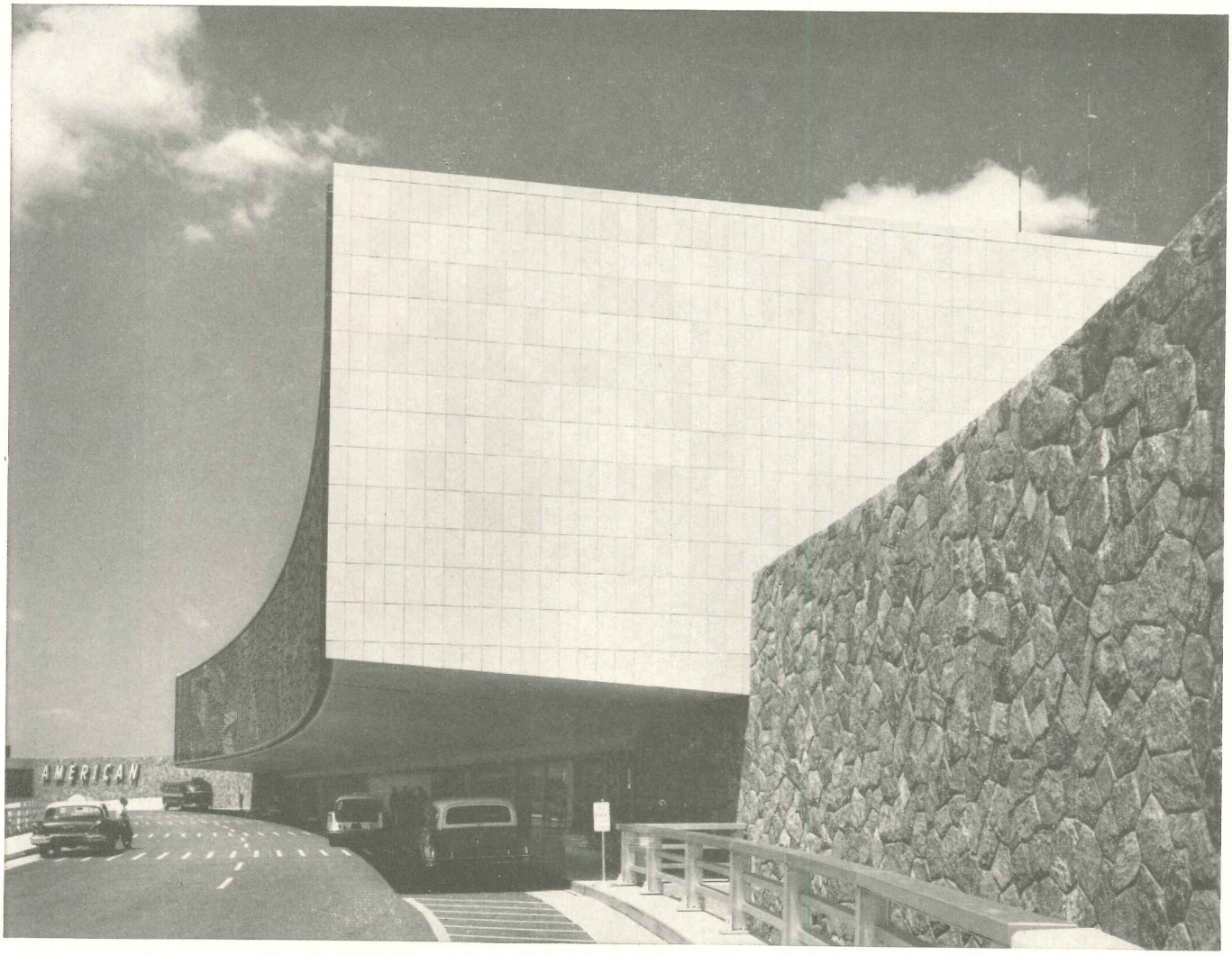
Kahn and Jacobs—*Architects;* **John B. Kelley, Inc. of New York**—*Masonry Contractor;* **Turner Construction Co.**—*Contractor.* Walls on both sides of stained-glass facade are antique ivory Ceramic Veneer in 12″ x 24″ units. Piers, sills and window surround are black Ceramic Veneer.



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Meetings and Miscellany

S.H.C.—B.R.C. Advises Diversification for Builders

Two hundred and twenty-three architects, builders, lumber dealers and contractors from 12 states attended the 16th Annual Short Course in Residential Construction January 18-19 at the University of Illinois Urbana campus. Conducted by the University's Small Homes Council-Building Research Council in cooperation with the University Extension Division, the course reports on current research conducted by the S.H.C.-B.R.C. and summarizes latest practices in construction and management for the home builder.

In view of the new house market slump, special sessions were devoted to remodeling and land planning for multiple-family or apartment-type housing. Builders were urged to diversify operations to include these and other markets outside the conventional single-family house.

In the opening address, Rudard A. Jones, director of the S.H.C.-B.R.C., reported an increase in the Boeckh index of residential construction costs of 37.4 points from the 1949 level, while the increase in the cost of living index is only 24.5 in that period. "The consumer's costs for a new house will take a bigger share of his dollar . . . Buyers seem to have sensed this, and no longer is the whole story told in down payments and monthly payments; they are looking at total costs and value.

"Where has the increased cost come from? The index for all construction materials reached an all-time high in 1959 of 134.6. In the Champaign-Urbana area labor costs have increased 63 per cent over the 1947-49 level . . . we want to see families earning more so they can spend more for housing and other products, but at the same time we don't want to see these added labor costs increase the cost of the product unduly. There can be only one answer—more efficient production."

Mr. Jones foresaw no revolutionary change in housebuilding, but an evolutionary one, with more work being done in the shop, the use of new materials.

Course proceedings are available for $2.50 from the Small Homes Council-Building Research Council, University of Illinois, Urbana, Ill.

more news on page 48

Here is another original design of abstract beauty from General Electric in the Textolite "honey of a line" of plastic surfacing. Each of Twilight's six colors is a casual blend of two pastel tones, sprinkled with either gold or silverlike accents, on a soft white background. This abstract greatly extends the color decorating and design versatility offered in decorative laminate patterns. See the full Textolite line illustrated in Sweet's Architectural File 14a/Ge. Get your color samples of Twilight now—it's truly a honey of a pattern in "a honey of a line!"

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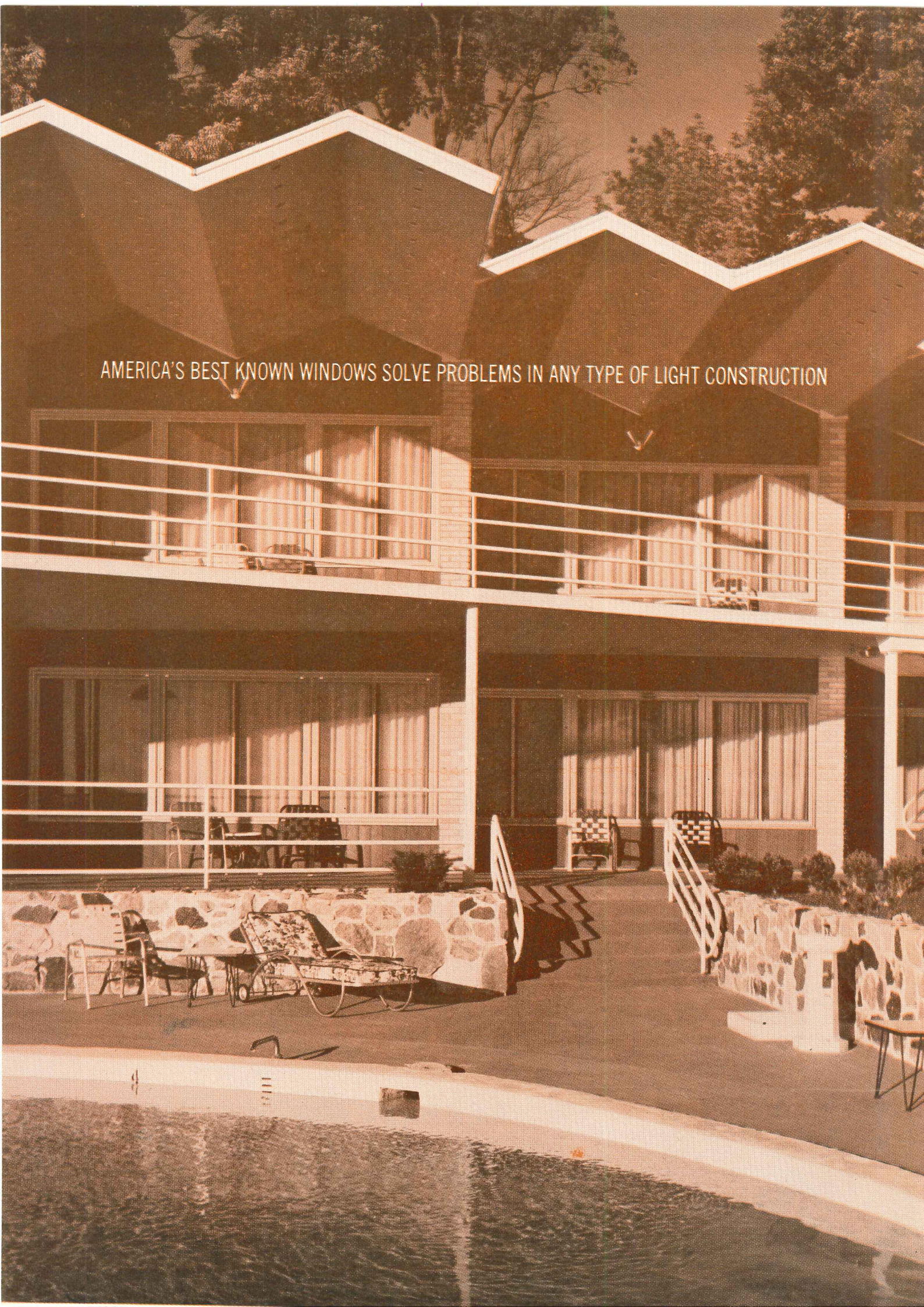
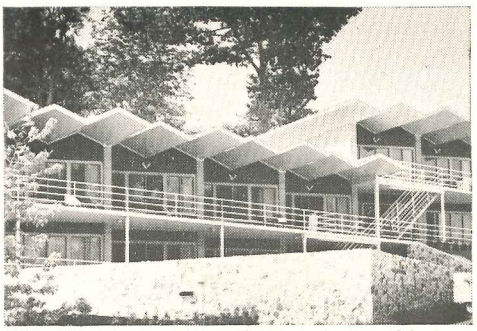

AMERICA'S BEST KNOWN WINDOWS SOLVE PROBLEMS IN ANY TYPE OF LIGHT CONSTRUCTION



Fisherman's Wharf Motel, St. Claire, Michigan. Architect: George D. Lytle

The Andersen Window that solved two problems in this Michigan Motel

Need for large window areas plus insulating effectiveness met with Andersen Gliders

To take advantage of the view without sacrificing natural ventilation, Architect George Lytle selected Andersen Gliders—the picture windows that glide open sideways.

But, Andersen Gliders also helped solve the heat loss problem. Each unit is electrically heated—controlled in the unit and from a master control panel in the office. Temperatures in each unit can be lowered as guests leave, raised as guests arrive—all from the office. Saves on the heating bills. And, Andersen Windows, with the natural insulating qualities of wood plus their weathertightness (about 5 times industry standards) serve perfectly.

Andersen Windows offer you maximum design flexibility for any light construction project: 7 kinds of windows, 30 different types, 685 cataloged sizes.

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ANDERSEN CORPORATION · BAYPORT, MINNESOTA

continued from page 39

$25,000 Mastic Competition Theme: Medical Planning

For the third year, the Rubberoid Company, Mastic Tile Division, is sponsoring a $25,000 design competition. The two past competitions having dealt with adequate housing and educational and recreational facilities for middle-income families of a fast-growing satellite city on the fringe of a major metropolis, the present one has as its theme: adequate medical facilities.

The 1961 program "assumes that health and hospital accommodations of the parent city have been extended and developed to a point of congestion. The regional hospital council has recommended that future efforts be directed to developing a coordinated hospital system on the general framework formulated by the U. S. Public Health Service. Consolidation of the community clinic with the rural hospital to form a suburban general hospital which, in turn, will be expanded into a larger district hospital with full complement of specialty services and staff teaching programs has been proposed. The competition seeks to stimulate the architectural profession to apply its experience and training in achieving a workable solution."

The competition, which has the endorsement of the Committee on Competitions of the American Institute of Architects and of the National Institute for Architectural Education, is open to all registered architects, architectural assistants and students of schools which are members or associate members of the Association of Collegiate Schools of Architecture. All contestants will be eligible for the $10,000 grand prize, a $5000 second prize and a $3000 third prize. Special awards totalling $4500 will be made to students not successful in the general competition.

The jury, headed by E. Todd Wheeler, F.A.I.A., Chicago, Ill., chairman of the A.I.A. Committee on Hospitals and Health, includes: Donald S. Nelson, F.A.I.A., Dallas, Texas; Donald Eugene Neptune, A.I.A., Pasadena, California; James J. Souder, A.I.A., New York; and Ray E. Brown of the University of Chicago. A. Gordon Lorimer, F.A.I.A., New York, serves again as professional advisor.

Awards will be based on the greatest contribution to medical planning including feasibility for change as medical advances are made, architectural quality of physical expression and feasibility of construction within reasonable economic range.

Registrations with contest details are available from the Rubberoid Company, Mastic Tile Division, 500 5th Ave., New York 36, N.Y. or from its sales representatives or distributors. All entries are to be in the hands of the Architectural League of New York City no later than June 30, 1961.

Oberlin Round-table Marks Aluminum's 75th Birthday

The 75th anniversary of Charles Martin Hall's discovery of the electrolytic process for separating aluminum from its ore was marked last month by a celebration arranged by the Aluminum Association and held on the Oberlin College campus, Oberlin, Ohio.

Philip Will Jr., president of the American Institute of Architects, was one of three panelists in a "Round-table of Tomorrow." Others were Philip Sporn, president of the American Electric Power Company, and Dr. William A. Pennington, president of the American Society for Metals and professor of Metallurgy at the University of Maryland.

Mr. Will said, "We must think in unconventional terms . . . a successful aluminum wall system will require that every part do double or triple duty, mechanical or electrical as well as structural. I can imagine, for example, an exterior skin which would be stressed in tension, serve as the appearance surface and also, like the human skin, sweat a little to cool the building in summer. Interior surfaces can have permanent vinyl coatings, incorporate radiant heating and cooling and convenience wiring plus luminescent panels for lighting. The structure would be assembled with glue, factory applied along panel edges and temporarily protected against premature setting by removable strips of tape."

Mr. Sporn predicted that use of aluminum by electric-power generators might increase in the neighborhood of 140 per cent in the next 19 years.

Dr. Pennington discussed metallurgical characteristics of aluminum.

N.A.H.R.O. Meeting Outlines Goals, Seeks Ways to Achieve Them

About 1550 people from 41 states, the District of Columbia, Puerto Rico, the Virgin Islands, Canada, Germany and Japan attended the National Association of Housing and Redevelopment Officials' 27th Annual Conference, held in October in Detroit. It was a busy "work" conference with its several general sessions and more than 20 special interest sessions.

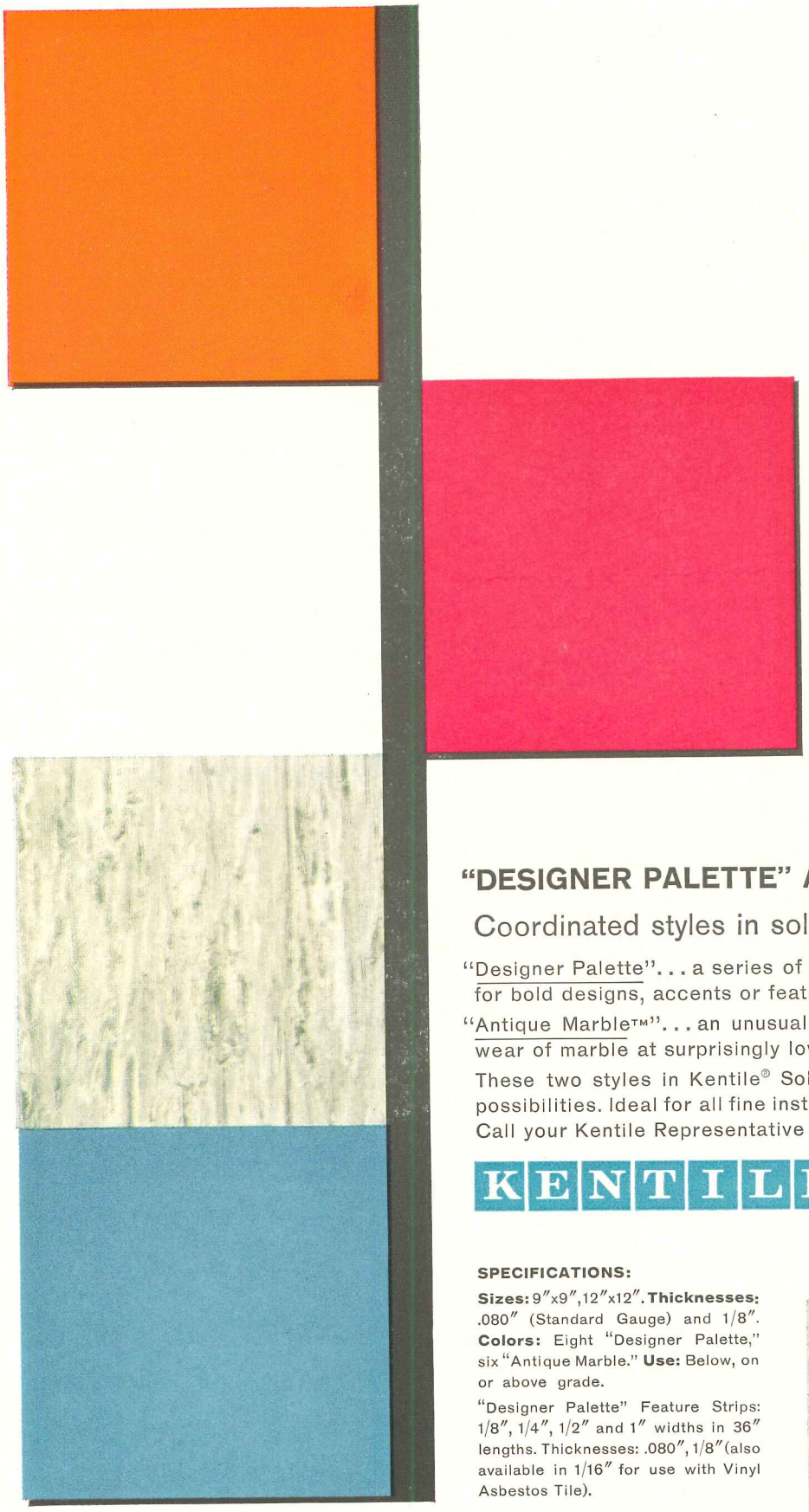
The Program Resolution adopted at the annual business meeting saw three immediate problems: 1) the need to relate the public housing program to the total housing market 2) the need to understand more fully the social problems of poverty, disease and crime and 3) the need for a cabinet level federal department of housing and community development.

The Resolution charged N.A.H.-R.O.'s membership to support recommendations relating to the three new divisions that will carry out the organization's job: Housing, Renewal and Codes. It also charged members to support recommendations relating to four general programs: a more productive use of citizen participation; a more humane handling of displaced families and businesses relocation; the development of a training program to assure a pool of expert workers; the initiation of a study of relationship of tax policies to urban renewal.

Sessions generally were geared to cover these four goals with panels and discussions, films and slide talks.

At the conference opener, speakers were Walter P. Reuther, president of United Automobile, Aircraft and Agricultural Implement Workers of America (AFL-CIO) and Home Finance Agency Administrator Norman P. Mason. Mr. Reuther looked to "What's Ahead in the 60's", finding the picture not pretty . . . unless America puts some muscle in its drive to solve urban problems. He declared that, in connection with the national housing program, a strong "public policy" must replace the current "public relations policy," if cities are to be saved. One of the points he made was . . . in terms of the national housing effort, "there has been more concern for money-lenders than for people who need housing."

continued on page 343



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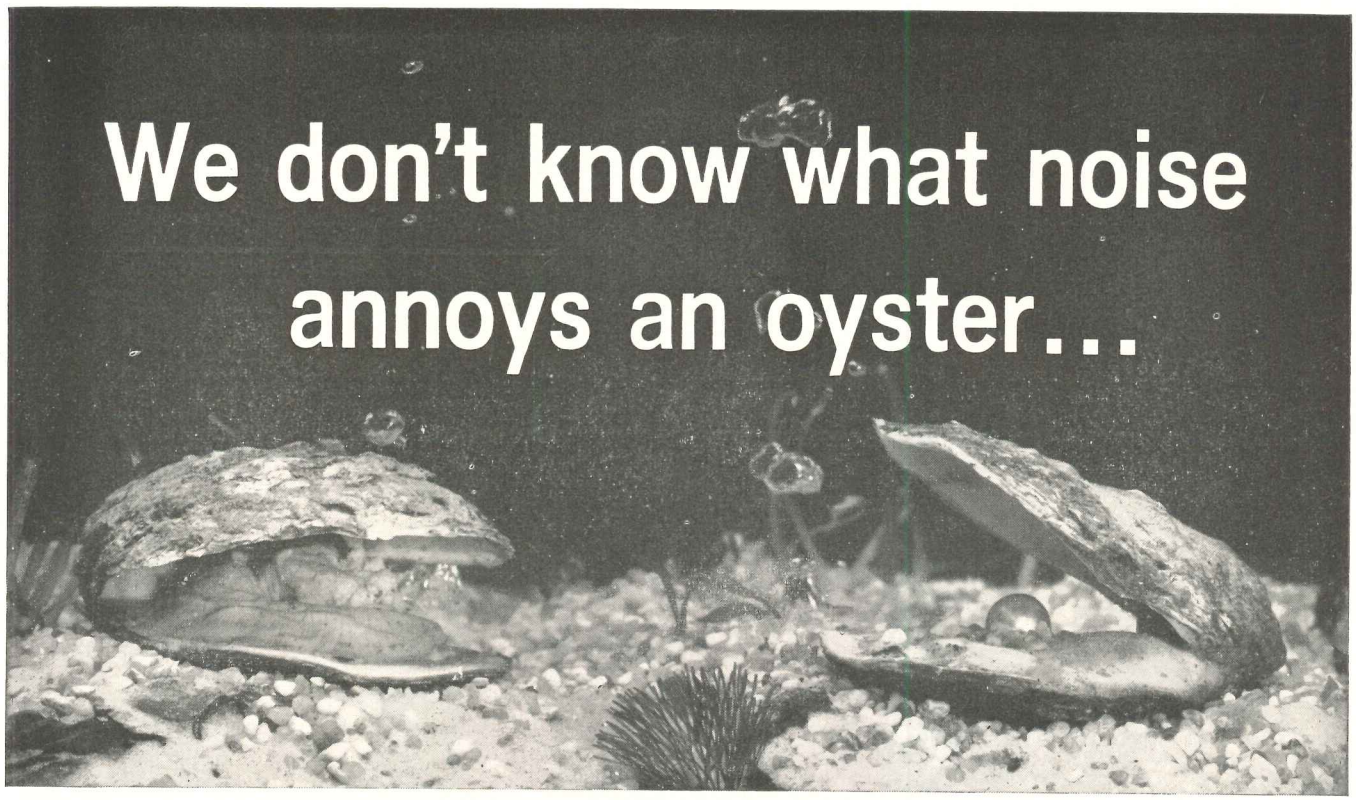

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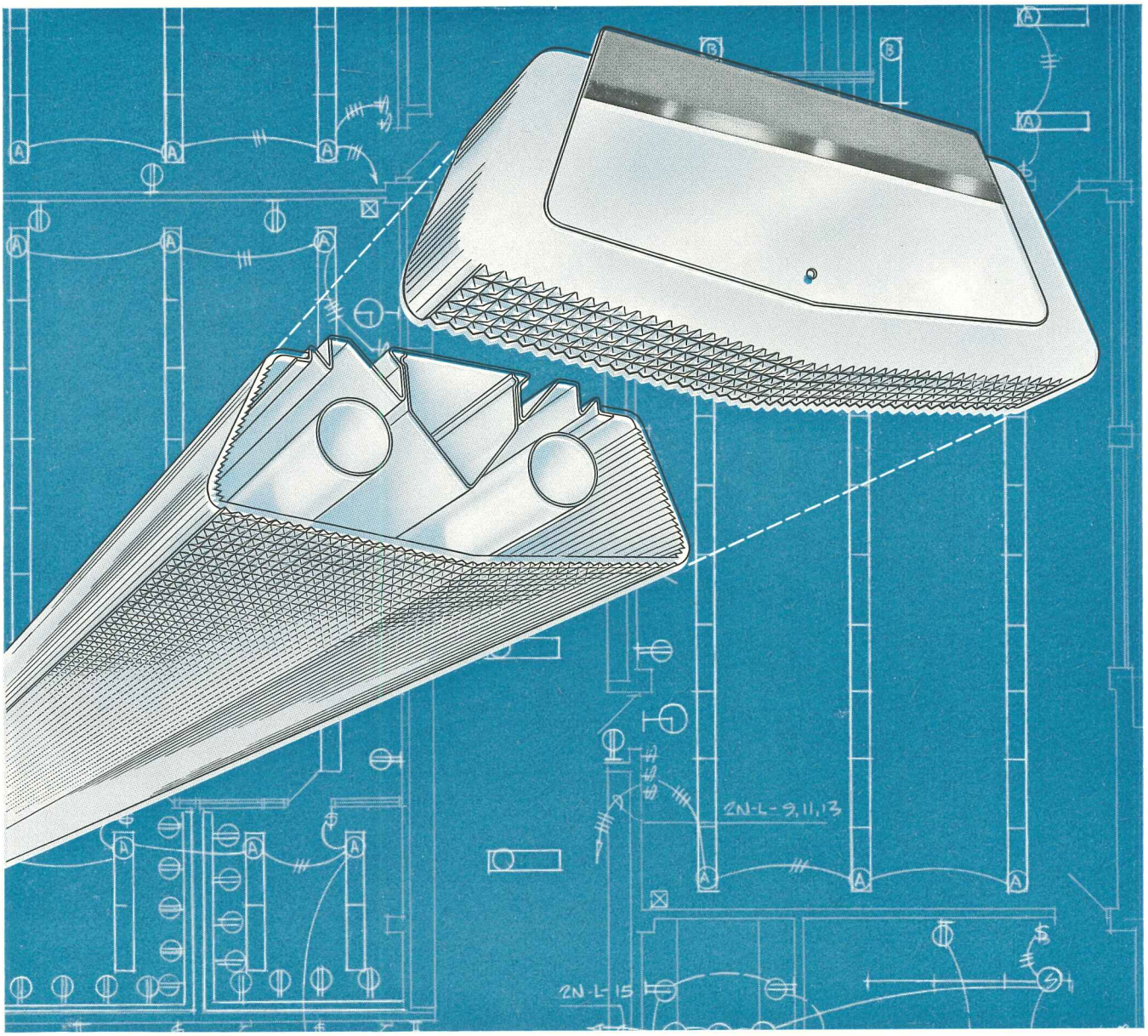

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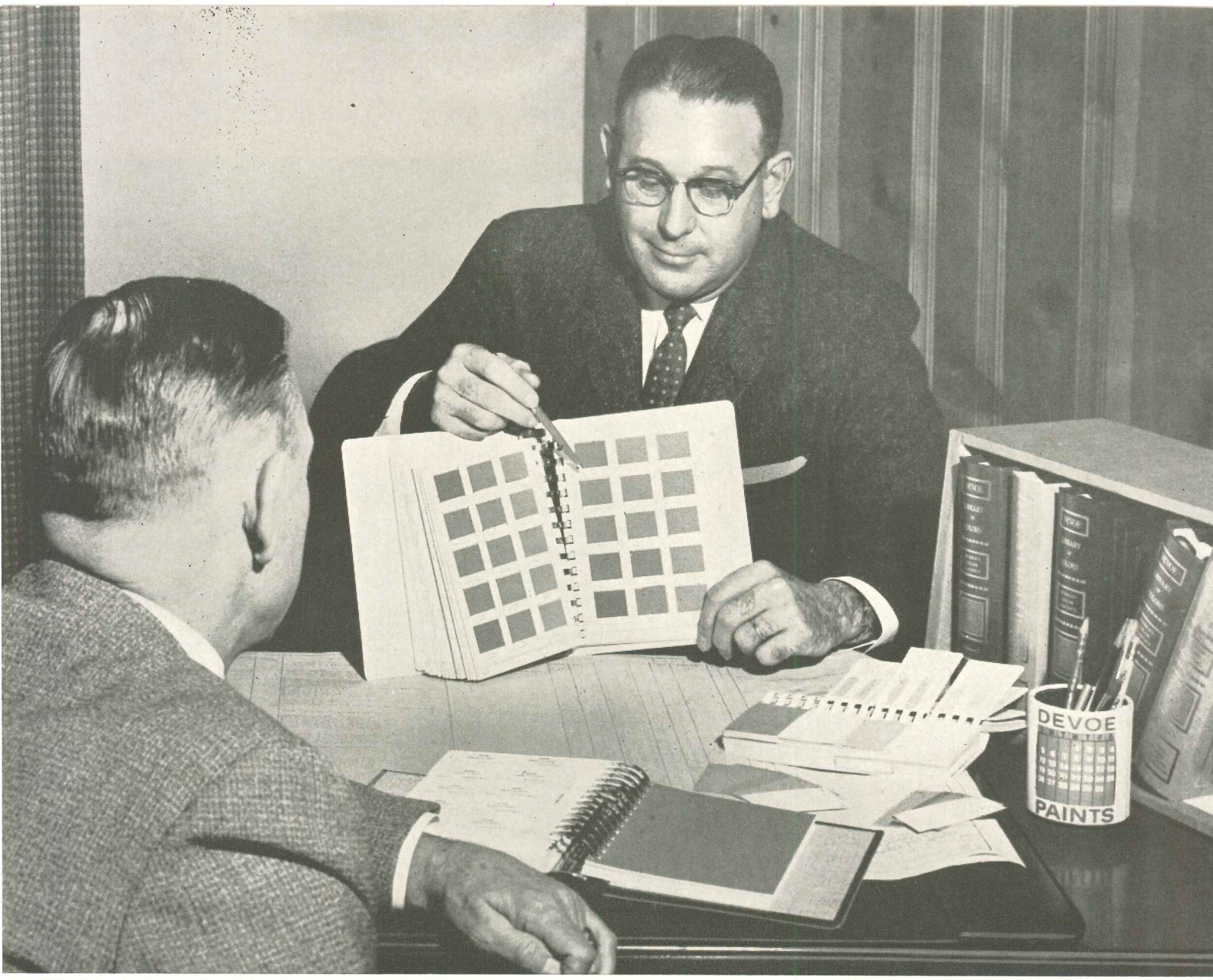

Philip E. Langley, Devoe & Raynolds' Architectural Representative, Atlanta, describing the new Library of Colors system

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In addition, the MAN FROM DEVOE will work with you and your staff on the problems of costs, climate, use and maintenance conditions, durability, color, and appearance. He'll make color schemes for your presentations.

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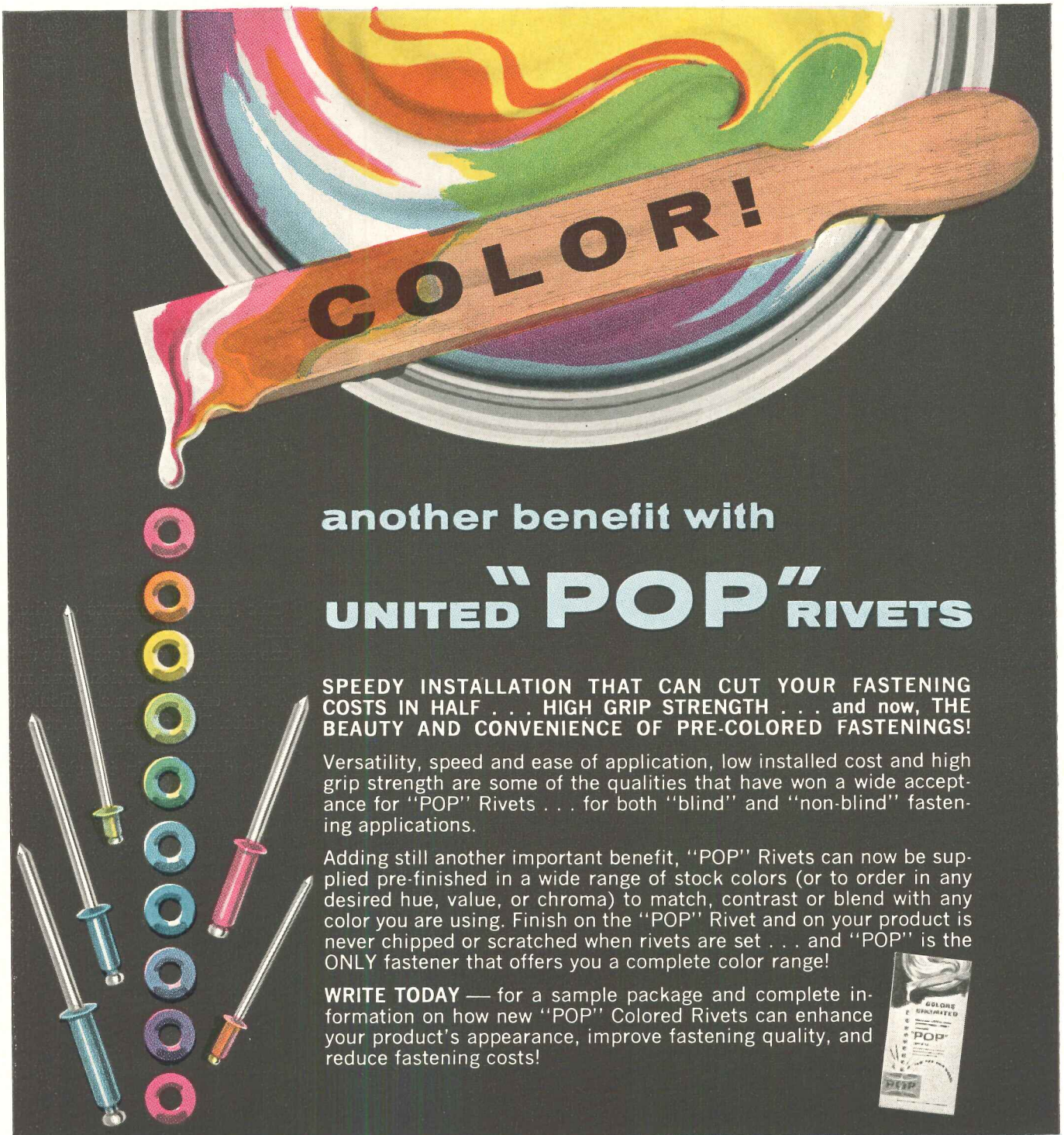

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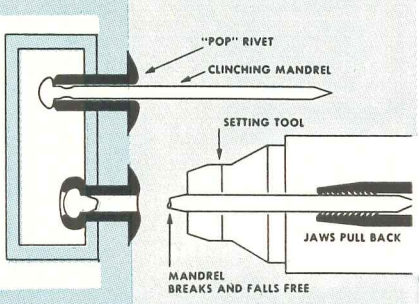
"POP" Rivets are inserted and set from the same side: (1) "POP" Rivet (a hollow rivet assembled on a solid mandrel) is inserted in the work. (2) Jaws of the easy-to-use setting tool grasp the mandrel. (3) Tool is operated. Jaws pull back. Rivet is set. Mandrel breaks and falls free.



"POP" RIVET DIVISION · UNITED SHOE MACHINERY CORPORATION
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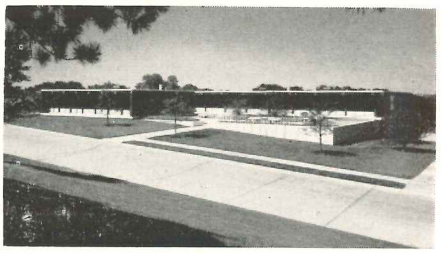
Nebraska Architects Association Honors Six Buildings

The 1960 Honor Awards Program sponsored by the Nebraska Architects Association honored six Nebraska buildings, all of them designed by Omaha architectural firms. At the annual meeting of the state association, the two honor awards went to the M. J. Ford Home in Omaha, designed by Stanley J. How & Associates, and the Leo A. Daly company office in Omaha, designed by the Leo A. Daly Company.

The jury was composed of chairman Clarence Kivett, senior partner in Kivett & Myers & McCallum, Kansas City architectural firm; Emerson Goble, editor of ARCHITECTURAL RECORD; and Dr. Lenoard Wolf, head of the department of architecture for Iowa State University, Ames Iowa. In making their report, the judges paid tribute to the "many fine submissions which did not receive awards" and added that the panel was impressed with the improved character of work in the state as a whole as evidenced by the entries submitted."

The jury's comments on the Ford home were: ". . . unusually well-done residence with excellent unity of composition, proportions and materials . . . executed on a difficult (sloping) site. Demonstrates that contemporary domestic architecture need not be dogmatic in its statement."

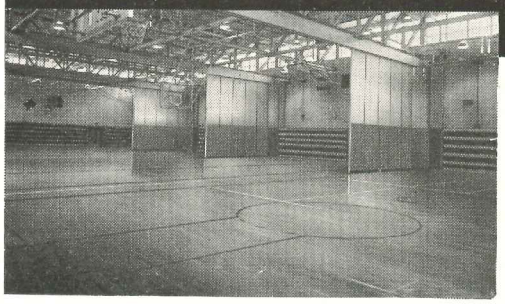


On the Leo A. Daly company office, they said: ". . . fortunate setting which establishes pleasant design environment, opening out to vistas of West Omaha. Strong spirit of unity established by clearly defined, rhythmic composition . . . very well scaled for its use with good proportion, space organization and relationships."

Four Mention Awards were given the following: the Boystown Orientation Center, Boystown, designed by the Leo A. Daly Company; Hinky Dinky store no. 59, Lincoln, designed by Steele, Sandham & Weinstein; St. John the Apostle Church and School, Lincoln, designed by Boyer Biskup & Widstrom; and St. Peters School, Fullerton, designed by Steele, Sandham & Weinstein.

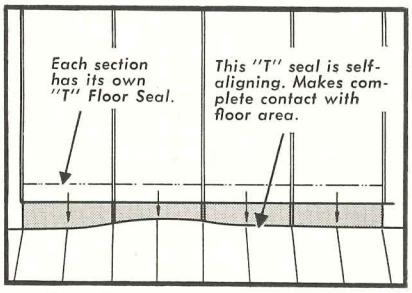
more news on page 57

a revolutionary new feature in
TORJESEN FOLDING PARTITIONS



THE INGENIOUS "T" FLOOR SEAL

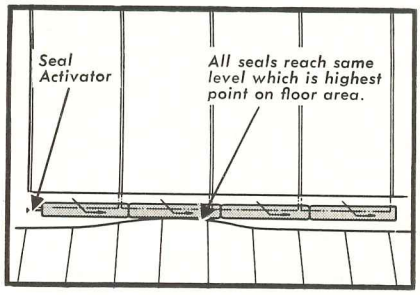
Activated by Compressed Air!



NEW "T" FLOOR SEAL ON TORJESEN FOLDING PARTITIONS *Effects 100% Closure Regardless of Floor Contour!*

Each section of a Torjesen Partition has its own "T" floor seal. *An electro-pneumatic activated unit in the bottom does the job!* Regardless of high or low floor points, each panel is held rigidly in 100% contact with the floor making the entire partition immovable.

**The new "T" Floor Seal is now standard equipment on all Torjesen Folding Partitions at no extra cost!*



OLD TYPE FLOOR SEAL NOW IN GENERAL USE *Cannot Effect 100% Closure Unless Entire Floor is Dead Level!*

The drawing at right shows this. When the partition is closed the seal in the first door section is triggered and in turn activates each following door section seal. They all reach the same level which is the highest point on the floor area. Any irregularity in floor contour will cause the rest of the panels to hang loosely thus affecting the rigidity of the entire partition.

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MIDWEST INFLUENCES EXPLORED AS ARCHITECTURAL HISTORIANS MEET IN MINNEAPOLIS

The 1961 annual meeting of the Society of Architectural Historians was held in Minneapolis January 26-28. Several new areas of interest were explored by the general sessions. Most closely associated were "Aspects of Canadian Architectural History" and "The Architecture of Minnesota and Her Neighbors." Canadian developments were followed right up to the present from 1945 by John Parkin, architect of Toronto. Especially noteworthy in this Canadian series of papers was the color slide material presented with comments in French by Jean-Paul Morisset from the Inventaire des Oeuvres d'Art de la Province de Quebec. It encouraged the realization among the audience that the earliest architectural history of the great midwestern river basins might be written entirely in terms of French settlement from Quebec to New Orleans.

The Minnesota regional session had talks which further analyzed both French and Yankee influences. More surprising, however, was the exposition of the rich cultural heritage of Wisconsin by Richard W. E. Perrin, director of the Housing Authority of Milwaukee. This was in part represented by Norwegian farmhouses and Finnish churches with their chaste handling in wood. Cornish stone houses and Bohemian barns were similarly shown. The biggest category Mr. Perrin discussed was the German "fachwerk" buildings of exposed oak frames with brick panels and proverbs, or "hausspruche," written over the front door, complete with construction dates. The handsomest of these German structures was a huge barn with brick and timber walls which had once been covered with a thatch roof. Other striking textural effects were achieved by sprinkling pieces of coal throughout a stone wall and, in one case, piling short logs up like firewood in mortar so that the sides of the house gave the effect of an unruly mob of polka dots. Mr. Perrin hopes to bring a number of the best examples of these ethnic types together in a future Wisconsin park similar to the Scandinavian collections of folk architecture.

The pleasure of recognizing the range of the American cultural tradition which comes more and more often to the American historian as research advances was next heightened by a visit to the Metropolitan Building in downtown Minneapolis. This was built in 1888-90 and designed by E. Townsend Mix. It is centered around a huge hall illuminated from above. Balconies of glass project out on knife-edge brackets. Several members of the Society of Architectural Historians spent the time before the preservation box lunch mounting to the twelfth story in the open cage elevators and then walking slowly down. Finally one member was led to observe what several had already been thinking, that here was a prototype for Wright's Guggenheim Museum. Prodigious in its waste of floor space, interpolating raw structure with glass walls, equally bumptious and over-weening on the outside, it exhibits all the basic characteristics regarded seventy years later in the New York museum as largely without precedent except within the work of Wright himself. This experience also contained the germ of the intense feeling one obtains everywhere in the Midwest of a countryside suffused with the traditional building wisdom of the farmers of half the world around giant, self-centered cities, put up and torn down with incredible speed, boldness and naivete. The Metropolitan Building is about to be demolished by urban redevelopment order for a parking lot.

The Hitchcock Award for the best book of the year went to Professor David Coffin of Princeton University for his monograph on the Villa d'Este at Tivoli. The present slate of officers was reelected for another year, Barbara Wriston of the Boston Museum as president, John Forbes of the University of Virginia as vice president, Alan Gowans of the University of Delaware as secretary and Robert M. Walker of Swarthmore College as treasurer. New directors are Allen Brooks, University of Toronto, Edward DeZurko, Rice University, William Jordy, Brown University, Thomas McCormick, Vassar College, Carroll Meeks, Yale and Charles Peterson, Natl. Park Service.

C.S.I. PLANS FIFTH ANNUAL CONVENTION

The Construction Specifications Institute will hold its Fifth Annual Convention at the Commodore Hotel in New York City May 22-24, with the program centering on a wide variety of technical activities.

One of the major portions of the program will be a presentation by C.S.I.'s Specification Methods Committee in which the Committee will propose a completely new outline arrangement for specifications for use throughout the country. Sample copies of this outline will be distributed.

The Institute's Technical Committee will present a thoroughly detailed and up-to-date version of the functions and operating procedures of the entire technical program at both the national and chapter levels.

The Philadelphia Chapter will present a program called "Co-ordinated Responsibilities of Suppliers and Specification Writers." A panel of specification writers and building products manufacturers will discuss the relationships between the active (professional) and associate (manufacturer's representative) members of C.S.I. and the responsibilities of a producer of quality products and a writer of intelligent specifications.

C.S.I. reports membership as of February 1 at 4612, compared with 3750 a year ago. Four new chapters will join C.S.I.'s present 50 soon.

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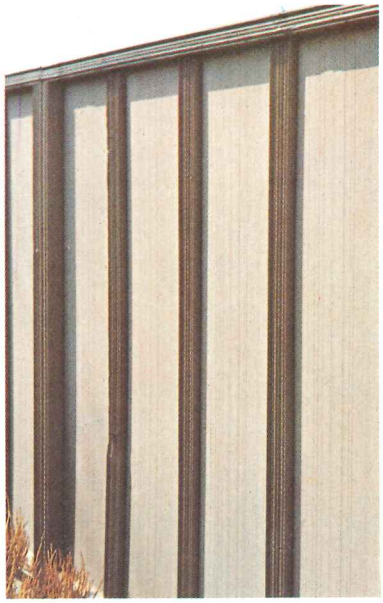
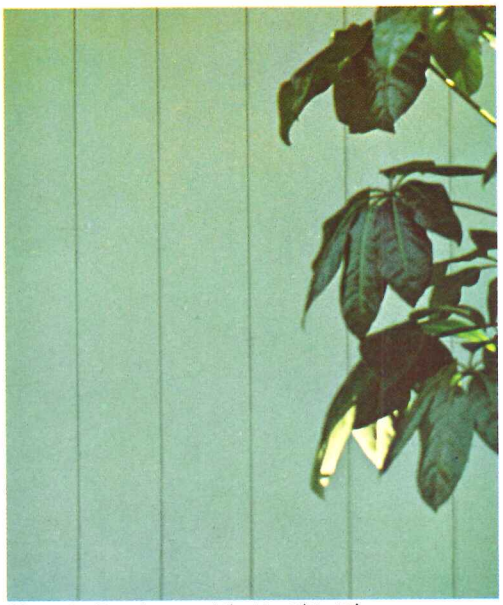
Plan a different exterior—one that will be as beautiful tomorrow as it is today. An exterior of Sunline siding will turn those first glances into lasting impressions!



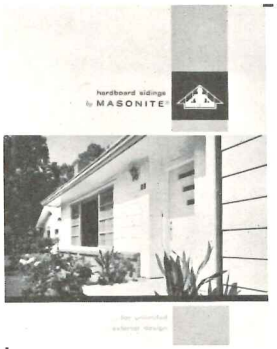
Ridgeline. A 4′-wide panel in lengths to 16′. Continuous combed surface; prime-coated.



Masonite Panelgroove (4′ wide, 8′ to 16′ long) offers vertical grooves every 4″ or 8″.

New Masonite "X" siding provides a deep, attractive shadowline ...won't split or check—exceptionally dent-resistant.

Plan with siding that features this trade-mark. It says this is genuine Masonite hardboard. It's "wood-made-better"—made through the exclusive explosion process for unequaled strength, smoothness and uniformity.



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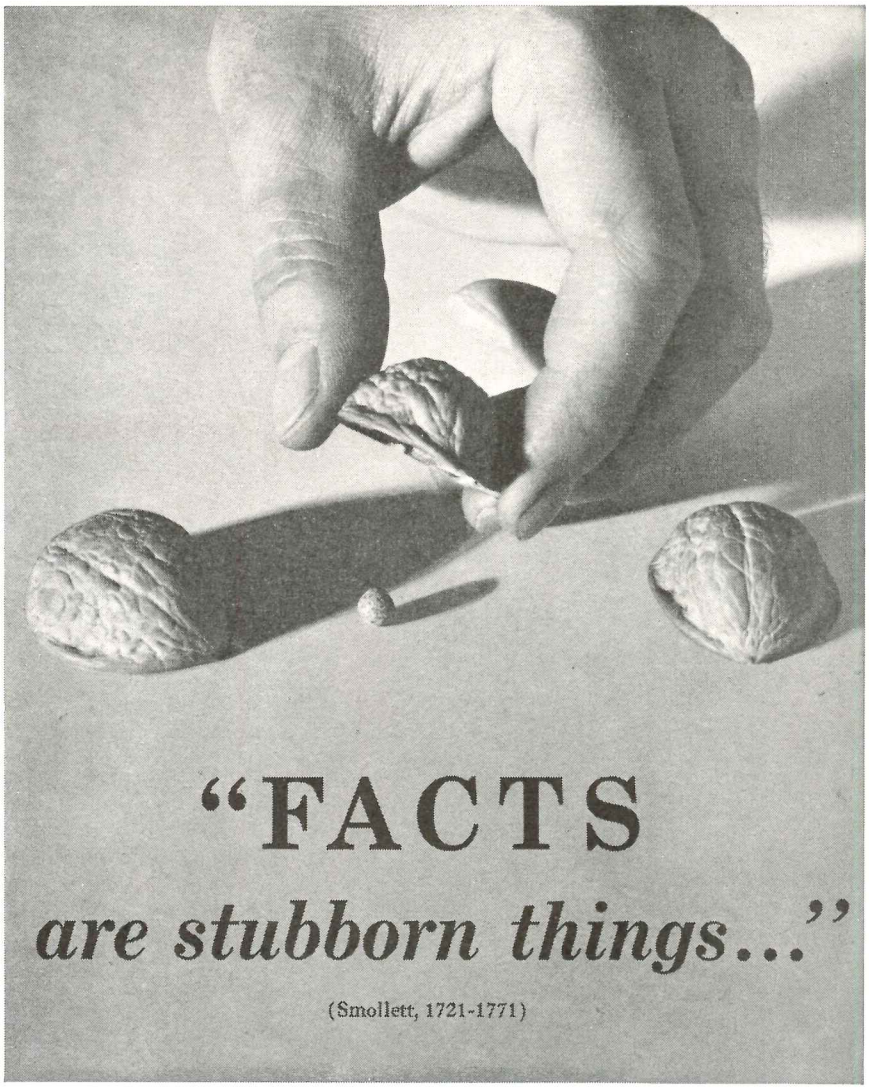

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The Record Reports

On the Calendar

April

5-7 47th annual convention, Michigan Society of Architects—Sheraton-Cadillac Hotel, Detroit

9-15 23rd annual convention, National Association of Architectural Metal Manufacturers—Plaza Hotel, New York

10-15 National convention (first of three in 1961), American Society of Civil Engineers—Phoenix, Ariz.

18-20 Fifth Annual Industrial Mutual Aid and Disaster Control Seminar, sponsored by the National Institute for Disaster Mobilization and the Channel Industries Mutual Aid—Shamrock-Hilton Hotel, Houston, Tex.

20-22 76th annual convention, Illinois Society of Professional Engineers—Peoria, Ill.

24-28 National convention, American Institute of Architects—Bellevue-Stratford, Philadelphia

Office Notes

Offices Opened

Paul Rogers & Associates, Inc. Consulting Engineers of Chicago, announce the opening of their European office: Eugene Bonnet & Paul Rogers, Ingenieurs Conseils, Membres, Societé Des Ingenieurs Civils de France at 8 Rue Vergniaud, Levallois-Perret in Paris.

The New York world headquarters office of Litchfield Whiting Bowne & Associates, international architects and engineers, has announced the opening of a new office in Karachi, West Pakistan. Its manager, John H. Topik, will report to Wesley R. Nelson, director of foreign operations, in the Tehran Office.

New Firms, Firm Changes

New associates in Ketchum and Sharp, New York architectural firm, are Lowell Brody, Ray E. Cumrine and Herbret W. Riemer.

The firm of William J. Johnson Associates, Ann Arbor, Mich., has added a partner, Clarence Roy. The

continued on page 67

STEEL CONSTRUCTION STAYS ON SCHEDULE—This all-steel framework for an apartment includes high-strength bolted structural frame, open-web joists, and Slabform for poured concrete floors. All steel furnished by Bethlehem.

When your client wants early completion, early return on his investment...thank heaven for steel!

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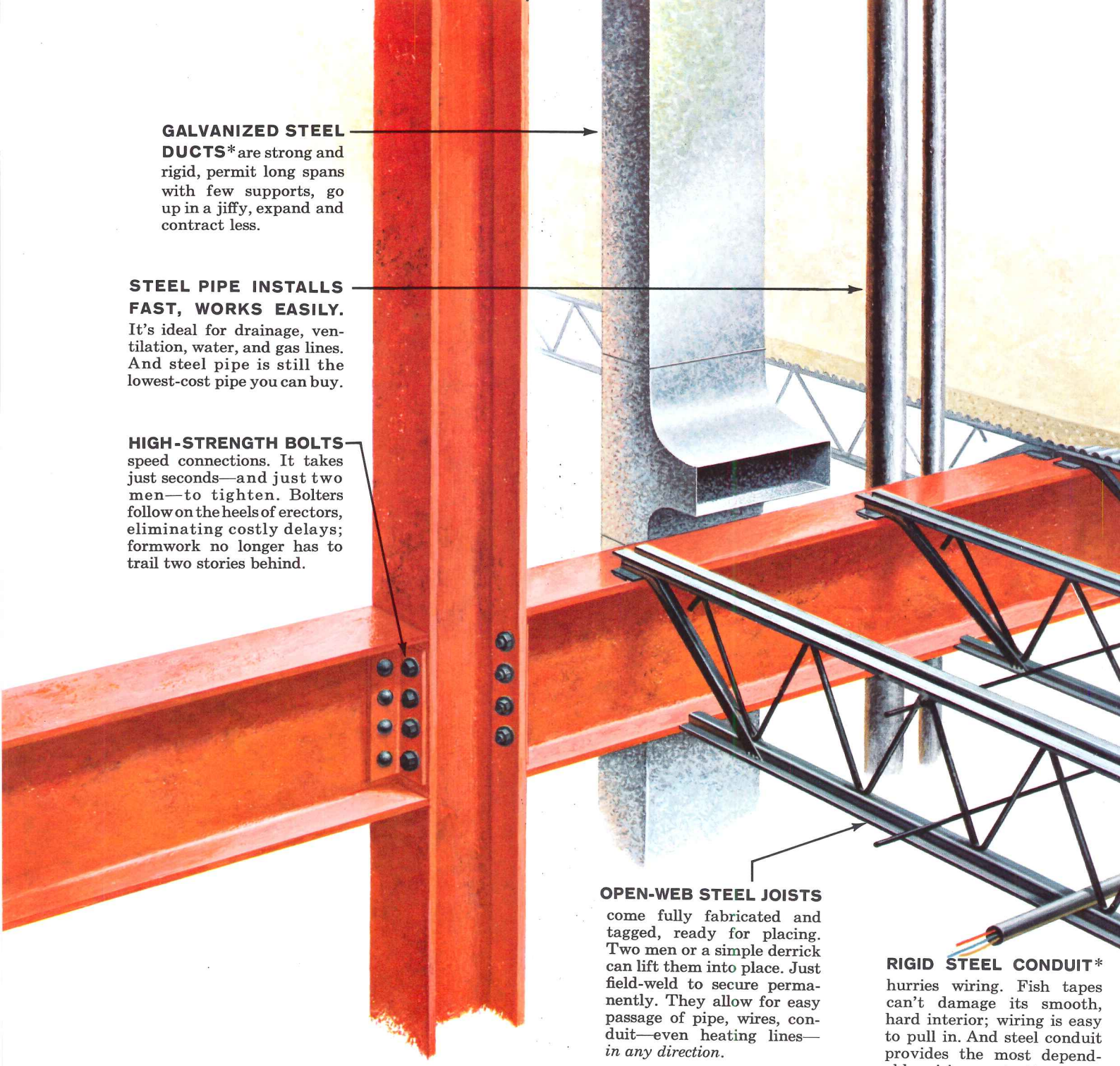

GALVANIZED STEEL DUCTS* are strong and rigid, permit long spans with few supports, go up in a jiffy, expand and contract less.

STEEL PIPE INSTALLS FAST, WORKS EASILY. It's ideal for drainage, ventilation, water, and gas lines. And steel pipe is still the lowest-cost pipe you can buy.

HIGH-STRENGTH BOLTS speed connections. It takes just seconds—and just two men—to tighten. Bolters follow on the heels of erectors, eliminating costly delays; formwork no longer has to trail two stories behind.

OPEN-WEB STEEL JOISTS come fully fabricated and tagged, ready for placing. Two men or a simple derrick can lift them into place. Just field-weld to secure permanently. They allow for easy passage of pipe, wires, conduit—even heating lines—*in any direction.*

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SHOP-FABRICATED STRUCTURAL STEEL arrives at the site ready to go into place. No expensive, time-wasting operations. A steel framework goes up fast—two stories or twenty-two stories. Long before the frame is completed, other trades get started. Floors, curtain walls, electric wiring, air-conditioning, and plumbing can be installed more quickly.

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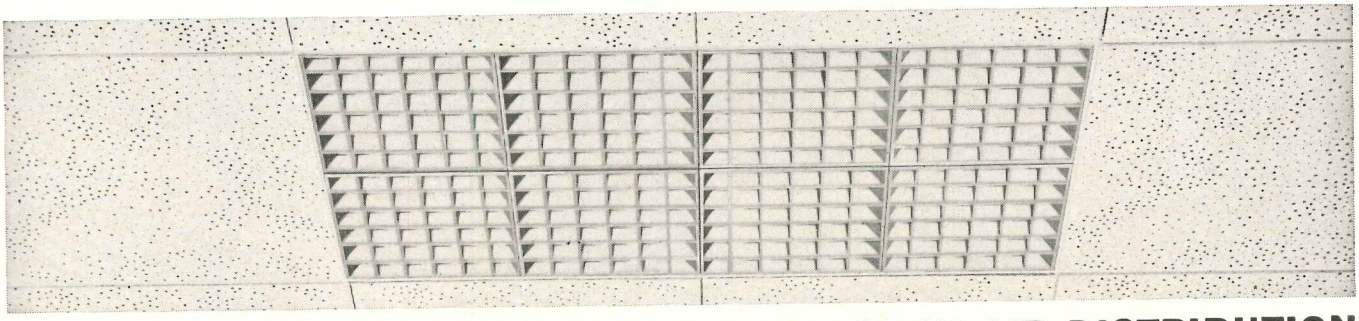
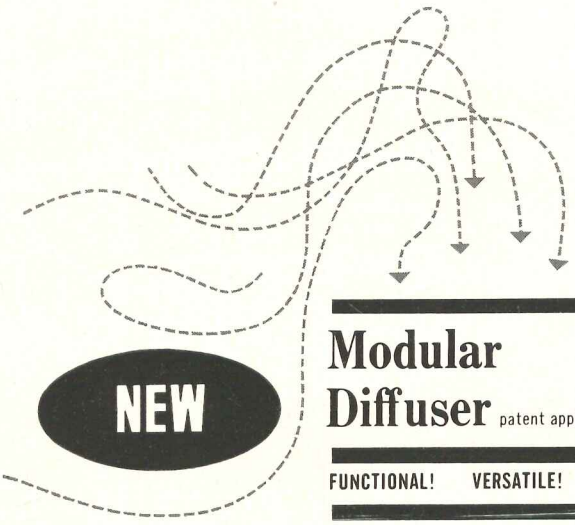


LEADERS GO TO CARNES FOR THE NEWEST IN AIR DISTRIBUTION



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Carnes attractive white Model "M" Modular Diffuser enhances the aesthetic quality of any ceiling. The 6-inch square modules fit virtually flush with ceiling . . . have a minimum of see-through . . . inhibit smudging . . . easily slip in or out for changing air direction or cleaning. An infinite number of patterns and sizes are yours by combining multiples of three modules: 1 way throw, 2 way throw, corner throw. Continuous strip patterns . . . cross patterns . . . alternating patterns may be developed to solve any design or air distribution problem. Module units . . . above windows . . . between fluorescent fixtures . . . around columns or walls . . . butted to light fixtures . . . carry out architectural lines and blend with all ceiling materials. They are equally effective when used as an air return. Modules are made from General Electric's revolutionary new LEXAN, a self-extinguishing, high-impact material that withstands temperatures to 225° without distortion. Frames are available in a wide variety of sizes and types . . . easily joined to make any continuous length or width desired. For complete details, write for Modular Diffuser Catalog No. 460.

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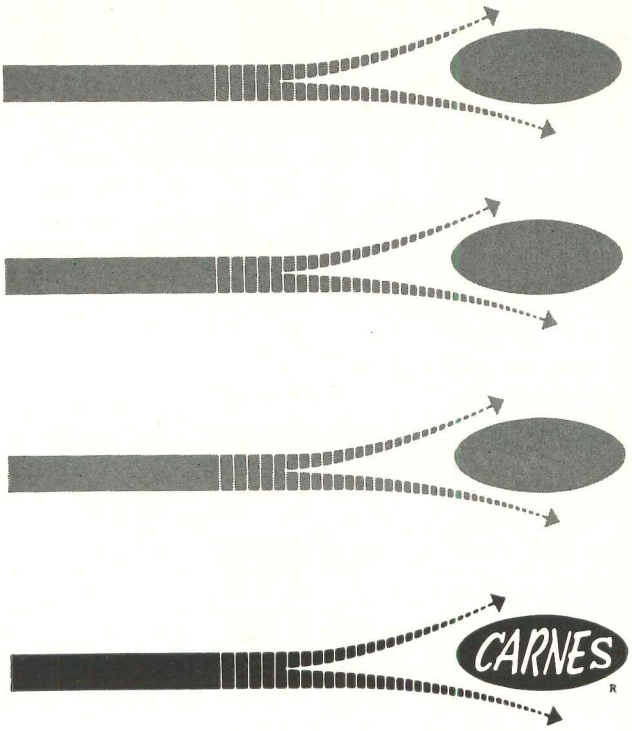

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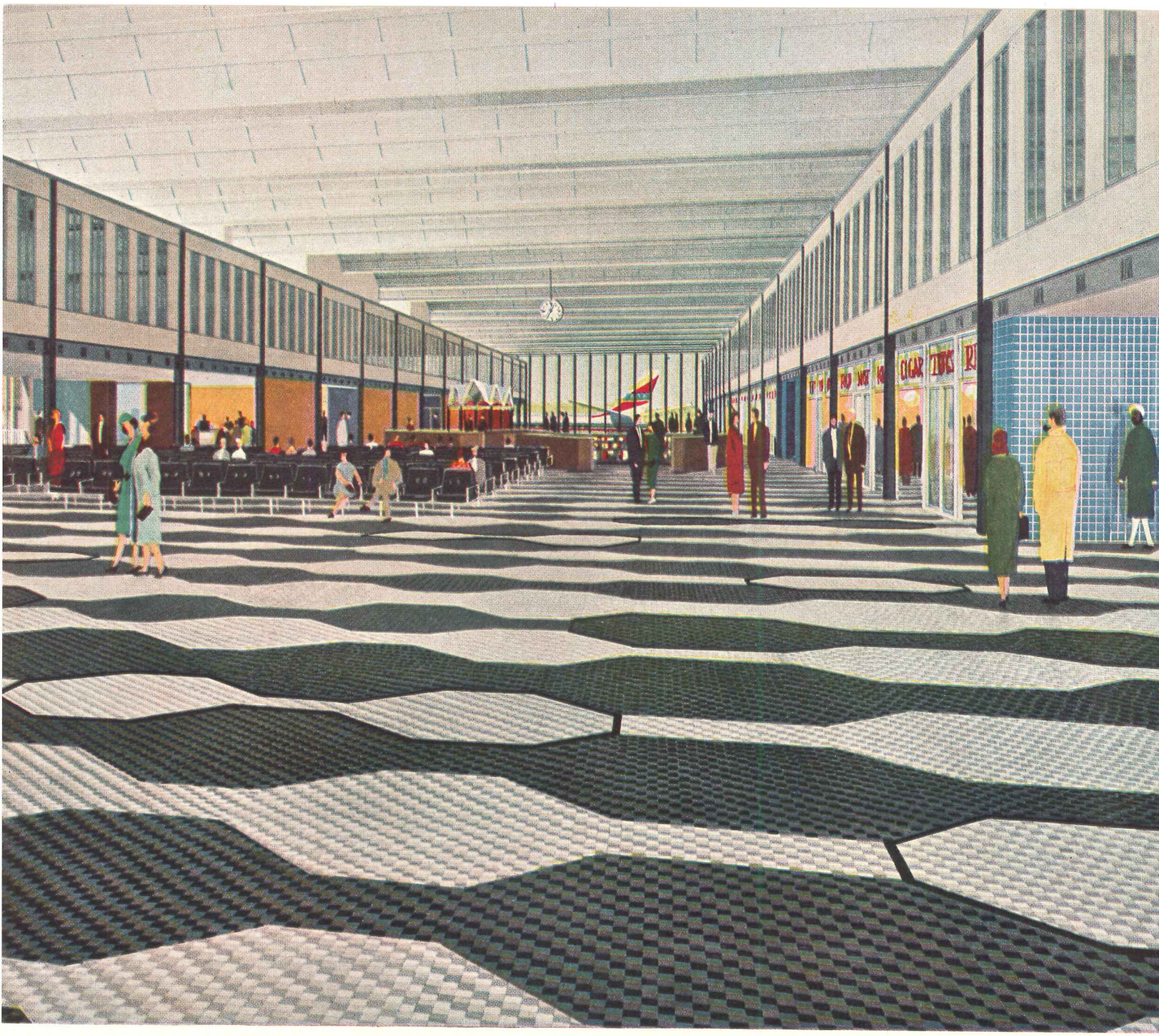

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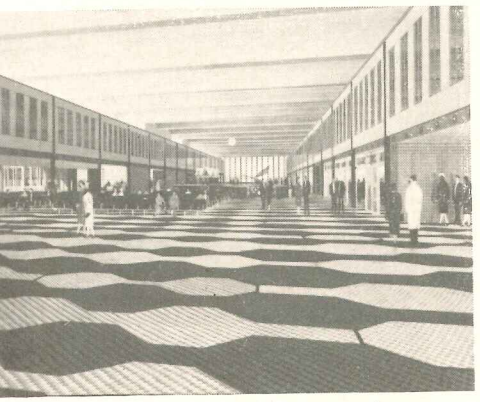
Thorshov & Cerny, noted Minneapolis firm of architects, designed this approach to a modern, high-traffic jet airport terminal. Spaciousness, appealing modern design and long-range economy via minimum maintenance requirements—all these elements were part of the plan.

A unique and original ceramic tile pattern was designed for the floor—a specification which contributes permanent beauty and guarantees long wear with minimum maintenance. Many of the vertical surfaces were designed with ceramic tile—always a prudent choice for any public area.

Practical experience shows that any private or public building gains in appearance, prestige and decreased maintenance costs when tile is used. Fireproof, durable ceramic tile comes in over 200 different colors, a wide range of sizes and an increasing variety of textures—giving the architect the greatest design freedom possible.

The Modern Style is



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CERAMIC tile

The Record Reports

continued from page 60

new partnership will be known as Johnson-Roy, Landscape Architects and Site Planners, with offices at 106 E. Liberty, Ann Arbor.

Arthur C. Lucas, Jr., Architect, announces the appointment of John D. Peck as associate and a move to Suite 900 Alworth Building, Duluth, Minn.

Josiah H. Child has retired from the firm of Child, Lawrence & Shannon, Architects & Engineers. A new partner has joined the firm, Bayard Underwood. The firm name is now Lawrence, Shannon & Underwood.

Wadsworth & Boston, Architects and Engineers of Portland, Me., announce the appointment of three new members: Donald L. Dimick, Raymond J. Mercer and Robert H. Weatherill.

Herbert Pomerantz, P.E., has been made an associate of S. W. Brown, Consulting Engineers, New York City. He was formerly the firm's project manager.

Richard G. Stein, after 14 years a partner with Katz Waisman Blumenkranz Stein Weber, Architects Associated, has terminated his partnership to establish his own practice. His new office is at 441 Madison Ave., New York City 22.

The Consulting Engineering firm of W. T. Collings, Milwaukee, Wis., has announced that W. D. Kimmel is a member of the staff, serving as liaison engineer between the principals of the firm and their clients.

Oliver J. Bryan Jr. and William C. Haldeman announce their association in the practice of architecture under the name of Bryan and Haldeman, Architects, 525 East Ohio Ave., Denver 9, Colo.

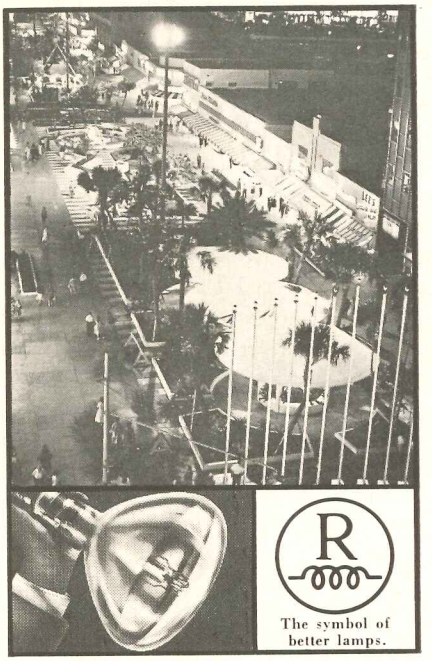
Upon the retirement of William B. Coffin and S. Winthrop St. Clair from Sturgis Associates Incorporated, Architects and Engineers of Boston, Mass., the following have been elected as directors and officers of the corporation: William Bradford Sprout Jr., Perry D. Lord and Maarten D. Den Hartog. New consultants are William B. Coffin, William Stanley Parker and J. P. Den Hartog, professor mechanical engineering.

The new name of Ginocchio, Cromwell & Associates is Ginocchio, Cromwell, Carter, Dees & Neyland, Architects & Engineers. The firm will con-

continued on page 80

. . . a successful mall by day – a "spectacular" at night!

Gardens, fountains and lighting are now an integral part of the building plan . . . from the start. Lincoln Road Mall in Miami Beach was designed by the internationally known architect, Morris Lapidus, with lighting by Abe Feder. Eleven 60 foot Pylons replace the normal concept of street poles, providing target beams of light that emphasize plant shelters, playing fountains and Mall walks. The night drawing power provided by the exterior lighting dazzles large crowds of sightseers — and many remain to become Mall customers. This new concept is showing a marked influence on the development of similar areas throughout the country.



The Radiant 1000 watt Mercury Reflector Lamps, with "Pyrex" brand glass envelopes specified by Mr. Feder, are also the perfect solution for many other lighting problems. Buildings, ball parks and airports throughout the country are turning toward the use of Radiant Incandescent and Mercury Vapor Lamps in lighting systems. Radiant Lamps are weather-proof, better in their lasting brilliancy, cheaper in any regular replacement program, and what's more, a joy for the designer to work with. For information about modern outdoor lighting, write or phone Les Deutsch at BIgelow 3-6850.

David A. Foxman

61-11 David A. Foxman, President

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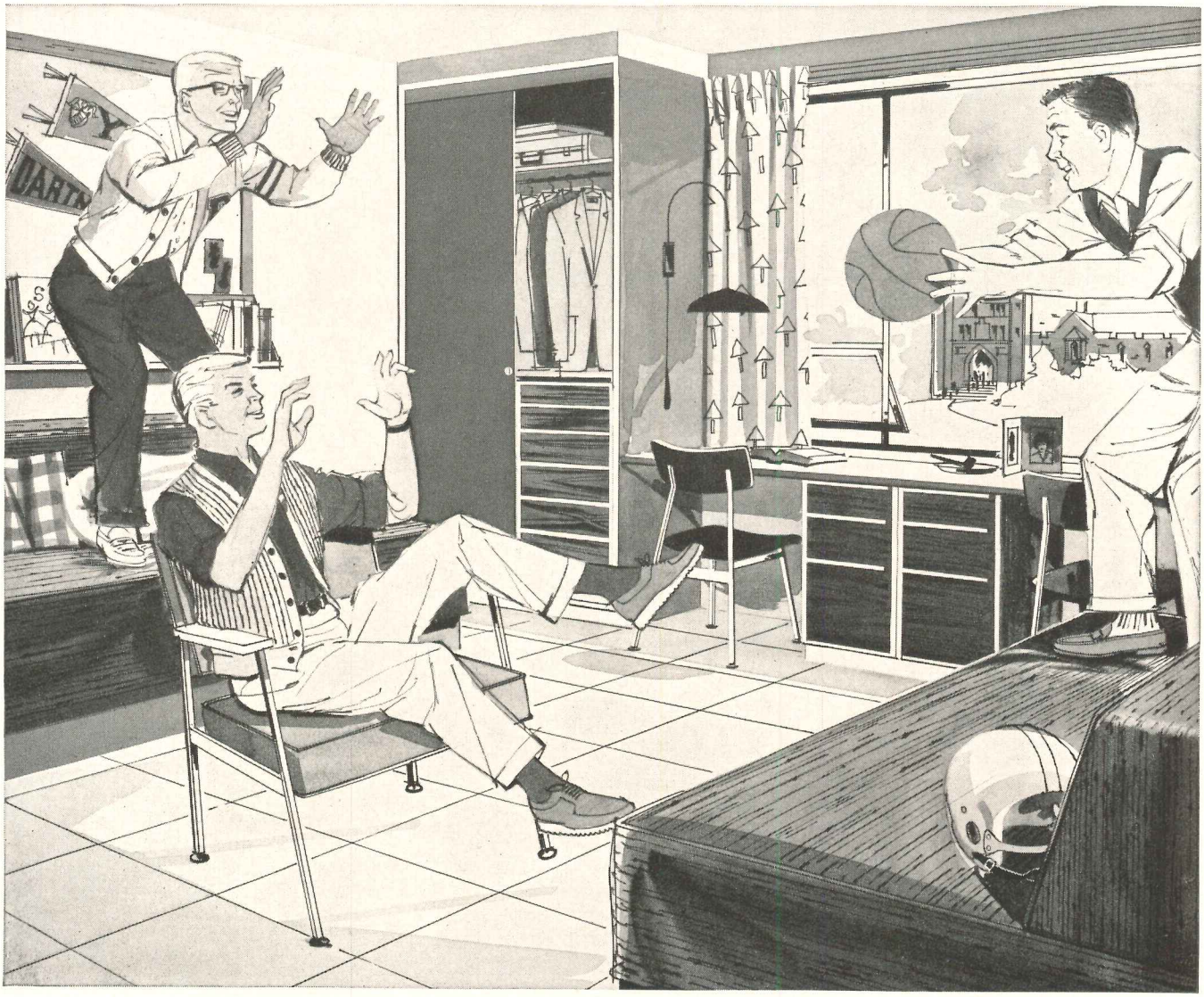

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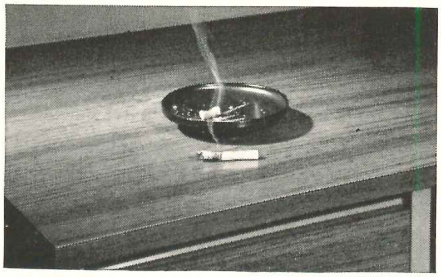
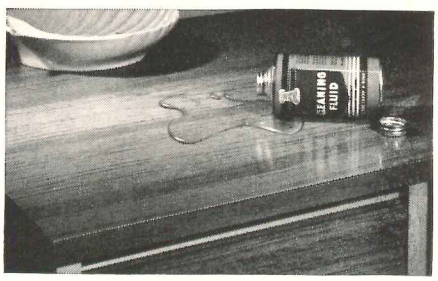
Dorm Line chairs take abuse—even spike-heeled shoes won't harm the tough Naugahyde upholstery. Welded steel frames withstand rough treatment.



Fiberesin desk and table tops easily pass the "cigarette burn" test. All Dorm Line units, with steel and Fiberesin construction, reduce fire hazards.



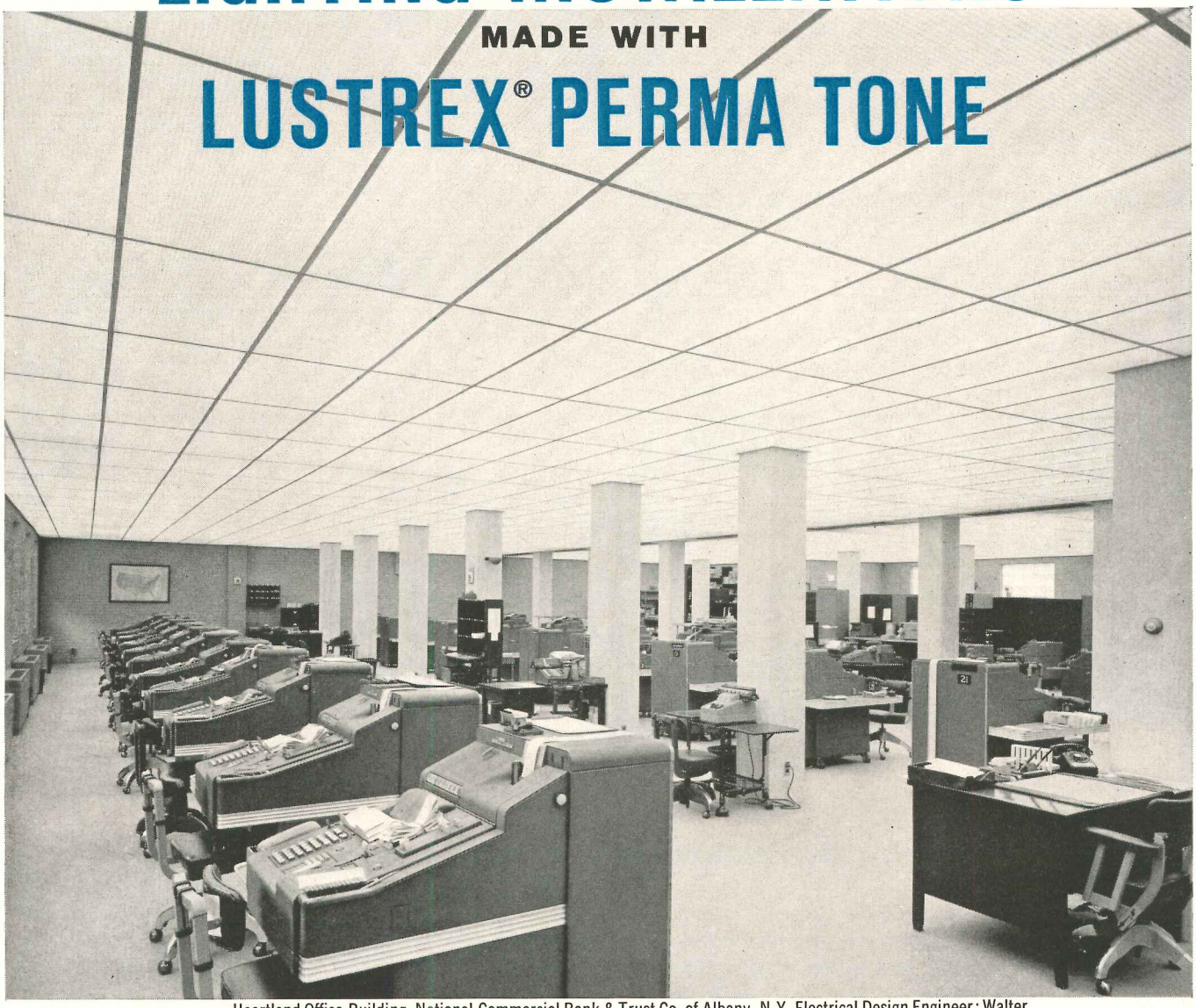
No marring or damage from spilled liquids or chemicals—such as cleaning fluid or nail polish remover. Simmons Dorm Line keeps its new look for years!

Spruce up the old . . . Accent the new

LIGHTING INSTALLATIONS

MADE WITH

LUSTREX® PERMA TONE



Heartland Office Building, National Commercial Bank & Trust Co. of Albany, N.Y. Electrical Design Engineer: Walter S. Stewman, Albany, N.Y. General Contractor: Rosch Bros. Electrical Contractor: H. A. Collman Electrical Co., Inc.

Luminous ceilings, luminaires, louvers, refractors, diffusers and modules made with Monsanto Lustrex Perma Tone Styrene have given years of service as a dramatic and effective source of light in hundreds of buildings of all types—both new and old.

In major renovation projects, these lighting installations are an economical and easy way to brighten up dark corners with strong, yet softly diffused illumination. Over-high ceilings can be brought down and unsightly beams and pipes can be masked behind a ceiling of bright new beauty. In new construction, lighting installations made with Lustrex Perma Tone give you a highly flexible means of creating unique decorative effects and accounts.

Fixtures made of Lustrex Perma Tone deliver uniform surface brightness and excellent color stability. Exceeding IES-NEMA joint specifications for ultraviolet light stabilized styrene, Perma Tone assures the whitest of whites or a wide range of molded-in clear, permanent colors. Dimensionally stable, they are also light in weight for easy handling, installation and maintenance. To make sure you get this combination of performance at an economical cost, specify installations made with Monsanto Lustrex Perma Tone.

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If you would like additional data on Lustrex Perma Tone in lighting, and the names of manufacturers of fixtures molded of Lustrex Perma Tone, send coupon below to Monsanto Chemical Company, Plastics Division, Room 818, Springfield 2, Mass.

Monsanto

MONSANTO CHEMICAL COMPANY, Plastics Division
Room 818, Springfield 2, Mass.

Please send me comprehensive report on general-purpose and impact Lustrex Perma Tone Styrene, and other data on styrene in lighting. Also list of manufacturers of lighting fixtures of Perma Tone.

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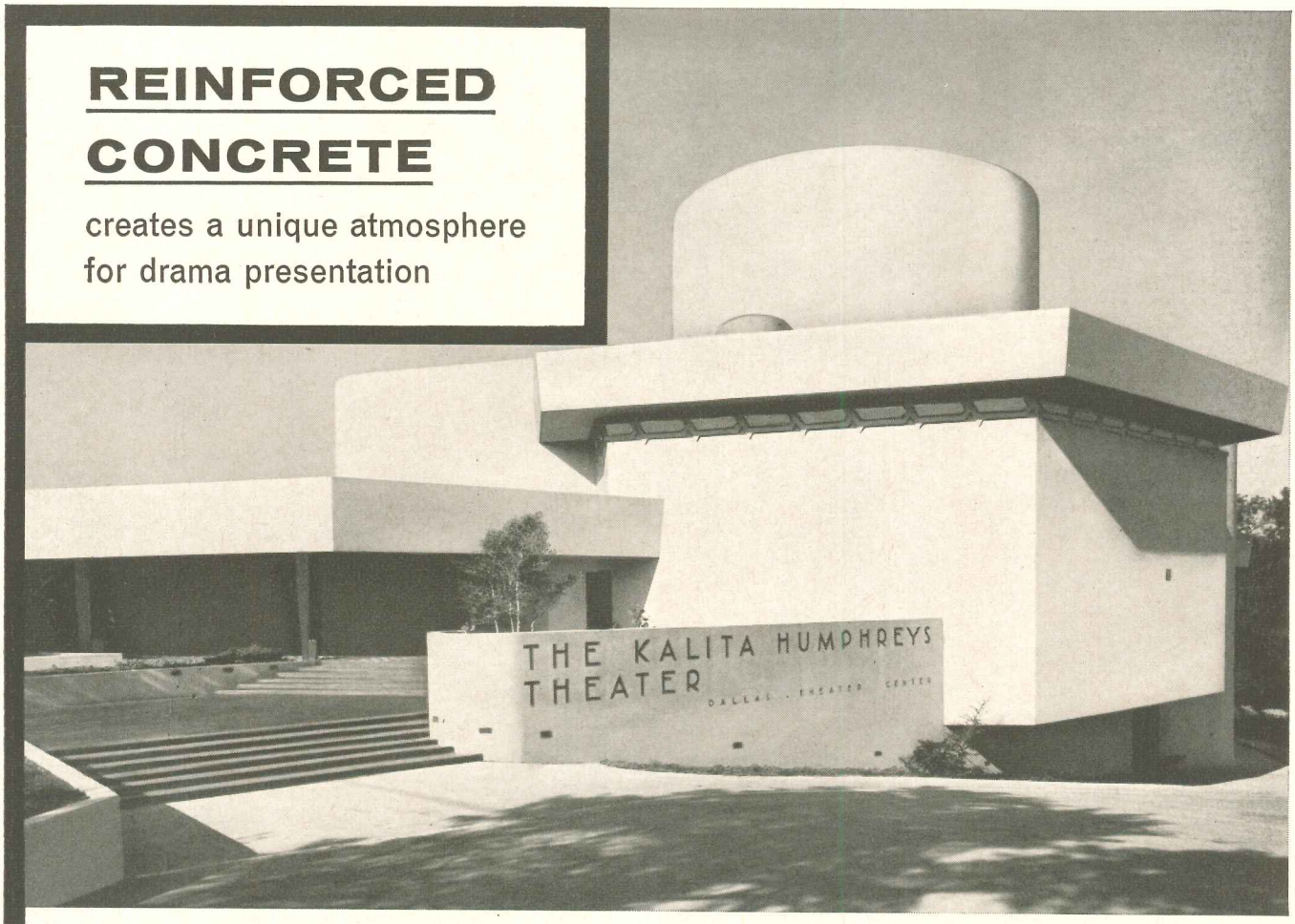
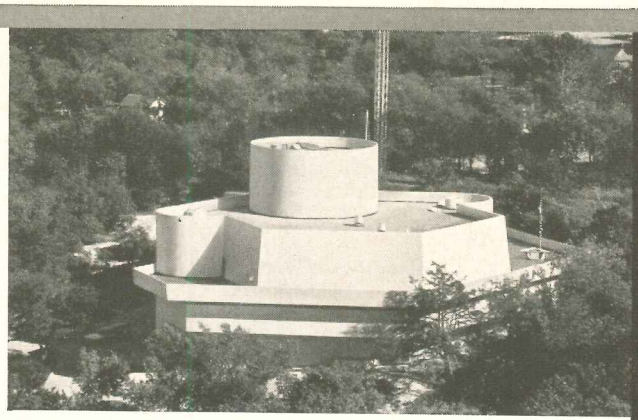
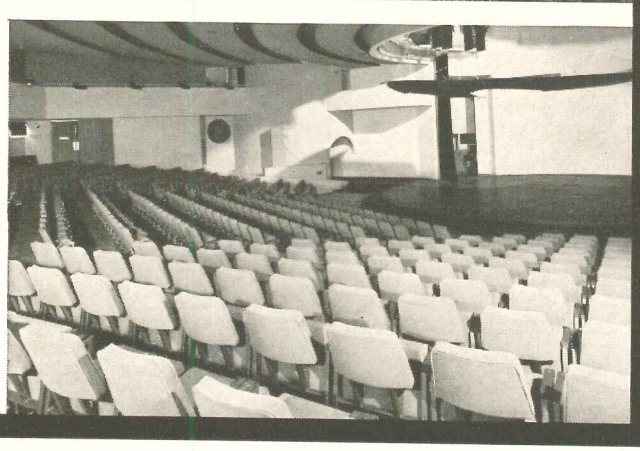


The Kalita Humphrey's Theater, Dallas Theater Center, Dallas, Texas
Architect and Engineer: Frank Lloyd Wright
Resident Architect: W. Kelly Oliver, Dallas
Contractor: Henry C. Beck Construction Company, Dallas

The plasticity of reinforced concrete was utilized to its fullest in achieving this unusual theater design. From the various levels of rock on which the building is situated to the huge circular reinforced concrete stage loft, the building is a study in cantilever construction. In the interior, there are no right angles. Sloping walls and offset angles keep the audience attention focused on the 40-ft revolving stage. Created by Frank Lloyd Wright, it has been called an "incredible combination of intimacy and spaciousness."

Today, in every type of construction, reinforced concrete is enabling architects and engineers to design with greater freedom. On your next project, be sure to investigate the many advantages of this highly flexible construction material.





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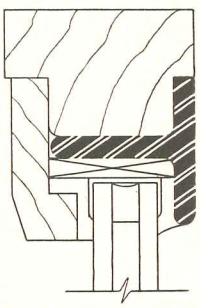

The welded steel T-section on all four sides of the 1¾″ Ponderosa Pine door panels gives the PELLA SLIDING GLASS DOOR its rugged strength and slim lines.

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engine power
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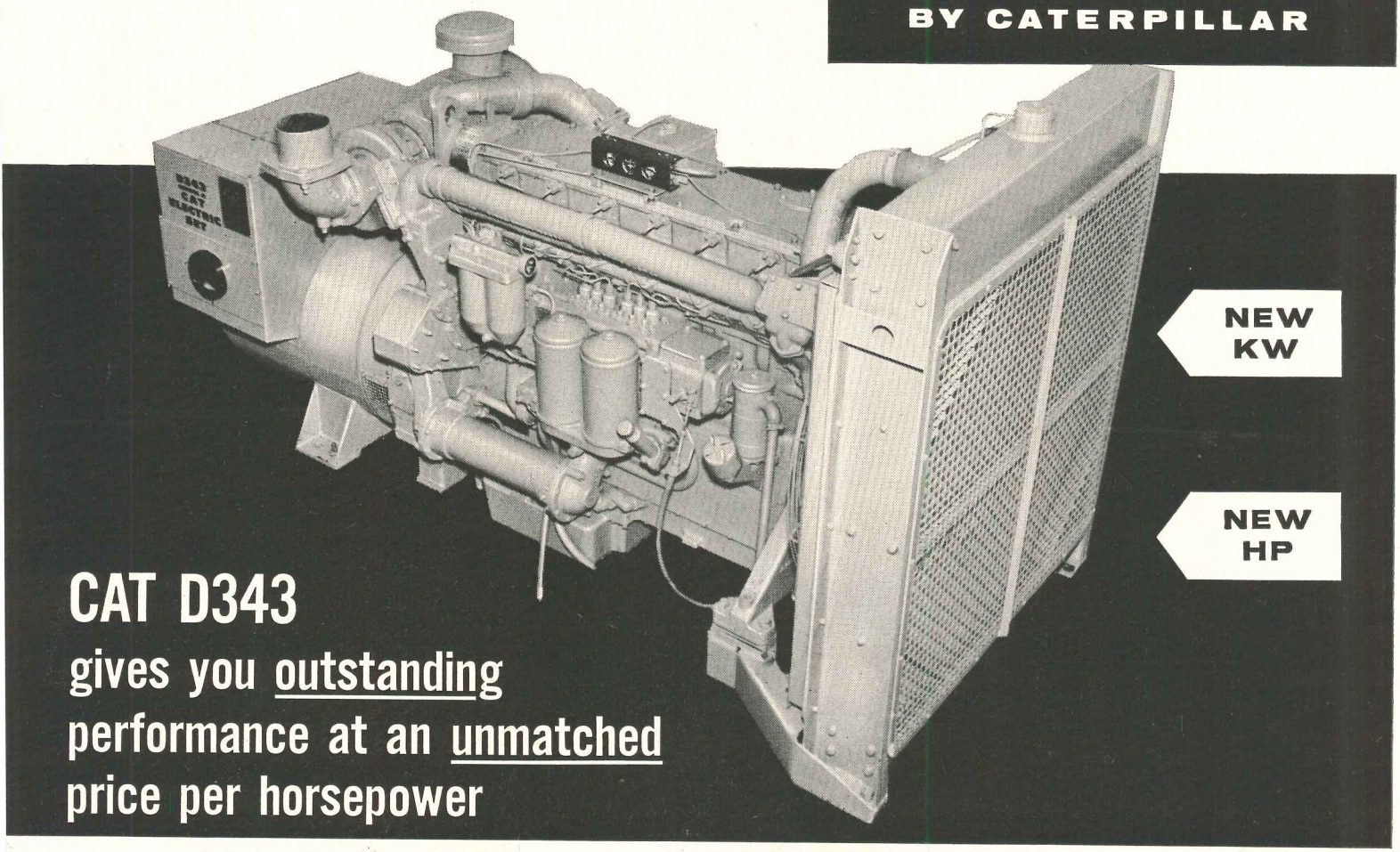

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Turbocharged only—360 HP maximum with electric set ratings to 200 KW.

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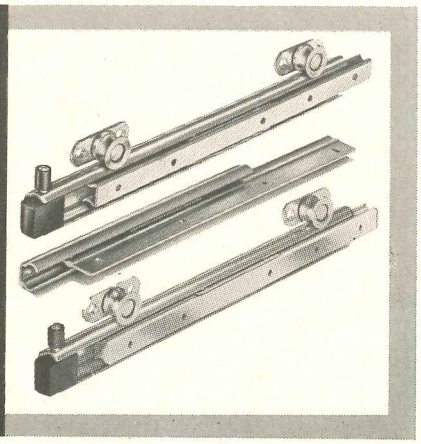
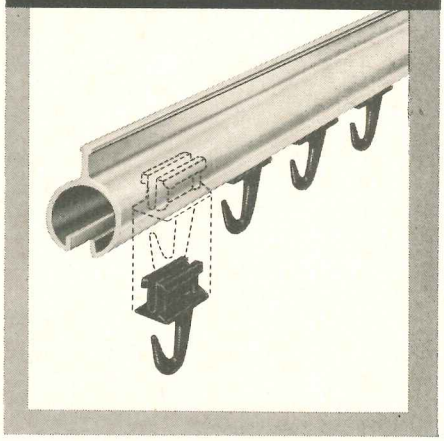


The attractive gold anodized closet rod is an exciting addition to closets. Efficient gliding operation, snap-in carriers, brilliant gold color and easy installation have found favor with architects.



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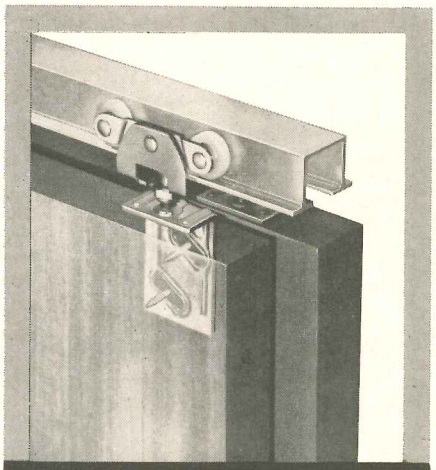
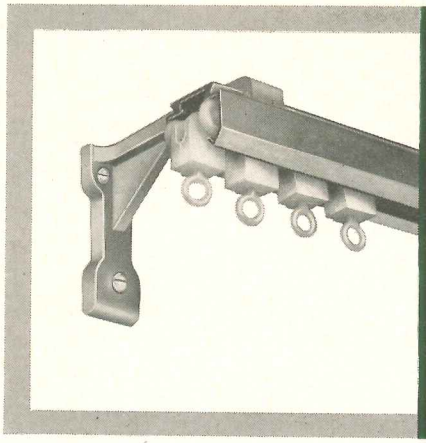


Doors, partitions, even walls can move on Grant Sliding Door Hardware The line recognized by architects as the broadest and most versatile. Recommended for every type of installation — without limitation as to weight, material or size of door.



Grant architectural drapery hardware has long been noted as the most highly engineered, dependable such line made: combining aluminum track with nylon accessories, it can be mounted to wall, ceiling, even mortised into ceiling.

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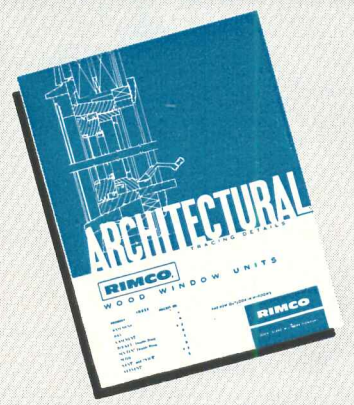

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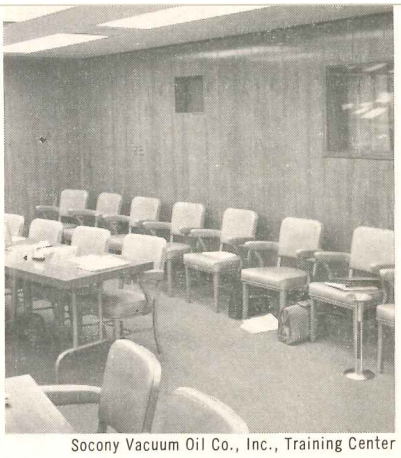
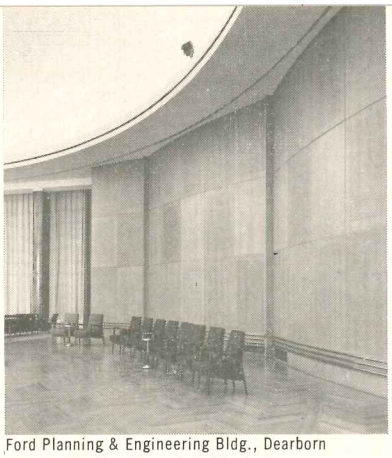
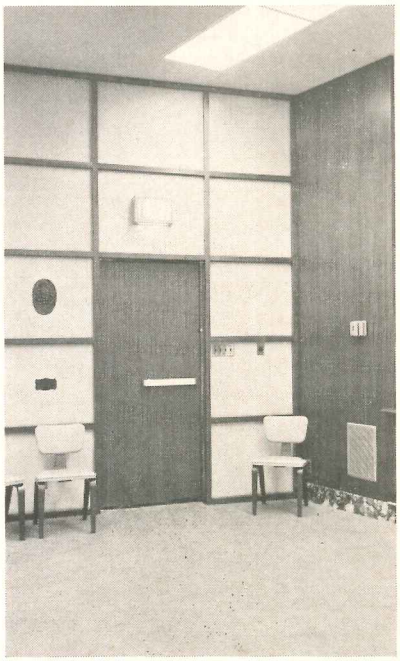


Socony Vacuum Oil Co., Inc., Training Center
New York, N. Y. J. Gordon Carr, Arch.



Ford Planning & Engineering Bldg., Dearborn
Vorhees, Walker, Foley & Smith, Arch.



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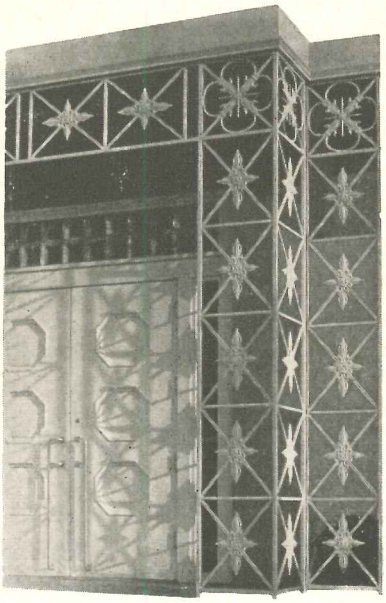

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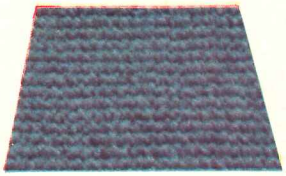
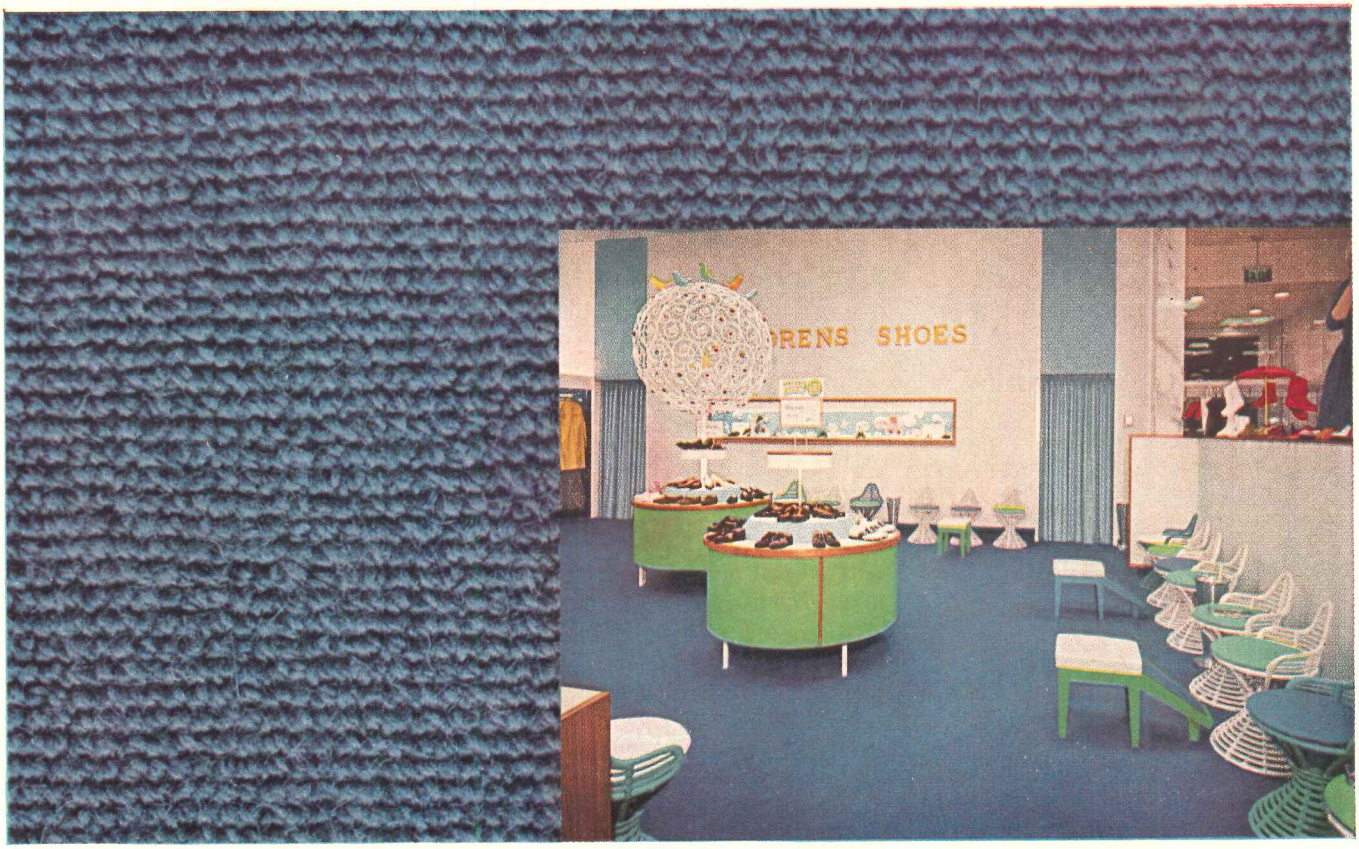
Why carpet  for a shoe department should be specified by the "feet"...



Shoe Department in the new Meier & Frank Co., Portland, Oregon. Architects: Welton Becket & Associates. Carpet by Gulistan (weave shown in actual size).

In a shoe department everybody looks down. The *right* carpet actually helps make a sale. For example, *solid color* enhances shoes. *Which* color? A cool blue or green—such as the subdued blue Gulistan shown here—best sets off warm leather tones. The close, tight *weave* gives more than long wear. It's easier to walk on. It shows the entire shoe. Shoes "set" high for a better view. *And,* this carpet's extra firmness, combined with extra depth of pile, make new shoes seem more comfortable.

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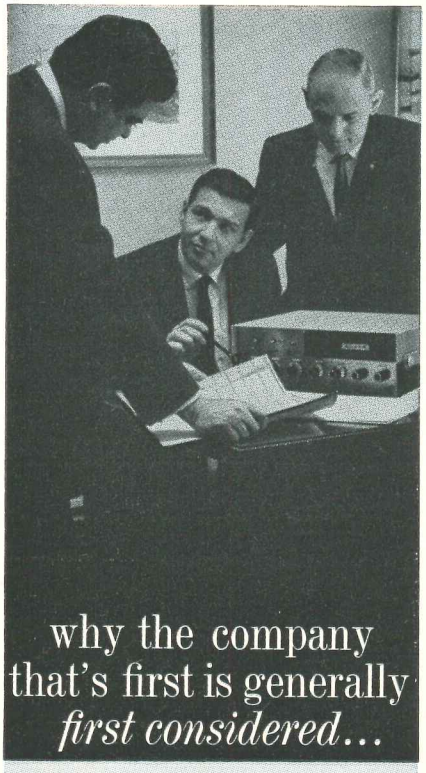
Or write: Commercial Department AR-3, A. & M. Karagheusian, Inc., 295 Fifth Avenue, New York 16, N. Y.



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The Record Reports

continued from page 67

tinue practicing at 416 Center St., Little Rock, Ark.

Thomas G. Murrell, James R. Walker and Norman C. Edge announce the formation of a new firm for the general practice of architecture and engineering under the name of Murrell, Walker and Edge, Architects and Engineers. The address is 117 West 21st St., Norfolk 17, Va.

Harry Loners and Francis G. Stroebe have resumed their partnership for the practice of architecture under the firm name of Loners and Stroebe A.I.A. This firm is the successor to Loners, Stroebe and Johnson and will have offices at the same location, 201 North 24th St., Billings, Mont.

The name of Sverdrup & Parcel Engineering Company has been changed to Sverdrup & Parcel and Associates, Inc. The firm's offices are in San Francisco, St. Louis, and Washington, D.C.

Samuel Paul & Seymour Jarmul, New York architects, announce the appointment of John R. Kubasek as administrative coordinator.

Metcalf & Eddy, architect-engineer firm of Boston, has announced the appointment of five staff members as senior associates. They are: Charles G. Hammann, Charles Y. Hitchcock Jr., Albert B. Rich, Morton Solomon and Ariel A. Thomas.

The name of the Detroit architectural firm of Harley, Ellington and Day, Inc. has been changed to Harley, Ellington, Cowin and Stirton, Inc. The change represents the addition of architects: Fred M. Harley, Julian R. Cowin and Malcolm R. Stirton.

New Addresses

Robert E. Alexander, F.A.I.A. and Associates, Architects and Planning Consultants, 612 South Flower St., Los Angeles 17, calif.

Douglas G. Raffen, B.E., A.R.A.I.A., Cheesman, Doley, Brabham & Neighbour, 78 Hutt St., Adelaide, S.A.

Albert M. Ruttenberg, A.I.A., Architect, 1744 N. Farwell Ave., Suite 204, Milwaukee 2, Wis.

Francis E. Telesca, A.I.A., Architect, 3170 Commodore Plaza, Coconut Grove, Miami, Fla.

Abraham Waronoff, A.I.A., 116 Delaware Ave., Detroit 2, Mich.

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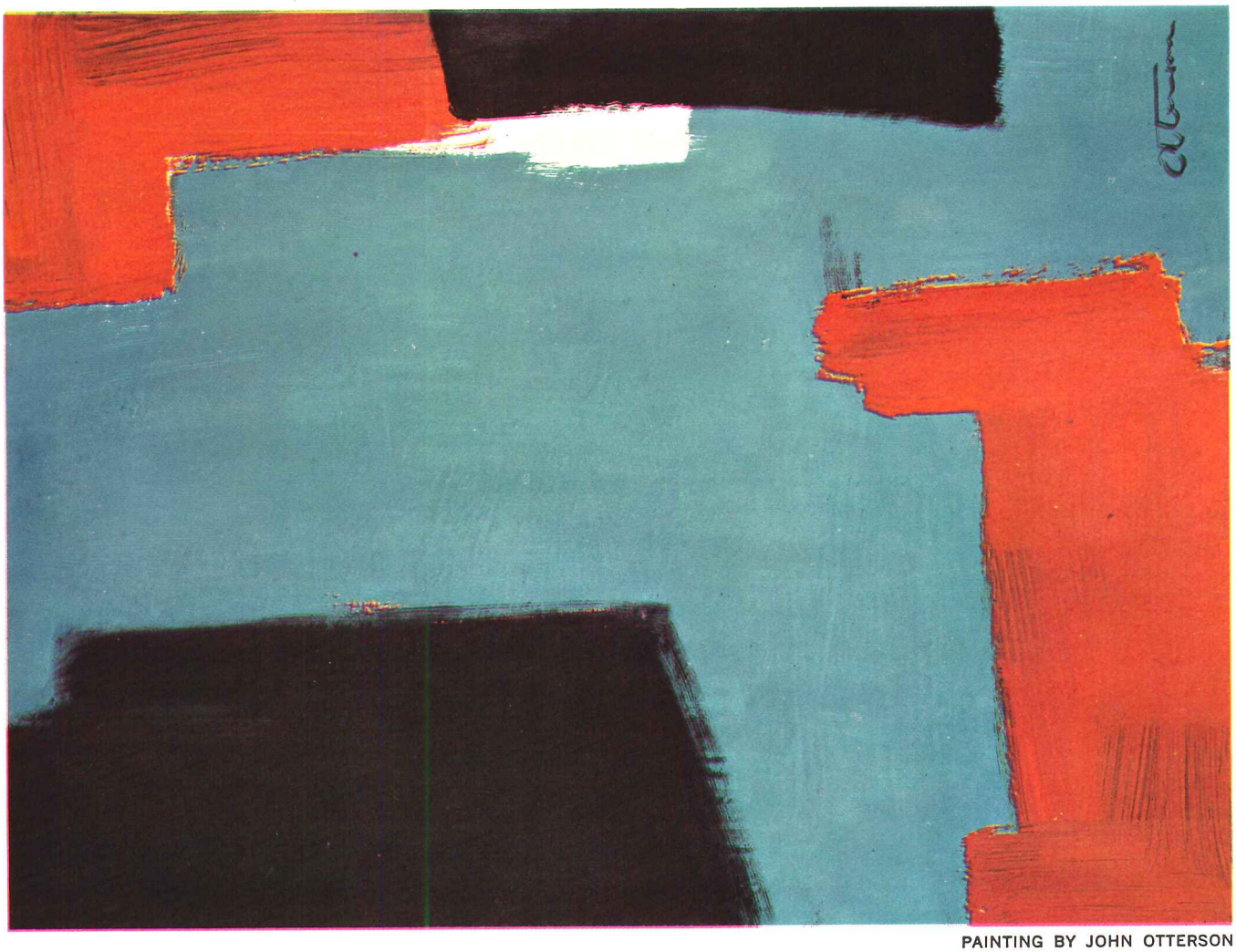


PAINTING BY JOHN OTTERSON

IDEA

Many bold concepts in contemporary architecture were inspired by the suggestive possibilities inherent in the medium of curtain wall. To produce a product which has so influenced the imagination of the architect is a privilege to be deserved. GRIDWALL itself is a bold concept since in our determination to produce a curtain wall system without flaws, it is a radical departure from all standard methods of curtain wall construction.

Engineered with built-in weather control, GRIDWALL HAS ESTABLISHED PERFORMANCE STANDARDS UNEQUALLED BY ANY OTHER CURTAIN WALL.

A manual containing comprehensive GRIDWALL details, specifications and test data is available on request.

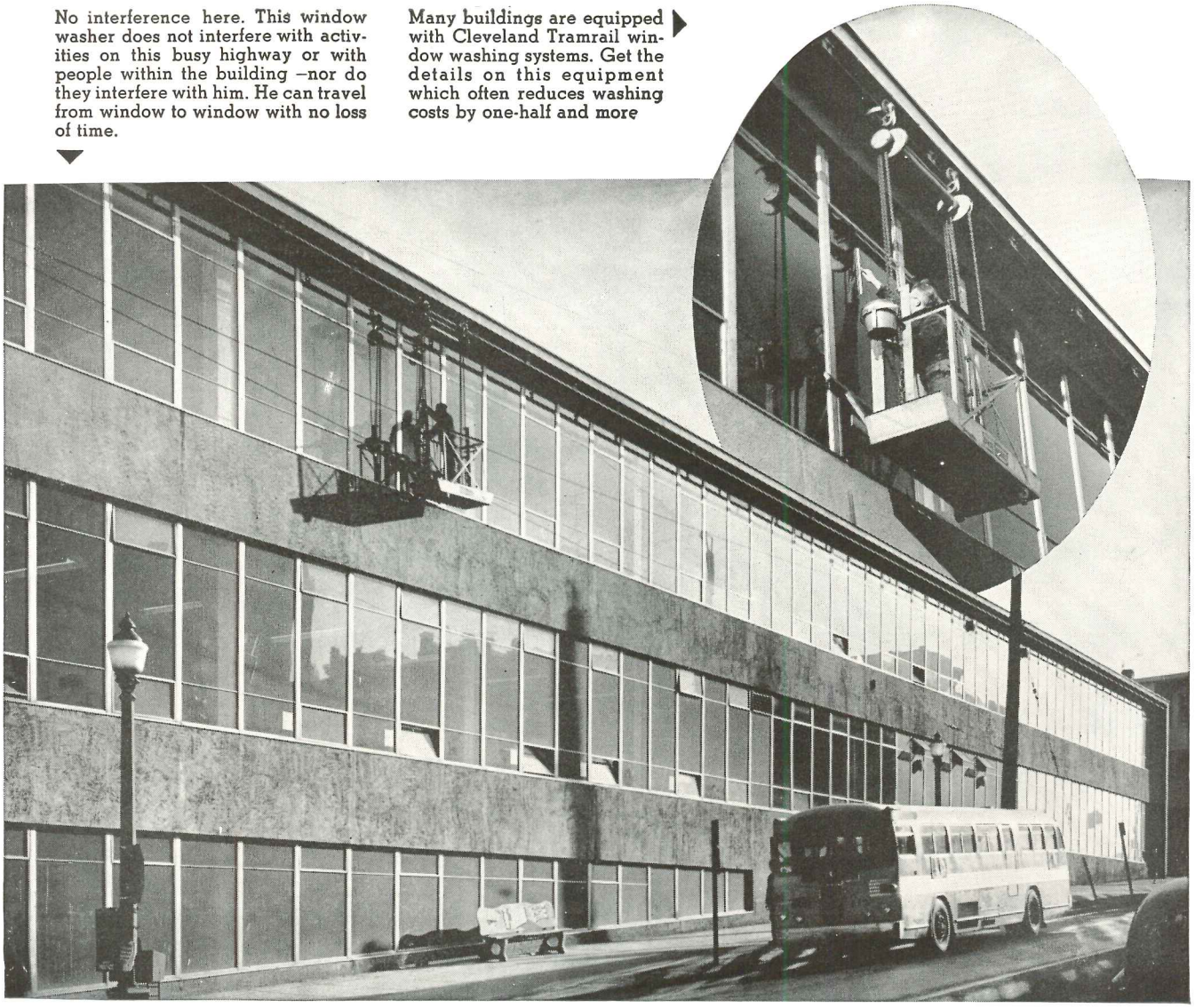
GRIDWALL®
CURTAINWALLS

GRIDWALL COMPANY • 7463 VARNA AVENUE • NORTH HOLLYWOOD, CALIFORNIA • TRIANGLE 7-3213

LOTS OF GLASS
...But Easily Cleaned

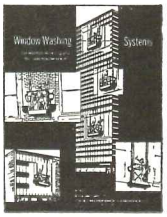
No interference here. This window washer does not interfere with activities on this busy highway or with people within the building –nor do they interfere with him. He can travel from window to window with no loss of time.

Many buildings are equipped with Cleveland Tramrail window washing systems. Get the details on this equipment which often reduces washing costs by one-half and more



IT'S a big job to wash a lot of windows—even when they can be readily reached from the ground. It's awkward and slow when a ladder must be used. It's really a problem when windows are three or more stories high.

If the windows are so designed, both sides may be washed from inside the building. But this is not usually desirable. Causes interruptions to others. In summer lets in heat. In winter lets in cold. Unbalances air conditioning.



For Further Information
Write For Booklet No. 2022A

Cleveland Tramrail Window Washing Equipment enables a man to reach all windows from a special cage suspended from an overhead carrier that travels on a track attached to the building. The cage is readily raised or lowered by the washer in the cage. If the equipment is motorized, lifting and traveling are done simply by pushing control buttons.

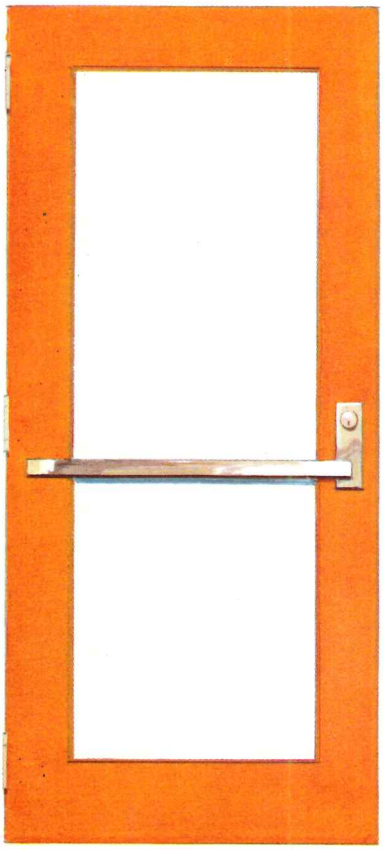
CLEVELAND TRAMRAIL
Overhead Materials Handling Equipment

CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 2515 E. 290 ST. • WICKLIFFE, OHIO

WHY IN THE WORLD WOULD ANYONE WANT ANYTHING BUT THIS NEW KIND OF DOOR!

New, low-cost concealed closures and seamless flush appearance give uncluttered look.

All styles available as complete package —including door, frame and hardware.



Brand-new colored metal, two-tone and high-fashion hardware. Custom look!

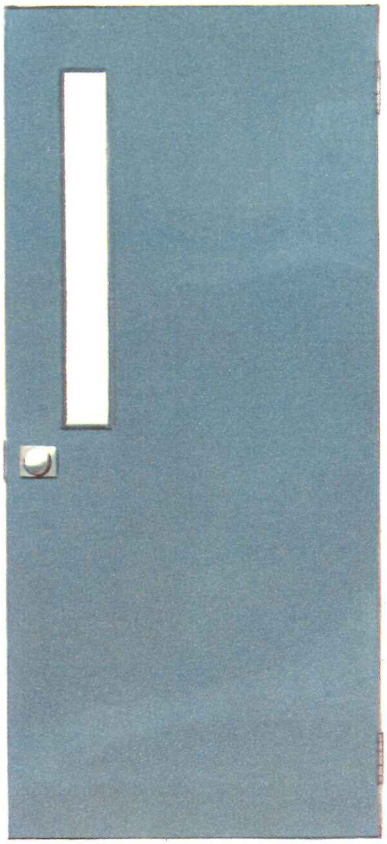
Tremendous variety of borrowed light, transom and sidelight arrangements—all standard!

Doors swing from rugged steel grid core—not face. Heavier gauge steel.

Pre-primed at the factory—ready to paint any color you choose.

IDEAL FOR SCHOOLS, HOSPITALS, DORMITORIES, OFFICES, FACTORIES, APARTMENTS, CHURCHES!

Complete line of Underwriters-labeled doors, frames and hardware!



Compare Fenestra's *new* line of hollow metal doors with any other wood or metal door on any basis of styling, design flexibility or cost

COMPARE THEM WITH WOOD DOORS

Styling. New 1⅜-inch doors match 1¾-inch doors exactly. Seamless, flush appearance. New glass light variations, including Slim Light. And now, the widest range of standard hardware ever offered in metal doors—colored metal, two-tone, and high-fashion hardware that matches in beauty anything available on custom doors.

Wear. Fenestra Hollow-Metal Doors won't warp, rot, swell or stick. They resist impact; stand up under heavy use. And they slash maintenance costs!

Cost. Fenestra doors are offered in a complete package: door, frame and hardware for *one* package price. Pre-primed, they save sizing and priming . . . can be painted any color. Fenestra doors cost less installed than comparable wood doors!

COMPARE THEM WITH OTHER METAL DOORS

Styling. Only Fenestra offers Twin-Door full flush styling—such a wide variety of glass-light stylings—so many choices in beautiful hardware. And only Fenestra offers the new 7′ 2″ modular height door as a standard product for cement-block buildings!

Flexibility. Twin-Door styling lets you specify less expensive 1⅜-inch doors, where indicated, without losing continuity of design. They match 1¾-inch doors; take the same hardware. Frame depths for all walls.

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MAKE A COMPLETE COMPARISON

See Sweets File 16b/Fe; call your Fenestra man (he's in the Yellow Pages); or write Fenestra Incorporated, Dept. AR-13, 2252 East Grand Blvd., Detroit 11, Michigan.

New, compact rectangular closer projects only 1⅝″ from face.

NEW! Neater looking 7′ 2″ modular door for cement block buildings—matches courses—reduces labor costs.

PRODUCTS FOR THE NEW AGE IN ARCHITECTURE

Fenestra
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Steel and aluminum curtain-wall systems

Steel and aluminum residential windows

Engineered windows for industrial, institutional and monumental buildings

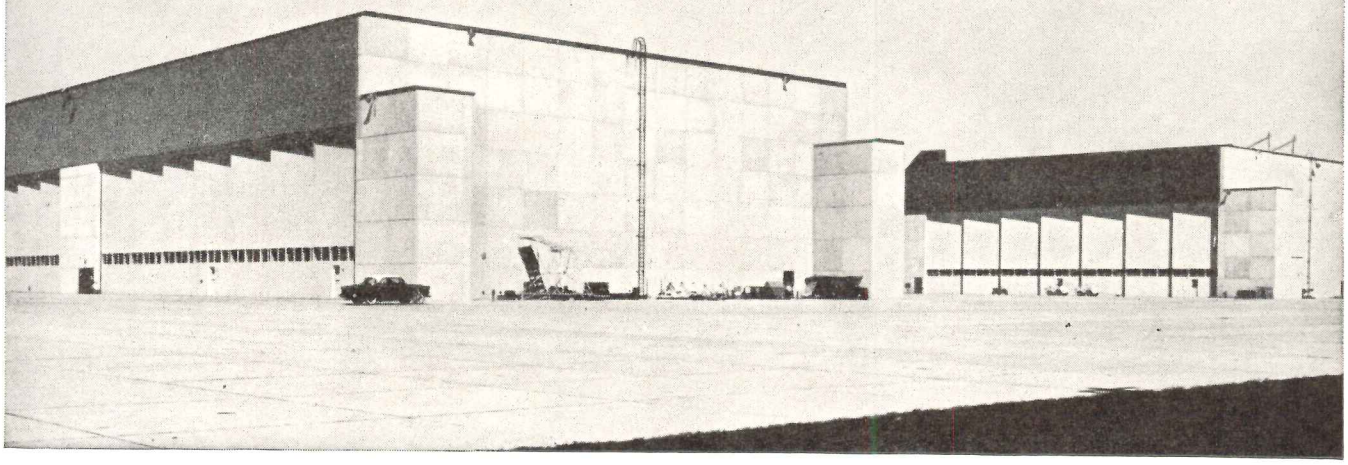
Hollow metal doors

Light gauge steel structural systems for floors, roofs, walls, and electrified floors

What do you want in an exterior wall material?

Beauty ECONOMY

COLOR Versatility



One of over two thousand 2½ ton sculptured wall panels supplied by A-M for McCormick Place, Chicago's new exhibition center.

Get them all with concrete

A-M WALL PANELS

Architects, as well as building owners, appreciate the decorative and money-saving features of precast A-M Wall Panels as part of an all-concrete element structure. Plain concrete or exposed aggregate panels, of load bearing or curtain type, speed construction and add unique beauty to industrial buildings and warehouses, schools, offices and apartment buildings.

Other precast concrete elements such as roof and floor systems, beams, columns and foundation grade beams may be combined with A-M Wall Panels to provide an infinite variety of architectural designs.

Write today for American-Marietta's colorful new brochure on wall panels and allied components of precast concrete.

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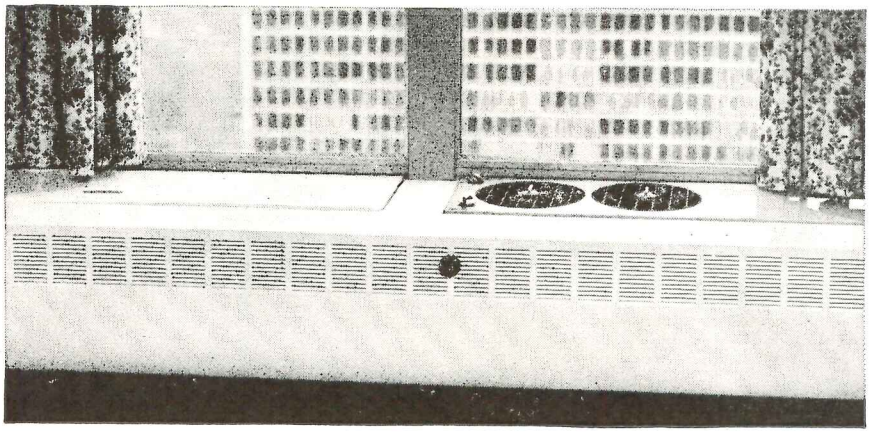
NEW

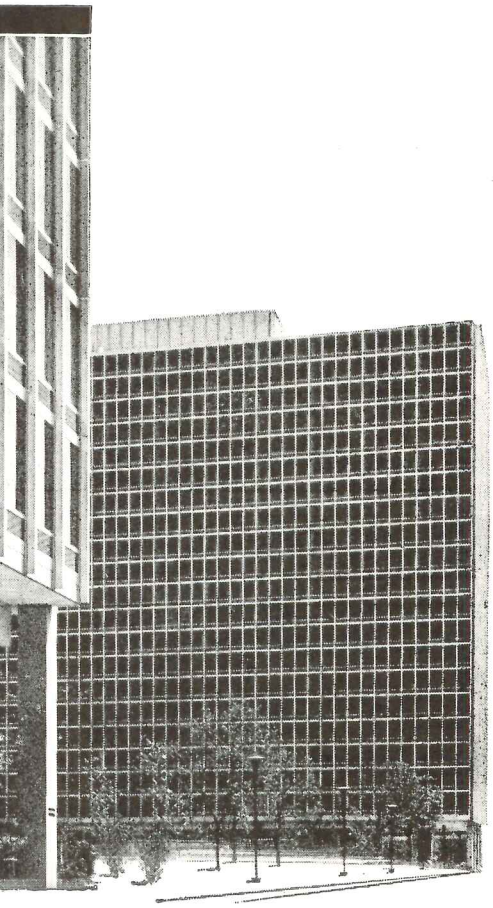
from Amana . . .

INDIVIDUAL ROOM AIR CONDITIONERS FOR CURTAIN WALL CONSTRUCTION!

Amana now brings to architecture a new product . . . and even greater freedom of design!

The new Amana "Curtain Wall" Room Air Conditioner . . . slim, compact, designed to easily and quickly slip into a ventilating cabinet beneath a window . . . makes possible self-contained air conditioning in a structurally integrated interior wall cabinet.





This Mies van der Rohe apartment complex in Newark, N. J. is an outstanding application of Amana "Curtain Wall" Room Air Conditioners.

INSIDE . . . The Amana "Curtain Wall" Air Conditioner has been held to minimum dimensions so the cabinet may be designed to fit any decor. Only a pair of decorative plastic grills reveal the unit. Even the sound level is lower than with conventional window units.

OUTSIDE. . . The same uninterrupted flow of design you created! Grill work blended in the curtain wall serves perfectly to exhaust heat. No trace of a room air conditioner, no obtrusion.

NEW ECONOMY AND CONVENIENCE . . . Amana "Curtain Wall" Air Conditioners add new design possibilities . . . Help keep initial building costs down. They also eliminate costly maintenance while providing greater versatility to owners and tenants. Amana's heritage of craftsmanship is proof of the quality, performance, dependability and value!

Amana®
BACKED BY A CENTURY-OLD TRADITION OF FINE CRAFTSMANSHIP

AMANA REFRIGERATION, INC.
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Gentlemen:
Please send me detailed specifications and information on Amana "Curtain Wall" Air Conditioners.

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"The 14-inch J&L Light Beam was the most economical member we could use for the spans," say Robert and Company Associates of Atlanta, the designers.

New Atlanta Airport Terminal...Designed

Air traffic comes in, all at once, in Atlanta, Georgia. Often there are as many as 60 planes in the terminal, all loading and unloading. Atlanta is one of the most important airlines transfer points in the country. Everyone wants to hold lay-over times to a minimum, so heavy traffic peaks are unavoidable.

The problem was to design a new terminal that would make life easy for passengers and airlines people. And do it as inexpensively as possible.

That's why the compact, 11-story central terminal building (with control tower on top) was conceived—with six long concourses splayed out like fingers to provide plenty of parking space for planes—with easy access everywhere for passengers and airlines personnel—with 8 special second-story "jetways" that telescope out from above the concourses to let jet passengers on and off with no stair climbing, high and dry out of the weather — and with underpasses beneath each concourse for baggage trains to run, safely separated from passenger walks.

Design Economy was gained in concourse construction and in stair stringer fabrication by selecting J&L lightweight structurals —14-inch J&L Light Beams for concourse and main terminal roof purlins—10-inch J&L Junior Channels for stair stringers.

Because they are easy to adapt, you can use J&L lightweight structurals in a wide variety of architectural designs. They reduce the steel tonnage you'll require. And because they're easy to fabricate, raise, and position, they cut labor costs.

To find out more about J&L lightweight structurals, call or write direct to *Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh 30, Pennsylvania.*

J&L STEEL

Jones & Laughlin Steel Corporation

3 Gateway Center, Pittsburgh 30, Pennsylvania

Steel

for the Jet Age with J&L Light Beams

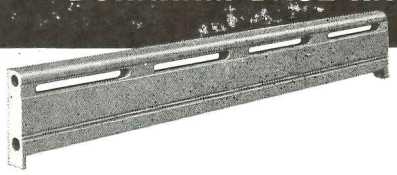
Key factor in concourse design was use of J&L 14-inch Light Beams as purlins. Span between rigid bents varies from 19′ 7″ to 24′ 0″. Formed metal decking, which supports insulation and built-up roofing material, is welded to the purlins. Purlins and girders also support a maze of concealed piping.

J&L 14-inch Light Beams and J&L 10-inch Junior Channels were used extensively throughout the new "Jet Age" Atlanta Airport Terminal. J&L 10-inch Junior Channels were used as stair stringers. J&L 14-inch Light Beams are purlins, mainly in two-story concourse sections.

FOR THE FINEST IN HYDRONICS, SPECIFY BURNHAM

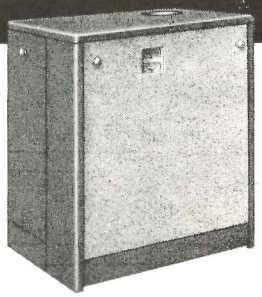
For over 87 years, Burnham engineers have set the pace in the heating field. That's why, today, the Burnham name is another word for quality in hydronic* heating.

BURNHAM BASE-RAY



BASE-RAY® is the very best in baseboard heating. It's slim, smart looking . . . yet durable and dent-proof because it's all cast iron. And now, BASE-RAY is available with damper for room-by-room temperature control. Approved by FHA for Series Loop Installation.

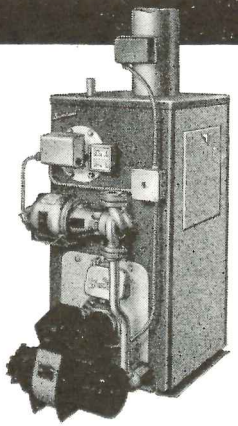
BURNHAM HOLIDAY GAS BOILERS



Here's ahead-of-the-time gas boiler design. Burnham's cast-iron HOLIDAY gives you fuel-saving Vertical Flue Travel, handsome two-tone enamel jacket, built-in tankless water heaters for hot faucet water, finest automatic controls, A.G.A. approval. Available in the larger 70 series or the popular 61 series.

BURNHAM JUBILEE OIL BOILERS

JUBILEE® gives you seven quality features: wet base construction that permits installation on combustible floors, fuel-saving Vertical Flue Travel, tankless heaters for year 'round hot faucet water, baked enamel finish, models for water and steam, two-piece combustion chamber and "JUBILEE-PAK" . . . shipped ready-to-go.



HYDRONICS: The science of heating with warm water

For profit and performance, use Burnham in every installation.

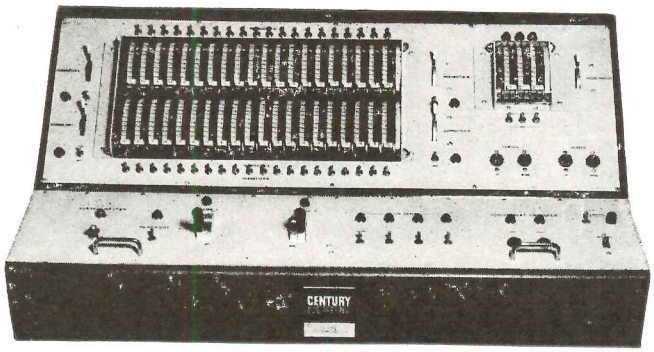
For new descriptive literature, write Dept. AR-31

Burnham Corporation

HEATING & COOLING DIVISION
IRVINGTON, NEW YORK

First in the manufacture of baseboard heating

I-B-R® MEMBER



Century's Control System

heart of the art of stage lighting . . .

Century, the largest manufacturer of electronic switchboards, offers its experienced engineering staff to assist architects and engineers in planning lighting control systems. C-CORE© units (Century's trade mark for back to back silicon controlled rectifier dimmers) are designed for flexibility, compactness and simplicity of operation. Of the many Century systems installed, the two-scene preset, shown above, with selective submastering permits the handling of many complex cues. This Century unit was recently installed at the Madison Township High School in New Jersey. Architect: Merchant, Seidel & Hickey / Engineer: Fred S. Dubin, Associates / Electrical Contractor: James H. Delaplaine, Inc.

Write for full descriptive literature

CENTURY LIGHTING

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1820 Berkeley Street, Santa Monica, Cal.
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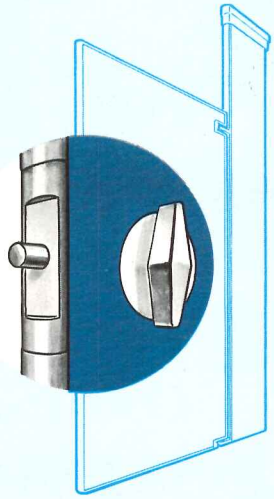
HIGHEST QUALITY

Lowest "IN-PLACE" *Cost*

Sanymetal's completely flush design makes possible lower costs all along the line. Integral, factory-installed hinge brackets; concealed flush latch and recessed flush mounted hinges mean far faster, easier installation on the job site. This unique flush design offers long, service-free life and lowest possible maintenance costs.

Ask your Sanymetal Representative or write direct for "Design Studies" by Sanymetal. This full-color collection of sketches was developed to help design rest room areas that are as attractive, comfortable and functional as the rest of the structure.



Exclusive concealed latch offers smooth, maintenance-free operation. Working mechanism is completely concealed to greatly facilitate installation and cleaning.

Sanymetal®

world's leading

producer of toilet partitions

1721 Urbana Road, Cleveland 12, Ohio

Nameplate identifies every compartment

Specify
economical, labor-saving

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FIBRE TUBES

for voids in
concrete construction

Over-all costs go down when you plan VOIDED concrete slabs

In a concrete slab, voids formed with SONOVOID Fibre Tubes displace non-working concrete at the neutral axis. Thus, while its structural strength is unimpaired, the *voided* slab weighs less and requires less concrete than a solid slab of similar load-bearing capacity.

But, savings accomplished with the voided system don't stop with the slab. They are reflected throughout the entire structure. Lighter weight voided slabs permit the use of smaller supports, foundations and footings; provide greater ease of cantilevering; and simplify the installation of utility lines during and after construction.

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Increase design flexibility and reduce overall costs with voids formed by Sonoco SONOVOID Fibre Tubes. Specifically designed for this purpose, SONOVOID Fibre Tubes are economical, easy to handle and place, and save time, labor, materials, and money. Available 2.25″ to 36.9″ O.D., any length—with or without end closures.

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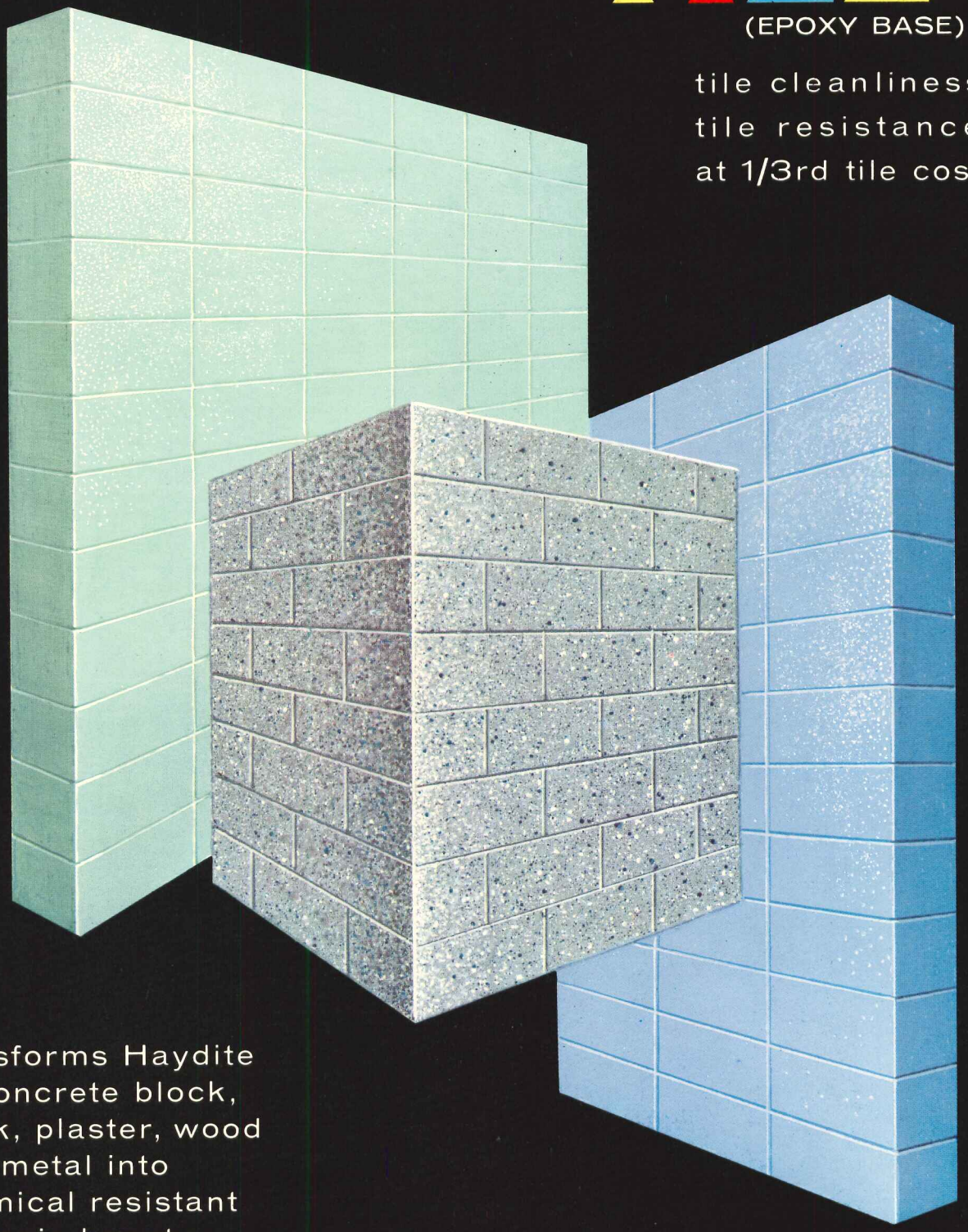
(EPOXY BASE)

tile cleanliness
tile resistance
at 1/3rd tile cost



transforms Haydite or concrete block, brick, plaster, wood and metal into chemical resistant hygienic beauty

Steelcote TILE-X is more sanitary than tile. This high density coating is continuous — eliminates porous dirt pockets and corrosion that take place in grouting. Steelcote Tile-X produces a surface that meets the most exact requirements for sanitary walls and ceilings. It provides architects, builders, and owners with an inexpensive, on-the-job application of tile beauty and cleanliness, eliminating the necessity of expensive construction and maintenance. In institutions and industry, wherever sanitation, attractive appearance and low-cost maintenance are desired, Steelcote Tile-X creates a hygienic, dust-free surface at nominal cost.

