ARCHITECTURAL RECORD

4 APRIL 1962

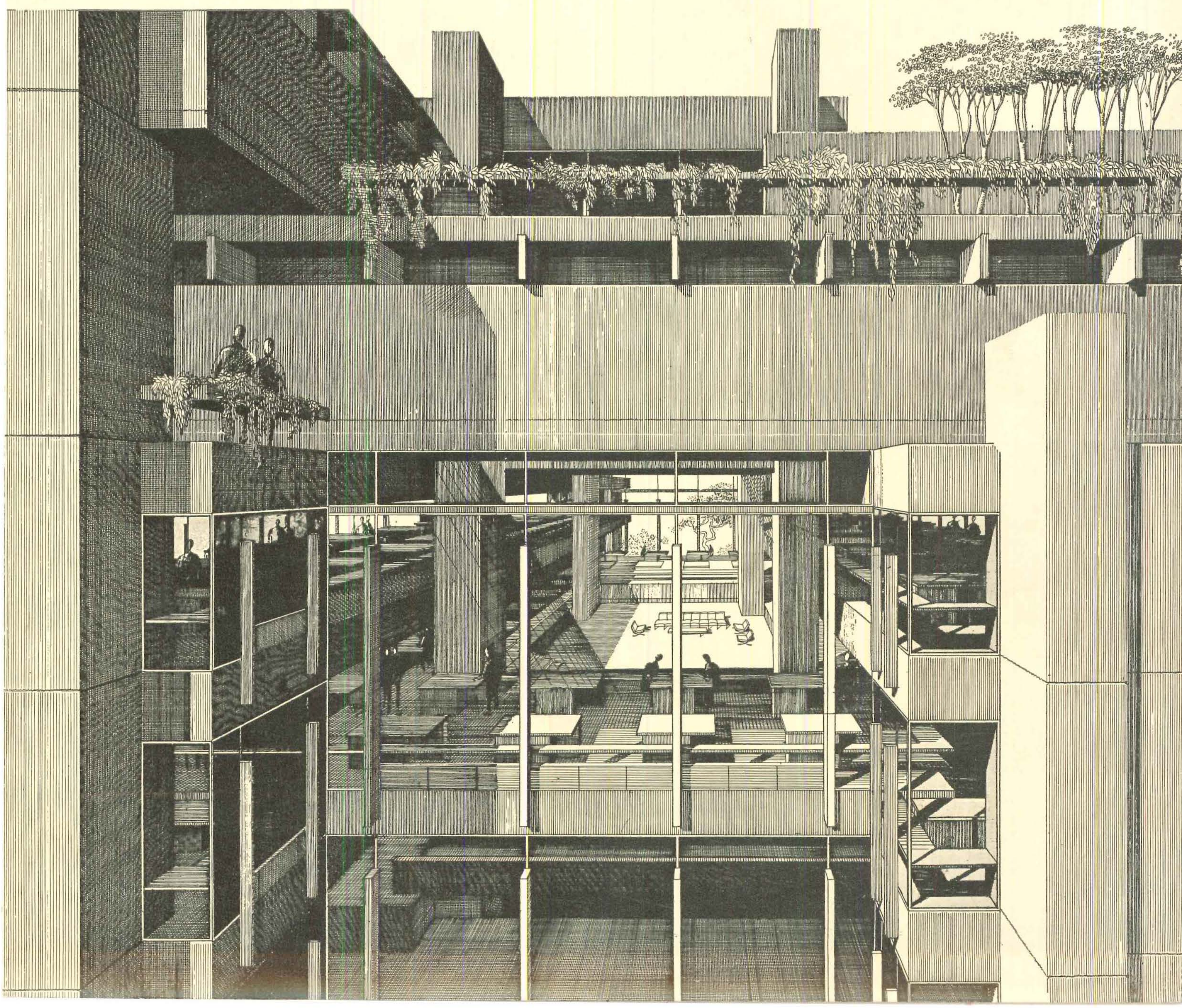
BUILDING TYPES STUDY: COLLEGE BUILDINGS

YALE'S SCHOOL OF ART AND ARCHITECTURE BUILDING

THE CASE AGAINST "MODERN ARCHITECTURE" BY LEWIS MUMFORD

SAARINEN'S DESIGN FOR THE CBS SKYSCRAPER

FULL CONTENTS ON PAGES 4 & 5



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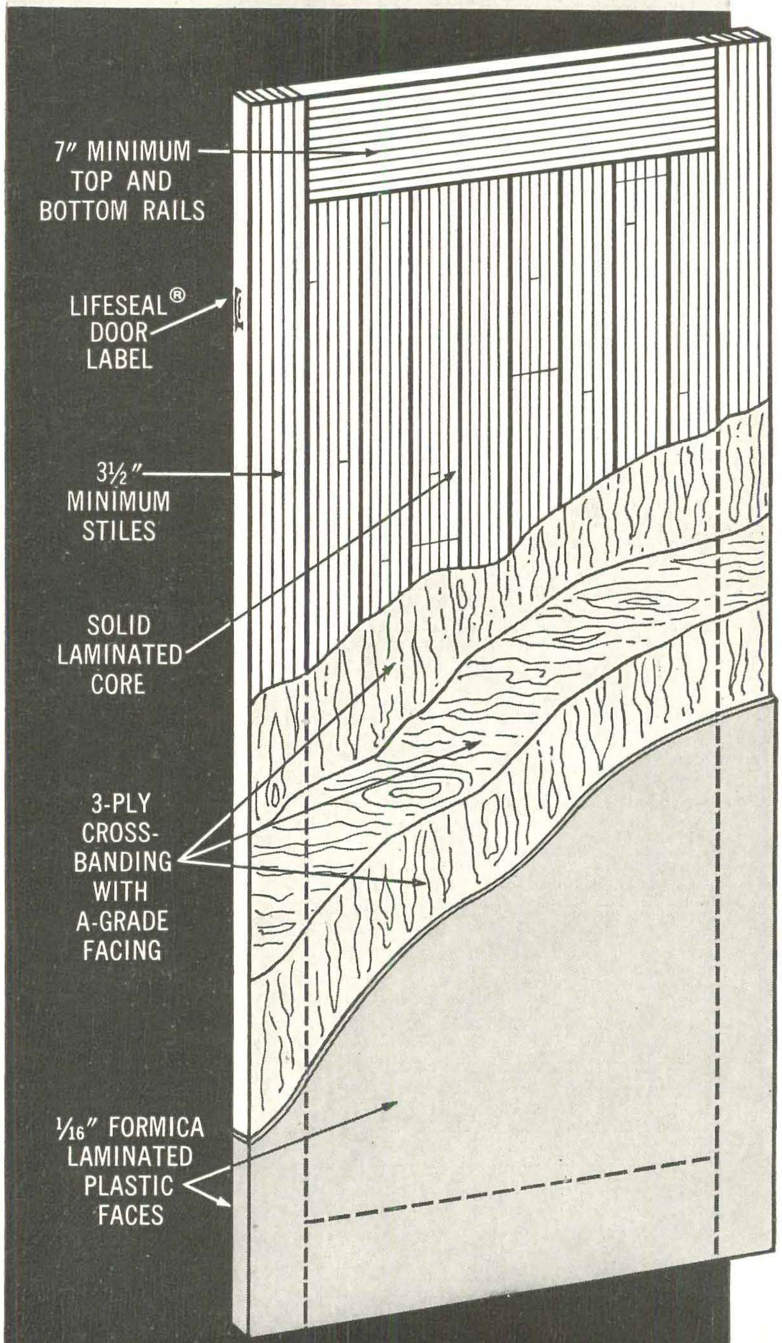

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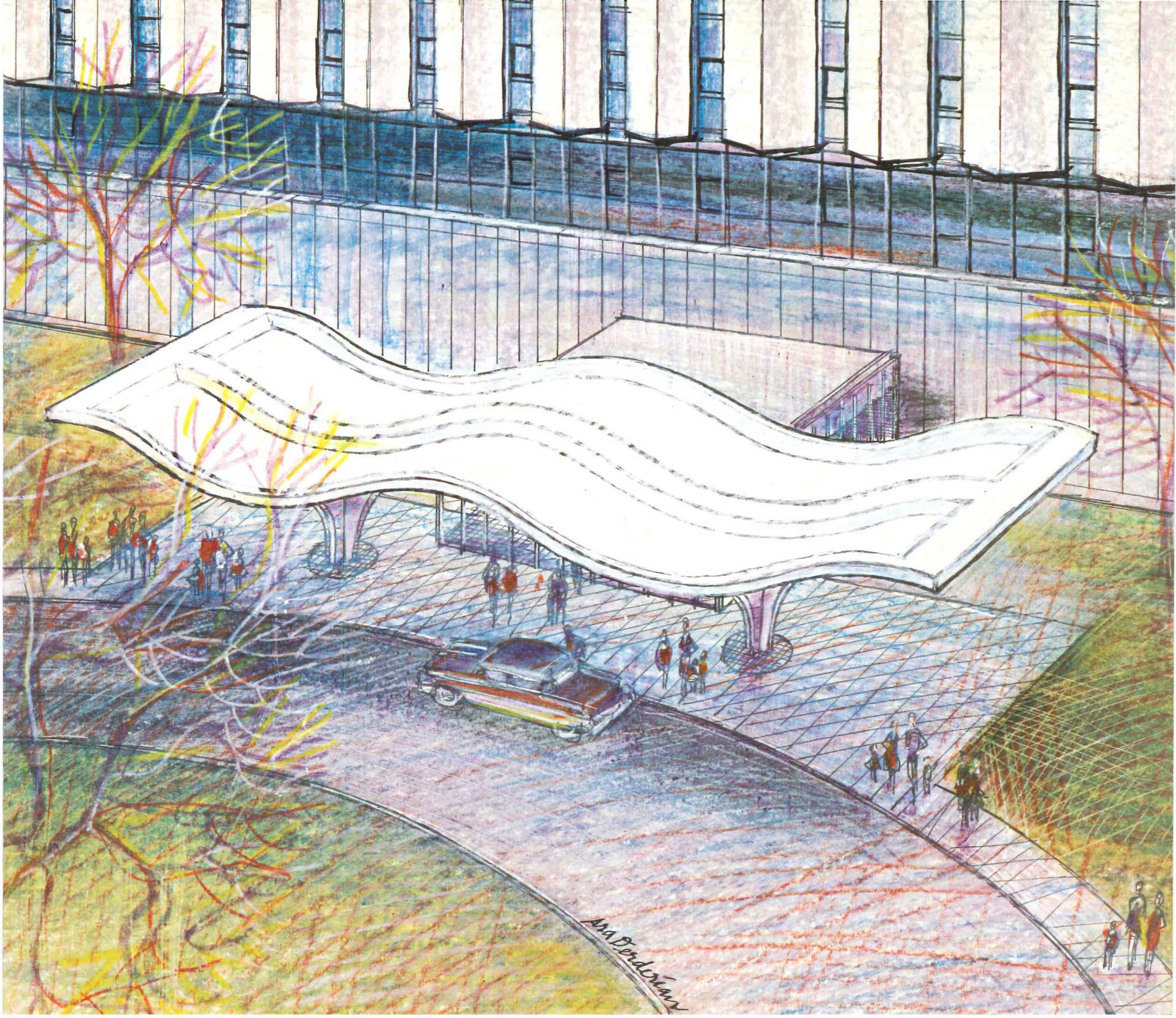


RENDERING: Ara Derderian

Application of F/A Roofing involves five basic steps. Mechanics here use the roller method as they apply the second coat of F/A 400.

APPLICATION OF ARMSTRONG F/A ROOFING

The concrete or plywood deck is first primed with a cut-back solution of F/A 400. Open joints are then sealed with Armstrong Deck Sealer. Once joints are sealed, Armstrong Flashing Tape is applied where necessary as a reinforcing membrane. (Gravel stops, metal edging, and fascia are not needed.)

F/A 400 is then applied in two layers. The second application, in a different color, provides visual gauging of film thickness. Application by hand or pressure-fed roller is recommended.

Two applications of F/A 600 complete the installation and provide final weatherproofing and the desired color.

Armstrong Flashing Tape—a companion product to F/A Roofing. Armstrong Flashing Tape is a high tensile strength glass fiber fabric designed for use as a flashing membrane and joint reinforcement.

Armstrong Deck Sealer—an elastic caulking compound used in preparing the roof deck for the application of the F/A Roofing System (i.e., filling depressions, cracks, and voids in the roof deck and at joints and flashing points).

Armstrong F/A Roofing

DESIGNED TO SOLVE MODERN ROOFING PROBLEMS

Today's imaginative free-form roof construction of thin shell concrete and plywood is giving America's skyline a striking new look. These roof decks, with their irregular, elliptical, or undulating slopes, call for roofing materials with both decorative and protective qualities. Armstrong F/A Roofing is designed especially to meet these requirements.

Two liquid roofing products have been combined in F/A Roofing to form a roofing membrane which is both tough and flexible: F/A 400, which has a neoprene base for strength and durability, and F/A 600, a Hypalon* base coating that forms the finished surface. Because of its fluid form, F/A Roofing can be applied where conventional roofing materials are frequently unsuitable. After application, it presents a colorful and protective membrane that forms a permanent bond with the roof surface.

*TRADEMARK OF E. I. DU PONT DE NEMOURS & CO., INC.

ARMSTRONG F/A ROOFING IS:

Durable Because its elastomers (neoprene and Hypalon) resist physical deterioration and weathering, F/A Roofing withstands prolonged exposure to the elements. Many installations indicate that F/A Roofing will offer years of satisfactory protection.

Flexible F/A Roofing is elastic, allowing it to expand or contract with the surface beneath it. Hairline cracks in the decking material won't cause the protective film to tear. F/A Roofing is also extremely light, with a weight of less than 20 pounds per 100 square feet.

Weatherproof F/A Roofing resists all kinds of weather. It does not become brittle in winter nor soften in summer. It provides excellent protection against moisture because it cures to form a permanent, watertight bond with the roof structure.

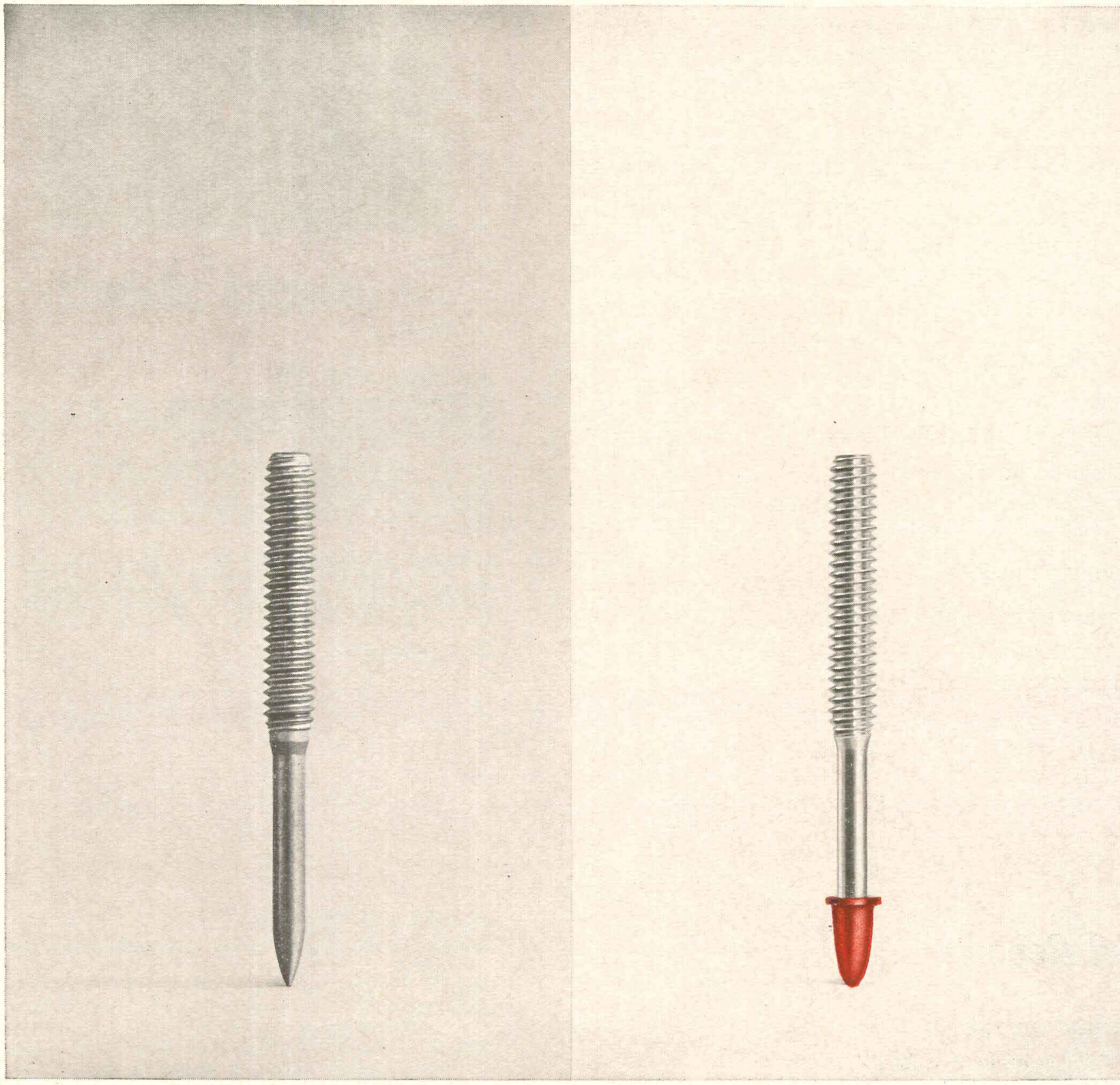
Versatile Free-form design often makes the appearance of the roof as important as its protective function. Armstrong F/A Roofing is particularly well suited to buildings that frequently employ contemporary design—such as recreational, religious, commercial, and civic structures. It actually enhances the over-all design of the free-form structure. F/A Roofing also provides a monolithic protective membrane for structural trim.

Colorful Available in white and a variety of bright shades and pastels, F/A Roofing gives the architect new freedom in creating exterior color schemes. F/A Roofing maintains the reflective qualities of light colors and pastels indefinitely, thereby reducing a building's inside temperature and lightening the load on air-conditioning equipment.

Easily maintained If F/A Roofing is damaged, a simple renewal of the F/A Roofing System makes the surface watertight again. No hot-melt equipment is required for its application. Where reinforced with special glass fiber tape, F/A Roofing is self-flashing.

For free literature, specifications, and technical data on Armstrong F/A Roofing, contact your Armstrong District Office or write Armstrong Cork Company, 4604 Rock Street, Lancaster, Pennsylvania.

Armstrong F/A ROOFING



How we turn a ½-ounce weakling into a ½-ounce Atlas.

The one on the left is a fine specimen by any standards. Except ours.

It's made of high-grade steel, with alloy additions of chromium and manganese. But it's still too puny to be a Ramset powder-actuated fastener. Until we build in our special brand of muscle.

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Then, zinc plating. For corrosion resistance.

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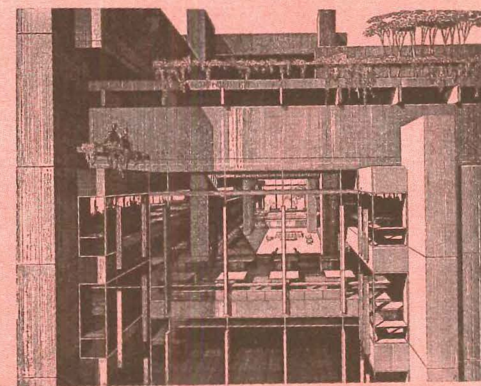
Architectural Engineering



Cover:

The Art and Architecture building, Yale University, New Haven, Conn. Drawing by Paul Rudolph

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(National Edition)

ARCHITECTURAL

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RECORD

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April 1962

Building Types Study 305: College Buildings

Coming in the Record

URBANE ARCHITECTURE FOR CIVIL PURPOSES

The first major works of Sert, Gourley and Jackson, the firm with which José Luis Sert has been identified since he became dean of Harvard's Graduate School of Design, are just now being completed: and three of these to be presented in the RECORD *provide the first comprehensive look at the new work. There will be commentary by Sert to accompany presentations of the U. S. Embassy at Baghdad and the World Religions Center and the Holyoke Medical Center in Cambridge.*

DESIGNING THE LARGE OFFICE BUILDING

Next month's Building Types Study will take a searching look at the tall (or large) office building and current approaches to programming, planning and equipping it. It will include a major article on space planning, a variety of current examples of the type, and an article by Emerson Goble which suggests that the much-controverted Pan Am Building may have a lesson for all those urban designers who lament it.

CRITERIA FOR URBAN RENEWAL

Housing Consultant Charles Abrams says we should be more careful what we tear down, more careful what we build, and asks for a new determination of our goals for the city.

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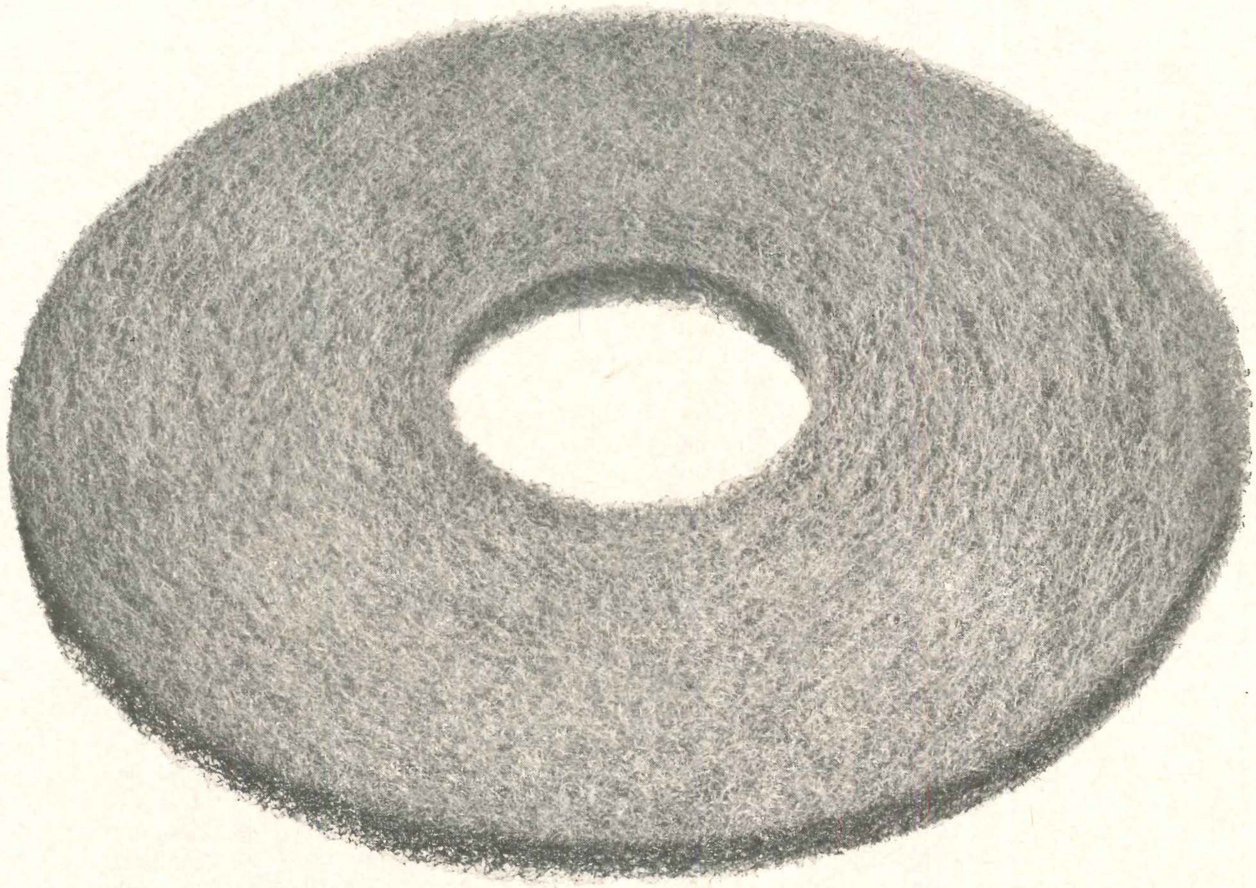

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GOODYEAR

FLOORING PRODUCTS

Image of the Architect

The searching look at the image of the architect, which has been churning for some years now, will reach a newly active stage at the annual A.I.A. convention next month. The convention will become the more or less official opening of a determined effort by A.I.A. officialdom to broaden the image of the architect if not actually to change it. The effort comes to focus in the phrase "comprehensive architecture," designed to put the architect in the center of the entire process of "environmental design."

That mouth-filling phraseology is intended to convey the idea that the architect should be master of the building project from conception to completion, and that the architect, or his organization, should encompass all of the knowledge and ability necessary to coordinate the work of all of the specialists or consultants in an age of complications.

If this all sounds strangely like the age-old role of the architect, that is because it is. It is the role of master planner; what have changed are the demands and conditions and opportunities of architectural practice. Building projects are more diverse, more complex; clients are more diverse and more complex; buildings are more complicated in a thousand ways. Calls for design skills are more diverse and complex.

So in a sense the campaign represents a gearing to the times rather than the addition of new duties for the architect, though some sound new. The architect is to become adviser to the owner in real estate matters and site selection, in project analysis, in promotion, in project management and so on, according to A.I.A. plans which will be put before the convention.

Probably the deliberations of the architectural community will not be carried out in complete sweetness and light. There have already been some protestations. Typically, however, the Institute's chapters which have had the treatment to date have generally responded with at least hopeful support. Practitioners generally do not resist the idea of enhancement of their status, or improvement in their hold on a building project.

Very likely there is, and will be, less agreement on the specifics of the present program. All architects are not going to agree quickly that they should become experts in real estate and financing. Some will not consider the promotion of a real estate operation a suitable activity for an architectural organization. There will undoubtedly be much discussion of relationships with other professions. Certainly the changes in the mandatory standards will be viewed with caution, though the A.I.A.'s Committee on the Profession answers that the suggested comprehensive practice is perfectly possible under the existing standards; the changes represent merely a spelling out.

Perhaps there will be still more concern over implications as to design. There will be fears, obviously, that comprehensive practice suggests dilution of one's attention to design and/or art, and that anything like that would be fatal. One suspects, however, that any extra knowledge which happened to rub off on the designer would only have the effect of improving his creative effort. To argue otherwise would be to insist that architecture springs only from esthetic considerations.

In any case, the A.I.A. is launched on an ambitious program to keep "the architect" firmly entrenched in his traditional role as master planner, and to add to his equipment as necessary to make that role feasible. Whether or not one agrees with specifics, the general effort has to be accepted as worth understanding and worth applauding.

—Emerson Goble

DODGE SEES BIGGER RECORD FOR 1962

By Dr. Gordon W. McKinley, Vice President and Chief Economist, F. W. Dodge Corporation

The trend of construction contract awards in January and February of this year was good—so good, in fact, that F. W. Dodge Corporation announces with this issue an upward revision of its forecast of 1962 construction activity. In the new forecast, Dodge predicts that total contract awards in 1962 will approach $41 billion, exceeding the 1961 figure by about 10 per cent.

The revised forecast—shown in the tables below—is based on a careful review of the general economic outlook and the outlook for the construction industry in particular. We are convinced that the economy will move ahead strongly throughout 1962, and that the construction industry will share increasingly in this general prosperity as the year progresses.

Following a hesitant start in January, economic reports in February and March indicate a strong pickup in business activity throughout the country. Employment and incomes are at record levels, industrial production is rising, automobile sales are good, and more and more industries are reaching satisfactory capacity utilization rates. If present trends are continued in the months ahead, the Dodge estimate of a $566 billion GNP for the full year 1962 will certainly be achieved and may even be exceeded.

Construction contract awards in the first two months of this year have run very substantially above the comparable months of 1961. Even after allowance for the fact that 1961 awards were held down by the recession early last year, the large percentage gains thus far in 1962 are above expectations. Reflecting the high contract award volume, orders for structural steel in January were the highest for that month since 1957. New orders for construction machinery also rose substantially in January. The outlook for construction is further bolstered by the results of the most recent Department of Commerce survey of business plans for plant and equipment expenditures. Businessmen anticipate spending eight per cent more on plant and equipment than in 1961. Because in the past such estimates have been progressively raised during a period of business recovery, the final figures are likely to show an even greater increase.

Last November, the Dodge Construction Outlook predicted that total construction contract awards in 1962 would exceed the 1961 figure by seven per cent. At the time, there were some who considered that forecast overly optimistic. We believe that the course of events in the ensuing months has fully justified the November optimism, and the outlook now makes an even further increase probable. The gain in contract awards over 1961, both in dollar volume and in percentage terms, is likely to be the greatest since the tremendous upward surge of 1955.

Table 1:
Dollar Volume of Construction Contracts

(48 states; figures in millions of dollars)

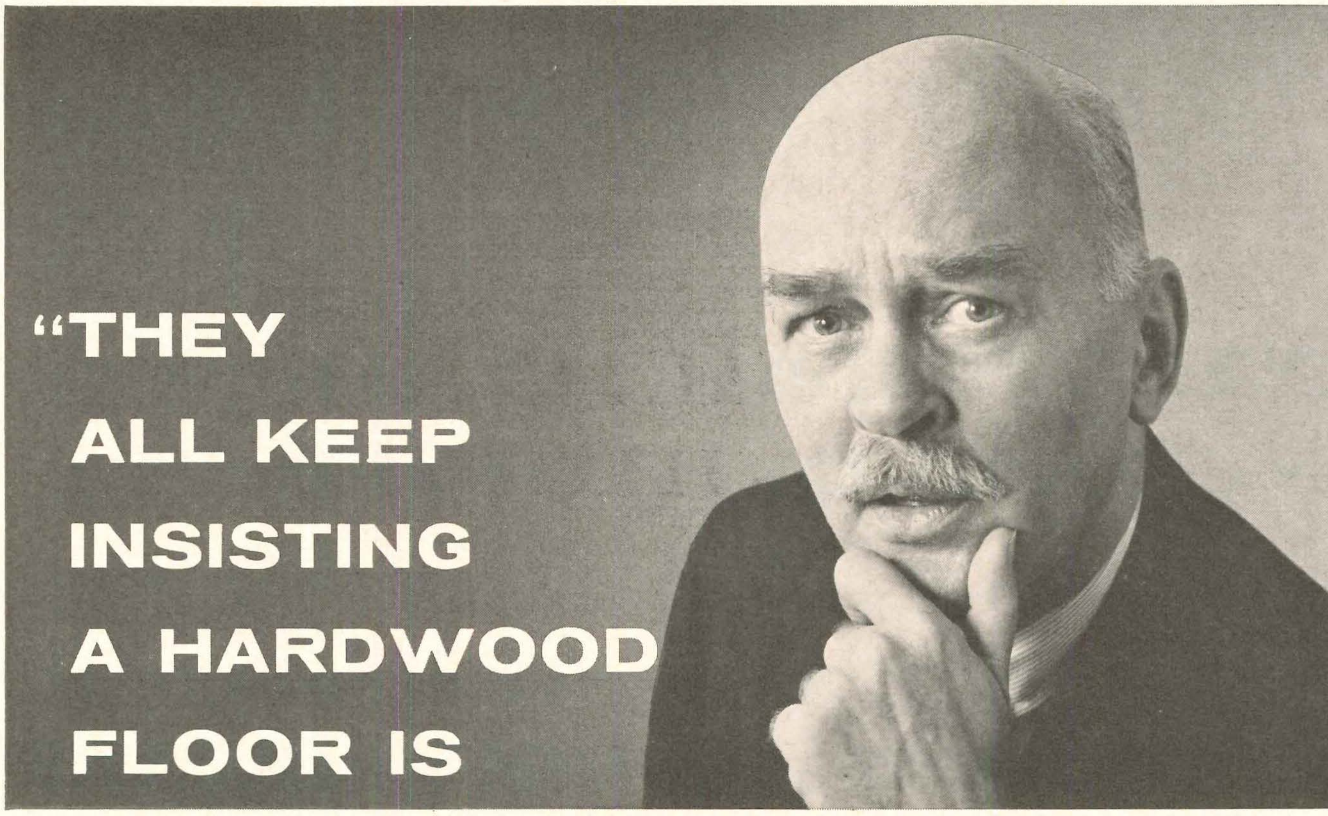
Classification	Year 1961	Year 1962 Estimate	Percentage Change
Nonresidential	12,115	13,023	+ 7%
Residential	16,123	18,219	+13%
TOTAL BUILDING	28,239	31,242	+11%
Public Works and Utilities	8,897	9,580	+ 8%
TOTAL CONSTRUCTION	37,135	40,822	+10%
Private Ownership	24,588	27,350	+11%
Public Ownership	12,547	13,472	+ 8%
DODGE INDEX (1957-59 = 100)	108	118	+10%

Total building contracts (dollar volume) are now expected to rise 11 per cent, compared with eight per cent estimated in November; total construction ten instead of seven per cent.

Table 2:
Physical Volume of Building

(48 states; figures in millions of sq ft)

Building Classification	Year 1961	Year 1962 Estimate	Percentage Change
Commercial	293	308	+ 5%
Manufacturing	150	170	+13%
Educational and Science	194	198	+ 2%
Hospitals and Institutions	44	46	+ 5%
Public	33	35	+ 5%
Religious	53	54	+ 2%
Social and Recreational	41	43	+ 5%
Miscellaneous Nonresidential	29	29	0
TOTAL NONRESIDENTIAL	838	883	+ 5%
RESIDENTIAL	1,364	1,514	+11%
TOTAL BUILDING	2,203	2,397	+ 9%



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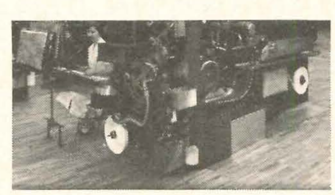
"**Our Materials Handling Engineer** insists *no* other flooring can match hardwood for trafficability. He knows substantial savings will be realized with less wear and tear on equipment. And there's less noise distraction from moving vehicles."

"**Our Maintenance Chief** says a hardwood floor will reduce dust problems by 60% and permit cleaner premises with less actual labor costs. He figures hardwood is a *must* for any food processing plant or other operation where sanitation is important."

"**Our Personnel Director** has studies to prove the resiliency of hardwood assures employee foot comfort, inspires better housekeeping, builds company pride and morale."

"**Other manufacturers** are agreeing in ever-growing numbers. Note the new 120,000 sq. ft. P. Lorillard floor in Greensboro, N. C. It's an Edge Grain Ironbound* Continuous Strip* Hard Maple Floor by Robbins Flooring Company."



New P. Lorillard floor installed by R. L. Dresser, Raleigh, N. C. Architect-Engineer, Lockwood-Greene Co., New York

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TWENTY BUILDINGS HONORED IN CANADA'S MASSEY AWARDS

Massey Gold Medal

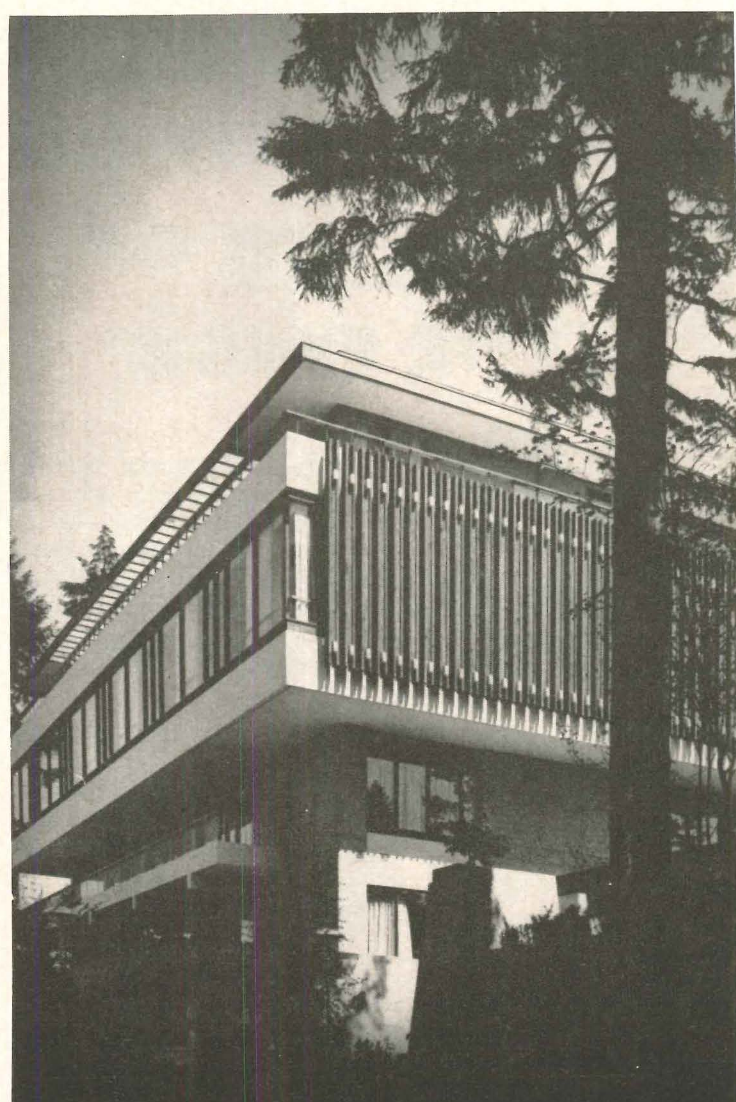
One gold medal and nineteen silver medals were awarded to architects and architectural firms for the design of 20 outstanding buildings in Canada's 1961 Massey Medals for Architecture program. Administered by the Royal Architectural Institute of Canada on behalf of the Massey Foundation, the competition is intended to encourage and stimulate members of the profession and promote public interest. The 20 award-winning buildings are shown on this and the following pages.

This year 325 entries were submitted, from which 100 top entries were selected by jury to comprise the exhibition Massey Medals for Architecture 1961. This is the fifth such exhibition and will travel through June 1 in art galleries throughout Canada. Previous exhibitions were held in 1950, 1952, 1955 and 1958.

Members of the jury were John Bland, F.R.A.I.C., director, School of Architecture, McGill University, Montreal; Pietro Belluschi, F.A.I.A., dean, School of Architecture and Planning, Massachusetts Institute of Technology, Cambridge, Mass.; and Peter M. Thornton, F.R.A.I.C., of Gardiner, Thornton, Gathe, Vancouver, B.C.

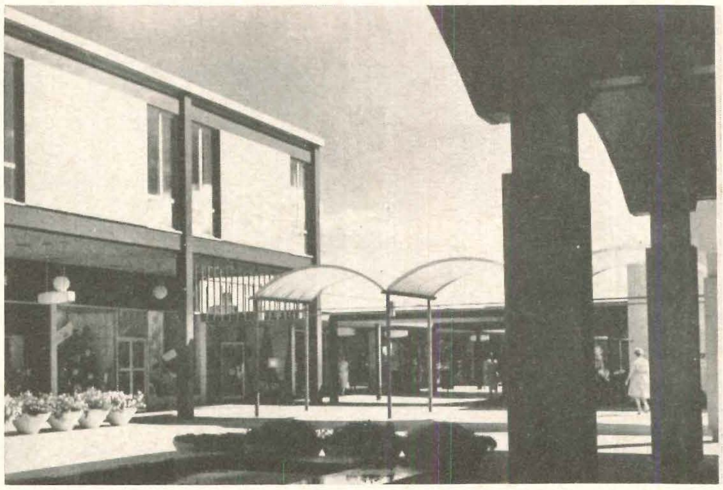
The jury remarked upon "the high standard of the works submitted and noted the great breadth of expression of the architecture of modern society." Dean Belluschi, who served on the 1952 competition jury, commented on the immense improvement of the quality of the work submitted. He felt that this year's exhibition showed that new Canadian architecture "compared well with the best anywhere in the world."

Commenting on the gold medal award winner, the Thea Koerner House, a graduate student social center for postgraduate students at the University of British Columbia, Vancouver, the jury stated: "This building was considered excellent in plan and section, in its exterior and interior expression. Full advantage of its superb site was taken and the sculpture and landscaping enhance the whole. In this building there is evidence of the flowering of modern architecture."



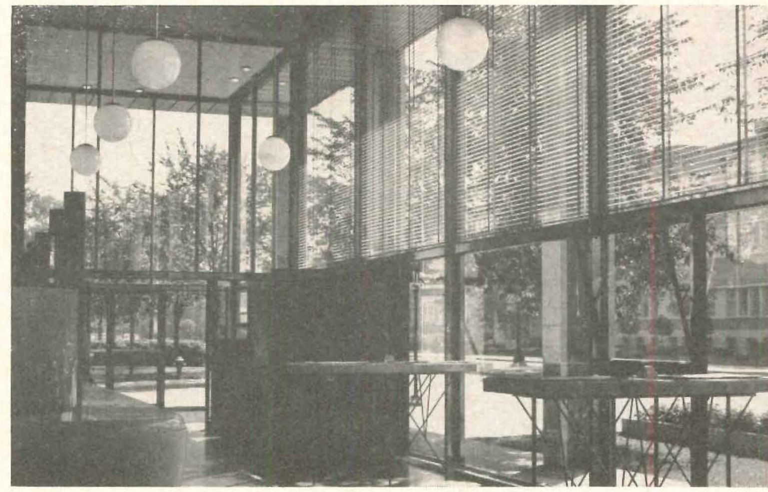
Thea Koerner House, University of British Columbia, Vancouver
Architect: Thompson, Berwick & Pratt
Associated Architect: Peter Kaffka

Massey Silver Medals



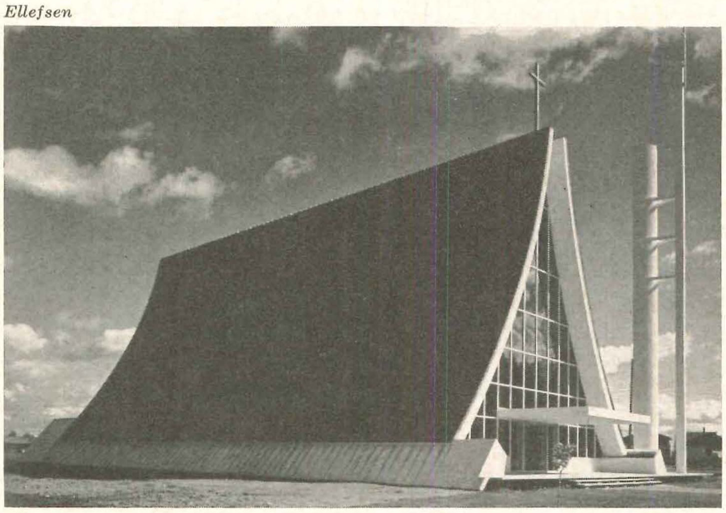
Rockland Shopping Center, Town of Mount Royal, P.Q.
Architect: Ian Martin and Victor Prus

Oscar Newman



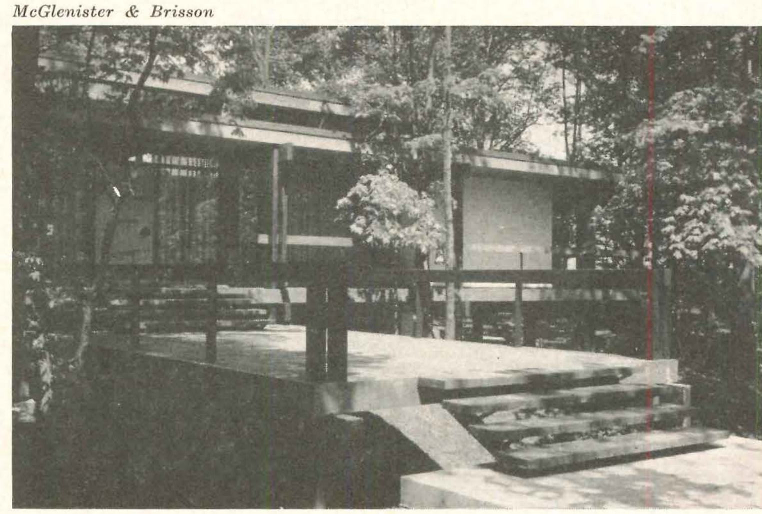
Town of Mount Royal Post Office, P.Q.
Architect: Jean Michaud and R. T. Affleck of Affleck, Desbarats, Dimakopoulos, Lebensold, Michaud, Sise

Ellefsen



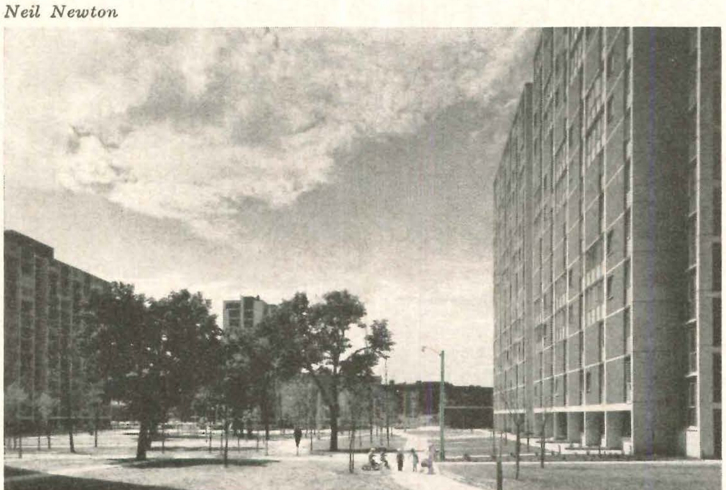
Eglise St.-Raphael, Jonquiere, P.Q.
Architect: St. Gelais and Tremblay

McGlenister & Brisson



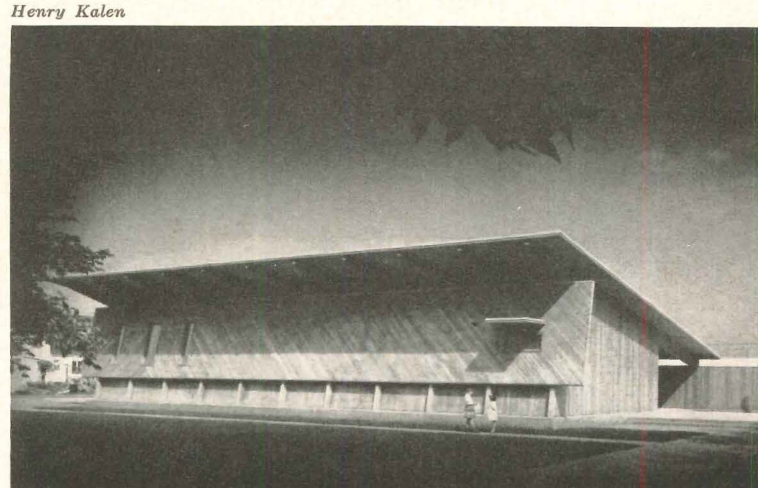
Lapierre Residence, St. Catherines, Ont.
Architect: James E. Secord and Saul Herzog

Neil Newton



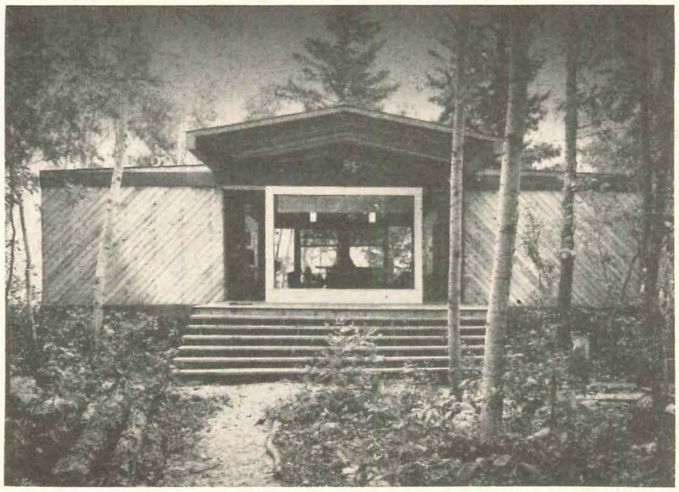
High-rise Apartments, Toronto, Ont.
Architect: Page & Steel

Henry Kalen



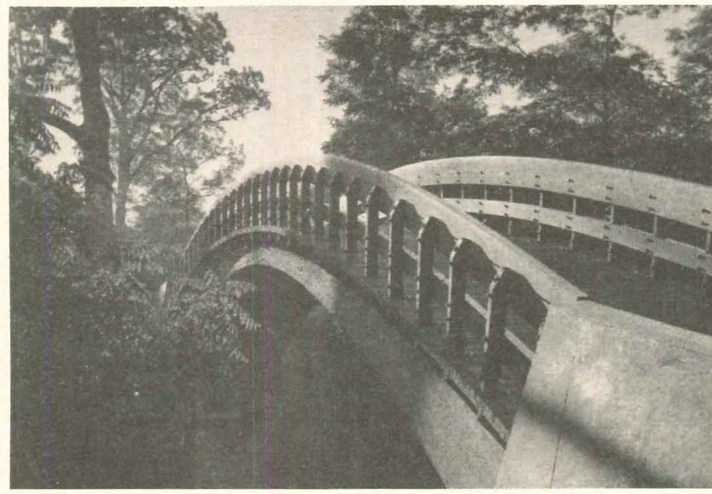
Chapel St. Louis le Roi, St. Boniface, Manitoba
Architect: Libling, Michener and Associates

Henry Kalen

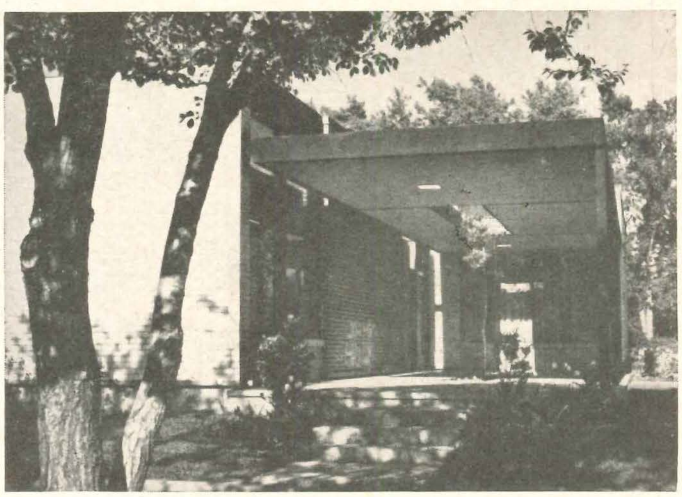


Summer Residence, Husavick, Manitoba
Architect: Waisman, Ross and Associates

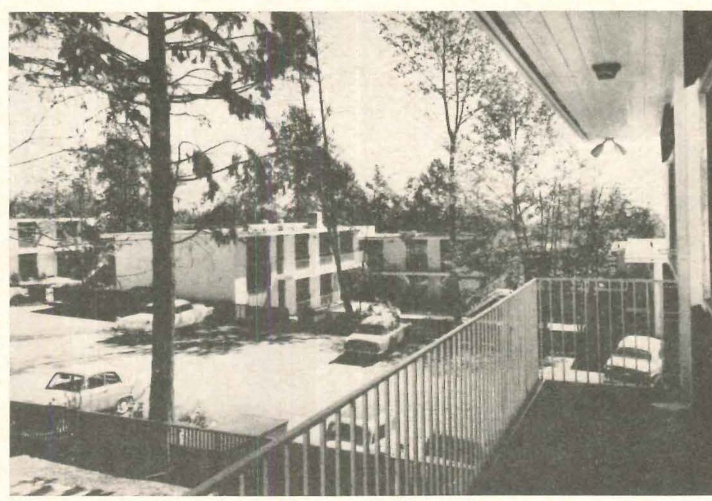
McGlenister & Brisson



Foot Bridge for Niagara Parks Commission,
Niagara-on-the-Lake, Ont.
Architect: Huget and Secord

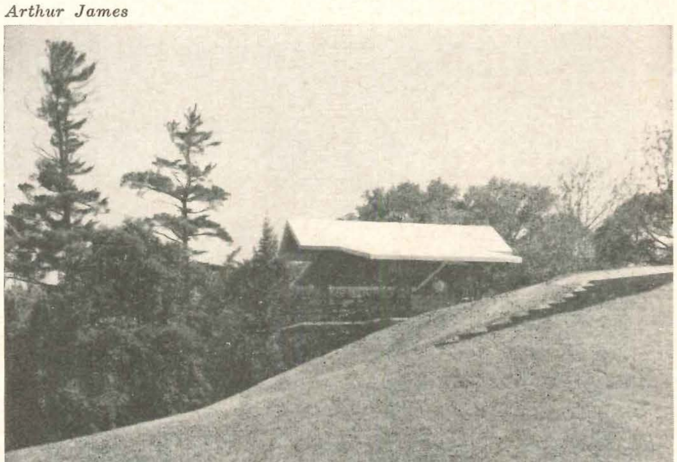


Richmond Hill Public Library, Richmond Hill, Ont.
Architect: Philip R. Brook



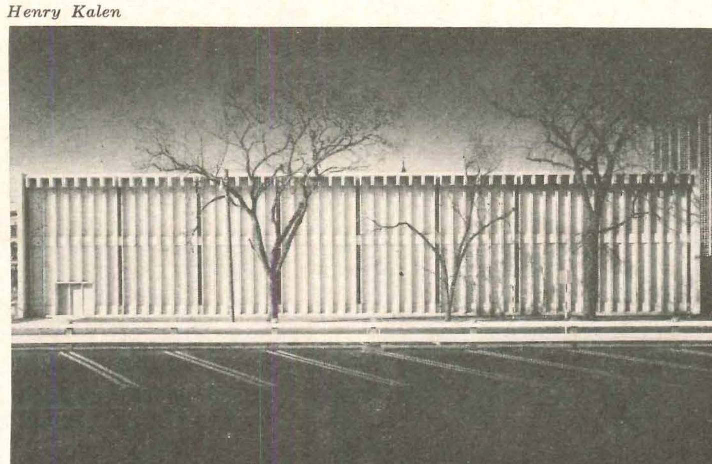
Parkwood Terrace, South Burnaby, B.C.
Architect: Hale, Harrison, Buzzelle

Arthur James

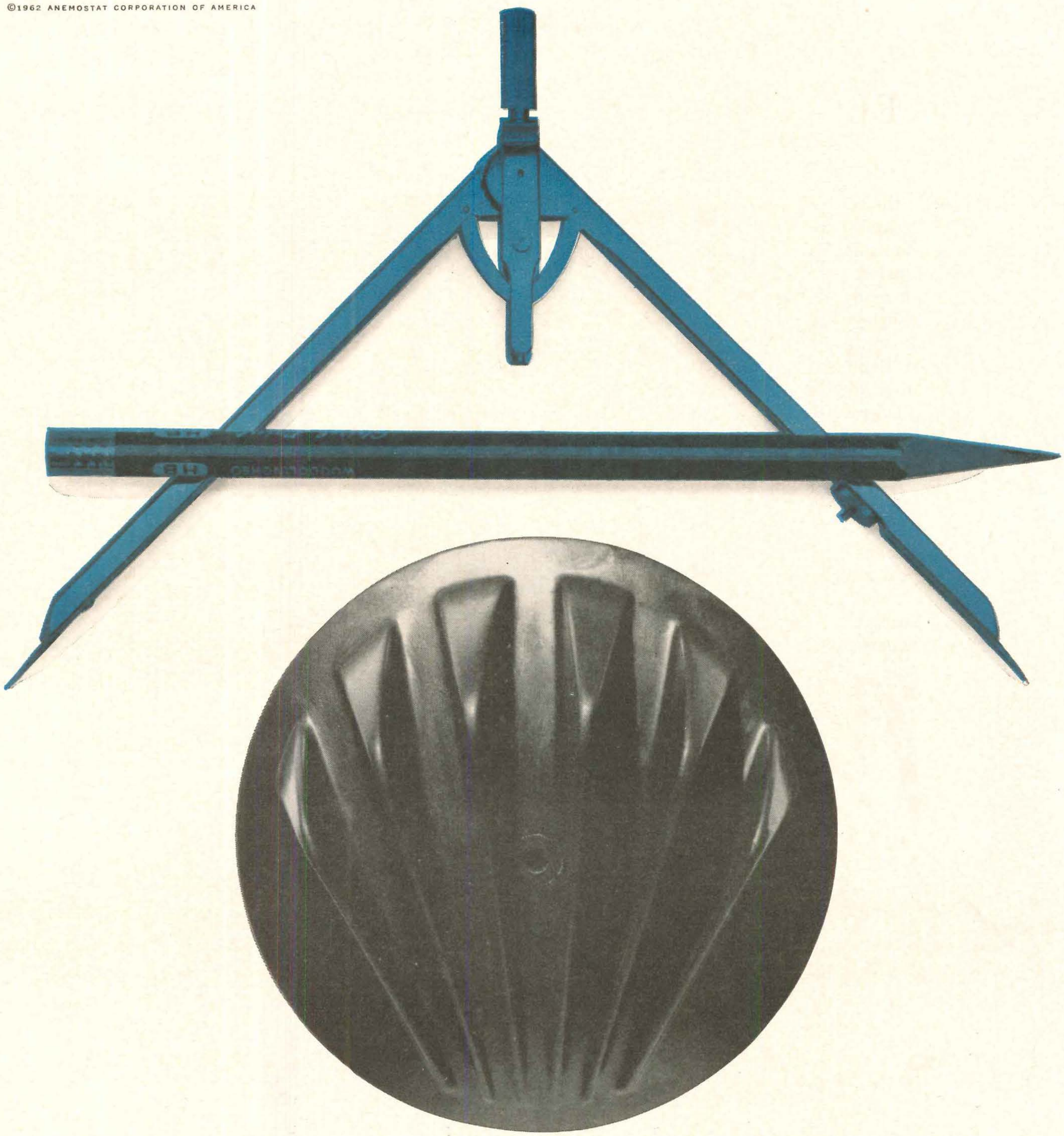


Private Golf Course, Toronto
Architect: Raymond Moriyama and Associates

Henry Kalen



City of Winnipeg Hydro-electric System,
Substation No. 21, Winnipeg
Architect: Libling, Michener and Associates



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Construction Cost Indexes

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

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

	NEW YORK					ATLANTA				
	RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.		RESIDENTIAL		APTS., HOTELS OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	
PERIOD	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.8
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	246.4
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	252.1	254.7
1958	328.0	315.1	348.6	365.4	357.3	243.9	239.8	255.7	261.9	262.0
1959	342.7	329.0	367.7	386.8	374.1	252.2	247.7	266.1	272.7	273.1
1960	351.6	337.2	377.7	395.8	380.6	259.2	253.3	274.7	282.5	278.8
1961	362.5	343.0	398.2	422.4	397.0	256.7	249.7	275.8	284.5	275.8
November 1961	364.8	343.1	405.4	431.5	403.6	257.3	250.8	276.0	284.4	274.3
December 1961	364.1	342.2	405.3	431.4	403.4	257.3	250.8	276.0	284.4	274.3
January 1962	365.1	343.5	407.1	432.5	405.7	260.0	253.0	279.8	288.9	278.0
	% increase over 1939					% increase over 1939				
January 1962	195.6	180.6	211.5	224.2	211.8	201.3	204.4	194.2	196.6	193.5

	ST. LOUIS					SAN FRANCISCO				
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219.8	216.1
1950	232.8	230.7	221.9	225.3	222.8	227.0	223.1	222.4	224.5	222.6
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7	249.6
1953	263.4	256.4	259.0	267.0	259.2	255.2	257.2	256.6	261.0	259.7
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4	279.6
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2	310.7
1958	297.0	278.9	304.9	318.4	313.8	289.8	274.9	311.5	326.7	320.8
1959	305.4	296.4	315.0	329.8	323.9	299.2	284.4	322.7	338.1	330.1
1960	311.4	301.0	322.2	337.2	329.2	305.5	288.9	335.3	352.2	342.3
1961	315.1	302.0	329.0	346.8	332.2	308.7	290.2	345.1	362.9	350.2
November 1961	313.5	299.3	329.5	347.7	331.7	311.5	292.3	350.5	368.4	354.2
December 1961	317.8	304.1	334.8	352.7	336.4	310.8	291.4	350.4	368.2	354.0
January 1962	319.2	304.9	336.6	355.5	337.7	310.8	291.4	350.4	368.2	354.0
	% increase over 1939					% increase over 1939				
January 1962	189.6	184.9	183.6	196.7	183.8	194.3	193.4	198.5	202.0	203.9

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.

BORDEN ARCHITECTURAL DECOR PANELS

Now Borden brings a new building component to the architect—durable light-weight aluminum panels which can be custom-styled in an infinite variety of forms and designs. For example, the extruded type shown here can be had with design punchings of squares, circles, ovals or combinations of curves and straight lines.

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Not limited to facades, the Borden Architectural Decor Panels are used as interior partitions, grilles, window guards, stair rails, doors, entryways, sunshades, and are especially adaptable in the refacing of existing buildings.

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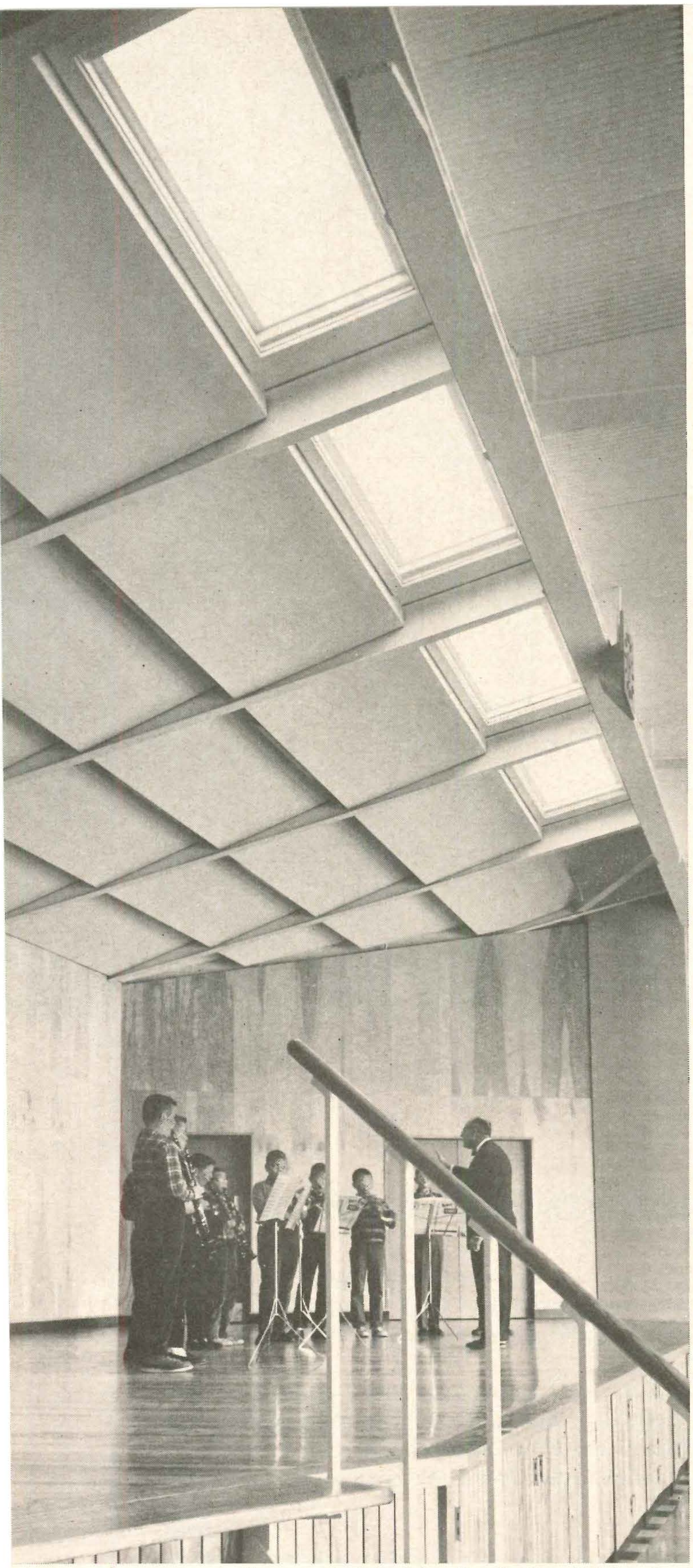
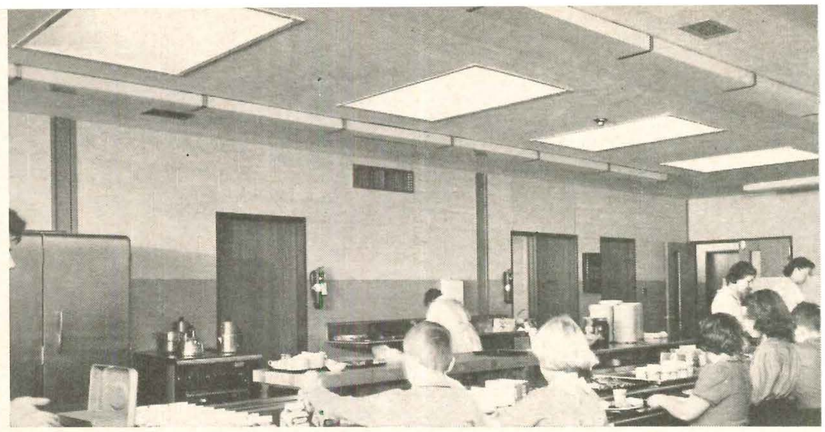
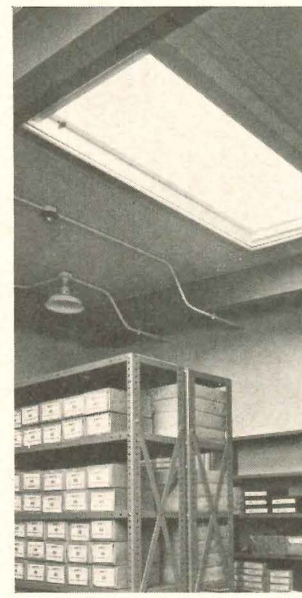


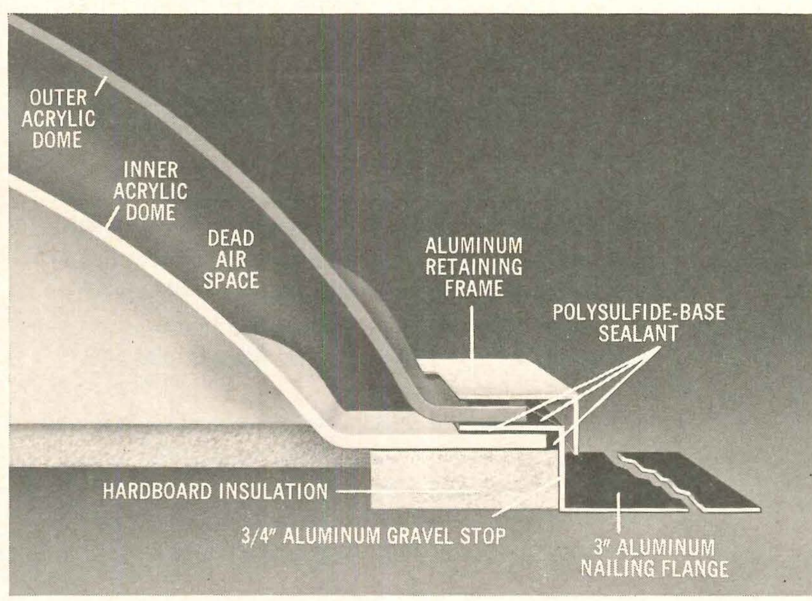


CAFETERIA. Twin Dome skylights brighten working and serving areas with natural daylight, pleasing to both students and kitchen staff. Electricity costs are reduced because lights are not on during the day.

NEW TWIN DOME® SKYLIGHT INSULATES AS IT DAYLIGHTS



STOREROOM. A single Twin Dome skylight lets plenty of light into this windowless storeroom. Natural daylight opens up otherwise dark shelves, makes labels easy to read.



Hemenway School, Framingham, Mass. Architects: M. A. Dyer Assoc.
AUDITORIUM. Four 28" x 52" Twin Dome® skylights dramatically focus attention on this wide stage by flooding it with evenly diffused, glare-free daylight. Shades have been installed to darken stage if necessary.

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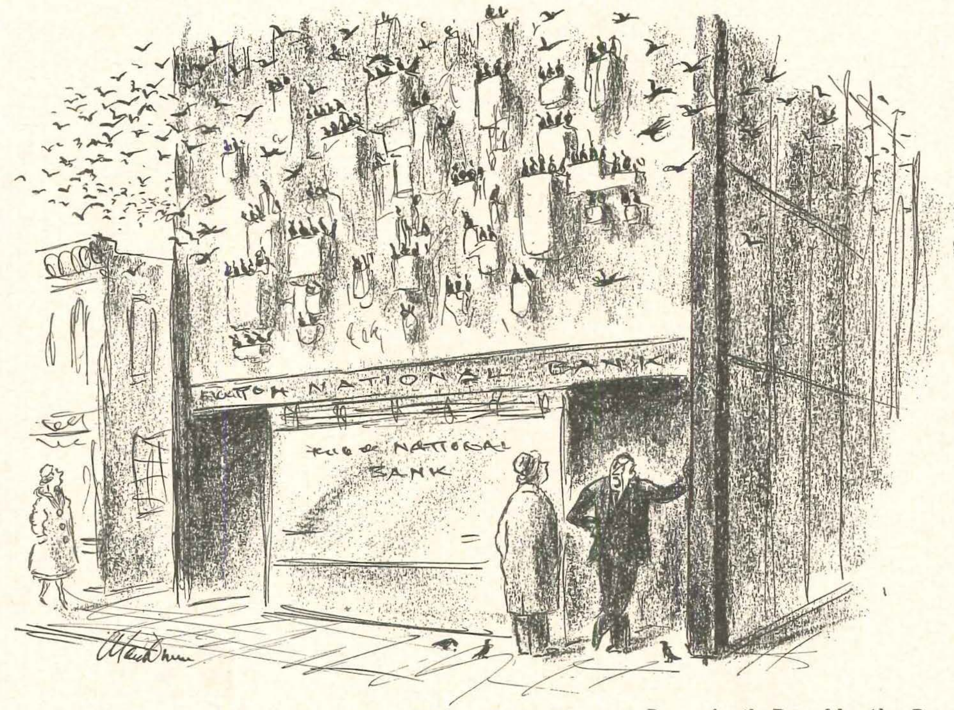

—Drawn for the Record *by Alan Dunn*

"You should have *thought* of starlings before you ordered the new mural!"

A NEW ERA FOR THE ARTS? NATIONAL POLICY SUPPORTS THEM

A quiet but notable transformation is taking place in the public attitude toward the arts in this country; and recent developments suggest it may be important for architects and others professionally involved with the arts to concern themselves with the development of national policy toward them while this policy is still in its formative stages.

The most compelling evidence of the new context is in the persistent indications that the Kennedy Administration considers the arts within the realm of public policy and will act on this conviction—as, indeed, it already has acted in a variety of ways. It is clearly the policy of the Administration to "encourage" the arts; but most of the important decisions on ways and means are yet to be made.

White House Names Adviser

In the most significant development so far, President Kennedy late in February named a "Special White House Consultant on the Arts." He is August Heckscher, director of the Twentieth Century Fund and a former chief editorial writer for the *New York Herald Tribune* who was notable among newspaper writers for his alertness to and perceptive comment on art and architecture as they related to the public interest.

Mr. Heckscher, who becomes the first official White House adviser on the arts in U. S. history, continues as director of the Twentieth Century Fund with the understanding that he will spend two days a week at his White House post. There has been no public formal definition of his duties, but it is understood that he will provide liaison between the White House and government and private agencies in matters affecting the arts and that he will also survey the relationship between the Government and the arts in general.

Mr. Heckscher's first major address since his appointment was scheduled to be made at an April 3 conference arranged by the New York Chapter of the American Institute of Architects (of which more below). His concept of the role of the architect, however, was outlined in some detail in an article published in ARCHITECTURAL RECORD in September 1959 (pages 193-198).

In the RECORD article, Mr. Heckscher suggested the "high and difficult" functions of today's architect are four: as the "shaper of the physical environment," as the "manipulator and molder of space," as the keeper of "the balance between the Old and the New" and as the "reconciler of technics and esthetics."

"Because of the nature of his trade," Mr. Heckscher went on to say, "the architect stands as a prototype, and indeed almost a prophet. Others may have their share in bringing matter under the control of spirit; but unless the architect succeeds in doing it, the cause is lost. . . . Whether he likes it or not the architect is at the center of things, setting the pattern beyond his own works and in a large

Cafeteria in General Electric's Space Technology Center, Valley Forge, Pa.

Armstrong Ventilating Ceilings: a new air-diffusion system <u>plenum</u>-<u>engineered</u> to work evenly, thoroughly, silently

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New Era for the Arts?

continued from page 23

August Heckscher, the new Special White House Consultant on the Arts

measure determining whether the remaining decades of the century will see our common life made more rational and rewarding."

The Goldberg Statement

The most extensive statement to date of an Administration approach to support of the arts was made in a 15-page special section of Secretary of Labor Arthur J. Goldberg's Metropolitan Opera arbitration award, made public last December. The section was entitled, "The State of the Performing Arts" but it covered architecture and the fine arts as well.

"We must," Mr. Goldberg said, "come to accept the arts as a new community responsibility. The arts must assume their place alongside the already accepted responsibilities for health, education and welfare."

Mr. Goldberg recognized the fears of many who would oppose Federal support of the arts lest "support" lead to "interference" and remarked that such persons "are to be honored for their concern for the freedom of artistic expression." But he felt a recognition of this danger, and a resolution to resist it, would arm "the free American society against it."

"The principle of diversity of support for the arts," Mr. Goldberg said, "should accompany the principle of community responsibility," and he proposed a six-point partnership to that end: (1) the public continuing as the principal source of support; (2) the patrons and benefactors of the arts continuing their "vital role"; (3) private corporations to expand their support of community activities to include the arts; (4) labor unions to expand their concept of community service to include the arts; (5) local and state governments to widen their activities in the arts; and (6) the Federal Government to develop new ways of increasing its support.

Mr. Goldberg urged immediate establishment of a Federal Advisory Council on the Arts as proposed in legislation now before Congress and sponsored by Congressman Frank Thompson and others. He also suggested the Federal Government might properly commission sculpture and painting and award musical scholarships, also provide grants in aid to state and local governments and private non-profit groups in the building and maintaining of the physical plants required by the arts.

Advisory Panels on Design?

Another development of considerable potential significance is the recent appointment by Administrator N. E. Halaby of the Federal Aviation Agency of a "Facilities Design Advisory Committee" to advise him on art, architectural and other design problems relating to facilities constructed by FAA. Members of this committee are Gordon Bunshaft, Mrs. James H. Douglas, Henry Dreyfuss, Andrew C. Ritchie, Mrs. Eero Saarinen, William Walton and Mrs. George Y. Wheeler.

Matters under discussion with this committee so far have included design of the traffic control towers FAA operates throughout the country (an architectural competition is in the offing) and FAA traffic control centers.

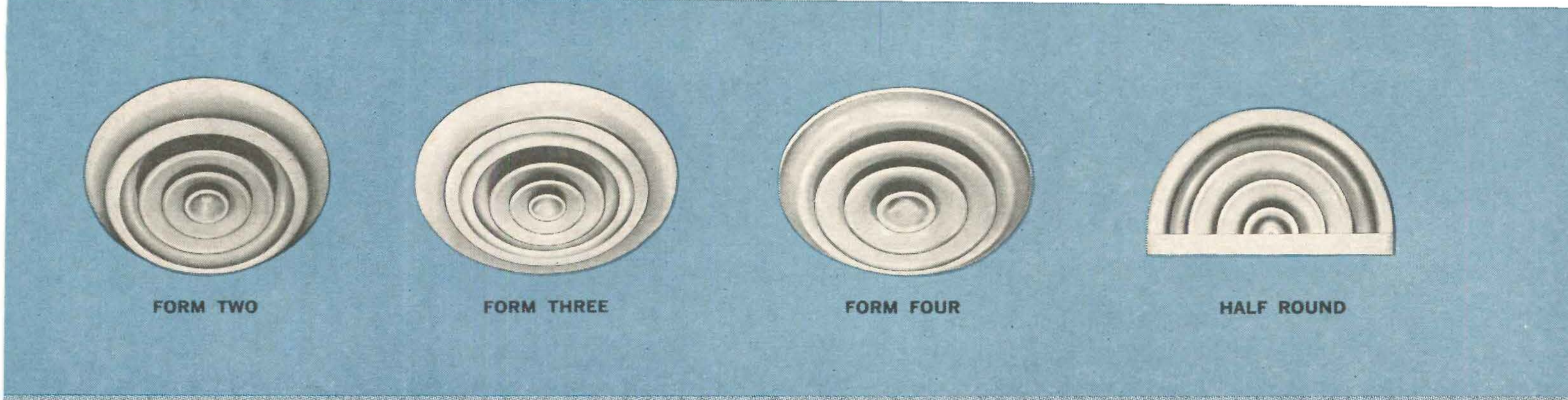
New York Design Session

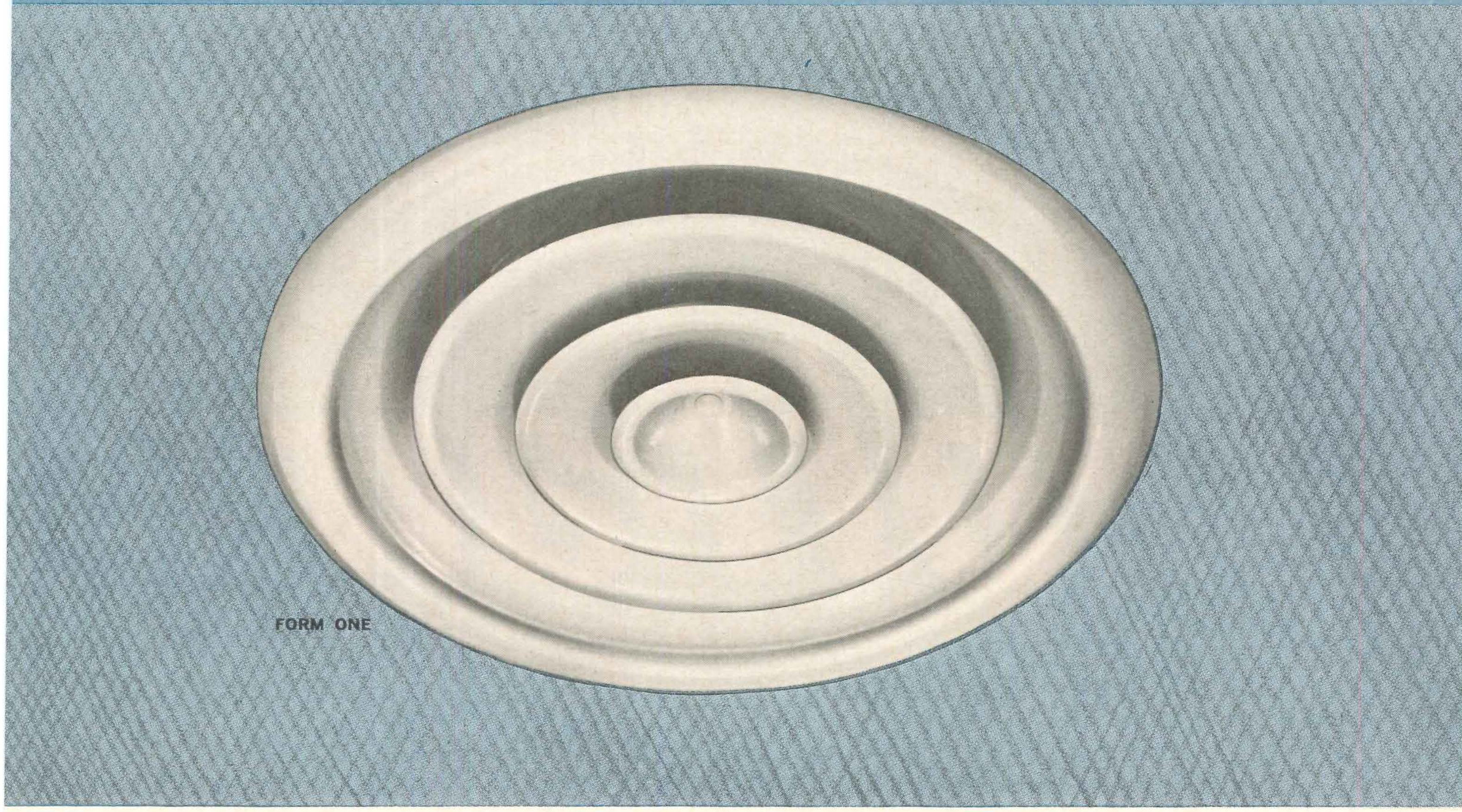
A good many of these developments may well be discussed at the April 3 session at New York's Hotel Plaza sponsored by the New York Chapter of the American Institute of Architects as the "First Conference on Esthetic Responsibility" with the theme "Who is responsible for ugliness?" Mr. Heckscher and a distinguished panel of speakers from government and the arts will participate in this inaugural effort of the A.I.A.'s pilot design committee, arranged with the collaboration of the national A.I.A.

A.I.A. NAMES 34 MEMBERS FOR FELLOWSHIP

The American Institute of Architects will advance 34 members to the rank of Fellow at its convention May 7-11 in Dallas. The list follows:

Cecil Abraham Alexander, Atlanta—Public Service
S. Robert Anshen, San Francisco—Design
William Glenn Balch, La Canada, Calif.—Service to the Institute
Theodore C. Bernardi, Sausalito, Calif.—Design
Romulo Bottelli Jr., Maplewood, N. J.—Service to the Institute
Edwin Winford Carroll, El Paso—Service to the Institute and Pubic Service
William Wayne Caudill, Houston—Design and Education
Alexander Smith Cochran, Baltimore—Design and Service to the Institute
Charles R. Colbert, New York—Design
Nathaniel Cortlandt Curtis Jr., New Orleans—Design
Paul Woodhull Drake, Summit, N.J.—Service to the Institute
Frederick W. Dunn, St. Louis—Design
Carl Feiss, Washington, D.C.—Service to the Institute
Clinton Gamble, Fort Lauderdale, Fla.—Service to the Institute
George Foster Harrell, Dallas—Design
Douglas Haskell, New York—Literature
Herbert Howard Johnson, Miami—Design
B. Kenneth Johnstone, Pittsburgh—Public Service and Service to the Institute
Ralph H. Kloppenburg, Milwaukee—Service to the Institute
Heeren Samuel Eilts Kruse, Miami—Service to the Institute
Howard Hamilton Mackey, Washington, D.C.—Education
Harlan Ewart McClure, Pendleton, S.C.—Design and Education
Singleton Peabody Moorehead, Williamsburg, Va.—Education and Literature
Seth Irwin Morris Jr., Houston—Public Service
Robert W. Noble, Philadelphia—Design
Clarence Joseph Paderewski, San Diego, Calif.—Service to the Institute
Joseph Julian Patterson, Fort Worth—Public Service
Lisle Frederick Richards, Santa Clara, Calif. Service to the Institute
Linn Charles Smith, Birmingham, Mich. —Design and Service to the Institute
Raphael S. Soriano, Tiburon, Calif.—Design
Donald J. Stewart, Portland, Ore.—Public Service
Sidney Lloyd Stolte, St. Paul, Minn.—Public Service
John Carl Warnecke, San Francisco—Design
Maynard Winthrop Woodard, Studio City, Calif.—Design





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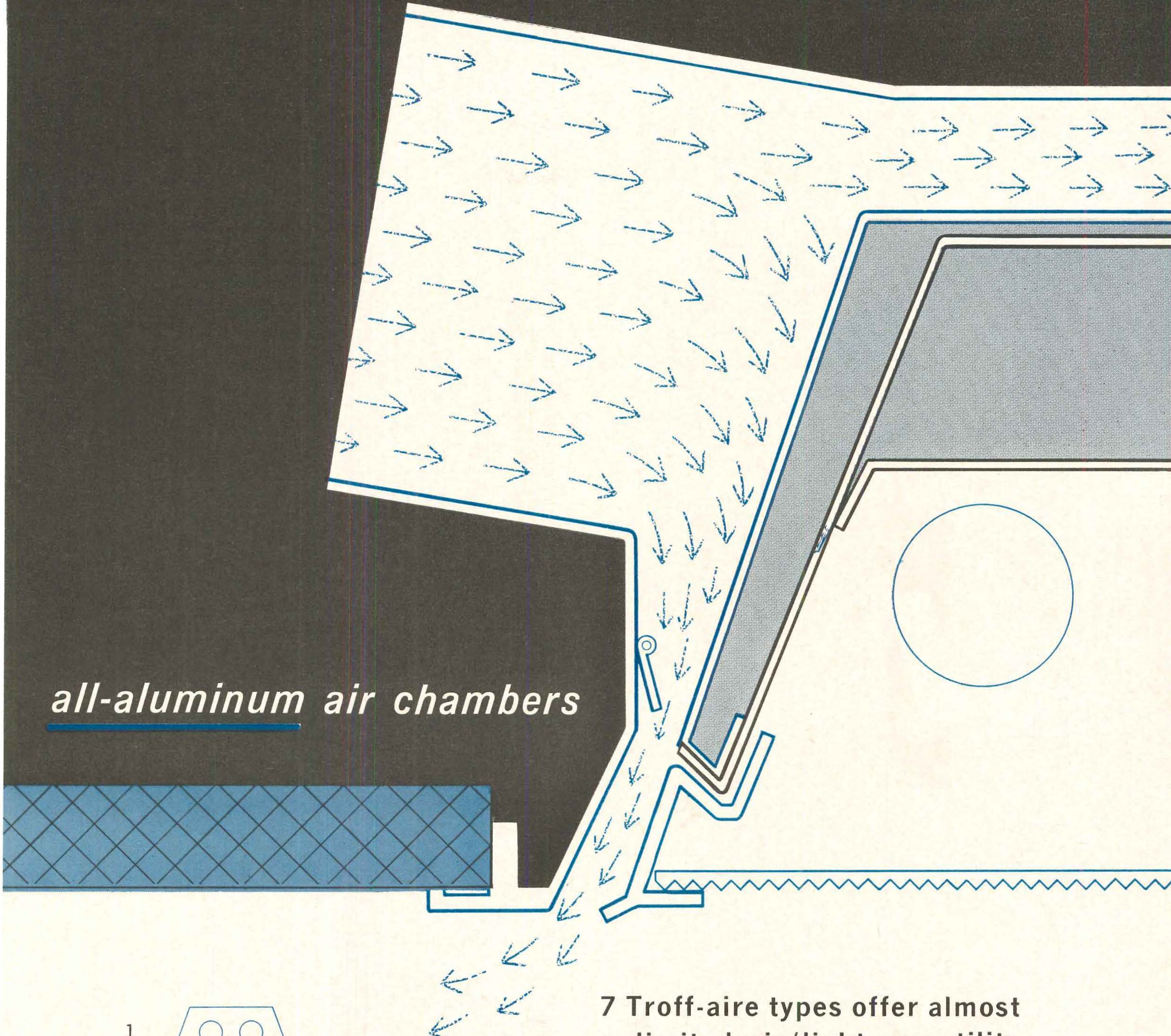

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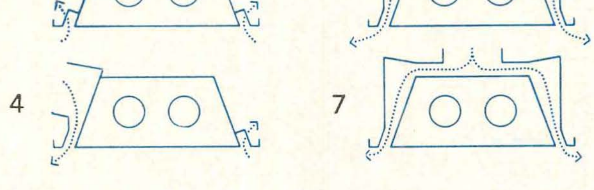

Shown left: (1) Blank unit (2) Combination Air Chamber-Blank (3) Plenum unit (4) Combination Air Chamber – Plenum return (5) Air Chambers — both sides (6) Double Air Chambers with mixing box-side feed (7) Double Air Chambers with mixing box-top feed.

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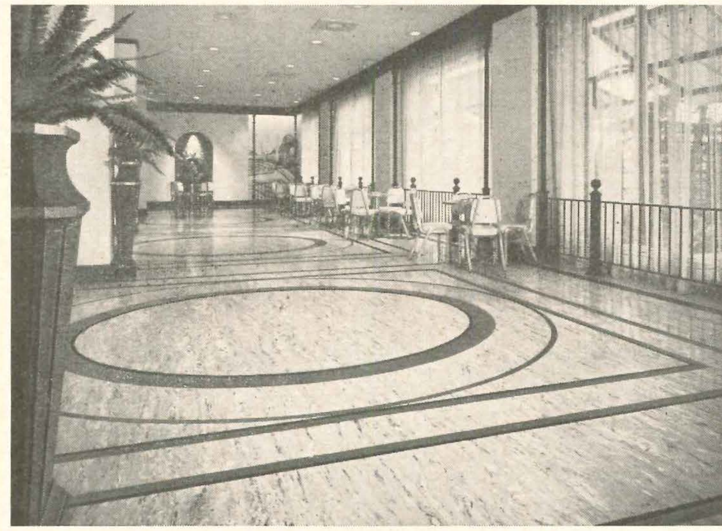
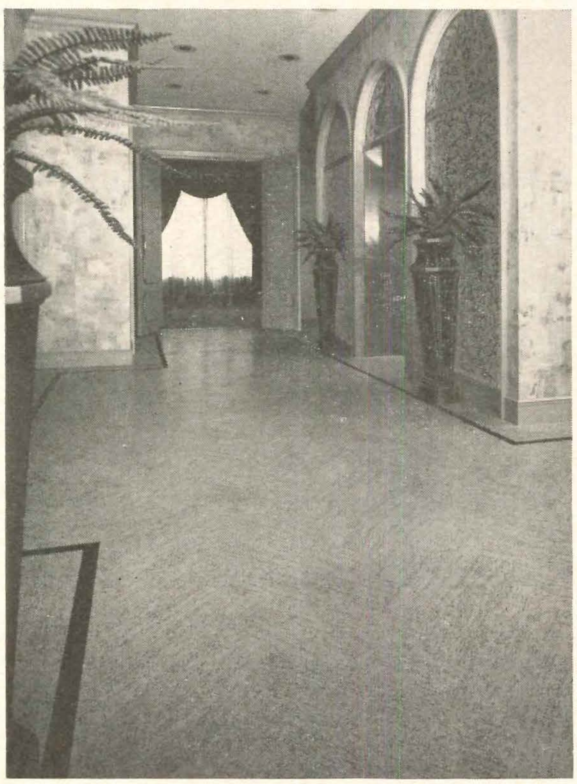


The new Fairmont Tower, San Francisco, California, was designed by Mario Gaidano, Architect, A.I.A., with Barbara Dorn Associates as Interior Design Consultant. Superior Tile Co., Oakland, installed Amtico Vinyl Floorings. The Fountain Room has an opulent floor of Amtico Imperial Jade Renaissance, with Emerald Green and Black feature strips.



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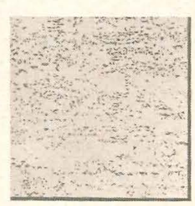

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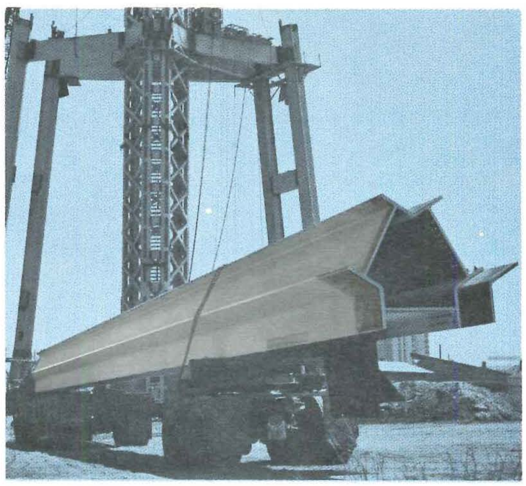
Space Needle:

rises on A36 steel legs

(turn page)

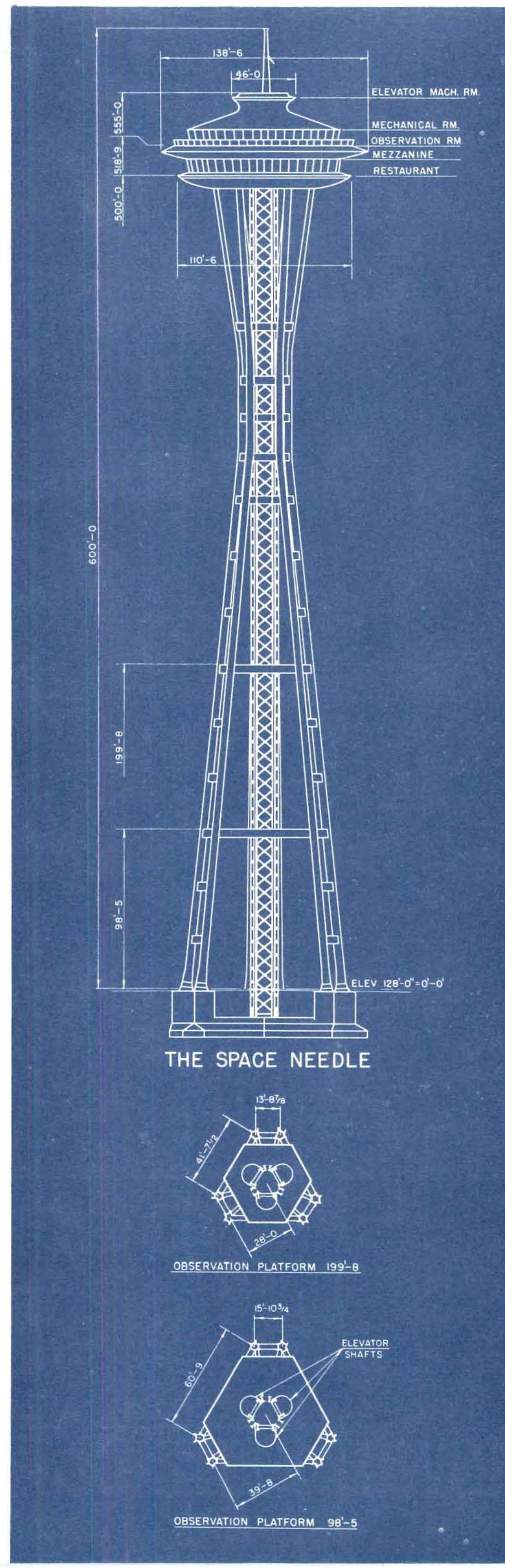
A36 steel tower to keynote Century 21 Exposition

Above
Early model of Century 21 Fairgrounds located 95 seconds from downtown Seattle by Monorail. Large building in lower right is unique Coliseum.



Ninety-foot leg section being trucked to tower site. Notice how wide flange beams are welded together flange-to-flange to form leg.

At right
Core section is erected first, then bracketed by leg sections. Derrick crawls up inside of core as work progresses.



United States Steel

. . . the story of its design, fabrication and erection

It's called, aptly enough, the Space Needle. It soars 600 feet into the air on three pairs of steel legs, tapers to a slim waist at about 373 feet, then flares out slightly to the 500-foot level, and is crowned by a 260-seat restaurant that will make one complete revolution each hour, a mezzanine and an observation deck.

The Space Needle is the keynote structure of Seattle's Century 21 Exposition (April 21 through October 21, 1962), and it recalls the 1939 World's Fair dramatic Trylon and Perisphere in New York, the great Crystal Palace of the world's first international exhibit in London, 1851, and the most famous of them all, the Eiffel Tower. But none of the great fair structures of history quite matches the Space Needle's ingenuity.

BIRTH OF A NEEDLE It all started in mid-1960 when the officials decided they needed a spectacular structure to act as a dramatic focal point for the Exposition. The problem was presented to famous Seattle-New York architect John Graham, who was fresh from a project in Hawaii where he perched a revolving restaurant on top of a 25-story skyscraper. Graham didn't waste time. Within weeks, a design concept had been selected from scores of ideas: a sheaf-like form crowned with a "jewel." The tower's slender steel legs would enclose a three-sided core of steel lacework which would house utilities, stairways (832 steps up), and on the outside of the core would be mounted two high-speed (800 fpm) elevators, and one service (350 fpm) elevator.

WIND TUNNEL DESIGN As the project moved into structural design, wind tunnel tests were made on a model of the tower to determine design criteria. A36 structural carbon steel, a relatively new grade of steel, was selected because it permitted higher design stresses, at the same time allowed maintaining usual factors of safety, and because it could be welded without special precautions.

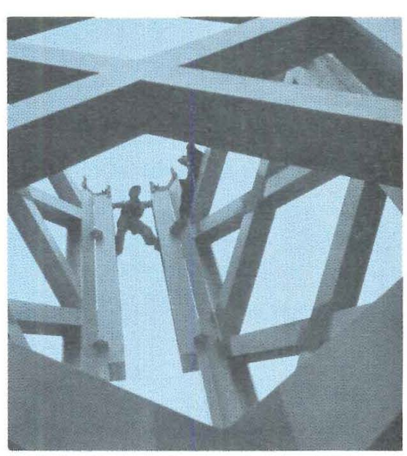
The Space Needle's leg design is simplicity itself. Three 36-inch wide flange A36 beams are welded together flange-to-flange into a single unit and stiffened with diaphragms. Two such columns, horizontally braced, make up a leg section.

WIND AND EARTHQUAKE The tower will be extremely stiff; it is designed for a maximum sway of 3 inches at the top at a wind velocity half again as great as ever recorded in Seattle. Wind tunnel tests showed that in a 100-mph wind, total drag on the structure would be 673,000 pounds and total overturning moment at the base 170,000,000 foot-pounds, corresponding to an average wind pressure of 32 psf applied to the projected area of the tower. The tower has been designed with appropriate factors of safety to sustain a wind pressure of 50 psf. Radial fins on the top structure act as spoilers to prevent regular vortex shedding from the skin of the restaurant, and to eliminate any tendency for torsional oscillation.

Seattle has earthquake problems, too, and the Space Needle meets them by being designed for nearly twice the seismic load required by Seattle's code. Preliminary calculations showed that an earthquake of MM-8 intensity would subject the structure to an average lateral acceleration of about 0.1 g. Oscillation period is in the neighborhood of 4 seconds, and the tower is designed to withstand an average lateral acceleration of 0.2 g.

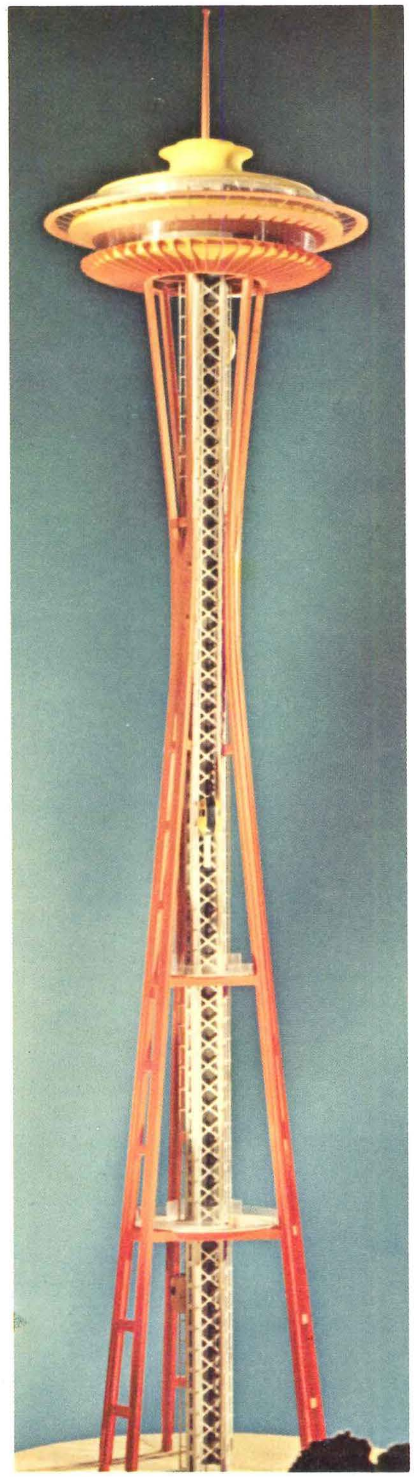
FOUNDATION The foundation is a story in itself. The Howard S. Wright Company dug a Y-shaped excavation 30 feet deep, laced it with 250 tons of reinforcing steel and 72 anchor bolts 4 inches in diameter and 31½ feet long. The monolithic pour took 16 hours, buried the steel in more than 2,800 cubic yards of concrete (5,600 tons, 470 truckloads), and set a record for the largest continuous building concrete pour in the West. Due to the massive foundation, the center of gravity of the structure is very near ground level despite the 3,500 tons of steel in the tower alone.

continued on next page



Inside the core section which houses utilities, stairways, and serves as mounting for three outside high-speed elevators.

Unusual Coliseum building will enclose three acres of unobstructed space, rises 110 feet at the center. Four concrete tripods act as abutments for steel compression trusses between which are laced steel cables to form hyperbolic paraboloid roof. Cables will support the roof panels. Architect: Paul Thiry, F.A.I.A.; Structural Engineer: Peter Hostmark; General Contractor: Howard S. Wright Construction Company; Fabrication and Erection: Isaacson Iron Works. All of Seattle, Washington.



Model of the Space Needle.
Architects and Engineers:
John Graham and Company,
Seattle-New York
Structural Engineer:
John K. Minasian, Pasadena, California
General Contractor:
Howard S. Wright Construction Company,
Seattle, Washington
Fabrication and Erection:
Pacific Car & Foundry Company,
Seattle, Washington

LEG ART Meanwhile, back at Pacific Car & Foundry's Seattle steel fabricating plant, the first huge leg and core sections were nearing completion. The fabricator was also finishing up work on a custom-designed 35-ton derrick that would climb up the inside of the tower's core, unfold the boom and reach over the top to lift the fabricated steel sections. The most difficult problem of all was devising a method to curve the massive steel beams where they form the Space Needle's 373-foot-high "waist." Some of them required a deflection of as much as 2 feet, and each of the three beams that make up a leg section had to be shaped to different configurations before being welded together. The solution: torch heating pie-shaped sections in the beams; on cooling, the wide part of the heated section shrinks more than the narrower part and deflects the beam.

GOING UP The first leg sections, 90 feet long and weighing up to 90,000 pounds each, were tied onto the anchor bolts in late June, 1961, and the Needle was topped out by December 1, 1961, a scant five months later. It grew about 120 feet every month. Up to the 373-foot level, they had already used two carloads of welding rods and 30,000 high strength steel bolts.

AFFECTS FUTURE DESIGNS The Space Needle bids fair to be the most talked-about structure of the year, but no less remarkable are the tens of thousands of steel buildings and special-purpose towers erected every year. Structures are getting bigger and more versatile all the time. One reason is the many new steels available to structural designers, ranging all the way from 32,000 psi yield point to 100,000 psi yield strength, the extra-strong weldable steels, and the new design concepts based on *combinations* of different steels to carry varying stresses and loads in a structure.

A36: ANY SHAPE, ANYWHERE A36 steel, for example, is rapidly being accepted as a way to cut weight and construction costs in many types of structures, particularly where a weldable steel is needed. It permits increased design stress of about 10% compared to A7, is fully weldable, and is *immediately available* in a full line of wide flange beams, plates, standard structural shapes and bars. It has been used to lower costs and weight in many conventional structures, as well as in the Space Needle. Write or phone United States Steel or any of the Divisions listed below for additional information. USS, "T-1", COR-TEN, TRI-TEN, and MAN-TEN are registered trademarks.

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USS MAN-TEN (A440) High Strength Steel	50,000*
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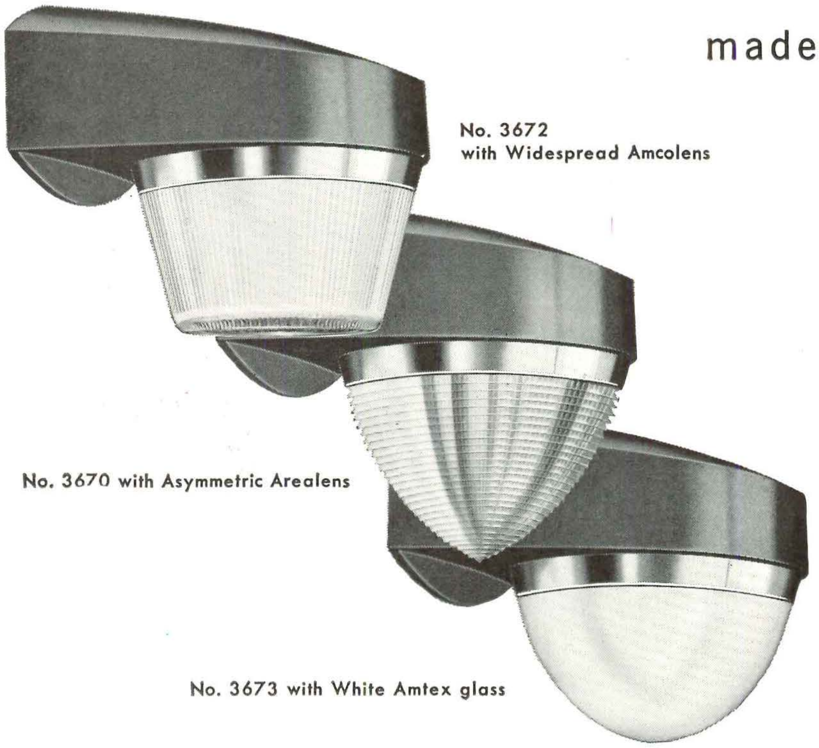

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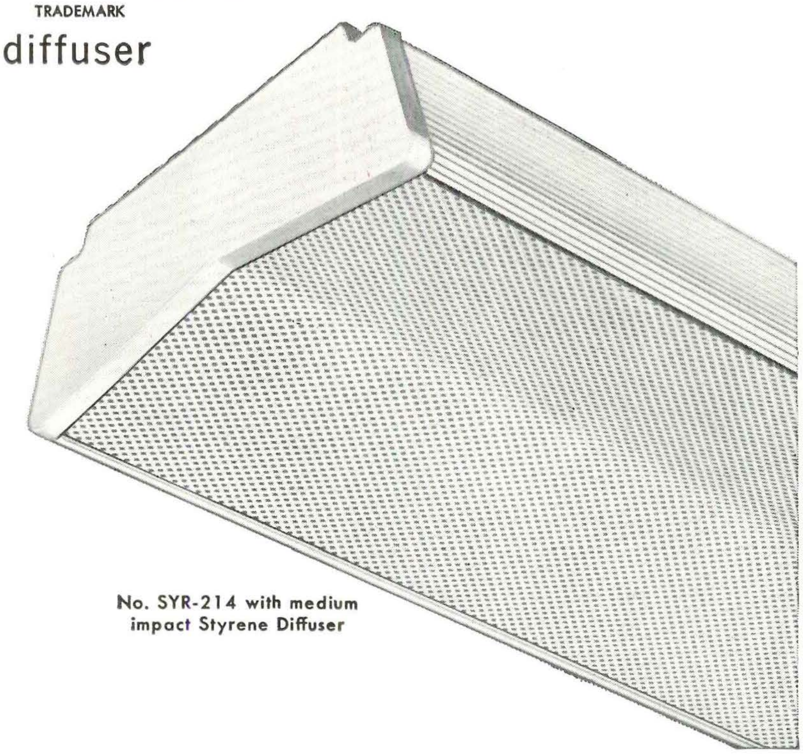

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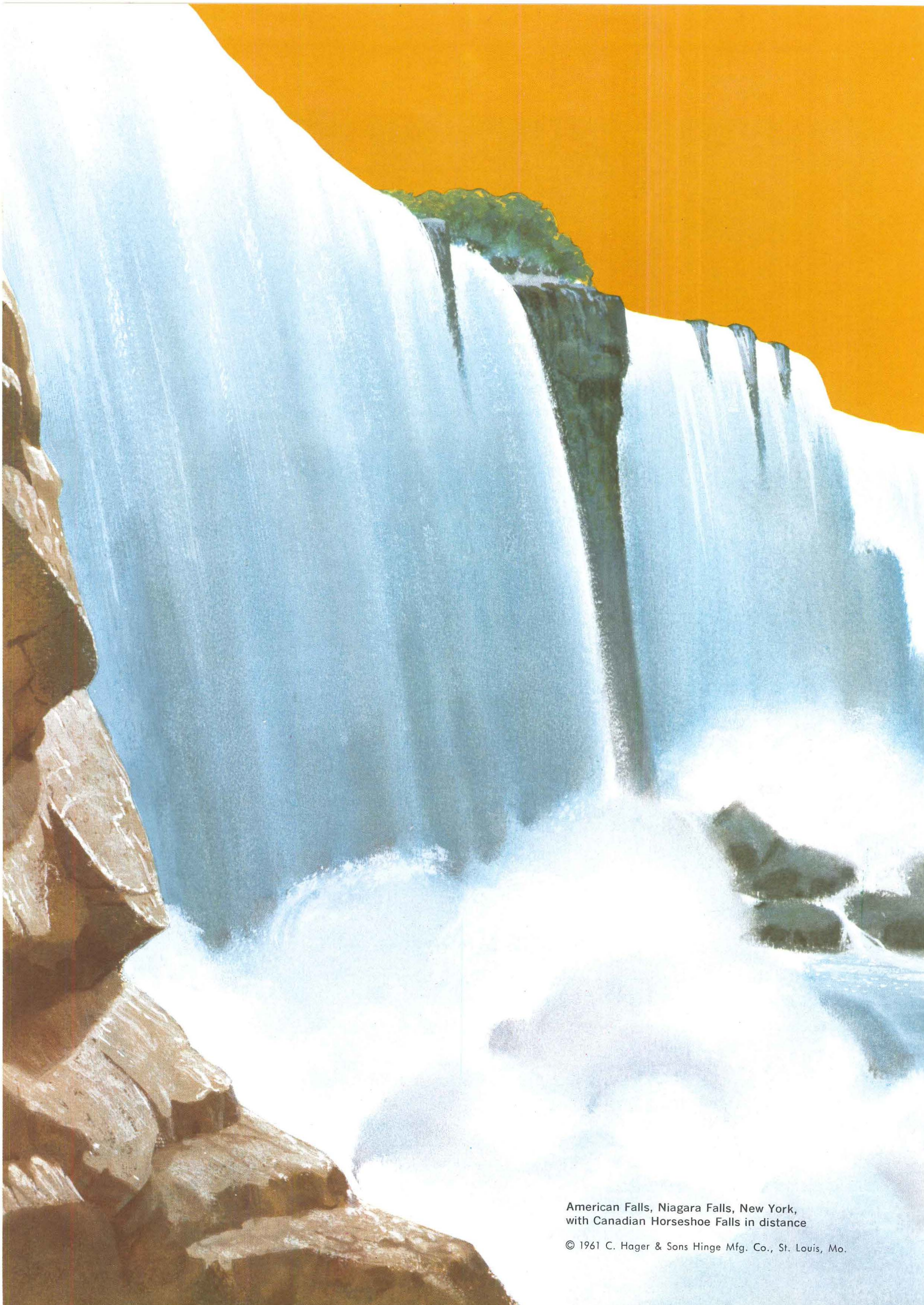
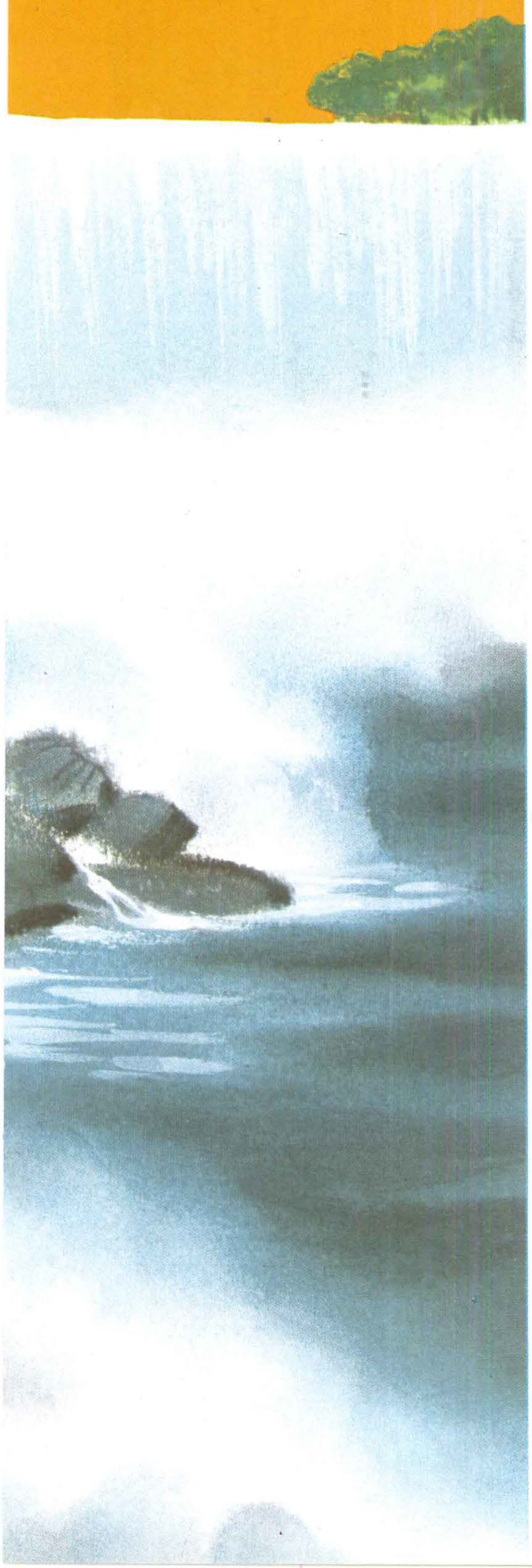
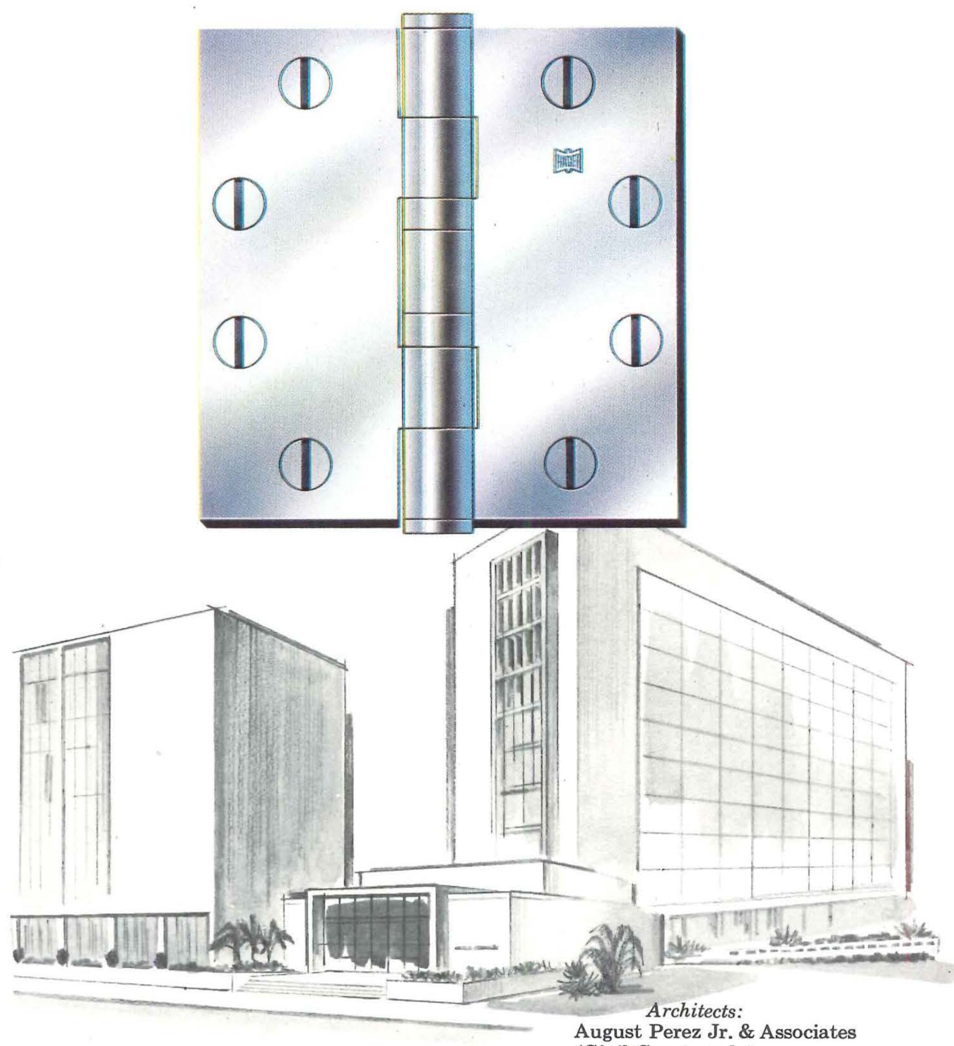


American Falls, Niagara Falls, New York,
with Canadian Horseshoe Falls in distance

FRICTION . . . A TOUGH FORCE TO TAME





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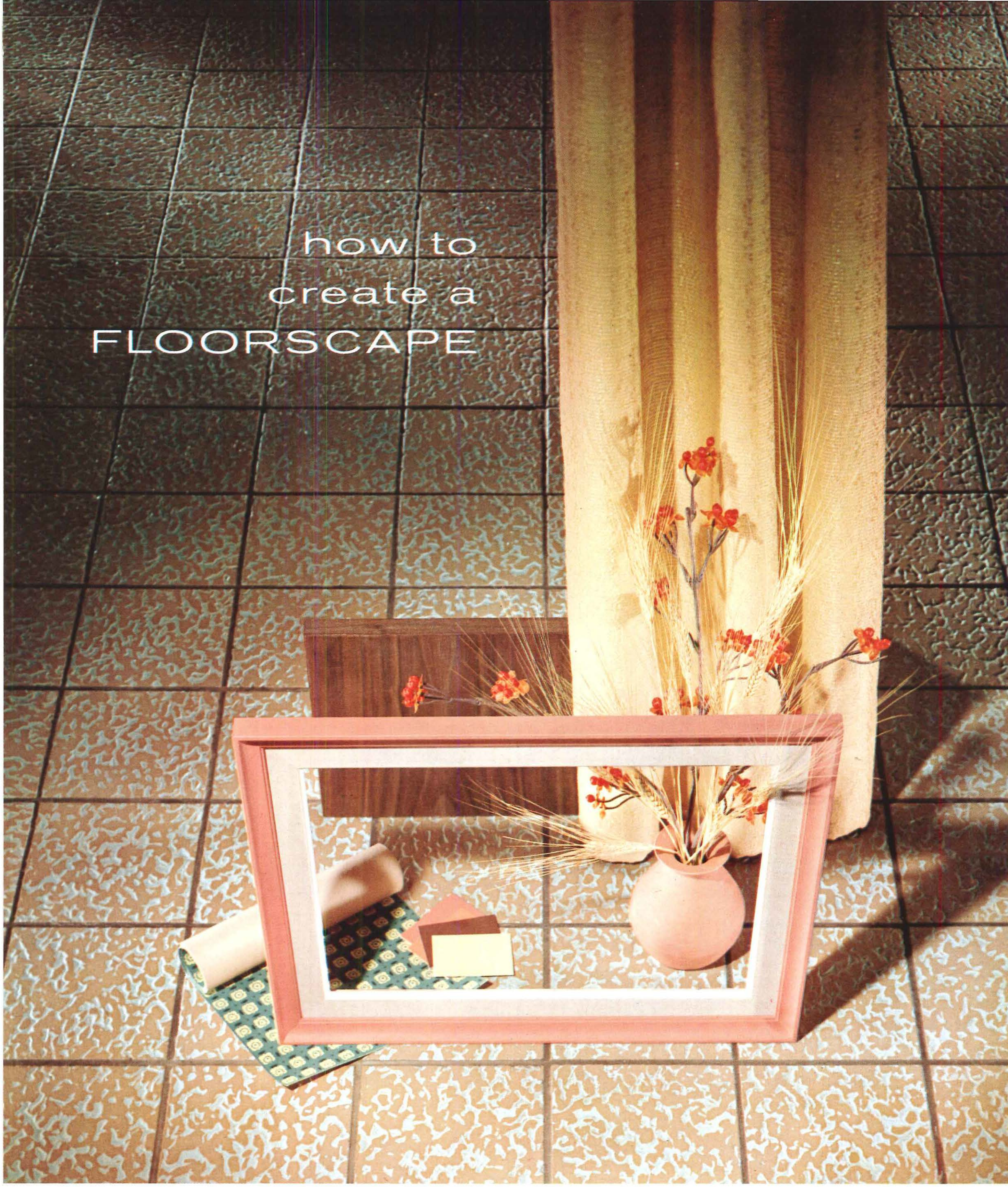

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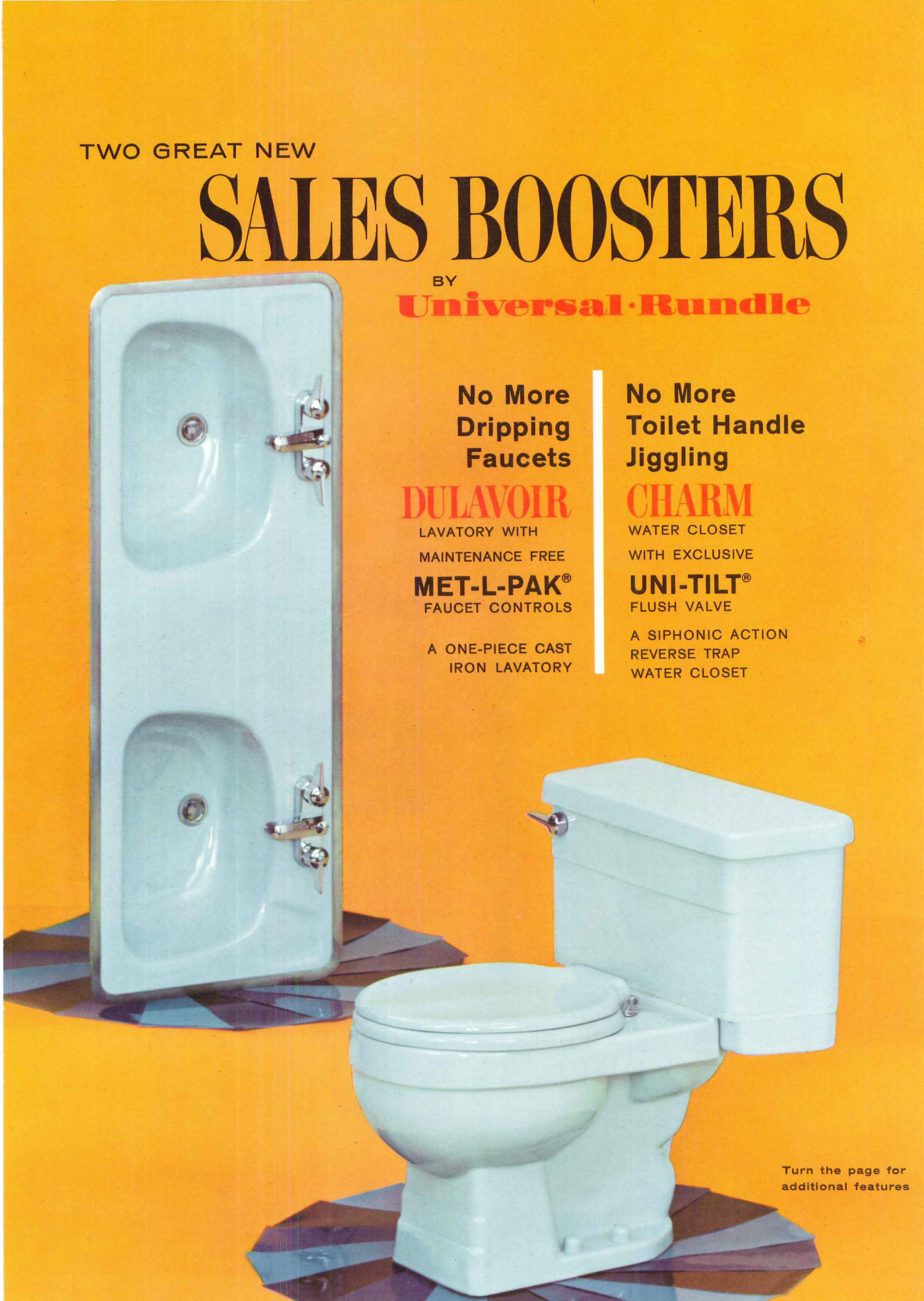
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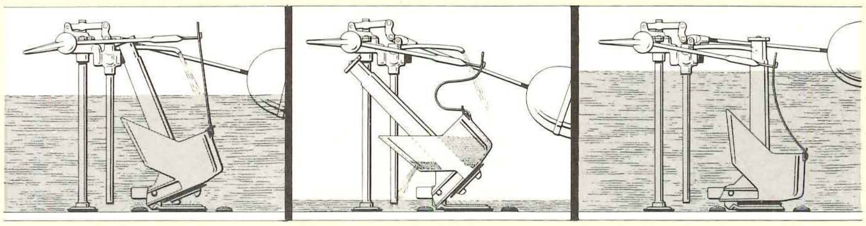

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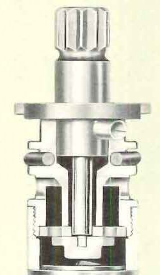

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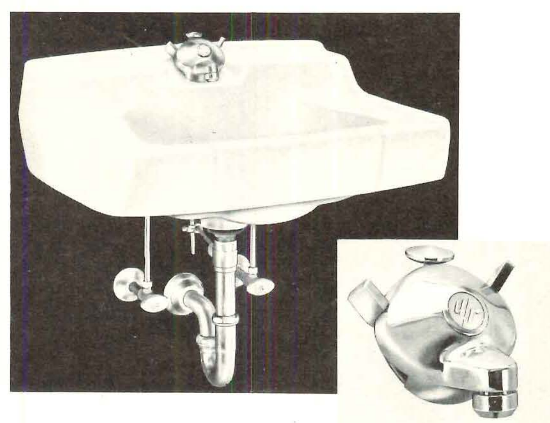

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Award to Mumford

Lewis Mumford has been awarded this year's National Book Award for non-fiction for his *The City in History.* The awards, which carry a prize of $1000, are made annually in three fields: poetry, fiction and non-fiction.

Program for the Church

LITURGY AND ARCHITECTURE. *By Peter Hammond. Columbia University Press, 2960 Broadway, New York 27. 191 pp., illus. $6.*

Though Mr. Hammond, an Anglican clergyman, is chiefly concerned with English church building, and though he aims his heaviest broadsides at Anglican failures to build modern churches, his book should be read by every person—minister, architect and committeeman—involved in church building on either side of the Atlantic.

In his preface, Mr. Hammond writes that "the one thing that gives a certain coherence to serious architecture of the last ten years is its emphasis on the *program.*" The program for a church, he makes clear, depends on its theological, liturgical and social functions—not on "romantic vistas, Wagnerian gloom and other devices more appropriate to the opera house than to the Christian church."

Appeals for liturgical reform have been audible all during the 20th century—most persistently among Roman Catholics on the Continent, but quite definitely among other groups, too. Put in terms perhaps oversimplified, the major effort has been to eliminate a medieval-ish fascination with mystery, and to restore the laity's participation in the celebration of the Eucharist: to promote it from being simply an audience to the clergy's performance.

In effecting this reform, the plan of a church building is basic. For this reason, the church of Notre Dame du Raincy opened "a new chapter in the history of ecclesiastical architecture" not only because of Perret's rigorously intellectual application of new structural techniques, but also because he brought the altar closer to the congregation. Mr. Hammond devotes a great part of his book to a review of plans of liturgically advanced churches built in Germany, Switzerland, France and England before and since World War II.

Mr. Hammond makes it evident that, in pursuing this program, architecture is theology's great ally, "one of the most potent instruments in the Church's armory." He emphatically does not mean architecture as a purveyor of styles and "atmosphere"; it is the architect's analytical abilities and imagination that are needed.

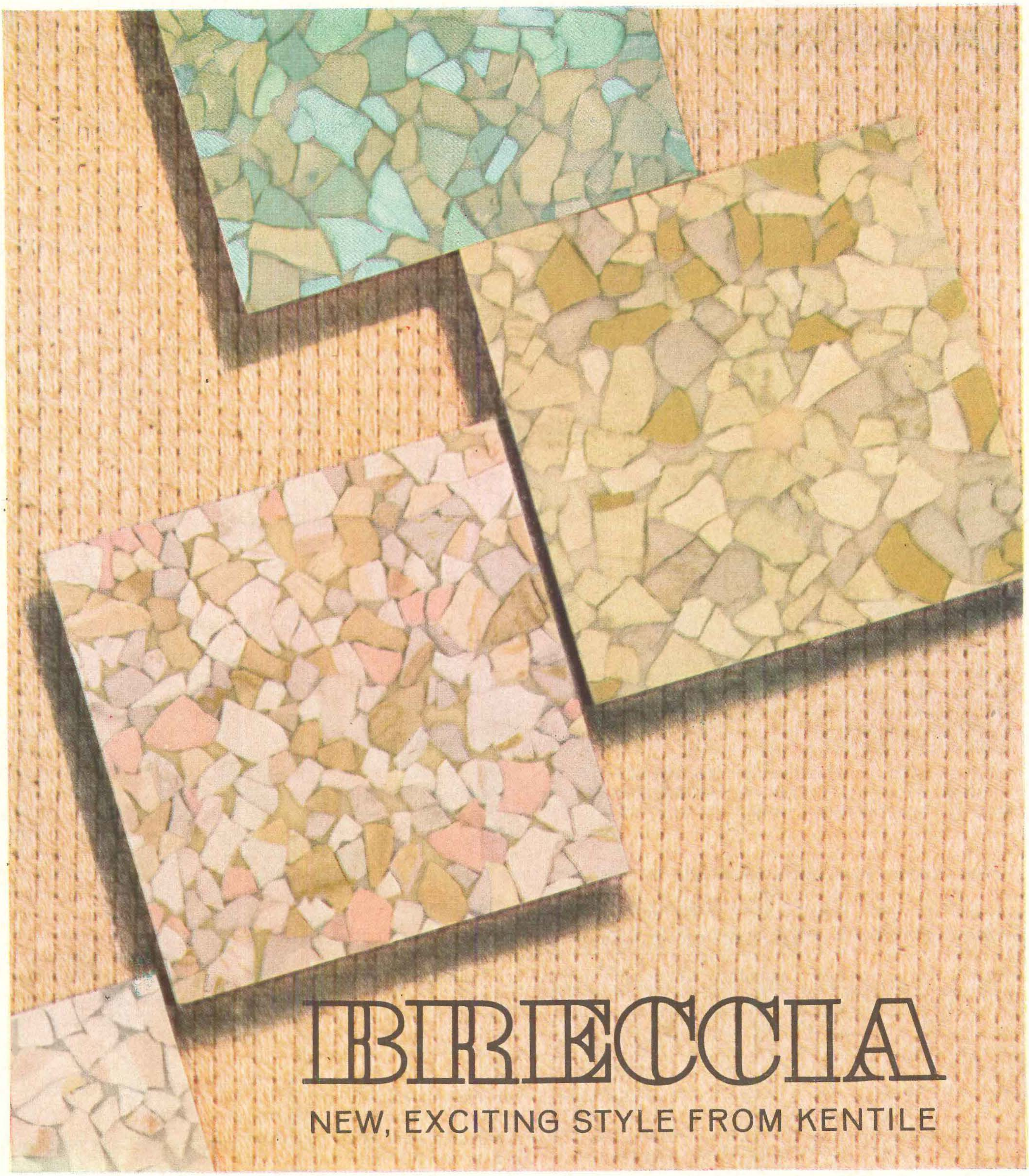
Lovers of stained glass, dim shadows and "mystery" who want to take issue with Mr. Hammond will find that his intelligence and fervor demand something more than a sentimental rebuttal.

Great Architecture

GREEK ARCHITECTURE. *By Robert L. Scranton.* EARLY CHRISTIAN & BYZANTINE ARCHITECTURE. *By William MacDonald.* MEDIEVAL ARCHITECTURE. *By Howard Saalman.* RENAISSANCE ARCHITECTURE. *By Bates Lowry. George Braziller, Inc., 215 Park Ave. South, New York 3. Each 128 pp., illus. Each $4.95.*

In the second installment of its series *The Great Ages of World Architecture,* the publishers have issued monographs on ancient Greek architecture, Byzantine architecture, medieval architecture (Carolingian through Romanesque), and Italian Renaissance architecture. These volumes, even more than the first four in the series, show the difficulties of covering large spans of time in few pages. Because the periods covered are so long and the books so short and the approach, on the whole, so general, the texts can be of only moderate use to the scholar. At the same time, because the facts are so densely packed, the uninitiate is likely to be soon discouraged by unfamiliar references to pendentives, string courses, or intercolumniation.

continued on page 54



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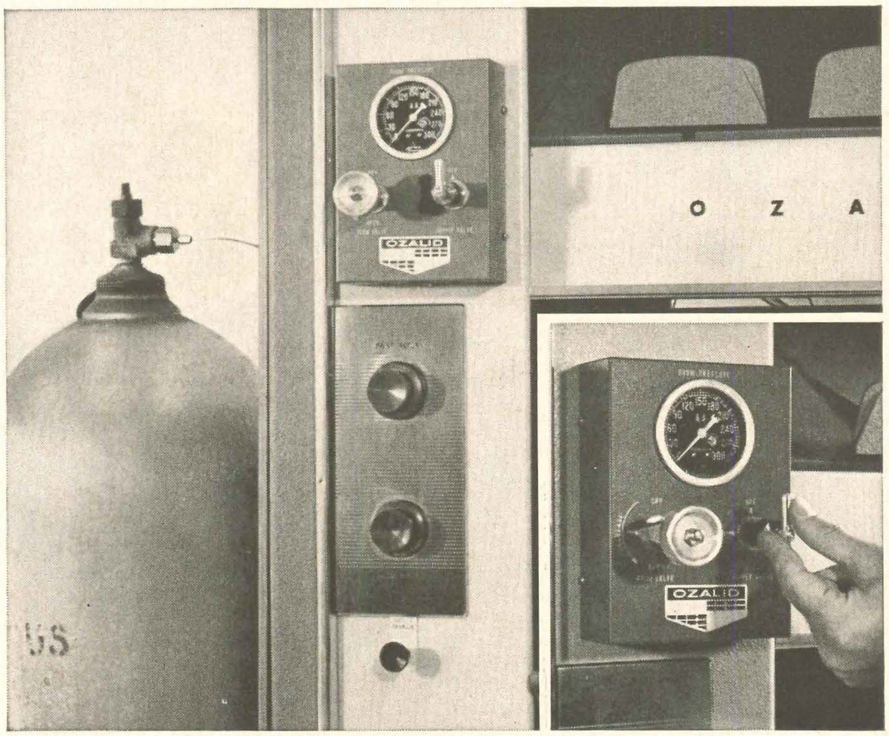
NEW IDEAS TO HELP YOU WITH ENGINEERING REPRODUCTION AND DRAWING



Ozalid® Anhydrous Ammonia System consists of control box mounted on machine and tubing to connect equipment with anhydrous ammonia cylinder, which may be remotely located. Developer handling becomes simply, "valve on, valve off."

New anhydrous ammonia gas system provides ultimate convenience, cuts developer costs up to 50%, gives from 2 to 6 months developing from a single cylinder!

A simplified, completely safe Ozalid Anhydrous Ammonia Kit brings the convenience of pressurized ammonia gas development to your dry-developing diazo whiteprinter. Depending on machine use intensity and model, the unit saves enough on ammonia costs to pay for its initial expense in as short a time as a year.

A low price tag is only the first of several reasons you should consider using Ozalid Anhydrous Ammonia in your diazo installation. Contents of a single cylinder give up to six months of developing, reducing developer handling to a minimum.

Heater rods, sealing sleeves, and other vital parts in the developer section have longer life because corrosive action is lessened. Machine warm-up time is shorter. Improved employee morale results in increased production. What's more, chances are you'll see an improvement in print quality.

The Ozalid Anhydrous Ammonia Kit is specifically engineered to meter anhydrous ammonia in the simplest, most efficient method for use with diazo machines. Units have been proved in the field, and are already giving a high degree of customer satisfaction.

Conversion Kits fit all Ozalid dry diazo machines and can be easily installed on practically all others regardless of make. Price of the kit is $175.00. For information ask your Ozalid man, or write Ozalid, Johnson City, N. Y., Dept. 232.

New fast reprinting, erasable sepia intermediate

Here's a highly transparent intermediate with a specially prepared paper base that makes reprints faster, yet is easily erasable. Ozalid 402 IZE is its name, has a dark sepia image (but you can rub it out with an ordinary abrasive eraser), has an ideal matte surface for pencil and ink additions, picks up fine line detail beautifully, has excellent covering power, yet is surprisingly low priced. Drafting room comments include, "like see-through"..."excited about erasable feature"..."excellent for overlay work." Ask your Ozalid man for samples and demonstration.

Crease and crumple this tracing paper. Then, make a print! Surprise!

New Ozaclear isn't called "clear" for nothing. This tracing paper permits only a hint of fracturing from creases and crumpling ever showing up on a print. Ozaclear is 100% rag, with an excellent surface for pencil and ink. But it's that "no bruising" quality that makes it stand out. Its exclusive Ozalid-perfected transparentizer holds its own against heavy pencil pressure, leaving no trace of ghosting when these lines are erased. Want more details about permanent, non-yellowing, high strength Ozaclear? Ask your Ozalid representative or write Ozalid, Johnson City, N. Y., Dept. 232.

Lennox gives branches up-to-the-minute changes on reproducible masters!

With eight scattered branches and factories, Lennox Industries (Marshalltown, Iowa) uses Ozalid diazo intermediates to get out new product drawings and drawing changes quickly and maintain perfect standardization among plants.

Single duplicate originals are sent to each plant, the plant, in turn, making as many clear, sharp prints as needed. Simple, fast, error-proof!

Ozalid, *A Division of General Aniline & Film Corporation. In Canada: The Hughes-Owens Co. Ltd., Montreal*

Kohler sells what's underneath: ALL-BRASS

Why fret about what's underneath? Well, some fittings just don't hold water—literally. Underneath a fancy chrome finish the metal is soft. It tires easily. And then the trouble starts: leaks and drips; complaints and service calls.

Kohler fittings are All-Brass. Every part of every fitting. (Correction: there's a nylon washer in the Valvet—the anti-drip valve unit. The *rest* is brass.)

Ask a plumber, he'll tell you brass is best. Brass resists alkalinity and salinity in water. Brass works like new long after others call it quits. And brass is the ideal base for holding on to a bright chromium finish.

Above is the "Centaur" fitting. All-Brass, of course. It's from the Kohler Aquaric line—priced to prove you don't have to pay a premium for quality brass fittings.

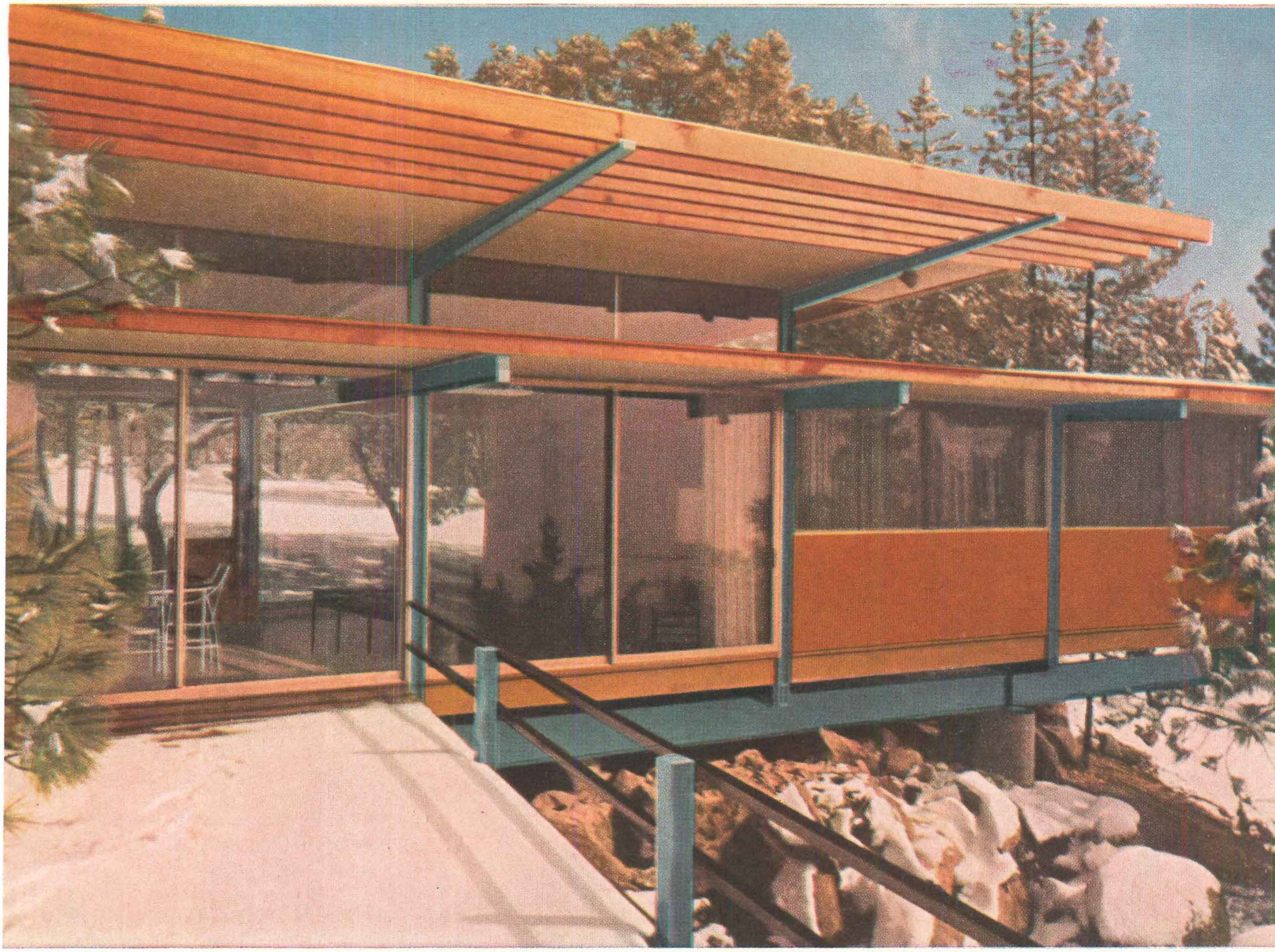
Keep this thought in mind: All that glitters is not brass. Specify Kohler fittings and you *know* they're All-Brass.

That's the only kind we make.

KOHLER OF KOHLER

Kohler Co., Established 1873 • Kohler, Wisconsin

ENAMELED IRON AND VITREOUS CHINA PLUMBING FIXTURES • ALL-BRASS FITTINGS • ELECTRIC PLANTS • AIR-COOLED ENGINES • PRECISION CONTROLS



The 1,200-sq-ft cabin has two bedrooms, living-dining room, bath, and kitchen. A sundeck extends 40 ft from the house on steel beams.

Required Reading

continued from page 48

The illustrations are fine, and William and Caroline Harris are to be thanked especially for their design of the handsome jackets, bindings and typography.

Educational Explosion

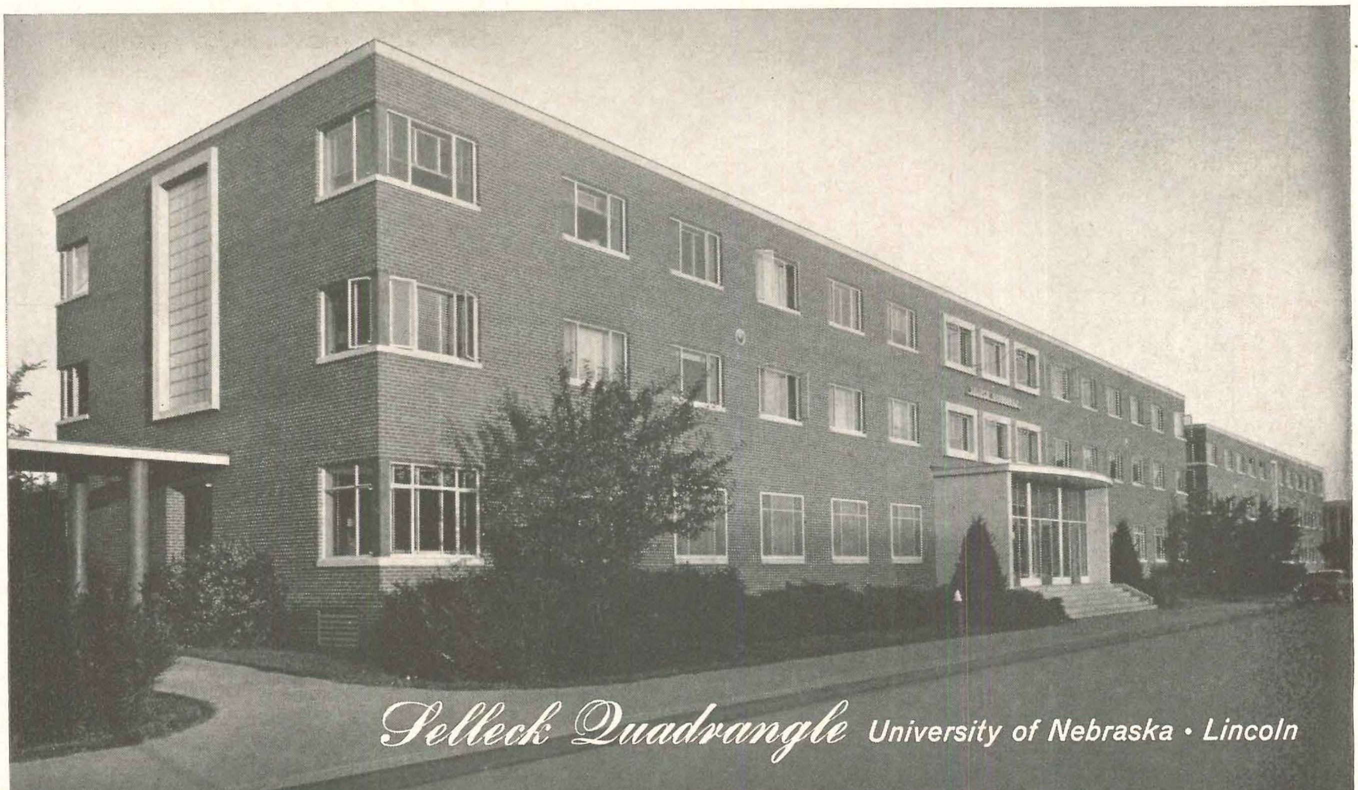
COLLEGE STUDENTS LIVE HERE. *By Harold C. Riker with Frank G. Lopez. 152 pp., illus.* THE THINGS OF EDUCATION. *48 pp., illus. Educational Facilities Laboratories, Inc., 477 Madison Ave., New York 22. Each gratis.*

"Explosion" is a distressingly overworked metaphor these days, but the pressure of some imminent problems seems to call for deliberate exaggeration. One of these problems is the expected—virtually certain—deluge of college students about to inundate American campuses. So imminent is this particular problem that our colleges have very little time to prepare for it; time is so short that they may be tempted to panic and to build mere roofs to house these students. Nonetheless, it must be recognized that the results of any such panic will be with the schools for a long time, and might be very hard to live with. Most campuses still bear the scars of hasty building thrown up at the end of World War II.