FOR SPECIFICATIONS WRITE

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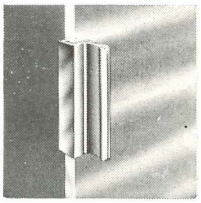
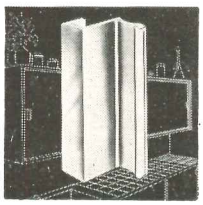
EPCO PULLS FOR DOORS...

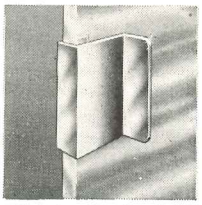
These new pulls are carefully designed to give lifelong beauty and service. Each fulfills all the necessary requirements for easy operation, clean and handsome appearance, ease of installation and freedom from maintenance worries.



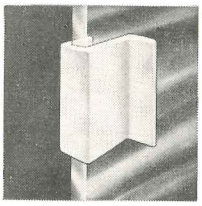
GP-14 pull for butt jam. Extruded aluminum, anodized finish. Spring tension holds to taped edge. 2¾" or 6' lengths.



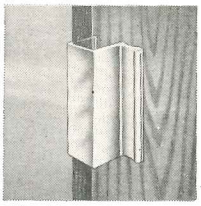
GP-15 pull for recessed jam. Extruded aluminum, anodized finish. Spring tension holds to taped edge. In 2¾" or 6' lengths.



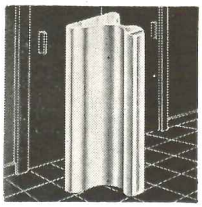
GP-16 pull of extruded aluminum, anodized finish. Snaps in place on taped edge. In 2¾" or 6' lengths.



GP-17 pull of hi-impact plastic. Standard color light gray. Spring tension holds to taped edge. In 4 7/16" and 6' lgths.



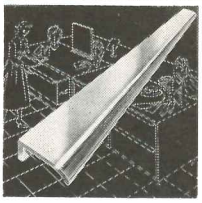
WP-18 Pull for ¾" doors. Extruded aluminum. Fastens with screws in back. In 2¾" and 6' lengths.



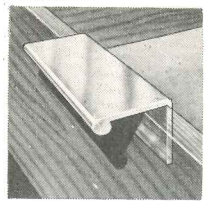
WP-34 Pull for panel doors. Extruded aluminum, anodized finish. Mounts easily. In 2¾" and 6' lengths. Other colors available.

EPCO PULLS FOR DRAWERS...

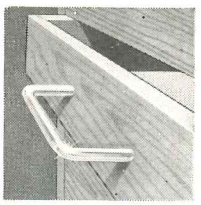
Here is a family of beautiful drawer and door pulls that answers all the problems for commercial furniture and cases. Many unique effects can be achieved . . . they install easily and quickly . . . they're sturdily designed to give years of trouble-free service.



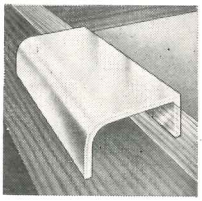
DP-40 Drawer pull. Extruded aluminum with anodized finish. In 3⅞" and 6' lengths. Other colors available.



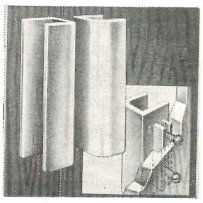
DP-41 Drawer pull. Extruded aluminum, anodized finish. Flat or angled to specification. 1½" and 6' lengths.



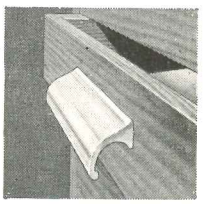
MC-42 Drawer pull. Aluminum. Slender and graceful with unusual heavy duty service. 3½ inches wide. Easy installation.



DP-43 Drawer pull. Extruded aluminum, anodized finish. For heavy service. In 3⅞" and 6' lengths. Other colors available.



DP-44 Drawer & door pull. Extruded aluminum, anodized finish. In 3⅞" & 6' lengths. Other colors available.



DP-45 Pull for drawers and doors. Extruded aluminum, anodized finish. Heavy duty. In 3⅞" & 6' lengths.

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higan State University's College of Education Building was completed ecember, 1958. Construction cost, $18.52 per sq. ft. Windows are glazed with *Thermopane*® insulating glass with Heat Absorbing Plate in the outer pane. Architects: Ralph R. Calder & Associates, Detroit, Mich.

College enrollment explosion is creating a new style of architecture

L O F GLASS
THE QUALITY MARK TO LOOK FOR

In 1945, Michigan State University had an enrollment of 5,622 students. Today, 21,000. By 1965, the prediction is 30,000. The only fitting description for such growth is *explosion.*

As students continue to seek admission, the problem is: how can the University put up new buildings, almost overnight, that will still be functional and up to date for years to come?

We decided to travel to East Lansing, Michigan, to find out.

Ralph R. Calder, AIA, of Detroit, who designed the new buildings shown in these pages, and the University's supervising architect, Donald Ross, met us. We toured the buildings and asked questions.

The new buildings, like the curricula and teaching methods here, reflect

Library at Michigan State is the fifth largest university library in the nation (in terms of floor space). Capacity: 1,000,000 volumes. Cost: $13.10 per sq. ft. Completed December, 1956.

the changes since the college was founded in 1855. They provide an up-to-date environment for learning.

Question: How long have you been designing buildings for Michigan State, Mr. Calder?

Mr. Calder: It has been my privilege for a number of years to have planned with President John A. Hannah buildings which reflect his vision for growth and academic achievement.

Question: Why did you break away from the traditional style of architecture seen in so many buildings here?

Mr. Calder: We are establishing new traditions here—traditions which will reflect for tomorrow the philosophy of this University.

Question: And how have you accomplished this?

Mr. Calder: The new tradition is one of efficiency—which means efficiency of space—maximum utilization of the physical plant. Technological development in materials and fabrication has advanced this goal; for example, the use of modular construction with insulated glass and spandrels packed with efficient insulating materials.

Students are comfortable at desks next to *Thermopane* windows in the University Library.

Donald Ross, supervising architect; and Ralph R. Calder, AIA.

Student Services Building, completed in July, 1958, cost $18.75 per sq. ft. Windows in this building are also glazed with *Thermopane* for heating and (proposed) air-conditioning economies.

Question: Can you be more specific about the use of insulating glass?

Mr. Ross: We wanted large areas of glass because we like an "open world" feeling. We have one of the most attractively landscaped campuses in the country—plantings of more than 3,200 different species of trees, vines and shrubs—naturally we want to enjoy them even when we're inside the buildings. Daylight is free, so why not make use of it to help light our interiors?

With all that glass, we figured insulating glass would pay for itself over the years. It cuts down heat loss through windows in winter, lightens the load on our central heating plant, and reduces heat gain in summer. We hope eventually to air condition these buildings. They're designed for it.

Mr. Calder: I might add that we get more utilization of floor space with insulating glass. In the Library, for example, you'll see students at desks right next to the windows. They're comfortable there because double glazing reduces downdrafts.

Question: How do you control sky glare?

Mr. Ross: We have drapes in the Library and Venetian blinds in the other new buildings. And the outer pane in the double glazing (in south and west elevations) is heat absorbing glass. It not only helps reduce sky glare, but makes the insulating glass even more efficient.

Question: Does all this glass impair the use of visual aids?

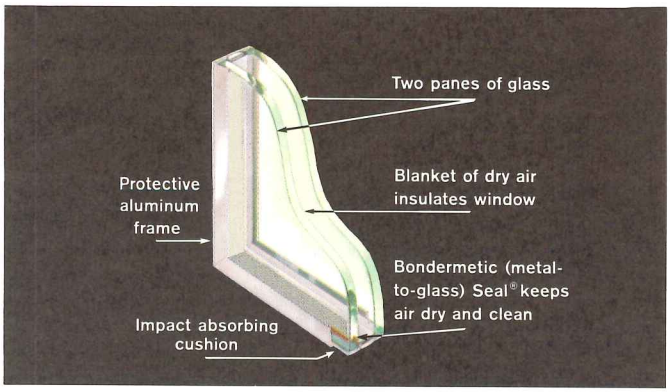
Mr. Ross: Not at all. In fact, all new classrooms are equipped for use of visual aids and closed-circuit television. Blinds and drapes are sufficient to subdue the daylight.

Question: How do the students and faculty like the new buildings?

Mr. Calder: Their enthusiastic use of the buildings demonstrates this.

LOF GLASS

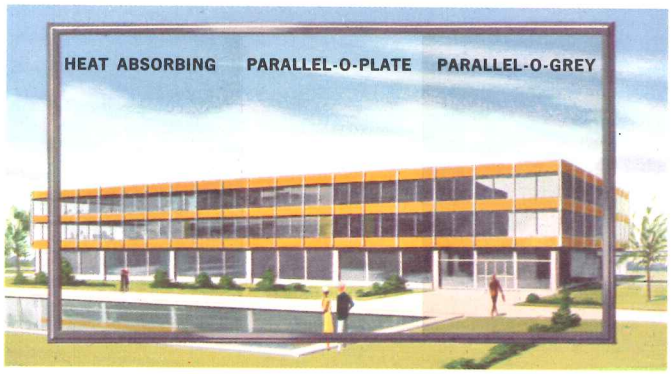
Windows in lounge in Student Services Building overlook older university buildings and a beautifully landscaped campus and gardens.



THERMOPANE®—For maximum comfort and for heating and air-conditioning economy, use *Thermopane* insulating glass in windows. Heat loss is cut in half, compared to single glazing. Drafts near windows are reduced. Outside noises are muffled. *Thermopane* is available with either a metal-to-glass *Bondermetic Seal®* and enclosed in an edge-protecting aluminum frame, or with a glass seal. *GlasSeal® Thermopane* is ideal for preglazed sash.

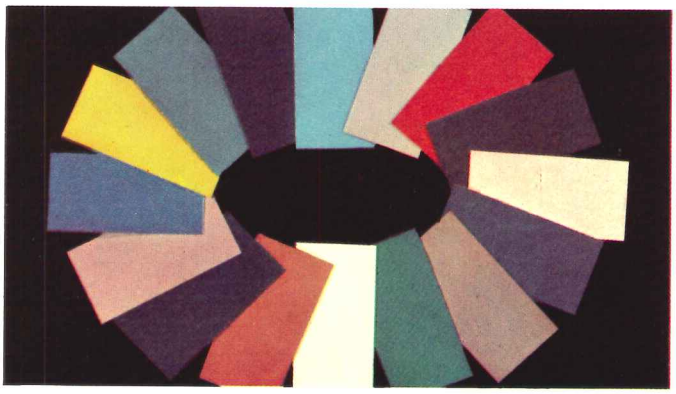
TUF-FLEX®—Tempered plate glass is 3 to 5 times tougher than regular plate glass of the same thickness. Yet it's as clear as any fine plate glass. If maximum resistance is reached, *Tuf-flex* disintegrates into relatively harmless, rock-salt-size particles.

Recommended for gymnasiums, entrance doors and sidelights, areas facing playgrounds . . . any area where students and missiles are in rapid motion.



THREE KINDS OF PLATE GLASS—To achieve clear vision from inside and a richer appearance on the outside, use twin-ground *Parallel-O-Plate®* Glass in windows. For control of sun heat and glare, use *Parallel-O-Grey®* or Heat Absorbing Plate. *Parallel-O-Grey* is neutral grey in color. Heat Absorbing Plate is pale bluish-green. Both effectively reduce transmission of sun heat to keep interiors cooler, but *Parallel-O-Grey* is more effective in reducing glare.

MIRROPANE®—Wherever it is desirable to observe people without their knowledge, *Mirropane*, the "see-thru" mirror, is the answer. On the brighter side it's a mirror that reflects objects in the room. From the darkened observation room, it's a window you can see through, but you won't be seen. *Mirropane* can now be made of *Parallel-O-Grey* to provide "see-thru" vision with light differentials as low as 3 to 1 between rooms.



VITROLUX®— Used instead of masonry as an exterior facing material, also for interior partitions. Rich color, fused to the back of this clear, heat-strengthened plate glass, adds youthful beauty and cheerful character to any structure. It is resistant to weathering, crazing and checking. Standard maximum sizes of *Vitrolux* panels go up to 48″ x 84″. Special orders up to 60″ x 84″. Thickness: ¼″ plus 1/64″ minus 1/32″. Sixteen standard colors, plus black and white. Also in nonstandard colors, subject to manufacturing limitations.

For information on these L·O·F products, refer to Sweet's Architectural File 26-A, or call your L·O·F Distributor or Dealer (listed under "Glass" in the Yellow Pages). Or write to Libbey·Owens·Ford Glass Co., 811 Madison Ave., Toledo 1, Ohio.

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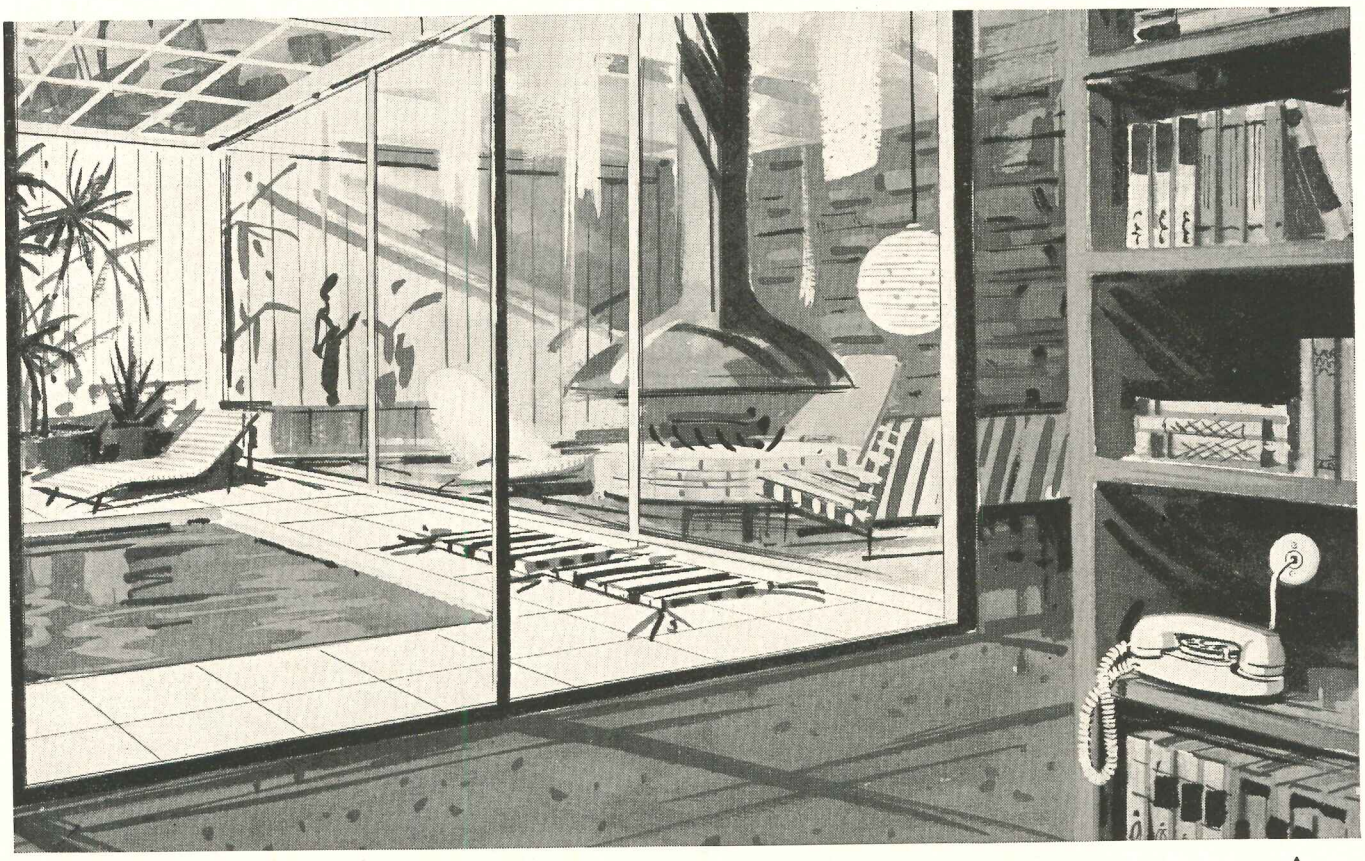
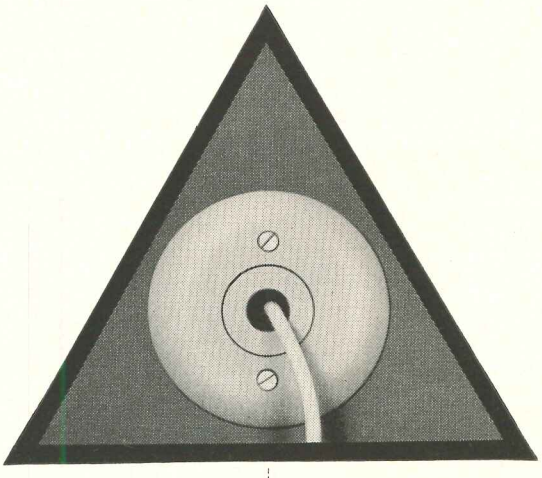


For details of home installations, see Sweet's Light Construction File, 11c/Be.



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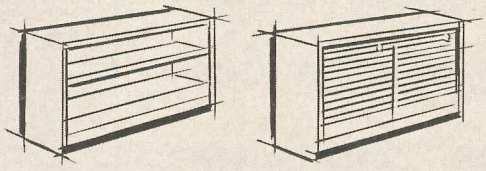

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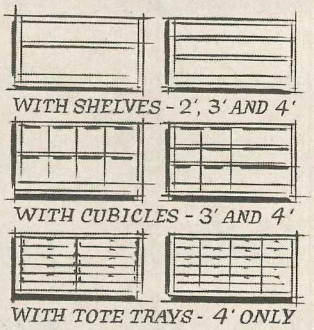
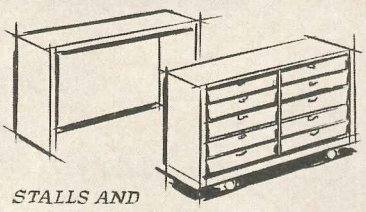
CHOICES OF SIX COLORS, VARIED



WITH SHELVES - 2', 3' AND 4'

WITH CUBICLES - 3' AND 4'

WITH TOTE TRAYS - 4' ONLY



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COUNTER TOPS
TO HOLD THE
MOBILES, AND
FOR WORK SPACES

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OPEN OR CLOSED - 4'
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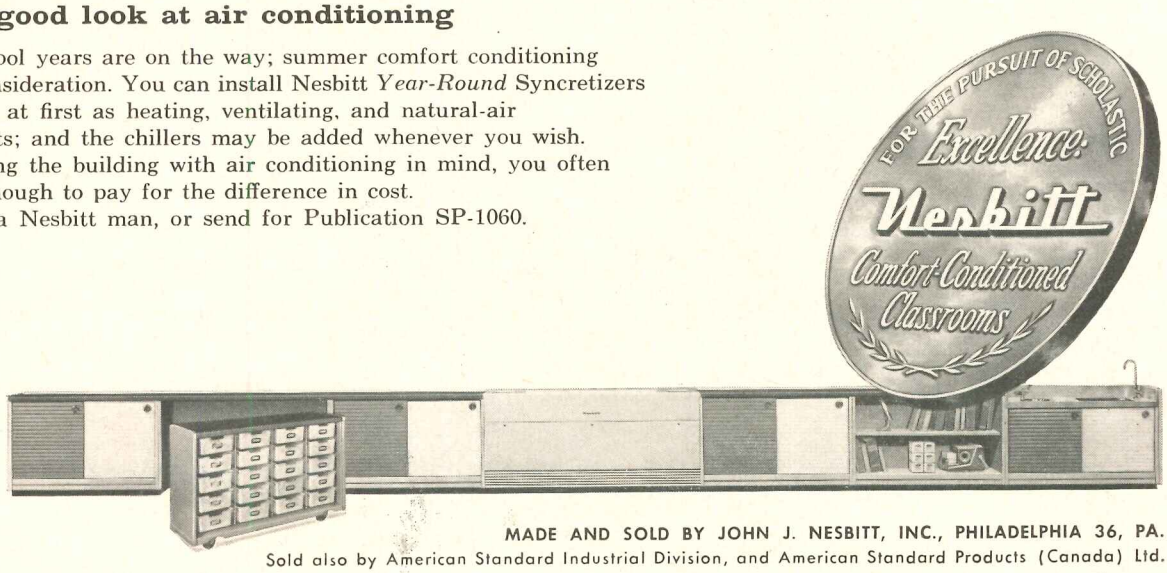

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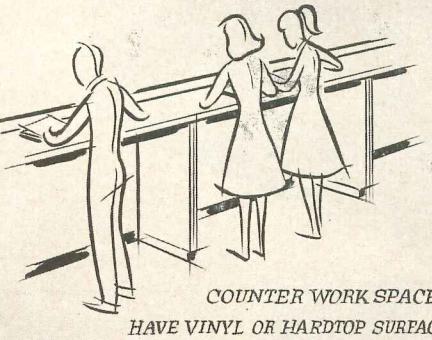
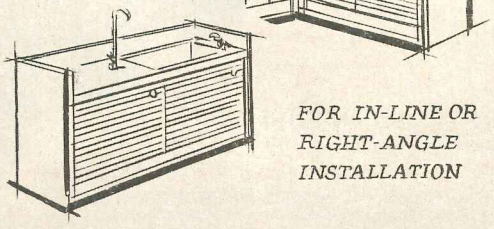
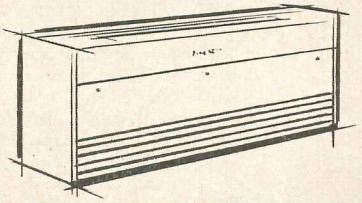


COUNTER WORK SPACES HAVE VINYL OR HARDTOP SURFACE

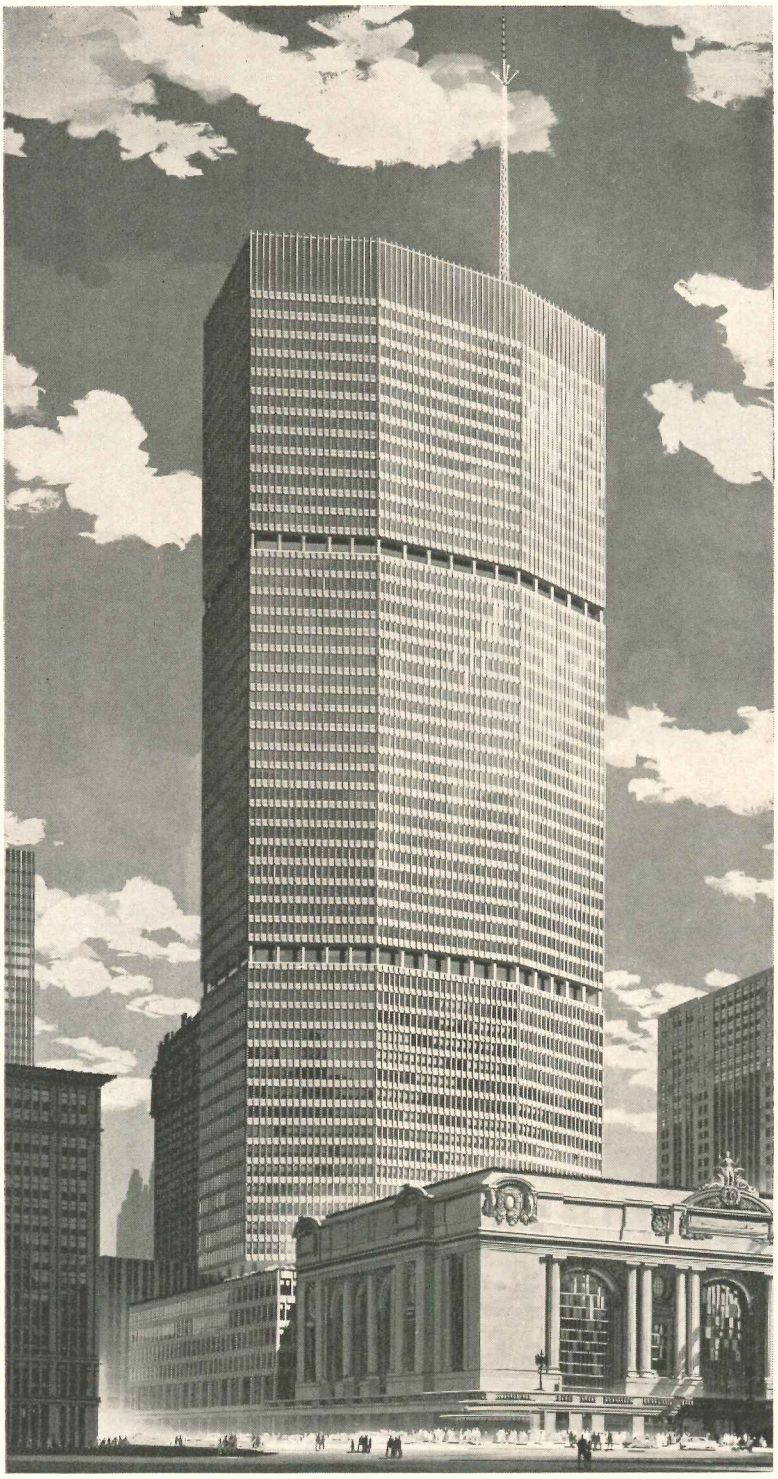
SINK AND BUBBLER CABINETS 4' LENGTH



FOR IN-LINE OR RIGHT-ANGLE INSTALLATION



ALL CABINETS ARE FOR INTEGRATION WITH THE NESBITT UNIT VENTILATOR OR AIR CONDITIONER



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Pan Am Building, the world's largest commercial office building, is scheduled for completion in late 1962. Rising 59 stories tall, on a site directly behind New York's Grand Central Station, it will house a population of 25,000 people working in nearly 22,000,000 cubic feet of air-conditioned comfort.

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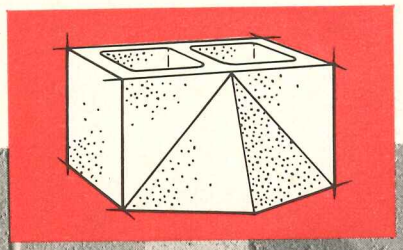

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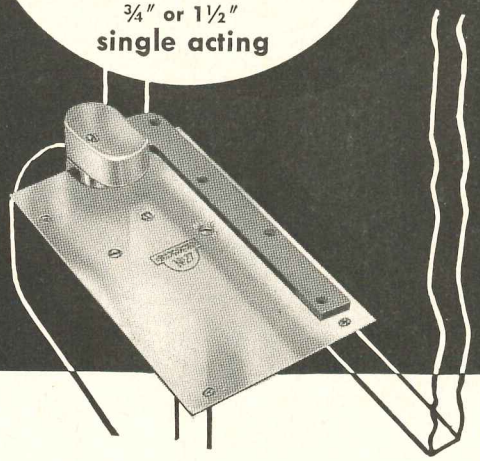

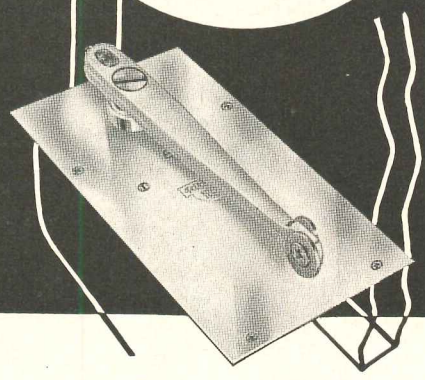

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For the first time, a floor type door closer that offers all these adjustment possibilities, after installation. Easily accessible adjustments at the floor make it possible to adjust for EXACTING variations from slow to fast closing, from gentle to firm latch pressure, from very light to very firm back-check resistance . . . yes, even the hold-open can be changed whenever you wish from automatic hold-open to non-hold-open or vice versa simply by turning a set-screw in the floor plate. The No. 27 and No. 28 offer a veritable control-panel for optional local adjustment of door opening and closing action.

mechanism *entirely new* on nos. 27 and 28 series but easily interchangeable with RIXSON nos. 25 and 26 and closers of similar design and size.

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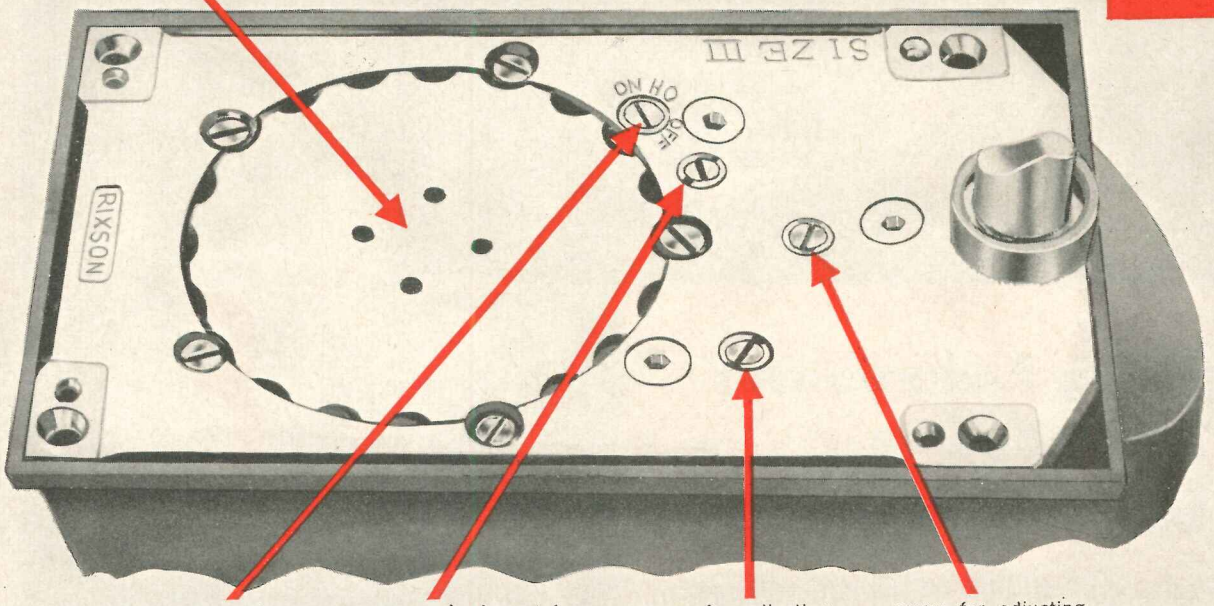


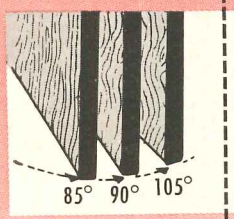
"On-Off" hold-open selector screw for setting at either automatic hold-open or non-hold-open.

screw adjustment for changing back-check pressure from very light to very firm.

screw for adjusting closing speed of door from open to 15°.

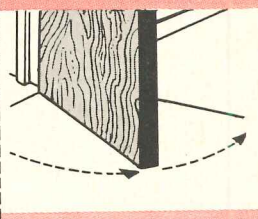
screw for adjusting latching speed of door from 15° to fully closed.

complete, *EXACT* adjustment of every control



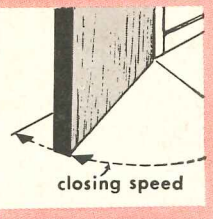
positive dead stop

A positive door stop is built in to stop the door at choice of any one of three factory-set positions—85°, 90° or 105°—specified when the closer is ordered.



hydraulic back-check

A hydraulic resistance slows the door's opening action during the final half of the opening swing. This back-check is always easily adjustable to vary from light to firm.



2 closing speeds —independently adjustable

The closing speed from open to approximately 15° can be varied by one adjustment and the latch speed from 15° to closed position by another.

3 HOLD-OPEN OPTIONS

a. NON-HOLD-OPEN
When specified, furnished without hold-open. Door stops at choice of three factory-set positions: 85°, 90° or 105°.

b. AUTOMATIC HOLD-OPEN
When specified, furnished with automatic hold-open. Door stops and holds automatically at choice of three factory-set positions: 85°, 90° or 105°.

c. SELECTOR (on-off) HOLD-OPEN
When specified, furnished with on-off selector screw. When the selector screw is turned to "ON", the door stops and holds automatically at choice of three factory-set positions: 85°, 90° or 105°. When the selector screw is turned "OFF", the door stops at the specified factory-set position and the hold-open does not function.

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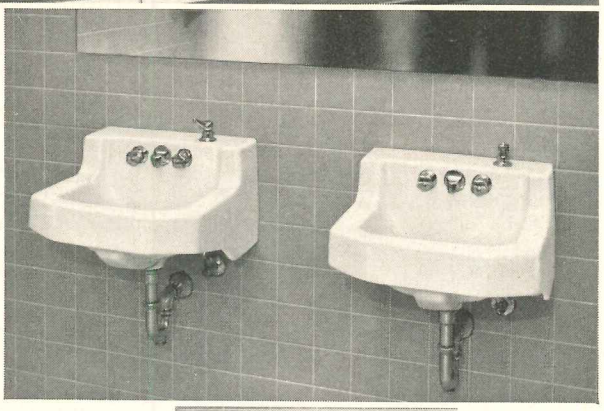
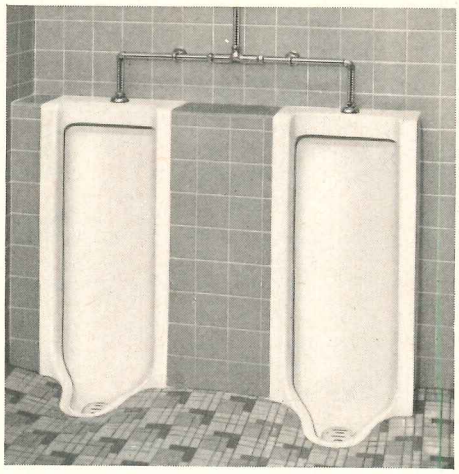


Juneau vitreous china lavatories, K-1623-A.

Kingston closet, K-4420-ETA.



Branham urinals, K-4881.

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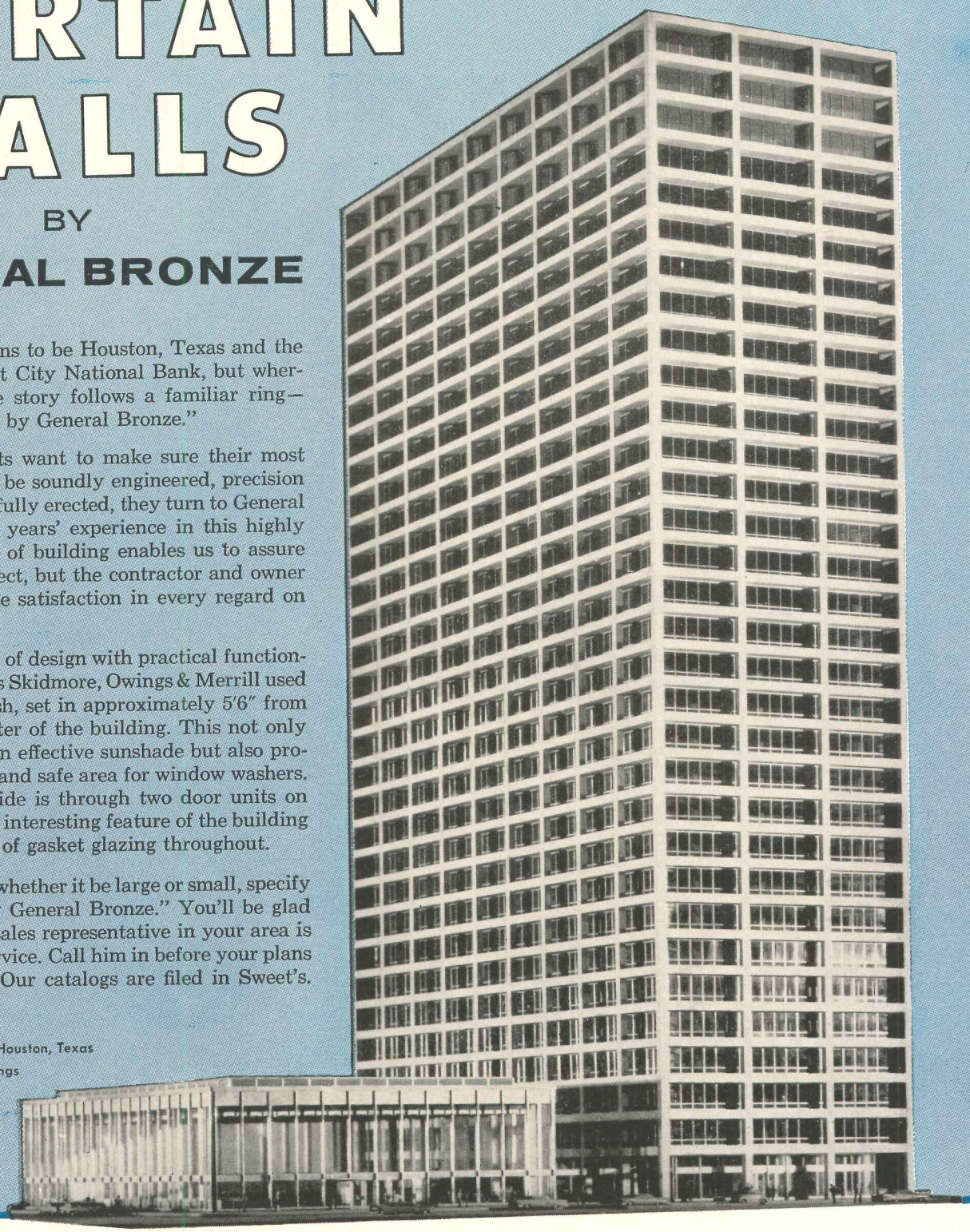

First City National Bank, Houston, Texas
Architects: Skidmore, Owings & Merrill
Contractor: W. S. Bellows Construction Co

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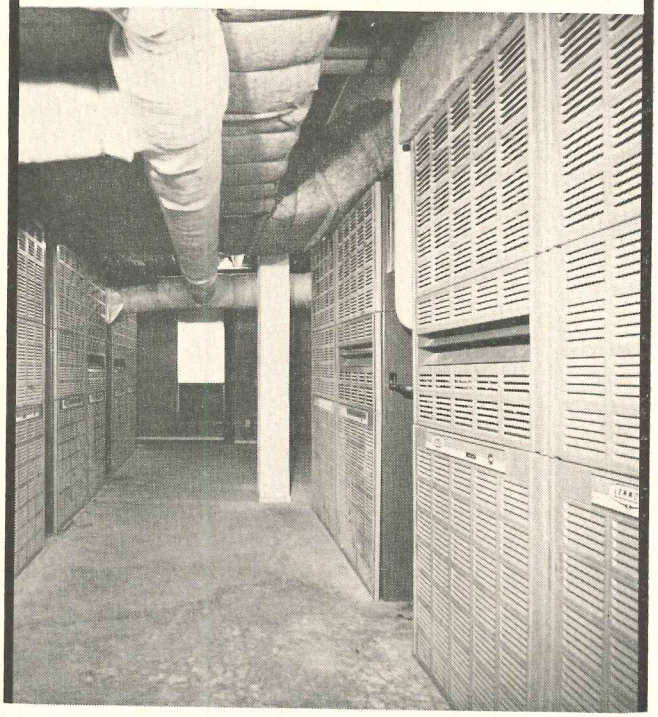

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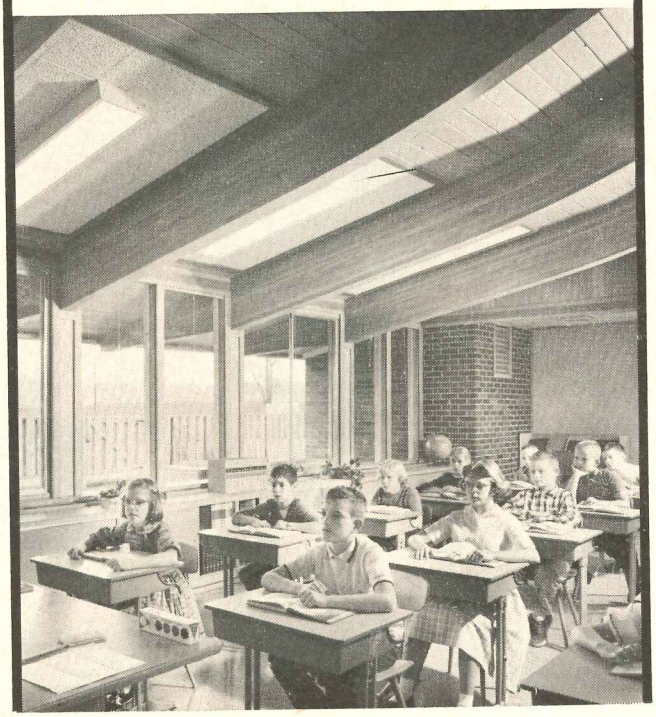

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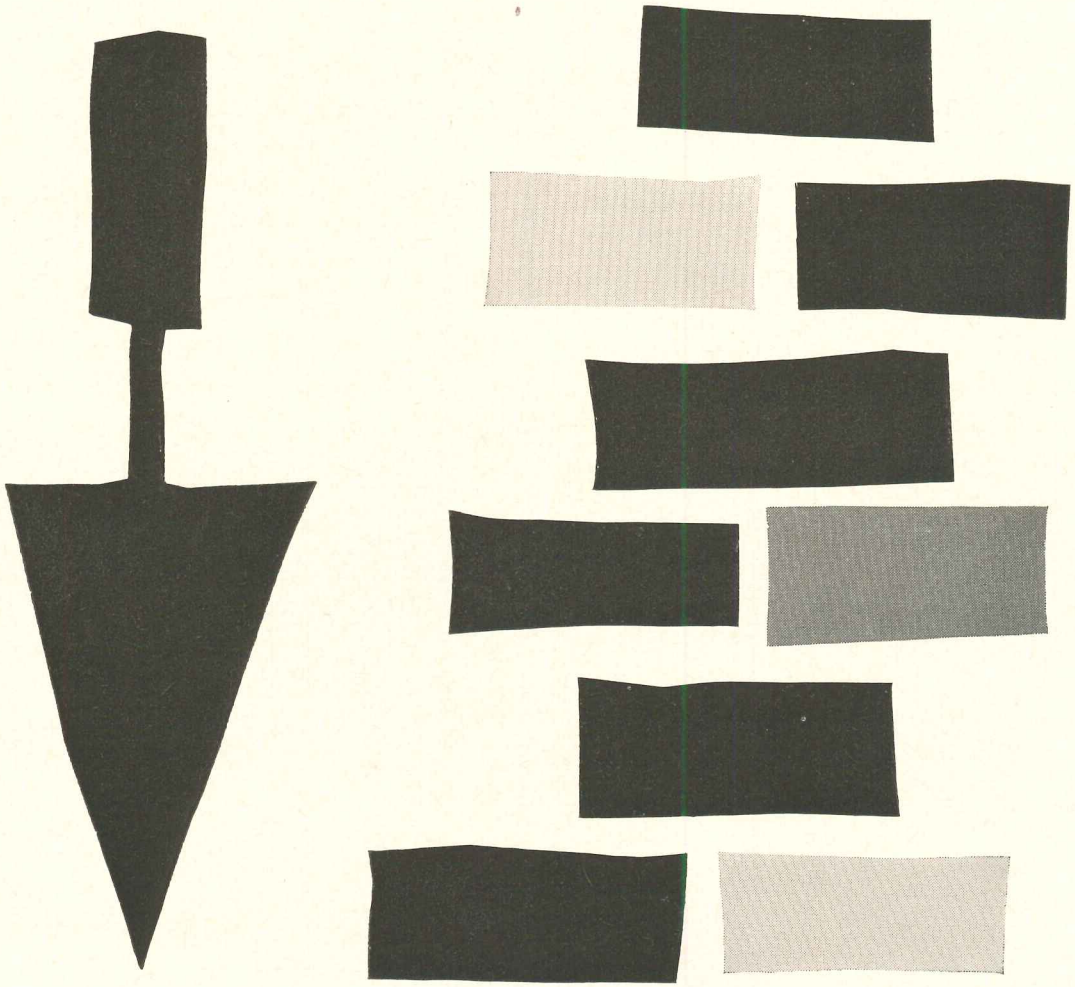

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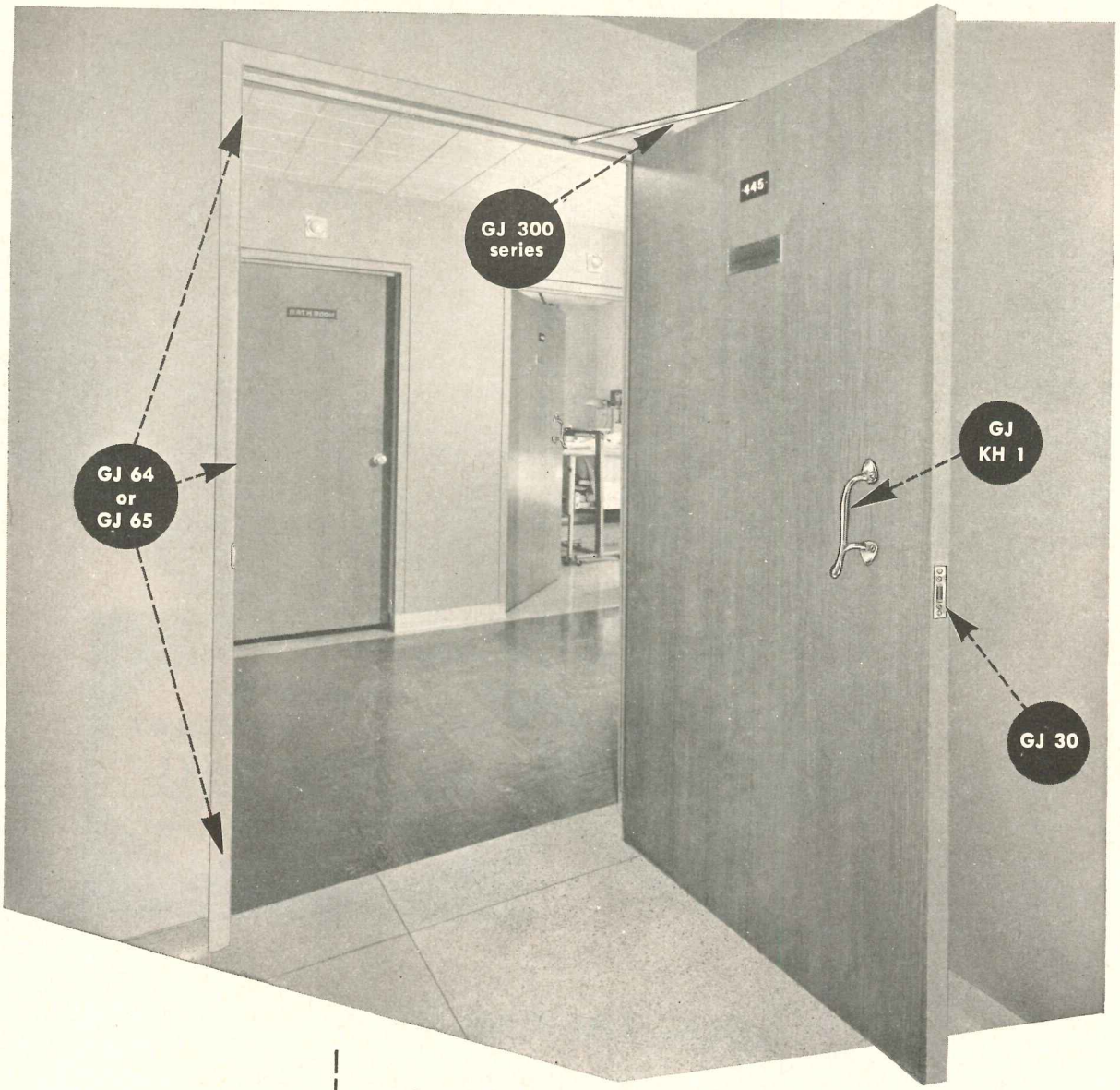

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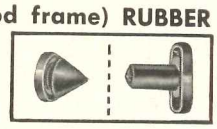

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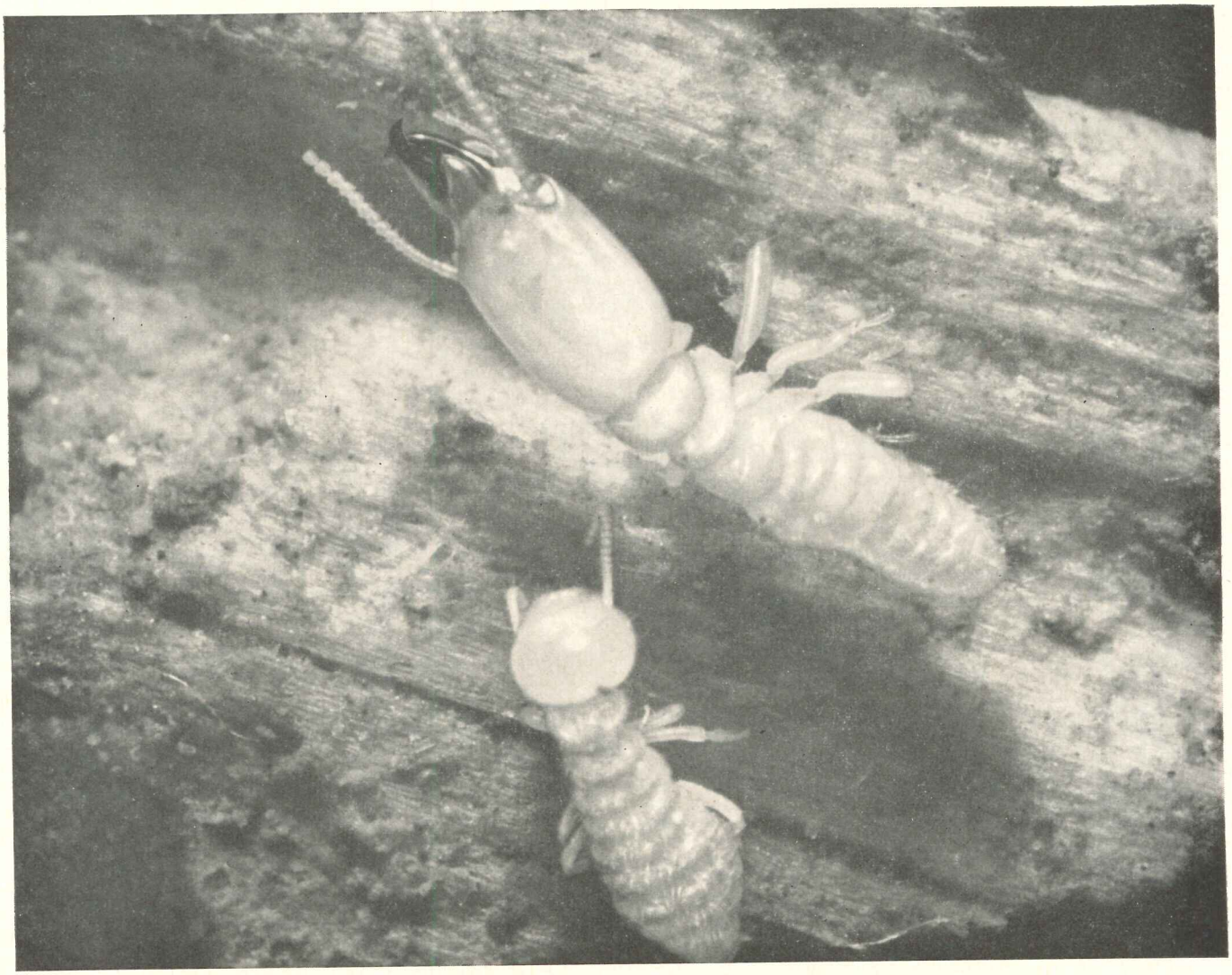

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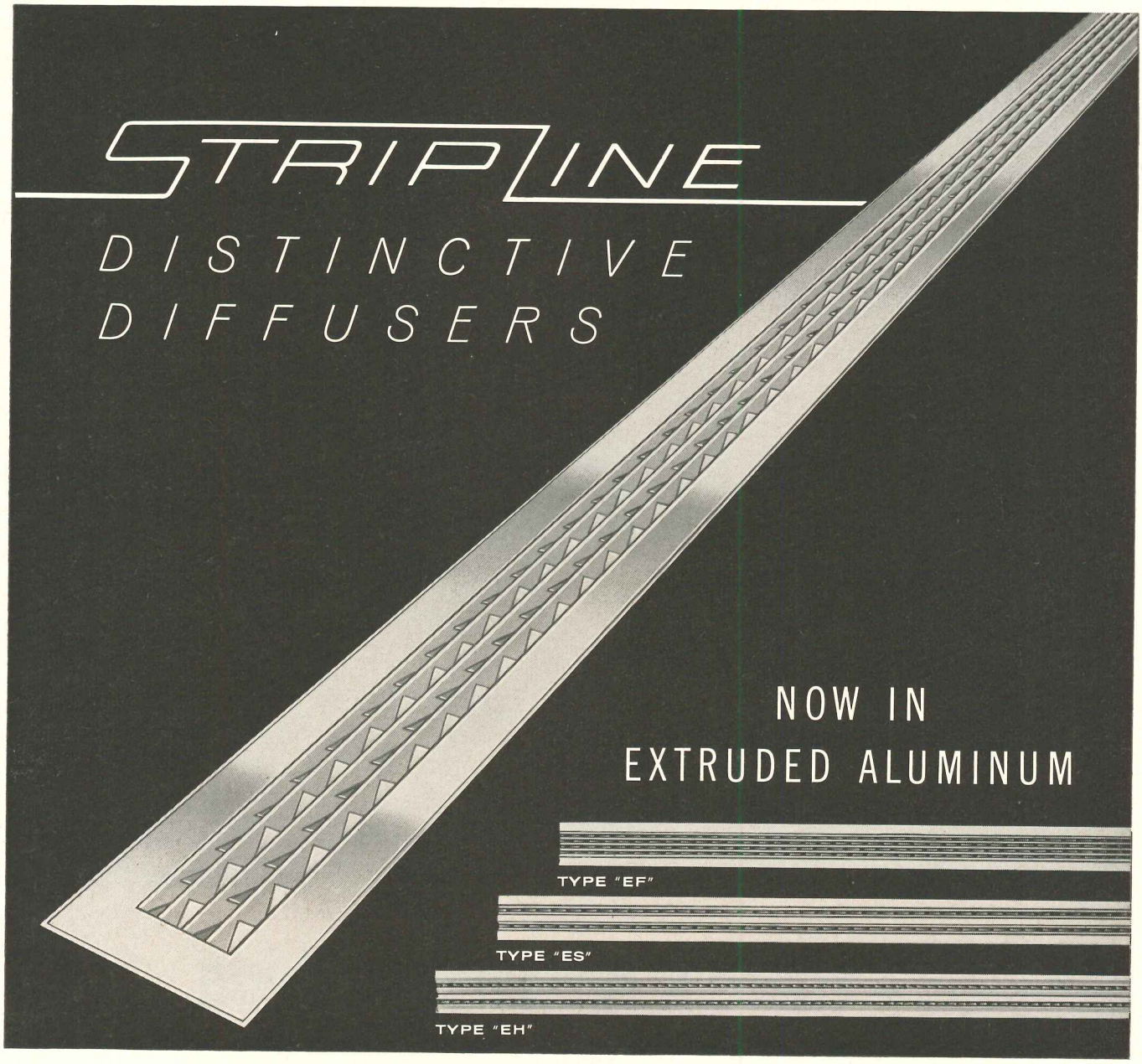

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Whatever the architectural specifications, the slim-trim distinctive design of Stripline extruded aluminum slot-type diffusers blends in perfectly with the general decor. Stripline with separate plaster frames and removable cores eliminates screwholes, leaves the decorative surface unmarred.

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Unlike side wall grilles and air discharge slots, Stripline diffusers incorporate the exclusive Agitair diffusing vanes. These built-in diffusing vanes produce extremely high turbulence and aspiration... achieve rapid temperature equalization... insure the distribution of tempered air unvaried over a predetermined area without any noticeable air motion.

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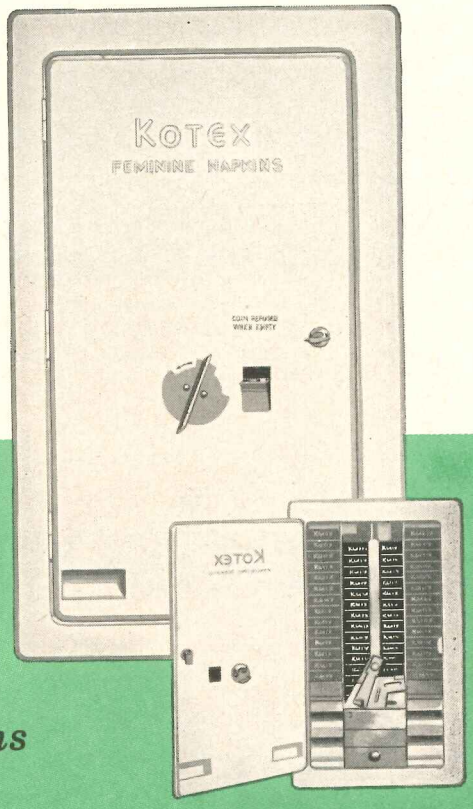

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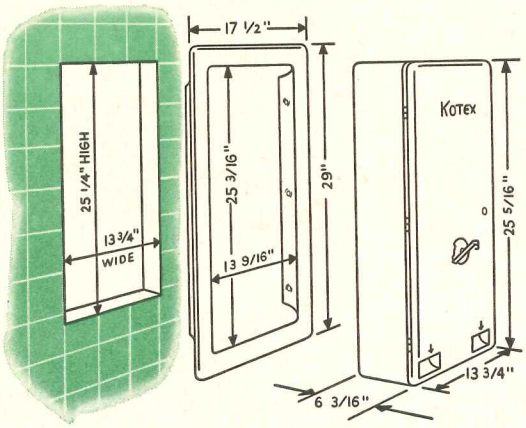
RECESSED VENDORS

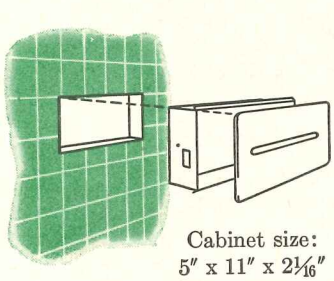
for KOTEX *feminine napkins*

To KEEP PACE with the latest architectural designs, Kimberly-Clark has styled a brand new recessed dispenser for Kotex feminine napkins for rest room use in schools, offices, stores; industrial and public buildings. This unobtrusive, built-in vendor holds 63 individually boxed napkins. 33 vend from a single loading, 30 are held in storage.

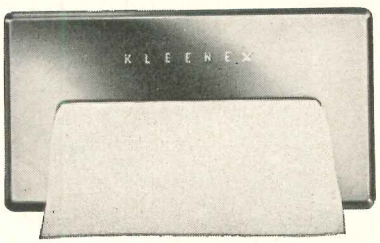
These streamlined, sturdy, pilfer-proof vendors add a much appreciated service to any public building. They are available with either a five-cent or ten-cent coin mechanism.

Available in durable white enamel, satin chrome, gleaming polished chrome and stainless steel. Matching frame for recessed installation. (Other vendors that can be surface mounted are also available.)





Cabinet size:
5" x 11" x 2 1/16"



RECESSED DISPENSER FOR KLEENEX TISSUES

Holds full box of Kleenex 200's. Dispenses one tissue at a time. Mirror-chrome finish. Holes in back and side make it easy to fasten to studding.

For further details on how these attractive new recessed dispensers for Kotex napkins and Kleenex tissues can fit into your plans, see Sweet's Architectural File Cat., Section 27e/Ki. or write to Kimberly-Clark Corp., Dept. AR-31, Neenah, Wisconsin.

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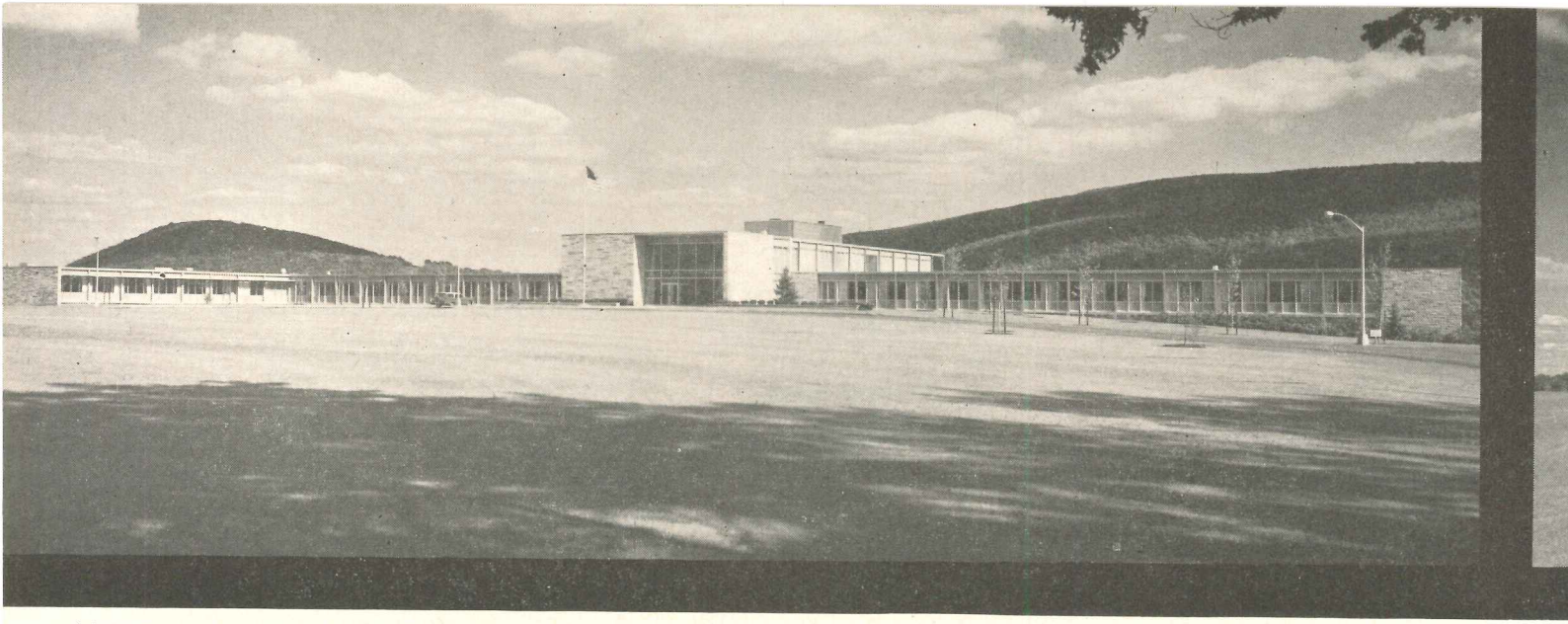


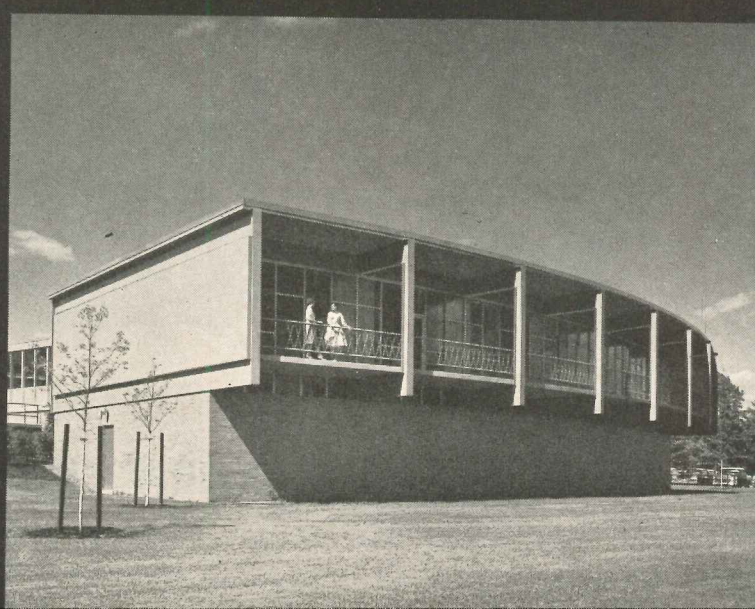
Administrative Headquarters, International Salt Company, Clarks Summit, Pa. Architects-Engineers: Von Storch & Burkavage. General Contractor: Breig Bros. Steel Fabricator and Erector: Anthracite Bridge Company, who fabricated and erected some 450 tons of Bethlehem structural shapes for this building.

A handsome steel frame for "Salt Headquarters"

Steel *for Strength . . . Economy . . . Versatility*

Entrance from parking lot. Note unusual effect achieved by hanging roofs on the lower flange of the roof beams, instead of the upper flange.

Balcony of the lounge-cafeteria wing overlooks a beautiful valley. All columns and beams supporting this balcony are left exposed and painted red.



Colorful curtain walls make an eye-appealing exterior. Porcelain-enameled steel panels are blue, steel columns and beams are red.

Steel-framed "floating" staircase dominates the handsome main entrance lobby.

Wherever you look at the new administrative headquarters of International Salt Company, you see steel—exposed structural steel framing, steel roof deck, porcelain-enameled steel panels outside, steel wall partitions inside.

This attractive building dominates a hilltop in a country setting outside Scranton, Pa. Great expanses of glass, glazed to slender steel columns, bring the surrounding countryside inside to join the brightly painted interior. Blue porcelain-enameled steel panels complete the curtain-wall construction, and provide a striking contrast to the exposed steel frame which is painted red.

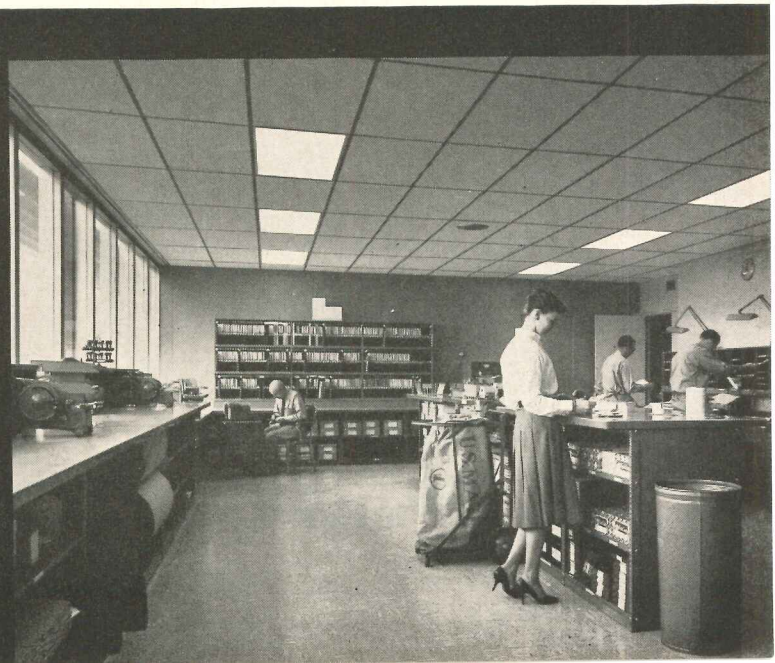
International Salt wanted a *flexible* building. And they got it, thanks to steel construction. It will be a simple matter to add a new steel frame to the existing one if expansion becomes necessary. The interior steel wall partitions are easy to take down and re-erect, and make possible many variations in room arrangement.

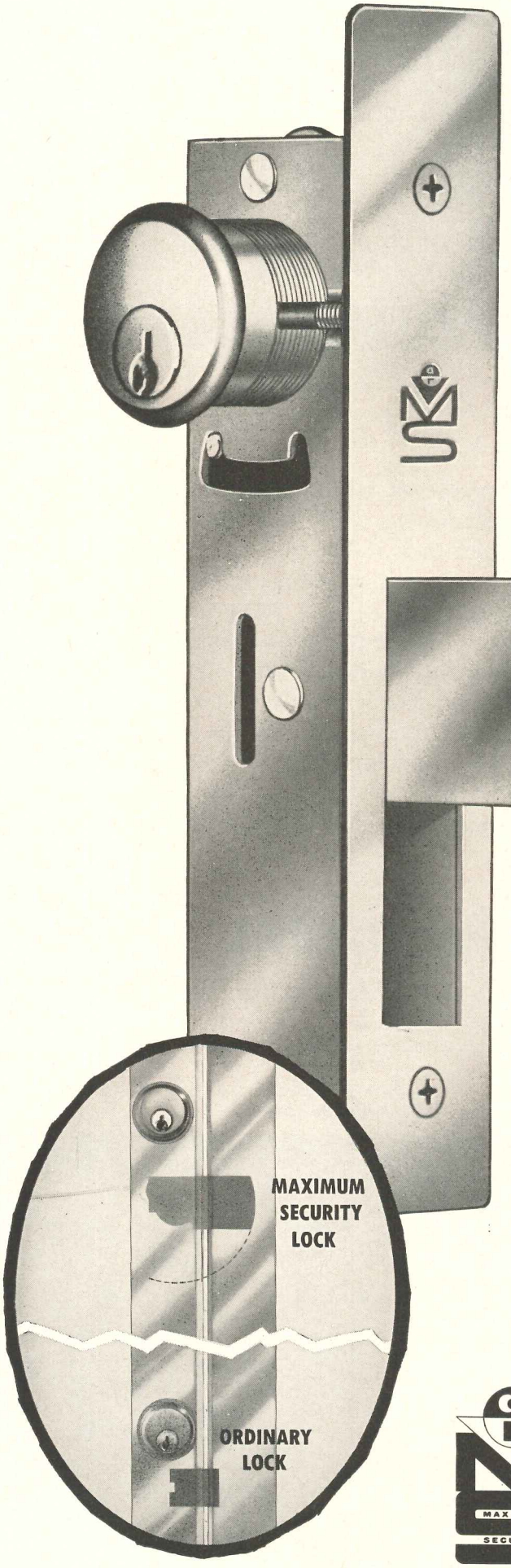
BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, Bethlehem, Pa. *Export Sales:* Bethlehem Steel Export Corporation

Structural frame is exposed inside, too. Here it lends beauty to the employee lounge and cafeteria (rear), and emphasizes the sturdiness of the structure.

Steel wall partitions throughout the building provide complete interior flexibility.





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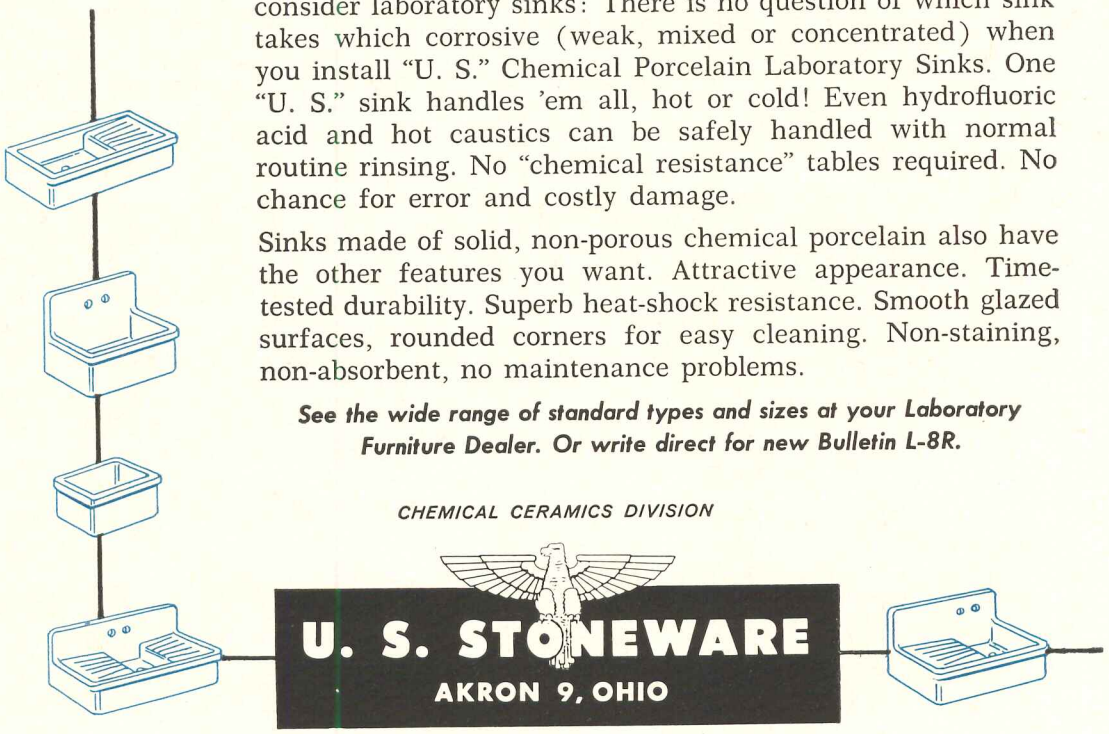

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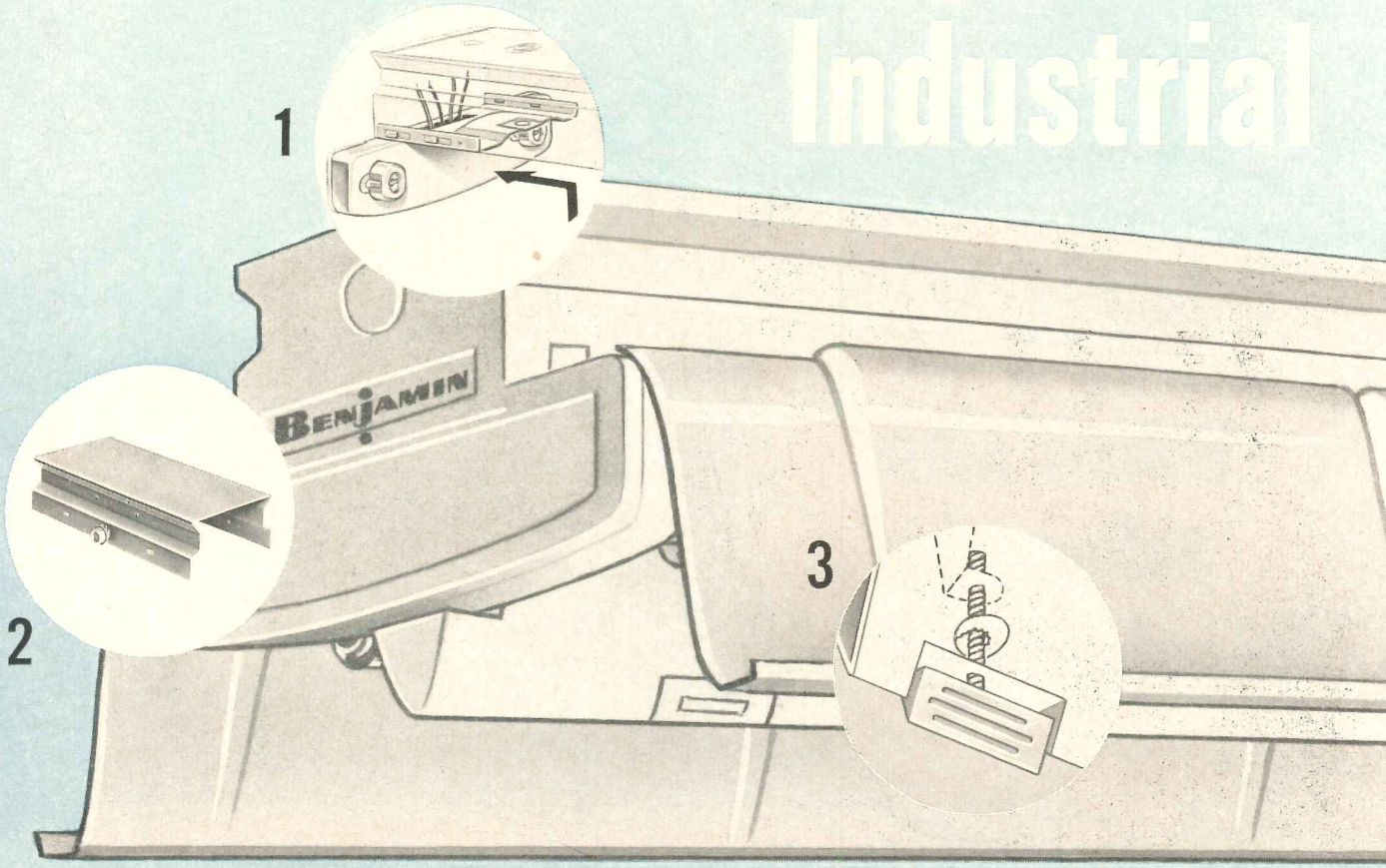

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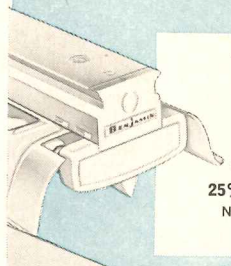
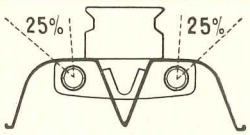
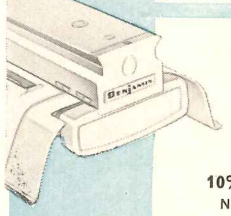
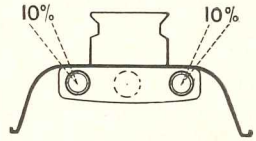




25% UNIT CROSS SECTION
NEW 25% upward component unit with a crosswise shielding of 30°.





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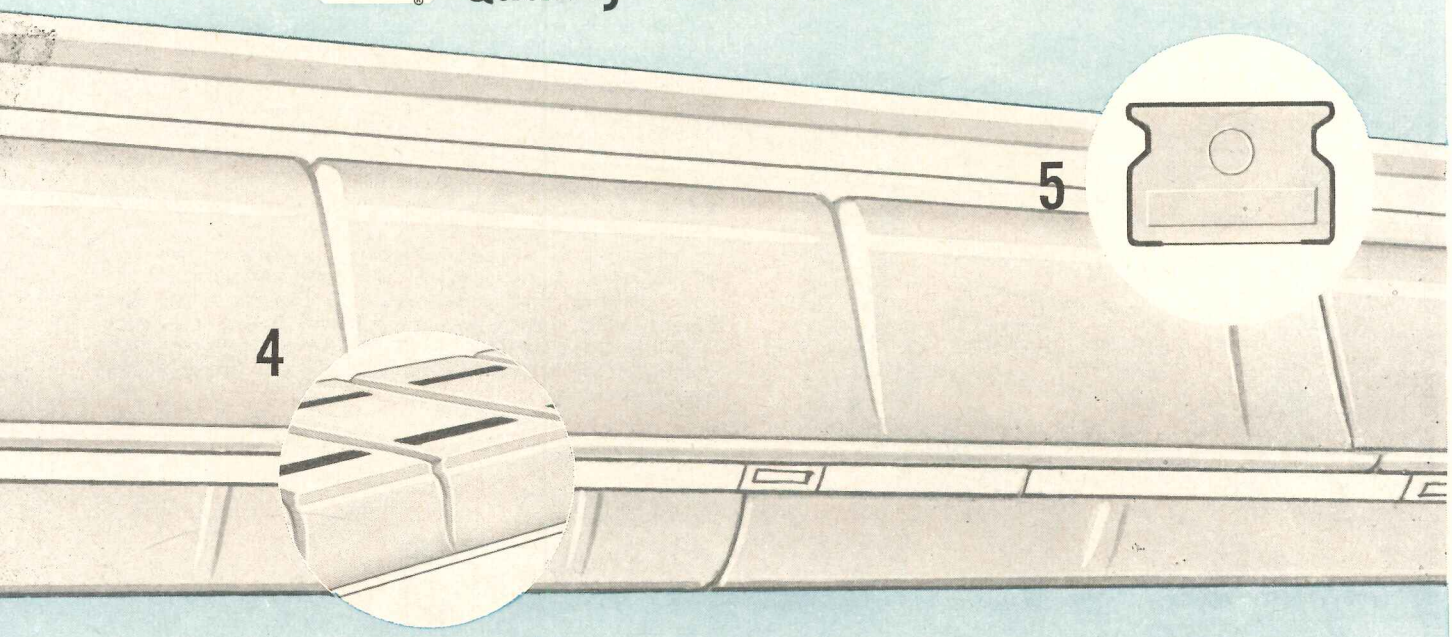

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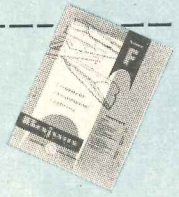
Reinforced ribs insure rigidity, serve as a holding element for all Benjamin sliding hanger suspensions.

Write for Bulletin F — new 20-page technical and specification bulletin on Benjamin Industrial Fluorescent lighting. Address Benjamin Division, Thomas Industries, Inc., 207 E. Broadway, Louisville 2, Ky., Dept. BAR-361



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THOMAS INDUSTRIES INC.
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With Homasote Board-and-Batten you save $220 or more on the exterior walls of a 3-bedroom house 26′ x 36′. You save this on the materials costs alone. You save still more money because you cover 1,000 sq. ft. with only eleven 8′ x 12′ panels.

Homasote Products help you cut your costs—because of the many sizes (up to 8′ x 14′) in which they are available—and by their *weatherproofness*. They lend themselves to many uses other materials do not.

The major facts about each product are presented in briefest terms—on a colorful Nutshell Card (as pictured at left). Handy reference tables—such as board feet content—are included. Ask your Lumber Dealer—or write us—for a set of these cards. Each shows you where you can save money at some point of construction—and still give the home owner higher quality, finer appearance and more lasting satisfaction. And—be sure you always have available a copy of the latest edition of the 72-page Homasote Handbook. Kindly address Department C-4.

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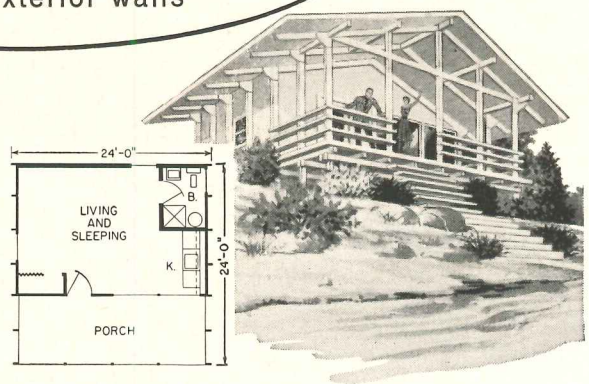
saves you $220 or more

on your exterior walls



TO WIDEN YOUR MARKET...get the full facts about Vacation and Small Homes, Farm and Utility Buildings constructed by the new Versitruss-Panel System. Also—ask about Homasote's Vacation and Small Home Financing Plan.

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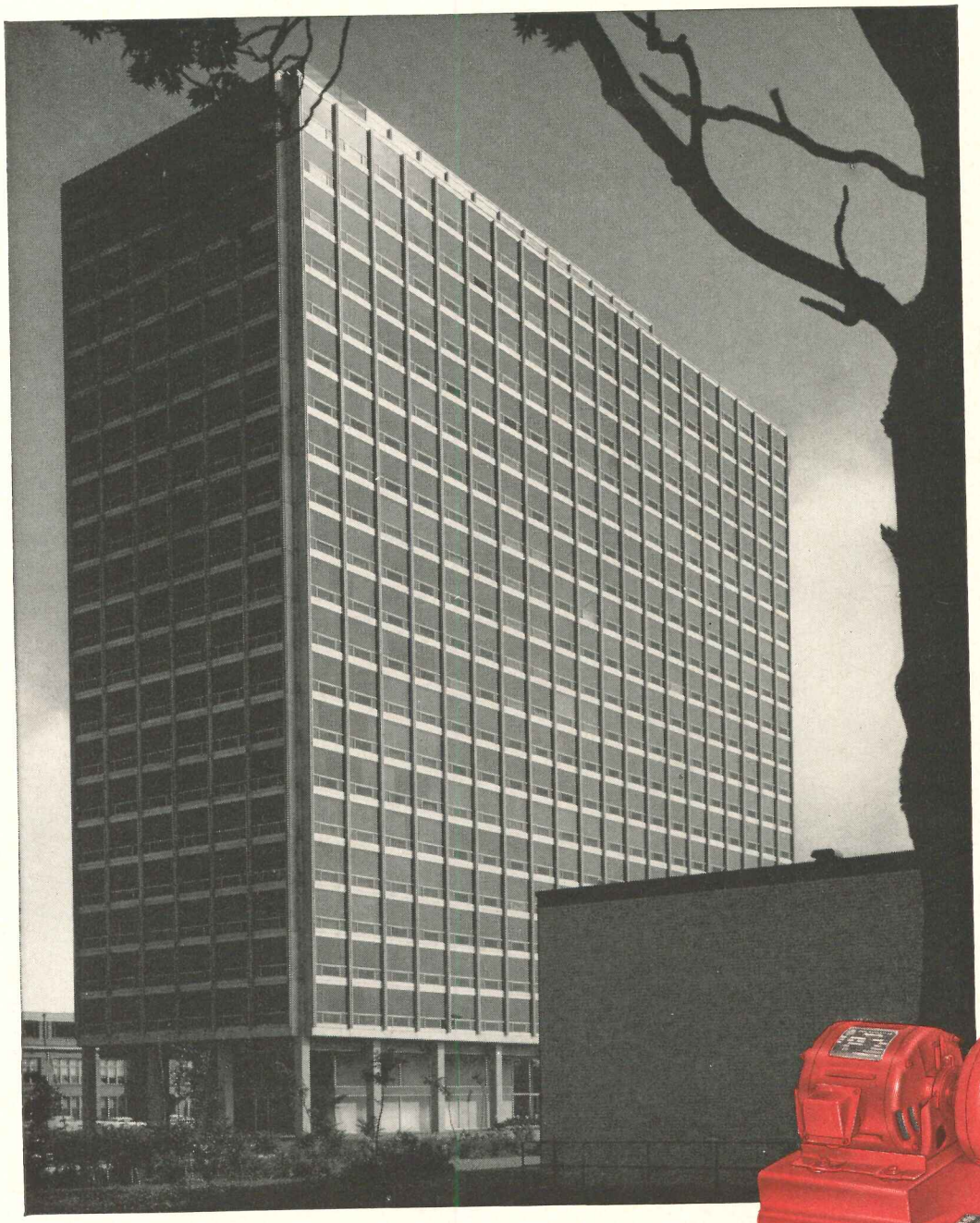
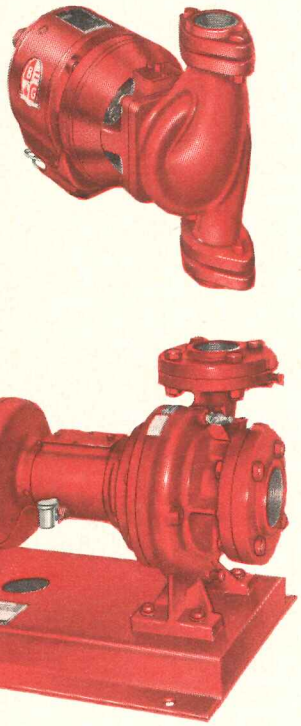


Lafayette Park Pavilion Apartments, Detroit, Mich.

Architect:
Mies van der Rohe

Mechanical Engineer:
William Goodman

Mechanical Contractor:
General Piping, Inc.



"THE ENTIRE HEATING, COOLING AND PLUMBING SYSTEM IS DEPENDENT UPON B&G® PUMPS"

The dual-temperature heating and cooling system of this history-making high-rise is designed around the circulation of hot or chilled water to various room air handling units. This water is circulated by two B&G U-13T Universal Pumps.

Says Albert Weiss, president of General Piping, the mechanical contractors: "The entire heating, cooling and plumbing system is dependent upon B&G Pumps —a total of 12, including two High-Velocity Boosters and two Universal Pumps.

"After the system was put into initial operation and all minor adjustments and servicing performed, we have had no service call-backs to date.

"This freedom from maintenance problems on all water circulation, as well as quietness of operation, are the main reasons why B&G Pumps were specified and why the contractor enjoys installing them."

B&G Pumps are designed and built specifically for heating and cooling systems. That explains why, in mass housing projects or single dwellings, over 3,000,000 are in service in such systems today.

BELL & GOSSETT
COMPANY
Dept. GO-32, Morton Grove, Illinois
Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

"Don't send a pony to do a horse's job"

A conversation you might hear around any good raceway.

Man with necktie: "WOW! It seems a lot higher once you're up here. Okay. Let's get this over with. Tell me. Why *steel* conduit instead of . . .?"

White shirt: "Mainly because steel is stronger and gives us excellent protection against damage to conductors."

Work shirt: "It's easy to install. You can thread with regular dies, and you don't need special lubricants."

Necktie: "Well, that ought to do it. I just wanted a few facts to put in a report I'm making. Let's go back down and . . ."

Work shirt: "You don't have to baby steel conduit. You can bend it without worrying about it flattening out or crinkling."

Necktie: "Fine. Okay, let's get down off . . ."

White shirt: "Steel conduit can be installed in all atmospheric conditions and hazardous locations."

Necktie: "Well, that wraps 'er up. Let's go down and . . ."

Work shirt: "You don't have to give steel any special coating for concrete installations."

Necktie: "I've never been up on one of these things before . . . feel a little shaky . . ."

White shirt: "Steel conduit provides a grounded metallic system; induced currents are drained off without danger."

Necktie: "Let's go down."

Work shirt: "Steel conduit has a smooth interior . . . makes it easy to pull and fish wires. Saves time and money."

Necktie: "Let's go down."

White shirt: "We wouldn't use anything *but* steel conduit here. You know . . . don't send a pony to do a horse's job. Okay. Want to go down?"

Necktie: "Yes . . . yes . . . steel conduit . . . certainly!"

America's leading steel pipe manufacturer supplying America's foremost conduit manufacturers.

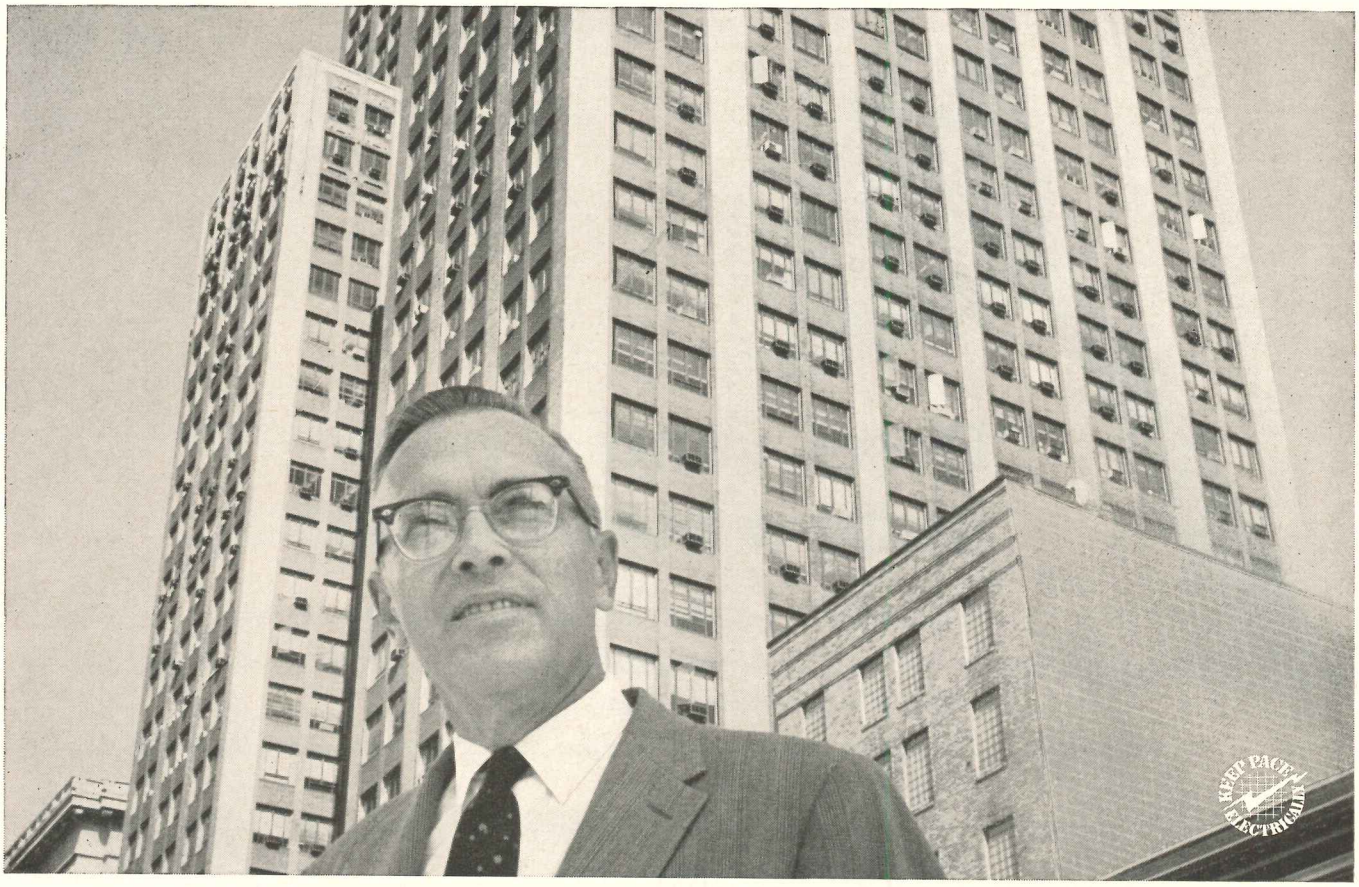
Steel

This mark tells you a product is made of modern, dependable Steel.

National Tube Division of United States Steel

USS

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York



Mr. Simpson in front of Pittsburgh building where G-E Remote-Control Wiring saves $700-$800 a year.

"G-E Remote Control Switching solved a 33-story problem for us!"

. . . Mr. T. J. Simpson, Assistant Superintendent Grant Building, Pittsburgh, Pa.

"Control of corridor lighting used to cost us too much money," says Mr. Simpson "because of a floor-by-floor manual switching system.

"A man had to make as many as four 33-floor trips a day to turn lights ON and OFF. Even at that, lights were ON overtime.

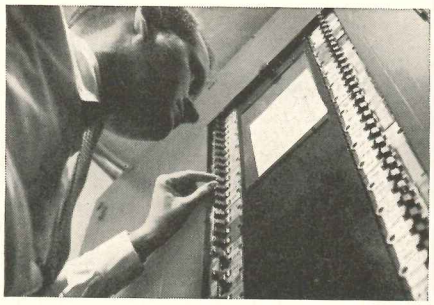
"Then we discovered G-E Remote-Control switching. You can say it solved a 33-story problem for us!

"We installed two 24-volt switches on the first floor to control G-E relays, bridged across corridor light switches, on thirty-three floors. Pressing one or both of these General Electric switches instantly turns lights ON or OFF on every floor.

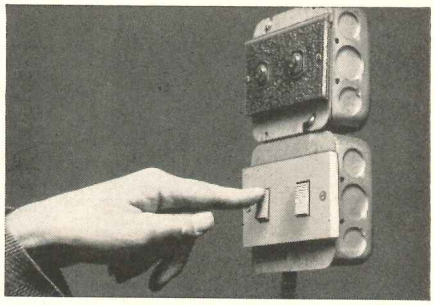
"The 24-volt control circuit runs in an old conduit; we didn't have to tear up the place. It was the only practical way to do this job. Easy and inexpensive!"

General Electric Company, Wiring Device Department, Providence 7, Rhode Island.

Each corridor has two sets of controlled lights — one ON every day — one near windows, ON when its dark outside.



Old system controlling corridor lights required manual operation of panel switches on 33 floors. A half-hour job!



New General Electric Remote-Control switches control selected lights on all 33 floors at once, from one spot.

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Genuine Walnut . . . the warmth and rich natural beauty of the real wood. Also available in genuine oak and cherry . . . or, if your client prefers, fine birch in Tawny or Fruitwood finish.

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Platinum . . . a new St. Charles custom color on steel . . . combined here with genuine walnut to harmonize style and texture. One example of the wide range of color-texture combinations available to you and your clients in Custom Kitchens by St. Charles. Even your own *special* colors can be reproduced by St. Charles.

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These are just a few of the almost limitless possibilities at your command when you specify St. Charles Custom Kitchens. Full freedom in layout, style, color, materials, features . . . because a St. Charles Kitchen is custom built *after* you plan it . . . not before!

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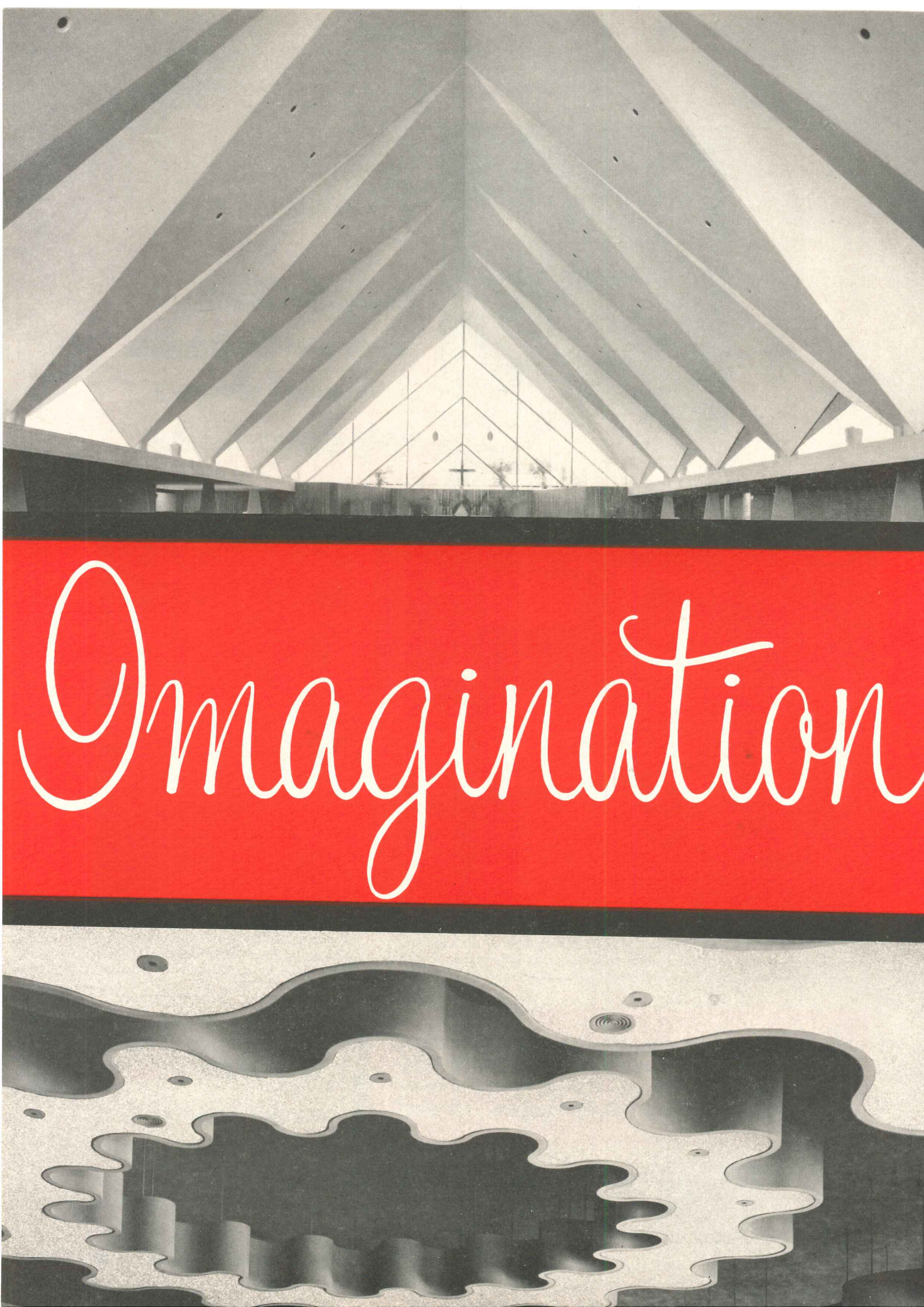
St. Charles Manufacturing Company
Dept. ARK-3
St. Charles, Illinois

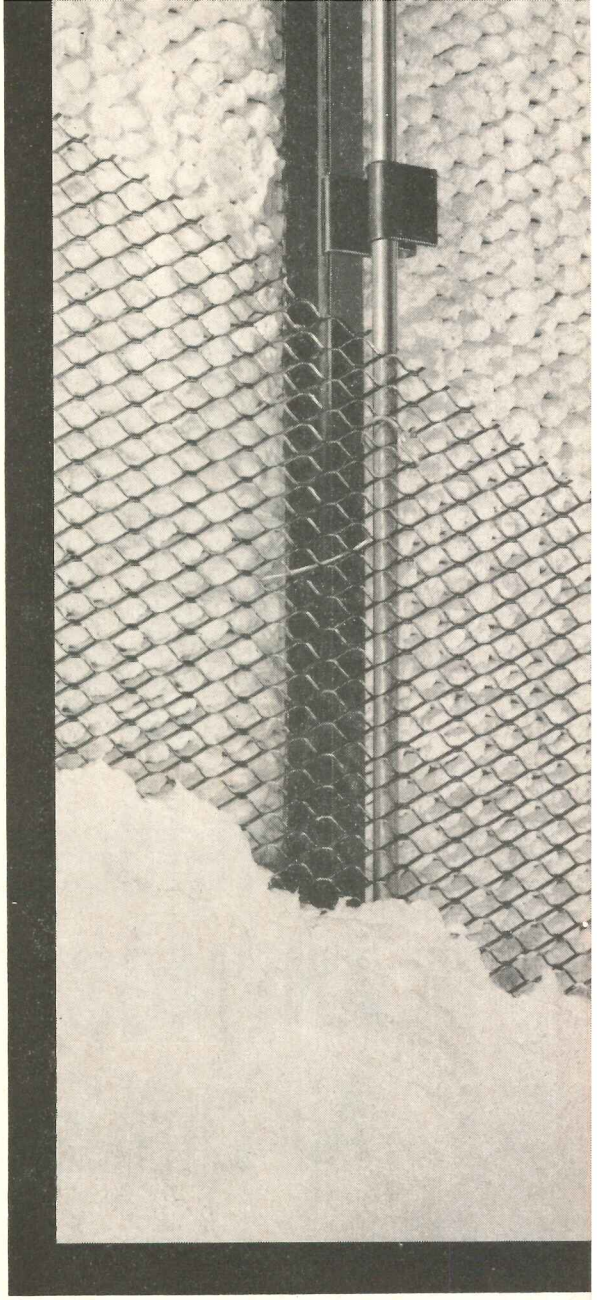

Imagination

You can do exciting things with plaster. Design possibilities are almost unlimited in plaster today. You can have acoustical plaster sprayed on where complex ceiling shapes are called for (left). Or you can choose from hundreds of ingenious construction systems inspired by plaster, like the space-saving partition (right) that reduces sound transmission by 42 decibels, yet finishes to only 2⅞″ thickness. You can even design your own decorative plaster plaques (below) to be cast by master craftsmen and set in plaster walls.

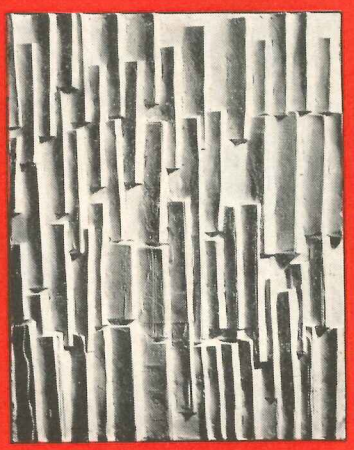
To see what plaster can do for you, send for your copy of "Imagination in Plaster", Dept. AR-31.

NATIONAL GYPSUM COMPANY, BUFFALO 13, NEW YORK

in Plaster



New slim sound-isolating partition develops a 42 db sound rating in 2⅞″ thickness by attaching a pencil rod to a ¾″ channel stud with Resilient Clips. Finished with metal lath and plaster on both sides.



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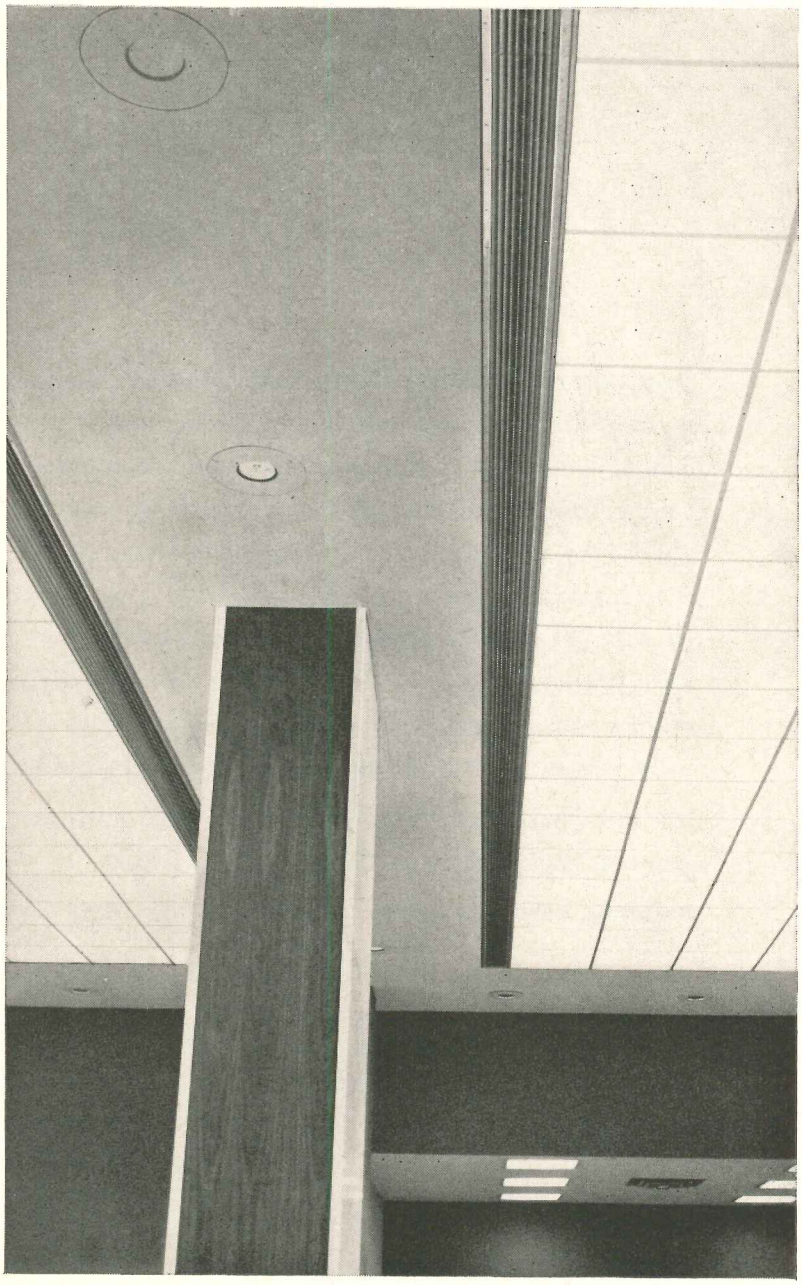
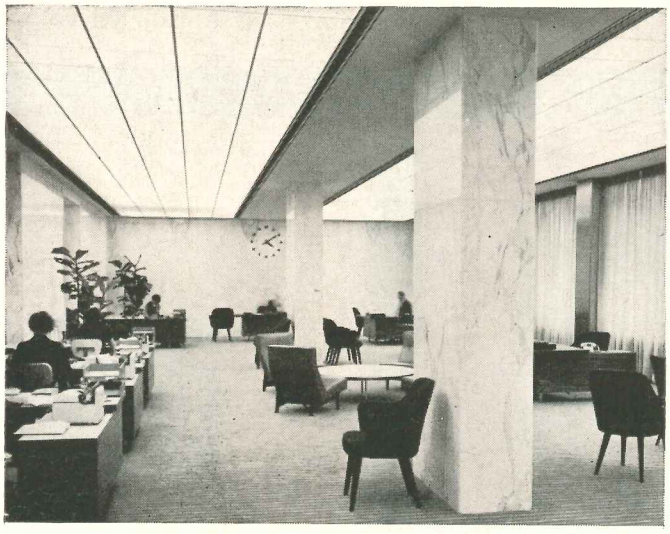
Draftless ANEMOSTAT® Air Diffusers *at* BANKERS TRUST COMPANY





DESIGNER for the Bank: Henry Dreyfuss • ARCHITECTS for the Bank: Shreve, Lamb and Harmon Associates • CONTRACTOR for the building and the Bank: Diesel Construction, Inc. • MECHANICAL ENGINEERS for the Bank: Meyer, Strong and Jones • SUB-CONTRACTORS: Raisler Corporation

In the new offices of the Bankers Trust Company at 529 Fifth Avenue, New York, customers and employees enjoy complete air conditioned comfort with Anemostat Air Diffusers. In the banking area, over 1500 feet of Anemostat Straight Line Air Diffusers draftlessly distribute the conditioned air.

Write for ANEMOSTAT Selection Manual 70 containing data on wide-range ANEMOSTAT line.

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DRAFTLESS *Aspirating* AIR DIFFUSERS

ANEMOSTAT CORPORATION OF AMERICA

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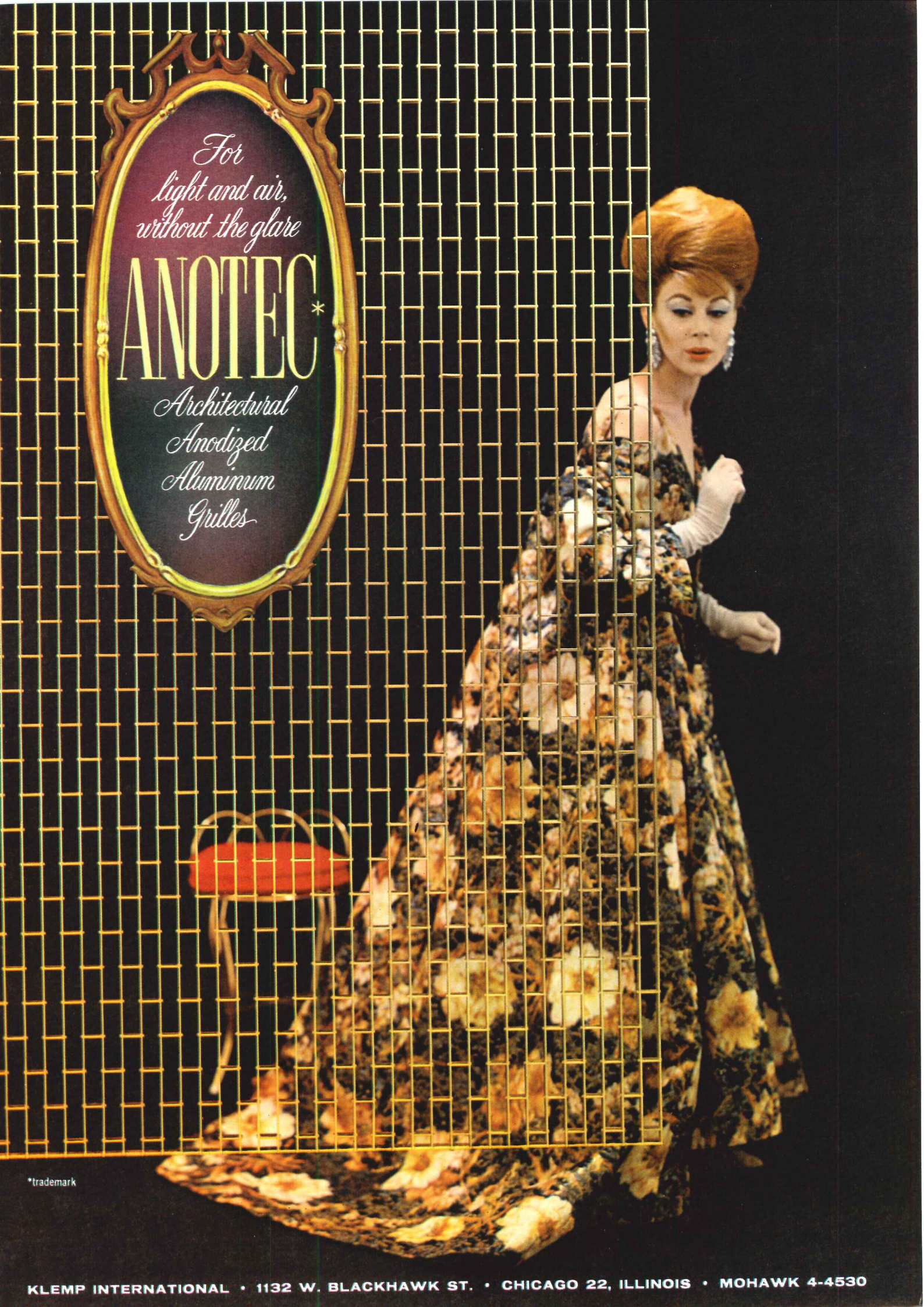
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without the glare
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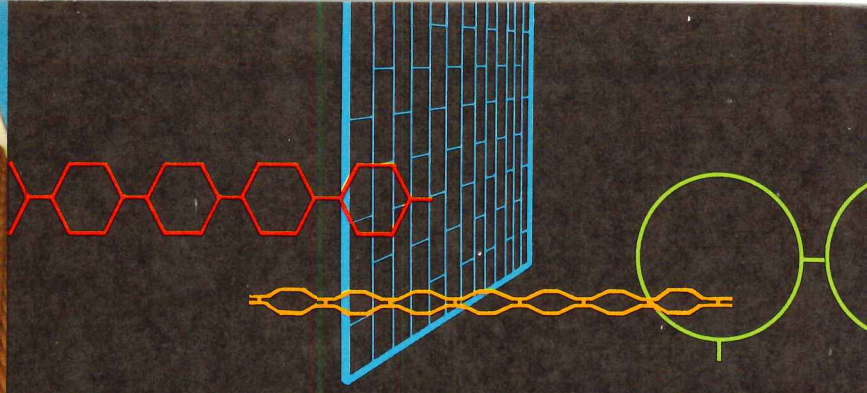

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ANOTEC is being used with outstanding success in the new construction and modernization of . . .

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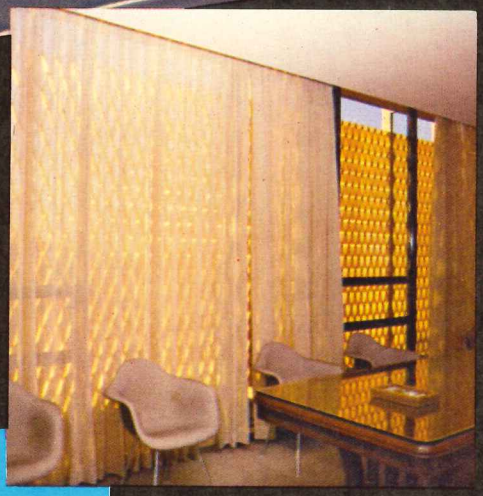
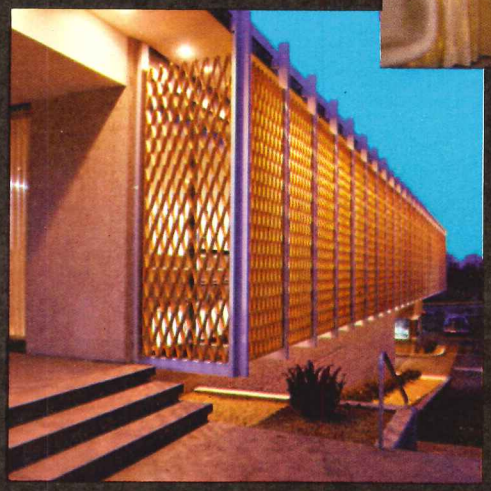
LOUVERS	SWIMMING POOL ENCLOSURES
PARAPET RAILINGS	WALKWAYS
STAIR RAILINGS	WALL PANELS
TERRACE RAILINGS	



McLEAN COUNTY BANK, BLOOMINGTON, ILLINOIS

This particular installation features the use of ANOTEC Architectural Anodized Aluminum Grilles as a decorative solar screen.

Spectacular in appearance both day and night; this application of ANOTEC is also perfectly suited to client, site and function, and completely practical in terms of utility, permanence and maintenance.



McLEAN COUNTY BANK BUILDING INSTALLATION, BLOOMINGTON, ILLINOIS

ARCHITECTS: SCHAEFFER, WILSON & EVANS, BLOOMINGTON, ILLINOIS

GENERAL CONTRACTORS: FELMLEY-DICKERSON COMPANY, BLOOMINGTON, ILLINOIS

ANOTEC is available in Circular, Diamond, Hexagonal and Rectangular patterns, in a wide choice of standard and custom dimensions.

ANOTEC architectural colors include Gold, Blue, Brass, Green, Red, Black and Clear Anodized.

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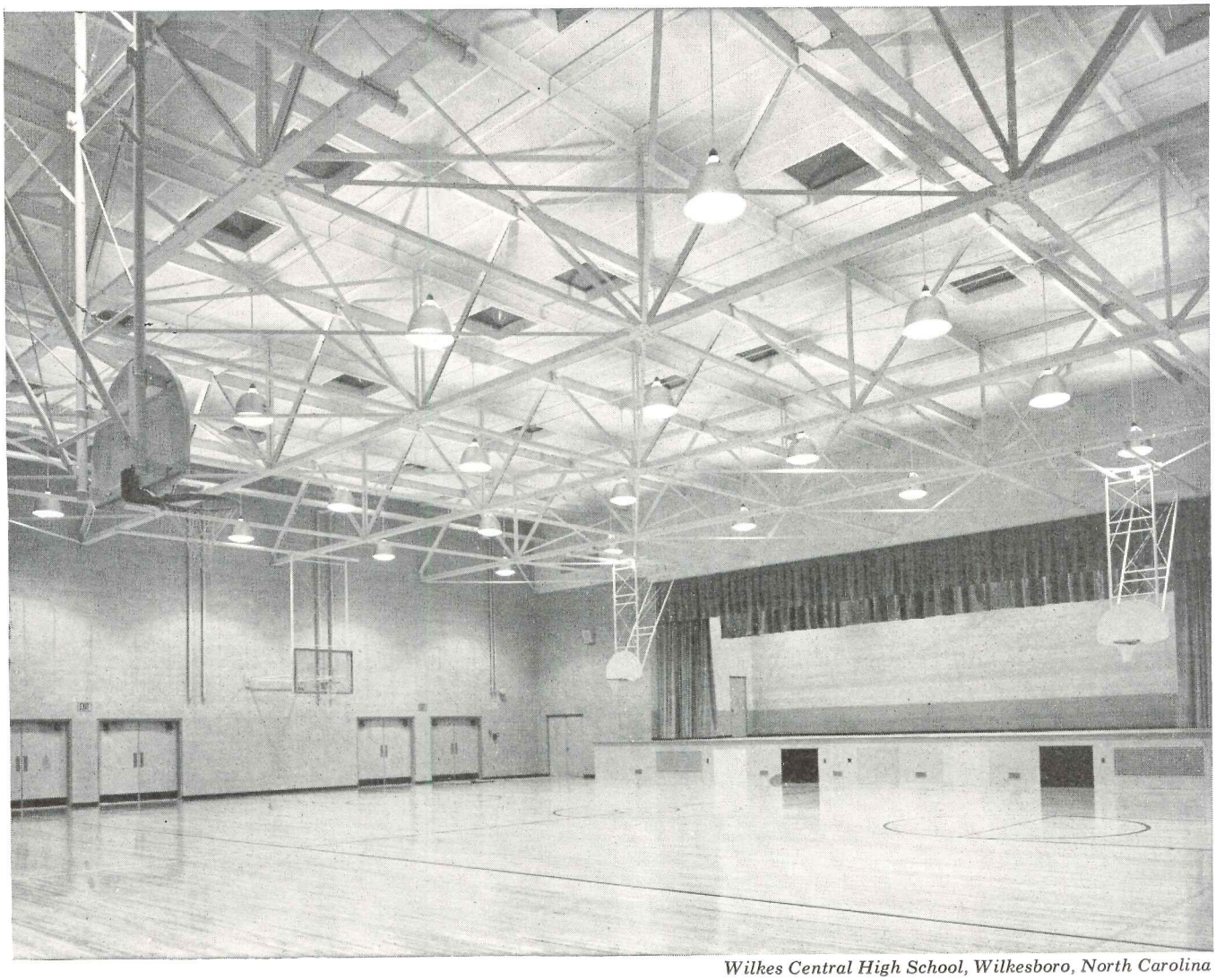
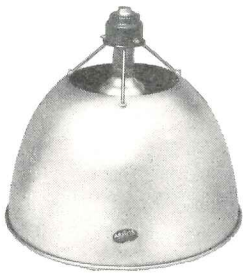


Wilkes Central High School, Wilkesboro, North Carolina

Not a glimmer of glare in this gym lighting job



INSTALLATION DATA

Abolite HMFAU-2400 fixtures with 750 watt incandescent lamps. Mounting height 22′ with 15′ 6″ x 16′ spacing. Ceiling height: 30′. Average footcandle level: 43.

Architect: Coffey and Olson

Consulting Engineer:
George B. Rottman & Associates

Electrical Contractor:
Ralph Duncan Electric Company

Abolite uplight fixtures shield against glare, wash out ceiling shadows—There are 43 footcandles of light (average) throughout that gymnasium, yet there's practically no glare to bother spectators or players. This easy-on-the-eyes lighting is made possible by the unique design of Abolite fixtures. Notice how both vertical and horizontal surfaces are lighted evenly without any deep shadows and how the light directed upward through the open top of fixtures eliminates sharp contrasts by washing out dark background shadows. 35° lamp shielding virtually eliminates glare.

Abolite's modern air-swept design also reduces maintenance costs. Air circulating through the fixtures sweeps them clean of dulling dust.

Although in this installation Abolite fixtures are used with incandescent lamps, they can also be used with color-improved mercury lamps. There are 18″ and 24″ diameter Alzak aluminum fixtures for use with 400 and 1000 watt mercury and 14″ and 18″ diameter fixtures for 300-500 watt incandescent lamps. *Abolite Lighting Division, The Jones Metal Products Company, West Lafayette, Ohio.*

ABOLITE *Lighting*

THE JONES METAL PRODUCTS COMPANY
West Lafayette, Ohio

MODERN

DESIGN

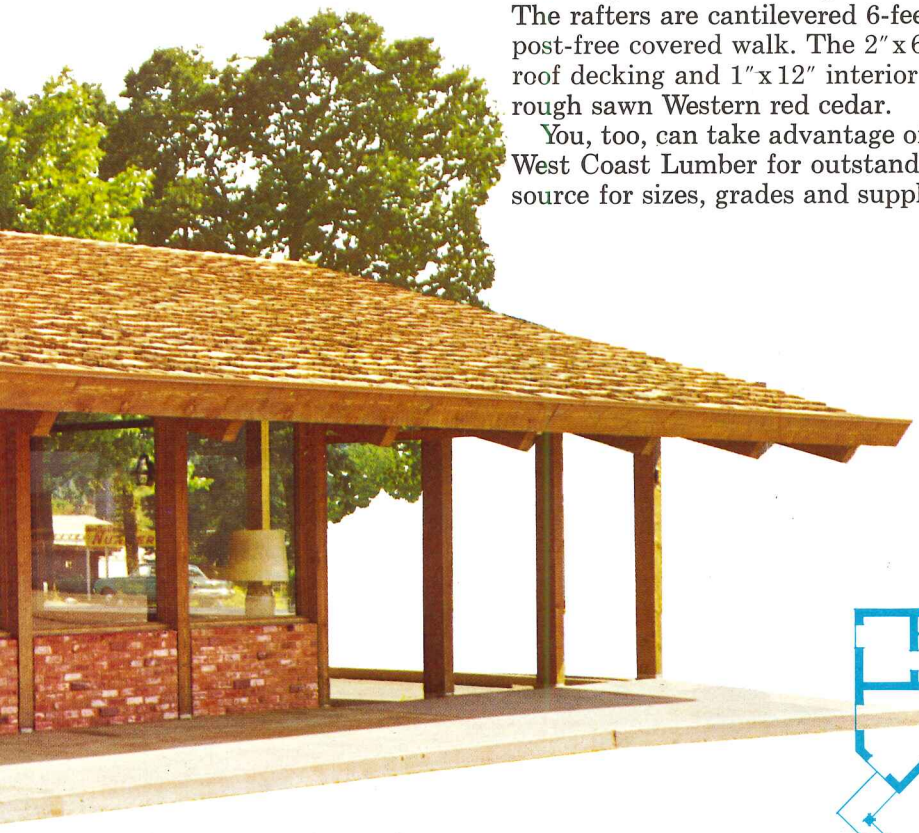
USES WEST COAST LUMBER

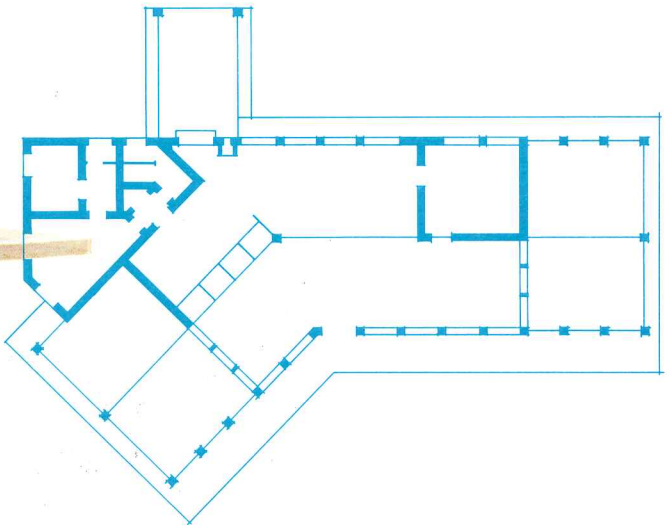
WEST COAST DOUGLAS FIR • WEST COAST HEMLOCK •
WESTERN RED CEDAR • SITKA SPRUCE • WHITE FIR

The friendly appeal and air of hospitality created through the use of West Coast Lumber readily adapts this bank building to its suburban location. A rustic, rough sawn texture in timbers and sidewall paneling brings an atmosphere of strength, providing a comforting feeling of security for bank customers.
Among the design objectives was expandability, answered perfectly here by completing a full-size roof structure, then enclosing only a center section. The covered areas enhance the appearance and lengthen the building line and may be enclosed at any time at minimum cost.

The West Coast Douglas fir timbers add visually to the impression of strength—10″ x 12″ ridge beams, 6″ x 12″ rafters and 8″ x 12″ plates. The rafters are cantilevered 6-feet beyond the wall to support a post-free covered walk. The 2″ x 6″ tongue and groove roof decking and 1″ x 12″ interior and exterior wall paneling is rough sawn Western red cedar.

You, too, can take advantage of the design flexibility provided by West Coast Lumber for outstanding building. Your local information source for sizes, grades and supply is your closest lumber dealer.





Architects: Logan & Murtaugh, A.I.A.

OAK GROVE BRANCH
FIRST STATE BANK
OAK GROVE, OREGON

For technical West Coast Lumber information, write:

WEST COAST LUMBERMEN'S ASSOCIATION

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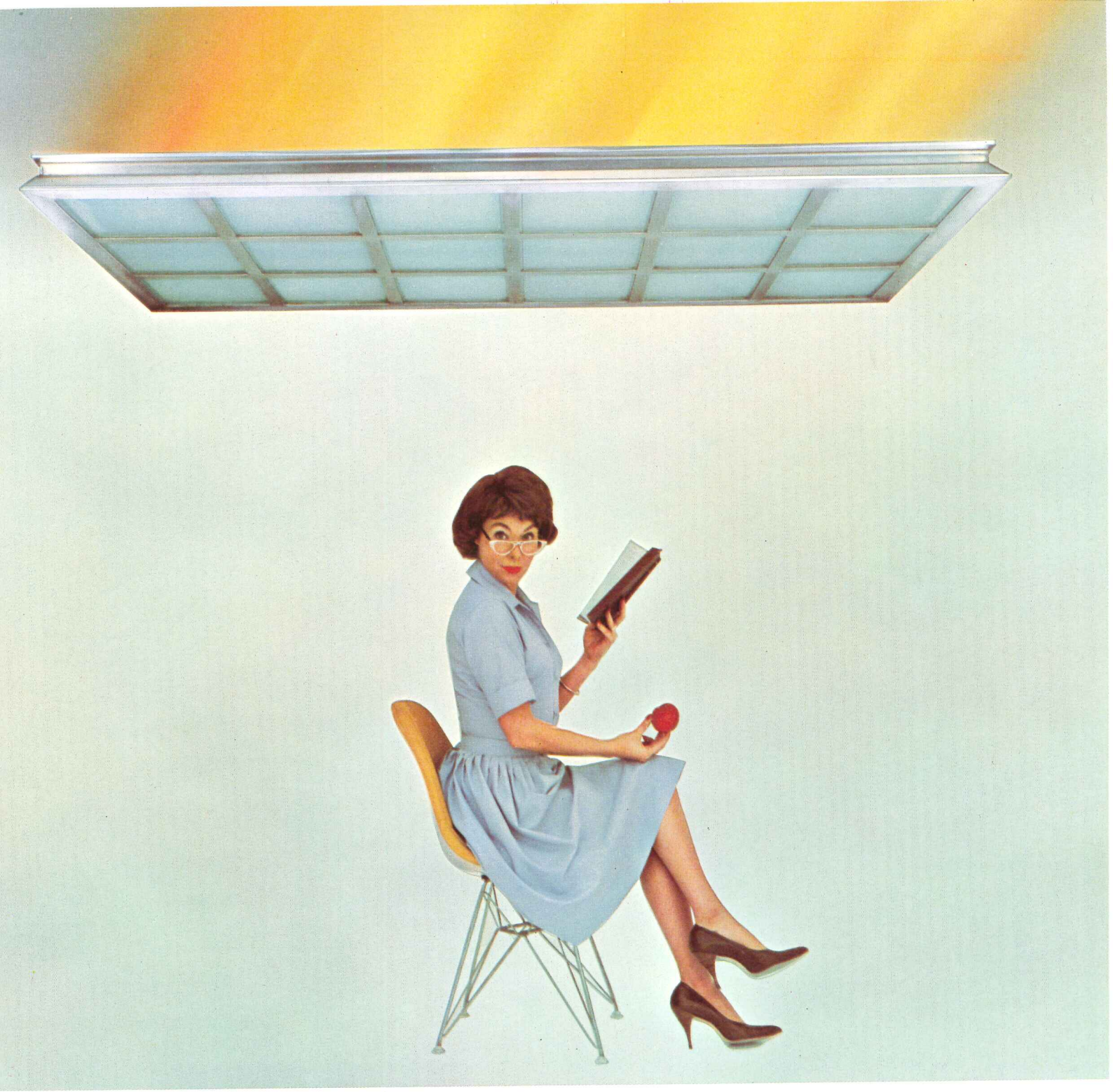
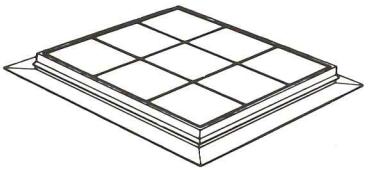


THE ART OF CONTROLLING SUNLIGHT

PRC Toplite teaches a great new lesson in lighting control. The prismatic, hollow, evacuated glass blocks assure satin-soft natural light that illuminates virtually every inch of working space without apparent shadow. These scientifically engineered prisms reject the direct, harsh light of high summer sun but accept the indirect rays of low winter sun.



For complete technical and distributor information on PRC Toplite, please direct your inquiry to Products Research Company, Toplite Division, 2919 Empire Avenue, Burbank, California.

PRC **PRODUCTS RESEARCH COMPANY**

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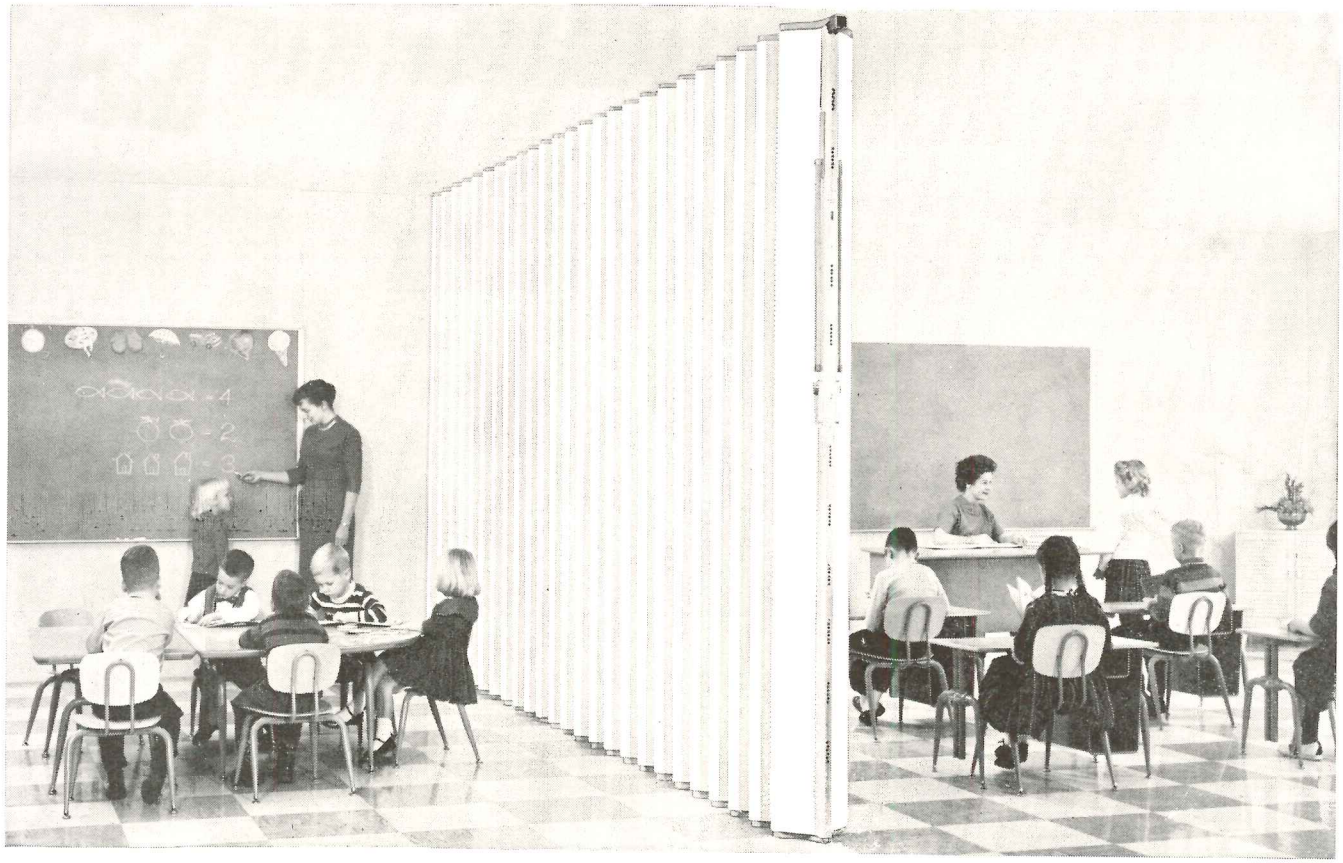

Furniture by Peabody

*Decibel ratings by Geiger & Hamme Laboratories per ASTM E90-55

New! Steel-Walled Modernfold

● *First in sound reduction . . . first in heavy-duty design.* The greater the weight, density and rigidity . . . the better a wall shuts out sound. That's why Modernfold designed the new Soundmaster 240 with twin walls of 24-gauge steel panels . . . and why this new partition leads the industry by a full five decibels in sound reduction. This sound superiority is unfailing, because Modernfold custom trims all eight horizontal edge seals on the job. Each partition fits its opening exactly—up to 25′0″ high and *any* width.