In *College Students Live Here,* possibly the most valuable lesson Mr. Riker gives is that the first thing to be studied by colleges contemplating building is not how much of it they need, nor how they will pay for it, but how to define their own student needs. Mr. Riker's enumeration of these needs—educational, social, personal and institutional—should serve as a partial check list, not too difficult to complete for any college which has given thought to its own aims in these areas. General information is illustrated by specific solutions, in projects and completed buildings, for a number of American campuses.

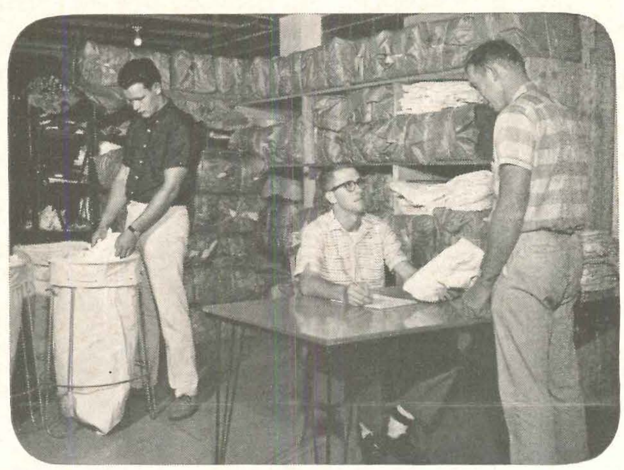
The Things of Education is a "second report" from E.F.L. reviewing its accomplishments since its founding in 1958. It also takes a look at the advances in school building the-

continued on page 62



Architect: Davis & Wilson, Inc., Lincoln *Linen Supplier:* Sanitary Towel Supply and Laundry Co., Lincoln

Linen supplier provides key space-and-cost-saving service for University of Nebraska



Linen Exchange Center

In designing this 1,000 student dormitory, the architect provided convenient space and location for a linen exchange. This was an important consideration for the University of Nebraska because money spent to establish a laundry, equip, stock and operate it could be better used for other needed construction. And the problems of supplying bed linens, towels, staff uniforms, etc., were more efficiently solved by local linen supply rental.

Architects perform a valuable service in discussing linen provision details before completing building designs . . . because nearly every structure will require linen service! Your local linen supplier will be pleased to help by offering expert counsel on the economics of linen service, traffic, storage and related needs. Call on him for assistance. He is listed in the Yellow Pages under "Linen Supply" or "Towel Supply."

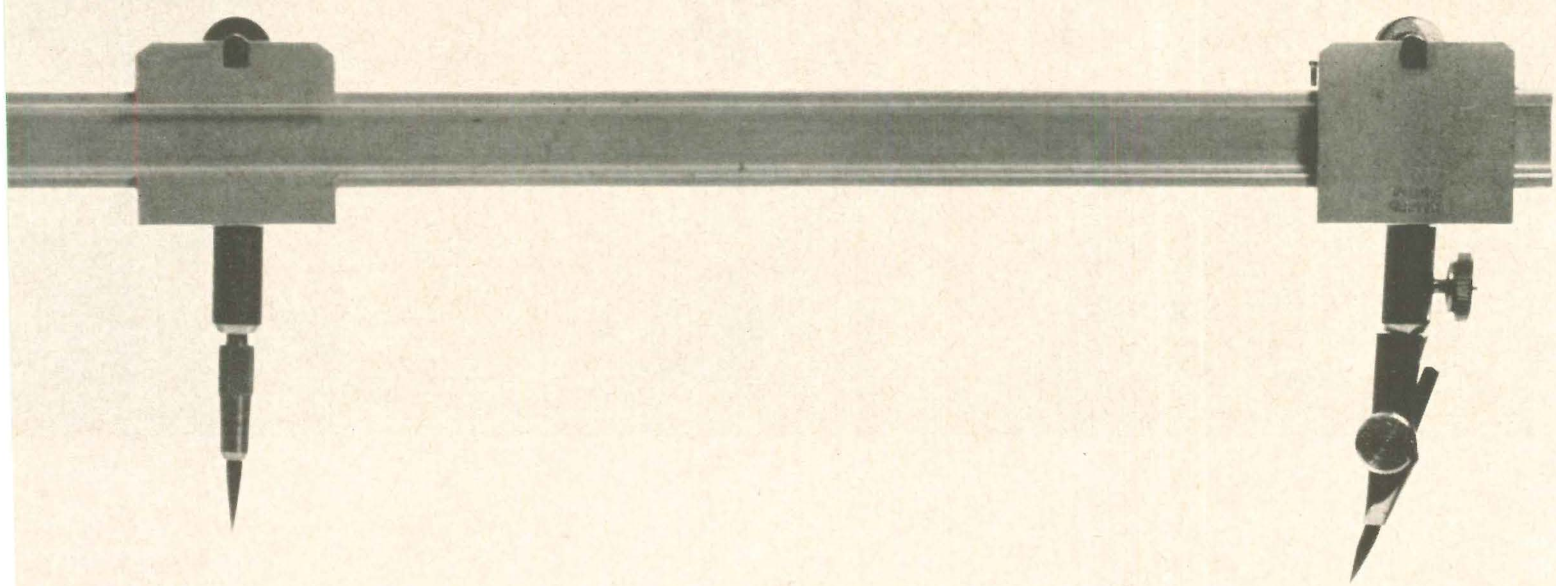
FREE DESIGN GUIDES . . .
give case histories and suggestions for providing more efficient linen supply service in motels, schools, restaurants and hospitals. Write today.

SEE OUR CATALOG IN SWEET'S OR WRITE FOR COPY

Linen Supply Association of America

and National Cotton Council • 22 West Monroe Street, Chicago 3

New headquarters building, Purex Corp., Lakewood, Calif.



WINGLINE

creates a graceful new shape

APPROVED
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FOR MOUNTING ON COMBUSTIBLE CEILINGS

WINGLINE's beauty is born of engineering

Non-parallel surfaces minimize apparent glare by reducing the subtended visual angle: result – a graceful new shape.

Designed for safe mounting against combustible ceilings without spacers: result – the luminaire seems to float in space.

Sides are tapered to cast more light against surrounding ceiling surfaces: result – a slender profile.

and that's not all

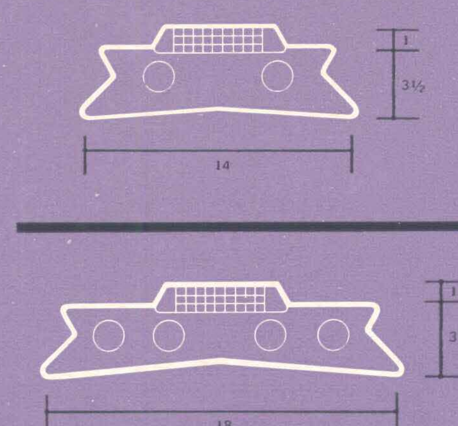
WINGLINE has a heat dissipating, dust-free enclosure.

WINGLINE has a plug-in "Unitized Electrical Assembly" (3-year warranty) for instant maintenance.

WINGLINE uses thermal-protected ballasts.

WINGLINE permits combinations of 2- and 4-lite fixtures to plug into a common wireway for immediate changes in lighting layout. And . . .

WINGLINE has controlled quality produced in Globe's modern new plant.



For detailed information about Globe's new WINGLINE, *P3000 Series, write for Brochure A-4.*

GLOBE ILLUMINATION COMPANY

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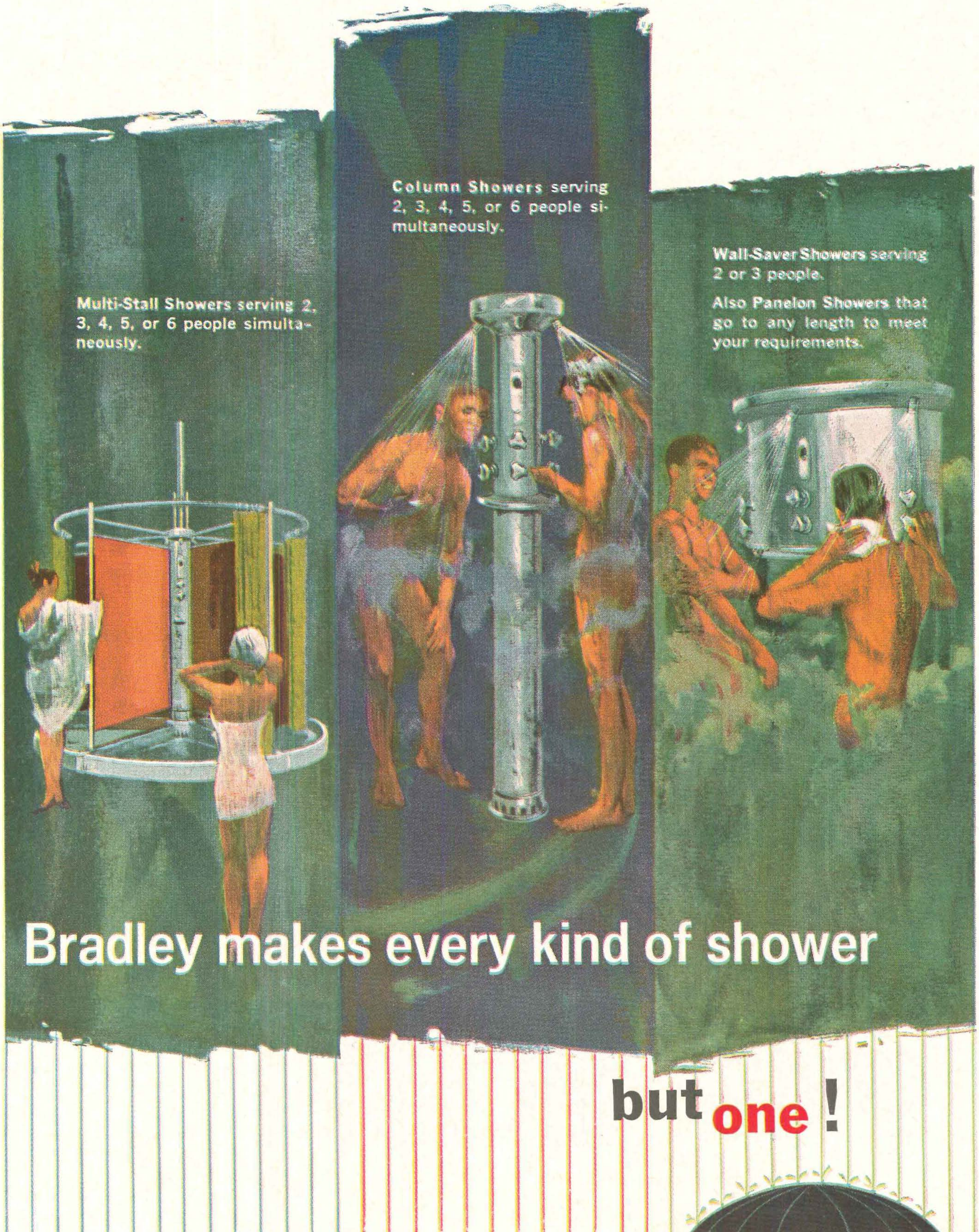


. . . and every shower we make allows you more design freedom, saves floor space . . . showering time . . . maintenance . . . and up to 80% in installation costs! For assistance on specific projects, contact your nearby Bradley representative. Or write direct for colorful Publication No. 6004. Bradley Washfountain Co., 2227 West Michigan Street, Milwaukee 1, Wisconsin.

Bradley

62-121

Required Reading

continued from page 54

ory and its application during the same period, points out some unanswered problems, lists the grants it has made for research, and lists the publications it now makes available to the public.

Modern Man

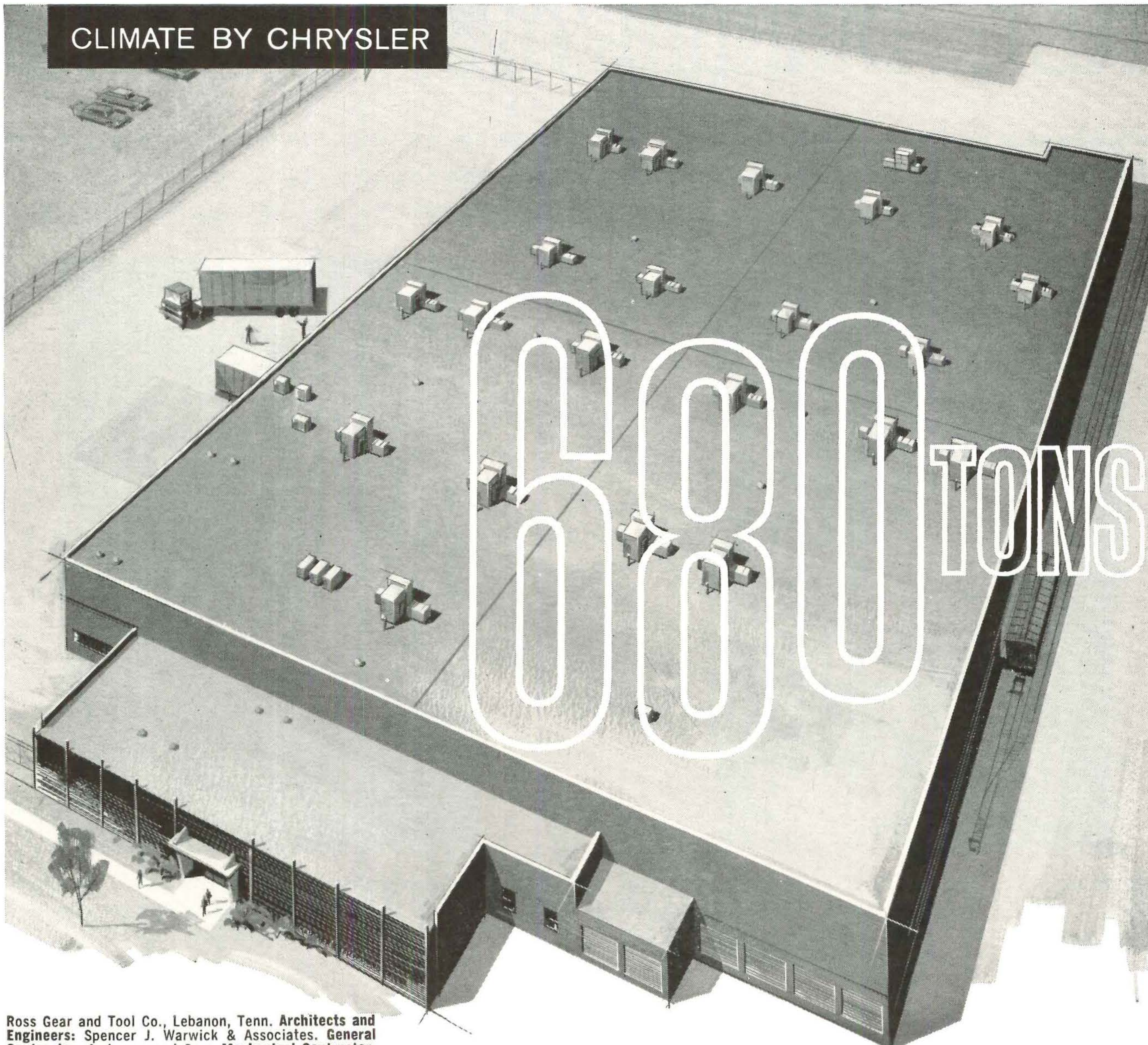
ANONYMOUS (20TH CENTURY). *By Leonardo Ricci. George Braziller, Inc., 215 Park Ave. South, New York 3. 254 pp. $5.*

Mr. Ricci, the Italian architect and painter, is not writing primarily about architecture, although fully half his book is devoted to architecture and town planning. He is, rather, concerned with the condition of man in the confused and confusing 20th century.

Anonymous (20th Century) is Mr. Ricci's designation of a man—so far ideal, but, he feels, certain to appear—who will have personality but not ego, self-respect but not conceit, and who will relate omnidirectionally and with equal intensity to all persons and things. In the world of Anonymous (20th Century), everyone and everything will have exactly the same existential importance. This would be an ideal world which Mr. Ricci acknowledges he is so far unable to live in, and a world which may be deferred, after all, to the 21st century.

It is not an impossible world, however, Mr. Ricci feels. We approach it gradually as we solve simple human problems daily. In architecture, the gains will be made as we start to ask, about schools, not how many pupils, but what kind of education; about hospitals, not how many patients, but what kind of care; about recreation, not how many spectators, but what is sport.

Stylistically, Mr. Ricci's writing is rather rough going. He has written "in a language that may have its place somewhere between the spoken and the inner language, not a school or court language, but more intimate and more genuine." It is also more poetical and more prolix. It is also, even for the irritable formalist, worth reading.



Ross Gear and Tool Co., Lebanon, Tenn. **Architects and Engineers:** Spencer J. Warwick & Associates. **General Contractor:** Anderson and Gore. **Mechanical Contractor:** Central Air Conditioning & Heating, Inc.

680 tons of Chrysler Air Conditioning on the roof save 1100 sq. ft. of valuable floor space inside

Sprouting from the roof of this new plant for Ross Gear and Tool Company are 22 Chrysler 30-ton packaged air conditioning units. Together with two Chrysler packaged liquid chillers and four split-system units, they provide the cooling (785 tons of it!) for almost five acres of manufacturing and office space.

By putting 680 tons of Chrysler Air Conditioning *on* the roof, instead of *under* it, the company freed 1100 sq. ft. of valuable floor space for other jobs. And by installing these units zone-by-zone during construction, the company saved money by starting operations in part of the building while the rest was being completed.

The cooling load is spread over 28 different Chrysler units, ranging from a 4-ton condensing unit to a 45-ton chiller. Thus, varying departmental load requirements can be handled with ease. There is no fixed operating cost, as there would be with a conventional single-unit installation.

Whether your job calls for air-cooled or water-cooled equipment . . . packaged units or chillers . . . you'll find the complete Chrysler line has the exact unit you need. For complete data, or the technical cooperation of a Chrysler Engineer, write today.

CHRYSLER
AIRTEMP

A Division of Chrysler Corporation
Dept. S-42, Dayton 4, Ohio


earns
room
on
your
board
Remco
HOSPITAL CASEWORK MANUAL NO. 620
Remco
STAINLESS STEEL AND ENAMELED STEEL
RELIANCE
hospital casework
DESIGN MANUAL NO. 620
REMCO, 101 NEW LAREDO HIGHWAY, SAN ANTONIO 11, TEXAS
. . . BECAUSE THIS NEW HOSPITAL CASEWORK MANUAL WAS EDITED BY ARCHITECTS TO WORK FOR YOU. MORE LEAN FACTS ON LESS PAGES SENSIBLY ARRANGED FOR QUICK REFERENCE, MAKING IT EASY TO SHOW AND SPECIFY QUALITY CASEWORK. SAVES YOU TIME WITH LAYOUTS — SAVES YOU MONEY — EARNS ITS ROOM AND BOARD.
YOUR COPY WILL BE MAILED TO YOU ON REQUEST.
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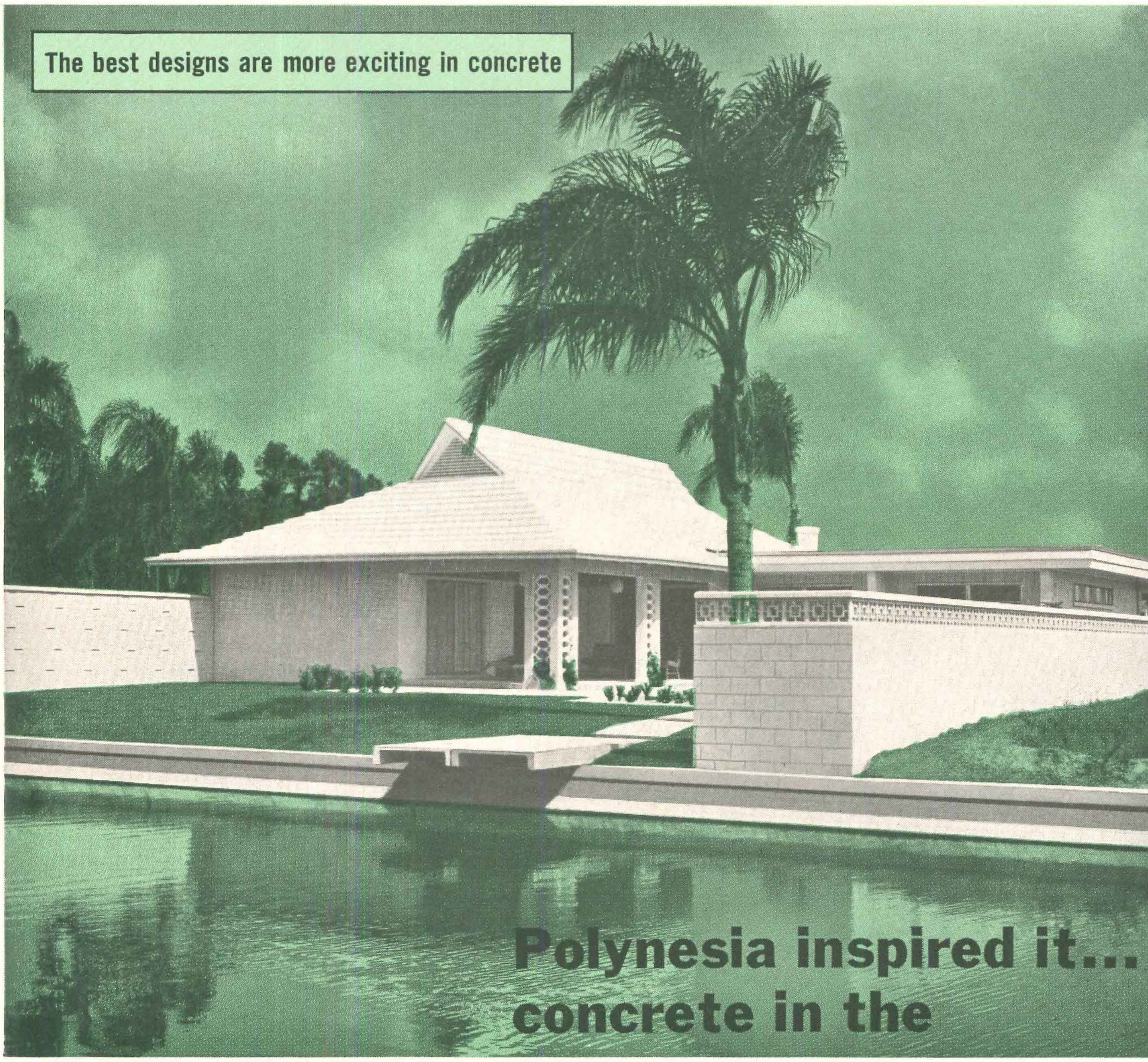
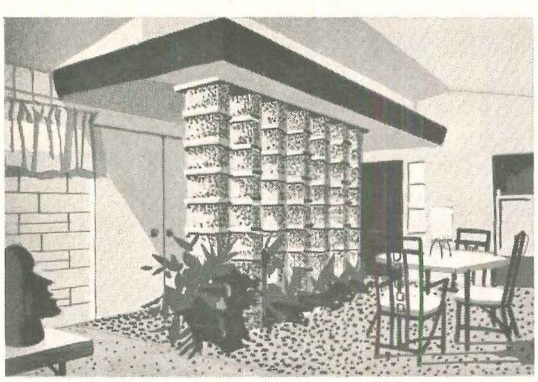
101 NEW LAREDO HIGHWAY • SAN ANTONIO 11 • TEXAS



Outstanding home design from the 1961 Concrete Industries Horizon Homes Program. Architect: John B. Langley, A.I.A., Winter Park, Florida.

Polynesia inspired it... concrete in the newest forms made it possible



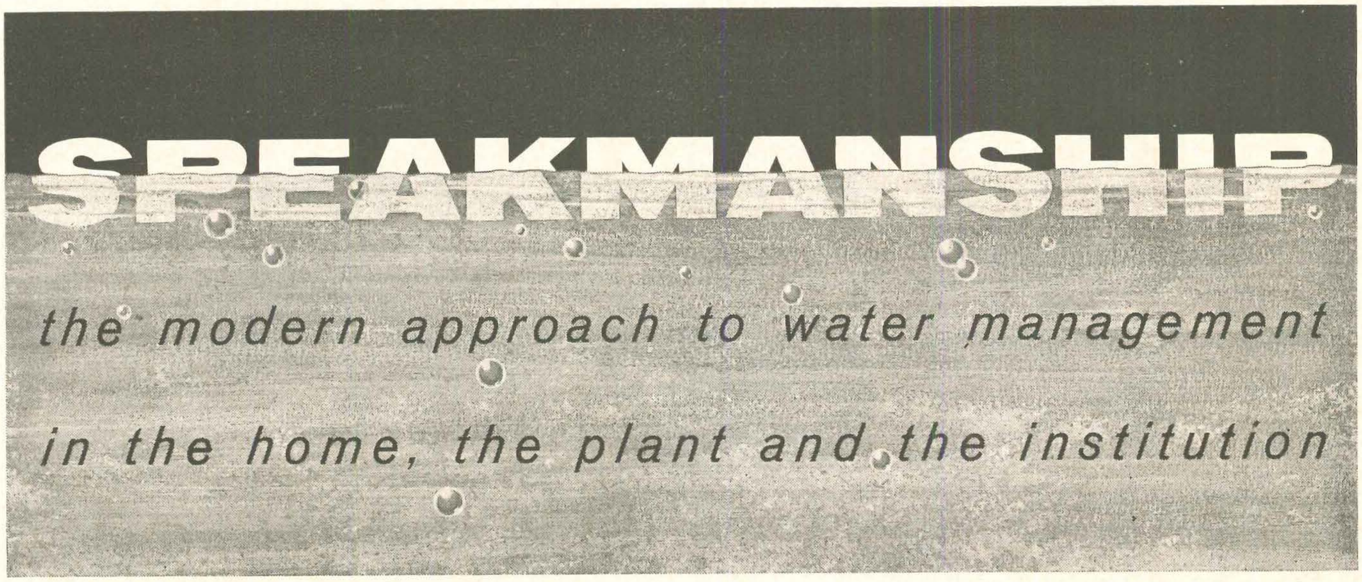
Floors are gleaming terrazzo. This masonry divider is laid in a distinctive pattern and painted in two tones. Here is a gracious, easy-to-care-for interior.

The warmth and livability of modern concrete is well demonstrated in this home in Orlando, Florida.

Its imaginative design has caught much of the form and spirit of South Seas architecture. Notice the distinctive roof, covered with concrete shingles. See how ingeniously the traditional symbols of the "Sign of the Turtle" and "Cloud of the North Wind" have been fashioned in concrete masonry and incorporated into the walls and pillars.

With unlimited shapes, colors and textures to choose from, concrete readily accommodates the newest concepts for modern living and provides opportunity for distinctive home design. *Plan to enter the 1962 Horizon Homes Program.*

PORTLAND CEMENT ASSOCIATION *A national organization to improve and extend the uses of concrete*



. . . and what it means to you

SPEAKMANSHIP is more than a new word coined by the Speakman Company. It is an approach that considers water in an entirely new light: as a natural resource to be **managed** like any other basic commodity. This new way of looking at water brings many benefits to architects and specifying engineers. It opens newer, more effective and more economical ways for you to **make water work** for your clients. Here are some examples:

SPECIFYING ASSISTANCE . . . Every Speakman representative is well qualified to assist you in writing plumbing specifications. This means your Speakman representative can help you select plumbing equipment for your entire project. He can furnish up-to-the-minute data on all types of fittings and fixtures. And he can suggest many proven ways you can control water more effectively and less expensively for your clients.

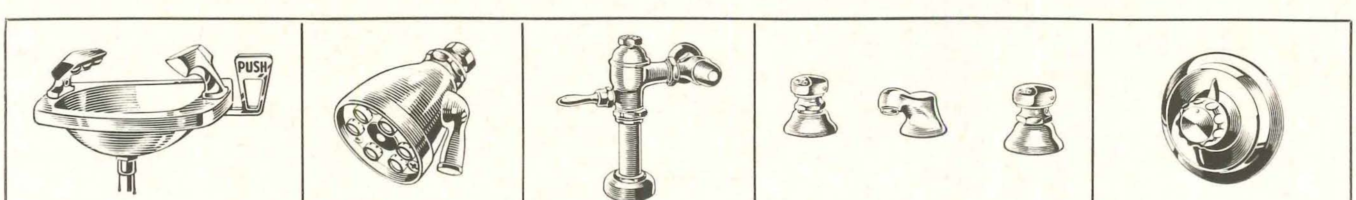
NEW PRODUCTS . . . In 1962 Speakman with you and your clients in mind will introduce several new products and product lines that are the result of our constant research and development for the future. For institutions, there's a totally new space saving concept in group showering systems. For plants and laboratories, remarkable new Safe-T-Zone fixtures that use water to save lives and prevent injuries. For homes and apartments, there will be new fittings that make water safer, easier and more enjoyable to use than ever before.

SHOWERS AND FITTINGS FOR EVERY SPECIFICATION . . . The Speakman line of showers and plumbing fittings, already the most comprehensive in the industry, will be even larger in 1962. You can write Speakman quality into every specification. Speakman showers and fittings are available in matched sets to fit all types of vitreous china, enameled iron or formed metal ware. Through services and products like these, Speakman puts SPEAKMANSHIP to work for everyone concerned with the selection, cost and performance of plumbing equipment. Today—more than ever—it will pay you to keep your eye on Speakman . . . the home of SPEAKMANSHIP.

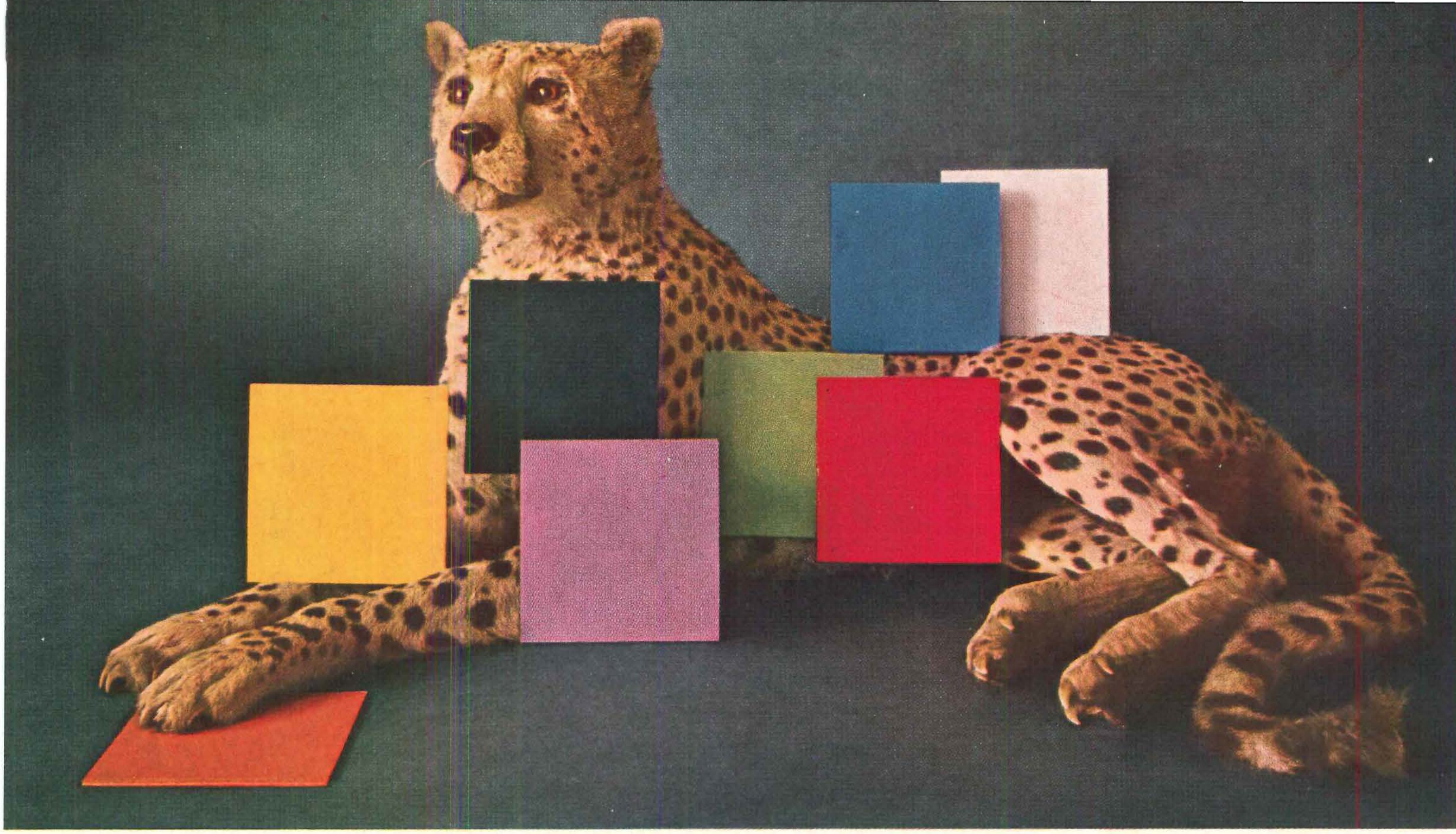
SPEAKMAN® COMPANY

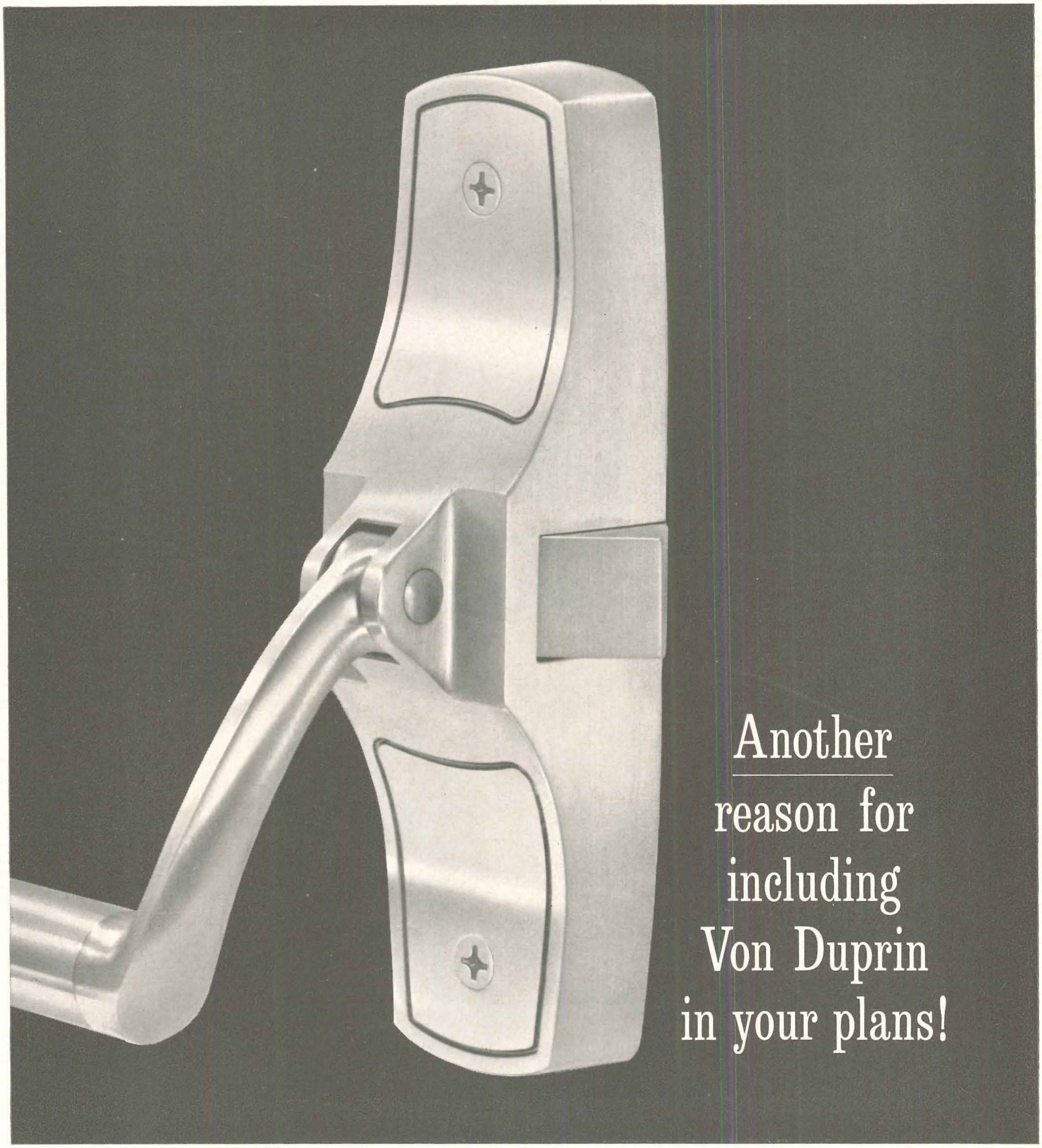
In Canada write Cuthbert-Speakman, Montreal 3, Canada WILMINGTON 99, DELAWARE

Speakman puts **SPEAKMANSHIP** to work for you and your clients in products like these



SAFE-T-ZONE EYE-FACE WASH | ANYSTREAM SHOWER HEAD | SI-FLO FLUSH VALVE | METERING LAVATORY FITTING | SENTINEL SHOWER MIXING VALVE





● As you can see from the new model 77 shown here, Von Duprin leadership in exit hardware covers design as well as engineering . . . and "the safe way out" is also the smart way out. The 77 is available in bronze or chromium finish, plain or with tough vinyl fabrics—in six warm, wonderful colors—applied permanently to cases and/or crossbars. Write for free, full-color Bulletin 611, showing 77 rim, mortise lock and vertical rod devices . . . or for Von Duprin Catalog 59V, showing the full line of exit devices that *look* best and *work* best!

the safe way out

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

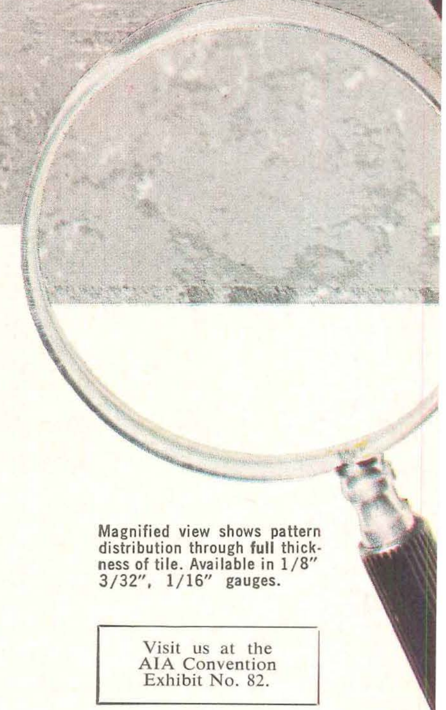
Von Duprin® 77 Exit Devices

Colors: V-421 Antique Lace, V-426 Castilian Gray with black feature strip

Vina-Lux® PREMIERE *Series*

elegant floor beauty that won't "walk off"

. . . because the travertine patterning is distributed through the full thickness of the tile. Premiere Series in Vina-Lux vinyl asbestos tile is a unique combination of subtle styling and rugged resistance to maximum traffic loads . . . delivers so much more value and performance than surface patterns . . . yet costs no more. Specify Vina-Lux Premiere Series, for installation over concrete — above, on or below grade, or over wood or plywood subfloors. Consult Sweet's Catalog — or let us send you samples, color charts and detailed architectural specifications. Azrock Floor Products Division, Uvalde Rock Asphalt Company, 512A Frost Building, San Antonio, Texas.



Magnified view shows pattern distribution through full thickness of tile. Available in 1/8" 3/32", 1/16" gauges.

Visit us at the
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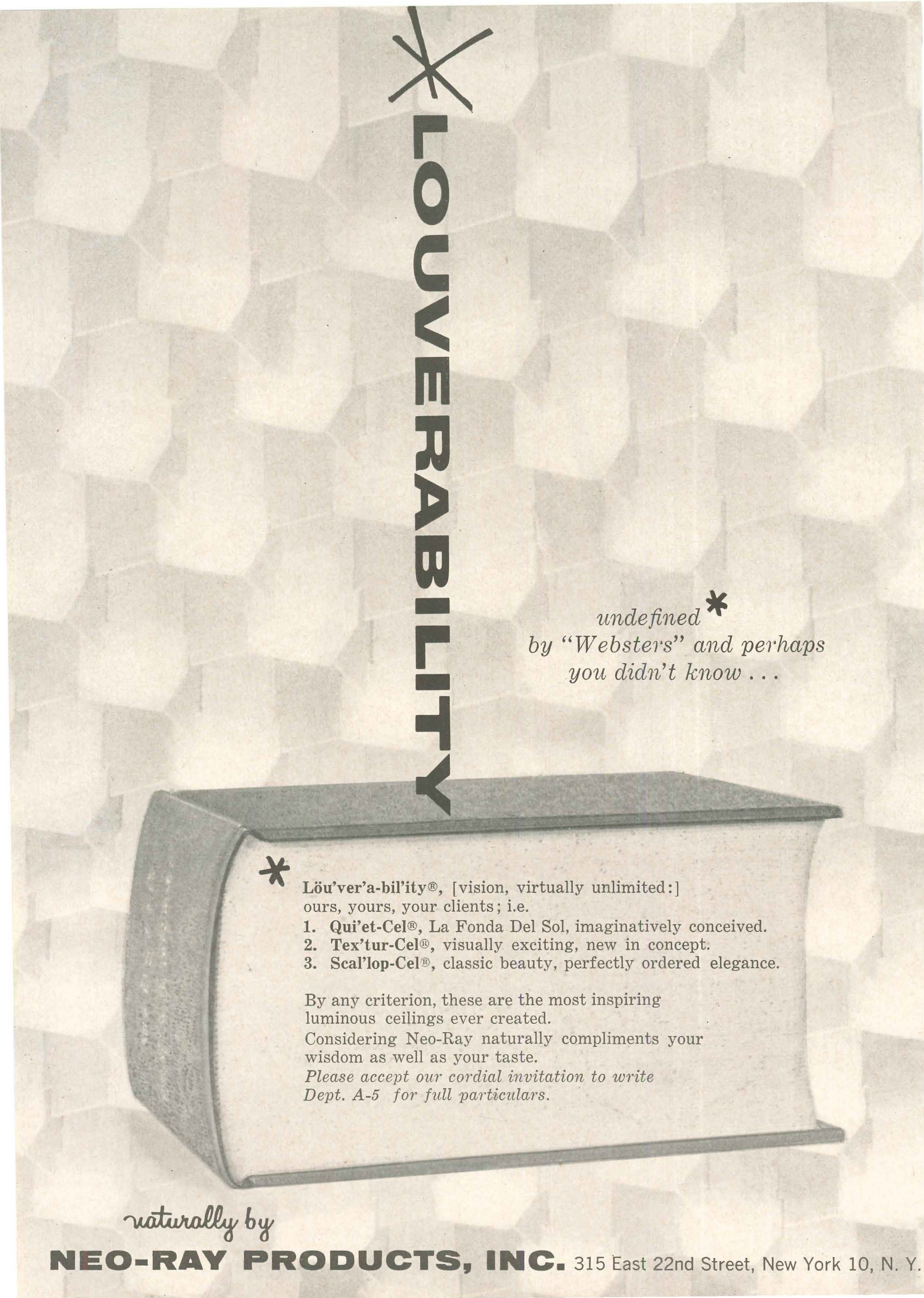
Exhibit No. 82.

another fine floor by **AZROCK**®


LOUVERABILITY
undefined*
by "Websters" and perhaps
you didn't know . . .
* Löu'ver'a-bil'ity®, [vision, virtually unlimited:]
ours, yours, your clients; i.e.
1. Qui'et-Cel®, La Fonda Del Sol, imaginatively conceived.
2. Tex'tur-Cel®, visually exciting, new in concept.
3. Scal'lop-Cel®, classic beauty, perfectly ordered elegance.
By any criterion, these are the most inspiring
luminous ceilings ever created.
Considering Neo-Ray naturally compliments your
wisdom as well as your taste.
Please accept our cordial invitation to write
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NEO-RAY PRODUCTS, INC. 315 East 22nd Street, New York 10, N. Y.

NEW A.S.A. STANDARD PROVIDES FIRST DESIGN GUIDE TO PUBLIC BUILDINGS USABLE BY PHYSICALLY HANDICAPPED

An important step toward making public buildings accessible to the physically handicapped has been taken with the recent approval by the American Standards Association of a new standard, "Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped" (A117.1-1961). Copies are available from the A.S.A. (10 E. 40th St., New York 16, N.Y.) at one dollar per copy.

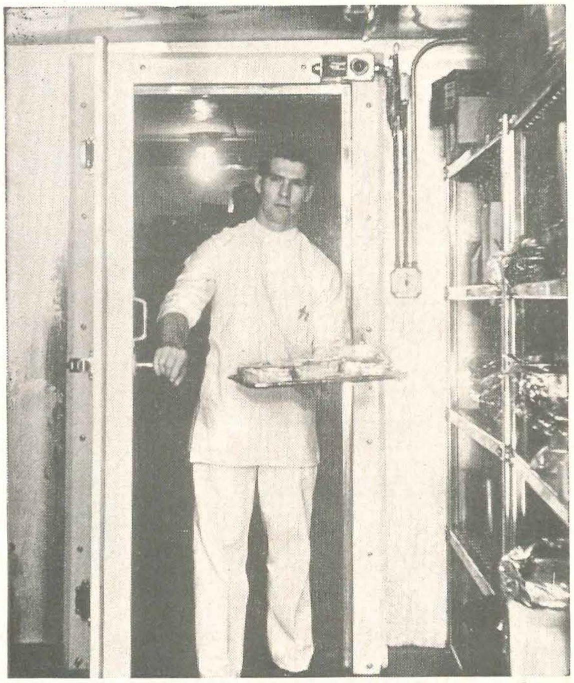
The new standard recommends a number of changes in the design of public buildings which would scarcely be noticed by the general public but which would make such buildings truly accessible, often for the first time, to persons with non-ambulatory disabilities, semi-ambulatory disabilities, sight and hearing disabilities and the disabilities of incoordination and aging.

Functional requirements are given in the kind of technical detail an architect needs for applying them to his particular design problem. They relate particularly to such aspects of the problem as grading, parking, entrances, ramps, stairs, doors, rest rooms, water fountains, telephones, elevators, identification and warning signals.

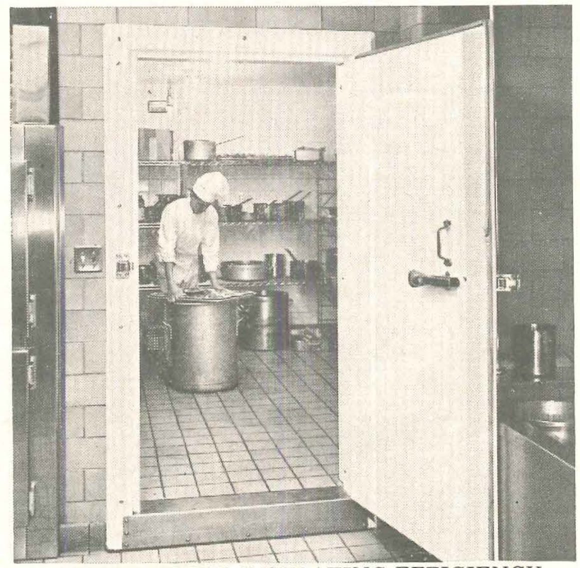
Architect Led Effort

Leon Chatelain Jr., of the Washington, D.C., firm of Chatelain, Gauger and Nolan, a past president of the American Institute of Architects, served as chairman of the "sectional committee" of A.S.A. Project 117, which was sponsored by the National Society for Crippled Children and Adults and the President's Committee on Employment of the Physically Handicapped. Mr. Chatelain represented the Society on the sectional committee, which also included representatives of the American Society of Landscape Architects, the American Hospital Association, the American Hotel Association, the National Council of Churches, the National Council on Schoolhouse Construction, the American Foundation for the Blind, the United Cerebral Palsy Association and many others.

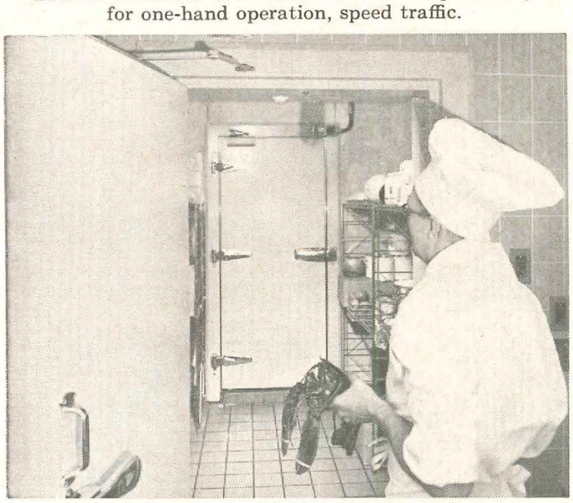
Sponsors of the new standard have pointed out that its effectiveness will largely depend on the use made of it by architects; also on the interest of contractors, state and local and building code officials.



LIGHTWEIGHT JAMOLITE DOORS open easily for one-hand operation, speed traffic.

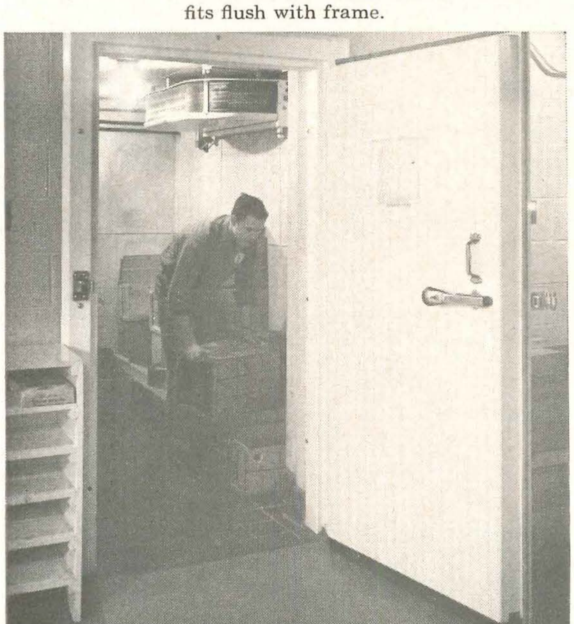


OUTSTANDING INSULATING EFFICIENCY provided by foamed-in-place polyurethane insulation.



MODERN APPEARANCE—smooth door surface fits flush with frame.

COLORFUL STYLING now possible with choice of gleaming white and four other colors



TIGHT CLOSURE—no warping or swelling since Jamolite is impervious to vapor and moisture.

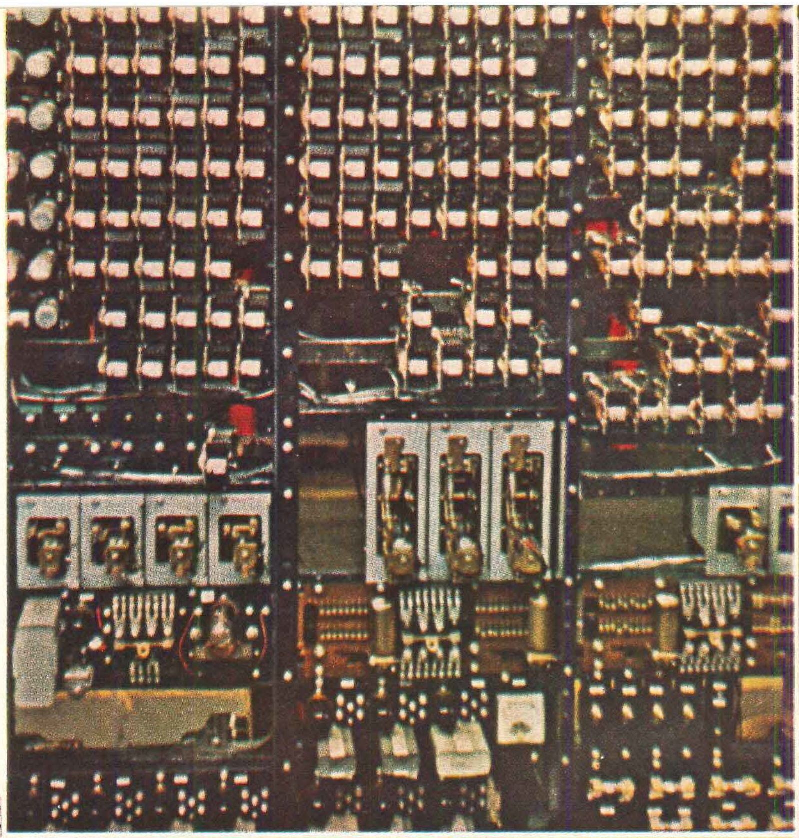
Restaurants everywhere improve service

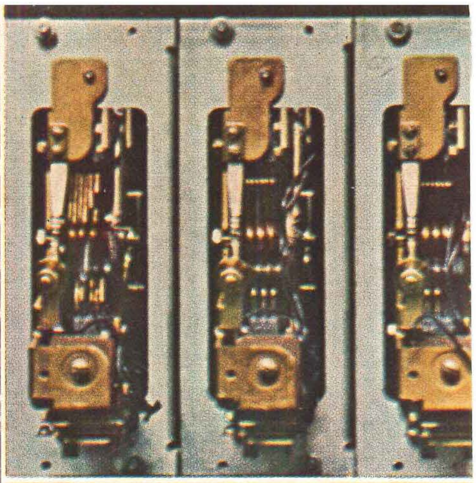
with JAMOLITE® Doors

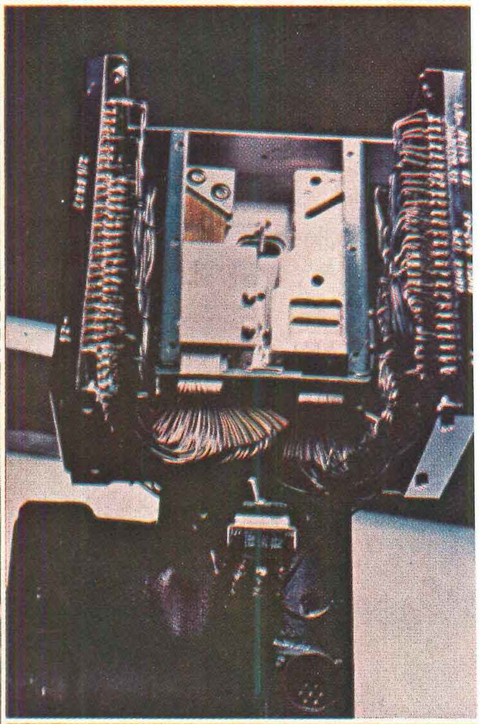
The enthusiastic reception of the JAMOLITE plastic door by restaurants throughout the country is proof of its efficiency and economy in food service installations. Get the interesting facts on this unique cold storage door by writing today to Jamison Cold Storage Door Co., Hagerstown, Md.

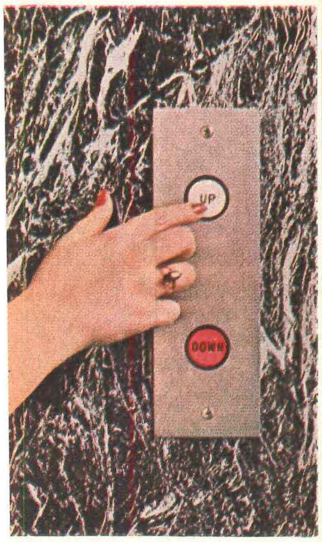
JAMISON

COLD STORAGE DOORS





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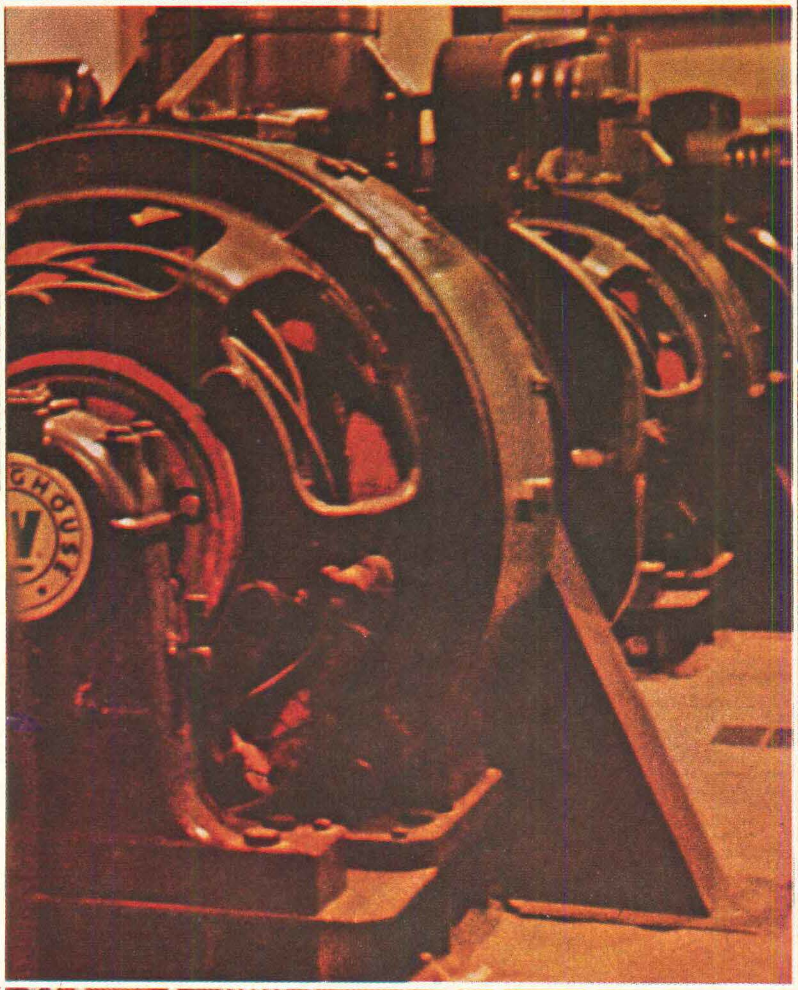
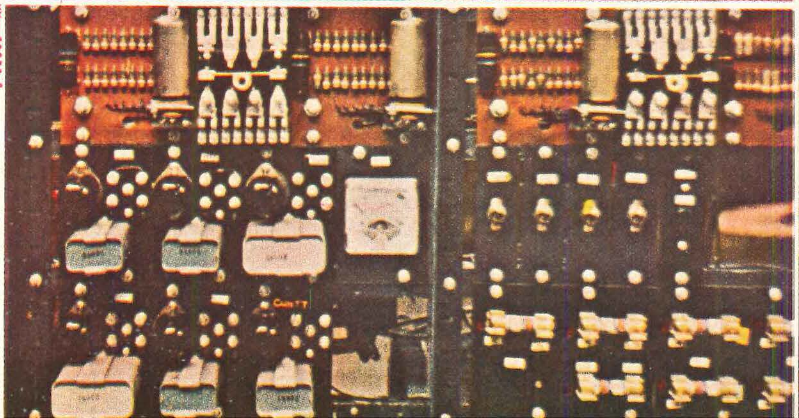
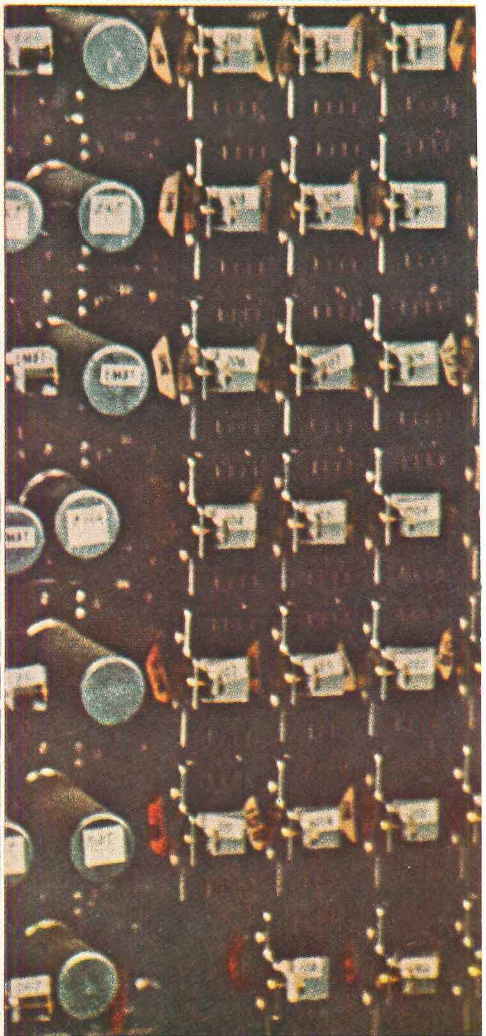
DOWN

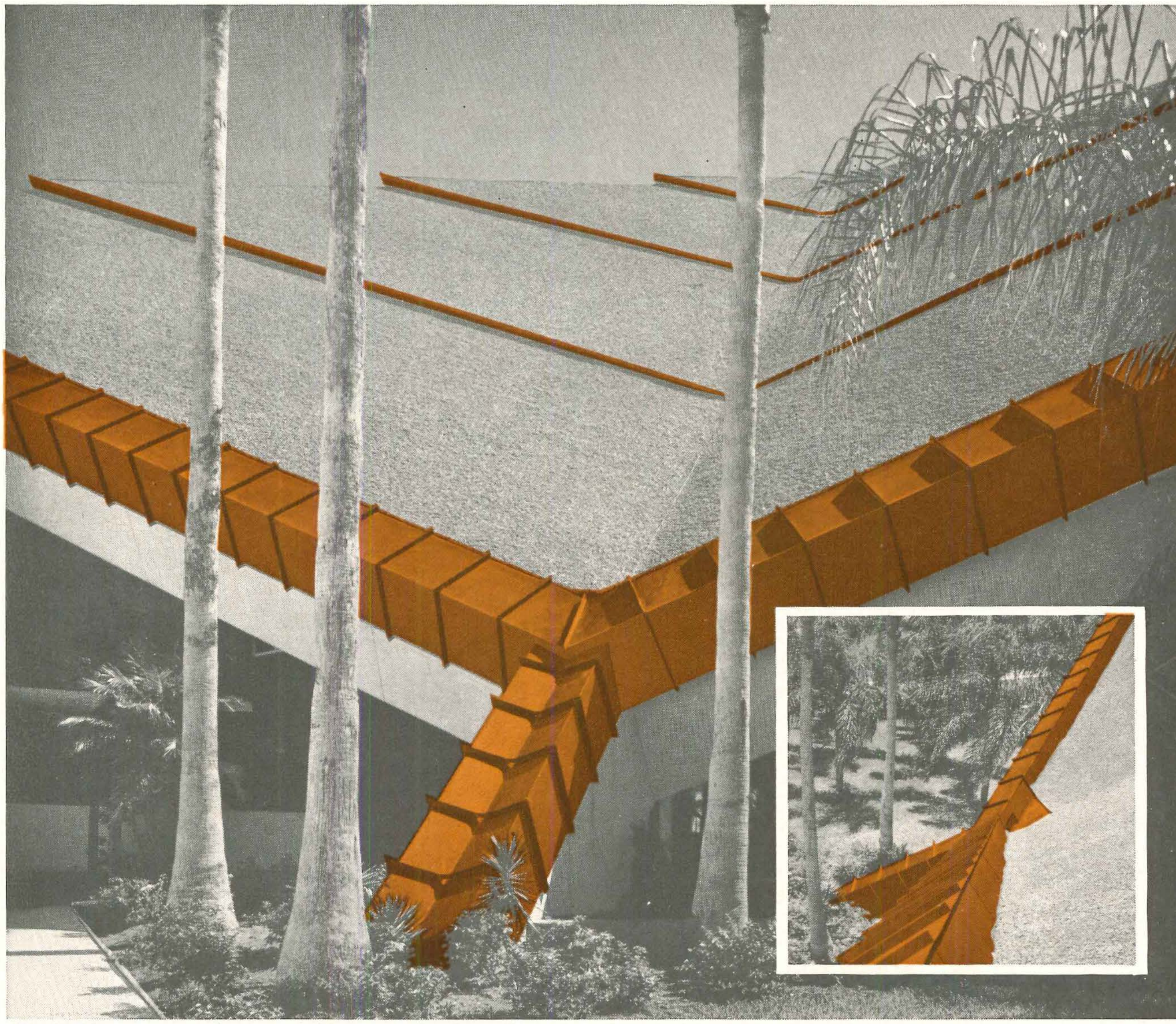




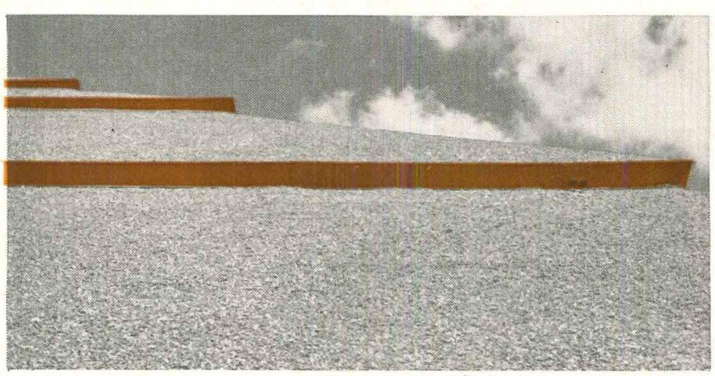


The elements at the left are part of a new generation of elevators... Mark IV by Westinghouse. What makes Mark IV different? A new supervisory control called Selectomatic Mark IV: it answers calls up to 30.6% sooner than the most efficient system before Mark IV. A new landing control called Synchro Glide Mark IV: it measures speed directly from start to stop for the smoothest ride ever. An electronic door control called Traffic Sentinel: it eliminates unnecessary door-open time. You can be sure... if it's Westinghouse.

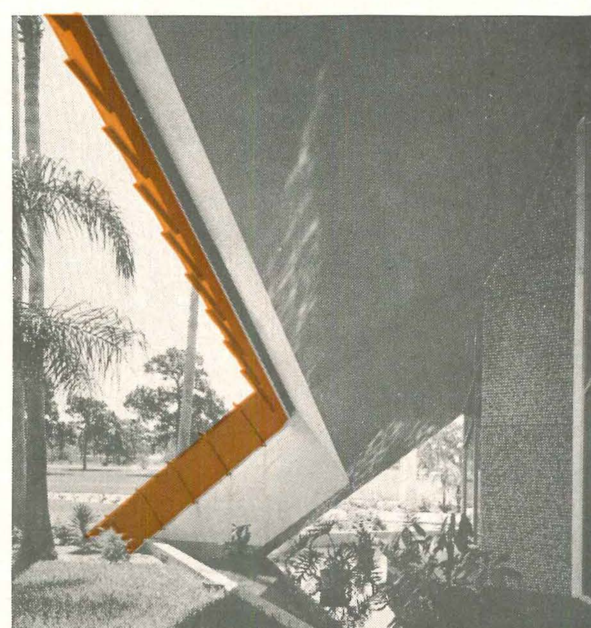
Elevators by Westinghouse



ONE OF THE copper-covered gutters which take care of roof run-off and direct the water into pool (see below). This gutter is a closed trough which is also an extension of the fascia. Note holes in standing seam to take care of water. 12,000 lbs. of Revere 16 oz. Cold Rolled Copper were used on this structure.

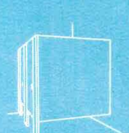


FACE FLASHING of Revere Sheet Copper also acts as gravel stop on stepped-down roof panels. This design permitted contractor to work on roof in sections.

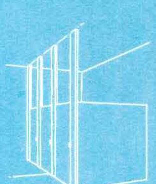


FASCIA was prefabricated in the sheet metal contractor's shop in 4' sections with a 2" standing seam.

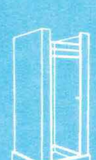
An installation of two Stallpack units with standard urinal screens of matching Ozark Grey Veined marble.



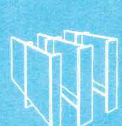
STALLPACK, the packaged marble toilet enclosure



SPACEPACK, the ceiling-hung Stallpack



SHOWERPACK, the complete marble shower cabinet



ECONOPACK, multi-unit marble dressing room and shower

URINAL SCREENS, standard screens in Stallpack marble

Only marble is so durable
Only Stallpack® is so easy to specify

Stallpack gives you the unique durability of solid marble partitions precut to standard size, predrilled ready to assemble, and offered in a package unit complete with door and chrome plated rustproof hardware. These package units are ready to be shipped immediately.

All you do is indicate water closets 2′ 10″ on centers on your drawings, then specify Stallpack. With that one easy specification you give the toilet rooms of your building the lasting beauty and trouble-free durability that cannot be had with any material but marble.

Stallpack marble partitions will not rust or deteriorate. They will never need refurbishing. Washing with mild soap and water is all it takes to keep Stallpack marble partitions in perfect, shining condition. Imagine the savings in upkeep expense over the life of a building!

These remarkable partitions are easy to keep clean because they are solid marble. Flush construction with solid marble leaves no inaccessible hollow places around the base of the stiles to breed germs and retain odors.

Stallpack partitions are made of fine Ozark Grey Veined marble. This lustrous light grey marble blends beautifully with any color scheme, stays beautiful as long as your building stands!

Write today for specifications, detail drawings, and prices. Address Stallpack, Dept. R, Carthage Marble Corp., Box 718, Carthage, Mo.

150 IMPORTED AND DOMESTIC MARBLES KEPT IN STOCK FOR CUSTOM MARBLE SERVICE

CARTHAGE MARBLE CORPORATION

Installation of Sun® Vertikal Blinds at Lambert Field, St. Louis, Mo.

Another example of new design freedom using vertical blinds of Du Pont Tontine® Triglas

What else but vertical blinds could have covered these windows so attractively at Lambert Field airport in St. Louis, Mo.?

Vertical louvers complement the dramatic design of the windows —instead of cluttering it. That's one reason why architects Hellmuth-Obata and Kassabaum chose them. Sun Vertikal Blind Company engineered and manufactured them to precise specifications, using Du Pont Tontine® Triglas washable window shade cloth.

This is just one way that versatile vertical blinds give you new freedom of design...let you shape glass into dramatic new ideas in walls and windows.

They're practical, too. Du Pont Triglas vertical blinds have a fabric base of glass fiber. They're dimensionally stable. No warping, no twisting, no bowing, no curling. They rotate to any position to control light, or can be fully closed to reflect up to 65% of the heat of a bright sun, a special advantage in air-conditioned buildings.

And vertical louvers require less maintenance, because they catch less dust.

Du Pont makes the fabrics only. The mechanisms used in this installation were engineered and manufactured by Sun Vertikal. For sample swatches and information, write: Sun Vertikal Blind Company, 240 Front Street, S. W., Grand Rapids, Michigan or write E. I. du Pont de Nemours & Co. (Inc.), Fabrics Sales, N-2496, Wilmington 98, Delaware. For further information, see Sweet's Catalog $\frac{18d}{Su}$

DU PONT
REG. U. S. PAT OFF

Better Things for Better Living ... *through Chemistry*

SUN VERTIKAL BLIND COMPANY

Total classroom thermal control isn't really complete without a low cost, patented Herman Nelson DRAFT|STOP system!

DURING the winter, cold downdrafts exist along *all* classroom window areas. These drafts endanger student health and comfort. They also cause costly fuel losses. Herman Nelson conquered the cold downdraft problem long ago with DRAFT|STOP—the first draft control system. DRAFT|STOP is a patented system and *costs less than any other draft control system.* DRAFT|STOP is flexible. It captures menacing downdrafts and either discharges them to the outdoors or unit ventilators re-use them as a source of air supply. DRAFT|STOP is the *only* draft control system completely compatible with year-round thermal control. REMINDER: See page 4 of this report for 11 facts you should know about school thermal control.

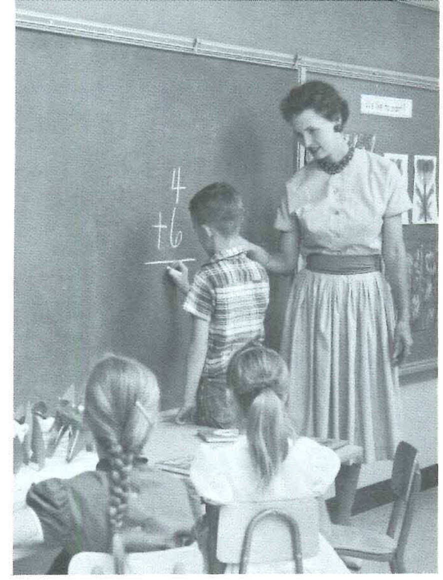
“Air conditioning improve

Don C. Smith, Principal
Del Norte Elementary School
Roswell, New Mexico

Del Norte Elementary School, Roswell, New Mexico. Superintendent of Schools: H. F. Allred. Architect: Frank Standhardt, Roswell, N. M. Consulting Engineer: Dr. Marcello Giomi, P. E., Albuquerque, N. M.

A VALUABLE AID. “I do not consider air conditioning to be a fringe benefit for teachers alone, but as a valuable aid in our total educational process,” says Don C. Smith, Principal, Del Norte Elementary School. “The most important advantage is that the added comfort of students and teachers contributes to their ability to concentrate and learn . . . air conditioned classrooms definitely improve student reaction.”

tudent reaction"...



Herman Nelson unit ventilators provide year-round thermal comfort for windowless New Mexico school

A refreshing year-round thermal environment is maintained inside the unique windowless walls of Roswell, New Mexico's Del Norte Elementary school by a sensitive Herman Nelson unit ventilator system.

These Roswell classrooms are only a few of the more than 10,000 air conditioned classrooms all over the country. Herman Nelson started this trend toward school air conditioning with the HerNel-Cool Unit Ventilator—*the first air conditioning unit ventilator*. HerNel-Cool units combine all the time-tested advantages of unit ventilation with low cost warm-weather refrigeration cooling. For example, when warm-weather temperatures drop to a comfortable level, HerNel-Cool units can use "free" outdoor air to control the thermal environment. This costs only about 1/30 as much as operating refrigeration equipment.

Take advantage of Herman Nelson experience, quality, and economy when planning your next new school project. For free copy of the Herman Nelson Fact Kit on school air conditioning, write: School Air Systems Division, American Air Filter Company, Inc., 215 Central Ave., Louisville 8, Ky.

Herman Nelson
SCHOOL AIR SYSTEMS DIVISION
AAF

BETTER LEARNING ENVIRONMENT. "The air conditioned school . . . gives administrators, teachers, students, and the community, in general, a better learning environment at a first cost and operating costs smaller than a conventional school." States Consulting Engineer Dr. Marcello Giomi, Albuquerque, N. M.

INDIVIDUAL ROOM CONTROL. Accurate, responsive individual room thermal control is maintained by flexible Herman Nelson ceiling-mounted unit ventilators. Here Roswell School Board Chairman Grady Southworth (left) and Superintendent of Schools H. F. Allred are shown outside the windowless Del Norte school—one of three air conditioned schools in their progressive school district.

Now—701 schools with Herman Nelson "now or later" air conditioning

Your new school's thermal system should provide as many of these important benefits as possible

HERMAN NELSON UNIT VENTILATORS OFFER THEM ALL —AT A COST YOU CAN AFFORD

It's a fact that cooling, *not heating,* is a school's main thermal problem. Extreme overheating is caused by excess heat from students, artificial lighting, and the sun. As a result, school thermal problems are unlike those of any other building. Here are 11 benefits you *need* in a school heating, ventilating, and air conditioning system:

1. **INDIVIDUAL ROOM THERMAL CONTROL**—Classroom thermal requirements change as education activity varies. Each classroom needs individual thermal "attention" to keep temperatures comfortable at all times. Only a unit ventilator system—such as Herman Nelson offers—can *economically* provide this room-by-room flexibility.

2. **VENTILATION COOLING** — Occupied classrooms can overheat when outdoor temperatures are as low as 8°F. They often need up to 100% outdoor air for cooling. Herman Nelson Unit Ventilators meet this requirement completely and economically.

3. **GOOD AIR DISTRIBUTION**—Herman Nelson Unit Ventilators adjust to required classroom temperatures in a matter of seconds. Fresh, new air is diffused to all areas of a classroom in less than 60 seconds.

4. **VENTILATION FOR AIR FRESHNESS AND ODOR CONTROL**—Unit ventilators provide controlled mechanical ventilation using varying mixtures of recirculated room air and outdoor air for maximum air freshness all the time a classroom is occupied. Again, only unit ventilation can meet this need, accurately, on a room-by-room basis.

5. **RAPID MORNING WARM-UP** — Substantial fuel savings can be realized by controlling temperatures at a reduced level during the long periods when schools are unoccupied. Herman Nelson Unit Ventilators respond rapidly to needs for heat. The result: shorter morning warm-up time, greater fuel savings

6. **COLD WINDOW DOWNDRAFT CONTROL** —Every classroom needs an efficient system for controlling cold window downdrafts. The patented Herman Nelson DRAFT|STOP system is the lowest cost, simplest, easiest to install, and the *only* draft control system completely compatible with year-round thermal control.

7. **QUICK RESPONSE TO TEMPERATURE CHANGES**—Complete changes in the level of classroom occupancy, artificial lighting, and exposure to the sun can take place in a matter of seconds. A school thermal system *must* be designed to adjust to these changes instantly. Remote and central systems cannot meet this need economically.

8. **QUIET OPERATION**—Herman Nelson Unit Ventilators solve classroom thermal problems quietly. A new flared fan housing design together with a one-piece, extruded aluminum discharge grille and "modular" fan construction make these units 50% quieter.

9. **AIR FILTRATION**—Any system which filters only primary air and recirculates unfiltered room air could endanger student health. Herman Nelson's single filter system efficiently cleans *both* primary and recirculated air. These filters can be quickly and easily serviced by any school custodian.

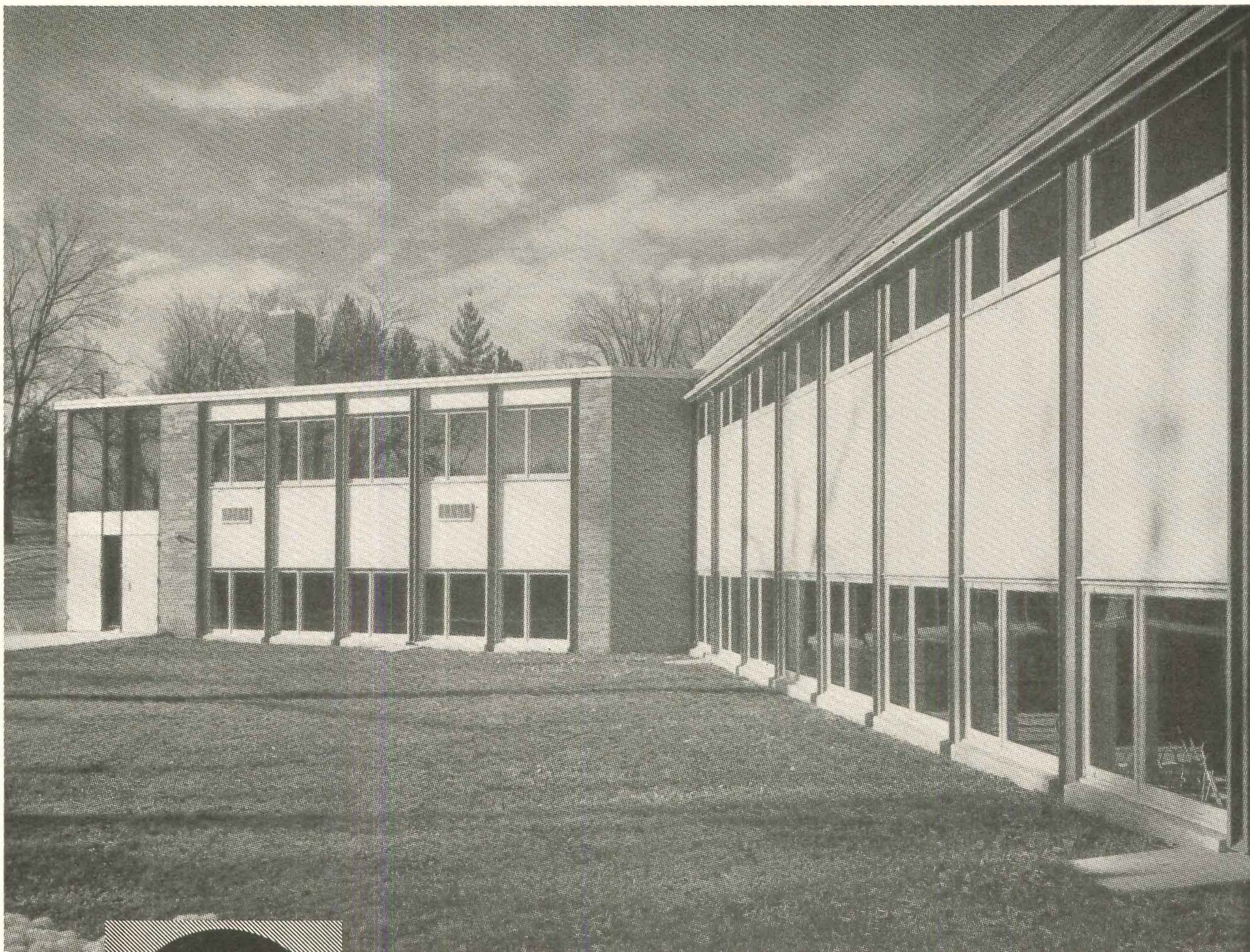
10. **FLEXIBILITY FOR BUILDING ADDITIONS**—School expansion can be conveniently anticipated with a Herman Nelson Unit Ventilator system by merely sizing piping mains and boiler room equipment to handle the future plans. Many systems require an entirely new equipment room with each expansion.

11. **LOW-COST OPERATION** — Herman Nelson motors have *lowest* operating current of any unit ventilator. Save hundreds of dollars yearly in electric bills. Exclusive back draft damper gives up to 50% fuel savings. Result: substantially lower operating costs.

FOLLOW THE LEADER IN SCHOOL THERMAL SYSTEMS

Herman Nelson AAF
SCHOOL AIR SYSTEMS DIVISION

American Air Filter Company, Inc., 215 Central Ave. Louisville, Ky.



ARCHITECT: MATSON & WEGLEITNER • GEN'L. CONT'R: HENRY O. MIKKELSON

Pella®

WOOD CASEMENT WINDOWS

PELLA ALSO MAKES QUALITY WOOD FOLDING DOORS AND PARTITIONS, WOOD SLIDING GLASS DOORS, WOOD MULTI-PURPOSE WINDOWS AND ROLSCREENS

Specify without wood bucks for economy and appearance

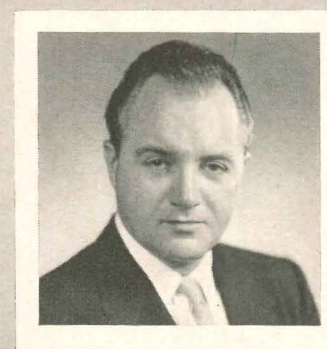
PELLA offers the *only* wood window with specific design features for installation in masonry and other openings *without wood bucks, brick mould or exterior trim.* This method saves both labor and material. And, the clean lines and pleasing appearance blend well with any type construction, too. Wood frames coupled with stainless steel, spring-type weatherstripping increase the efficiency of heating and air conditioning systems. PELLA CASEMENTS save on maintenance labor and storage space with their self-storing storms and ROLSCREEN . . . the original "instant screen" that rolls down in the spring, up in the fall. Available in 18 ventilating units up to 24" x 68" glass size and 48 fixed sizes. See the Yellow Pages and phone the nearest PELLA distributor for details on "no buck" installation. See SWEET's for other installation details.

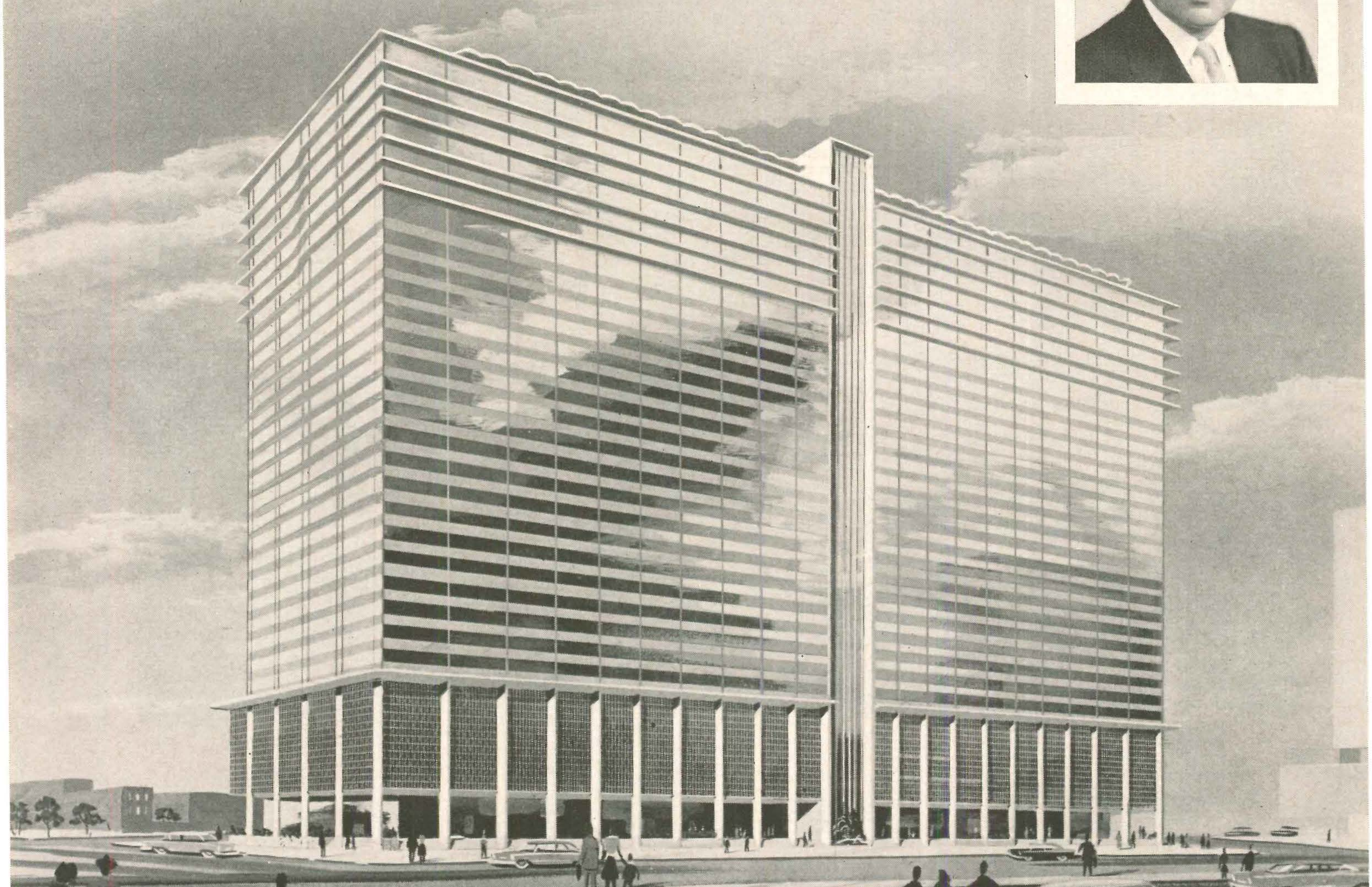
1 *of a series*

ROLSCREEN COMPANY • PELLA, IOWA

"We selected Haughton Elevators for the new Penn Towers . . . to provide speed with comfort"

. . . says Mr. Sylvester J. Lowery, President, Penn Towers, Inc.



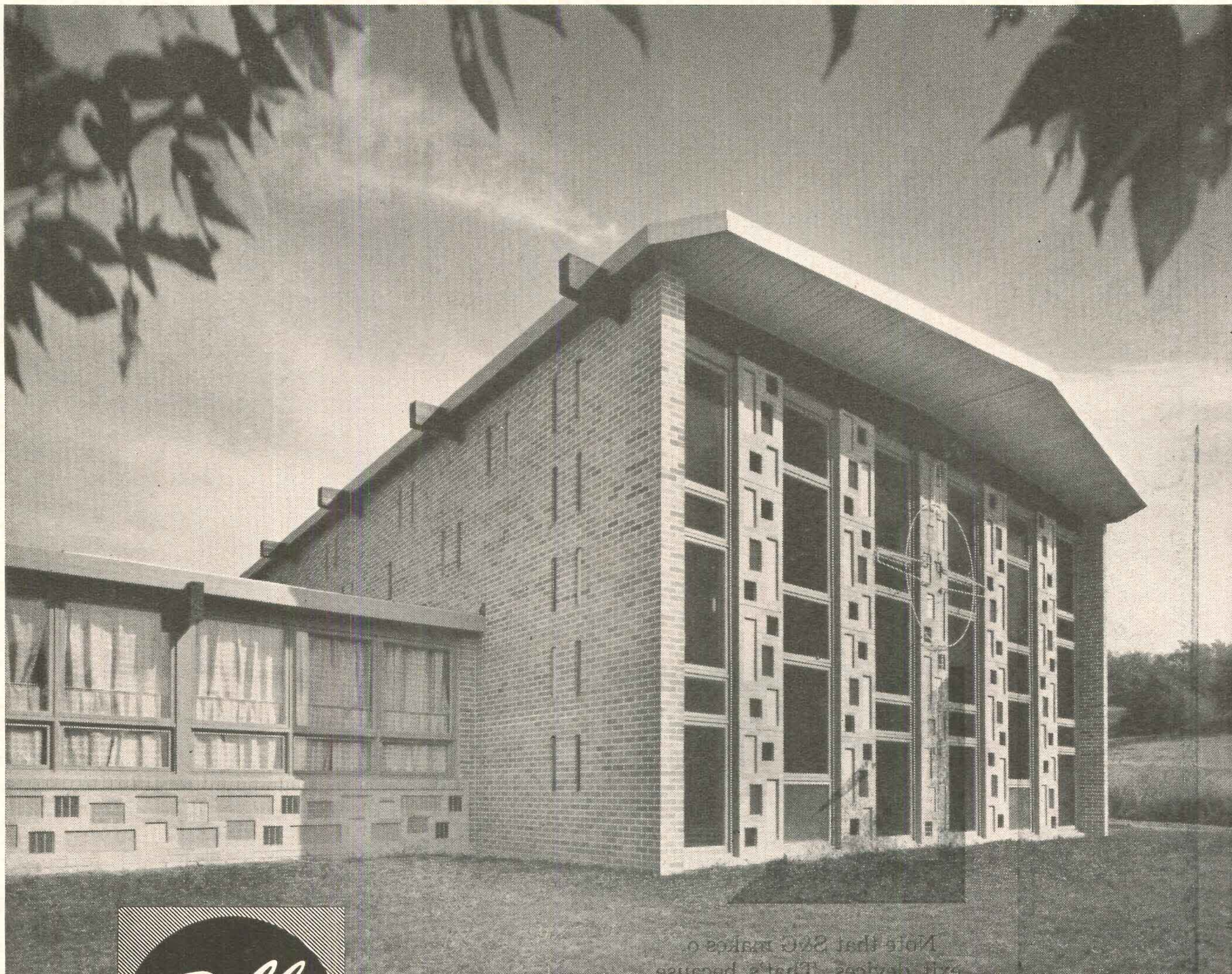


Penn Towers, Philadelphia, Pa., Samuel J. Oshiver Associates, Architects and Engineers, Gilbane Building Company, General Contractors

Combining the features of a luxurious apartment hotel and modern office building, the new Penn Towers in Philadelphia will have the most advanced system of electronically-controlled elevators, keyed to the age of automation. ■ Eight Haughton Operatorless Elevators will transport passengers with uncanny speed and comfort along the glass-enclosed vertical highways that bisect the front of this striking new building. ■ An automatic electronic computer will constantly receive and analyze data pertaining to amount and character of traffic, and make adjustments to match traffic needs exactly. ■ Such is the magic of Haughton Elevonics* . . . key to new standards in elevator performance. ■ Incorporate the advantages of Haughton Elevators in your plans. ■ Contact your Haughton sales office (listed in the yellow pages), see Sweet's File 24a/Ha, or write: Haughton Elevator Company, Div. of Toledo Scale Corporation, Toledo 9, Ohio. ■ Passenger and Freight Elevators, Escalators, Dumbwaiters.

EMBLEM OF EXCELLENCE IN VERTICAL TRANSPORTATION

** Haughton's advanced program in systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Registered in U. S. Patent Office.*



ARCHITECT: HOWARD J. STRONG — BUILDER: KARL OTTE CONSTRUCTION COMPANY

Pella®

WOOD

MULTI-PURPOSE AND TWINLITE® WINDOWS

PELLA ALSO MAKES QUALITY WOOD CASEMENT WINDOWS, WOOD FOLDING DOORS AND PARTITIONS, WOOD SLIDING GLASS DOORS AND ROLSCREENS

Design freedom is yours with stock size M-P window units

With 20 ventilating and fixed sizes, PELLA WOOD MULTI-PURPOSE WINDOWS provide hundreds of design possibilities. Use them as awning, hopper, casement or stationary units. Then top them off with PELLA trapezoidal units. Self-storing screens and storms plus stainless steel weather stripping contribute to the year-round efficiency of heating and air-conditioning systems. Exclusive PELLA GLIDE-LOCK® underscreen sash operator locks in 10 positions or roto sash operator may be specified. Full information and specifications in SWEET's or call your PELLA Representative listed in the Yellow Pages. Distributors throughout Canada.

2 *of a series*

ROLSCREEN COMPANY • PELLA, IOWA

FEWER ENGINEERS? ENROLLMENT DIP SEEN AS PERILOUS

Fewer college freshmen enrolled in engineering last fall than two years ago and the proportion of college students majoring in engineering has gone down for the third year in a row.

Announcing the results of the latest engineering survey of the U.S. Office of Education, Secretary of Health, Education and Welfare Abraham Ribicoff saw "further evidence that the balance of brainpower may tip—and tip dangerously—against us if the nation does not soon awake to the importance of education to the freedom of the Western world."

Graduate Ranks Up

Engineering rolls increased only at the graduate level, the new survey indicated. Major results were outlined as follows:

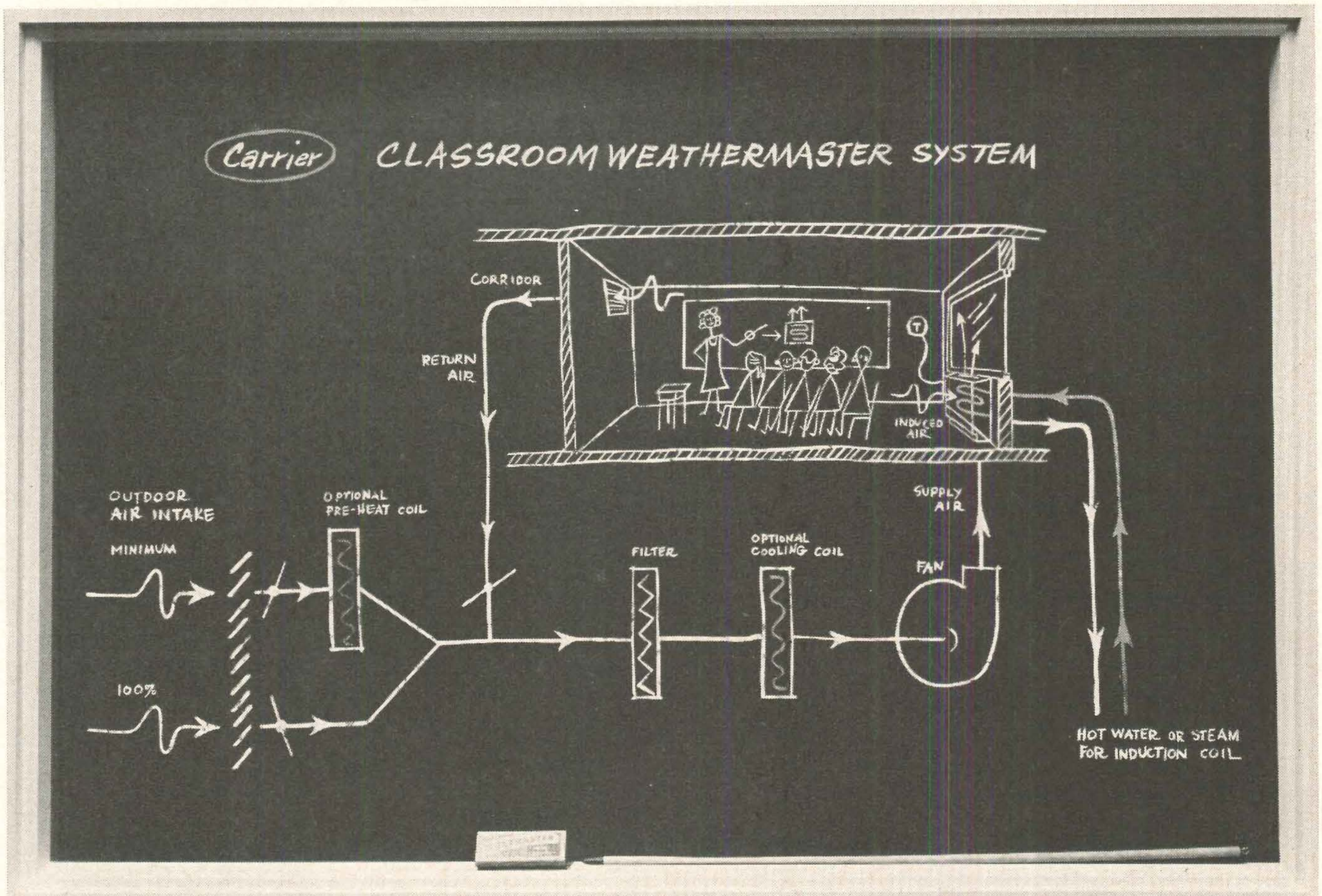
1. Freshman engineering enrollments last fall totaled just under 67,600—almost exactly the number enrolled in the fall of 1960 and 100 fewer than the number enrolled in the fall of 1959.

2. The percentage of freshmen enrolled in engineering has steadily declined—from 8.2 per cent of total enrollment in 1959 to 7.3 per cent in 1960 to 6.6 per cent last fall.

3. The proportion of all undergraduates majoring in engineering has also gone down—from 7.1 per cent of total enrollment in the fall of 1959 to 6.5 per cent in the fall of 1960 to six per cent in the fall of 1961.

4. The number of bachelor's degrees in engineering has declined for the third straight year—from 38,100 in 1958-59 to 37,800 in 1959-60 to 35,900 in 1960-61.

5. Only in graduate engineering has there been any improvement: enrollments for master's degrees in engineering rose to 32,800 last fall, five per cent higher than the 31,200 enrolled in the fall of 1960; master's degrees conferred rose 13 per cent. Enrollments for the doctorate increased 23 per cent, from 6400 to 7900; and doctor's degrees conferred rose 20 per cent.



This extremely simple induction system assures ideal control of school climate

High occupancy, intense lighting and big glass areas pose no problems for Carrier Classroom Weathermaster Units

The typical American school of conventional design is the only common building type that combines high occupancy with intense lighting and a large expanse of exterior glass. As a result, the classroom temperature control problem is essentially a cooling problem, regardless of season or geographic location. And the ventilation problem is fundamentally one of odor control.

A first-class school climate control system must assure a good solution to these two major problems. It must also provide heat when and where needed, optimum air motion and distribution, effective air cleaning, low system noise, simplicity of operation and maintenance, and uncomplicated automatic control in the individual rooms. All this must be accomplished at attractive first cost and reasonable operating cost.

One system that completely fulfills all these stringent requirements is called the single duct, constant volume system with induced heat at the room terminals. This system has been successfully applied since 1930 to office buildings, hospitals, universities and such well-known government structures as the U. S. Supreme Court and The Pentagon. Recently, leading architects and engineers have been specifying it for schools.

Carrier Classroom Weathermaster* Units are designed specifically for use with this kind of system. Complete details on this unit and the system it serves are available in Carrier Bulletin 36BA86. Write for it today. Carrier Air Conditioning Company, Syracuse 1, New York.

*Reg. U.S. Pat. Off.

Carrier Air Conditioning Company

DEL RIO HIGH SCHOOL • ARCH.: HESSON & MAY • BUILDER: W. D. FERGUSON AND SONS

Pella®

WOOD FOLDING PARTITIONS

PELLA ALSO MAKES QUALITY
WOOD FOLDING DOORS
WOOD SLIDING GLASS DOORS
WOOD CASEMENT AND MULTI-PURPOSE
WINDOWS AND ROLSCREENS

Provide flexibility of space with fold-back walls of wood

Panel dimensions of 10⅜" x 1¹⁄₁₆" provide the massive appearance compatible with schools, churches, restaurants, clubs and offices. You can specify PELLA WOOD FOLDING PARTITIONS from these 6 genuine wood veneers: OAK, PINE, BIRCH, WHITE ASH, PHILIPPINE MAHOGANY or AMERICAN WALNUT. Ask us to do the finishing at the factory or have it done on the job. Patented "live-action" steel spring hinging assures years of smooth, easy operation. Stable wood core panel construction prevents warping. Available for all widths and in heights up to 20'1". Full specifications in SWEET's or call your PELLA distributor listed in the Yellow Pages.

4 *of a series*

ROLSCREEN COMPANY • PELLA, IOWA

NEW LITECONTROL TROFFERS SELECTED FOR BOLD NEW LIBRARY...

Improve Reading Comfort, Make Maintenance Easy!

While the bold shape of the new University of Vermont Library appeals to visitors from without, its interior design utilizes seventeen hundred Litecontrol troffers to make reading pleasurable for students within.

The new Litecontrol Troffers Series 9300-9500 was chosen because it makes study easy on the eyes and it assures simple maintenance for years to come. Features include:

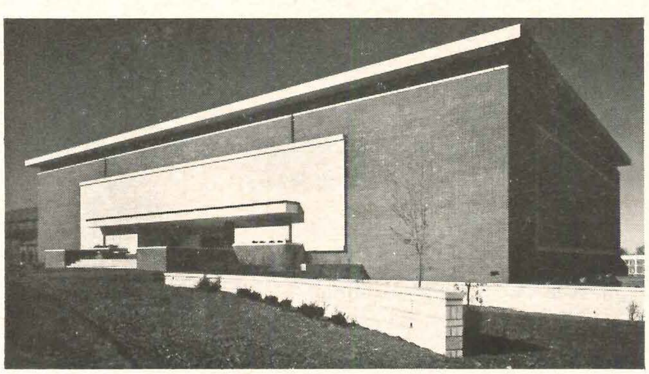
Refined Design: This unique structure continues its quest for pleasant design from within using slim, shallow Litecontrol troffers to blend unobtrusively into the ceiling. Troffers are die formed, welded and rust resistant.

No Glare: Corning #70 prismatic glass panels provide efficient use of the lamp's output while eliminating harmful glare.

Easily Installed: The shallow — $4^{15}/_{16}''$ housing — of Litecontrol troffers, plus handy adjustable mounting brackets make installation a snap.

Easily Serviced: Special Lite-Tite doors eliminate catches and exposed hinges. A quick and easy lift-out-and-slide movement opens them. They can be removed completely without extra effort.

Whether your lighting needs include libraries or banks, department stores or schools, churches or offices, consider new Litecontrol Troffers. Specification sheets on request.



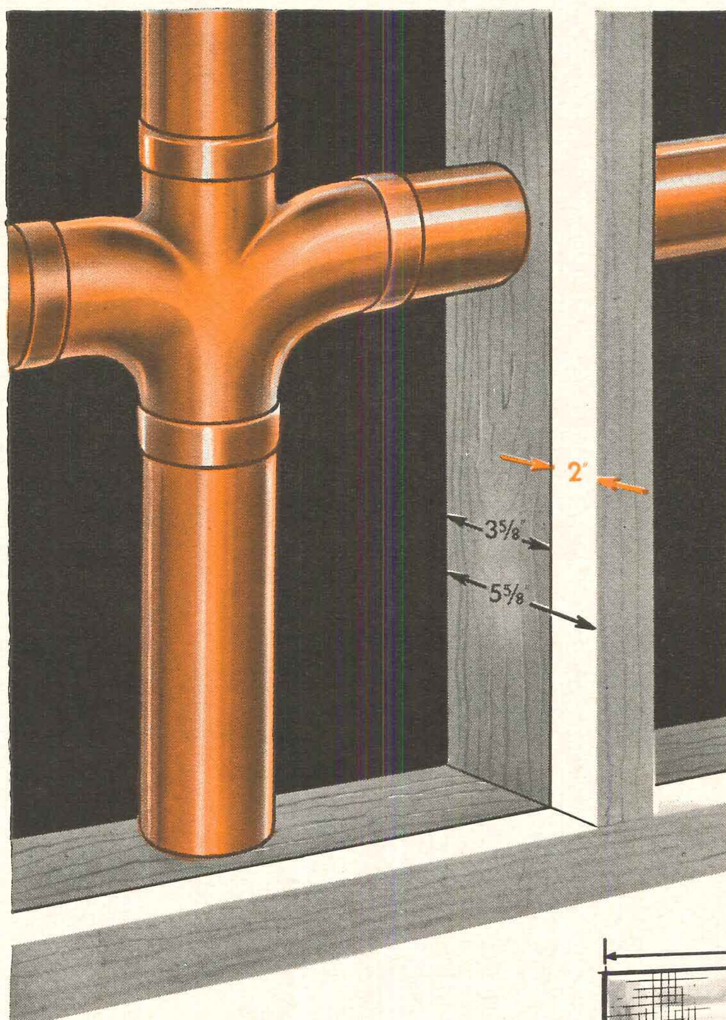
Surroundings make study pleasurable and purposeful inside the new University of Vermont library. Corning #70 prismatic glass lenses eliminate glare as refined design of new Litecontrol troffers blend smoothly into established decor (main photo). Visitors see library (inset) soaring from campus much like a cube of brick and marble.

INSTALLATION: University of Vermont Library, Burlington, Vt.
AREA SHOWN: Reading Room and Bookstacks
ARCHITECT: Roland Whittier, Burlington, Vt.
ENGINEER: Jennison Engineering Co., Burlington, Vt.
ELECTRICAL CONTRACTOR: A. C. Senecal Co., Worcester, Mass.
DISTRIBUTOR: Westinghouse Electric Supply Co., Worcester, Mass.
LITECONTROL DISTRICT SALES ENGINEER: Kenneth J. Fraser, 50 New Portland Rd., Gorham (Portland), Maine
FIXTURES: LITECONTROL No. 9324RS-70 2 lamp 2′ x 4′ troffers shown; No. 9524RS-70 2 lamp 1′ x 4′ troffers also used. All fixtures are fused.
INTENSITY: In Bookstack areas, average 40-50 footcandles; In reading areas, average 75 footcandles.

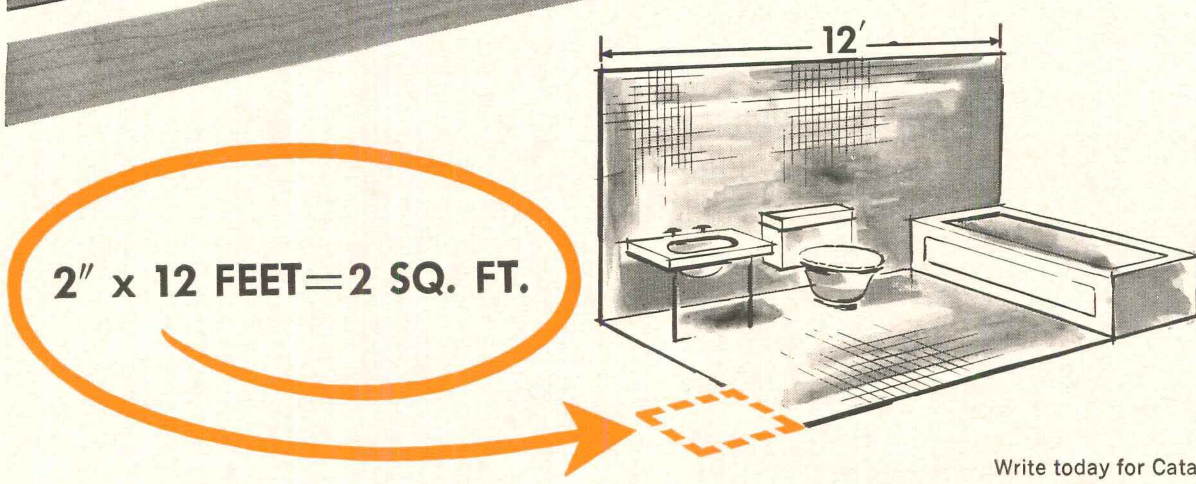
LITECONTROL
LIGHTING
LITECONTROL CORPORATION,
36 Pleasant Street, Watertown 72, Massachusetts

DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS

Streamline® DWV COPPER TUBE AND FITTINGS MAKE POSSIBLE 4 INCH WALL INSTEAD OF 6 INCH—*ADDS 2 SQUARE FEET OF LIVING SPACE TO YOUR FLOOR PLAN*



The use of copper for drainage plumbing adds valuable space to any home. A 3″ copper DWV stack fits within a standard 2″ x 4″ wall simplifying the construction of partitions and completely eliminating costly build-outs. Copper DWV tube in the average bathroom makes available 2 extra square feet of useable space and saves on material costs, too. You gain an additional 2 square feet of space for every bathroom in your floor plan. Copper, the modern plumbing material, looks good and adds sales appeal to any home.



Write today for Catalog S-361

MUELLER BRASS CO. PORT HURON 8, MICHIGAN

358

Trane Announces:

New styling, space-saving in induction

New Induction UniTrane, with exclusive selection flexibility, saves up to 25% floor space—offers quieter operation and greater economy

Here's multi-room air conditioning that keeps pace with the beauty and efficiency of today's newest buildings—enhances the traditional decor of existing buildings. It's the new Induction UniTrane that introduces a new styling concept, space-saving design and the widest selection of models that lets you closely match equipment to your specific needs.

NEW STYLING COMPLEMENTS THE BEAUTY OF ANY BUILDING!

Cabinet front on the vertical unit slopes slightly outward to create a smart, subtle convex appearance. Design is smooth and clean! Secondary air is drawn through *concealed* openings in toe space. Requires *no* front inlet grille.

Separate and adjustable *metal* outlet grilles are recessed in cabinet top, permit tenant's choice of multiple air discharge patterns. Access doors to individual controls are recessed in unit top, blend with matching grille design.

NEW, THINNER DESIGN SAVES RENTABLE FLOOR SPACE!

UniTrane is now up to 25% thinner than comparable competitive units. The vertical cabinet model is only 6⅝″ thin! It is also more compact in length and height.

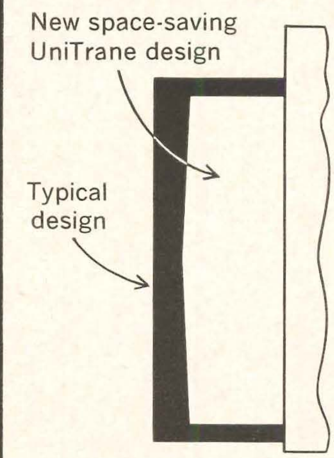
Some typical dimensions: Vertical cabinet and vertical concealed units are 20 inches high, require only 4-inch toe space. Low vertical cabinet is 9 inches deep, 12 inches high.

NEW COMPLETE LINE MEANS AIR CONDITIONING MATCHED TO YOUR NEEDS!

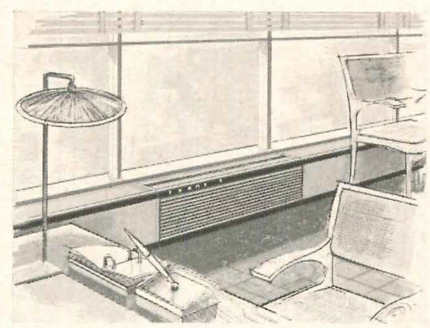
Exclusive selection flexibility with this broad new UniTrane line eliminates costly oversizing, provides operating cost savings, quieter operation.

Induction UniTrane line includes 16 models: standard capacity vertical, horizontal and low vertical, each with a choice of two coil sizes . . . new high capacity vertical and horizontal models . . . all with or without cabinets.

All models are available in 20, 28, 36, 48 and 60-inch coil lengths; any of eight different nozzle arrangements.



UniTrane cabinets slope slightly outward to create smart, subtle convex appearance from the front.



Shorter and thinner, new low-vertical Induction UniTrane is attractive, practical for buildings featuring curtain-wall construction, for other installations where height requirements are critical.

New Induction UniTrane combined with wall-to-wall enclosure to create a custom-built look that complements any interior.

design and lower costs air conditioning

Combining modern styling and greater application selectivity with TRANE's traditionally rugged construction, Induction UniTrane is ideal for multi-room air conditioning. If you would like more complete details and specifications, contact your nearby TRANE sales office. Or write TRANE, La Crosse, Wisconsin.

CHECK THESE SPECIAL TRANE FEATURES!

- Whisper quiet! Engineered for quiet operation. (And with TRANE's greater selection flexibility the engineer is able to design for even quieter performance.)
- Automatic air flow regulator—an exclusive TRANE option—that assures you of optimum system balance, delivers all the air conditioned comfort you pay for.
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PEACE CORPS ASKS ARCHITECTS TO WORK IN TUNISIA

A Peace Corps project calling for a minimum of ten American architects and city planners is now under way to support the Tunisian government in its high-priority housing program. One quarter of Tunisia's total public investment over the next ten years has been earmarked for public housing.

Training for Peace Corps volunteers for this project is now in progress and includes a technical refresher and courses in the language and culture of Tunisia.

Although Tunisia is the first such project, similar projects are being developed for Gabon, Liberia, Somali, Malaya and several Latin American countries.

For further information, inquiries should be addressed to: Peace Corps: Jules Pagano, Chief, Professional and Technical Division, Office of Public Affairs, Washington 25, D. C.

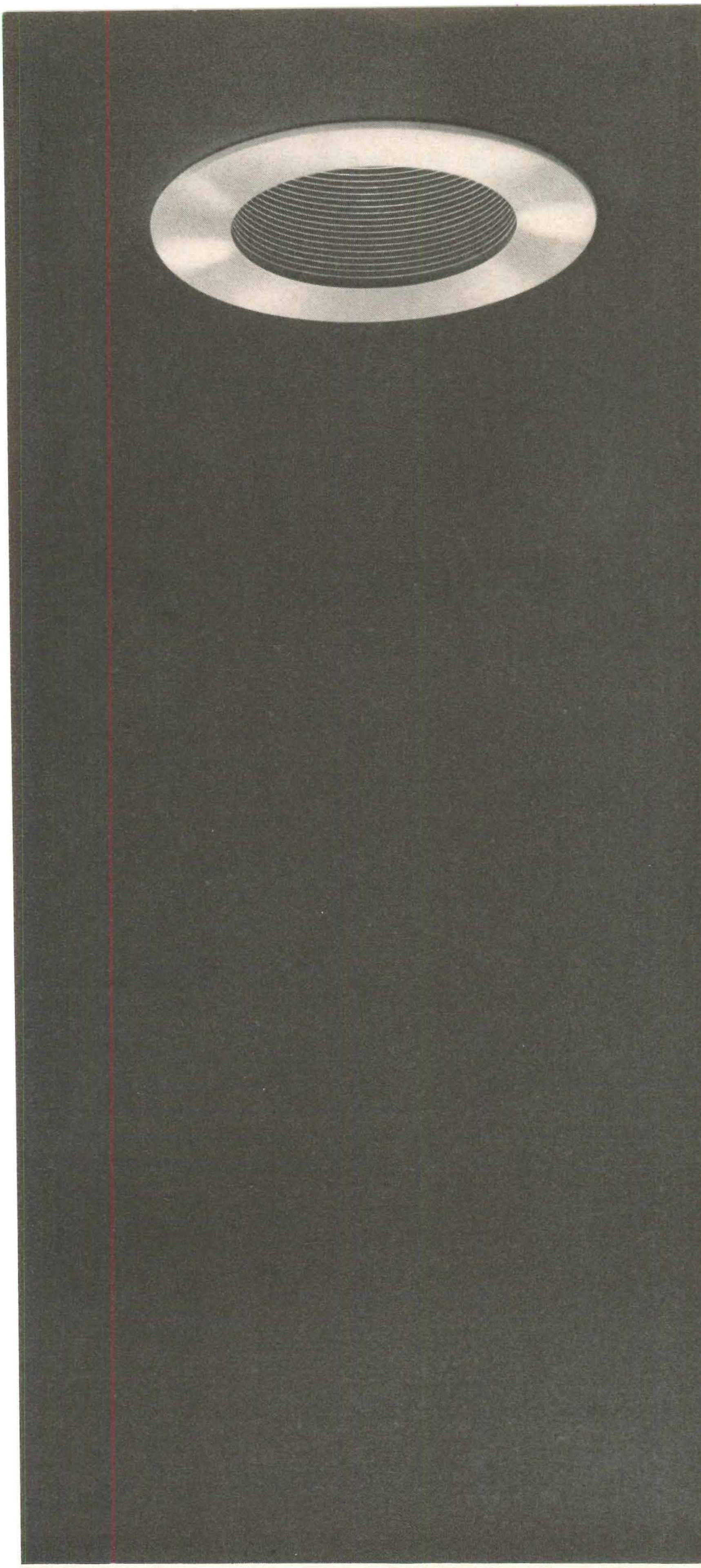
ARCHITECT STUDY OF JAPANESE HOME AIDED BY FORD

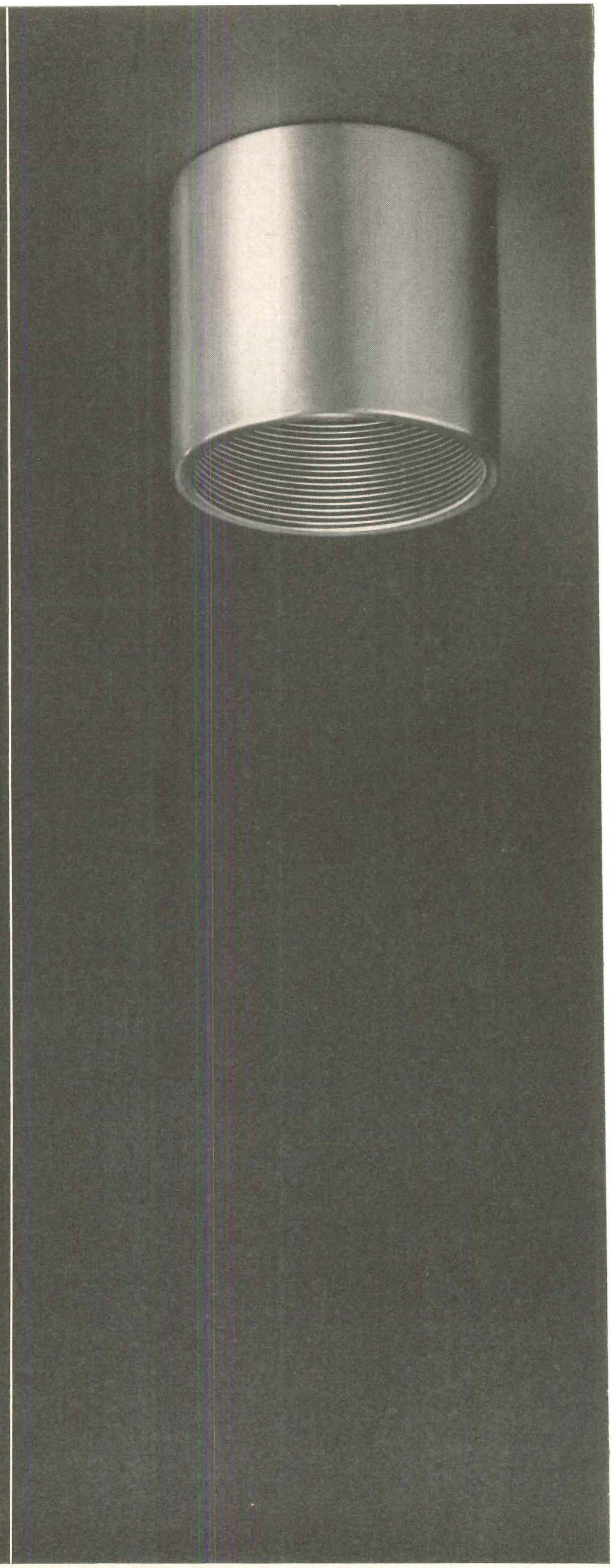
Ikuyo Tagawa of New York has received one of the Ford Foundation's third series of fellowships for studies in the creative arts for "an analysis of Japanese domestic architecture from a sociological viewpoint." It is the only architectural project among 11 aided in the current series.

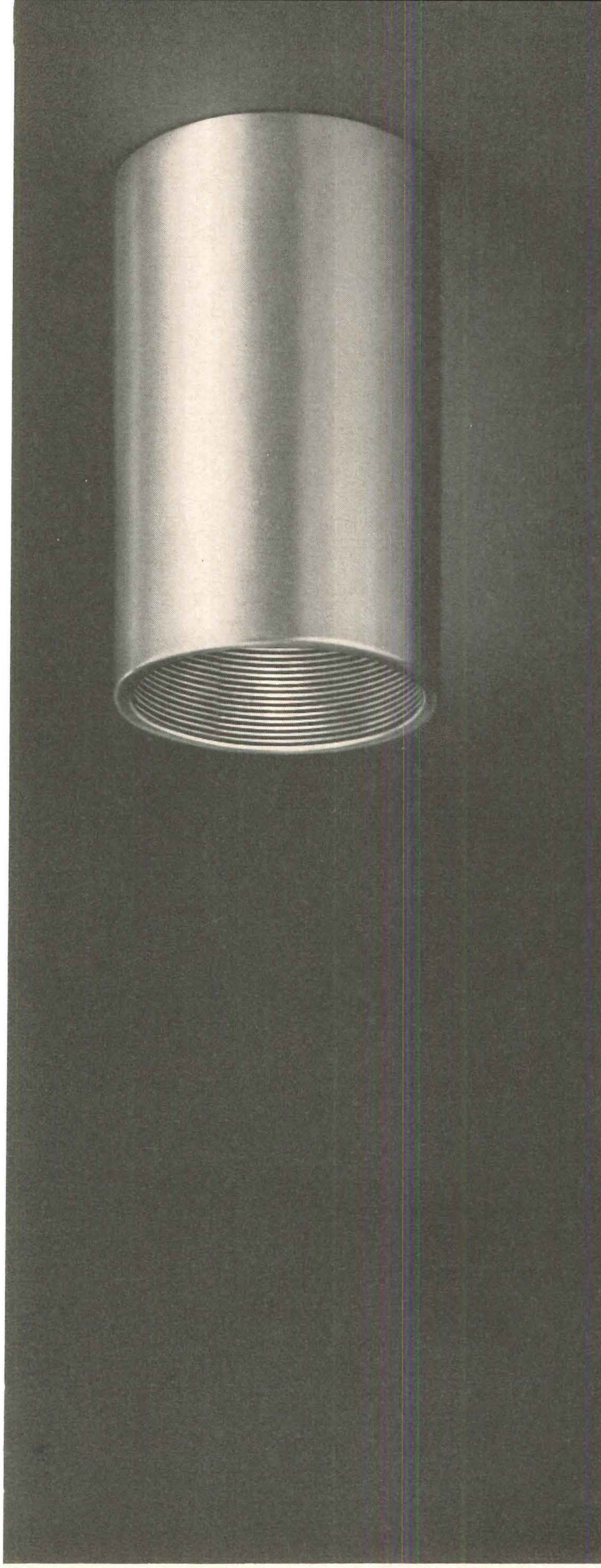
Miss Tagawa, a 1956 graduate of the Cornell College of Architecture, will return to Japan for research in connection with her project. Her interest in the subject began on a 1956-57 trip to Japan made possible by Cornell's Robert Eidlitz Memorial Fellowship.

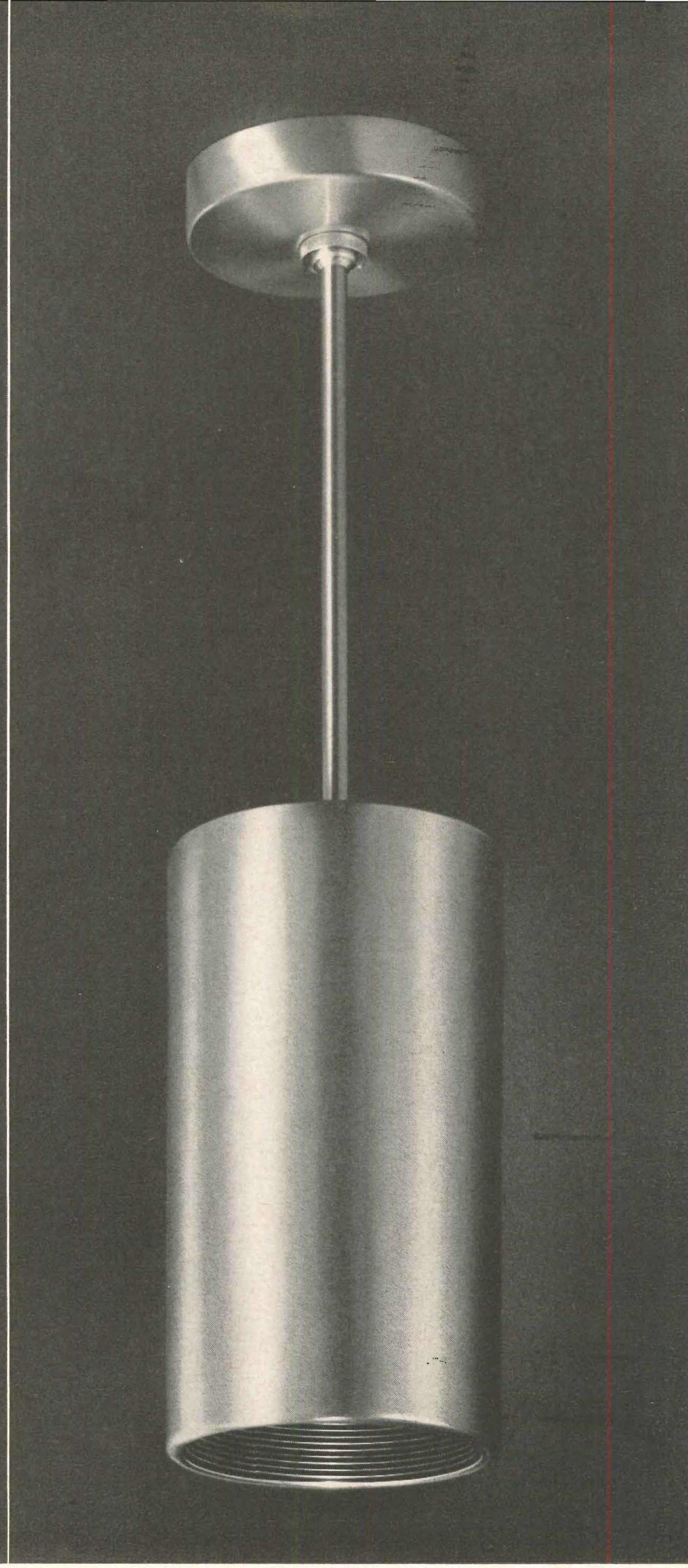
Objective of her Ford project is "a critical evaluation of Japanese architecture in light of the current interest in this country . . . an examination of the Japanese house in a social as well as esthetic context . . ."

Miss Tagawa is married to structural engineer Paul Gugliotta.









baffle puts the vertical surface just below it in total shadow. It provides a finer texture than the coarse pattern of the conventional unit.

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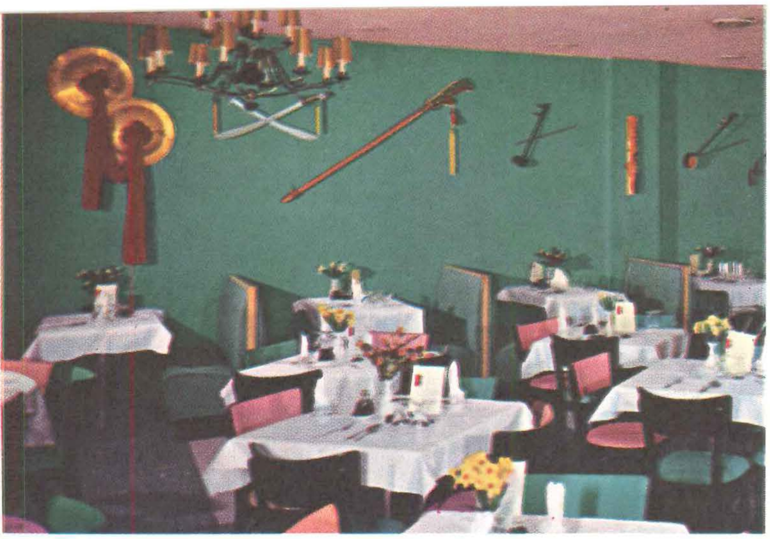

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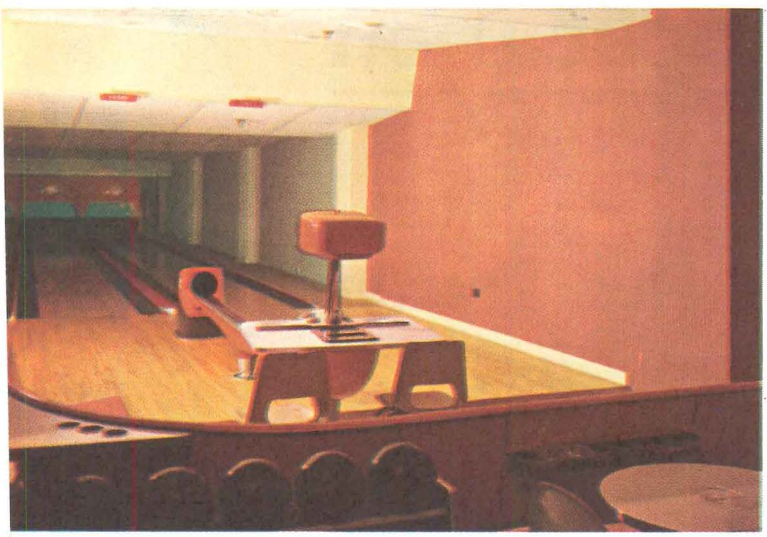

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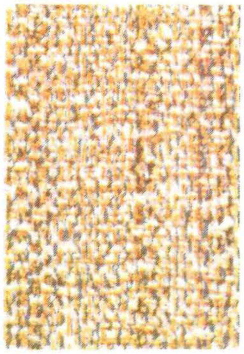

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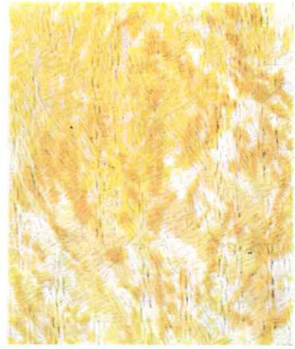

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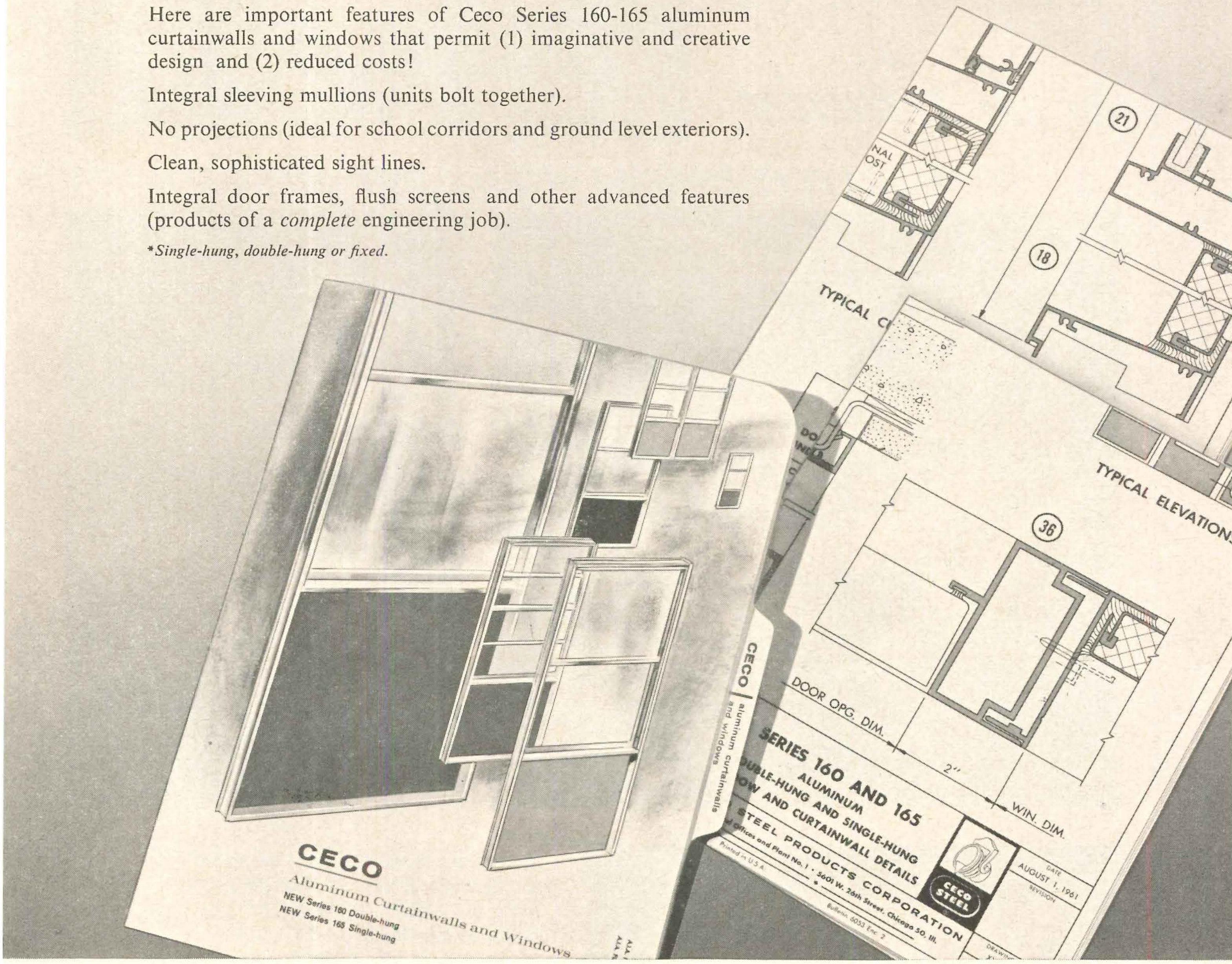

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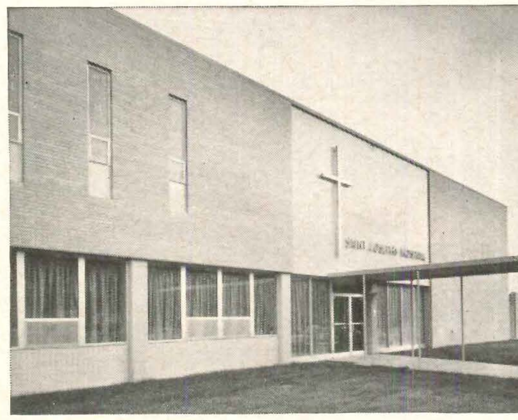

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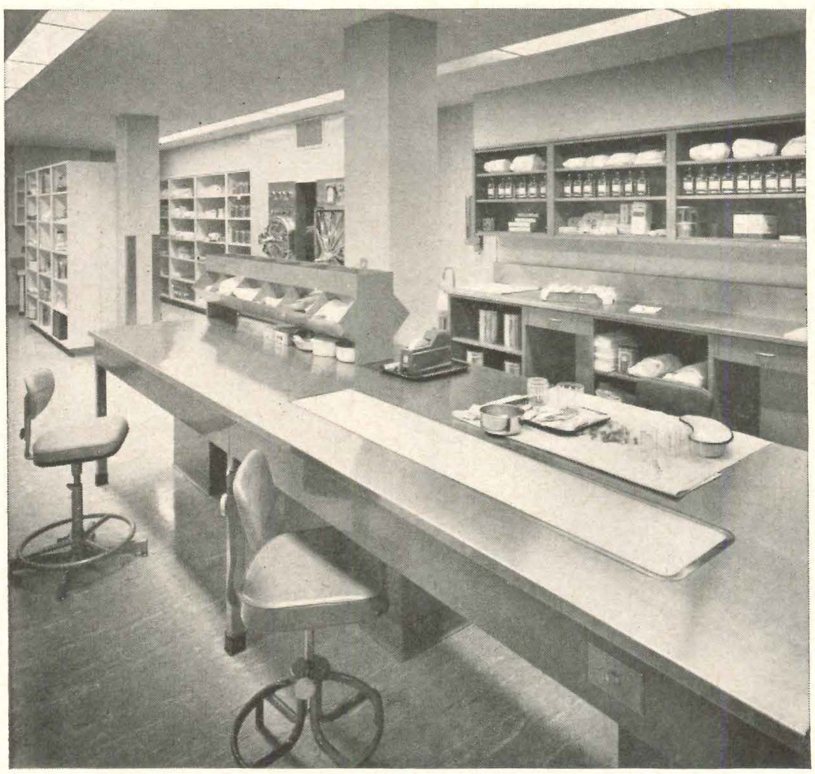

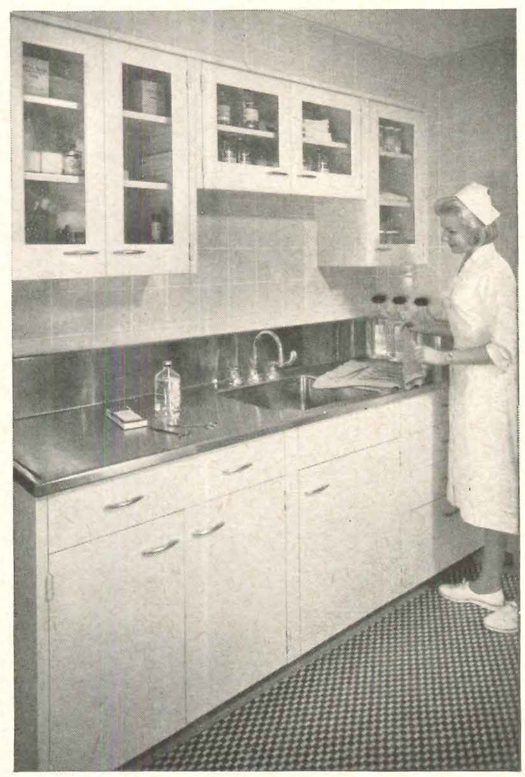

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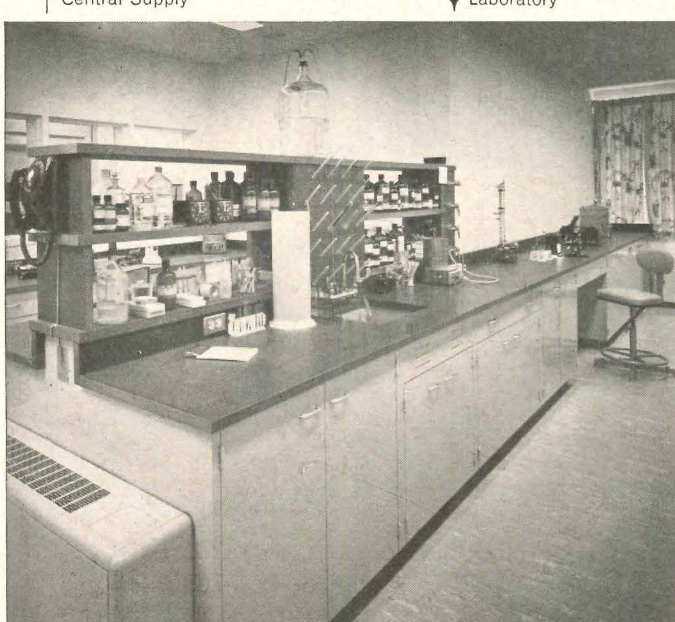

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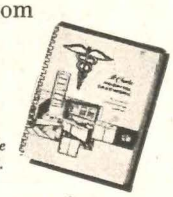

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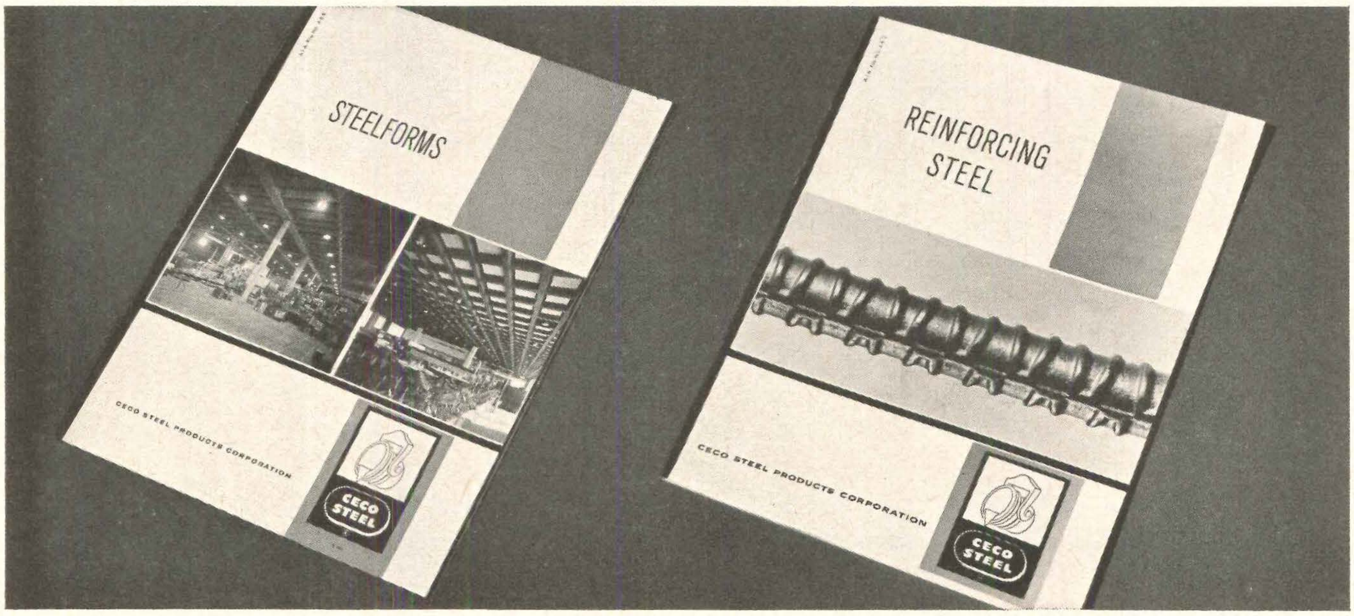
for monolithic concrete construction

Here is up-to-the-minute planning help for architects, engineers and contractors who design and build with poured-in-place concrete. These two new bulletins belong in your files . . . send for them.



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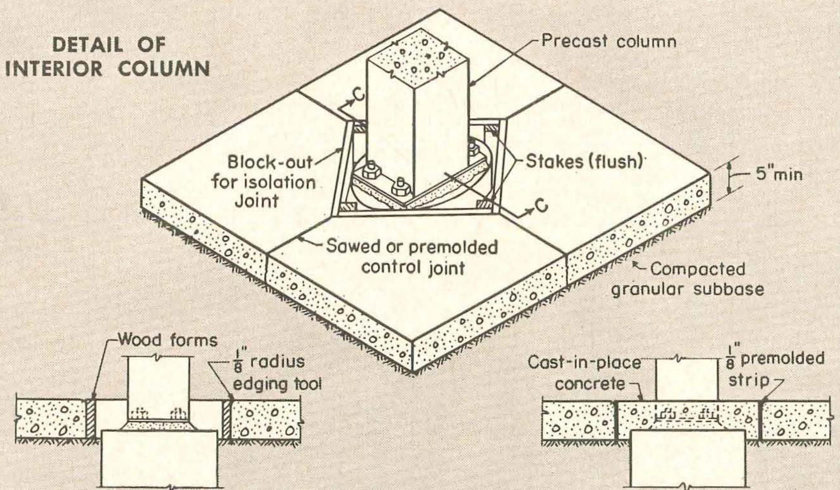
Clip along dotted line

DETAIL OF INTERIOR COLUMN



SECTION C-C SHOWING ISOLATION JOINTS

Two types of joints recommended for slab-on-ground floors:

1. ***Control joint***—allows differential movement only in the plane of the floor. Recommended spacing approximately 20 ft.