In addition, no other partition matches Modernfold heavy-duty construction . . . the massive steel and fabric strength that pays you a dividend of longer, trouble-free service. With no maintenance cost. But compare the facts for yourself. The chart at the right shows construction and sound ratings (in decibels) for the best model offered by each of the four largest partition manufacturers. Just look:

Partition	"240"	"A"	"B"	"C"
*Sound Reduction 125/4000 cps av.	37.4	32.4	31.8	27.9
354/4000 cps av. (Industry Standard)	41.8	35.8	36.4	33.0
Acoustic Panels	steel 5⅜″ wide, wt. 1 lb./sq. ft.	uses cardboard	steel, 2¾″ wide, wt. ½ lb./sq. ft.	uses cardboard
Sealer Strips	8	8	4	4
Foam-Lined Jamb-Seal	yes	yes	no	no
Air Release	yes	no	no	no
Pull-In Latch	yes	yes	no	no
Best Fabric Weight—Outside Covering Only	45 oz. per lin. yd.	45 oz. per lin. yd.	18 oz. per lin. yd.	27 oz. per lin. yd.
Top Row Horizontal Hinge Plate Depth	8½″	3″	(vertical)	1½″

NEW CASTLE PRODUCTS, INC.
Dept. A231, New Castle, Ind.
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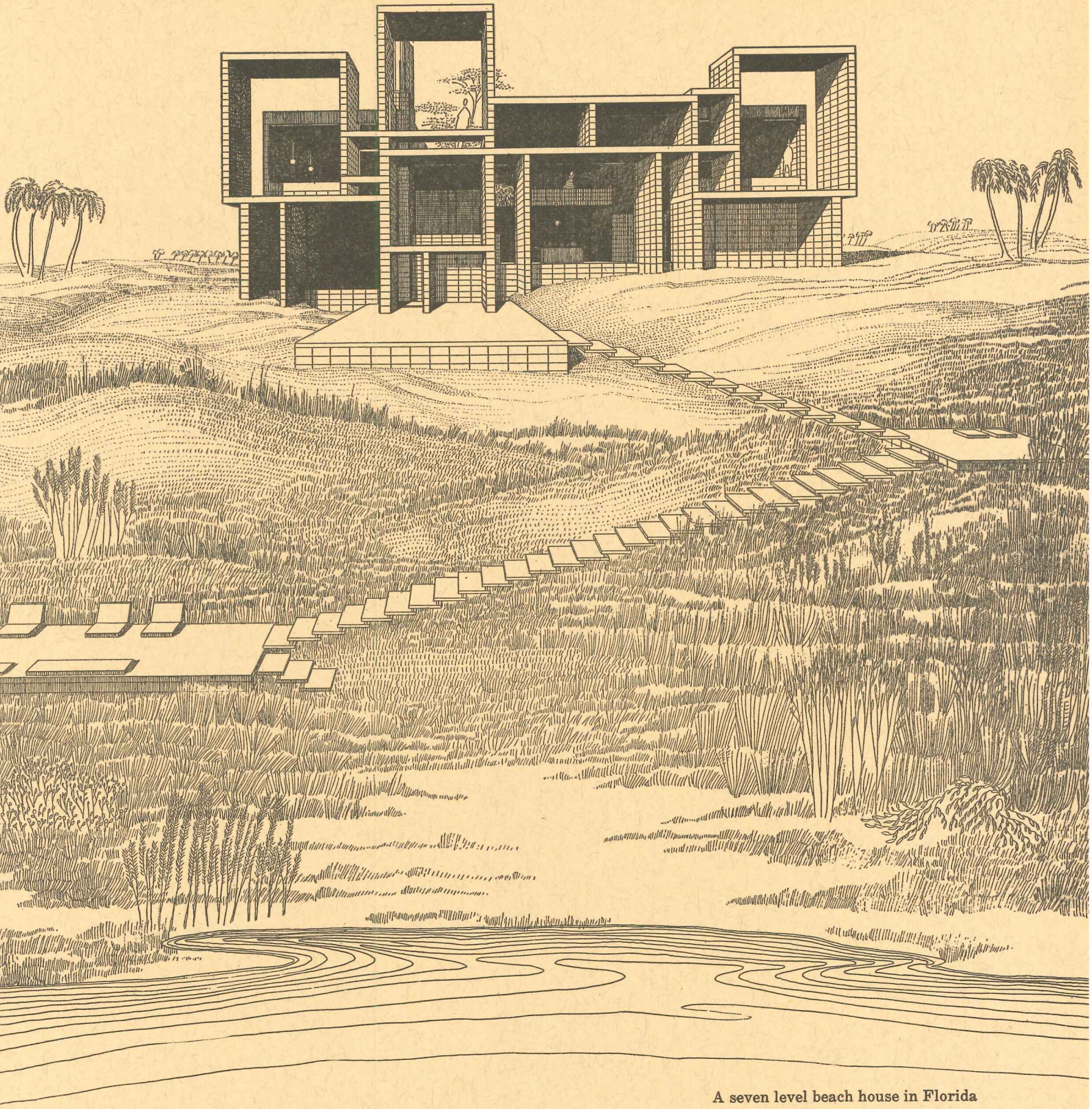


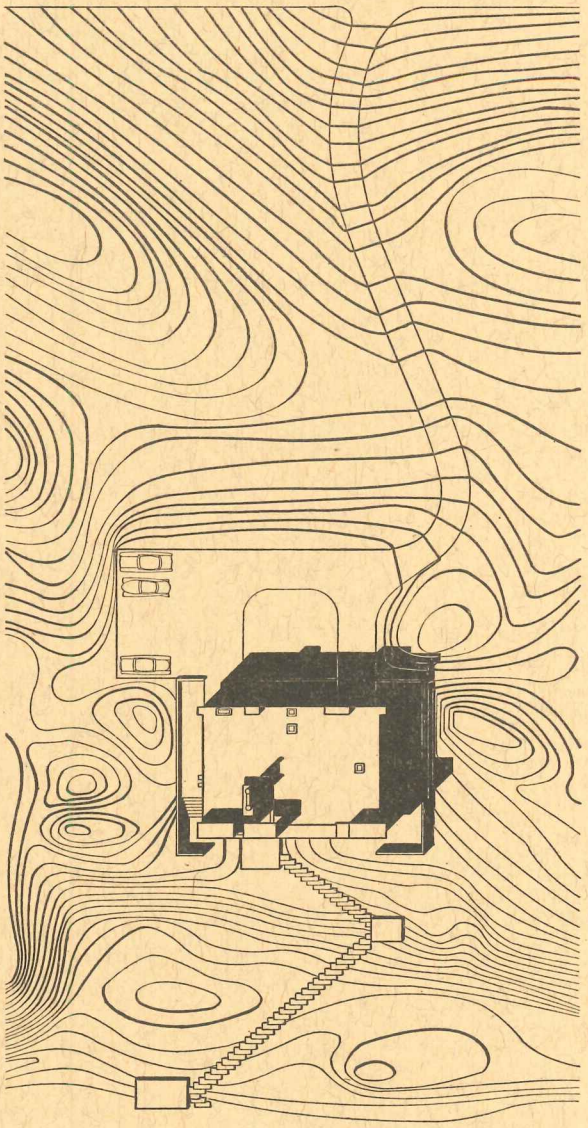
A seven level beach house in Florida

FOUR CURRENT PROJECTS BY RUDOLPH

New rules or no rules? Rudolph has called his work of the last several years "the new freedom". Is this a freedom to charge off in any direction as some accuse Rudolph of doing, or is it a new discipline of itself? The buildings which follow, a beach house, married student housing for Yale, a motor lodge and an urban parking garage, have a coherence as a group which indicate that Rudolph's new freedom is developing rules of its own.

ARCHITECTURAL RECORD MARCH 1961

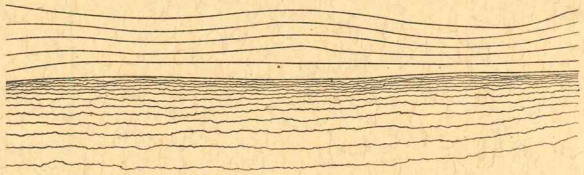
The House of Seven Levels



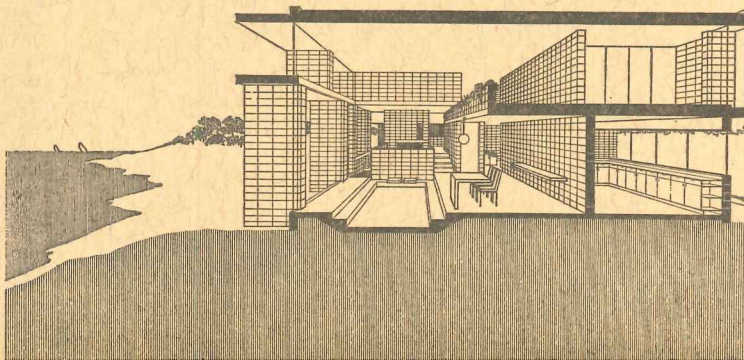
Rudolph's new schemes force the floor and ceiling planes to become more active as space definers. Space interpenetrates on varying levels in a more complex way than in the plans of Mies or Wright. In the Milam beach house, essentially a series of platforms, the floor plane drops to form an extended conversation pit in the living area, rises to create a platform for dining, and four risers higher becomes an inglenook defined by a low parapet. The second floor plane is continuous as a floor but is interrupted to permit more than half of the living space below to extend to the roof. A mezzanine overlooking the living-dining area adds a pleasant spatial complication as does the dropped roof deck which creates a lowered ceiling over the inglenook to make a cozy group around the fire even cozier. A separate living area for children is on the lowest level and its position behind the thick chimney core suggests that their noise will go unnoticed by parents and guests.

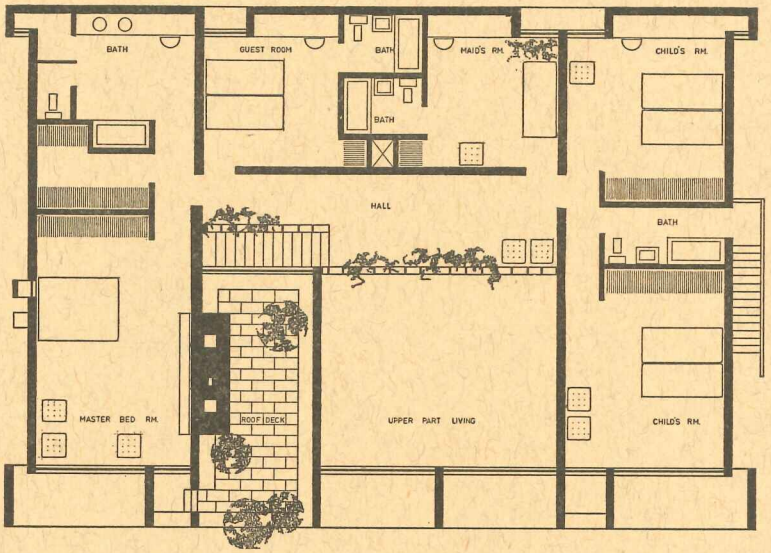
The chimney is the heart of this house, as in the domestic work of Wright, and the snug low ceilinged chimney corner overlooking a great space which is both broad and high and extends across a mezzanine shares its domestic quality with the best of Wright's work. According to Rudolph, in this house one locates oneself according to mood. "The inglenook offers a nest, the two storey portion of the living-dining space provides a goldfish bowl, and the far end of the living area is a cave."

A deliberate effort was made to make furniture less obtrusive. The only portable furniture in the large and informal living-dining space are the dining room table and chairs. Storage is built in. Cushions can be arranged on the ledge around the living area in a flexible way to seat thirty people or six. A fireplace occurs at every level along the chimney wall and an ingenious arrangement of openings causes the flames from a fire at one level to reflect on the ceiling of another level.

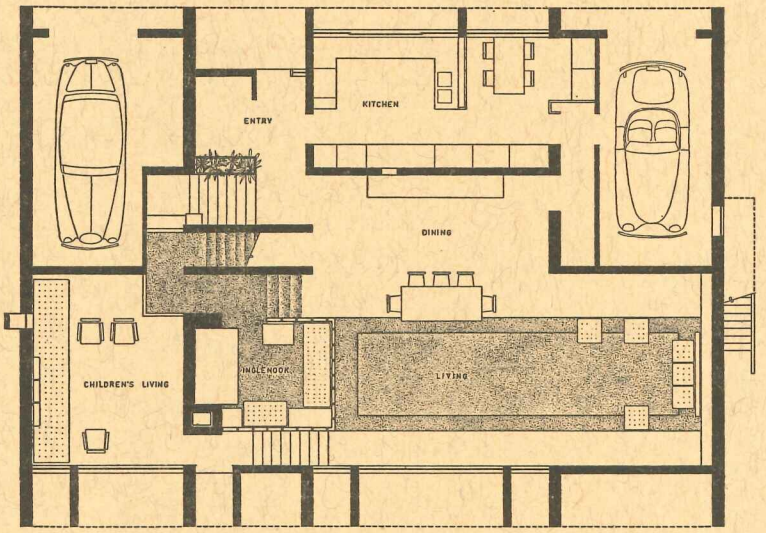


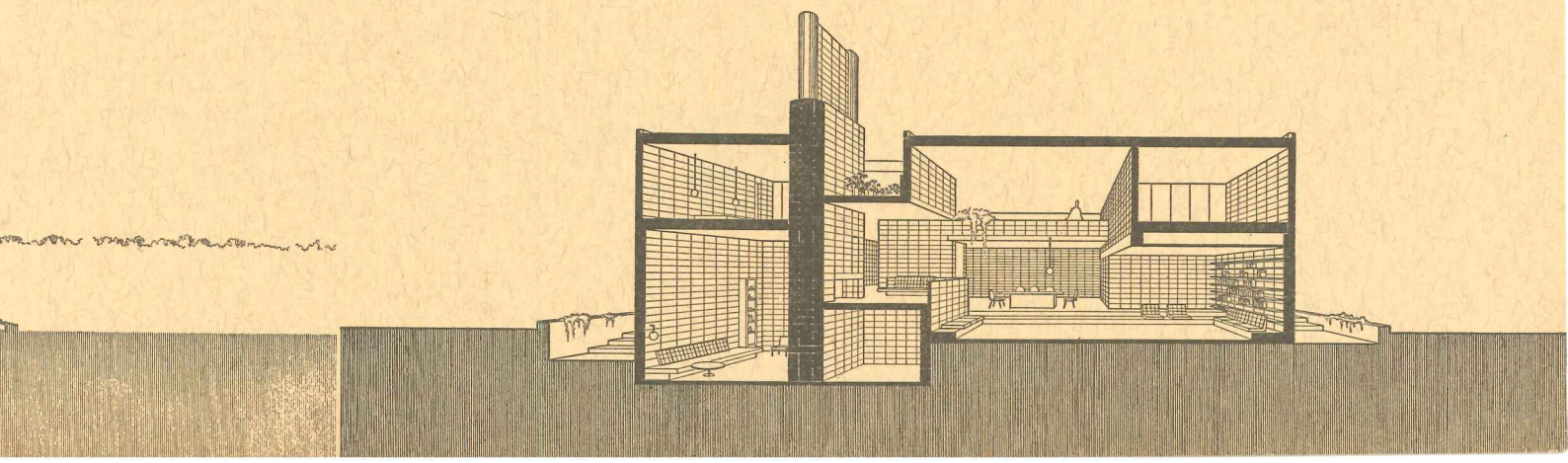
The house is being built high on the sand dunes overlooking the Atlantic, 45 ft above mean tide. Constructed of beige concrete block, its precise geometry contrasts with the uncultivated natural site, but its color matches the sand. This is Rudolph's first house in which a structural system of regular bays has not been used. No modular system has been applied except that of the concrete block units. Rudolph states that "modules are not necessarily applicable to houses . . . the modular building concept is applied many times where it doesn't have much meaning." The house is completely air conditioned and the *brise-soliels* reduce glare. Natural lighting effects have been carefully studied. Note additional narrow vertical windows in plans.





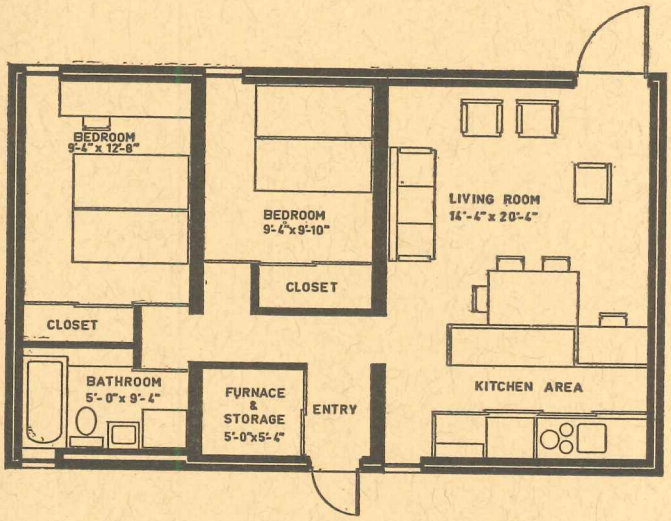
LOCATION: *St. John's County, Jacksonville, Fla.*
ARCHITECT: *Paul Rudolph*
STRUCTURAL ENGINEER: *Herman D. J. Spiegel*
MECHANICAL ENGINEER: *Frank B. Wilder & Associates*
ARCHITECTURAL SUPERVISION: *Robert Ernest*
OWNER: *Mr. and Mrs. Arthur W. Milam*





Married Student Dormitories for Yale Planned Like an Italian Hill Town

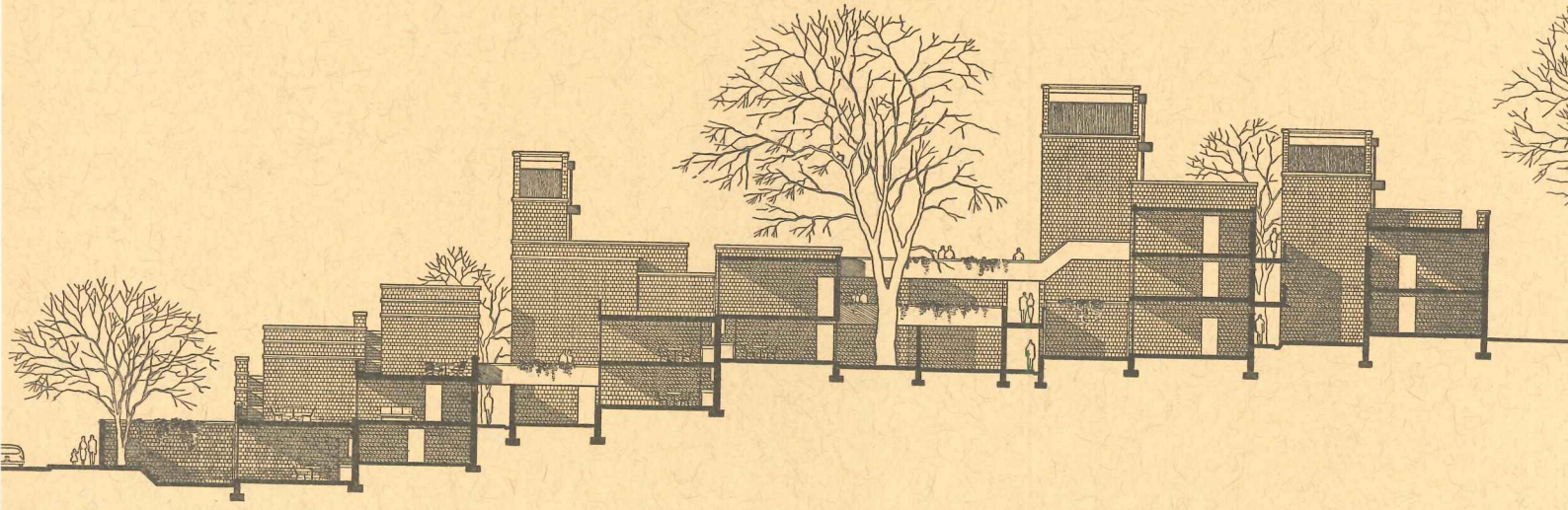
NAME: *Yale Married Student Dormitory*
LOCATION: *New Haven, Conn.*
ARCHITECT: *Paul Rudolph*
STRUCTURAL ENGINEER: *Henry Pfisterer*
MECHANICAL ENGINEER: *vanZelm, Haywood & Shadford*
OWNER: *Yale University*

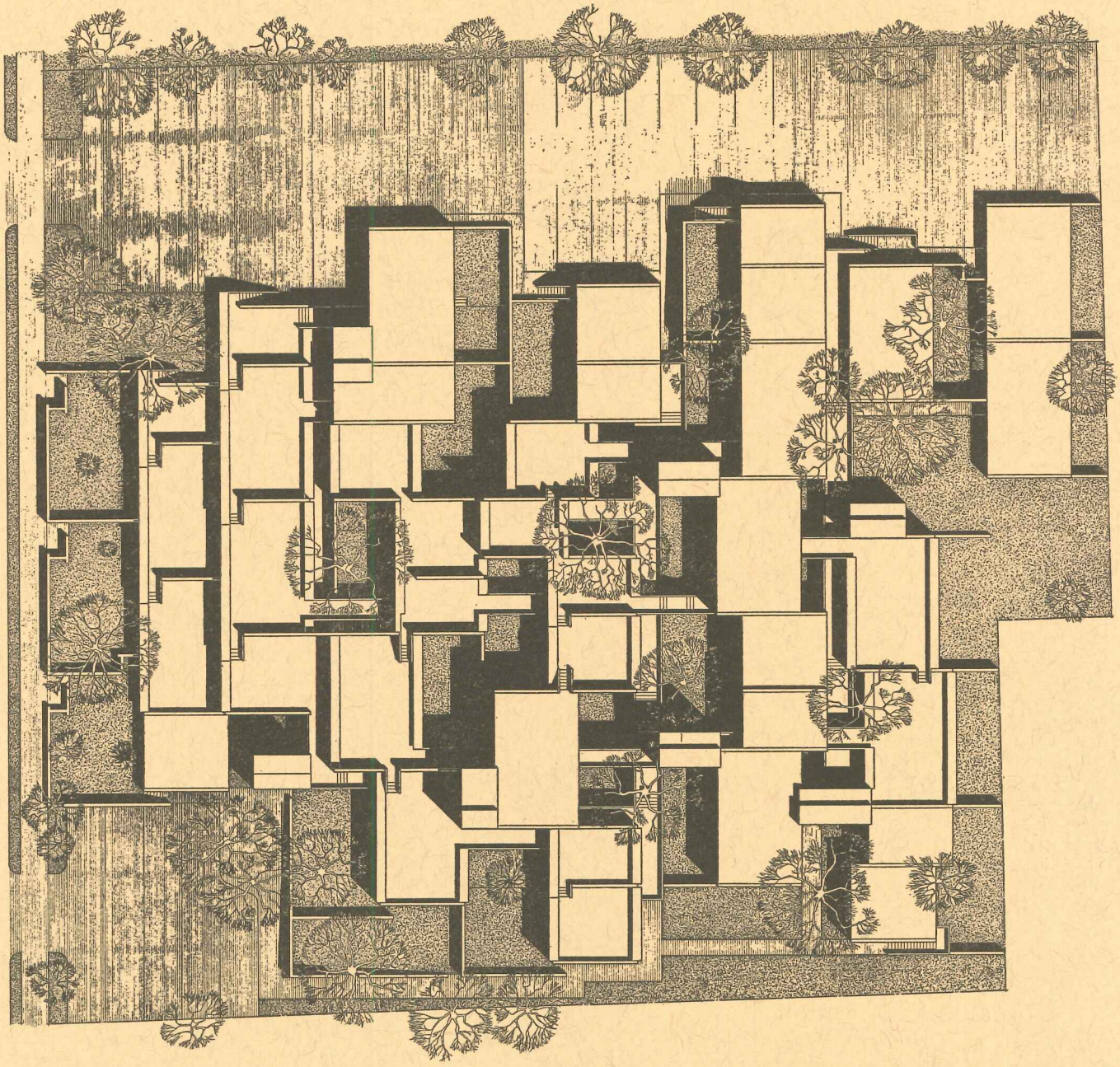


In describing this low rise, medium density housing complex for Yale, Rudolph said: "It should look like a village, not housing . . . though parts are repeated they don't look it. Traditional housing has used repeated housing units, but it doesn't bore. We too must repeat, but not bore. Spaces in between the units are important . . . courtyards and terraces, and paths and entrances."

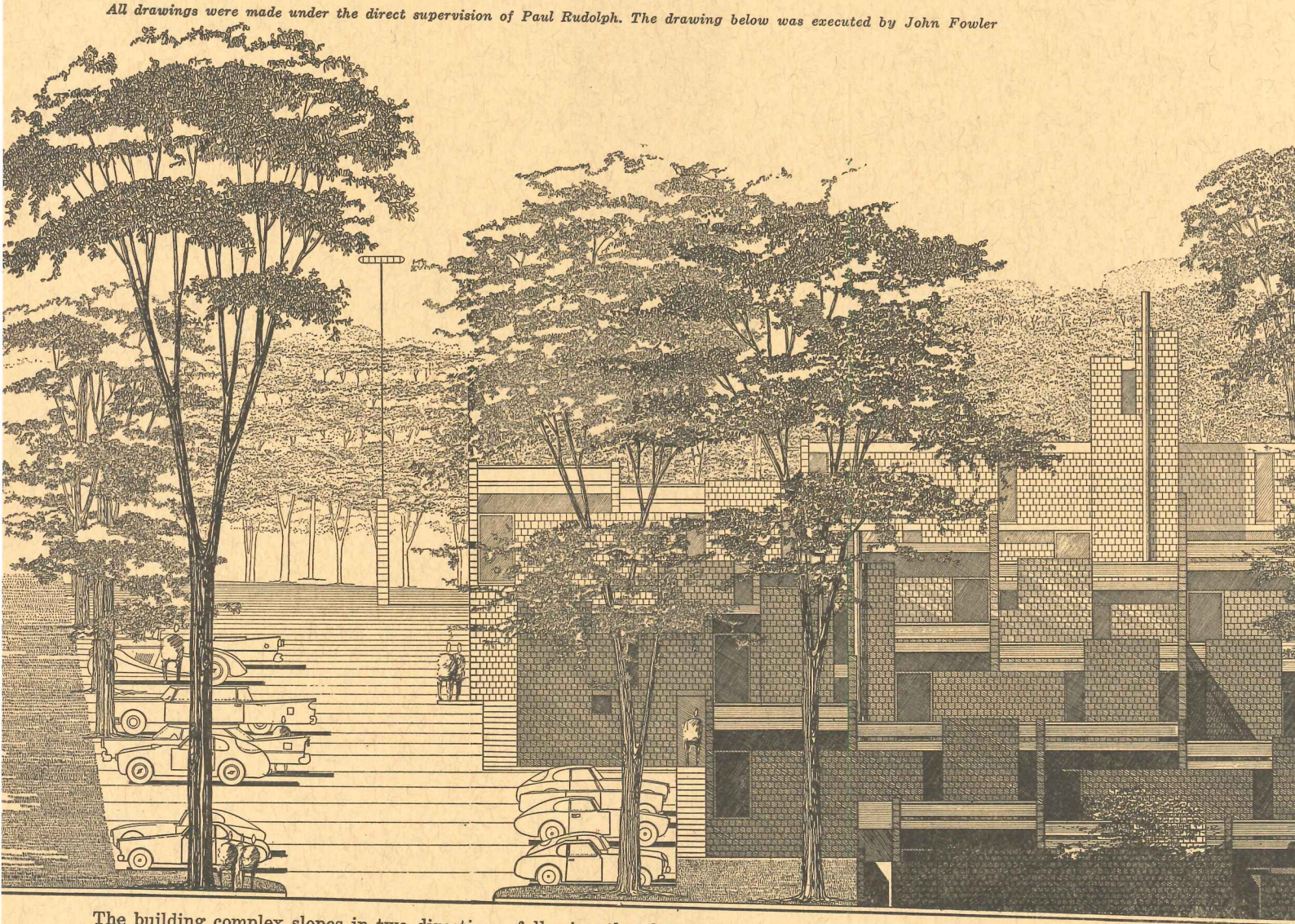
Although Rudolph frees himself from the module in the beach house on the preceding pages, he acknowledges its necessity in a project of this type, but refuses to let it become monotonously assertive. In a necessarily far more complex manner than in the beach house he provides for an infinite variety of spatial experience at a multitude of levels. Entrances are approached through narrow pedestrian alleys that recall the old quarters of old towns, one student family's roof is the next family's terrace, a path between two walls suddenly opens into a court planned to surround a fine existing tree.

Fifty-one units are planned for a gently sloping wooded hillside plot approximately 250 ft by 250 ft or an acre and a half, in a residential section within easy walking distance of the university. All but six of the units have a courtyard surrounded by 7 ft walls, or a terrace. Although all fifty-one units could have been placed in a single high rise building which





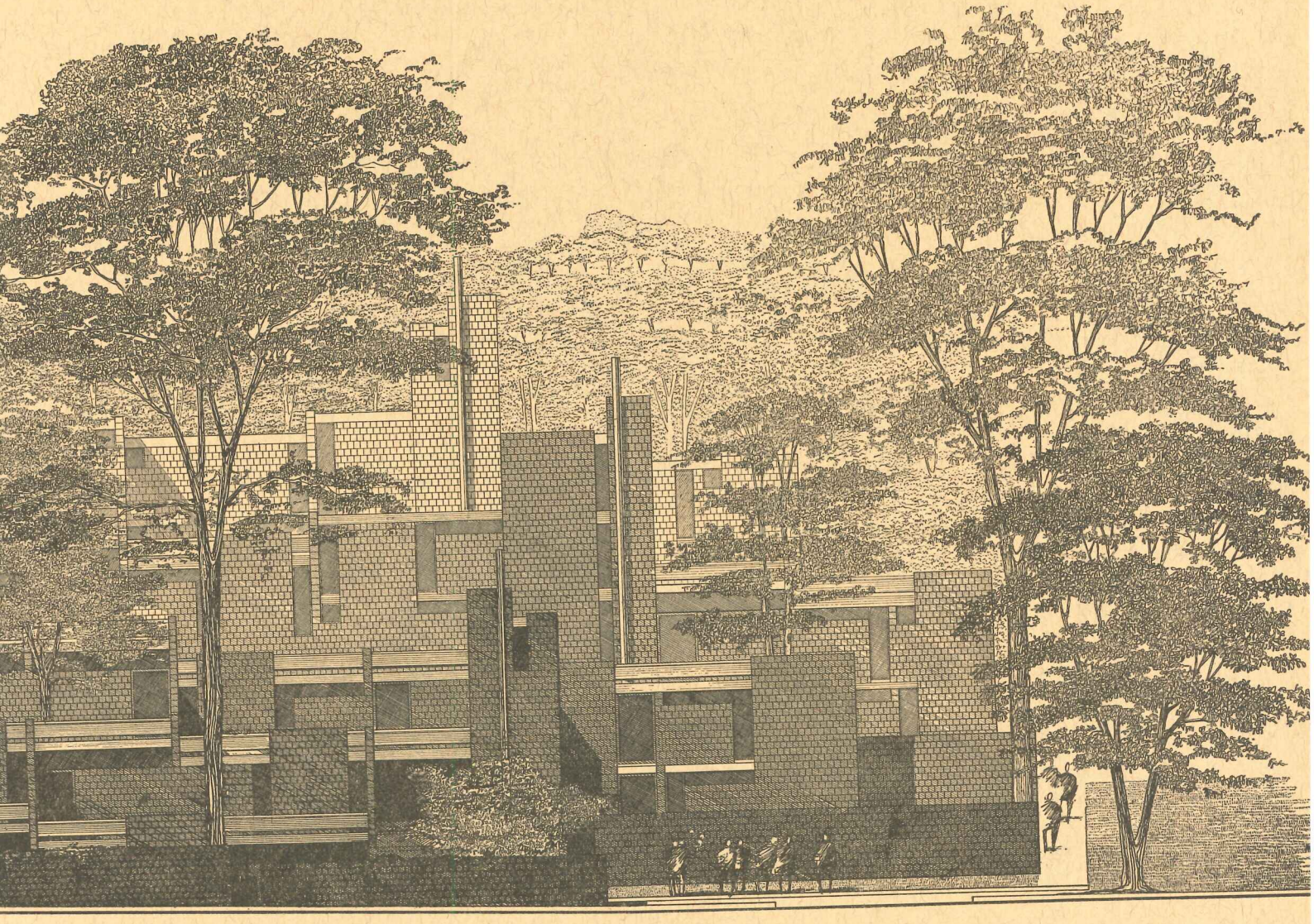
All drawings were made under the direct supervision of Paul Rudolph. The drawing below was executed by John Fowler

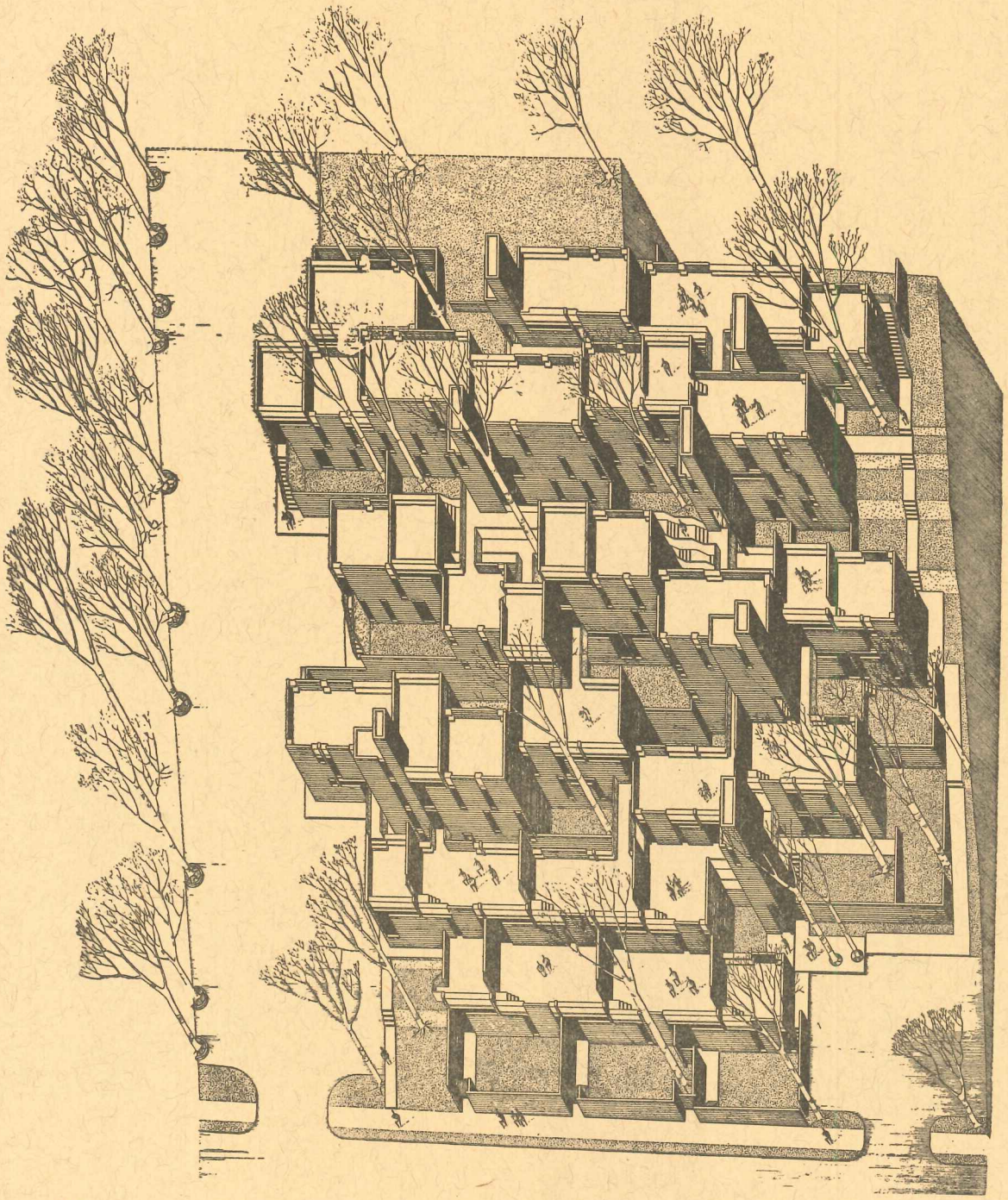


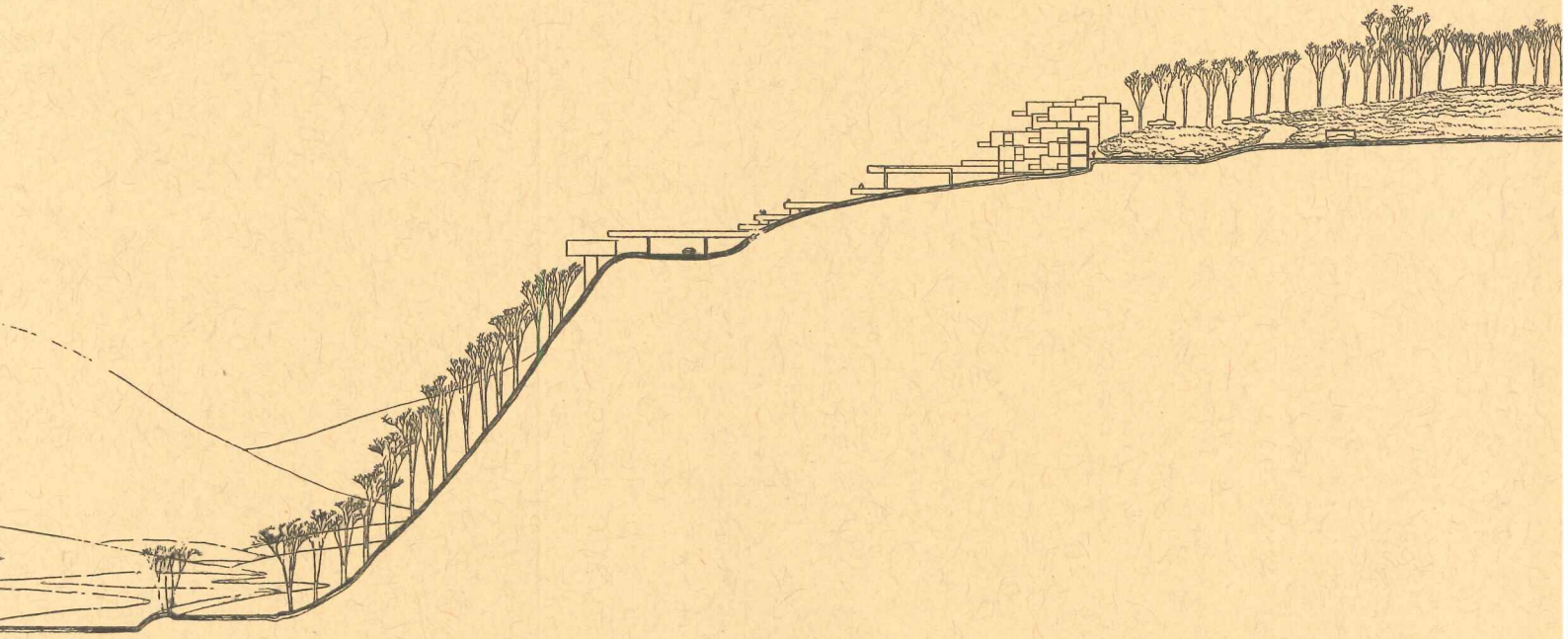
The building complex slopes in two directions, following the slope of the site from the northwest corner at the top of the hill to the southeast corner at the street. Stair towers are dominant verticals

would have utilized a much smaller percentage of the site, Rudolph deliberately chose a low rise solution. It consists of a series of one, two and three storey units, with the one storey units at the bottom of the lot on the street, the two storey in the middle and the three storey at the top, thus exaggerating the appearance of a rising hill.

Construction is based on a completely precast concrete aesthetic. Almost all precast units in addition to the concrete block are standard parts. All load bearing walls will be of cavity construction using 4 in. thick blocks with a 2½ in. air space between. The heavy masonry will have a sound deadening effect important in a building where studying must be done in the midst of one's own and other's noisy family life. Floors will be black asphalt tile, the ceilings unpainted plaster. Terraces will be macadam.

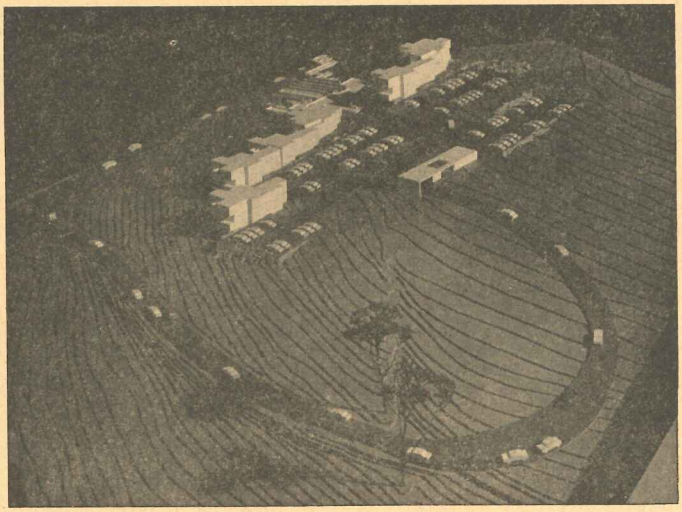


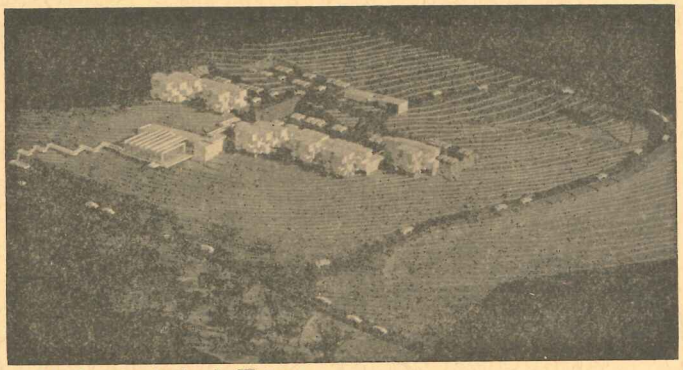




A Motor Lodge of Complex Levels on a Slope

NAME: *O'Brien's Motor Lodge*
LOCATION: *Waverly, New York*
ARCHITECT: *Paul Rudolph*
STRUCTURAL ENGINEER: *Henry Pfisterer*
MECHANICAL ENGINEER: *vanZelm, Haywood & Shadford*
OWNER: *Edwin and William O'Brien*

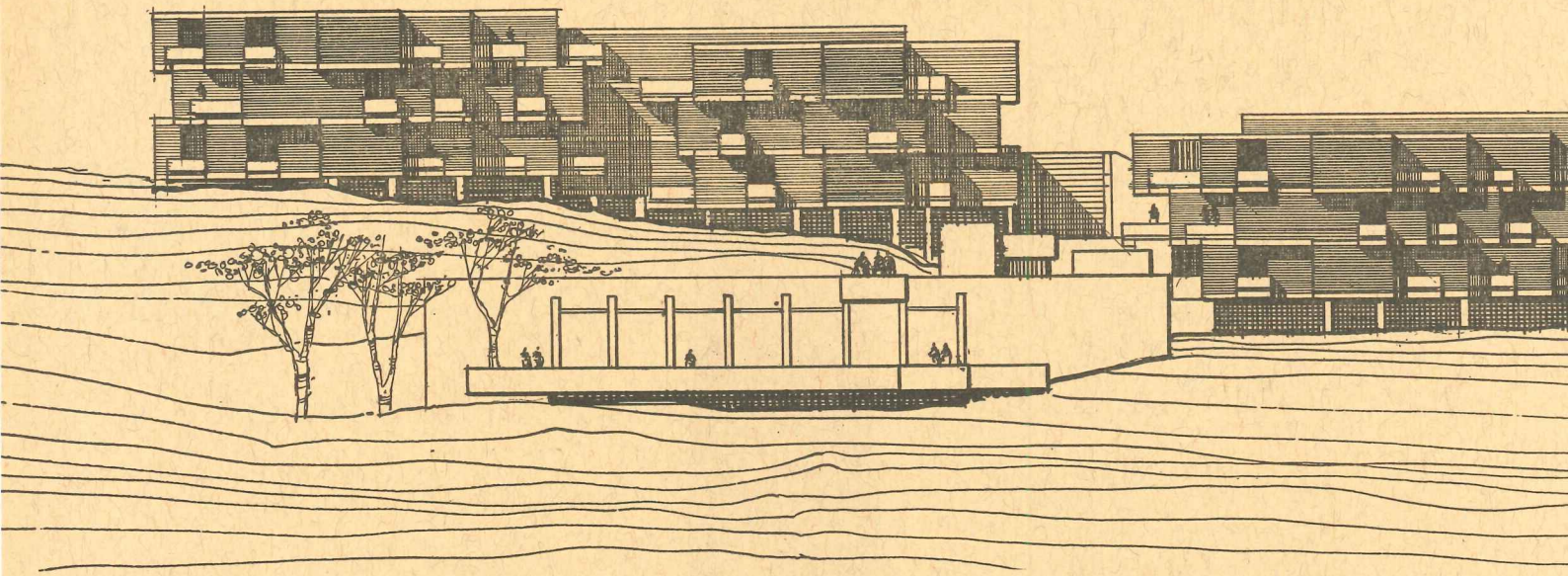


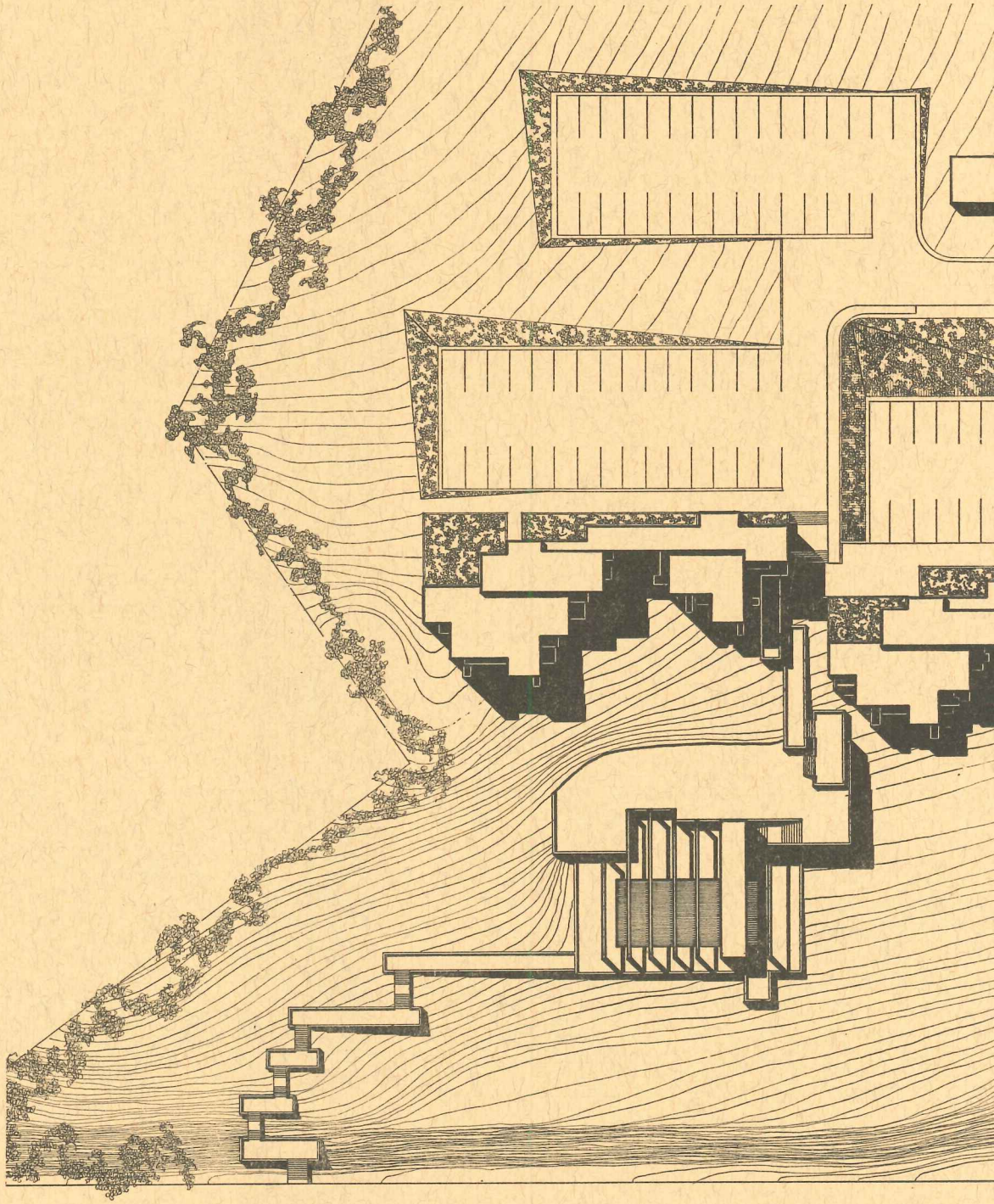


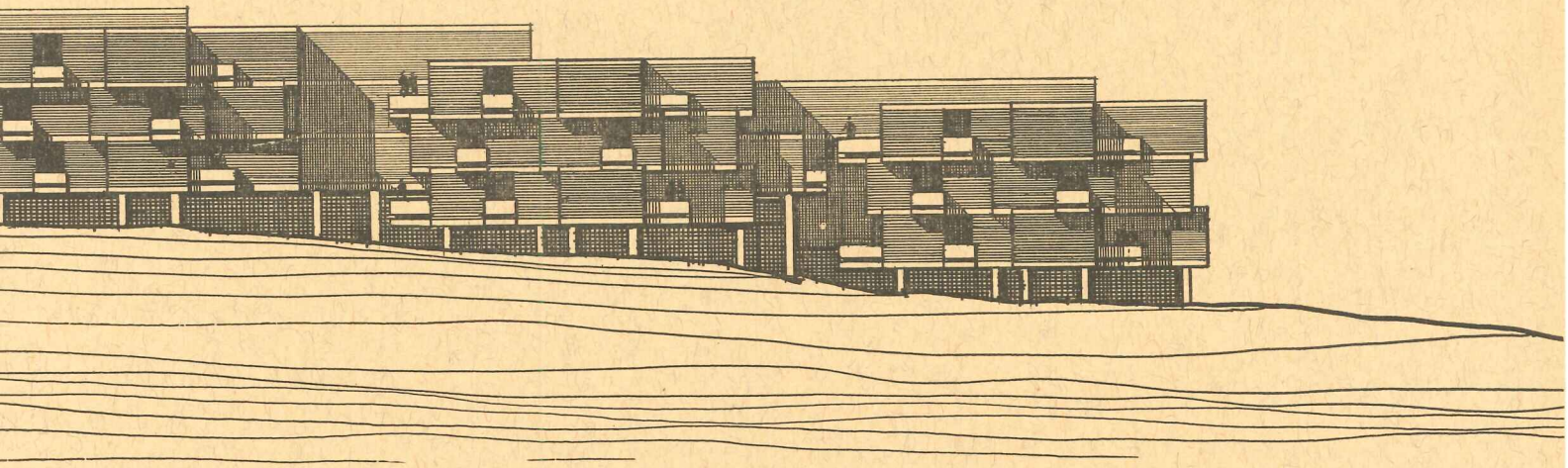
model photographs by J. Watson

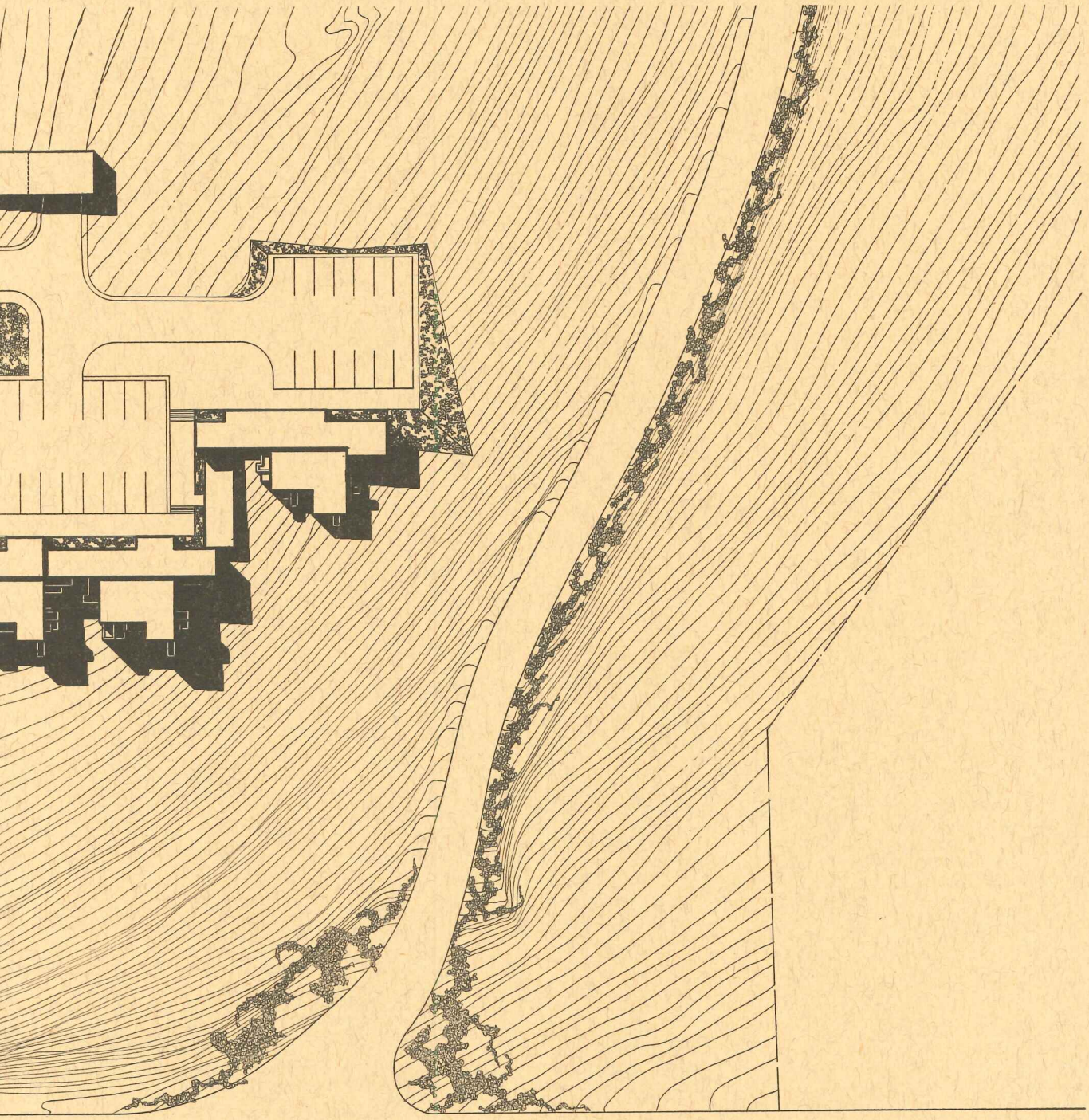
As in the beach house and to a far greater degree like the Yale student housing, this motor lodge is fractured into separate, but interlocking and interpenetrating components. Like the Yale building, the structural module is not easily read. The elements which repeat do so subtly in an irregular rhythm.

It will be constructed of poured in place concrete expressed as such with light brown brick walls. Balconies will be of poured concrete with concrete tables and seats an integral part of the form. Each room will have a balcony and can link with others to form interconnecting suites. All storage will be built in. Brick walls will be exposed on the interior, floors will be carpeted and ceilings will be covered with acoustic plaster.

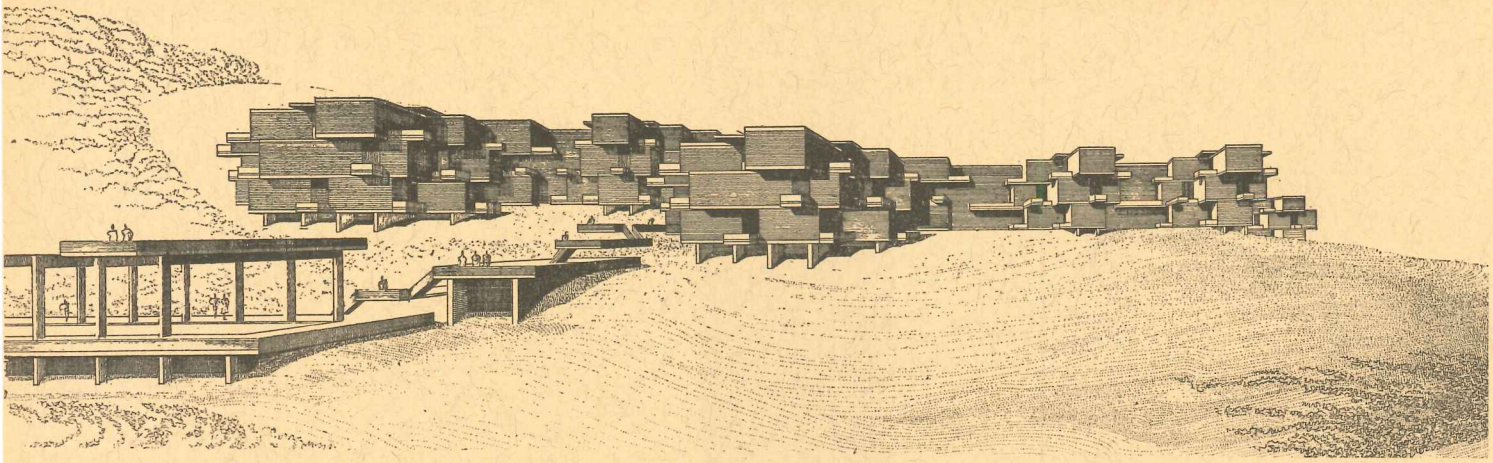


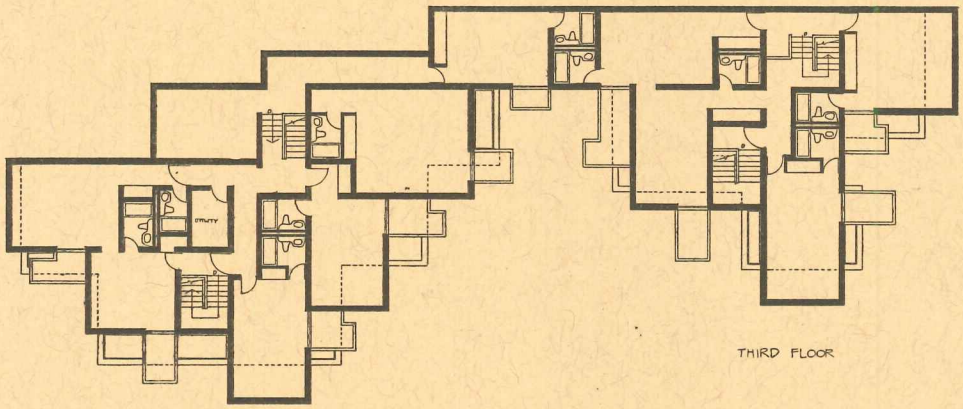


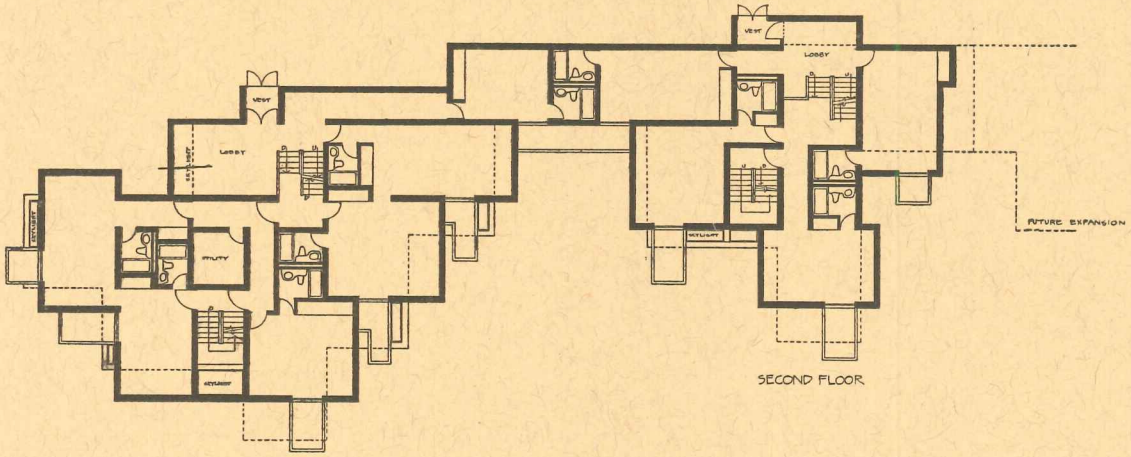


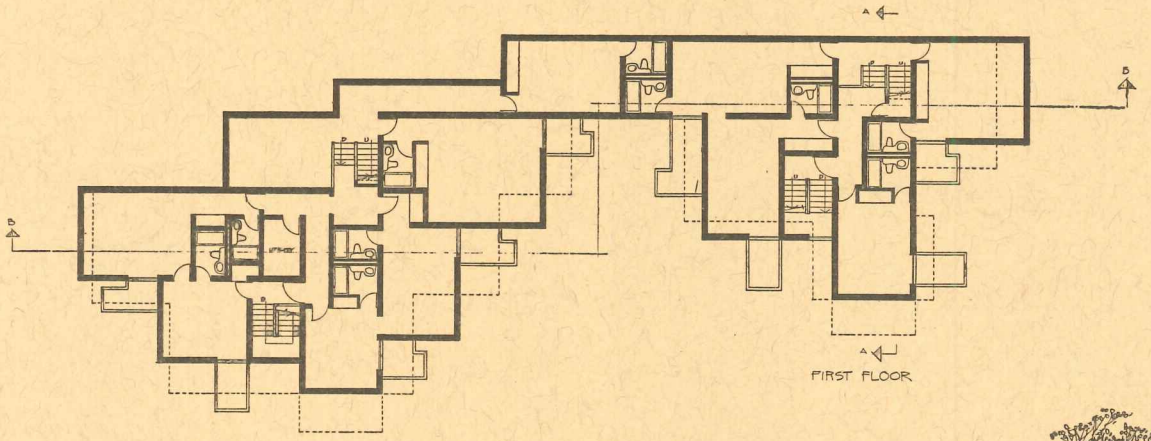


Overall plan. Entrance and control unit extends across road at top of plan

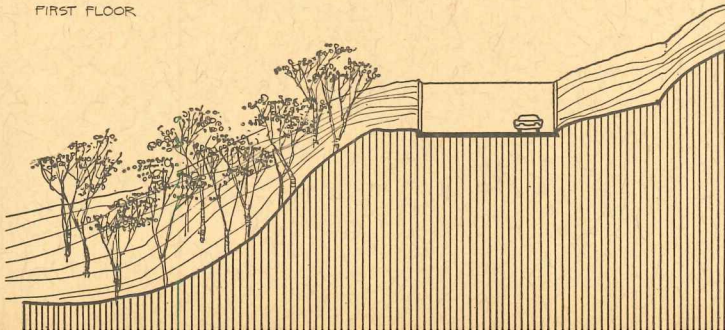


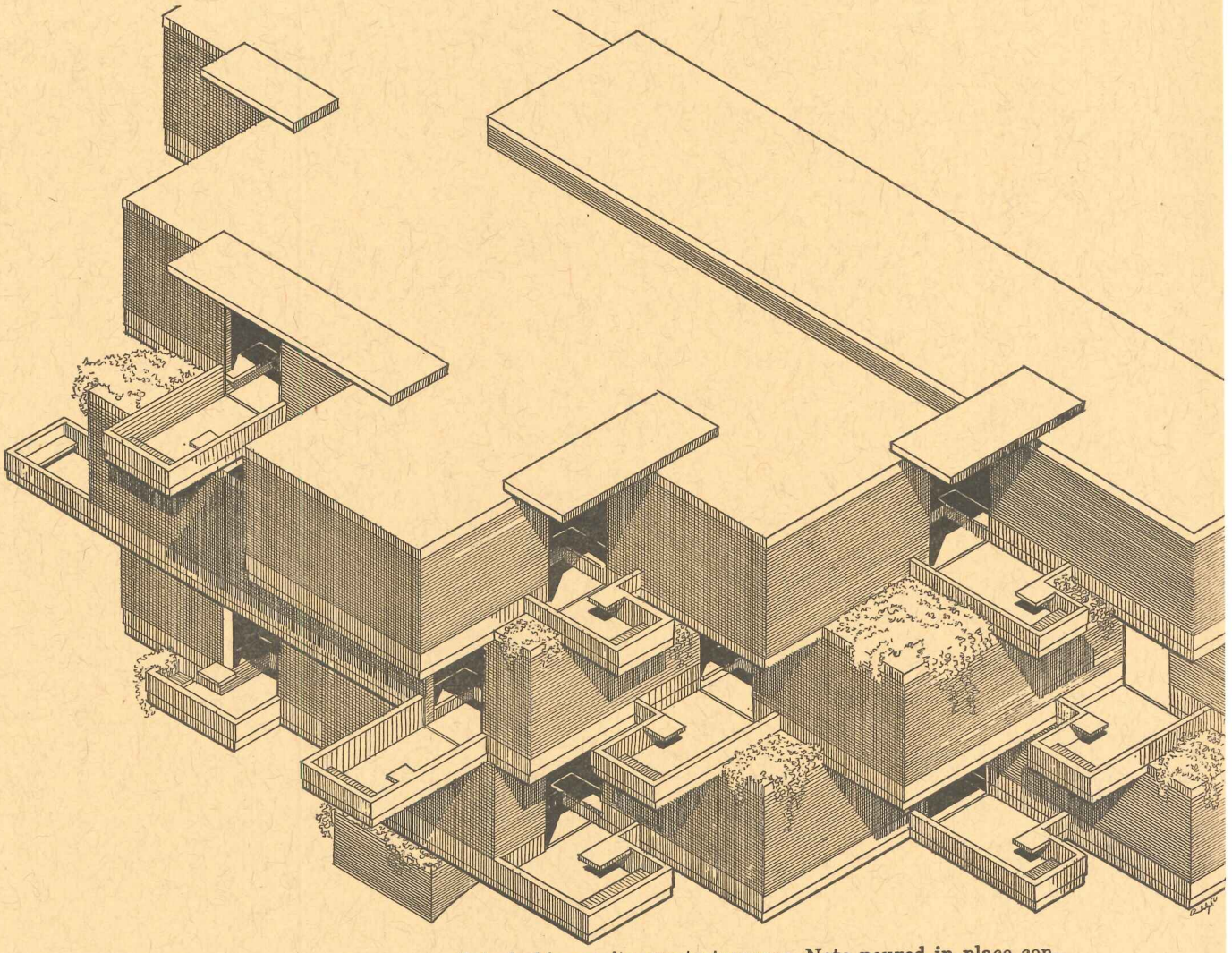




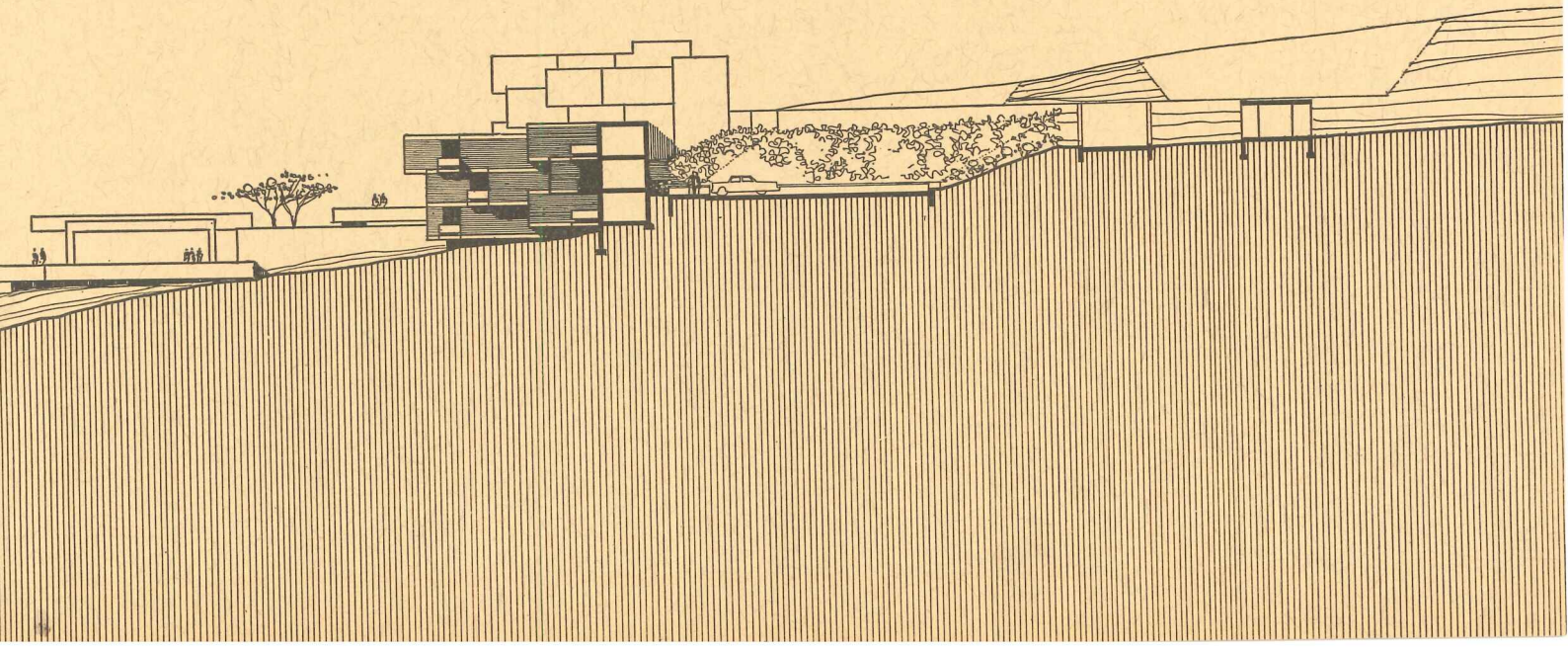


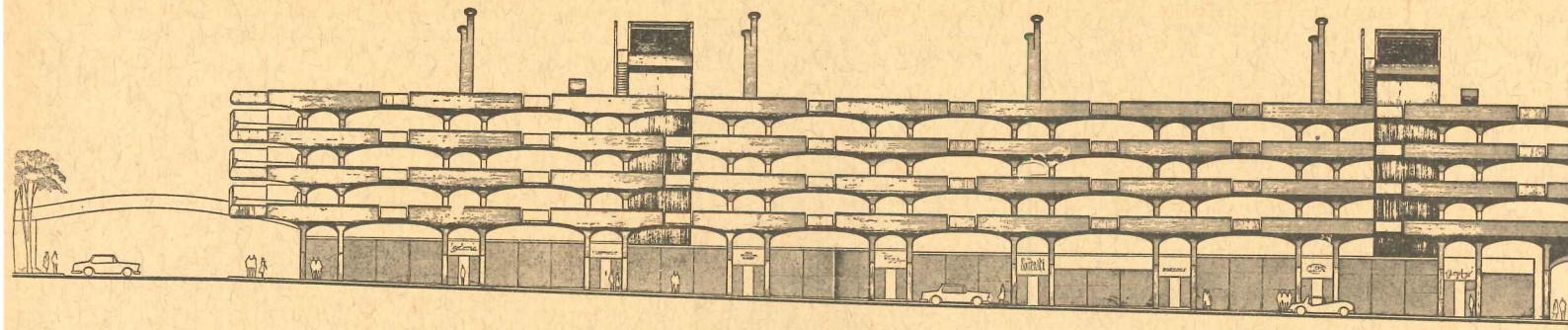
Each individual room is expressed on the exterior. To be built on a barren, sculptured rock outcropping on a mountainside which overlooks a river valley 200 ft below and can be seen from thirty miles away, the lodge is designed to create a strong image from a distance.





Interlocking units create terraces. Note poured in place concrete tables and seats on projecting concrete balconies

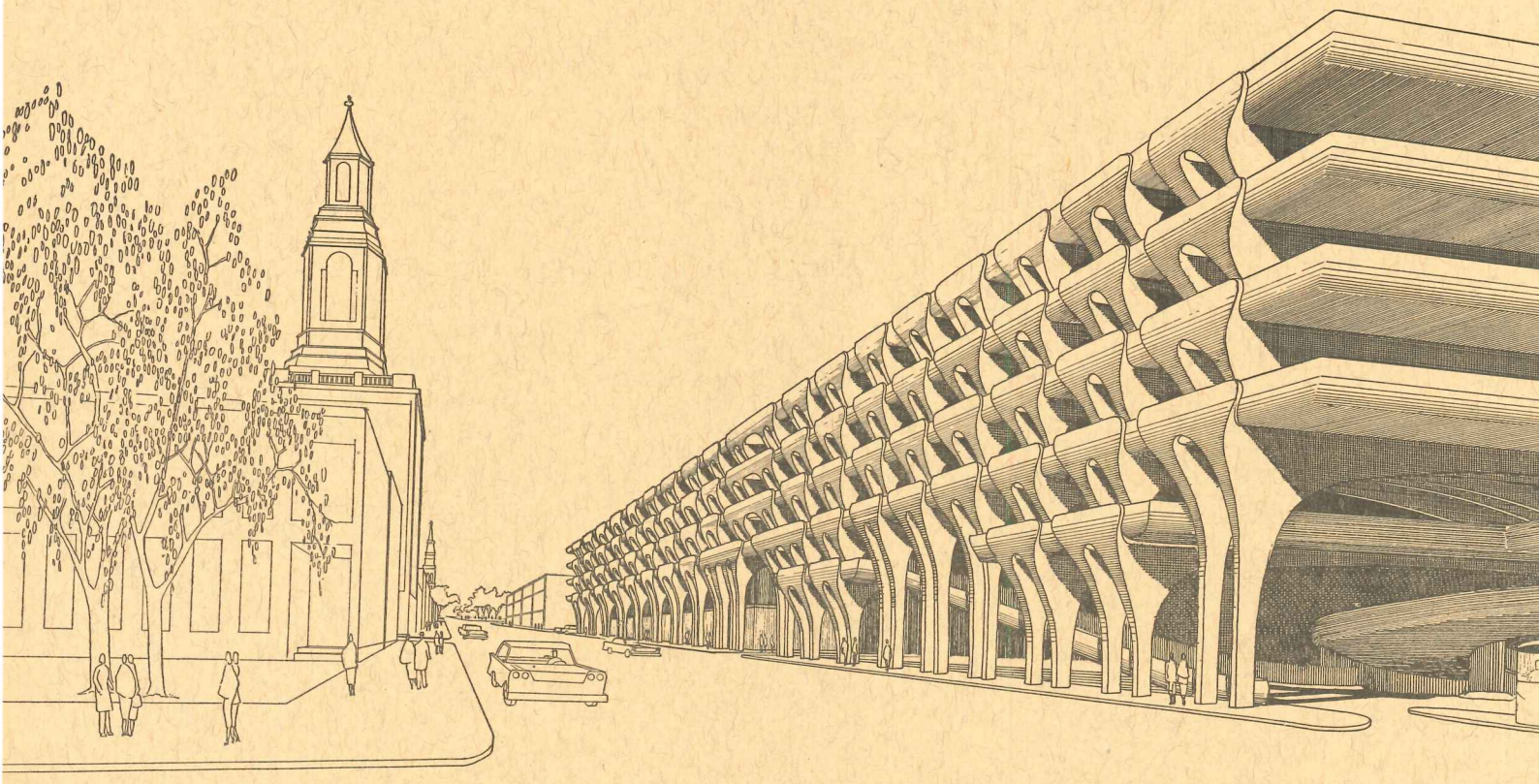


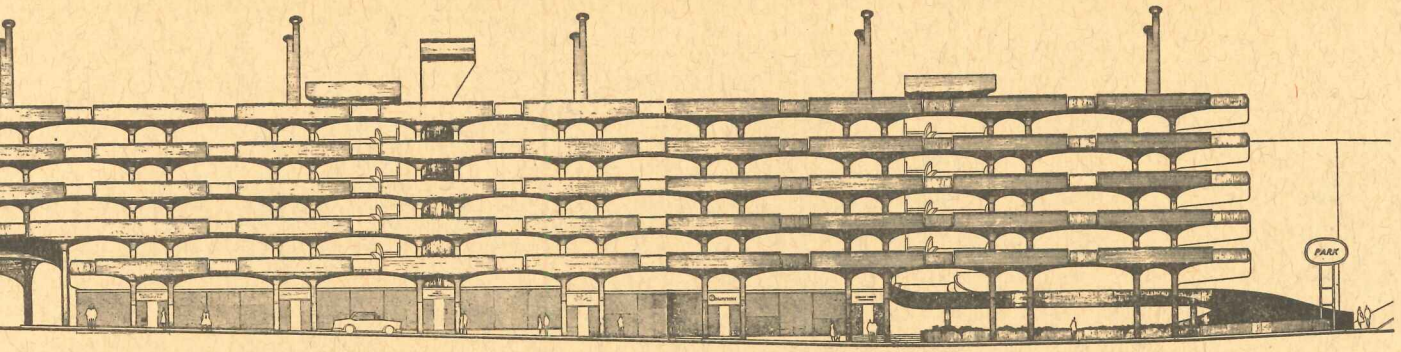


A Parking Garage for 1500 Cars

NAME: *Temple Street Parking Garage*
LOCATION: *New Haven, Conn.*
ARCHITECT: *Paul Rudolph*
STRUCTURAL ENGINEER: *Henry Pfisterer*
MECHANICAL ENGINEER: *Jerome Mueller*
PARKING CONSULTANT: *E. A. Barton & Associates*
PARKING ECONOMICS CONSULTANT: *Wilbur, Smith & Associates*
OWNER: *City of New Haven, Conn., Honorable Richard C. Lee, Mayor*
New Haven Parking Authority, Roy A. Michaels, Chairman

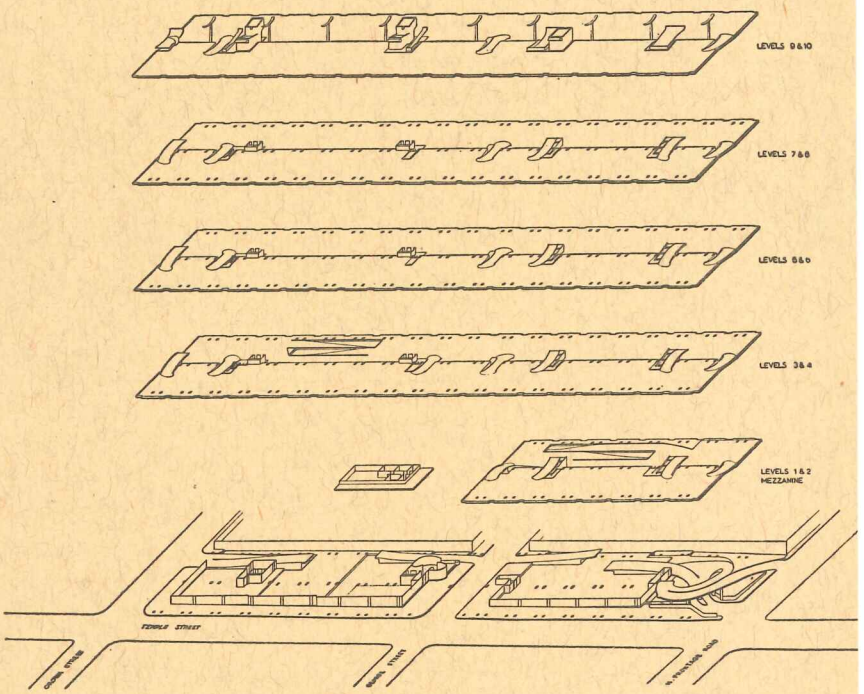
In the housing on the preceding pages Rudolph attempts to create the proper ambience for people, in the Temple street parking garage he endeavors to hit the right note for cars. Said he: "Most parking garages look like office buildings with glass. I wanted to make it look like it belonged to the automobile and its movement . . . a system of bridges . . . of large open spans." Unlike the beach house, the Yale dormitories and the motor lodge, the structure of Rudolph's parking garage is clearly expressed and clearly modular. The structure itself, rather than a pattern of projecting and receding units, establishes the basic rhythm of the building. Floor levels are staggered (see section, page 154) but this is common practice in parking garages. This parking garage, however, reflects the same basic architectural approach found in the housing, an approach which never permits preconceptions about expression of

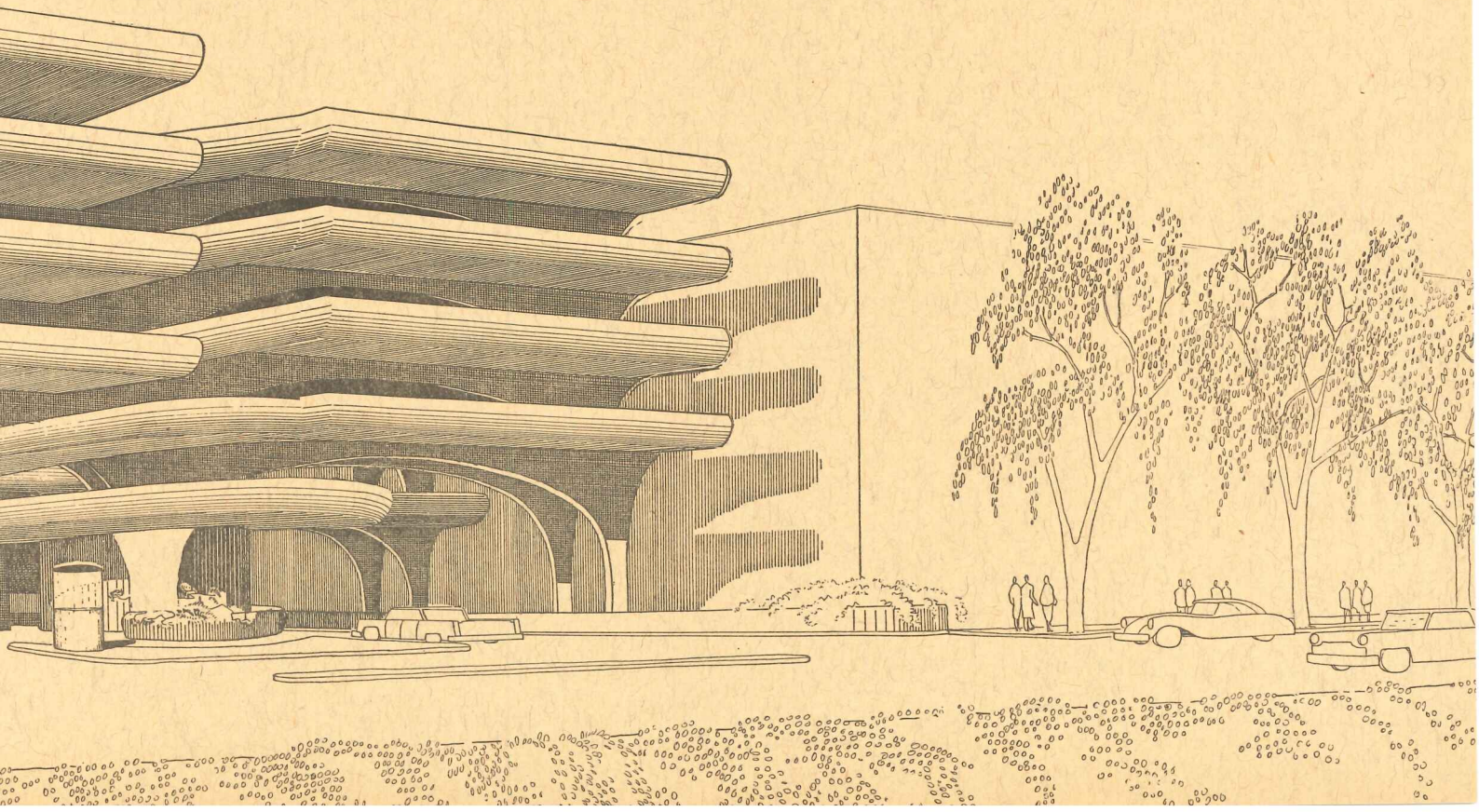




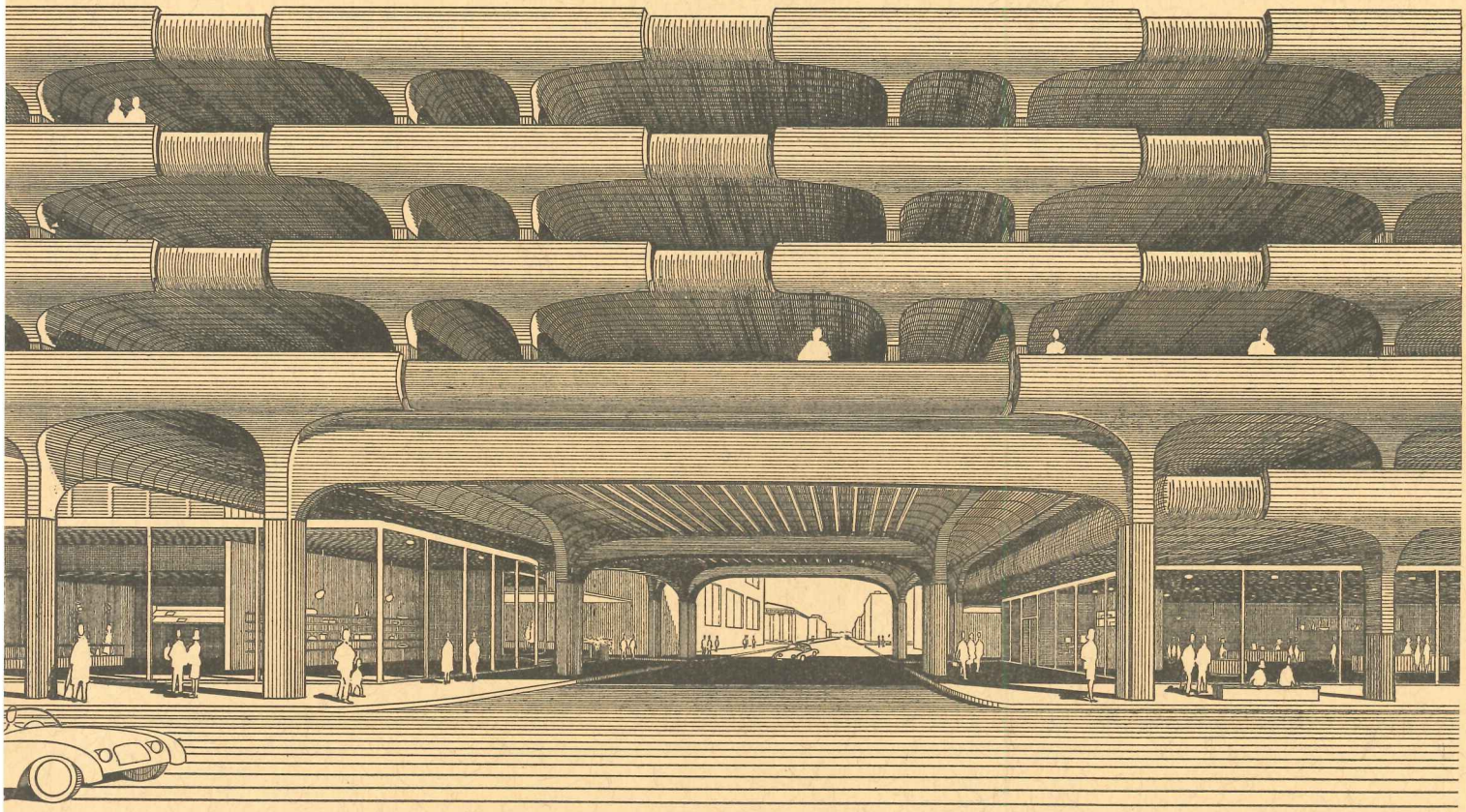
structure and module to interfere with the search for appropriate form.

This garage, a part of the Church Street Redevelopment Project in the New Haven Urban Renewal Program spearheaded by Mayor Richard C. Lee, will stretch for 726 ft spanning two city blocks in the central business district near New Haven Green. There will be three half levels underground and eight half levels above ground with shopping at the street level. Now under construction, the reinforced concrete structure is made of two dimensional curves formed by strips of wood 2 in. wide. Form marks will show. Double columns are 10 ft apart and each pair of them is 30 ft apart. One car may be parked between the double columns and three between each pair. The double columns provide a needed vertical emphasis in the horizontal length of the facade. The approximate cost will be $4,700,000 without shops.

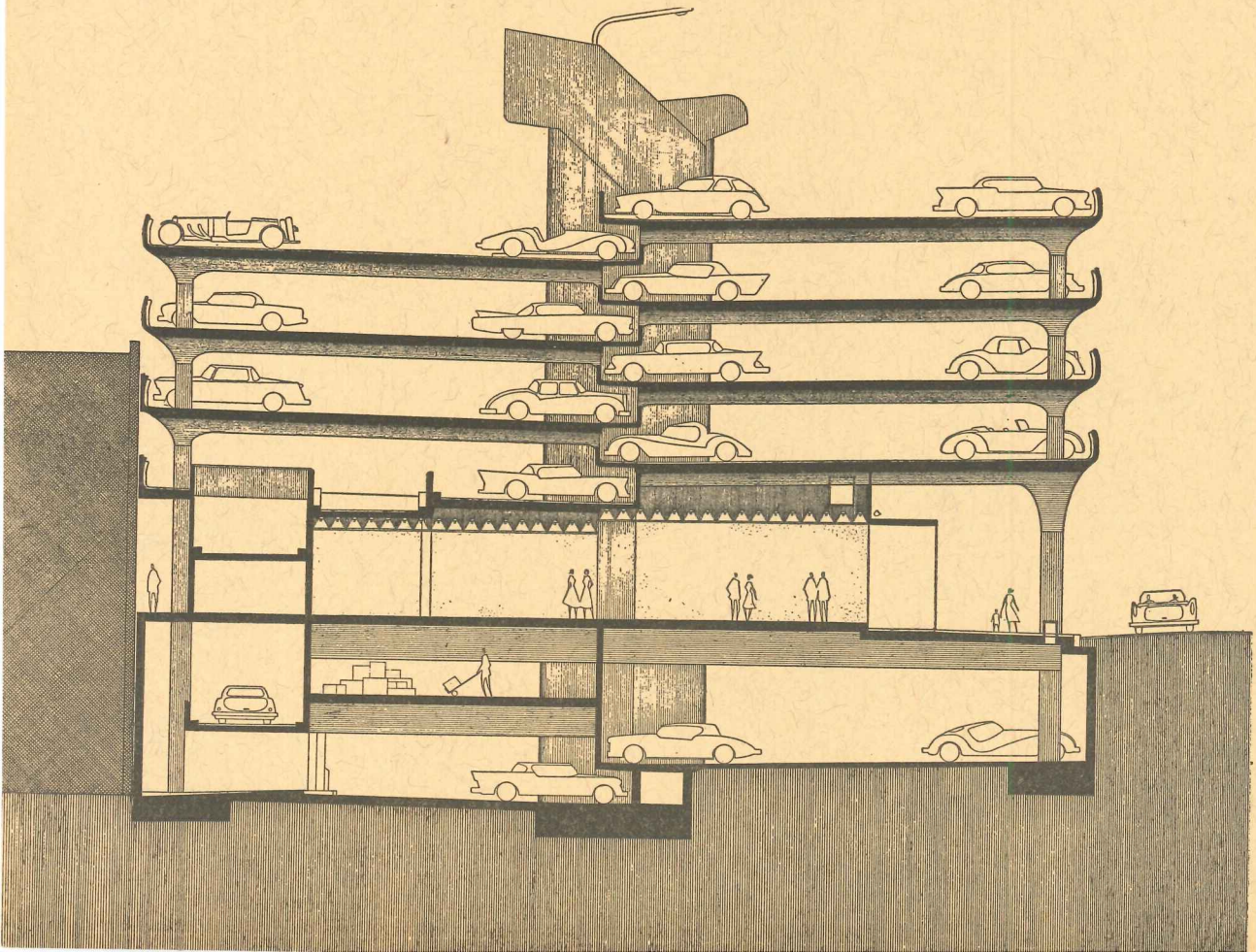




Paul Rudolph: Parking garage



Garage is located near New Haven's Oak Street connector which links New Haven's shopping and commercial district with the Connecticut turnpike. Perspective shows garage spanning major traffic artery, section shows staggered levels for economical use of space



Two of the main problems in architectural practice today are concerned with costs —how to keep them under control, and how to explain them to clients. In order to control costs, it is necessary to obtain reliable cost information, analyze it, and establish the basic relationships between different cost items. When this has been done, the information necessary for explanations to clients will be at hand. In the following pages, some highly successful methods for keeping costs in their place, understanding them, and graphically demonstrating them are discussed.

PERSONNEL DENSITY

A New Measure of Construction Costs

By Frank L. Whitney, Architect, Vice President of Engineering, Walter Kidde Constructors, Inc.

Your building seems identical to the one next door, yet it will cost three times as much as its neighbor. How does this happen? And how can you explain it to clients? The answers are simple. Determine the true causes of price variations. Present this data to clients in understandable form. For example, people have a dramatic effect on construction costs. The higher the personnel density, the greater the requirements for increased facilities needed to maintain worker efficiency and productivity.

An appreciation of this relationship helps to sharpen the understanding of the major factors that influence the price of building construction today. To reduce costs, too many owners immediately want to axe the glazing on the brick walls or lower the quality of the wall construction. Yet the price of these items is insignificant compared to the cost of air conditioning, cafeterias, washrooms, parking area, heating—all of which are determined and sized largely by density of plant personnel.

The impact of this relationship was brought home to us in a study we made for one of our clients, who was interested in analyzing cost breakdowns of typical industrial structures. For the study, we chose a 200,000 square-foot single-story building as a basic plant. We estimated its cost as a warehouse, without manufacturing operations.

We provided for a minimum number of people; twenty men in the warehouse and three men and five women in the office. This gave us a low personnel density factor of one person per 8000 sq. ft. We included minimum railroad sidings, site grading, fire protection, roads, and parking. Interior lighting was set at 10 foot-candles in the warehouse, and 50 foot-candles in the office. Warehouse was heated to 55 deg. F. by direct-fired units, and the office was heated to 70 deg. F. by convectors.

Cost per square foot of this minimum basic structure not including the cost of design and an allowance for contingencies, was established at an index of 100.

The next step was to change the scope of the structure. Without altering its size or shape, we made it a light manufacturing building with 700 employees, or a personnel density of about one person per 285 sq. ft. To accommodate the increased population, we added a lunch room, more toilet and locker room facilities, first aid and personnel offices. Lighting had to be increased to 40 foot-candles in the manufacturing area, and fluorescent fixtures replaced incandescents. We also added electrical substations, bus ducts, power distribution facilities. Mechanical ventilation was added, which in turn required pent houses and roof openings—and heavier foundations and framing to support them.

Higher personnel density also demanded a change from unit heaters to a central boiler-plant system, of a capacity large enough to maintain a 70 deg. F. temperature throughout the entire building. Air conditioning was added to the enlarged office area. We increased the bay size to 40 x 40 ft., enlarged parking lots to handle 500 cars, added metallic hardener to floors to lower maintenance costs by minimizing dust formation. Also increased were sanitary facilities, waste treatment, landscaping and laboratory facilities.

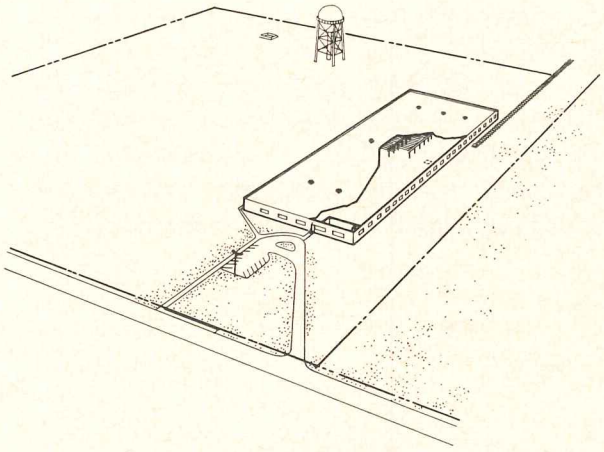
Although this new manufacturing building actually was the original basic structure, with only a few changes, the cost more than doubled to a new index of 254.4, without professional fees and contingency allowance. The only major changes in the basic structure were increased bay spacing, enlarging of framing and foundations, and slightly more expensive entrance and exterior walls. So the bulk of the cost increase went for additional mechanical, electrical, and site work. All of these relate directly to the personnel density of the building.

To obtain further cost information, we carried the study one step further. The number of people was raised from 600 to 1000, or a personnel density of about one person per 200 square feet—a figure not at all uncommon for a plant where, for example, small components are manufactured mostly by bench work.

What changes were made to accommodate the additional 400 people? Some were obvious. We replaced the lunch room with a kitchen and cafeteria. Parking had to be increased to handle 850 cars. And because of the nature of the manufacturing, lighting had to be jumped to 50 foot-candles. We increased toilet facilities, locker rooms and partitions.

Since worker production in such a high-density plant is of paramount importance, full air conditioning was economically justified. So was vinyl asbestos floor tile instead of concrete. The exterior treatment and site work were also upgraded. We have found it good business economy to provide attractive surroundings for employees in a plant of this sort.

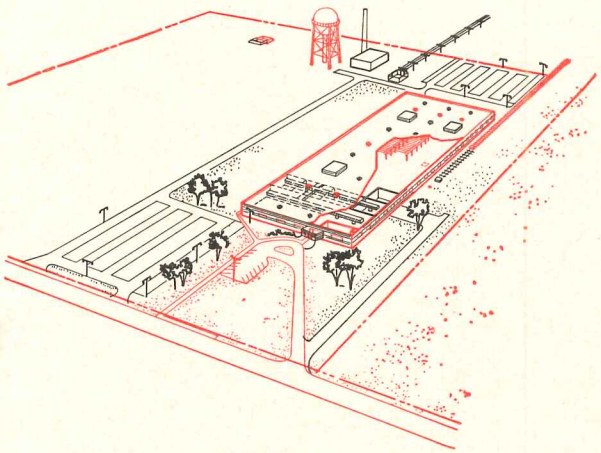
Despite the fact that the building remained—essentially —the original basic structure, the cost jumped to an index of almost 340, exclusive of fees and contingencies. The modifications required to make the plant a high-density-personnel manufacturing facility again were largely in mechanical and site work, rather than architectural or structural. The cost had now more than tripled that of the basic structure—clear proof that people have impact on the cost of manufacturing facilities.



BASIC BUILDING—1 person/8000 sq ft

With necessary modifications, information and charts such as those shown in these pages could be developed for almost any building type. Information of this sort should be of help in controlling building construction costs, understanding them, and explaining them to clients. For the building shown here, the costs are based on an index of 100 for the complete building, plus professional fees and a 10 per cent contingency allowance. The building, on which these costs are figured, is a single-story warehouse, 200,000 ft. in area, with 25 employees and a personnel density of only 1 person per 8000 sq ft

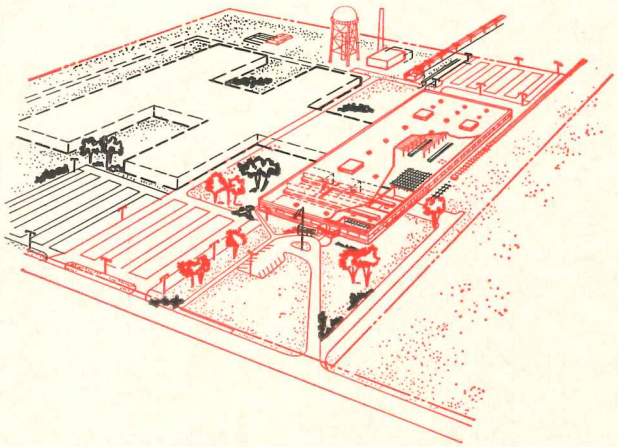
	BASIC STRUCTURE
ROOF	
20 year bonded roof, steel roof deck, 1 in. insulation.	18.3
FRAMING	
16 ft clear height columns, girders, purlins. 20 by 40 ft bays.	19.3
WALLS	
10 in. concrete block, painted on exterior with cement paint.	4.2
WINDOWS	
Commercial grade projected steel sash with loose lintels, poured in place concrete sills.	2.1
FLOORS	
5 in. concrete slab on grade, with 6 by 6, #6/6 mesh reinforcing and liquid hardener.	12.8
FOUNDATIONS	
Reinforced concrete spread footings and grade beams.	3.6
PARTITIONS	
Cinder block.	0.4
ADDED FACILITIES	
ENTRANCE	
Allowance	0.5
ELECTRICAL	
Offices—50 F.C., fluorescent fixtures. Plant—10 F.C., incandescent fixtures.	4.8
HEATING, VENTILATION, AIR CONDITIONING	
Office heated 70 deg. F. with hot water convection. Plant heated to 55 deg. F. with direct fired heaters.	9.4
PLUMBING	
Toilet facilities for 20 men in plant, 3 men and 5 women in office. Roof drains.	3.9
FIRE PROTECTION	
Hose cabinets throughout building. Sprinklers in plant area only.	4.3
SITE WORK	
Bituminous concrete surfaced road and parking area for 20 cars, concrete curbs, sidewalks, landscaping. Railroad siding, sanitary disposal system, elevated water storage tank, and sprinkler loop.	16.4
PROVISION FOR FUTURE EXPANSION	
TOTAL COST, BUILDING AND SITE WORK	**100.0**
PROFESSIONAL FEES—6%	6.0
CONTINGENCY—10%	10.6
TOTAL PROJECT COST	**116.6**



MODIFIED BUILDING NO. 1—1 person/285 sq ft

In this modification, the basic warehouse building shown on page 156 was changed to accommodate 700 employees who would be required in a light manufacturing operation. The area remains the same as that of the warehouse, but the personnel density has risen to 28 times that of the basic building. Extra costs of this building, most of them made necessary by the larger number of people, raise the total price to almost 3 times that of the warehouse. Many details of the added costs, such as the factor of only 1.8 for adding continuous windows as opposed to 50.5 for additional site work, should be revealing and informative

	BASIC STRUCTURE	ADDITION NO. 1	BASIC STRUCTURE PLUS ADDITION NO. 1
ROOF			
20 year bonded roof, steel roof deck, 1 in. insulation.	18.3		
Additional roof openings, flashing, duckboards.		1.5	19.8
FRAMING			
16 ft clear height columns, girders, purlins. 20 by 40 ft bays.	19.3		
Bay sizes increased to 40 by 40 ft. Live loads increased 6 psf for future monorails. Additional penthouses and roof openings for process exhausts. Allowance for process piping increased.		20.8	40.1
WALLS			
10 in. concrete block, painted on exterior with cement paint.	4.2		
Face brick added on office exterior and front of plant. Plant interior painted.		2.1	6.3
WINDOWS			
Commercial grade projected steel sash with loose lintels, poured in place concrete sills.	2.1		
Continuous sash added in plant and office areas. Venetian blinds in offices, shades in plant area.		1.8	3.9
FLOORS			
5 in. concrete slab on grade, with 6 by 6, #6/6 mesh reinforcing and liquid hardener.	12.8		
Changed to 6 in. slab on porous fill with metallic hardener.		7.0	19.8
FOUNDATIONS			
Reinforced concrete spread footings and grade beams.	3.6		
Sizes increased to allow for additional loads of penthouses, etc.		2.6	6.2
PARTITIONS			
Cinder block.	0.4		
Amount of partitioning increases.		7.0	7.4
ADDED FACILITIES			
Additional office area, first aid room, personnel office, locker room, lunch room. Penthouses for air conditioning and ventilation, minimum laboratory, telephone equipment and switchboard rooms, loading dock and dock levelers.		9.7	9.7
ENTRANCE			
Allowance	0.5		
Increase in allowance		0.8	1.3
ELECTRICAL			
Offices—50 F.C., fluorescent fixtures. Plant—10 F.C., incandescent fixtures.	4.8		
Plant lighting increased to 40 F.C., fluorescent. Primary service facilities increased to 2000 KVA cap. Additional substations, bus ducts, power distribution, call systems, telephones, utility outlets, clocks, etc. Underfloor ducts added in offices.		19.8	24.6
HEATING, VENTILATION, AIR CONDITIONING			
Office heated 70 deg. F. with hot water convection. Plant heated to 55 deg. F. with direct fired heaters.	9.4		
Heating for plant increased to 70 deg. F. capacity; direct fired heaters eliminated. Mechanical supply and exhaust, providing 6 air changes per hour in summer, 2 to 3 in winter, added in plant. Air conditioning added in office areas. Perimeter radiation added.		24.9	34.3
PLUMBING			
Toilet facilities for 20 men in plant, 3 men and 5 women in office. Roof drains.	3.9		
Toilet facilities increased to accommodate 450 men and 250 women. Compressed air and gas systems added.		3.3	7.2
FIRE PROTECTION			
Hose cabinets throughout building. Sprinklers in plant area only.	4.3		4.3
SITE WORK			
Bituminous concrete surfaced road and parking area for 20 cars, concrete curbs, sidewalks, landscaping. Railroad siding, sanitary disposal system, elevated water storage tank, and sprinkler loop.	16.4		
Plant parking increased to 500 cars. All other facilities listed above increased. Fencing, seeding, storm drainage, yard and parking lot lighting, visitors' parking added. Heavy duty bituminous concrete road and boiler plant with required heating capacity added.		50.5	66.9
PROVISION FOR FUTURE EXPANSION			
Allowance		2.6	2.6
TOTAL COST, BUILDING AND SITE WORK	**100.0**	**154.4**	**254.4**
PROFESSIONAL FEES—6%	6.0	9.3	15.3
CONTINGENCY—10%	10.6	16.4	27.0
TOTAL PROJECT COST	**116.6**	**180.1**	**296.7**



MODIFIED BUILDING NO. 2—1 person/200 sq ft

The example, shown on this page, might be a plant for the assembly of precise and intricate electronic machines. It provides facilities for 1000 people in a 200,000 sq. ft. area. The cost of this modification of the plants shown on the preceding pages follows the same patterns as they—added people equal added costs. If the size of this building were doubled, a number of construction items would not require increase or duplication. Therefore, the additional 200,000 sq ft could be built for an index of approximately 78, compared to the 100 of the original basic building

	BASIC STRUCTURE PLUS ADDITION NO. 1	ADDITION NO. 2	BASIC STRUCTURE PLUS ADDITIONS 1 & 2
ROOF			
20 year bonded roof, steel roof deck, 1 in. insulation.			
Additional roof openings, flashing, duckboards.	19.8		
Insulation increased to 2 in.		2.3	22.1
FRAMING			
16 ft clear height columns, girders, purlins. 20 by 40 ft bays.			
Bay sizes increased to 40 by 40 ft. Live loads increased 6 psf for future monorails. Additional penthouses and roof openings for process exhausts. Allowance for process piping increased.	40.1		
Further increase in process piping allowance.		1.0	41.1
WALLS			
10 in. concrete block, painted on exterior with cement paint.			
Face brick added on office exterior and front of plant. Plant interior painted.	6.3		6.3
WINDOWS			
Commercial grade projected steel sash with loose lintels, poured in place concrete sills.			
Continuous sash added in plant and office areas. Venetian blinds in offices, shades in plant area.	3.9		3.9
FLOORS			
5 in. concrete slab on grade, with 6 by 6, #6/6 mesh reinforcing and liquid hardener.			
Changed to 6 in. slab on porous fill with metallic hardener.	19.8		
Vinyl asbestos floor in plant area.		5.6	25.4
FOUNDATIONS			
Reinforced concrete spread footings and grade beams.			
Sizes increased to allow for additional loads of penthouses, etc.	6.2		6.2
PARTITIONS			
Cinder block.			
Amount of partitioning increases.	7.4		
Further increase in partitions.		1.2	8.6
ADDED FACILITIES			
Additional office area, first aid room, personnel office, locker room, lunch room. Penthouses for air conditioning and ventilation, minimum laboratory, telephone equipment and switchboard rooms, loading dock and dock levelers.	9.7		
Cafeteria and kitchen substituted for lunch room.		0.6	10.3
ENTRANCE			
Allowance			
Increase in allowance	1.3		
Further increase		0.8	2.1
ELECTRICAL			
Offices—50 F.C., fluorescent fixtures. Plant—10 F.C., incandescent fixtures.			
Plant lighting increased to 40 F.C., fluorescent. Primary service facilities increased to 2000 KVA cap. Additional substations, bus ducts, power distribution, call systems, telephones, utility outlets, clocks, etc. Underfloor ducts added in offices.	24.6		
Plant lighting further increased to 50 F.C., fluorescent.		4.6	29.2
HEATING, VENTILATION, AIR CONDITIONING			
Office heated 70 deg. F. with hot water convection. Plant heated to 55 deg. F. with direct fired heaters.			
Heating for plant increased to 70 deg. F. capacity; direct fired heaters eliminated. Mechanical supply and exhaust, providing 6 air changes per hour in summer, 2 to 3 in winter, added in plant. Air conditioning added in office areas. Perimeter radiation added.	34.3		
Air conditioning added in plant areas.		38.1	72.4
PLUMBING			
Toilet facilities for 20 men in plant, 3 men and 5 women in office. Roof drains.			
Toilet facilities increased to accommodate 450 men and 250 women. Compressed air and gas systems added.	7.2		
Further increase in toilet facilities to accommodate a total of 750 men and 250 women.		0.7	7.9
FIRE PROTECTION			
Hose cabinets throughout building. Sprinklers in plant area only.	4.3		4.3
SITE WORK			
Bituminous concrete surfaced road and parking area for 20 cars, concrete curbs, sidewalks, landscaping. Railroad siding, sanitary disposal system, elevated water storage tank, and sprinkler loop.			
Plant parking increased to 500 cars. All other facilities listed above increased. Fencing, seeding, storm drainage, yard and parking lot lighting, visitors' parking added. Heavy duty bituminous concrete road and boiler plant with required heating capacity added.	66.9		
Parking increased to 850 cars. All other facilities listed above increased. Industrial waste treatment added.		18.0	84.9
PROVISION FOR FUTURE EXPANSION			
Allowance	2.6		
Allowance increased		12.1	14.7
TOTAL COST, BUILDING AND SITE WORK	**254.4**	**85.0**	**339.4**
PROFESSIONAL FEES—6%	15.3	5.1	20.4
CONTINGENCY—10%	27.0	9.0	36.0
TOTAL PROJECT COST	**296.7**	**99.1**	**395.8**

PLANT DESIGNED FOR NEW PRODUCTS, NEW METHODS

Fuller Brush Company Plant and Offices

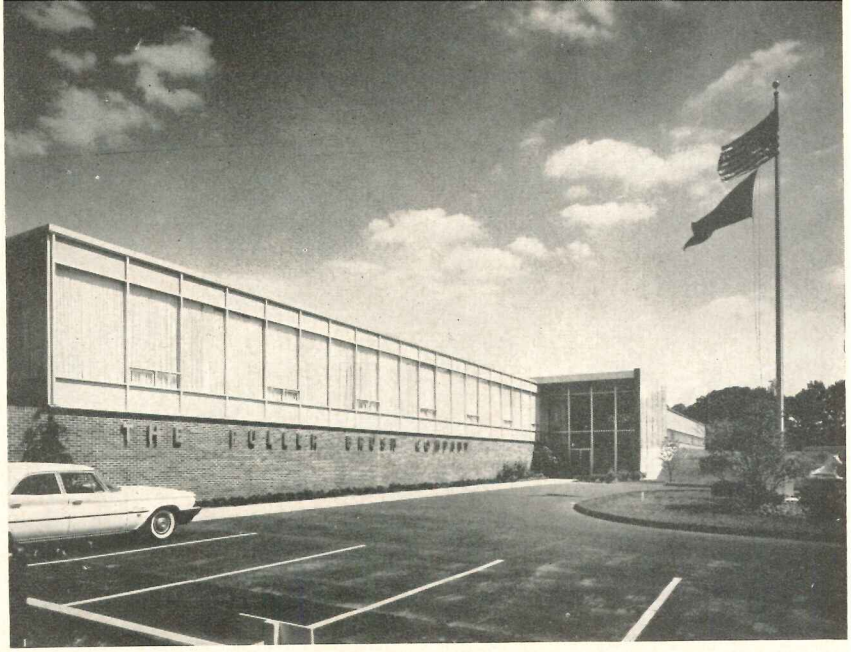
LOCATION:
East Hartford, Connecticut

DESIGNERS AND BUILDERS:
Walter Kidde Constructors, Inc.

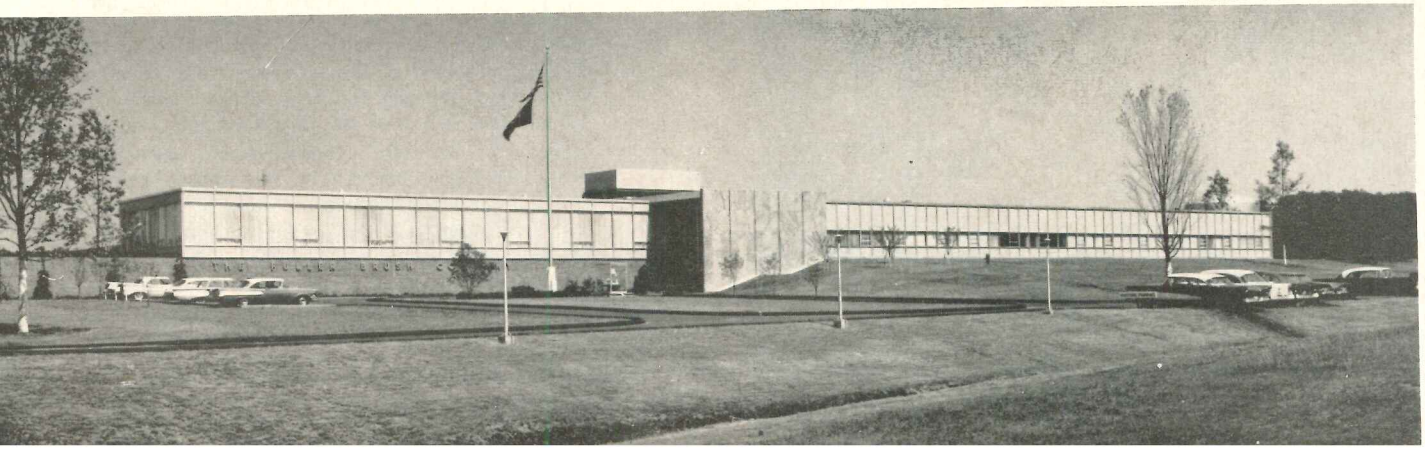
The major objectives achieved in this plant were the housing of almost the entire company operations—production, research, engineering, advertising, sales, warehousing, distribution, and administration—in one building while maintaining the extreme flexibility required by rapidly changing products and methods of manufacturing them.

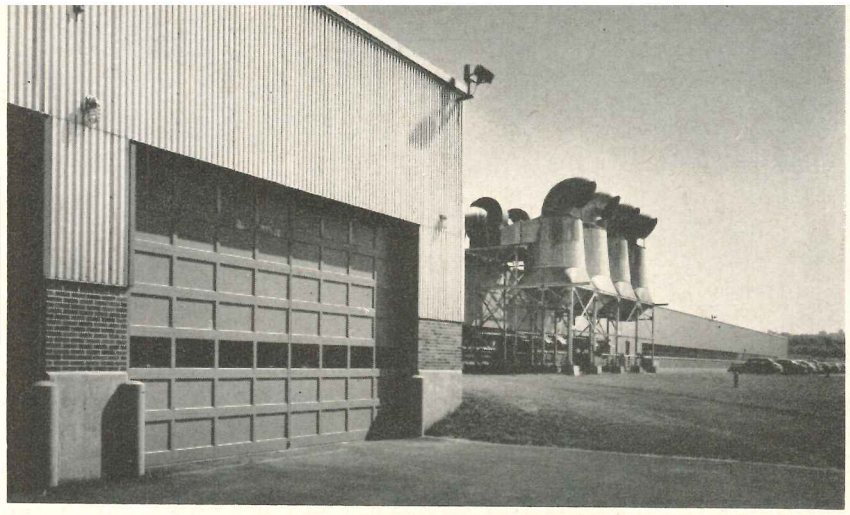
Operational layouts were carefully studied in order to achieve the highest possible efficiency in the manufacture of between 300 and 400 different types and sizes of brooms, as well as a large number of other products.

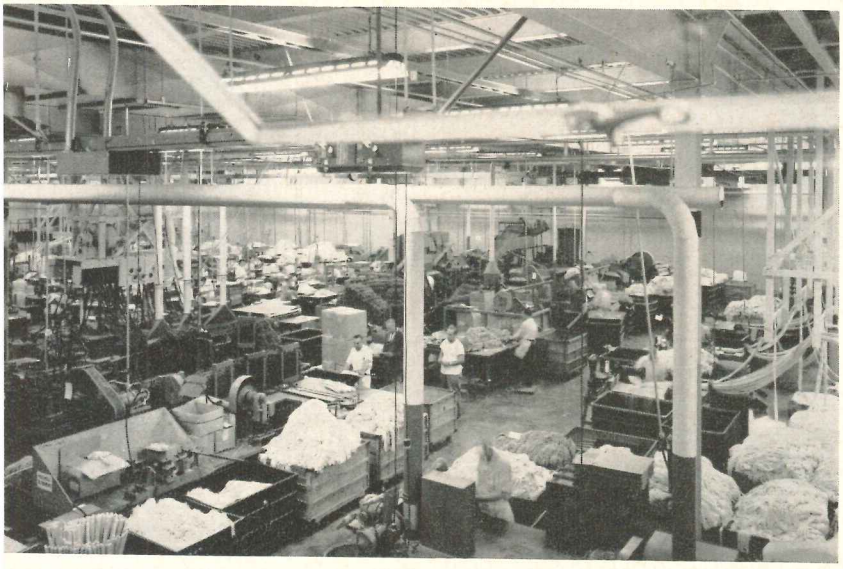
During its 55 year history, the firm has occupied eight plants, each larger than that preceding it. In the new plant, provisions for expansion have been built in. The present facilities are considered adequate for about five years; after that, expansion will be possible, not through increased space, but through improved machinery and automation applications when increased production justifies such change-overs. Further, the site —84 acres and suburban—will allow additional physical expansion when the need arises in the future.



Joseph W. Molitor photos







Fuller Brush Plant

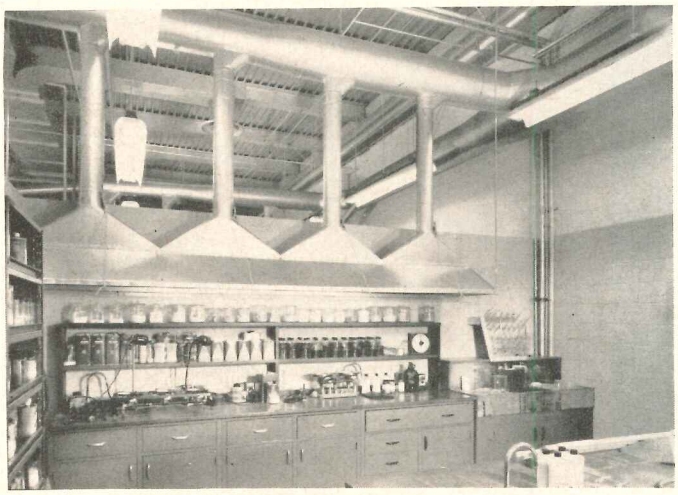
All plant facilities including the offices are located on one level. However, the extreme grade of the site influenced the placement of the entrance lobby at a level one-half story below the main floor. Mezzanines are provided where needed for employee locker and toilet rooms and two plant operation offices. There is no basement.

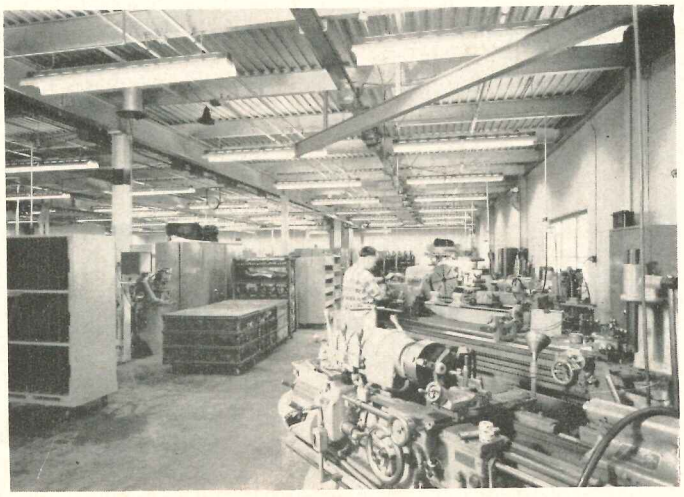
Operations within the manufacturing area are channeled through five major departments. The broom department assembles fillers, handles, and accessories; the filler materials department receives, sorts, and assembles bristles, hair, acetates, plastic fibers, and the like; the brush department forms, twists, closes, and performs similar operations; the cotton department manufactures mops and related consumer products; the plastics department injection molds plastic products and components. The flow through these operations is indicated on the plan across-page.

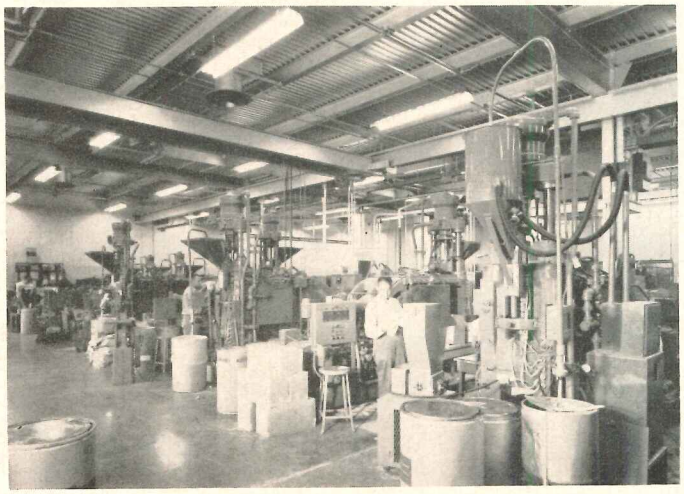
Plant construction consists of concrete foundations and floors with under floor ducts. The structure is steel frame, with a metal roof deck. Office roof has 2 in. insulation, factory 1 in. Manufacturing area has 42 by 42 ft bays and 17 ft clear height to underside of girders. Roof construction is double cantilever steel frame.

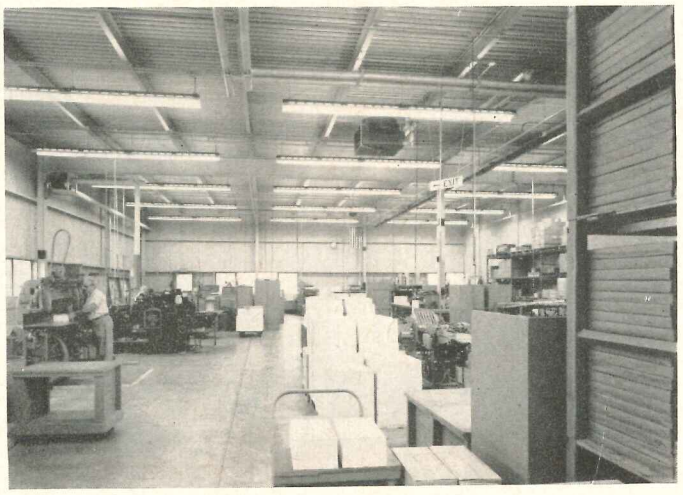
Shown on the left are some of the more important elements involved in the manufacturing processes. At the top is an exterior view of the receiving dock. In the background may be seen the large dust collectors which exhaust dust, lint, and other minute waste from the process areas of the plant. The second illustration shows the mop and cotton area of the plant; the third view the main manufacturing area. In both views may be seen the process exhaust ducts which connect with the dust collectors shown above. The fourth illustration shows a portion of the warehouse, with supplies and stores loaded on stacked pallets

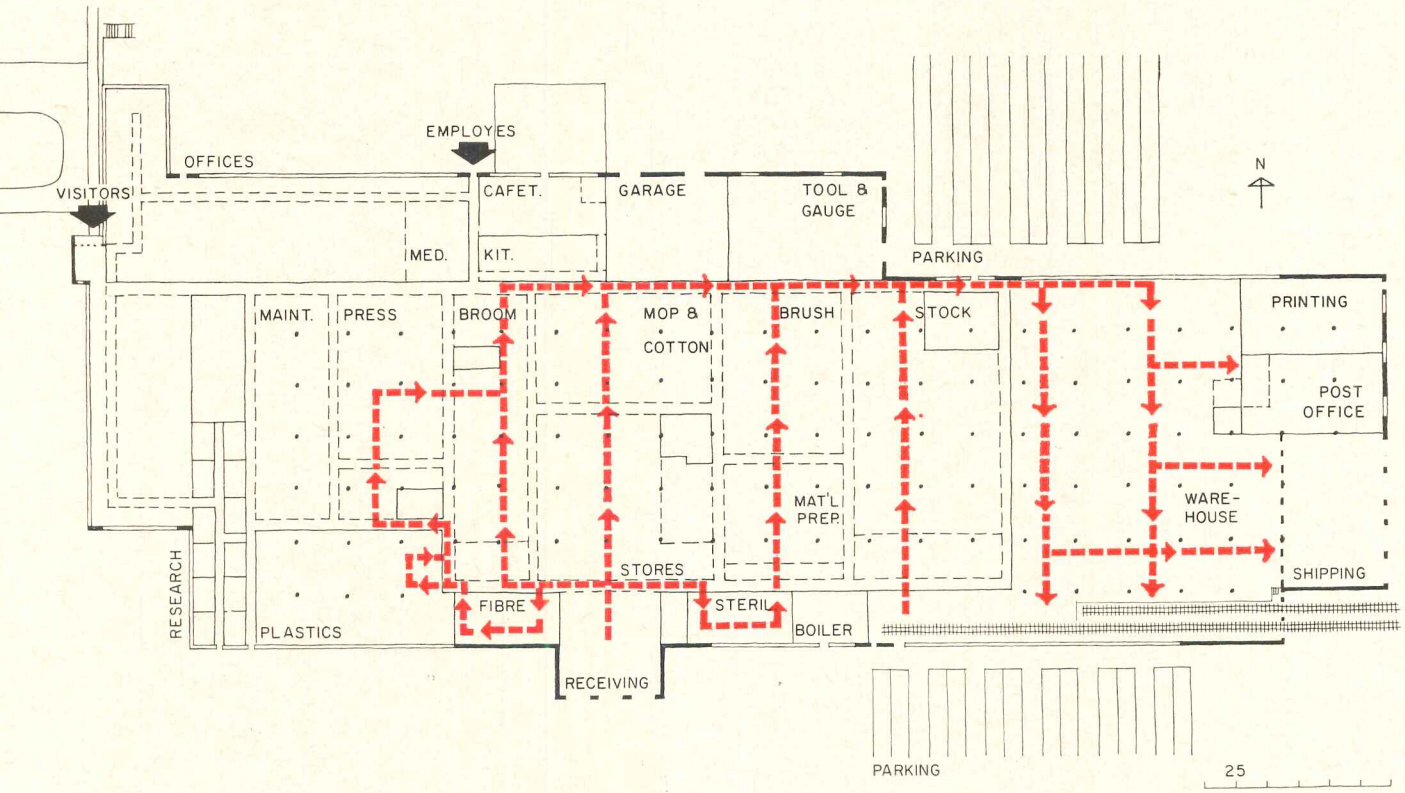
Across-page are shown some of the auxiliary production areas of the plant. These are of great importance in the manufacturing operations, though less directly involved in the processes than main production areas. At the top are views of the research lab on the left and the machine shop. The rather large area devoted to research and engineering reflects company interest in the improvement of its products and development of new ones. In addition to tool and gage work, the machine shop has facilities for electrical, mechanical, and machine maintenance. The two lower illustrations show the complete injection plastics section left, and the printing shop










EMPLOYEES
OFFICES
VISITORS
CAFET.
GARAGE
TOOL & GAUGE
N
MED.
KIT.
PARKING
MAINT.
PRESS
BROOM
MOP & COTTON
BRUSH
STOCK
PRINTING
POST OFFICE
MAT'L PREP.
WARE-HOUSE
RESEARCH
STORES
SHIPPING
FIBRE
STERIL
PLASTICS
BOILER
RECEIVING
PARKING
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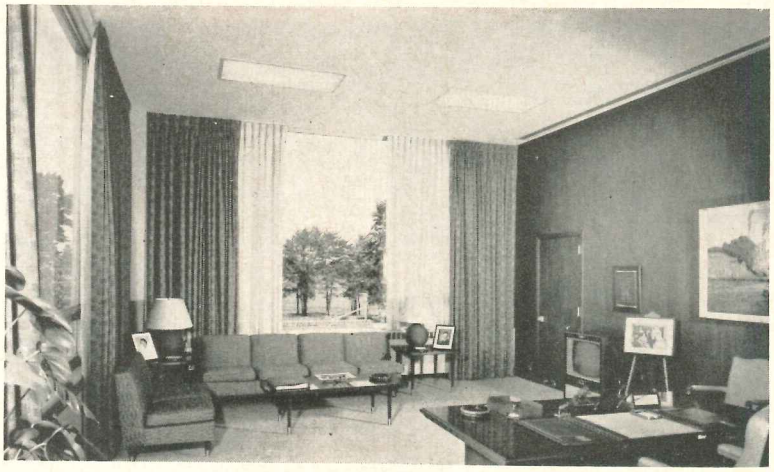
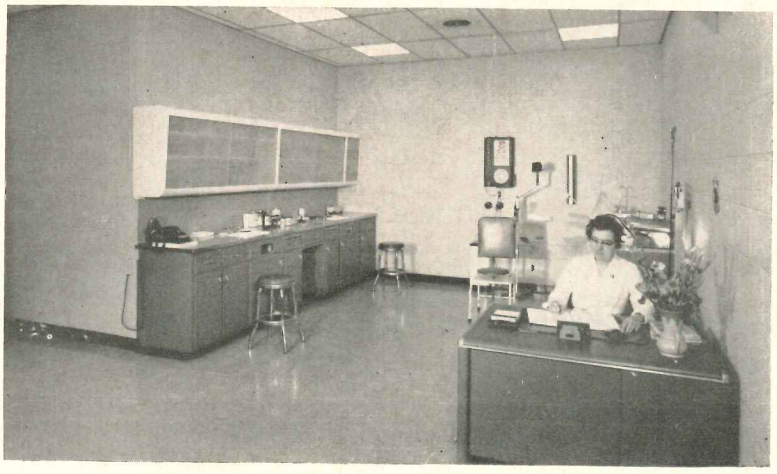
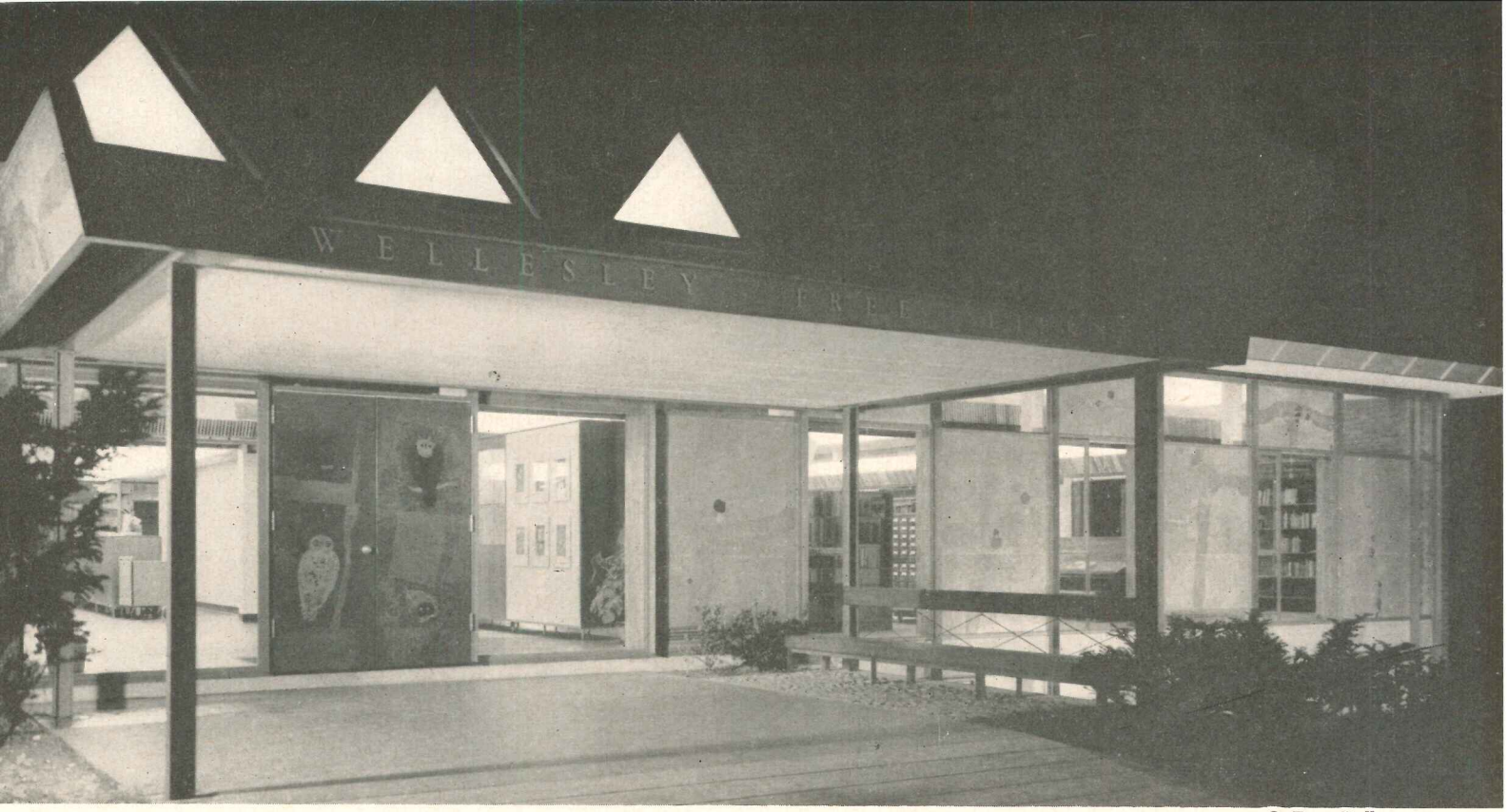




Fuller Brush Plant

The views on this page show some of the office areas of the plant. All of these are located in an L-shaped wing which wraps around the main production area at one corner. At the left, top is a view of the general office showing the acoustical ceilings used and the recessed fluorescent fixtures. General offices, such as that shown are illuminated with 50 to 60 F.C., while areas where detailed work is done, such as the engineering department shown in the third illustration, receive 75 to 80 F.C. Production area illumination is at similar levels, the exact amount being determined by the nature of the work performed.

The second illustration from the top shows an executive private office. Partitions here are plastered concrete block; elsewhere in the office wing, movable partitions are used. Third from the top is the engineering department located adjacent to research. At the bottom is a view of the complete medical and health office, which is staffed by two full-time nurses and a part-time doctor. Bay sizes in the office wing are 28 by 30 ft or 24 by 28 ft; office ceiling heights are ten ft



© *Ezra Stoller*

A SMALL PUBLIC LIBRARY

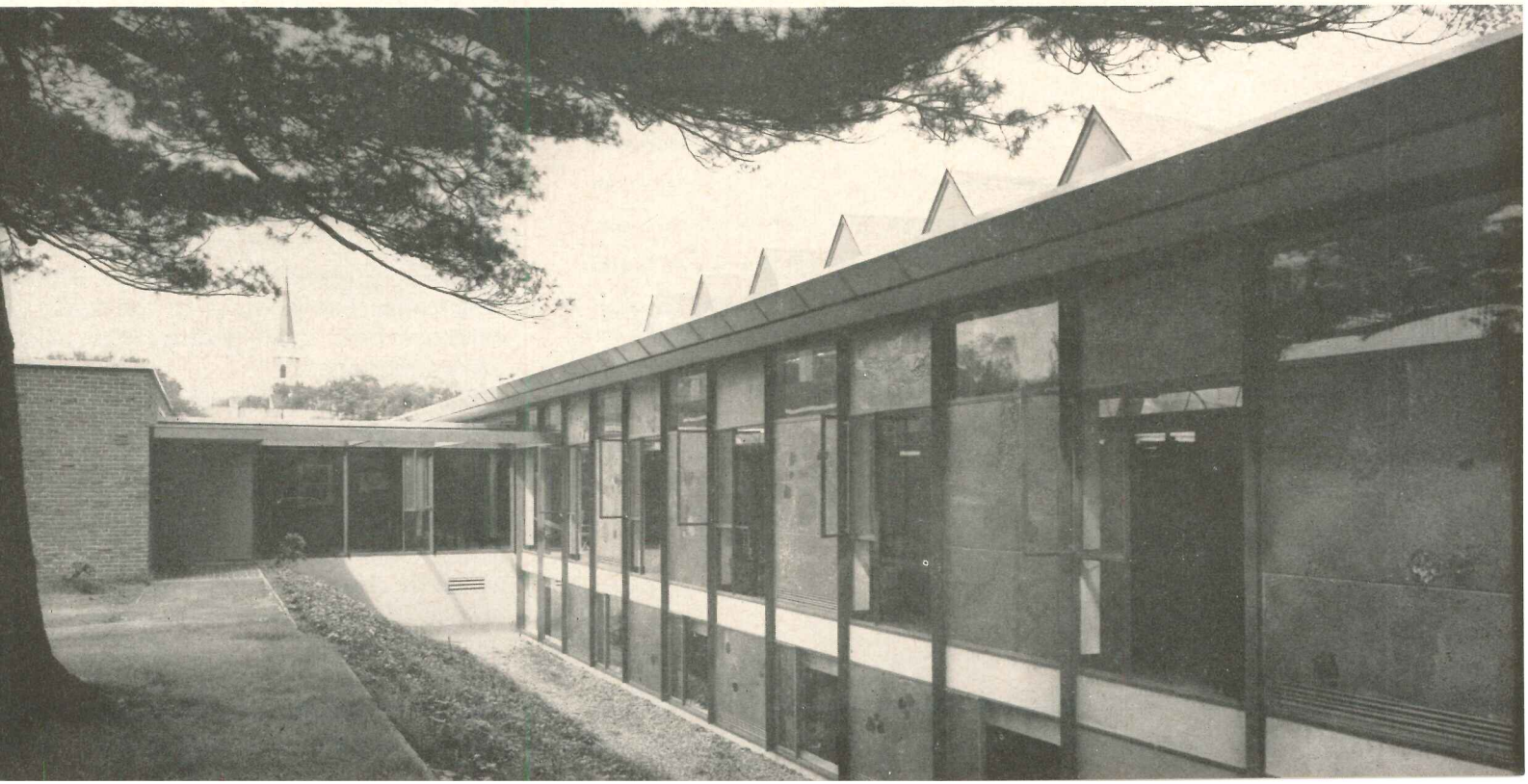
Designed by Carl Koch to house 80,000 books

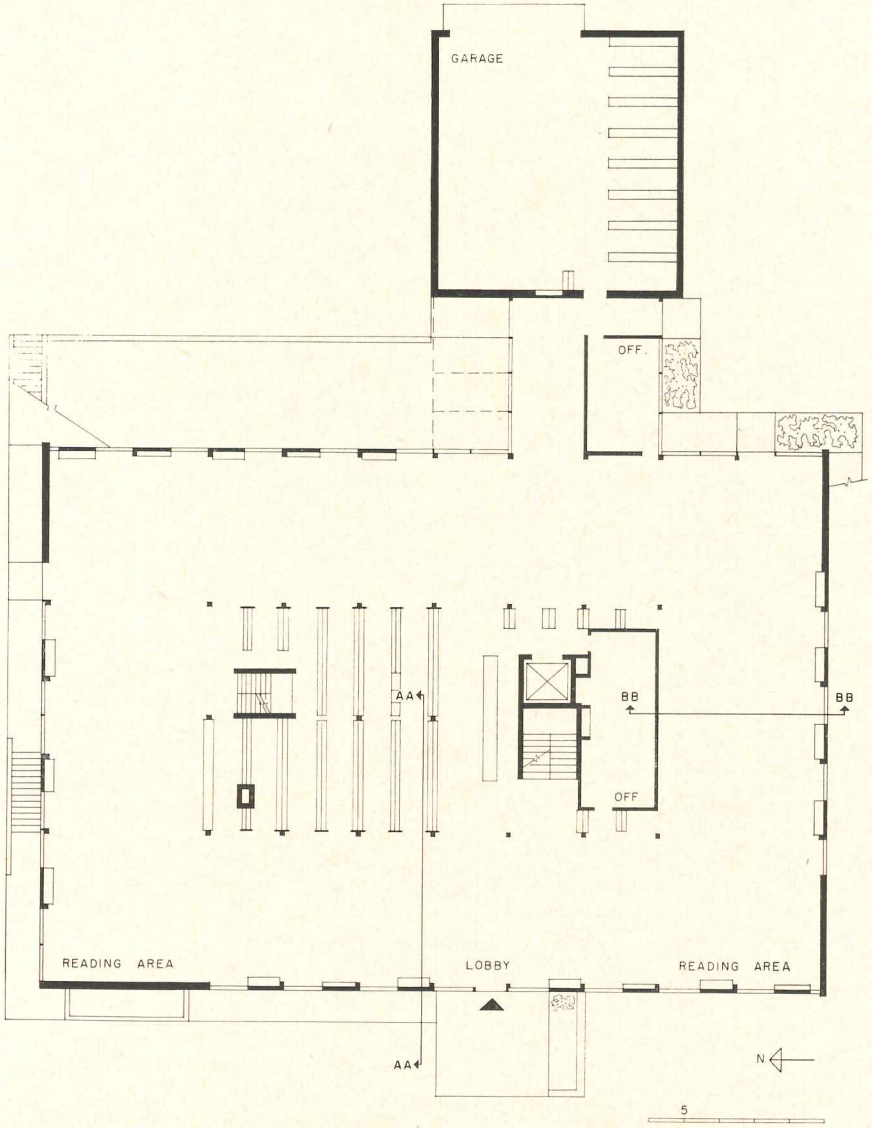
for the citizens of Wellesley, Massachusetts,

this library has a good efficient plan,

a rich and colorful exterior,

and an interesting lighting scheme.