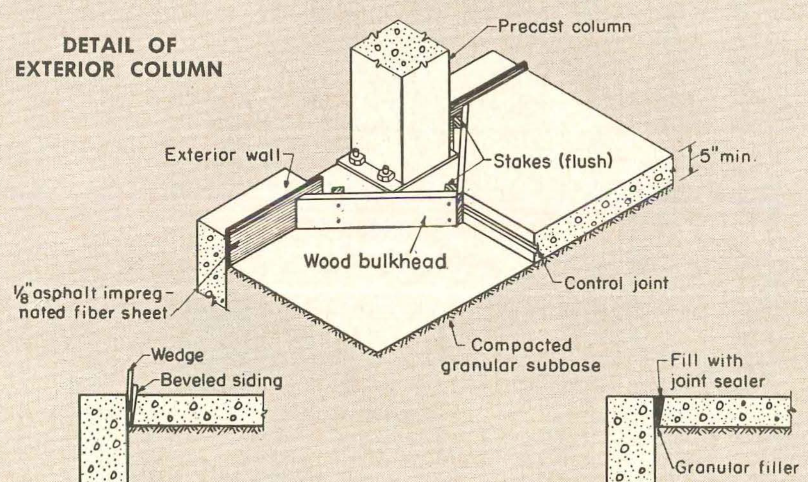
2. ***Isolation joint***—allows differential movement in all directions.

Proper construction of control joints is important to satisfactory functioning of a floor on ground. In general, control joints are made by creating planes of weakness in the slab. Volume changes due to variation in temperature and moisture then occur without causing random cracking. Control joints may be made several ways. Sawing a slot in the top of the finished slab is often most economical.

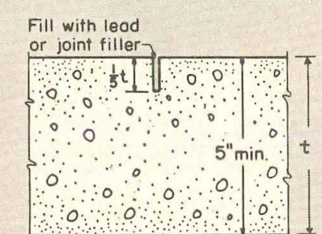
Isolation joints separate or isolate concrete slabs from columns, footings or walls to permit both horizontal movement due to volume changes and vertical movement due to differential settlements.

Get complete technical literature on additional aspects of design of concrete floors, as well as any other applications of concrete. (U.S. and Canada only.) Send a request on your letterhead.

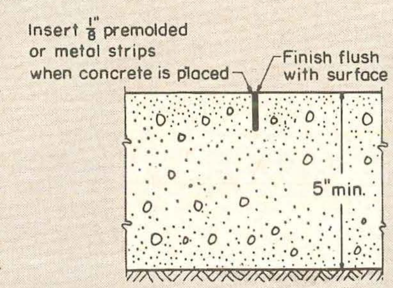
DETAIL OF EXTERIOR COLUMN



ALTERNATE WALL ISOLATION JOINT



SAWED CONTROL JOINT



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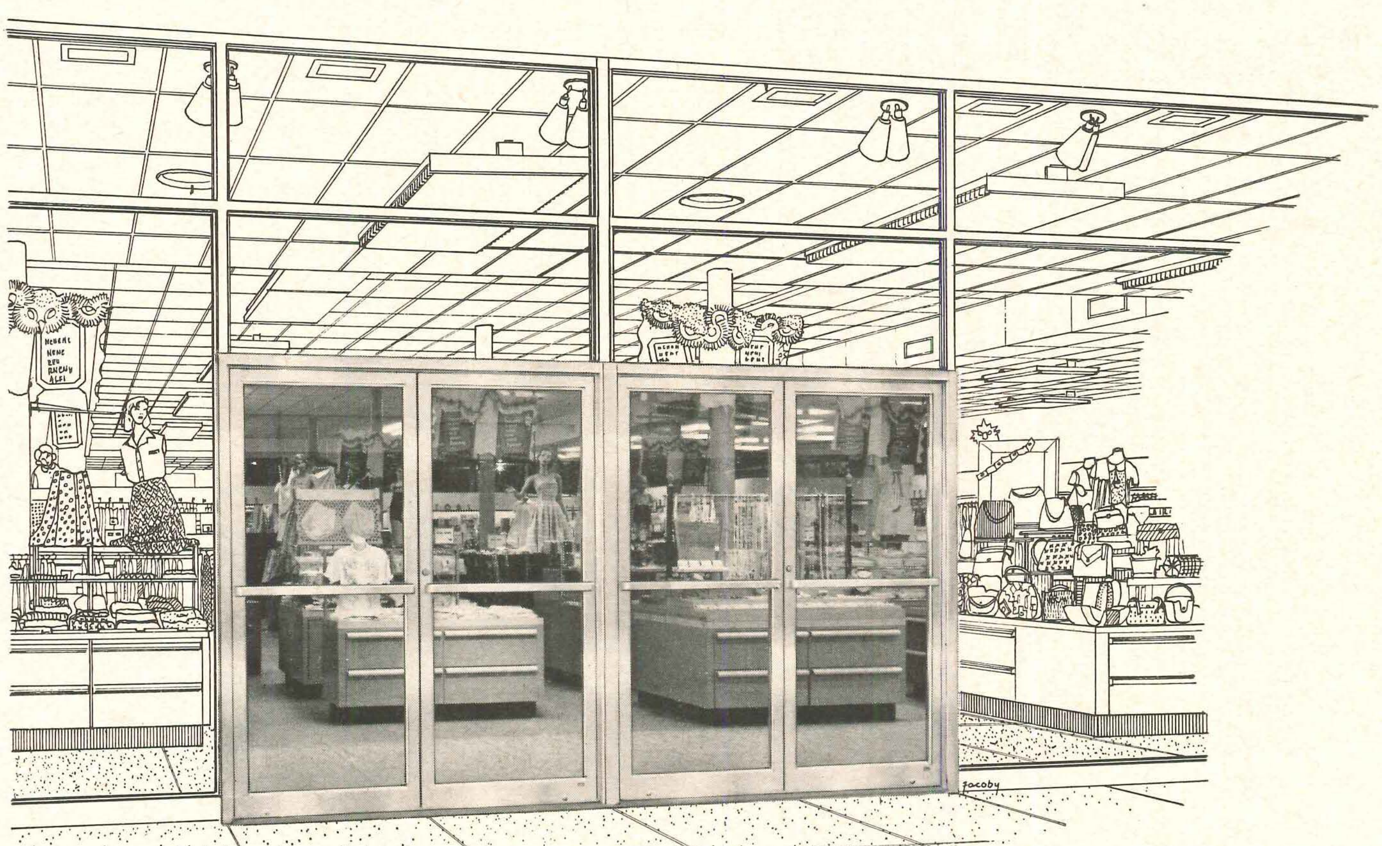
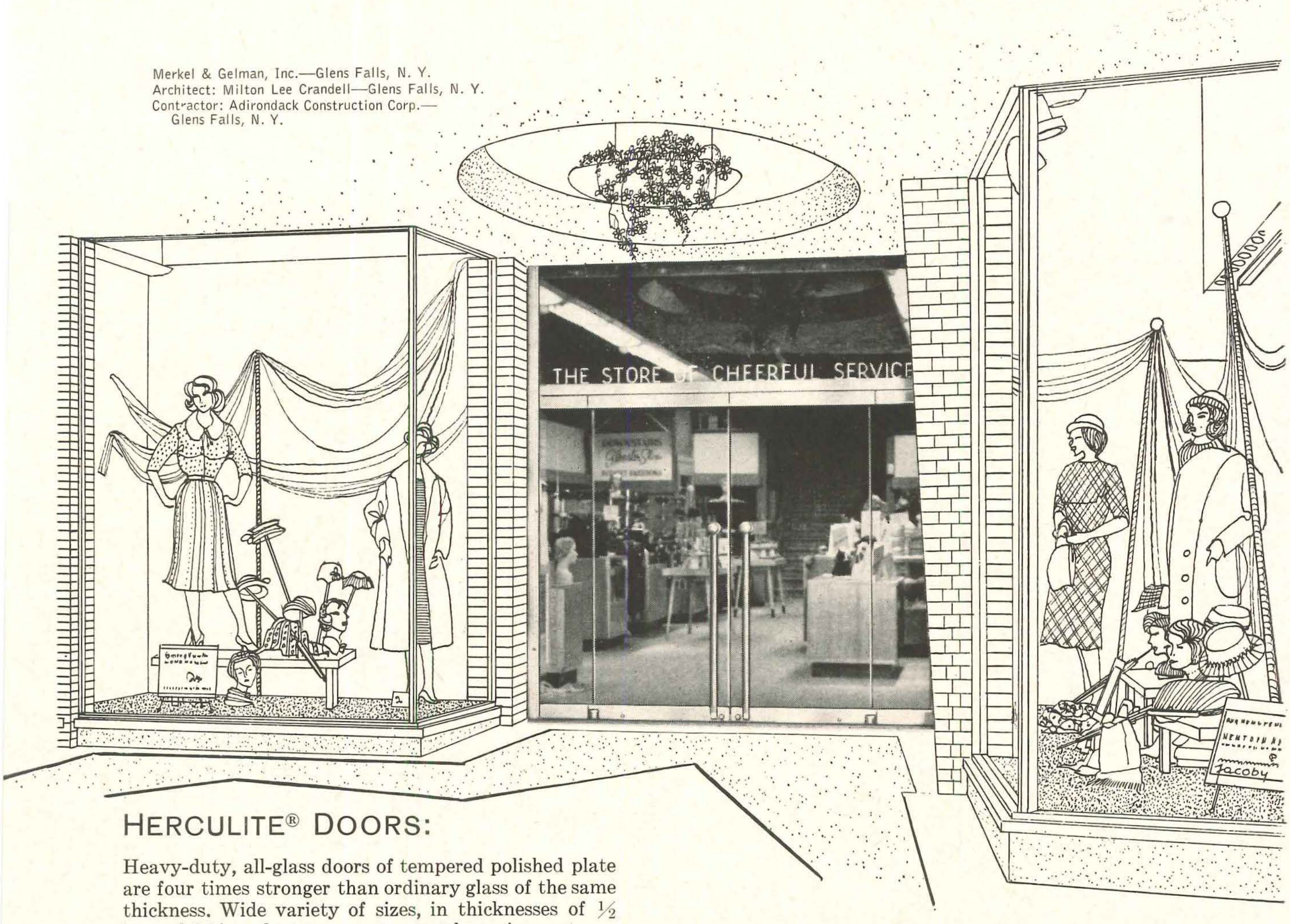


TUBELITE® DOORS:

Exclusive interlocking feature insures the rigidity of these aluminum-framed doors. Exposed seams and fastenings are eliminated by dovetailed, hollow construction. When required, a reinforcing structural steel channel is available.

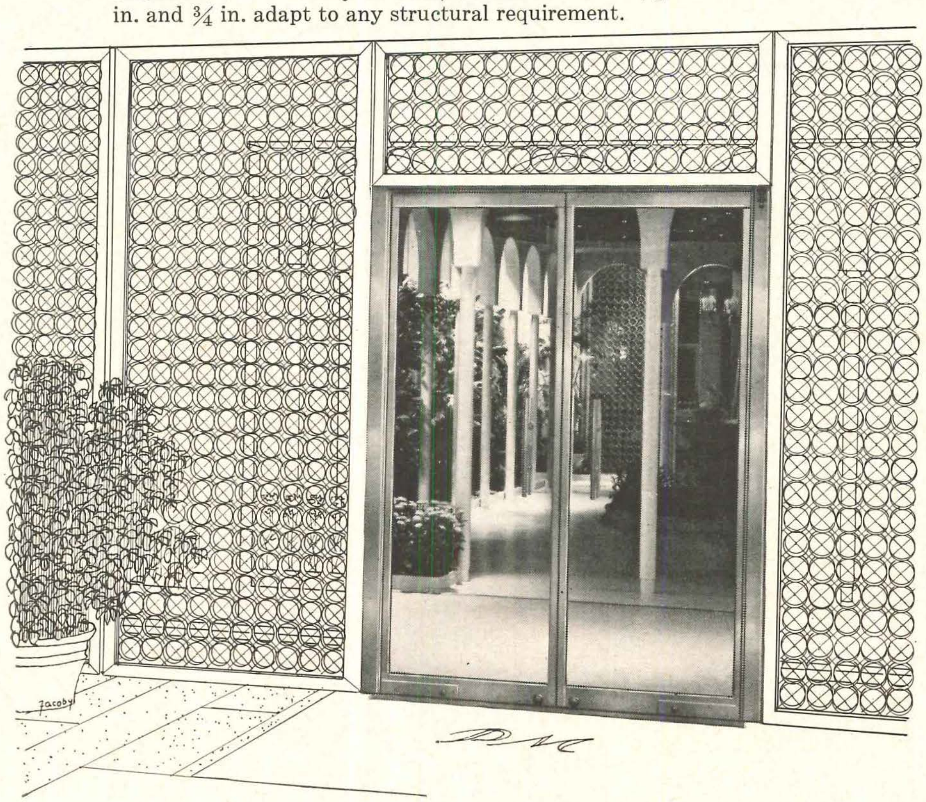
J. C. Penney Company, Inc.—Longview, Texas
Architect: Wilson, Morris & Crain—Longview, Texas
Contractor: Wilmoth Construction Co.—Longview, Texas
Installed by: Jno. C. Murphy Glass Co.—Longview, Texas

Merkel & Gelman, Inc.—Glens Falls, N. Y.
Architect: Milton Lee Crandell—Glens Falls, N. Y.
Contractor: Adirondack Construction Corp.—
Glens Falls, N. Y.



HERCULITE® DOORS:

Heavy-duty, all-glass doors of tempered polished plate are four times stronger than ordinary glass of the same thickness. Wide variety of sizes, in thicknesses of ½ in. and ¾ in. adapt to any structural requirement.



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Patricia Murphy's Candlelight Restaurant—
Fort Lauderdale, Fla.
Designer: Edmund Motyka—New York, N. Y.
Architect: Leavitt & Henshell—New York, N. Y.
Contractor: Caldwell-Scott Engineering & Construction Co.
—Fort Lauderdale, Fla.

PITTSBURGH PLATE GLASS COMPANY

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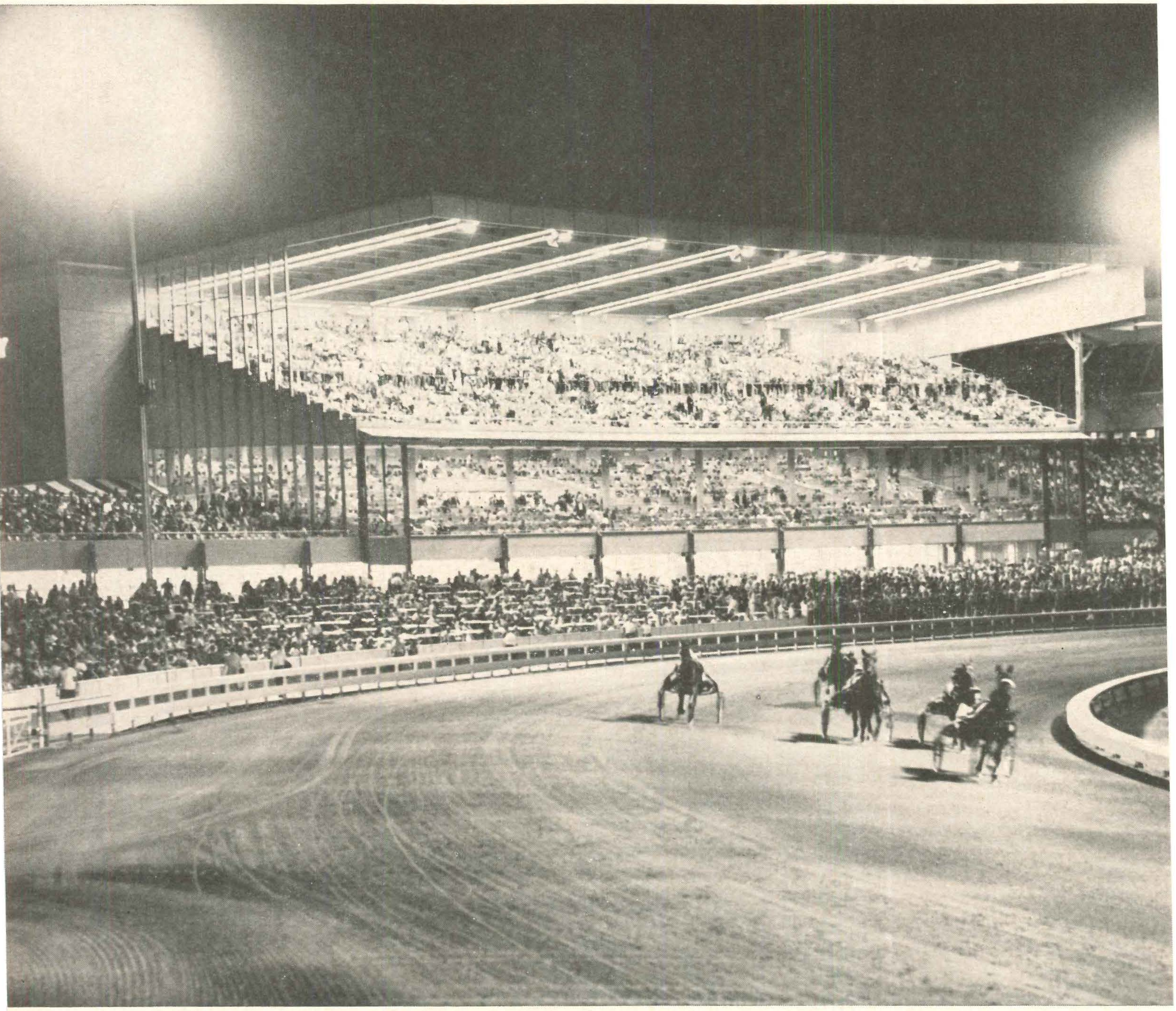
WHO LOOKS AT THE ROOF?



CLUBHOUSE, YONKERS RACEWAY, YONKERS, N. Y.
Architect: Lionel K. Levy
Roofing Contractor: Munder-Sobel & Kraus Corp.
Ruberoid Specifications: Special Bitumen Spec. 202A, 203A

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The New Collegiate Architecture at Yale

by Jonathan Barnett

A generation ago a student at Yale had good reason to feel that the University was trying to encase him in an architectural museum. His counterpart today finds that he is living in an architectural laboratory. Freshmen on their way to Commons can peer into the complex foundations of Skidmore, Owings and Merrill's rare book library. Students in the architecture school have Paul Rudolph's Art and Architecture building rising outside their drafting room windows; and in the classroom Professor Pfisterer can sometimes be diverted from the intricacies of the transformed area method long enough to explain complications that developed in the execution of Saarinen's new colleges or Rudolph's New Haven parking garage.

A short stroll up Prospect Street brings one past the new hockey rink and the Yale Computer Center, seemingly the embodiments of the two polarities of architectural thought. A little farther on, one can inspect test panels of traditional burnt brick and Longmeadow brownstone on the site of Yale's new science campus, presently being designed by Philip Johnson. At the top of the hill are Paul Rudolph's forestry laboratory and married student housing, and then one goes back past the rink to Saarinen's new colleges, now nearing completion.

Yale's new building program has been described as an architectural revolution, and it certainly represents a change from what the University was doing before the war. At the same time, there is a strong element of continuity in Yale's desire to erect buildings of high architectural quality. At the risk of being considered an old grad whose judgment is beclouded by sentiment, I must say that one cannot have lived in James Gamble Rogers' Memorial Quadrangle without realizing that it has spatial and formal qualities that go far beyond the application of superficial historical ornament. Even the Sterling Library, once one gets over an initial uneasiness at receiving books from the high altar, can be seen to be a most accomplished piece of work.

The general character of the buildings constructed at Yale during the Twenties and Thirties was set by the residential colleges. The concept of these colleges gradually evolved at Yale as part of the remarkable process by which the country college transformed itself into a university of world-wide stature. The idea was a frank emulation of the college system at Cambridge and Oxford, but it was the atmosphere of an English university, and not the administrative system, that the college authorities wished to reproduce. It can be argued that they

Jonathan Barnett is a graduate of Yale College where as a Scholar of the House he wrote a thesis on American architecture between the World Wars. He spent two years at the University of Cambridge on an exchange fellowship endowed by Paul Mellon, and is presently a student at the Yale Graduate School of Architecture

were overly literal in their approach, but it is hard to see how they could have found much for their purpose in promoting something like the Weissenhof Housing.* Even the *Harkness Hoot,* an undergraduate publication of the time, part of whose *raison d'etre* was to jab at what it called Yale's "Girder Gothic," had very little to suggest in the way of alternatives.

The architecture of Yale's colleges belongs to a period of equally eclectic educational theory. The desire to have a Gothic building, and modern plumbing, too, was analagous to the desire to have both the college system and a centralized administration. Yale's educational approach today is not that of forty years ago. The University is now an operating reality, and it has modified and made its own many of the concepts and institutions that seemed unassimilable when they were first adopted. Time and use seem to be doing the same for the buildings of the period.

Yale's first major building after the war, the extension to the University art gallery completed in 1953, provided an unusually clear test case for modern architecture. The original building, designed in a style officially designated as Lombardic Romanesque, represented two-fifths of a projected structure now impossible to complete because of prohibitive costs. In a situation fraught with possibilities for compromise, the University proceeded to erect a building that has become famous as an example of uncompromising intellectual rigor; it is the work of Louis I. Kahn, then teaching at Yale, and the Office of Douglas Orr. Kahn's name was suggested by the late George Howe, at that time chairman of the Department of Architecture, who thus did much to put Yale on the course that has been followed so successfully ever since.

In a sense, however, the art gallery extension was more a product of the policy of the School of Art and Architecture than of the University itself. At the time that the new gallery was projected, the objectives of Yale's building program were by no means as clearly defined as they are today. To describe how these objectives evolved, I can hardly do better than to quote the explanation given by the President of Yale, Dr. A. Whitney Griswold, as he summarized this process for me.

"Roughly speaking, up to about 1953 we continued to conduct our building program in the way it had run for many years. We had two Corporation committees, one on architecture, and one on buildings and grounds. We consulted, as we always had done, with the dean of the School of Art and Architecture and the chairman of the Department of Architecture. Around about 1953, we began to feel a growing sense of the importance and scope of our building program, and the need to study it in terms of Yale's site plan and in relation to the city plan for New Haven as it developed. We also felt that we should do our best to insure that our building program should be shaped according to the best advice and best talent, to insure that leading American architects be consulted, *and heeded.*

"Somewhere along the way I met Eero Saarinen. He made a great impression on me. I not only took a personal liking to him, but came to have a great feeling of confidence in his opinion. I used to have long conversations with him about Yale. I thought he had a particular genius as a site planner.

"The then provost also took an increasing interest in our building program, and we determined on a reorganization of procedure. The two Corporation committees were merged into one, and we appointed a new faculty committee to organize material for presentation to this Corporation committee and through it to the Corporation. Eero Saarinen from then until his death became the most influential spirit and voice in our site planning, and one of the most influential in our building program as well.

"The hockey rink in many ways was the building that turned the tide. It opened the eyes of a lot of people to new possibilities. We in the Corporation and the building and grounds committees received an extensive course in architecture through Eero's presentations.

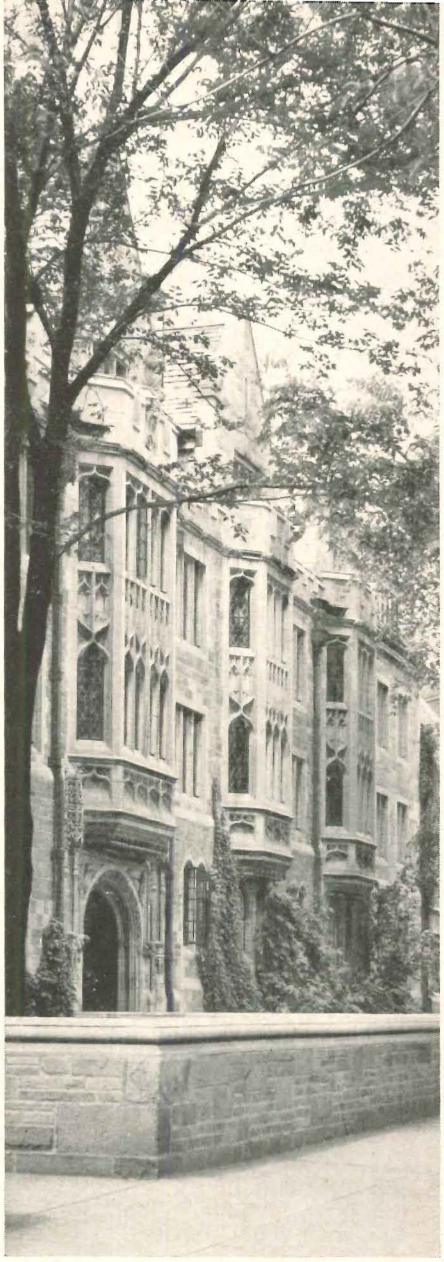
"When Paul Rudolph was appointed chairman of the Department of Architecture, we added a new, imaginative, extremely gifted voice to our councils on architectural affairs. We had explained to him that we did not have an official architect. We were opposed to it, because we felt that it would impose too great a uniformity on the campus. Buildings, like people, ought to be different from one another. I should add right away that Mr. Rudolph emphatically agreed with me about this. On the other hand, we wanted to feel free to commission him, just as we did outside architects. As an earnest of our intentions, we proposed that he be given the extension to the forestry school. And thus our lesson progressed. Gradually, by demonstration, leading American architects were showing that they could create distinguished college buildings in the idiom of their own time.

"The next step was the appointment of Eero Saarinen to design the two new colleges. We had had criticism of the cost of the hockey rink, which had considerably overrun its budget, so this time our financial conditions and stipulations were unusually

*The Weissenhof Housing Settlement, constructed in Stuttgart in 1927, consisted of row houses, apartment blocks and single family dwellings designed by leading European architects among whom were J.J.P. Oud and Mart Stam of Holland, Le Corbusier and P. Jeanneret, and the Belgian, Victor Bourgeois. German and Austrian architects included Walter Gropius, Bruno Taut, Peter Behrens, Josef Frank, Adolf Rading, Ludvig Hilberseimer and others. Mies van der Rohe was in charge of over-all planning. Here for the first time these members of the European architectural *avant garde* were able to demonstrate, by building together on the same site, the new approaches to housing derived from the change from handicraft methods of construction to industrialization.—EDITORS

BUILDINGS AT YALE BY JAMES GAMBLE ROGERS

These were constructed during the Twenties and Thirties. (1) The York Street façade of Davenport College and (2) the same college from the courtyard. The building is a favorite with writers wishing to illustrate the ultimate in eclectic design, but it is nevertheless remarkably photogenic. (3) The Branford College court of the Memorial Quadrangle. (4) The Sterling Memorial Library



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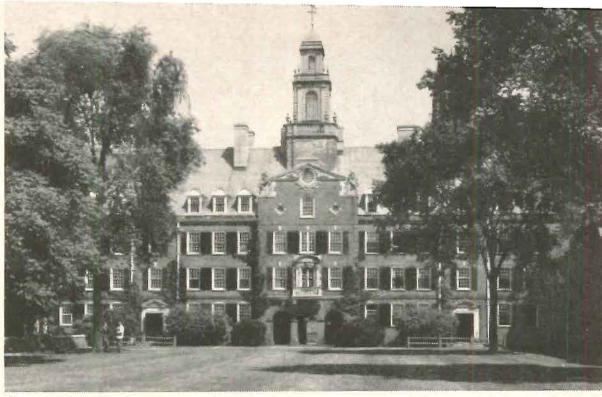

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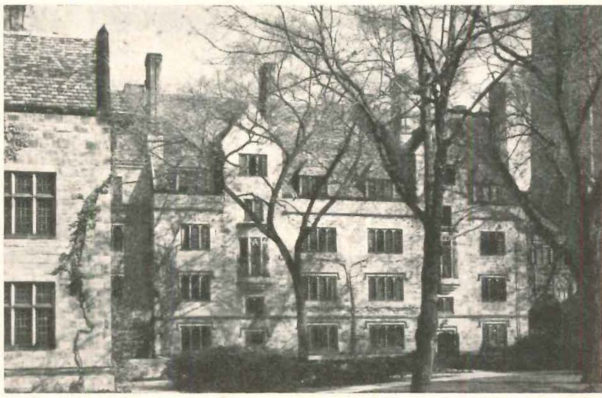

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EXTENSION TO THE YALE UNIVERSITY ART GALLERY

Louis I. Kahn and the
Office of Douglas Orr, architects
Completed in 1953

The new gallery is demarcated from the old by a narrow vertical strip of glass, and the adjoining street façade is kept a blank and neutral wall of stone-colored brick. The new building, however, is of an entirely different character from its older neighbor. Essentially it is five floors of loft space around a central core, with long clear spans made possible by an elaborate ceiling structure of slanting concrete joists and diagonal cross bracing that produces a tetrahedronal pattern. Heating, lighting and ventilation are carried within the framework of the ceiling, creating a clear separation of services from the area served. This building introduced the Yale community to a new rigor in the use of building materials, and was the first building on the campus to explore the possibilities of reinforced concrete left as it came from the form, with all the marks of the boards and the tie rods showing.

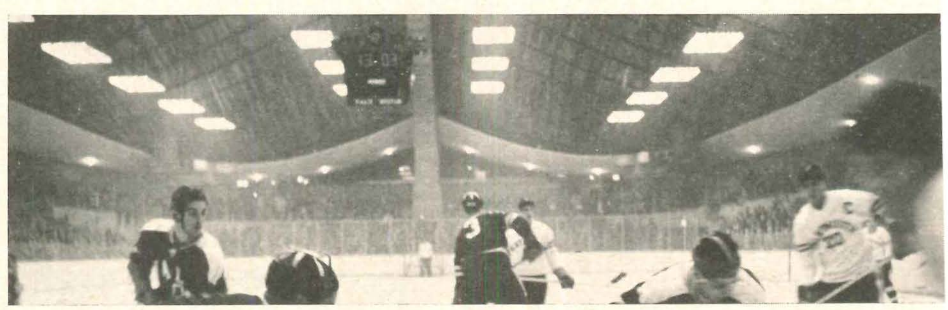
Below: The extension to the Yale University Art Gallery by Louis I. Kahn. Since its construction several of its floors have been occupied temporarily by both the architecture and the graphic arts departments of the School of Art and Architecture

Helen Hadley Hall
for graduate women
by the Office of Douglas Orr

Josiah Willard Gibbs Research Laboratories
by Paul Schweikher and the Office of Douglas Orr

BACKGROUND BUILDINGS

During the five years which followed the building of the extension to the University Art Gallery, Yale did not build anything that equaled it in importance and scope. The University erected instead a number of buildings that fulfilled pressing educational needs that could not wait. Most of these buildings were constructed on very tight budgets, and often under difficult circumstances. They are not designed to fill a foreground role, and really serve as background buildings.



The David S. Ingalls Rink by Eero Saarinen and Associates

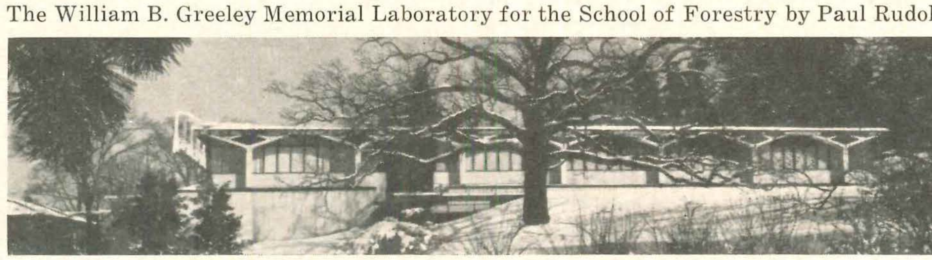
DAVID S. INGALLS RINK

Eero Saarinen, architect
Completed 1958

If the gallery is uncompromising, the hockey rink is completely uninhibited. The reason for its exuberant form is the uncomplicated clear span provided for the interior. The construction photograph clearly shows the basic structure, a reinforced concrete spine and a tension roof tied to massive concrete walls. The brilliant conception is somewhat marred by deficiencies in detail caused by the pressure of the construction schedule, but there is no question that the building is a success.

Like the Eiffel Tower, the Yale rink provides an unusual spatial experience, unclassifiable by ordinary architectural canon; and the rink, known to undergraduates as the "Yale Whale," is well on the way to acquiring the same type of affection that "Eiffel's Hat Pin" inspires. It's unique, it's eccentric, if you stop and think about it, it's really rather ugly; but its quality is both undeniable and compelling.

The William B. Greeley Memorial Laboratory for the School of Forestry by Paul Rudol



Robert Faesy

BACKGROUND BUILDINGS: THE NEW ORDER

From Yale's rink we go on to the consideration of two buildings that, at an earlier stage of Yale's building program, might, perhaps, have passed as routine items. Designed by Paul Rudolph, the chairman of Yale's Department of Architecture, they are the Greeley Forestry Laboratory and the housing for married graduate students. The married student houssevere. Eero was obliged to make a number of presentations and to operate on an austerity budget. In the end, he not only satisfied these conditions but achieved one of his own—and, needless to say, Yale's—outstanding architectural successes. Eero never did anything for effect. He was always concerned with trying to make the best out of the existing situation. He had a real understanding of Yale's buildings; in fact, I know he admired many of them. He could see the development of a university and its architecture as a continuing process, and not something to be torn down and recast in a single image.

"For the new colleges, we couldn't afford any ornamentation at all. Our austerity budget was watched over by an extremely conscientious group of guardians of other people's money. At the same time, it wouldn't do to have undergraduates find that two of the colleges weren't comparable to the others.

"I urged Eero to go to Oxford and look at the walls, particularly the rubble ones. In my imagination they had a quality that was close to that of surrounding Yale buildings, such as the gym. Eero said, 'I'm going to do this. I'm also going to San Gimignano. I think we can do something here in the way of a little Italian village.' He felt that he could produce an atmosphere akin to that of the existing colleges using the elements of the building itself—courts, walls, towers—rather than the superficial decoration.

"We had profited by our experience with the earlier colleges to revise many of our space requirements, and they were all most carefully worked out, and regularly discussed by the buildings and grounds committee. We had mock-ups of the rooms out in Detroit, and many long presentations did I make to the Old Dominion Foundation.* I must have devoted a major part of my time to seeing that building through to the point where it was agreed upon by all parties.

"From that time on, however, the struggle was over. The Corporation had become convinced—and so efficient was our provost, Dean Norman S. Buck, in getting these things started—that the cause of good architecture became increasingly part of the normal course of events. I have continued, however, to take part in the selection of architects and in the discussion of their proposed designs. At present we have three major projects under construction: the Art and Architecture building, the Beinecke Rare Book Library, and the Kline Science Center buildings in the Pierson-Sage Quadrangle.

"For the site planning of the Pierson-Sage Quadrangle, we established a committee; and one of the most amazing things I have to report to you is the congeniality, spirit, and *esprit de corps* that developed among Messrs. Saarinen, Bunshaft, Johnson, Rudolph and Buck. The architects on the committee agreed among themselves that Johnson was to do the buildings, and they all worked very well together over the site planning. I recommended Rudolph for the Art and Architecture building, because I felt that the man who acts as father confessor to Yale architects would be the appropriate man to design it. I saw that building through many phases.

"That brings us up to this moment, actually. We don't know what our next buildings will be. I expect the next one may be a medical building. I think we are all anxious for Yale to go on availing itself of outstanding American architects; men who have not only the present, but the future in their eyes, and who see history as a continuous stream, and not as a stagnant pool."

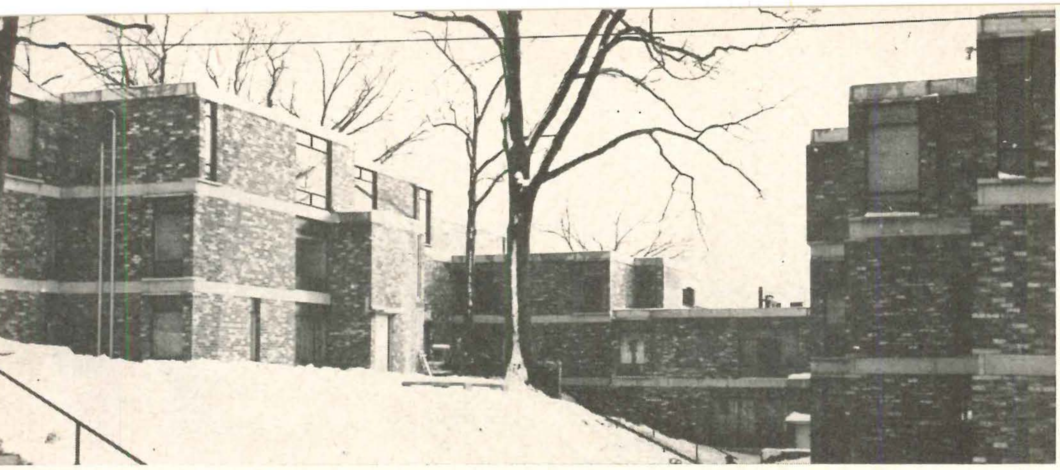
This remarkably enlightened attitude on the part of the client has been a key factor in the success of Yale's building program. The administration views the architecture of the university as an integral part of the educational process and feels it to be the obligation of an educational institution to strive for buildings of the highest quality. It is understood that architecture is partly a matter of intangibles, and that cost, while it is important, is not the most important consideration.

The members of both the Corporation and the faculty buildings and grounds committees are concerned that new construction preserve a sense of continuity with existing buildings, and with future structures as well. In the words of Mr. Buck, Provost Emeritus and Chairman of the Faculty Committee, "Everything has to be considered in terms of what it is going to look like fifty years from now." There is not, however, any preconceived policy of how such continuity should be achieved, and new ideas are considered on their own merits.

The committees are thorough in their evaluation of each building that comes before them; and many projected buildings go through several stages before final approval. When scepticism was expressed over the daylighting available to rooms in the new colleges, Saarinen's office arranged mock-ups of the rooms, and a meeting was held in Detroit to inspect them.

Essentially, however, Yale relies upon and trusts the architects commissioned. This confidence in professional advice is due in large measure to the efforts of Eero Saarinen, who was an alumnus of Yale's architecture school, and Paul Rudolph, who as chairman of the Department of Architecture has been very concerned that Yale should practice what it preaches. The intelligent interest and confidence of the administration has apparently made designing buildings for Yale an unusually pleasant experience. As Gordon Bunshaft expressed it: "I think the intent of Griswold and Buck and the Corporation is wonderful. If they do not achieve what they set out to do, it will really be the fault of the architects."

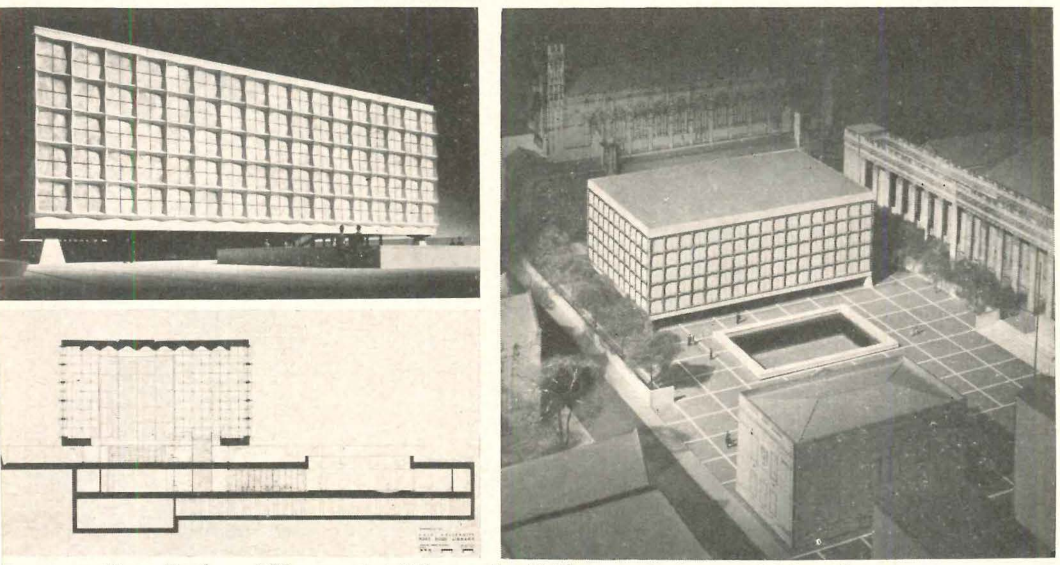
* The Old Dominion Foundation, founded in 1941 on funds donated by Paul Mellon, provided the money for the construction and endowment of the colleges.—EDITORS



Robert Faesy

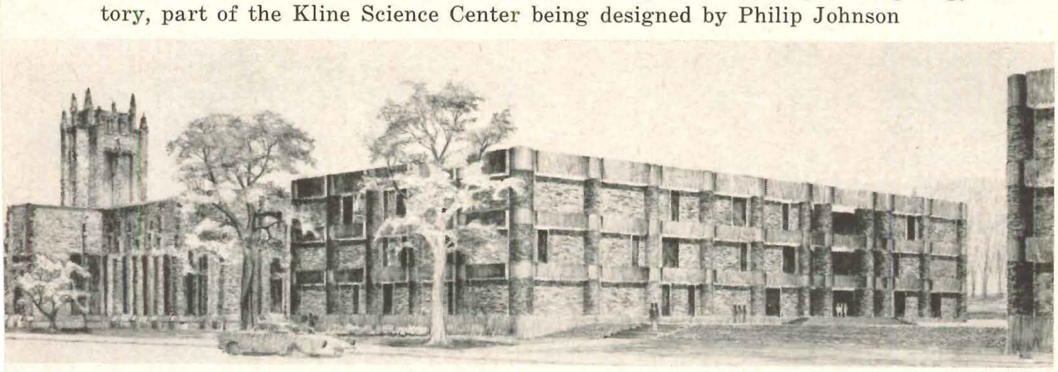
Yale Married Student Housing by Paul Rudolph

© *Ezra Stoller Associates* *Louis Checkman*

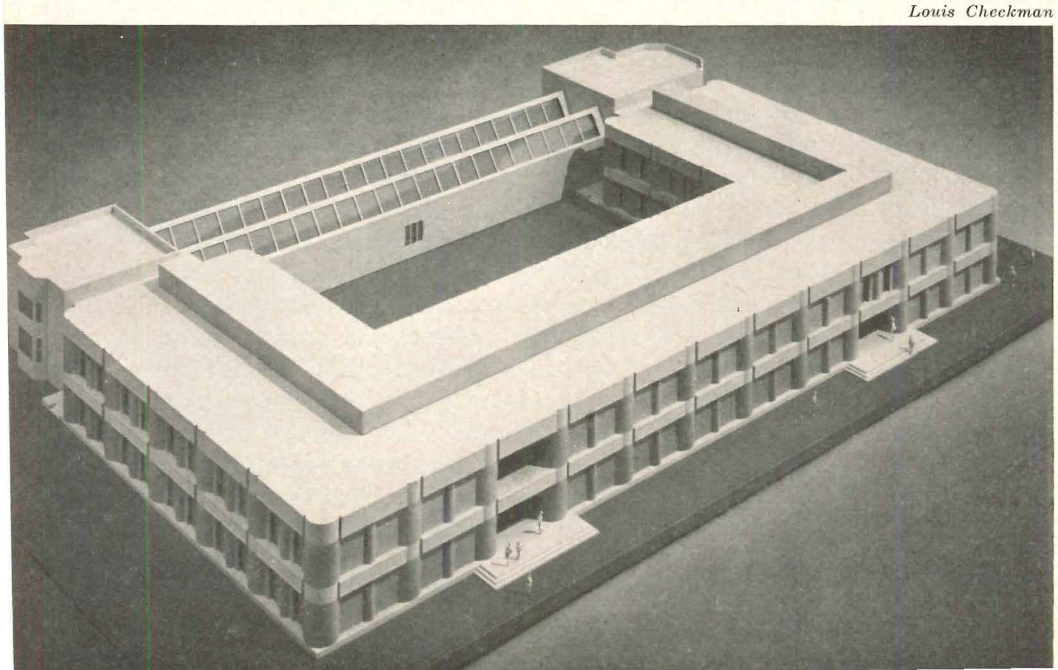


Rare Book and Manuscript Library by Skidmore, Owings and Merrill

Below: Model photograph of the chemistry building and rendering of the geology laboratory, part of the Kline Science Center being designed by Philip Johnson



Louis Checkman



ing is particularly interesting in that it was produced on a budget usually associated with buildings which are far less architecturally ambitious. In fact, considerations of cost forced drastic revisions in the original plans. The result sacrifices some of the privacy present in the earlier scheme, but it was finished on time, within the budget, without loss of its architectural quality.

RARE BOOK AND MANUSCRIPT LIBRARY

Skidmore, Owings and Merrill, architects
Under construction

The Rare Book and Manuscript Library is being financed by a benefaction as generous as any in Yale history, and the execution is unusually lavish for post-war college architecture. A structural *tour de force,* the walls form Vierendeel trusses that are supported only at the corners of the building. The architects say of it: "The architectural concept is really that of a big box sitting on four points. This box houses, as dramatically as possible, a self-contained shaft of books and an area for an exhibition gallery which can also be used as a gathering place. The reason it is up on four points is just pure architecture. There are obvious functional advantages in not having columns interrupt the interior, but that's a minor consideration really."

This parti has led to the placement of the main reading room, most of the stack space, and the librarians' offices below grade, lighted by a court open to the plaza above. In response to a question whether there were any contradiction in placing the principal working parts of the library underground, the architects replied: "Not at all. Many libraries have been doing just that, instead of following the old idea of the stack tower. There are several advantages to putting a library in the ground: the weight of the books, the difficult humidity and light control problems. One could say that designing a library is really like designing a very delicate kind of a warehouse. The architectural treatment of the building had to be influenced by the monumental character of the site. We had to try to make a good functional building, a working research center, that would also dramatize the rare book collection."

KLINE SCIENCE CENTER

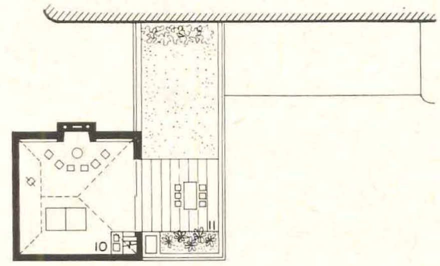
Philip Johnson, architect
Project

The new buildings will all be faced with burnt brick and Longmeadow brownstone, the materials of most of the existing architecture, and they will all have the semi-circular drums that appear in the rendering. The use of these drums varies from building to building, but the architect says firmly that their real function is to control the façades and provide a uniform grammar of expression throughout the campus.

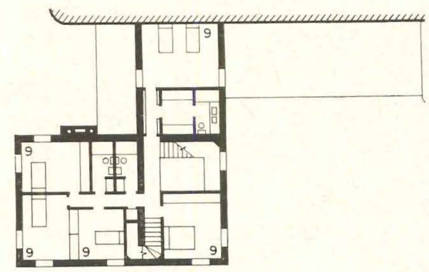
FRESHMAN DEAN'S HOUSE

Edward Larrabee Barnes, architect
Project

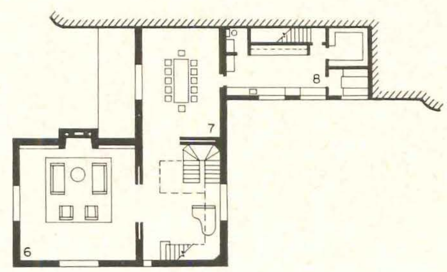
Planned as a dwelling for the dean and his family, the house will also serve as a student reception and entertainment center. The site is unusually restricted and surrounded by a variety of buildings whose styles range from Egyptoid, to Rusticated Romanesque, to Italianate Gothic. In this variety, Barnes found a common denominator in the material, Longmeadow brownstone, and the presence of a *piano nobile* in each building. As described by Barnes: "One ascends to the parlor floor with its high ceilings and tall windows looking out to the street and campus. The hall of this parlor floor extends up through the bedroom level, and the stairway continues to the bedroom balcony. Then there is a short run of stairs and one bursts into the family room with its studio roof and concealed roof garden."



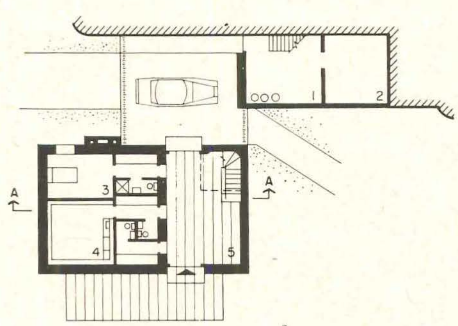
PENTHOUSE FLOOR



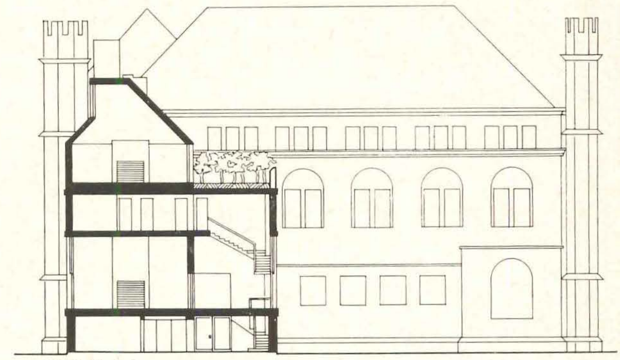
BEDROOM FLOOR



LIVING FLOOR

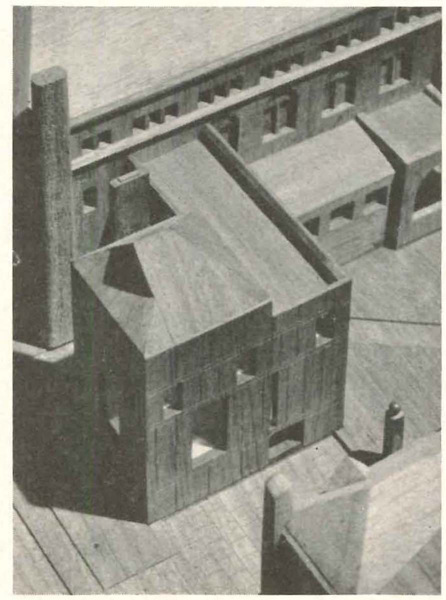


GROUND FLOOR



SECTION A-A

Louis Checkman

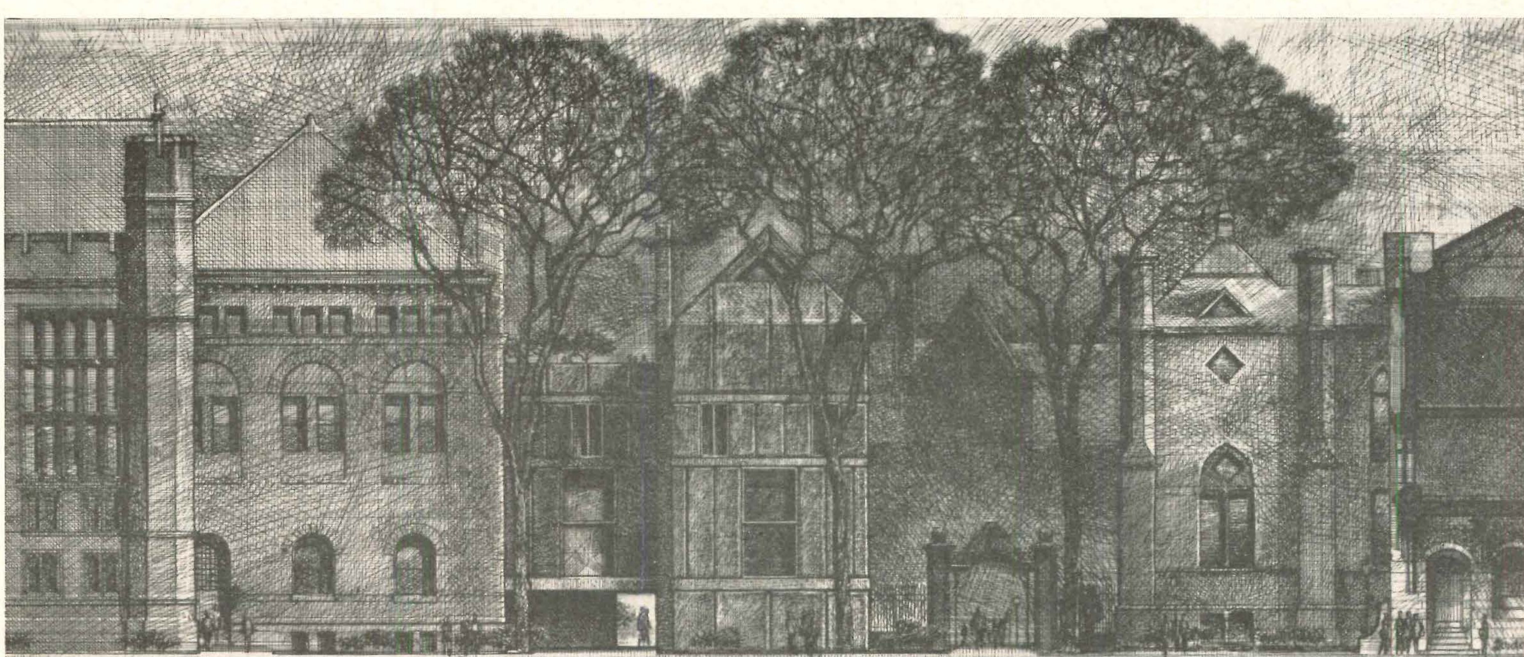


Model of Freshman Dean's House

Plans and section of Freshman Dean's House (1) service, (2) storage, (3) maid's room, (4) laundry, (5) foyer, (6) living room, (7) dining room, (8) kitchen, (9) bedrooms, (10) family room, (11) roof garden

Street façade, Freshman Dean's House at center

Drawing by Ara Derderian



Robert Faesy

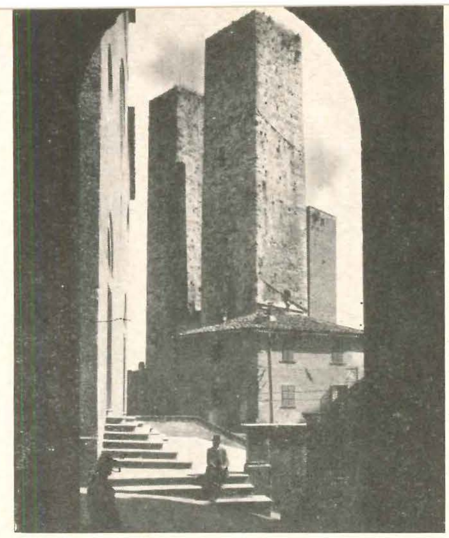


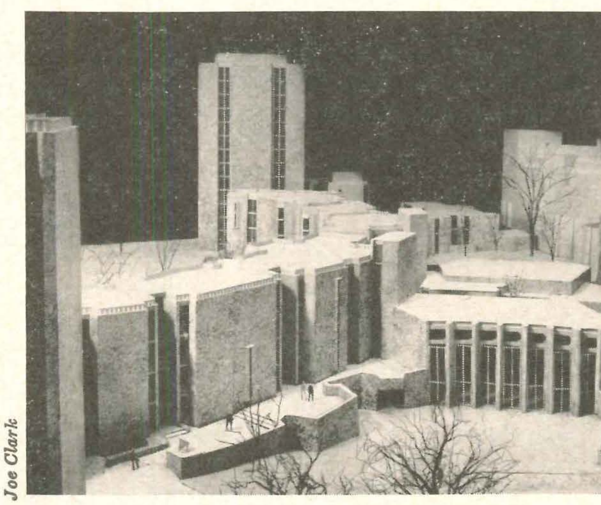
Photo from Ewing Galloway, N.Y.

San Gimignano

EZRA STILES AND SAMUEL F. B. MORSE COLLEGES
Eero Saarinen, architect
Under construction

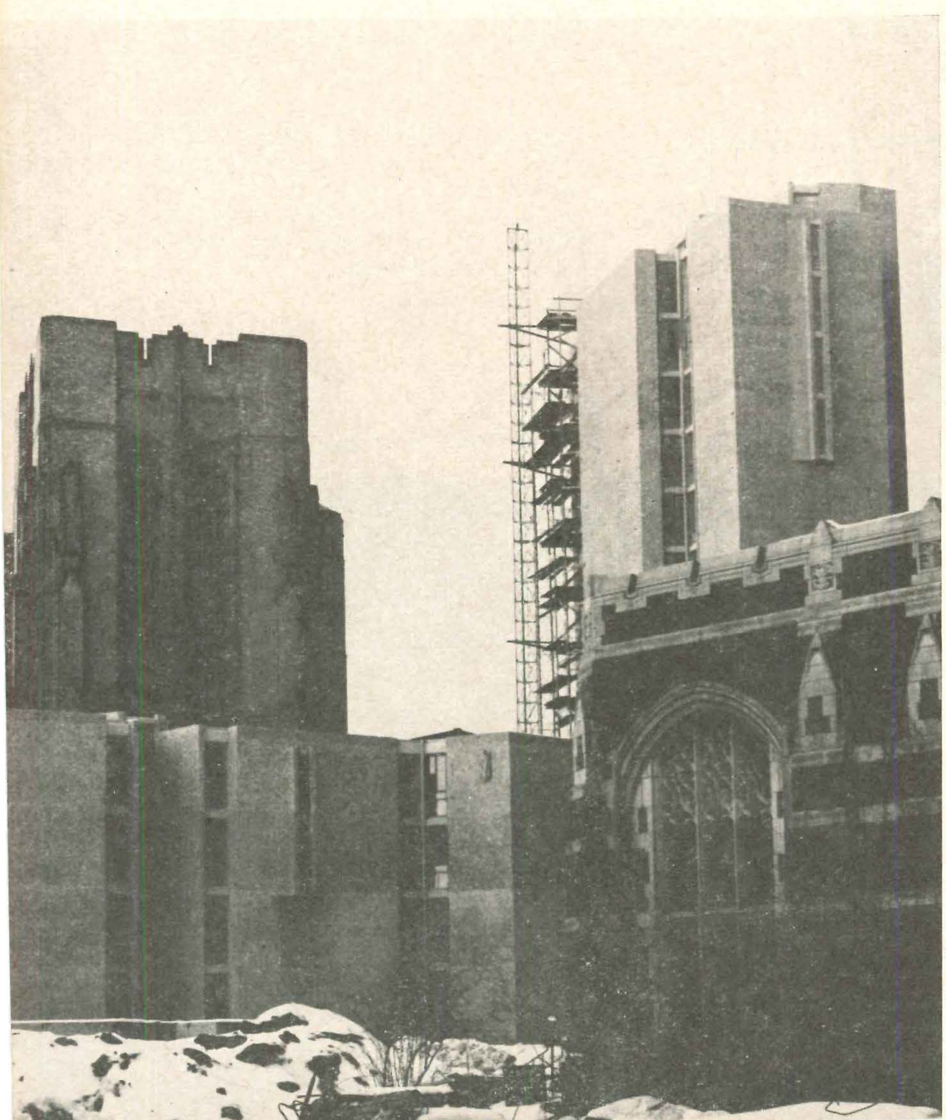
To fully understand Saarinen's designs for the new colleges, it is necessary to bear in mind the earlier residential colleges, particularly the Memorial Quadrangle by James Gamble

Above: View of Morse College from Grove Street. In the foreground is part of the Hall of Graduate Studies by James Gamble Rogers; in the background, the tower of the gymnasium by John Russell Pope. *Below:* Part of the courtyard formed by the buildings of Morse College and the rear of the graduate school. The gymnasium tower can be seen in the background. *Right:* Photograph of model



Joe Clark

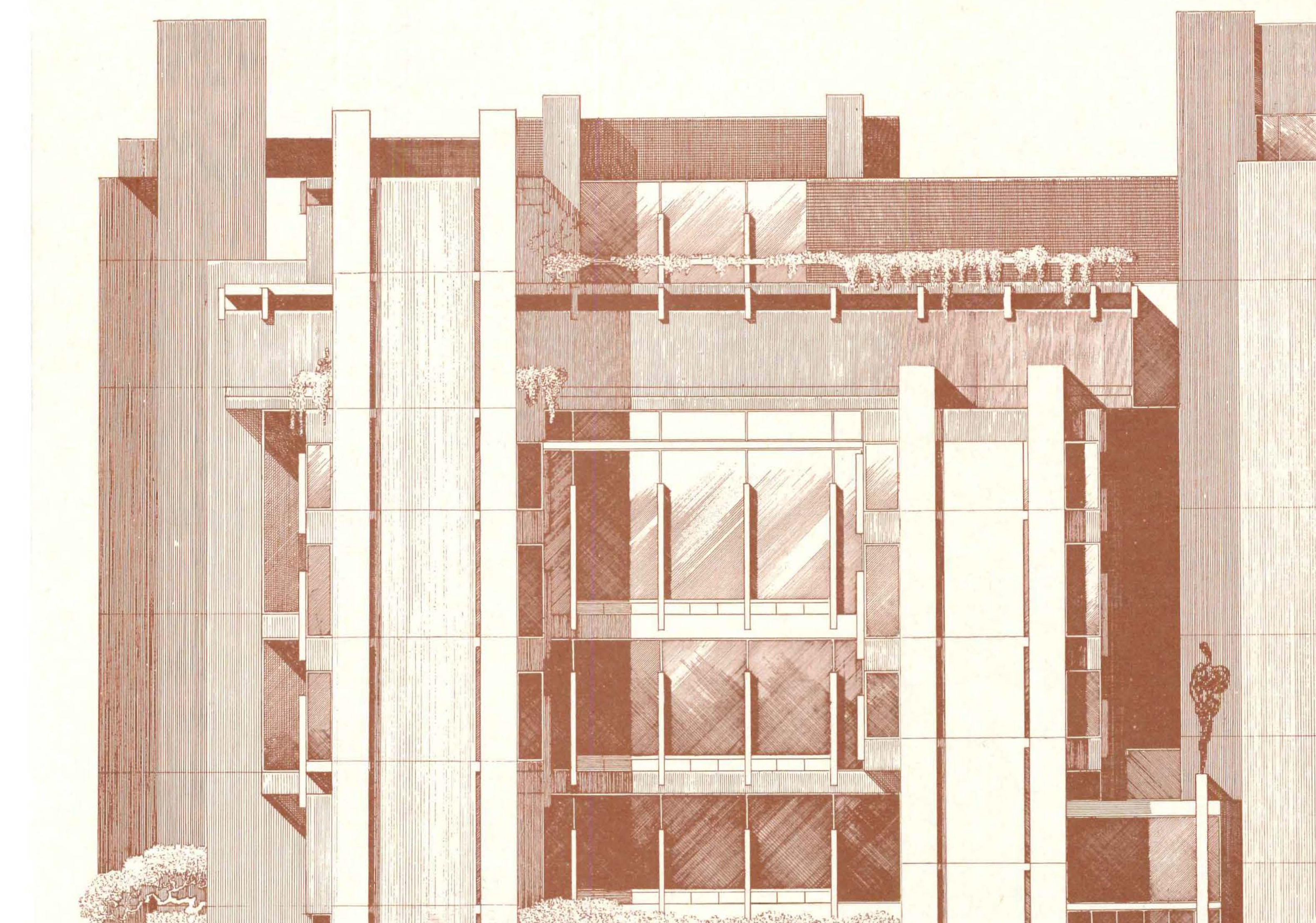
Rogers. To many, Rogers' buildings constitute an esthetic sham, "medievalism's affectation, born of a morbid love of admiration." For those who know them well, however, they possess a quality far more significant than the mere apparatus of Gothic detailing. It is this essential character, not perhaps so much of Gothic as of Mr. Rogers's mode of pictorial composition, that Saarinen sought to capture. While the buildings are still unfinished, it is not too early to see that Saarinen accomplished his aim. He has summoned the spirit aimed for in the earlier work, without the aid of the literal scholarship that Rogers and his contemporaries deemed indispensable. His architecture harmonizes with both the gymnasium and the graduate school, two buildings of similar pictorial conception but quite different execution.



Joe Clark

YALE'S NEW SCHOOL OF ART AND ARCHITECTURE

Designed by Paul Rudolph, it is now under construction



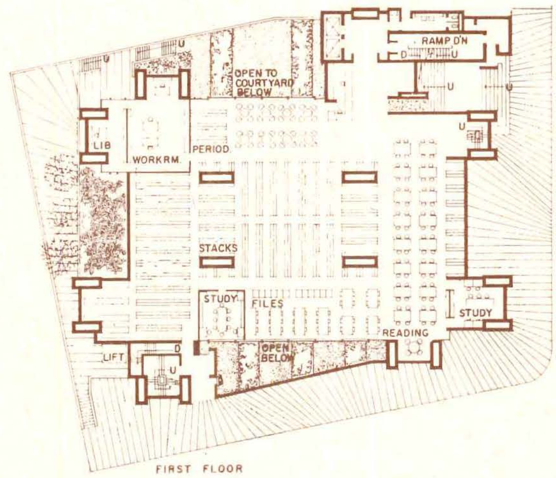
Drawings by Paul Rudolph

The Art and Architecture building is probably best understood by considering its internal spaces. Essentially it focuses on two central areas: a jury pit, almost an arena, on the first floor, and a lofty drafting room on the third. The other functions are grouped around the central spaces according to a pinwheel pattern. In many ways this is the boldest of Yale's recent buildings, and the one that raises the most possibilities concerning the future of modern architecture. The architect has sought some of the spatial effects of a Guarini and some of the plastic exterior modeling of a Vanbrugh, but he has done so within the framework of an extremely complicated program, the restrictions of modern building codes, and a university rather than an ecclesiastical or ducal budget. The building has emerged as a most emphatic statement that the eternal architectural verities are not beyond the reach of the modern architect. Rudolph clearly feels that the satisfaction of functional requirements is not enough to produce architecture, and that visual and spatial experiences are equally important, if not primary considerations.

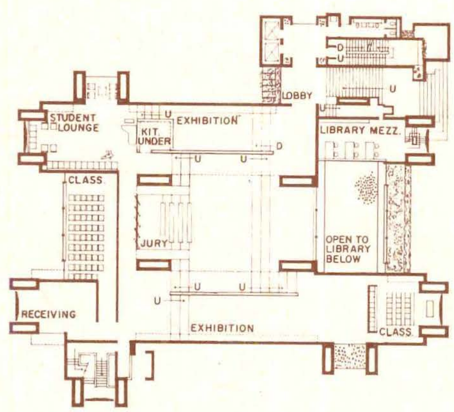
The building will be used by student architects, planners, painters, sculptors and graphic artists. It is the hope that the placing of these various disciplines under one roof will help restore them to a measure of unity. The disciplines have their own particular areas; but when possible they are brought into contact with each other. For example, the jury room for the architects is placed in the center of the exhibition area to allow anyone to observe the jury if he so desires. The painters will use the jury room from time to time. There is a terrace on the top floor for outdoor painting and sketching. A penthouse apartment plus two additional guest rooms will house visiting critics. The building is arranged to give each discipline its most desirable light.

The upper two floors are planned for painters, but the architectural drafting room will also receive skylighting through shafts that reach up through the center of the building.

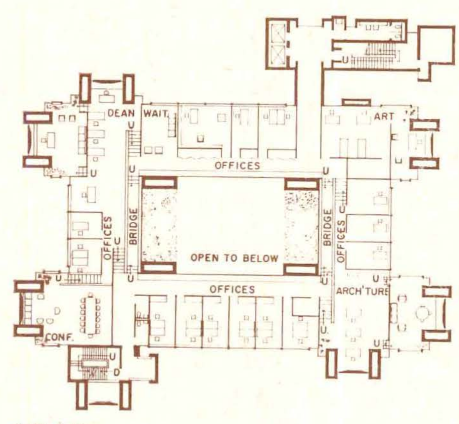
There has been a considerable degree of integration of structural and mechanical elements. The four hollow columns which mark the change of level of the various platforms provide vertical circulation for the mechanical systems. Hung acoustical plaster ceilings form plenums for the heating and the future air conditioning systems.