NAME: *Wellesley Free Library*

OWNER: *Town of Wellesley, Mass.*

ARCHITECTS: *Carl Koch & Associates, Inc.*

STRUCTURAL ENGINEER: *Nisso T. Aladjem*

MECHANICAL ENGINEER: *R. G. Vanderweil*

LIGHTING CONSULTANT: *Domina Eberle Spencer*

ACOUSTICAL ENGINEERS: *Bolt, Beranek & Newman*

LANDSCAPE ARCHITECTS: *Sasaki, Walker & Associates*

DESIGN AND EXECUTION OF PORCELAIN ENAMEL PANELS: *Juliet and Gyorgy Kepes*

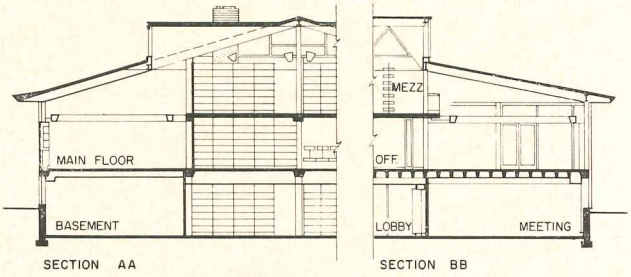
CONTRACTOR: *Kirkland Construction Company*

In the plan, reading and work areas surround a central three-level core of book stacks, giving readers easy access to books from all directions. The main floor of the library is at the middle level, and the top floor of the stack has been conceived as an open mezzanine. Two separate stairs connect all three floors. The main stair is adjacent to the control desk permitting easy supervision. Both the main entrance and the rear entrance porch which provides access from the parking lot are on axis with the control desk. Outdoor entrances have been provided for the staff lounge and meeting room in the basement for access at hours when the rest of the library is closed. The garage shelters the book mobile which has its own stack and work space.

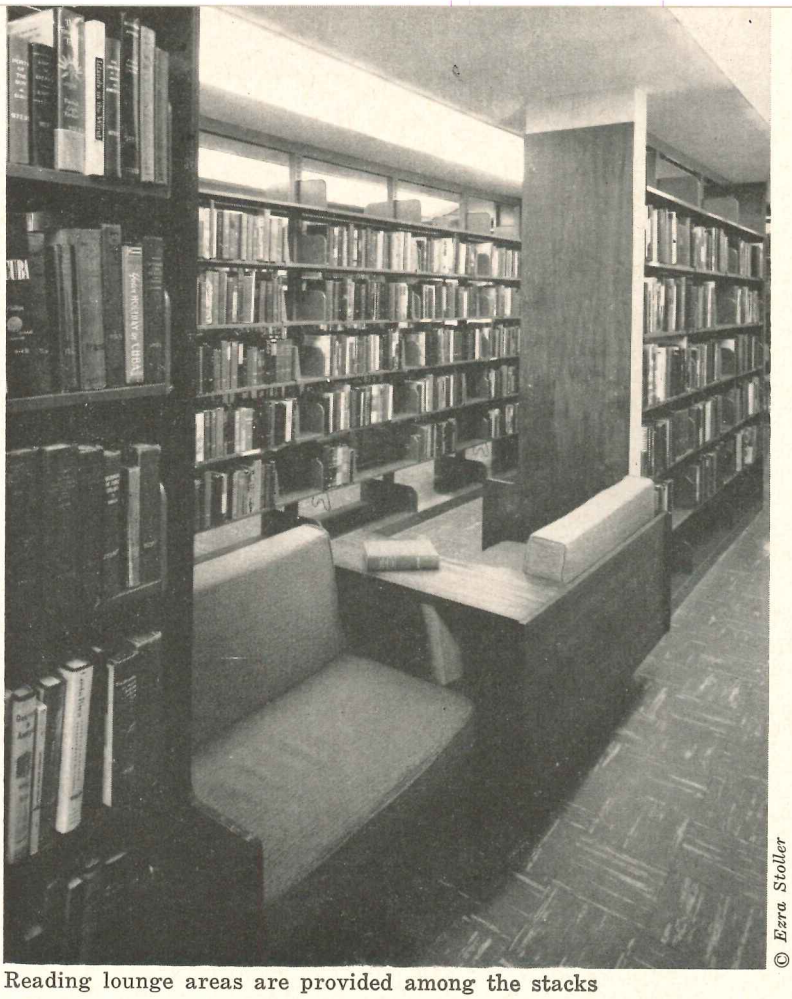
The building is steel frame with a sloping hipped roof supported by bar joists. The main floor is of concrete on pan forms. A series of dormer windows help light the upper stack area. Placed in the steel frame between the windows are porcelain enamel panels designed and executed by Gyorgy Kepes. These are a great success. Warm, subtle earth colors have been combined in textures as smooth as porcelain enamel can be or as rough as sand can make it. Spots of brilliant color handled in a painterly fashion contrast with these dark tones. Each panel is a separate painting in itself, but there is careful harmony among them. The steel canopy at the entrance has been faced with porcelain enamel murals by Juliet Kepes and she is also responsible for the owls on the main entrance door (see photographs on preceding page).

The lighting system shown in the photographs at the right is the first indoor application of VHO fluorescent tubes of the type which are used for airport runway lights. These uniformly light the continuous white ceiling which in turn reflects light of the proper intensity on the surfaces of the work tables.

© *Ezra Stoller*



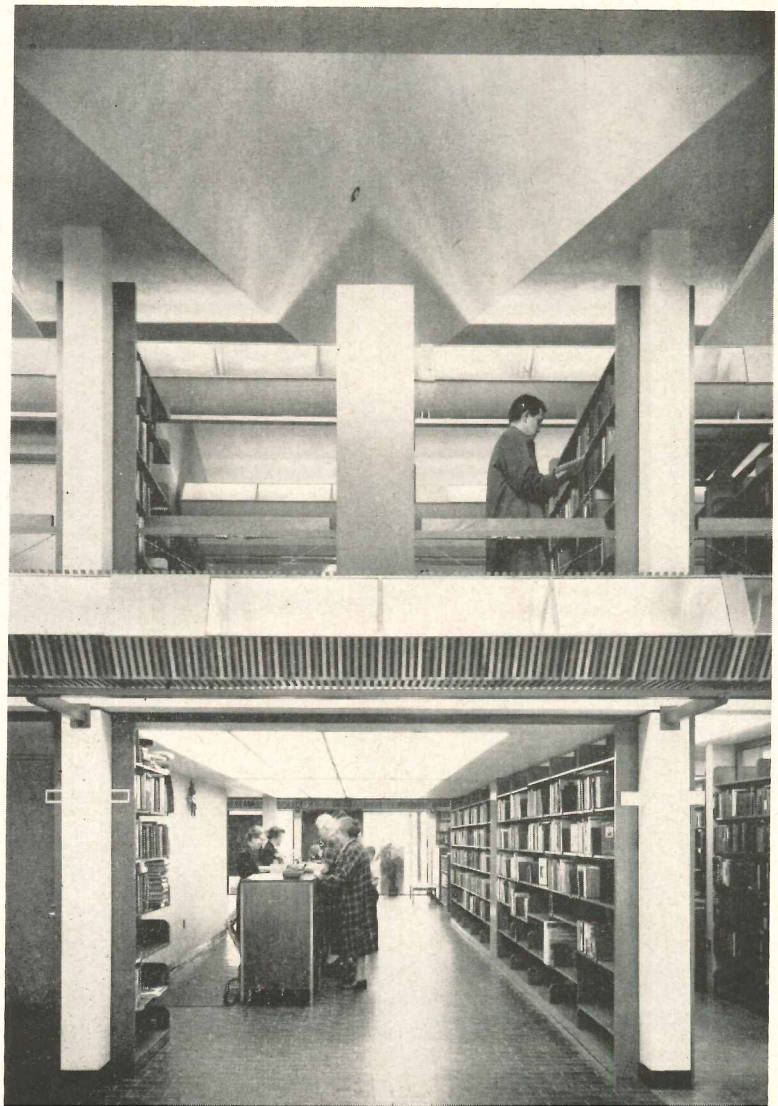
The reflectors shown at left and below are of aluminum coated with a special plastic which mirrors aluminum and intensifies the single VHO lamp in each reflector. They have been faced with wooden slats. They were made as large as possible to increase their efficiency, but their size had to be kept within reason to avoid a clumsy look. Since the Wellesley lighting system was engineered, a new lamp has been developed which is 338 per cent brighter than the VHO lamps at Wellesley which are twice as strong as fluorescents. This newest lamp could have achieved the same intensity of light on the ceiling in a reflector one third as large

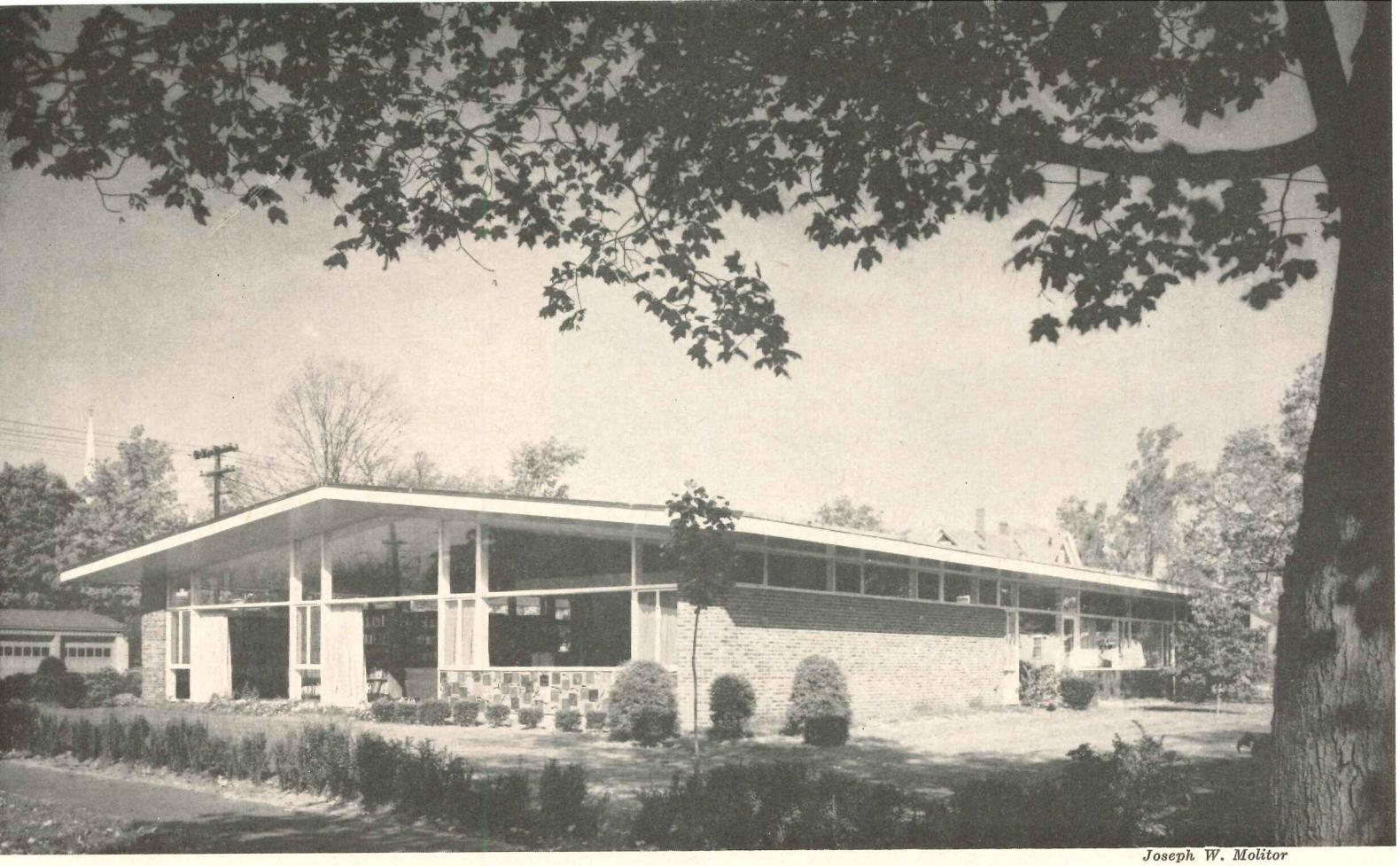


© Ezra Stoller

Reading lounge areas are provided among the stacks

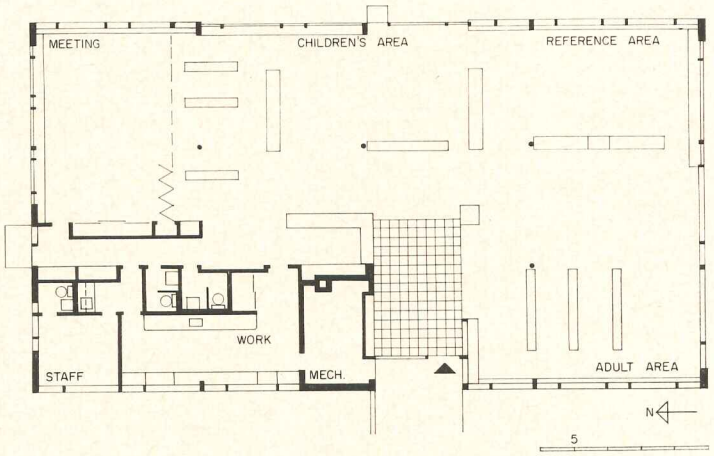
Control desk, reflectors, mezzanine and dormered ceiling





Joseph W. Molitor

A PUBLIC BRANCH LIBRARY



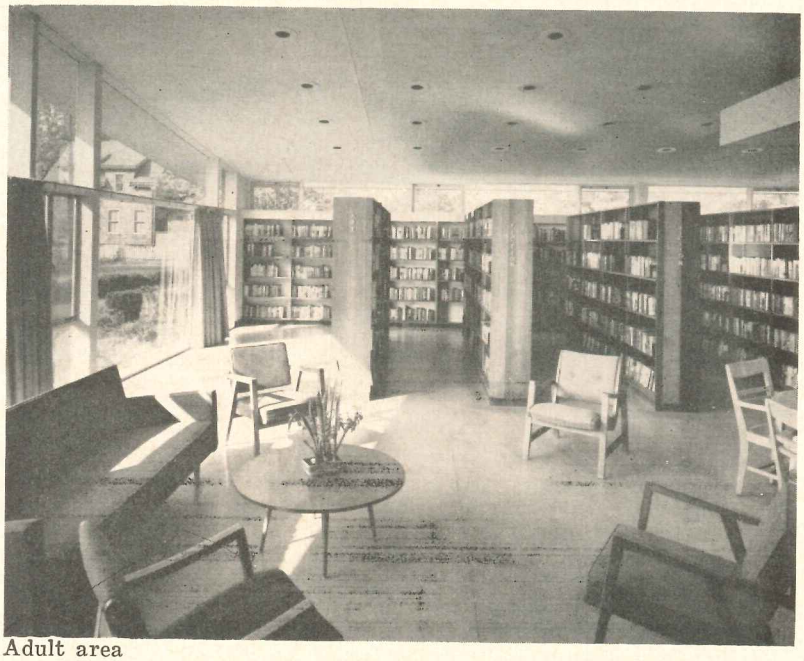
NAME: *The Tufts Library-North Branch*
OWNER: *Town of Weymouth, Massachusetts*
ARCHITECTS: *Carl Koch & Associates*
STRUCTURAL ENGINEERS: *Souza & True*
MECHANICAL ENGINEER: *R. G. Vanderweil*
DESIGN AND EXECUTION OF PORCELAIN ENAMEL PANELS: *Gyorgy Kepes*
CONTRACTOR: *Russell Brundage, Inc.*

Weymouth needed a branch library of minimum size to be manned by a small staff. The budget was low. A simple unpretentious solution was called for and carried out. The plan affords complete supervision from the control desk adjoining the main entrance. A secondary entrance is provided for staff members and leads directly to their work area, but can also be used by members of the community attending meetings in the space which can be converted for this use.

The roof is constructed of bar joists on structural steel bents. Walls are of stud construction faced with water struck brick on porcelain enamel.

Joseph W. Molitor

Main entrance and control desk



Adult area

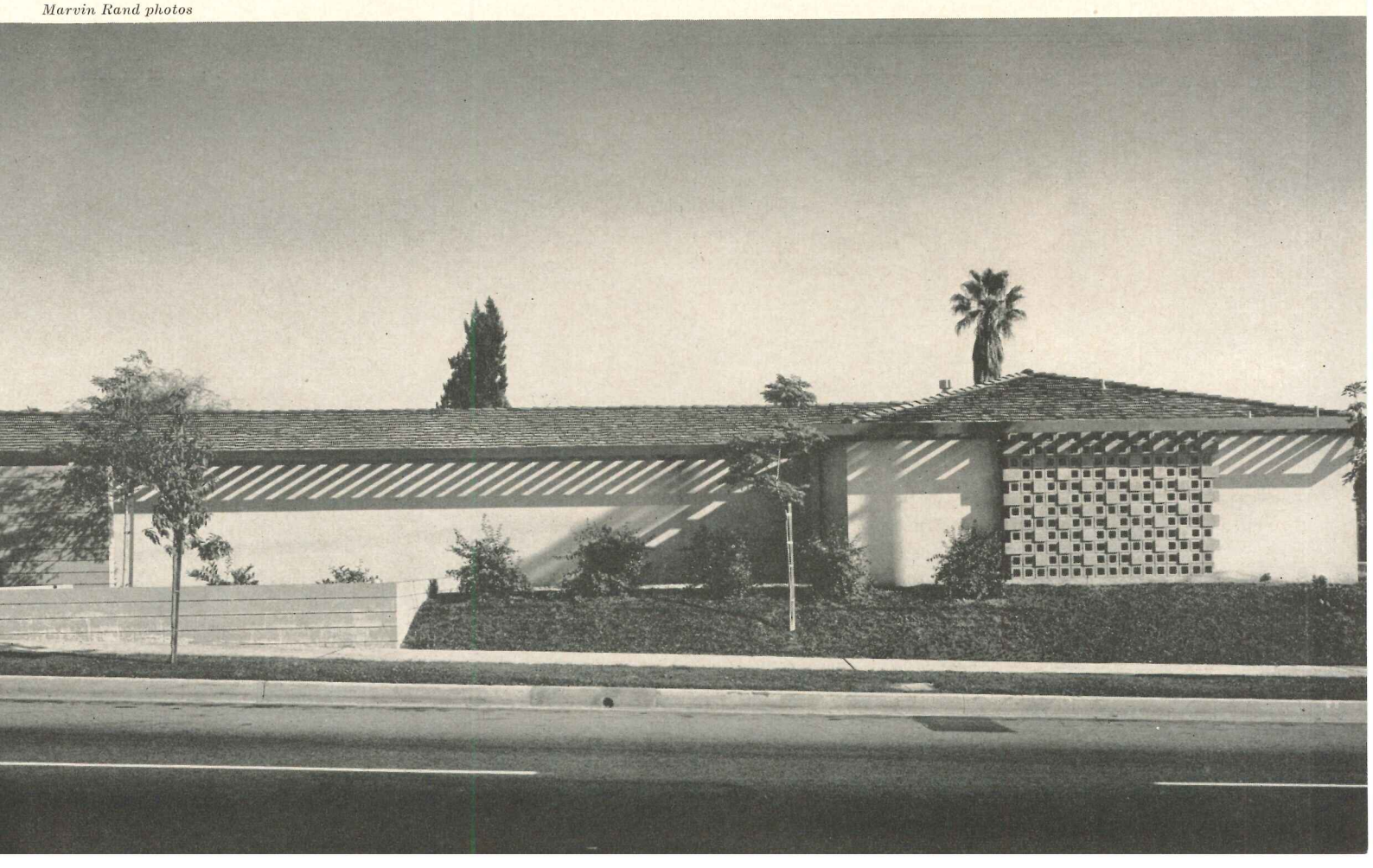
Reference space

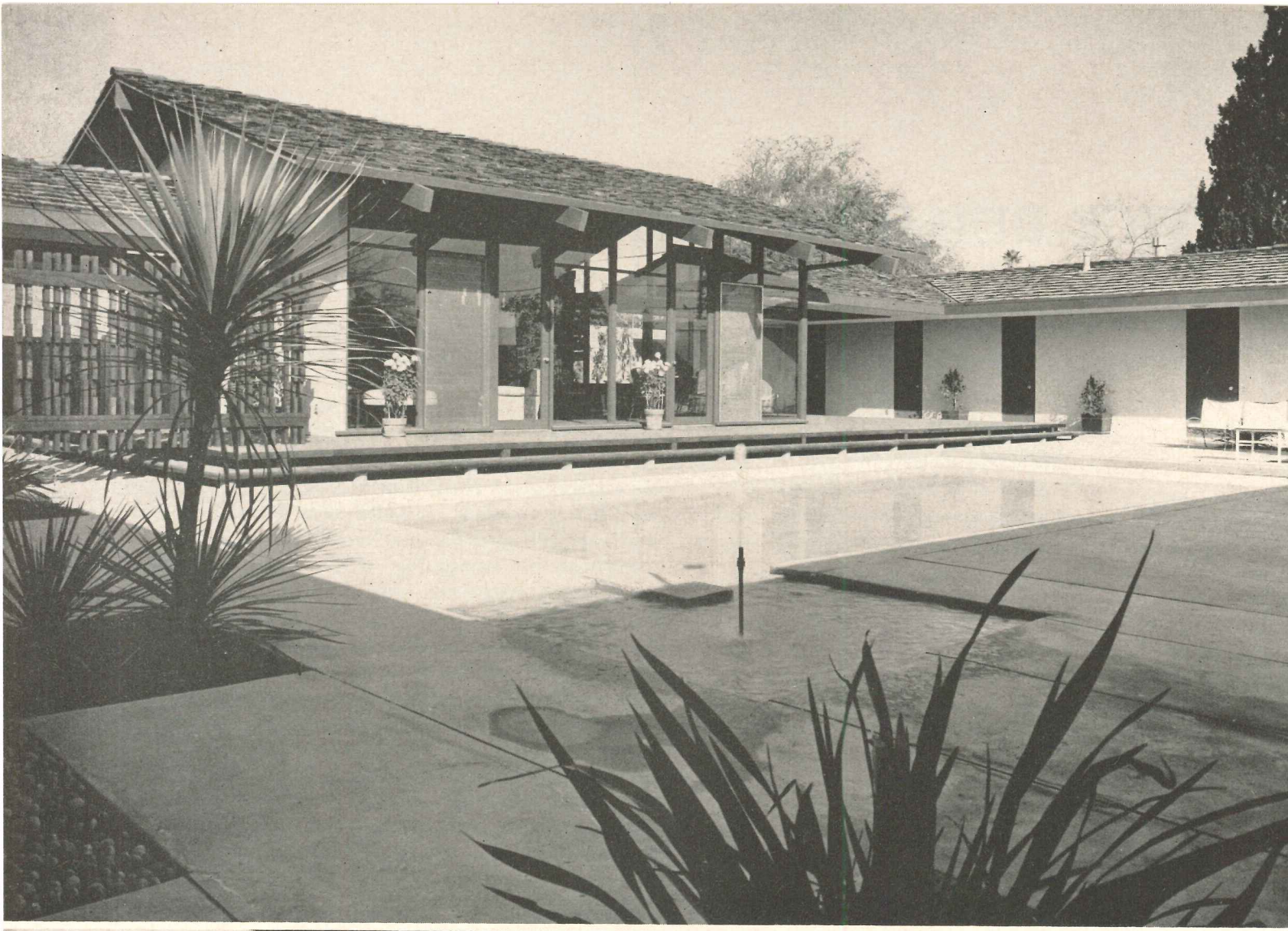
OFFICE BUILDING WITH SWIMMING POOL

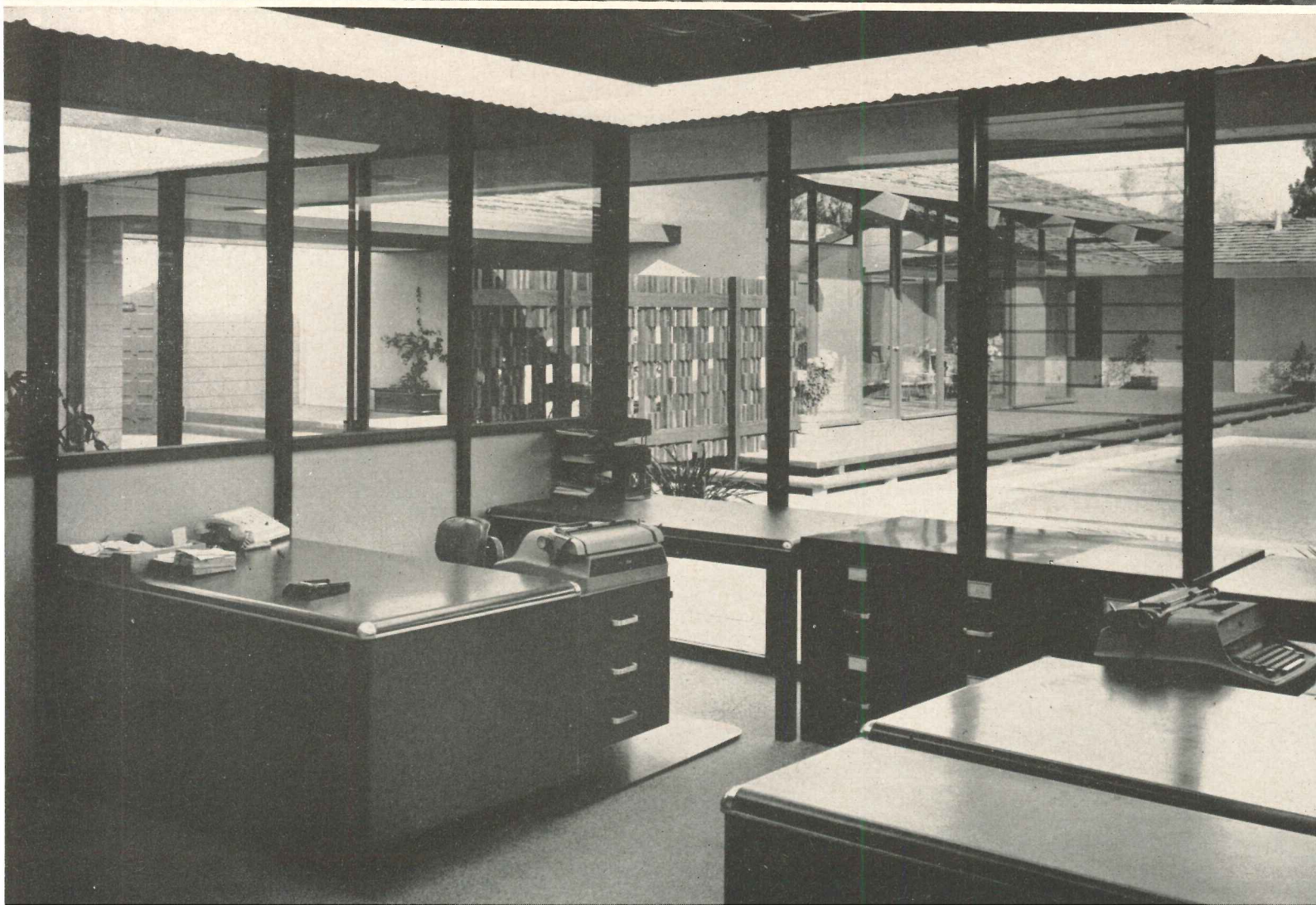
OWNERS: *The McCarthy Company*
LOCATION: *Pasadena, California*
ARCHITECTS: *Smith and Williams*
PROJECT ARCHITECT: *Philip C. Patterson*
STRUCTURAL ENGINEER: *John Kariotis*
INTERIOR CONSULTANT: *Selje and Bond*
LANDSCAPE ARCHITECTS: *Courtland Paul*
GENERAL CONTRACTOR: *Myers Bros. Construction Co., Inc.*
POOL CONTRACTOR: *Perry and Associates*

The domestic scale and character of these new offices for a land development company in Pasadena, Calif., are due only partially to the residential neighborhood in which the building is located. A primary requirement of the building's design was that it should provide a completely different working environment from that which the client's company had previously occupied in a downtown office building. The architects achieved this different environment by arranging offices around a large patio with a swimming pool, by effective but sparing use of planting in the patio, and by giving prominence to the "lanai," a glass-walled pavilion designed for informal entertaining of visitors. The slight slope of the corner lot had special advantages: entrance to the patio and offices is from a parking area at the high end of the lot, through a wide breezeway whose roof connects office wing and lanai. The service entrance is around the corner on the low side of the lot and opens off a secondary street. With all business activity confined to the patio and screened from the street by the building's walls, the building makes a pleasant and appropriate addition to its residential surroundings without disguising its real function.

Marvin Rand photos

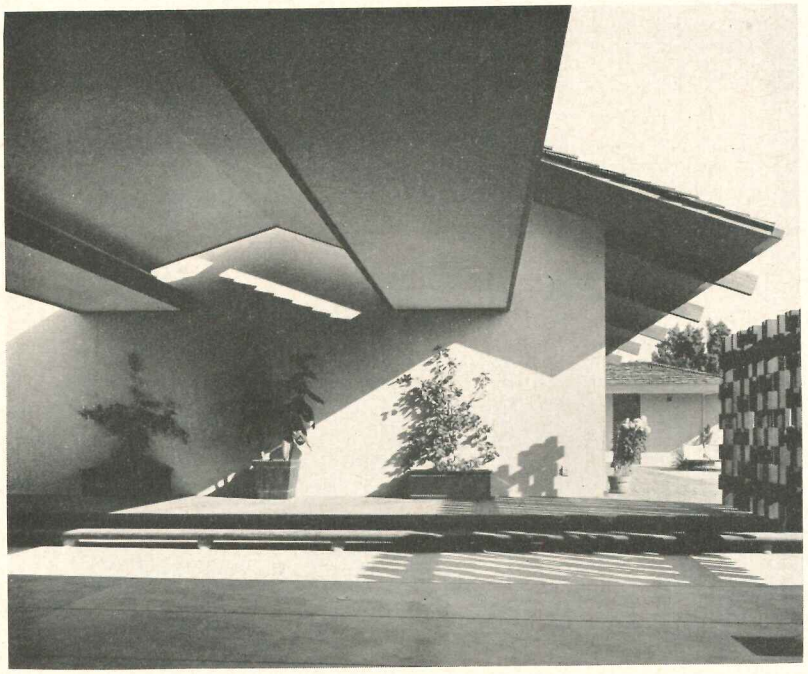


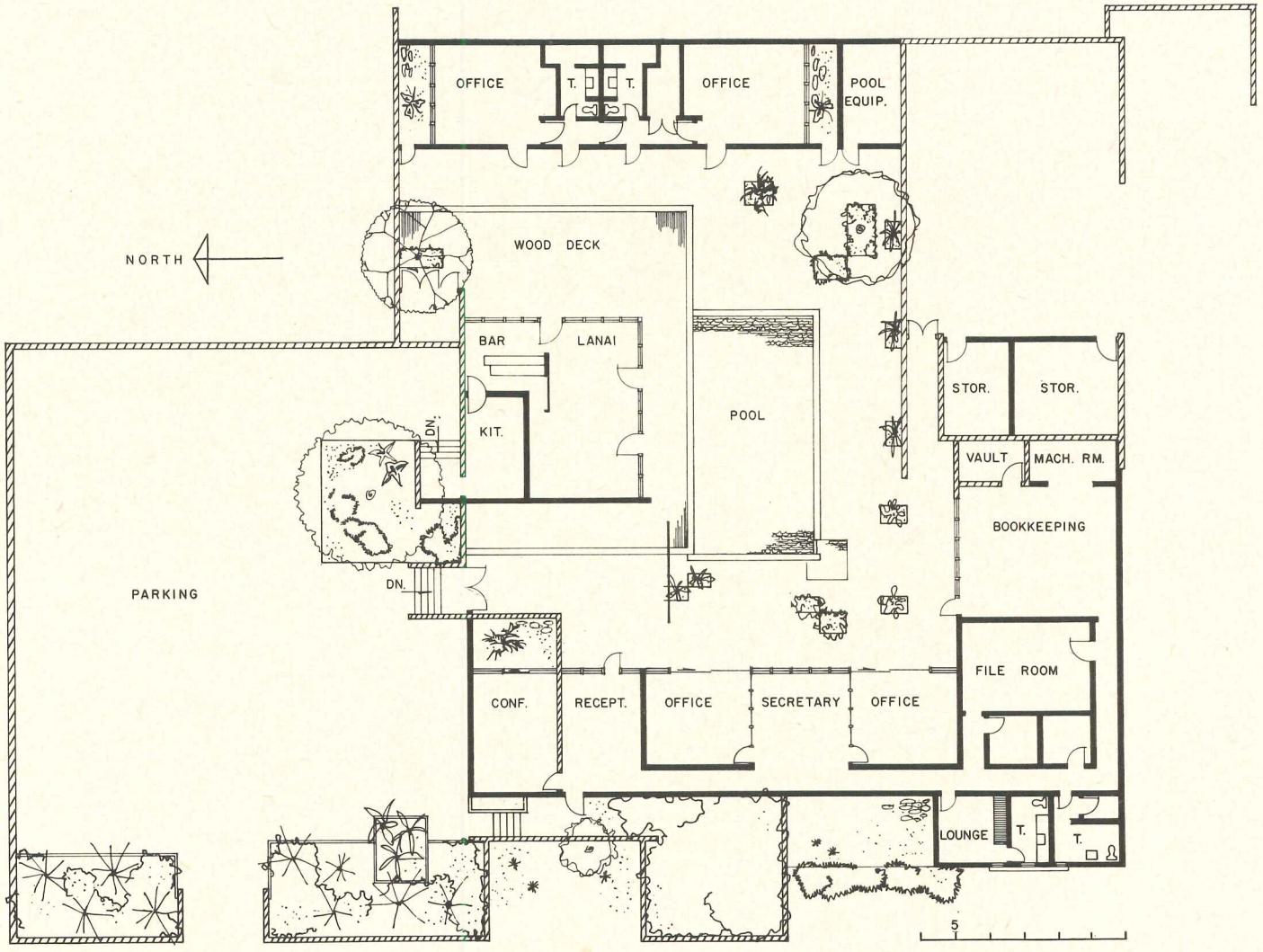




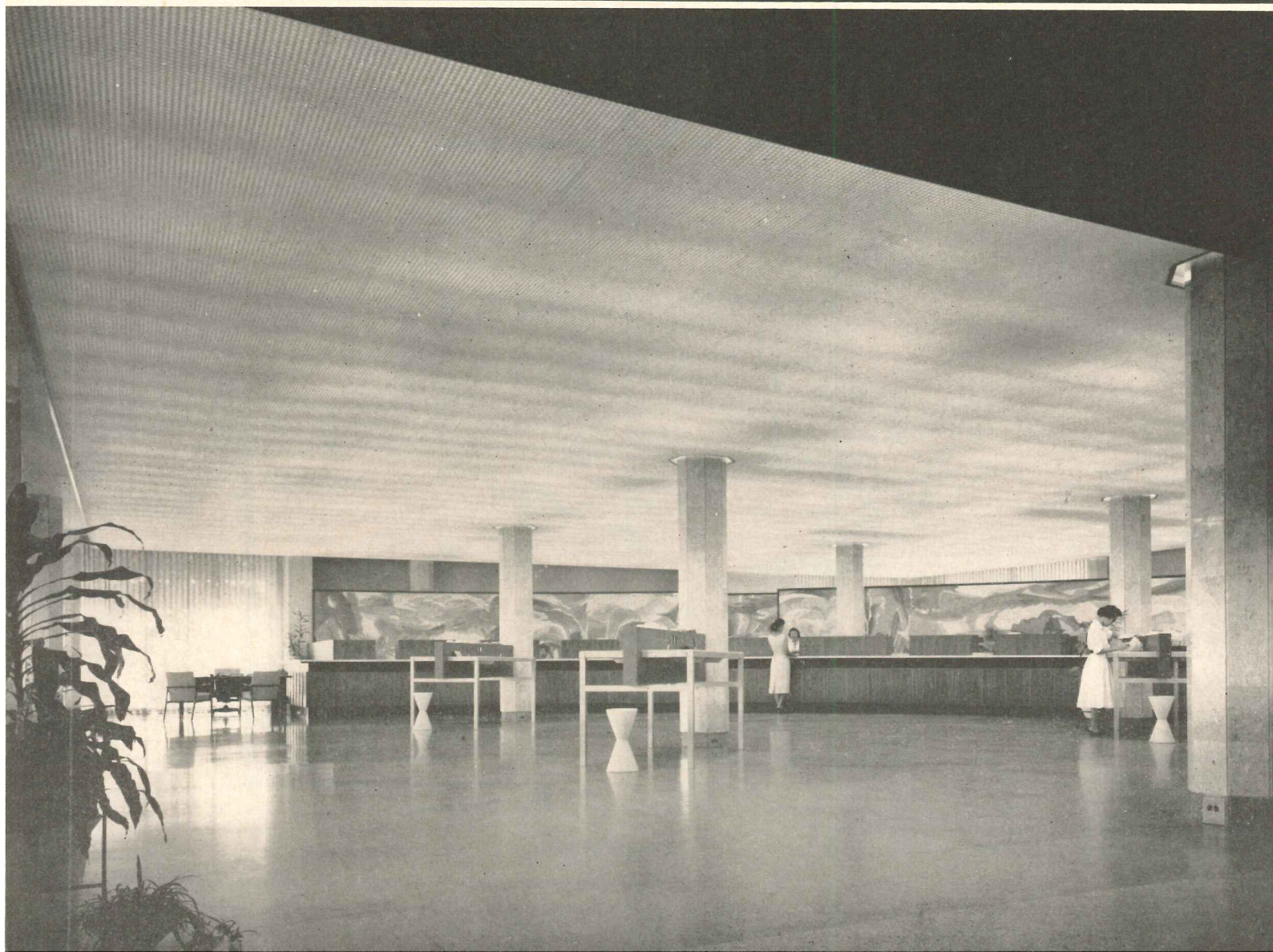
The McCarthy Company

Opposite: the detached "lanai" and pool complex provides an agreeable entertainment pavilion for visitors, as well as a view from the inside considerably more pleasant than that enjoyed by many secretaries. At right: the entryway as seen from the reception room





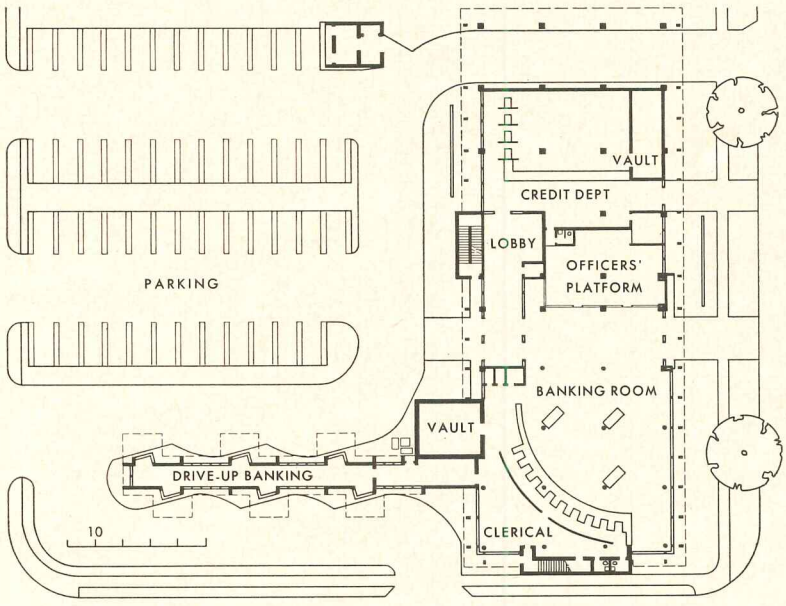
BISHOP
NATIONAL
BANK



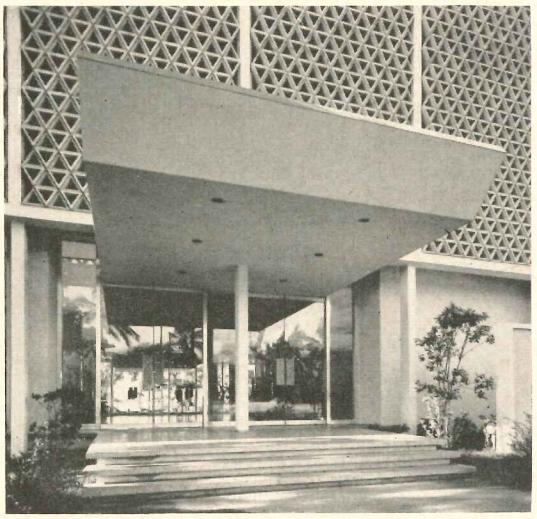
PARKING NEEDS, MACHINE ACCOUNTING DETERMINE BANK DESIGN

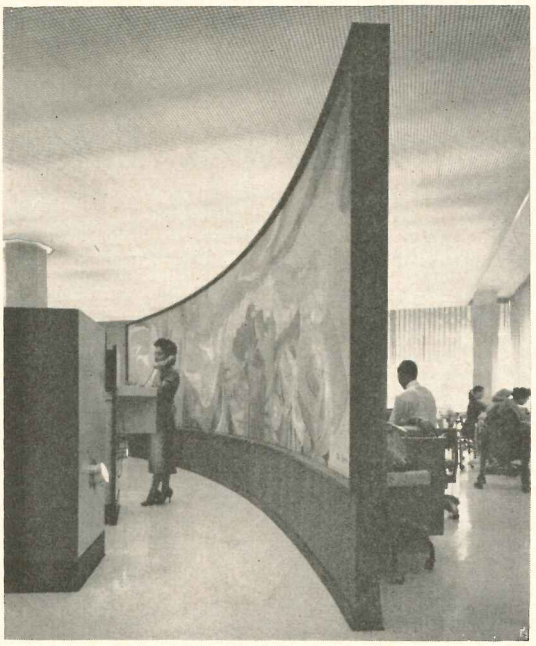
Kapiolani Branch, Bishop National Bank
LOCATION: *Honolulu, Hawaii*
ARCHITECTS: *Wimberly & Cook; Gerald Allison and Gregory Tong, Associates*
LANDSCAPE ARCHITECT: *George Walters*
ARTISTS: *Ben Norris (murals); Malcolm Brownlee (sgraffito wall)*

Since most customers of Honolulu's Kapiolani Boulevard business district come by car, the Bishop National Bank required a large enough site for its new branch in that area to provide not only an easily accessible group of tellers' drive-up windows but parking for a large number of cars. Vacant lots of such size being nonexistent in the area, the bank bought a one-time garden supply building which could be remodelled and whose site would permit an addition of almost equal size. The original building became the banking room, its low height camouflaged by a continuous translucent ceiling, its columns—more numerous than if the structure had been new—faced with beige marble and its floor covered with golden beige terrazzo. The addition along Kapiolani Boulevard provides for the officers' platform and consumer credit department, a large operation at this branch. This portion of the building was designed to take eight additional floors, and when these are added a double-deck parking structure will be built on the present parking area. Eventually the second floor will house the entire machine accounting system for the bank, making this the central clearing house for all such bank work. To tie together the existing and new sections, a concrete screen has been used on both sides of the building at the second floor level.

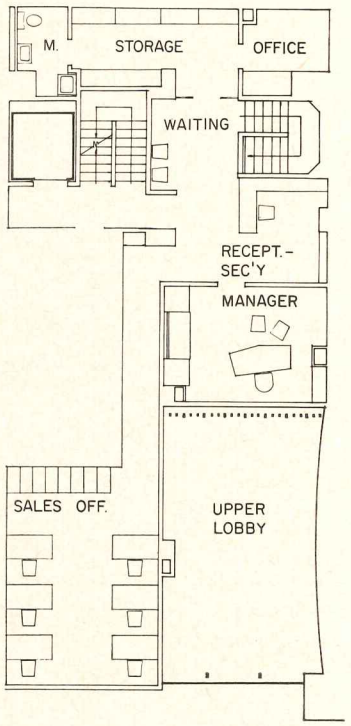


R. Wenkham photos





Entrances on boulevard and parking area are of equal importance. Drive-up banking windows are in a wing extending from the main banking room into the parking area. The curving screen behind tellers' counters in the main banking room with its collage mural in gold tones, done with Japanese rice paper, makes a handsome backdrop to tellers' activities and cuts off the view of other office operations



MEZZANINE

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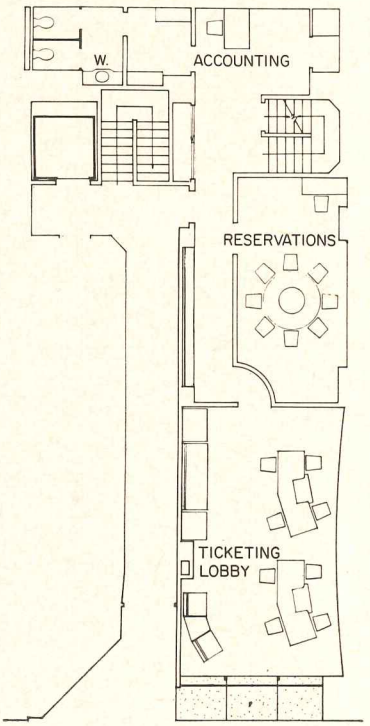


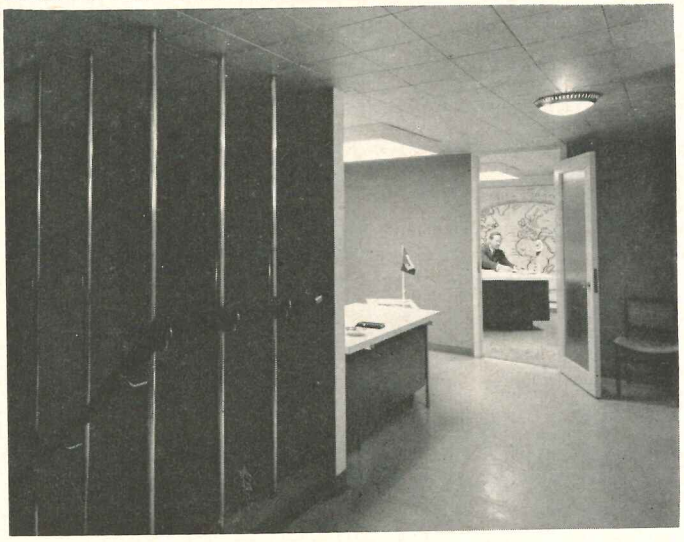
FIRST FLOOR

AIR TICKET OFFICE EXPLOITS SITE

Air France
LOCATION: *San Francisco*
ARCHITECT: *Denis Beatty*
MECHANICAL ENGINEER: *Dwight Coddington*
ELECTRICAL ENGINEER: *Smith & Garthorne*
GENERAL CONTRACTOR: *D. Cappelletti*

Despite their narrow street frontage, the new offices for Air France in downtown San Francisco make advantageous use of their location on the city's famous Union Square, opening up the lobby with an all-glass wall that faces the Square with its trees and lawns and permits a view of the venerable landmark, the St. Francis Hotel, on the opposite side. To increase the apparent size of the ticket lobby, which is entered directly from the street, the floor, walls and ceilings are white; color is used only in such decorative accents as the stained glass screen (designed by the architect) at the back of the lobby and the mural at the side showing the air line's route. The strong blues and reds used in these give vitality to the interior at night as well as by day. Behind the lobby is the reservations office with its "lazy Susan" desk. Upstairs are reception room and offices for the district manager. Ceilings in this area are low but a consistent use of white for walls and ceilings and ample illumination offset this small dimension. Here, as in the lobby, the careful handling of color, furnishings and space relationships is the clue to well-maintained scale.

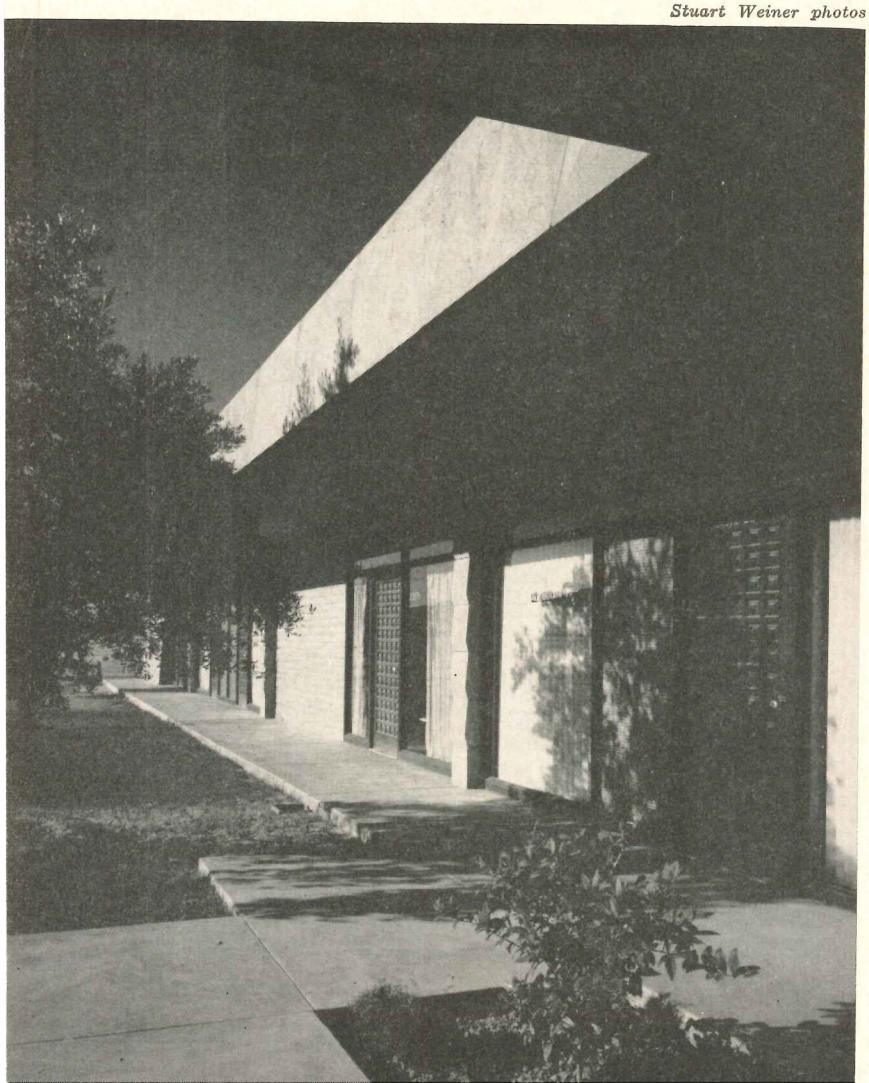
Roger Sturtevant photos

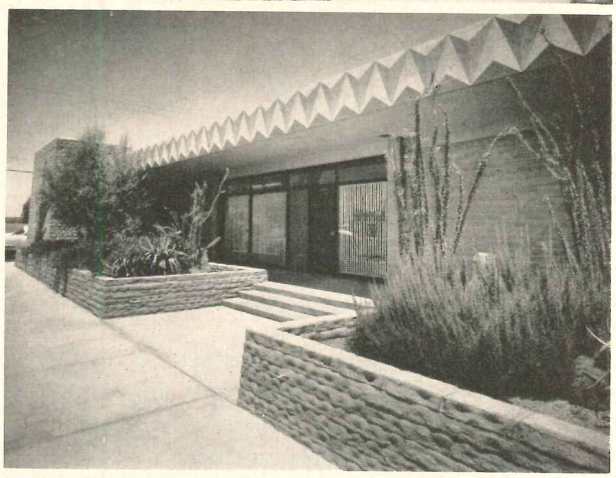


OFFICES GROUPED AROUND A COURT

The four one-story units of the Lenart Building form a pleasant landscaped court onto which open the offices which make up the building's facilities. Although the units are separated by a wide entranceway they are connected by the continuous roof so that entranceways, like the walks in the court and along the street side, are protected from the sun, and the group achieves a visual unity. Situated in what is now an undeveloped area (but which will probably not long remain open, considering the rapid growth of the Phoenix-Scottsdale district) the building has a strong affinity for its desert site through both its color—desert tan—and the materials used—slump block on filler walls, cast stone on fascia and columns. Simple textures and native and tropical planting further reflect the region. The building was built at a cost of $13.76 per sq ft.

Stuart Weiner photos





The Lenart Building

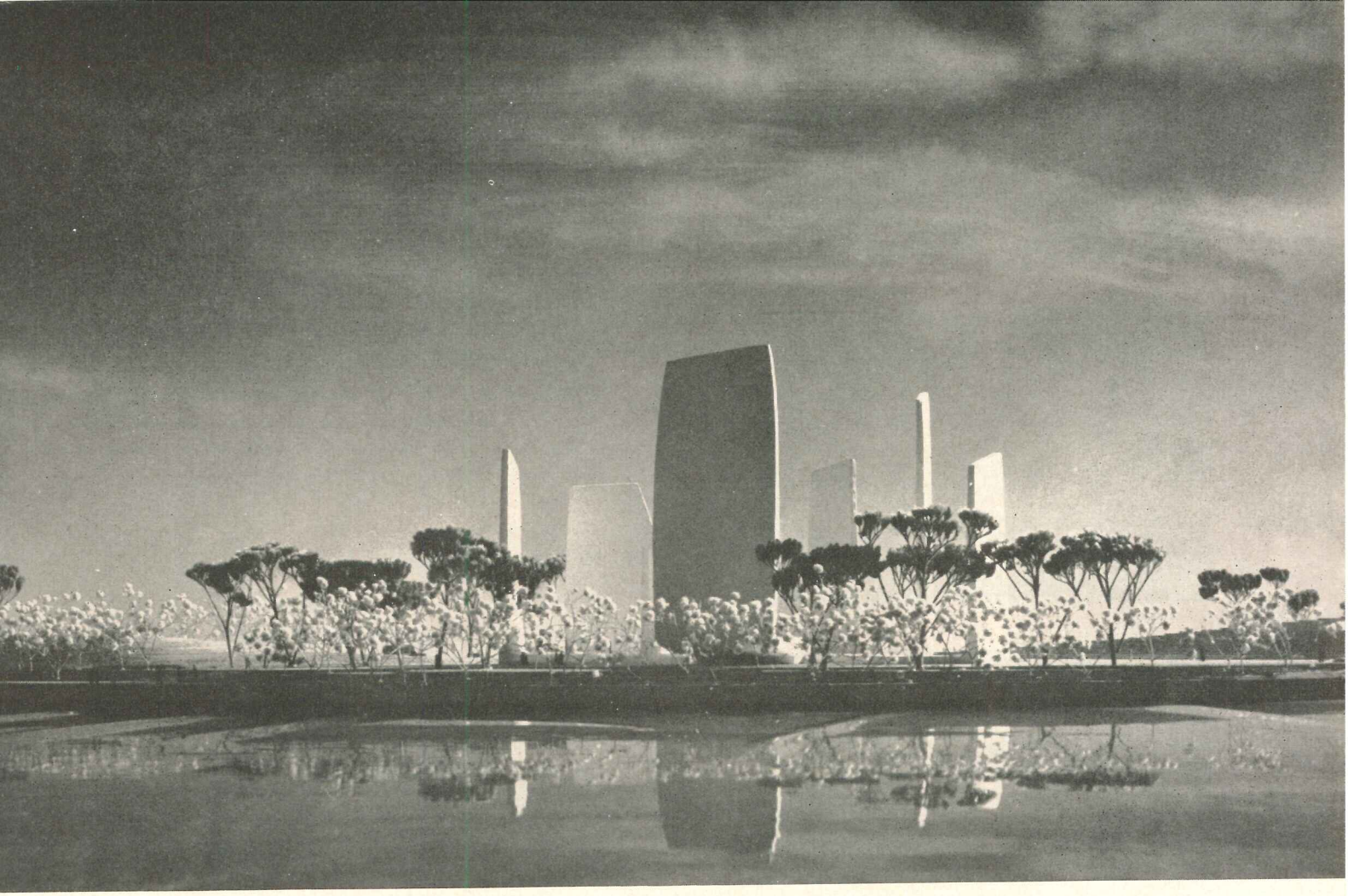
LOCATION:
Phoenix, Arizona

ARCHITECTS AND ENGINEERS:
Edward L. Varney Associates

STRUCTURAL ENGINEER:
Charles Magadini

MECHANICAL ENGINEER:
Robert Lockerby

CONTRACTORS:
Kitchel-Phillips Contractors Inc



Hugh Ferriss rendering of the winning design in the FDR Memorial Competition: the entry of architects William F. Pederson and Bradford S. Tilney of New York, in association with Norman Hoberman, sculptor, Joseph Wasserman and David Beer, associates, and Ammann and Whitney, structural engineers. For description, additional photographs and the report of the jury, see Feb. 1961 issue, pages 12-15.

DEBATING THE FDR MEMORIAL

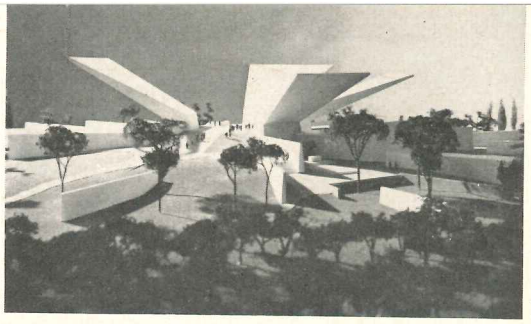
A Plea for Relevance

By John Ely Burchard

Called to the lists by a fanfare of hostile critical trumpets, the knights of controversy are burnishing their shields, adding weight to their maces and occasionally sharpening their spears. Unless too many tragic world events keep demanding our attention we can expect a melée over the winning design for the Franklin Delano Roosevelt Memorial Competition; beside it the Congressional arguments over the Air Force Academy chapel are likely to seem calm and sane. In the melée many will be jousting with each other rather than the accoladed champion: scoring all sorts of irrelevant points and hollow victories; and in this general slashing about the public is likely to have more amusement than illumination: while some delicate and important crockery may, unfortunately, be smashed.

This is too bad. Debates about esthetics are not only inevitable but desirable. More than one intelligent Roman deprecated Bramante and his patron Julius II, saying they destroyed more than they built and were the "makers of ruins." Raphael found it difficult to praise the new marvels of Rome, knowing as he did that they were born in the fires that calcined the ancient marbles. Many Florentines who admired regularity were unhappy that Michelangelo's scheme to project the motif of the open arcades of the Loggia dei Lanzi all around the Seignory Square was not adopted. Indeed this most celebrated of Renaissance squares was not achieved in a single thrust but rather accumulated over centuries by the work of such different (and tempestuous) men as Arnolfo di Cambio, whose palace started it off, Orcagna, Donatello, Michelangelo, Bandinelli, Cellini, and Ammanati. Not a statue was moved, not a new one installed without an intense fight, and the blows and cuts were not always limited to words.

Artists no doubt still feel these matters intensely, do not really like each others' work, but they are half house broken, today keep their most brilliant



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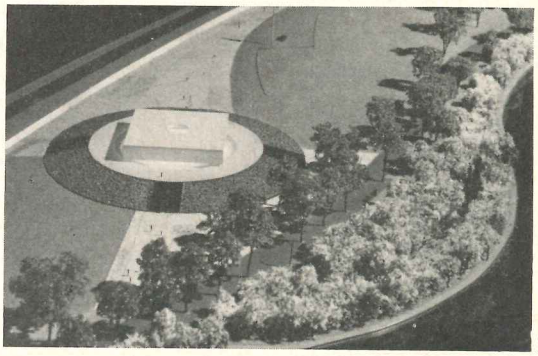

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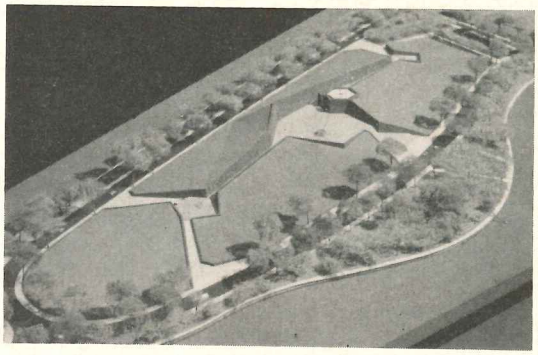

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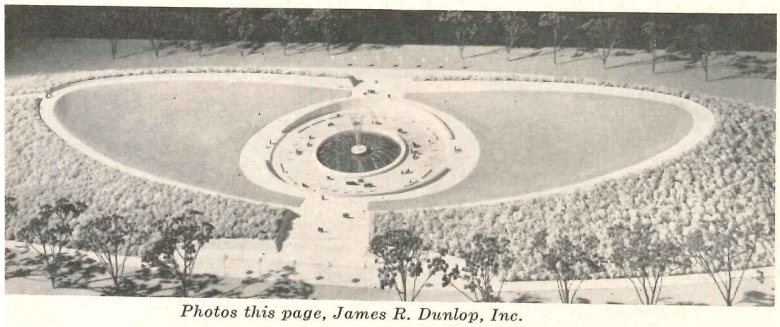

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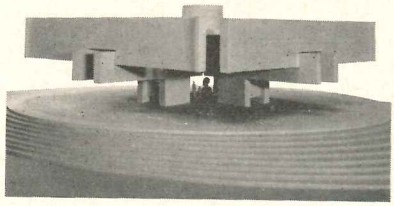
Photos this page, James R. Dunlop, Inc.



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THE OTHER FINALISTS *(Feb. 1960, pp 14-15)*

1. Abraham W. Geller Group. *2.* Rolf Myller Group. *3.* Wehrer-Borkin Group. *4.* Sasaki, Walker & Associates—Luders & Associates Group. *5.* Tasso Katselas Group

sallies to themselves so that their part in the controversies is often less central than it was in Florence. This is a pity, for if there is to be a discussion it might best be conducted more by people who have something to say and less by reporters and Congressmen.

And no one could wish that there would not be controversy if its existence indicates a lively interest in the state of the public arts and not merely a desire for notoriety or a cheap chance to get an approving nod from the gum-chewing and straw-sucking elements of a Congressional constituency.

A Pejorative Overture

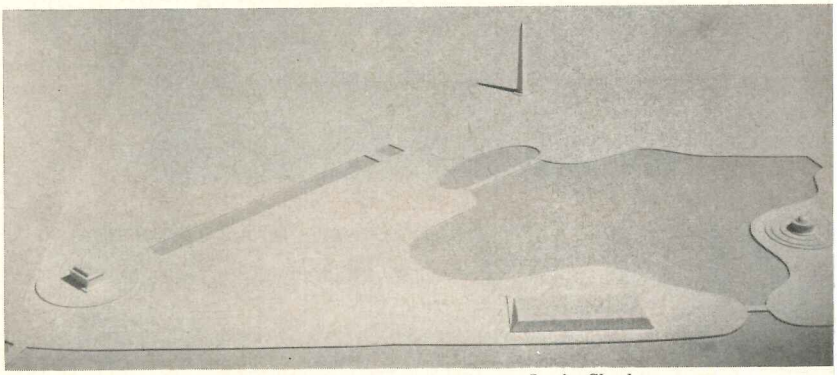
Even before it begins, the terms of the discussion are shrill. To insist as one juror did that there would always be controversy in the arts (hopefully, true) and to conclude from that that the jury's judgment was sound was a brilliantly irrational non-sequitur. To name the winning steles as "instant Stonehenge" was neither descriptive nor helpful. The winner can scarcely recall Stonehenge in any serious way to anyone who has seen the old complex and the implication that the project is therefore Druidical, savage, and thus inappropriate is most unfair, whether or not intended. It was not helpful to compare it with Karnak, which it resembles even less either physically or in its necrological connotations. But there are also less spectacular and equally pejorative terms that have worked their way into the overture. If you want to court favor with artists simply call their enemies "verbal," "literary," "cerebral," "intellectual." By doing this you have made it clear that the real boys are inarticulate, ignorant about history and think with their guts. "Literary" has an additional bad connotation in writing about architecture because it also suggests that the sources of inspiration are associational: e.g., that reviving Gothic is done mostly with an eye to ephemeral Gothic history rather than to eternal Gothic verity. So when you call the new memorial design "literary" you have really smeared it in the minds or sentiments of a good many thoroughly respectable afficionados. But if you stop feeling and think for a while you will realize that a memorial is by definition and in the largest sense literary; and also in the literal sense, for the makers of memorials to any one save the deities have never quite dared trust to the fragility of human memory. Thus statues, even photographic ones, of Napoleon and Washington are at least labeled with a name and often places and events as well; the Lincoln Memorial is plastered with the famous words of the hero and it is hard to say whether in the end the words or the statue are the most moving, though the third component, the Baconian Greek temple, is clearly not the main thing. So as memorials become more and more ab-

stract and less and less certain to communicate the generally same idea to all people, why should the words not increase in importance? I expect that when you decide to build a memorial to a hero it is your intention that the acts and the life of that hero are to be recalled, and quite spontaneously, to the memory of those who follow. If a memorial is but a pretext to provide sculpture in a park, then the whole idea is dishonest, no matter how great the sculpture. If there is to be a memorial to one of the greatest of American heroes, Franklin Delano Roosevelt, then it should speak about him and not about hollow men or birds in flight. FDR was an exceptionally verbal man and, like Churchill, he moved people to perform beyond their strength; and he did this not by his taste in architecture—which was conventional and ill-developed, though positive—not by his painting or his music, but by the *words* he used, the quality of his voice, the impression of sincerity he conveyed, his manifest concern for the underprivileged and the weak, and his towering personal and public courage, so that the greatest of all his utterances turn around freedom from fear, or enjoin us that we have nothing to fear save fear itself. All this is pretty verbal and pretty literary and so I would tend to regard such appellations as complimentary; it would be an illiterate monument I would worry about. I suppose this is the time to say for what it is worth (and it is worth very little) that in my opinion the winning design, if executed, has a chance of being very good. But that is not really involved among the things that concern me about the impending debate, although the merits of the design will be the ostensible subject of all the talk, projected mostly by people who have seen a single photograph and who have not, in their lives, demonstrated any particular competence (as the jury for example had) at visualizing what a three dimensional complex presented in model form will seem like to a human being who is walking in it at full size. This by no means implies that we should accept the awesome authority of the jury as final; but it does ask that we should demand to see the credentials of those who debate; and if any choose to debate anonymously one has to say they have presented no credentials at all.

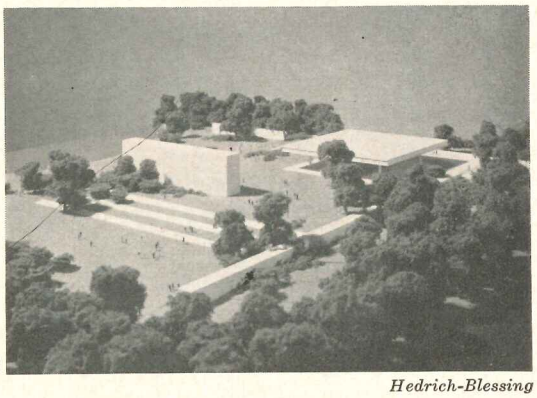
Perils of Irrelevance

What kinds of credentials may we expect to be offered? A motley lot, no doubt.

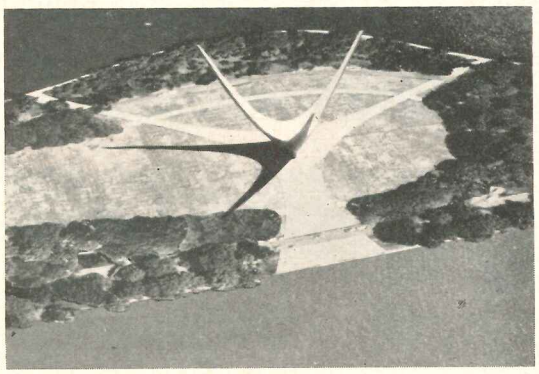
Among those who seem to be talking about the merits of the design there will be those who are really expressing the doubt that "that man" should be memorialized at all. Such people are by no means all dead though most of the time now they whisper to each other or coddle their remembrances of things past. In the next echelon will be those



1 *Louis Checkman*



2 *Hedrich-Blessing*



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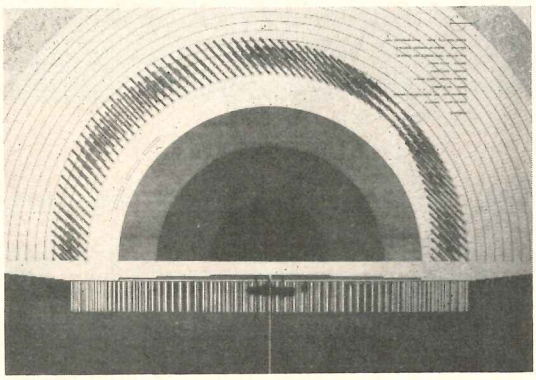
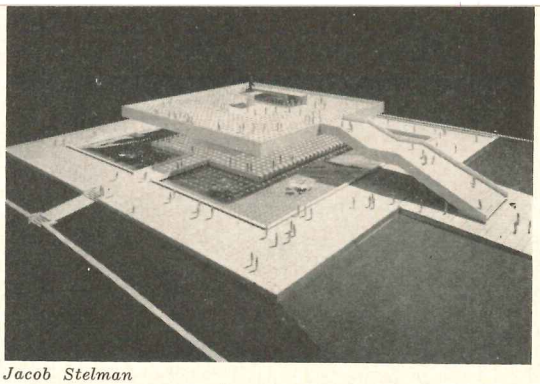


4

SOME OF THE 22 HONORABLE MENTIONS

1. Edward Larrabee Barnes of New York, with Giovanni O. Pasanella and Jaquelin T. Robertson. *2.* H. P. Davis Rockwell, Flossmoor, Ill. *3.* Joseph D. Murphy and Eugene J. Mackey, St. Louis, with Hillis Arnold (sculptor). *4.* Bruce A. Abrahamson & John Rauma, Minneapolis



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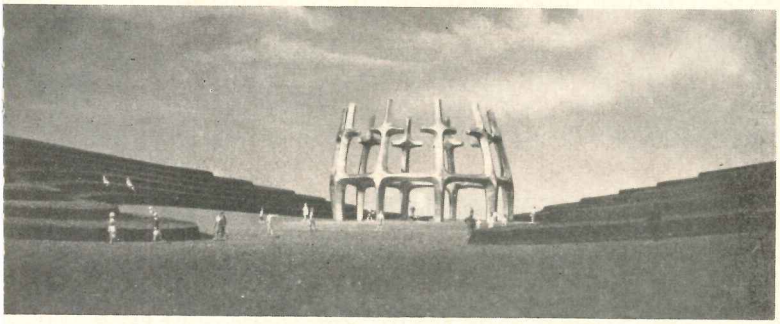
Jacob Stelman



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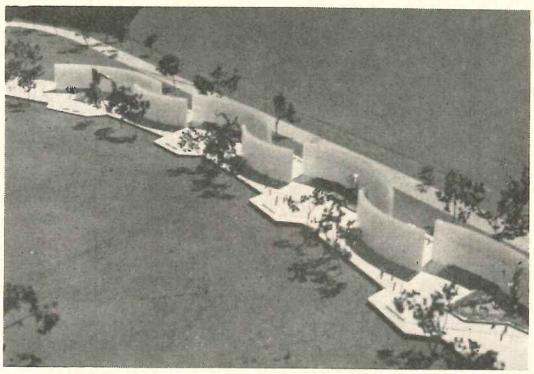

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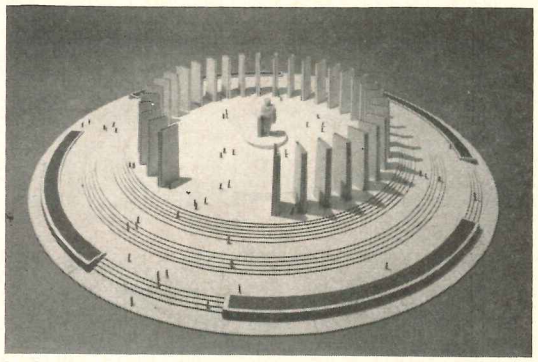

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Modernage Photo Serv., Inc.

MORE OF THE HONORABLE MENTIONS

1. Oscar Stonorov and J. Frank Haws, Philadelphia, with Otto Reichert-Facilides, Richard E. Martin, Peter Nicholson, Alfred Clauss and Jane West Clauss. *2.* Lewis Davis, Samuel M. Brody and Chester J. Wisniewski, New York, with Albert Bergman, Carl Meinhardt, Ralph Steinglass, Ikuyp Tagawa, Edith Wong, and Julius Twyne, Jr. *3.* Elizabeth and Winston Close, Minneapolis. *4.* William J. Stanley, Los Angeles, with K. A. Rickerson. *5.* John M. Johansen, New Canaan, with Costantino Nivola, John D. McVitty and Maria Fenyo. *6.* Anthony V. Genovese, Ridgewood, N.J., with Eugene A. Meroni and Herbert Maddalene. *7.* Perry, Shaw, Hepburn and Dean, Boston, with Richard K. Webel. *8.* Percival Goodman, New York. *9.* S. Robert Anshen and William Stephen Allen, San Francisco, with Tibor Fecskes, Valentine G. Agnoli and Elio Benvenuto

who admired or even loved FDR but solely on specific New Deal lines and who fundamentally find the idea of a monumental memorial to be immoral when the same funds could produce something "useful" for the living, especially the living poor. This is of course a perennial and significant question and it deserved much more public discussion than it got when the Commission announced against hospitals, libraries, swimming baths or other conventional "living memorials". Perhaps it should be debated more in deciding *what* memorial should finally be built; but it is irrelevant, incompetent and immaterial to the issue of whether the winning design should have been the winner.

One step nearer to relevance but not much nearer will be those defenders of the public purse who continue to believe, and earnestly, that the United States became great through prudent parsimony, that nations which save capital will succeed while those who squander it on art and luxury will die. It was the view held by John Adams, who suggested we postpone the arts until we were farther along in other things. The idea is heard in different decades—it may even turn up in the defense a motor company president recently made of fins and annual model changes, insisting that "personal" goods were intrinsically more important than "social" goods (e.g. public art), implying that fins were somehow the unpuritanical, the "American" way. The idea is that bureaucrats define public art but that those who define fins are free from bureaucracy. On this line of argument the people of the United States are still reluctant supporters of art through the public or even the quasi-public purse and this reluctance will show through what many seem to be saying about the specific work.

The Problem of Identity

Then we will come nearer to those who do care primarily about memorial or esthetic considerations. Of these the memorial considerations will inevitably be elusive. The memories, the personal memories, of FDR are still green as they were not for Lincoln and Jefferson when their memorials were under consideration. The character of FDR was itself Protean and the interpretations individuals made of this character were still more Protean. He was not a man to be taken or left alone. You loved him or you hated him and there was not much middle ground. When he died many people wept, but they were weeping about different things. It is hard to conceive of any design that could manage to say to each person who loved the memory "you see this memorial clearly recalls exactly the traits you admired and loved most."

On the esthetic side there will be infighting too before talk about the merits begins. We must look for those who would like really to scotch any mod-

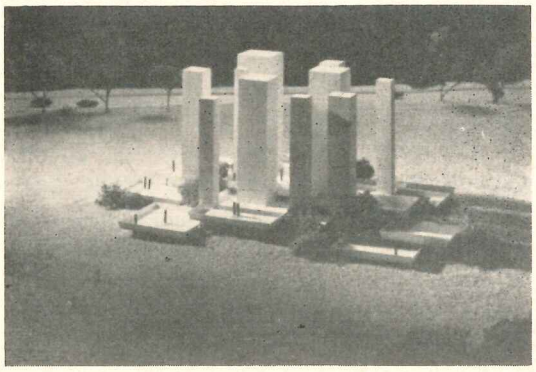
ern design and replace it with work by the contemporary Bernini who, alas (perhaps alas), does not exist. Despite the manifest general acceptance of contemporary work the old guard dies but never surrenders, as the recent tussle over the Gugler proposals showed. Opposition to the winner may therefore veil a much more general opposition. There will be a little of this among artists and architects and critics and considerably more in the halls of Congress. The men still sit there who condemned the Air Force Academy chapel as "atheistic." Though President Kennedy may not flush red when he sees a modern design, as President Eisenhower is said to have done, we do not know what his taste or his interest may be. Liberals have not in general been more or less sensitive to the currents of art than conservatives. A number of artists of the right names were invited to the Inauguration, but nobody knows who picked them.

President Kennedy is unlikely to want to emulate Calvin Coolidge in anything. He will not reject Cezannes offered to the White House; he will not decline to send contemporary American paintings abroad; Mrs. Kennedy is said to have some interest in the contemporary arts. Their own ways of life and their domestic esthetics are conventional, which is their privilege. But they are not Carrie Jacobs Bond types and are not likely to offer obstinate roadblocks to contemporary arguments. We are lucky to be able to say so much. There is no reason in American Presidential history to look with hope to the White House for taste or leadership in these particular matters and in these times it might even be inappropriate.

As to the Congress, the critics of the country ought perhaps to form a "truth squad" to correct the wild statements that so many Congressmen will make, quite outweighing the intelligence and sensitivity of a few: an inevitable few, since sensitivity to the arts is by no means a major qualification for legislative statesmanship and might even be a barrier to election from some communities, were it widely known.

A Vote for Honest Criticism

The risk of overstatement from the right is generally understood these days but the risk from the *avant garde* is less often explored. Many who defend the winner will be doing so not because they really think it to be good but because they think that to do less would be somehow to "betray" the modern movement. I do not see how the modern movement today can be regarded as a tender plant still to be shielded from criticism of its excesses or failures on the ground of "treachery." The time has long passed when this is tenable. If the design is not a good design let it be said by serious critics who still support contemporary ideas and who are



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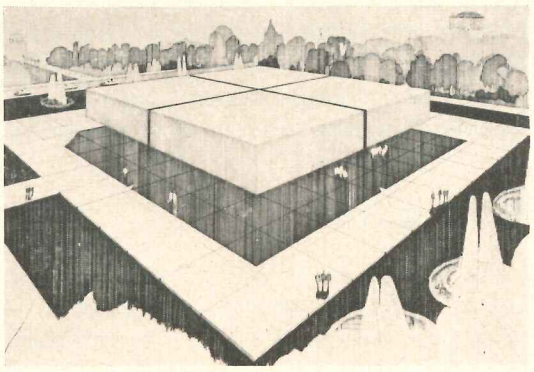

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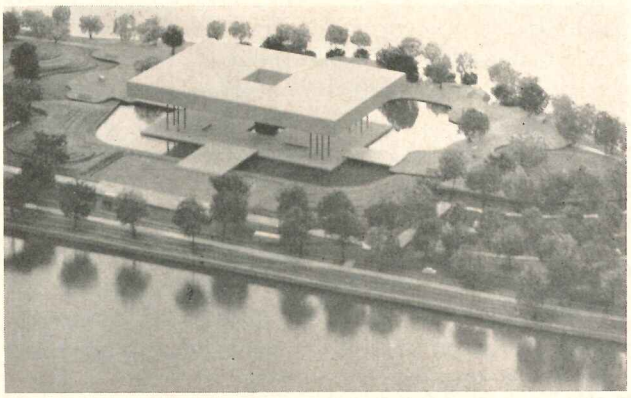

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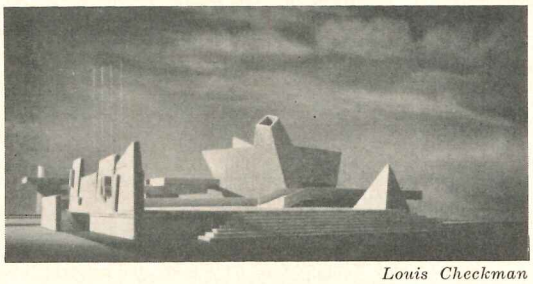

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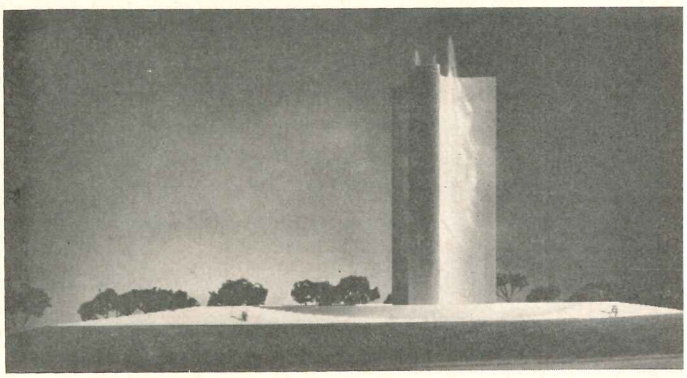
Louis Checkman



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not "traitors." But it is not easy to know how to say these things without doing harm, for the oppositions I have mentioned leap on every defection and are triumphant and ruthless in their ability to quote out of context. There is no doubt that there are many people who would like to curb the newly found freedom in the design of some Federal buildings, notably our new embassies and chancelleries but also occasional domestic things remote from the scrutiny of the Arbiters on the Potomac. A violent debate on the competition conducted in unfortunate terms could really do a great deal of harm. As to this, it seems to me, we can only hope. Honest criticism, especially measured criticism, should not be withheld—there might be some caution against being carried away by the excitement of polemic or the enticement of phrase making.

The Big Questions

As the debate is conducted it is probably unfortunate though certainly inevitable that major questions will be lost in the argument about the particular design. These questions are perhaps philosophical and theoretical but not less important thereby.

Is it possible in these days to memorialize *anybody* in a significant way through artifacts? If it is possible is a monumental artifact possible? Do we know how to make one? Do artists have their hearts in the job when they try? If a monumental artifact is possible how can artists who work at the highest level of individuality and personal abstraction the world has ever known find a way to produce something that cannot be personal but must be general, that cannot be a success at all unless it communicates *widely?*

After these questions there comes the question of the urbanism of Washington, less whether the new monument will do any harm to the existing vistas, which it probably will not, than whether it will add anything important to the roster of place-identifiers which great cities have to have.

None of these, it is safe to regret, will occupy much attention.

In discussing the design there are two different questions. The first is: was it the best of those offered and therefore deserving of the prize? This the jury (and a good jury) has said it is. If this is the point of discussion, then comparison with other submissions is of the essence—attacks on the winner alone are meaningless. Such a discussion serves some useful purpose, regardless of whether it endorses or repudiates the jury, which does not matter, for it calls public attention to questions of design.

Indeed that is all discussion at this level is likely to produce. The *Chicago Tribune* competition, it is true, brought the second place winner, Eliel Saarinen, to our country and thus added to our architectural stature. But such an event is unlikely here. At best it can only publicize an American unknown since, regrettably, the terms of the competition excluded foreign talent—regrettably because many foreigners loved, admired and understood FDR as well as Americans and because an enormous reservoir of talent was left untapped. But the purpose of comparison should not be to demonstrate that the jury was incompetent, because the jury was very competent, individually and collectively, probably more so than most of the discussants who have or will enter the lists. It would help in such a discussion if we could all know whether the jury was unanimous. Dissenting opinions have been found valuable in the law and they would be valuable in assessing esthetic judgments—incidentally, they would improve the role of any chairman, unless he should be the kind of person who regarded harmony as the only pearl beyond price.

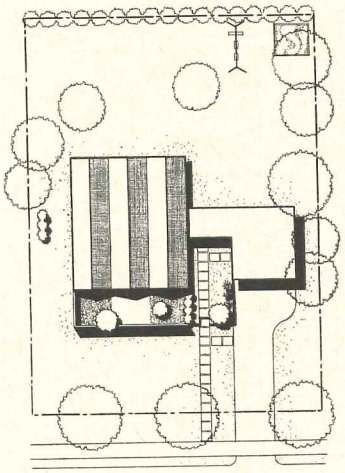
The wider question is not whether the design should have won the competition but whether it should be built. It is too bad that juries so seldom have the courage to make no award at all. I hasten to say that I do not imply that the winner in this case did not deserve an award.

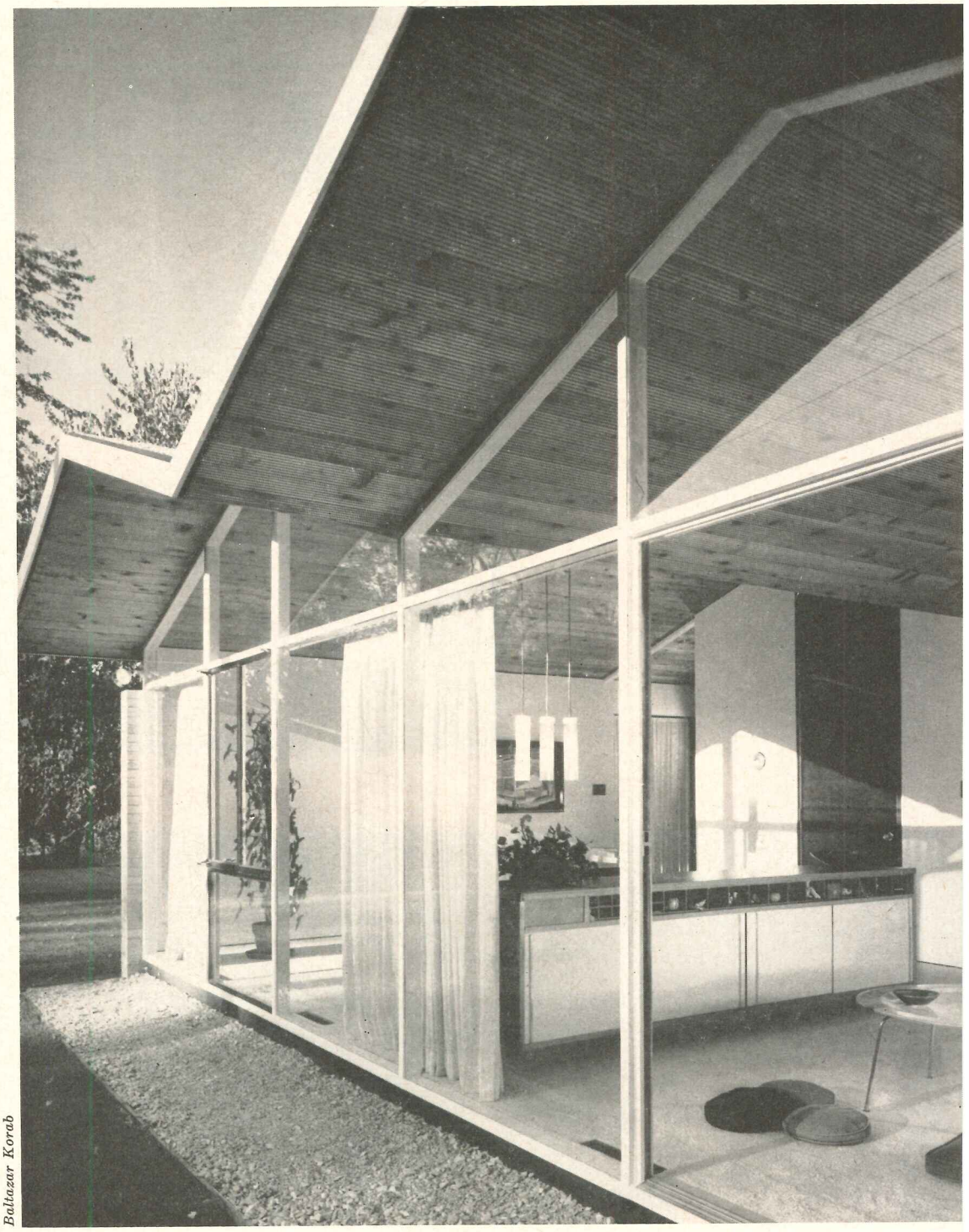
In this competition the jury was categorically authorized to make no award if it felt no proposal sufficiently fine; by implication we have to assume the jury did decide the award was earned. But such refusals to award take a lot of spunk—and their rarity even when permitted makes all jury judgments a little suspect. Given our *mores,* if a jury really thinks a winning design deserves to be built it ought to say so in ringing, unequivocal and convincing terms; it has said so once but this needs to be repeated over and over; and when the sniping begins it should be redoubtable in the defense of its conclusions. I hope that will happen here; I hope all the extraneous reasons for opposing the winner will be disregarded; that the irrelevant arguments will not be adduced; and I hope also that the debate will be vigorous, noisy, but fair and to the point.

Let an Informed Public Participate

I hope more than this. I hope the public will participate and to this end I hope an excellent model, big enough to be understood by laymen, will be built and circulated through the country while the discussion is going on. San Francisco has given a recent notable example of public scrutiny in a competition and the Roosevelt Memorial is much more important to the nation than the Golden Gate Project.

All this I hope: but I am too old to go about confusing hopes with expectations.

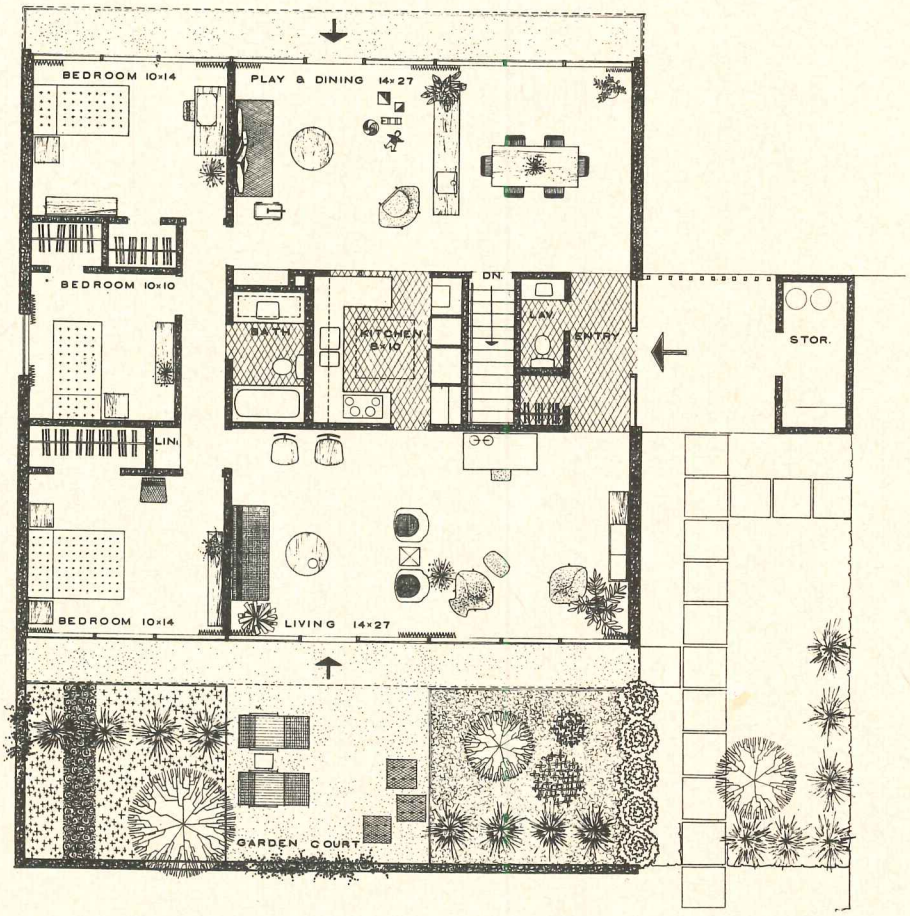




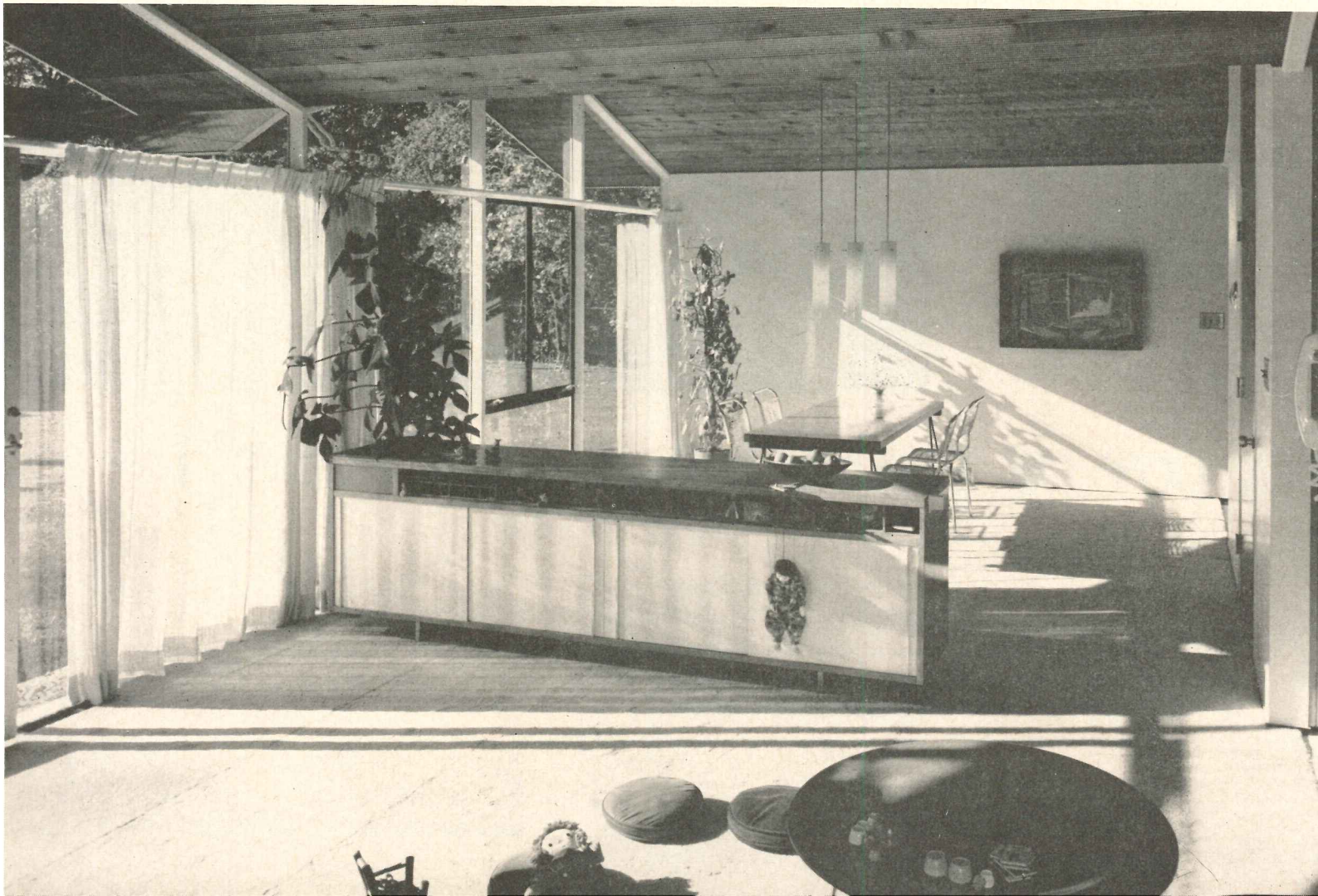
Baltazar Korab

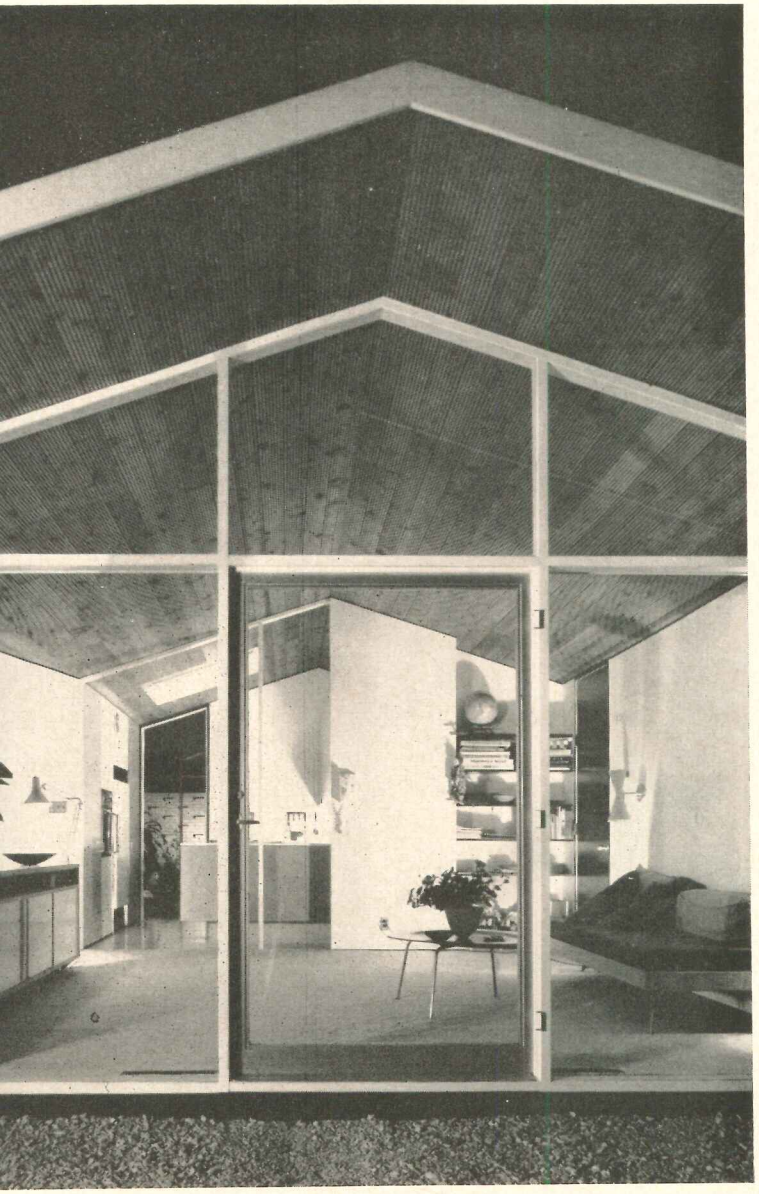
A LOT OF HOUSE FOR A LOW BUDGET

OWNER: *William H. Kessler*
LOCATION: *Grosse Pointe, Michigan*
ARCHITECTS: *Meathe, Kessler and Associates*
ENGINEER: *R. H. McClurg*
CONTRACTOR: *H. C. Smith*



Baltazar Korab





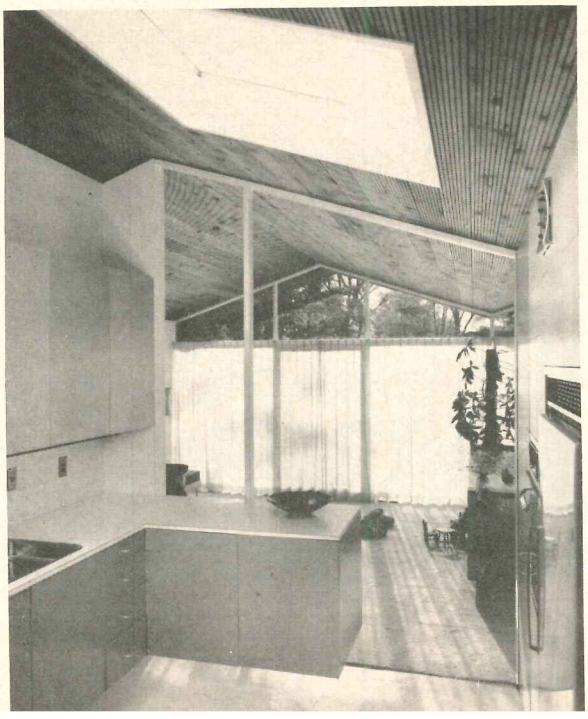
Kessler House

An unusual amount of comfort, privacy, spaciousness and style are found in this budget house built by Kessler for his own family. And the plan affords a degree of "zoning" seldom found in a small square house: the parents' bedroom, living area and garden are at the front; childrens' play and sleeping areas, and a yard for play are at the back; bedrooms can be isolated from all living areas for entertaining; the two big living areas can be used separately or together, along with their adjoining outdoor spaces.

Total cost of the house and its typical city lot was about $30,000. Economies were made by the nearly square shape (about 39 by 42 ft), and by ganging all utilities into a central core. The bath and kitchen in this core have skylights and vent fans (see photo bottom center). The structure is light steel frame with a wood deck roof left exposed for the ceiling. The steel frame also serves as members to secure the glass.

The lot is surrounded by typical neighborhood houses, and a hospital is across the street at front. For privacy, the brick side walls are almost completely blank, and the front is shielded by a high brick wall.

Interior partitions are painted drywall construction. Floors are plywood surfaced with carpet, vinyl or ceramic tile.

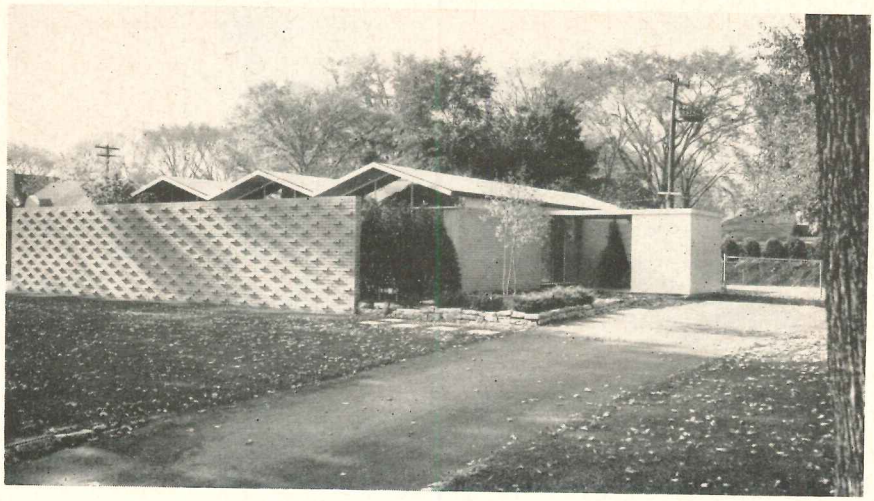


Baltazar Korab

Kessler House

In spite of the set-back requirements of the site, outdoor living areas were provided for the major rooms at the front of the house by creating a garden court screened by a textured brick wall. (The court is seen from a corner of the living room above.) The brick patern and accordian roof provide a more ornamental facade than often found in houses where the front is blanked off.

A pleasant entrance is provided at the side, with a roof connecting to a storage room. A carport will be added adjoining this as indicated on the plot plan on the first page. The house is heated by a package gas-fired air furnace with thermostat controls. Kitchen equipment is all electric.



Davis Studio

OWNER:
Dr. and Mrs. Max Fischer

LOCATION:
Washington, D.C.

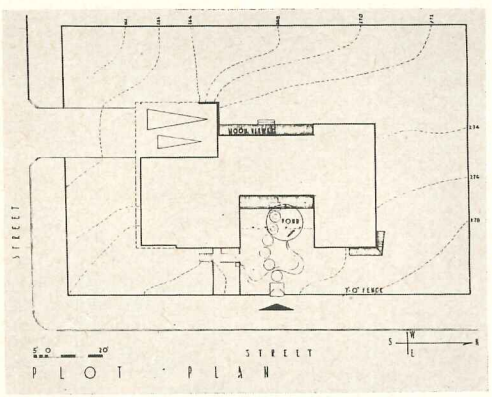
ARCHITECTS:
Brown & Wright

CONTRACTOR:
Arthur Strissell

LANDSCAPE ARCHITECT:
Lester Collins

INTERIOR DESIGNER:
Lillian Walsh

JAPANESE IDIOMS ARE ADAPTED FOR A PRACTICAL HOUSE



Fischer House

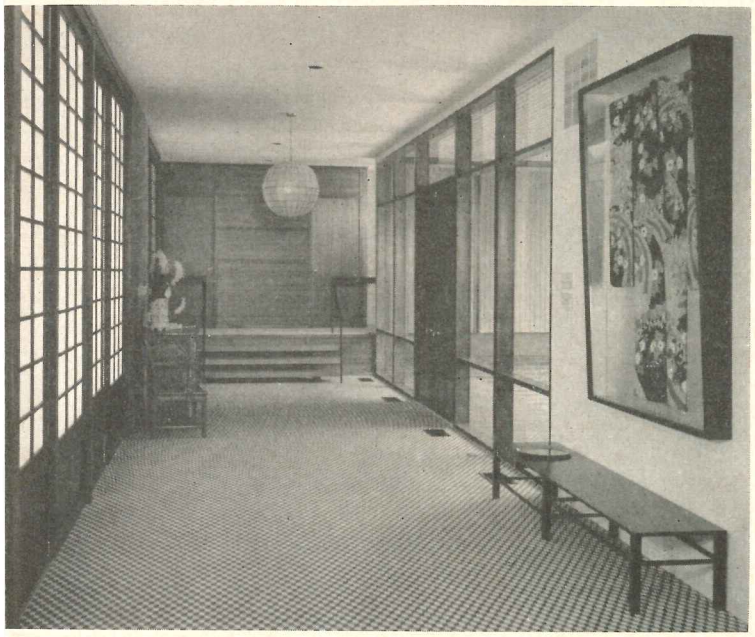
A mixture of reminiscent Japanese forms and American practicalities has been brought off with considerable verve in this comfortable city house. The owners lived for a year in Japan, grew to admire the architecture, and frankly decided they wanted a similar environment in their new home in Washington, D. C. The architects thus used many forms and devices "for their mnemonic value" (shojis, a modular panel system, a gravel garden, a walled-in lot), and managed by using them, to gain a degree of spaciousness and privacy unusual in a town house.

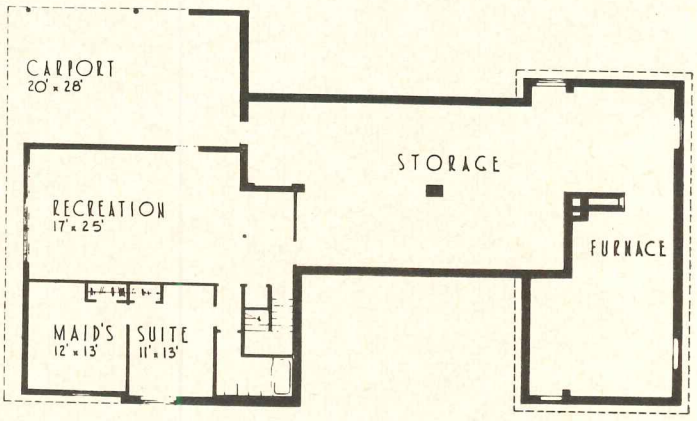
Explicitly planned for extensive indoor entertaining of "shoe-wearing guests", the plan makes deft use of the shojis. Gallery, game, living and dining rooms can all be opened together to create a really big space for major functions. Glass walls and the gardens add to this sense of space, and the 7-ft high garden wall gives privacy.

A frame of red wood and fir was constructed to hold panels of cement plaster, wood and glass. The interior walls are white-painted plaster, walnut paneling or grasscloth. Floors are surfaced with mosaic tile or carpet. A modular measure was used throughout.

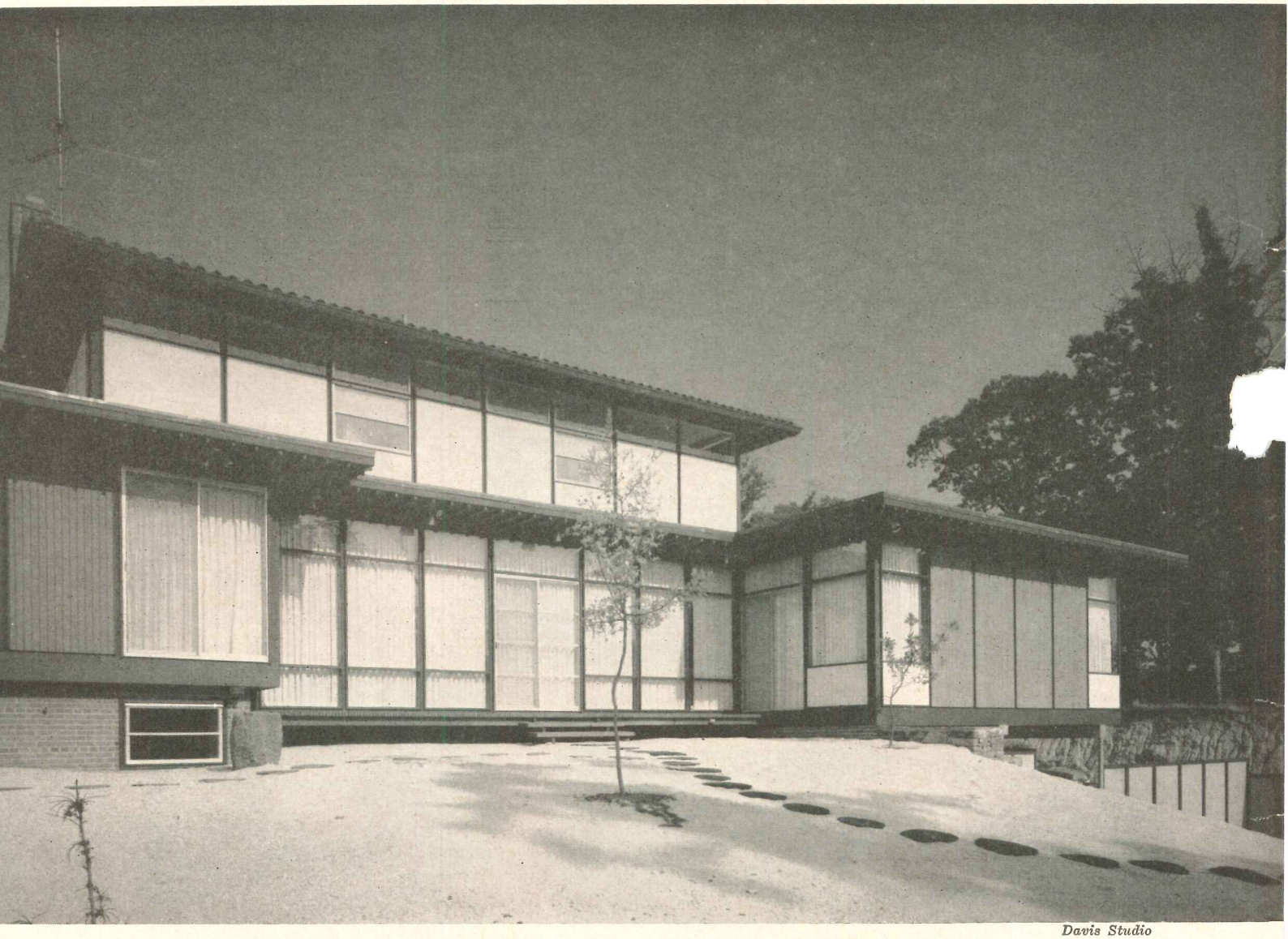
All materials and finishes were chosen for the greatest possible ease of maintenance, including the garden. The ground is covered with polyethylene under white gravel to obviate the need of lawn mowing or weeding. Rocks and water play as important a landscape role as plants.

A sharp drop in the site (note in photo far right) was used to give access to a carport at basement level and give daylight to the recreation room. The big basement storage room, as well as ample closets throughout add much to the livability.

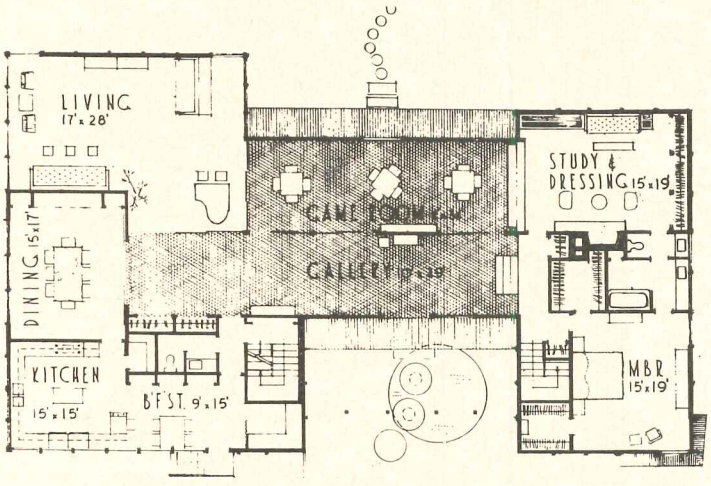




BASEMENT



Davis Studio



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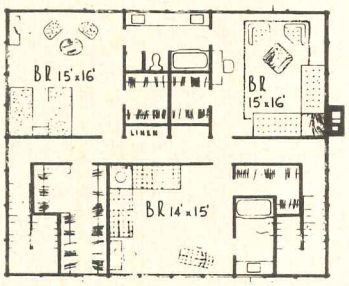

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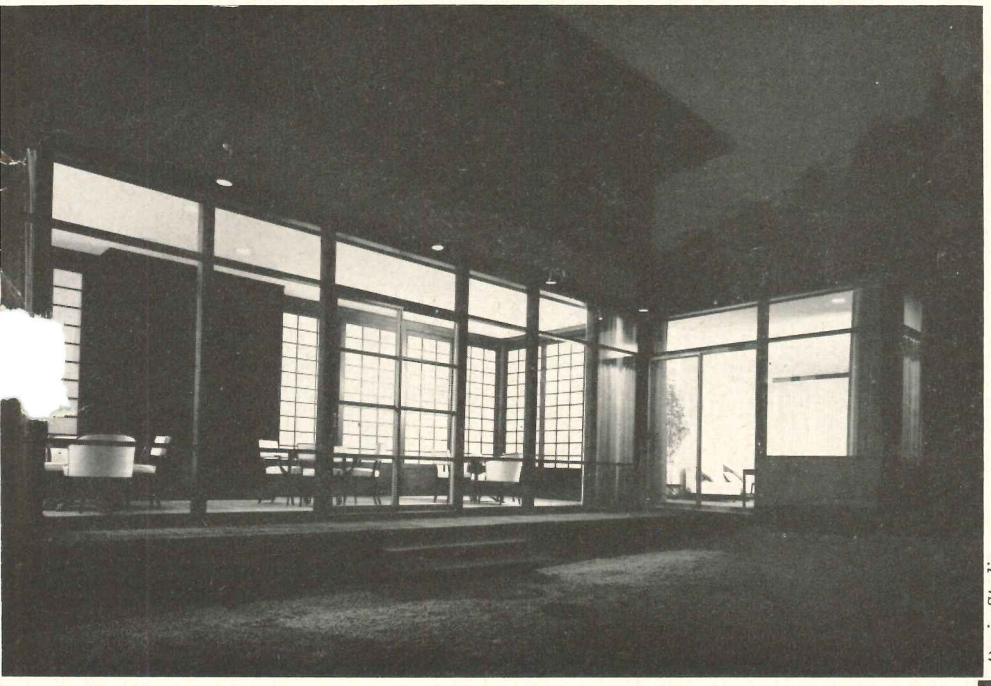


Davis Studio

Fischer House

Card parties are provided for in a special long, narrow room (photo at top). The room can be opened completely to the gallery and living room by sliding back the shojis.

The gardens are designed to add close-range vistas on the city lot to supplement the longer range ones commanded by the rise of the site. The wall is of sufficient height to give complete privacy from the adjoining streets.

Four year-round combination furnace systems are used in the house for zoning. Kitchen equipment is all electric

APARTMENTS

Some Suggestions For Urban Housing

by Gyo Obata

assisted by George Hagee

Formula will not solve the urban housing problem. Indeed, application of formulae has been a principal factor in creating the problem. Consider the urban tenement, which crowds many humans into noisy, airless, confusing spaces, far removed from parks and recreation areas. Traffic functions (car movement and car parking) are intermixed; ground areas are cluttered with service entrances, garbage cans, driveways, alleys. Obtaining visual enrichment in such a situation is difficult to impossible; and many high-rise apartment projects are as vulnerable in this regard as older slum tenements.

Lower East Side Tenements, New York

Suburban sprawl—an equally destructive formulary "solution"—gains light and air (at the cost of much unnecessary utility and road development) but often leads to a widespread, dreary sameness. Confusion of spaces still prevails; with play areas interrupted by driveways, and picture windows looking out over "front yards" to traffic laden streets. The proper articulation of public spaces (streets, parks, plazas, etc.) and private spaces (dwellings, gardens, courts, etc.) is missing, and its lack is both esthetically disquieting and sometimes —in this motor age—downright dangerous. Tenement housing preserves unity in undesirable ways; suburban sprawl destroys unity, becomes amorphous.

Our urban housing problem stems in part from our history. Land was plentiful and the population small in early America; a tight urban pattern was not necessary, as in Europe. Most housing needs were met by single-family houses on separate plots, with resulting densities of from two to four houses per acre. With industrialization, America was unprepared to deal thoughtfully with the need to house more people on less ground. Amenable precedents, such as Boston's Louisburg Square, or Georgetown (near Washington) were ignored. The tenement resulted. Later, with the mobility lent by the automo-

High-Rise Apartments, Los Angeles

3 Photos by Ewing Galloway

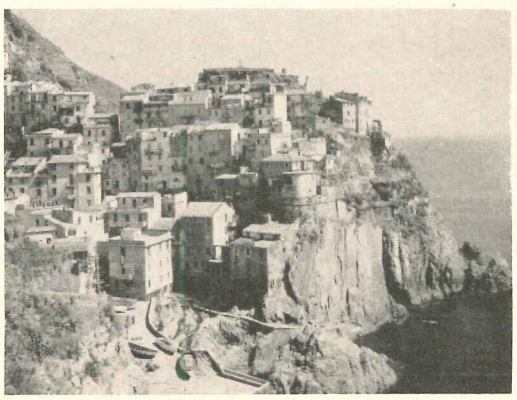
Suburban Sprawl, Houston, Texas

bile, the subdivision emerged as the "to every man a castle" reaction. But the subdivision often fails to give sufficient attention to a humane and considered relationship of streets, yards, and houses—despite its quantitative growth. The New York Regional Plan Commission estimated several years ago that the New York-Connecticut-New Jersey metropolitan region then containing 15.5 million people in 1100 square miles would expand 25 percent in population but *64 percent in area* by 1975, primarily because of subdivision type growth at densities reverting to the two to four units per acre of 100 years ago. Undoubtedly this pattern will be repeated in many other areas, scattering large numbers of families in separate houses on separate plots. Why not correct the faults of the typical subdivision and create a well ordered environment that uses less land?

We offer three architectural suggestions. First, revert to horizontally connected units (row houses, semi-detached houses, etc.) or to vertically connected units (high-rise apartments, duplexes, maisonettes, etc.)—in both cases supplemented by small gardens, courts, secluded yards, and private balconies. Ground space saved may be pooled as common area, and densities of 10 to 15 units per acre for row houses, or up to 100 for high-rise apartments may be realized without harm. Second, differentiate spaces by function: the car in motion vs. the car at rest, etc. Third, provide for use sequence of spaces, so that one is conscious of moving from public street to semi-public parking to semi-private entrance court or entry to private space for living. At Marseilles, Corbu emphasized the transition from corridor to apartment by painting the windowless corridor black, in contrast to the lightness within the living areas.

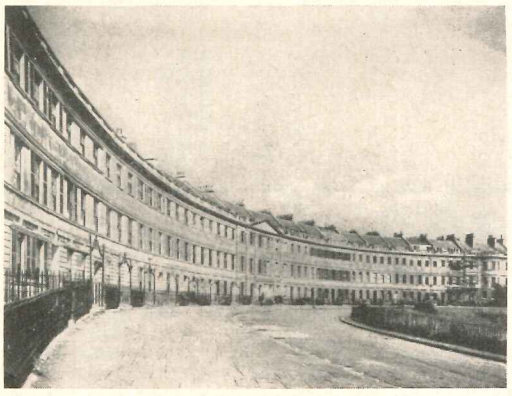
For each project, particular conditions determine the particular character the project will assume. These include density and unit types, required areas or units and rooms, possible orientation, provisions for parking, selection of structural and mechanical systems, and choice of materials. In considering these we must bear in mind that each choice must perforce relate to the total expression; that each solution for a detailed problem must point towards a strong total unity.

First, programming. Densities, unit numbers, room sizes, and unit apportionment are usually suggested by the owner, consultant, or government agency. Nevertheless it is the architect's duty to examine these requirements in the light of his own experience and, if necessary, revise them to reflect his evaluation of human needs. In respect to density, the architect may be the only one who *can* define,



G. E. Kidder Smith

View of Manarola, Italy



Lansdowne Crescent, Bath, England

Ewing Galloway

Louisburg Square, Beacon Hill, Boston

Ewing Galloway

Old Georgetown, D. C.

PROJECT TABLE I

	Plaza	St. Louis Hills Towers	Wenneker (Final stage)	Siteman
Total No. of Units	1,090	912	480	234
Total Parking Spaces	845	915	960	236
* Total Land Area	5.0 acres	12.3 acres	87.75 acres	11.3 acres
Density—Units/acre	218/acre	74/acre	6/acre	21/acre
% building coverage to total land area	28%	8%	10%	17%
% parking and streets to total land area	27%	34%	23%	24%
% open land space to total land area	45%	58%	67%	59%
** % building service areas to total building area	19%	18%	23%	13%
** % service area/floor to total area/floor	13%	11%	—	—

* Plaza acreage does not include property owned by two churches which are actually a part of the scheme.

** Service area includes elevators, stairs, circulation, etc.

PROJECT TABLE II

		PHA	FHA (Revised, Arch. Record Oct., 1960)	Plaza	St. Louis Hills Towers	Wenneker (Fst stage)	Siteman
Eff.	No. of Units			334	304		
	% of Total			30%	33⅓%		
1 Bdrm.	No. of Units			600	304	8	18
	% of Total			55%	33⅓%	16%	8%
2 Bdrm.	No. of Units			156	304	40	186
	% of Total			15%	33⅓%	84%	80%
3 Bdrm.	No. of Units						30
	% of Total						12%
Eff.	Total area						
	(balcony @ ½ area			478	544		
	Living-bedroom		240	265	346		
	Balcony (full area)		70	80			
1 Bdrm.	Total area (balcony @ ½ area)			722	775	674	618
	Living-Dining	170	200	294	372	237	210
	Bedroom	125	120	164	198	226	150
	Balcony (full area)		70	80	144	160	80
2 Bdrm.	Total area (balcony @ ½ area)			894	1061	1080	951
	Living-Dining	185	200	297	520	285	327
	Master Bedroom	125	200	194	192	216	154
	Bedroom	100		141	168	214	140
	Balcony (full area)		70	80	138		130
3 Bdrm.	Total area (balcony @ ½ area)						1094
	Living-Dining	205	200				316
	Master Bedroom	125					134
	Bedroom	100	280				124
	Bedroom	90					124
	Balcony (full area)		70				145

in adequate terms, the relationship between height, building requirements, and ground usage. When one is able to vary height and coverage, models will be found useful in studying this problem.

Budget usually determines size, and the architect seldom has any control over the budget sum—but he is still obliged to give the owner the maximum possible space and quality for the money. In order to stay within budget bounds, we make several cost estimates during design study and the development of working drawings.

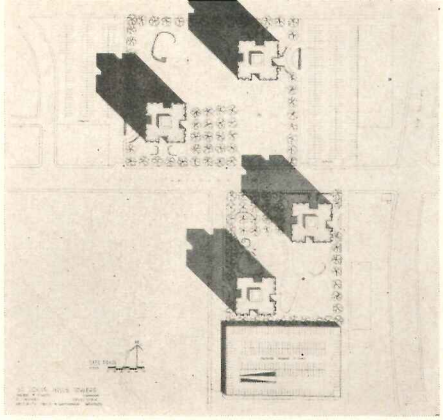
Since structural considerations affect cost and may seriously inhibit room planning and arrangement, extra thought should be given to the choice of structural systems. For high-rise apartments, we are making increasing use of concrete systems, which are economical. With a concrete flat-slab system, ceilings can be finished by painting the slab itself or by a ⅛ in. plaster skim, avoiding suspended ceiling costs. Flat-slab floors also allow flexibility in moving columns to suit the plan. In addition, such a system allows exploration of possibilities for exposing the structural frame with column spacings other than one-to-one for the exterior expression. Moreover, the problems and costs of fireproofing are avoided.

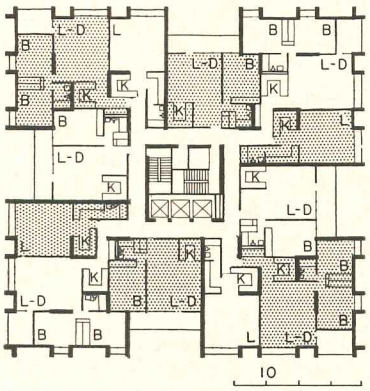
As for mechanical systems, our experience indicates advantages in using fan coil water systems for heating and cooling. Normally, such systems coordinate well with structure and architecture, and offer considerable thermostatic control.

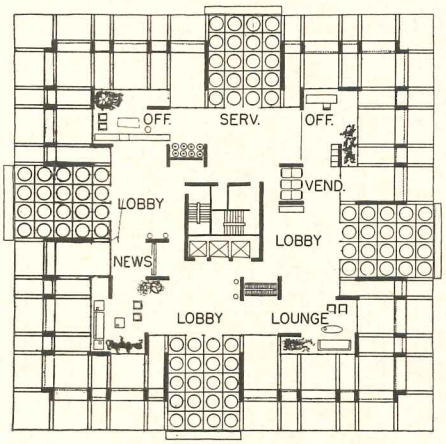
If possible, adequate sunlight should be brought to each apartment unit. But solar orientation is not the only answer in siting the building or in placing rooms, since surrounding structures and existing land conditions will affect both. In a high-rise building the largest apartment units should ideally go in the corners, for two-way orientation. In low-rise developments, cars should be parked only on the entry side; and rooms in which light is relatively less important (baths, service areas, and sometimes bedrooms) can be located on the entrance side so the other portions of the apartment can open out into park-like areas free of automobiles.

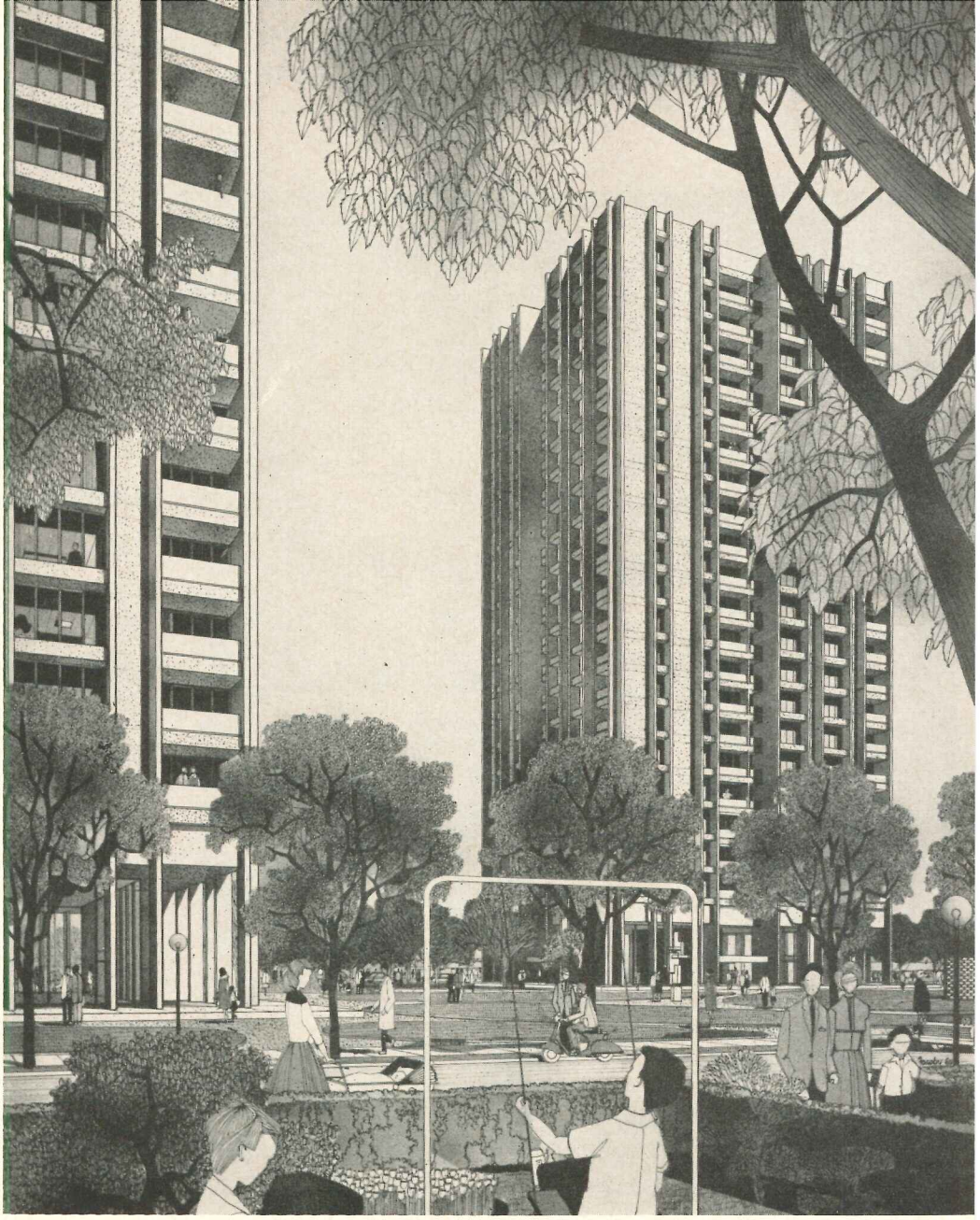
As for choice of materials, we believe unity can be achieved by using only a few materials that weather well. For exteriors, we frequently use concrete which has been poured in plastic-coated plywood forms, and finished with a plastic coating. Such a material is economical, weathers well, and helps in architectural expression.

After examining various possible design concepts, the architect is required to come up with a scheme that fuses all of the foregoing considerations into a strong, meaningful unity. The important word here is meaningful. We must ask ourselves: do our assumptions really relate to human needs? have all the needs been brought into focus? The ultimate evaluation must be made in terms of needs, amenities, and meaning for the future residents.









HOUSING FOR A METROPOLITAN SUB-CENTER

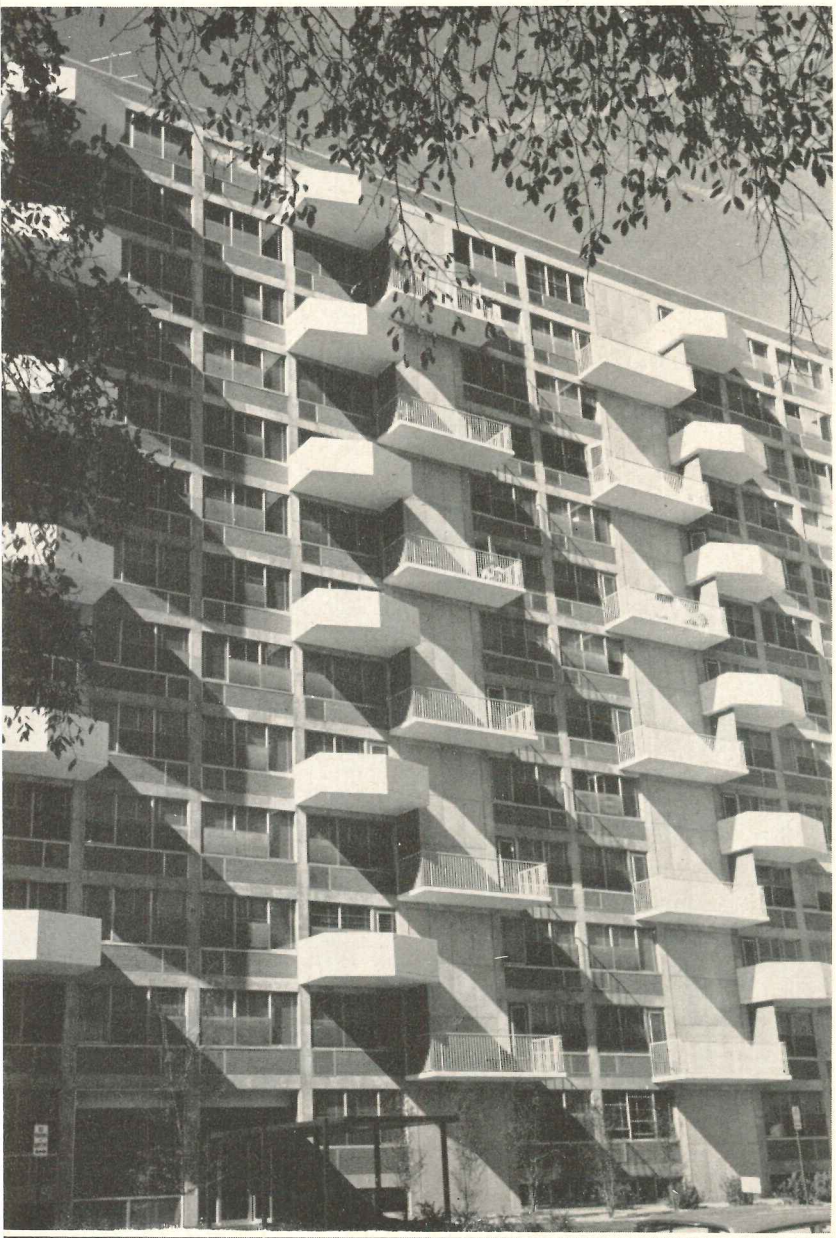
St. Louis Hills Towers, Near St. Louis, Mo.

Located seven miles southwest of St. Louis' central core in an older, built-up section contiguous to a commercial area, this project capitalizes on the opportunity to symbolize the site's sub-center character by playing tall buildings against a surrounding low pattern. The surrounding low buildings, unimpressive from nearby ground level, fuse into a textural pattern from a height. The Webb & Knapp organization and their St. Louis associates, G. J. Nooney & Co., conceived and sponsored the development. About 900 rental units were called for, divided equally between efficiencies and one- and two-bedroom types.

The design calls for four 20-story, square buildings, staggered on two city blocks, with 100 percent parking (surface and garage). Since the two-story first floor of each building is used for non-living areas, the relatively large extent of surface parking should not affect the outlook seriously.

Point block rather than slab buildings were designed since the ratio of service to apartment area per floor is more favorable when a sufficient number of typical units are grouped on one floor. The concrete flat-slab system made possible the expression of columns with varied spacing on the exterior. The elongated exterior columns serve as wind bracing; while freely placed elongated interior columns are wall segments that fall (with one exception) within an 18 ft block spacing. A systematic wall pattern for the exterior stems from the 6- and 12-ft column spacings. Bedrooms have a 6 ft glazed bay and a blank 12 ft bay; while living rooms and balconies reverse that arrangement. All closed exterior walls house chases for hot and cold water to serve peripheral heating and cooling units.

ARCHITECTS & ENGINEERS: *Hellmuth, Obata & Kassabaum*
STRUCTURAL ENGINEER: *Albert Alper*



Dorrill Photographers

HOUSING IN THE CITY CORE

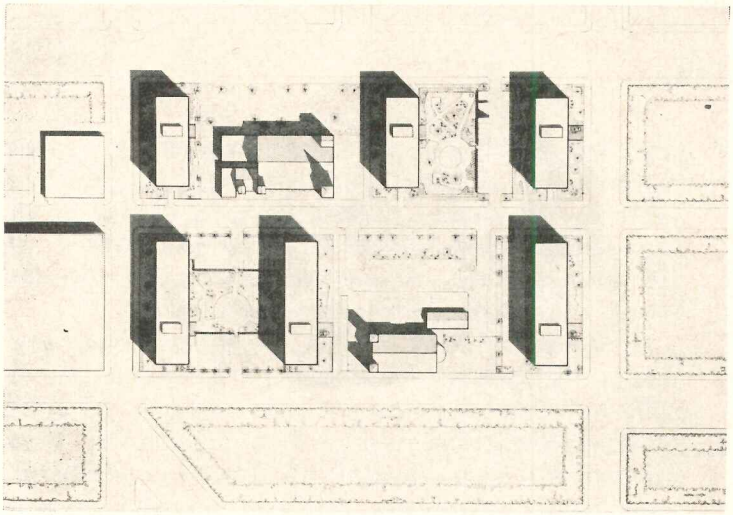
Plaza Square Apartments, St. Louis, Mo.

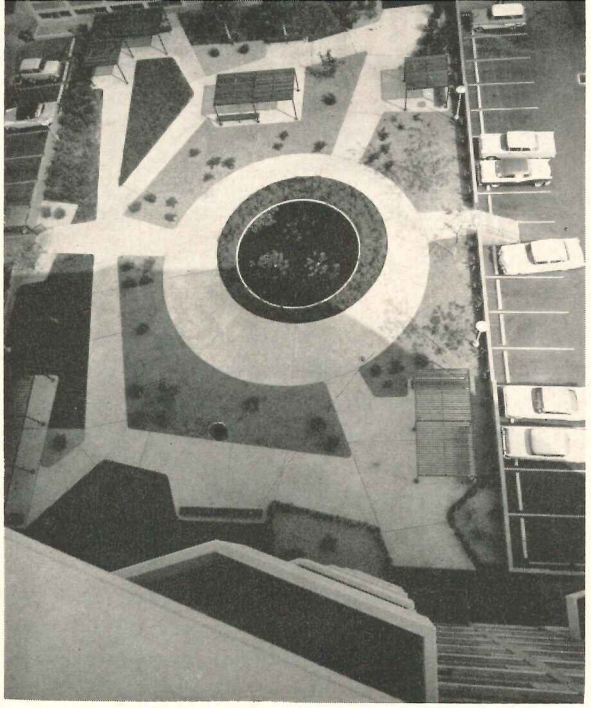
This project provides approximately 1000 apartments in six 12-story buildings in downtown St. Louis, close to the main business section. The site was formerly a run-down commercial area now cleared and redeveloped under the sponsorship of a state authorized, local redevelopment corporation. Two landmark churches that had to be preserved imposed a design limitation, as did the busy street bisecting the site longitudinally.

The apartments are divided into 30 percent efficiencies, 55 percent one-bedroom, and 15 percent two-bedroom types; are housed in 12-story, flat-slab buildings with double-loaded corridors, oriented east and west. A native limestone grid covering the structural frame is accented on the long elevations by colored porcelain panels. The height is economical for elevator service and relates to the scale of nearby downtown office buildings. The orientation permits sunlight in all living rooms and bedrooms and in the open spaces between buildings. The between-buildings spaces are important to the concept; through landscaping, patio patterns and the quality of the old churches were designed to express a semi-public character appropriate as transition between public streets and the private spaces within the buildings.

Parking is provided in both an underground garage and on the surface. That constructed underground was separated from the apartment buildings to avoid conflict with the structural pattern of the apartment buildings. Bays appropriate to automobile parking would have required changing the bays of the apartment buildings, which would have been possible, but only with unseeming effects on apartment planning. Since total underground parking was not possible under the budget, and the available site area was limited, a combination of semi-depressed, landscape screened parking plus an underground garage appeared as the best solution to the problem of handling the automobile at rest.

ARCHITECTS: *Hellmuth, Obata & Kassabaum and Harris Armstrong*
ENGINEERS: *John D. Falvey, Mechanical; William C. E. Becker, Structural; Horner & Shifrin, Utility*
CONTRACTORS: *Paul Tishman and Fruin-Colnon*





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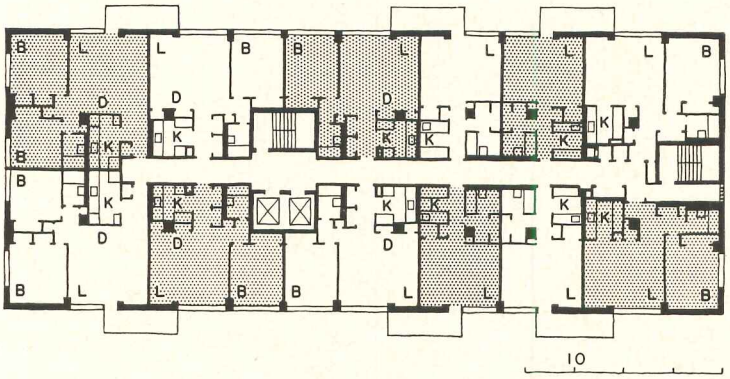


"The question of spatial ordering and sequence related directly to a consideration of the pattern of views both approaching the project and within the project. From public street approaches one proceeds to semi-public between-buildings spaces to the semi-privacy of entries and corridors to the privacy of the apartment. From there a new set of views relate to the spaces between the buildings, the other buildings, the streets, the two park areas across bounding streets, and the downtown areas beyond"

Dorrill Photographers

THE DEVELOPMENT RESTATED

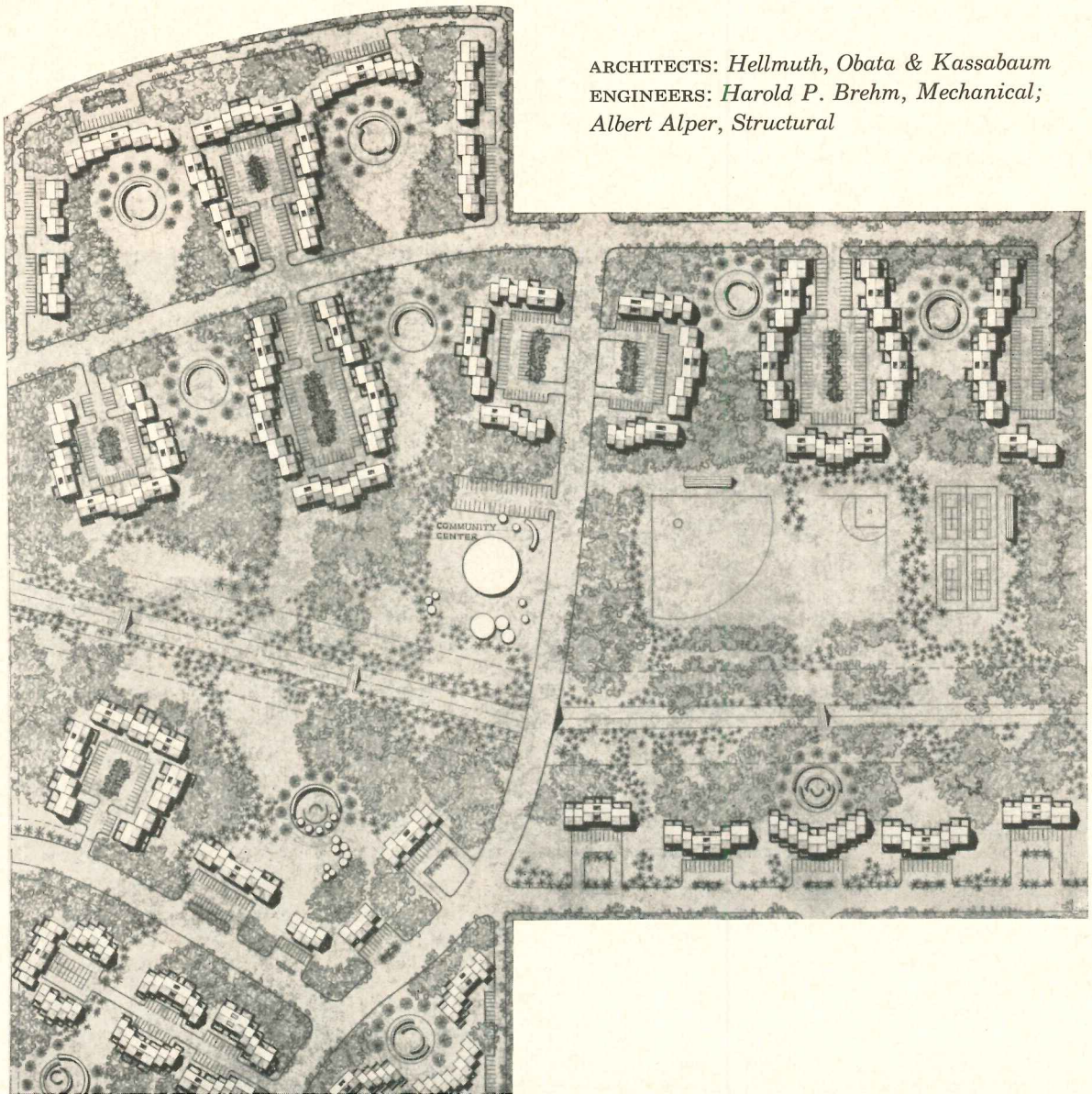
The Burt M. Wenneker Project, Near St. Louis, Mo.

Located on flat land near an industrial area and zoned for single family residences, this 92-acre tract for 440 families might have become another example of suburban sprawl, except that the County Planning Commission, concerned with the growing monotony of mushrooming subdivisions, pointed out a statute permitting apartments in such areas—provided over-all density does not exceed that of single family residences on separate plots. The developer was also aware of a market for rental housing.

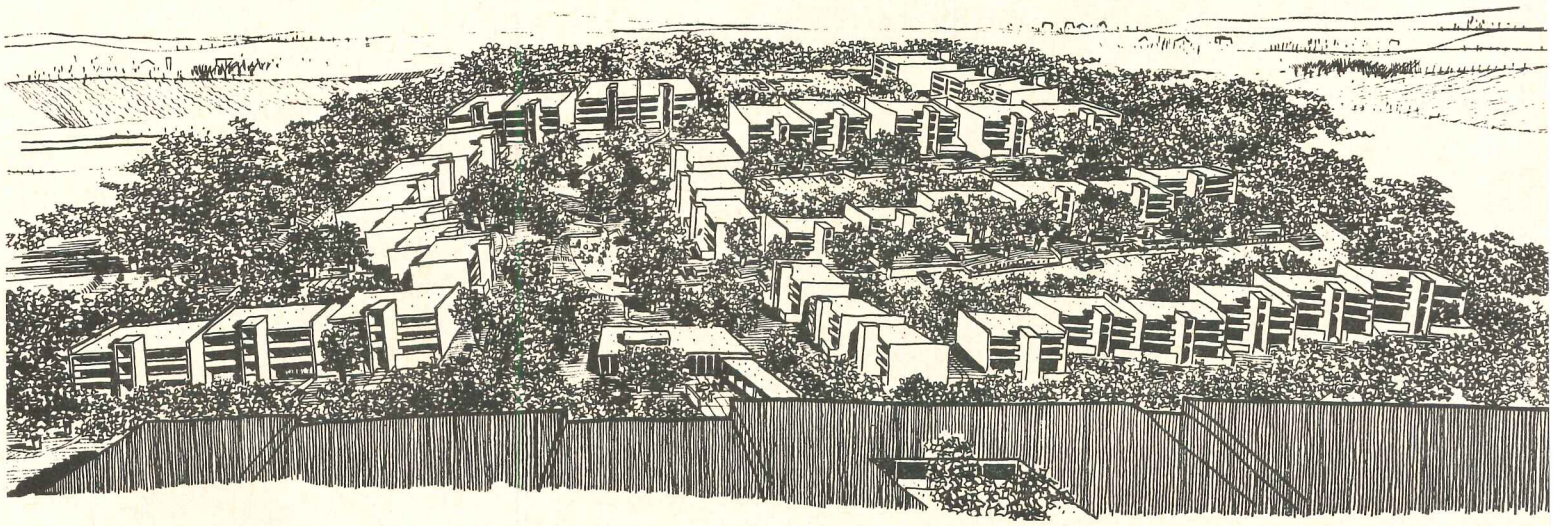
Minimum access points to the street system will encourage moderate speed driving; the driver will be concerned mainly with the road, and only secondarily with the dwelling clusters and their forecourts. The parking areas are tightly walled-in spaces, there being little use in devoting space to other than car parking and human circulation needs. Joining the houses effects considerable utility savings.

The dwellings—varied in plan—are each individually expressed and strive to capture a character too often missing in subdivision housing. Entrance is through a small, private courtyard, transitional between the nearby parking space and the dwelling. Kitchen and service elements are located on the entrance side, so that living areas can look out over a courtyard to pleasant garden areas.

A certain amount of risk enters into programming unit types and room sizes for a project such as this, but economic surveys and analyses, plus the experience of developer and architects, led to a scheme with approximately 15 percent one-bedroom apartments, 75 percent two-bedroom, and 10 percent three-bedroom. However, since the project will be built in stages during a three year period, these ratios may be changed for the later stages in the light of experience gained. Regarding square footage, the architects (who regard PHA and FHA requirements as minimal) have made an effort in this project to provide living rooms at least 17 ft wide, and bedrooms 11 to 12 ft wide, in order to permit a degree of flexibility in arranging furniture.



ARCHITECTS: *Hellmuth, Obata & Kassabaum*
ENGINEERS: *Harold P. Brehm, Mechanical; Albert Alper, Structural*



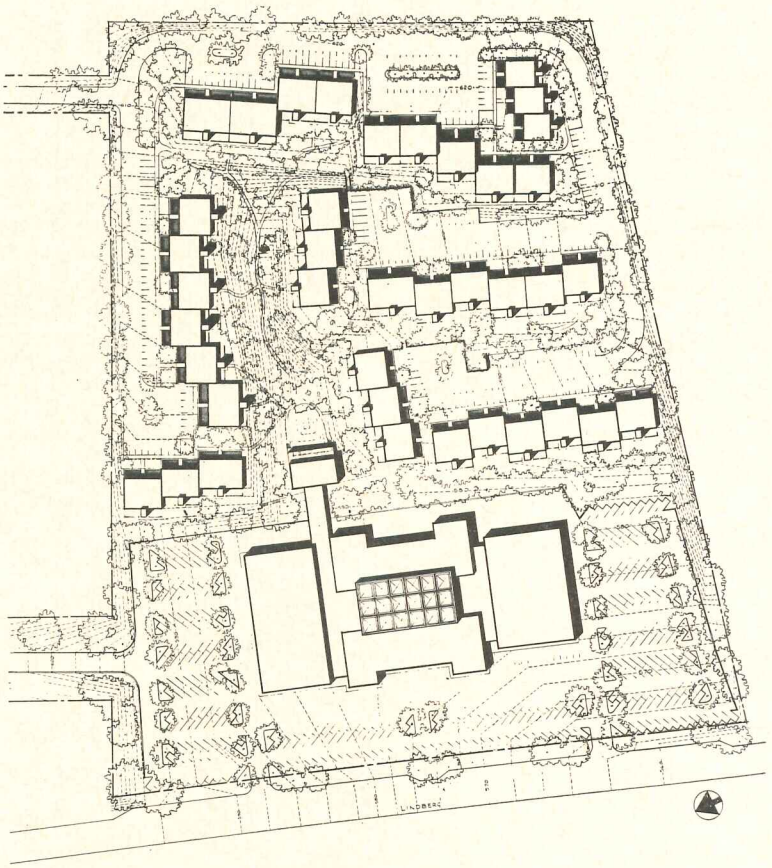
HOUSING AS PART OF A NEIGHBORHOOD

The Siteman Development, St. Louis, Mo.

This project consists of a shopping area integrated with about 250 apartment units, divided in the ratio of 75 percent two-bedroom and 25 percent one-bedroom and three-bedroom units. The site lies on a major loop highway around St. Louis; zones for commercial use over a 350 ft depth, and for residential use through the next 700 ft, with a height restriction of three stories.

Since the site consists of a valley hemmed in by higher ground at the perimeter, rough models and site plan sketches were used to examine the relationship of housing to commercial area; housing units to contours; and to check the number of units. The final plan consists of apartment "chains" generally parallel to the contours, stepped down the slopes, leaving the valley open as a community area that flows into the shopping center. This arrangement should increase the use of stores by residents, since pedestrian travel to them can be made attractive by judicious landscaping. Access roads at the perimeter never cut across the site; there is a clean-cut separation of automobile and foot traffic.

From across the road, the project appears as a textural pattern because of the changes in level. From within the project, however, a freely interwoven space pattern formed by the buildings becomes apparent, but with spaces ordered according to their uses. Entrance from parking areas, always on the higher side, is at mid-level between the first and second floors of the three-story units. Bedrooms, where less window area is desirable, are on the entrance side, permitting living areas and balconies (on the downhill side) to look out over the community area. Each group of six apartments is handled as one mass, staggered either horizontally or vertically from its neighbors, and marked visually by the pulled-out stair towers.



ARCHITECTS & ENGINEERS: *Hellmuth, Obata & Kassabaum*
UTILITY ENGINEERS: *Horner & Shifrin*

All photos by Joseph W. Molitor

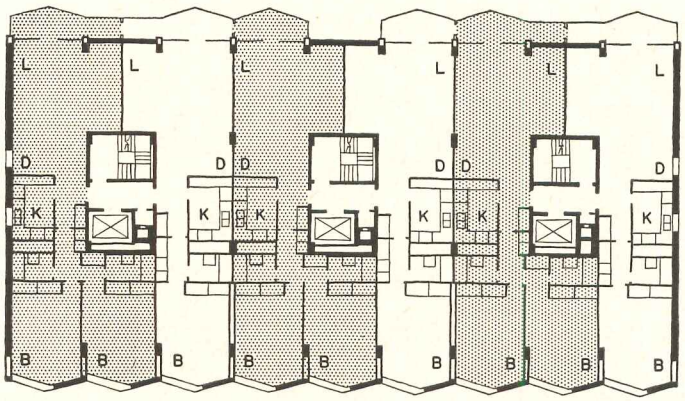
BACK BAY CENTER HALL

330 Beacon Apartments, Boston, Mass.

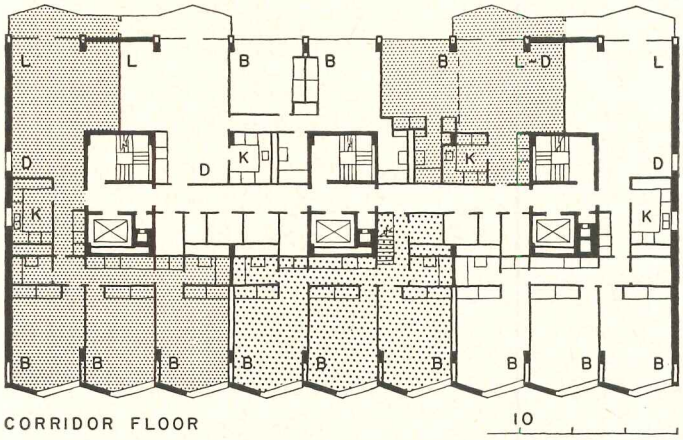
This recently completed 17-story structure—the first large, privately financed apartment building to be built in Boston in 27 years—features an unusual plan in which all living rooms look out over a balcony to a view of the Charles River Basin, and in which nearly every apartment extends through the width of the building for cross ventilation. Circulation, storage, and service elements are centrally concentrated in the plan, with the result that no room suffers from traffic, and each apartment becomes, in essence, a modernized, one-story version of the old Back Bay center hall house.

Living and dining spaces and their balconies are grouped on the river side of the building (top photo at left), while bedrooms are all on the opposite Beacon Street side (bottom photo, left, and top photo, right page). The unusual bedroom fenestration—reminiscent of the Beacon Street bay windows on all sides—consists of a projecting prow-shaped bay with one side glazed and one side blank, a scheme that brings one forward into the life of the street, yet cuts off the view into adjacent apartments. Since each bedroom is spacious enough to provide a sitting area, both view and privacy are important considerations.

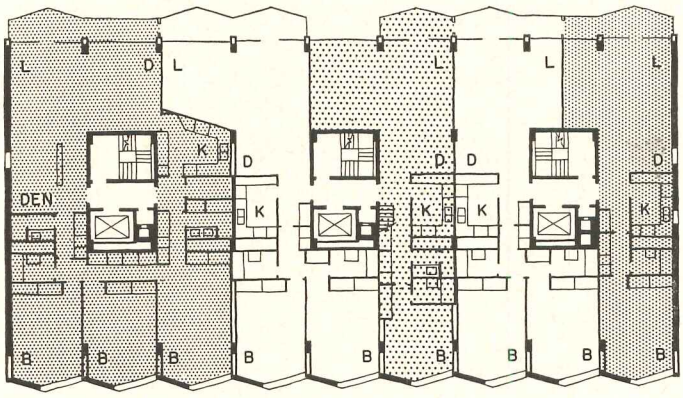
ARCHITECTS: *Hugh Stubbins & Associates*
ASSOCIATES IN CHARGE: *Norman Paterson, Douglas Cole Smith; John Wacker, Lansdcaping*
STRUCTURAL ENGINEERS: *Goldberg & LeMessurier & Associates*
MECHANICAL ENGINEER: *Fred S. Dubin & Associates*
CONTRACTORS: *Turner Construction Co.*



ABOVE CORRIDOR FLOOR



CORRIDOR FLOOR

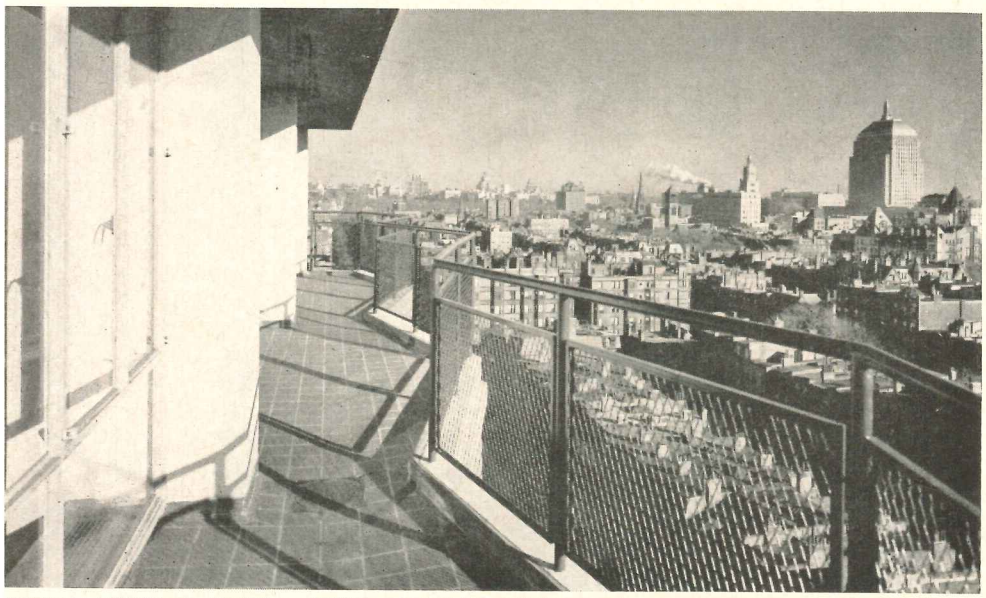


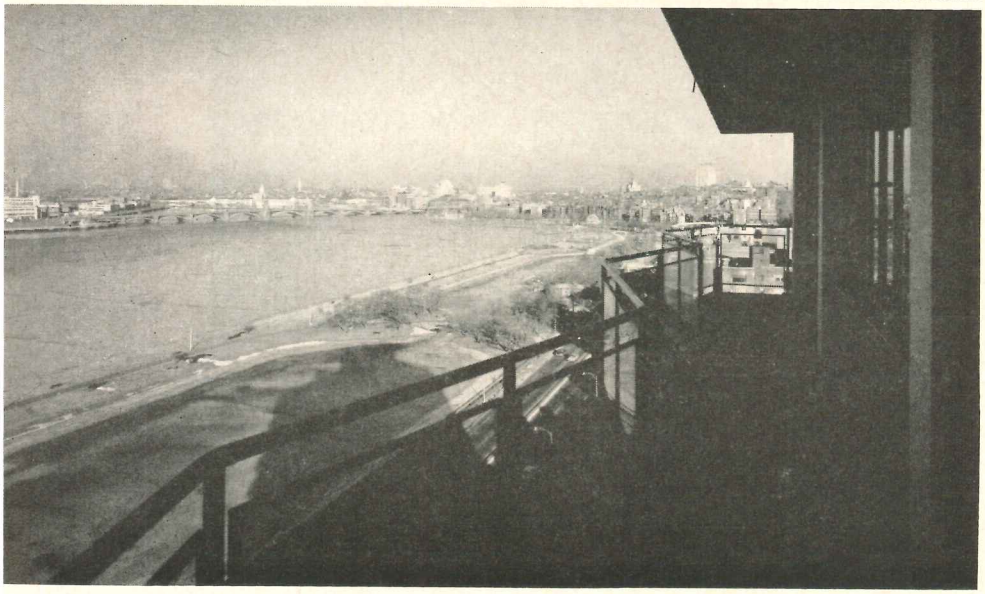
BELOW CORRIDOR FLOOR

Above: an elevation view of the interesting three-dimensional pattern created by the modernized bay-windows on the Beacon Street facade.

Left: three typical floor plans showing the various types of apartment units; note how apartments typically run through the width of the building, except for the duplex 4-bedroom unit.

Below: the marble, terrazzo, and wood-paneled lobby, which was designed and furnished by TAC's Design Research, Inc.

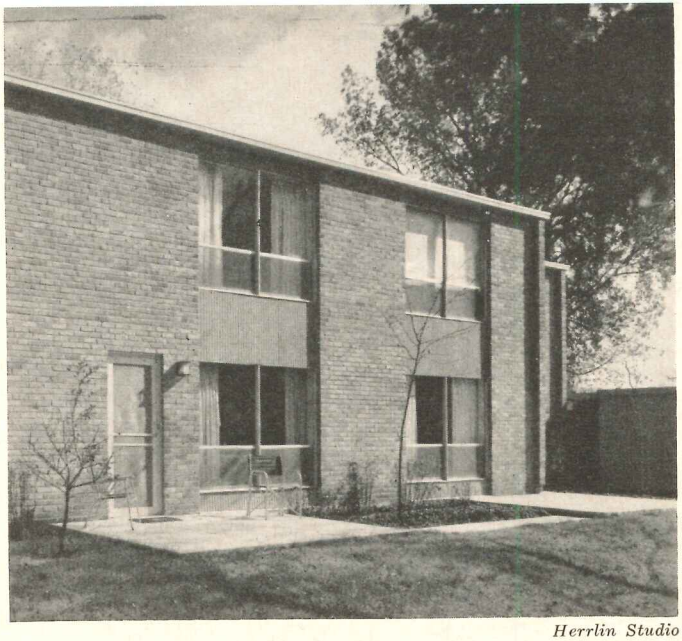




330 Beacon Apartments:

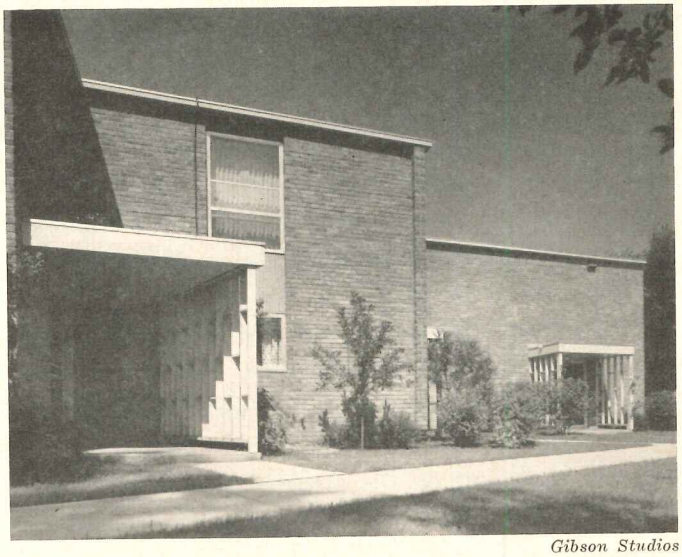
Left: the view in two directions from a typical balcony, which looks out over the Charles River Basin and Cambridge. Below: living-dining area of a typical apartment.

Project data: 78 apartments plus 3 penthouse units; 17 stories plus a 3-level garage that provides parking space for every apartment; the building's 155 ft high reinforced concrete structural frame rests on steel-clad piles that reach down 200 ft to bedrock; exterior walls are face brick, insulated and plastered inside; partitions are plaster on steel studs; typical ceilings are of sprayed-on acoustical paint; floor finishes are variously cork tile, vinyl tile, carpeting, or ceramic tile; the sash are painted steel, glazed with ¼ in. plate; the building is centrally air-conditioned, with individual unit controls



Herrlin Studio

Herrlin Studio



Gibson Studios

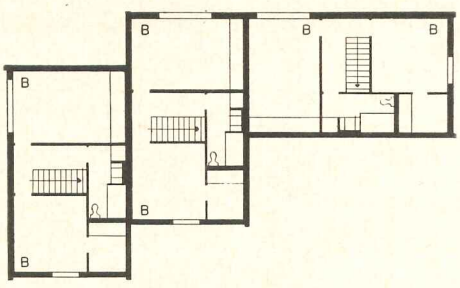
SUBURBAN TOWN HOUSES

Isabella Town Homes, Evanston, Illinois

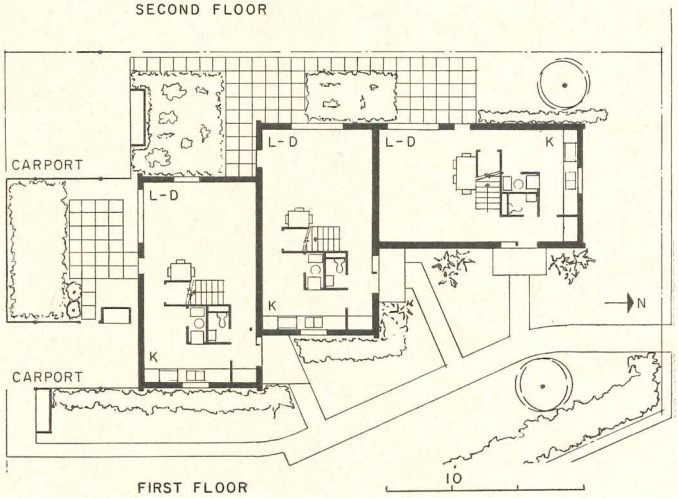
These three, two-story town houses are an ingenious, attractive, and financially successful scheme for dealing with a difficult building plot. The irregularly shaped site had required setbacks in all four directions, so the units (identical but transposed in direction) were composed to conform roughly to the buildable area. Fenestration was carefully arranged to give an orderly exterior appearance and to provide living-dining areas opening to terraces and gardens.

The fire-resistant construction consists of 8 in. masonry walls which support the precast second floor and roof decking. Floors and roofs bear on exterior or dividing walls without interior support. The sash are aluminum; the baths have plastic skylights; the units are individually heated by forced warm air systems, with provision made for future cooling.

ARCHITECTS & ENGINEERS: *Yost & Taylor*
LANDSCAPE ARCHITECT: *George E. Treichel*



SECOND FLOOR



FIRST FLOOR

Area and financial data: gross area is 3,763 sq ft; total cost (including landscaping, terraces, walks, kitchen range, disposal unit, laundry washer and dryer, but exclusive of the architects' fee) was $37,754, which breaks down to $12,585 per dwelling unit, or $10.03 per sq ft. Due to fire-resistant construction, insurance rate is one-third that for frame buildings in the area. The project has so far not experienced a vacancy, despite two-year lease requirements

All photos by Max Dupain

DOWN UNDER HIGH RISE

Ithaca Gardens

Elizabeth Bay, Sydney, Australia

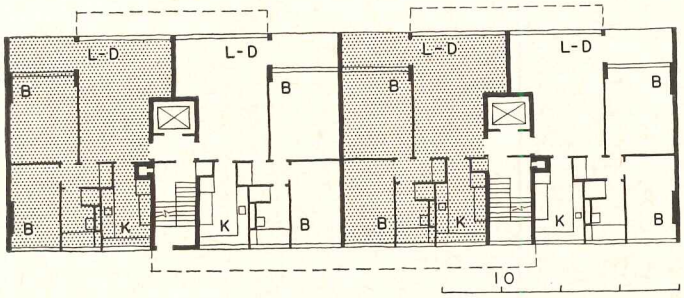
This 10-story block of 40 apartments is built on a site sloping towards Sydney Harbor's Elizabeth Bay. Each living unit faces the view, and provides a balcony overlooking the scenic harbor. Apartments are reached in pairs by means of two elevator and fire-stair towers, one in each half of the building. To comply with regulations requiring alternate means of exit, the landing levels of the stairs are connected by an outside gallery at every second floor. Located between floor levels, galleries do not interfere with either fenestration or privacy.

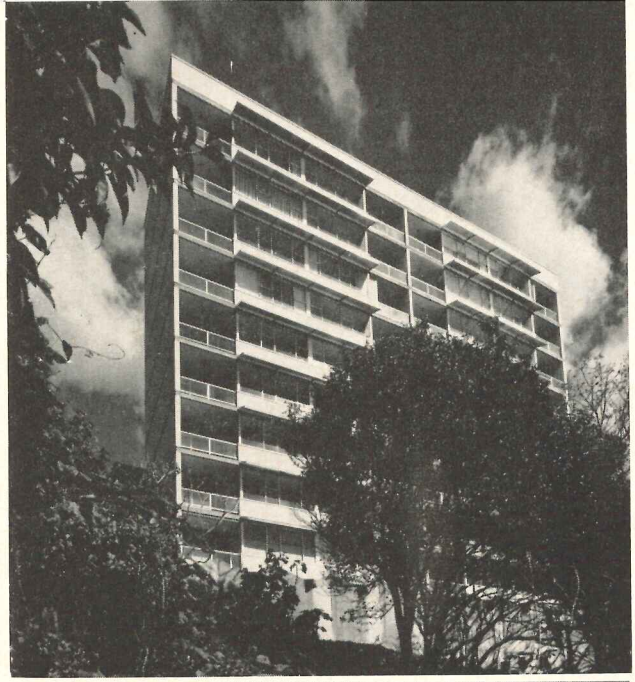
All apartments are identical in size (950 sq ft) and arrangement. The living-dining area, recessed balcony, and main bedroom face the view; kitchen, bath, and second bedroom are on the street side of the building.

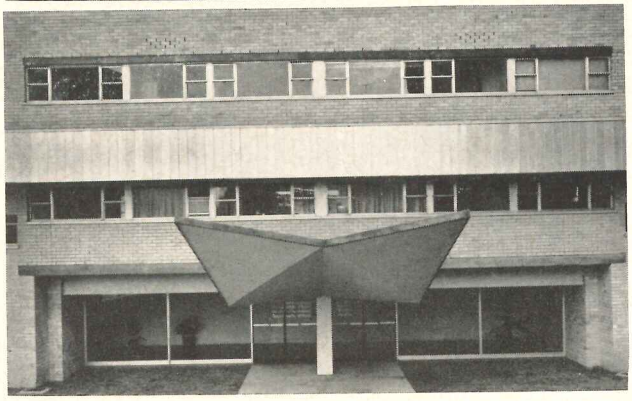
The structural frame is reinforced concrete, with 9½ in. flat-plate slabs free of beam drops. Infilling panels are 11 in. cavity walls of cream colored brick; the projecting awning-type sunbreakers and the balcony railings are of aluminum, as are the double hung sash.

ARCHITECT: *Harry Seidler*

STRUCTURAL ENGINEERS: *P. O. Miller, Milston & Ferris*

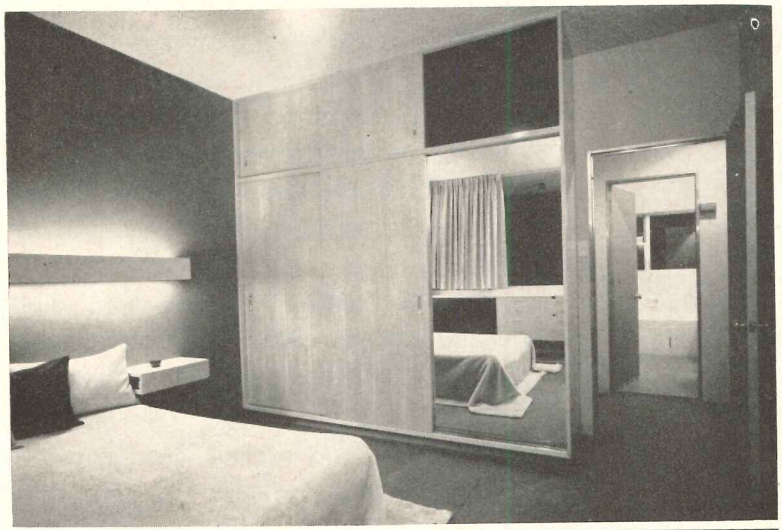


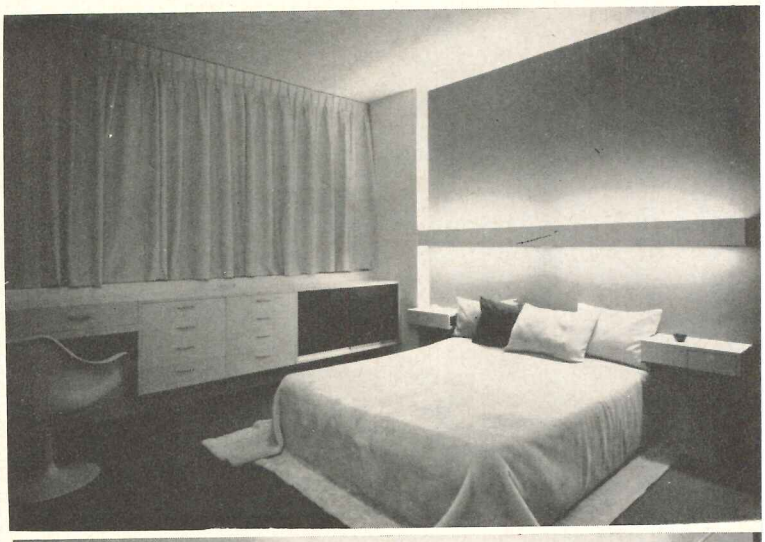


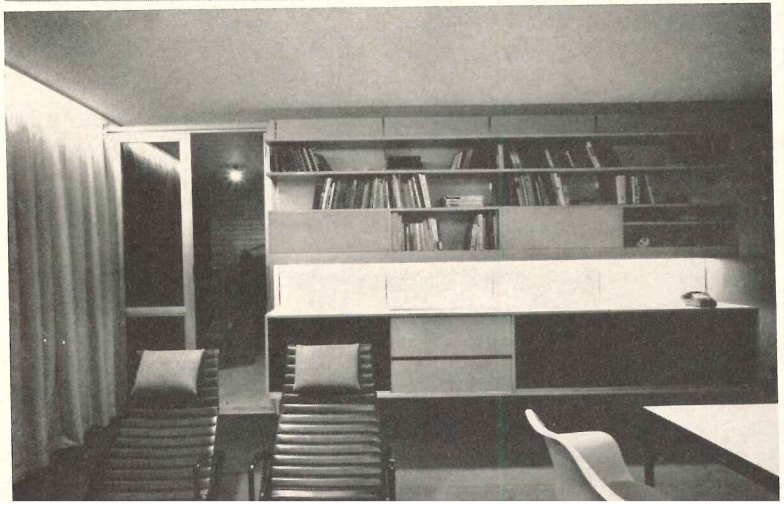


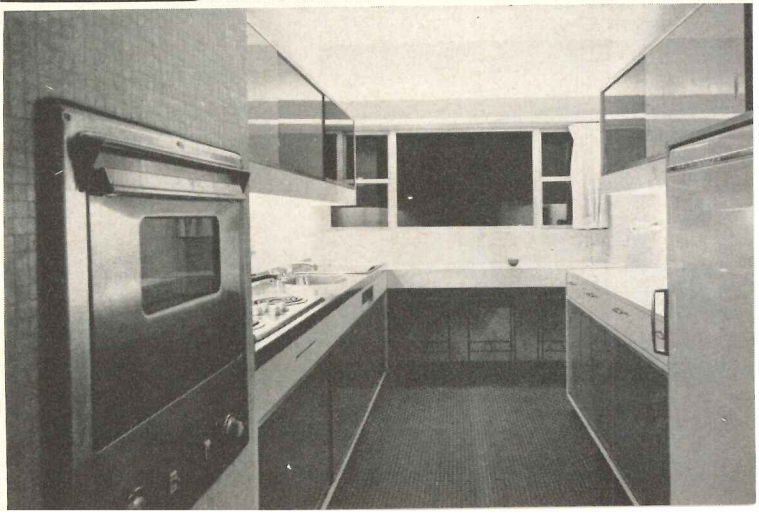
Pipes are contained in four stacks located between kitchens and baths; electric and gas meters are located in an enclosure off the fire stair, as are the incinerators. Two communal laundries are provided at roof level, and are equipped with automatic washers and dryers. Sheltered car parking is provided beneath the building and under an adjacent carport.

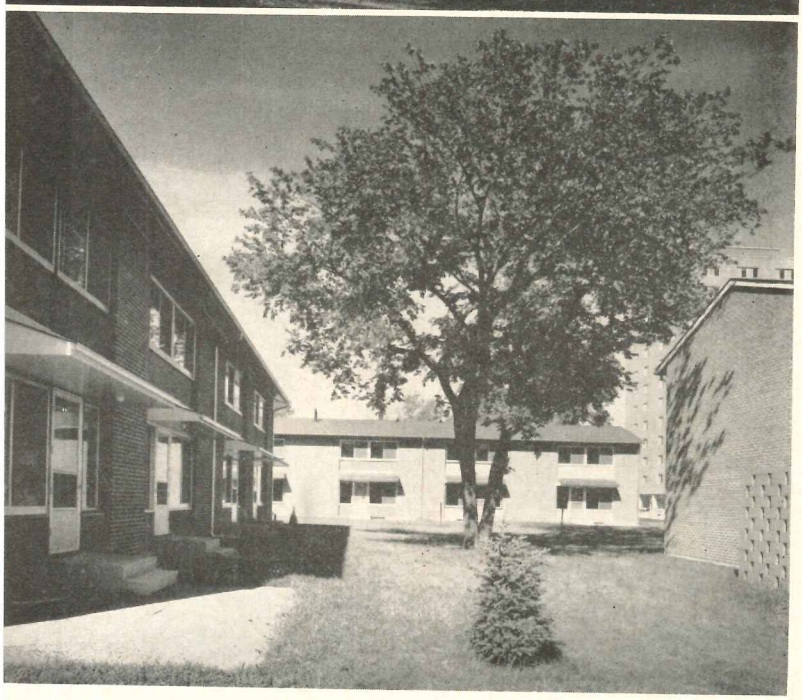
Below are shown four photos of architect Harry Seidler's apartment, a typical unit on the top floor of the building. The main bedroom features special lighting, built-in wardrobe and bedside units, and a custom storage and dressing table built-in under the windows. Living room clutter is eliminated by an "equipment wall" that incorporates TV, stereophonic Hi-Fi, a bar, record storage, and bookshelves. In the kitchen, all mechanical equipment (oven, cooking top, sink, and dishwasher) is grouped on one side; the other side is devoted to refrigerator, food storage, and food preparation











All photos by Warren Reynolds, Infinity, Inc.

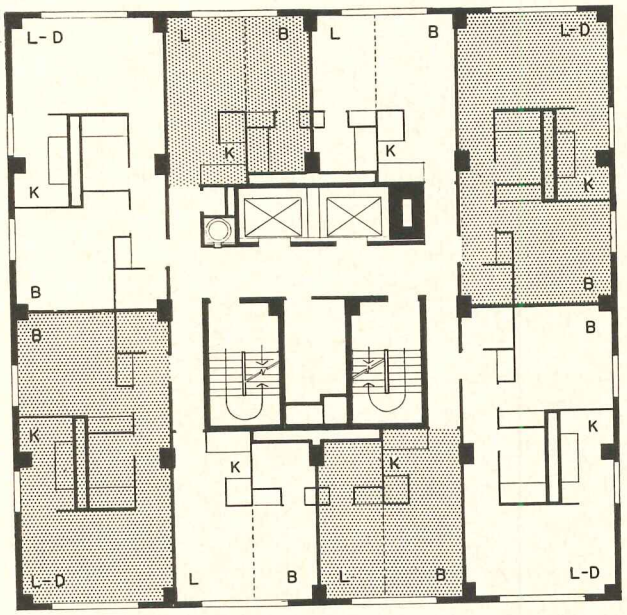
FOR THE YOUNG AND THE AGED

Lyndale Homes, Minneapolis, Minn.

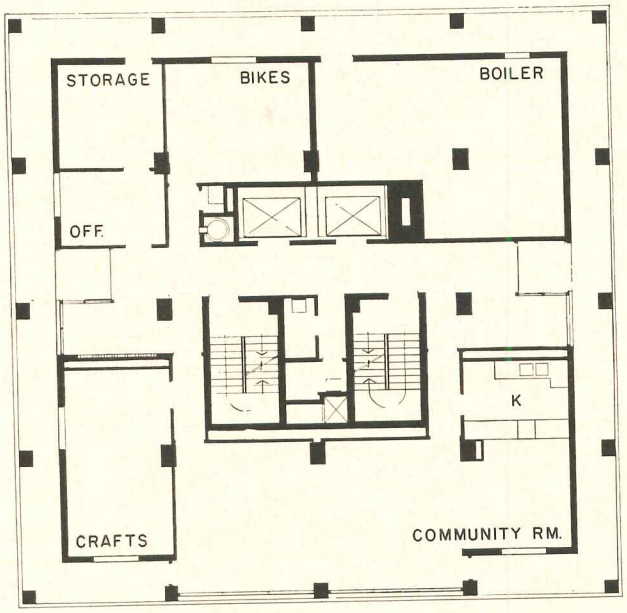
The twofold objective in this 10-acre project —sponsored by the Minneapolis Housing & Redevelopment Authority—was to rehabilitate an old, blighted section in Minneapolis and to provide pleasant, economical housing for low income families; and in doing so to create a balanced residential community of childless retired couples and individuals, as well as families of all sizes and ages. Accommodations vary through a wide range from the 5-bedroom row house units to the one-bedroom and efficiency units in the high-rise building. There are a total of 192 living units in the development, which was cited for good design by the Minnesota Society of Architects in 1960, and also by the 12th Annual Conference on Aging at the University of Michigan.

The 12-story building (photo left, plans right) is devoted to elderly retirees, is served by elevators, and contains 88 apartments split equally between single bedroom and efficiency types. The ground floor provides spaces for common resident use such as a crafts shop and multi-purpose community room, equipped with a kitchenette. Defined by low walls and landscaping materials, the largest open area of the project surrounds the high-rise building. This space is devoted to recreation and contains sitting areas, play apparatus, sandboxes, etc.

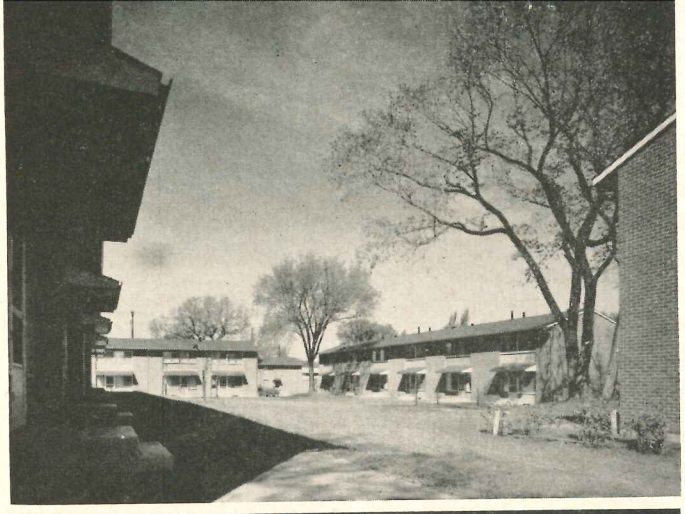
ARCHITECTS & ENGINEERS: *The Cerny Associates*
ENGINEERS & LANDSCAPE ARCHITECTS: *Nason-Law-Wehrman & Knight*
CONTRACTOR: *Johnson, Drake & Piper*

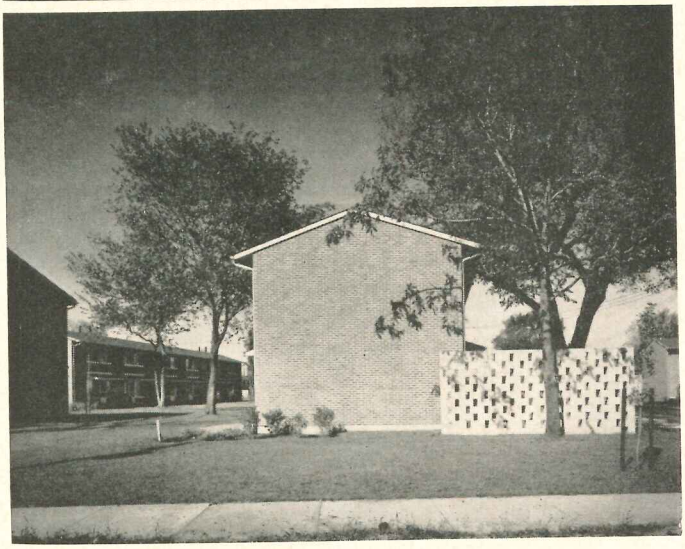


TYPICAL FLOOR



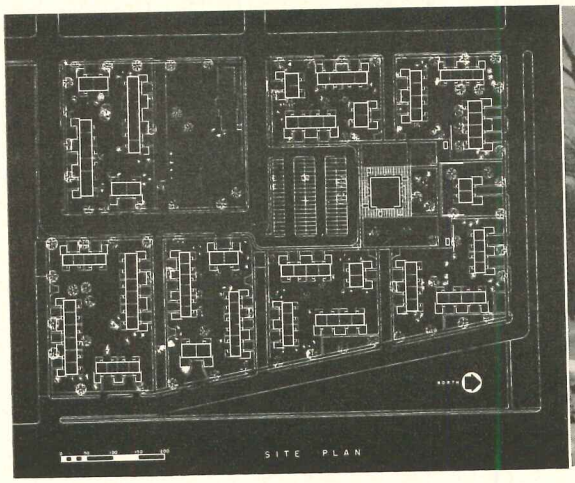
FIRST FLOOR 10 N

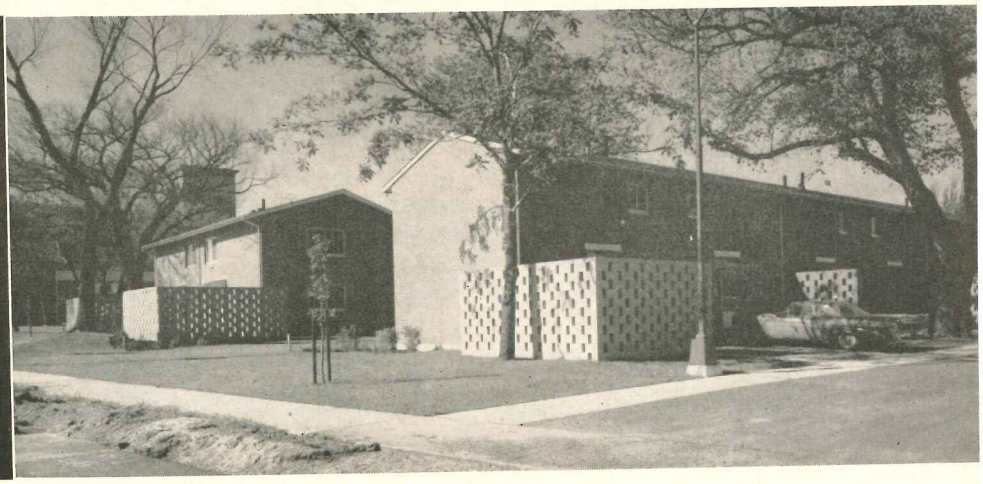




Study of the plot plan and pictures of row house units will point out the manner in which these units are grouped about and loosely define a series of quiet, protected courtyards which provide a varied outlook for the residents. These courtyards are carefully separated from access and service spaces by consistently orienting each living unit inwards.

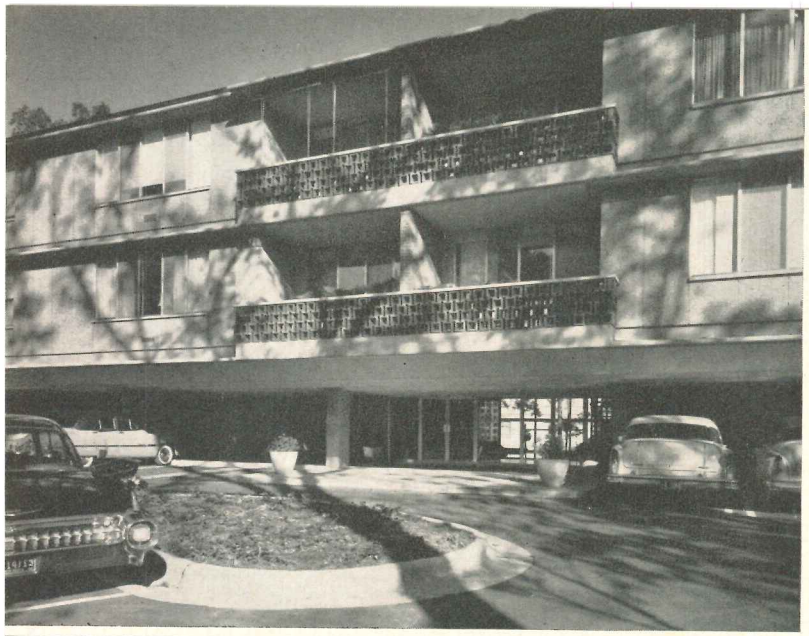
Visual control of the impedimentia of family life—clotheslines, trash cans, baby carriages, bikes, milk bottles, etc.—is accomplished by providing each living unit with a hard-surfaced service yard, enclosed on all sides by a pierced screen wall of concrete block. Variation of color for the screen walls helps individual identity; and the screens' undulating pattern against the entrance street serves as partial screening for the parked cars of the residents

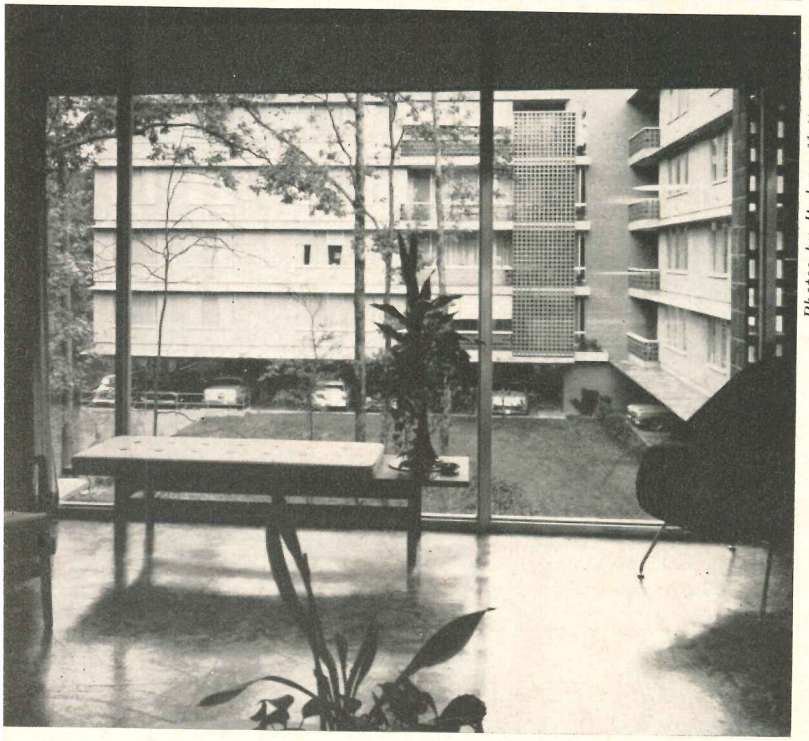




LUXURY SUITES; SLOPING SITE

Peachtree House, Atlanta, Georgia





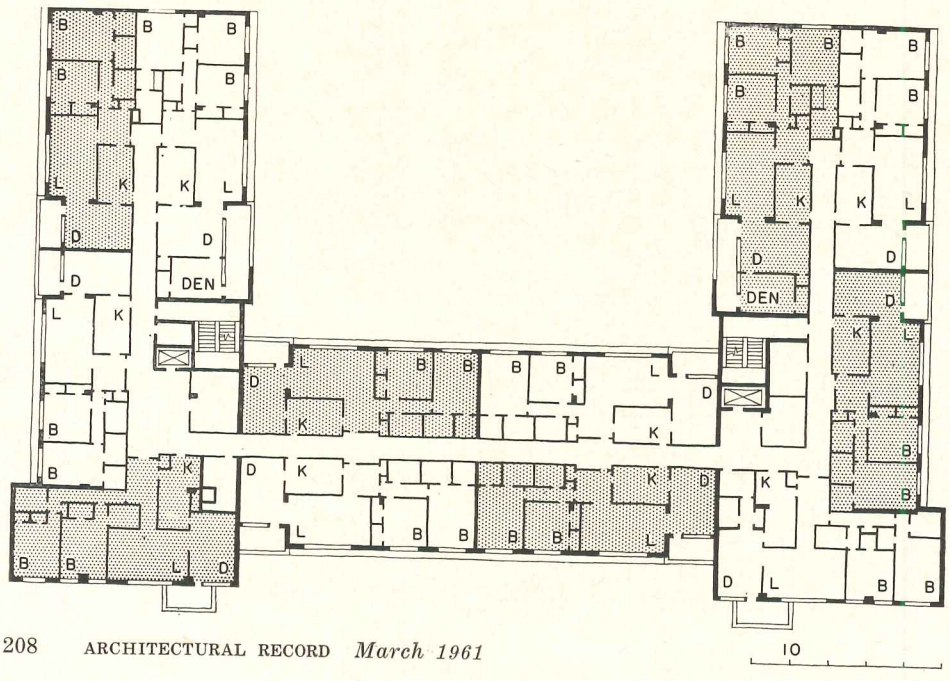
Photos by Kodney McCay Morgan

The building has a structural frame of concrete; walls of pre-cast, pebbled-surface concrete units and brick. Balcony railings and screens are of clay tile; the sliding sash are of natural aluminum

This U-shaped, 5-story building is placed with the two stems of the U parallel to the street, and with entrance and lobby at street (or 3rd floor) level, from which the ground drops off sharply so that two floors below are above grade (lower photo). The bottom level houses a dining room and parking; there are 44 apartments and a pent-house suite on the four floors above.

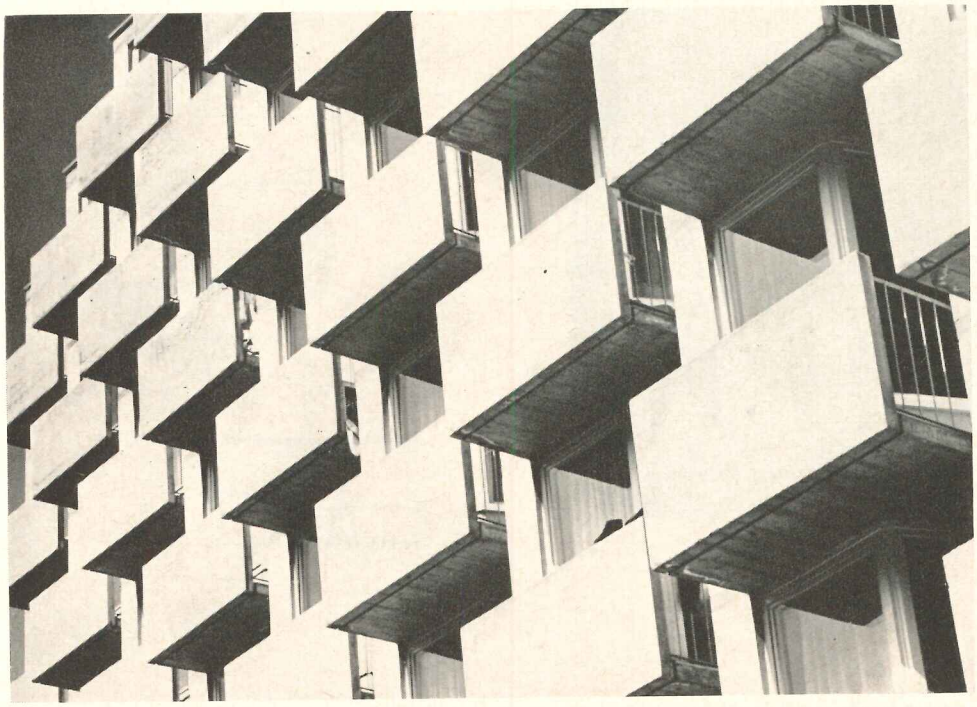
All apartments are planned so that an entrance foyer offers access to living room, kitchen, and bedroom hall. Each apartment has a balcony and a separated dining room. The intent was to avoid the criss-cross traffic, minimal facility apartment, and provide instead the ease of circulation and amenity typical of a well planned house.

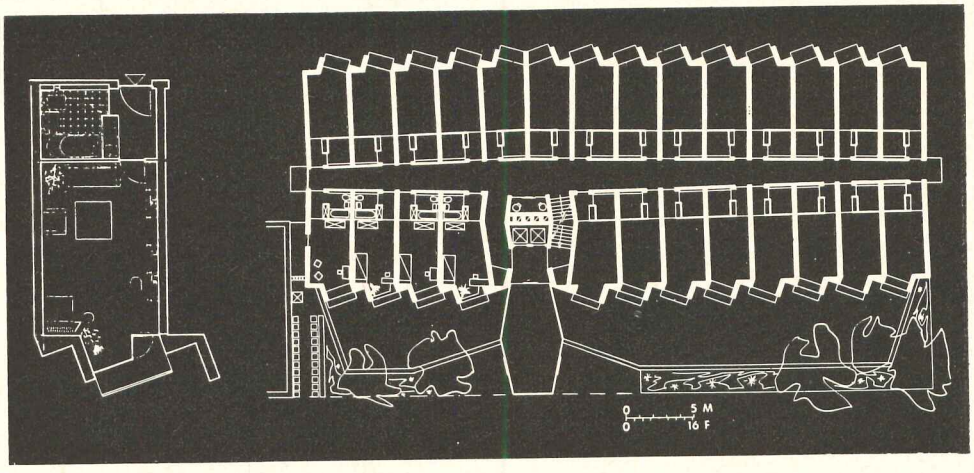
ARCHITECTS: *Aeck Associates*
ENGINEERS: *Drake & Funsten, Structural; Donald Lindstrom & Associates, Mechanical; Charles F. Howe, Electrical*
LANDSCAPE ARCHITECT: *Edward L. Daugherty*
CONTRACTOR: *Bickerstaff Construction Co.*

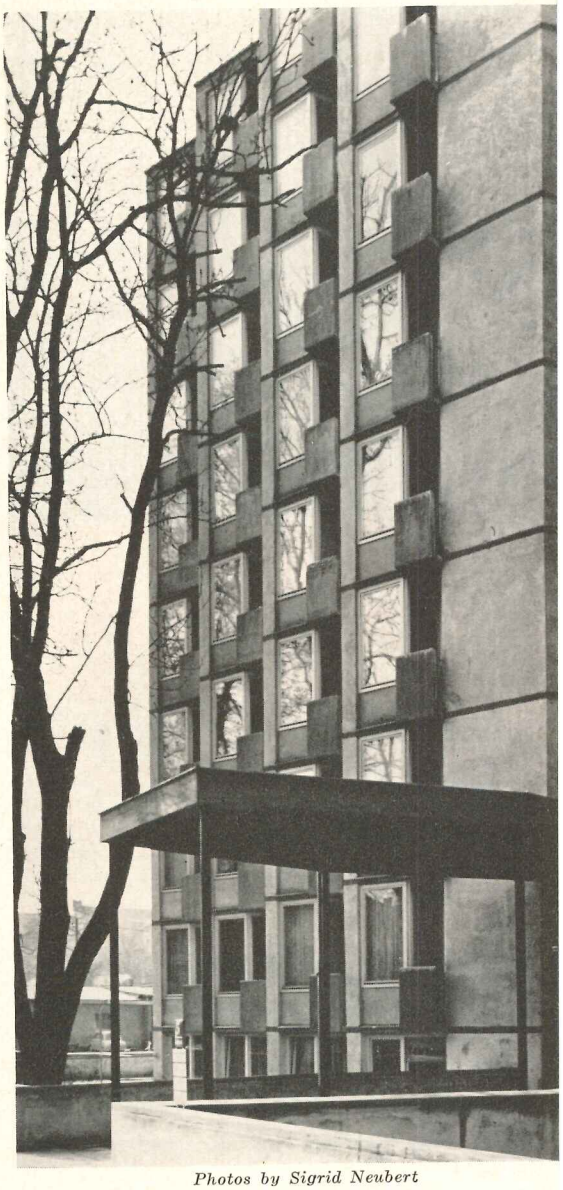


8 FOREIGN APARTMENTS

Selected from the special issue, HABITAT, *of* L'Architecture d'Aujourd'hui, *No. 87, 1960; assembled and edited by Alexandre Persitz in collaboration with Danielle Valeix. These photographs and drawings are presented through the courtesy of the editors of* L'Architecture d'Aujourd'hui







Photos by Sigrid Neubert

1 BACHELOR STUDIOS IN MUNICH, GERMANY

ARCHITECTS:
H. B. von Busse & P. Buddeberg

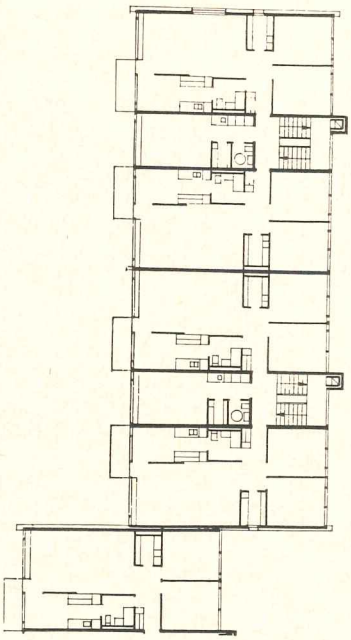
This 9-story apartment building contains 260 studio units for bachelors, oriented east and west. The apartments are reached by way of a double-loaded corridor, which is served by a stair tower and two elevators which stop at intermediate levels. Each unit includes a studio room and balcony, a foyer, a kitchenette, a storage room and bath. Transverse shear walls support the building, and gain rigidity by their connection with the angled, square, balcony setbacks; which create also an interesting façade pattern.

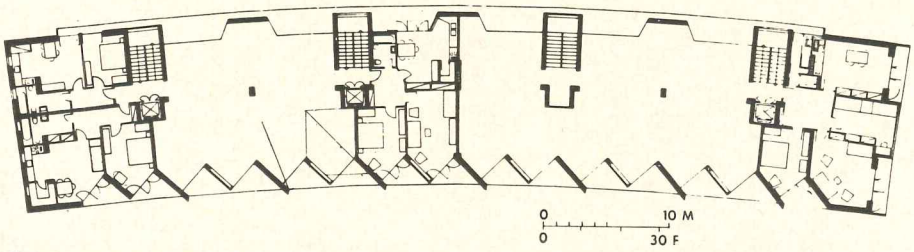
2 APARTMENT GROUP IN OTANIEMI, FINLAND

ARCHITECTS: *Kaiji & Heikki Siren*

This apartment group, located near the University City of Otaniemi—which is the Polytechnic School of Helsinki—was built to provide apartment homes for alumni of the school. The buildings are pleasantly situated in a wooded setting—which was left natural—and the group is completed by a small shopping center. Construction consists of the assemblage of prefabricated wooden elements; an experimental process which was tried for the first time in Finland for this project, and was instrumental in reducing the cost of this group.

Photo by Havas

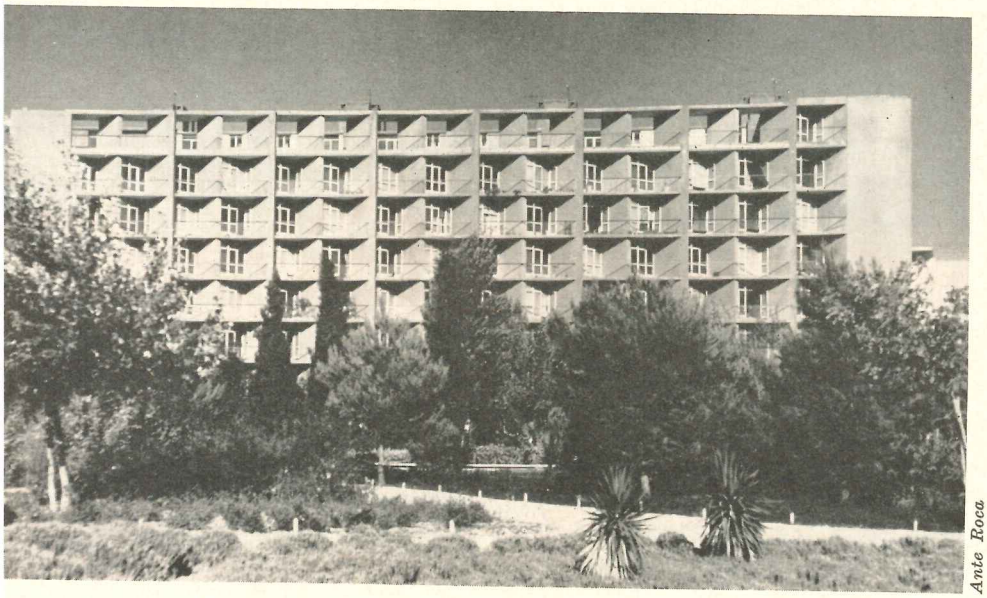




3 60-UNIT APARTMENT IN SPLIT, YUGOSLAVIA

ARCHITECT: *Lovro Perkovic*

To overcome the twin problems of necessary winter protection and a too strong summer sun (and also to permit neighboring apartment buildings to open out to and enjoy the view) this 60-apartment building is designed in an arc-like shape, and incorporates balconies which are cut into the mass of the building's shape, and which face southwest to the view. The building is constructed of reinforced concrete and infilling panels of precast concrete with a rough-textured surface. The solid walls separating the glazed, angular surfaces are picked out in bright colors.

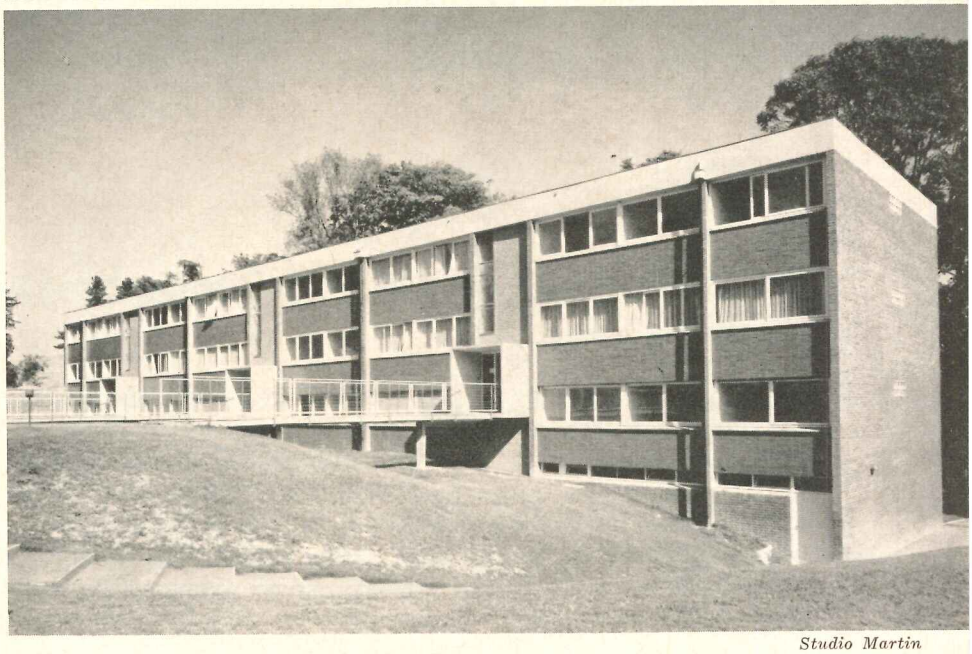


Ante Roca

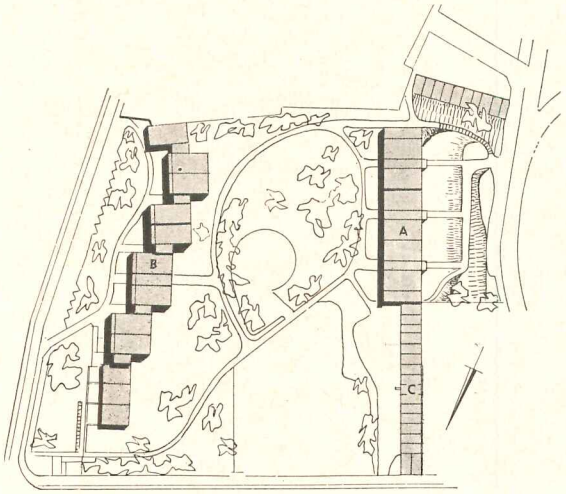
4 50 APARTMENTS IN A PARK NEAR PARIS

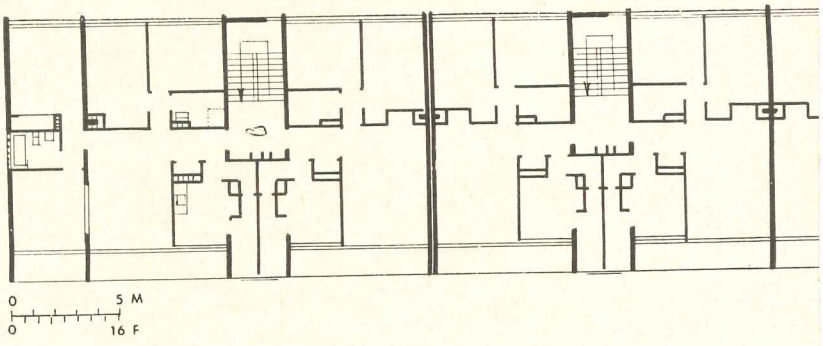
ARCHITECTS
Henry Pottier & Jean Tessier

Located in a five-acre wooded reserve, this 54-apartment project consists of two elements, as the plot plan below will reveal. The buildings are supported by brick shear walls that run transversely through their width to support the floor and roof slabs, and which are expressed architecturally on the long elevations. Balcony railings are white metal; spandrel panels are of blue ceramic glazed brick. The wood sash and frames are enameled white; the stair tower grilles are of natural clay tile. Public corridors have floors of Fumay slate; the footbridges (lower photo) have railings consisting of metal frames protected by nylon.



Studio Martin



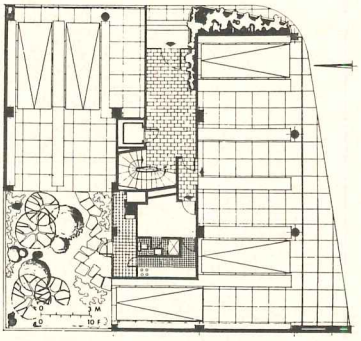


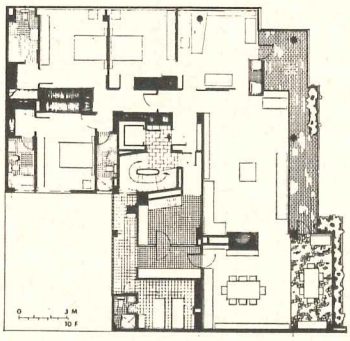
DeGuillerino Zamora

5 LUXURY COOP IN MEXICO CITY

ARCHITECT: *Vladimir Kaspé*

Built in a high class residential area, this 7-apartment luxury building incorporates several planning ideas new to the area: a covered veranda off the dining room, which can serve either for outdoor dining or to enlarge the dining room for big parties; each bedroom includes a dressing room-boudoir in addition to a bath; the study (opening from the living room) can be changed readily into a fourth bedroom for guests. The construction consists of reinforced hollow concrete block walls, and floor slabs of in-site concrete.





6 APARTMENT GROUP IN TAPIOLA, FINLAND

ARCHITECT: *Viljo Revell*

Notable for its carefully studied and well-proportioned balcony façade, this apartment group near Helsinki is composed entirely of three-room apartments on four floors, with balconies provided for each living room. The dwelling units are reached by means of center stairways serving pairs of apartments at each floor level. Typical apartments can readily be divided into smaller units of the bachelor type by the addition of longitudinal walls through the center of the apartment. The exterior is composed of concrete, brick, aluminum and wood.

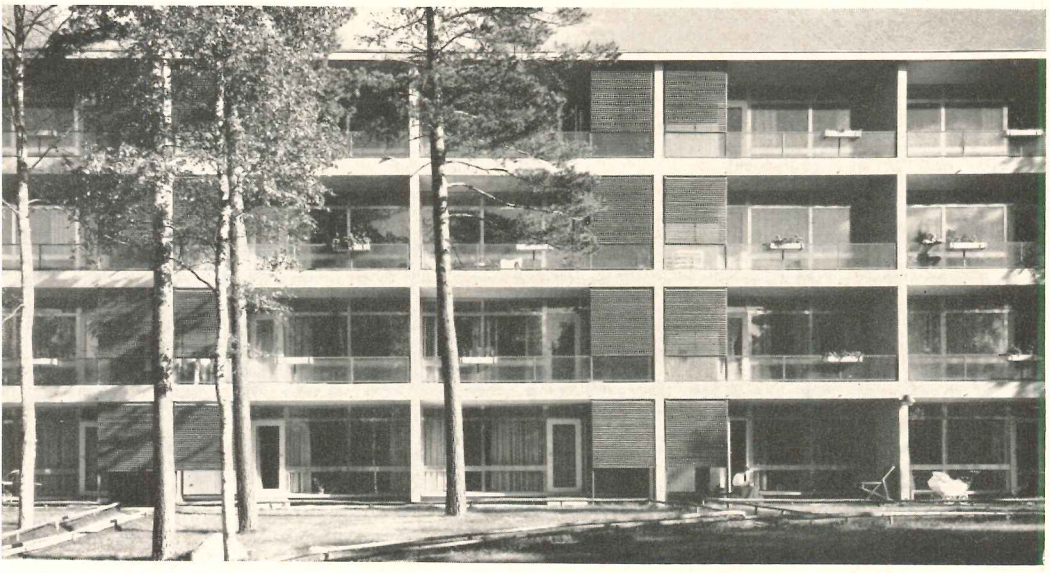
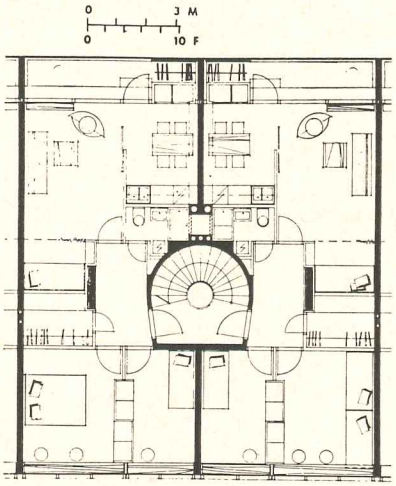
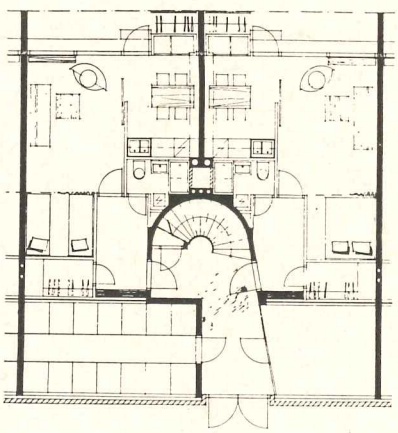


Photo by Havas

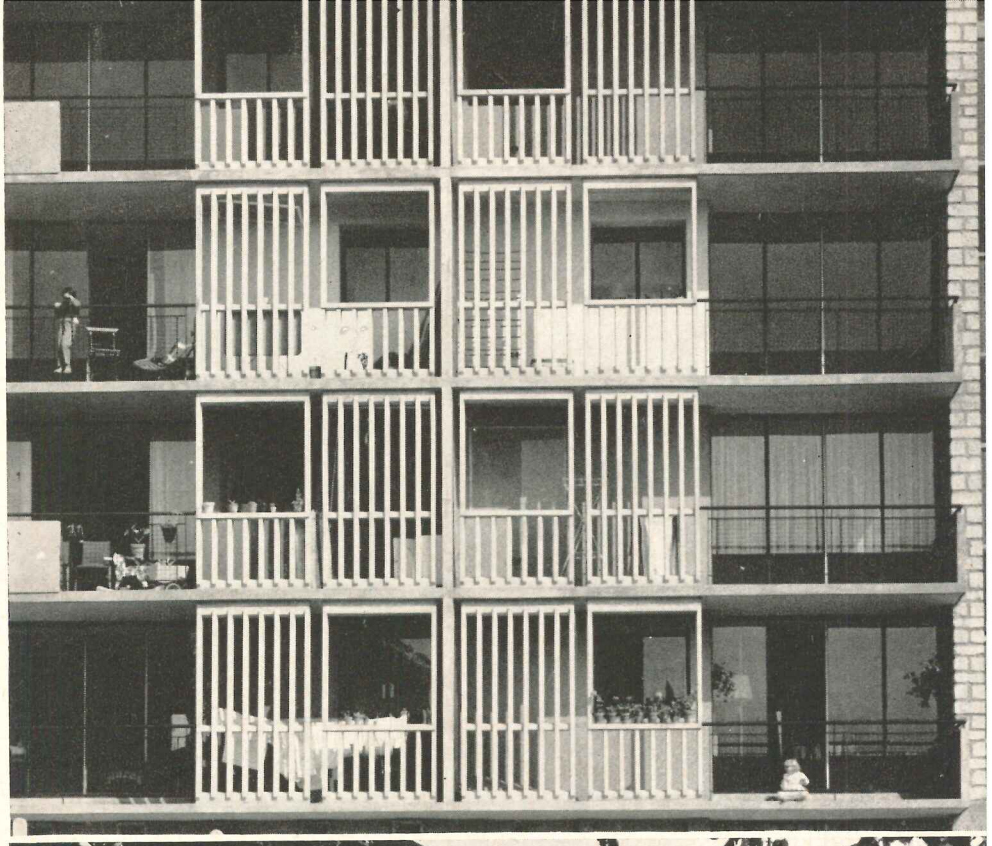




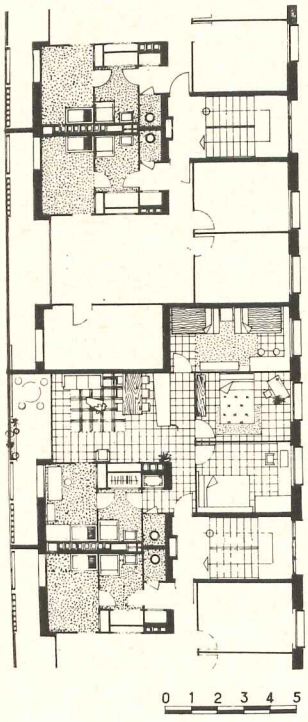
7 APARTMENT GROUP AT PALAISEAU, NEAR PARIS

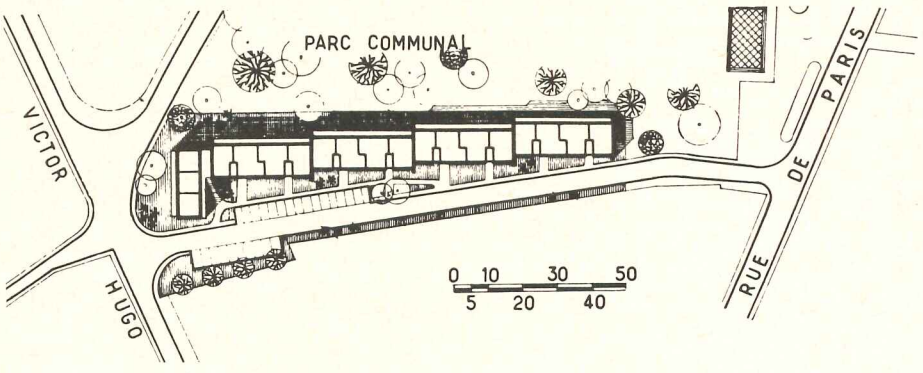
ARCHITECTS:
A. G. Heaume and A. Persitz

This group of 84 apartments—on sloping terrain bordering a communal park—was built by the Central Interprofessional Housing Office of the Paris Region. The sloping site suggested a series of steps, which were carried out in both elevation and plan. These breaks serve also to ameliorate the length of the group and give it a more appropriately domestic scale. The façades opening to the park consist of a series of continuous balconies, in which concrete grills and prefabricated concrete railings, together with the variety of color on the infilling wall panels, combine to make a lively pattern. The end walls are constructed of heavy ashlar in random pattern.

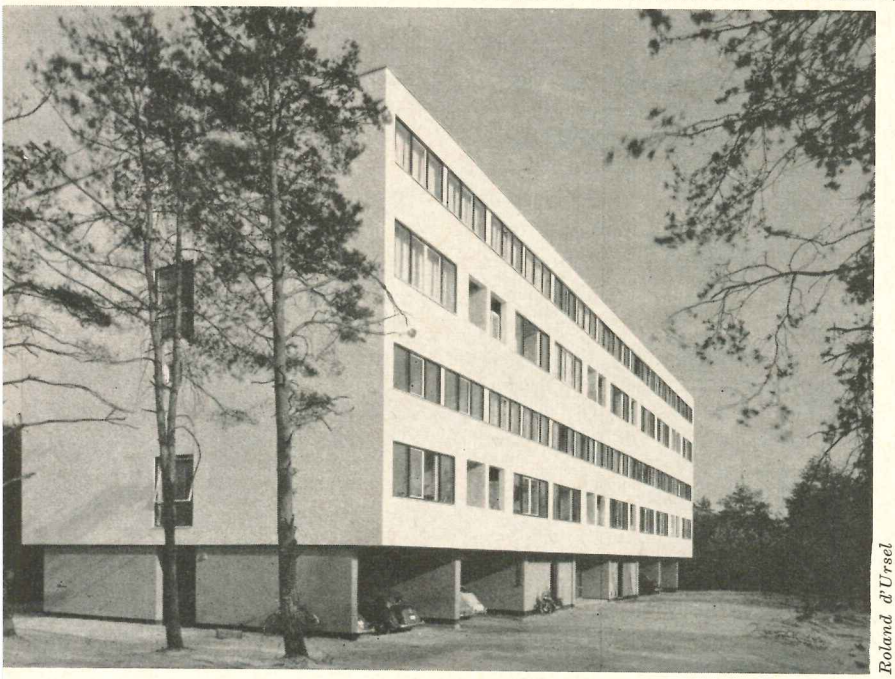


Photos by Richard Blin

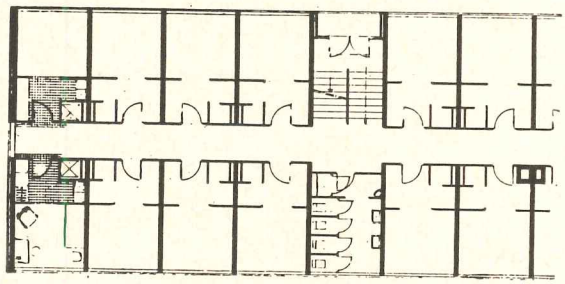




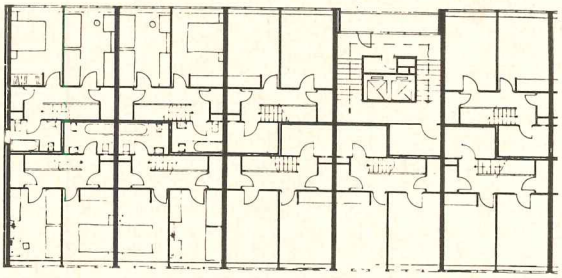
R. and F. Lamarque



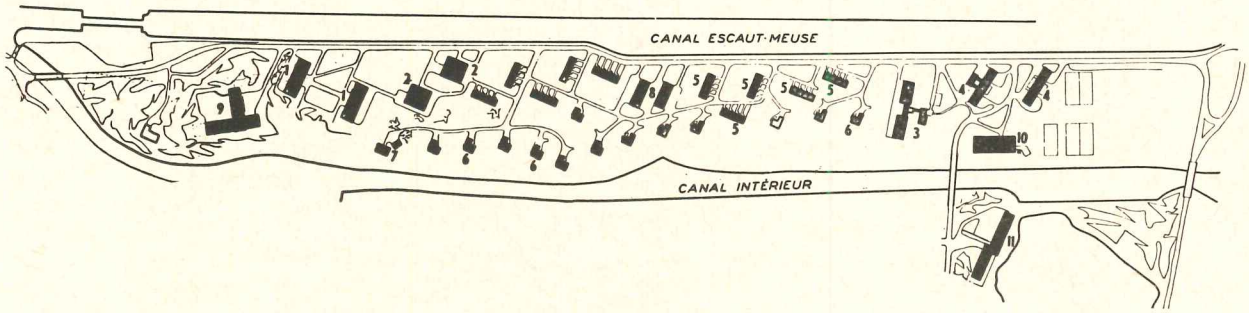
Roland d'Ursel



BACHELOR DORMITORIES



MARRIED COUPLES APARTMENTS



8 HOUSING FOR NUCLEAR CENTER MOL, BELGIUM

ARCHITECT: *J. Wybauw*

ASSOCIATE ARCHITECT: *J. Thiran*

The Nuclear Energy Center in Belgium is devoted to the study and development of peacetime applications of atomic power; comprises a technical group, an administrative and social group, and a residential quarter, shown in the plot plan above. Living quarters consist of 15 villas, 40 rowhouses, 2 buildings of 12 apartments each, 2 dormitory buildings for bachelors, a high-rise building containing 48 studios, and a building housing 24 apartments for young married couples. The bachelor dormitory includes only living rooms, baths, and ground floor parking, since occupants take their meals at the Center canteen.

Architectural Engineering

The Many Dimensions of Light

Interest in the largely untapped potentialities of lighting as a basic ingredient of architecture seems to be gaining momentum, judging from reactions ARCHITECTURAL RECORD is getting to its four-part series, "Lighting for Architecture," by William M. C. Lam, concluded in January. The series is being reprinted in stiff cover for $1.00; discounts on quantity orders. Address: *Lighting Reprint,* Architectural Record, 119 W. 40th St., New York 18, N. Y.

The first article stressed that the goal of lighting design is not simply to provide enough light to see by, but to create mood, focus attention, indicate intended use, complement structure and enhance the space itself. The second article pointed out that in order to program lighting, the designer must understand the many dimensions of light—quantity and quality of illumination; brightness and its effect on visibility, visual comfort and the appearance and character of the space. The third article gave a "common sense" understanding of the relationships between light sources and room surfaces. The fourth article tied the package together by showing how a lighting program was developed for an actual case.

Lighting Critiques 1918, 1951

Handling lighting more effectively has loomed so large as one of the problems of contemporary building technology, that we are surprised now and then to find expressions of concern a number of years back. Writing in the November 1918 ARCHITECTURAL RECORD on "The Expressiveness of Light," Matthew Luckiesh, lighting scientist and author, commented, "In lighting, attention has been too generally directed toward the artistic grace of fixtures instead of visualizing the light effect upon the room as a whole. If the attention is focused upon effect at all, it is usually upon the purely utilitarian result. Light may be considered as a medium similar to pigments . . . a similar expressiveness, but far superior in potentiality; for not only may a certain desired mood be realized, but with appropriate fixtures and controls, this mood may be altered in a moment."

As an idea of what could be done in the home, Luckiesh suggested a hallway illuminated by a combination of lattice and indirect lighting; mentioned the possibility of artificially lighted windows; described an oval dining room skylight, artificially lighted, utilizing red, green and blue lights installed in separate circuits and controlled by rheostats. He also showed sympathy for the "old fashioned" lighting dome that once hung over the dining table but was "out of style" in 1918. There is, he averred, "something conducive of cheerfulness in the distribution of light, as the semi-darkness hems in the diners and concentrates their attention upon each other and upon the festive board."

"Expressiveness" of light in the home obviously had made little headway by 1951 when the authors of a report on *Construction and Equipment of the Home,* issued by the Committee on Hygiene of Housing of the American Public Health Association observed, "Little attention has been given to the effects on the emotions of the lighting in dwellings. The straining 'cheeriness' of the professional decorator is probably no more conducive to peace of mind than the amateur's little pools of jaundiced (incandescent) or pallid (fluorescent) subfulgence in a Stygian surrounding. The matter deserves careful investigation . . ."

No Comment

From what wellspring do ideas come to the great talents in the architectural world? Wallace K. Harrison while in Italy on a reconnaissance trip for the new Metropolitan Opera asked Nervi how he had ever built the unique and inspired buildings that he had produced in the last decade. "He looked at me," reports Harrison, "and said simply, 'It is hard.' "—from an article "Steps to the Opera House" in *Opera News.*

This Month's AE Section

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APARTMENT BUILDING AIR CONDITIONING

Characteristics of central systems and how they affect apartment layout and space for ducts, pipes and equipment

by Alfred Greenberg, P. E., Syska & Hennessy, Inc. Engineers

While no two apartment houses are exactly the same, there are sufficient similarities in occupancies and planning to indicate the characteristics required for central air conditioning systems. Conversely, the nature of each of the systems available will affect the space required for ducts, pipes and equipment, and will determine whether or not the architect must provide for openings in the outside walls, space for air conditioning units within the rooms, or, possibly, space for equipment rooms within the apartments.

Air conditioning in apartment houses has the following characteristics:

1. Occupancy seven days per week, perhaps 24 hours per day.
2. Generally low loads due to people and lights.
3. Generally non-occupancy of bedrooms during the day.
4. Heavy appliance load in the kitchen.
5. Possible heavy occupancy load in dining and living rooms.
6. Occasional large, concentrated cooling and ventilating loads due to parties or meetings. (Requires large amounts of outside air to eliminate odors and smoke.)
7. Interior toilets and kitchens must have exhaust ventilation. Exterior kitchens should have exhaust ventilation, if not air conditioning.

Because of the variable and shifting load careful attention must be given the air conditioning design to achieve as close to optimum comfort conditions as the particular system will provide.

Types of Systems

Central air conditioning systems for apartment buildings can be classified as:

1. Dual duct, all-air.
2. Three-pipe, perimeter induction fan-coil.
3. Single duct with reheat coils.
4. Two-pipe, perimeter induction or fan-coil.
5. Through-the-wall fan coil units.
6. Recirculating-type fan-coil units; fresh air from interior ducts.

The first three systems—dual duct, single duct with reheat and the three-pipe—have the greatest potential for flexibility of control. However, dual duct and single duct with reheat require the most space for ductwork and generally are more expensive to install. In the dual duct system one duct carries hot air, the other cold. In single duct with reheat, air is supplied at the coldest temperature required for any one space and reheated by hot water coils or electric heaters to suit the requirements of the other spaces. In the three-pipe system, one pipe carries cold water, the second hot water and the third serves as a common return.

Until recently, the most commonly installed type of central system for apartment buildings has been the through-the-wall fan-coil unit with perimeter vertical pipe distribution.

The familiar induction system which uses a combination of air and water to furnish heating and cooling, with a high degree of temperature and humidity control, has become a popular type of central system for large apartment buildings. The induction system follows dual duct and single duct with reheat in the amount of space required for ducts, but these are generally run vertically in chases at the perimeter of the building.

Temperature Control

In all perimeter-type central systems described above (1, 2, 4, 5), it is possible, if desired, to eliminate thermostats from the walls. The thermostats can be located in the return air openings of the units, but this may cause some sacrifice of optimum room conditions. Self-contained automatic control valves are available for perimeter units.

For economy, on many installations of fan-coil units no thermostats or automatic control valves are used. Regulation is obtained by adjusting the three speed motor position and opening or closing the outdoor air damper. Usually, fan-coil motors are connected to the apartment's electric meter, if metering is done separately.

Duct, Equipment Space

Whether ductwork and piping is run at the perimeter or at the interior the architect will be concerned with the amount of space required for these mechanical services and where this occurs.

When piping and ductwork is run vertically along the perimeter, chases will be required, and space will have to be alloted for the air conditioning unit, whether induction or fan-coil, along the outer wall, unless, in the case of the induction unit, it is set flush with the floor. If a fan coil sys-

tem is selected and the architect does not want exterior wall louvers, interior duct shafts will be required to provide outside air.

When distribution is from the interior, there may be horizontal ductwork and piping that will require either dropped ceilings or soffits or both.

By lowering the ceiling in such areas as corridors, foyers, closets, kitchens and bathrooms—where floor to ceiling height is not so important —the disadvantage of this arrangement is minimized.

Most of these interior distribution systems will require an equipment closet or space facing the main or service corridor for maintenance. If the apartment is small enough, fan-coil units are sometimes suspended above a soffit at the entrance or at the top of a closet.

If however, a full-height equipment room is required, this will affect the apartment layout.

Fresh Air

Purging of odors and smoke calls for large quantities of outside air, although the problem can be mitigated in various degrees by filtration and electronic precipitration. Dual duct systems have relatively high air quantities. The induction system has less capacity for purging odors than an "all-air" system because it uses less primary air. Through-the-wall fan coil units are furnished with multi-speed motors so that low speed can be used for night operation, medium speed for normal use and high speed for high air circulation and peak loads.

For all systems, sufficient outside air should be furnished to take care of all the exhaust air requirements. The exterior rooms should be pressurized in order to minimize infiltration. Interior corridors should be pressurized to prevent possible transmission of odors.

In some apartment buildings, out side air is dumped into the corridors and supplied to the individual apartments through undercut doors or doors with louvers. In either case noise transmission between apartments may be a problem. This can be avoided by supplying air through stub-ducts, insulated against sound, which are installed at the ceiling and are attached to a grilled opening on the corridor wall.

As apartment buildings get taller (usually above 20 stories) use of through-the-wall units becomes increasingly risky due to stack effect. This is difficult to determine for a given building. The units have to be sealed and the air balances accurately calculated.

Stack effect can also cause difficulties in the interior toilet ducts and corridor ducts of tall buildings. The New York City code requires that no toilet exhaust be over 250-ft high from the first to the last outlet. While this increases the duct shaft requirements, it minimizes the possibility of drafts. The same criteria should apply for supply ductwork.

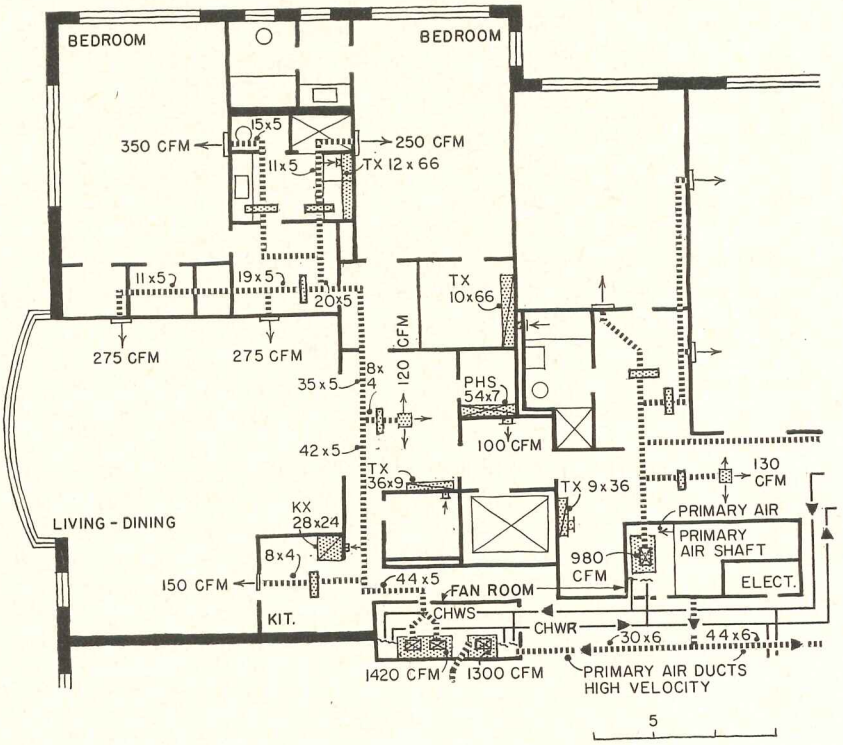
If the client wants the ultimate in thermal control, and air supply at the outer wall is not desired, then a suggested system is central air handling for each apartment plus perimeter radiation (to counteract cold radiant effect of walls and drafts from windows).

With such a system the proportion of outside air can be varied from 0-100 per cent and may come from exterior wall louvers or a central shaft in the interior.

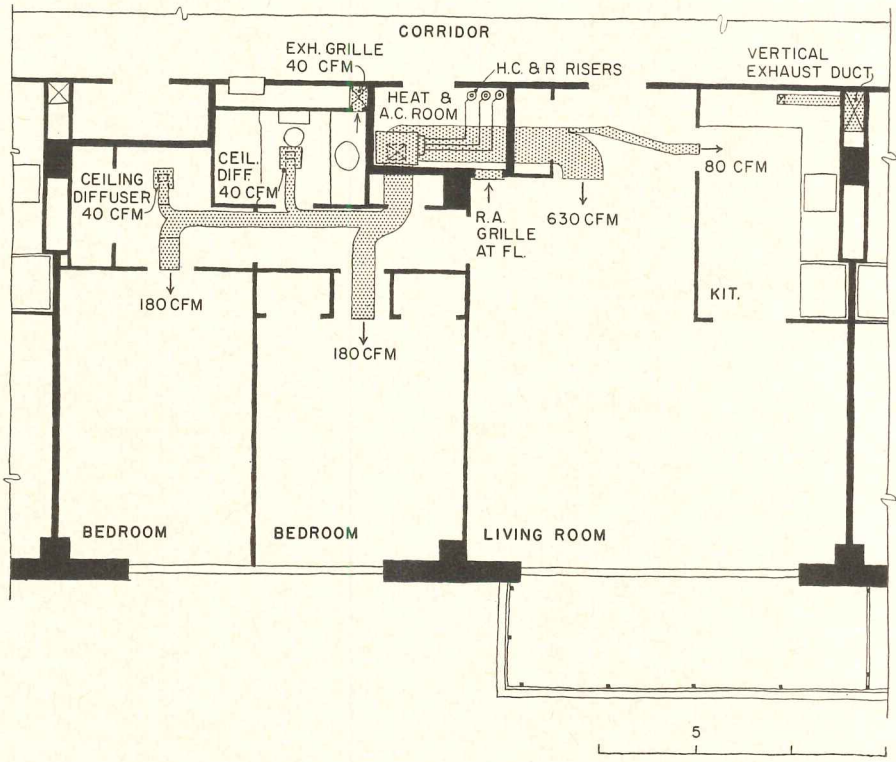
The ductwork should be zoned with central hot water or electric reheat coils or with dampers to maintain temperature or air flow as called for by each zone. Return ductwork will usually be required.

CENTRAL SYSTEM FOR A PROPOSED LUXURY APARTMENT BUILDING

1. Individual apartment air handling units are located in fan rooms, accessible from service corridors. These package units contain cleanable filters, chilled-hot water coils, and circulating fans. 2. Separate room control is provided by means of hot water coils (small shaded rectangles) located at the ends of branch discharge ductwork (broken lines). Coils reheat cooled air to temperature called for by room thermostat. 3. Outside (primary) air units at the roof furnish approximately 25 per cent of building air requirements and consist of electrostatic filters, hot water preheat coils, pre-cooling coils, supply fans and dampers. 4. Between the primary air shaft and the apartment air handling units are maximum (100 per cent) and minimum (25 per cent) dampers. Maximum damper opens only when switched on in an apartment to purge excessive smoke, odors and heat. 5. Exhaust systems are provided in toilets, (TX) kitchens (KS). PHS is public hall supply. 6. Corridors have separate supply and exhaust systems.



Three Buildings, Three Different Systems



Set within earshot of each other, these large apartment buildings going up in Kansas City, Missouri illustrate several approaches to central system temperature control, equipment location and arrangement. All three use gas for heating, cooling

The three large apartment houses shown here, all presently being built within a one-mile radius in Kansas City, Missouri, present some interesting similarities and differences in approach to central air conditioning.

Financed by a different owner in each case, they are all to be equipped with gas-fired central heating and air conditioning using absorption water chillers and steam boilers. On the other hand each uses a different system to distribute hot and chilled water and conditioned air.

Parkway Towers

The most noteworthy feature here is the fact that every apartment has its choice of either heating or cooling at any instant. Each apartment has its own fan and heating-cooling coil installed in a special utility room. Through two separate supply pipe systems, either hot water at 180 F or chilled water at 44 F is available. There is one return line for both hot and chilled water. The switch from one supply to the other is made automatically by a thermostat-controlled, three-way valve.

One of the interesting features is that the hot steam condensate from the absorption unit is used to preheat the domestic hot water.

Depending on the size of the apartments, one of three different sizes of fan and coil units are used—500 cfm, 1000 cfm, or 1500 cfm capacity. Duct work distributes the conditioned air from the utility room to the various other rooms of the apartment. Make-up air is supplied to the utility rooms through louvers from the corridors. A ventilating system with a large heating and cooling unit on the roof provides 100 per cent fresh air with controlled humidity to the corridors at about 72 F. Fresh air supply in the apartments is 10 per cent, with 90 per cent recirculated. Each apartment has an exhaust system.

Oak Hall

Each apartment has its own heating and cooling system consisting of an air handling unit with filters, blower, hot-chilled water coil and controls, and ducted air distribution.

Chilled water is provided by a 400-ton steam absorption unit. Heat for air conditioning and heating systems is generated in natural gas-fired steam boilers. The apartment heating system is further served by a steam to hot water converter with outside air temperature reset control.

A central year around fresh air ventilation system serves the entire building and supplies heated or cooled fresh air to each apartment continuously. Conditioned fresh air is also supplied to all corridors for comfort and for cooking odor control. All fresh air supplied to the building is humidified or dehumidified to maintain optimum comfort conditions. A continuously operated exhaust system balances fresh air supply. Steam is utilized for fresh air heating to provide positive control and to minimize freezing danger in winter.

Regency House

The air conditioning and heating system utilizes 457 fan-coil units on the outside walls of the 20-story building, a 300-ton absorption water chiller and two 9,000,000 Btu per hour steam boilers. Individual fan-coil units in each room of the apartments are supplied with either hot or cold water (winter or summer). Simple changeover valves are provided on first floor. Each room has its own thermostat control. Fan-coil units have 3-speed fan switches with on-off control.

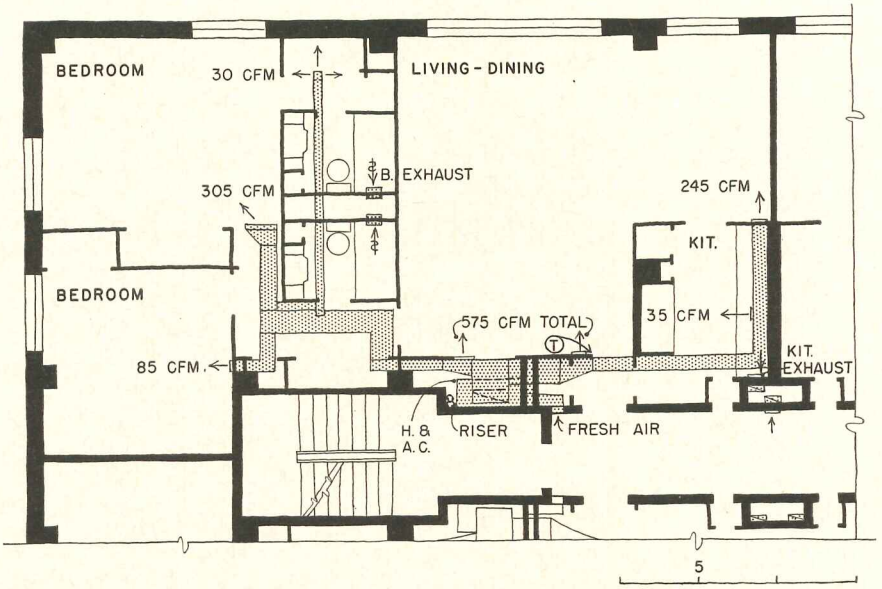
Fourteen sets of risers distribute the hot or chilled water at regular intervals through the 20 stories of the building. A small apartment of about 800 sq ft has two fan-coil units, while the largest apartment of about 1800 sq ft has four, permiting separate zone control in each apartment. The system at Regency House can be

PARYWAY TOWERS: THREE PIPE SYSTEM

Description: 160 units, 12 stories. Hot and chilled water lines, and single return line to each apartment, connected to coils in utility rooms. 350-ton absorption unit.
Operation: Supply lines operate through thermostatically controlled three-way valve to coils producing desired air temperature. Fresh air from corridor. *Architect:* Herbert E. Duncan Associates (mechanical design also).

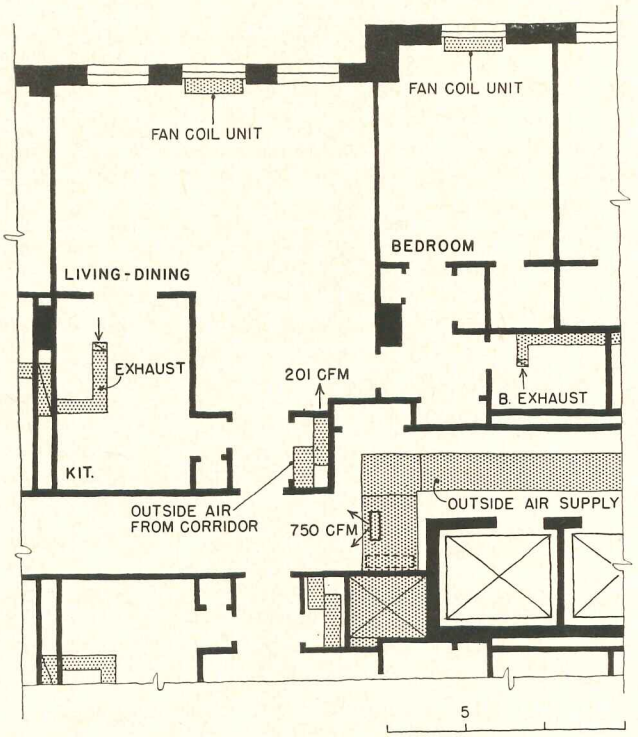
switched from heating to cooling within 30 minutes. By automatic operation of four valves, chilled water in the pipes can be replaced by hot water, and vice versa.

A separate ventilating system supplies pre-conditioned outside air to the corridors of each floor to make up air exhausted from each apartment. This primary air is cooled, filtered and dehumidified in summer; heated, filtered and humidified in winter. Acoustically insulated ducts, offset for sound control, introduce the fresh, make-up air to each apartment. Kitchens and baths have exhaust ducts connected to continuous running fans located on the roof. In order to prevent overcooling of the air during summer when the load is light, provisions are made to warm the make-up air with condenser water so as to maintain a temperature of 73 F in the corridors. The total air supply for the building is 36,000 cfm, while the exhaust system removes about 26,000 cfm. Thus the system operates under slight pressure to provide more uniform air distribution and to avoid drafts and uneven air flow which result when an exhaust creates negative air pressure. The use of a slight internal pressure discourages back-up of cooking odors to the halls and adjacent apartments.



OAK HALL: FAN-COIL SYSTEM (INTERIOR)

Description: 165 units, 12-story building. Each apartment has air handling unit with filters, blower, hot-chilled water coil. *Operation:* Fresh, conditioned air supplied to the corridor is ducted to the air handling unit, cooled or heated and transmitted to the rooms as indicated. *Architect:* Alonzo H. Gentry. *Consulting Mechanical Engineer:* Massaglia and Associates.



REGENCY HOUSE: FAN-COIL SYSTEM (EXTERIOR WALL)

Description: 134 apartments; 215,000 sq ft; 20 stories. 457 fan-coil units (2 in small apartment, 4 in large). 300-ton absorption unit; two 9 million Btu/hr boilers. *Operation:* Conditioned outside air under pressure in corridors enters apartments through offset, acoustically-lined ducts. Fan-coil units recirculate room air over coils. Air is exhausted through bathrooms and kitchens. *Architect:* Edward W. Tanner & Associates. *Consulting Mechanical Engineer:* James Dukelow.

COMPOSITE CONSTRUCTION BEEFS UP OLD FLOORS

One of the principal advantages of composite construction, the fact that it often permits the use of lighter steel, has been given a new twist in the modernization of an existing school building in New York City. In this case the "lighter" steel was already present, but the addition of a composite slab enabled it to carry much heavier loads.

The building was the old Bronx High School of Science, which was built in 1914 for a design live load of only 60 psf. When it was turned over to the Bronx Community College in 1958, the extensive alteration program required included the conversion of several areas into shops and laboratories. These new occupancies demanded a floor system capable of supporting a minimum live load of 100 psf overall, plus several larger load concentrations where heavier machines were to be installed.

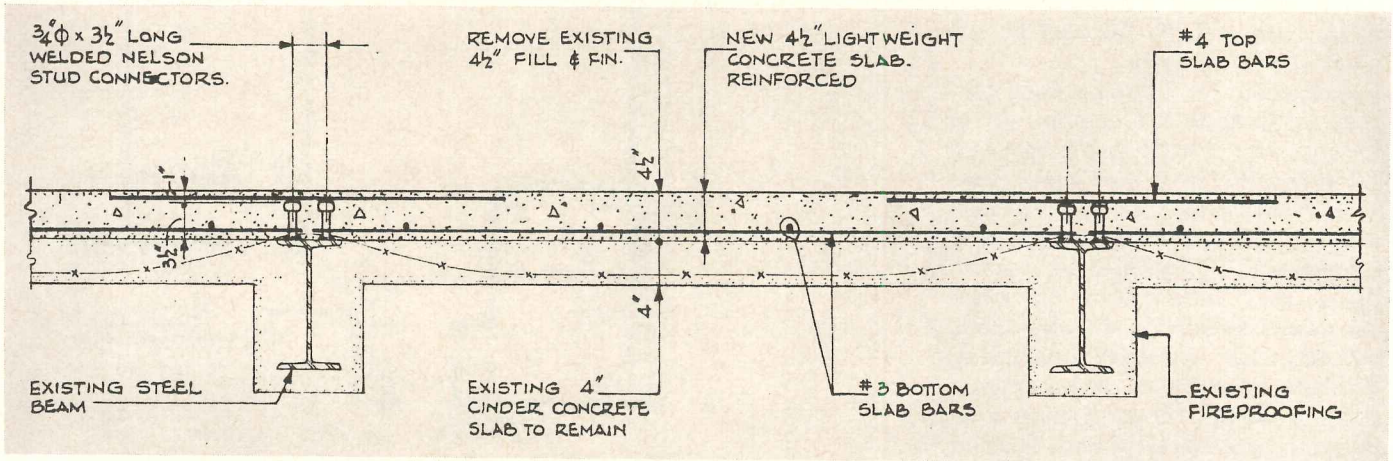
The existing floor construction consisted of 4-in. thick, short span cinder concrete slabs spanning between fireproofed steel girders spaced on 7-ft centers and framed in most cases to masonry bearing walls. The slabs were reinforced with wire mesh draped over the top flange of the girders. Set level with the top flanges, the rough slabs were topped with a 4½-in. thickness of light cinder concrete fill and cement finish or wood flooring set into cinder fill. In most cases, the floor finish was in poor condition.

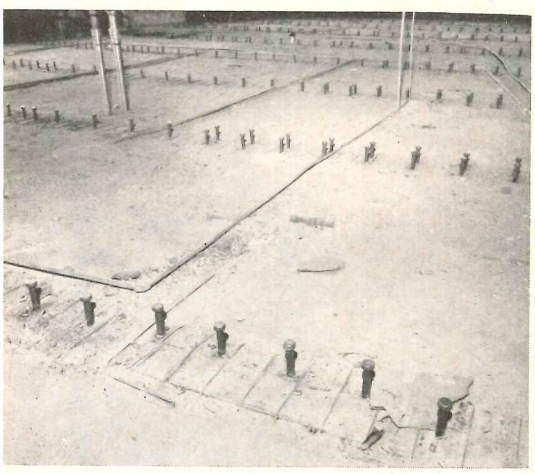
To provide a new floor finish while reinforcing the existing slabs and girders for the increased loadings, composite construction was used to link a new slab to the old substructure in such a way that the floor deforms as a unit.

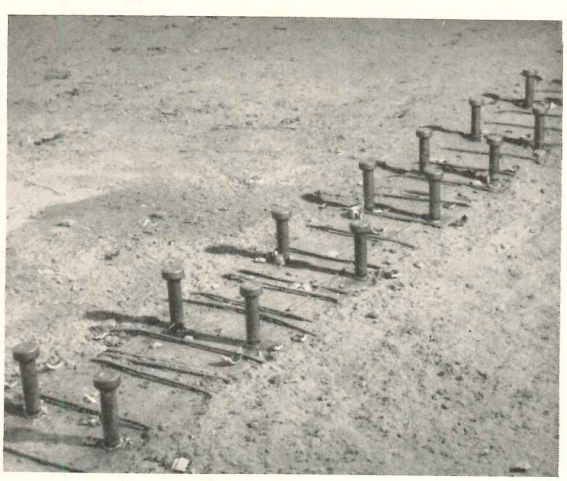
To do this, the existing fill and finish was stripped off the top of the rough slab, exposing the top flanges of the girders. Stud shear connectors ¾ in. in diameter and 3½ in. high were then welded to the tops of the beams with a manually-operated stud welding gun. This done, a new 4½-in. lightweight concrete slab, reinforced to support the increased loading, was poured over the existing rough slabs and finished monolithically so that it became the wearing surface for the new floors. No formwork was necessary for the new slab except where old shafts were being enclosed, but some shores were placed under the rough slabs to prevent possible damage during construction.

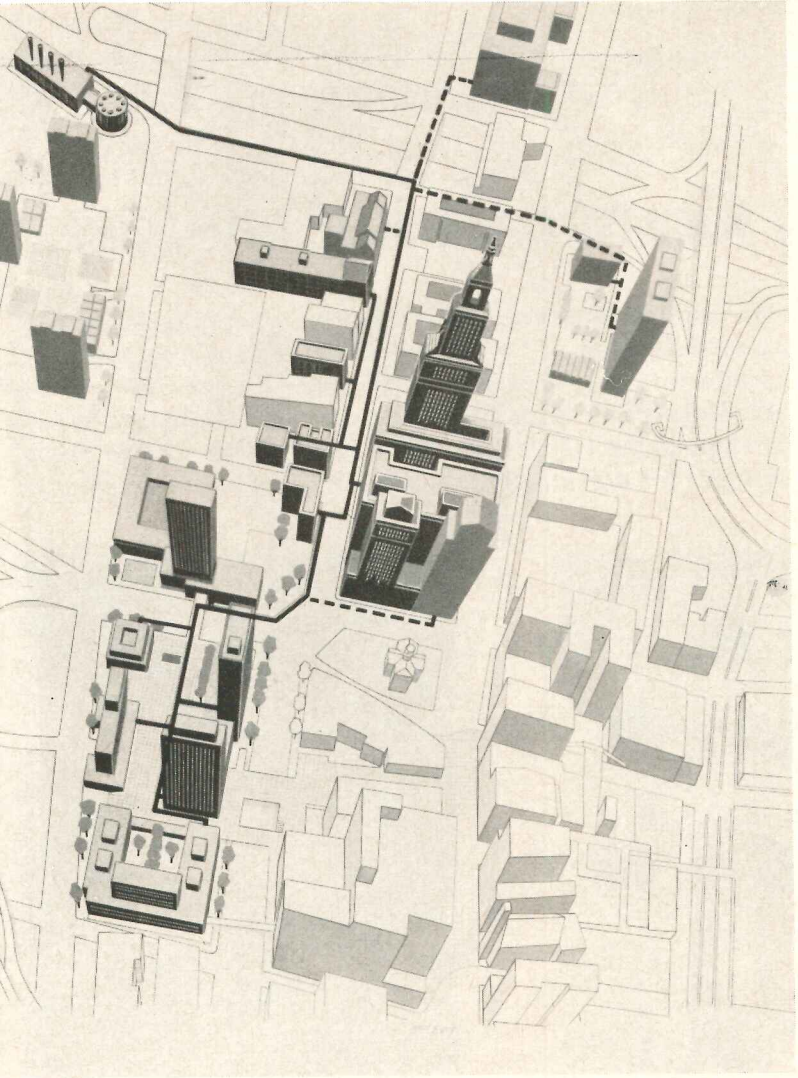
The composite action of the old slab and girders and the new "cover plate" slab strengthened the floor enough to accommodate the added loads. Still further loading capacity could have been obtained by welding cover plates to the bottom flanges of the girders. This, however, would have required considerable cutting and patching of the fireproofing.

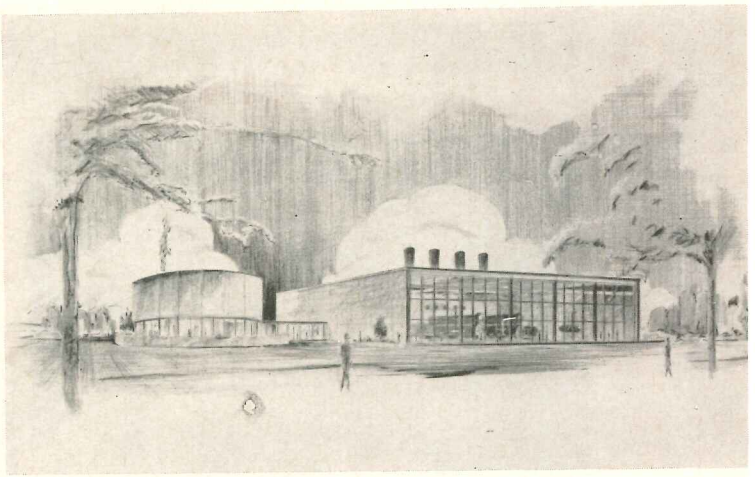
Architects for the building modernization were Perkins & Will, White Plains, N. Y.; the structural engineers were Garfinkel & Marenberg, New York City; and the general contractor was Mars Associates and Normel Construction Company, also of New York City.











Above: Proposed Hartford Gas Company plant will furnish air conditioning services to buildings in downtown Hartford. Round structure at left will house offices and control facilities; building at right will house boilers and steam-generated cooling equipment

Left: Aerial perspective of downtown Hartford shows plant (top left) and proposed route of pipeline for central heating and cooling service. Dark-colored buildings to be served when plant opens next year include new Constitution Plaza (lower left). Gray buildings connected by dotted lines will probably be served later by extending pipelines. Lightly-shaded buildings are in potential growth area

AIR CONDITIONING "ON TAP" DOWNTOWN

Although central plants have often been used for year round air conditioning of such large building complexes as manufacturing plants and shopping centers, and public utilities in several cities sell steam for winter heating, completion of the Hartford (Conn.) Gas Company's new central plant and distribution system will mark the first time a large downtown area has been supplied with both heating and cooling through a public utility. The air conditioning service will be sold in much the same way that utilities presently distribute gas and electricity, with meters to determine the amount of steam and chilled water used by each building's mechanical system.

The system will initially serve Constitution Plaza, a building cluster being constructed as the first step in Hartford's huge downtown redevelopment plan, and several existing buildings nearby. Later it will be expanded to serve other redevelopment projects, and other new and existing buildings in the area. (See shaded aerial perspective at left above.)

The central plant, which will be completed next year, will have an initial capacity of 6500 tons of refrigeration and 150,000 pounds of steam distributed by underground supply and return lines extending some 3600 ft from the plant. By 1964, steam capacity is expected to be increased to 225,000 pounds and cooling capacity to 10,000 tons.

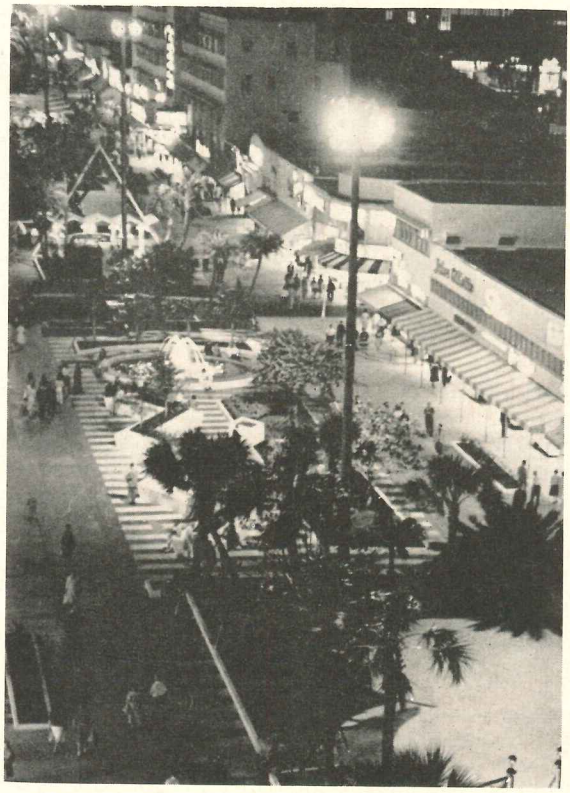
Located near the Connecticut River so that river water can be used to cool the condensers and eliminate the need for cooling towers, the building designed by Hartford architect Charles DuBose will consist of two units connected by a passageway. (See rendering above.) The circular building will house offices, dispatch center and control room; the other will contain the boilers and refrigeration equipment.

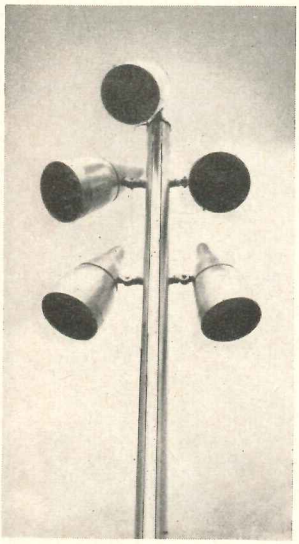
Obviously the project was not undertaken by the utility as a philanthropic gesture but to add to the efficiency of its own operation by balancing the heavy use of gas for winter heating with steam-generated cooling during the summer months. According to system designers Seelye, Stevenson, Value and Knecht, however, the central station approach does present a number of advantages to the user, foremost among them being the elimination of the need for duplicate equipment in each building. In addition, a central plant cuts first cost per ton for cooling equipment, can lower fuel costs through quantity discount, frees building space for more useful purposes, relieves the building owner of some of his capital investment and operating responsibilities, and permits better smoke control.

The chief disadvantage, the need for expensive external distribution lines, is greatly influenced by local conditions and should be carefully studied. In urban redevelopments like Hartford's, where air conditioning requirements are concentrated in one area and extensive construction is taking place in any case, this disadvantage may be largely overcome.

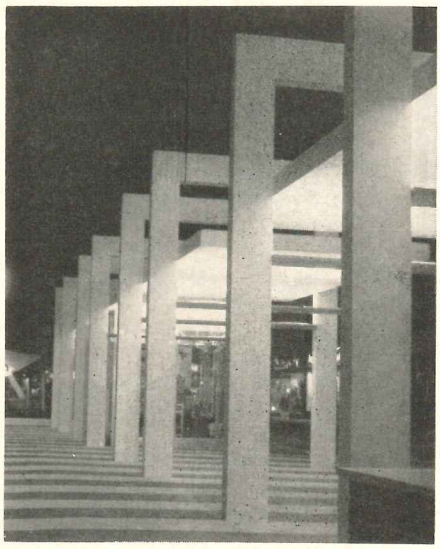
LIGHTING CREATES NEW NIGHTSCAPE FOR SHOPPERS

The rapid proliferation of pedestrian shopping malls has made the design of "city streets" an increasingly common architectural problem. One of the more recent examples is Miami Beach's Lincoln Road Mall, a newly refurbished downtown shopping district that offers, among other things, some pointers for moving architectural lighting out-of-doors



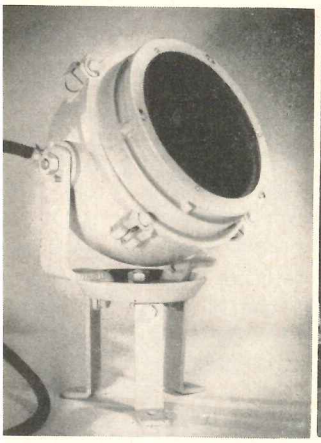


GENERAL LIGHTING: For the overall lighting of the Lincoln Road Mall, luminaires were set as high as possible (60 ft in this hurricane territory) on poles spaced at 250-ft intervals down the middle of the "street." At this height and spacing, they spread a blanket of light that modulates down from a high at the center, visually separating the mall from surrounding areas. The luminaires themselves house 1000W, R-80 mercury vapor lamps with integral reflectors. The powerful beam from these bulbs is further intensified and controlled by a special reflector housing, so that the fixtures can also be used to spotlight points of architectural interest, lighting them to levels as high as 60 to 90 f.c.



SHELTER LIGHTING: A major problem in lighting the nine low, open concrete structures that shelter exhibits, displays—and people—was providing a light source that would be warm enough for good color rendition, but would not appear "dirty" by contrast with the cool mercury vapor lighting outside. For six of the shelters, the answer proved to be a new "natural" fluorescent lamp which will be marketed by Sylvania in the near future. Although it appears cool enough to blend well with the outdoor lighting, it distorts the colors of objects and skin tones as little as do warm white fluorescents, an effect produced by strengthening the lamp's red and green tones and depressing the blue. Housed in indirect reflector troffers mounted from the walls like spokes, the lamps bathe the ceilings of the shelters with light that is then reflected down to the floors.

CREDITS: Architect: Morris Lapidus, Kornblath, Harle & Liebman; Lighting Designer: Lighting by Feder; Fixtures: Simes Company



UNDERWATER LIGHTING: The fountains, pools and other "water-forms" that dot the mall are all lighted by PAR-64 incandescent underwater fixtures. A yoke assembly on the cast bronze housing and cover permits horizontal and vertical adjustments so that the light from the fixtures could be focused as desired before the fixtures were permanently locked in place. The accuracy of this "targetting" is demonstrated in the photo above. The concrete structure shown is lighted, with no spill, by an underwater fixture in the pool. Another innovation was the use of plexiglass color filters which are relatively inexpensive and are expected to last longer than the cinemoid filters usually used.

SPRINKLER SYSTEMS FOR FIRE PROTECTION: 3

by Howard P. Vermilya, A.I.A.

Temperature Rating of Sprinkler Heads
The heat-responsive element activating the head may be solder (eutectic alloy) or non-solder (frangible bulb or chemical) with sharp melting points.

Location of Sprinklers (Ordinary hazards only)
1. Position: *Upright* at or near ceiling (generally preferred).
Pendant from ceiling; used where piping is concealed for appearance; To avoid danger of accumulation of sediment in piping where suction supply may be unclean, sprinklers may be required to be connected to the top of branch piping by an inverted "U" bend.
Sidewall, not over 14 in. below ceiling; for special occupancies where appearance is a factor. One line of sidewall sprinklers will protect an area 10 ft from the wall. If the room is over 20-ft wide, ceiling sprinklers will be required.
2. *Deflectors* should be parallel to ceilings, pitched roofs, or incline of stairs; horizontal at peak of pitched roofs.
3. Clear space below deflectors—minimum 18 in.; increase to 3 ft for high piled storage (combustible material piled on pallets or racks over 12-ft high or closely packed piles in cartons, cases or bales over 15-ft high even when considered an ordinary hazard occupancy.)
4. *Maximum Protection Area* for any type construction—130 sq ft; decrease to 100 sq ft for high piled storage.
5. *Maximum Distance Between Sprinklers* on branch lines or between lines—15 ft. Decrease to 12 ft for high piled storage.
6. *Stagger* sprinklers on alternate lines if distance between sprinklers on branch lines exceeds 12 ft; also where wood or steel beams are spaced 3—7½ ft apart.
7. *Distance from Wall,* to end sprinklers—not greater than ½ distance between sprinklers on branch lines; to end branch lines—not greater than ½ distance between branch lines.
8. *Clearance Between Sprinklers and Obstructions*—Location of sprinkler should permit minimum interference with discharge pattern.

Location of Branch Lines
Related to spacing and types of structural members. Uniform spacing of lines is desirable. Direction in which branch lines are usually run is given in Table 3.

Sprinkler Alarms
A signalling device to indicate flow of water in sprinkler system equal to or greater than that of one automatic sprinkler. They should be installed where contents are susceptible to serious water damage and prompt discovery of fire is essential. They are recommended for all systems. The basic types are as follows:
1. A *local system* giving audible alarm signal on the premises. This may also be connected to the fire department alarm system.
2. A *proprietary system* of electrical circuits and devices transmitting signals to proper plant authorities for action. It requires constant attendance. It is desirable in large industrial properties and serves to supplement the usual watchman's service.
3. A *central station system* consisting of a protective service for sprinkler water flow alarms, air pressure in dry pipe systems, operation of sprinkler control valves, etc., designed to transmit coded signals to and record them in an approved central station having constant attendance. Desirable particularly in multi-tenanted properties. This system usually provides for regular maintenance and testing of the sprinkler system.

References
1. Associated Mutual Fire Insurance Companies, Engineering Division, Norwood, Mass.
Installing Sprinkler Equipment 1954; Rev. Part IV Sept. 1960.
Approved Equipment for Industrial Fire Protection 1960-61.
2. National Board of Fire Underwriters, New York, N. Y.
Standard No. 13 Sprinkler Systems, July 1960.
National Building Code, 1955 Edition.
3. National Fire Protection Association, Boston, Mass.
N. F. P. A Handbook of Fire Protection, 1954.
Standard No. 13, Installation of Sprinkler Systems.
Standard No. 13A, Sprinkler Systems, Care & Maintenance.
4. Underwriters Laboratories, Inc. Chicago, Ill.
Fire Protection Equipment List (Published Annually with Bi-Monthly Supplement)

TABLE 3: BRANCH LINES

Type of Ceiling	Location of Branch Lines
Smooth Continuous:	
Concrete mushroom	Either direction
Concrete pan or flat slab	Parallel to beams
Sheathed (ceiling attached to beams or joists)	
Girders beneath sheathing	Across beams or joists
No girders beneath sheathing	Whichever direction facilitates hanging
Bays more than 7½-ft wide	
Beams supported on columns	Parallel to beams
Beams on girders or trusses	Across beams or in bays above girders or trusses
Supported directly on girders	Parallel to girders
Supported directly on trusses	Parallel to or through trusses
Beam and Girder	
Wood or steel beams spaced 3 to 7½ ft apart	Across beams
Open Bar Joist or Light Steel Trusses	Across the joists or trusses and either through or under them
Open Joists (wood or concrete)	Across joists

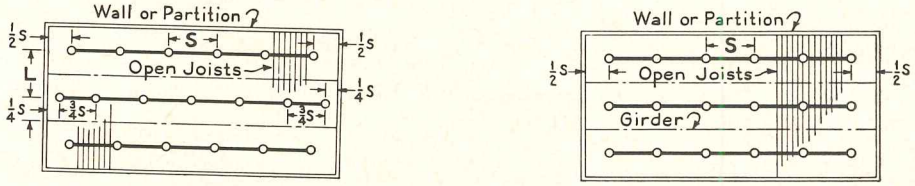
SPRINKLER SYSTEMS FOR FIRE PROTECTIONS: 4 *(Conclusion)*

by Howard P. Vermilya, A.I.A.

Fig. 2 SPRINKLER LAYOUTS

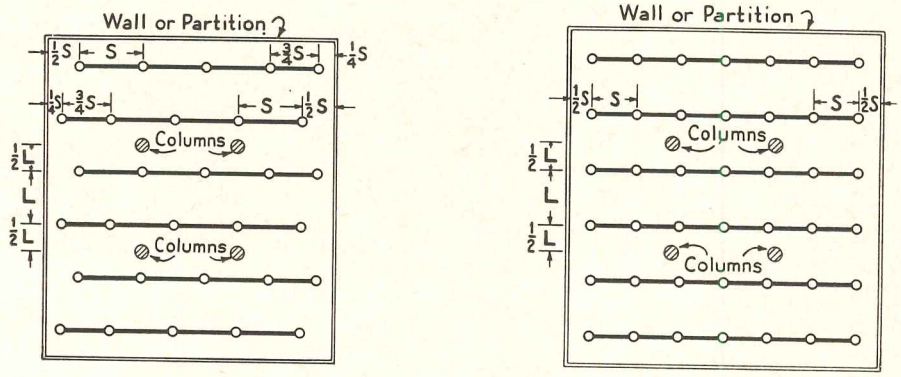
Notes:
1. L not over 15 ft; S not over 15 ft; L × S = 130 sq ft or less
2. Sprinklers on alternate lines are staggered when S is over 12 ft; also for beam and girder construction

Open Wood Joist Construction

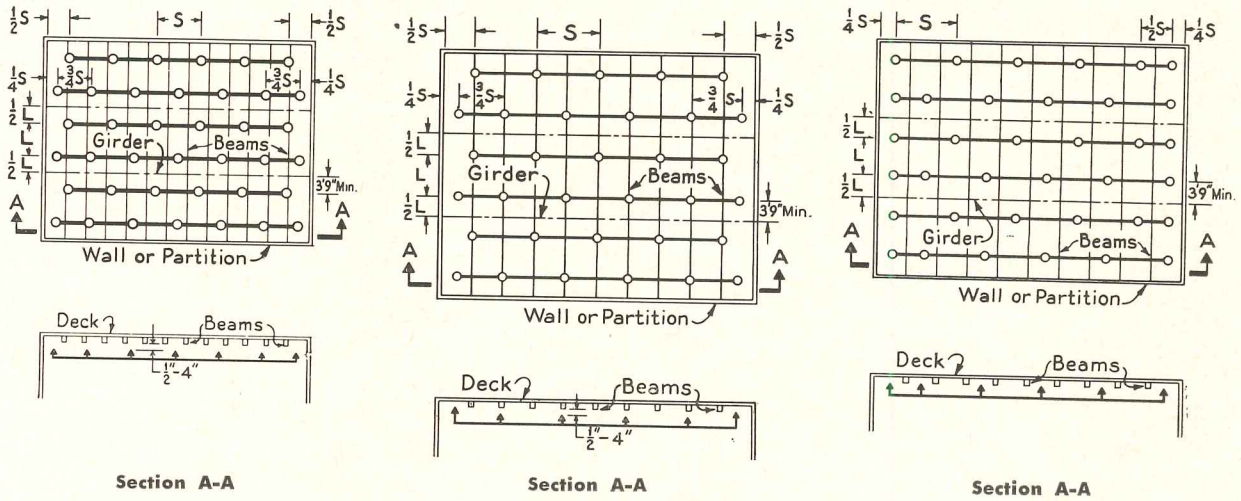


Where joists are framed into girders, the girders may be disregarded in the spacing of branch lines if they do not obstruct the sprinkler discharge pattern

Smooth Continuous Ceiling



Beam and Girder Construction



Section A-A

Sprinklers spaced without regard to beam spacing. Adaptable when sprinklers, located under beams or in bays, are at proper distances below beams and ceiling, and their discharge is unobstructed by beams.

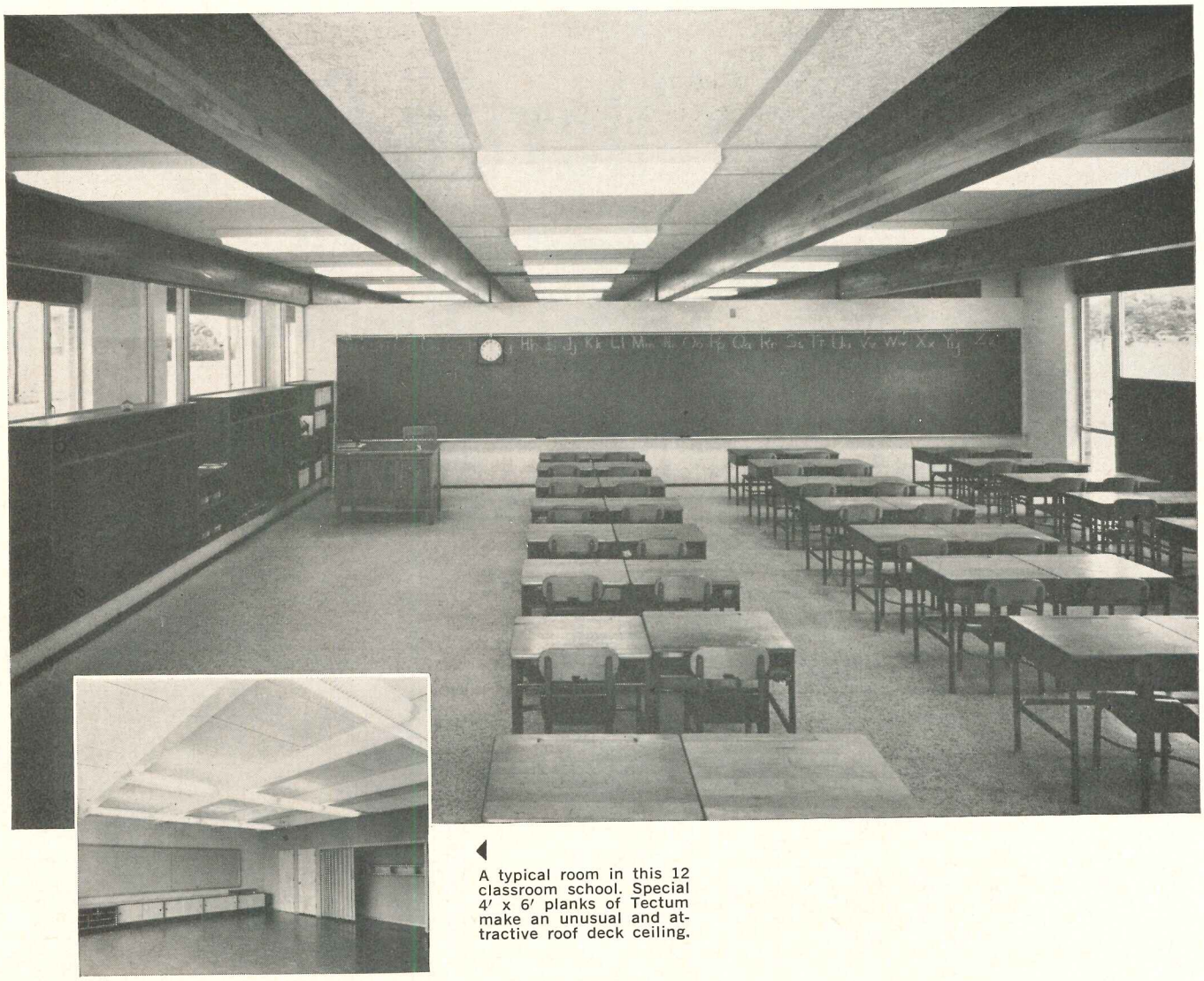
Section A-A

Adaptable when depth of beams is suitable for sprinklers to be placed under them.