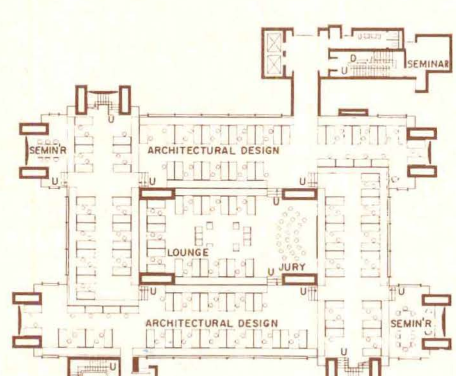
FIRST FLOOR



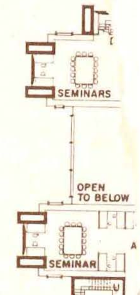
SECOND FLOOR



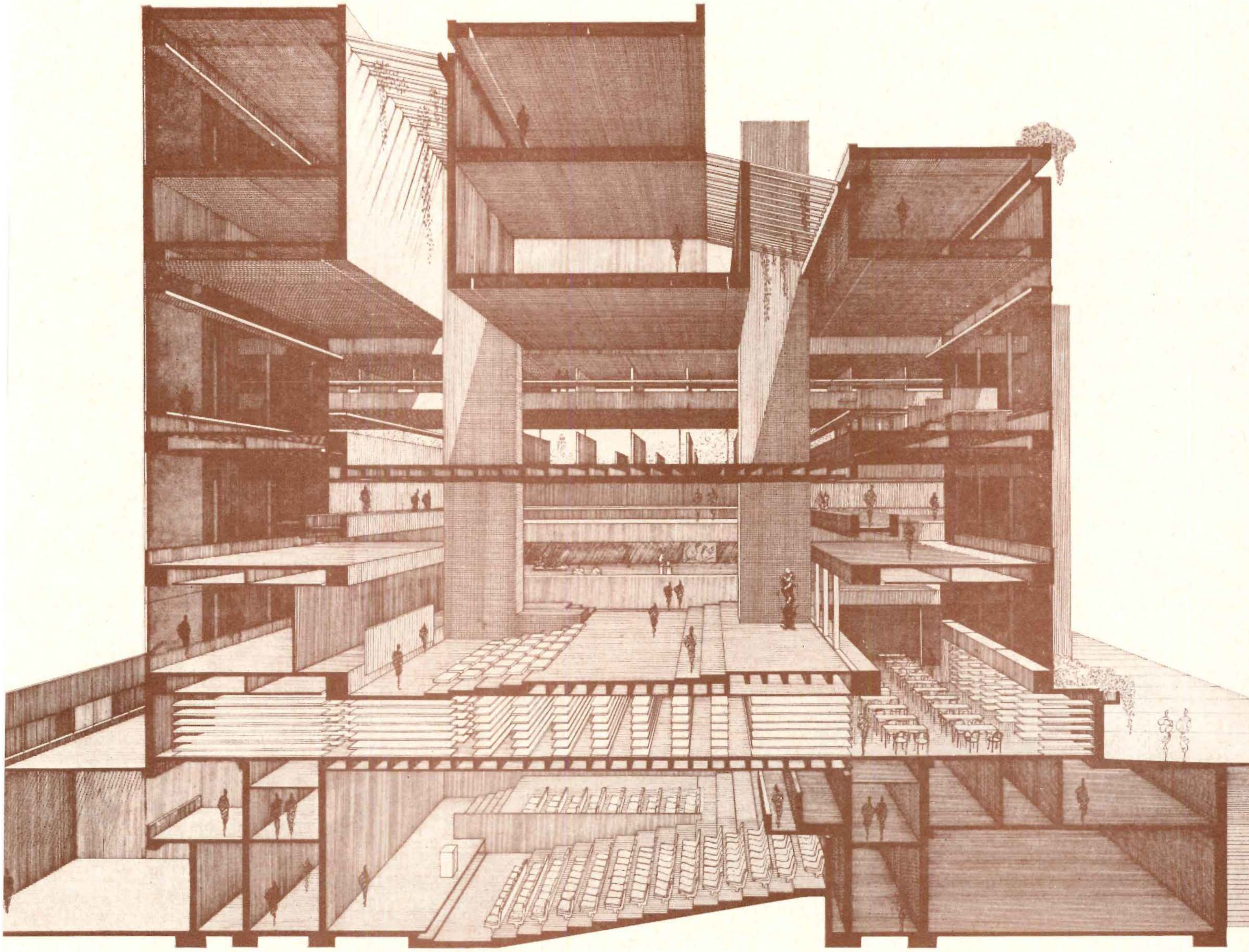
THIRD FLOOR



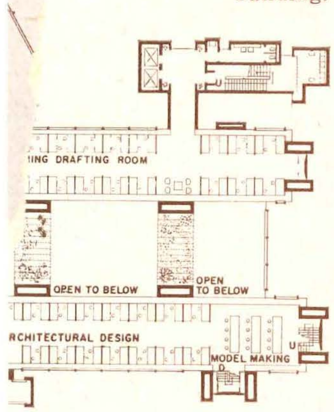
FOURTH FLOOR

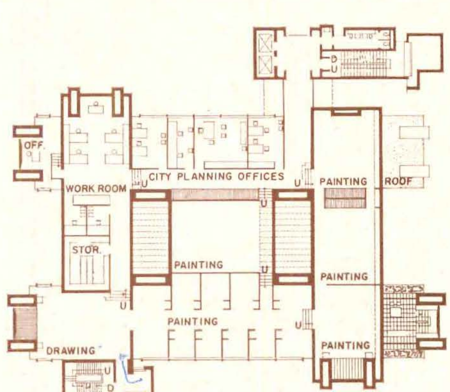


FIFTH FLOOR

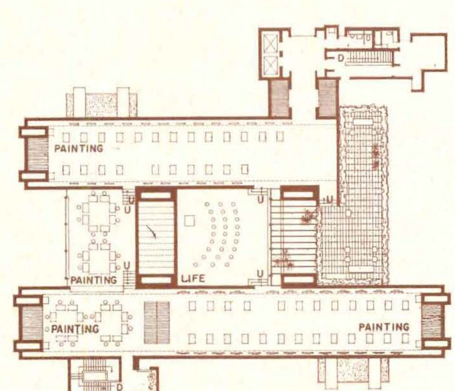


Rudolph describes his organization of the building's complex elements as follows: "Once having adopted the pinwheel scheme, the architectural problem became one of articulating it in three dimensions. A structure was adopted which allowed each leg of the pinwheel to be at a different height giving a kind of overlapping and interpenetrating series of platforms. These have been manipulated to vary the spaces in an intricate way which grows out of the use of the building. For instance, in the architectural drafting room, each of the five years has its own platform, but the drafting room is still one room taking up the entire floor in order to facilitate interchange of ideas between the students and faculty. Two mezzanines have been introduced to bring the planners into the same general area. This fundamental scheme allowed the ceiling heights to vary from 6 ft-6 in. to 28 ft. An auditorium, a portion of an exhibition hall, the center of the architectural design drafting room, and two studios form a series of high central spaces

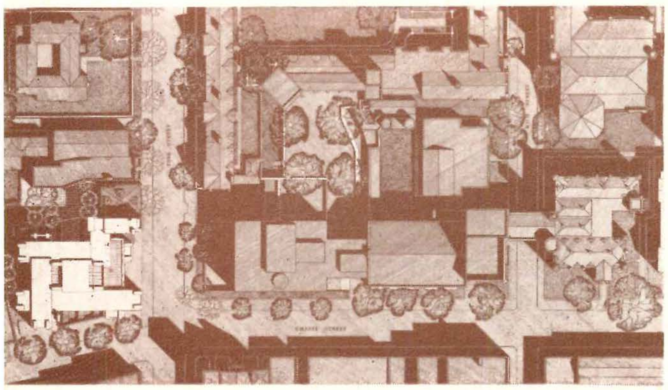


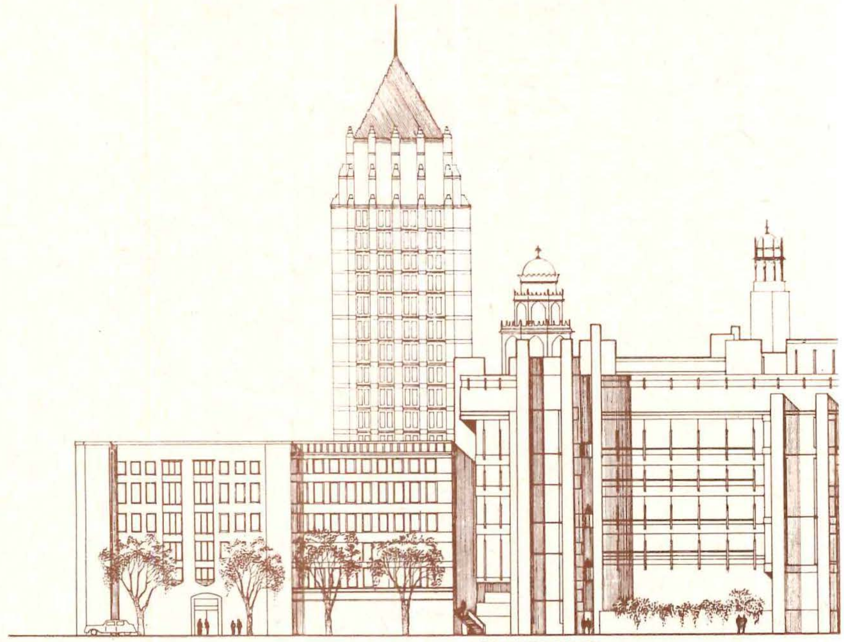


SIXTH FLOOR



SEVENTH FLOOR





The building will have a rough textured concrete surface. Concrete will be poured in a sieve to allow the aggregate to come to the surface to be exposed without bushhammering or sandblasting. This surface will be exposed on both the inside and the outside

Rudolph made this drawing of the campus façade to clarify the reciprocal relationships between his new building and the existing campus structures. In his words: "The site for the Art and Architecture building faces a commercial street, which separates Yale from the business area. The new structure will announce the beginning of Yale University on that street. Kahn's Art Gallery and the Art and Architecture building form a gateway to the University. If

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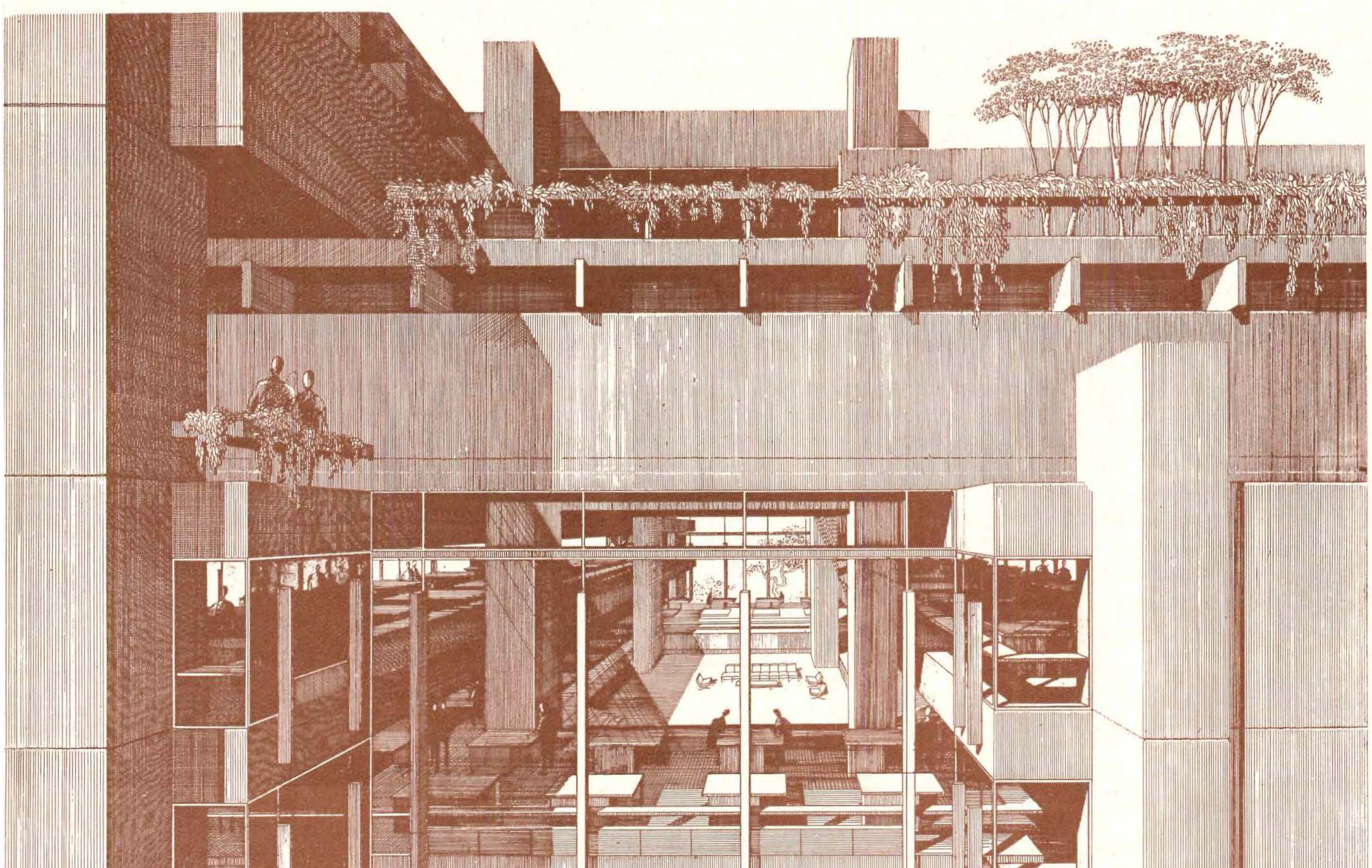
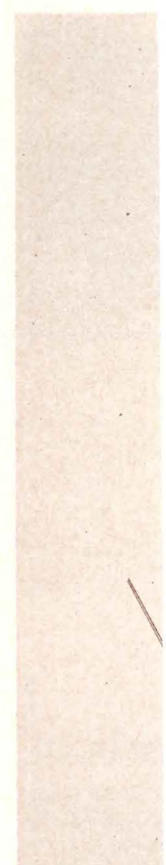
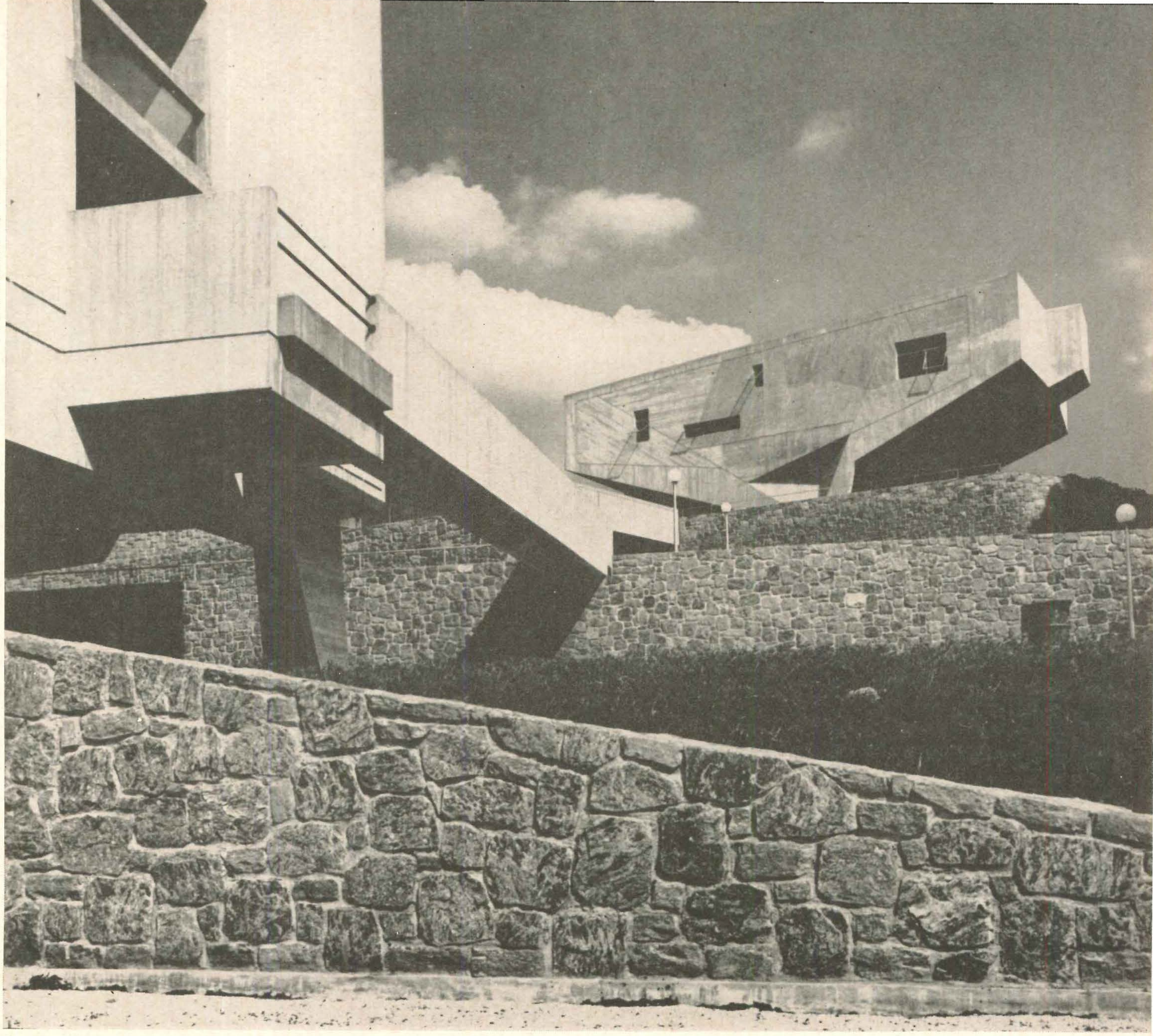




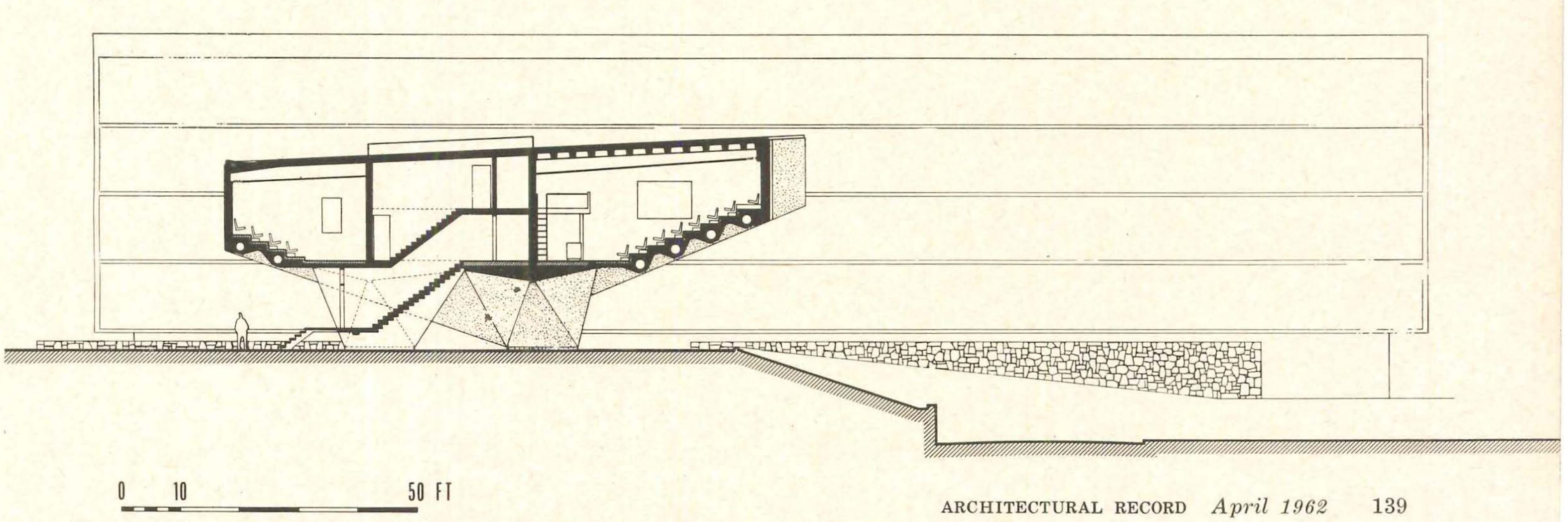
All photographs by Ben Schnall



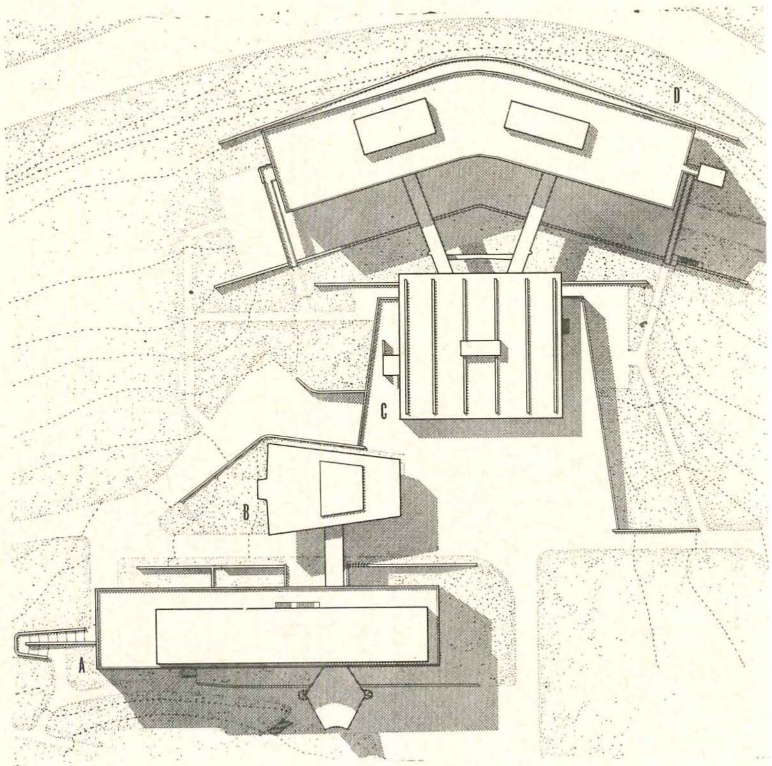
Lecture hall wing also shown in section below. Residence hall at left

FLYING BRIDGES LINK N.Y.U. CAMPUS GROUP

Marcel Breuer's imaginative solution to a steep slope transforms an impossible site into an exciting location for a new residence hall, community hall and technology group at New York University's Bronx campus



NEW YORK UNIVERSITY
University Heights Campus, New York City
ARCHITECT: *Marcel Breuer, F.A.I.A.*
Dormitory Buildings:
Residence Hall and Community Hall,
Robert F. Gatje, A.I.A., Associate.
Technology Buildings:
Laboratory Wing and Lecture Halls Wing,
Hamilton Smith, A.I.A., Associate.
MECHANICAL ENGINEERS FOR GROUP OF FOUR BUILDINGS:
Jaros, Baum & Bolles
STRUCTURAL ENGINEERS FOR DORMITORY BUILDINGS:
Weisenfeld, Hayward and Leon
STRUCTURAL ENGINEERS FOR TECHNOLOGY BUILDINGS:
Farkas & Baron
CONTRACTOR: *Caristo Construction Corp.*



KEY TO SITE PLAN

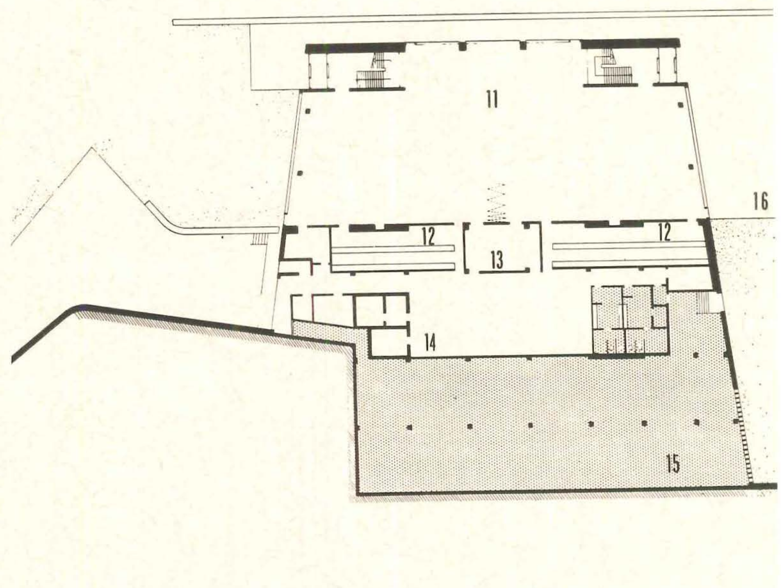
(A) Laboratory Wing
(B) Lecture Halls Wing
(C) Community Hall
(D) Residence Hall

The site for the two buildings was a beautiful but somewhat forgotten hillside to the south of the campus center. The slope was generally so steep that building upon it had not seemed practical in the past. The principal uses for the hill were as a challenging survey problem for the student engineers and as a pleasant weather lounging spot from which a nice view was to be had up and down the Harlem River.

The new buildings are but a first step in a rebuilding program proposed for the University Heights campus following a comprehensive plan prepared for the University in 1956-58 by Marcel Breuer, with Hamilton Smith as associate.

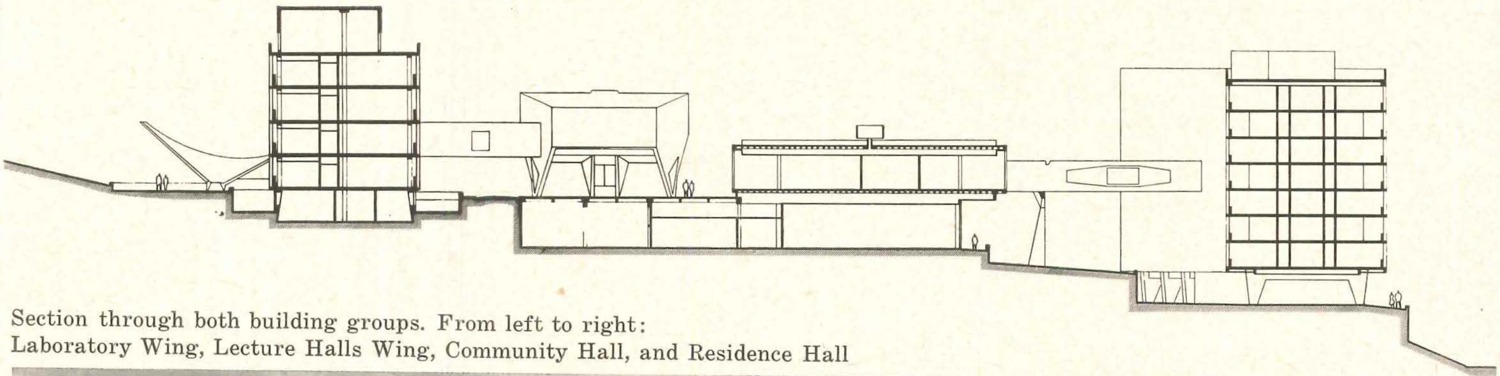
The new dormitory consists of a seven-story residence hall set on piers at the base of the hillside and a two-story community hall cut into the brow of the hillside. It is designed to enable students to walk at one level from the street, across a broad terrace, through a reception lounge and over bridges (one for men and one for women) to the center floor of the residence hall, where no one need walk up or down more than three flights of stairs. Note section at top of opposite page. It has thereby been possible to house 612 students in a multi-story dormitory, using a minimum of precious campus ground area without requiring costly elevator service, on low lying land where the 78-ft height of the new structure does not compete with the dome of the Gould Library, a campus landmark.

The two level community hall has a lounge at the terrace level with a reception desk controlling access to the two bridges which are the only means of approach to the men's and women's sections of the residence hall be-

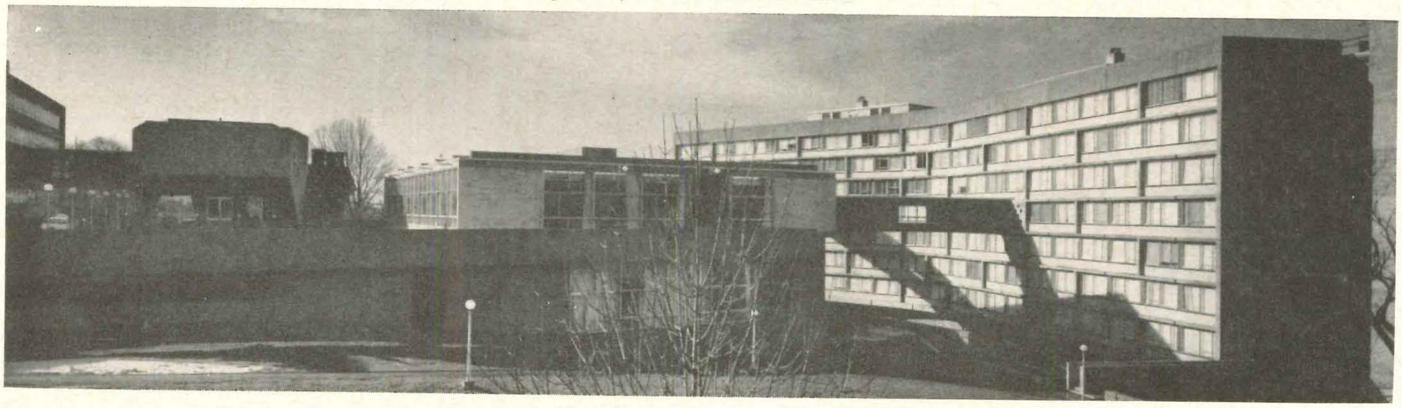


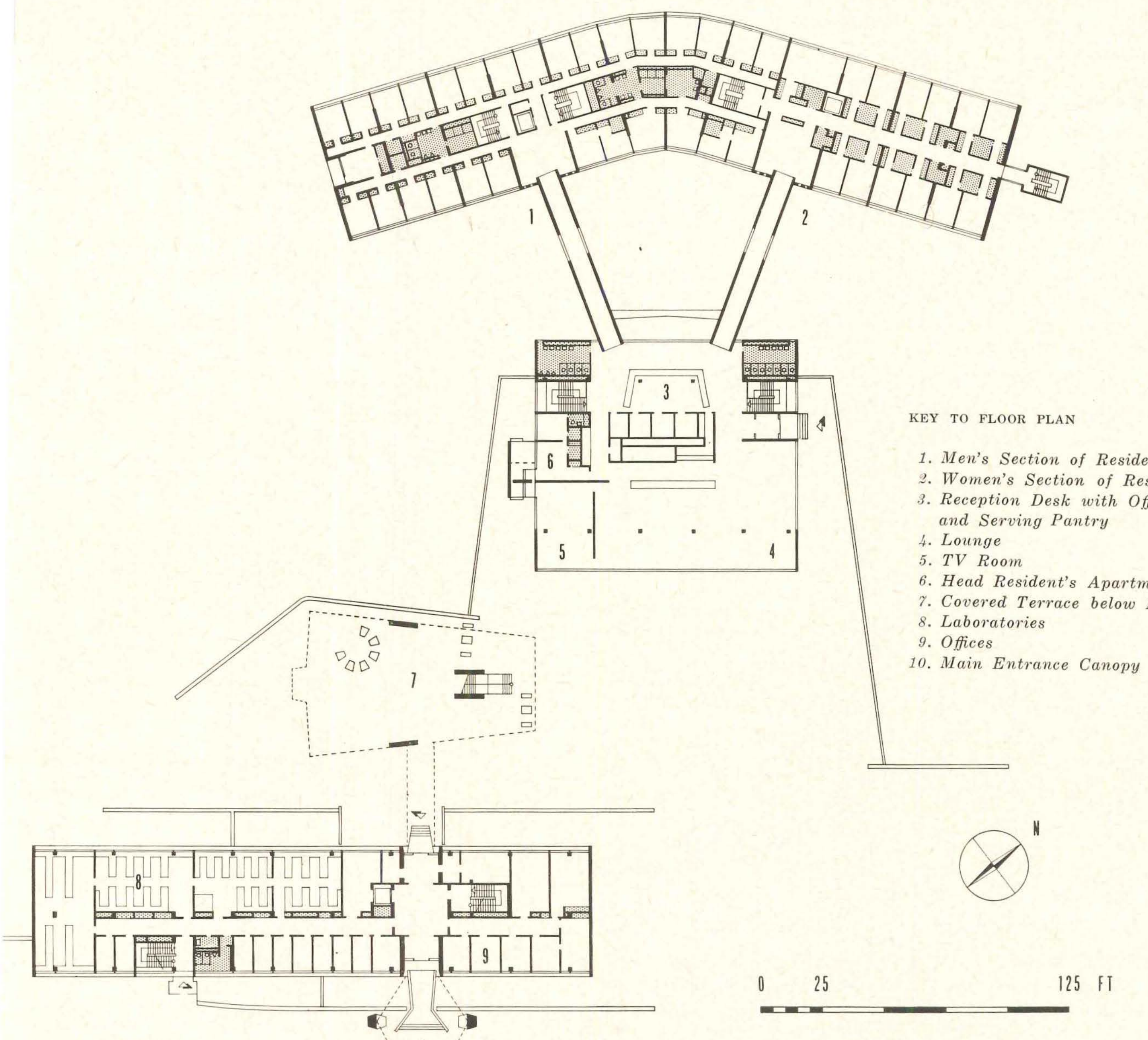
KEY TO FLOOR PLAN
AT LOWER LEVEL OF COMMUNITY HALL

11. Dining Room
12. Serving Counters
13. Dishwashing
14. Kitchen
15. Mechanical Equipment
16. Outdoor Terrace



Section through both building groups. From left to right: Laboratory Wing, Lecture Halls Wing, Community Hall, and Residence Hall





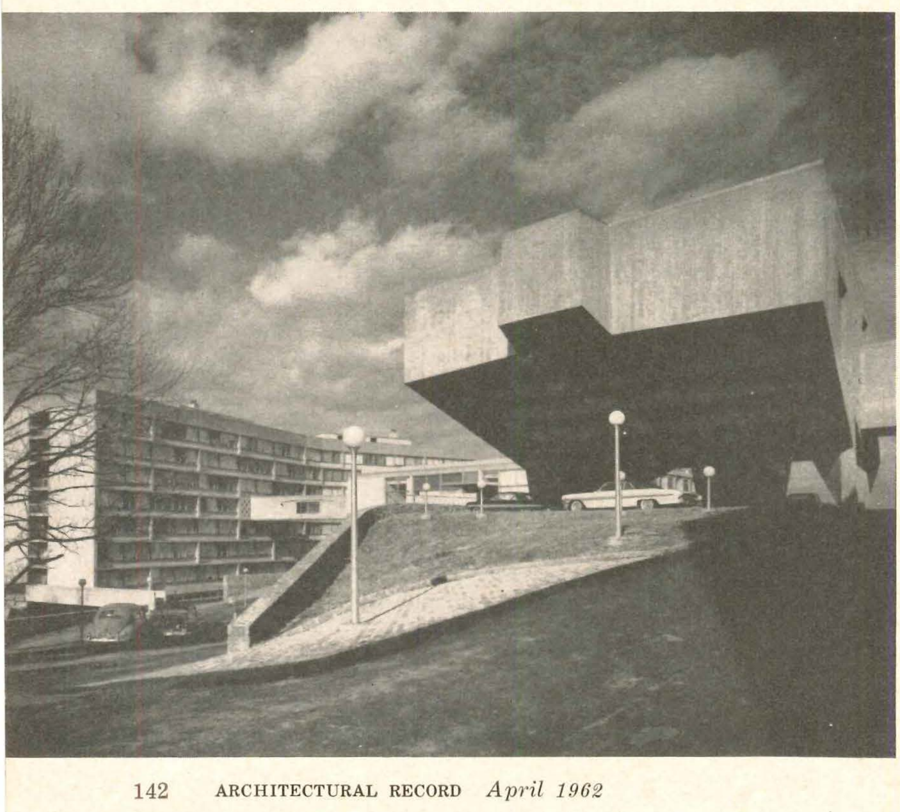
KEY TO FLOOR PLAN

1. *Men's Section of Residence Hall*
2. *Women's Section of Residence Hall*
3. *Reception Desk with Office, Mail Room and Serving Pantry*
4. *Lounge*
5. *TV Room*
6. *Head Resident's Apartment*
7. *Covered Terrace below Lecture Halls*
8. *Laboratories*
9. *Offices*
10. *Main Entrance Canopy*

Edge of women's half of residence hall. The graceful link which is glazed on both sides connects the dormitory with an emergency stair tower

Entrance to laboratory wing on the campus side is a curved concrete canopy of thin shell construction in the saddle form of a hyperbolic paraboloid

Sloping drive serves kitchen beneath community hall terrace. The lecture halls wing shelters cars. Bridge to laboratory wing at far right

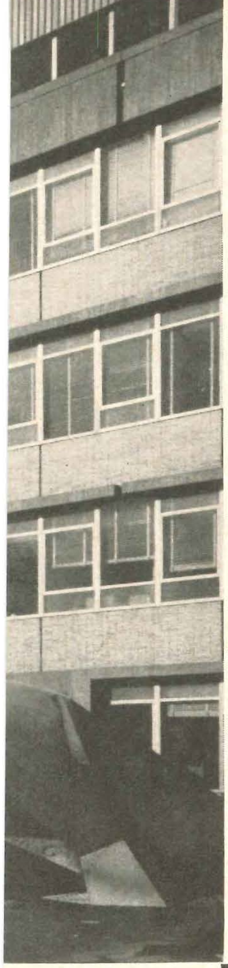


yond. Stairs lead to the student cafeteria below. The kitchen and mechanical equipment room are under the terrace.

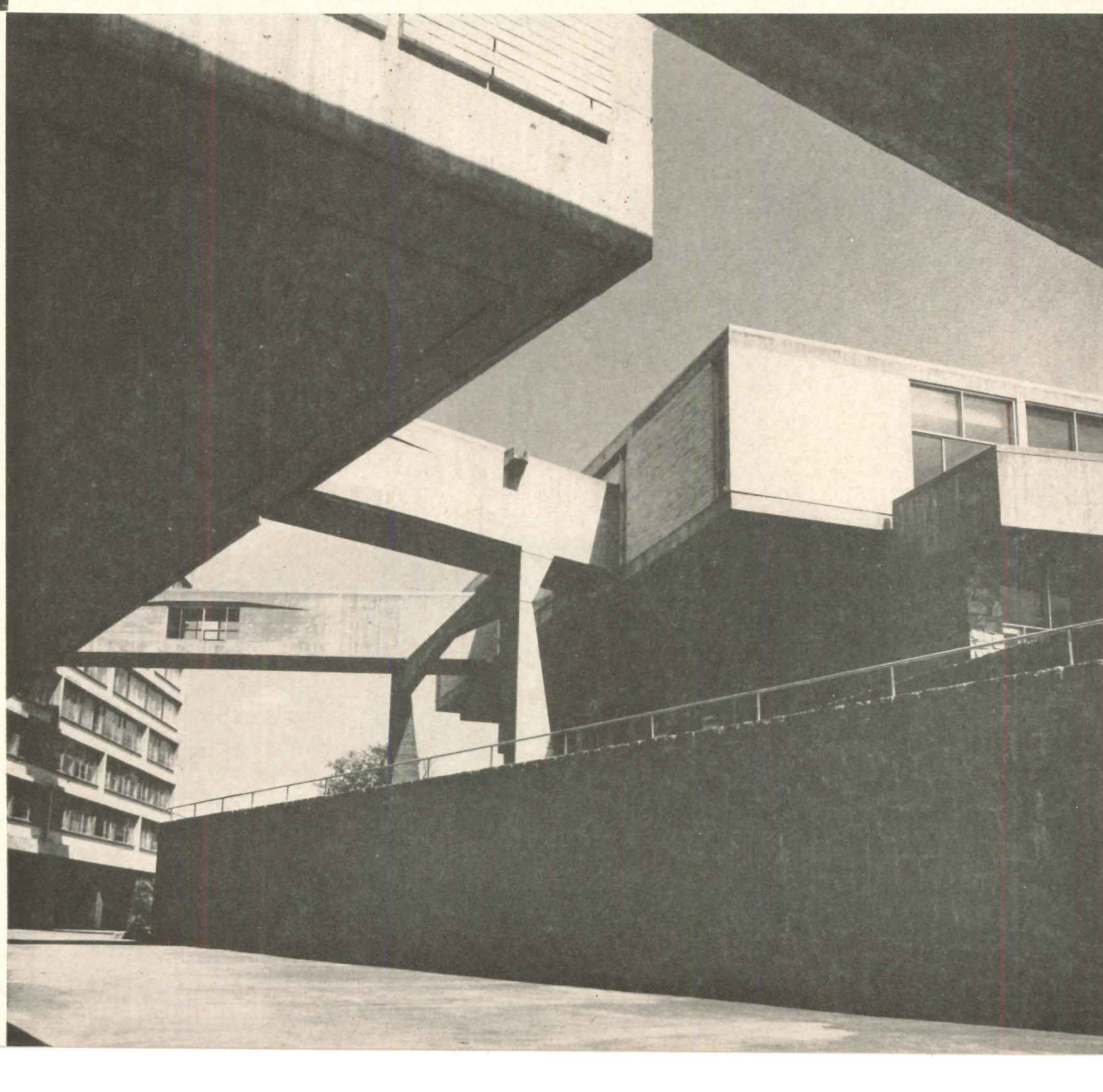
The laboratory wing and the lecture halls wing are the first stage of construction of the new technology center. These two structures are also connected by a bridge. The laboratory wing contains 15 teaching laboratories, 15 research laboratories, 55 private offices, and 3 seminar rooms. The five-story building houses the departments of mathematics, physics and electrical engineering.

The lecture halls wing is raised above ground to the level of the second floor of the laboratory building. It contains two teaching auditoriums, seating 192 and 58 students respectively. The building has been designed to be an exact envelope for its interior spaces, fitted to their particular functions. The dramatic concrete form which results is without precedent. Each of the two lecture rooms can be entered directly from a common lobby which is connected by a bridge to the second floor of the laboratory building.

The architects have selected building materials in harmony with the nearby campus buildings. Exposed concrete has been extensively used in combination with a buff brick which closely matches that used on the original campus buildings.



Separate bridges for men and women connect the community hall at lounge level with the fourth floor of the residence hall from which the students walk up or down a maximum of three flights. Cafeteria is under cantilevered second floor of community hall



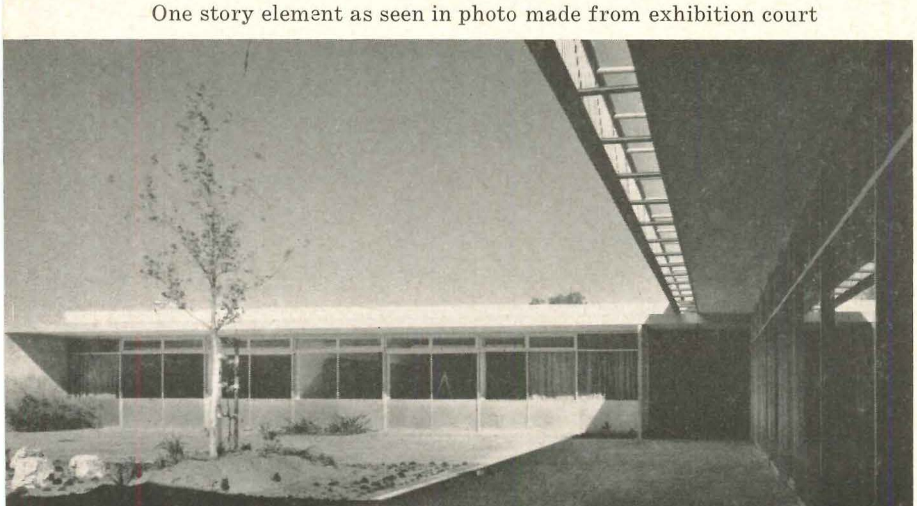
Photographs by Julius Shulman

Three-story arts wing includes the element on the right in the photograph. The two-story economics wing is contained within the continuous wall a portion of which can be seen to the left

NEUTRA AND ALEXANDER DESIGN FINE ARTS BUILDING WITH HANDSOME SUN CONTROLS

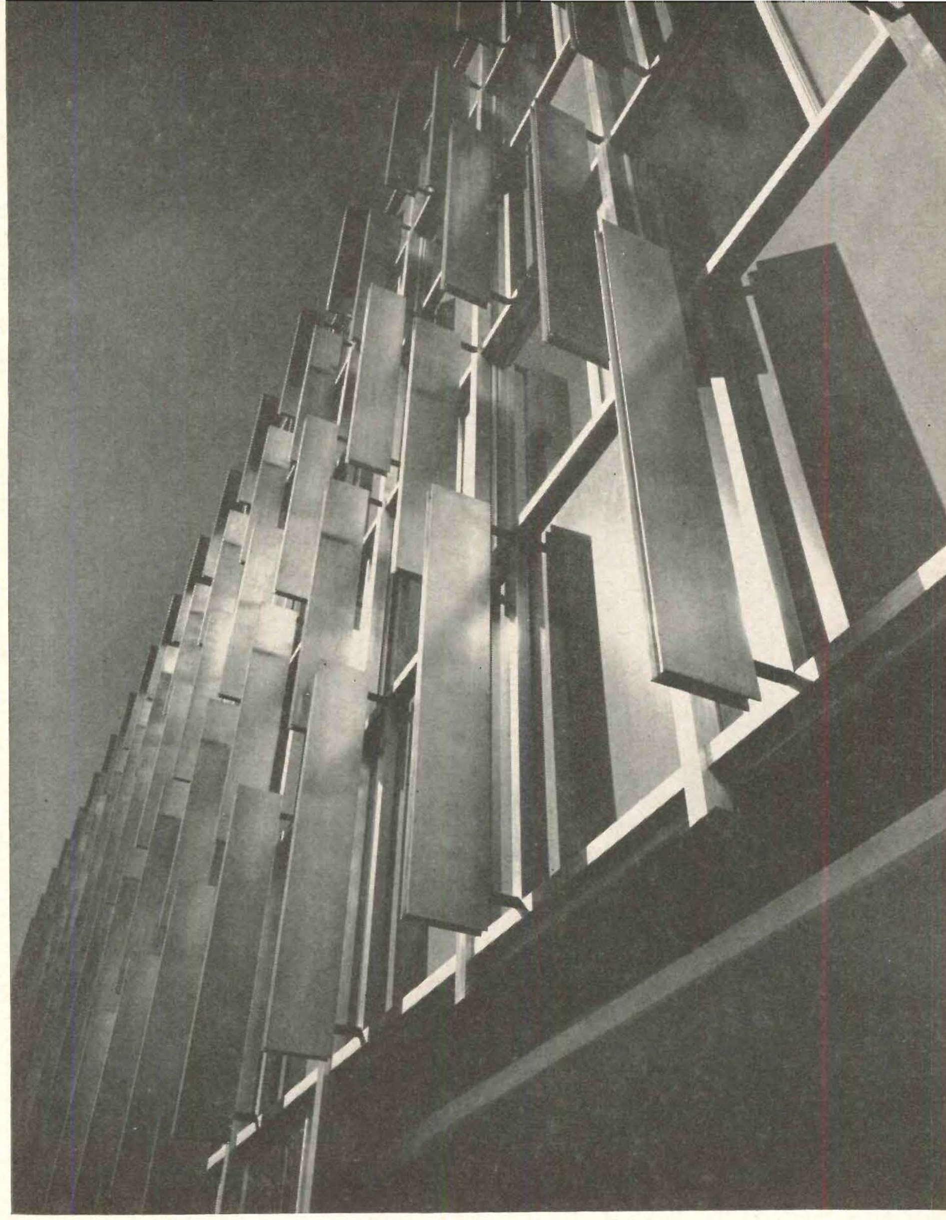
NAME: *Fine Arts Building*
LOCATION: *San Fernando, California*
OWNER: *San Fernando State College*
ARCHITECTS: *Neutra and Alexander*

One story element as seen in photo made from exhibition court



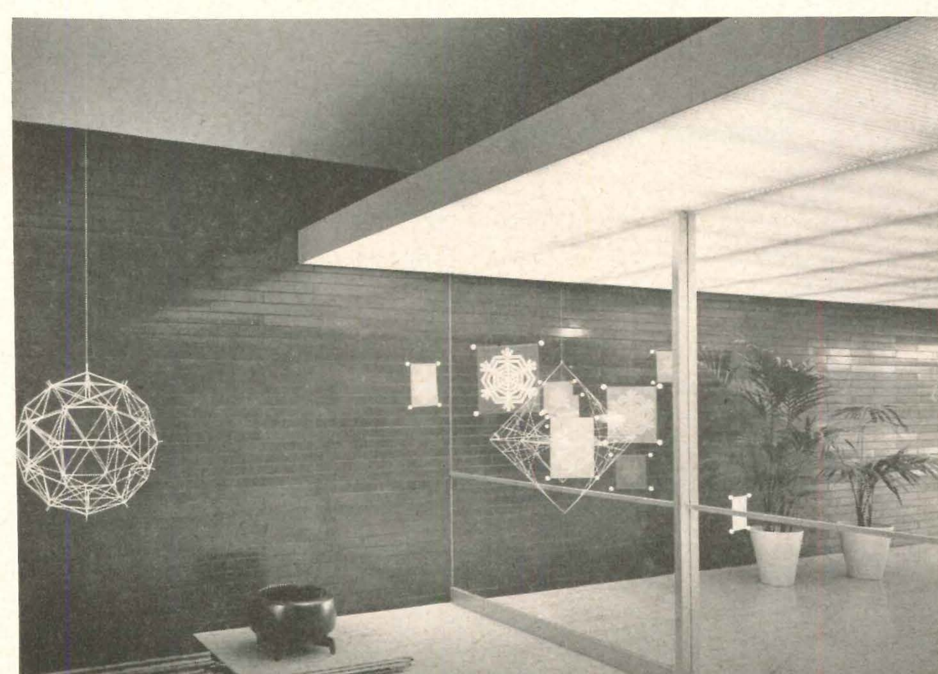
Neutra and Alexander have completed another building in the fine edged, precise way which is their trademark, where planes of minimum thickness intersect to create an effect almost linear, and where the use of materials is beautifully detailed and restrained. Here they make elegant use of anodized aluminum sun blinds, projected from window mullions by means of delicately scaled bars and staggered in a simple pattern made intricate in the sunlight.

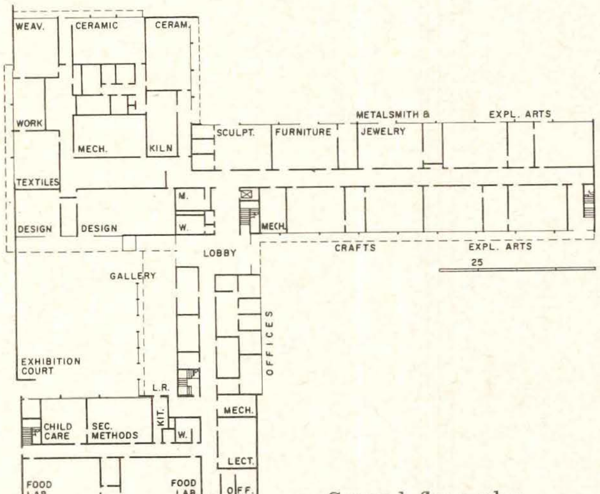
This building comprises a three-story fine arts department with a one-story element with facilities for weaving, ceramics, textiles and design; and a two-story home economics department. It is of reinforced concrete frame with pan-joist floor and roof slabs.



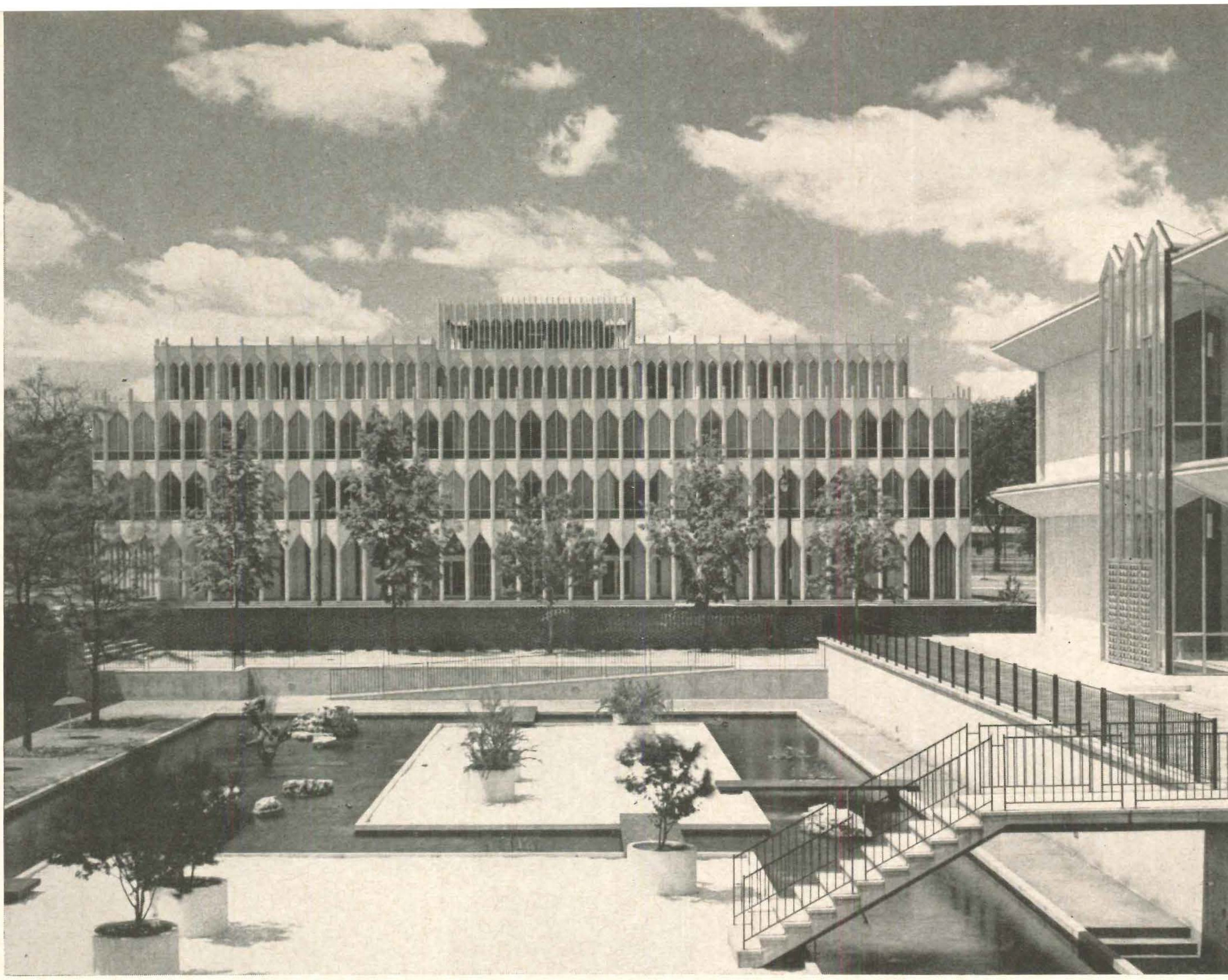
Anodized aluminum sun screens

View from exhibition hall to entrance





Ground floor plan



All photographs on this page by Baltazar Korab

Building Types Study: College Buildings

YAMASAKI'S CONCRETE "TREES"

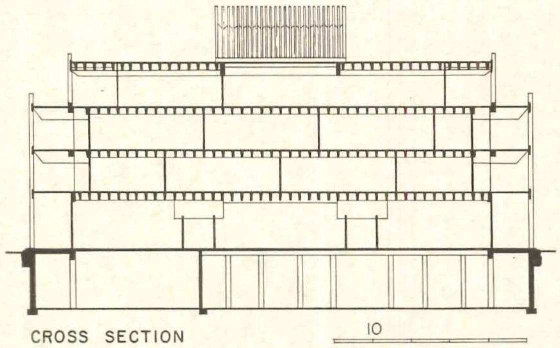
In a manner which gently recalls the "Steamboat Gothic" era, Yamasaki uses precast reinforced concrete "trees," 40-ft high and 5-ft wide, to enclose Wayne State University's College of Education building

NAME: *College of Education Building, Wayne State University*
OWNER: *Wayne State University*
LOCATION: *Detroit, Michigan*
ARCHITECTS: *Minoru Yamasaki and Associates*
STRUCTURAL ENGINEERS: *Ammann & Whitney*
GENERAL CONTRACTOR: *O. W. Burke Company*

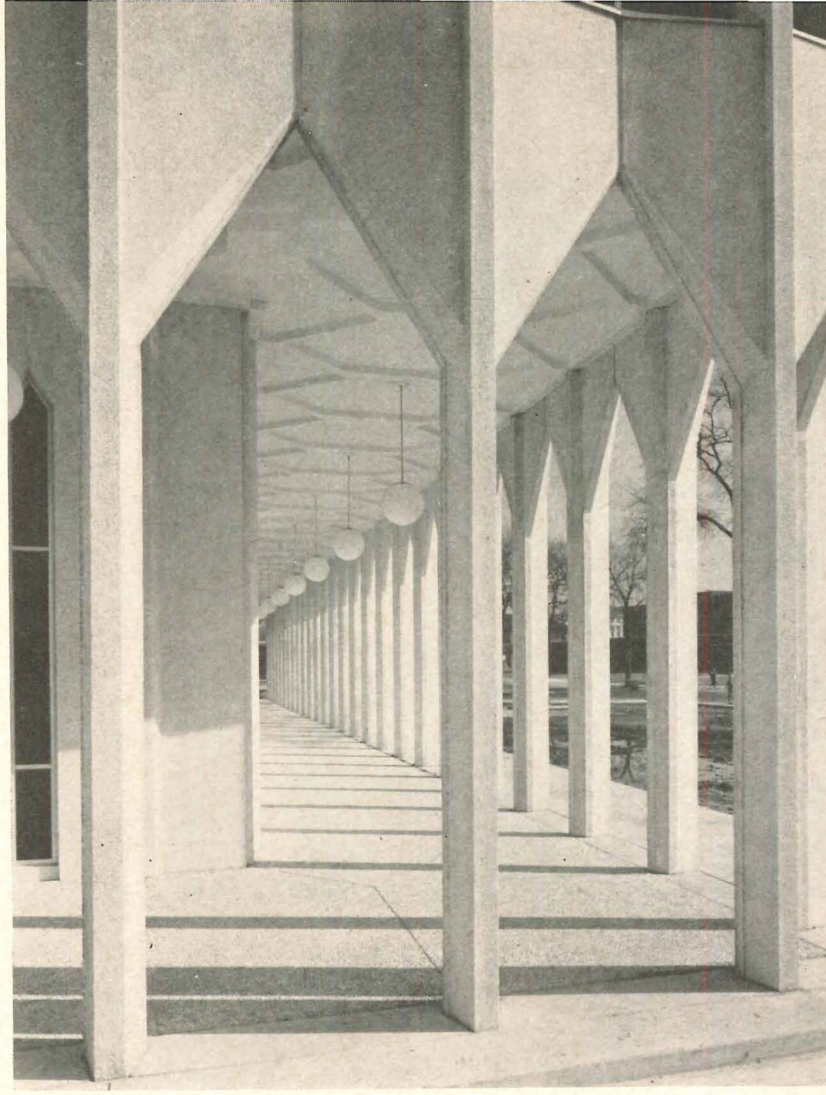
This building's unusual perimeter is a multiple of modular units three-stories high, with one-story high units at the fourth and fifth floor levels. These modular "trees" are repeated one hundred and twenty times around the perimeter of the building. Between the "trees" are fixed anodized aluminum sash, the upper portions of which are glazed with gray sheet glass, and the lower with gray plate glass unpolished on the inside in order to conceal desks and other furniture from outside view.

The building is set on a platform approximately two feet above the surrounding grade with the exterior wall of the first floor set back about ten feet, forming a continuous protective arcade. The steps to the platform are also continuous. The penthouse enclosure above the fourth floor screens the elevator penthouse and the cooling towers.

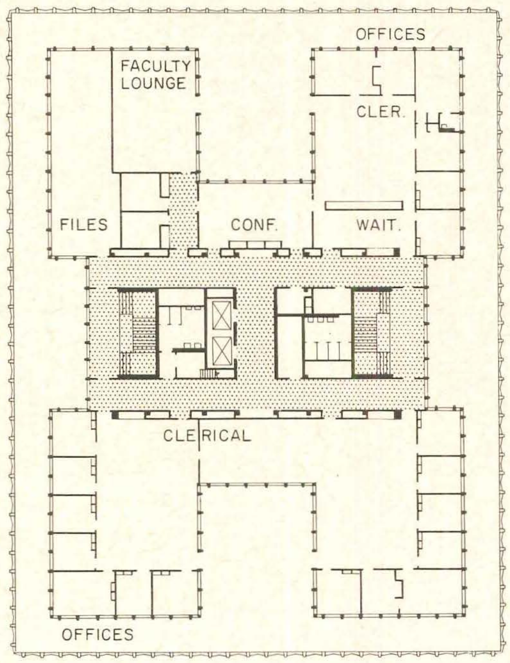
The interior structure is a combination of poured-in-place concrete, and precast, prestressed concrete. Portions of all floors are framed with precast, prestressed double tees which span fifty-two feet. The entire central core area is framed using a conventional poured in place system of beams, columns and slabs. The core extending through the height of the building provides a rigidizing anchor and bracing for the rest of the precast concrete structure.



CROSS SECTION

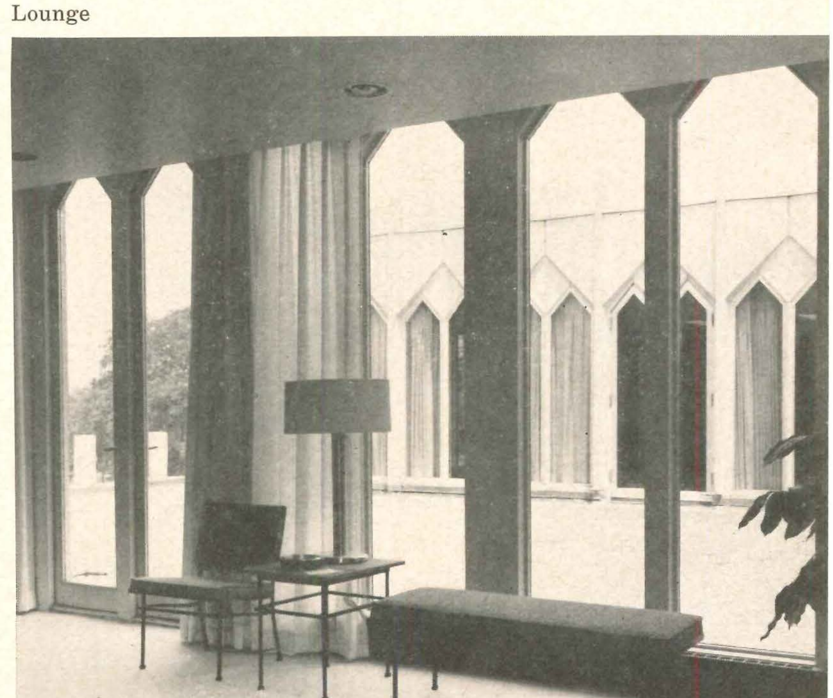


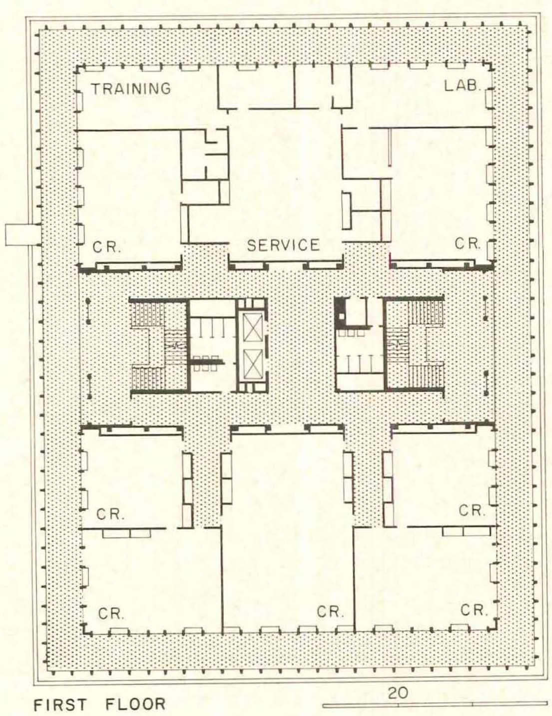
Arcade



FOURTH FLOOR

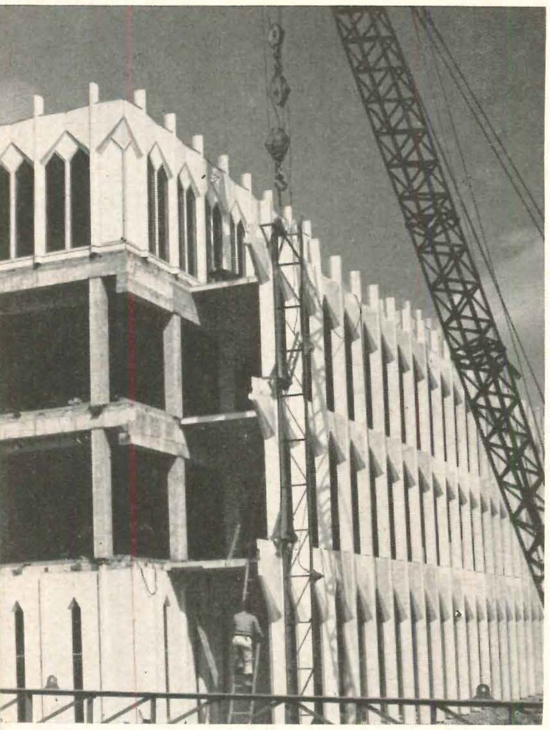
Lounge

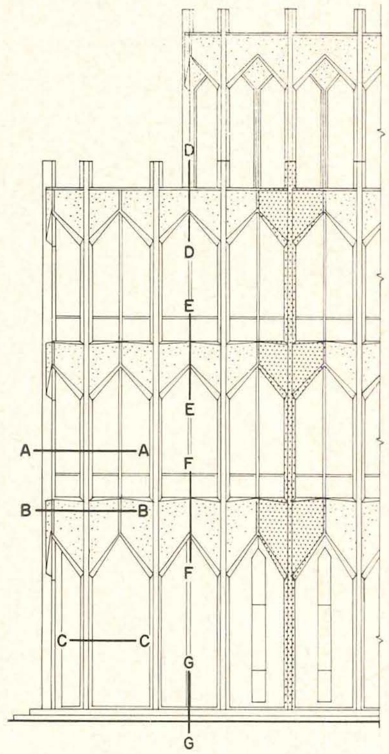


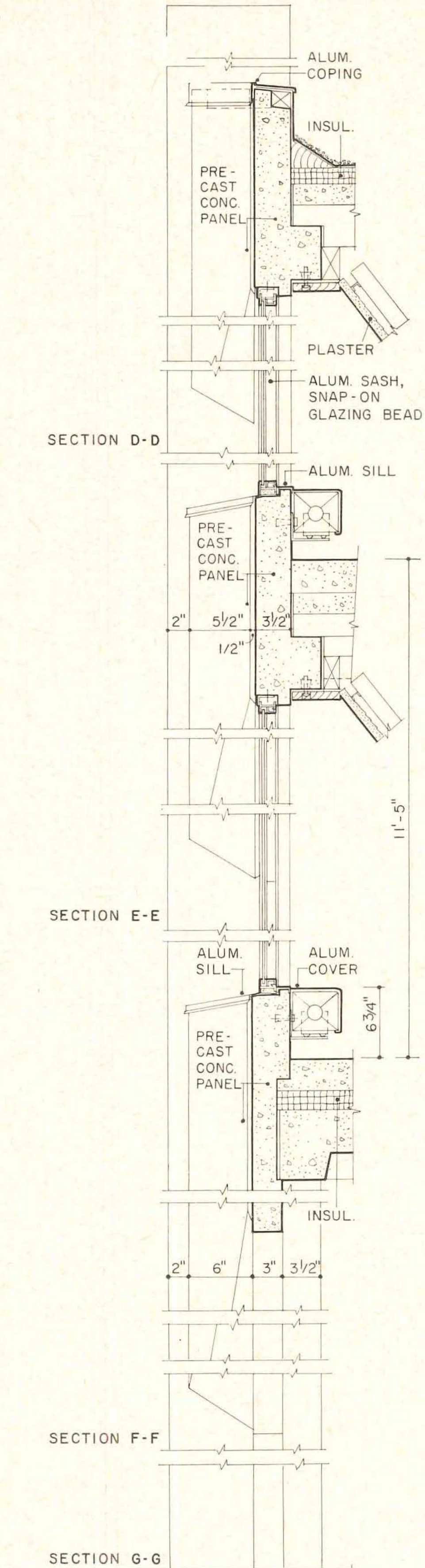


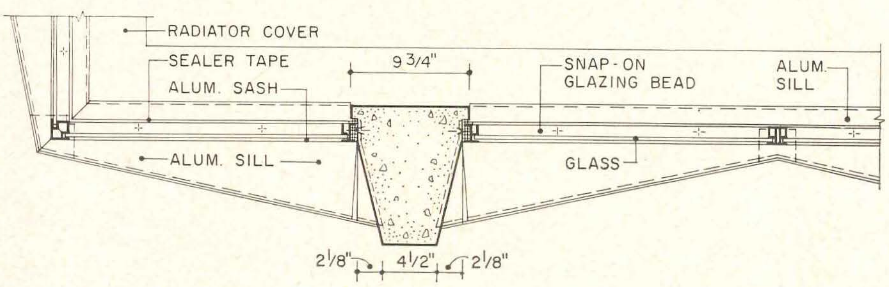
FIRST FLOOR

Yamasaki's Concrete "Trees": Details of Fabrication and Construction

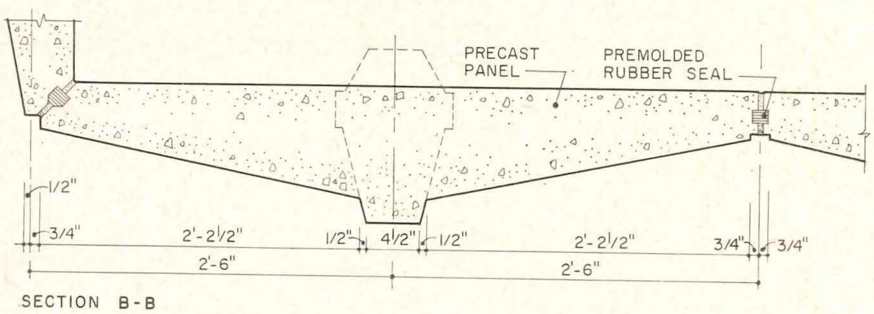








SECTION A-A



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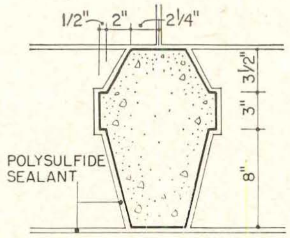

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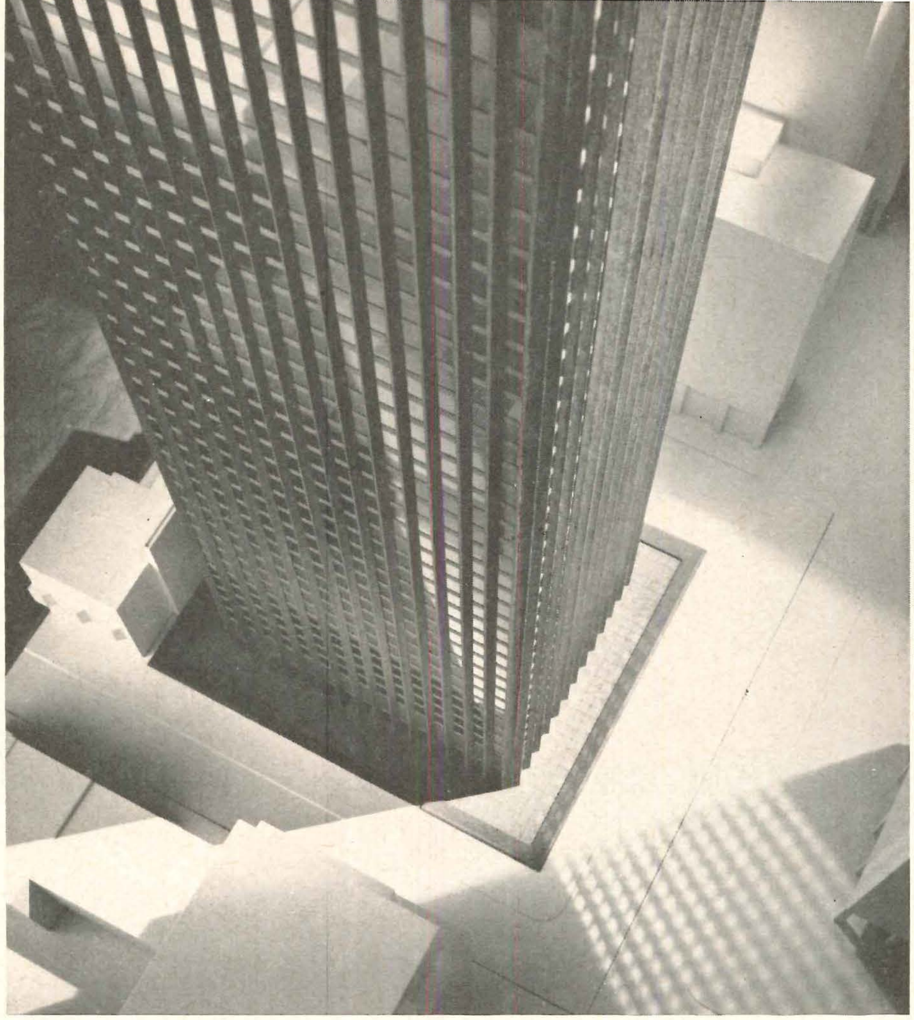
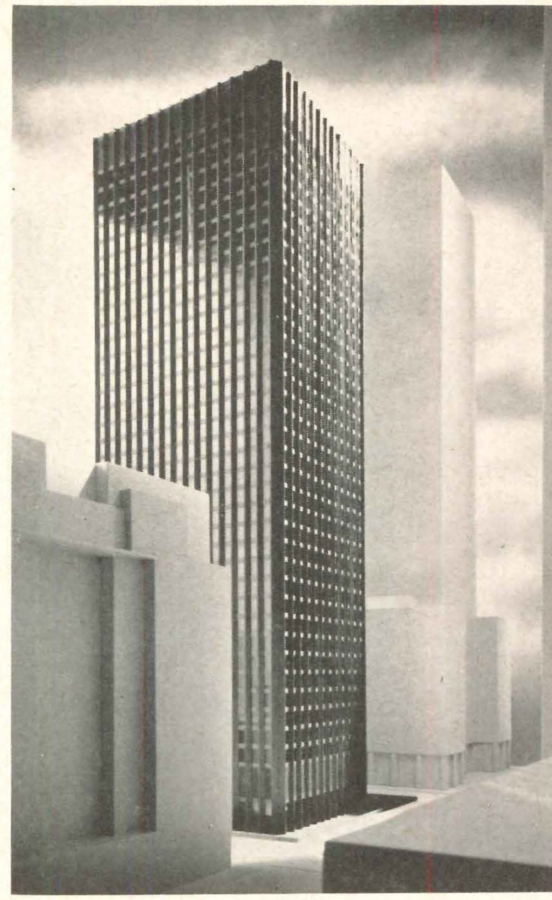




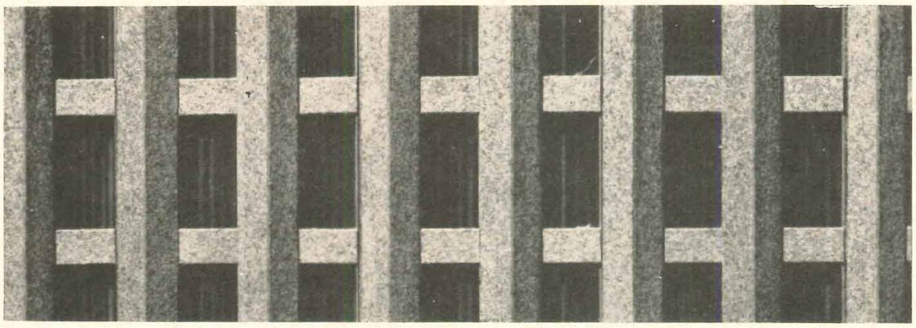
Model photos: Ezra Stoller Associates

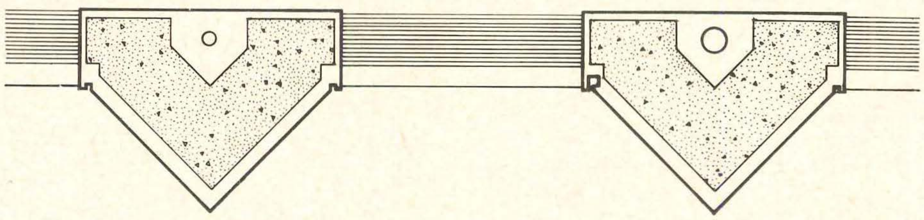
SAARINEN'S CBS DESIGN

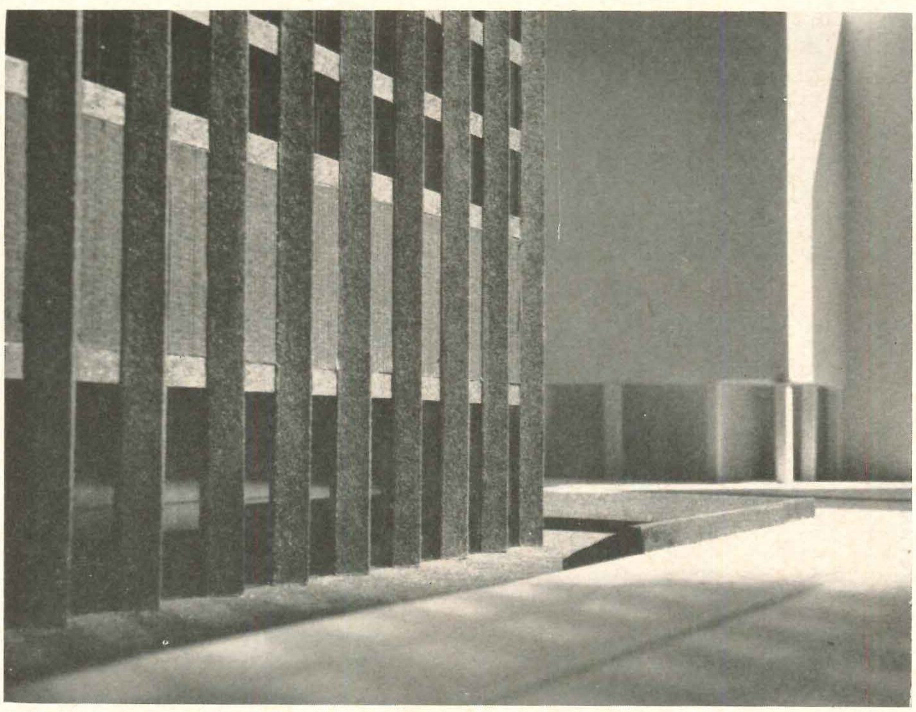
Eero Saarinen said of this design for his first and only tall building, "Its beauty will be, I believe, that it will be the simplest skyscraper statement in New York." The building will indeed have the large, direct boldness characteristic of Richardson at his best—and will appear simple—but its "simple" look was arrived at only after a carefully studied and ingenious integration of technological and esthetic considerations. The outer wall will serve as structure, skin, conveyor of air-conditioning and electrical systems, and—by its plasticity—will translate the repeated 5-ft widths of gray glass and granite into sculptural façade patterns that will change in aspect as one moves around the building.