Section A-A

Adaptable when beams permit unobstructed discharge from the sprinklers

Drawings from Installing Sprinkler Equipment, *Factory Mutual Engineering Division, Associated Factory Mutual Fire Insurance Companies.*



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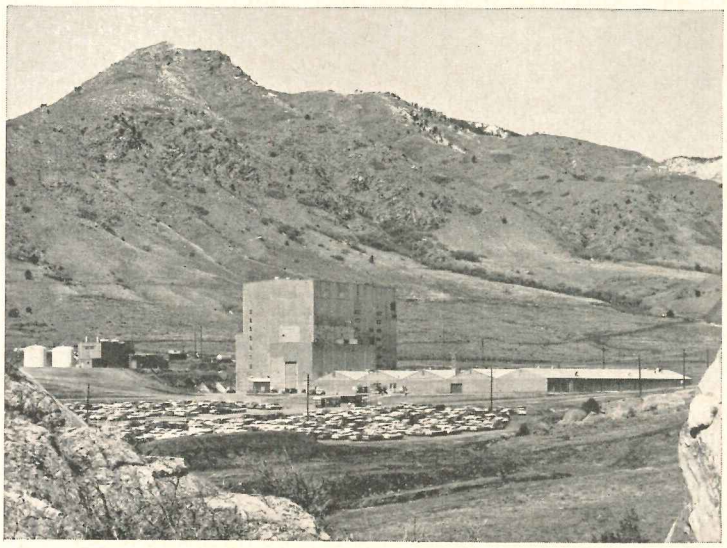
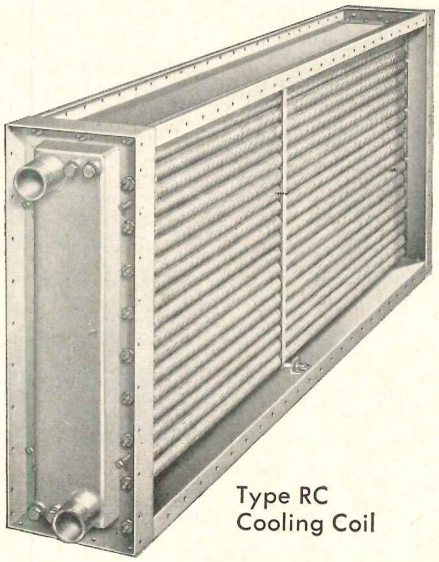


Architect
Phillips, Carter and Osborn
Denver

General Contractor
George A. Fuller Co.
New York

Mechanical Engineer
Marshall and Johnson
Denver

Mechanical Contractor
Paul Hardeman
Los Angeles



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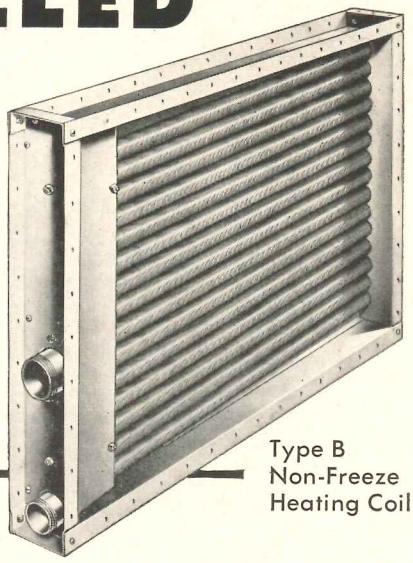

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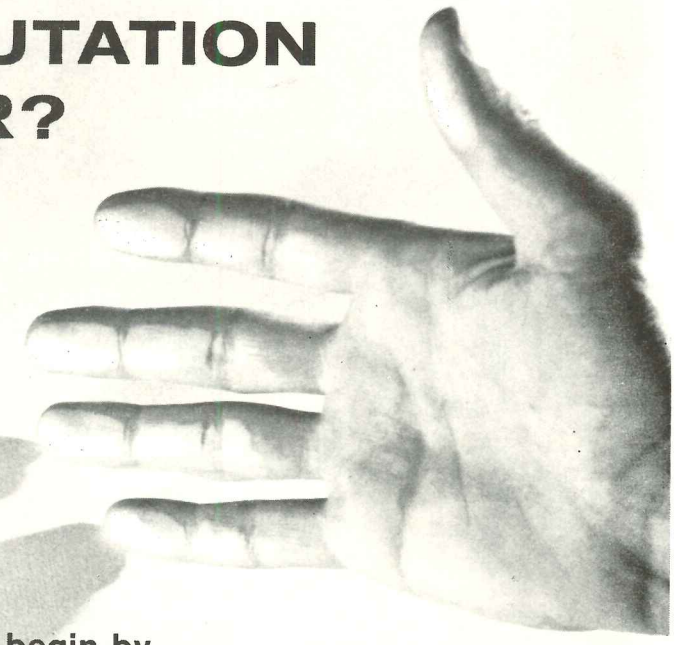

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WHAT ARCHITECTS WANT TO KNOW ABOUT BRONZE

by John M. Foehl, Development Engineer
Architectural Service Department, Anaconda American Brass Company

Part 1 of 2

Renewed interest in "bronze" as an architectural metal has prompted Anaconda American Brass Company to institute an educational program designed to give architects and engineers basic technical information on the architectural uses of copper and copper-base alloys. Since 1959, the program has included a series of meetings held in cooperation with local A.I.A. chapters across the country. Listed below, with answers by Anaconda's architectural experts, are thirty questions on design considerations, finishes, fabrication and costs that are repeatedly asked by architects and engineers.

DESIGN

1. We understand that architectural bronze, red brass and Muntz metal are the three most commonly used "yellow metals" in architectural designs. Why three?

In order to produce a complete range of materials for architectural use, three alloys—architectural bronze, red brass and Muntz metal—are required. Extruded shapes are fabricated from architectural bronze. Muntz metal and red brass are used for most sheet applications because of their good color match with architectural bronze. Tubular shapes cannot be extruded: they are supplied as a drawn product in red brass. Where all three metals are employed in an architectural composition, the red brass is given a bichromate dip in order to produce an acceptable color match.

2. What is the composition of silicon bronze? For what architectural applications is it recommended, and why?

Wrought silicon bronze used in architectural applications has a nominal composition of 95.8 per cent copper, 3.1 per cent silicon, and 1.1 per cent manganese. Although this material is frequently extruded into simple structural shapes (angles, channels, tees) it is most often employed architecturally in sheet form. It is selected primarily because of its rich, reddish old-gold color, and is used mainly in applications where its natural beauty can be emphasized. Fireplace hoods and wall paneling are often formed from silicon bronze sheet, and because of its relatively high strength and good working properties, silicon bronze strip has recently been roll-formed to produce window sash and frame members at lower cost than bronze extrusions.

3. If copper alloys are in contact with dissimilar metals, is there a problem of galvanic action? If so, how is it solved?

Under exterior conditions where moisture is present, copper alloys in contact with dissimilar metals higher in the electromotive series (for example iron, aluminum or zinc) may cause galvanic corrosion of the dissimilar metal. In most cases, the problem can be overcome by painting the contact surfaces with either an asphalt base or a zinc chromate primer.

4. Can bronze and aluminum or bronze and stainless steel be combined for either interior or exterior work?

Bronze and aluminum can be combined safely for interior work where moisture conditions are not prevalent. They should never be combined for exterior work, since severe corrosion and eventual failure of the aluminum as a result of galvanic action will occur under exterior exposure condi-

The Seagram Building, the first with a bronze curtain wall, typifies the renewed interest in copper metals. Archts: Mies van der Rohe, Philip Johnson; Associate Archts: Kahn & Jacobs

tions. As an example, the wash of copper salts from a copper valley is sufficient to eat out an aluminum gutter.

With stainless steel the situation is much less critical, but under exterior conditions it is wise to isolate the two metals with a good primer.

5. In wrapping a copper alloy metal around steel, is there any chance of galvanic corrosion?

The problem is not acute, but it is a good idea on all exterior work to paint the steel with either an asphalt base or zinc chromate primer to insure isolation of the two metals.

6. Can staining of masonry from bronze work be controlled?

Yes. Where the bronze work abuts light-colored masonry, a drip edge should be provided to conduct the wash from the bronze away from the face of the masonry. In the case of face-mounted bronze letters, tablets, and so forth, staining can be minimized by mounting the letters or tablets about ¾-in. from the face of the wall.

7. Are all the copper-alloy architectural metals available in all standard forms—sheet, rod, tubes, etc.?

No. For example, architectural bronze is available only in extruded shapes and rod. As mentioned before, Muntz metal sheet or red brass sheet and tube are used to complete an architectural composition which includes architectural bronze extrusions. A similar situation exists when nickel silver is incorporated in a design. Of the principal architectural metals, only copper and silicon bronze are produced in all forms. In both metals, however, extruded forms are limited to simple balanced shapes.

8. If a design incorporates rectangular or square tubes, angles, channels, bars and so forth, is there a wide range of standard sizes available?

A wide variety of standard shapes, both extruded and drawn, are available in the principal architectural metals, and can often be utilized almost exclusively in the development of original designs.

9. Is there a maximum size of extruded bronze shapes?

Extruded shapes are generally limited in maximum size to a cross section which can be enclosed within a circumscribed circle 6 in. in diameter. The largest shape extruded commercially is an I-beam with a maximum diagonal dimension of 7½ inches. A balanced cross section and a relatively heavy gage aid in the production of this shape.

10. Does bronze present the same problem of expansion and contraction as aluminum in panels and curtain walls?

In the design of all-metal curtain walls, regardless of the metal used, the panels should be able to expand and contract freely in order to avoid buckling or rippling of the metal. Because the yield strength of the copper alloys is, in most instances, higher than that of aluminum alloys used for similar applications, the copper alloys provide greater resistance to permanent deformation. Thus, the magnitude of the problem is reduced.

11. Has relatively thin-gage copper-alloy sheet metal been successfully bonded to steel, to plywood, to cement-asbestos board?

Yes. Copper-alloy sheet in gages up to .060 in. has been successfully bonded to sheet steel in order to provide increased rigidity. Electrosheet copper (.0028 in. to .0098 in. gage) has been laminated, with good results, to both plywood and cement-asbestos board. To insure good adhesion, the surface of the base material should be smooth and free of defects. In the case of cement-asbestos board, a micro-sanded finish is specified. Regardless of the backing material, the bonding is done under pressures approaching 1000 psi. Elevated temperatures may also be employed.

12. In using bronze castings with wrought bronze, how can we specify the casting composition to be sure of good color match?

If the casting alloy is specified as follows: copper 81 to 85 per cent, tin 2 to 3 per cent, lead 1.5 to 2.5 per cent, nickel 0.25 to 0.75 per cent, iron 0.35 per cent maximum, other elements 0.50 per cent maximum, zinc remainder, the color match with the wrought alloys should be acceptable.

FINISHES

13. Where would you use: (a) a polished finish, (b) a satin finish, (c) a scratch brush finish?

Because of the critical reflections produced by a polished surface, highly polished finishes in an architectural composition should be limited to highlights or used to accent small areas.

A satin finish is unquestionably the principal finish used on architectural metals. Its soft sheen is both pleasing to the eye and simple to maintain. It is used extensively on doors, windows, wall panels, and other applications which are close to the eye and thus undergo constant inspection.

A scratch brush finish is, like the polished finish, used chiefly as an accent.

14. Which material is best suited for exterior use from the standpoint of color and finish stability—Muntz metal or red brass?

Colorwise, for exterior use, red brass is favored over Muntz metal. Red brass, when allowed to weather naturally, attains a distinctive gray, blue-green patina. The Muntz metal on the other hand would tend to develop the characteristic deep gray-green patina associated with weathered statuary bronze.

Where color match is critical, Muntz metal in combination with architectural bronze would be best from the standpoint of color stability. Where protective coatings such as lacquers are applied, Muntz metal and red brass are equally stable.

15. What are your recommended specifications for developing an artificial patina on copper alloys? Also on pure copper such as roofing.

At present, two suggested methods for producing an artificial patina on copper have been published. These are commonly identified as the ammonium sulfate and the ammonium chloride processes. The *ammonium sulfate* process was developed during the 1930's in the laboratories of Anaconda American Brass Company. Frank Lloyd Wright employed the *ammonium chloride* process to produce the inital patina on much of the copper work incorporated in his designs. A third process utilizing a solution containing salts of arsenic and copper is proving successful, particularly in producing an artificial patina on weathered or oxidized copper.

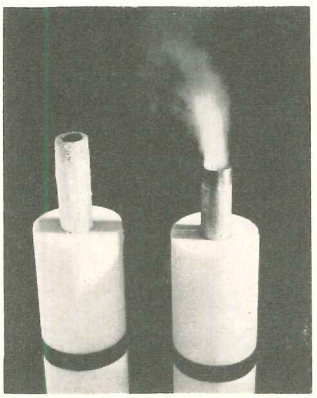
Red brass, architectural bronze, and Muntz metal may also be artificially patinated using the same procedures as outlined for copper.

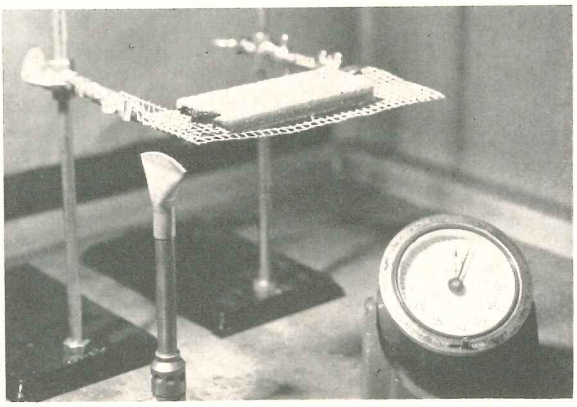
16. What effect does artificial coloring of bronze by acids have on the life of the metal?

The life of copper or copper alloys

continued on page 282

New Advances in Insulating Plastic Foams

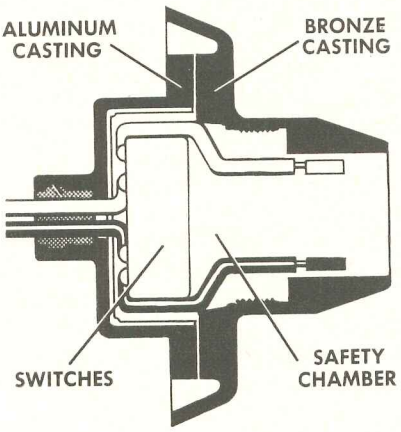




A new *Styrofoam* insulation board, which is self-extinguishing by ASTM D1692-59T (see photo far right), is expected to replace other forms of *Styrofoam* in many comfort and low temperature insulation applications. In addition to improved flame retardance, the new blue foam is said to exhibit better light stability and higher heat distortion than *Styrofoam 33*, Dow's previous flame-retardant polystyrene foam, which was sold at a slight premium. The new foam's properties and price will be competitive with "standard" *Styrofoam 22*. It will come in boards 9-ft long, 16-in. wide and 1, 1½, 2, 3 and 4-in. thick, and in the form of *Scorbord*, pre-scored perimeter insulation board. A 24-in. wide board will also be sold, but at a slightly higher cost.

A second recently-announced advance in insulating plastic foams is *Thurane*, a rigid urethane foam with high solvent resistance, high heat distortion, and low thermal conductivity. (The permanent "K" factor, its stability established by testing samples aged at 140F for more than 700 days, is .16 to .17 at 70F.) Because of this low thermal conductivity, thin sections of the new unicellular foam will provide the same thermal insulation as a greater thickness of conventional insulation. It can be used for both low and high temperature applications (see photo above), and has good resistance to water penetration and water vapor transmission. *Dow Chemical Co., Midland, Mich.*

Explosion-Proof Outlet and Plug for Hazardous Areas



Explosion and fire caused by sparks from electrical wiring devices can be prevented with a new *Hubbellock* plug-and-outlet that prevents arcing when connections are made or broken.

The plug is insulated with a self-hardening epoxy resin poured in when the cord is fastened to the terminals. Since the terminals and wires are thus embedded in a solid, watertight, vaportight mass, connections cannot loosen to cause sparking. And since no water can reach the wires or terminals, the plug and cord are impervious to moisture and can safely be washed when removed from the outlet.

The receptacle features a switch mechanism so keyed that electrical contact can be established only by the explosion-proof plug. The switches themselves are isolated in a safety chamber formed by the receptacle shell and a heavy casting.

The device is UL-approved for use in Class I, Group C and D, explosive atmospheres in industrial plants and hospital operating rooms. *Harvey Hubbell, Inc., Bridgeport 2, Conn.*

"Cook-It-Yourself" Electronic Cafeteria

Electronic ovens are whittling down in-plant feeding costs by making it possible for employers to provide a choice of three or four hot meals daily in a "cook-it-yourself" cafeteria with no kitchen, cooking utensils, or even steam tables.

Employees select from a refrigerated display case pre-cooked, frozen meals prepared by an outside commissary. The patron then places the meal on its disposable tray-dish into a *Radarange* microwave oven, and sets an automatic timer which has color-coded buttons to match the colored tape that seals the dinner into its transparent envelope. The average time required to heat a meal is about 60 seconds.

In addition to its obvious advantages to employees and cafeteria concessionaires, the "cook-it-yourself" system offers plant management reduced cafeteria space requirements, and reduced maintenance and utility costs. *Radarange Dept., Raytheon Co., Waltham 54, Mass.*

more products on page 236

Office Literature

Manual of Lathing and Plastering

by John R. Diehl, A. I. A., is perhaps the most definitive work on the subject to date. Topics covered include: basic plastering materials, lathing and preparation for plastering, the application of plaster, an analysis of the various wall and ceiling systems and assemblies, functions and quality of plaster work, economics of lath and plaster (with a basic cost index), acoustical and thermal characteristics, radiant heating, and fire resistance. Extensive photographs and detailed drawings, and more than 50 tables on such subjects as decibel ratings and fire ratings are also included. *Mr. John K. Buster, Executive Director, National Bureau for Lathing and Plastering, 2000 K St., N. W., Washington 6, D. C.*

Structural Aluminum Design

Hard cover edition includes tables of properties; applications and specifications; tables of maximum allowable stress values; high and low temperature properties; alloy data sheets; weight tables; and other pertinent information on load-carrying aluminum sections. 232 pp. *Reynolds Metals Co., Dept. PR-42, Richmond 18, Va.**

High-Strength Bolting

Fall-Winter issue of *Fasteners* is devoted to high-strength bolting; covers bolting practice in the field, a new redesigned bolt, examples of successful applications in structural erection, shop fabrication, and specifications for structural joints using ASTM A325 bolts. 40 pp., $1. *Industrial Fasteners Institute, 1517 Terminal Tower, Cleveland 13, Ohio*

Toilet Compartment Catalog

(A.I.A. 35-H-6) Presents illustrations, specifications and details on complete line of toilet compartments, hospital cubicles, dressing enclosures and urinal screens. No. TC-61, 16 pp. *Cutler Metal Products Co., Camden 3, N. J.**

Gabriel Loire Stained Glass

Illustrates designs in thick, sculptured colored glass set in reinforced concrete, executed by contemporary French stained glass artist Gabriel Loire. 20 pp. *Loire Imports, Inc., 150 East 35th St., New York 16, N. Y.*

Mercury Vapor Lamps

Describes, illustrates, and gives technical and photometric data on *Wide-Lite* line of mercury vapor lamps for interior and exterior use. *Wide-Lite Corp., 4114 Gulf Freeway, Houston, Texas*

Prestressed Roof Deck

(A.I.A. 4-K) Describes appearance of *Flex-Tee* prestressed, single stem roof deck; gives technical data on casting details, structural qualities and limits; describes placement; and shows representative uses of the member. 8 pp. *Flexforms, Inc., 1445 W. Quincy, Englewood, Colo.*

Mississippi Glass

(A.I.A. 26-A-3,5,6) Covers complete line of rolled, figured and wired glass, with pattern illustrations, light distribution charts and transmission data. Catalog 61-G, 20 pp. *Mississippi Glass Co., Dept. 7, 88 Angelica St., St. Louis 7, Mo.**

Standard Steel Specifications

Two new standard steel specifications, *Specification and Loading Tables for Open Web Steel Joists (Longspan or L-Series)* and *Specification for Architecturally Exposed Structural Steel,* have been released by the *American Institute of Steel Construction, 101 Park Ave., New York 17, N. Y.*

Operating Room Equipment

(A.I.A. 35-K-6) Catalogs, with illustrations and descriptions of construction features of each unit, a complete line of stainless steel operating room equipment. 20 pp. *S. Blickman, Inc., 536 Gregory Ave., Weehawken, N. J.*

Metal Curtain Wall Manual

Revised edition contains new sections on design principles, design data, testing, and installation in addition to updated reference standards and specifications. $3.50. *National Assn. of Architectural Metal Manufacturers, 228 N. LaSalle St., Chicago 1, Ill.*

Hot Water for Industrial Plants

Gives complete sizing data and installation instructions for water heating systems, and tips on estimating hot water requirements for plant cafeterias, laboratories, processes and lavatories. Specifications and application data on Smith line of industrial water heaters are also included. Manual CH-110, 100 pp. *Permaglas Div., A. O. Smith Corp., Kankakee, Ill.**

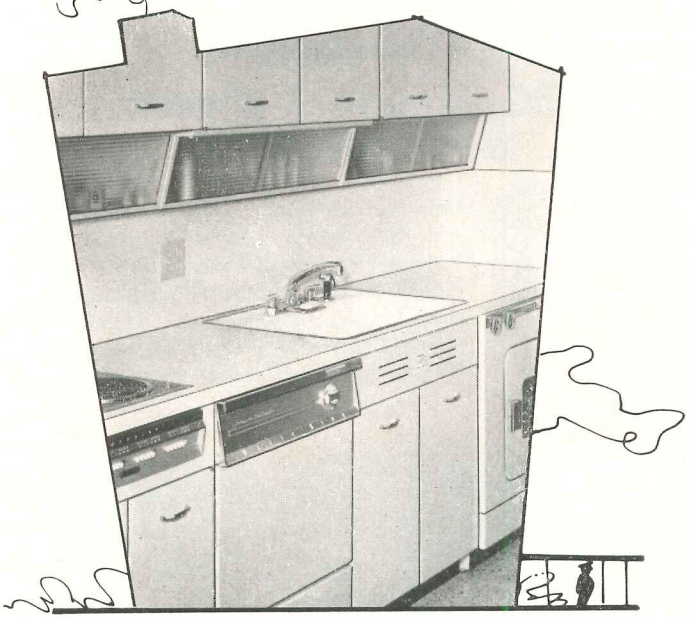
Terrazzo and Mosaics

(A.I.A. 23-E) Information kit gives data and specifications on standard terrazzo and mosaic, conductive terrazzo, outside terrazzo, monolithic terrazzo, terrazzo over radiant heating installations and terrazzo maintenance; information on divider strip location; methods of restoring conductive terrazzo; resiliency test findings; and an NTMA membership list. *National Terrazzo and Mosaic Association, 2000 K St., N.W., Washington 6, D. C.*

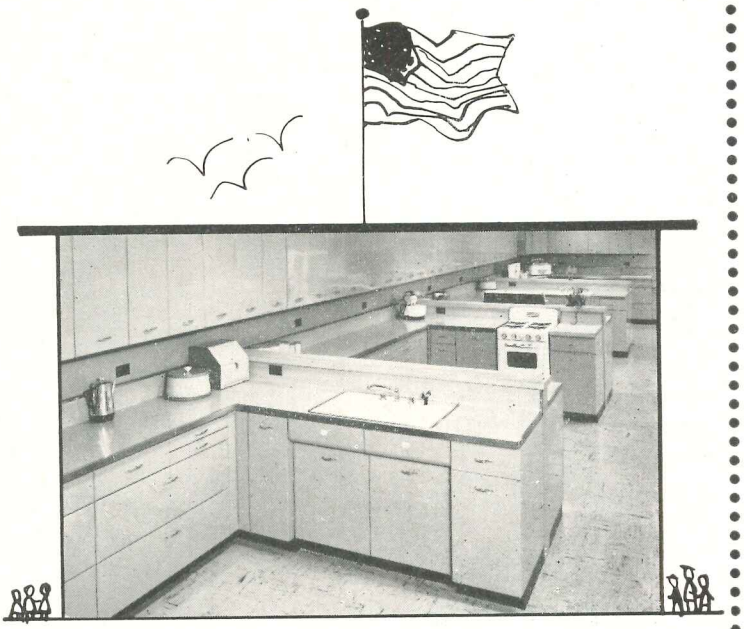
**Additional product information in Sweets Architectural File*

more literature on page 270

APARTMENTS

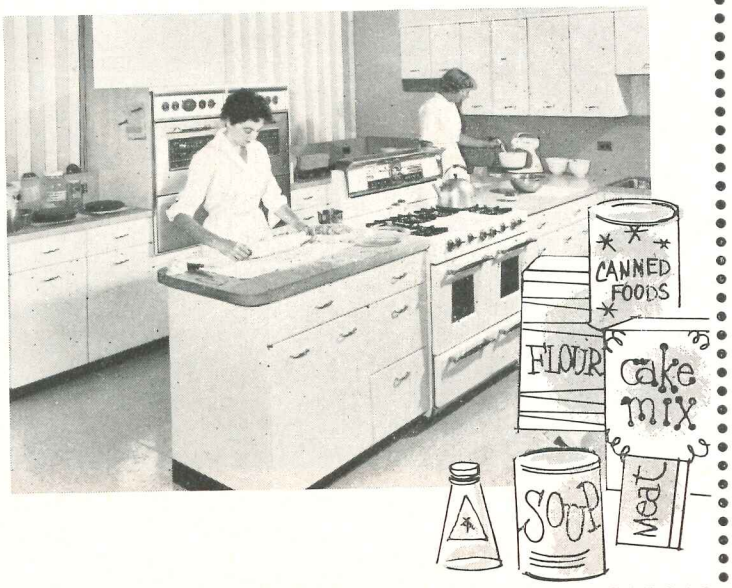


SCHOOLS



CHURCHES

COMMERCIAL



WHATEVER YOUR CABINET OR CASEWORK REQUIREMENTS...

SPECIFY GENEVA QUALITY

APARTMENTS . . . Owners and managers find Geneva kitchens mean better rents, lower maintenance, lasting beauty.

SCHOOLS . . . Geneva's line of cabinets for Home Arts, Food Laboratories and Arts and Crafts departments permit greater latitude in layout, offer the most advanced design ideas.

CHURCHES . . . A kitchen is basic to the needs of the modern church and Geneva cabinets receive high preference.

COMMERCIAL . . . Test kitchens, laboratories, executive kitchens, efficiency kitchens for the "coffee break" are only a few of the growing applications for Geneva cabinets in business.

For sound counsel on problems of casework layout and installation, consult your Geneva distributor or write the factory.

Geneva KITCHENS

GENEVA MODERN KITCHENS
DIVISION OF ACME STEEL CO.
Geneva, Illinois

GENEVA MODERN KITCHENS
Dept. AR-2-61 Geneva, Illinois

Please send Geneva literature, including specifications covering the following:

☐ Apartments ☐ Schools ☐ Churches ☐ Commercial

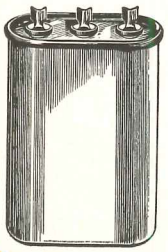
Name_____

Address_____

City_____ State_____

Another **NEW** General Electric Ballast Development . . .

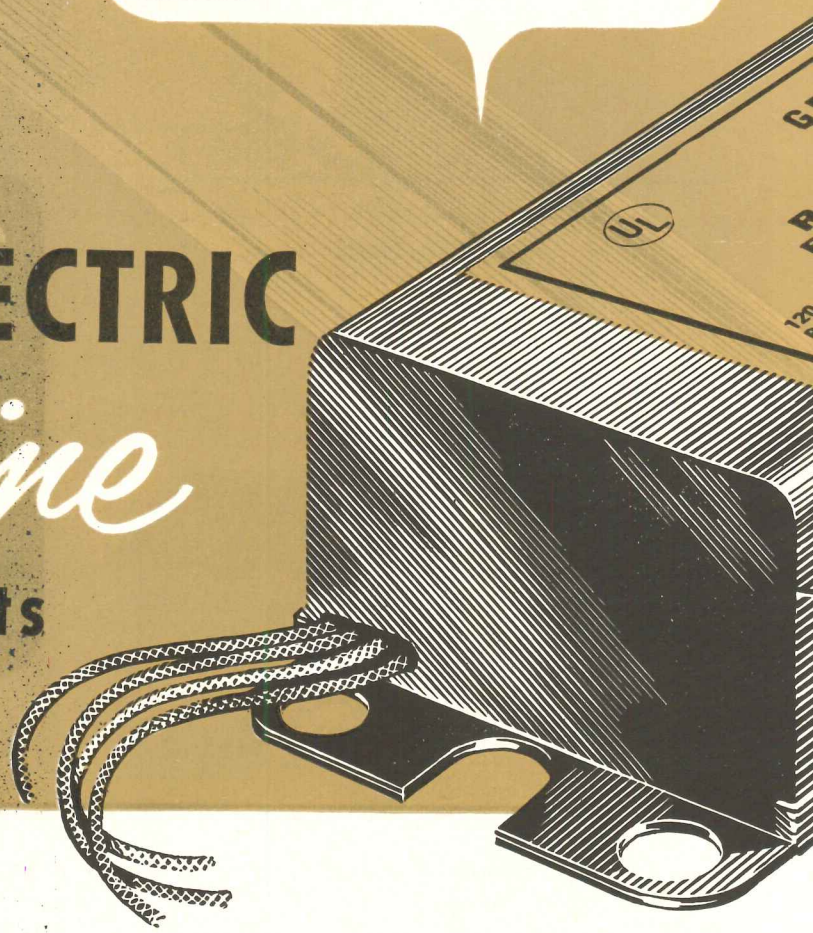
THIS CAPACITOR IS DESIGNED TO PREVENT RUPTURE!



New Thermal Link deep within capacitor roll protects against excessive internal temperatures which may cause rupture of the capacitor case. Also, a new bushing assembly acts as an effective barrier to seal against bushing seepage. Result: longer ballast life.

Introducing

NEW GENERAL ELECTRIC *Bonus Line* Fluorescent Ballasts



DESIGNED TO...

- eliminate hazards to people and property
- eliminate need for individual ballast fusing
- eliminate leakage
- provide longer ballast life
- be interchangeable with standard models

WITH NO SACRIFICE IN SOUND PERFORMANCE!

Another **NEW** General Electric Ballast Development . . . **SPECIAL THERMAL PROTECTOR** makes ballasts safer than ever before!

Unique Thermal Protector is designed to de-energize the ballast *permanently* at end-of-life failure, preventing compound softening and eliminating ballast leakage. This assures full-life protection against hazards to people or property.

General Electric proudly announces new Bonus Line fluorescent ballasts, designed to offer you—for the first time—full protection against the hazards sometimes associated with ballast end-of-life failure.

This new ballast design, *available in most popular ratings for indoor commercial and industrial applications,* features two outstanding new General Electric developments that make it safer than standard ballast designs:

1. A new Thermal Protector has been developed and tested for several years in General Electric laboratories. The Thermal Protector de-energizes the ballast before it reaches the critical internal temperatures at end of life that cause ballast filling compound to soften or melt. This non-resetting Thermal Protector completely eliminates any need for individual ballast fusing.
2. A newly developed, two-way improved General Electric capacitor features a unique Thermal Link designed to overcome capacitor rupture and leakage which sometimes occur at end of life. Also, the new capacitor has a new bushing assembly which contributes to longer ballast life.

New Bonus Line ballasts are dimensionally, thermally, and electrically interchangeable with standard General Electric ballasts of same ratings. They meet—*and, in certain respects, exceed*—all appropriate industry standards. And you get all these ballast added values without sacrifice in sound performance. General Electric ballasts are still the quietest ballasts available!

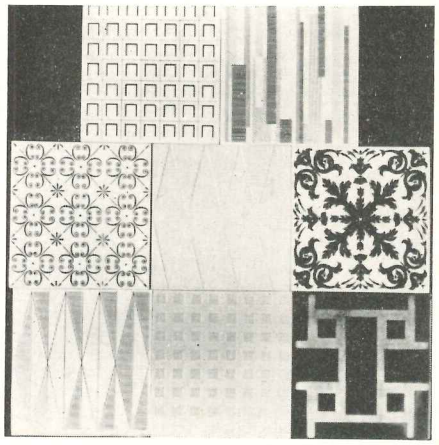
In short, new G-E Bonus Line ballasts give you added years of safe, reliable, quiet performance. They're engineered to eliminate leakage, smoke—even the more violent conditions which sometimes occur at end of normal ballast life.

Your General Electric ballast sales engineer will be proud to give you full information on new G-E Bonus Line ballasts for your lighting applications. Contact your nearby G-E sales office or write for Bulletin GEA-6912 to Section 403-01, General Electric Co., Danville, Illinois.

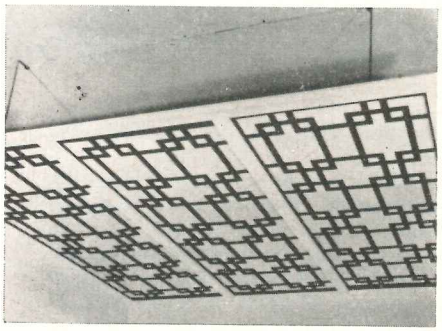
Progress Is Our Most Important Product

GENERAL ELECTRIC

continued from page 231



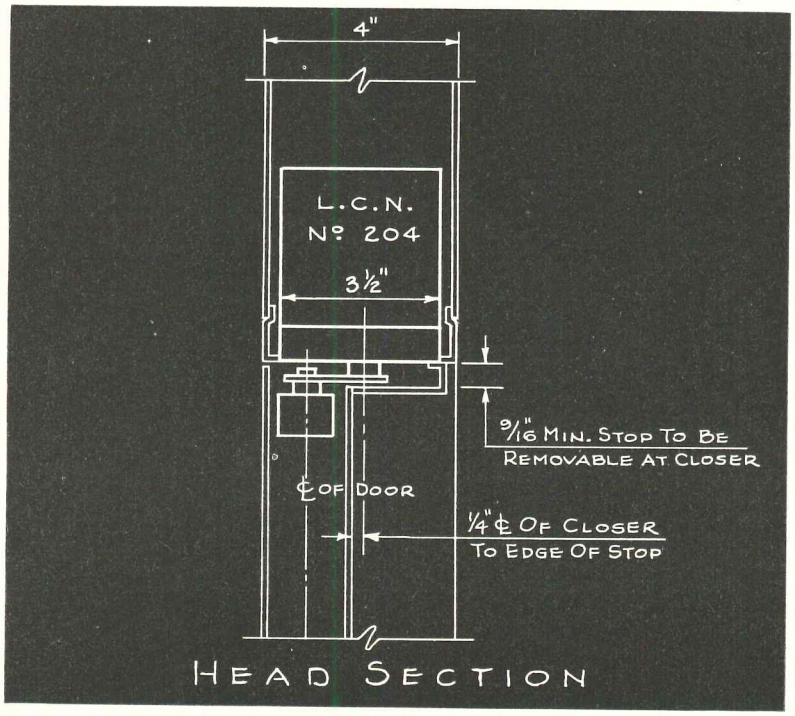
Italian Wall and Floor Tile
A complete line of ceramic wall and floor tiles, made by Richard-Ginori of Milan and now being distributed in this country at prices competitive with conventional tile, includes embossed glazed tiles, and hand screen-printed glazed and matte tiles and special panels. The embossed tiles feature subtle "architectural" patterns and transparent colors; the printed tiles, screen-printed under glaze and hand-blocked, feature a variety of patterns in permanent colors and finish. The special panels are "mural prints" made up of hand-painted, hand-finished tiles. *Theodore Bialek & Co., Inc., 350 Fifth Ave., New York 1, N. Y.*



Decorative Luminous Ceiling
A new decorative treatment for luminous ceilings consists of a grid suspended from "sky hooks," and *Ply-Grilles* made up of wooden grills backed by plastic. The grill is installed by screwing the "sky hooks" into transverse moldings, nailing the other end of the sky hook directly into the ceiling beams, and dropping longitudinal sections of molding into the transverse grid members. The *Ply-Grilles,* which come in 15½-in. widths and 23½, 48 or 72-in. lengths, are then set in place above the completed grid. They may be suspended from 1 to 7 in., depending on the type of lamps used. *Jaffre Products Co., 189 First St., Brooklyn 15, N. Y.*

Compact Diesel Electric Sets
Three new *Cat* diesel electric sets offer high standby generating capacity for emergency power supplies from a small package. A turbocharger, standard equipment on all three models, increases power output, and to pull still more horsepower from the same package, the engines are also available with optional aftercoolers. Smallest of the three new "compacts" is the D320 Series A, which measures 40 in. long by 28 in. wide by 35 in. high and produces 50KW. The larger models are the 70KW D330 which measures 45 by 31 by 39 in., and the 100KW D333 which measures 58 by 31 by 39 in. *Engine Div., Caterpillar Tractor Co., Peoria, Ill.*

more products on page 244



CONSTRUCTION DETAILS
for LCN Overhead Concealed Door Closer Shown on Opposite Page

The LCN Series 200 Closer's Main Points:

1. Efficient, full rack-and-pinion, two-speed control of the door
2. Mechanism entirely concealed; arm disappears into door stop on closing
3. Hydraulic back-check prevents door's being thrown open violently to damage walls, furniture, door, hinges, etc. Door may open 180°, jamb permitting
4. Hold-open (optional) set at any one of following points: 85°, 90°, 100° or 110°
5. Easy to regulate without removing any part
6. Used with either wood or metal doors and frames

Complete Catalog on Request—No Obligation
or See Sweet's 1961, Sec. 18e/Lc

LCN CLOSERS, INC., PRINCETON, ILLINOIS
Canada: LCN Closers of Canada, Ltd., P.O. Box 100, Port Credit, Ontario

Modern Door Control by

LCN

Closer Concealed in Head Frame

GREAT LAKES REGIONAL SALES HEADQUARTERS BUILDING, REYNOLDS METALS COMPANY DETROIT, MICHIGAN

Minoru Yamasaki & Associates, *Architects*

LCN CLOSERS, INC., PRINCETON, ILLINOIS

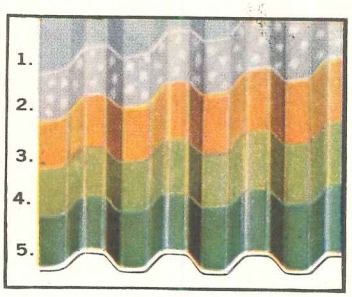
Construction Details on Opposite Page

Get two-way corrosion resistance plus great

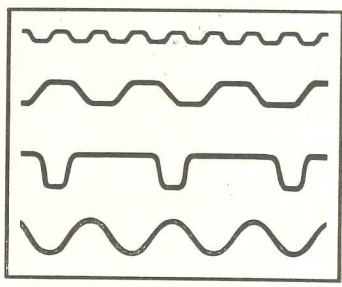
VIN-COR...new vinyl protecte

Granco Vin-Cor is a new concept in protected metal —corrugated steel panels protected on both sides by a generous galvanized coating, plus a tough three-coat vinyl finish. *Permanent protection* against weathering and corrosive atmospheres. *Permanent color* proved by Weatherometer tests. Vin-Cor's durable vinyl surface requires no maintenance. Won't craze, chip or peel. The zinc coating provides important secondary galvanic protection when Vin-Cor is drilled or cut.

Granco Vin-Cor is made from tough-temper steel. Strong. You can specify lighter gages than ordinarily required or use fewer supports. Reduce costs. Vin-Cor is classified noncombustible by NFPA Std. No. 220.



FOUR INDEPENDENT CORROSION-RESISTANT COATINGS
1. Steel • 2. Zinc • 3. Prime Coat
4. Vinyl Coat • 5. Vinyl Finish Coat



WIDE VARIETY OF PATTERNS AND GAGES IN ANY LENGTH TO 12′ 0″

Granco Vin-Cor is available in the widest variety of beautiful, nonfade colors ever offered in a protected metal. Furthermore, you can have a different color on opposite sides of the Vin-Cor panel!

ength, beauty and economy with...

alvanized steel panels

VIN-COR

VINYL PROTECTED STEEL PANELS

The new protected metal for industrial and commercial construction—siding, roofing, insulated wall panels, fascia, canopies and other applications.

FROM THE GRANCO® FAMILY

Cofar®
Corruform®
Tufcor®
Roof Deck
Utility Deck
Structur-Acoustic
Stay-In-Place Bridge Forms
Guard Rail
Pavement Joints

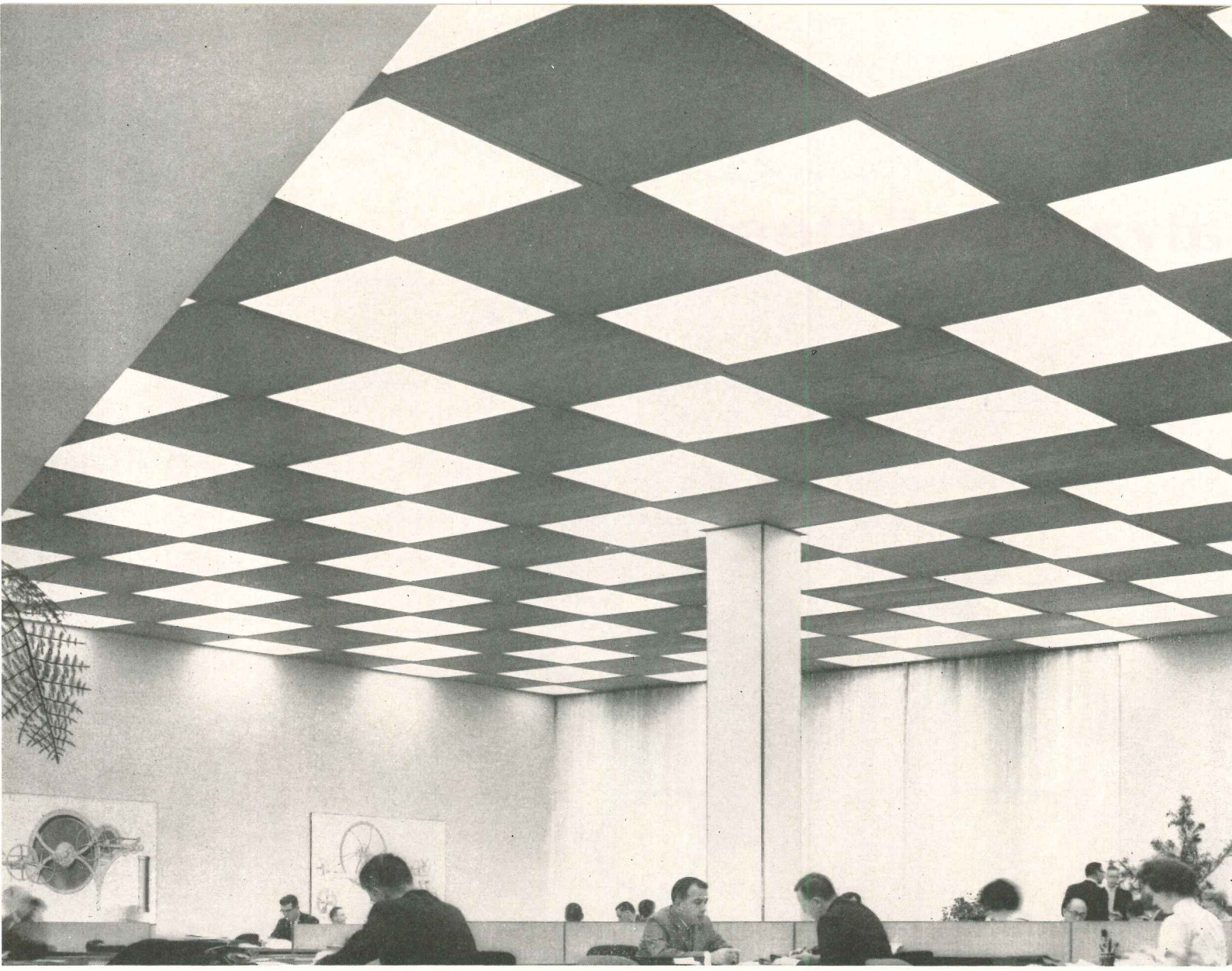
Galvanized Steel

GRANCO STEEL PRODUCTS COMPANY
6506 N. Broadway, St. Louis 15, Missouri
A Subsidiary of GRANITE CITY STEEL COMPANY

MAIL FOR VIN-COR MANUAL . . . Just sign coupon . . . clip to your company letterhead . . . mail today. Attn.: Dept. R-13.

NAME_____

OUR CATALOGS ARE FILED IN SWEET'S!



"We expect these diffusers cast of Du Pont MONOCITE* to keep their beauty for the life of the fixtures"

Lighting shield panels made by
THE POLYCAST CORP.
Stamford, Conn.

The Deering Milliken Building, 1045 Sixth Ave., New York City. Architects: Carson & Lundin, New York City. Fixture manufacturer: The Frink Corp., Brooklyn, N. Y. Installation: Eastern States Electrical Contractors, Inc., New York, N.Y.

Says Roy Duncan, superintendent of New York's new Deering Milliken Building. "The assignment was to get the 'most exciting ceiling in New York' for our first three floors. So the architects designed the checkerboard layout and specified diffusers that are cast from Du Pont MONOCITE.

"These panels were selected because they diffuse the light perfectly, maintaining maximum efficiency for years. They disguise the presence of fluorescent tubes and can be used in larger areas than other types.

"Also, they're extremely durable and easily cleaned, which keeps our maintenance problems at a minimum. We expect these diffusers**, cast by The Polycast Corp. of Stamford, Conn., to last the life of the fixtures. It's obvious why we recommend them highly."

It will pay you to find out how Du Pont's customers are using Du Pont MONOCITE to produce lighting-fixture shields that will give you outstanding service with a minimum of maintenance. For more information, write: E. I. du Pont de Nemours & Co. (Inc.), Dept. AR-3, Room 2507M, Nemours Bldg., Wilmington 98, Delaware.

Trademark for Du Pont's methacrylate monomer
***Flat Polycast acrylic sheets*

POLYCHEMICALS DEPARTMENT

DU PONT
REG. U. S. PAT. OFF.

Better Things for Better Living . . . through Chemistry

PELLA PRODUCTS THE FOCAL POINT OF QUALITY

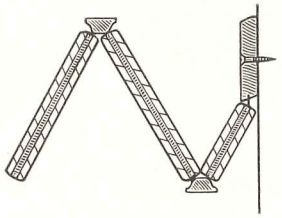
CAPITOL PARK APARTMENTS

ARCHITECT: SATTERLEE & SMITH

Pella® wood folding doors

provide space division with "tenant appeal"

Prospective tenants welcome the textural warmth PELLA WOOD FOLDING DOORS impart to brick, tile, glass and plaster surfaces. Installed as space dividers in apartments, motels and hotels, these fine doors combine privacy-at-will with the natural beauty of 6 rich wood veneers. You may specify PELLA FOLDING DOORS factory finished or unfinished. Patented "live action" steel spring hinging assures dependable, effortless operation for even the largest units. Solid wood "Lamicor" construction prevents warping. Available for any width and in heights up to 12′ 1″, PELLA WOOD FOLDING DOORS arrive factory assembled. Full specifications can be found in Sweet's Architectural Catalogs. Consult the classified telephone directory for name of your nearest U.S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.

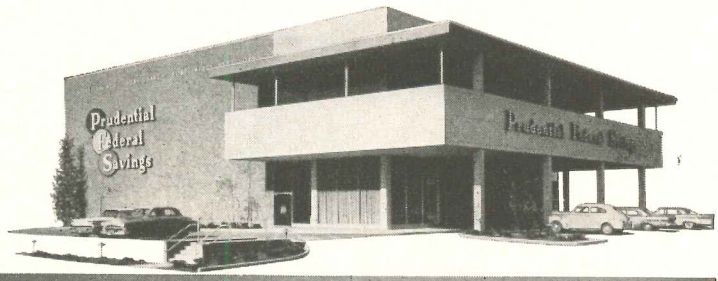


SPECIAL ALLOY STEEL spring hinges run horizontally and are spaced 14-7/10″ apart. Panels come together quietly, flat and compact.

6 FINE WOOD VENEERS • AMERICAN WALNUT • PHILIPPINE MAHOGANY • WHITE ASH • BIRCH • OAK • PINE

PELLA ALSO MAKES QUALITY WOOD FOLDING PARTITIONS, CASEMENT AND MULTI-PURPOSE WINDOWS, ROLSCREENS AND WOOD SLIDING GLASS DOORS

Design for beauty and utility with an eye to economy, too...



A typical recessed cabinet is this handsome model in 22 gauge, satin-finished stainless steel. It has continuous piano hinges, tumbler locks and ample storage space.

Specify Continuous Cloth Towel Cabinets

Cloth towel cabinets add smartness to this washroom in the newly-built Prudential Federal Savings Building, Salt Lake City. Architect: Cunneen Co., Philadelphia, Pa. Service is by American Linen Supply Co.

Check the benefits your clients get when your design includes cloth towel cabinets in all washrooms.

- ☐ An end to litter, storage and disposal problems.
- ☐ Reduced maintenance and janitorial costs.
- ☐ Fewer plumbing repairs.
- ☐ Elimination of fire hazard.

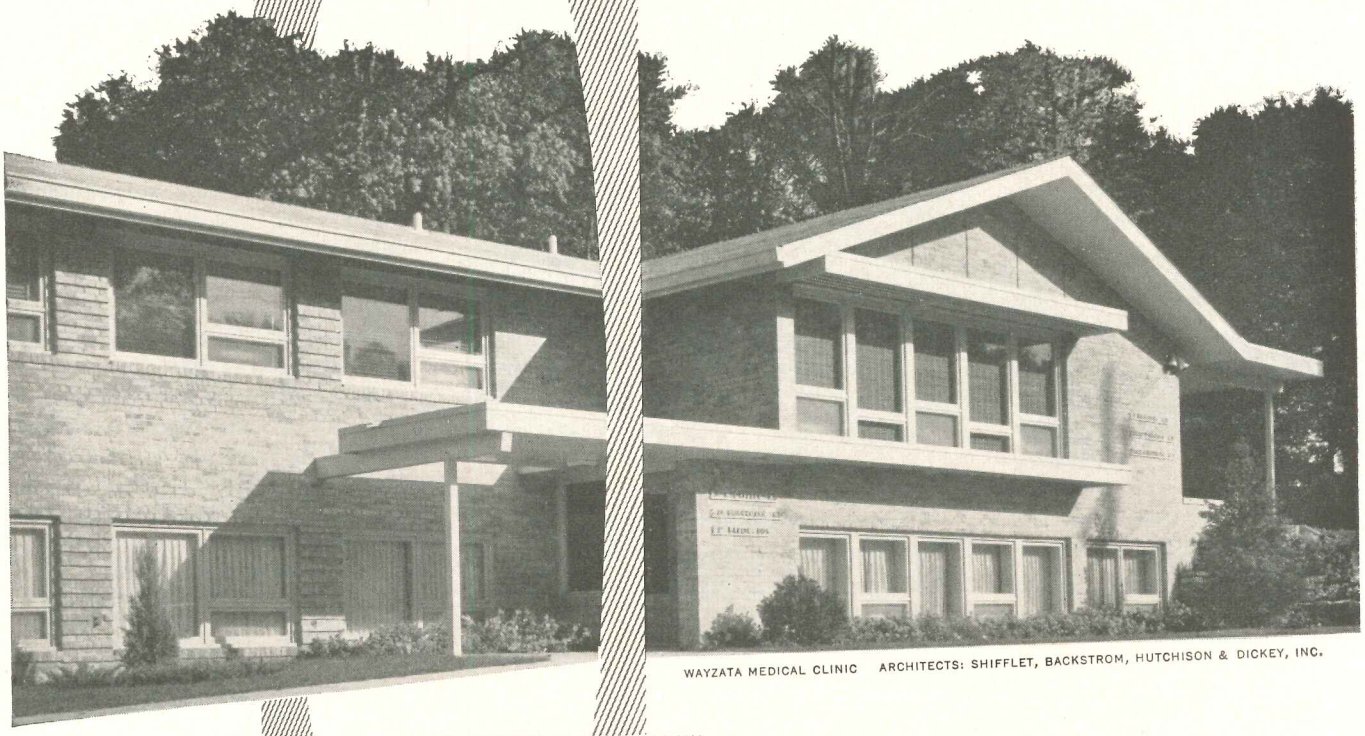
One of your local Linen Suppliers will gladly install and service these units at modest cost. And, from then on, each washroom will be kept supplied with fresh, clean cotton toweling automatically. And, remember—your specification does not obligate your client to any particular service.

For complete information, write to Linen Supply Association on your letterhead for this free Planning-for-Cloth Kit. Fully illustrated, it includes specifications for all continuous cloth towel cabinets.

Linen Supply Association of America
and National Cotton Council • 22 West Monroe Street, Chicago 3

PELLA PRODUCTS

THE FOCAL POINT OF QUALITY



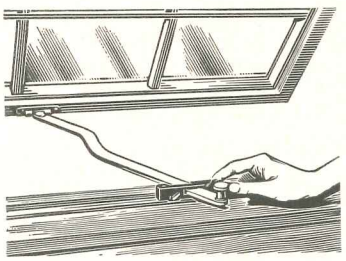
WAYZATA MEDICAL CLINIC ARCHITECTS: SHIFFLET, BACKSTROM, HUTCHISON & DICKEY, INC.

Pella®

wood multi-purpose windows

set residential tone for clinic

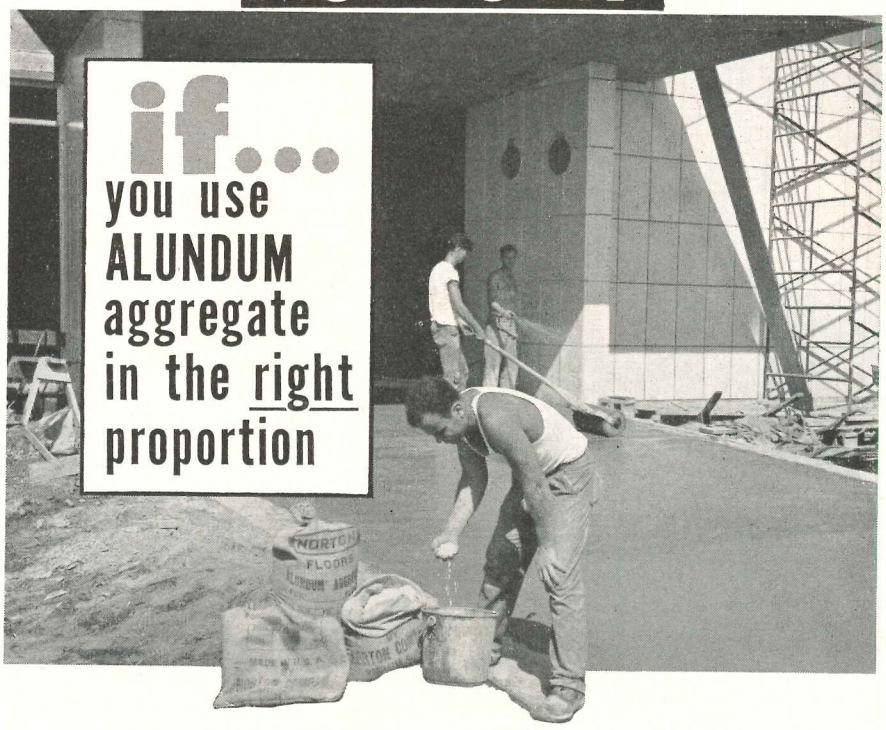
PELLA WOOD MULTI-PURPOSE WINDOWS present interesting solutions to the problem of integrating a commercial building within a residential neighborhood. The nicely proportioned wood frames harmonize easily with both natural environment and other construction materials. For planning flexibility, PELLA offers a range of 15 vent or fixed sizes and 5 fixed picture sizes. WOOD M-P WINDOWS may be arranged as awning, hopper or casement units. For user convenience, screens and storm panels are self-storing. PELLA also offers WOOD TWINLITE® WINDOWS, which combine vent utility with the traditional double-hung look. Full specifications in SWEET'S or consult your classified telephone directory for the name of the nearest U. S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.



UNDERSCREEN OPERATOR
is of extruded aluminum. Exclusive nylon GLIDE-LOCK® permits locking M-P window in 10 positions.

PELLA ALSO MAKES QUALITY WOOD CASEMENT WINDOWS, WOOD FOLDING DOORS AND PARTITIONS, ROLSCREENS AND WOOD SLIDING GLASS DOORS

terrazzo can be NON-SLIP WET or DRY...

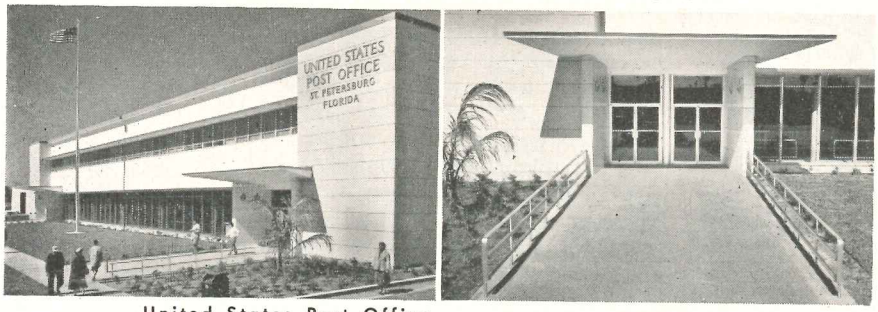


In many locations, the use of regular terrazzo for floors, stairs and ramps is impractical because water or other liquids may cause the walking surface to become slippery and dangerous.

But you can safely use terrazzo indoors or out — and at the same time provide permanent walking safety — by specifying an ample quantity of Norton ALUNDUM Aggregate in the terrazzo mix. The resulting surface is non-slip, wet or dry, retains its initial beauty indefinitely and is exceptionally resistant to wear.

To be sure that full non-slip effectiveness is obtained the architect should — *and this is important* — require the contractor to install the *specified* quantity of ALUNDUM Aggregate and to expose it properly and uniformly in the surface.

Full specifications in Norton pages in SWEET'S or on request from us or from the National Terrazzo and Mosaic Association, Washington, D. C.



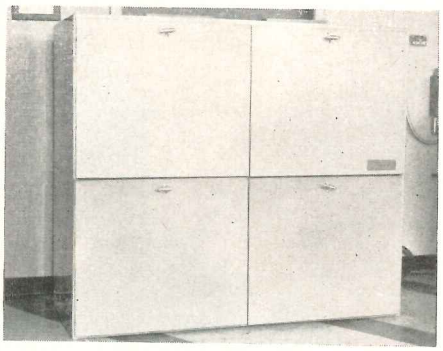
United States Post Office
St. Petersburg, Florida

NORTON COMPANY
WORCESTER 6, MASS.

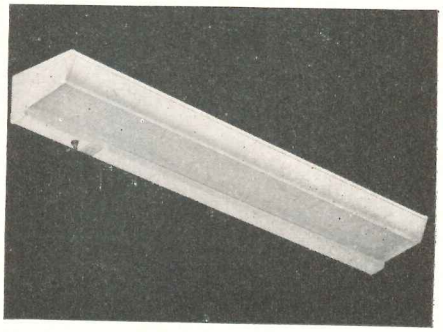
NORTON
NON-SLIP FLOORS

ALUNDUM AGGREGATE for Terrazzo and Cement • ALUNDUM STAIR and FLOOR TILE
ALUNDUM and CRYSTOLON Non-slip Abrasives

Product Reports



Solar-Earth Source Heat Pump
The *Wether-Bee*, a solar-earth heat pump, uses two heat collecting and dissipating coils; one in the earth and one exposed to air. During the summer, heat is removed from the occupied space and stored in the ground until needed during colder weather. Excess Btu's from winter sunlight are also stored underground for cloudy days or extreme temperature drops. The heat pump can be installed in an up-right, counterflow or horizontal position in a utility room, closet or basement. *Heat Pump Systems, Inc., 232 South River St., Aurora, Ill.*



Roof-Mounted Heating-Cooling Unit
Atmos-Pak, a pre-built heating and cooling unit designed for roof-top installation on large area one-story buildings, adds ceiling height by eliminating the clutter of ducts, pipes and other mechanical equipment. Because they can be placed wherever needed and come in several capacities, the units also give good uniformity or spot area control. They are quickly installed by making only three on-site connections, and additional units can easily be added as needed for plant expansion. *Air-Conditioning, Inc., 88 North Highland Ave., Ossining, N. Y.*

more products on page 252

PELLA PRODUCTS THE FOCAL POINT OF QUALITY

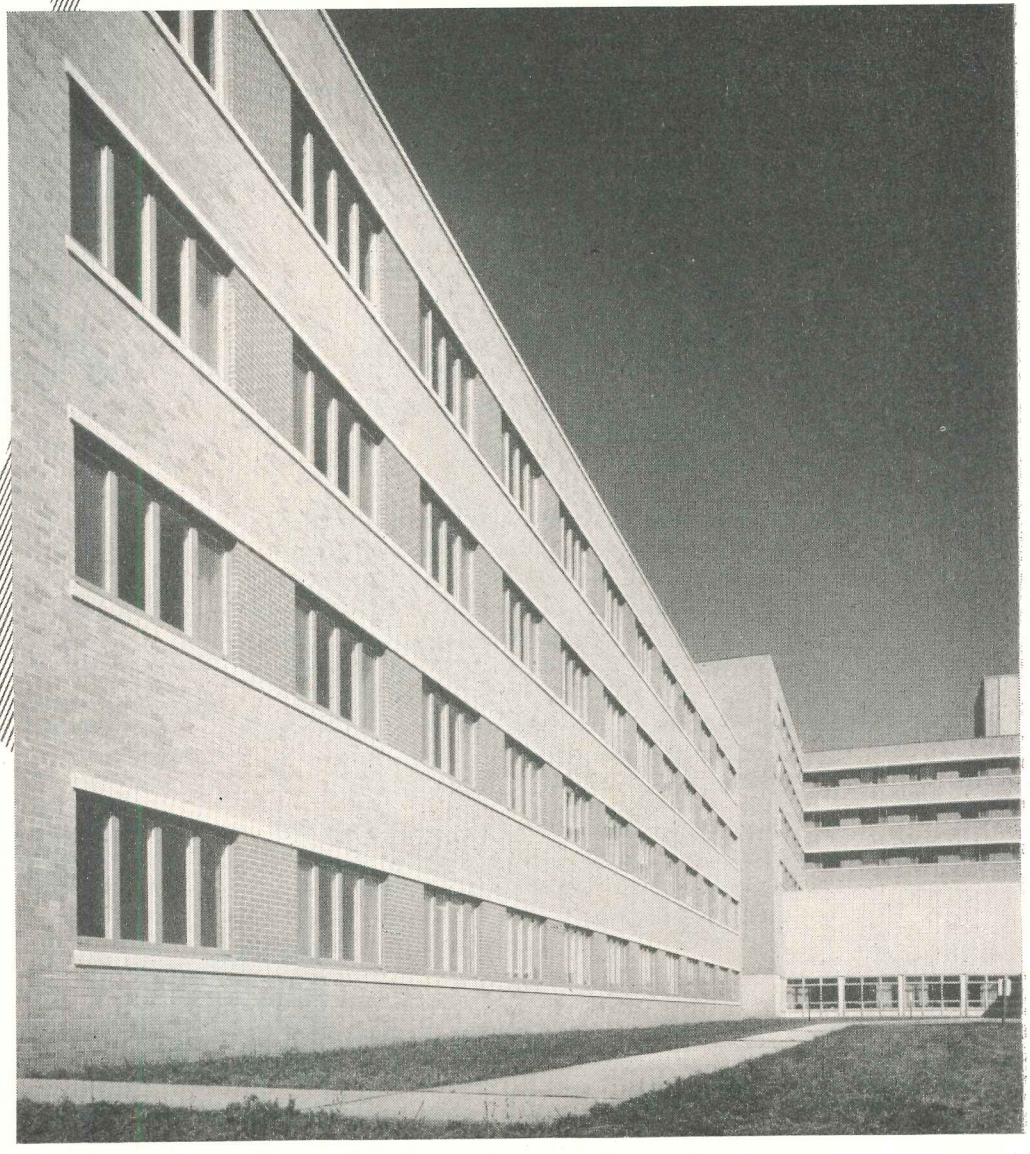
Pella®

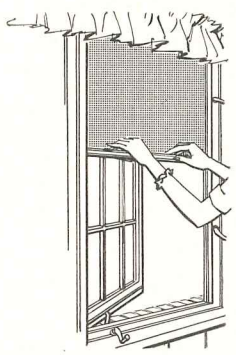
wood casement windows

help you cut your clients' costs

Self-storing ROLSCREENS and storm panels on PELLA CASEMENTS provide a substantial savings in maintenance for large buildings. Seasonal labor is reduced. Valuable storage space is saved. Wood is still recognized as the best insulating material to surround glass, and the wood in PELLA WINDOWS helps to minimize heat losses. To meet your requirements for good design in fenestration, PELLA WOOD CASEMENTS come in 18 standard ventilating units up to 24″x68″ glass size and 60 fixed unit sizes. Full specifications in SWEET'S or consult the classified telephone directory for the name of the nearest U. S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.

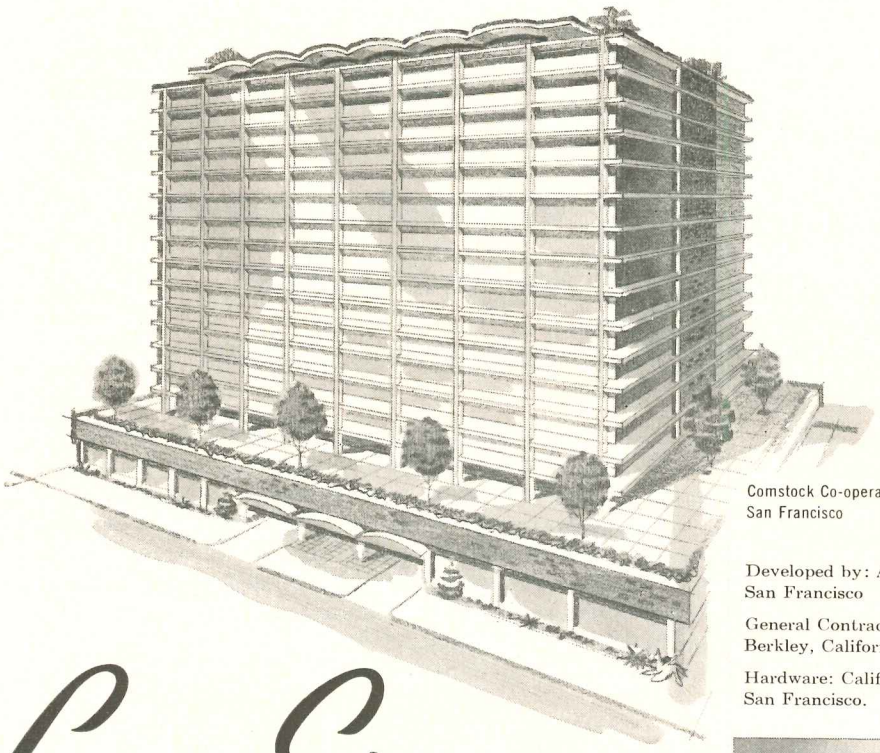
ASBURY METHODIST HOSPITAL NURSES HOME • McENARY & KRAFT-ELLERBE & COMPANY, ASSOCIATED ARCHITECTS





INSTANT SCREENS describes famous ROL-SCREEN®... the inside screen that rolls down, rolls up and out of sight.

PELLA ALSO MAKES QUALITY WOOD MULTI-PURPOSE WINDOWS, WOOD FOLDING DOORS AND PARTITIONS, ROLSCREENS AND WOOD SLIDING GLASS DOORS.



Comstock Co-operative Apartment
San Francisco

Developed by: ALBERT-LOVETT CO., San Francisco

General Contractor: The Pacific Co., Berkley, California.

Hardware: California Builders Hdwe Co., San Francisco.

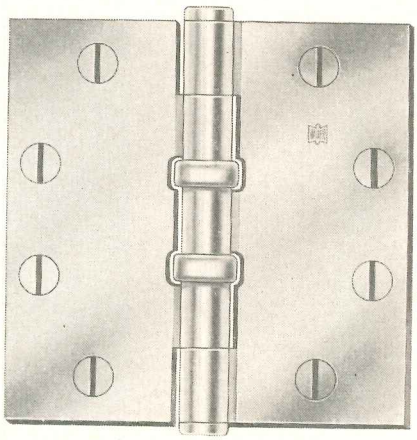
HAGER *Luma-Sheen* FINISH
T. M. REG.

SELECTED FOR NOB HILL $8,000,000 APARTMENT

- **largest, most lavish co-operative apartment west of Chicago**
- **occupying an entire square block on plush San Francisco Nob Hill**
- **LUMA-SHEEN will add the finishing touch of refinement to the Comstock's elegant decor.**

Initiated with the largest loan in San Francisco building history . . . 16 levels . . . 193 apartments, almost all of them balconied with panoramic vistas to the Golden Gate, San Francisco Bay and wooded hills beyond . . . a garden-lobby with porte-cochere . . . a tree-shaded garden sundeck high above city streets . . . all possible mechanical and personal conveniences . . . five penthouses surrounded by five tree-shaded terraces. This is luxury where EVERYTHING HINGES ON HAGER!

Hager LUMA-SHEEN hinges are specified. The original *permanized* aluminum-colored finish, that matches perfectly the modern aluminum door hardware and trim.



Luma-Sheen **finish Available...on Brass or Steel Butts—Specify LS**

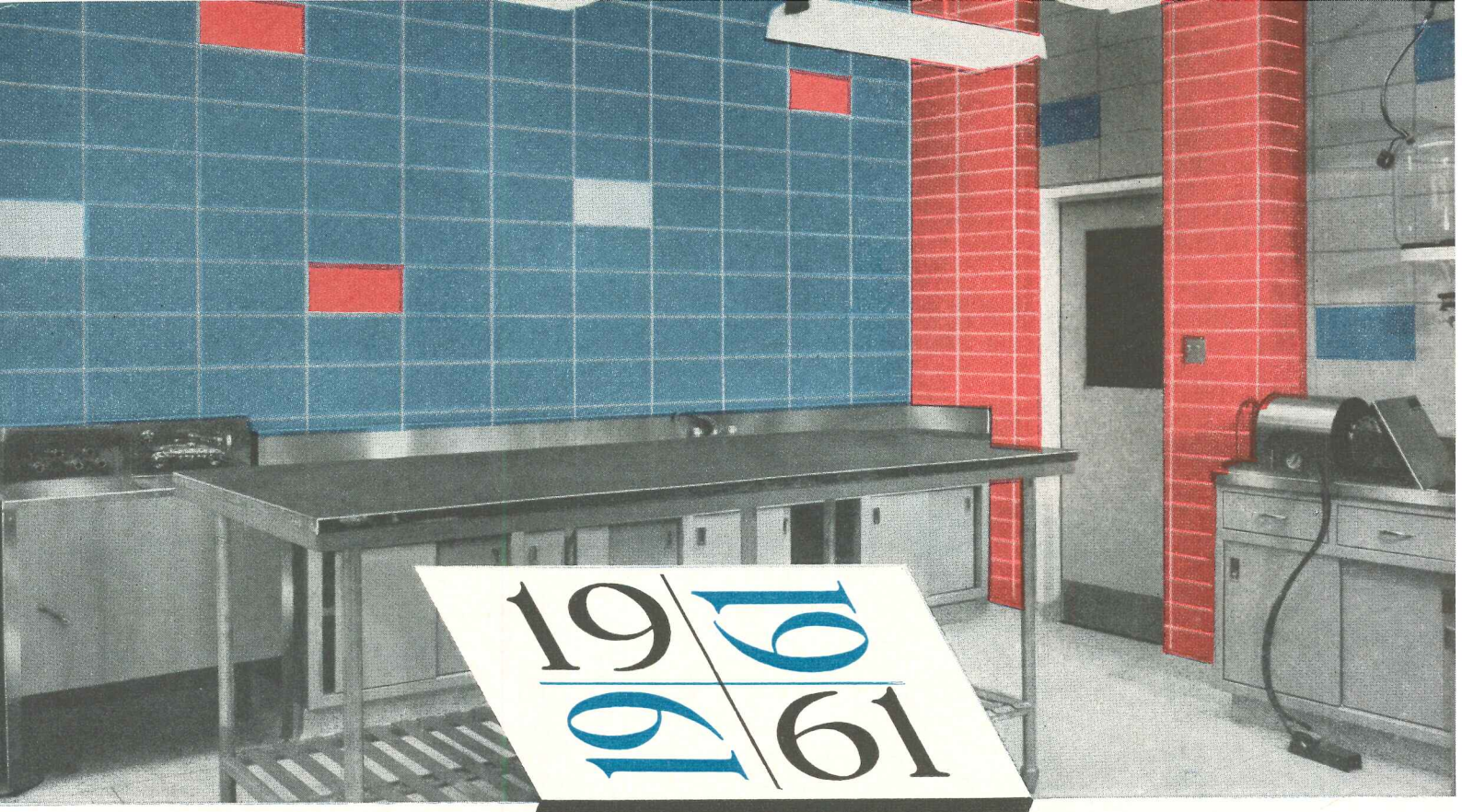
Comstock recognition of the beauty and permanence of LUMA-SHEEN finish, caps the climax of 6 years of nation-wide acceptance.

Its electrolytic finish has the true aluminum color . . . *permanized*. It's been proved in practically every conceivable situation.

When you want it to stand up to the test of time—specify Hager LUMA-SHEEN (symbol LS) on that next job!

Hager
EVERYTHING HINGES ON *Hager!* ®

C. HAGER & SONS HINGE MANUFACTURING COMPANY, ST. LOUIS 4, MO.
IN CANADA • HAGER HINGE CANADA LIMITED, KITCHENER, ONTARIO.



1961

Put COLOR in WALLS . . . not on them!

18 standard and 26 accent colors of SPECTRA-GLAZE on standard concrete block shapes give you the most economical method of building beauty and permanence into your walls. The aesthetic touch of random patterns or murals go into the wall as it's laid, whether partition or loadbearing. The new ⅛″ thick face, resulting from 12 years of Burns & Russell research, retains its colorful and maintenance-free properties from the satin surface deep into pores of the block.

To designers, this combination of properties means:

PERMANENCE Precise face exceeds staining requirements of ASTM-C-126, and is so hard it can be used on floors.

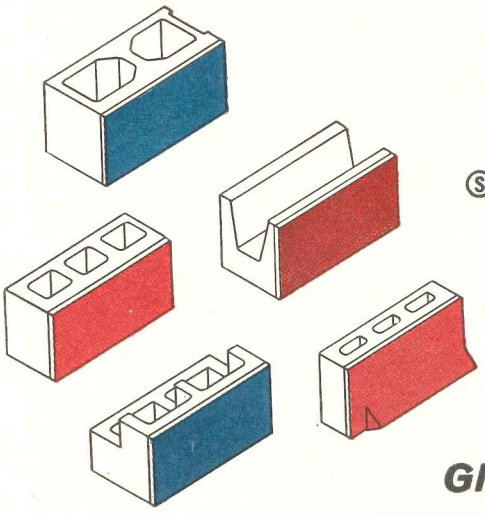
BEAUTY 44 colors; **only** ¼″ exposed mortar joints.

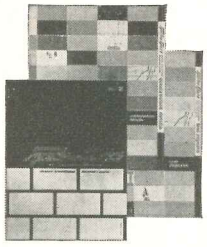
ECONOMY 25% lower in-the-wall cost of concrete block shapes under other glazed masonry.

VERSATILITY modular dimensions; many standard shapes, some of which are shown below; thicknesses 2″ to 12″ for partitions and loadbearing walls without back-up.

AVAILABILITY 27 licensed manufacturers with distributors in principal metropolitan areas.

Ⓢ **See SWEET'S CATALOG 4g/Bu for color chart and other details, or write for "Construction Details" and "Test Reports".**





New 1961

Spectra-Glaze*

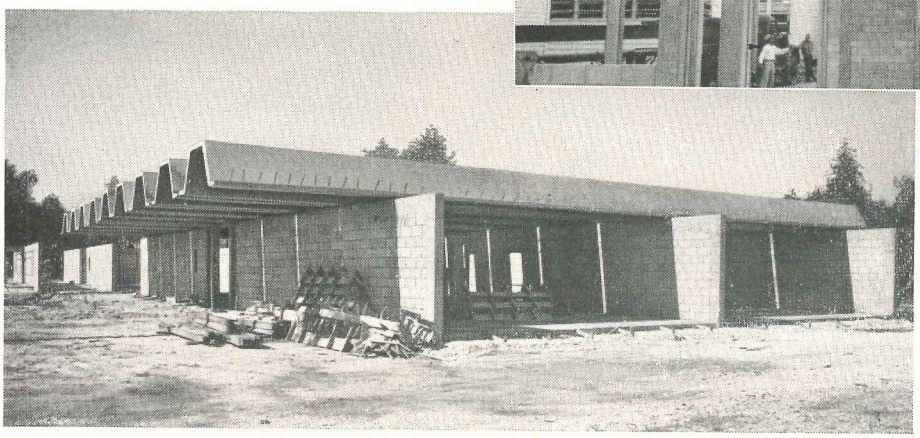
Glazed concrete masonry units

* Registered trademark for the product of THE BURNS & RUSSELL COMPANY Box 6063, Baltimore 31, Maryland

THE BURNS & RUSSELL COMPANY, Box 6063, Baltimore 31, Maryland

Manufactured in 27 cities and distributed throughout the U. S., Canada and England

Concrete folded plates in new Florida school



Folded concrete plates were tied to precast columns by welded connections. Cast-in-place concrete between plates made a continuous rigid roof. Columns were anchored to foundations by bolted connections.

There are 90 folded plates. Each is 72′ long 9′ wide and 3″ thick. Depth of plate is 34″. There are 116 precast columns. Each is 9½″ x 9½″ x 11′-0″. The total roof area is approximately 60,000 sq. ft. covering 40 classrooms and additional special rooms.

. . . FUNCTIONAL, ECONOMICAL, APPEALING

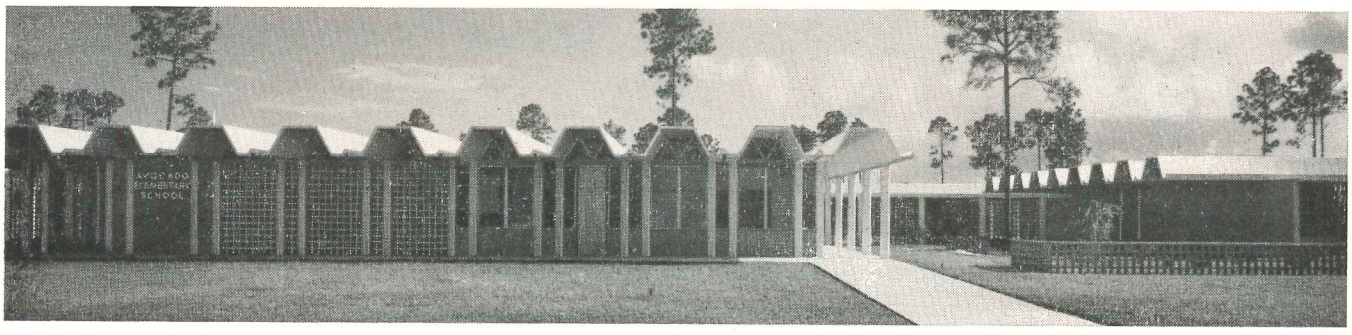
Precast concrete folded plates gave the State of Florida something new in school construction. The simplicity of this pleasing geometric concrete design made it possible to complete the project in the 10 months allowed and to stay within the school district budget. The result is a sturdy fireproof structure for some 600 pupils, that will require little or no maintenance.

In the manufacture of the precast folded plates and supporting columns, Concrete Structures, Inc. used Lehigh Early Strength Cement for maximum production efficiency. Units were removed and forms were ready for reuse in less than half the time required with normal cement.

For modern concrete construction, either precast or cast-in-place, chances are Lehigh Early Strength Cement can save time and money.
Lehigh Portland Cement Company, Allentown, Pa.

Owner: Dade County Board of Public Instruction
Architects: Robert B. Browne
George F. Reed, Associate
Design Engineer: Walter C. Harry
Consulting Engineer: H. J. Ross Associates
Contractor: Stobs Brothers Construction Co.
All of Miami, Florida
Precast Concrete: Concrete Structures, Inc., North Miami, Florida

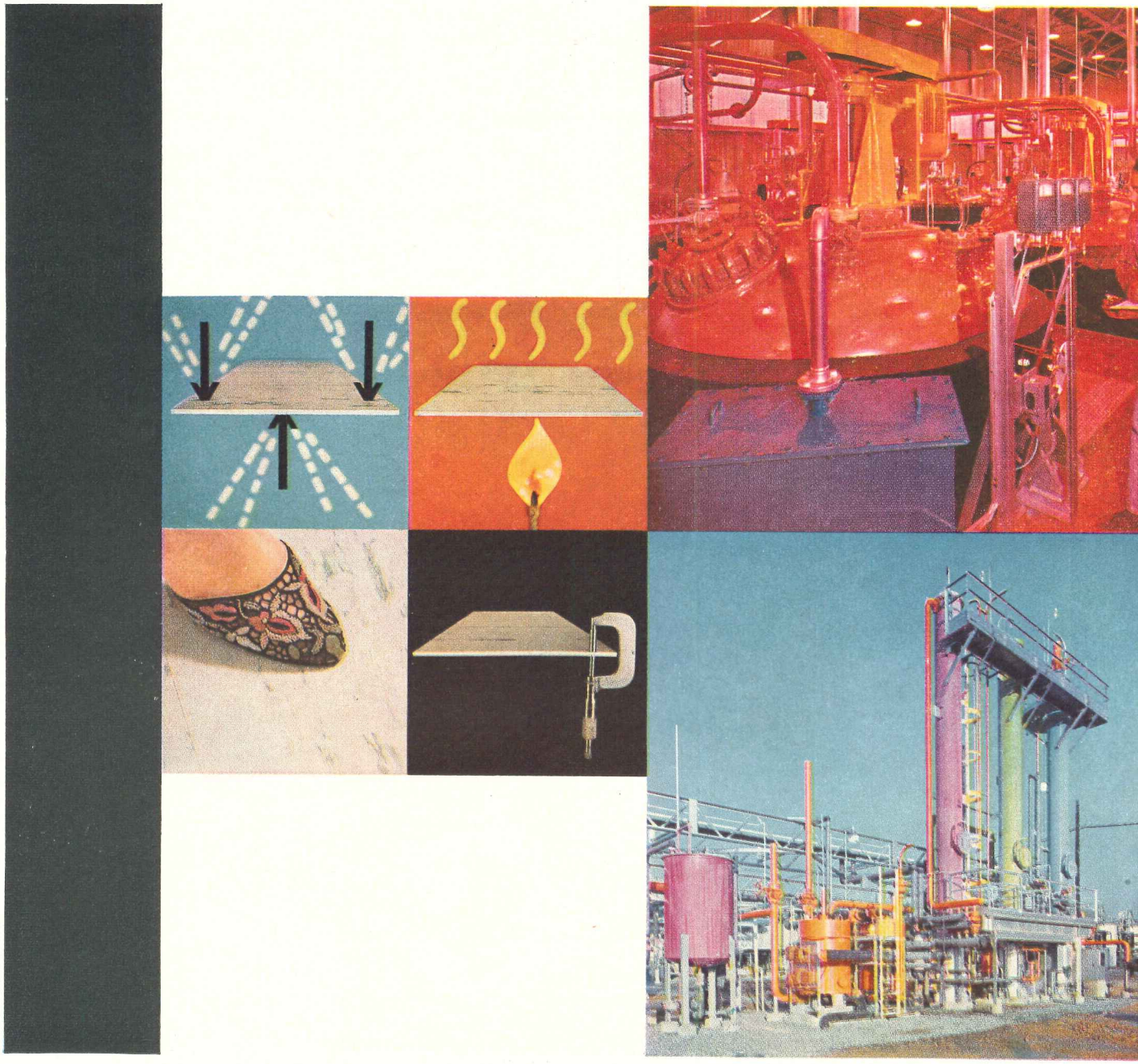
LEHIGH CEMENTS



Announcing the
breakthrough in
floor tile that
will shake
the flooring world...
now there is
no "or equal"

Turn the page...

Through Research...A Technological Triumph...



Matico Polymerite™...A New Concept in Floor Tile

***GREASE RESISTANT...STAIN RESISTANT... FLAME RETARDANT...PRICED COMPETITIVELY**

From an intensive program of research and development, Matico now proceeds to change all existing concepts of flooring with a tile that is years ahead of its time. Matico Polymerite Floor Tile has the characteristics of the finest floor tile—all at a remarkably low cost! Wears up to twice as long as asphalt tile too!

This astonishingly low-cost, easily-maintained tile resists grease and stain, and is flame-retardant. It has optimum flexibility, maximum uniformity, gauge control and appears in 32 vibrantly alive colors, every hue of which is under the most rigid technological control.

Now the sky is the limit on flooring specifications at astonishingly ground-level cost. Matico Polymerite Floor Tile finally opens the door to superlative flooring for every application. Be sure that you get the specifications on Matico's Polymerite Floor Tile right away. Your Matico representative can furnish them. Or, write today.

*Matico Polymerite Tile conforms to Fed. Spec. SS-T-306b for Asphalt Tile and SS-T-307, Grease Resistant, Asphalt Tile; and the flame retardant qualities of Military Specification MIL-T-18830 (Ships).

MATICO
FLOOR TILE
A QUALITY PRODUCT OF
RUBEROID®
The RUBEROID Co., New York 36, N. Y.

12 REASONS...

. . . WHY IT PAYS YOU TO SPECIFY CINCINNATI CLOCK AND PROGRAM SYSTEMS

Only Cincinnati Time Recorder offers you all these features. It pays to compare . . . but it pays more to specify Cincinnati Clock and Program Systems because you get:

1. Time Systems covering any group of requirements . . . from basic clock and program control through the most exacting control, signalling and communications requirements.

2. Simplified program setting . . . push a roller on a pin. Both are re-useable and require no tools or special skills.

3. Minute-to-minute programming . . . individually calendared program circuits, with single knob control.

4. Entire system may be controlled or synchronized to exact time from the master unit.

5. Automatic hourly clock supervision . . . up to 58 minutes slow and 57 minutes fast . . . plus twice daily supervision with a 12 hour control range.

6. 12 hour spring reserve power . . . for continuous operation throughout line power failure.

7. Plenty of power . . . controls an unlimited number of secondary clocks.

8. Engineered simplicity . . . for lower installation cost and minimum service.

9. Simplified installation . . . surface or flush mounting with exclusive swing-out trunnion mounting for easy access.

10. All switches enclosed (dust and moisture free) snap-action type rated at 15 amps.

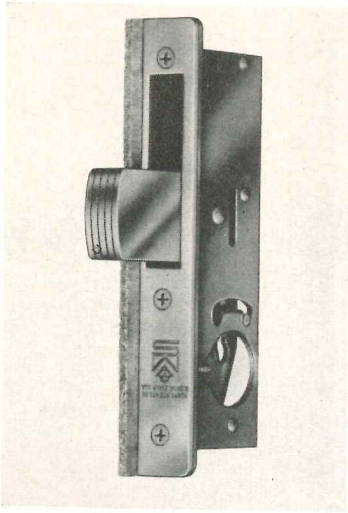
11. Rugged, U.L. Approved Construction . . . for safe, long life.

12. Nationwide service . . . more than 150 service locations.

Call your Cincinnati representative for a discussion of your particular application. Or, write for our Time Systems Handbook . . . an easy reading guide to good equipment.

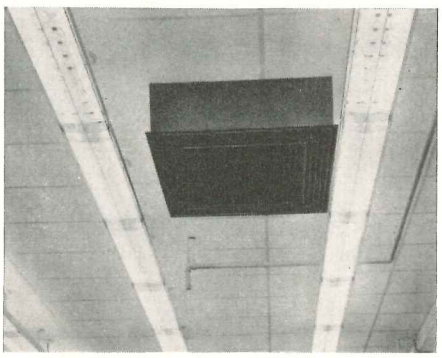
THE Cincinnati TIME RECORDER CO.
1738 Central Avenue
CINCINNATI 14, OHIO
SINCE 1896

Product Reports



Weather-Stripped Lock

To solve the problem caused by the weather-stripping gap over the lock in narrow-stile glass doors, a new *Maximum Security* lock (Model MS 1851 AW) has been developed which has a weather strip permanently affixed along the outside edge of its faceplate. The deep pile stripping runs the full length of the lock face, as shown above, covering the entire lock, including the section from which the bolt projects. *Adams Rite Manufacturing Co., 540 W. Chevy Chase Dr., Glendale 4, Calif.*



Hospital Bed Light

A new fluorescent hospital bed light combines downlight for reading or patient examination with uplight for soft general room illumination. The stainless steel or white enamel units come in two or four-foot models, both with lighting surfaces shielded by *Cleartex* prismatic plastic panels. A two-circuit switch and convenient outlet are located at the bottom of each unit, within easy reach of patient or hospital personnel. *Day-Brite Lighting, Inc., 6260 N. Broadway, St. Louis 15, Mo.*

more products on page 260

The secret's in the resin! Here's a new, *invisible* protective shield for wood doors. A shield that resists scuffs, stains, hard wear—and enhances the beauty of the wood itself. It's called Tigaclad.

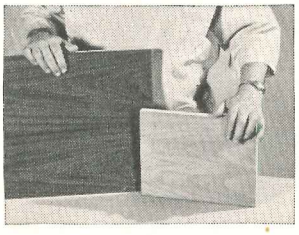
A special thermosetting sheet, impregnated with a unique new resin, is bonded by heat and pressure to the door faces. The process is dry. The resin actually fuses with the wood, becomes part of it.

Tigaclad meets or exceeds N.E.M.A. standards for decorative laminates—wear, scrubbing, boiling water, stains, even cigarette burns!

Best of all, Roddis Tigaclad Doors cost *less* than high pressure laminated doors! And you get genuine wood veneers, not wood grain prints.

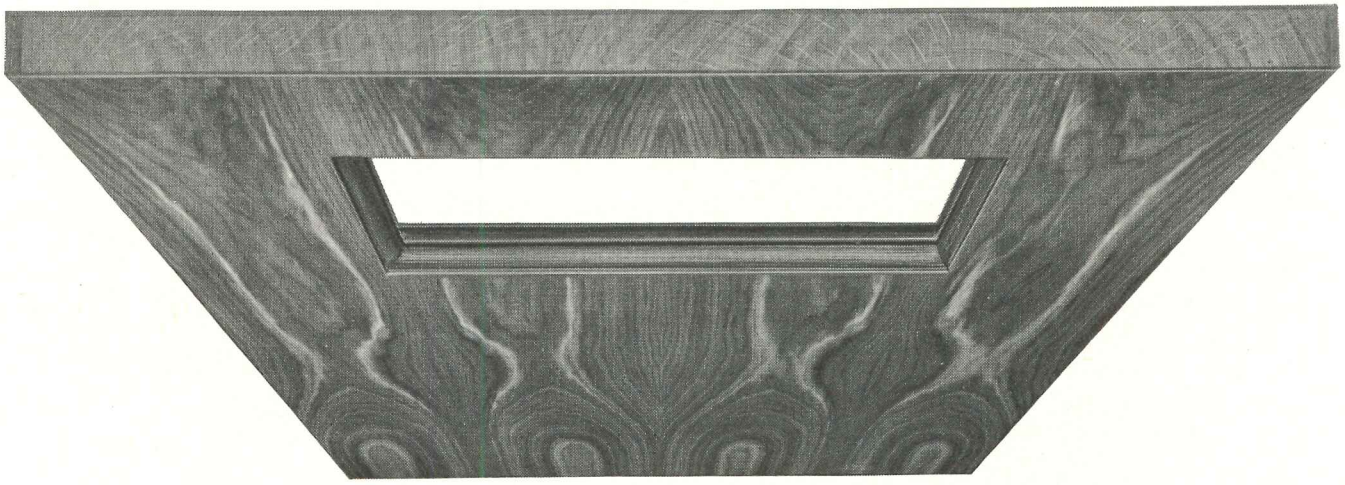
Tigaclad Paneling! You can specify beautiful Roddis genuine wood panelings Tigaclad protected, too—in all the most popular woods. Send coupon for details on Roddis Tigaclad products.

What a dramatic difference! Note the richness and beauty of Tigaclad wood sample on left compared to ordinary wood of identical cut and species.



Beauty and protection never before possible with NEW...

Roddis Tigaclad Doors



Weyerhaeuser Company
Roddis Division
Marshfield, Wisconsin

Weyerhaeuser Company
Roddis Division, Marshfield, Wisconsin

Please send complete information on Roddis Tigaclad Doors.

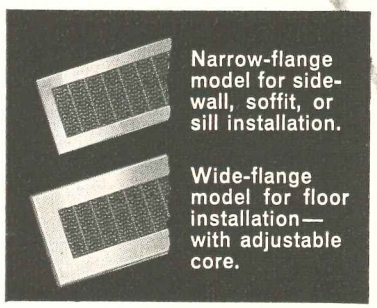
Name_____

Company_____

Address_____

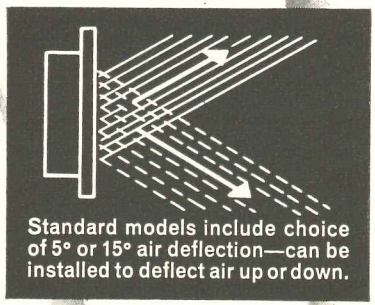
City_____ State_____

These diffusers have

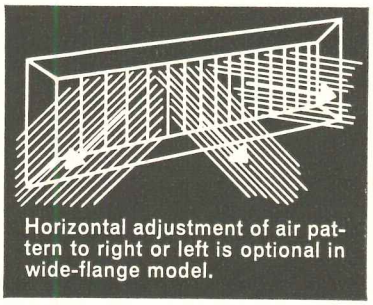


Narrow-flange model for side-wall, soffit, or sill installation.

Wide-flange model for floor installation—with adjustable core.



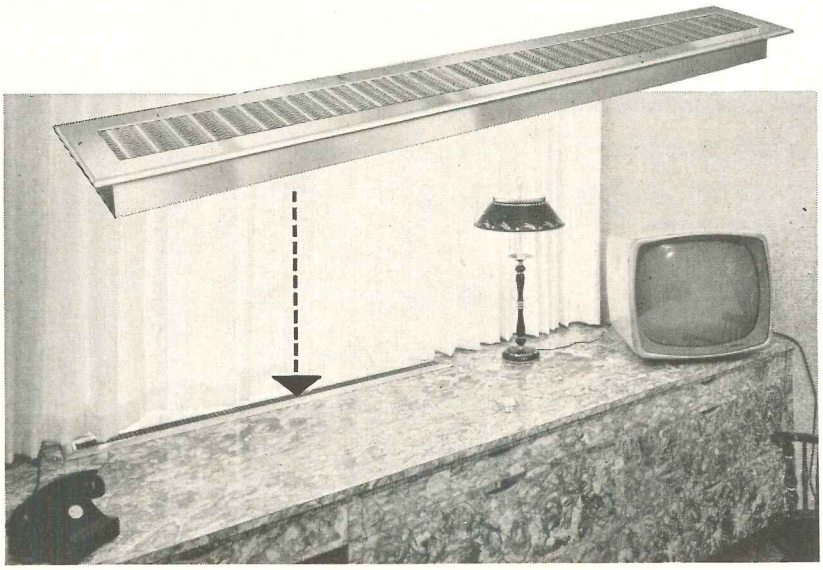
Standard models include choice of 5° or 15° air deflection—can be installed to deflect air up or down.



Horizontal adjustment of air pattern to right or left is optional in wide-flange model.

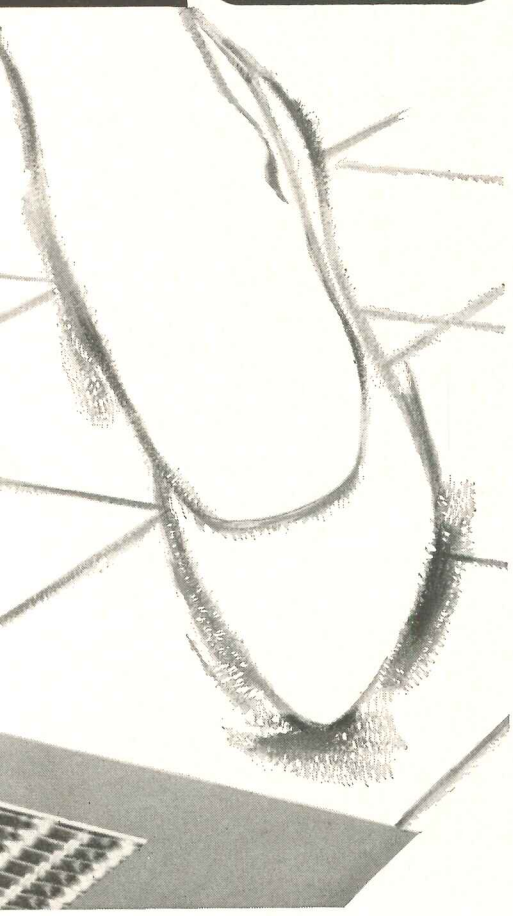
beauty plus "brains"

. . . only Barber-Colman continuous-line air diffusers have the exclusive Uni-Flo engineered core that provides truly controlled air distribution



Ask for this new catalog for detailed information.

BARBER COLMAN



A continuous-line diffuser has to do more than attractively cover the air duct opening in a sidewall, soffit, sill, or floor. Correct air diffusion involves control of aspiration, pattern, direction, and sound.

The exclusive core design of Barber-Colman Uni-Flo continuous-line diffusers assures rapid diffusion and high rate of aspiration. It eliminates the drafts and discomfort which can result from grilles which simply "pour" a stream of air into the room. Barber-Colman diffusers are guaranteed to perform in accordance with published laboratory performance data and to deliver results that meet human comfort requirements.

The diffusers are available with attractive narrow- or wide-flange aluminum frames in anodized or baked enamel finishes. Either aluminum or steel cores are available.

The Model ST narrow-flange model, especially suited to under-the-window installations, and Model STW wide-flange model for sill, sidewall, soffit, or floor installations are both available in 1½″ through 6″ heights in increments of ⅛″. Model STWA wide-flange diffusers with adjustable core are supplied in heights from 2″ to 12″ in increments of 1″.

Complete information and prices upon request. Consult your Barber-Colman Air Distribution field office or write direct.

BARBER-COLMAN COMPANY

Dept. O, 1104 Rock Street, Rockford, Illinoies

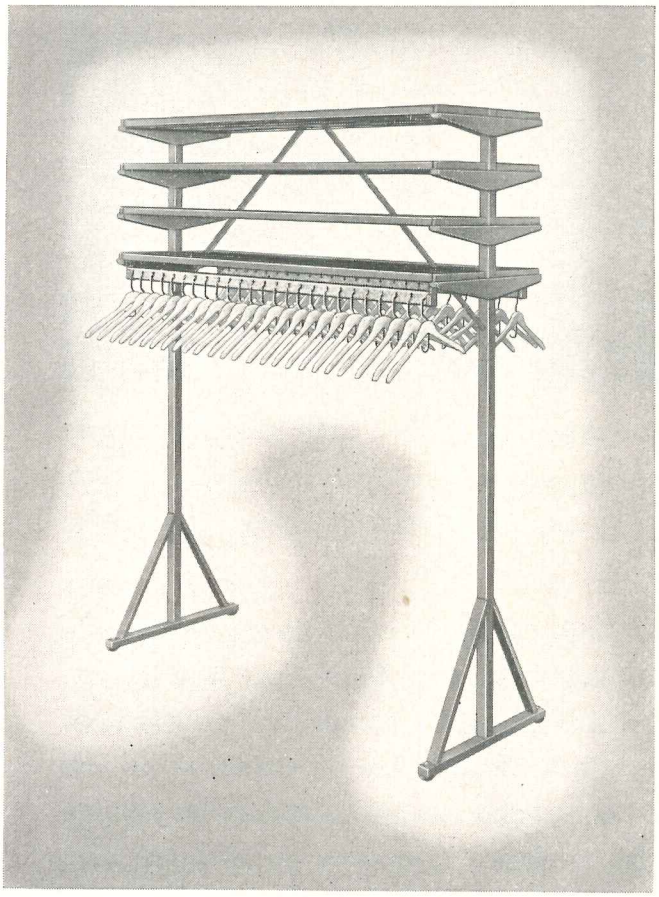
SPECIFY

BORROUGHS

Century LINE

OF FINE CHECK RACKS

with the magic "wonder bar"



presto!..reverse "wonder bar" and you have 20% extra capacity

HERE is garment-checking at its very best. Borroughs "Century" Check Racks offer many outstanding features including the exclusive, suspended "wonder bar" which can be used on the reverse side, or the top, to increase hanger capacities. "Century" Check Racks come in a choice of starting units, double-face units, add-on units and wall models. And Borroughs' special numbering system adds ease and speed to safe, uncluttered garment-checking.

send for literature

See Sweet's Catalog—23d—BO

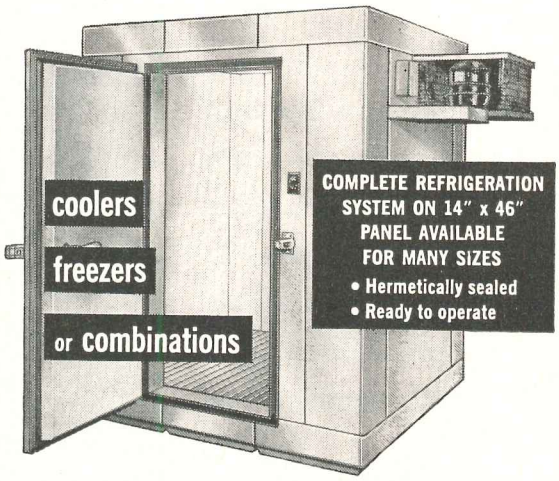
BORROUGHS MANUFACTURING COMPANY

A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT

3082 NORTH BURDICK ST. amp® KALAMAZOO, MICHIGAN

Bally **walk-ins**

Aluminum or steel sectional construction



Sanitary! Strong! Efficient! You can assemble any size cooler, freezer or combination in any shape from standard sections. Add sections to increase size as your requirements grow. Easy to disassemble for relocation.

ARCHITECTS: see 8 pages of engineering data in Sect. 26/A of Sweet's Catalog.

Bally Case and Cooler, Inc., Bally, Pa.

Get details—write Dept. AR #3 for FREE book

NEW! **X-acto®**

ARCHITECT'S KNIFE

NO. 3-ST

PENKnife

• **Famous X-acto "Interchangeable Blade" Knife Features!** Just "twist the chuck" and insert new blade. Takes 3 styles of blades.

• **So Safe!** "SEE-THRU" cap reveals the blade.

• **Convenient!** Clips to pocket. Carry it with you.

• **Easy To Use!** As maneuverable as a ball point pen.

• **Always Sharp!** Low cost X-acto "Refill Blades" keep your X-acto always sharp... always ready.

Available at art supply, stationery and hobby stores. Write for literature on complete line of knives and blades.

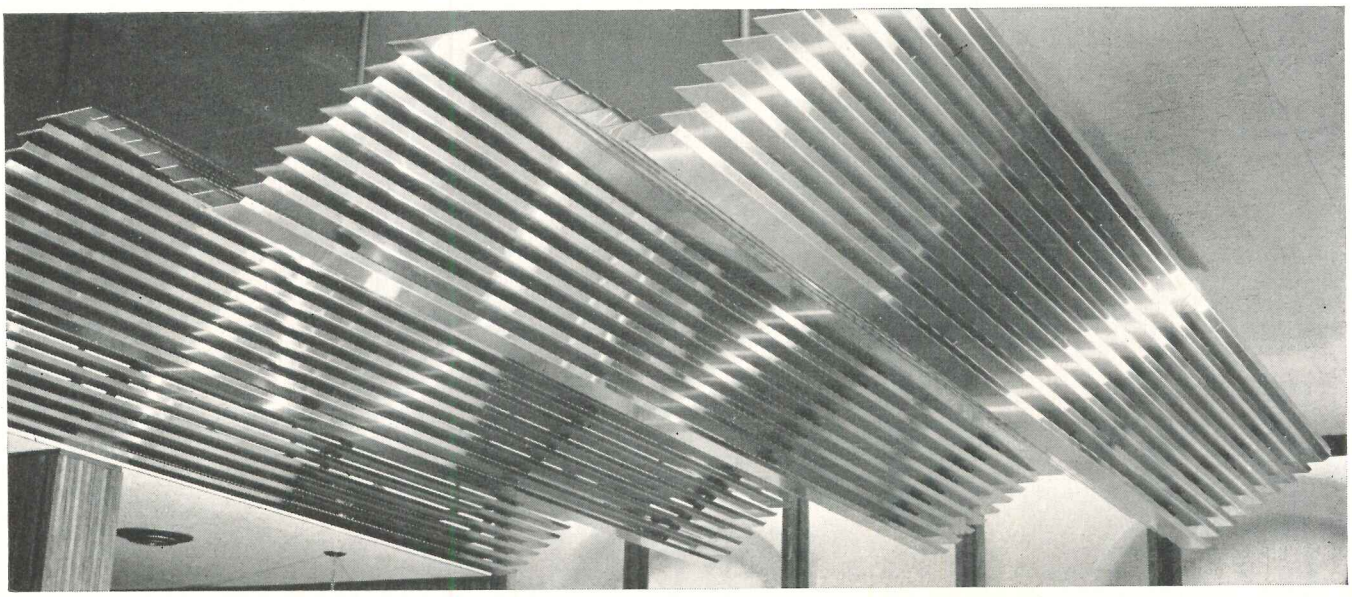
HANDICRAFT TOOLS, INC.

Division of X-ACTO, INC.

48-413 Van Dam Street, Long Island City 1, N. Y.

Stainless Steel

For Permanent Beauty,
Strength, Economy



CREATE TIMELESS BEAUTY AT LOW COST with Stainless Steel

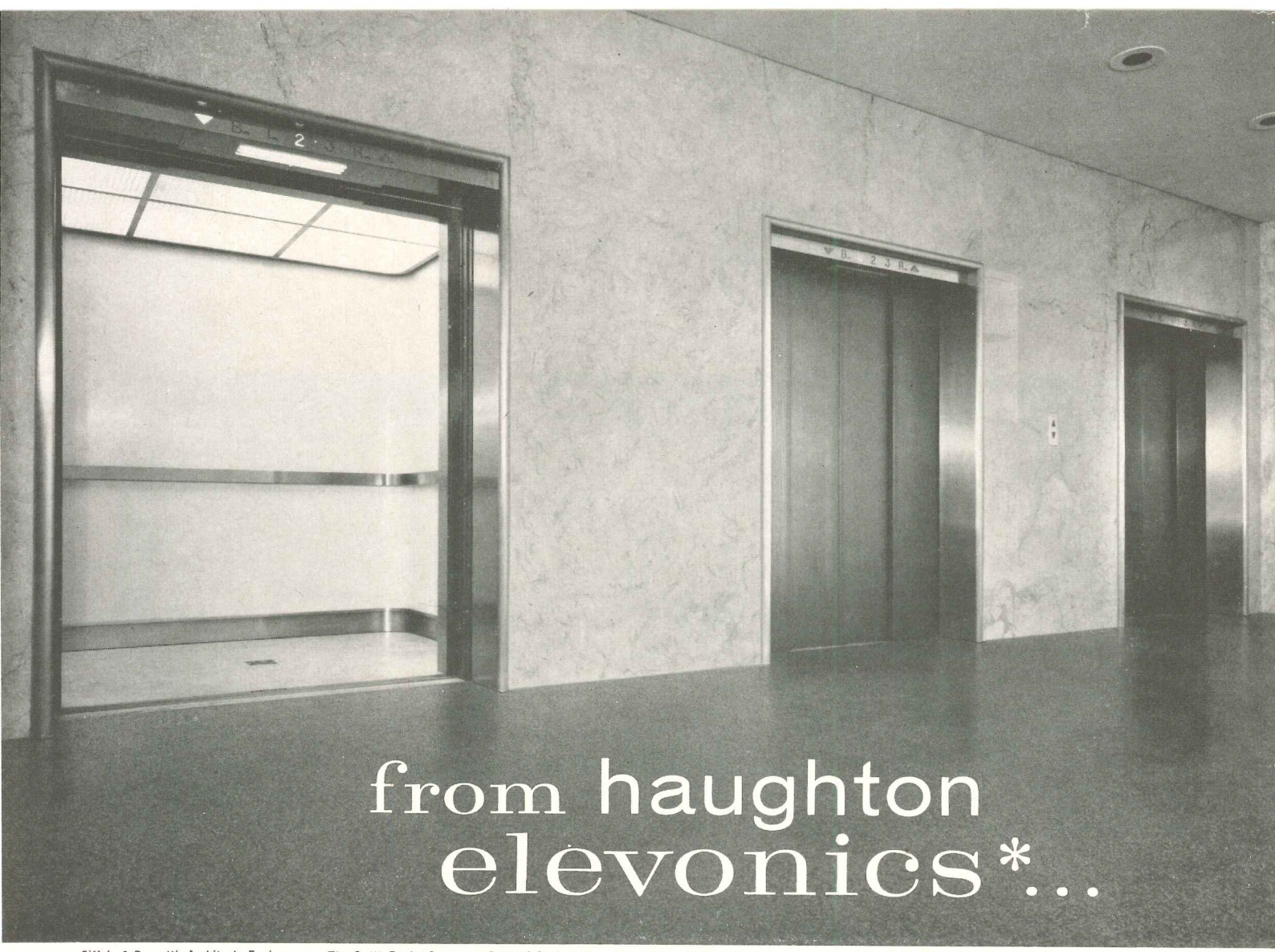
This unique light diffuser is typical of the effective use of stainless steels in contemporary architecture.

The luster of stainless harmoniously contributes to the richness and dignity of the unit as well as the surroundings. Strength of stainless steel permits design of large and complicated components without encumbering mass. Hardness and unexcelled corrosion resistance of stainless steel assure low maintenance and durability of the beauty you create. And stainless steel is economically formed by modern fabricating methods.

Throughout the buildings you design — for exterior and interior applications, for standard building components or custom units — consider the architectural advantages of Armco Stainless Steel. Write us for your free copy of "Armco Stainless Steels/for Architecture," a design and specification manual helpful in making most effective use of stainless at least cost. Armco Division, Armco Steel Corporation, 1491 Curtis Street, Middletown, Ohio.

ARMCO

Armco Division



from haughton elevonics*...

Giffels & Rossetti, Architects-Engineers The O. W. Burke Company, General Contractor

a new concept of convention center elevatoring for magnificent COBO HALL

Convention hall elevatoring has its own special problems. And for Detroit's vast new Cobo Hall, where it is said no foreseen convention is too large to handle, there were some special *special* problems.

Here's how they were solved by a specialized system of Haughton electronically controlled elevators.

Designers knew that before and after scheduled events, building traffic would mean a heavy demand for elevator service between parking areas (basement, first and roof floors) and second floor. At other times, comparatively light traffic could be expected between all floors.

Five Haughton automatic units were installed. Cars are big—six feet deep and eight feet wide. A bank of three serves basement, first, second and roof levels. Two cars serve first, second and third floors for lesser traffic needs. All units are motivated by an amazing "electronic brain" that anticipates service needs and dispatches cars at proper time and in proper sequence.

The complete reliability of Haughton vertical transportation is thoroughly recognized by building professionals and owners. We will be glad to provide you with complete information on Haughton design, modernization and maintenance capabilities.

**Haughton's advanced program in elevator systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance.*

EMBLEM OF EXCELLENCE IN VERTICAL TRANSPORTATION

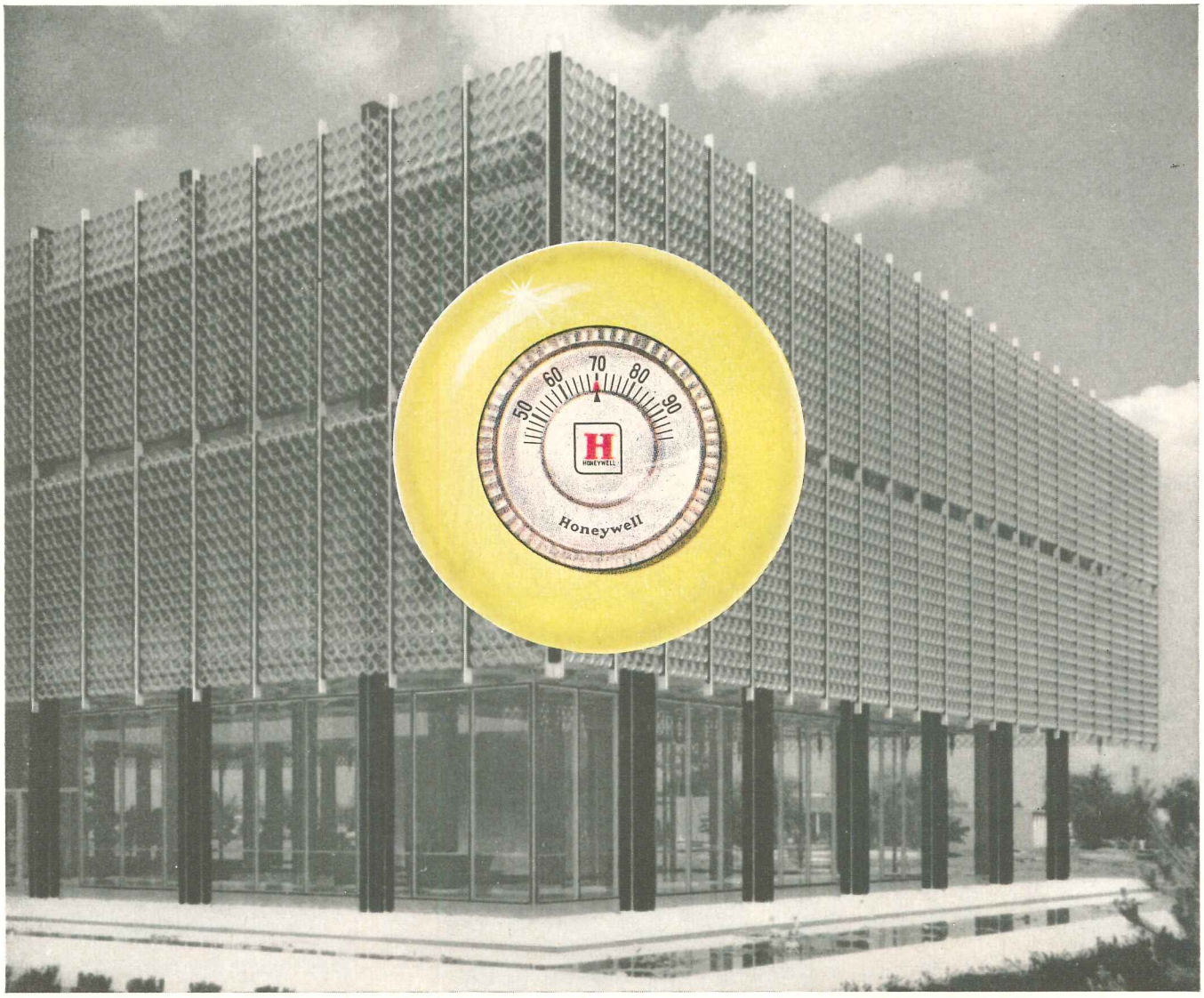
from

haughton... *new concepts in vertical transportation for buildings of every type*

HAUGHTON ELEVATOR COMPANY • Division of Toledo Scale Corporation, Toledo 9, Ohio

offices in principal cities | PASSENGER AND FREIGHT ELEVATORS • ESCALATORS
DUMBWAITERS • SPECIALIZED LIFT EQUIPMENT

Only the thermostat on the wall senses temperature the way people do



GREAT LAKES REGION HEADQUARTERS BUILDING,
REYNOLDS METALS COMPANY, DETROIT, MICHIGAN
Architect-Engineer: Minoru Yamasaki & Associates, Birmingham, Michigan

The famous Honeywell Round is so sensitive, it reacts to changes in temperature before people do—so accurate it calls for just the right amount of heating or cooling needed to maintain the temperature selected. Conveniently located on the wall, it is easier to read and adjust.

Whatever your temperature control needs, Honeywell can satisfy them best, because *only* Honeywell offers all three types of control systems—pneumatic, electric and electronic. For details, call your nearest Honeywell office. Or write Honeywell, Minneapolis 8, Minnesota.

Honeywell

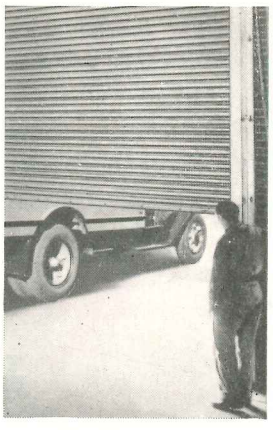
H HONEYWELL *First in Control* SINCE 1885

HONEYWELL INTERNATIONAL
Sales and service offices in all principal cities of the world.
Manufacturing in the United States, United Kingdom, Canada, Netherlands, Germany, France, Japan

Your New 1961 Data on . . . Kinnear Rolling Doors

and rolling grilles, counter shutters and fire doors

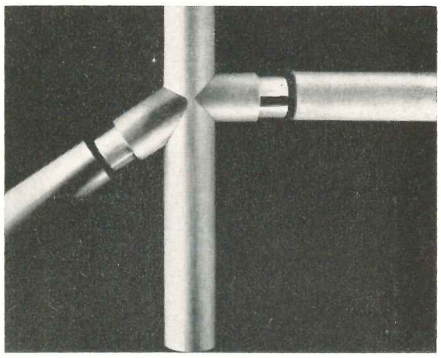
In any doorway, Kinnear provides an unbeatable combination of lower door costs, extra protection and higher efficiency. Kinnear's upward-acting curtain of interlocking slats (originated by Kinnear!) coils compactly above the opening. All space *around* doorways is fully usable at all times. The curtain opens completely out of the way, closes to give you a rugged all-metal curtain of protection against wind, weather, fire, and vandals. 50 years *and more* of continuous, daily, low-maintenance service have been recorded for many Kinnear Rolling Doors. They're also REGISTERED — all parts of every Kinnear door can always be accurately duplicated from master details kept permanently in fireproof vaults. Get all these Kinnear Rolling Door benefits and more; write for this new 1961 catalog.



The KINNEAR Manufacturing Co.

FACTORIES: 1860-80 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, California
Offices and Agents in All Principal Cities

Product Reports



Pipe Railing System
Connectorail, a complete system of wrought aluminum fittings, permits economical construction of flush-type pipe railings without welds or exposed fasteners. Easier assembly and greater economy are achieved through the elimination of welding operations. All components for the system are available both for 1¼-in. and 1½-in. pipe, and are furnished with smooth mill finish or etched and alumilited. *Julius Blum & Co., Inc., Carlstadt, N. J.*

Translucent Curtain-Wall Panel
A prefabricated, translucent, insulating curtain-wall panel provides U-factors ranging from .19 to .26. The *Condo-lux* panels consist of fiberglass reinforced skins with an air-insulating core. Ribs in the exterior skins are fluted; interior ribs are V-type, spaced to match exterior ribs. Fiberglass boards are used as structural shear members between the skins and are bonded to the inner surfaces at the ribs. The panels are easy to handle and installation is accomplished with simple hand tools. They are adaptable to all types of building framing and are available in a variety of colors. *Dresser-Ideco Co., 875 Michigan Ave., Columbus 15, Ohio*

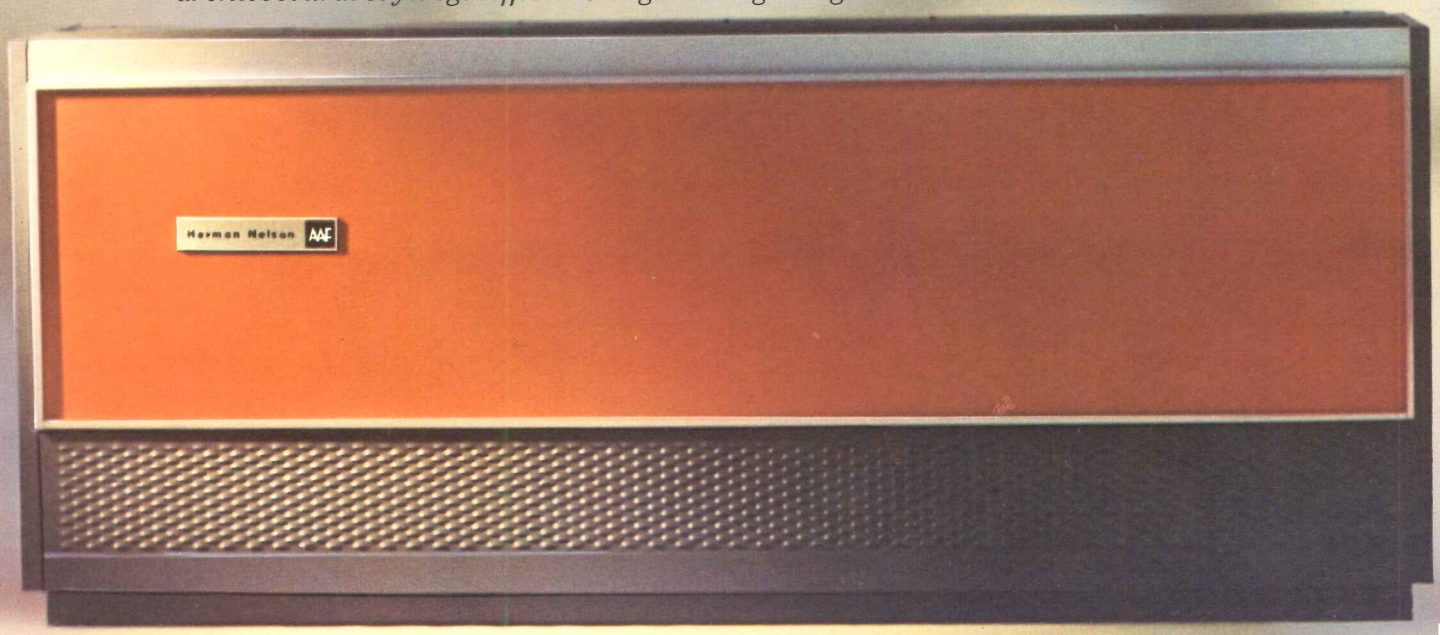
This unit ventilator brings air conditioning within reach of almost any school budget!

Schools in every section of the U. S. — more than 661 of them — are now equipped with Herman Nelson HerNel-Cool "now or later" year-round air conditioning systems.

Construction costs for these schools have ranged all the way from $8.00 per sq. ft. to $21.00 per sq. ft.

For the most part, construction costs in these same areas were as high *or higher* for schools *not* equipped with Herman Nelson "now or later" systems! And now turn the page to see one of the many schools equipped with year-round Nelson air conditioning.

HerNel-Cool III Unit Ventilator. Classic architectural styling. Efficient engineering design.



Herman Nelson photo-reporter visits air conditioned school in Alton, Illinois

Parents' reaction to school air conditioning: "We love it!"

Mothers' Club President
Gilson Brown Elementary School
Alton, Illinois

Gilson Brown Elementary School, Alton, Illinois
Superintendent of Schools: Dr. J. B. Johnson
Architects: Keeney & Stolze, Alton, Illinois

According to Dr. J. B. Johnson, Superintendent of Schools (see inset), air conditioning has created a better working atmosphere for teachers and students at Gilson Brown School. He feels there is less lost motion and a much improved learning situation.

In 1960, before the American Association of School Administrators, Dr. Johnson had this to say about his experience with school air conditioning: "I have reached the following conclusions concerning (school) air conditioning in the Midwest:

1 *Teachers and students expend less nervous energy in an air conditioned room and are capable of doing better academic work. This is not a result of mathematical calculation, it is a matter of professional judgment.*

2 *Teachers are capable of doing better teaching. There are fewer disciplinary problems.*

3 *Student enrollment for summer school has doubled. This is a voluntary tuition course. If the opinions of the pupils, parents, and teachers are to be respected, we may assume that they are confident that they can do satisfactory work during the summer months."*

FIRST IN A SERIES:

How Alton officials measure benefits of Herman Nelson air conditioning system

School officials and parents in Alton, Illinois are enthusiastic about school air conditioning. They've witnessed the encouraging effects of a Herman Nelson year-round system on students, teachers, and the city's educational program.

And now they know that the cost of installing and operating air conditioning is *greatly* minimized when a school is designed expressly for it. The cost of this beautiful, completely air conditioned school: 32,000 square feet at only $13.51 per square foot. What's more, air conditioning, heating, and ventilating costs were just $2.17 per square foot, *or less than many "heat only" schools in this same area!*

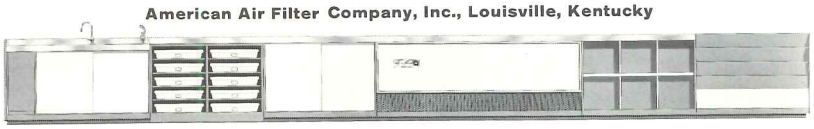
Air conditioning permitted Alton architects Keeney and Stolze to plan a more compact school with many cost-saving design variations. However, design economies didn't reduce working space or detract from its beauty. There are 13 classrooms, two kindergarten rooms, administration suite, health room, counseling room, multi-purpose room with stage, four large ceramic-tiled rest rooms and a teachers' lounge. Exterior finish is brick and ceramic tile facing.

Gilson Brown School is kept at maximum comfort levels throughout the year by a Herman Nelson HerNel-Cool unit ventilator system. Classroom air conditioning unit ventilators, packaged liquid chiller, and related refrigeration equipment are reliable Herman Nelson products.

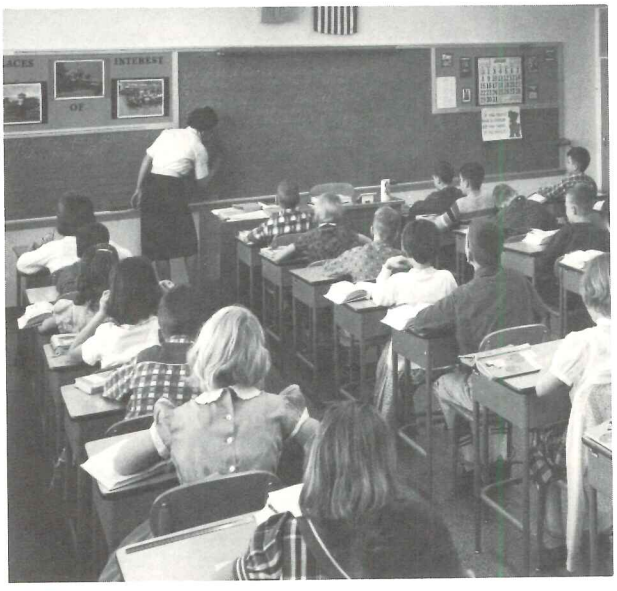
Herman Nelson AAF

SCHOOL AIR SYSTEMS DIVISION

American Air Filter Company, Inc., Louisville, Kentucky



For more information on school air conditioning write: Herman Nelson School Air Systems Division, American Air Filter Company, Inc., 215 Central Ave., Louisville, Ky.



"We love it."

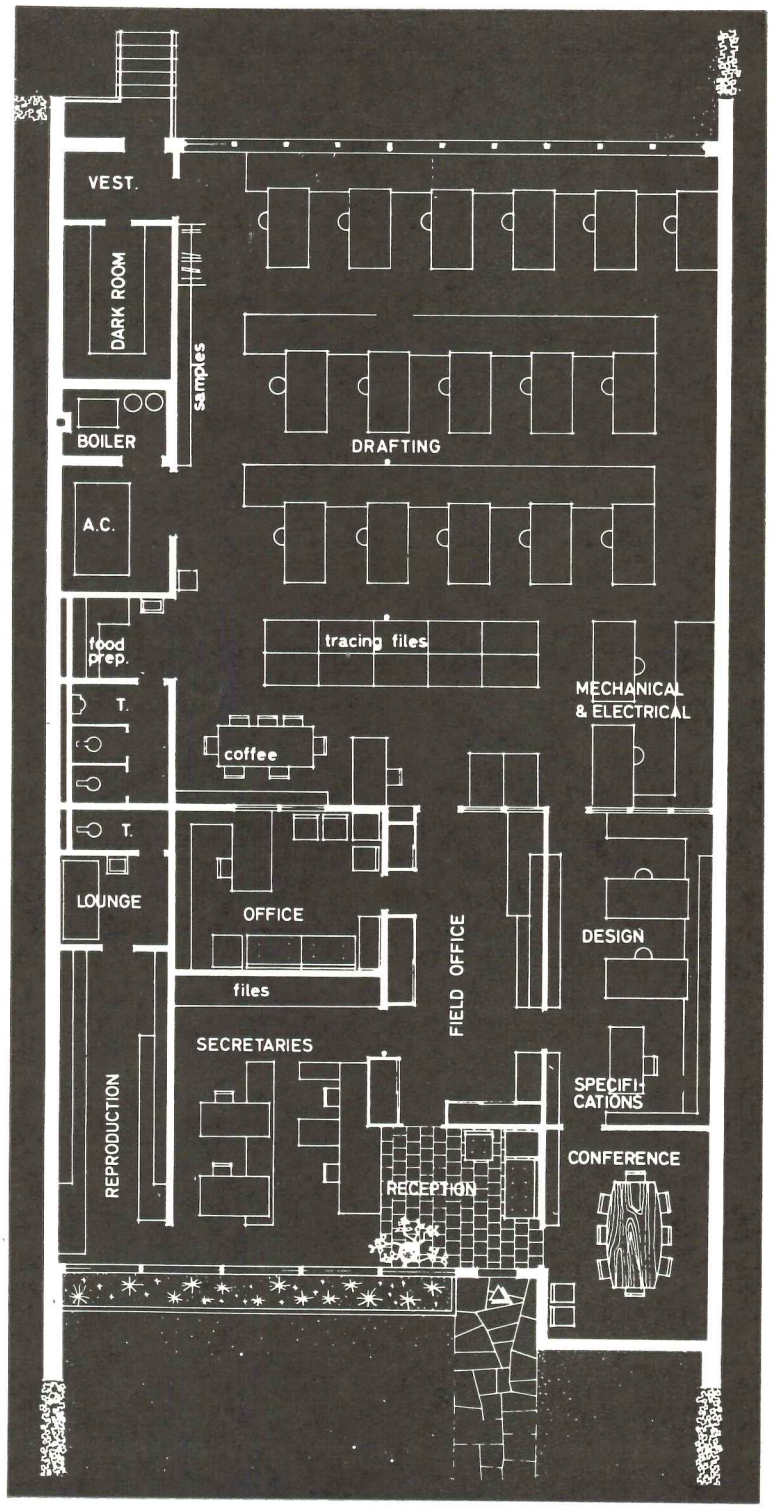
"People now are really proud to say, 'That's where my child goes to school.'"

These comments were made by Mothers' Club officials at the completely air conditioned Gilson Brown Elementary School. Sensitive year-round room temperature control is provided on a room-by-room basis by Herman Nelson HerNel-Cool Unit Ventilators. In the winter, HerNel-Cool Units provide heating and fresh-air ventilation as classroom conditions require, and in the summer these same units provide accurate cooling and humidity control.

Principal F. W. Pivoda says air conditioning has proved to be a meaningful "fringe" benefit to teachers. In fact, several teachers have requested transfers to Gilson Brown School. Mr. Pivoda also feels that the cleanliness (no dust or stoker dirt) is responsible for a "custodianship pride" about the school. Even students ask to stay indoors during play periods on warm September and October days. Air conditioning permits teachers to keep windows closed, thus eliminating dirt, odors, and distracting outdoor noises.

EFFECTIVE USE OF SPACE AND TIME

as practiced at VAN KEUREN, DAVIS & COMPANY, Architects and Engineers, Birmingham, Alabama



The studied utilization of space in the offices of Van Keuren, Davis & Co. reflects a concern for economy and simplicity of design which has been a key factor in the success of this noted Birmingham firm. Clients are impressed by the smoothly functioning office, which relies on its Dodge Reporter to help maintain an efficient communications network so necessary to uninterrupted work flow.

Van Keuren, Davis & Co. considers Dodge Reports the most effective and economical way of "getting the word around" to contractors and suppliers, and are impressed by the attention they command throughout the industry.

Competent bidders are informed at just the right time by this daily construction news service . . . helping to eliminate costs of additional publicity and extra administrative work on the architect's part. Dodge-informed salesmen are better prepared to discuss specific projects of current interest . . . are often able to offer timely suggestions on new products and services.

Together with plans and specifications filed in Dodge Plan Rooms nearest construction sites, the Reports help establish a broader bidding and quoting base . . . expedite contract awards, buying decisions and building.

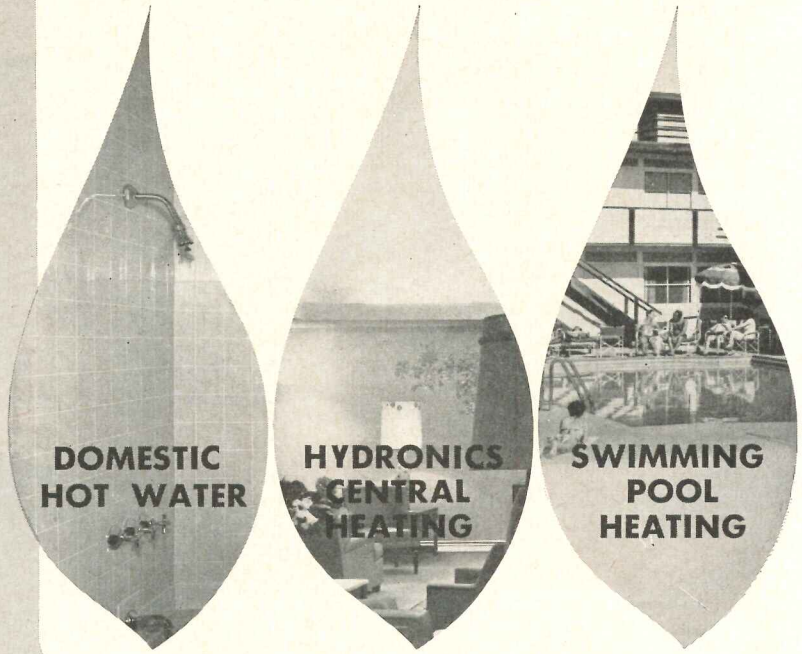
Van Keuren, Davis & Co. sums up a profitable relationship by saying: "The Dodge Reporter is always welcome here" . . . further confirmation that DODGE REPORTS ARE A VALUABLE COMMUNICATIONS LINK BETWEEN THE ARCHITECT AND THOSE WHO SERVE HIM.

F.W. DODGE CORPORATION

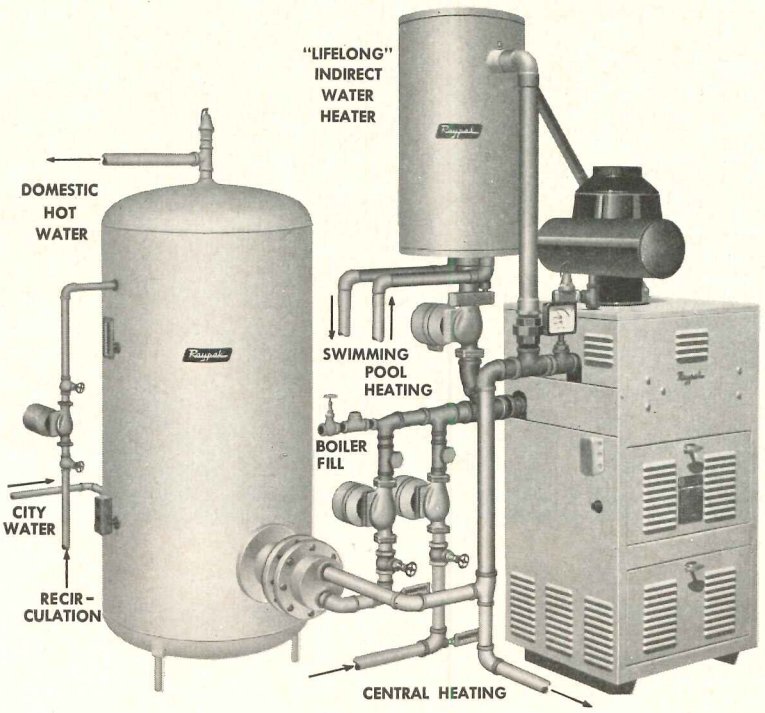
DODGE REPORTS

CONSTRUCTION NEWS SERVICE
119 West 40th Street, New York 18, N. Y.

the all in 1 Raypak hot water system for apartment houses



All three, or any combination of two, from a single Raypak money-saving package to meet every hot water requirement.



In today's compact planning, space for major equipment is at a premium, but now, all your hot water heating requirements can eminate from one compact package, purchased from one source, with less initial cost than a separate water heater, pool heater and central heating boiler.

- **1 Gas Line instead of 3**
- **1 Vent instead of 3**
- **Pool Heater at ⅓ normal cost**
- **Saves 30% floor space**
- **Less piping**
- **Less BTU capacity to do the job**

This is why the Raypak "All-In-One" system has received such enthusiastic welcome among apartment house owners. It consists of one Raypak boiler, one Raypak glass lined 10 year warranty A.S.M.E. Storage Tank, one copper immersion coil for tank and one lifelong indirect water heater . . . a single, indirect package system.

In addition to outstanding overall economy, the Raypak package system is unequalled in quality. It includes the latest engineering advances, requires less maintenance and gives longer life because of its indirect heating design.