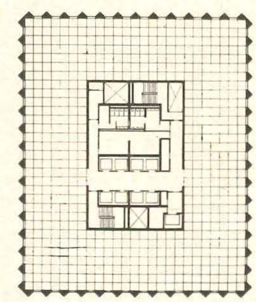
The 38-story, 490-ft high shaft will grow sturdily out of a plaza paved with granite and set a few steps below sidewalk level. The 135 by 160 ft building will occupy 60 per cent of the 40,000 sq ft plot, and will contain 800,000 sq ft of space, most of which will be occupied by six of the seven operating divisions of CBS, with a few rental floors serving as future expansion space. The verticality of the design will be emphasized by carrying the unbroken façade pattern to the plaza, with entrances to the lobby and rental areas from crosstown streets.

ARCHITECT: *Eero Saarinen and Associates;* STRUCTURAL ENGINEER: *Paul Weidlinger;* MECHANICAL AND ELECTRICAL ENGINEERS: *Cosentini Associates;* GENERAL CONTRACTORS: *George A. Fuller Company*

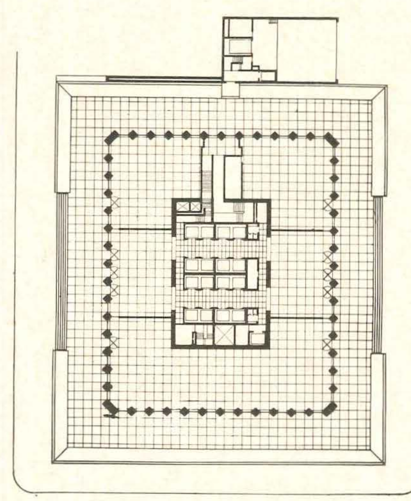








TYPICAL FLOOR

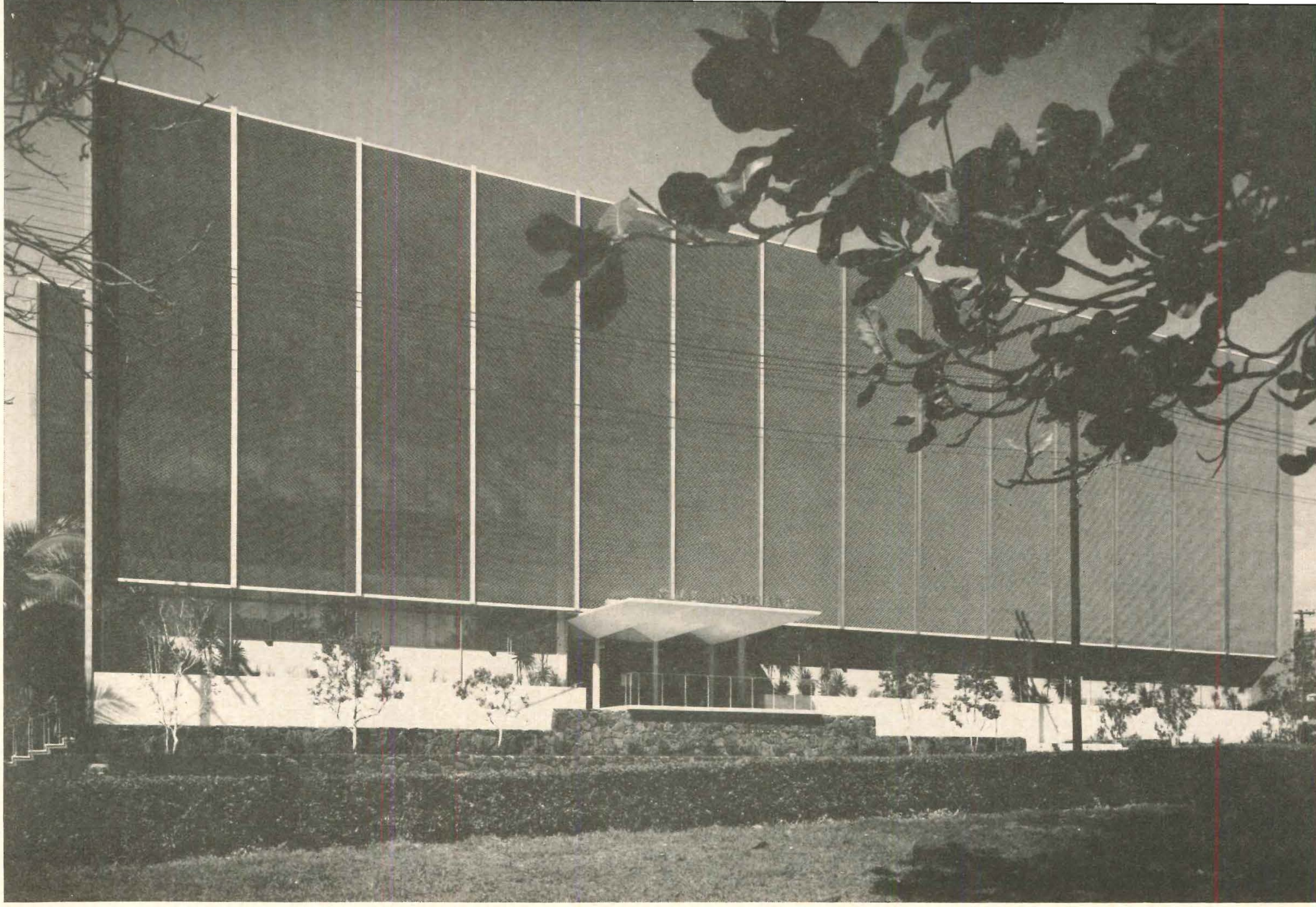


GROUND FLOOR

Saarinen's CBS Design

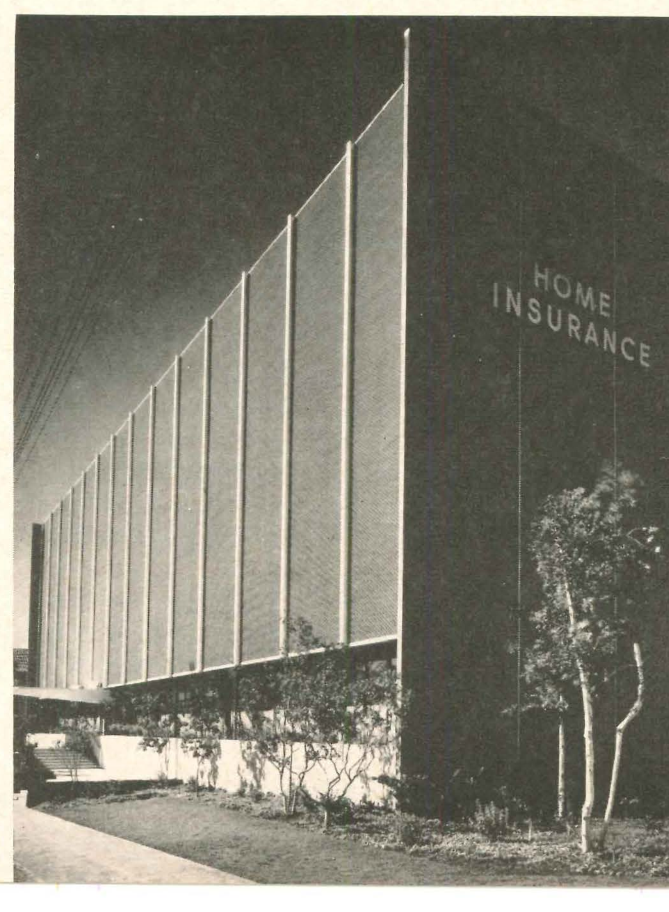
The exterior wall consists of V-shaped, granite clad, reinforced concrete columns, each forming a continuous chase for ducts, pipe, conduit, etc. The entire concept is organized on a 5-ft module—piers and glass are each 5-ft wide—thus offices can be laid out on multiples of 5 ft. The glass will be gray; the granite is yet to be chosen. The 45 degree splays, pointed piers, and deep reveals—reminiscent of the Gothic—will accentuate the strong vertical feeling in furtherance of Saarinen's idea that a skyscraper should be "a soaring thing."

One-way floor beams will run at right angles to exterior walls and will be supported by a continuous, L-shaped concrete haunch beam running against the inner face of the columns. Corner sections of the floor slabs will be supported by a two-way waffle pattern of beams. The glass will extend from a low, 6-in. sill to a drapery pocket in the ceiling. The 35-ft floor depth from outer wall to core will handily provide either the corridor plus inner and outer office combination, or top quality open space for general office use.

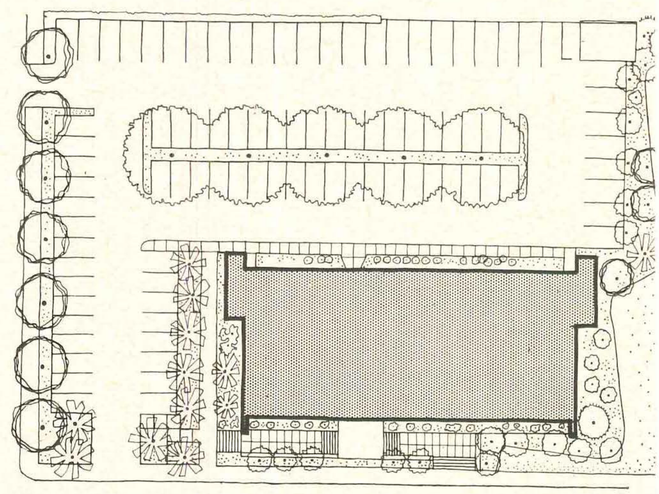


Low Cost Method of Sun Control for Hawaiian Office Building

Aluminum sun screen
for new building in Honolulu
designed by architects Wimberly and Cook,
does the job for $3.00 per square ft



OWNER: *Home Insurance Company of Hawaii*
LOCATION: *Honolulu, Hawaii*
ARCHITECTS: *Wimberly & Cook Architects, Ltd.*
MECHANICAL ENGINEER: *Robert Hamilton*
LANDSCAPE ARCHITECT: *George Walters*
CONTRACTOR: *E. E. Black Ltd.*

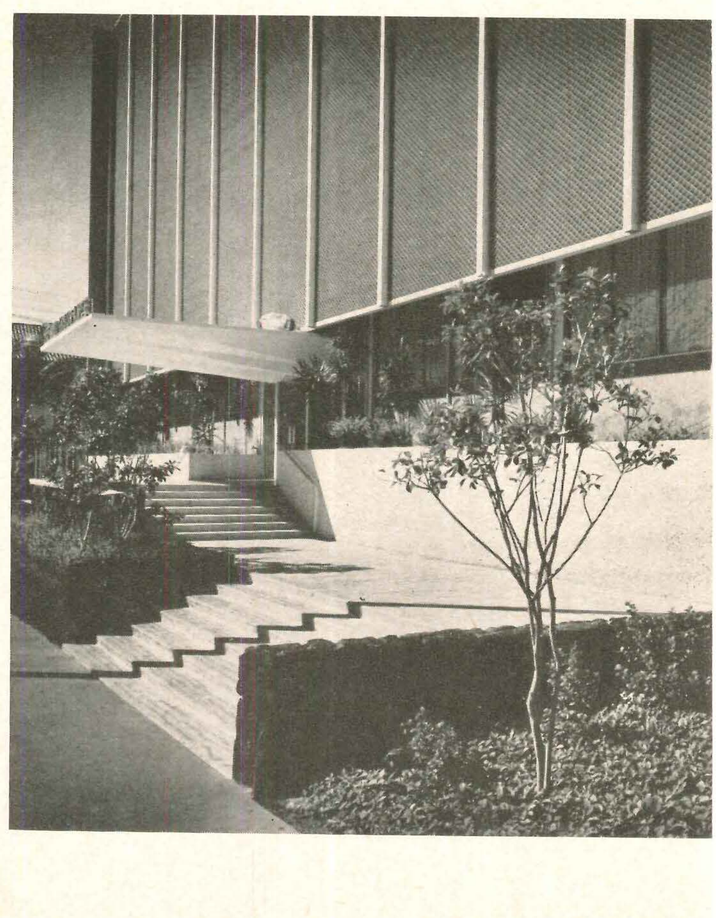


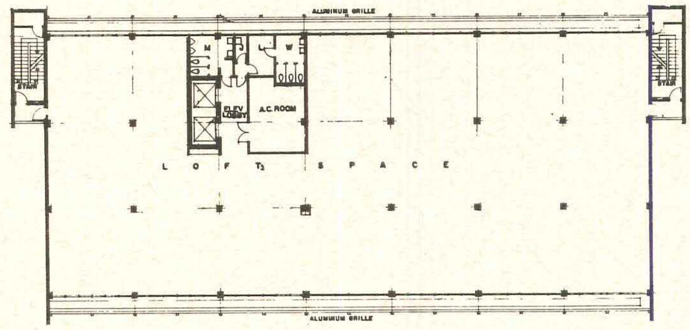
It is well known that effective sun control of moderate cost will more than pay for itself in lowered air conditioning cost, including both the initial cost of the equipment and operating costs. Since the construction budget considers only initial costs, the problem is to find a satisfactory solution within this budget. Architects Wimberly and Cook spent more than a year of study and experiment with sun problems as part of the development of their design for this office building. Howard L. Cook has described their solution as follows: "In this case we made up some samples using stock aluminum V-beam siding cut into 4½ in. deep sections and welded together. We showed these and a model of the building to the client. They were interested and ordered a large panel erected outside their former board room windows to test the sun control, visibility and appearance. Even after they approved it, we weren't quite sure of the best way to fabricate the screen. We calculated that there would be almost a million welds, rivets or bolts required. Fortunately we left our specifications quite flexible, and the sheet metal shop which was the successful sub-contractor devised a mechanical punching and clamping connection which was fast and resulted in a very rigid joint.

"There are electrical outlets at frequent intervals on the underside of the steel framing at the bottom of the screen. In designing the building we knew we wanted to light the screen at night, but we couldn't quite visualize how to do it so we specified a series of switched outlets, but no fixtures. This was fortunate because when we experimented with lighting after the building was finished, we found that lights inside the screen made the wall too visible and spoiled the effect of the screen. The solution was to use broad angle lights on the first floor concrete canopy to light the screen from the outside.

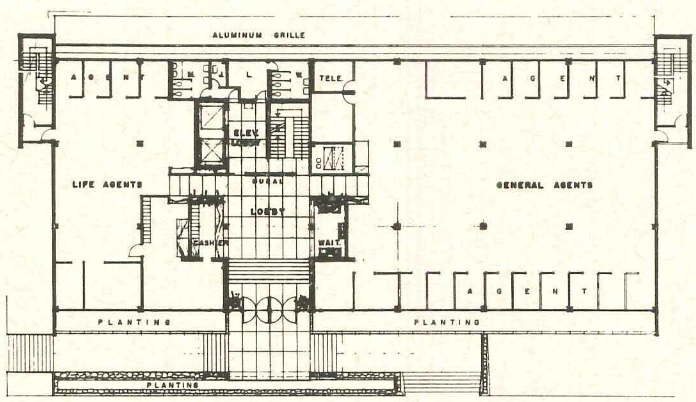
"In working now on later buildings, we are very much aware that screens such as this are not universal solutions architecturally, because they completely lack scale. We are hoping, however, that they will help us reach the next stage in the sun control process."

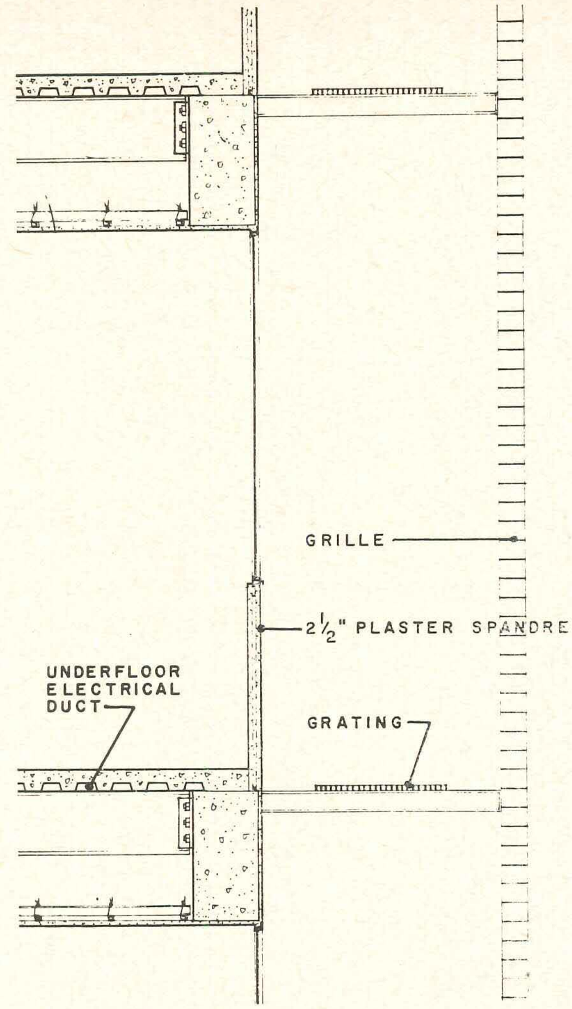
Total cost of this five story, steel frame and concrete structure which comprises 54,000 sq ft of floor space was $1,200,000. It was given an honor award in 1961 by the Hawaii Chapter, American Institute of Architects.



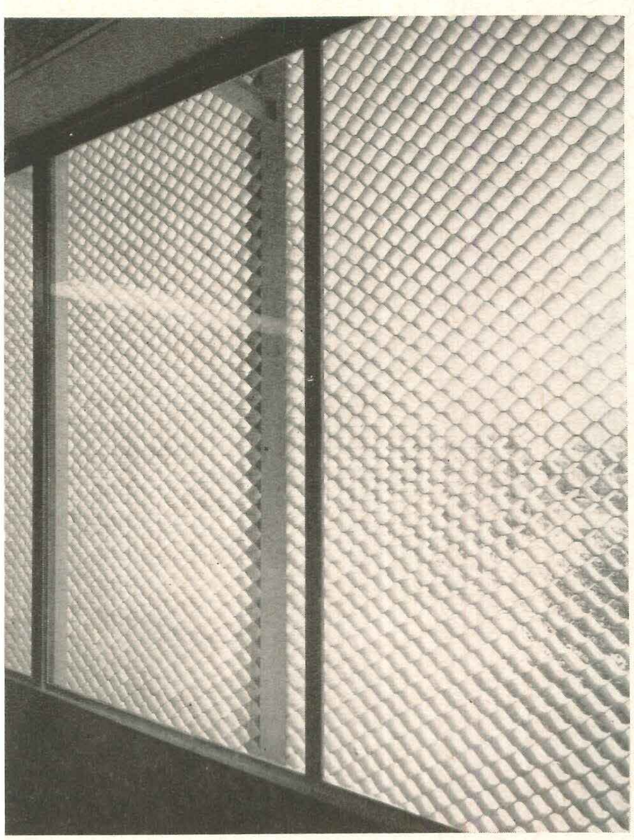


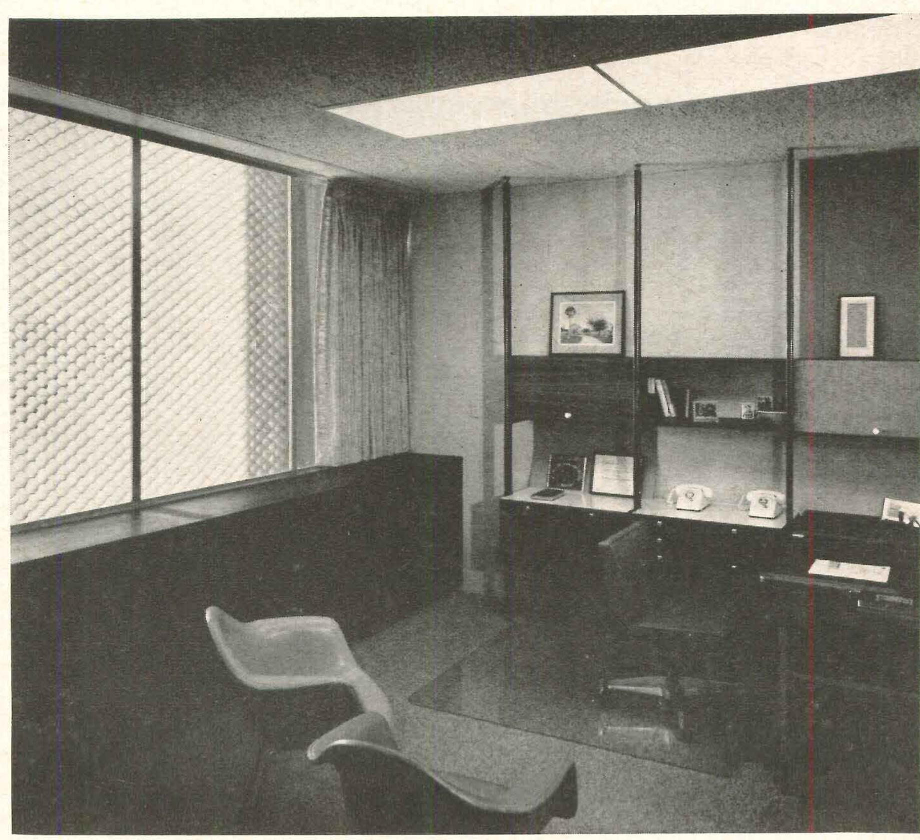
Above: typical floor. *Below:* lobby floor. Facilities have been designed to permit expansion at ends of building where needed. The parking lot can also be double decked

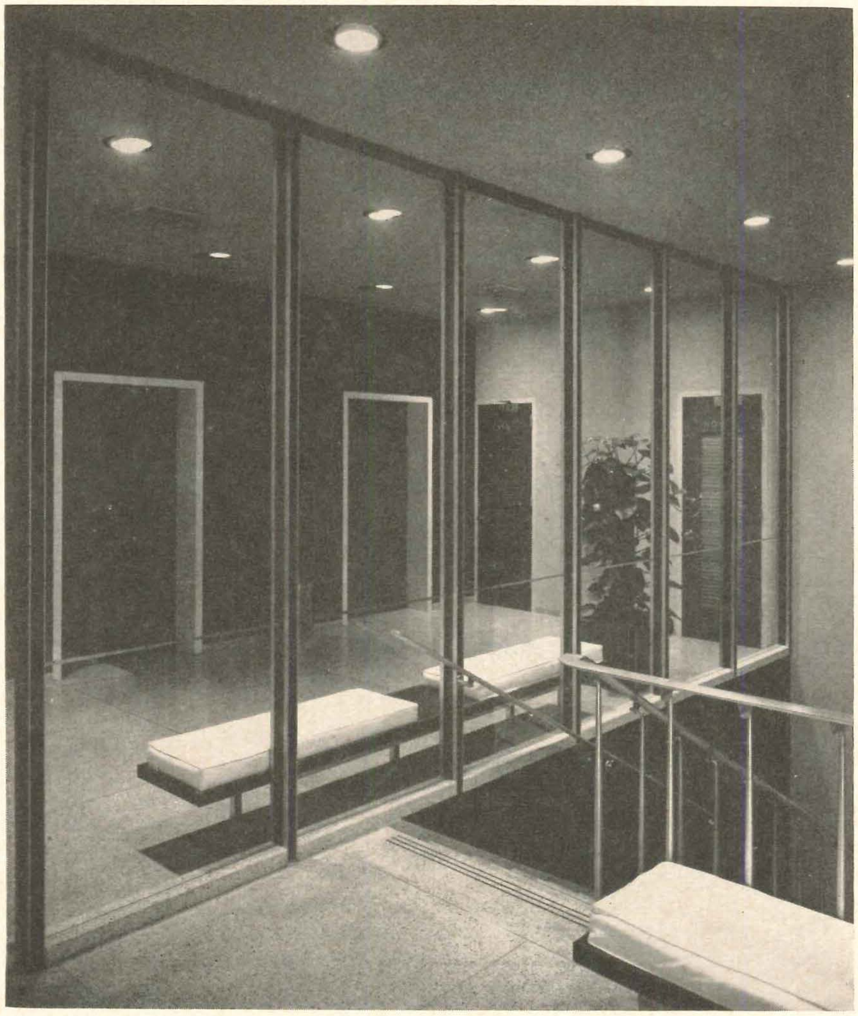




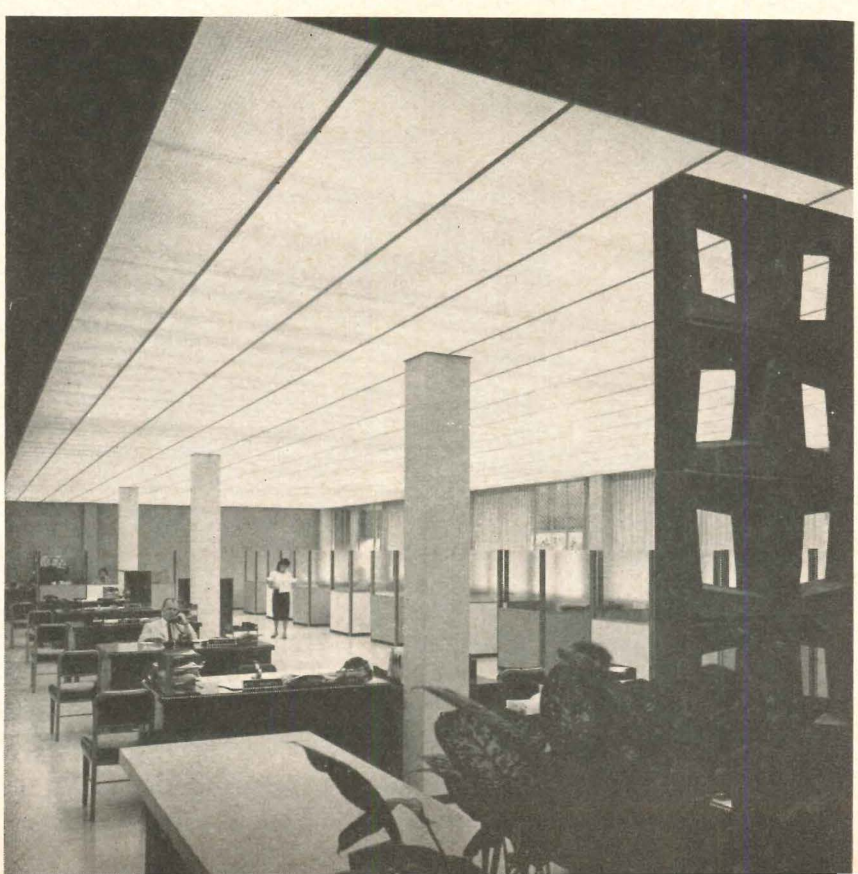
Section shows steel framework for screen with the grating which forms a catwalk for each floor. Many other types of sun control make it impossible to wash windows from the outside, which therefore requires operating sash at almost double the cost of fixed sash. In this building all sash is fixed. The all concealing sun screen made it possible to save money by using inexpensive plaster spandrels







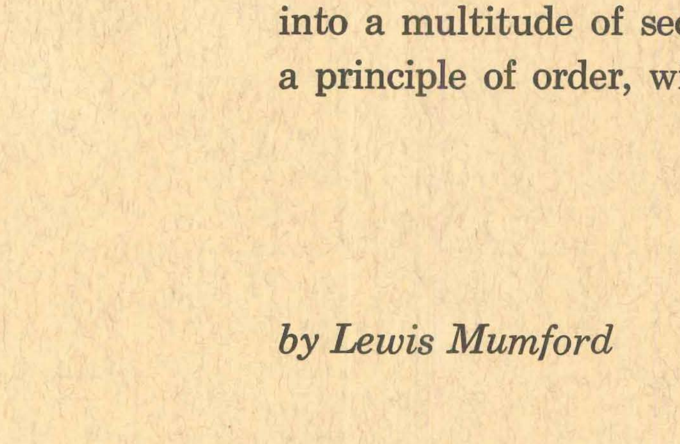
Above: elevator lobby on second floor. Walls are covered with vinyl fabric, floors are terrazzo, divider wall is of glass, aluminum and wood. *Below:* general business office



THE CASE AGAINST "MODERN ARCHITECTURE"

A famous critic charges that modern architecture, once too occupied with machine esthetics, now is disintegrating into a multitude of sects and mannerisms; he offers a principle of order, with three sources of enrichment

by Lewis Mumford



". . . special courses must now be offered . . . to provide architects with sufficient historical knowledge to maintain and restore ancient monuments . . ."

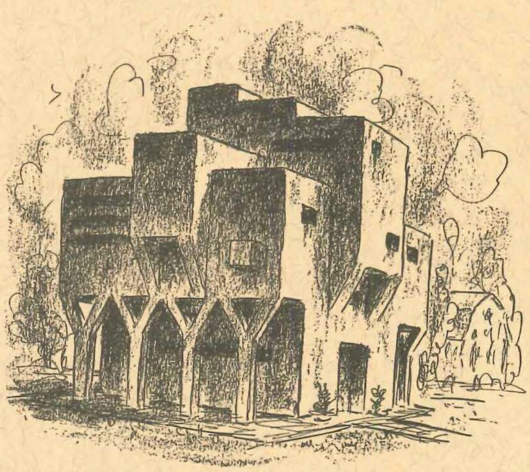
Drawings by Alan Dunn

Three quarters of a century ago, the tides of modern architecture were rising, as the great technical resources that engineers like Telford, Paxton, and Brunel had introduced were applied, at last, to other forms of building. This was the period when Jenney, Sullivan, and their colleagues developed steel frame construction and found a form for the skyscraper, when Eiffel produced his tower and Freyssinet his Hall of Machines, and when the new spirit that Richardson had brought to the design of traditional domestic buildings in stone and wood was spreading everywhere, from the houses of Ashbee, Voysey and Parker in England to the far shores of California, where at the turn of the century Maybeck had begun work.

For reasons that no one has successfully uncovered, this wave spent itself during the decade before the First World War: except in the design of purely utilitarian structures, there was a return to the pseudo-historic and outwardly traditional, at least in the decorative facing of buildings: skyscrapers with Gothic pinnacles vied with those that were crowned with Greek temples of love; and the splendid train hall of the Grand Central station, now effaced by a loud smear of advertisement, was betrayed earlier by its imitative Renaissance façade. When modern architecture came back in the Twenties, first in France with Le Corbusier and Lurçat, and in Germany with Mendelsohn and Gropius, it was forced to refight the battle that had already seemed won in 1890.

Within the last thirty years, modern architecture has swept around the world. The victory of the modern movement over its traditional enemies has been so complete that special courses must now be offered, outside the usual architectural school curriculum, to provide architects with sufficient historic knowledge to maintain and restore ancient monuments preserved for their historic value. Yet many ominous signs have appeared, during the last fifteen years, that indicate that the victorious forces do not know how to make full use of the victory; that contradictions and conflicts have developed among various groups of architects sufficient already to have broken up the once united front of the C.I.A.M.; that, indeed, the differences that have developed within the ranks of the modern architects are quite as serious as those that divided the pioneers of modern architecture from the traditionalists who sought to continue the old forms and the eclectics who sought to mask the new ones.

The order and the consensus that modern architecture seemed ready to establish in the Thirties is still far to seek: indeed, some of the most brilliant exponents, like the late Eero Saarinen, boasted a theory of form that denied the need for continuity and made of each separate project an essay in abstract design, without any affiliation to the work of other architects in our period or to the architect's own designs, before or after. As in the advertising copy of our period, the successful modern architects have been saying, in effect: "And now! a new taste sensation." Or, "You, too, can be *years ahead* with the latest model."



"And now! A new taste sensation"

This situation has given hope and comfort to minds that are so radically committed to past forms that they would solve the problems that modern architecture faces by merely erasing the history of the last century and going back to the classic shells of antiquity, particularly Roman antiquity. This is the last hope of Henry Reed; too empty and vulnerable to merit more than a passing smile. But though Mr. Reed's remedies are absurd, the situation in modern architecture is in fact profoundly unsatisfactory: almost as chaotic and irrational as the political situation of the modern world, in which the heads of state solemnly threaten each other to solve their problems, if the other side does not yield, by mutilating the human race and wiping out civilization.

The very fact that one can make such a comparison points to certain underlying errors about the nature of technical and social progress that crept into modern architecture almost from the moment that the conception of new forms, which reflected the needs and ideals of our period, became articulate in the writings of a few architectural critics and thinkers, like Adolf Loos and, much later, Le Corbusier. The moment has come to examine these conceptions and to reformulate the ideas and ideals that have, up to this moment, governed the development of the whole movement. We shall perhaps find, when we do so, a need for restoring some of the values that were too ruthlessly discarded in the development of modern form.

1. THE BASIS OF MODERN FORM

Beneath the belief in modern architecture lay certain preconceptions about the nature of modern civilization; and these preconceptions have proved so inadequate that it is time to give them a thorough overhauling.

Perhaps the most central of these beliefs was the belief in mechanical progress. Concealed within this notion was the assumption that human improvement would come about more rapidly, indeed almost automatically, through devoting all our energies to the expansion of scientific knowledge and to technological inventions; that traditional knowledge and experience, traditional forms and values, acted as a brake upon such expansion and invention, and that since the order embodied by the machine was the highest type of order, no brakes of any kind were desirable. Whereas all organic evolution is cumulative and purposeful, in that the past is still present in the future, and the future, as potentiality, is already present in the past, mechanical progress existed in a one-dimensional time, the present. Under the idea of mechanical progress only the present counted, and continual change was needed in order to prevent the present from becoming *passé*, and thus unfashionable. Progress was accordingly measured by novelty, constant change and mechanical difference, not by continuity and human improvement.

In every department, the nineteenth century ruthlessly swept away old ideas, old traditions and institutions, and not least old buildings, confident that nothing would be lost that the machine could not replace or improve. Have we forgotten that the central shrine of our Independence and our Constitution, Independence Hall, was almost sold off to the highest bidder in the early part of that century? But this anti-traditionalism imposed a penalty upon modern architecture; and that is, it was deprived by its own assumptions of either recognizing its essential continuity with the past or of building upon its own tradition. In wiping out the past, unfortunately, the cult of the machine surreptitiously destroyed its own future—and left only an under-dimensioned present, scheduled like any specualative building investment, for quick replacement.

Beneath this belief in mechanical progress as an end in itself was still another conviction: that one of the important functions of architecture was to express its civilization. This conviction was a sound one; and indeed, even without conviction, that condition whether openly recognized or unconsciously fulfilled is unavoidable. But those of us who insisted upon the value of this expression were perhaps unprepared for what it would reveal about "modern times." We used the word modern as a "praise-word," in Robert Frost's vocabulary; and we overlooked the possibility that modern technics, which had given us instant communication, would also provide us with instantaneous mass extermination: or the fact that in its hospitals and medical services and sanitary precautions it would reduce diseases and allay pain; but it has also polluted our food, befouled the air with smog, and produced new tensions and new diseases and new anxieties, as crippling as those that have been banished. Modern psychology has introduced man to the depths of his own nature, in all its immense variety and creative potentiality; but it has also produced the bureaucratic personality, sterilized, regimented, overcontrolled, ultimately hostile to every other form of life than its own: cut off from human resources and human roots.

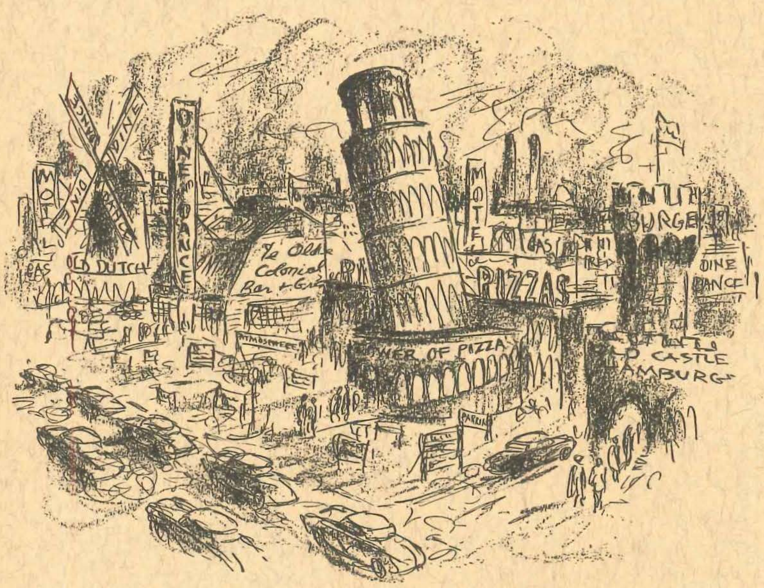
Since modern architecture has begun to express modern civilization, without the hypocrisy and concealment that the eclectic architects used to practice, it is not perhaps surprising that the unpleasant features of our civilization should be as conspicuous as its finest and most admirable achievements. We have been living in a fool's paradise, so far as we took for granted that mechanical progress would solve all the problems of human existence, by introducing man into the brave new, simplified, automatic world of the machine. If we look at our buildings today, with open eyes, we shall find that even in handling the great positive forces of our time, with admirable constructive facility, the greater number of them have neglected even the scientific data they need for a good solution. There is hardly a single great innovation in building this last thirty years—total air conditioning, all-day fluorescent lighting, the all-glass wall—that pays any respect to either the meteorological, the biological or the psychological knowledge already available, for this knowledge calls for radical alterations in their use. And still less do these innovations heed human activities or personal desires.

In so far as modern architecture has succeeded in expressing modern life, it has done better in calling attention to its lapses, its rigidities, its failures, than in bringing out, with the aid of the architect's creative imagination, its immense latent potentialities. The modern architect has yet to come to grips with the multi-dimensional realities of the actual world. He has made himself at home with mechanical processes, which favor rapid commercial exploitation, and with anonymous repetitive bureaucratic forms, like the high-rise apartment or office building, which lend themselves with mathematical simplicity to financial manipulation. But he has no philosophy that does justice to organic functions or human purposes, and that attempts to build a more comprehensive order in which the machine, instead of dominating our life and demanding ever heavier sacrifices in the present fashion, will become a supple instrument for humane design, to be used, modified, or on occasion rejected at will.

2. FROM THE MACHINE TO THE PACKAGE

Despite the shallowness of the theory of mechanical progress, the first erections of modern architecture, beginning with the Crystal Palace in 1851, rested on a firm foundation: the perception that the technology of the nineteenth century had immensely enriched the vocabulary of modern form and facilitated modes of construction that could hardly have been dreamed of in more ponderous materials, while it made possible plans of a far more organic nature than the heavy shells that constituted buildings in the past.

In their pride over these new possibilities, the engineers who turned these processes over to the architect naturally over-emphasized this contribution; and when Louis Sullivan proclaimed that form followed function, his successors falsely put the emphasis on mechanical form and mechanical function. Both are in fact essential to the constitution of modern architecture; but neither by itself—nor both together—is sufficient. Frank Lloyd Wright understood this from the beginning, and insisted, quite properly, that he was something more than a "functionalist," though in the last phase of his great career, as in the Johnson laboratory and the Guggenheim museum, he succumbed to the fascination of an elegant mechanical solution, treated as an end in itself.



". . . it is not perhaps surprising that the unpleasant features of our civilization should be as conspicuous as its finest and most admirable achievements"

In the new beginning that dates from Le Corbusier's *Vers une Architecture,* the machine occupied a central place: its austerity, its economy, its geometric cleanness were proclaimed almost the sole virtues of the new architecture. Thus the kitchen became a laboratory, and the bathroom took on the qualities of a surgical operating room; while the other parts of the house, for a decade or so, achieved excellence almost to the degree that they, too, were white, cleanable, empty of human content. This was in fact a useful period of cleansing and clarification. A few critics, notably Henry-Russell Hitchcock, recognized that this was the primitive state in the evolution of an historic style; and that, at a later date, certain elements, like ornament, that had been discarded in this new effort at integrity, might return again—though in fact they had never been abandoned by Wright.

Unfortunately, this interpretation of the new mechanical possibilities was in itself dominated by a superficial esthetic, which sought to make the new buildings *look* as if they respected the machine, no matter what the materials or methods of construction; and it was this superficial esthetic, openly proclaiming its indifference to actual mechanical and biological functions or human purposes that was formally put forward, by Philip Johnson and his associate Hitchcock, as The International Style, though it was Alfred Barr who coined the dubious name. From this, only a short step took the architect, with Mies van der Rohe to guide him, from the Machine to the Package. Mies van der Rohe used the facilities offered by steel and glass to create elegant monuments of nothingness. They had the dry style of machine forms without the contents. His own chaste taste gave these hollow glass shells a crytalline purity of form: but they existed alone in the Platonic world of his imagination and had no relation to site, climate, insulation, function or internal activity; indeed, they completely turned their backs upon these realities just as the rigidly arranged chairs of his living rooms openly disregarded the necessary intimacies and informalities of conversation. This was the apotheosis of the compulsive, bureaucratic spirit. Its emptiness and hollowness were more expressive than van der Rohe's admirers realized.

Here perhaps was the turning point in the development of modern architecture. The principle of functionalism, stated even in its crudest terms, was sound as far as it went; and if modern architecture was to develop further, that principle needed to be applied to every aspect of architecture. It was necessary to develop functional analysis to its limits, not merely embracing the physical elements of building, but the internal services; not merely the external structure, but the plan, and the relation of the building to its site; and the site itself to the rest of the urban or rural environment. And even this is only a beginning, because human purposes modify all these functional characteristics; so that the so-called open plan for the dwelling house turns out to be far from acceptable as a universal solution, once one takes account of the need for privacy, solitude, withdrawal, or of the differences between the extroverted, the introverted, and the integrated personality. As one adds biological and social functions, and personal desires and needs, to those of the purely physical requirements of structure, one must get, as a resultant design, a much more complex and subtle result, than if one centered attention upon only one set of conditions.

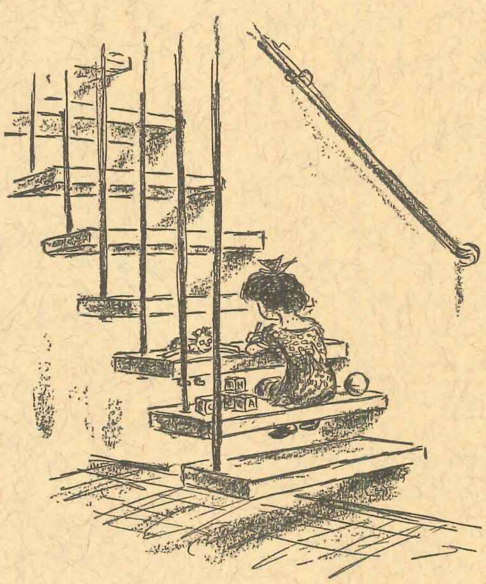
How far modern architecture has withdrawn from the effort to achieve such organic richness one learns from recent architectural exhibitions, which have shown modern buildings as spatialized abstractions, in utter isolation. Some of the most famous architects of our time defiantly throw away their best opportunities: thus more than one new business building has been placed in the middle of a large country estate, with all the advantages of a lovely landscape, only to turn its back completely to its surroundings, defiling the approach with an acre of parking lot, whilst the building itself, air-conditioned and curtained in Venetian blinds, mocks its open site, its possible exposure to sunlight and fresh air, by turning inward upon a closed court. The result is the characterless package, which has become the main hallmark of fashionable architecture for the last decade.

Is Le Corbusier's Unity House at Marseille an exception to this rule? Far from it. Its powerful concrete façade, with variations produced by the ill-conceived and almost abandoned market area, esthetically distinguishes it from the less expensive and less sculptural façades of similar buildings; but for all that, it is a mere package, because the plan of the individual apartments is cramped and tortured to fit the arbitrary allotment of space, in a fashion that is as archaic as that of a New York brownstone front that has been built over the back yard and is full of narrow, dark rooms, without exposure. The genius of Le Corbusier here consisted in making a mere package look like a real building; and the feebleness of current architectural criticism is recorded in the chorus of praise that this extravagant piece of stage decoration still calls forth.

3. THE PACKAGE AND THE FASHION PLATE

Meanwhile, the advance of technology has presented the architect with a vast array of new metallic alloys and new plastics, with new structural materials like prestressed concrete, with new large-scale elements useful for modular designs, and with new mechanical devices that add to the total cost of the structure, as well as the upkeep. On the assumption that mechanical progress is itself more important than human purposes, the architect has felt, it would seem, almost a moral obligation to use all these materials and methods, if only to maintain his status as a creative designer. In this respect, the architect finds himself in almost the same unfortunate position as the physician, overwhelmed by the enormous number of new antibiotics and other drugs that are thrust on the market by the great pharmaceutical organizations, and often unable to follow through one remedy before a new one is thrust on him.

But the advances of technology, which have opened those possibilities for the new forms that Eric Mendelsohn so brilliantly anticipated in his imaginative sketches back in the Twenties, have also revealed the possibility of two new architectural perversions. One of them is the utilization of sensational methods of construction merely to produce equally sensational forms, which have no purpose other than that of demonstrating the esthetic audacity of the designer. The external shell of the new opera house at Sydney reveals this order of design; so, for that matter, does the too-often quoted Gug-



". . . human purposes modify all these functional characteristics"

genheim museum in New York, and even more Wright's new municipal building in Marin County; and all over the country today, one finds new churches whose very form of construction reveals nothing except a desire to compete on equal esthetic terms with the supermarket and the hot dog emporium. This is not functional and purposeful creativity: it is the creativity of the kaleidoscope, so far the most successful of all inventions for imitating creativity by juggling mechanical forms.

When a child is bored or an adult is ill, the esthetics of the kaleidoscope is enchanting; and I do not underestimate its fascination. Nor would I deny that, related to our emergent needs, many new forms must and will appear in modern architecture, which will reveal meanings and values, intuitions about the nature of the cosmos or the condition of man, that are not present in any earlier architectural system. But creativity, in order to be assimilated, requires an underlying basis of order; and what is more, the most original form needs to be repeated, with modifications, if its full value is to be absorbed by the user and the spectator. The desire for architectural originality through a succession of kaleidoscopic changes, made possible by modern technological agents, when the inner purpose and contents are ruled out of the equation, inevitably degrades the creative process. Such technical facility, such esthetic audacity, poured forth on a large scale, promises only to enlarge the domain of chaos. Already the architectural magazines show projects, and even buildings, that look as if they were ingeniously cut out of paper and twisted together, shapes full of fantasy and capable of giving childish pleasure—provided they are not carried out in more solid constructions.

One may explain this excessive virtuosity, with which modern architecture is now threatened, by two conditions. This is plainly, on one hand, a revolt against the excessive regimentation that has gone on in every part of our lives: that regimentation whose symbol is the vast repetitive inanity of the high-rise slab. And on the other hand, it is due to the fact that genuine creativity, which takes into account all the possibilities of structure, the nature of an institution's function and purposes, the values that the client draws from the community and in turn must give back to the community, is a slow process. Because such knowledge and such facility cannot be improvised in a few weeks, the creative architect must build from structure to structure on his own experience, and absorb that of other architects, past and present. It is far easier to create a sensational shell, with the constructive facilities now available, than to fulfill all the functions of architecture. An engineer of genius, like Nervi, has shown the way toward more solid achievement; but even he has succeeded best when the inner content of the building was as simple as tiers of spectators watching sport, or an exhibition or market hall whose contents could be adequately enclosed by a mere shell.

But there is an alternative to kaleidoscopic creativity that would be equally disastrous to architecture and to the human spirit, though the threat comes from the opposite point of our machine economy. Instead of an endless succession of superficial new forms, dazzling Christmas packages that have no relation to contents, we are threatened by another form of technologic facility, whose present favored form is the geodesic dome. Under this potential technical triumph, buildings as such would disappear, except perhaps as improvised rooms within a mechanically controlled environment, dedicated to producing uniform temperature, lighting, and ultimately, with the aid of drugs, surgery and genetic intervention, uniform human beings. Whether above ground or below ground, this development would bring to an end, in a world of colorless uniformity, the long history of man's building: he would return to the cave from which he originally emerged, none the richer or wiser for his experience. I will not examine this particular possibility in detail, except to note that many minds are now busily engaged in preparing for this grand act of suicide. So committed indeed are many architects in our day to the automatism of the machine, that they fall under a compulsion to follow the process to its limit, even though that final stage is a colorless and dehumanized existence, just one breath more alive than the world that might emerge from a nuclear catastrophe.

4. POLYTECHNICS AND MULTI-FUNCTIONALISM

If modern architecture is not to continue its disintegration into a multitude of sects and mannerisms —international stylists, empiricists, brutalists, neoromantics, and what not—it must rest on some principle of order; and that order must ally architecture to an equally coherent theory of human development. The notion of mechanical progress alone will not do, because it leaves out the one element that would give significance to this progress, man himself; or rather, because it makes the human personality a mere tool of the processes that should in fact serve it.

Man himself is an organism whose existence is dependent upon his maintaining the delicate balance that exists between all the forces of nature, physical and organic, from sunlight and air and the soil, the bacteria, the molds, and growing plants right up to the complex interaction of thousands of species. Despite the great advances in technology, man controls only a small part of these processes: for neither destruction nor mechanical substitution is in fact a mode of control. From this complex biological inheritance man extracts and perfects those portions that serve his own purposes. Organic order is based on variety, complexity, and balance; and this order provides continuity through change, stability through adaptation, harmony through finding a place for conflict, chance, and limited disorder, in ever more complex transformations. This organic interdependence was recognized and expressed in every historic culture, particularly in its cosmic and religious conceptions, with their genuinely sacred buildings, and though these buildings have outlived their technologies they still speak to the human soul.

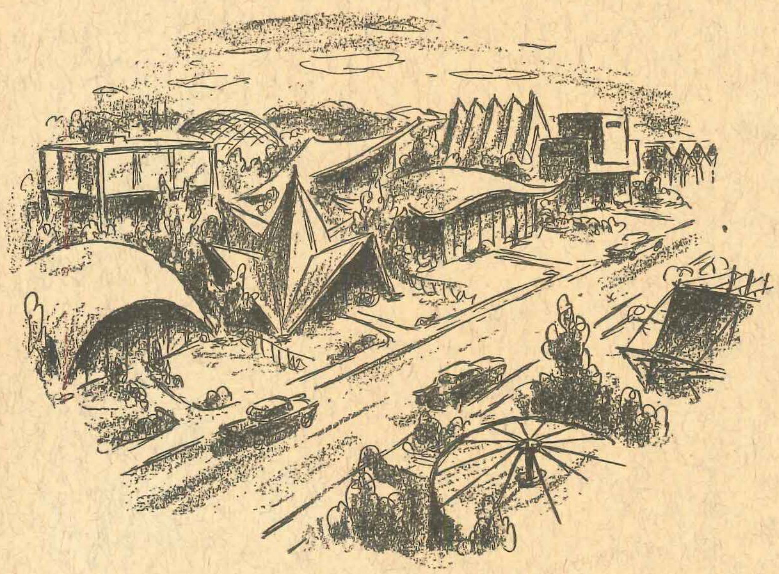
Greenough's original analysis of form, on a basis of the biological and physiological nature of organisms, did justice to both process and function, but overlooked their transformation through a still higher and more complex category, that of human purpose. Man is not just an actor and a fabricator: he is an interpreter and a transformer. On the higher levels of existence, form determines function, no less than function form. At this point the continued development of the whole man takes precedence over the continued development of his instruments and his machines; and the only kind of order that can ensure this is one that provides a many-sided environment capable of sustaining the greatest variety of human interests and human purposes. An environment or a structure that has been reduced to the level of the machine, correct, undeviating, repetitious, monotonous, is hostile to organic reality and to human purpose: even when it performs, with a certain efficiency, a positive function, such as providing shelter, it remains a negative symbol, or at best a neutral one.

There are three sources for this larger order: nature is one, the cumulative processes of history and historic culture are another; and the human psyche is the third. To turn one's back upon these sources, in the name of mechanical progress, for the sake of purely quantitative production, mechanical efficiency, bureaucratic order, is to sterilize both architecture and the life that it should sustain and elevate. An age that worships the machine and seeks only those goods that the machine provides, in ever larger amounts, at ever rising profits, actually has lost contact with reality; and in the next moment or the next generation may translate its general denial of life into one last savage gesture of nuclear extermination. Within the context of organic order and human purpose, our whole technology has still potentially a large part to play; but much of the riches of modern technics will remain unusable until organic functions and human purposes, rather than the mechanical process, dominate.

An organic approach will handle, with equal dexterity, but with greater freedom of choice, every kind of function: it will not automatically reject daylight in favor of a facile mechanical substitute, or fresh air, renovated by vegetation, for a purely mechanical system of modifying the air. But neither will it turn banks into frivolous glass-enclosed pleasure palaces, office building entrances into cathedrals, or churches into airport hangers. On the contrary, purpose and function will provide an organic criterion of form at every stage of the design process; and in the end this will produce, not merely an esthetic variety and exuberance that are now almost unknown, but even mechanical economies that have been flouted by our compulsive overcommitment to the machine.

There are two movements now visible that indicate a beginning in the right direction, which will lead, not away from functionalism, but toward a multi-functional approach to every architectural problem.

One of these movements, visible in the architectural schools today, is the students' demand for architectural and town planning history. The desire behind this is not for forms to imitate, but for experience and feeling to assimilate, for spiritual nourishment beyond that which is offered by the immediate environment or a brief present moment. This is a healthy reaction against the notion that the experience of a single generation, or a single decade in a generation, is sufficient to provide the knowledge and insight man needs to create a human environment of sufficient richness and depth.



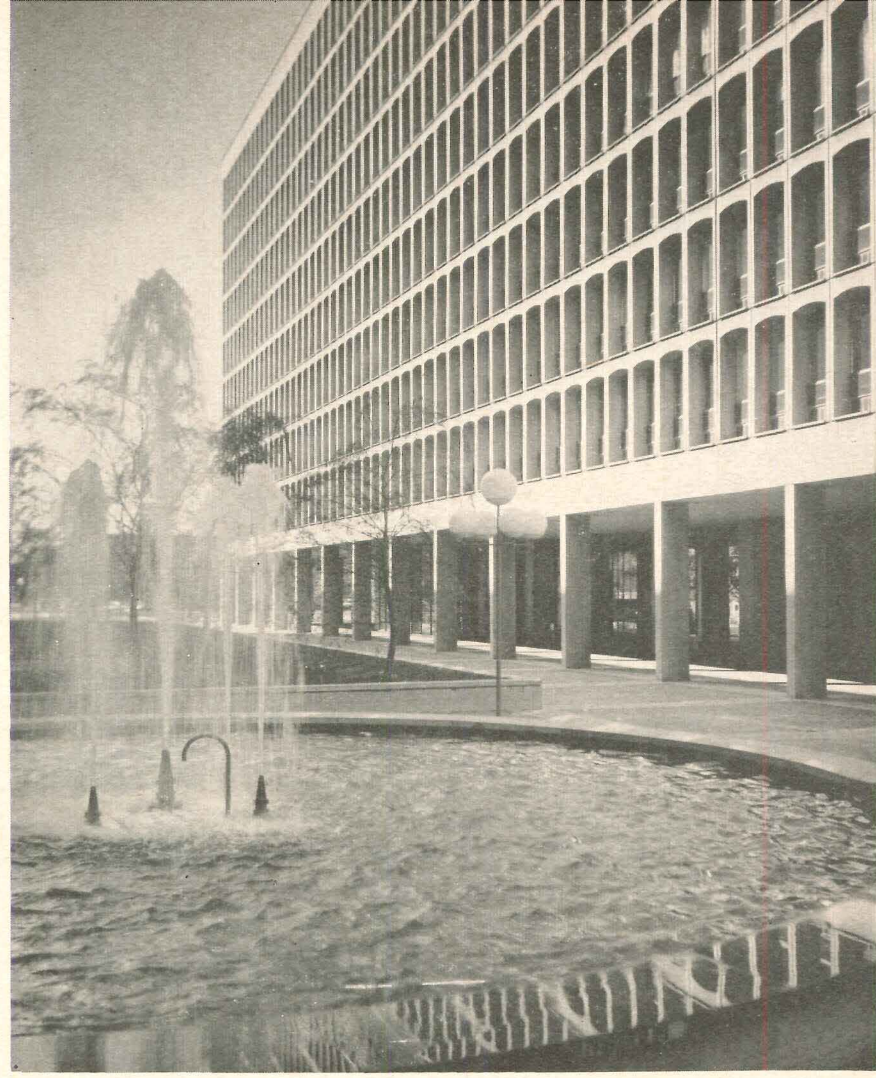
"The desire for architectural originality through a succession of kaleidoscopic changes . . . inevitably degrades the creative purpose"

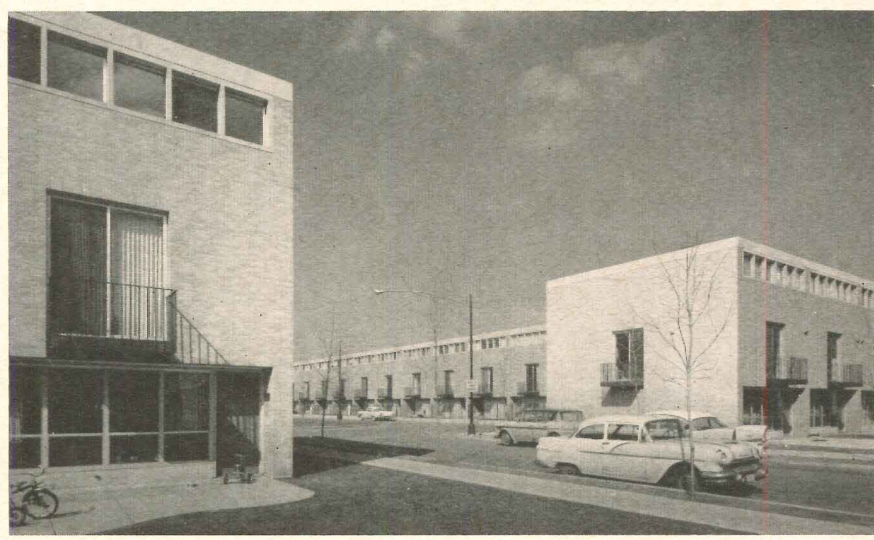
The other movement became visible last summer in the meeting of the younger architects who have broken away from the Old Masters of the C.I.A.M. In their attempt to redefine the province of architecture today they expressed many differences with the generation of Le Corbusier and Gropius, as well as personal and characterological differences within their own ranks; but at the end they were united, in a large degree, on one final conclusion: that architecture was more than the art of building: it was rather the art of transforming man's entire habitat. This concept had already struck root in California, when the school of architecture at Berkeley was reconstituted and renamed as the School of Environmental Design.

If human development does not become sterile and frustrated through an excessive effort to conquer nature without drawing upon all the resources of history and culture to rehumanize man, the architecture of the future will again be a true polytechnics, utilizing all the resources of technics, from the human hand to the latest automatic device. It will be closer in spirit and form to the earlier work of Frank Lloyd Wright, and even more perhaps to Bernard Maybeck, than to the masters of the C.I.A.M.; and it will go beyond them, because it will draw upon the richer human resources now worldwide in cultural scope, which are happily available for collective as well as individual expression.

HIGH-RISE LOW-RISE AND SHOPPING FOR CHICAGO REDEVELOPMENT

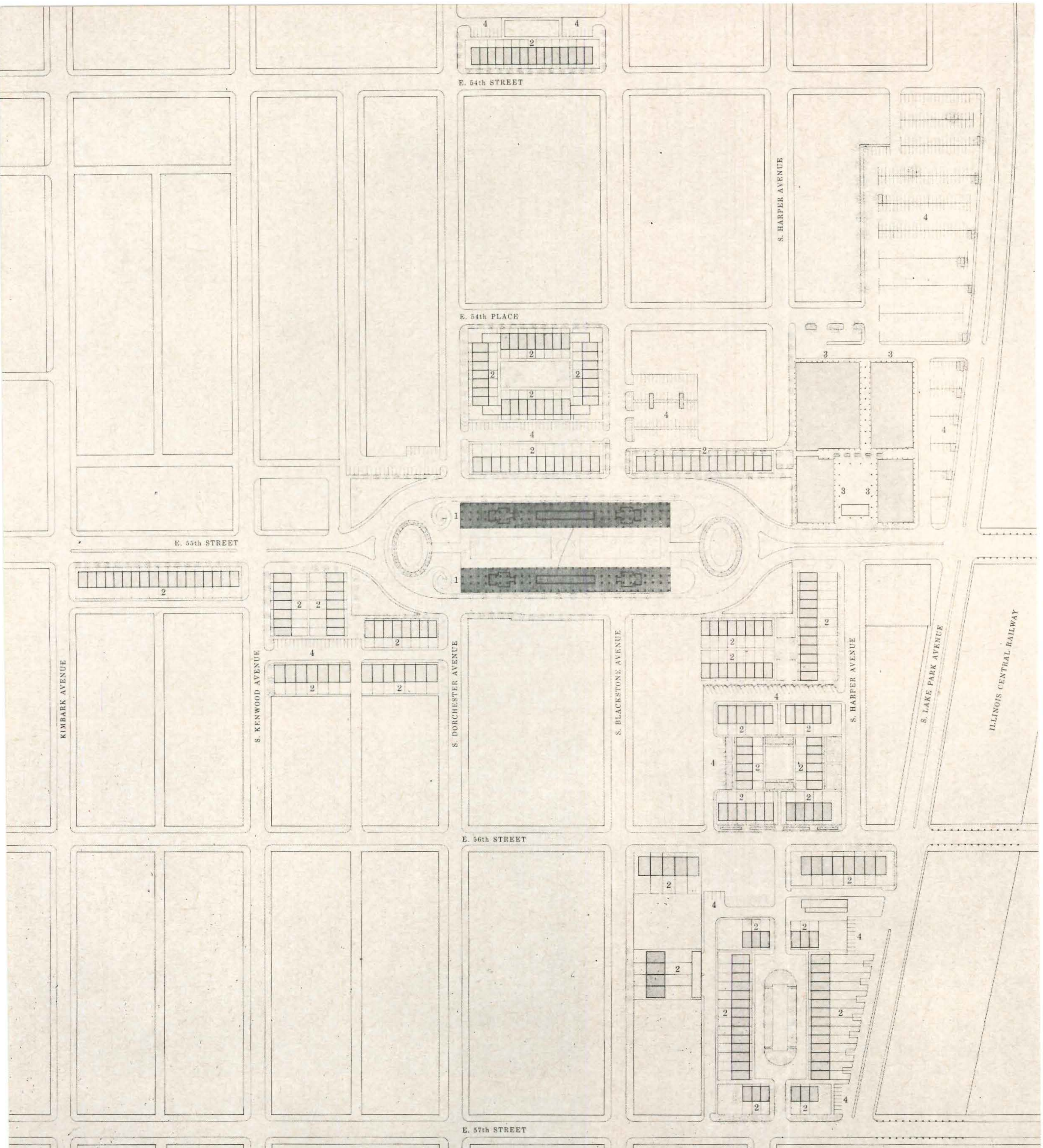
Hyde Park Redevelopment, Projects A and B, Chicago, Illinois; Associated Architects: I. M. Pei & Associates, Harry Weese & Associates, Loewenberg & Loewenberg; Developer, Webb & Knapp, Inc.; Chicago Land Clearance Commission, Philip Doyle, Director





In 1956—at the invitation of the University of Chicago—Webb & Knapp took over the job of redeveloping a tract within the giant 900-acre Hyde Park-Kenwood urban renewal program. This section was once a "best" residential area of tree-lined streets and spacious houses, centering on the University of Chicago as a cultural focus; but for the past 20 years has developed slum pockets and blight.

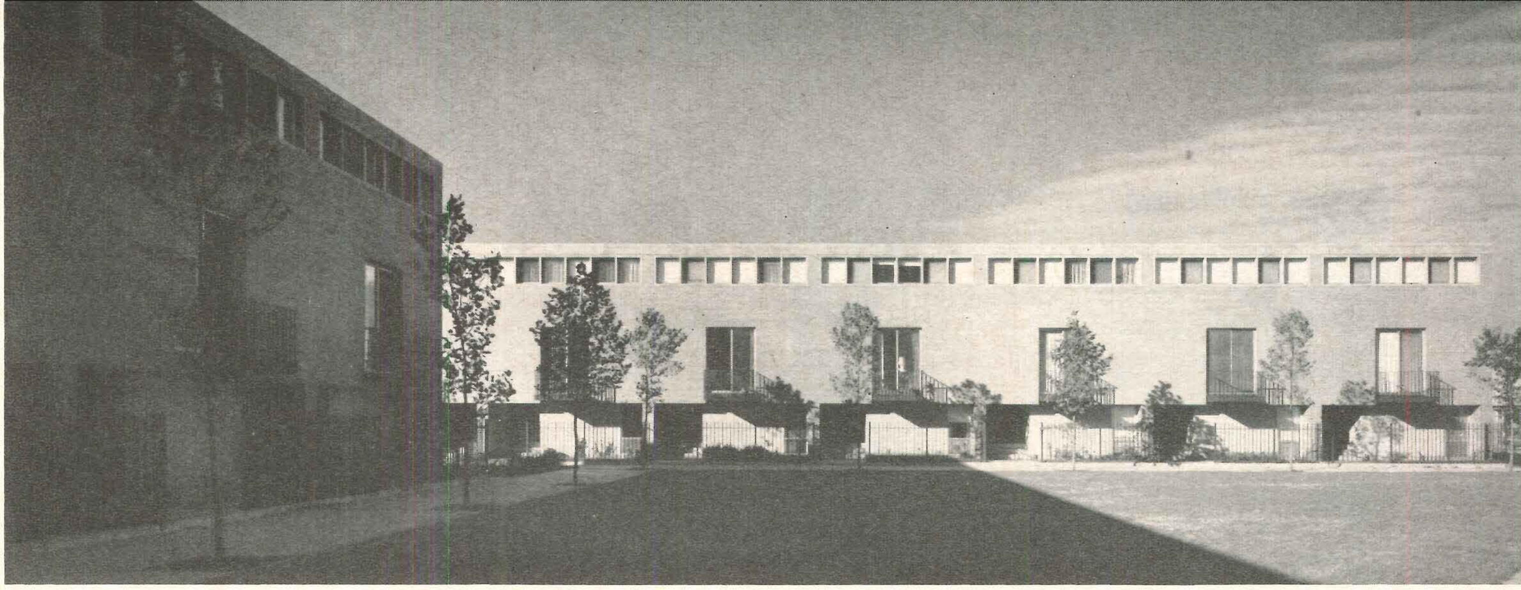
The Webb & Knapp area comprised about 45 acres, irregular in shape, centering on 55th Street, a run down commercial way. The architects based their new plan on several concepts. First, that the image of 55th Street must be changed from commercial to residential—achieved by centering a new residential complex on twin 10-story apartment buildings that split the street into an oval park. Next, the creation of a series of small, low-rise residential squares—that create their own closed environment, yet of a pattern that can be extended outward readily for future development. Next, the design of a shopping center integrated with, yet separated from residential areas. Finally, the idea that the proper scale for the new work was that of the existing area; emphasis was therefore on low structures lying close to the land, and the creation of small neighborhoods. This pattern was broken only by the twin 10-story University Apartments, which become a visual focus for the area.



Hyde Park Redevelopment MASTER PLAN

The master plan shows how the project centers on 55th Street and, by means of a residential complex centering on the twin high-rise apartments, alters the commercial character of the street. The key to the numbered units on the plan: 1. 10-story high-rise apartments with parking beneath; 2. Two and two-and-one-half story town houses; 3. Shopping Center; 4. Surface parking for town houses.

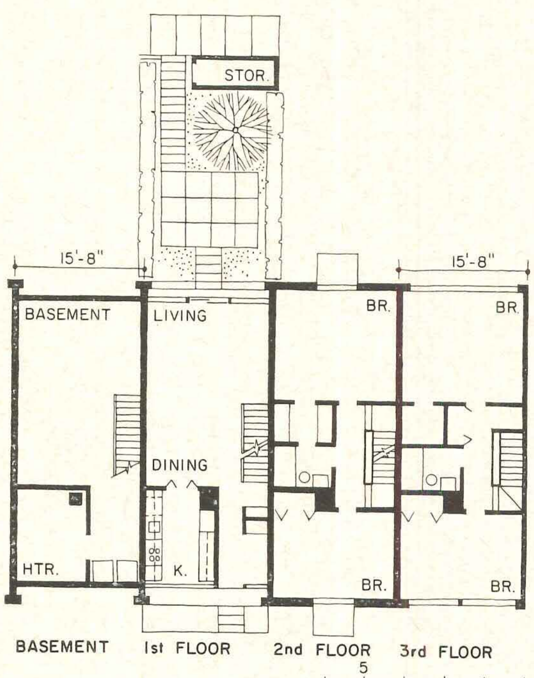
Note how the town houses are arranged to form inward looking, small scale squares, or alternately extend as fingers into adjacent areas either rehabilitated or soon to be. The fenestration of the town houses is such that many pairs of "eyes on the street" are possible—if residents wish

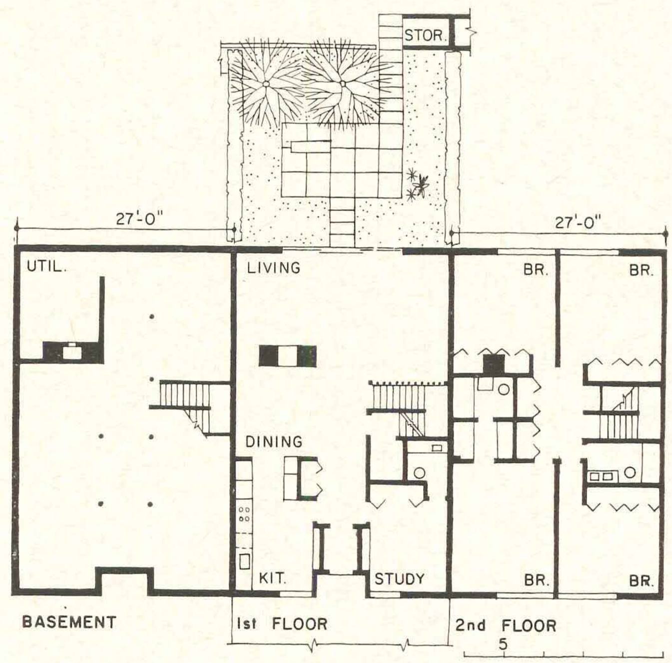


TOWN HOUSES

The two and two-and-one-half story town houses are of four types, two of which are shown herewith as typical. Architect Harry Weese says, "The town houses have been in great demand and have sold extremely well. They figure at 13.50 to 14.50 per sq ft, including land, fences, etc.—which is cheaper than lesser quality construction on larger lots in the suburbs. Tight spaces make this solution unusually interesting as a 3-dimensional test case of performance evaluation of coverage and setbacks which break the common conventions.

"We regret that there are no garages under the houses, but the builder found that the first units sold so well he cancelled out on placing cars underneath."