Raypak® COMPANY, INC.
Engineers-Manufacturers
P. O. BOX 41 • EL MONTE, CALIFORNIA

MEMBER BHC
BETTER HEATING - COOLING COUNCIL

Architects: Office of Ernest J. Kump

HOW CALIFORNIA REDWOOD HELPS THE ARCHITECT AVOID THE "INSTITUTIONAL LOOK"

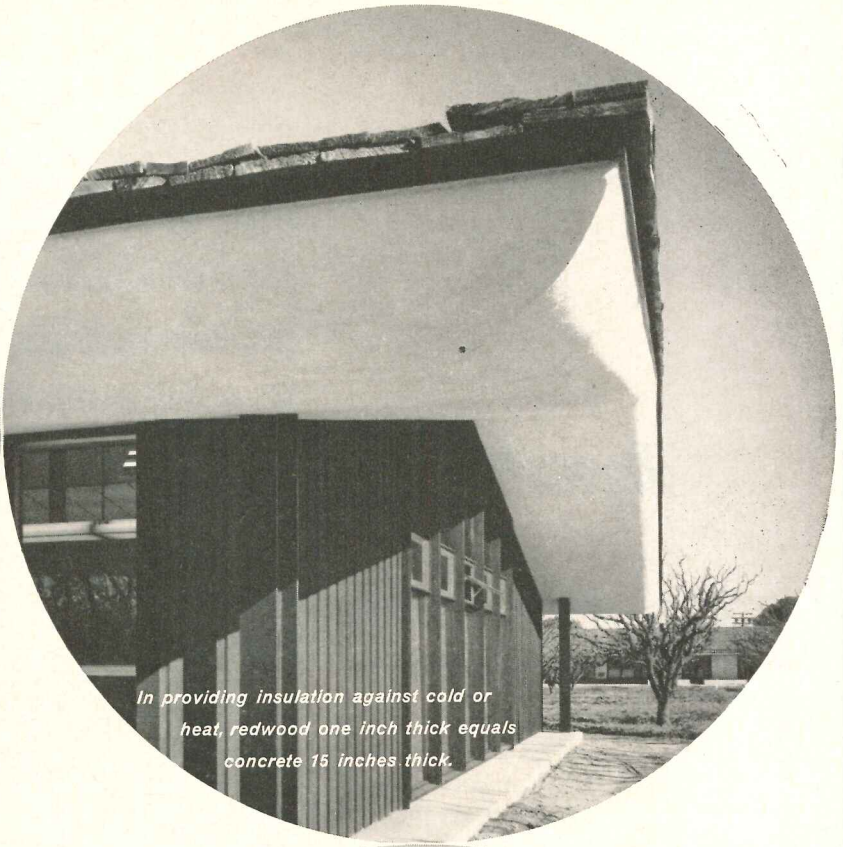
For practical as well as esthetic reasons, more and more architects are turning to redwood for public buildings. Redwood's warm, inviting appearance gives no hint of its other exceptional qualities — its high insulating value and its indifference to the elements, for example. In this suburban civic center popular saw-textured redwood is judiciously used both outside and in.

Write to Dept. A-2 for your copy of "REDWOOD HOMES—Ideas from Architects' Own Homes."

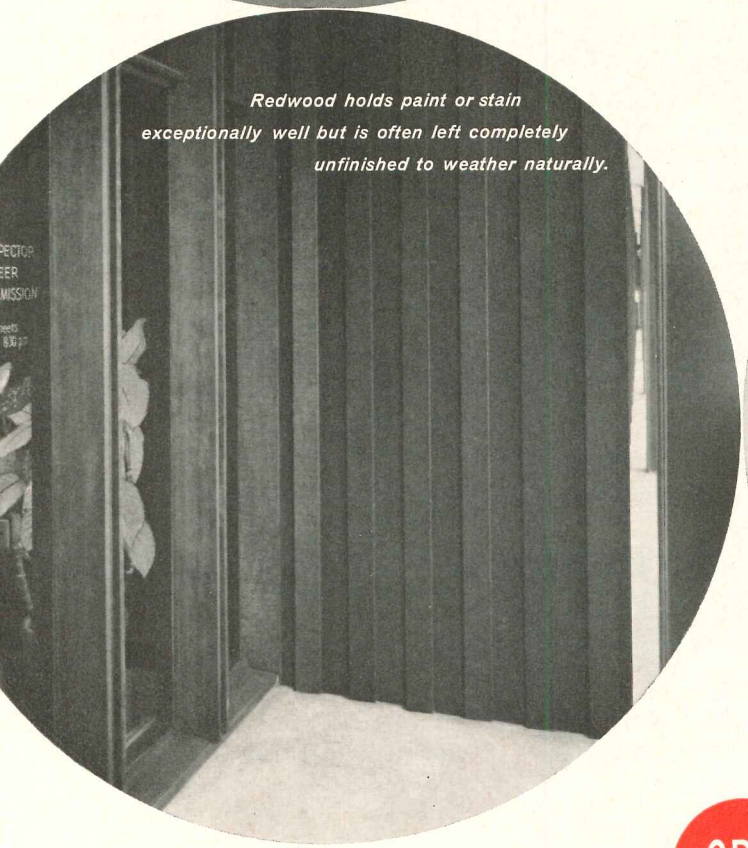
CALIFORNIA REDWOOD ASSOCIATION • 576 SACRAMENTO STREET

The California Redwood Association coordinates the research, forest management, grading and consumer service activities of these member mills: UNION LUMBER COMPANY

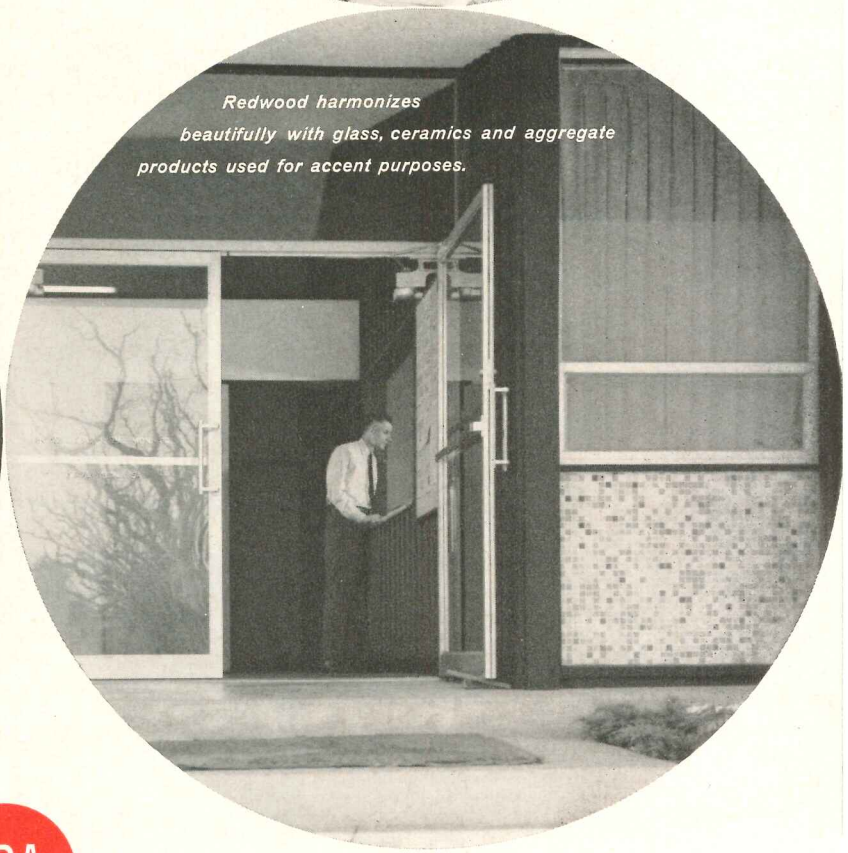
The same Certified Kiln Dried redwood pattern is used both for exterior siding and handsomely textured interior walls.



In providing insulation against cold or heat, redwood one inch thick equals concrete 15 inches thick.



Redwood holds paint or stain exceptionally well but is often left completely unfinished to weather naturally.



Redwood harmonizes beautifully with glass, ceramics and aggregate products used for accent purposes.

CRA®

All the wonderful warmth of wood is best expressed in redwood

AN FRANCISCO 11 ♦ CRA-TRADEMARKED CERTIFIED KILN DRIED REDWOOD

HE PACIFIC LUMBER COMPANY • ARCATA REDWOOD CO. • SIMPSON TIMBER COMPANY • WILLITS REDWOOD PRODUCTS COMPANY • GEORGIA-PACIFIC CORP.

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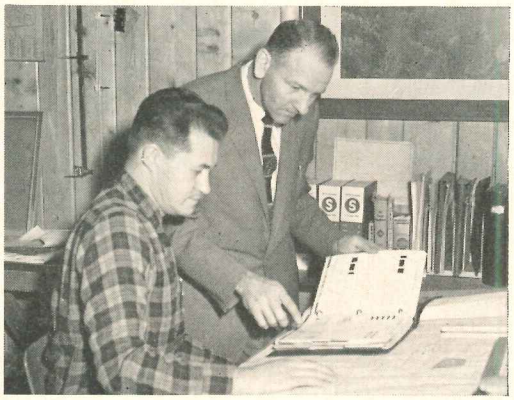
Add a Valuable Man to Your Staff . . .
Your Raynor Distributor . . .
Offers You NATIONWIDE

Consultation... Installation... Service

CONSULTATION

Your Raynor Distributor will help you in writing specifications, providing complete details for closing any opening, as well as assisting in any design, mechanical or construction problem.



INSTALLATION

Factory trained installation men . . . craftsmen who are specialists in the installation of overhead type doors, assuring lasting satisfaction to you and your client.

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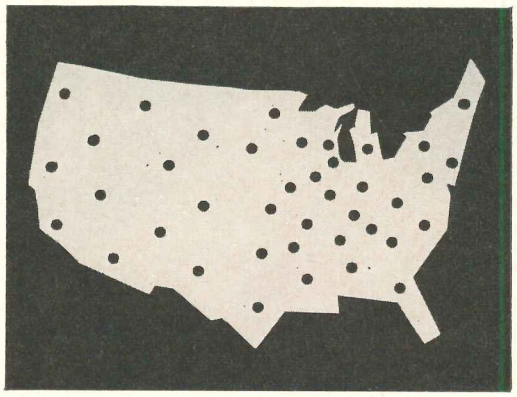
A nationwide organization that works together . . . your guarantee of fast, dependable service, no matter where the location may be.



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Wood • Aluminum • Steel • Electronic Operators

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Dixon, Illinois Hammonton, New Jersey
Builders of A Complete Line of Residential, Commercial and Industrial Type Doors

Office Literature

Weatherstripping by Zero
(A.I.A. 35-P-6) Presents full-size illustrations, installation details, and specifications on Zero line of extruded aluminum and bronze weatherstripping. 28 pp. *Zero Weather Stripping Co., Inc., 453 East 136th St., New York 54, N. Y.**

Mercury Lamps
Contains information on light output, life ratings, and electrical and physical characteristics of mercury vapor lamps; and describes lamp construction, designations, color rendition and necessary auxiliary equipment. 28 pp. *Lamp Div., Westinghouse Electric Corp., Bloomfield, N. J.**

Glass for Construction
(A.I.A. 26-A) Covers complete line of plate and sheet glass, insulating glass, and patterned glass for use in building. Complete selection and specifying information is included. 32 pp. *Libby-Owens-Ford Glass Co., 811 Madison Ave., Toledo 3, Ohio**

Rilco Laminated Wood Products
(A.I.A. 19-B-3) Gives technical data, tables of dimensions, connection details and installation photos on such laminated wood members as arches, beams and purlins, trusses, deck, formwork and special products. 20 pp. *Weyerhaeuser Co., Rilco Laminated Products Div., W-818 First National Bank Bldg., St. Paul 1, Minn.**

Movable Interior Walls
(A.I.A. 35-H-6) Brochures on *Signature* and *Delineator* movable wall systems contain complete product details and specifications, suggested applications and installation photos. *E. F. Hauserman Co., Advg. Dept., 5711 Grant Ave., Cleveland 5, Ohio**

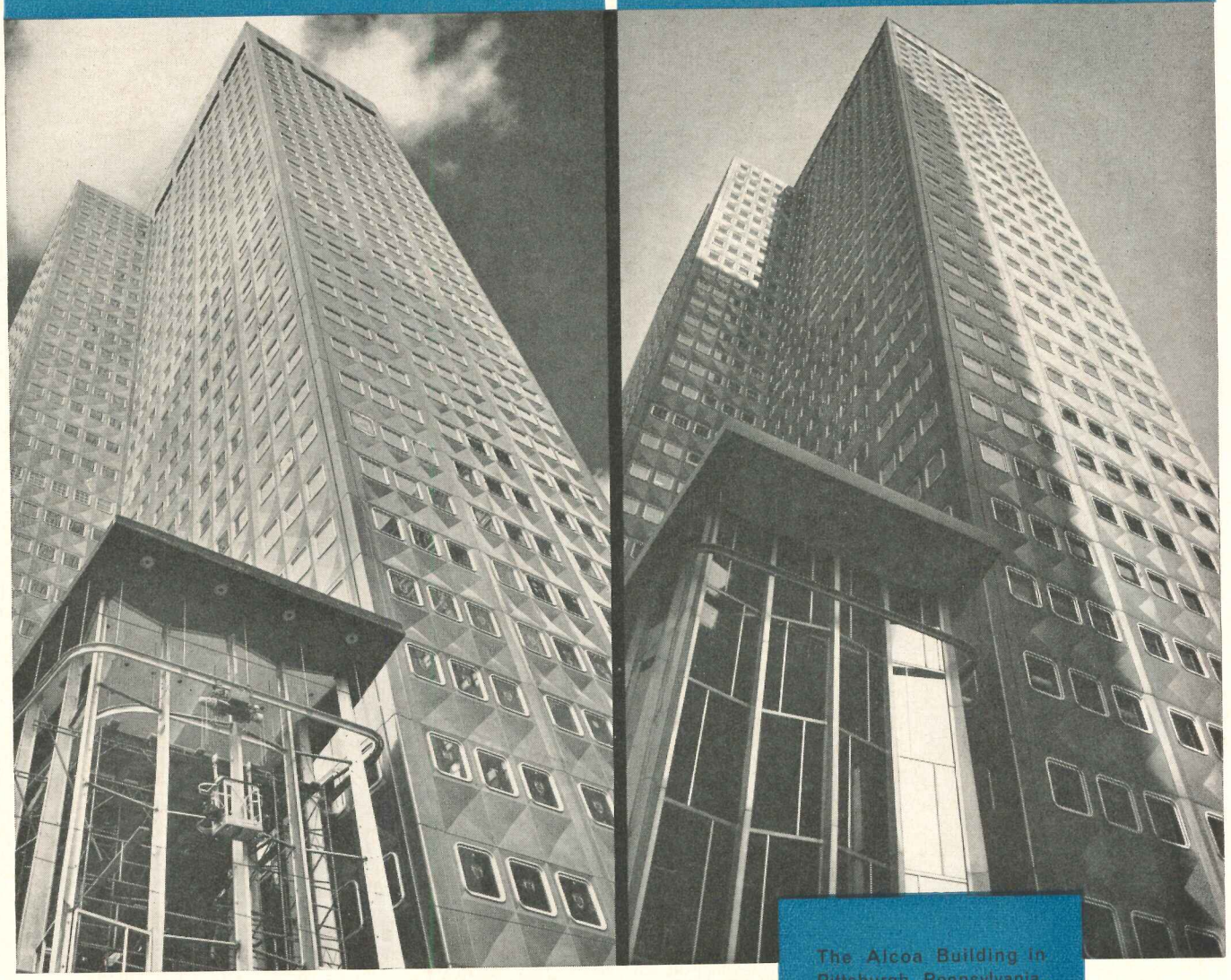
Davidson Architectural Porcelain— *. . . the Modern Building Material* shows examples of decorative uses of architectural porcelain, and the special effects obtainable with color, surface texture and embossed designs. 12 pp. *Davidson Enamel Products, Inc., 1104 East Kibby St., Lima, Ohio**

**Additional product information in Sweets Architectural File*

more literature on page 274

Ten Years Ago

TODAY

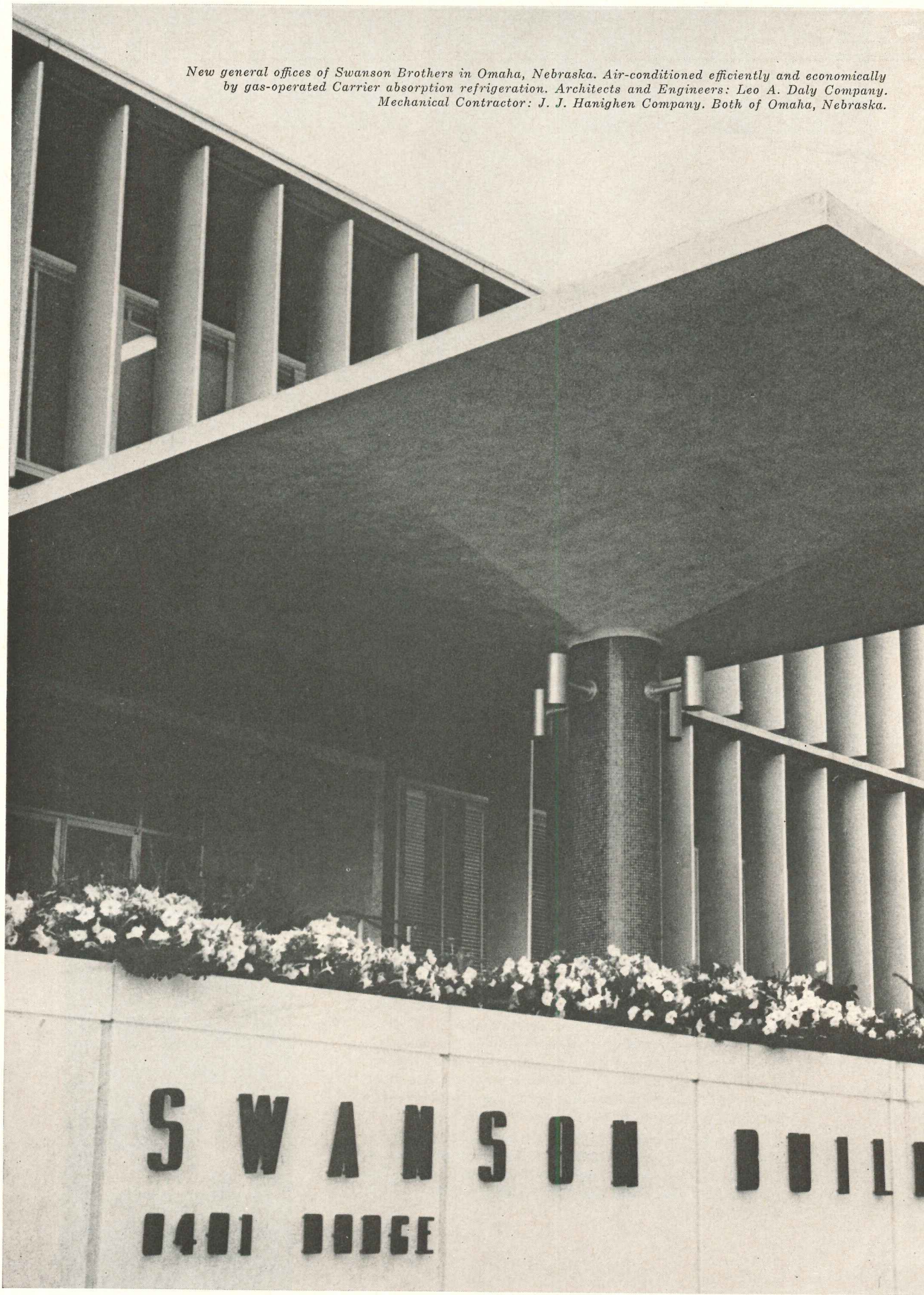


The Alcoa Building in Pittsburgh, Pennsylvania. Architects—Harrison & Abramovitz, New York. Associate Architects—Mitchell & Ritchey, Altenhof & Bown, Pittsburgh, Pennsylvania. General Contractors—George A. Fuller Co.

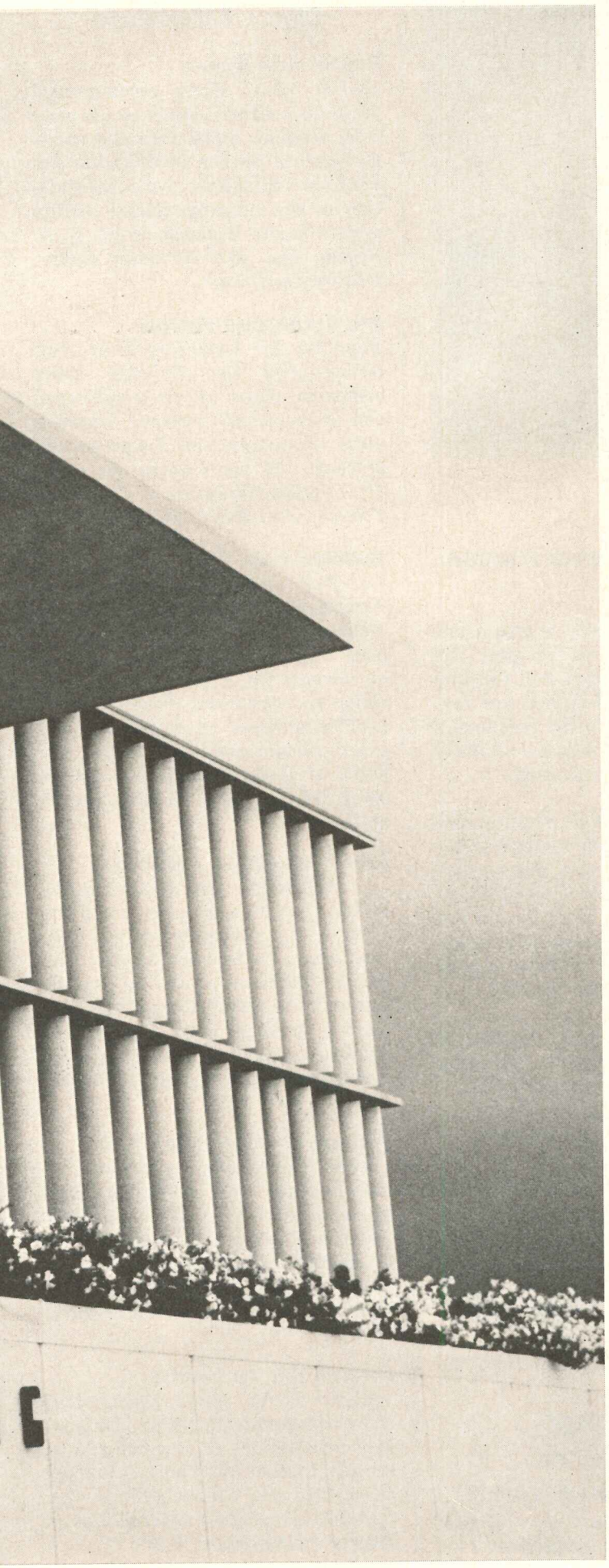
Completed in 1951, this Alcoa building was the first in the world to use Adlake reversible aluminum windows. Now, ten years later, it stands as a monument to the good judgment of the men who insisted on Adlake *economy of quality*. All 2,136 of the Adlake windows supplied revolve effortlessly. Weather seals are still tight. Appearance remains like new in all respects. Cost of maintenance—except for routine cleaning—has been nil. (Even this expense is small due to the nature of the fenestration.) And, because all window-cleaning has been done from inside the building, excessive insurance rates for window cleaners have been eliminated.

To assure *economy of quality* for your clients, specify Adlake. *Insist upon Adlake.* For further information, contact your nearby Adlake representative or write The Adams and Westlake Company, Department L-2103 Elkhart, Indiana.

A+ Adlake® custom windows



New general offices of Swanson Brothers in Omaha, Nebraska. Air-conditioned efficiently and economically by gas-operated Carrier absorption refrigeration. Architects and Engineers: Leo A. Daly Company. Mechanical Contractor: J. J. Hanighen Company. Both of Omaha, Nebraska.



Swanson insures low operating costs with GAS and CARRIER absorption refrigeration

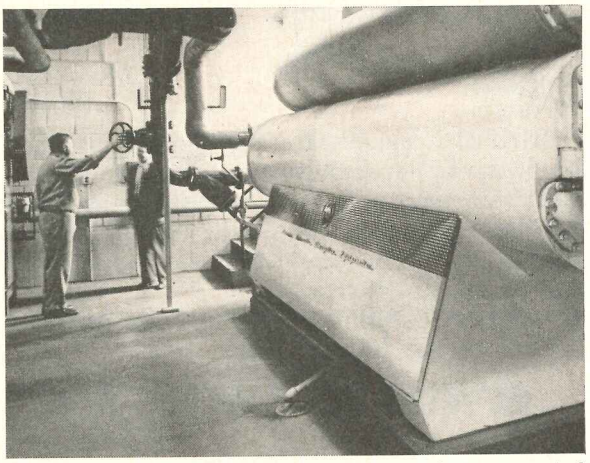
Swanson Brothers – nationally known in the foods industry – chose gas-operated Carrier absorption refrigeration to air-condition their beautiful new general office building in Omaha, Nebraska.

The basis for their choice was *lower operating costs,* with the unbeatable fuel economy of gas and the simplicity and trouble-free operation of the Carrier absorption unit. With no major moving parts, it quietly and efficiently uses steam from a gas-fired boiler to provide chilled water for cooling.

Carrier has solved the problem of sustained efficiency at partial loads in absorption cooling. An exclusive Carrier solution-capacity-control gives partial load efficiency unsurpassed by any other type of cooling system.

You can keep air conditioning costs low and efficiency high, with gas-operated Carrier absorption refrigeration. For details call your local Gas Company, or write Carrier Air Conditioning Company, Syracuse 1, New York. *American Gas Association*

FOR HEATING & COOLING GAS IS GOOD BUSINESS!

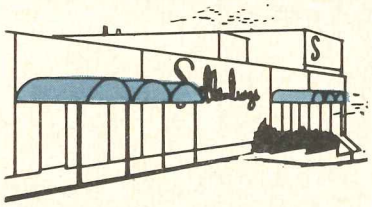


Trouble-free is the word for this 140-ton capacity gas-operated Carrier absorption unit at Swanson building. Says Wendell Mitchell, Building Engineer, "I really think this system is great. All I have to do is check it now and then. Never a bit of trouble."

3 uses on one building...
...that's *VERSATILITY!*

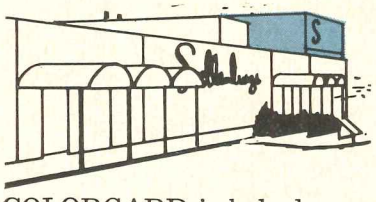
EGSCO® Metal Panels with COLORGARD adorn the pictured suburban department store in three applications.

THE ARCHED MARQUEE, attractive in its simplicity is also a low cost architectural feature because the aluminum panels, protected and finished with durable, stable Colorgard, are factory-curved to conform to the architect's design. They are quickly erected securely in place, requiring few man-hours.



THE PENTHOUSE CURTAIN WALLS are EGSCO Shadowall® insulated panels with bold, vertical architectural lines on the exterior, flat surface interior, both finished with Colorgard, in colors specified. EGSCO Wall Panels are designed for fast, low man-hour erection without visible fasteners or laps to mar their inherent architectural beauty.

THE LOUVERED AIR CONDITIONER SCREEN is formed of uninsulated Shadowall Panels, blending smoothly with the architectural motif.



Architects & Engineers:
Thalheimer & Weitz, Philadephia
General Contractors:
McCullough-Howard, Inc., Philadephia

COLORGARD is baked-on epoxy enamel of superior automobile finish quality. It is weather-enduring and color-stabilized. It cleans and retains its shimmering newness year after year. If desired in later years, it may be repainted with a new color without further priming. EGSCO Panels in Colorgard are protected during transit and erection by PEELCOTE a strippable plastic coating.

For complete information see Sweet's Architectural file 3a/Sm, or contact the nearest EGSCO office.

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WILLIAMS ST. PITTSBURGH 2, PA.
Manufacturers of EGSCO® Metal Wall Products
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Office Literature

Geyser Grid System
(A.I.A. 17-A) Gives recommended design procedure, detail on all principal sections, panel data and specifications on Geyser *Grid System* for windows and curtain walls. Information on new neoprene gasket sealing system is also included. 16 pp. *E. K. Geyser Co., 915 McArdle Rdwy., Pittsburgh 3, Pa.**

Air Conditioned Schools
You Can Air Condition Your New School—And Cut Building Costs compares plans of air conditioned and conventional schools; discusses costs, advantages and design considerations. 20 pp. *Commercial Div., Minneapolis-Honeywell, 2747 S. Fourth Ave., Minneapolis 8, Minn.**

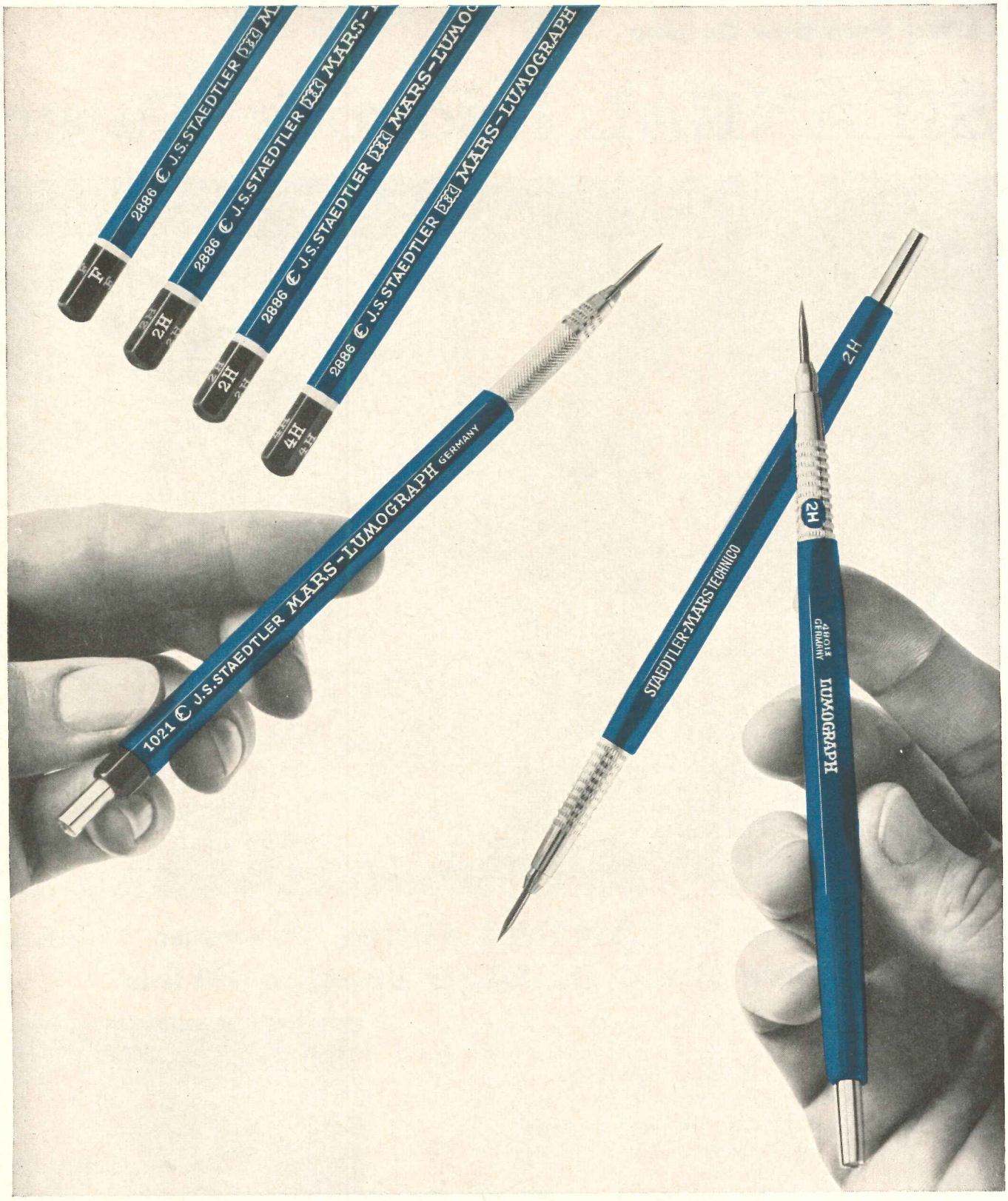
Building Code Requirements
. . . For Reinforced Masonry by American Standards Committee A41, National Bureau of Standards Handbook 74, includes definitions and requirements for materials and construction, structural design and allowable stresses of reinforced masonry columns and walls. 13 pp., 15¢. *Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C.*

Sound Absorption Coefficients
. . . of Architectural Acoustical Materials lists data on noise reduction coefficients, recommended specification range, surface appearance, size, weight, thickness, mounting requirements, flame resistance and light reflection qualities for all acoustical materials offered by members of the *Acoustical Materials Assn., 335 East 45th St., New York 17, N. Y.*

Waterproof Concealed Flashing
(A.I.A. 7) Describes, and gives details, recommended weights and suggested specifications for *Rubberseal* waterproof concealed flashing made of asphalt-coated copper or aluminum sheet. 4 pp. *Mitchell Rand Mfg. Corp., 51 Murray St., New York 7, N. Y.**

Ceramic Tile for Schools
(A.I.A. 23-A) Color illustrations show outstanding exterior and interior installations of ceramic tile in schools. Booklet 620, 20 pp. *American Olean Tile Co., Lansdale, Pa.**

**Additional product information in Sweets Architectural File*



MARS vs MARS — You need neither lawyer nor judge. Let your own preference decide in favor of one MARS over another. For whether you pick one of the wood-cased Lumographs or one of the Technicos you'll be using the very finest.

Among the famous imported Mars drafting products are: the Mars-Technico push-button lead holders (with adjustable degree indicator*, with specific degree imprint*, the economy model*); Mars-Lumograph drawing leads, 18 degrees, EXB to 9H; Mars-Lumograph drawing pencils*, 19 degrees, EXEXB to 9H; Mars-Duralar pencils and leads for drafting on Mylar®-base drafting film —5 special degrees, K1 to K5; Mars-Duralar Technicos with adjustable Duralar degree indicator; Mars-Lumochrom colored drawing pencils, 24 shades. Also: Mars Pocket-Technico for field use; Mars pencil and lead sharpeners; Mars Non-Print pencils and leads; Mars-Duralar erasers. Mars products are available at better engineering and drafting material suppliers everywhere.

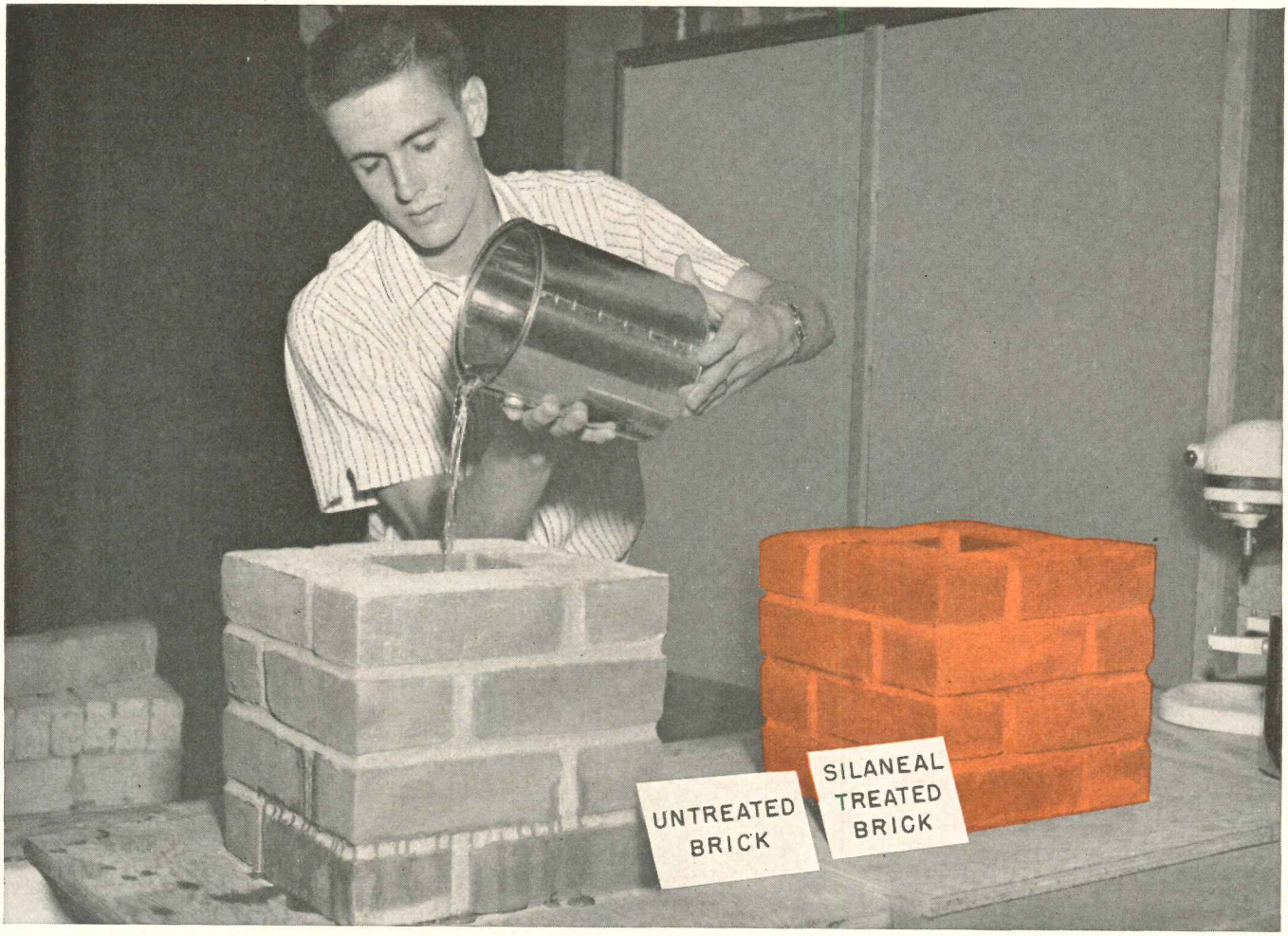
®T.M. for duPONT's Polyester film. *Shown.

the pencil that's as good as it looks **MARS**

J.S. STAEDTLER, INC.
HACKENSACK, NEW JERSEY

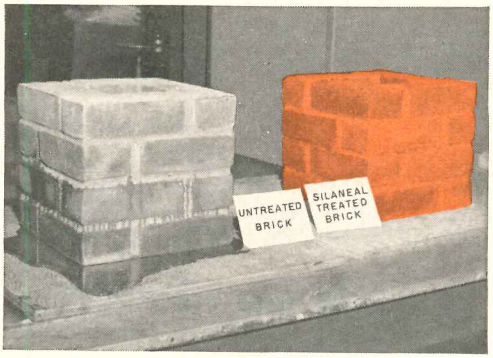
NEWS from Dow Corning

SILANEAL Reduces Water



Tests Prove: SILANEAL Helps Prevent Leaks and Improve Bond Of High Suction Brick

Both brick test tanks above were built by the same mason, using full head and bed joints from the same batch of mortar and the same type of *high suction rate* brick. The only difference: tank at right was built of brick which were *treated at the brick plant with Silaneal®*. Just before the photo was snapped, this tank was filled with 8 inches of water. No leakage occurred. The other tank developed leaks even as it was being filled.



Now, look at the photo at right. It shows the same two tanks five minutes later. Note how the one built of brick treated with *Silaneal* still shows no sign of water penetration. The one built of *untreated* brick shows severe leakage at the mortar-brick interface.

Specify

SILANEAL®
keeps brick clean

Dow Corning

Penetration Of Brick Walls

Why Silaneal makes the difference

A chief cause of leaky brick walls is mortar shrinkage which results in minute cracks at the interface of the mortar and brick. Reason for shrinkage: when a high suction rate brick is placed on fresh mortar, the brick immediately sucks considerable water out of the mortar. Thus, the mortar dries too quickly and shrinks, leaving a hairline crack.

Of course, in order for the Silaneal treatment to be effective, high quality workmanship in the laying of the brick is a must.

Silaneal treatment reduces *initial* water absorption of high suction rate brick. By applying Silaneal to the bedding surfaces of such brick, the brick manufacturer can control the suction rate, and thereby eliminate this cause of mortar shrinkage.

Until Silaneal, the recommended method for controlling this problem on high suction brick was to soak the brick. The difficulty: How long to soak? Too much absorbed water causes "floating". Too little absorption is ineffective. The common practice of spraying the brick pile also results in varying suction rates throughout the pile. Only Silaneal assures proper mortar hydration with high suction rate brick.

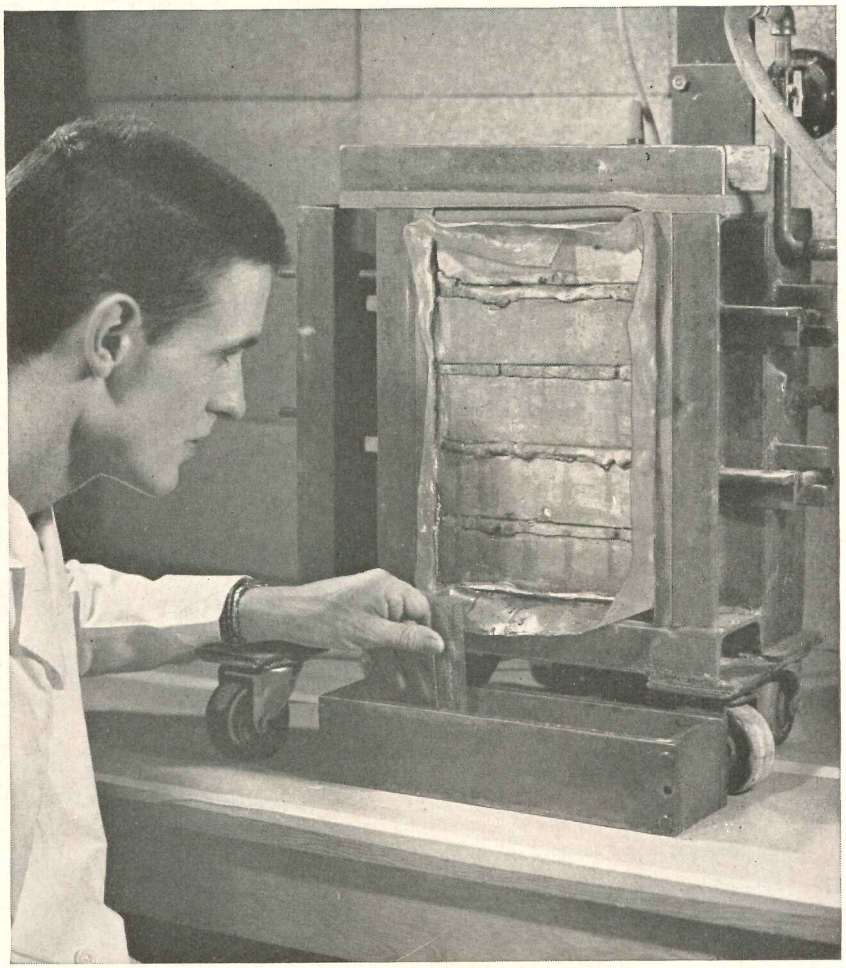
A better bond, a stronger wall!

Obviously, without hairline cracks at the interface of the mortar and brick, you have a better bond . . . a stronger wall. That's another good reason for specifying Silaneal treatment!

Other important Silaneal features

- Keeps brick clean
- Minimizes efflorescence
- Speeds construction

Get full information about Silaneal today. Write Department 0815.

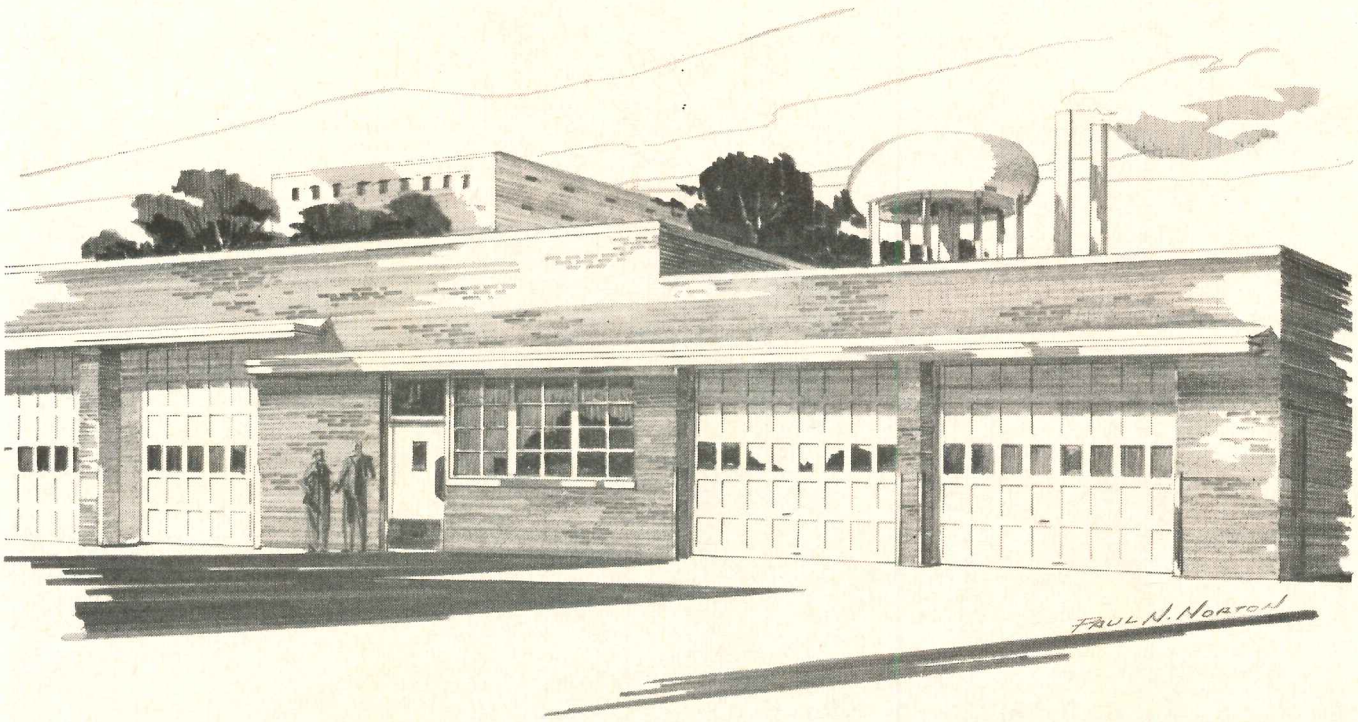


Exhaustive tests, simulating wind-driven rain, have shown repeatedly: No leakage through wall panels built of high suction rate brick *treated with Silaneal;* Serious leakage through hairline mortar cracks in panels built of high suction brick *without Silaneal treatment.*

TYPE BRICK	UNTREATED SUCTION RATE	SUCTION RATE AFTER SILANEAL TREATMENT	MILLILITERS WATER LEAKAGE AFTER 400 MINUTES	
			Untreated	Silaneal Treated
SOFT MUD	77	9	28,145	0
EXTRUDED	43	10	80	0
DRY PRESSED	148	5	1500	0

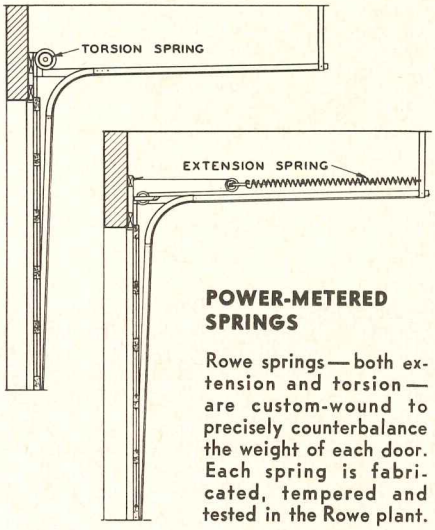
CORPORATION MIDLAND, MICHIGAN

branches: ATLANTA BOSTON CHICAGO CLEVELAND DALLAS LOS ANGELES NEW YORK WASHINGTON, D. C.



RŌWAY Doors

GIVE HOME-GARAGE CONVENIENCE TO COMMERCIAL BUILDINGS



POWER-METERED SPRINGS

Rowe springs — both extension and torsion — are custom-wound to precisely counterbalance the weight of each door. Each spring is fabricated, tempered and tested in the Rowe plant.

Raising even a large RoWay Overhead Commercial Door is virtually as easy as opening a residential garage door. This important advantage comes from "Power-Metered" springs — a RoWay exclusive. Every door is exactly counterbalanced with a custom-wound spring, a process made possible by RoWay's all-under-one-roof fabrication system. The manufacturing of all components in the RoWay plant also assures you of strict quality control. Mechanical perfection goes hand in hand with the modern proportions of RoWay doors and the durability of lifetime-guaranteed Masonite Dorlux panels. For year 'round functional convenience, RoWay Doors are completely weathertight to seal out snow, rain and dust. Motor operators are available for all RoWay Doors. On your next industrial or commercial job, put quality into action with RoWay Overhead Doors.

there's a Rō Way for every Doorway!

Find Your Nearest Distributor In The 'Yellow Pages'

SEE OUR CATALOG IN SWEET'S ARCHITECTURAL FILE OR WRITE FOR COPY

RESIDENTIAL • INDUSTRIAL • COMMERCIAL

Rō-Way OVERHEAD DOORS

ROWE MANUFACTURING COMPANY
1025 Holton Street • Galesburg, Illinois

How Sylvania's
Sylva-Flo Troffer with Multi-Vent®
gives you

- as much as 20% *more* light output
- longer ballast life
- true lamp color
- reduced maintenance and operating costs
- superior room air-conditioning

Sylvania's Sylva-Flo Troffer with Multi-Vent provides you with more than the convenience and economy of combining Lighting and Air Distribution in one efficient unit. It actually increases the quantity and improves the quality of the lighting system. Here's how . . .

Temperature affects the lighting efficiency of a fluorescent lamp. And the heat that builds up in a *conventional* troffer (or in a combination unit that isolates lamps from the air flow) reduces the light output of the lamps by as much as 20%. This heat build-up also has other effects. It shortens the life of the ballasts. It also affects the phosphors in the lamps, causing some variation from their designed color.

Now look at the illustration of Sylvania's Sylva-Flo Troffer using Pyle-National Company's Multi-Vent System of low-velocity air distribution. As the air passes through the fixture, it clings to the sides and flows out of the openings into the room area. As this air is directed through the fixture, the heat generated by the lamps is drawn into the air stream. The removal of this heat cools the lamp chamber.

The cooler temperature within the lamp chamber resulting from this heat removal . . .

. . . increases the light output of the fluorescent lamps as much as 20% (as compared to a troffer without air flow or to a combination unit with isolated lamp chamber) because the lamps are operating nearer their peak efficiency.

. . . adds appreciably to the life of the ballasts.

. . . permits the lamps to operate nearer their intended color.

In an installation where all fixtures handle air, as recommended, these benefits result from both the "supply" and "return" troffers.

In addition, the air passing through the "return" units prevents a large percentage of fixture heat from reaching the room area and minimizes dirt collection. In most installations, this lowers initial, operating and maintenance costs.

Sylvania's Sylva-Flo Troffer using the Multi-Vent System features a *coalescent* air stream which brings a continual, comfortable, gentle flow of *fresh*, conditioned air down into the occupied area. This low-velocity system provides many distinct advantages over other air distribution methods.

Because of these outstanding features, you should investigate Sylvania's Sylva-Flo Troffer with Multi-Vent fully before specifying. To obtain full detailed information, see your Sylvania representative or write for our new 20-page booklet.

SYLVANIA LIGHTING PRODUCTS
A Division of SYLVANIA ELECTRIC PRODUCTS INC.
One 48th Street, Wheeling, West Virginia

® Registered Trade Mark—The Pyle-National Co.

SYLVANIA

Subsidiary of **GENERAL TELEPHONE & ELECTRONICS**

GENERAL SYSTEM

"Best Buy"

SHOWER FOR REMOD

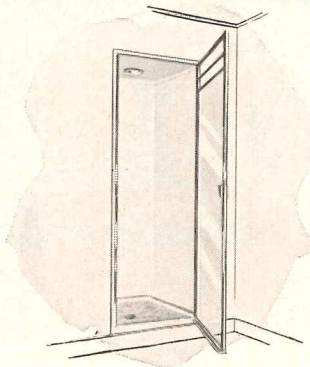
The **CADET** by

FIAT®

Choice of 4 Models!

Corner Cadet (Model 28) pictured above is free standing, also available for building-in (28B). Shown at right is the Square Cadet (27B) built-in. Also available free standing (Model 27). The Cadet line comes in white and choice of colors to match other fixtures.

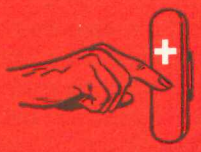
Note of luxury at low cost: Add a FIAT quality door.



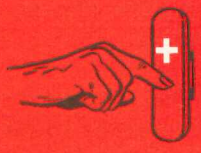
ELING!

SAVES ½* TILE SHOWER COST!

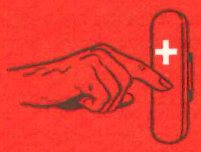
ADD UP THE SAVINGS AND YOU'LL SEE WHY:



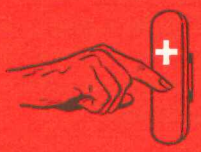
YOU SAVE entire cost of carpentry —no lumber or labor needed with FIAT free-standing models.



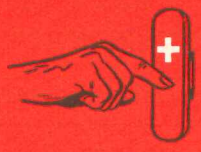
YOU SAVE the cost of sub pan construction, because you get a permanently leak proof Terrazzo floor.



YOU SAVE slow and costly tile work—especially the building of curb, threshold and jambs.



YOU SAVE valuable time and labor cost—get off the job faster—because one man installs a FIAT CADET SHOWER in minutes.



YOU SAVE the expensive nuisance of call-backs because over 2,000,000 FIAT shower installations attest to their serviceability and satisfaction.

*Average of mid-western contractors estimates.
Figures available upon request.

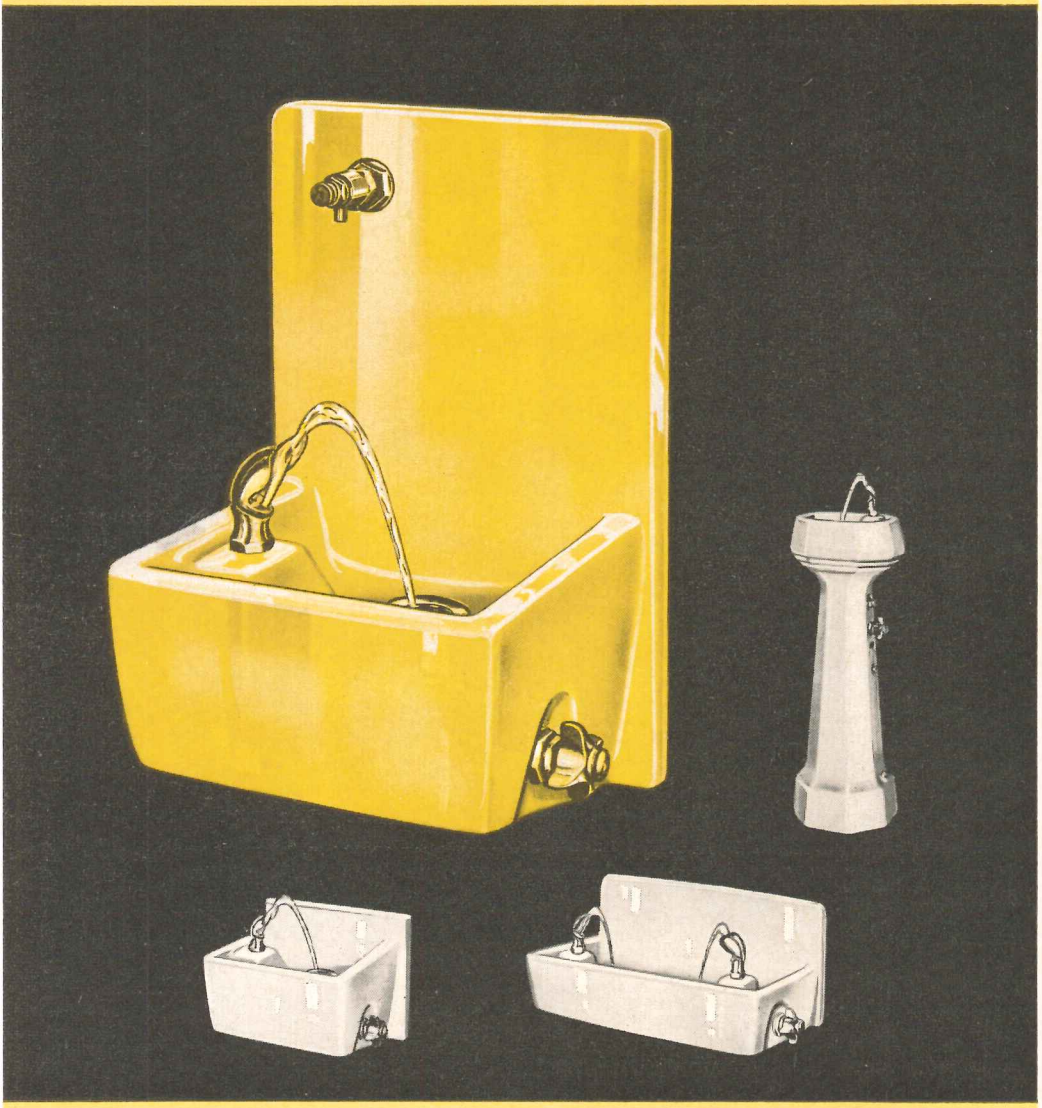
WHEREVER YOU ARE, YOU'RE NEVER FAR FROM ONE OF 5 FIAT FACTORIES

NEW YORK	CHICAGO	LOS ANGELES	SOUTHEAST	CANADA
Plainview, Long Island	Franklin Park, Illinois	City of Industry, Calif.	Albany, Georgia	Orillia, Ontario

Sold and installed by Plumbing Contractors—Distributed by leading Plumbing Wholesalers everywhere. Write for details.

FIAT METAL MANUFACTURING CO., 9301 Belmont Avenue, Franklin Park, Ill.

Streamlined fountains of glistening vitreous china



in modern color

The matchless beauty of vitreous china is successfully combined with functional utility in these streamlined fountains by Halsey Taylor. The line is complete, providing a wide range of selection in face-mounted and semi-recessed wall types, as well as battery models and pedestals. Available in gleaming white or in attractive colors to suit your architectural decor.

The Halsey W. Taylor Co., Warren, Ohio

Halsey Taylor

Write for latest catalog, or see Sweet's or the Yellow Pages

THIS MARK OF LEADERSHIP IDENTIFIES THE MOST COMPLETE LINE OF MODERN DRINKING FIXTURES

261

Building Components

What Architects Want to Know About Bronze

continued from page 230

is not significantly affected by the action of acids used in various coloring processes. In La Jolla, California, where salt spray and heavy dew combine to create corrosive conditions which equal or exceed those encountered in artificial coloring processes, test measurements indicate that the corrosion rate on copper averages less than .00008 in. per year under constant exposure to the corrosive media. Thus, the few hours the patina-producing solution is active would not cause a measurable amount of thinning in the metal.

17. How long does it take for copper to acquire the blue-green patina?

In seacoast and industrial atmospheres, copper attains its characteristic patina in from 5 to 7 years. From 10 to 12 years is normally required for full coloration in rural atmospheres. In extremely dry atmospheres, the patina may take more than 25 years to develop or it may not develop at all. Regardless of the atmosphere, the natural patina develops slowest on vertical surfaces.

18. What can be done to restore neglected bronze to its original appearance?

Heavy encrustations of oxide can be loosened with a solution of sodium bisulfate after the metal has been washed to remove collected dust and grime. The oxide is then removed with fine steel wool. A final cleaning with metal polish restores the luster.

19. How about the color of architectural bronze after about 10 years?

If allowed to weather naturally without periodic "oiling", architectural bronze, after about 10 years' exposure, will develop the characteristic deep gray-green patina associated with bronze statuary.

20. Please compare weathering of stainless steel and bronze or red brass.

All metals, under conditions of exterior exposure, weather to deeper shades. In the case of aluminum and stainless they eventually turn deep gray or black. Bronze and red brass

continued on page 290

The true hand-made character of this exclusive development lends itself to any desired design concept.

The rich, brilliant color is double-burned to withstand the elements for the life of the structure. It is unique . . . and gives wings to imagination.

Black, L-52

Dark Red, L-76

Orange, L-65

Gray Green, L-35

Light Red, L-75

Dark Blue, L-25

Light Blue, L-23

Turquoise, L-21

White, L-10

Yellow, L-85

A CLAYCRAFT COLORAMICS

EXCLUSIVE

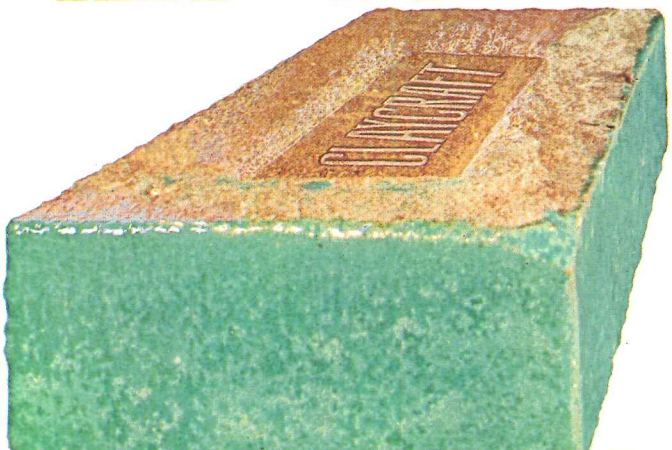
WYANDOT SAND MOLD CERAMIC GLAZED BRICK

EVERY BRICK HAS A PERSONALITY

PERMITS EXPRESSIVE FREEDOM TO ACHIEVE

TRUE INDIVIDUALITY IN CONTEMPORARY

OR TRADITIONAL ARCHITECTURE

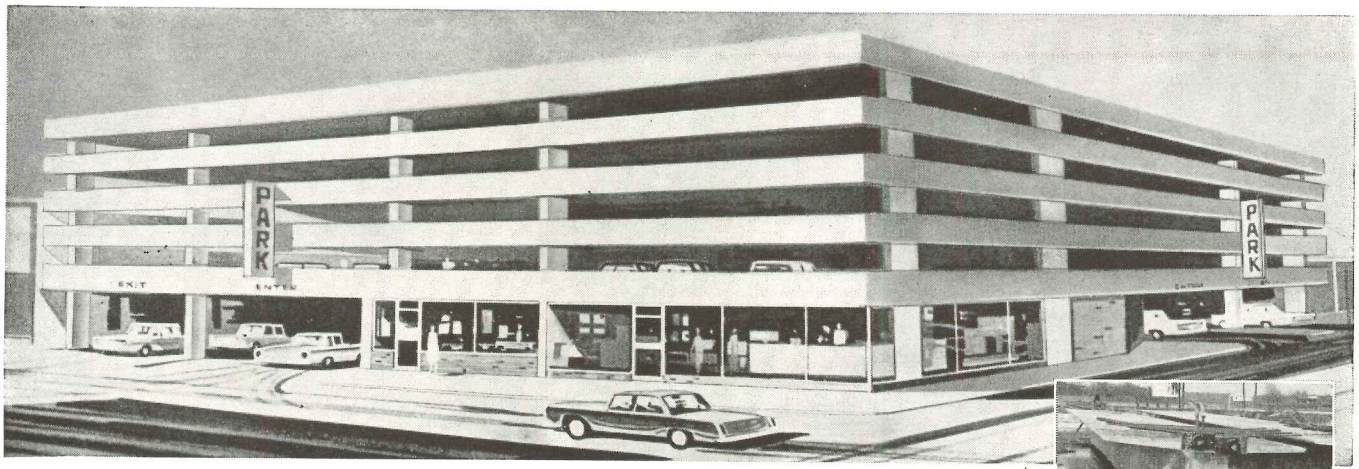


COLORAMICS

THE CLAYCRAFT COMPANY

Columbus 16, Ohio

DISTRIBUTORS IN ALL PRINCIPAL CITIES



THE PRESCON SYSTEM OF POST-TENSIONING FOR PARKING GARAGES PROVIDES DESIGN FLEXIBILITY AND ECONOMY

Houston's parking problem will be reduced by the Allright, Inc. parking garage* (250 car capacity and 3000 sq. ft. of retail space). Using poured-in-place, pan type construction; joists are 18½" deep, maximum spans of 50'6", maximum bay width 43'6". Slabs covering the roof and retail areas are post-tensioned to render them waterproof.

Parking garages, nation-wide, have used these other types of construction with the Prescon System of post-tensioning: (1) Lin tees with stressed poured-in-place slabs, (2) dia-grid poured in place, (3) precast prestressed elements, (4) lift slabs.

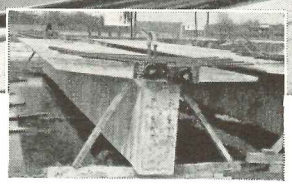


Photo of stressing end of a single tee to be used in large parking garage with spans of 63' and spaced 28' apart.

For job site or yard use with many structure types, the Prescon System of post-tensioning offers savings and design flexibility using readily available materials.

Other parking garages using Prescon System: Dalton, Dallas; 1st Nat'l Motor Bank, Longview, Texas; Major Oil Company, downtown, Houston; Beverly Hills, (Calif.); Am. Nat'l Bank, Denver; Bd. of Trade, Kansas City; Hollywood Legion Bowling, (Calif.); Remington-Rand and Baldwin Chevrolet, Los Angeles.

*Consulting Engineers: Mullen and Powell, Dallas
Contractor: Spaw-Glass, Inc., Houston

PRESCON
© The Prescon Corp

THE PRESCON CORPORATION
General Offices: P. O. Box 4186, TUlip 2-6571, Corpus Christi, Texas
Branch Offices: Albany, N. Y., Atlanta, Ga., Dallas, Texas, Denver, Colo., Los Angeles, Calif.
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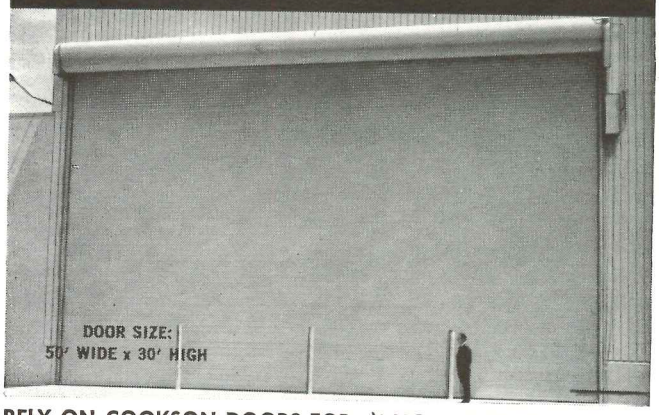
EVERYTHING YOU WANT IN A STEEL ROLLING DOOR—BY **COOKSON**



RELY ON COOKSON DOORS FOR ★ MORE EFFECTIVE USE OF SPACE ★ EASIER SPECIFICATION AND INSTALLATION ★ LOWER MAINTENANCE YEAR-IN, YEAR-OUT ★ MANY SPECIAL AND EXCLUSIVE FEATURES FOR BETTER PERFORMANCE

Write for General Bulletin 6001. Contains detail drawings and complete architectural specifications.

THE COOKSON COMPANY
1525 Cortland Avenue, Dept. AR
San Francisco 10, California
Sales and Service Representatives Throughout the U. S. A.

ALSO FIRE DOORS • WOOD COILING PARTITIONS • COUNTER DOORS • GRILLES

FOR SAFER, MORE COMFORTABLE, ENJOYABLE *Living*

NEW **TALK-A-PHONE**
ALL TRANSISTOR
HOME INTERCOM-RADIO SYSTEM

Everyone in the family will enjoy the comfort, convenience, and peace of mind this system provides. From any room in the house you can . . .

- Listen-in on baby, children, or sick room.
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Distinctively styled. Beautifully finished in richly blended gold, polished and satin silver tones. Easily installed in any home. Built-in and surface-mounted models available. Write for complete information.

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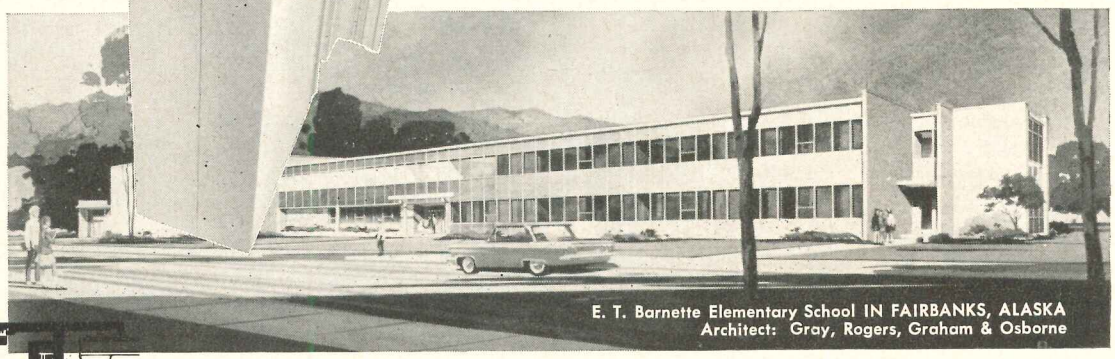
A.I.A. File No. 31-i-51

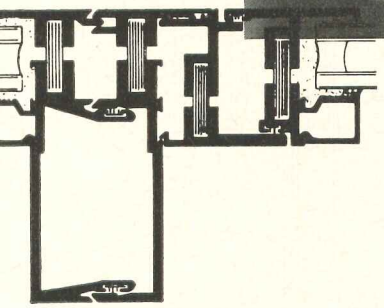
new INSU-WALL

cuts thermal conduction up to 63%

through aluminum curtain wall grid section



E. T. Barnette Elementary School IN FAIRBANKS, ALASKA
Architect: Gray, Rogers, Graham & Osborne



Cross section showing mullion with fixed lite to left and operating sash to right. Fine parallel lines are thermal insulator in extrusions.

Now, exclusively from MARMET Corporation . . . a new aluminum curtain wall system containing a *hidden* thermal barrier between exterior and interior wall metal. Independent laboratory tests prove it cuts thermal conduction through the metal *by up to 63%!* The special insulator material is permanently bonded (with an epoxy resin) and pinned into the mullion and sash extrusions . . . providing identically fast erection methods to MARMET 6442-43 grid panel (non-insulated) series on the job site. INSU-WALL requires no tedious and costly *sub*-component assembly on the building. In this respect there is no comparable insulated curtain wall on the market today!

And now at last, aluminum's lightness and permanence of finish are adapted to the severest winter's cold and the most searing summer's heat. INSU-WALL has a lower U factor .408 *than 1" insulated glass.* We quote from "Becher-Hoppe" (consulting engineer's) test report: ". . . any attempt to increase the insulating value of the curtain wall (Insu-Wall) would have to include an improvement of the insulating value of the glass and banding" . . . The tests showed that condensation and frost will form on the insulated glass *before* forming on the metal! THEREFORE, Insu-Wall can be used in connection with one inch insulated glass with complete assurance that if condensation and frost are not a problem on the glass, they will be no problem on the curtain wall metal.

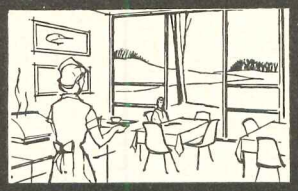
Four Key advantages in INSU-WALL

1. Reduces heat loss through curtain wall metal in severe winter cold. Because the condensation problem does not exist with Insu-Wall, perimeter heating may be replaced with less expensive systems.
2. Licks the problem of condensation forming on interior curtain wall metal . . . with attendant possible damage to plaster, wall paneling, carpeting, drapes and furnishings.
3. Reduces air conditioning load by preventing heat transfer into building through sun heated curtain wall framing in warm climates or summer temperatures.
4. Requires no *added* installation time or added assembly labor on the site.

INSU-WALL's many advantages in performance, design features, erection methods and types of building application are so extensive, that space does not allow fully covering them here. We strongly suggest you send the convenient coupon below for full information, including the independent laboratory test report.

MAKES ALUMINUM CURTAIN WALL PRACTICAL IN ALL THERMAL PROBLEM AREAS

AIR CONDITIONED OFFICES
Heat transfer into cool inside air is minimized as temperatures build up in the sun on large expanses of curtain wall metal.



HUMID CAFETERIAS and RESTAURANTS
By minimizing temperature differentials between aluminum surfaces and humid inside air, INSU-WALL eliminates the condensation problem arising from steam tables and adjacent kitchen areas.

SCHOOLS and COLLEGES
School heating costs can be reduced by reducing the heat loss thru curtain wall used in school stairwells, entrance areas and corridor passages as well as classrooms.

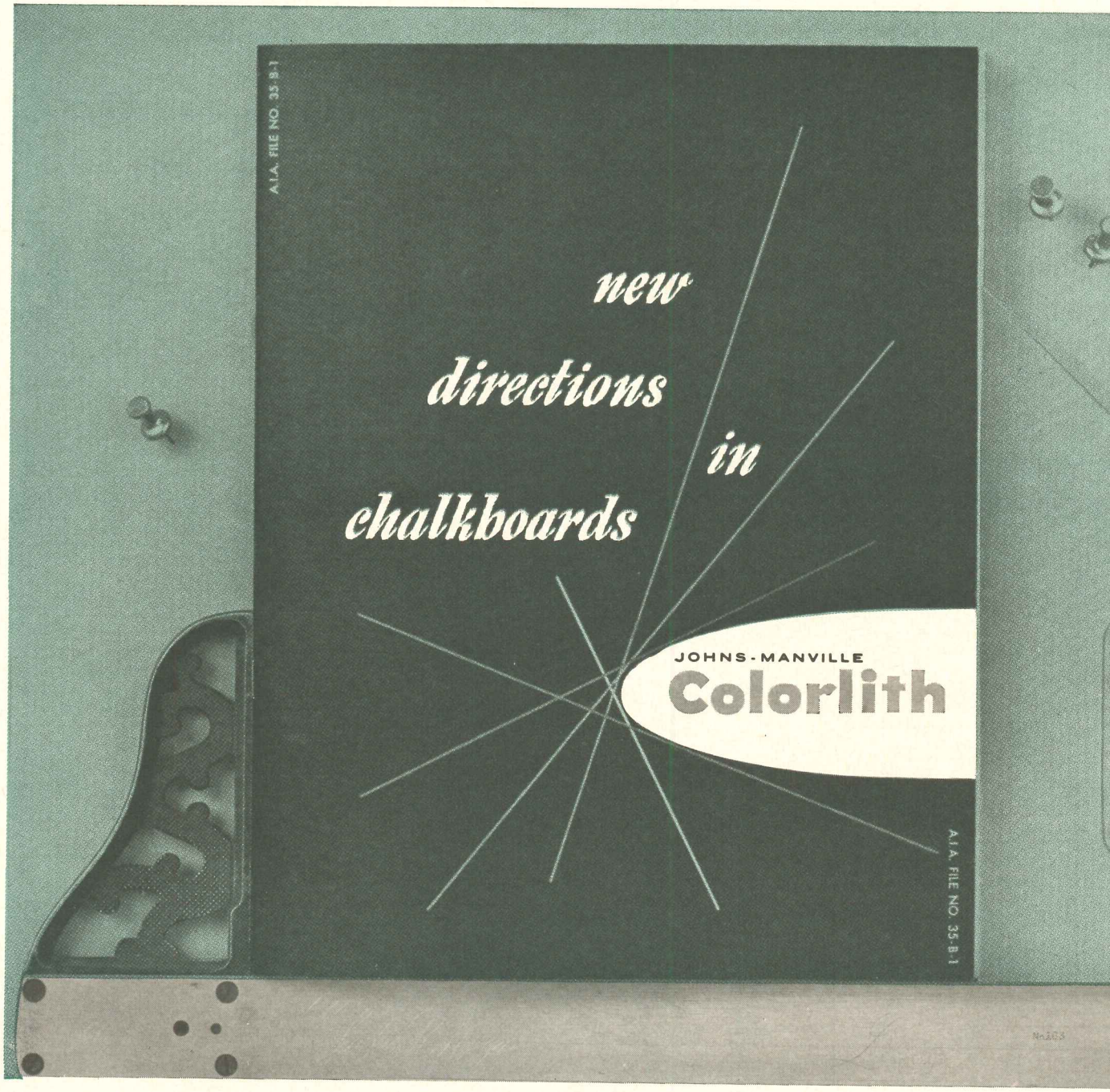
INDOOR SWIMMING POOLS
In many cases, the esthetic effects of daylighted, curtain walled, swimming pools can be maintained without frost or heavy condensation.

MARMET CORPORATION
300-C Bellis Street, Wausau, Wis.

For additional information on the complete line of MARMET products—consult Sweet's Catalog File No. 3a or write to MARMET for catalog. Mar

for full information on INSU-WALL **MAIL TODAY**

to MARMET Corporation
300-H Bellis St., Wausau, Wis.
Please send me full information on INSU-WALL
Name .....
Address .....
Town ..... Zone .....
State .....

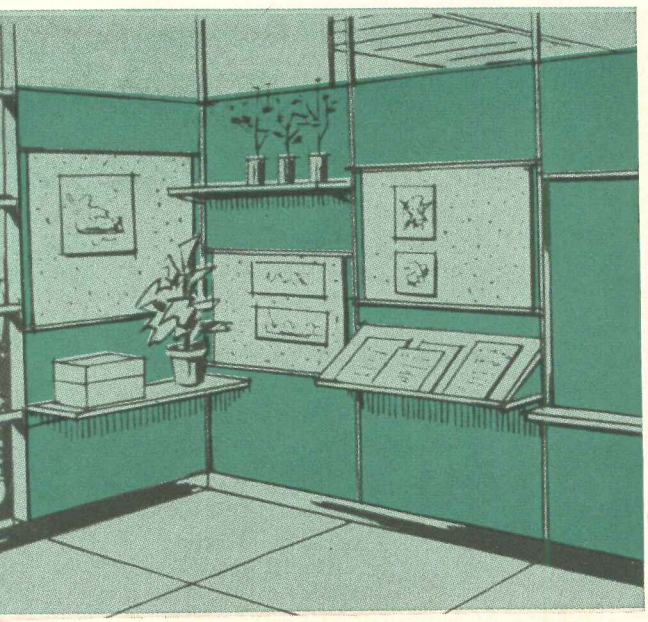


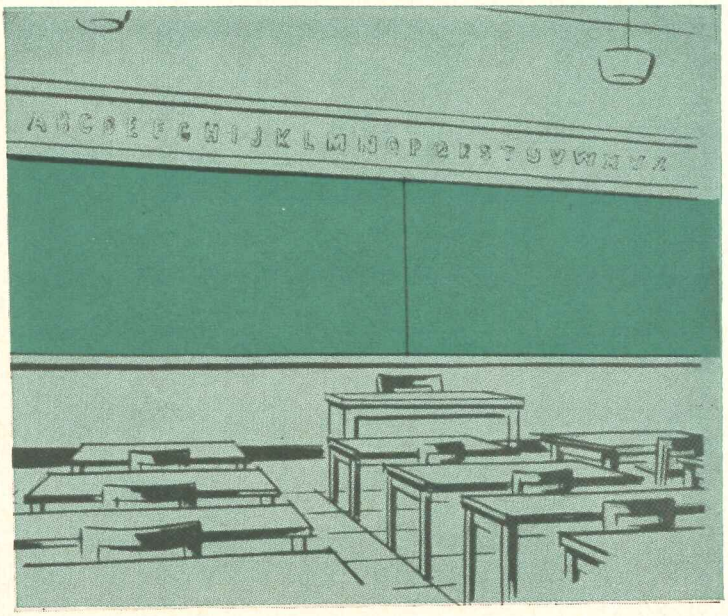
New chalkboard idea booklet shows advanced classroom

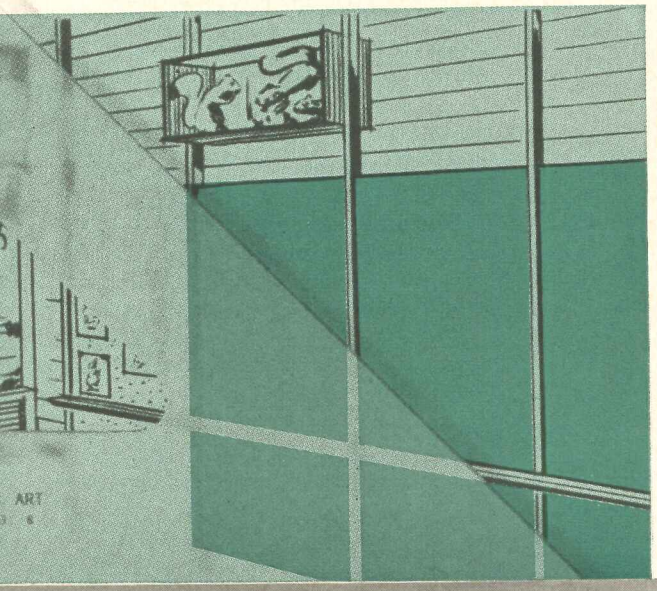
STRONG, DURABLE PANELS IN FOUR INTEGRAL COLORS PROVIDE SMOOTH WRITING SURFACE AND HIGH VISUAL CONTRAST

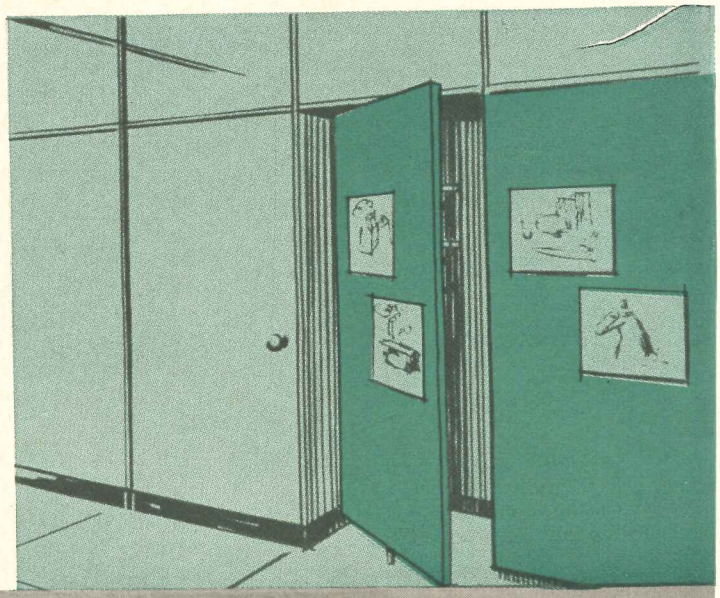
Your imagination can lead to exciting new ideas in classroom design when you use J-M Colorlith chalkboard. This versatile and unusual asbestos-cement material makes possible many novel construction features . . . such as partitions, doors, wardrobe panels, movable storage units, convertible and easel-reversible units. Yet for all its structural strength and integral color, J-M Colorlith costs less than other quality boards!

The three regular Colorlith shades—Cyprus Green, Cameo Brown and Charcoal Gray—have been supplemented with deep, warm J-M Spruce Green. This new blue-green chalkboard is high in visual contrast with a desired reflectance factor of 15%. And, for use as a still or motion picture screen, you can specify Colorlith in Projection White. Panels in all colors are 4′ x 8′, light in weight, easy to handle









Shown here are excerpts from "New Directions in Chalkboards," a colorful, 16-page brochure containing many exciting chalkboard designs especially created for Johns-Manville by Peter Schladermundt Associates, noted industrial designers.

Detailed schematics show how Colorlith can be installed with or without trim, combined with tackboard, using snap-on chalk trays, and in many other ways. Just fill out the coupon below for your free copy of this instructive brochure.

designs made possible by J-M COLORLITH®

and install. No special wall treatment is required.

Colorlith offers good "tooth" without "drag," so chalk glides smoothly over the surface in a full, unbroken line of greater intensity. Colorlith chalkboards are easy to clean, and because their background is clear and dark, erasure leaves no "ghosts." Boards require no chalking-in. In any of its colors, Colorlith meets "American Standard Practice for Schools" reflectance recommendations of AIA and the Illuminating Engineering Society. For details mail coupon. In Canada, address Canadian Johns-Manville, Ltd., Port Credit, Ontario. Cable address: Johnmanvil.

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Johns-Manville
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Please send me J-M Brochure IN-295A, "New Directions in Chalkboards."

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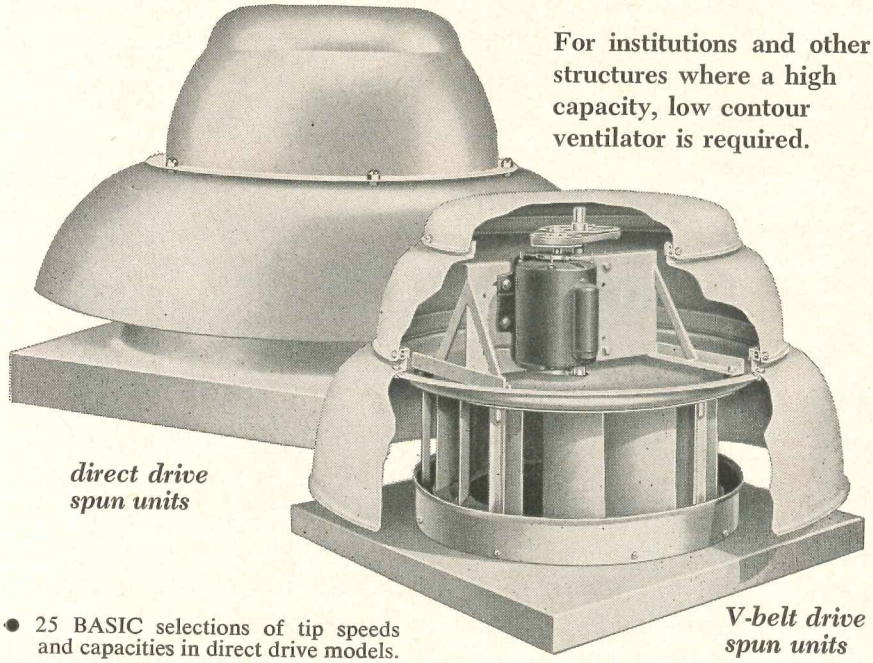
NEW Burt Spun Aluminum

Direct and V- Belt Drive Centriflow Fan Ventilators

For institutions and other structures where a high capacity, low contour ventilator is required.



direct drive spun units

V-belt drive spun units

- 25 BASIC selections of tip speeds and capacities in direct drive models.
- 64 BASIC selections of tip speeds and capacities in V-belt drive models.
- CAPACITIES from 65 to 27,648 CFM.
- HORSEPOWER ratings from 1/60 to 7½.
- SIZES from 6" through 48" wheel diameters.
- STATIC PRESSURE range from O" through 1" W.G. (Higher static pressures on application).
- LOW PROFILE heavy gauge spun aluminum housings.
- NON-OVERLOADING backward curved, non-sparking aluminum fan wheels.
- ADJUSTABLE SHEAVES on V-belt units to change capacities at anytime.
- DAMPERS available in drop-in sleeve type, automatic back-draft or motor operated.
- BURT DESIGNED for minimum noise levels.
- AMCA CERTIFIED capacity ratings for units of 16" wheel diameter and larger.

Send for FREE Data Book!

Write for Centriflow Data Book SPV-12C-160 and Burt Data Book SPV-101-H which supplies quick data on Burt's complete line of modern Roof Ventilators.

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The Burt Manufacturing Company

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MEMBER AIR MOVING & CONDITIONING ASSOCIATION, INC.

What Architects Want to Know About Bronze

continued from page 282

also deepen in color upon weathering, going successively from a chocolate brown to a deep brown to black, but the final color is the gray-green patina which rises out of the black phase.

21. Will a statuary finish on exposed bronze keep its color without frequent "oiling"?

Yes. In fact a yearly oiling—well rubbed on and then vigorously rubbed off—will retain the color quite well. The yearly oilings should be interspersed with periodic washings with a solution of "Soilax" or similar household cleaner and water to remove accumulated dust and dirt.

22. How can the natural color of bronze be retained in outdoor applications?

The natural color of bronze can best be maintained under exterior conditions by the application of a clear organic coating. Either natural or synthetic resins may be used, although synthetic resins predominate. Because only small items such as hardware lend themselves to baking, most clear organic coatings for architectural applications are of the air-dry type. The acrylics and the butyrates are two families of synthetic resins which have proved reasonably durable when applied as clear coatings, but at present even the best clear organic coatings must be stripped and reapplied periodically on all exterior bronze work in order to maintain a bright finish.

23. Is there a possibility that the colors of standard alloys made by different manufacturers might vary?

The possibility is quite remote that the basic color of standard alloys of the same composition produced by different manufacturers would differ. This is not to say that the finished metal made by one manufacturer will match other makes in color since operations such as pickling and cleaning may vary. Conceivably, metal from one mill might require either more or less finishing in the fabricator's shop in order to achieve a close color match with metal of the same alloy obtained from a different source.

Corridor on the building's executive floor—walls decorated with Lyt-all Flowing Flat.

ARCHITECTS DO "TOTAL JOB" FOR LIBBEY-OWENS-FORD OFFICE BUILDING

Executive dining room—walls decorated with Lyt-all Flowing Flat.

From over-all concept, to heating, to air conditioning, to furniture, even to desk sets and ash trays, Skidmore, Owings & Merrill were responsible for the total design of this new L-O-F building.

Now a dominant structure in the city of Toledo, this glass-sheathed building is both functional and beautiful. Every detail harmonizes with its surroundings, and with the whole. Interior textures are coordinated, and colors blend with and complement each other. Over 2,000 gallons of Pratt & Lambert paints were used, including Lyt-all Flowing Flat, Vitralite Enamel Eggshell and Vapex Wall Primer.

For complete information on professional-level color planning services by experienced P & L representatives, write: Pratt & Lambert Architectural Service Department, 3301 38th Avenue, Long Island City 1, N. Y.; 4900 S. Kilbourn Ave., Chicago 32, Ill.; 75 Tonawanda St., Buffalo 7, N. Y.; 254 Courtwright St., Fort Erie, Ontario.

Low-angle exterior view.

Executive Office Building
Libbey-Owens-Ford Glass Co., Toledo, Ohio
ARCHITECTS:
Skidmore, Owings & Merrill
CONTRACTORS:
George A. Fuller Co.
PAINTING CONTRACTOR:
A. S. Casenger Painting & Decorating Co.

CRAFTSMANSHIP IN THE PACKAGE

PRATT & LAMBERT-INC. NEW YORK • BUFFALO • CHICAGO • FORT ERIE, ONTARIO

The Paint of Professionals for over a Century

NOW...a true natural-fissured acoustical tile for 2-hour fire-rated ceiling assembly

NEW FISSURED PROTECTONE* MINERAL FIBER TILE ...A CELOTEX EXCLUSIVE

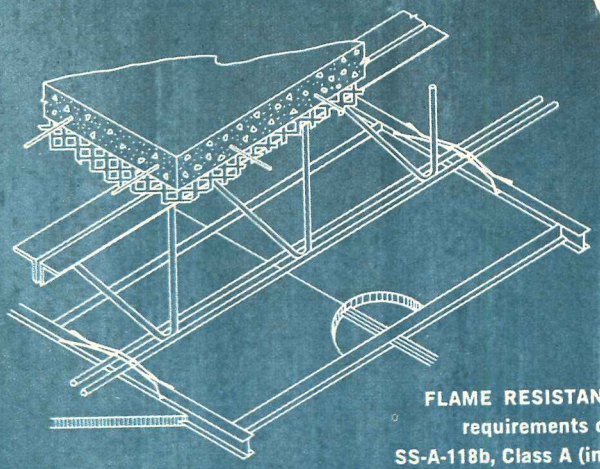
Bringing you all the traditional beauty and authentic character that only natural travertine fissuring provides.

Not too bold, not too delicate... new Celotex PROTECTONE* Mineral Fiber Tile offers unusual design opportunities for architects seeking distinctive near-monolithic travertine appearance and high sound absorption (NRC .80) for ceilings requiring 2-hour fire-rated assembly.

Call your Acousti-Celotex distributor for samples, specifications, expert Ceiling Consultation Service. He's listed in the Yellow Pages.

*Trademark

Natural fissured PROTECTONE* Mineral Fiber Tile. Butt edge, 12″ x 12″, kerfed for concealed H & T suspension system. One of the family of Celotex fire-rated acoustical products.



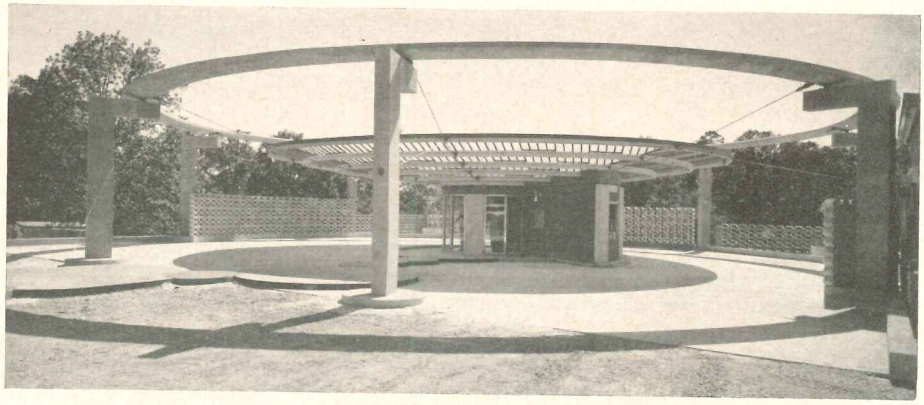
FLAME RESISTANCE: Meets requirements of Fed. Spec. SS-A-118b, Class A (incombustible). Two-hour fire-rated assembly.

Acousti-CELOTEX
REGISTERED U.S. PAT. OFF.
SOUND CONDITIONING PRODUCTS

The Celotex Corporation, 120 S. La Salle St., Chicago 3, Ill.
In Canada: Dominion Sound Equipments, Limited, Montreal, Que.

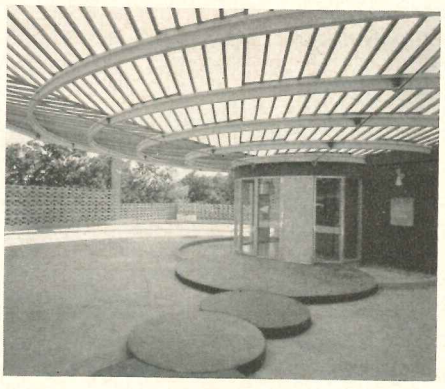
If it's "by CELOTEX" you get QUALITY... *plus!*

CIRCULAR BANK FEATURES PLASTIC ROOF



The drive-in Union National Bank in Little Rock, Arkansas was completed last year. Its circular design was predicated by convenience to banking customers and the most effective use of available land. Architects were Ginocchio-Cromwell & Associates of Little Rock.

The bank's roof is made of reinforced translucent flat plastic panels, with a thickness of .060 in. and weighing eight ounces per sq ft. The roofing rests on two by two wood strips that radiate outward from the center and rest on five in. I-beams. These beams are supported by one in. diameter cables strung from a compression ring which is 85 feet in diameter. The concrete compression ring, supported on eight reinforced concrete columns, is 36 in. wide with a maximum depth of 12 in. Concrete in ring develops 5000 pounds per sq in.



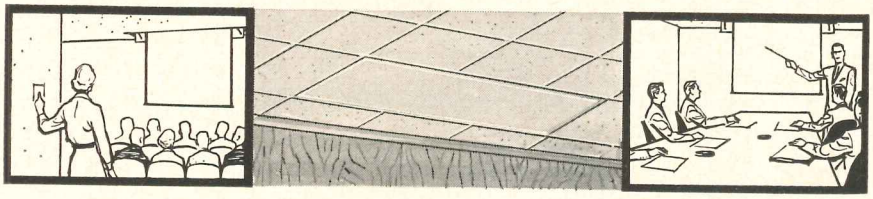
The roof drains through the center. The floor is of structural reinforced concrete.

The cost of the entire drive-in facility was about $52,000. Site work and flooring accounted for $22,300; construction above the grade, for $29,600.

General contractor was E. E. Armbrust of North Little Rock, Ark.

more news on page 298

For the Home...
Office or Conference Room



The quality projection screen that is fully automatic... operates electrically at the touch of a switch!

Touch the switch—and a ceiling panel lowers to permit the projection screen to roll quietly into position ready for use! Touch the same switch—and the screen returns to its concealed position out-of-sight until needed again! This is without a doubt the ultimate in quality projection screens. Famous Da-Lite White Magic Glass Beaded screen surface permits projection of pictures with sharp definition, colors appear at their very best. Completely assembled ready for fast, simplified installation. A quality product you will not hesitate to specify—backed by the world's leading manufacturer of projection screens.

Write today

New technical bulletin gives details on installation and operation of electrically operated Da-Lite projection screens.

Da-Lite®
SCREEN COMPANY, INC., WARSAW, INDIANA

UNLIMITED DESIGN POSSIBILITIES

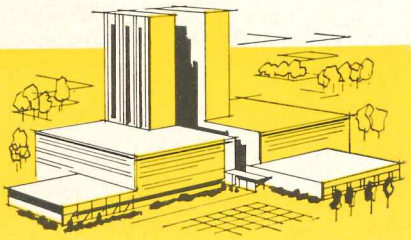
HONEYCOMB CORE—a "first" in the standard industry. Cutaway shows this new jet-age material—sandwiched, permanently bonded to both steel surfaces.

Vision lights and glass panels in great variety.

Standard preparation for the greatest variety of hardware . . . Standard cut out for cylindrical, mortise, unit and integra-locks . . . Your own choice of hardware, panic devices, concealed closures, trim and finish. Frames prepared for Universal Strike (ASA) to receive variety of locks.

Louvres—four types available: Air Conditioning, Fixed Slat, Adjustable Slat, Stamped.

Bonderized and prime painted. May be color matched with a durable baked enamel finish. A handsome wood grain finish also available.



Steelcraft's pre-engineered components permit literally thousands of design variations in transoms, sidelights, borrowed lights. Warehoused stocked distributors throughout the U.S. can prepare these sidelight and transom frames for daily delivery.

STEELCRAFT standard METAL DOORS and FRAMES

Over 4,000 door types, styles and sizes . . . over 7,000 frame variations

Now you can have complete versatility in standard metal doors . . . and frame variety to match. For Steelcraft offers the broadest line in the industry. Rugged, handsome doors—flush, exceptionally sound deadened, and with "billiard table" flatness due to their unique honeycomb core that tests prove to be superior to girder type construction. Quality at low cost, too—for Steelcraft's standardization and modern-flow assembly make possible passed-on production economies. *Get the full story today on why more and more architects specify Steelcraft. Valuable brochure on request.*

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Creativity unlimited with LUPTON aluminum curtain walls!

Countless are the ways you can achieve the modern, airy look in high-rise apartments with LUPTON aluminum curtain walls . . . a look that spells much easier rentability.

The combinations of materials and colors tax the imagination—glass or metal panels . . . a wide range of window styles . . . any color you want. In addition, LUPTON aluminum curtain walls team up beautifully with brick, stone, or concrete. On the other hand, they're eye-catching when used alone.

There's a down-to-business side, too. LUPTON aluminum curtain walls are low in initial cost. Require virtually no maintenance. Provide better thermal insulation than masonry. Two metal skins of each panel create a built-in vapor barrier.

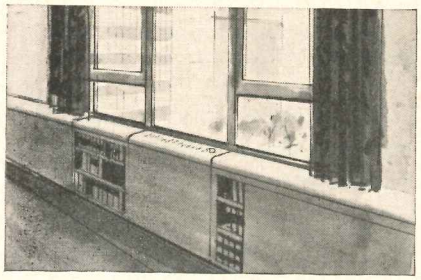
In many cases, you can set rental dates earlier, because cold weather doesn't interfere with the quick, easy installation of LUPTON aluminum curtain walls.

The single responsibility for fit and installation rests with LUPTON alone. Our years of experience with curtain walls and windows assure you of complete dependability.

Little wonder that the trend nationwide is to LUPTON aluminum curtain walls. For example, in Kansas City alone, 4 out of 5 new high-rise apartment buildings have turned to LUPTON. Another example is New York's Manhattan Island, where you can scarcely take a walk without passing a LUPTON aluminum curtain-walled building. Other examples can be found throughout the country.

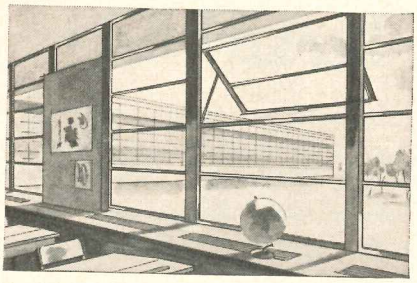
You'll find the LUPTON Curtain Wall and Window catalog in Sweet's (Sections 3 and 17). Then, talk with your local LUPTON man, or write to us for details.

OTHER LUPTON PRODUCTS THAT MAY SOLVE PROBLEMS FOR YOU ARE:



Comfort Conditioning.* 'LUPTON air-to-air heat pump, electrically operated, puts a personalized cooling, heating, and ventilating system in the curtain wall . . . year 'round comfort with individual temperature control.

*Trade-Mark



Engineered Windows. LUPTON "Master" windows in double-hung, projected or casement types—used in curtain walls or equally well in masonry construction. Weatherstripping optional for all types.

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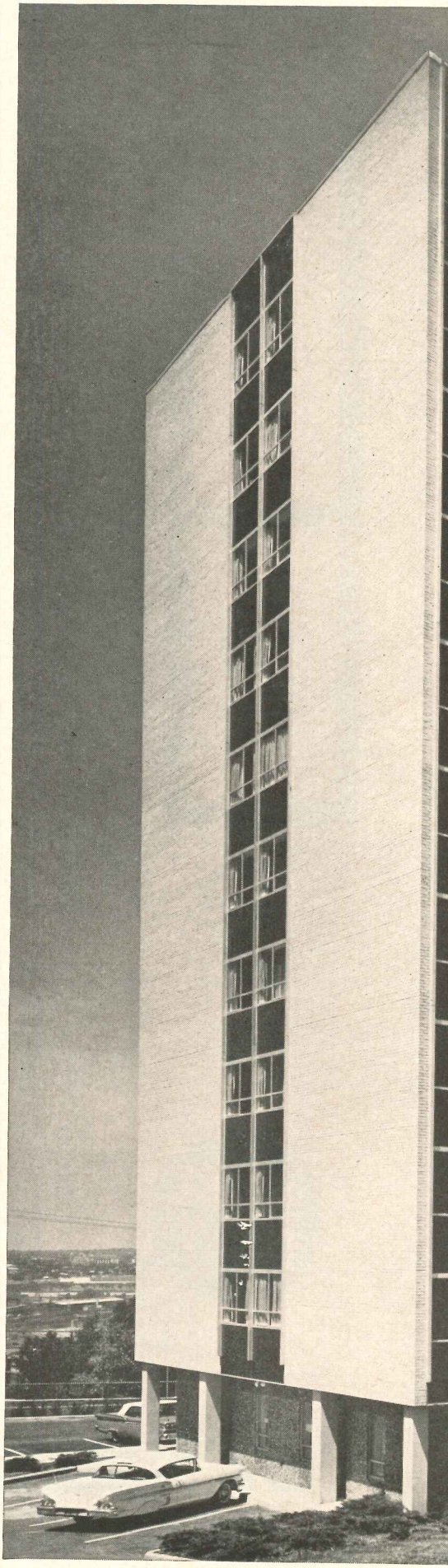
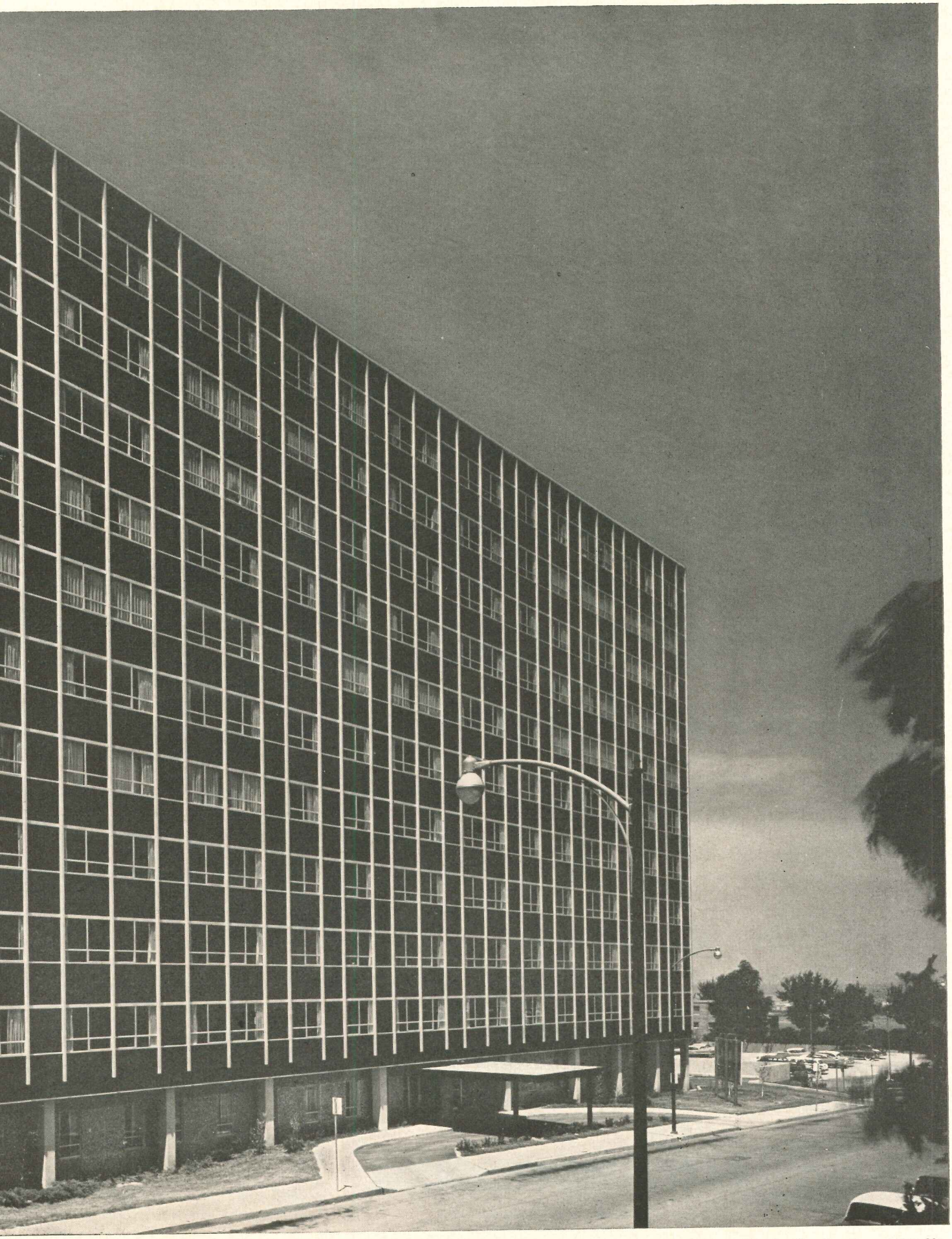


Quality Hill Apartment Building, Kansas City, Mo.



Architect: Kivett & Myers & McCallum, Kansas City, Mo. Contractor: Winn-Senter Construction Co., Kansas City, Mo.

L.A.A. Convention Panel Examines Architects Education

The responsibilities of architects, schools and licensing boards in the education of architects was the subject of the featured two-hour panel discussion at the recent Louisiana Architects Association convention in Baton Rouge.

Some 200 architects and wives attended the convention—one of the "first steps" taken by the organization since the new full-time state office in Baton Rouge was set up by the L.A.A. last August.

Panel moderator was Buford L. Pickens, Director of Planning at Washington University, St. Louis. Panel members were Dean Samuel T. Hurst of Auburn University; Dean John W. Lawrence of Tulane; Seymour Van Os of Shreveport, secretary of the State Board of Architectural Examiners; and O. J. Baker, head of L.S.U. Architectural School.

Dean Hurst began with a broad look at architectural education, asking if education could rise to its challenge of increased enrollment, higher costs and new developments. He named the A.I.A., the Association of Collegiate Schools of Architecture, the National Architectural Accrediting Board and the National Council of Architectural Registration Boards as agencies interested in the advancement of architectural education in the United States.

Discussing the architectural program at L.S.U. Mr. Baker said the architectural engineering plan established 11 years ago had evolved into a strictly architectural program with a five-year curriculum. Future plans include a graduate school and a separate school of architecture in lieu of a department of architecture in the school of engineering.

Dean Lawrence covered the program at Tulane, the state's only private non-tax-supported institution offering architecture. He said private universities are increasing enrollment while taking a smaller but more select percentage of the college population, and due to strict entrance requirements, Tulane more and more draws on the nation as a whole for its students and faculty.

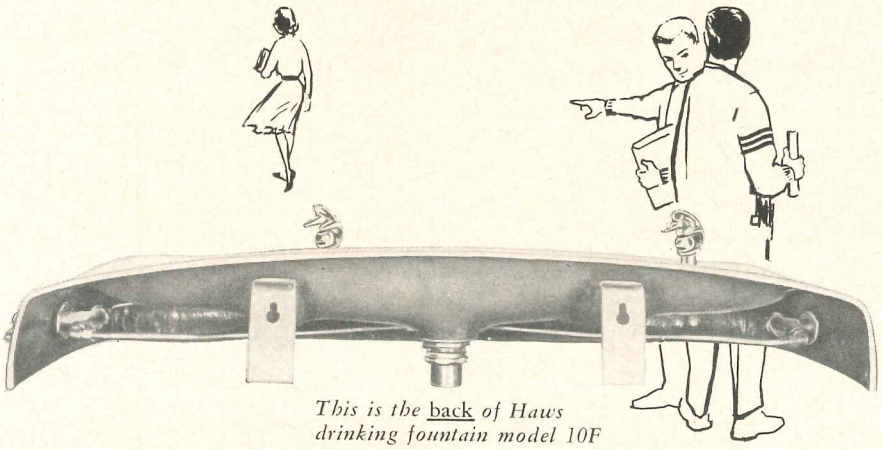
Mr. Van Os, discussing the role of the N.C.A.R.B. in the development of architects, cited the group's sponsorship of annual exams given students with diplomas from accredited schools.

Mr. Pickens surmised that the addition of required practical experience, in the school curriculum or following graduation would probably increase the percentage of applicants passing the exam (now between 30 and 32 per cent), but more important give the newly licensed architect a better-rounded education before he begins his practice.

He emphasized that even if state laws were changed to require practical experience, N.C.A.R.B. exams should not be thought of as the last hurdle. Practitioners should continue to do research and to further the education of younger architects in their offices. Then architectural schools and practitioners would be mutually helpful.

The 11th Annual Gulf States Regional Conference will be held in Louisiana in the fall of 1961.

more news on page 303



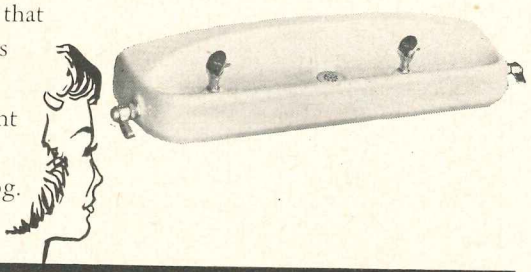
This is the back of Haws drinking fountain model 10F

Look at the Back for a change!

From the front Model 10F is a beauty in colorful fiberglass—but it is HAWS **unseen** quality that truly backs it up. Careful craftsmanship is from the inside out! This dual-bubbler model, heat and pressure laminated with reinforced fiberglass, has hidden features: exclusive flow controls, vandal proof accessories, easy-to-use wall hangers and overall strength.

And let's face it....

As the passer-by sees it, Haws Model 10F has all the styling distinction that makes HAWS the unanimous choice for beauty.
Specification sheets will be sent on request—or write for the complete HAWS 1961 Catalog.



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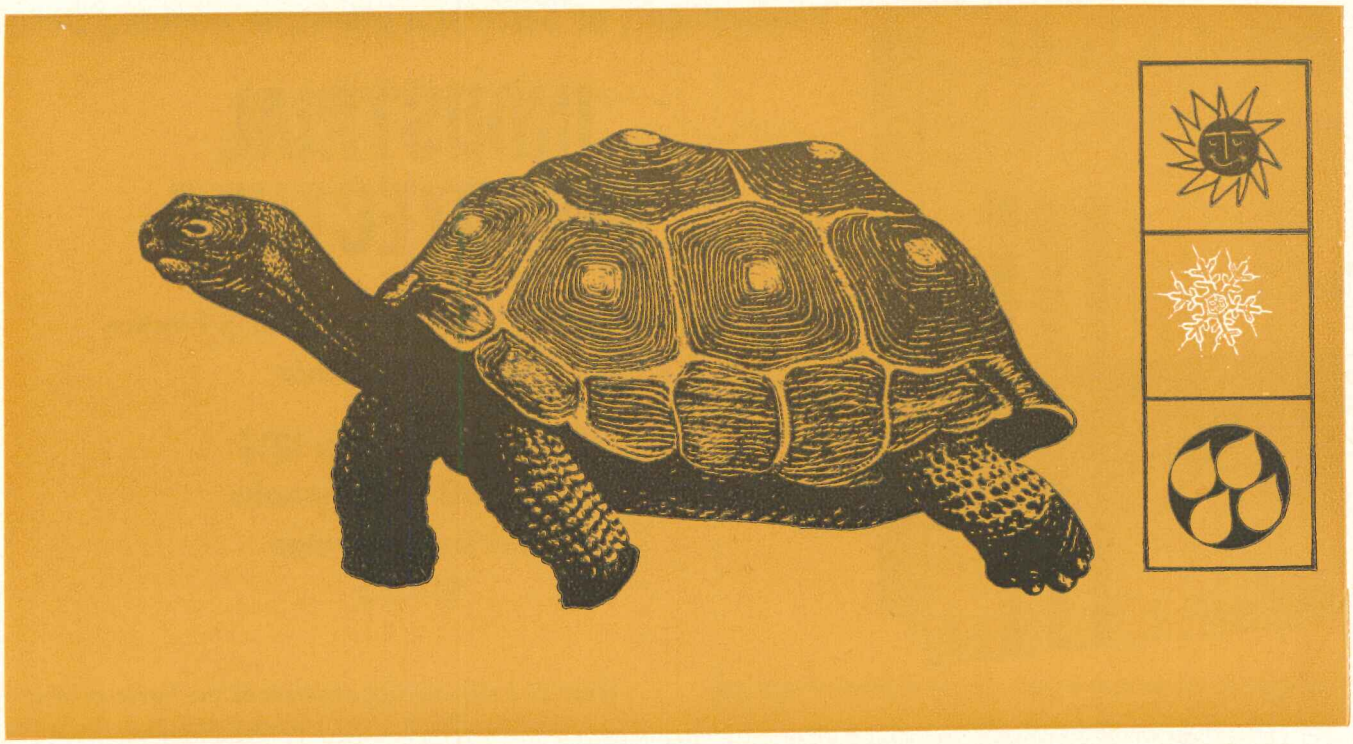

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IN FUNCTION, BEAUTY AND DURABILITY

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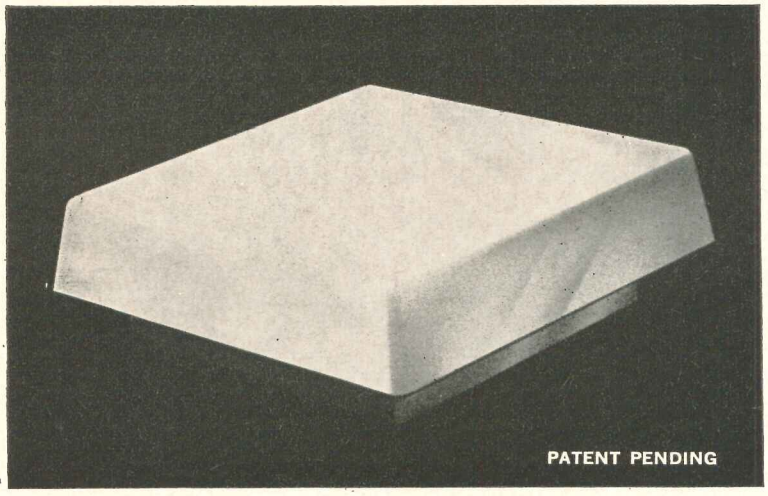
created in **Fiberglass**



WORLD'S LEADING MANUFACTURERS OF MOLDED FIBERGLASS VENTILATORS

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OTHER FINE PRODUCTS BY WILLIAMS-BERMUDA

Bermuda-AIR Molded Fiberglass Monitor

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FEATURING

A new low profile molded fiberglass ventilator which can withstand extremes of cold, heat, moisture, fumes and corrosion—all that nature can conjure up. The one ventilator that exceeds all specifications for beauty and longevity. Within the Bermuda-AIR's low profile is the value of sound deadening as well as locked-in color that requires no maintenance.

APPLICATIONS

Perfect for the replacement of goose necks or louvered devices on the roof. Does away with unsightly extensions which are out of rapport with architectural design.

Provides contemporary outside air intakes for heating, ventilating or air conditioning units.

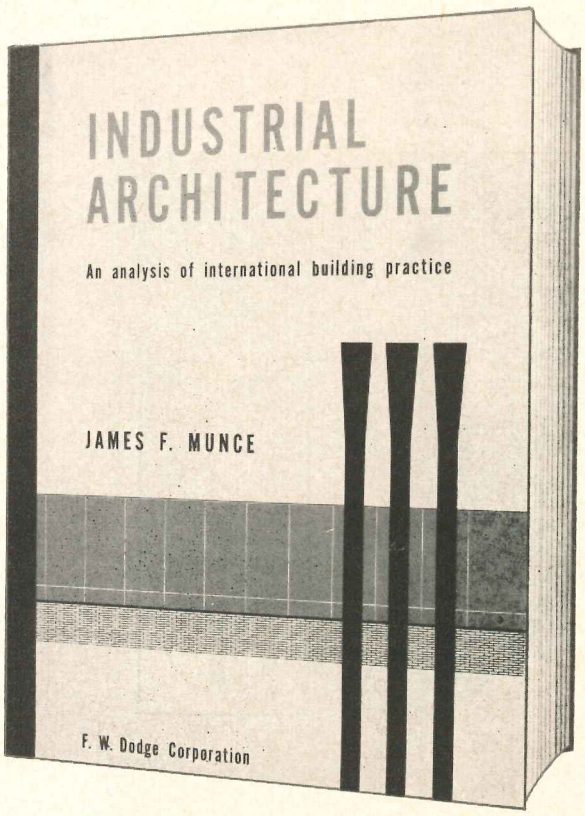
Well designed for inlet or outlet ducts containing fans or outside air intakes for unit heaters. Also, for use in positive pressure areas for straight intake or pressure relief.

ACCESSORIES

The Bermuda-AIR Ventilator is available with a complete list of accessories, such as: Bird Screen, (PRD) Pressure Relief Damper, (FD) Fire Damper, (MVCD) Motor Operated Volume Control Damper, and (MOBVD) Motor Operated Opposed Blade Volume Dampers.

12 architect-preferred colors available

FOR ADDITIONAL INFORMATION: Contact the Williams-Bermuda Corporation, 310 North Normandie Avenue, Los Angeles 4, California. Representatives in all principal cities.



Now available—A Searching Study of the New Requirements of Successful Industrial Building Design

INDUSTRIAL ARCHITECTURE

An Analysis of International Building Practice
by James F. Munce

232 pages, 9⅛ x 12¼"
over 250 photographs
and line drawings
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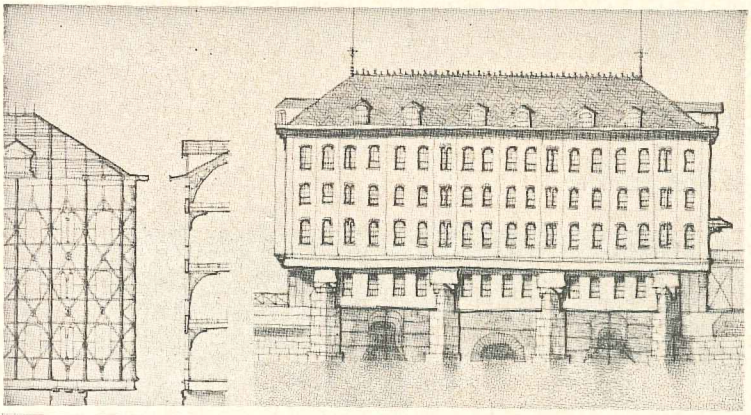

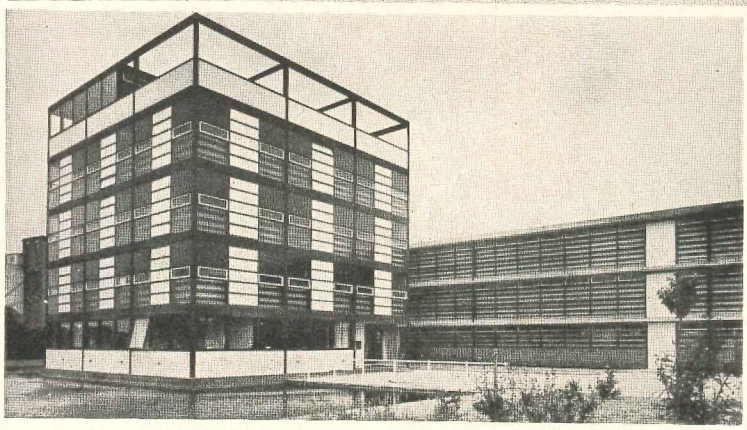

Here is a stimulating analysis of the basic principles and newest developments in factory design in the United States, Great Britain, and Germany. Written by an experienced practicing architect, the text considers every aspect of industrial architecture: functions and needs; utilities, services and structural elements; physical appearance; location. Striking sketches and photographs of the best work by leading industrial architects and engineers add to the book's value.

Emphasizing changing trends and their implications for the future, the author devotes one entire chapter to automation, and another to industrial parks. In other chapters he discusses in detail the requirements of heavy industry, light industry, the process industries, and the utility industries. Specific sections on structure, materials, and design techniques include The Fabric of the Factory, Factory Services, Fire Protection, and Factory Heating and Ventilation.

INDUSTRIAL ARCHITECTURE covers the history of industrial building design, the present, and the future. It clearly shows the importance of the architect and outlines the essential knowledge and approach necessary for every type of factory design.

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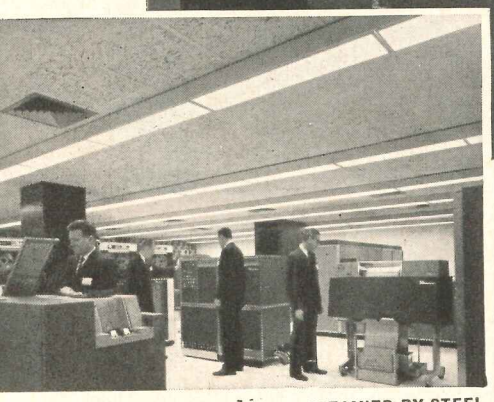

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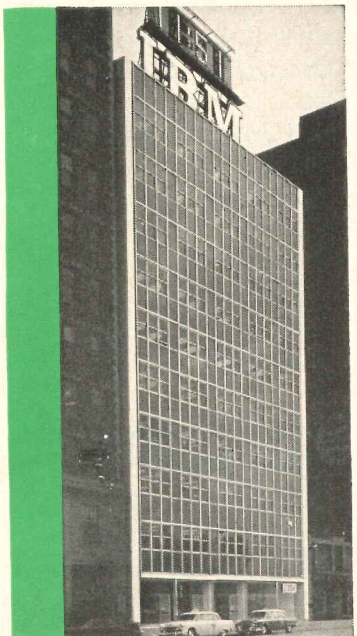

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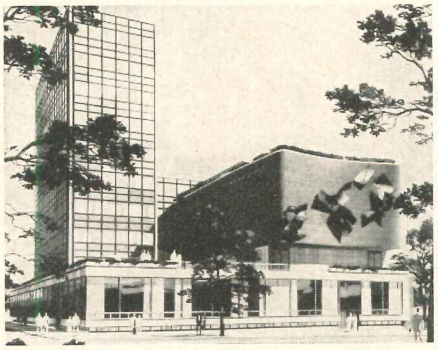
The Record Reports

Loeb Center Gets Sculpture By Nakian at N.Y.U.

To grace the 45-by-28 ft brick surface of the Eisner and Lubin Auditorium of New York University's Loeb Student Center on Washington Square is this sculpture by Reuben Nakian. It was commissioned by New York University and selected among five commissioned models submitted by American sculptors.



The Nakian design was chosen by a committee composed of chairman, Professor Howard S. Conant, head of NYU's art education department; Max Abramovitz, the building's architect; Mrs. Alan Kempner, Loeb Student Center donor; Professor Craig H. Smyth, director of NYU's Institute of Fine Arts; Dr. Robert J. Goldwater, professor of fine arts at NYU; and Professor Horst W. Janson, chairman of the department of fine arts at the University's Washington Square College of Arts and Science.

Commenting on the choice, Professor Conant said, "New York University's decision to commission a leading sculptor to design a major work of art for its campus is one of the most professionally gratifying experiences of my college teaching career. To me it is a tangible and resounding endorsement of the vital role a modern university should play in shaping, rather than reflecting, contemporary civilization."

Sculptor Nakian says the inspiration for his design came both from his conception of the nature of a university and from the building's location across the street from Washington Square Park. "I conceive of the university as a nest," he says. "The student are fledglings, and once they are educated and civilized they fly away. Education is the freeing of the spirit."

more news on page 310

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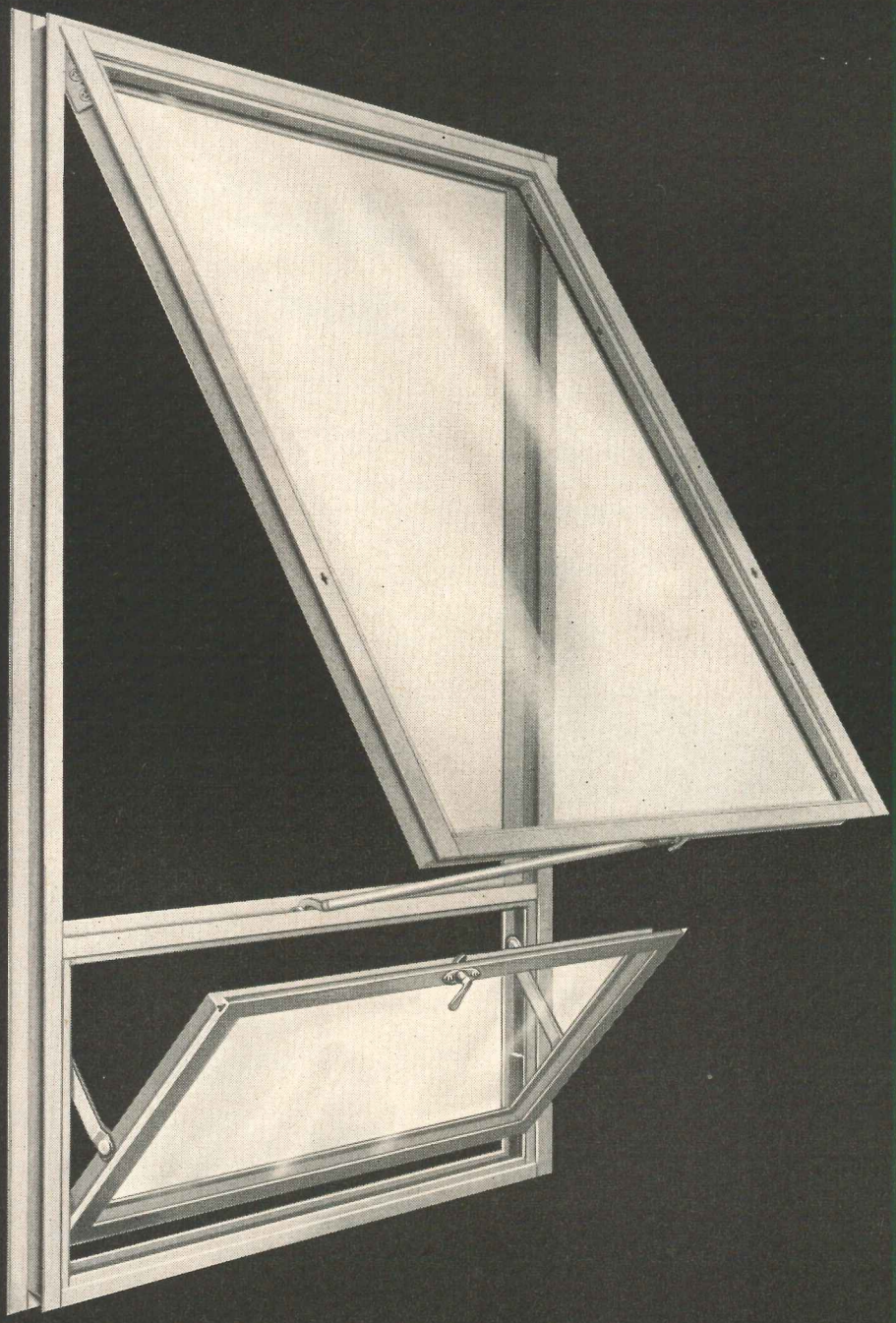

ALUMINUM TOP-HUNG INSWING WINDOW WITH SILL VENTILATOR

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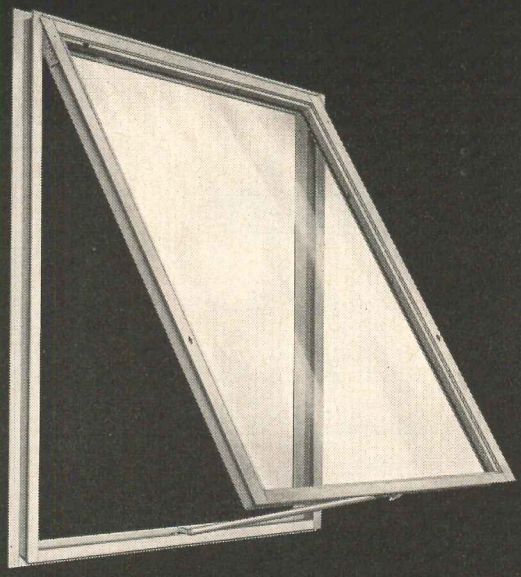

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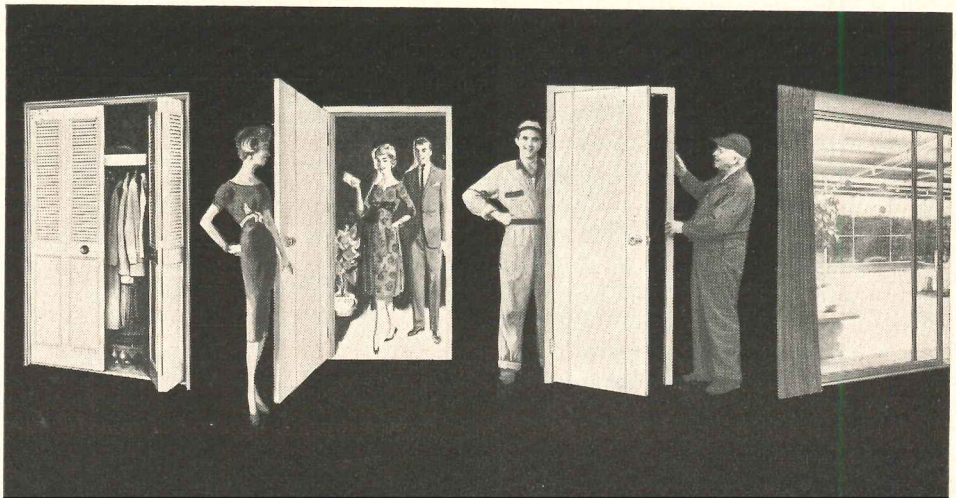

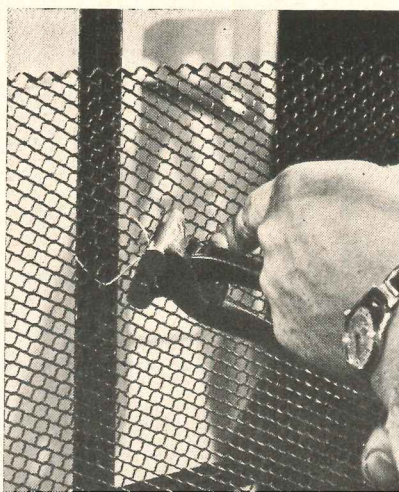

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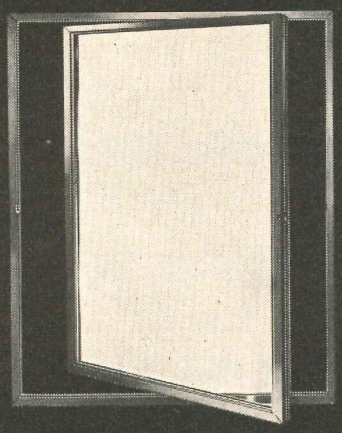

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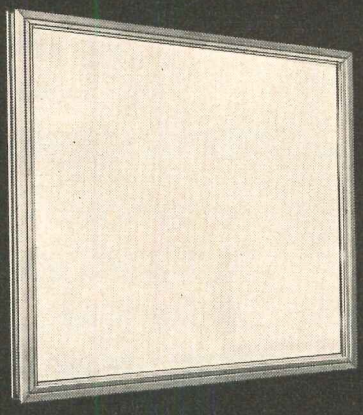

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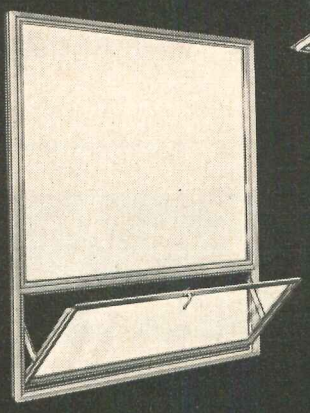

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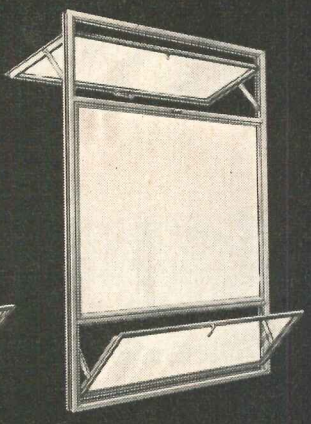

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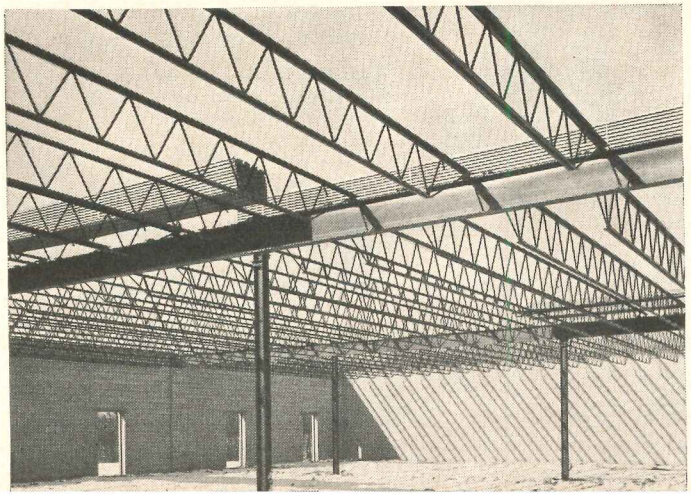

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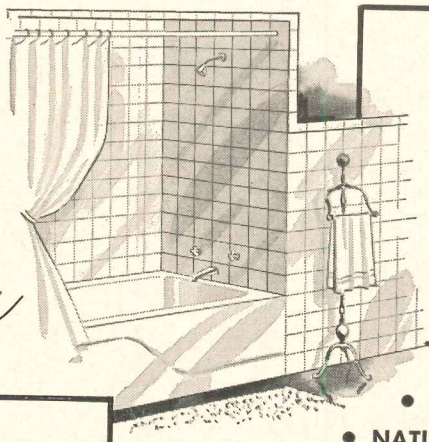

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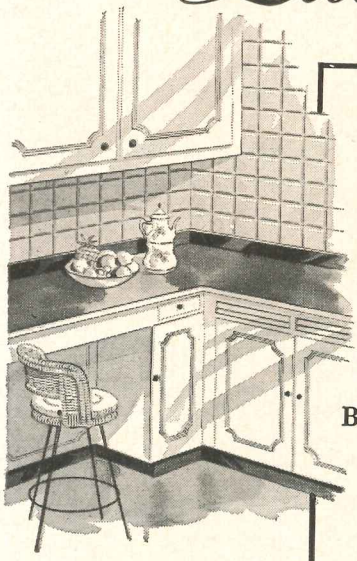

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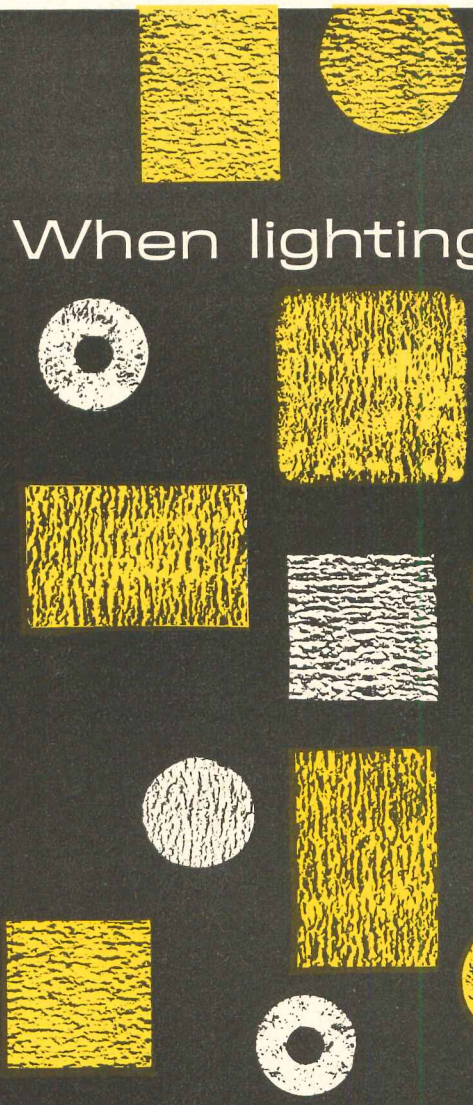

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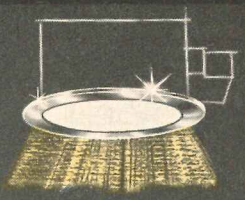

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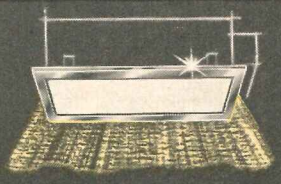

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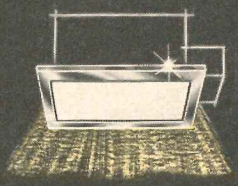

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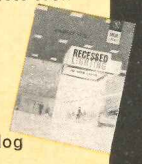

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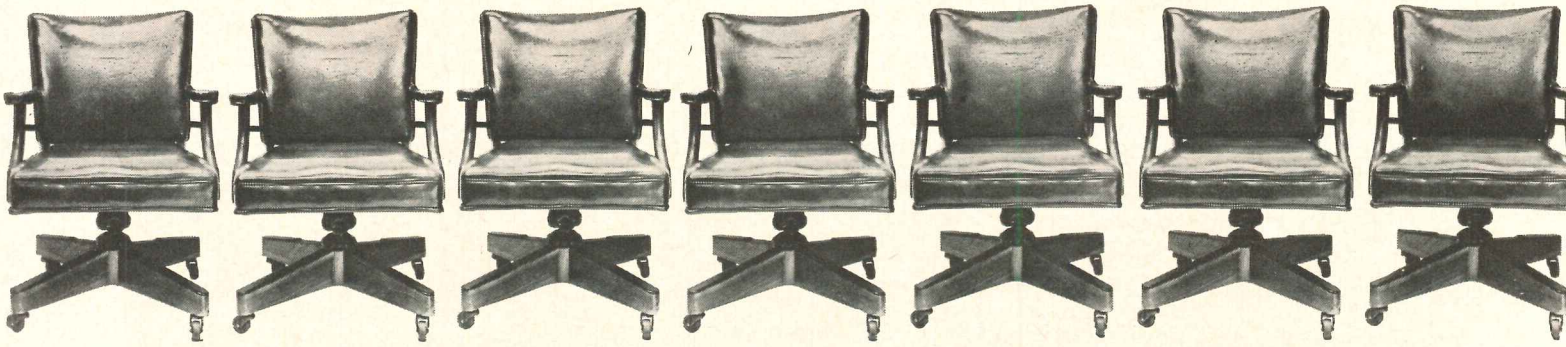

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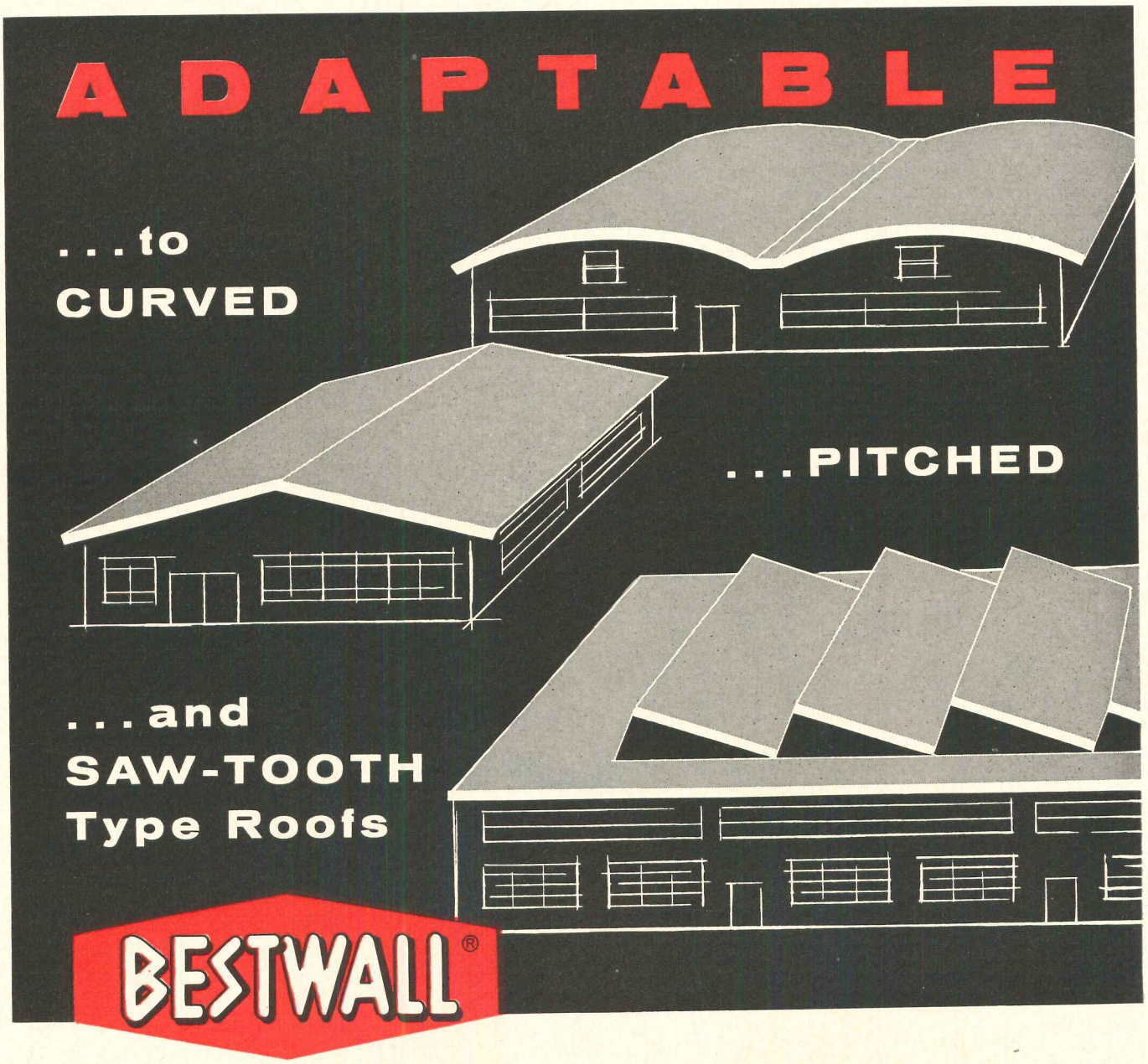

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continued from page 303

Scale of U. S. Housing Impresses Japanese Visitors

To gather information on ways and means of developing new communities and improving living conditions in existing areas in their country, a group of twelve Japanese housing officials recently visited the United States for six weeks.

The visitors consulted with Federal and local officials of housing agencies and organizations, planning commissions, financing organizations, and various other private groups associated with housing and city and regional planning in a program sponsored by the International Cooperation Administration and planned by H.H.F.A.'s Office of International Housing headed by assistant administrator, Dan R. Hamady.

Although a more conclusive report on the tour is to come, two preliminary reports have been published. They reveal some of the interesting first impressions of the Japanese team.

Pointing up the differences between the two countries in the basic factors on which housing programs are based, they remarked that the accumulation of capital is much larger in the U.S. than in Japan, making the amount of investment for housing projects out of comparison, but accounting for the longer terms of loans and lower interest rates here. They felt we have less technical difficulties in building homes since Japan must contend with earthquake hazards. And they agreed that in the U.S., Federal, State and city governments extensively and positively implement a policy to promote housing projects.

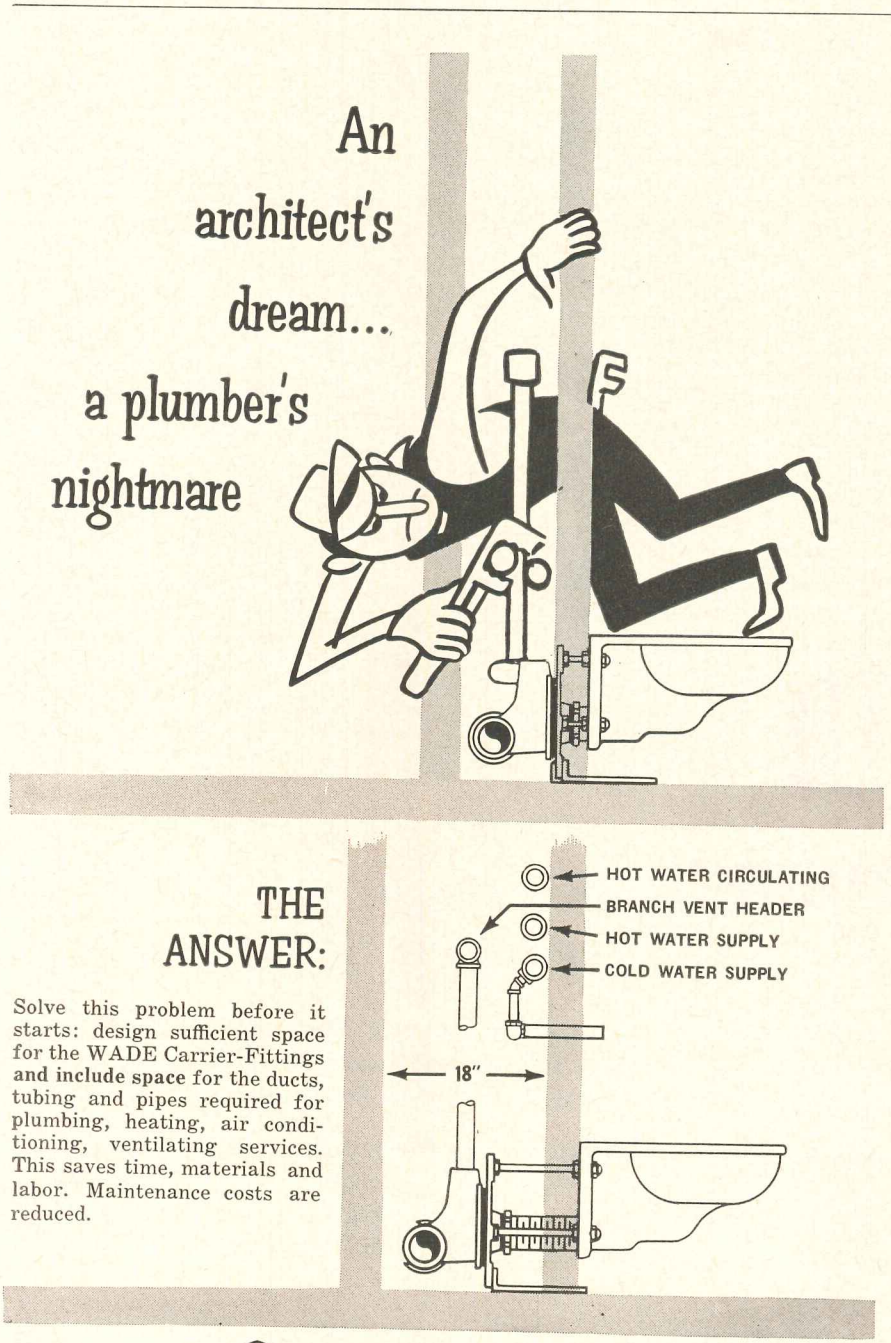
The Japanese were impressed with the gigantic scale in which a great number of housing and community development projects are being built; the democratic methods of approach in implementing projects; the U.S., spending more than half of the gross national investment on building private homes; the great amount of available land here; the elasticity of city or regional planning, despite its being both practical and concrete; active government participation in city and regional planning; the variety of projects in urban renewal tailored to the needs of different cities; the various types of effective home credit; and the activities of home builders, real estate appraisers, and title and trust companies.

The Japanese team believed that while in the U.S., rent determination of public housing units was based on the applicant's ability to pay, in Japan such a criterion would "produce marked inferiority complex in the minds of tenants."

New Visitors Committee Aids Foreign Engineers

Following a survey which disclosed that foreign engineers on tour of this country have long lamented their inability to see anything in New York other than the Empire State Building or the United Nations, the Metropolitan Section of the American Society of Civil Engineers

continued on page 318



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Steel joists have done more than provide high-strength support for floors and roofs. They lend themselves so handily, and so economically, to the incorporation of overhung roofs, cornices, balconies and other architectural embellishments into building design.

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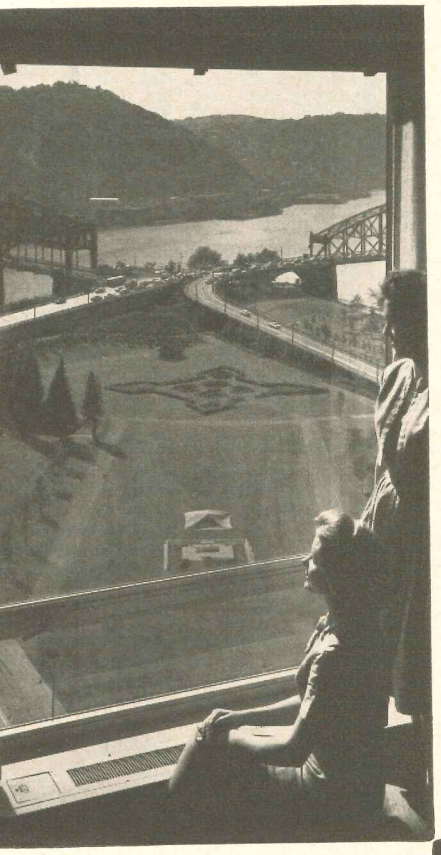
Another in a series of advertisements placed in the public interest by the STEEL JOIST INSTITUTE. DuPont Circle Bldg., Washington 6, D.C.

Striking effects achieved with

William B. Tabler, Architect, New York. Contractor: Turner Construction Co.

PPG Glass in new Pittsburgh Hilton



Picture window in every room with PENNVERNON GRAYLITE to control sun's heat and glare.

The new Pittsburgh Hilton Hotel is one of the most outstanding buildings in Pittsburgh's Renaissance Program. Located at the point of the Golden Triangle, it is the first building that bursts into view when you enter the downtown area from the west.

The striking appearance was obtained by using glass from PPG. The window glass is PPG PENNVERNON® GRAYLITE™ 61, a glare-reducing heavy sheet glass that shuts out about 26% of the sun's heat. Because of the neutral gray tint the outdoor colors remain true. The opaque areas, which you only notice by looking closely, are Charcoal Gray SPANDRELITE®. This is a heat-strengthened glass with ceramic color fused on the back. The color lasts. SPANDRELITE comes in 18 colors or the custom color of your choice. Its shade doesn't vary from panel to panel and it can be matched years later.

In the main lobby, large panes of PPG SOLARGRAY® Polished Plate Glass give a wide-open view allowing plenty of light to come through. SOLARGRAY reduces the sun's glare. It absorbs about 50% of the sun's heat.

The main and private dining rooms are kept warmer in the winter and cooler in the summer by 1" SOLARGRAY TWINDOW®. These TWINDOW units are metal edged, with two panes of PPG Plate Glass enclosing a ½" sealed air space. Store front areas are glazed with Polished Plate Glass for clear, true vision, and HIGH-FIDELITY® Mirrors, made of twin-ground Pittsburgh Plate Glass, are used throughout the building.

Your Pittsburgh Plate Glass architectural representative will give you specific data on any of these products. Or check the Pittsburgh Glass Products Catalog in Sweet's.

Open view with year 'round comfort and freedom from glare is provided in the dining areas by PPG SOLARGRAY TWINDOW Insulating Glass.

Glamour in glass. Pittsburgh HIGH-FIDELITY® Mirrors add a touch of luxury throughout the hotel.

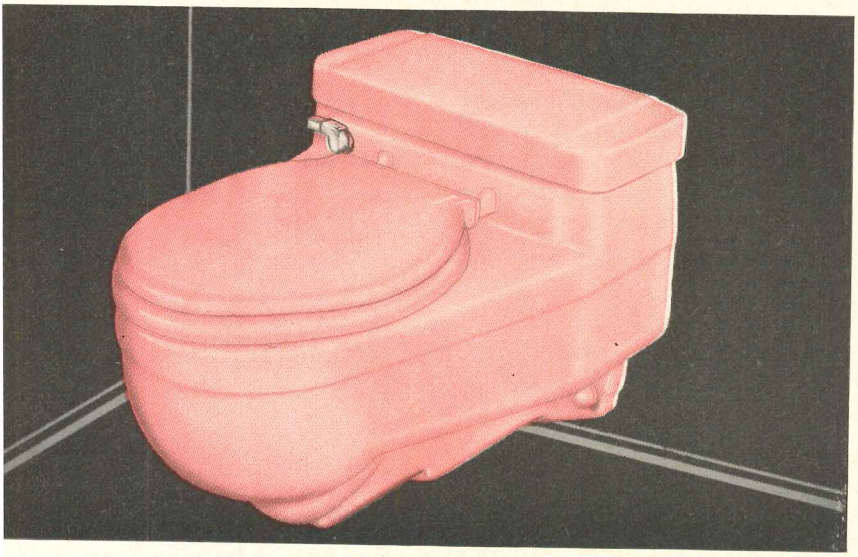
Pittsburgh Plate Glass Company

Paints • Glass • Chemicals • Fiber Glass

In Canada: Canadian Pittsburgh Industries Limited

Imperial House

This spacious 30-story New York City luxury apartment contains over 900 non-overflow Case one-piece water closets. "Another user example: 300 Beacon, Boston, Mass., featured in this issue."

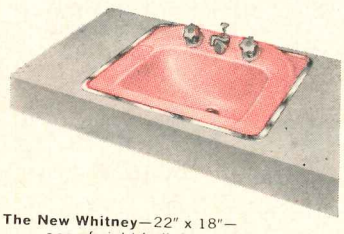


The Finest Fixture You Can Specify... Case One-Piece Water Closets

The new Model 3000 wall-hung Case one-piece closet provides the same unique operating features and time-tested fittings as other Case floor models. Case "E-Z" mount carriers make possible an easy and quick installation in any type of construction.

Only Case one-piece water closets offer positive protection against overflow of the bowl, plus quiet flushing and positive performance. All models are available in glistening white and 45 colors that correspond to or complement fixtures of other manufacturers.

The Wellington Vanity with wrought iron legs— 32" x 24", 27" x 22", 24" x 20"



The New Whitney—22" x 18"— one of eight built-in Case lavatories

Send for catalog and color chip chart of the distinctive Case vitreous china line, including Water Closets, built-in Lavatories, Urinals and Drinking Fountains.

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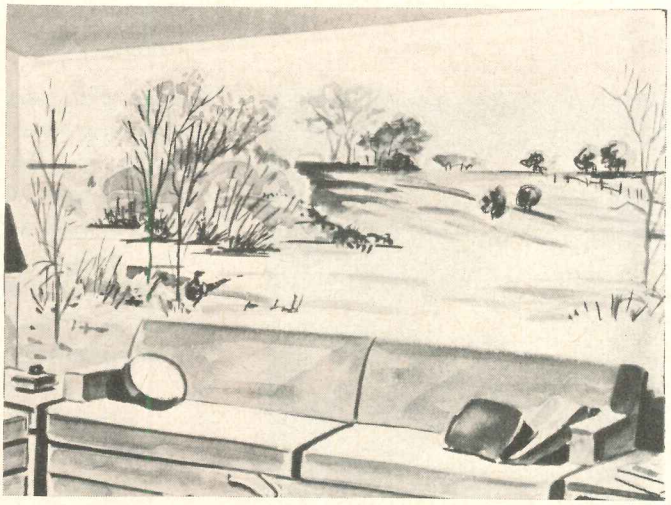

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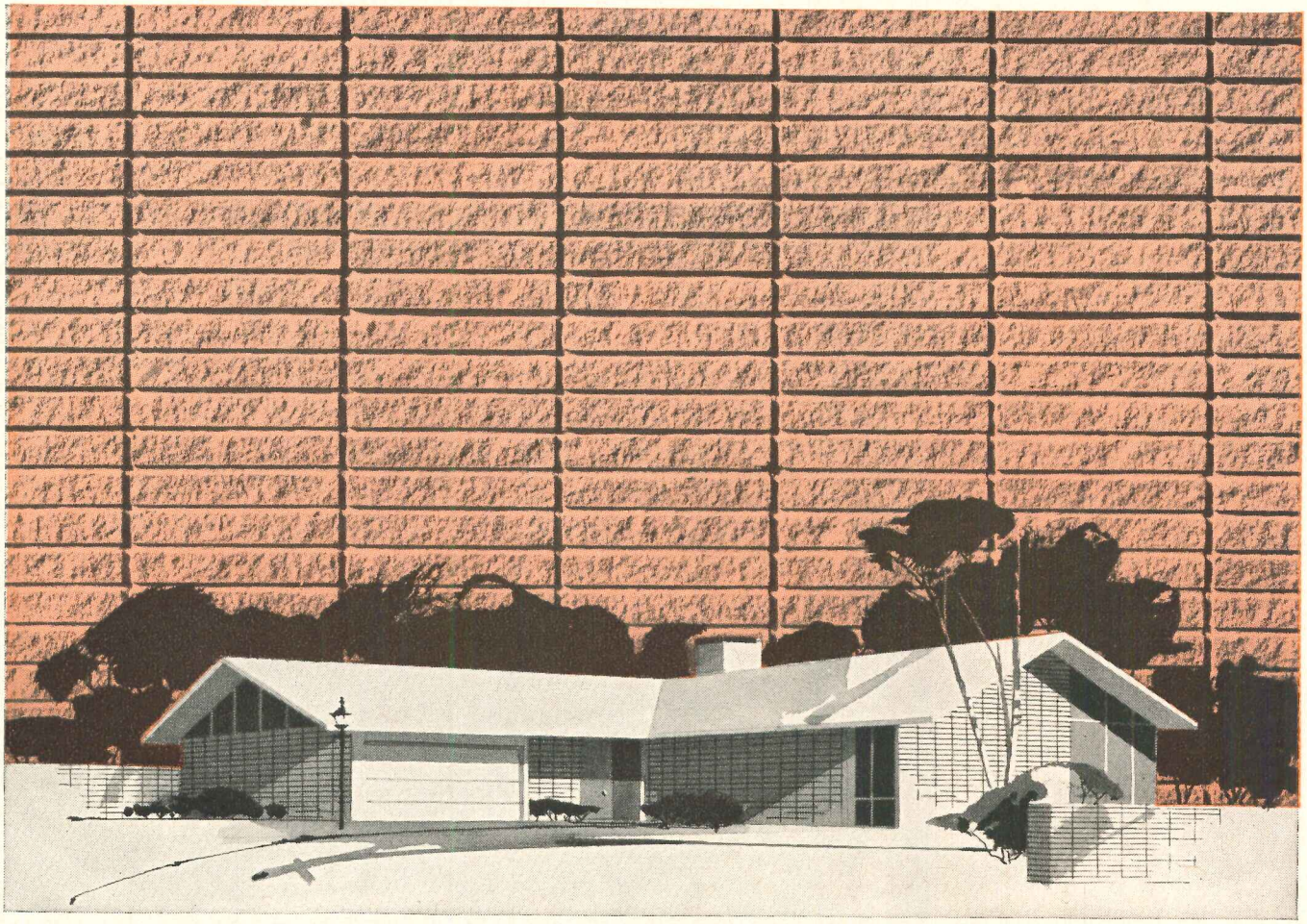

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Bring out the best in your wall designs. Specify mortar made with masonry cement. Precision-made, masonry cement encourages good workmanship. It takes the guesswork out of making mortar as specified, makes tighter joints with uniform color and good bond strength. Simplifies and speeds work because everything except sand and water is delivered in one bag . . . and no special skills are needed for mixing. Masonry cement has excellent workability and high water retentivity thus assuring good wall performance. More and more architects are specifying mortar made with masonry cement for use with the newer forms of concrete masonry, as well as brick, tile, stone and glass.

PORTLAND CEMENT ASSOCIATION . . . *A national organization to improve and extend the uses of portland cement and concrete*

watch for Concrete Industries HORIZON HOMES Program

PHOTOGRAPHS BY WARREN BALLARD

"How can you afford Terrazzo classroom floors like these?" ask visiting schoolmen.

The answer: Manpower-and-maintenance savings.

Most officials and architects connected with school construction agree on the *desirability* of Terrazzo for classrooms as well as for corridors and lobbies. Some, however, overly concerned with first cost, specify other kinds of flooring.

The experience of Henrico County proves the value of looking to ultimate cost as the major criterion. As Mr. J. Henley Walker, architect for the 30-classroom Maybury Elementary, and Fairfield Junior High says, "Our monolithic Terrazzo floors cost more initially—about 30¢ a sq. ft. more. Our determination was that reduced maintenance costs would pay for Terrazzo in five years. The facts are that Terrazzo floors have paid for themselves in less than two years—and have permitted manpower reductions of one man each in the three junior high schools built on the campus plan. Savings in the smaller elementary schools have been comparable."

Further proof of maintenance economy comes from Mr. George R. Grubbs, custodial supervisor for Henrico schools. He notes, "Men can now do one-third more work on campus school Terrazzo floors (than on resilient floors in conventional schools). We have eliminated a night man in each campus junior high because of the new floors. We damp mop Terrazzo twice a week, sweep daily. We use plain water or a neutral cleaner, scrub only once a year. Wax for resilient floors costs $200 annually, plus application and removal costs. Materials for Terrazzo maintenance are a negligible item."

Terrazzo satisfies the most demanding requirements. Specify it—for classroom, corridor, walls, stairs, wainscots. Savings multiply, appearance and stamina remain constant. Free AIA kit upon request. Field representatives available for consultation. Catalogued in Sweet's.

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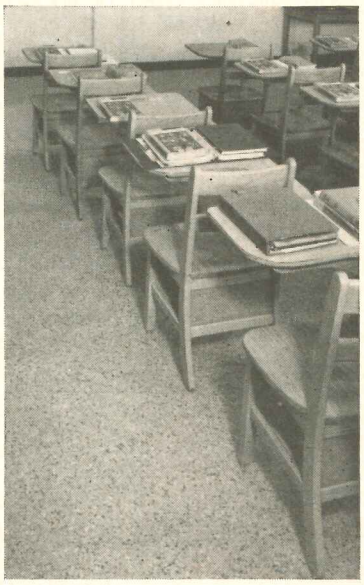
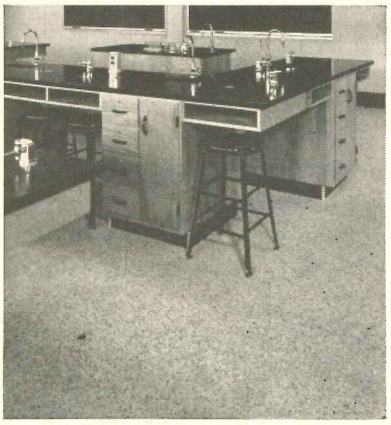
Terrazzo withstands heavy traffic in library areas. Retains gleaming beauty—is easy and economical to maintain.

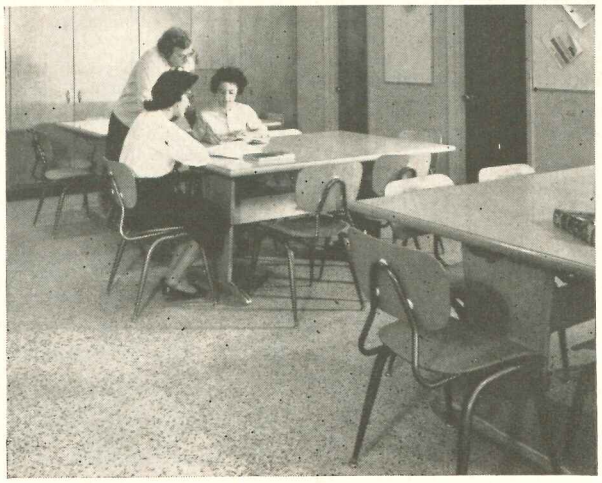
Terrazzo classroom floors like these (left) are used in 14 schools in the Henrico County, Virginia school system. The number is being expanded as new schools are built.

Laboratories (below), as well as classrooms, benefit from Terrazzo floors.

Terrazzo floors are clean and sanitary. All told, there are approximately 834,000 sq. ft. of Terrazzo in the Henrico County schools with more to come.







continued from page 310

has recently organized an "Engineering Visitors Committee."

The committee will act as a central referral service to arrange trips to local projects. "Its services," says Michael N. Salgo, the section's president, "are available without charge as a professional courtesy to fellow engineers, for it is one of the basic tenets of the A.S.C.E. that today's experiences and achievements be made available to other engineers and to future generations."

Through the new committee's chairman, A. Edward Dembitz, arrangements can be made to inspect projects which include waterfront facilities, concrete plants, subways, waste treatment plants, tunnels, complex foundation work, and airports.

For the present the committee confines its activities to arranging for tours and visits. An engineering representative of the project to be visited will act as host. Eventually the committee plans to expand its services to furnish bilingual volunteer guides from the rolls of the Metropolitan Section.

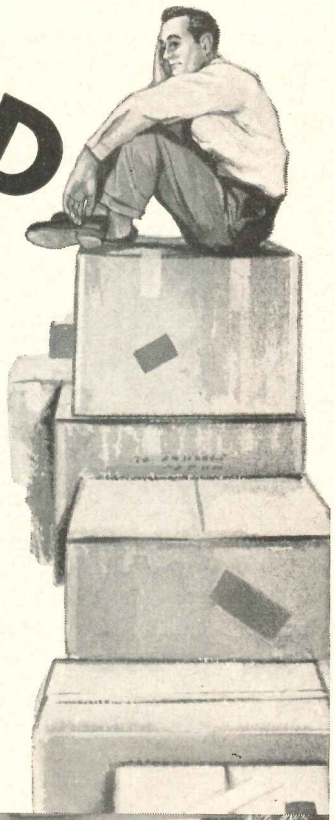
Through the survey have come useful clues as to the habits, interests, and categories of visitors. Embassies, public agencies, and magazine editors who were queried say that foreign engineers come to the New York area in increasing numbers. India, Japan, Italy, Russia, England, and South and Central America are well represented. Most of the men—for women engineers are as rare abroad as they are here—come singly or in small groups, rather than in large delegations. Few bring their families; the trips are strictly business. Whether their destination be Waco or Washington, however, they seldom leave the country without pausing in Manhattan.

In any case, the Engineering Visiting Committee will provide one more means of facilitating the exchange between nations of non-military technical information—much of it vital to the improvement of general living conditions.

A "Visitors Committee" has been a part of the New York Chapter of the American Institute of Architects for several years. Possibly the future will see the A.I.A. and the A.S.C.E. joined in this valuable project.

STUMPED

FOR STORAGE?



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Get storage problems off your mind — find out about Erecta-Shelf today.

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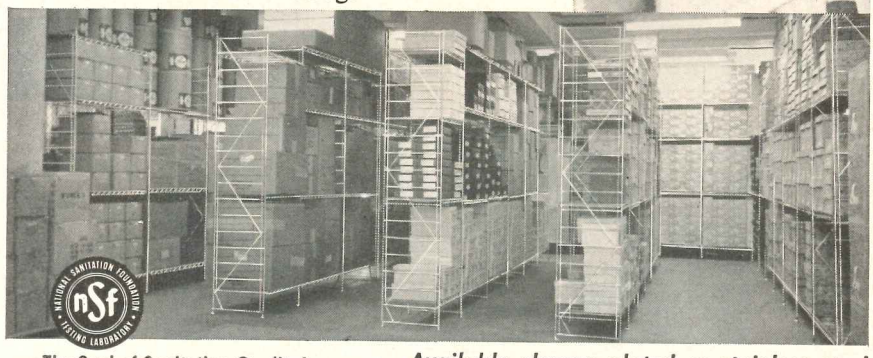

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Public Library Gets $1000 From Colorado Architects

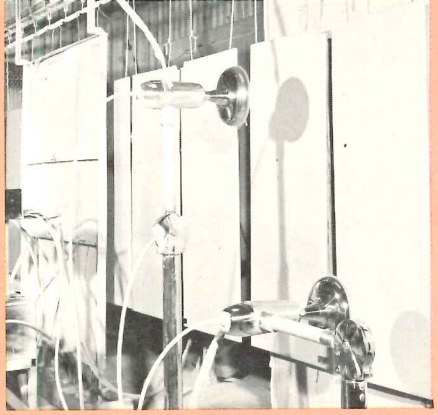
The Colorado State Board of Examiners of Architects has appropriated $1000 for the Denver Public Library's purchase of technical books in the field of architectural design. The books will be placed in the Art and Music Department of the main library.

The funds for the gift, according to Eugene D. Sternberg, president of the Board of Examiners, came primarily from renewal fees of architects practicing in Colorado. This use by the Board of Architects of surplus funds is permitted under state law, and similar gifts have been made to the Denver Public Library in the past.

more news on page 326

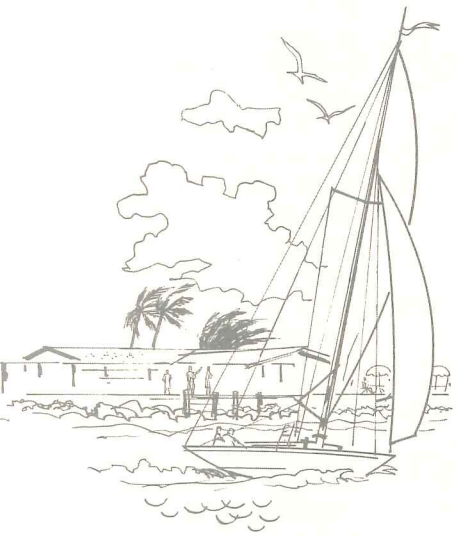
Weis enamel is applied electrostatically in a dust-free atmosphere.

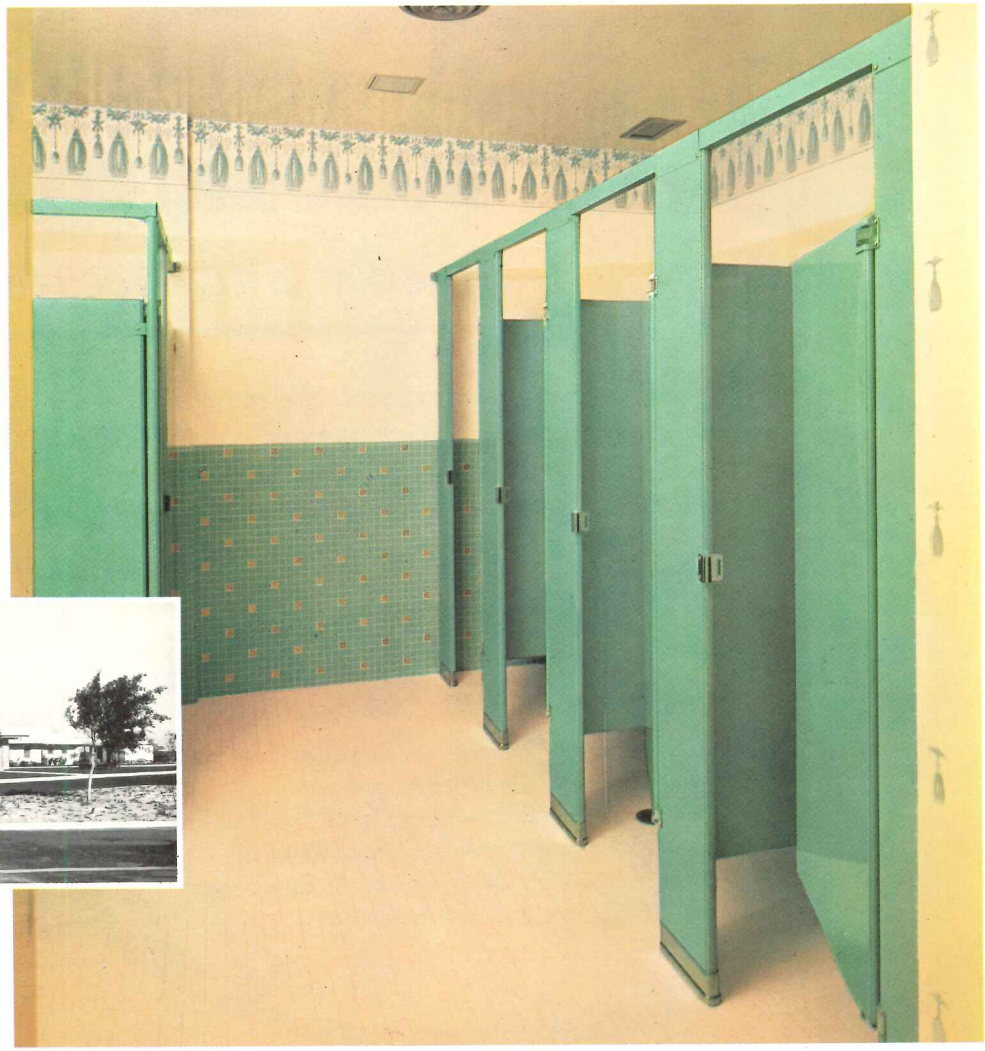
One of more than twelve certified reasons why Weis compartments are Specified in America's finest buildings. A convincing reason why...



Whirling electrostatic atomizers apply prime and finish coats at an exact, uniform thickness over the entire area. Panels move by conveyor through a controlled atmosphere, air filtered paint department. This insures a continuous smooth film, unbroken by dust or foreign particles which absorb moisture and promote rust. Infrared heat gives panels a uniformly hard, durable finish.

Weis belongs where toilet compartments really take a beating





Bird Key Yacht Club, Sarasota, Florida
Architect—Kannenberg & Hanebuth, Sarasota, Florida
Builder—Meyer-Evans, Inc., Sarasota, Florida

Prefabricated, Prefinished Products for the Building Industry
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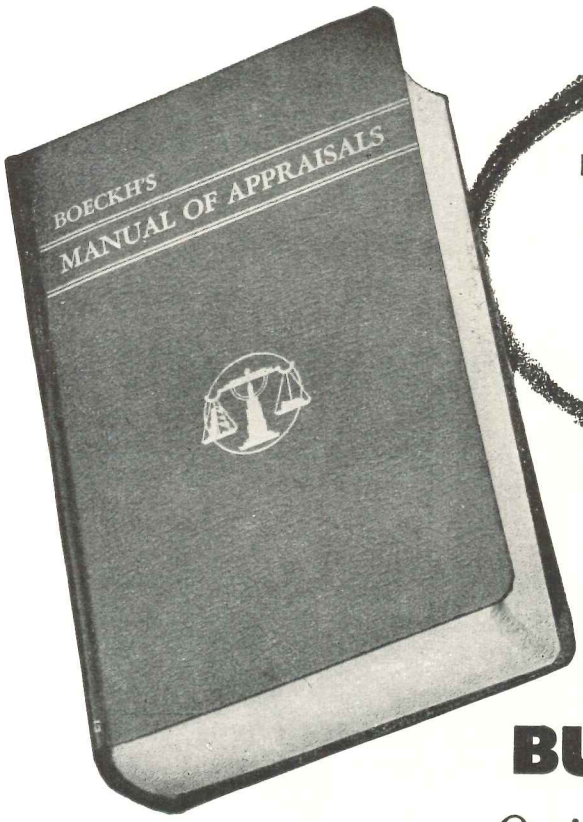

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If advance cost planning is a part of your architectural problem, then this book and its supplement service *"Building Costs"* should be part of your "Kit of Tools." *Here is a service program that has been helping architects and builders develop costs of proposed projects for more than a quarter of a century.*

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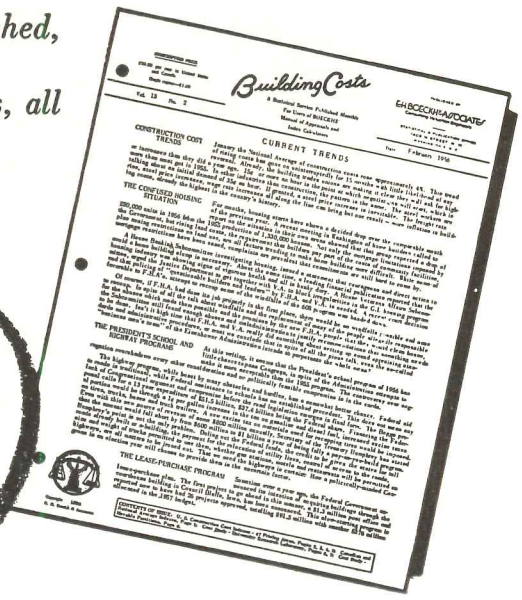
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Weldwood paneling makes each wall you design an original masterpiece

Prestige and a wood paneled office go together. A handsome example is the President's Office of Parke, Davis in Detroit, paneled in honey-colored matched teak of Weldwood Algoma-made Architectural panels. Architects: Marr & Marr, Detroit.

Because no other wall material can give the one-of-a-kind beauty and warmth of real wood, each Weldwood paneling installation you specify results in an original and incomparable design — as unique as the tree that grew the wood.

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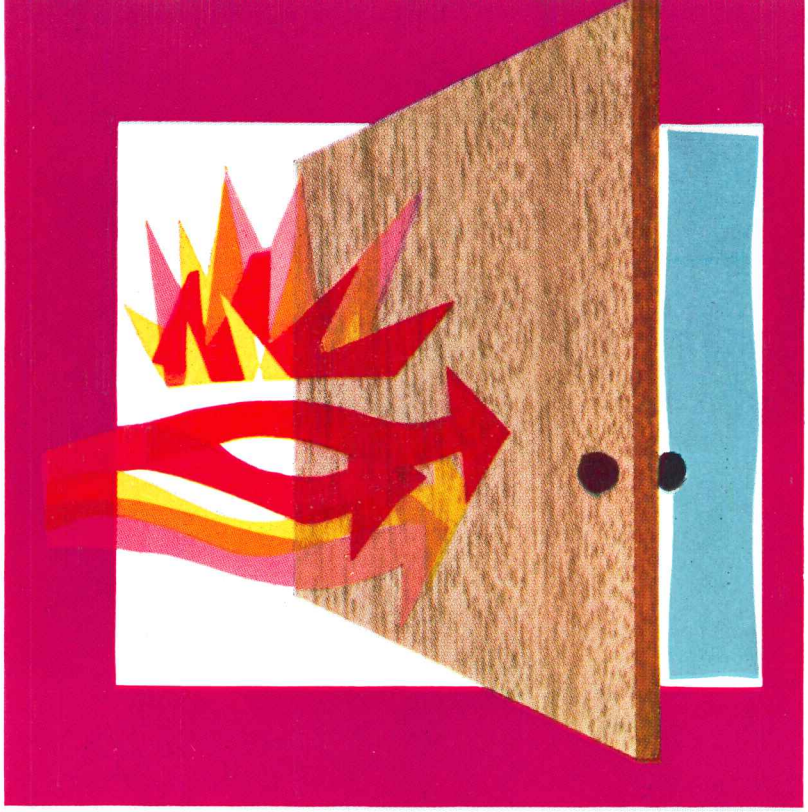

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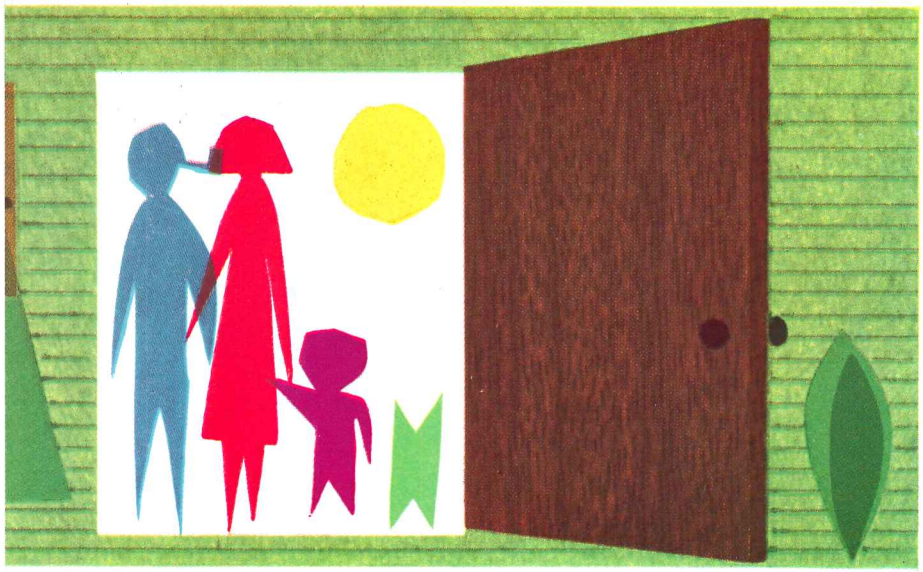

EXTRA-WIDE residential entrance doors have special demands placed on their construction. Weldwood Stay-Strate® Doors have warp-proof Weldrok® mineral cores and hardwood edges that provide the strength and stability necessary in doors up to 4 feet wide. The wide range of beautiful hardwood faces, with matching edges, lets you give continuity to luxurious wood paneled interiors.

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to meet your specifications

FROM FIT TO FINISH, WELDWOOD DOORS COME TAILORED TO YOUR DESIGN

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Weldwood's custom door service eliminates costly on-site labor, drastically reduces handling, and provides the installer with precision-assured satisfaction. Weldwood Doors are available in a wide range of sizes and constructions to meet each installation's requirements for fire protection, sound resistance, ruggedness, and low maintenance beauty.

THE WELDWOOD DOOR GUARANTEE

United States Plywood unconditionally guarantees Weldwood Stay-Strate, Fire, and Acoustical Doors against warping, twisting, or manufacturing defects for the life of the installation, when accorded treatment considered good practice as far as storage, installation, and maintenance are concerned. If any of these doors fails to meet these standards, United States Plywood will replace it without charge, including all labor costs of handling and refinishing.

SEE OUR CATALOG IN SWEET'S, OR MAIL THE COUPON ON THE OTHER SIDE OF THIS PAGE.

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Products of United States Plywood

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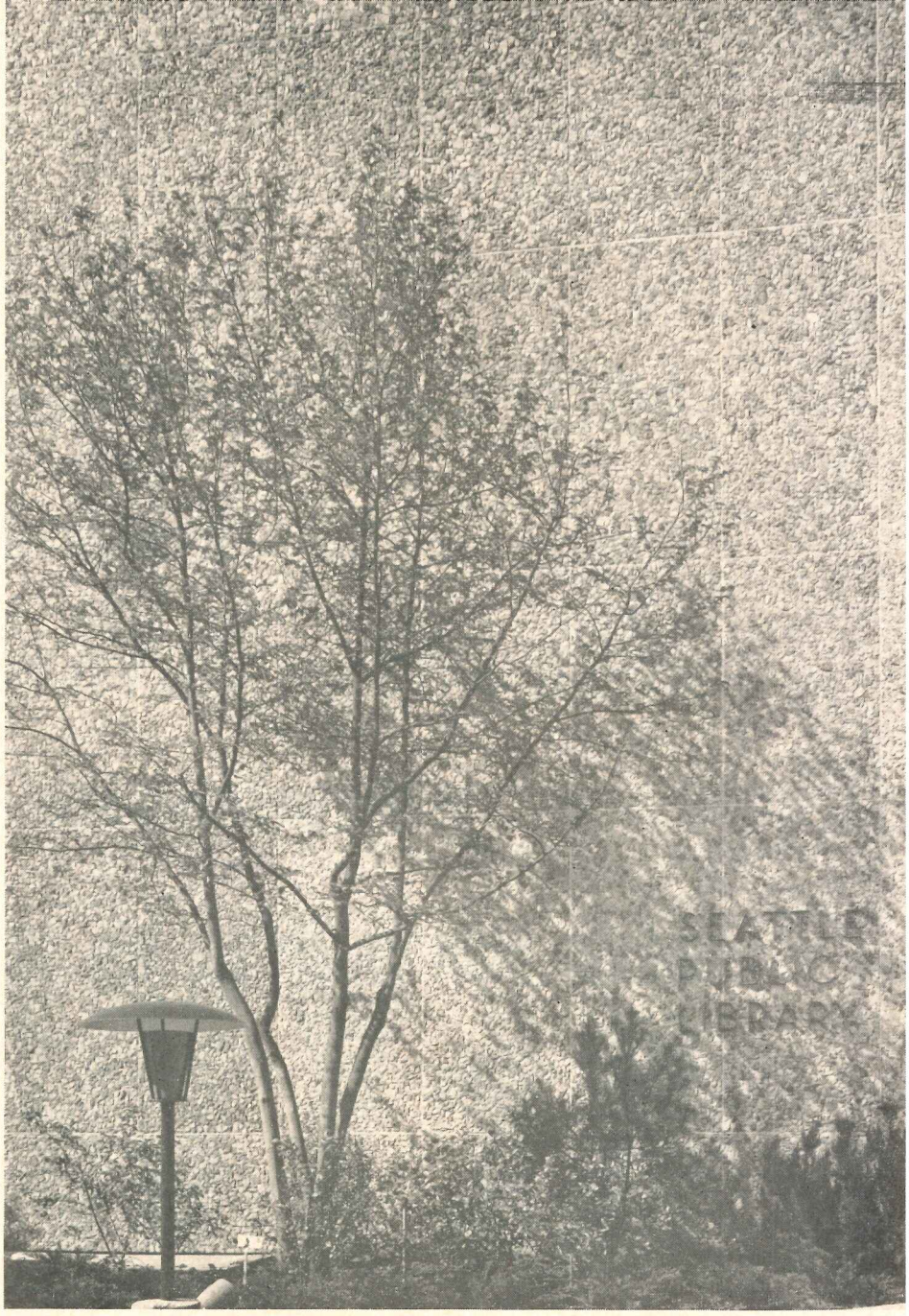
White and tan exposed natural aggregates in varying sizes were used on the Mo-Sai facing panels to achieve enduring color and texture on Seattle's new Public Library. The Mo-Sai panels on the east and west facades were anchored to concrete walls. Precast vertical Mo-Sai fins perform dual functions as sun shades and window sash supports on the north and south exposures. The textured fins have integrally cast anchor straps that are welded directly to the structural floor slabs.



The Mo-Sai panels form a pleasant backdrop for artistic landscaping.

Western Members MO-SAI INSTITUTE, INC.

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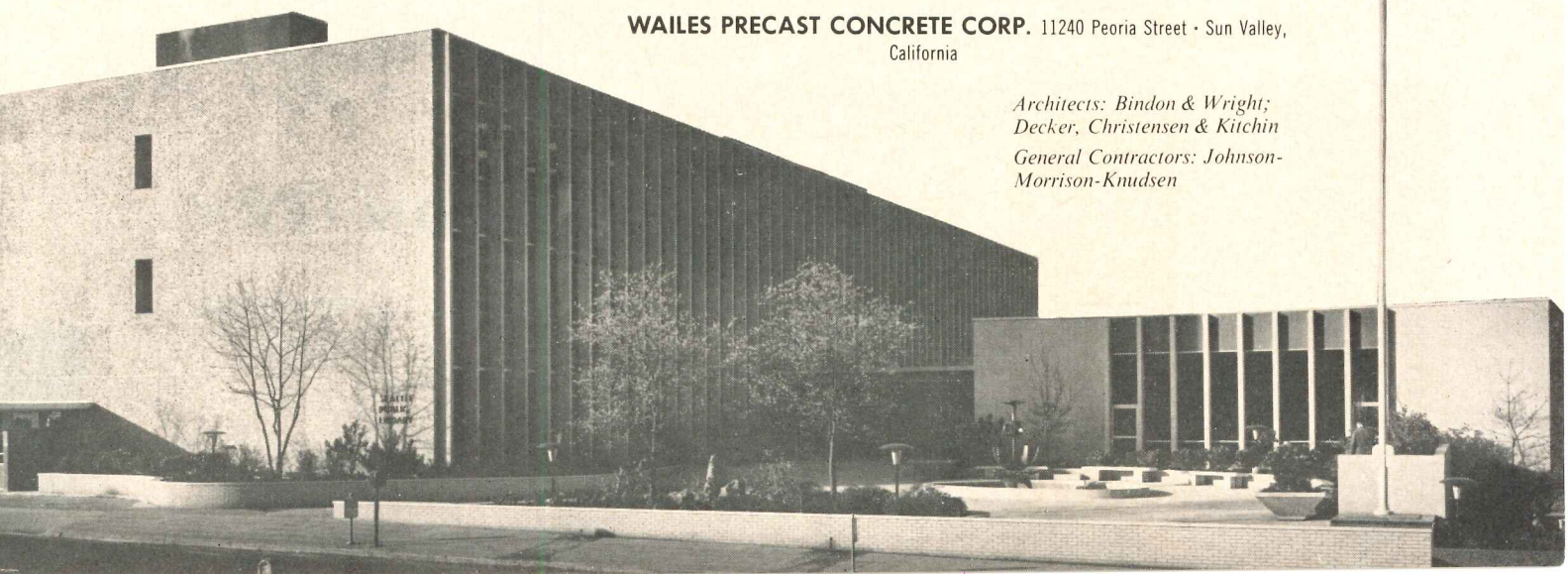
Architects: Bindon & Wright; Decker, Christensen & Kitchin

General Contractors: Johnson-Morrison-Knudsen



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The plans for Delta College, now under construction in the "Golden Triangle" area of central Michigan, call for the most modern educational facilities and best construction methods. That's why masonry joints on the Delta College buildings are being reinforced with Keywall for added strength, greater crack resistance. The contractor on the job, states: "Delta College is being constructed of the finest materials available and we feel that one of the better crack-resisting reinforcement products on the market is Keywall."

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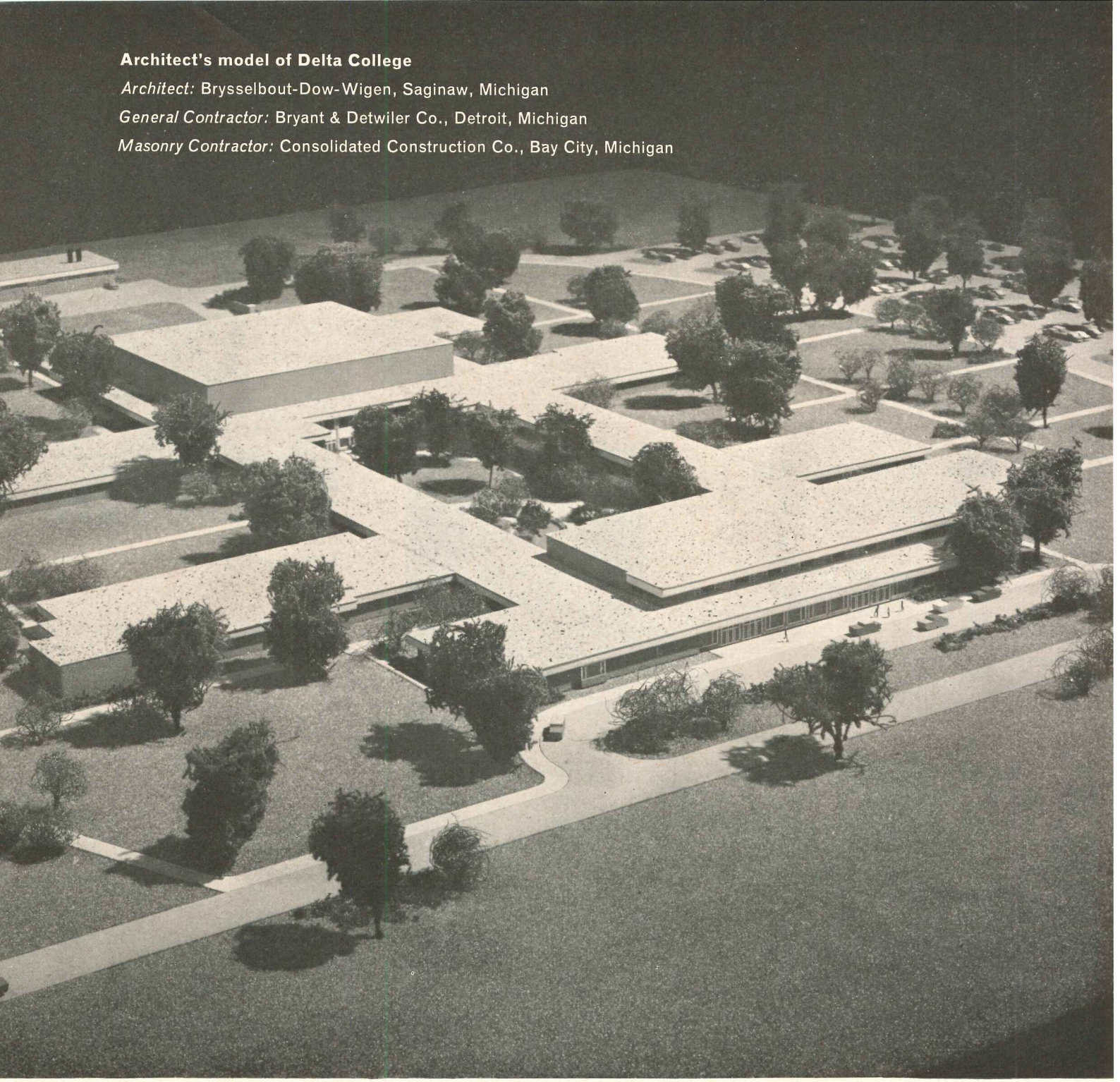
Architect's model of Delta College

Architect: Brysselbout-Dow-Wigen, Saginaw, Michigan

General Contractor: Bryant & Detwiler Co., Detroit, Michigan

Masonry Contractor: Consolidated Construction Co., Bay City, Michigan



Located in a fast-growing, industrialized section bordered by Bay City, Saginaw, and Midland, the Delta College is one of the first in the U. S. to be financed by a multiple county tax program. One of its many unique features is a closed-circuit TV studio which will originate educational programs throughout the school and neighboring communities.

For buildings that stay young throughout the years, rely on Keywall galvanized masonry reinforcement. Masons find Keywall easy to handle, easy to adapt to a wide range of applications. It can be lapped at corners without adding thickness to joints. Full embedment and complete bond assure effective reinforcement. Comes in 4″, 6″, 8″, 10″, and 12″ sizes.

continued from page 318

U.S. City Planners Design Master Plan for Agadir

Harland Bartholomew and Associates, city planning consulting firm of St. Louis, Missouri, has been engaged by the United States International Cooperation Administration to prepare a master plan for the recently devastated city of Agadir, Morocco. The Government of Morocco requested the ICA to provide assistance in establishing a city plan for the rehabilitation and reconstruction of Agadir, which was devastated by an earthquake in February 1960.

In July King Mohammed V laid the foundation stones for the first new building. Scheduled for early construction are housing projects, a hospital, administrative building, a market, a mosque and a radio station. It was anticipated that the plan for the new city of Agadir would require six months for completion.

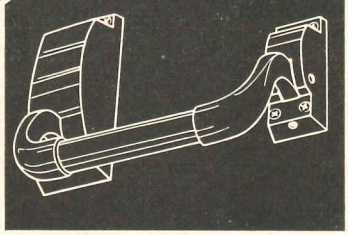
the changing Skyline of Toronto CANADA

the MACKENZIE BUILDING

The MACKENZIE BUILDING... the newest and finest government office building in Toronto, was recently opened by the Canadian Government. The $12,500,000 ultra modern Federal building is a panorama of fine construction and appointments.

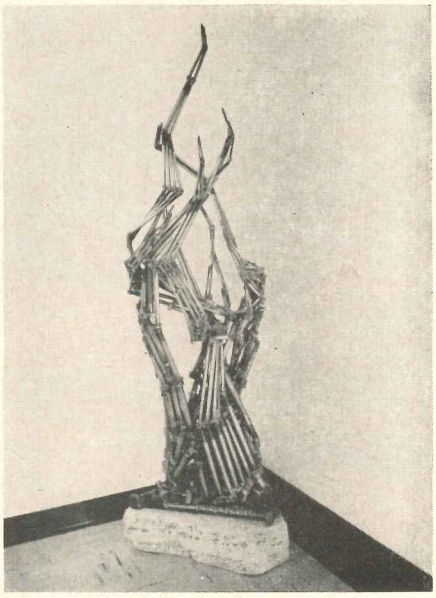
SG-5300 SERIES EXIT DEVICES were used in the new building.

Important features of SG-5300 SERIES EXIT DEVICES include added security, less maintenance and assurance of safe exit at all times. Strength and durability of SARGENT & GREENLEAF EXIT DEVICES are further complemented by clean, modern design.



SARGENT & GREENLEAF, INC.
ROCHESTER 21, NEW YORK

Owner: Department of Public Works, Canada
Chief Architect: E. A. Gardner
Architects: Shore & Moffat, Toronto, Ont.
General Contractor:
Redfern Construction Co., Ltd. Toronto, Ont.
Hardware Contractor:
Aikenhead Hardware, Ltd. Toronto, Ontario
Architectural Hardware Consultant:
D. R. Ferguson, A. H. C. Toronto, Ontario



Nuts and Bolts Make Burning Bush

An abstraction in metal based on the Biblical story of the Burning Bush has been designed by Egon Weiner, professor in sculpture at the Chicago Art Institute. The six ft high work, executed directly in steel, using only nuts and bolts welded together, will be used as an identity symbol by the Chicago firm, Heads and Threads Inc. The artist says, "Since bolts and nuts are the main support of our modern industry, I took the Biblical title of the ever active Burning Bush as a symbol for the always active industry fed by these small but vital elements."

Management Group Surveys Aspects of Office Design

"Physiological Factors Governing Office Environment" was the title of a recent survey by the National Office Management Association. Participating in the study were more than 1900 business, industrial and service organizations in Canada and the United States, of which 87 per cent were located in urban areas.

Some results of the survey: *paint on walls*—94 per cent (pastel colors—77 per cent); *Composition flooring*—90 per cent; *fluorescent lighting*—83 per cent; *sound control*—75 per cent; *air conditioning*—72 per cent; *NOMA's standard N7.2* (space allocation of 60 to 80 sq ft per person)—62 per cent; *Wood furniture in private offices*—55 per cent; *metal furniture in general offices*—45 per cent.

more news on page 330

"My Architect said so..."

nothing reflects
good taste
like the real thing

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Fashions by I. Magnin
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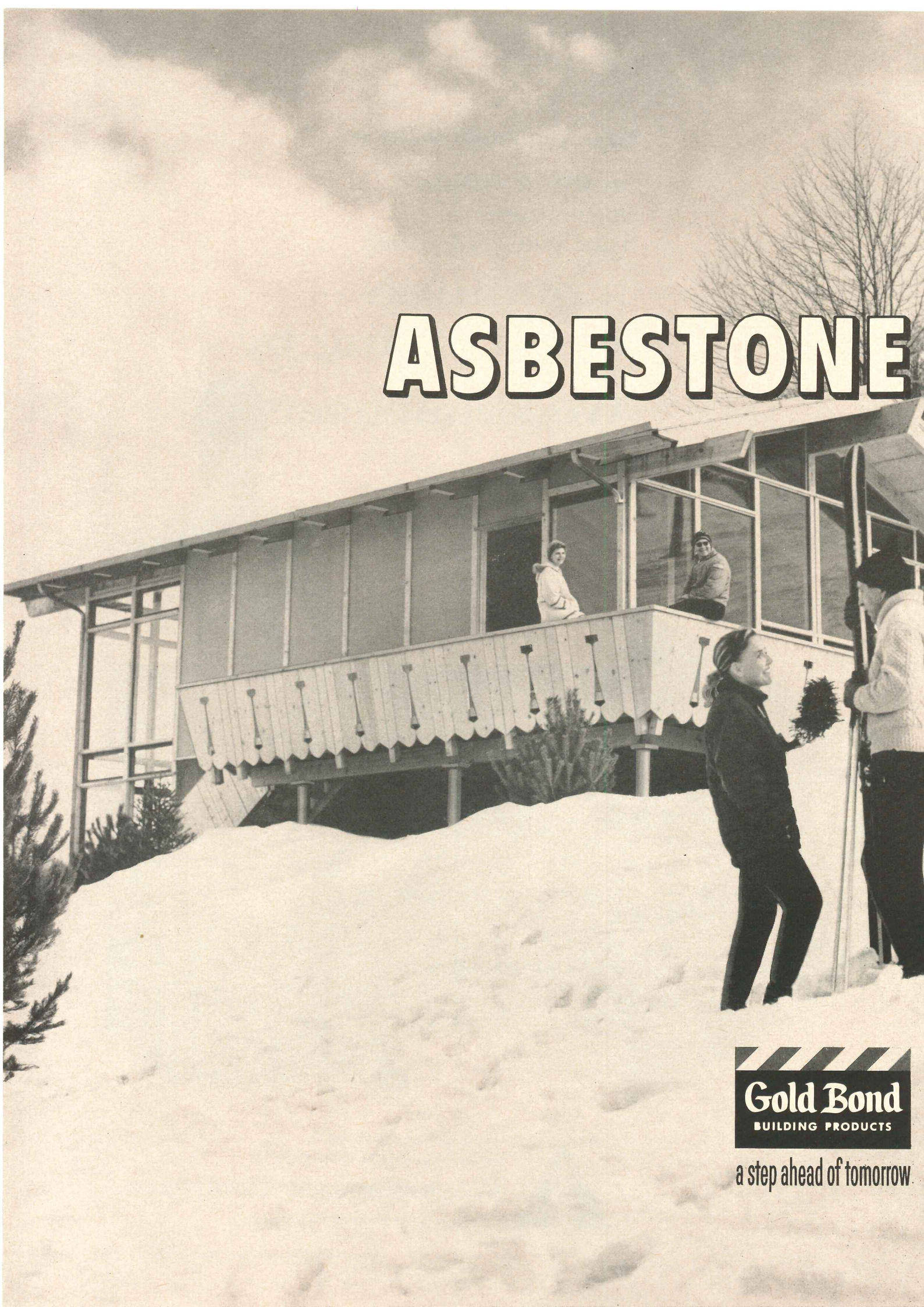
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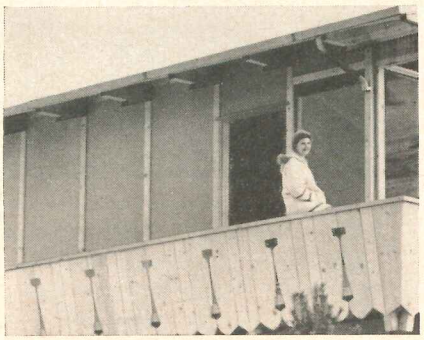
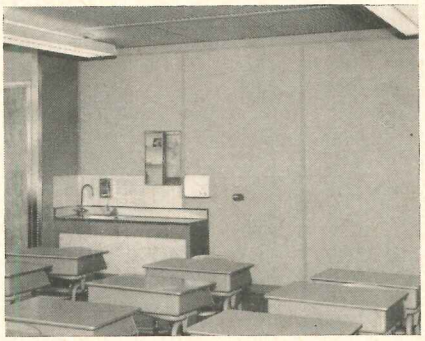
BUILDING PRODUCTS
a step ahead of tomorrow

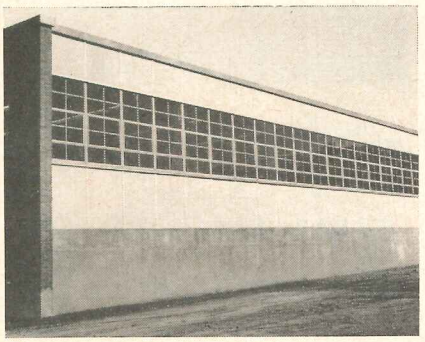
5 ways to use Gold Bond SANDWICH PANELS



1. Thermal Insulation.
2″ Asbestone Panels keep things cosy in this ski chalet even when temperatures hit 20 below. Their U value of .17 (R=4.93) keeps fuel bills down, and this inside-outside construction costs less than studs, insulation and siding. Maintenance costs: almost non-existent.

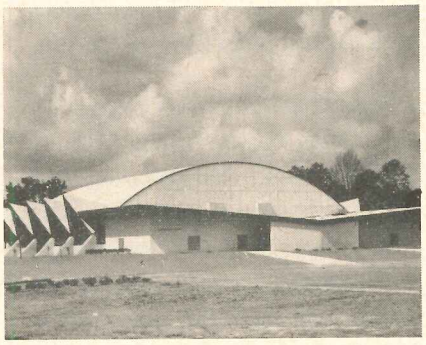


2. Sound insulating partitions.
This school solved a pressing space problem with partition walls of Asbestone Panels. They used the 1 9/16″ thickness, which has a good sound transmission loss rating (29.5 db), and can be completely rearranged overnight. Panels may be painted but *never* need it.

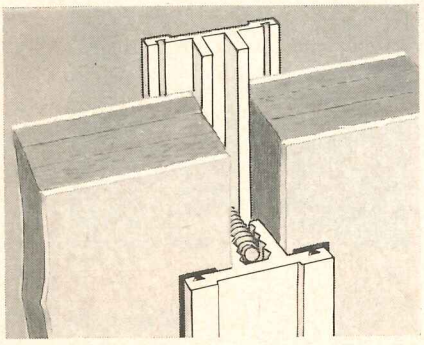


3. Expandable floating wall.
This Jamestown, N. Y., plant used Asbestone Panels for a floating end wall that can be moved easily when the plant is expanded. The handsome panels serve as both inner and outer wall and give thermal insulation equal to a five foot thick concrete wall!

4. Saltproof, Moistureproof Exterior.
Asbestone Panels are popular in the Southeast and coastal areas because they're immune to the effects of salt air, even strong chemicals. Chemically inert Asbestos-Cement facing sheets shrug off moisture, weather, fire and chemical fumes: grow harder with age.



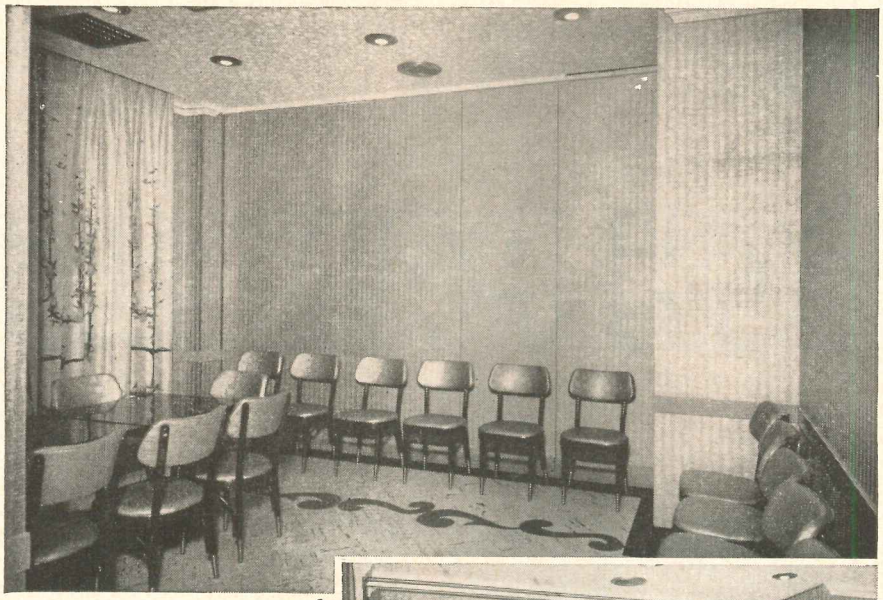
5. Low-cost inside-outside walls.
The striking beauty of this Zachary, La., High School belies its low construction cost. Asbestone Panels do double duty as inside-outside walls, giving complete insulation and a finished surface on both sides. Maintenance is low despite wear and tear.



Asbestone Panels in H & B and other standard framing systems combine low cost materials with low erection cost. Panel surfaces are 1/8″ Asbestos-Cement sheets; core is asphalt-impregnated insulation board. Standard panel sizes, 1 1/16″, 1 1/8″, 1 9/16″, 2″ thick. For samples and technical details: Dept. AR-31.

NATIONAL GYPSUM COMPANY, BUFFALO 13, NEW YORK

FOLDING WALLS HELP INCREASE CONVENTION BUSINESS AT ATLANTA'S BILTMORE



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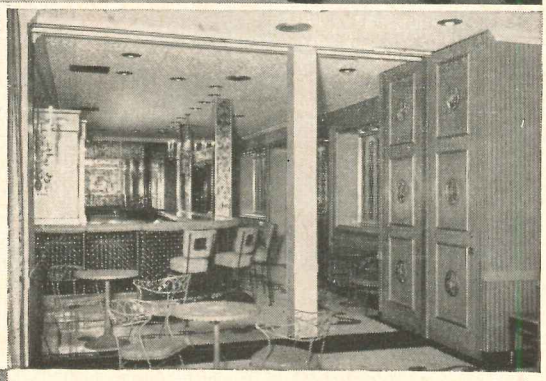
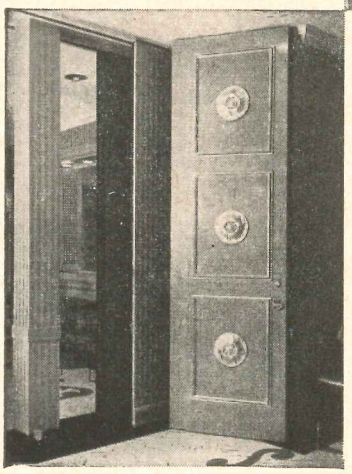


2

Fairhurst®

UNITFOLD® FOLDING WALLS



3

Atlanta's explosive growth as a convention city is responsible for the all-new 10th floor of the Biltmore. 7 of 11 meeting rooms, designed for conferences or private dining, are connected with Unitfold Folding Walls. These areas can be varied to serve groups from 25 to 160 persons.

In the example above, Unitfold is faced with the same paper as the permanent walls (photo 1). Photo 2 shows Unitfold withdrawn and entirely hidden in the pockets at right; contrasting pocket doors add interest to room decor. Photo 3 demonstrates that there are actually **two** walls, separated by air space. All the Biltmore walls are of this type — one of the Fairhurst features that means the highest sound retardance known in movable walls. Note close clearance at column. This is Unitfold — solid, rigid, with all the characteristics of a permanent wall.

Write Dept. AR for free information and estimates

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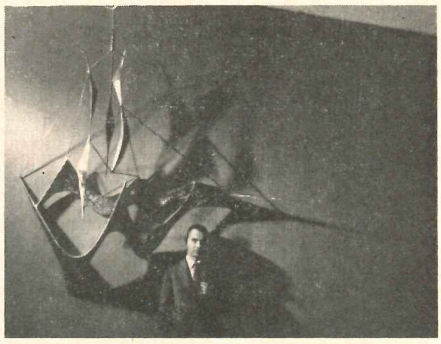
FAIRHURST . . . First Name in Folding Walls

The Record Reports

Cronbach Work Commissioned For United Nations

A recent addition to the art works at the United Nations is a piece by Robert Cronbach, sculptor and assistant professor in the Art Department of Adelphi College, Garden City, New York. It was commissioned by the National Council for U. S. Art, Inc., an organization whose aim is to place the work of contemporary painters and sculptors in the U.N., so making it a center of cultural as well as political importance.



Made of hammered and welded bronze, brass and stainless steel, the sculpture is placed on the wall of the Meditation Room Lobby. The space in the room is intimate, serious. Looking back at the problem posed, Mr. Cronbach said the sculpture had to be a general symbol, not specific; applicable to no religion in particular, yet religious.

According to Cronbach, his design expresses a hope in the future, a confidence inherent in the United Nations itself. "Most people," Mr. Cronbach says, "look on the work as a ship. And I don't mind a bit. Although a more concrete symbol, a ship in its forging forward is hope."

"I've asked the guards about visitors' reactions, interpretations of my sculpture, and they tell me that I'm winning about 70 to 30!"

The idea for the National Council for U. S. Art, Inc. was conceived by the late Mrs. Samuel A. Lewisohn of New York, a founder of the group. Individuals and groups throughout the United States interested in the fine arts have responded to the project and donated the necessary funds.

Officers of the Council are: Roland L. Redmond, New York, president; Nathaniel Saltonstall, Boston, vice president; Henry Billings, New York secretary; and Joshua B. Cahn, New York, legal counsel.

more news on page 335

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in stainless steel
● Stainless steel . . . slim silhouette . . . sure safe operation.
They're all yours in the Von Duprin 66, the exit device that introduced the industry to the practical beauty of stainless steel.
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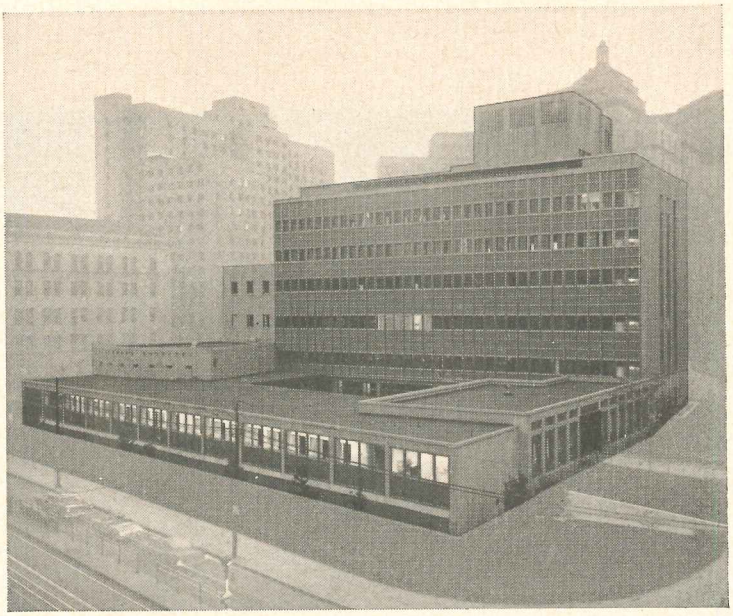

New addition to Pittsburgh Children's Hospital.
Architect: *Alfred D. Reid & Associates;* Electrical Engineer: *J. G. Stauffer.*

Award-winning hospital design adapts Day-Brite lighting to area function

The new addition to the Pittsburgh Children's Hospital has been hailed as "an outstanding example of the use of structural steel and a unique, attractive solution to a hospital's functional problem."

Creating a cheerful, pleasant atmosphere that would lift spirits of patients, visitors and employees called for generally high level, softly diffused illumination throughout the hospital. Day-Brite recessed TROFFERS and MOBILEX® with distinctive CLEARTEX® plastic diffusers (to minimize glare prismatically) were specified. Exact footcandle levels and ceiling plans were tailored to the needs of each area.

Whether you're lighting a hospital, store, school or factory, you can always depend on Day-Brite's over-all excellence and wide variety of fixture designs to meet every lighting situation with award-winning results. Contact your Day-Brite representative or write *Day-Brite Lighting, Inc., St. Louis, Mo., and Santa Clara, Calif. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ont.*

Write for FREE **Manual of Hospital Lighting:** Day-Brite Lighting, Inc., 6260 N. Broadway, St. Louis 15, Mo.

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NATION'S LARGEST MANUFACTURER OF
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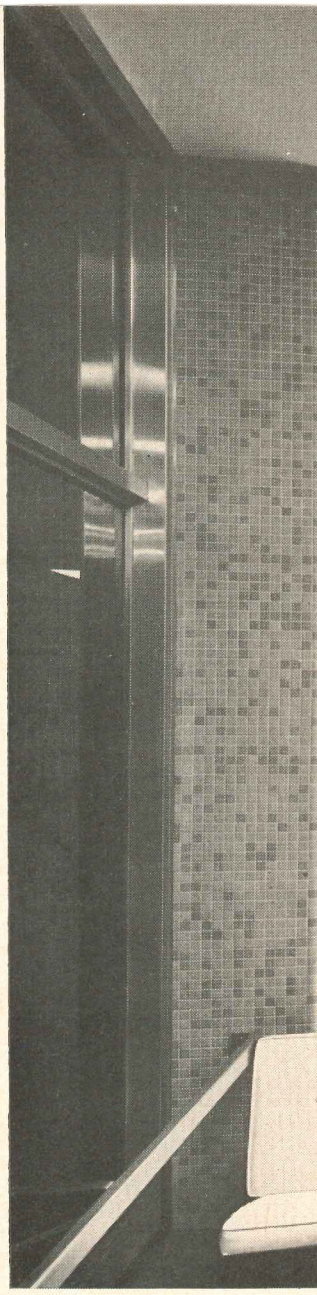
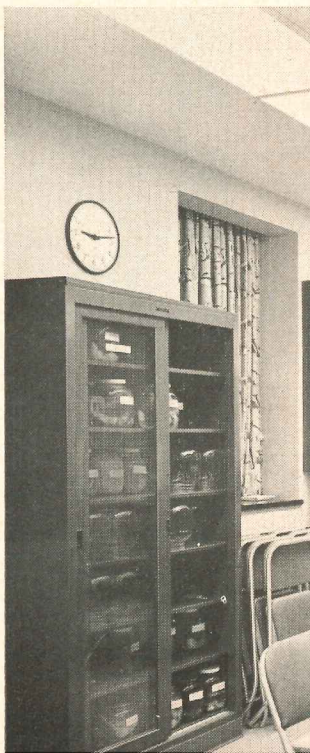
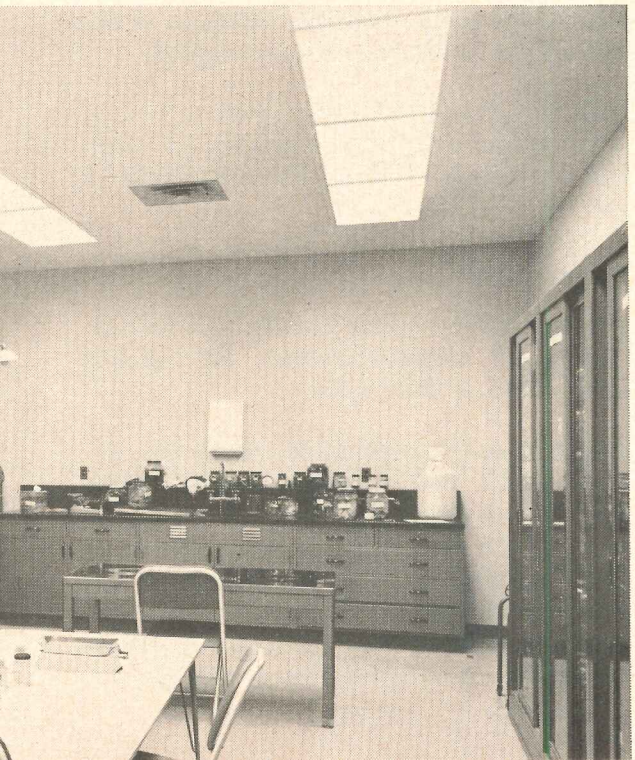




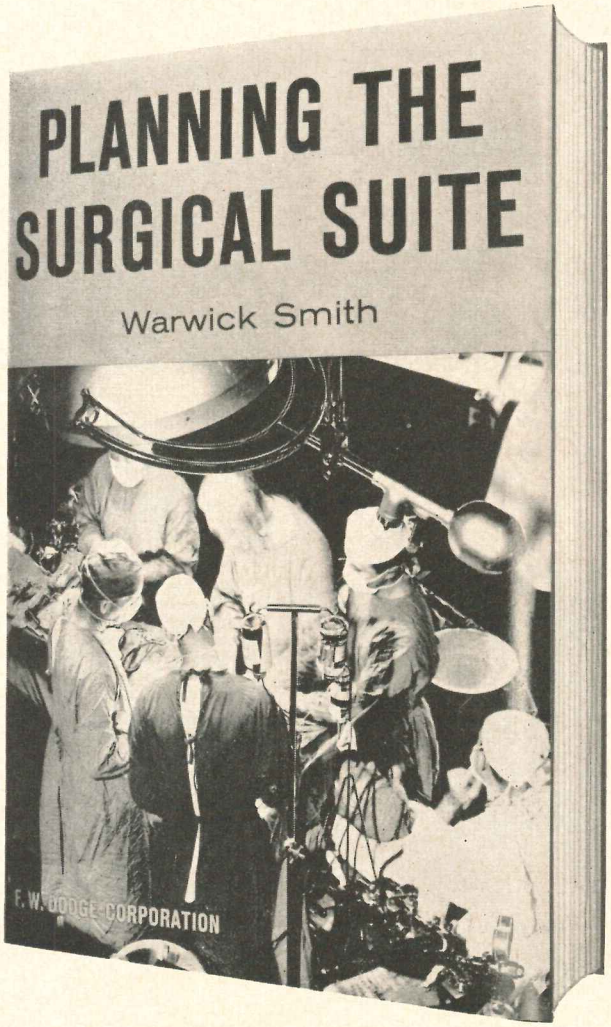
Horizontal arrangement of Day-Brite TROFFERS makes waiting area in out-patient clinic look wider, more spacious. Incandescent UNI-FRAME® lens boxes highlight registration desk.

Day-Brite MOBILEX® maintain laboratories at 75 to 100 footcandles to facilitate critical visual analyses.



Informal dining room, cheerfully lighted by Day-Brite TROFFERS, typifies tone of the entire hospital.

The first authoritative guide for planning the heart of the hospital



PLANNING THE SURGICAL SUITE

by Warwick Smith

456 pages, 6 x 9" size with over 75 illustrations and 17 guide tables and charts only $12.75

The heart of the hospital is its surgical suite. Because of its critical functions, the operating room and its environs must be designed to work efficiently under all conditions. This is a fact recognized by all administrators and designers of hospitals. Equally recognized is the difficulty involved in developing a truly efficient and flexible plan for a surgical suite.

Much time and money has been wasted in building and remodeling surgical suites. The inherent flaws are soon revealed in a suite design which did not consider all of its required functions. Consequently, within weeks of its occupation, it is often found necessary to remodel or improvise upon the original design.

PLANNING THE SURGICAL SUITE is aimed directly at this problem. This unique guide explains how the intended functions of a surgical suite affect its organization and design, and describes the methods of translating these into actual facilities. With the aid of tables, charts, and checklists, it provides for a complete analysis of the function and design of the operating room complex.

Architects, engineers, hospital administrators — anyone planning a new hospital or new facilities for an existing building — will find PLANNING THE SURGICAL SUITE of vital interest.

Consider all aspects, including:

- **role of the surgical suite**
- **size, plan, and location**
- **traffic flow for both patients and staff**
- **storage for clean and sterile supplies**
- **sterilization facilities**
- **detailed arrangement of rooms**
- **materials and finishes**
- **heating, ventilation, air-conditioning**
- **engineering services**

About the author . . .

Warwick Smith has made an intensive, twelve-year study of hospital design, with special emphasis on the surgical suite.

Although a native Australian, Smith has designed hospitals and medical facilities while working for architectural firms in England, Sweden, and the United States. An associate of the Royal Institute of British Architects and the Royal Australian Institute of Architects, the author was awarded the Henry Saxon Snell Prize in 1954 for research in hospital architecture.

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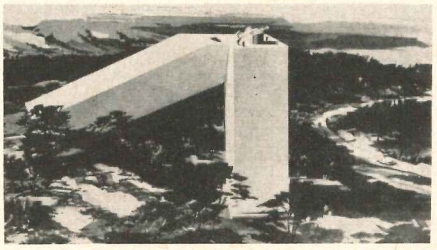
The Record Reports

Kitt Peak Solar Telescope Is World's Largest

Construction of the world's largest solar telescope has begun at Kitt Peak National Observatory, Tucson, Arizona, and completion is expected in approximately two years. "When completed," says Dr. Alan T. Waterman, Director of the National Science Foundation, "this huge instrument will give solar researchers more revealing views of the sun than have ever been possible from earth. Such observations will increase substantially man's meager knowledge of the star that keeps our planet alive."



The National Science Foundation has granted $4 million for the Kitt Peak Solar program in which the huge sun telescope plays a major role. The instrument will have a focal length of 300 ft and will form images of the sun several times larger and more brilliantly illuminated than are attainable with any other solar telescope. It will be made up of three large reflecting surfaces combined in a system requiring a supporting structure about the size of a 10 story office building.

Architects for the building which is itself a telescope are Skidmore, Owings & Merrill of Chicago, who are working with Dr. Keith Pierce, Associate Director for Solar Astronomy at Kitt Peak Observatory. The structure will stand 110 ft high; the diagonal shaft will be 480 ft long, of which 280 ft is underground. The observing room is underground.

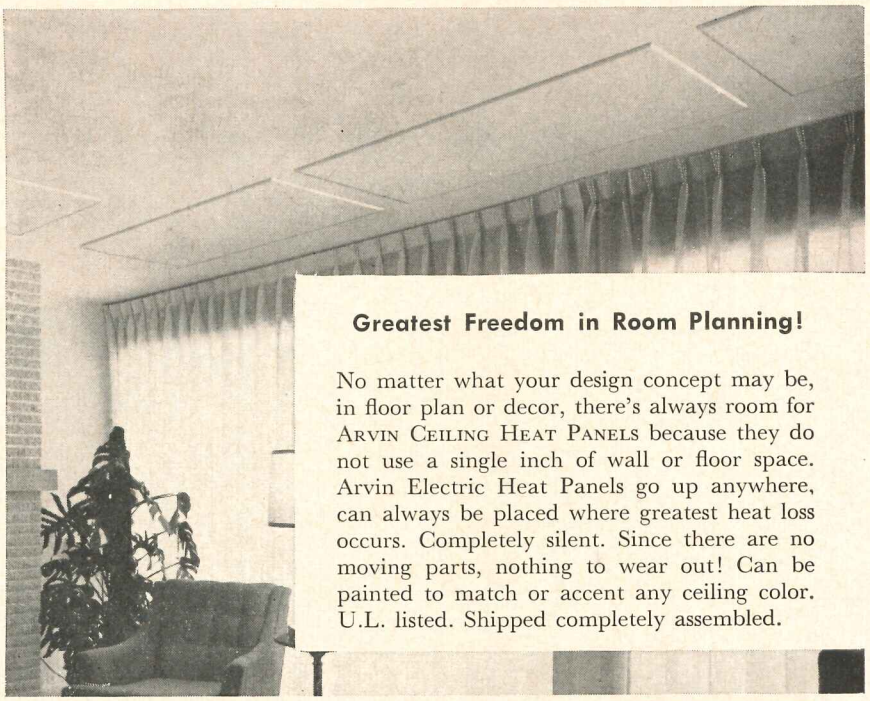
The observatory is a national research center available to all qualified astronomers, maintained by the National Science Foundation and operated by the Association of Universities for Research in Astronomy, Inc., under contract with NSF.

The $1,938,800 building contract was awarded to Western Knapp Engineering Company of San Francisco.

more news on page 343

consumer tested and proved

Arvin Electric Invisa-Panels solve your space problems . . . offer more installer and buyer appeal!



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No matter what your design concept may be, in floor plan or decor, there's always room for Arvin Ceiling Heat Panels because they do not use a single inch of wall or floor space. Arvin Electric Heat Panels go up anywhere, can always be placed where greatest heat loss occurs. Completely silent. Since there are no moving parts, nothing to wear out! Can be painted to match or accent any ceiling color. U.L. listed. Shipped completely assembled.

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A LEADING NAME IN ELECTRIC HEAT PRODUCTS FOR 28 YEARS

(Below) Functional, clean lines of the Providence Post Office exterior are highlighted by Westinghouse OV-25 parking area luminaires, assuring 24-hour maximum security operation. The luminaires' horizontal housing and tilted optical system are completely sealed against dirt, moisture and bugs for years of low maintenance, high efficiency operation.

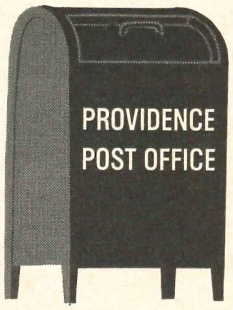
The nation's first automated post office, labeled "Project Turnkey," is operating now in Providence, R.I. It represents the first step in the government's plan to make the complexity of mail handling completely automatic to insure 24-hour delivery of mail to any part of the country.

Behind the architectural beauty of this $20,000,000 facility is a vital electrical nervous system. And it's the sure, steady performance of Westinghouse electrical apparatus that keeps this marvel humming.

From dependable, maintenance-free outdoor luminaires that light the 14-acre site to 69 power and lighting panelboards that feed sensitive letter sorters, facing and cancelling machines, parcel post machine and conveyor system, Westinghouse products coordinate for the high degree

(*continued on next page*)

These 11 sorters distribute mail to bins for 300 separate destinations after an operator's key punch code has sent an impulse to the memory unit of the sorter. Other major machines in the system are six letter cullers, six facer-cancellers, two parcel post sorters, and over three miles of conveyors.



Owner: Intelex Systems, Inc. Architect-Engineers: Charles A. Maguire and Associates, Providence, R.I. General Contractor: Gilbane Building Company, Providence, R.I. Electrical Contractor: Brady Electrical Company, East Providence, R.I. Westinghouse Distributor: WESCO, Providence, R.I.

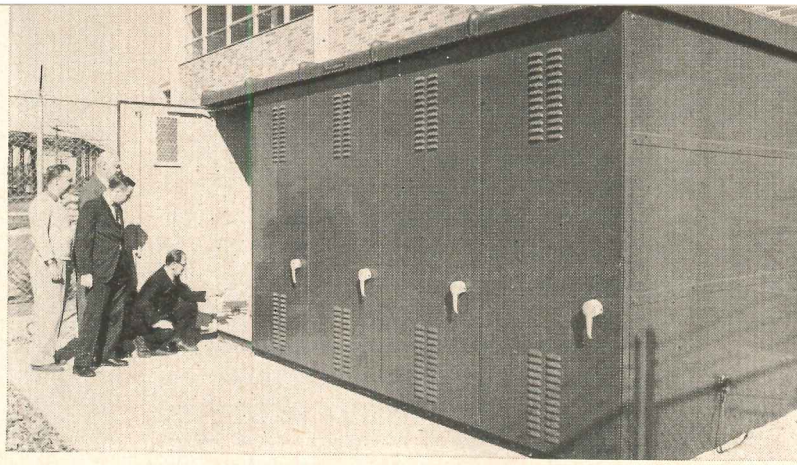
(continued from preceding pages)

of service so important to this "Post Office of Tomorrow." It is estimated that 10,250,000 kilowatt hours of electrical energy will be required annually for the 24-hour operation of the plant.

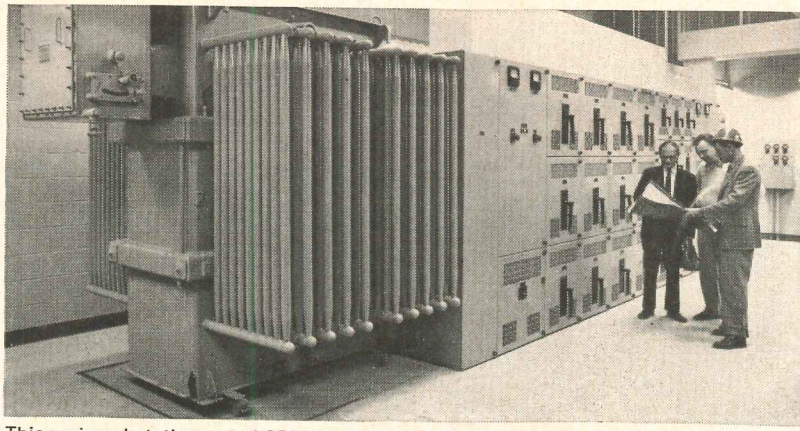
The Gilbane Building Company, Providence, erected the structure for Intelex, a subsidiary of International Telephone & Telegraph, who will lease it and its mechanized mail processing equipment to the government for 20 years. Design was by Charles A. Maguire and Associates, Providence. Westinghouse personnel worked closely with the consulting engineer from design stages through completion. Experience and the completeness of the Westinghouse line earned this working role in mail handling history.

You can be *sure* . . . if it's Westinghouse!

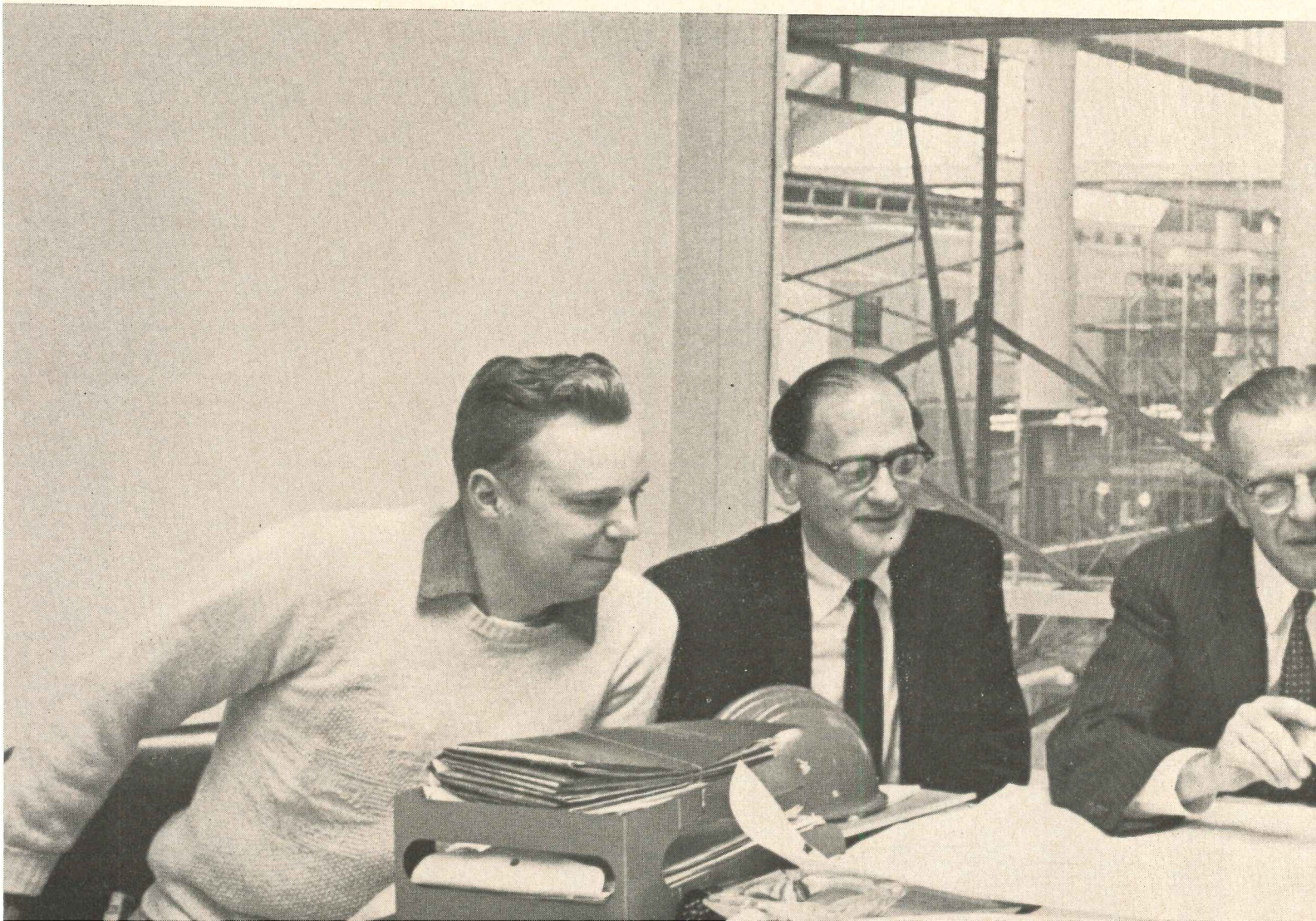
(Below) Reviewing drawings during the construction of Project Turnkey are, left to right: Arthur A. Watson, General Foreman, Brady Electrical Co., Inc.; A. I. Israel, Charles A. Maguire and Associates; E. Howard Rohrbach, Project Manager, Intelex Systems; Richard F. Martin, Project Manager, Gilbane Building Company; R. W. MacArthur, Westinghouse; and Walter W. Botts, Manager WESCO, Providence.



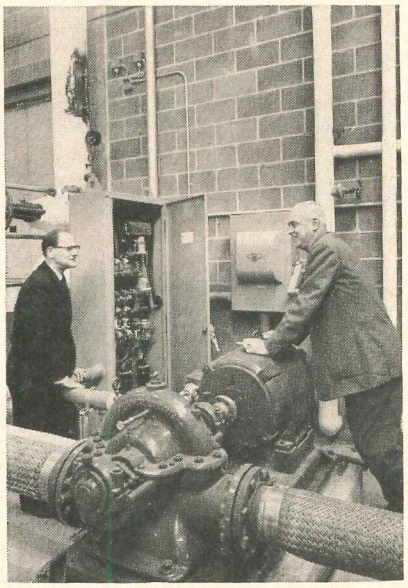
(Above) Rugged, weatherproof enclosure shields Westinghouse 150-DH-250 air circuit breakers which protect main feeders providing power to the post office. Inspecting breakers are A. A. Watson, W. W. Botts, R. W. MacArthur, and A. I. Israel (kneeling).



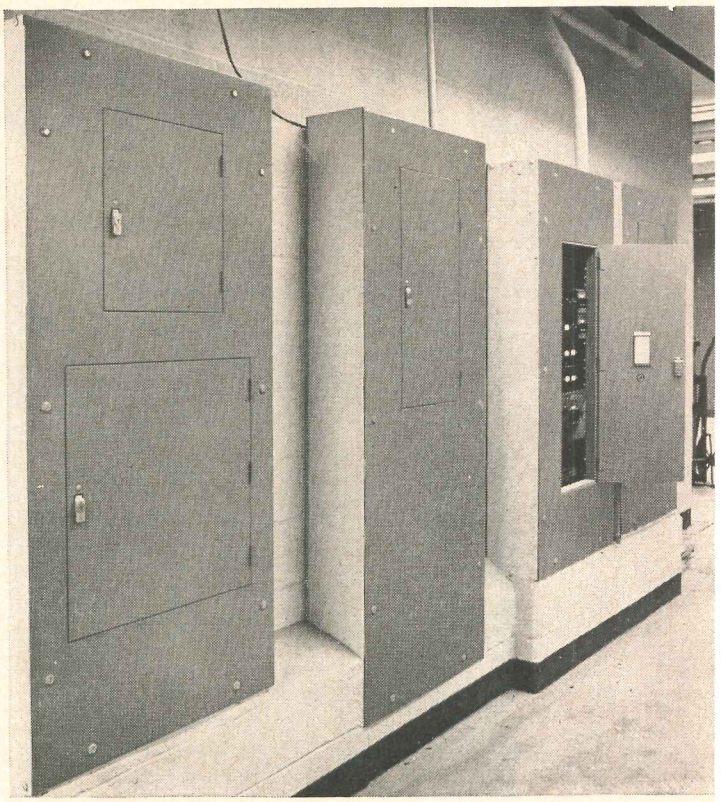
This main substation, rated 2500 kva, provides reliable source for lighting and power circuits. It receives incoming power at 11 kv directly from outdoor metal clad switchgear. Discussing schematic drawings of power circuits are: A. I. Israel, A. A. Watson and R. McCloskey, Resident Engineer, Charles A. Maguire and Associates.



(Above) A. I. Israel operates remote circuit breaker control panel for 15 kv outdoor metal clad switchgear as R. W. MacArthur looks on. Switchgear furnishes incoming power safely and efficiently to Westinghouse 500 kva power center serving post office auxiliaries. Compact design permitted location in minimum space, freeing valuable footage for work areas.



A. I. Israel, left, and W. W. Botts discuss operation of electrical system in mechanical building. In foreground is a 60 hp, 208 volt drip-proof Westinghouse motor, driving a chilled water pump. 400 amp safety switch on wall feeds an autotransformer reduced voltage starter which cushions inrush current to assure smooth pump start-up.



Westinghouse CDP power distribution panelboards equipped with De-ion® circuit breakers control and protect feeder circuits supplying power to intricate mail handling equipment. Complex systematized handling system requires reliable power supply since local failures would seriously impair movement schedules. Famed De-ion principle of arc quenching assures maximum circuit breaker life by preventing burning and pitting contacts.

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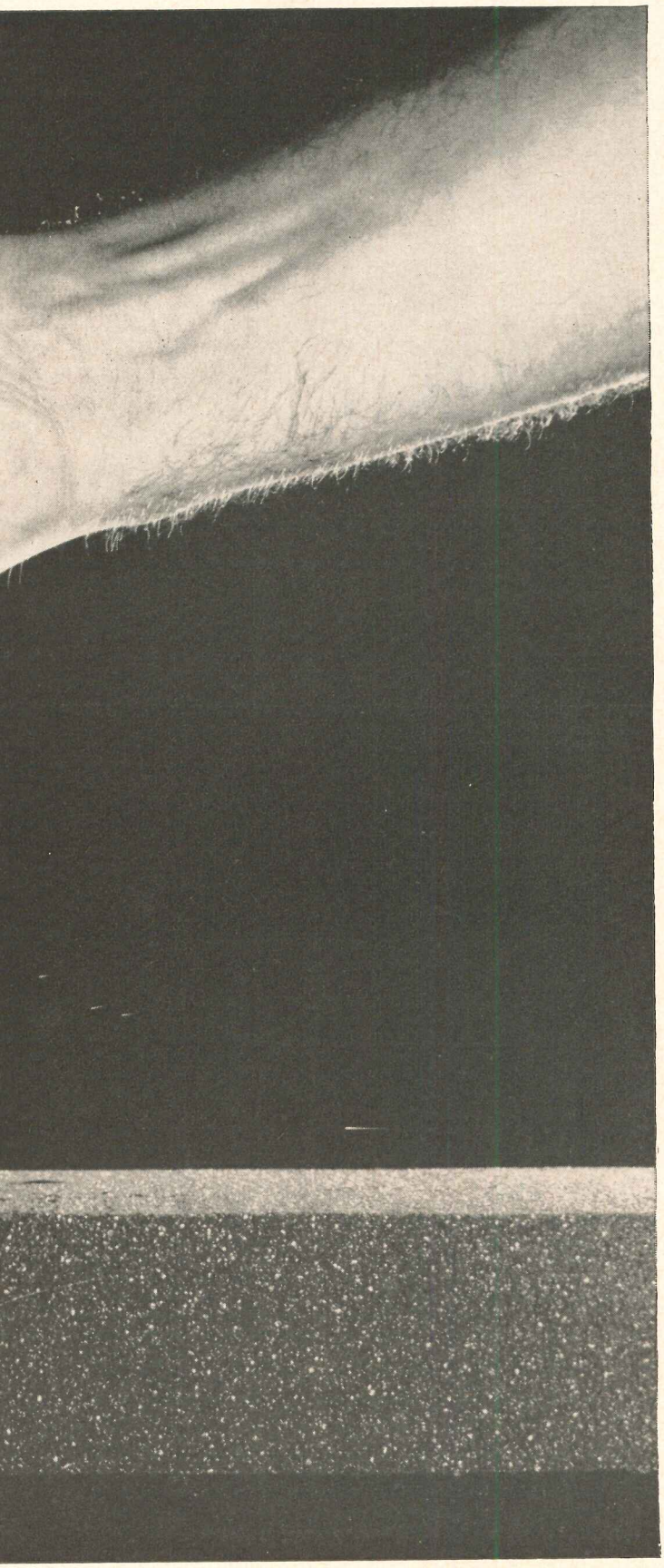

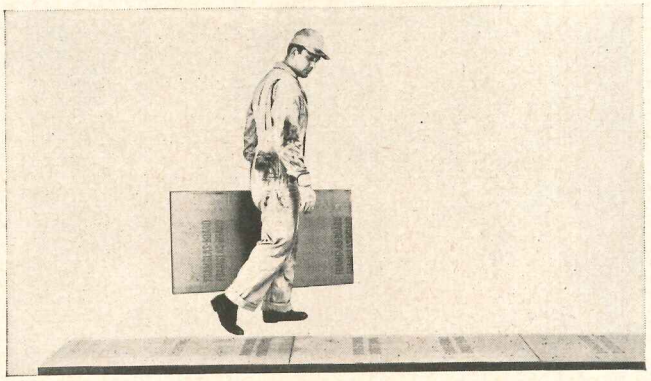

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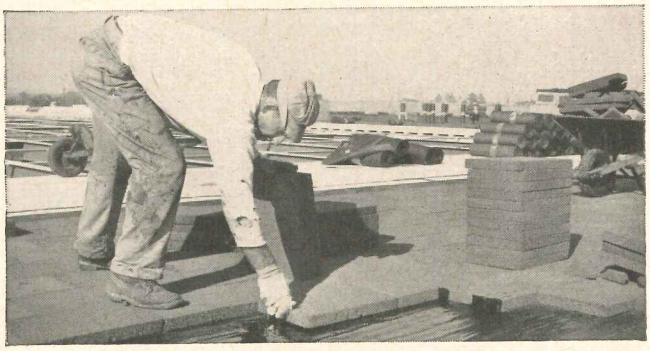
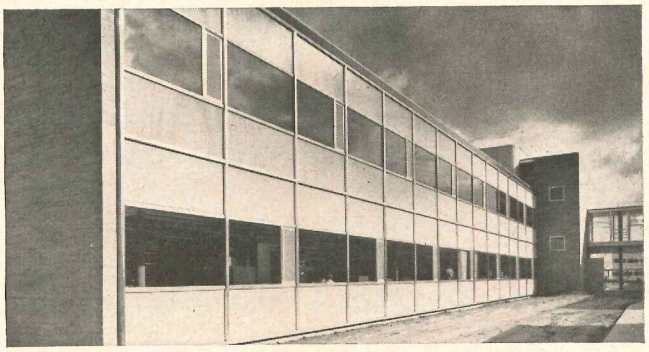


FOAMGLAS Insulation clears the air beneath this roof. Cold outside temperatures contrasting with a hot, humid interior atmosphere, had caused a fog-like condensation. FOAMGLAS roof insulation eliminated the problem. And the incombustibility of FOAMGLAS was an important extra-benefit here.



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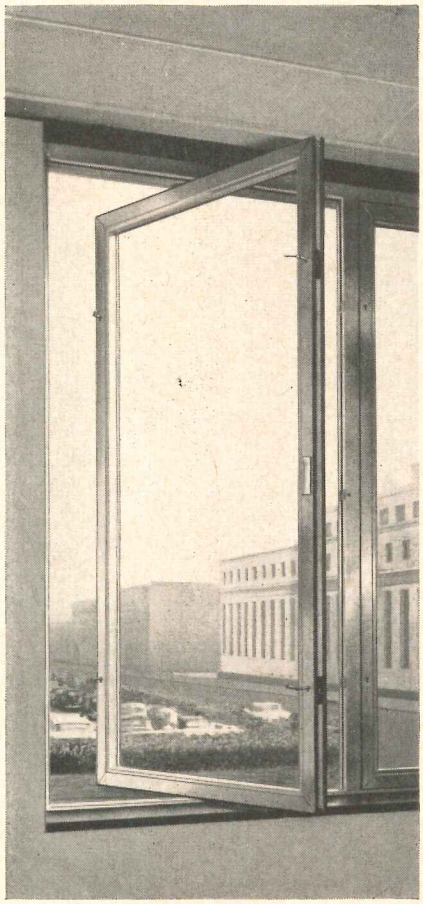

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N.A.H.R.O. Meeting

continued from page 42

Differing with him on this issue, Mr. Mason took the view that home buyers in America are getting just about all they can from F.H.A. "We have gone about as far as we can go with liberalization of credit terms." He believes the better break for home buyers must come largely from the home building industry in the form of technological innovations, new materials, methods, improved marketing practices.

The two opening speakers stressed a viewpoint shared by the speaker of the final conference event, the annual banquet, Philip M. Klutznick, a private developer in the Chicago area. The viewpoint was that housing and renewal can no longer be seen as isolated programs but, rather, must be seen in relationship to the whole complex of metropolitan problems.

"Bold ideas" took the spotlight in two sessions, one on public housing, the other on urban renewal. In the first, the five speakers were: Ira S. Robbins of the New York City Housing Authority; Thomas J. McCoy, director of the Philadelphia Housing Authority; A. C. Edgecombe, administrator of the Beaver County, Pennsylvania Authority; Robert D. Sipprell, executive director of the Buffalo Municipal Housing Authority; and Olive Swinney, community services adviser of the National Capital Housing Authority. The experiments discussed were conversions, scattered site public housing, serving a wider income range and help for "problem" families.

At the urban renewal session on "bold" ideas were O. O. McCracken, executive director of St. Louis' Civic Center Redevelopment Corporation; Stephen G. Thompson, associate editor of *Architectural Forum;* Howard J. Wharton, Urban Renewal Administration's assistant commissioner for redevelopment; and George M. Raymond, chairman of the planning department at Pratt Institute and partner in Raymond and May Associates, planning and renewal consultants. Under discussion was Mr. Raymond's idea of "continuous renewal," modification of personal income tax to give renters the same tax breaks available to owners, inclusion of the profit motive in redevelopment, federal assistance for mass transportation planning.

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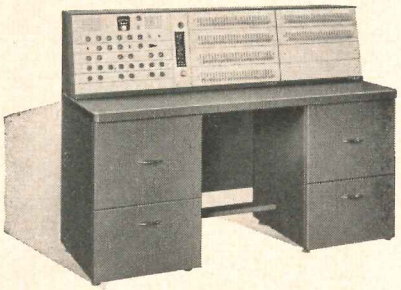

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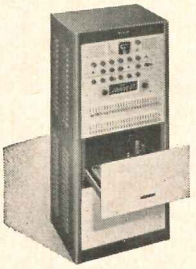

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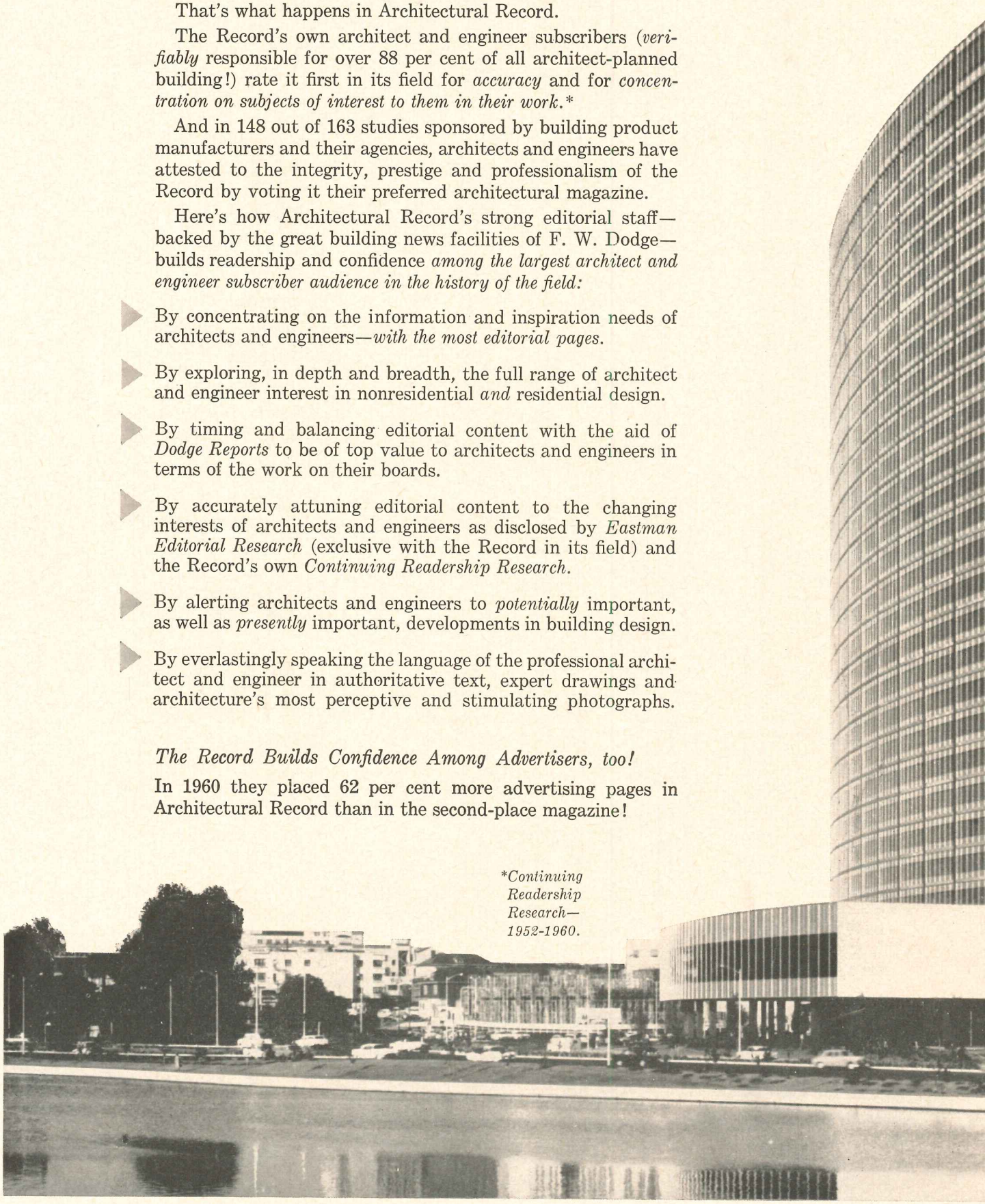

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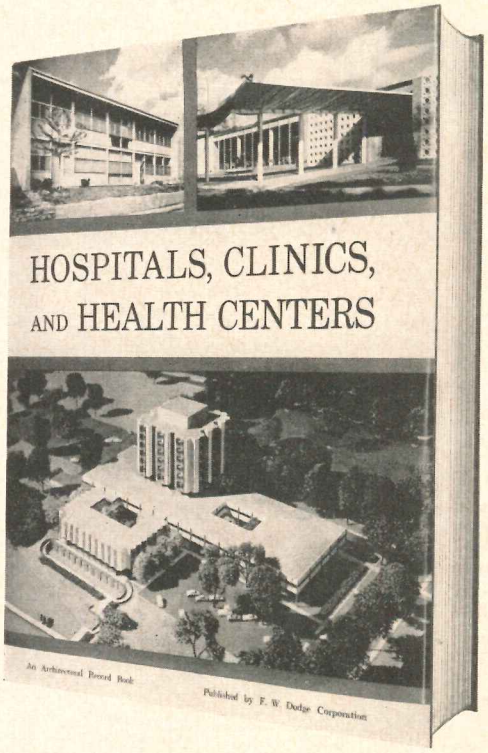

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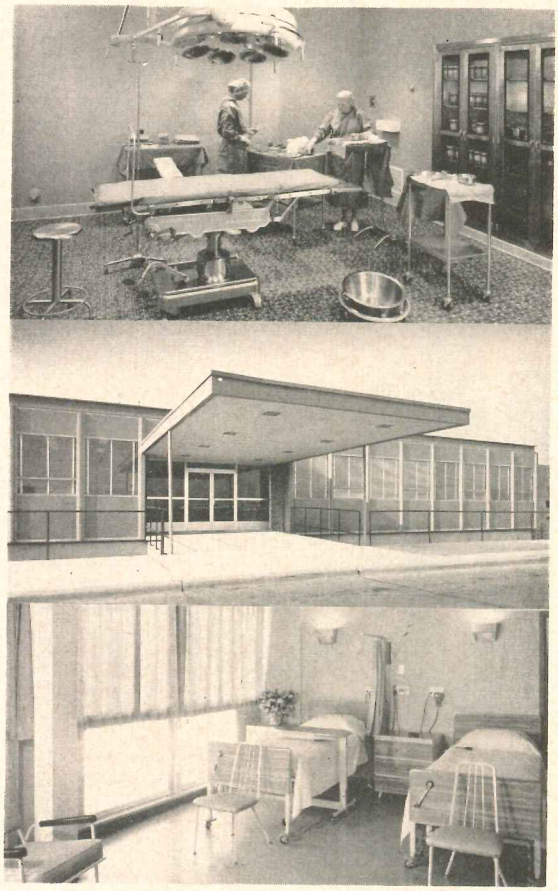

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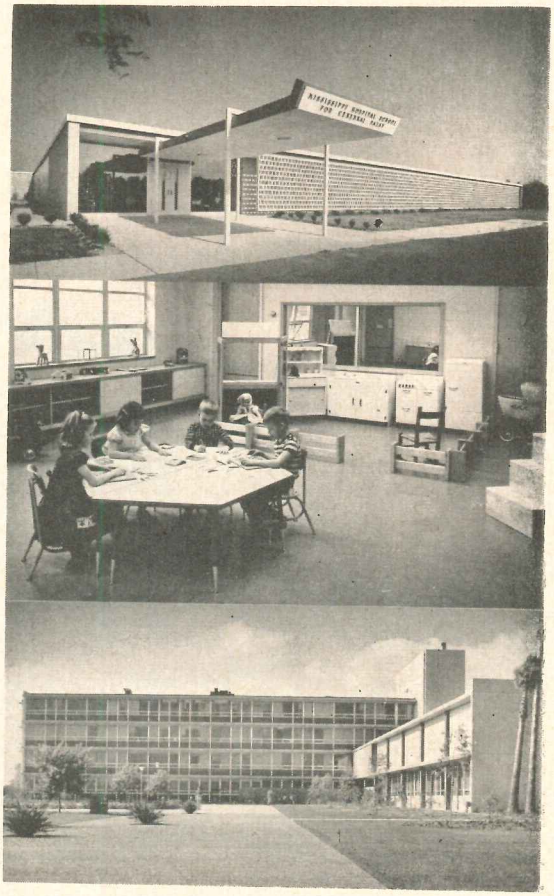

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BELLUSCHI INTERVIEW

continued from page 10

You wouldn't, however, advocate Mies' curriculum.
At I.I.T. precision is emphasized in terms of technique. This is valuable training: but perhaps there are not enough years in one lifetime to learn architecture this way.

Perhaps a type of natural selection occurs when the client seeks out an architect. If you were looking for pure form, there would be certain people to whom you would go.
Yes: For example, one wouldn't go to SOM to have a small house designed. In fact when Skidmore retired a few years ago and wanted to build a house, he ended by coming to me. Rather like one doctor going to another for an operation.

As the function of the building becomes more and more complicated, how best should an architect coordinate the services of the various specialists with whom he must work?
That is a good question and a difficult one.

The great tool of the modern age is team work. The atomic developments and the airplane have been possible only through the collective effort of many people.

There has to be a leader of the team, of course, but all must be willing and able to work together, and each must recoznize the other's as well as his own limitations.

The architect is naturally closer to the structural engineer than to the mechanical engineer, as a good architect thinks first of all in terms of structure. But he must learn to work with the mechanical and acoustical engineer, and the planner and landscape architect as well.

It is not impossible when each knows his own field best and there is no conflict of personalities.

I notice you mention the planner. What would you say were the architect's responsibilities to the context in which he works?
Some architects believe that they should design the most beautiful building possible and their responsibility ends there. I feel that the architect should take into account both siting and environment. Material, height, width, color should all be

continued on page 351

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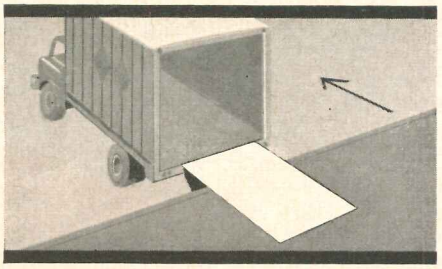
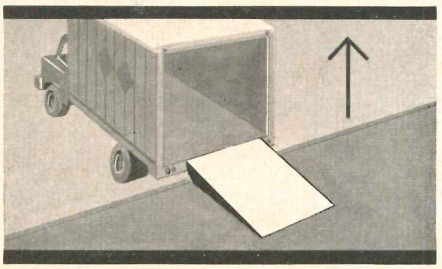
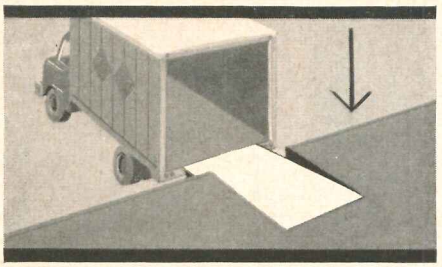


MOVES UP 1 to 16 inches



MOVES DOWN 1 to 10 inches



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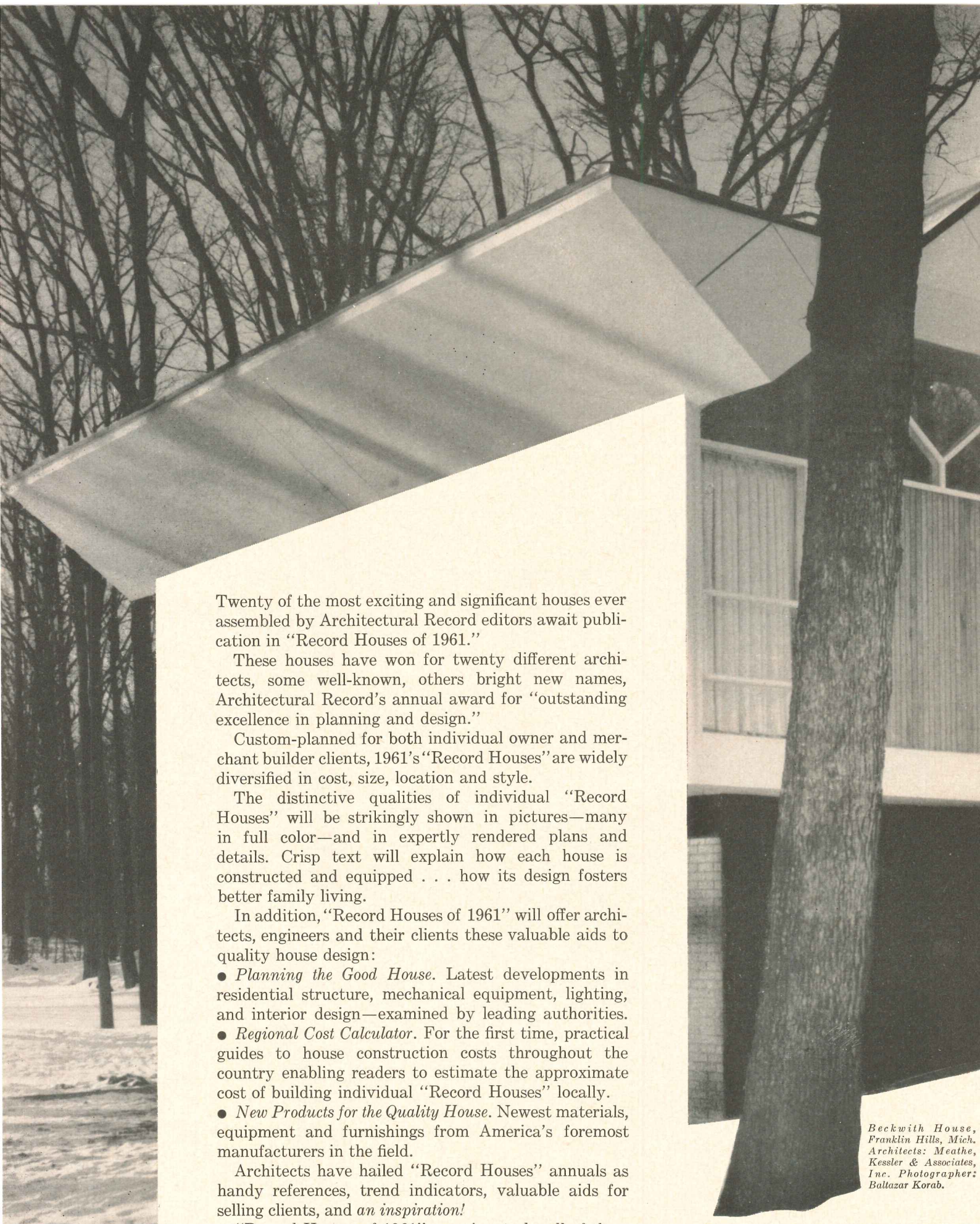

Twenty of the most exciting and significant houses ever assembled by Architectural Record editors await publication in "Record Houses of 1961."

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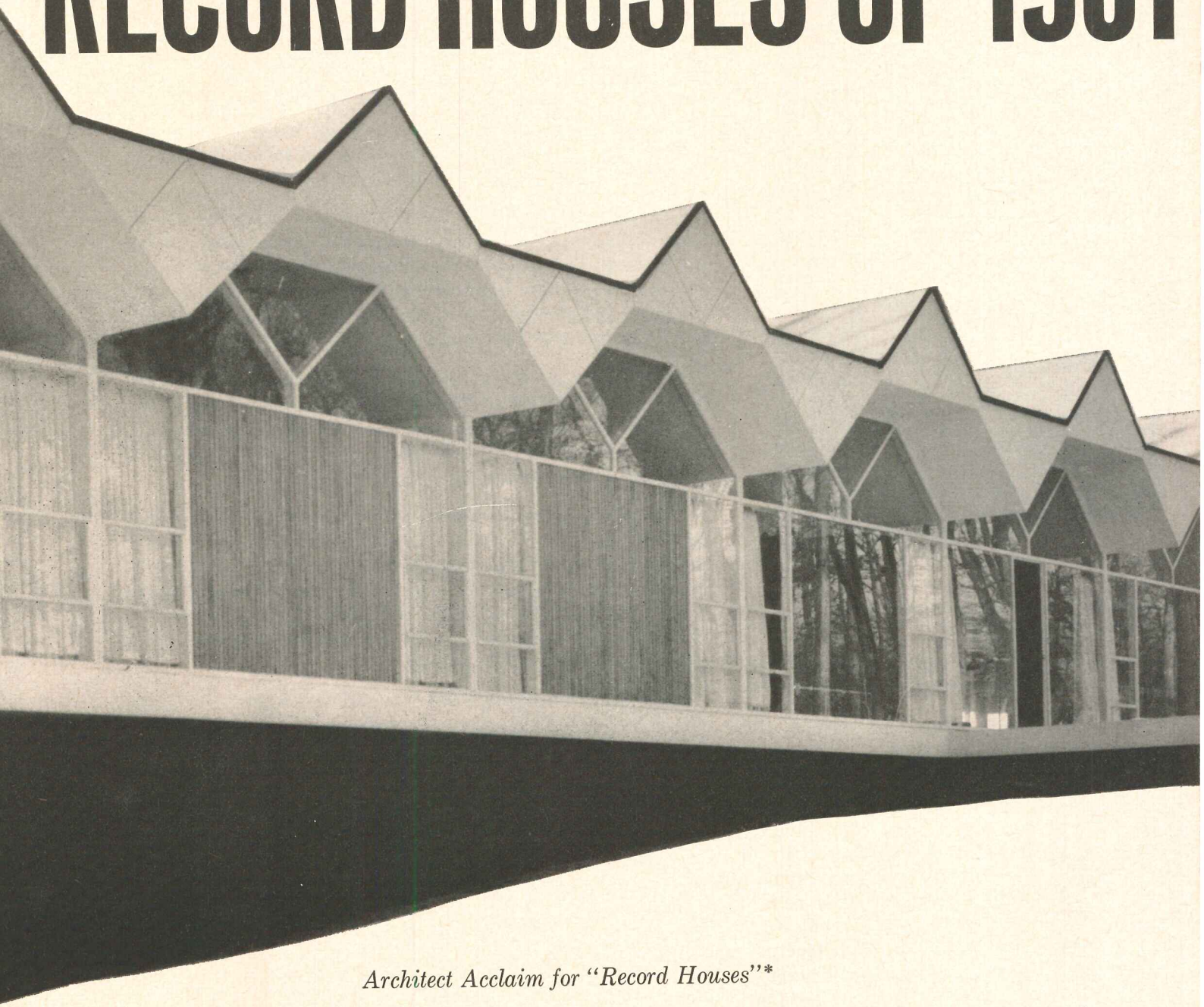

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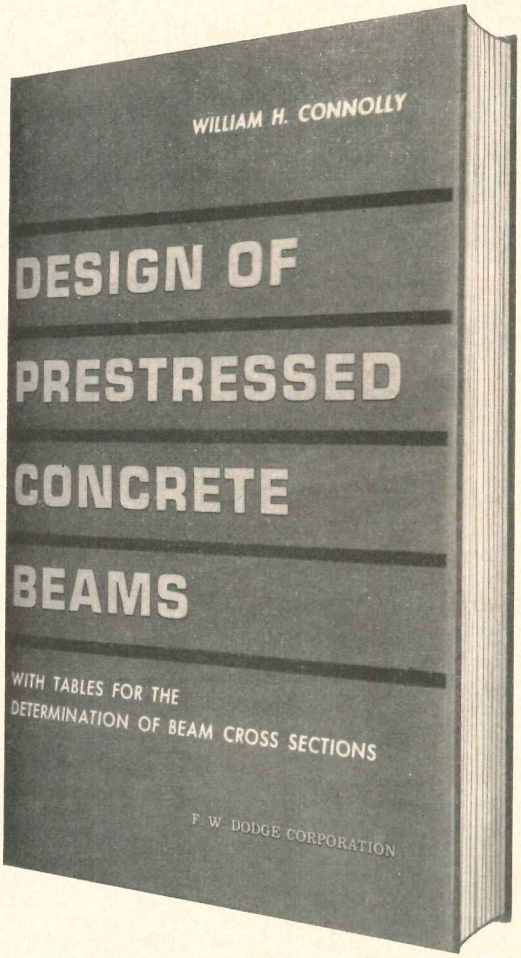

DESIGN OF PRESTRESSED CONCRETE BEAMS

by William H. Connolly

Here is a simplified, rational, and clear-cut method for the design of pretensioned and posttensioned concrete members. Through the use of its design tables, you can reduce the tedious trial and error normally involved in design problems.

Presented with explicit instructions that make this book uniquely practical, the tables thoroughly cover the most difficult and time-consuming aspect of prestressed concrete design: selecting the cross-section. Applicable to I-beams, T-beams, long-span members, and composite sections, they are not limited to members of any particular proportions or dimensions.

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THE AUTHOR

William H. Connolly holds a B.S. degree in Building Engineering and Construction from the Massachusetts Institute of Technology. He has been chief engineer for a precast concrete plant and a research assosiate at M.I.T. Currently, he is a structural engineer with Wm. J. Le Messurier and Associates, Consulting Engineers, Boston, Mass.

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BELLUSCHI INTERVIEW

continued from page 347

considered as part of a visual whole.

To place a building among trees, on Park Avenue, or among a group of low structures, each requires a different solution. This is a necessary first step to get cities to count as texture.

I am, as you know, associated with the new Grand Central Office Building. We have been criticized, perhaps justly, for dropping too big a building into too small a slot. But, after all, that is New York, and there are certain advantages to it. If you are looking for the country, that area is just not the place to look.

Are you not a bit uneasy about what is happening to the country-side itself?

There is a widespread lack of respect for conditions. You never achieve all the advantages of both the country and the city. You spoil the country and have its disadvantages as well.

I hope that one day soon we may again have smaller communities where the right degree of interaction exists.

How does one go about achieving this—short of government ownership of land?

The first problem that has to be licked is certainly the political problem. The greenbelt towns offered a marvelous example of what could be done. I think there are new attempts now in two or three projects, some of which I am involved in. The Golden Gateway project, in particular, if all goes well, I think may be a significant one and a turning point.

In the absence of a unified architectural style, do you think there is a basis for architectural criticism today?

Yes. What we need is a critic with a philosophical mind, an optimistic mind, a young mind to see light even in the darkness.

Some architects will say anything and compromise anything, but if a building has integrity and consistency it will be meaningful and will endure. Style will come when society itself will have acquired spiritual greatness. Obviously we are a long way off, but we cannot afford to act pessimistically.

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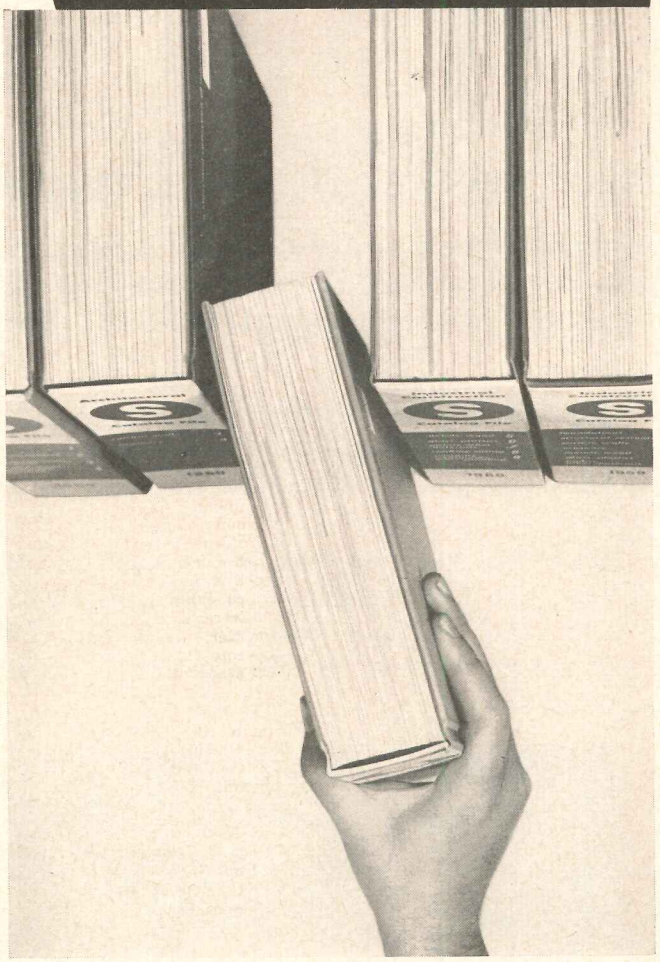

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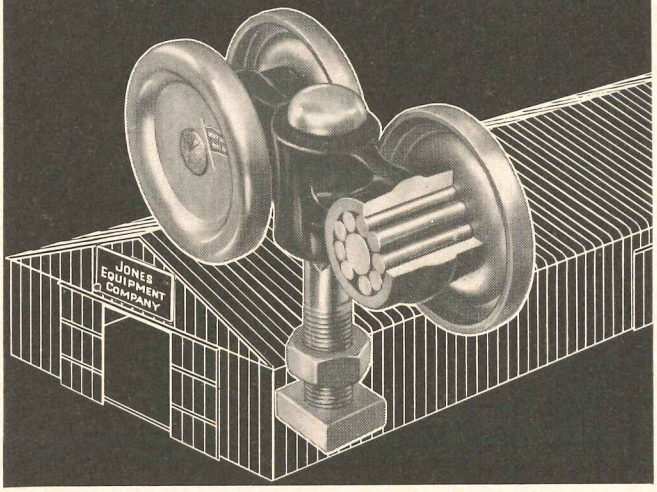

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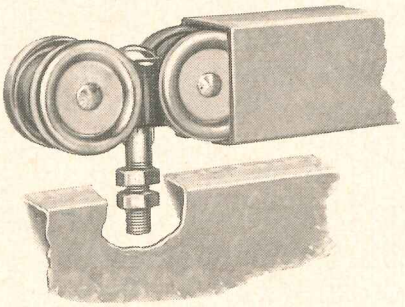

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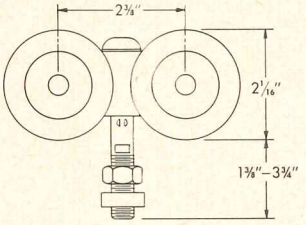

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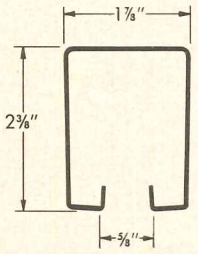

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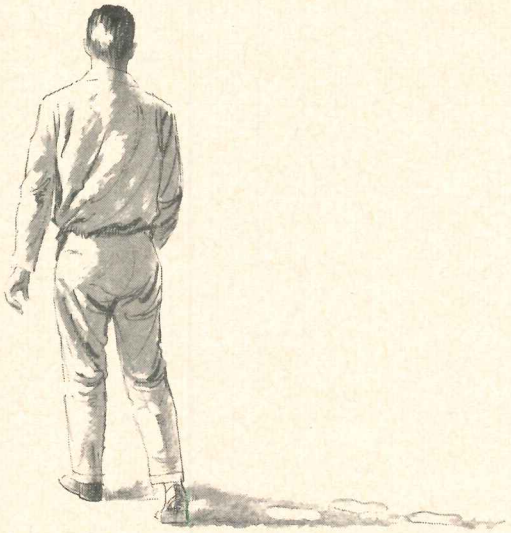

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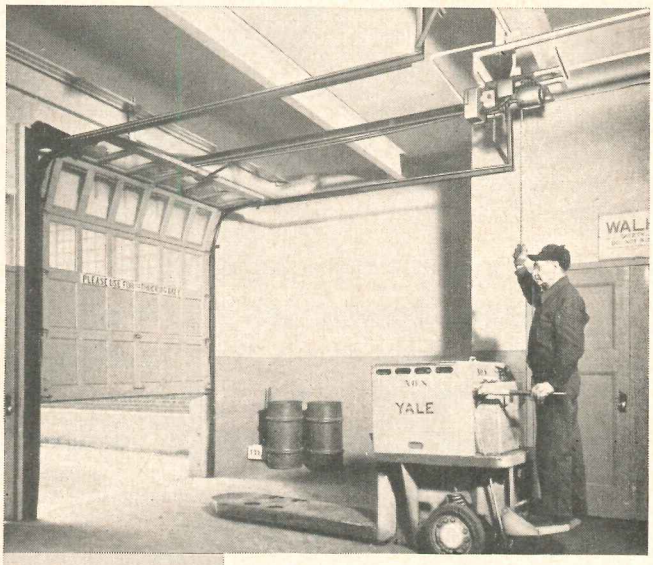

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