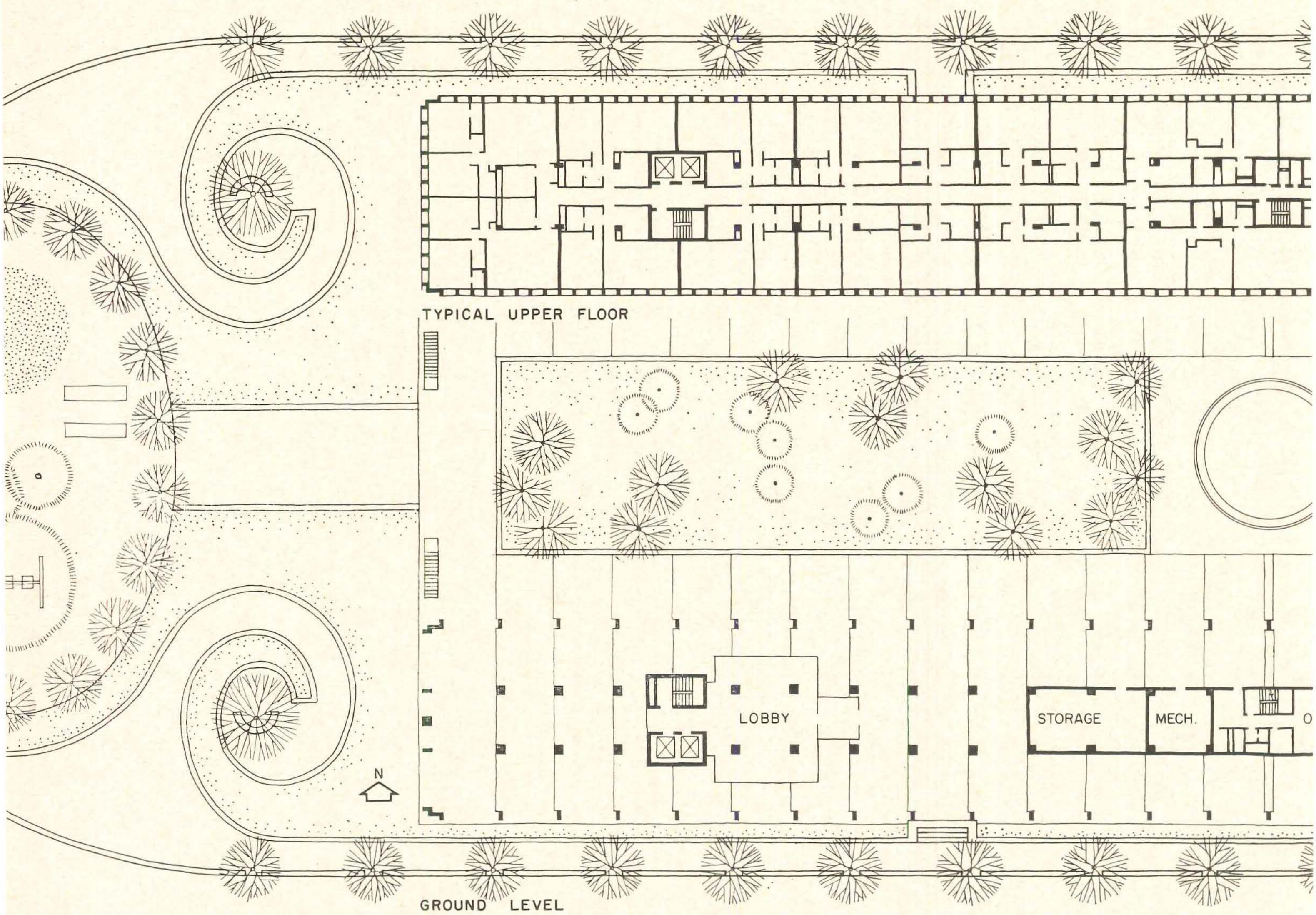
All photos: Hedrich-Blessing

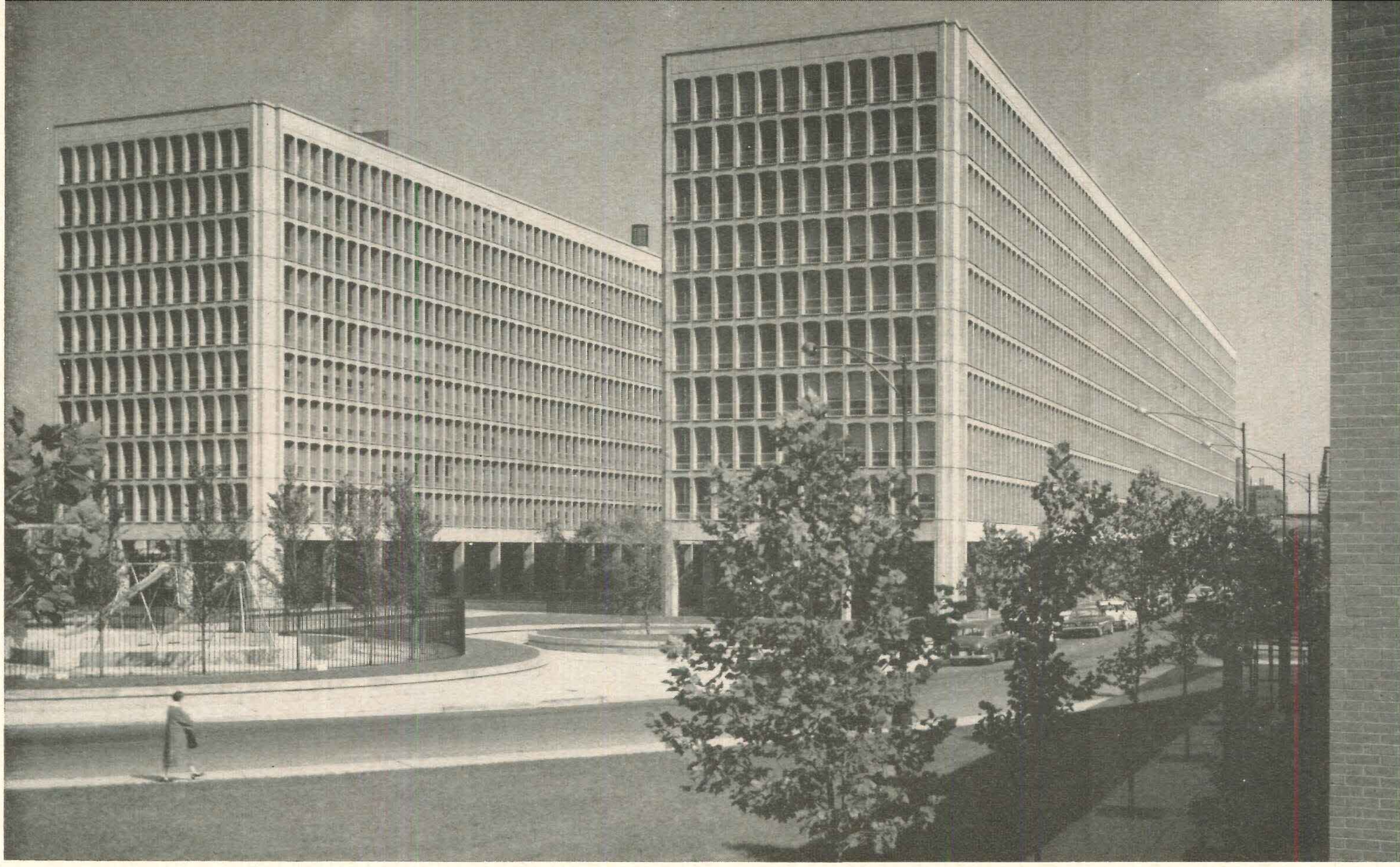
Hyde Park Redevelopment
UNIVERSITY APARTMENTS

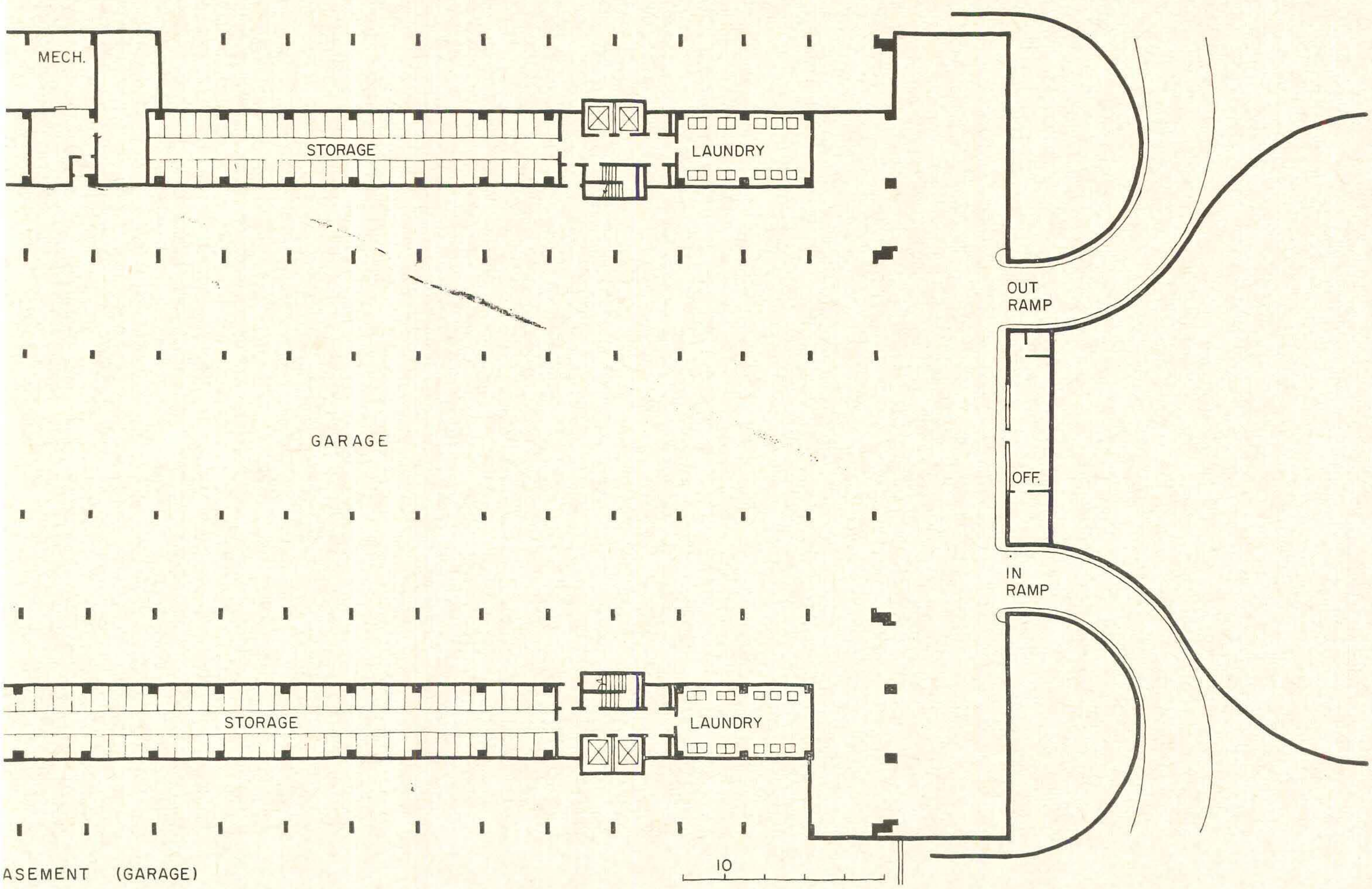
The twin ten-story apartment buildings are raised on pilotis to open up the view through them at ground level and bring into unity the entire area containing them—a well defined plaza called University Square. At this point, 55th Street is divided into two one-way streets, making possible traffic signals at all crossings for pedestrian safety. The area between the towers is a landscaped park with pool and fountains, with childrens' play areas at either extremity. This square thus becomes a climax for the smaller squares, and a plaza for shoppers.

The apartment buildings are of *in situ* concrete, which is both structure and exterior finish. The handsome fenestration pattern was molded in re-usable forms lined with plastic; a technique that imparts a smooth exterior finish with no later grinding or patching required. Insertion of the aluminum sash then completes the wall.

A total of 540 apartments ranging from studio to two-bedroom in size are offered. Parking is provided in both a basement garage and in reserved spaces in an adjacent block. The buildings are air-conditioned, with individual controls



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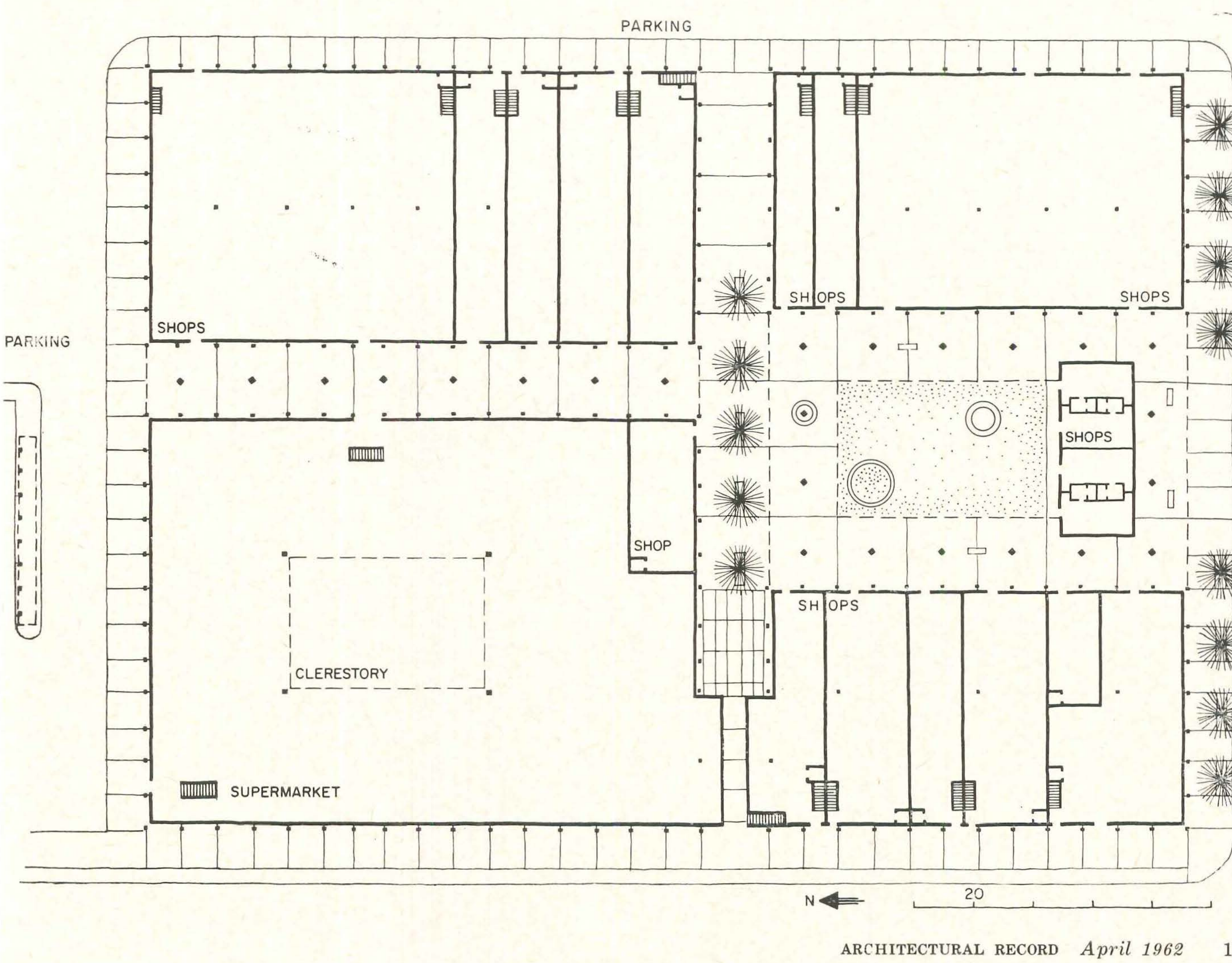
Hyde Park Redevelopment SHOPPING CENTER

Of the shopping center, shown on these two pages, architect Harry Weese says, "The center was in large part constructed before it was leased, and the drive to reduce building cost brought the parapet height down to 3 ft, exposing more roofscape than I felt desirable. In addition, mechanical penthouses were not forbidden, nor rent charged for them!

"The basic design consists of 12 ft columns, free-standing, to make non-modular partitioning by tenants possible. The window heads were scaled down to door height to calm the view, so often dominated by fluorescent fixtures and the innards of the stores. The band between the 7 and 9 ft points, where the brick begins, is for signs. Free-standing, thin shell concrete canopies shade the sidewalks, and serve also to conceal cooling towers for the boutiques. Special attention was paid to the scale of the whole.

"The center serves as a focus for local community activities such as outdoor art fairs, street dancing, etc. Such events will develop as management and the community realize and exploit their common interest."


wimpy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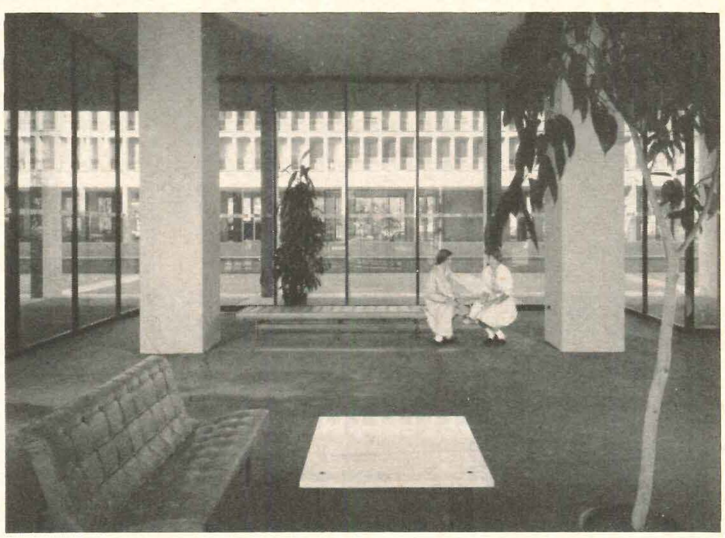


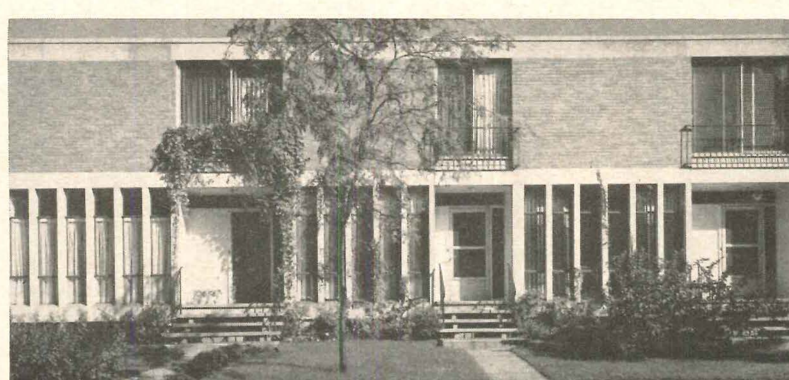
Hyde Park Redevelopment
ADDITIONAL CREDITS

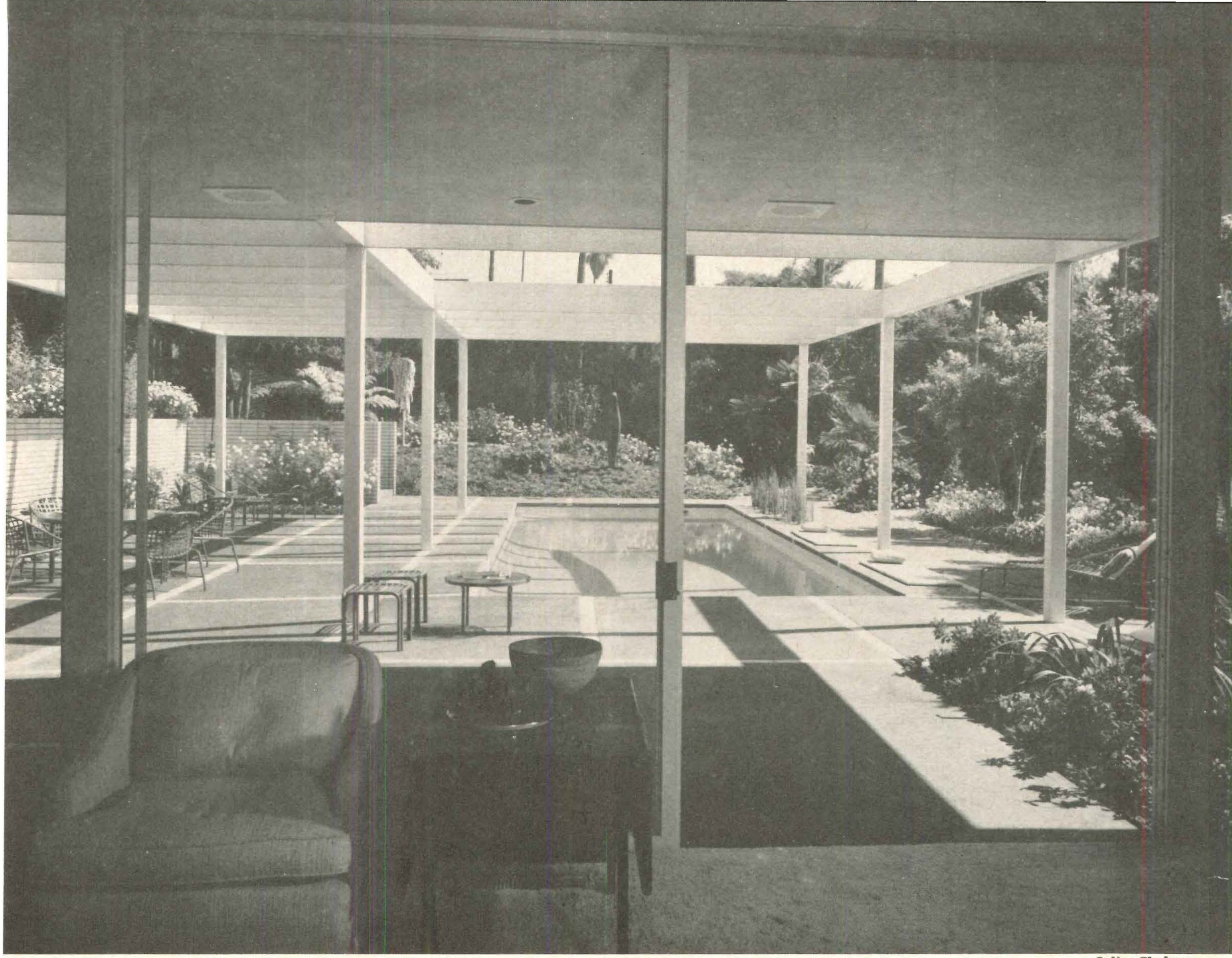
In addition to the general credits given on page 163, the following deserve notice:

HIGH-RISE UNIVERSITY APARTMENTS
Robert Zion, Landscape Architect
William Schmidt, Structural Engineer
William Goodman, Mechanical Engineer
Taylor Construction Co. and
Webb & Knapp
Construction Co., General Contractors

SHOPPING CENTER
Frank Kornacker, Structural Engineer
Samuel Lewis, Mechanical Engineer
Inland Construction Co., Contractor

TOWN HOUSES
Goldman Construction Co., Contractor



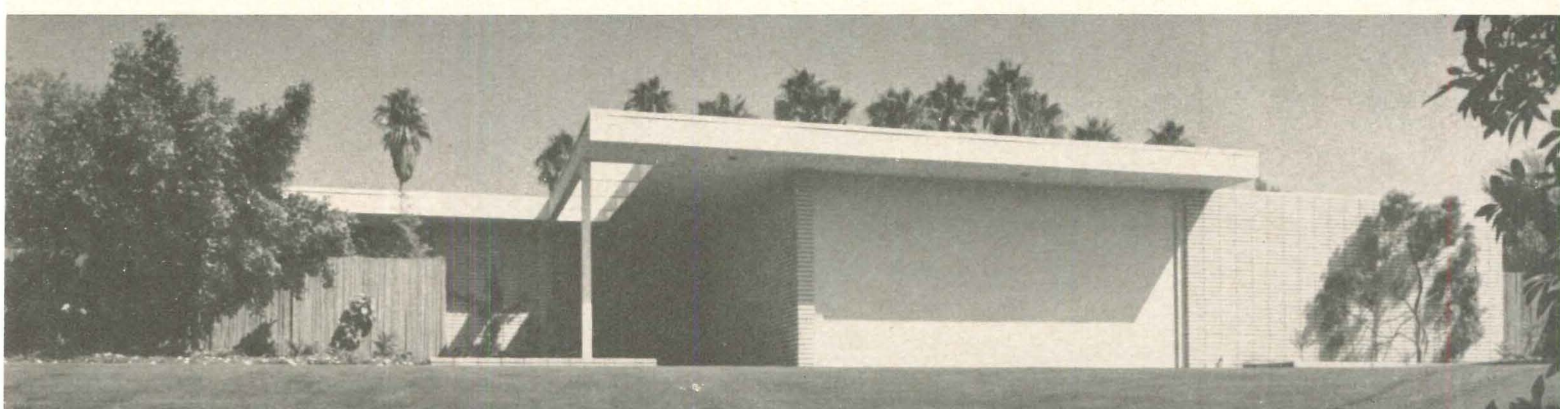


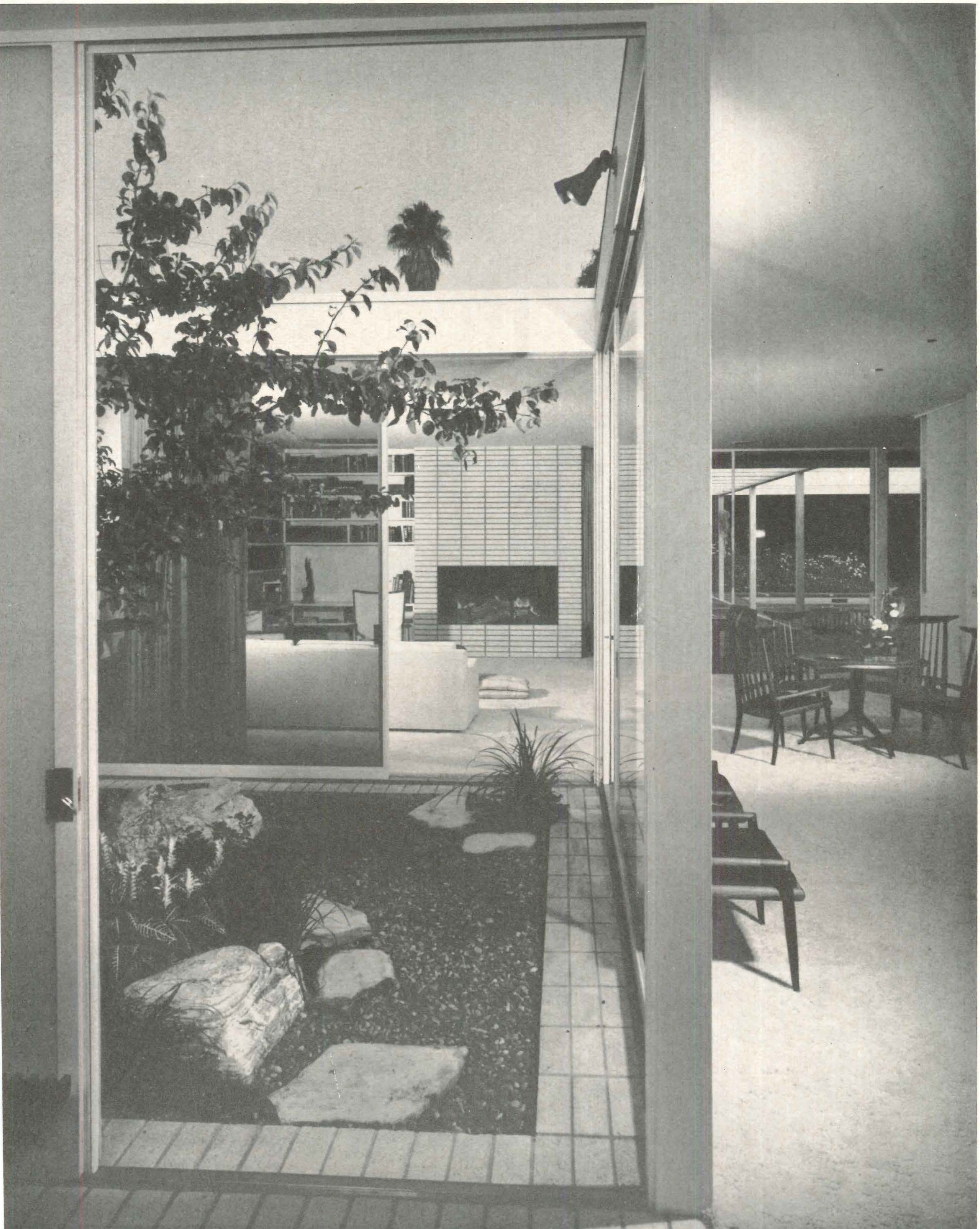
Julius Shulman

INNER GARDENS AMPLIFY SMALL SITE

An inward-looking house gains great spaciousness and privacy by adept use of limited outdoor living areas

ARCHITECT: *Thornton M. Abell*
OWNERS: *Mr. and Mrs. Arthur A. Newfield*
LOCATION: *Los Angeles, California*
CONTRACTOR: *Burke & Wyatt*
LANDSCAPE ARCHITECT: *Jocelyn Domela*





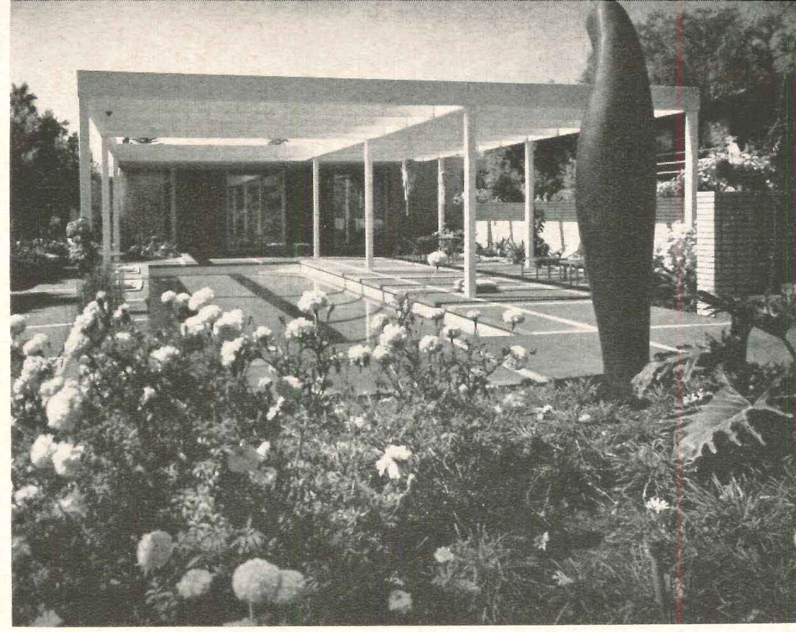
Julius Shulman

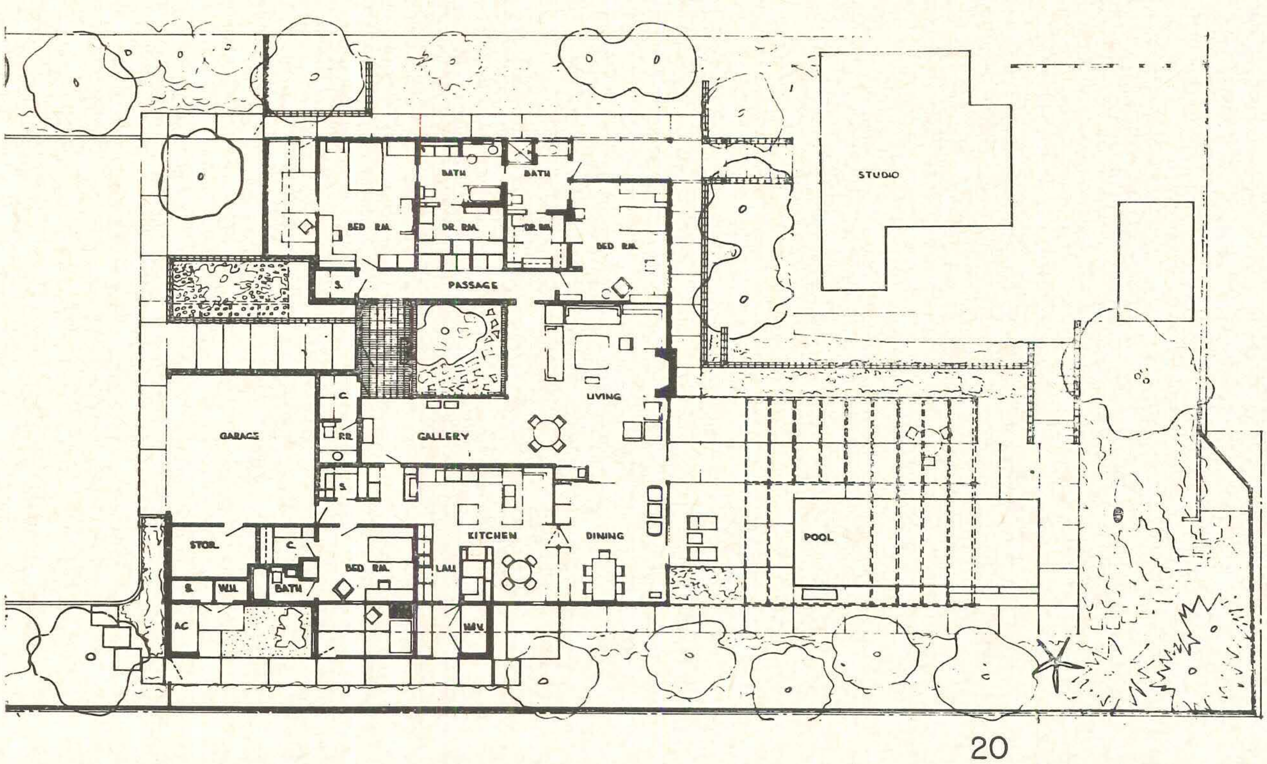
A Variety of Little Gardens Add Views to Each Room

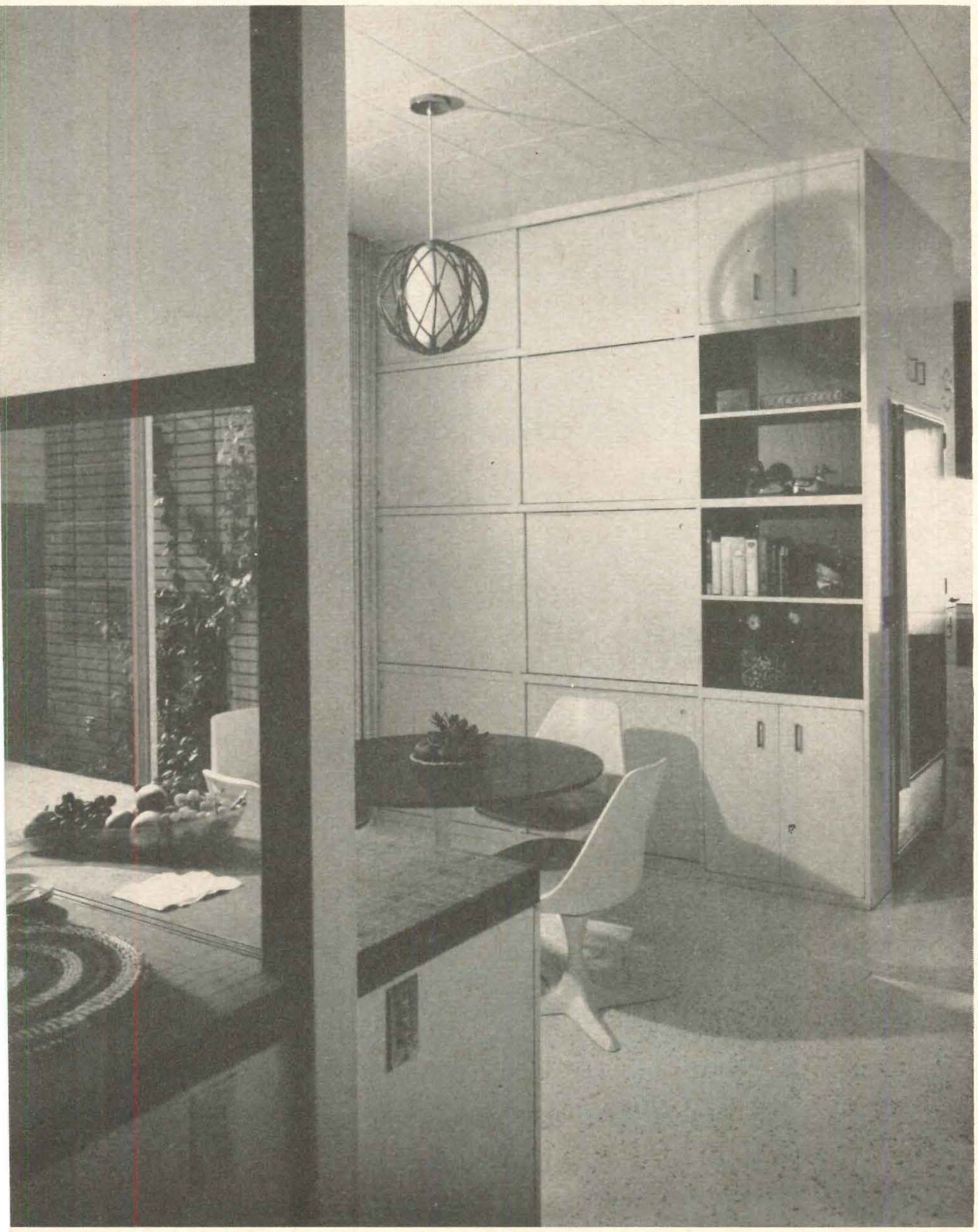
Behind the privacy of a closed-in façade, a surprising sense of indoor and outdoor spaciousness has been developed here on a lot fairly restricted in size. A succession of open and closed areas gives the impression of vastness and closeness to nature: as one steps from the motor court into the walled-in entry walk, a little planted garden is suddenly revealed; then, on entering the foyer, a long vista is exposed (photo left) through a center court, past the gallery and living area, and into the pergola-roofed back terrace (photo top right); and finally, a series of peripheral gardens and terraces, though very small, repeat this impact on entering most every room in the house. Thus, on a lot with no natural "views", delightful vistas have been created at every hand.

The house was designed for a family of two, who desired ample and flexible surroundings for entertaining and for the display of paintings and sculpture. The design serves these functions extremely well, while providing good separation and privacy for the flanking bedroom and service areas.

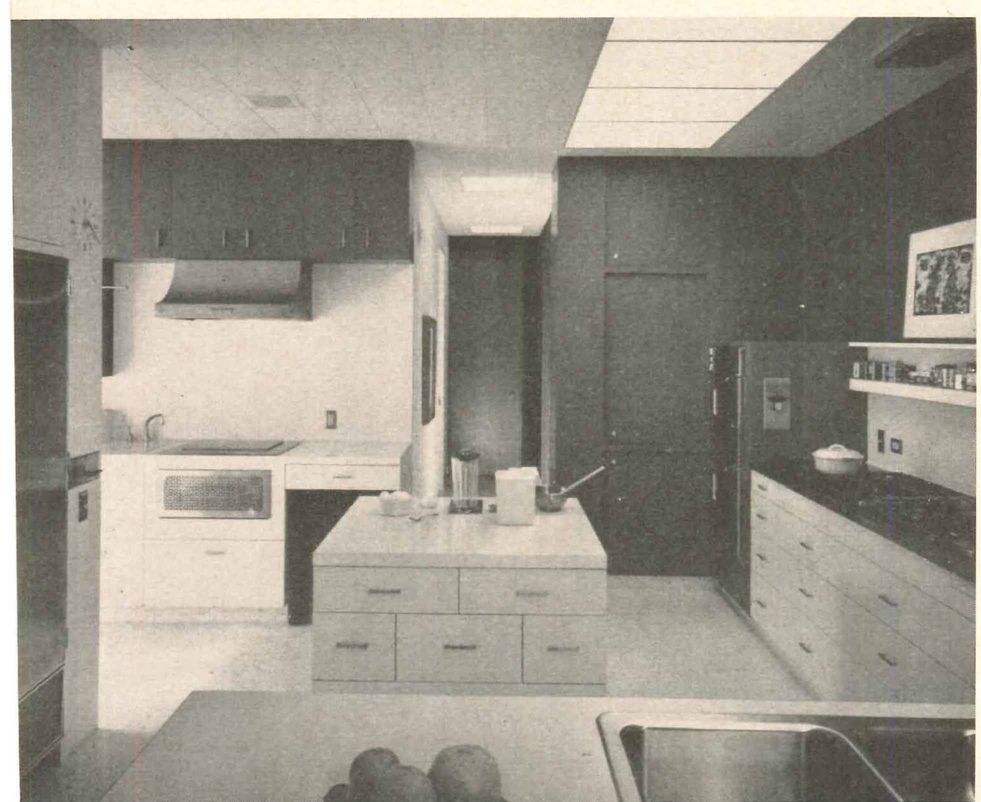
The construction is wood frame, with walls of white brick, cement plaster, and plasterboard. The roof is composition; ceilings use double drywall panels. Floors are plywood over wood joists, and finished with vinyl or carpet. Exterior columns are steel tube. Sliding door frames are steel; window frames are aluminum.







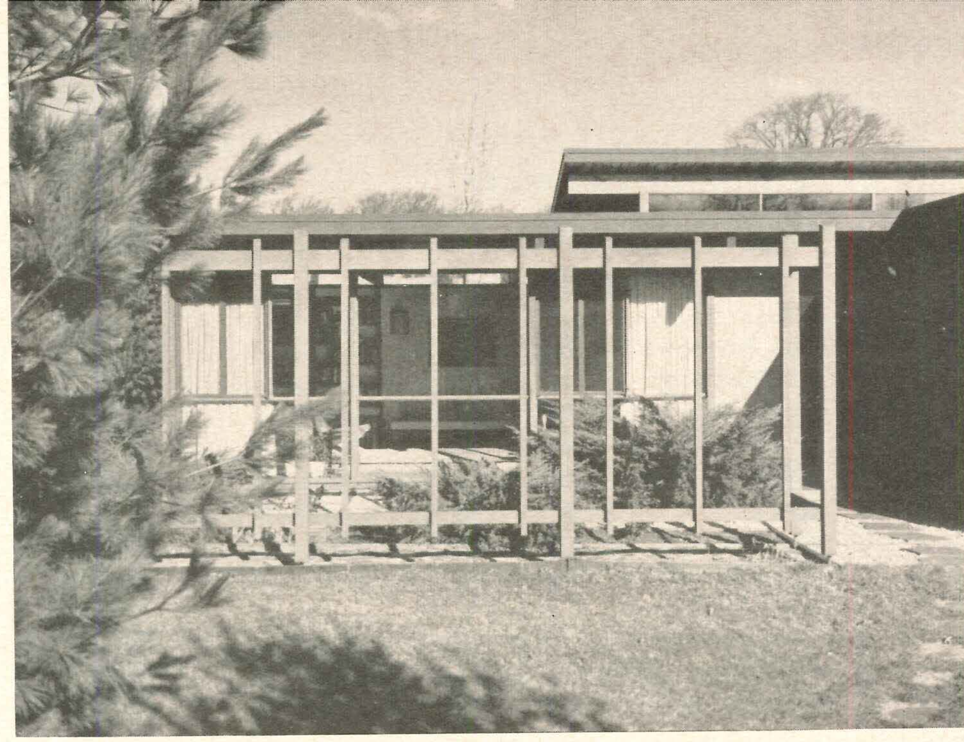
Julius Shulman



Spatial Variety Carries Through To Service Areas Of The House

The same careful handling of spaces that marks the major rooms of the Newfield house is continued into the service and utility rooms. The breakfast room (top) is separated from the dining area by a wall of white obscure glass panels —some of which slide open—over a built-in tile counter serving both areas. The room has its own tiny garden and terrace.

The kitchen, just beyond (bottom photo), gains much interest from contrasting walls and plastic-top counters in tobacco brown and white, and a white vinyl floor. Plastic skylights with fluorescent lights above ceiling panel diffusers supplement the daylight in the room

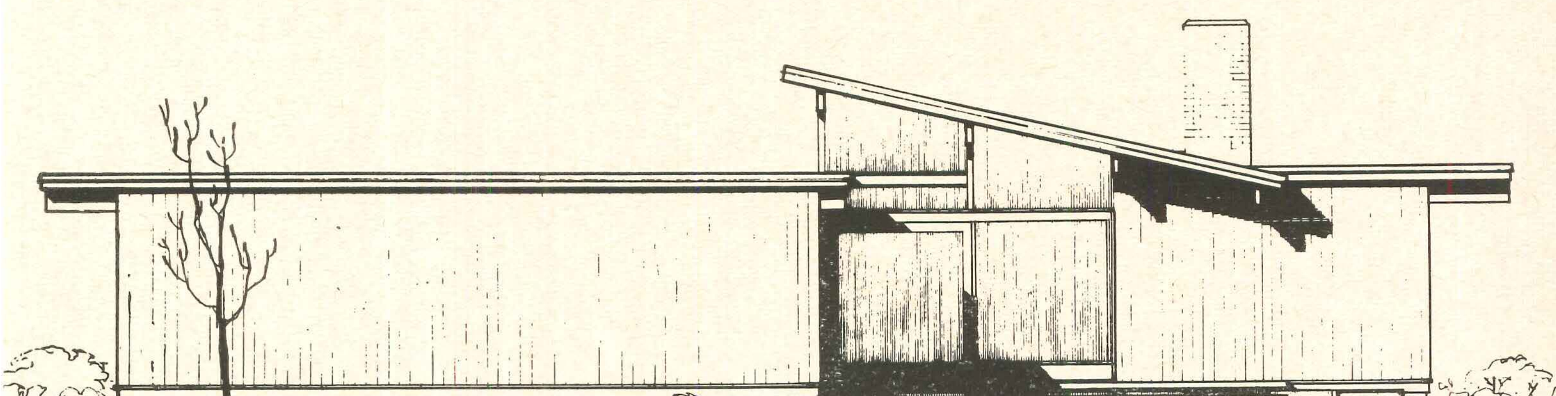


ARCHITECT AND OWNER:
Herbert L. Bogen
LOCATION:
Lexington, Massachusetts

Henry Wood

BUDGET HOME FOR TYPICAL FAMILY LIFE

A house designed for the changing requirements of a family of four



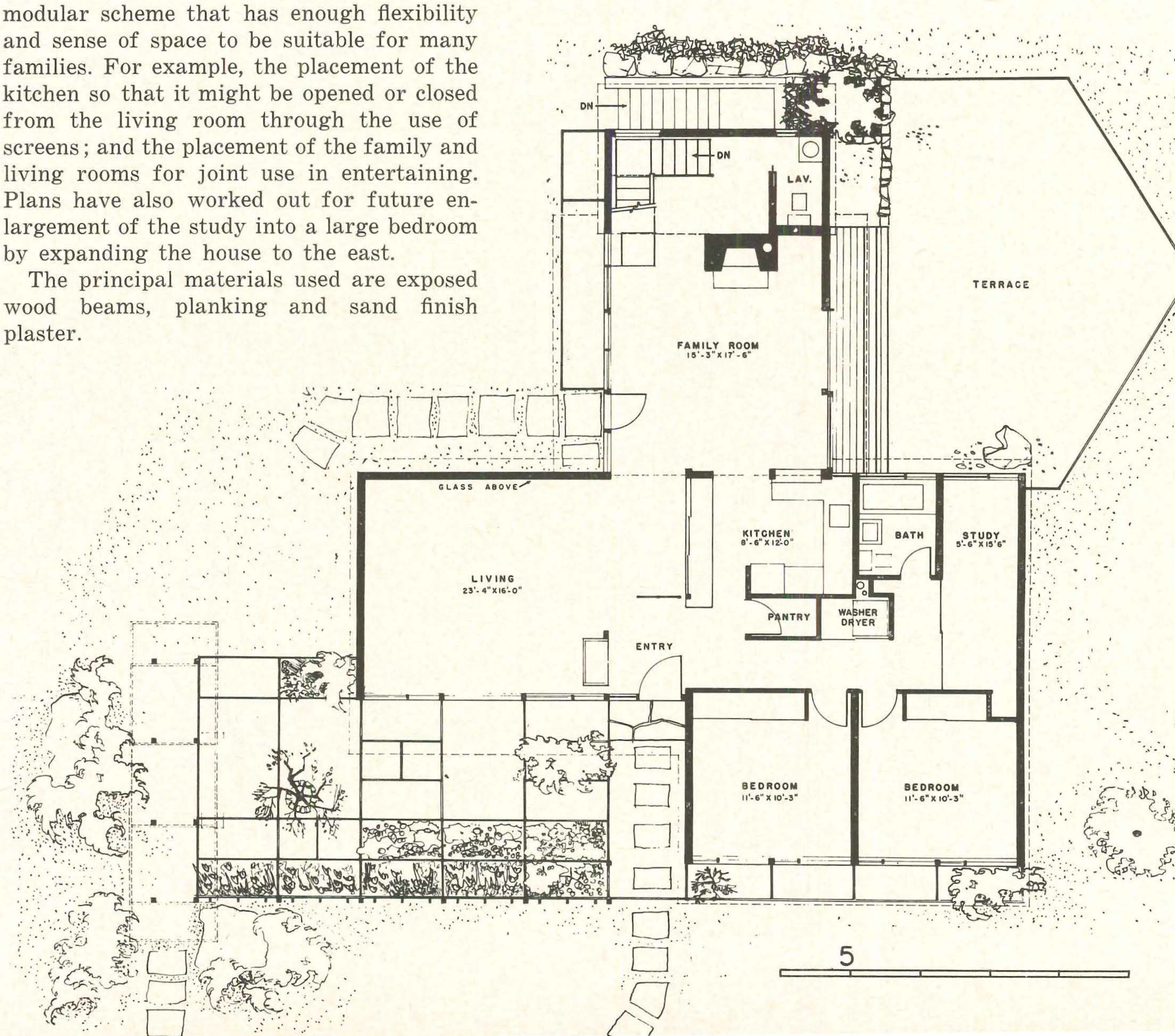
Orderly Informality Keynotes House

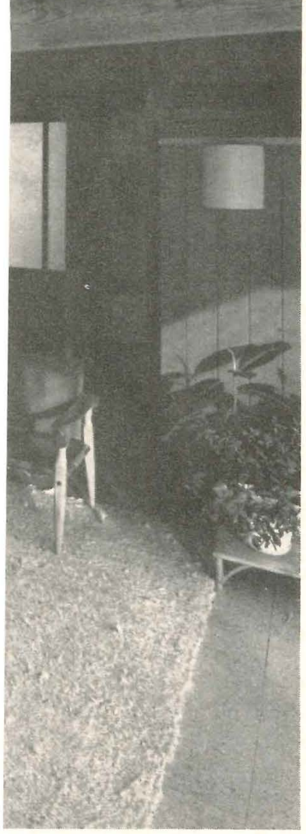
In designing this pleasant house for his own family, Herbert Bogen came to the conclusion that their requirements were fairly typical for many families in the United States. The program for the house was framed accordingly, and was centered on the basic needs for change through the years, and for spaces at reasonable cost for both the family as a unit, and for privacy for its individuals. The plan was devised to give the following basic areas:

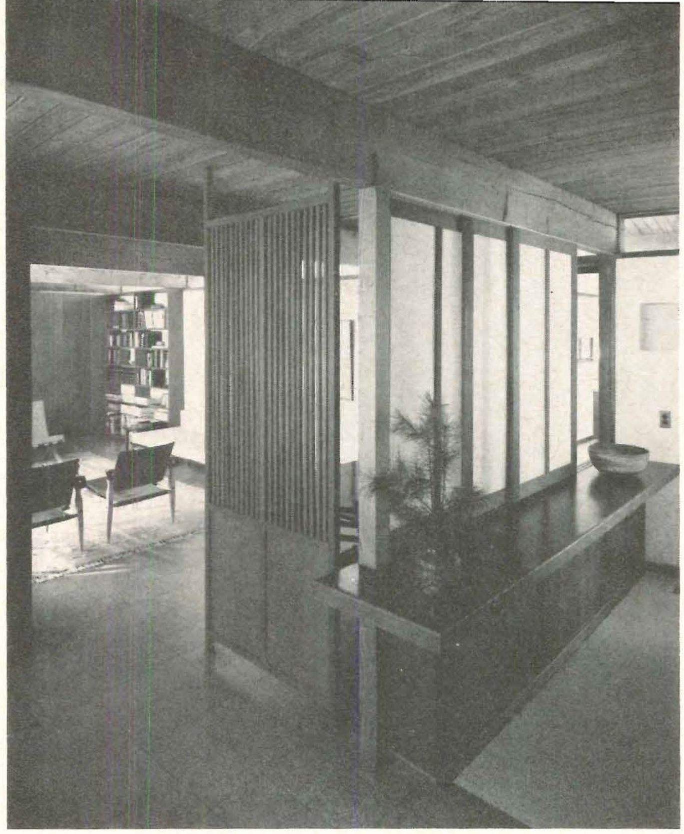
1. A living area to serve as a family center for dining, children's play and general relaxation, with terrace and an open fireplace.
2. A second living area primarily for adults and for formal entertaining.
3. For quiet areas—the bedrooms and a study.
4. Work areas—kitchen, basement work bench and an "art corner."
5. Storage—primarily in a basement.

The house as built does provide a compact, modular scheme that has enough flexibility and sense of space to be suitable for many families. For example, the placement of the kitchen so that it might be opened or closed from the living room through the use of screens; and the placement of the family and living rooms for joint use in entertaining. Plans have also worked out for future enlargement of the study into a large bedroom by expanding the house to the east.

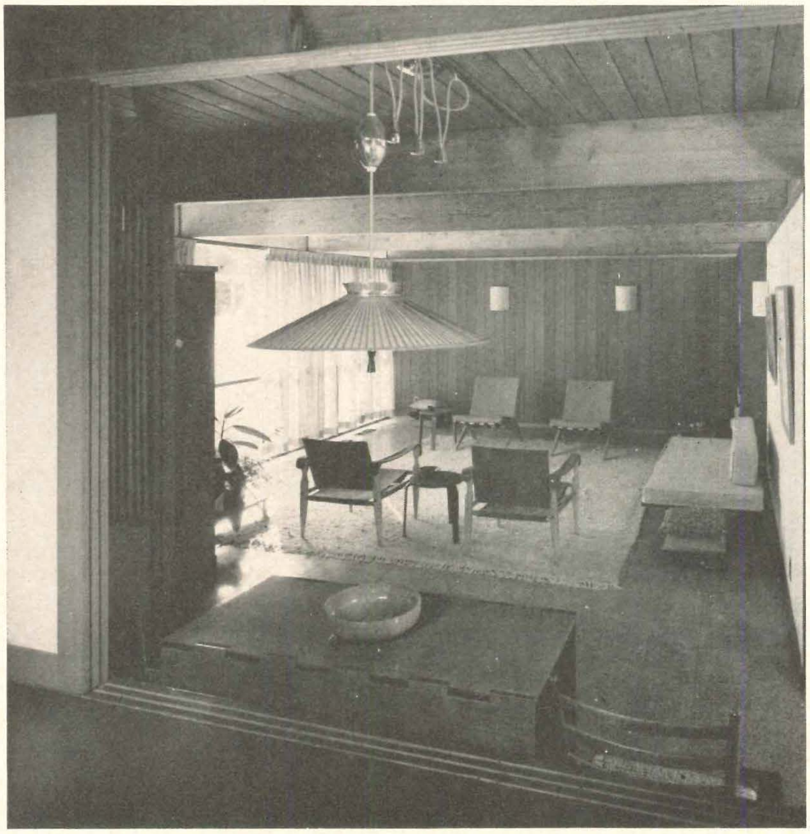
The principal materials used are exposed wood beams, planking and sand finish plaster.







Don Bourne

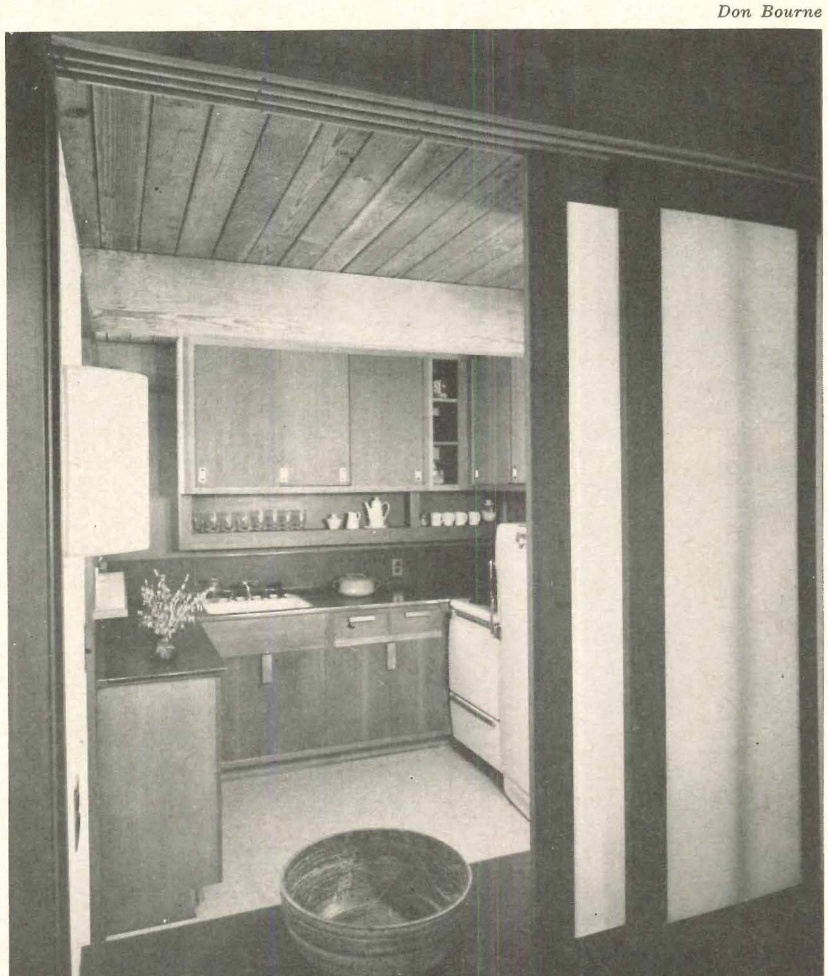


Don Bourne

A Semirural Air and Privacy are Basic to the Design

The plan and design of the house were devised to preserve the natural spirit of the site. The neighborhood is a development of contemporary houses, which boasts five acres of "common land," shared by the community, and including a playground, skating pond and swimming pool. It also has expanses of open meadow and belts of wooded areas.

The Bogen house was carefully placed on its site to take maximum advantage of these commons, while keeping privacy from the street and adjoining houses. The solid walls in the design provide strategic baffles and sun shields

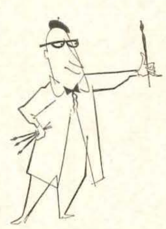


THE NEW ROLE OF THE ARCHITECT

by Dudley Hunt Jr.

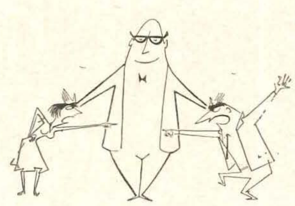
It has been pretty well established, by now, that the architectural profession must prepare itself for a larger role in environmental design. That is, it must prepare itself if it is to fulfill the physical, emotional, social, and intellectual needs of a complex society in a complex time. Discussion of the exact character of this role has been under way in architectural circles for some time now. The discussion continues—as it must—but the action has already begun.

In recognition of the importance of this subject to the profession, the A.I.A. is beginning, this month, an active program designed to inform the members of the profession of some of the challenges and opportunities in architecture today and to assist them in meeting the challenges, taking advantage of the opportunities.

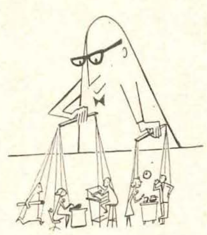


The A.I.A. Committee on the Profession is initiating the new program with a progress report on its activities. While the first report of the committee, in June 1960, was mainly concerned with broad principles of practice today and related subjects, the new report contains the basic framework for action.

The concept of comprehensive architecture, and its practice in our time, is defined, discussed, and outlined in the report. A new draft of the Standards of Professional Practice and Mandatory Standards, rewritten to encourage comprehensive practice, is included. A new program of information for the profession on comprehensive practice, the new Standards of Practice, and related matters is introduced and discussed. The report of the Committee on the Profession, approved by the A.I.A. Board of Directors, will be furnished to each member, in its entirety. The committee is also sponsoring a continuing series of articles on various phases of comprehensive services. The regional conventions will be urged to include comprehensive service seminars in their fall programs. The Institute will provide aid in arranging these programs and speakers for them. In these and other ways, ample opportunity will be afforded each member for study and reflection on the program. It is the hope of the Board and the Committee on the Profession that a great number of members will contribute to the program by writing articles on related subjects, participation in seminars, and the like. After a year of discussion, analysis, and study, the Board expects to take action to make the new Standards of Professional Practice official.



In the meantime, the A.I.A. expects to make every effort to provoke discussion, to further explore the subjects, and to make available to all members fundamental information on comprehensive architectural services. Accordingly, there should be no real reason for any architect to be uninformed on the subject or for any member to fail to have an opportunity to participate in the development of the program and its application to his practice.



Drawings by Sol Ehrlich

COMPREHENSIVE ARCHITECTURE

Like the music of a rondo, comprehensive architecture has a beginning and an end, with repetitions and variations in between, and the end comes full circle back to the beginning.

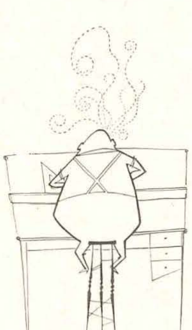
Society and clients are demanding that the architect place himself at the center of the entire process of environmental design. This is

where comprehensive architecture begins. The role of architects in all of this is that of creator, counselor, coordinator, and controller of the entire design process. With the aid of able and talented specialists, assistants, and consultants, the architect can then proceed to relate all of the parts of environmental design to the whole so that the final result will be total architecture. The new A.I.A. program has been planned to help architects strengthen and improve their position.

To complete the cycle, it then becomes necessary for the architect to explain himself to the society and clients who originally made the demands of him. It is also necessary for the architect to project a true image to the public of his new role at the center of the environmental design process.

Unfortunately, the music is being rewritten while it is being performed. This makes it a bit harder. And there are a number of others who would like the role for themselves—the package dealers, the industrial designers, even some of the architect's own consultants. But no one of these possesses the architect's unique training, his point of view, his professional attitude, his generalist approach to the design process. No other possesses the combination of attributes so necessary for achieving for the client and society the best possible result. No other performs services in environmental design and construction only as his client's agent, receiving his compensation only as fees from his client.

Because of its study, the Committee on the Profession feels that the standard services offered in the past are no longer sufficient, in many cases, if the architect is to position himself at the center of the creative process, control and coordinate it. It has become increasingly evident, in recent times, that actions in such fields as land assembly, financing, operational programming and planning are often the key to the question of whether a project gets started at all. And if the project does get under way, land, finances, operations, and the like dictate to an important degree the design and planning that follow. In an increasing number of cases, the architect is discovering that his ability to perform services in analysis of needs, feasibility of projects, promotional or managerial functions determines whether or not he gets commissioned for the work of preliminary design, production, and supervision. In a large number of cases others presently perform these services before an architect is retained. The architect finds himself throttled by decisions over which he had no control, decisions that may be unrealistic and unrelated to the total problem. Such a situation often results in compromised design.



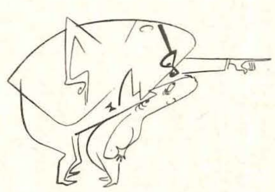
To be masters of the whole process architects may find that they must expand their services to some form of comprehensive practice that will allow them to perform or direct the performance of others in such fields as land assembly, financing, and operational programming. No architect or firm will find it necessary to offer every possible service on all building types. The needs of clients and the architect's own interests and aspirations will dictate the individual course. There have always been many ways to practice architecture, in small or large offices, in specialized or general practice. The indications are that there are even more ways to practice under the comprehensive services concept. For example, there will probably be more consultation between architects. Possibly some of the great designers will find it satisfying to act as consultants on the design work of fellow practitioners. The architect-designers may, in turn, find that a talented architect-executive can render them invaluable aid.

Other architects might specialize in consultation with the building industry, in production, in supervision, or in other phases of the process. The most important principle of comprehensive services is that the profession as a whole be prepared to do the whole job; the next most important that the individual office be prepared to perform, with competence, those services needed by its clients.

Comprehensive services, as outlined in the Committee on the Profession report, may be conveniently divided into the following phases: analysis, promotional, design and planning, construction, supporting, and related services.

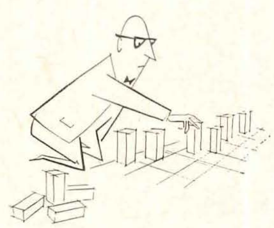
ANALYSIS SERVICES

Under the comprehensive services concept, building programming by architects would be more complete than is usual in ordinary cases. In addition, architects would be equipped to perform or arrange for and coordinate many other types of analysis services such as operational programming, feasibility studies, financial analyses, location and site analyses, and the like.



PROMOTIONAL SERVICES

As the agents of their clients, architects could perform or coordinate such promotional services as assembly of land or financing. In many cases, it might be necessary for the architect to bring together the essential basic elements of a project—needs, land, and money, before beginning his other design and construction functions. With a specific agreement with his client as to compensation, the architect may perform promotional design and planning for entrepreneurial or speculative projects. He might also assist the client in such activities as preparation of promotional brochures, rental space layouts, or providing information and assistance in public relations on projects.



DESIGN AND PLANNING

In addition to the more usual design and planning activities, comprehensive services include master planning of projects involving more than one building, urban and regional design, and operational planning of, for example, flow layouts for industrial buildings.

CONSTRUCTION SERVICES

The new Mandatory Standards specifically forbid architects from acting as construction contractors. However, the nature of projects to be accomplished with comprehensive services may require the architect to act as the agent of his client for force account work, negotiated contracts, or other somewhat unusual construction situations.

SUPPORTING SERVICES

In addition to the usual engineers, the architect increasingly will find himself working with or coordinating the work of other professionals. Urban or regional planners, landscape architects, interior designers, sanitary or utility engineers, road and traffic designers, site planners, acoustics or illumination specialists. In addition, more and more of the architect's work will require special consultation

with market and merchandizing analysts in commercial work, building types specialists for schools, hospitals, and the like, lawyers, economists, social scientists.

RELATED SERVICES

Many architects teach part-time or act as visiting lecturers or critics in the architectural schools. Most schools encourage part-time practice of the educational staff. The role of architects as consultants to the building industry is a growing one. Opportunities are expanding for architects in such fields as architectural graphics, product design, prefabricated buildings and components, and research.

THE NEW ROLE OF THE ARCHITECT

Under the title of "The New Role of the Architect," a series of articles on comprehensive services begins this month in the *A.I.A. Journal.* To be published at regular intervals over the next year and possibly longer, the articles will eventually be made into a book on the subject. Articles will cover such subjects as comprehensive services in the small office, principles of land analysis, the architect's position of agency with his client. Others will deal with relationships with present-day clients, the entrepreneur, the government, the corporate client. An installment will discuss the new Standards of Professional Practice. Others will cover feasibility studies, financial analysis, and operational programming. While many of the articles will be written by experts outside of the profession, A.I.A. members will be encouraged to contribute to the series.

REGIONAL SEMINARS

Outline material for seminars on the subject of comprehensive services is being prepared. Funds have been allocated by the Institute for travel of speakers to regional meetings to conduct the seminars.

THE JOB AHEAD

The Committee on the Profession is continuing its studies of comprehensive services and related matters. Other national committees are working on phases of the problem. The 1962 National Convention in Dallas is concerned with "New Dimensions in Practice." This should bring the work forward apace. Studies are under way of changes in the structure of the Institute, revised qualifications for membership, and of relationships with engineers, other professionals, government, and industry. The Urban Design Committee is beginning an important new program.

There is a critical need for an educational system that can develop generalists who can assume control of the total process of environmental design, while simultaneously training creative and well-rounded specialists in various phases such as analysis, design, planning, construction. This problem is under study.

The A.I.A. committees studying the role of the architect are generally agreed that the profession must be prepared for some type of comprehensive practice. The exact form of the practice and its dimensions are, as yet, undetermined. Much discussion and a certain amount of heat undoubtedly will have been dissipated before the subject is closed.

Architectural Engineering

Thermoelectric Ice Cubes

If the cooling required to maintain comfort in buildings could be "squirted" through wires at reasonable cost, heating and air conditioning systems could be simplified tremendously. For many years scientists have known that this phenomenon was theoretically possible via thermoelectric effect, but now commercial apparatus that converts electricity directly into cooling is being made available. For example, the first commercial storage-type thermoelectric ice cube maker which produces 14 cubes every 38 minutes is to be marketed later this year for use in hotel, restaurant and institutional applications by the York Division of Borg-Warner Corporation. No moving parts are required to freeze the cubes, but a fan is needed to draw off the heat removed from the water in the freezing process. Commercial air conditioning must await further improvements in thermoelectric materials and manner of application, according to York.

And Now Orthotropic Design

Orthotropic design—a term restricted until lately to academic and professional journals—is likely to be used more and more frequently by structural designers. Orthotropic plate design is now being used for bridges, having been developed by German engineers for replacing a large number of bombed-out bridges. In orthotropic plate design a steel plate deck (in essence a "stressed skin") acts as the top flange for its supporting girders and stiffeners. Concentrated loads are distributed throughout the whole structure, enabling individual members to be smaller. Although more steel is used with this method than for a conventional floor deck and supporting beams and girders, economy results because the main girders have less dead load to carry and because the steel plate has become a part of the main girders themselves.

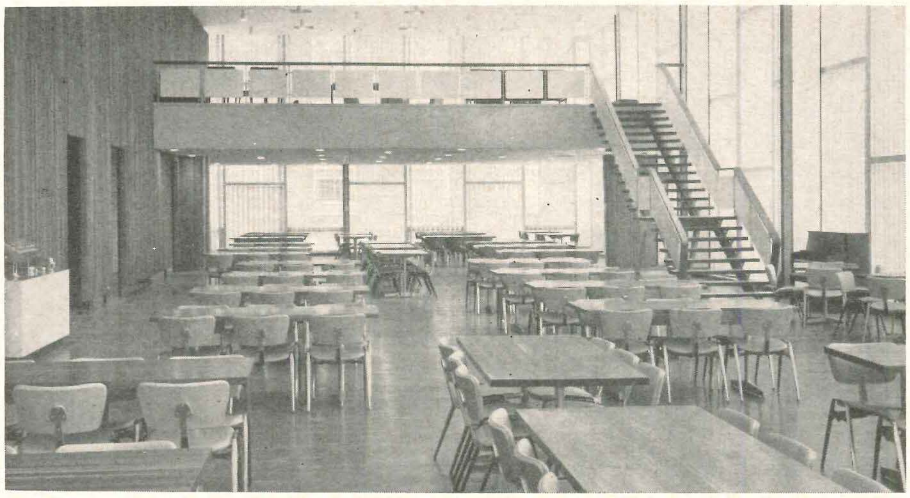
Better Wood Fastenings

Fastenings for the wood structural members of houses must be improved from the standpoints of both structural efficiency and ease of fabrication if wood framing is to maintain its enviable position in house construction. This was the view of over 100 research and production men at a symposium on fastenings held at the U. S. Forest Products Laboratory, January 29-31. Proposals for needed research included: 1) "spot-welding" to provide immediate strength for in-plant fabrication, 2) concealed fastenings for siding and trim and for full-size components such as floor and wall units, 3) portable power tools for efficient installation of metal fastenings and application of adhesives, 4) experimental houses instrumented to show how behavior of fastenings is affected by humidity, temperature, frequency and duration of loads, and spacing of fasteners.

Lessons of an Earthquake

Only 17 days following the catastrophic earthquake in Agadir, Morocco on February 29, 1960, which laid the city low and killed 12,000 people, a team of four engineers, experts on design and construction requirements for earthquake-resistant structures, three representing the steel-producing industry, left the United States to make an on-the-scene inspection of the damage. Results of their study plus a 53-page discussion of earthquake engineering have been included in a book, "The Agadir, Morocco Earthquake" just published by the Committee of Structural Steel Producers of American Iron and Steel Institute. Even though earthquakes had occurred in Morocco to the east of Agadir, some causing considerable damage and loss of life, it was obvious from inspection that design of buildings for earthquake in Agadir was forgotten. The team of specialists included Professor Ray W. Clough of the University of California, Berkeley; R. W. Binder, Bethlehem Steel Co., T. R. Higgins, American Institute of Steel Construction and W. G. Kirkland, American Iron and Steel Institute. The book is being distributed to professors and deans of engineering schools, major city libraries and steel company libraries.

This Month's AE Section



Photos: this and opposite page, Fay Foto Service Inc.

Kutz Dining Hall, Brandeis University, Waltham, Massachusetts; Harrison & Abramovitz, architects; Howard L. Post, food service consultant. This view shows exit from cafeteria counter at left and beyond that is access to soiled dish pass window; see plan, opposite page

DESIGN ELEMENTS OF FOOD SERVICES for Colleges and Universities

by William B. Foxhall

How certain variables affect rule-of-thumb estimates for preliminary planning*

Design of food service facilities for colleges and universities usually differs from design for commercial restaurants in two important ways that affect space allocations. First, the number of people to be served is likely to be relatively constant for three meals a day. Second, with meals served under contract, the variety of dishes is usually limited, and check-out through a cashier's station greatly simplified or eliminated entirely.

For a relatively constant population served at controlled intervals, space allocations for peak traffic conditions can be more specifically determined than they can for commercial establishments of comparable size. While there are rule-of-thumb allowances which are useful in preliminary planning (see Table 1), these should be regarded as fairly rough estimates subject to wide variation. An allowance of 14 sq ft per seated person for dining area, for instance, can vary by as much as 50 per cent according to seating arrangements, meal service, tray removal, and other factors affecting traffic.

* Acknowledgment is made to Howard L. Post, food service consultant, for guidance in preparation of text

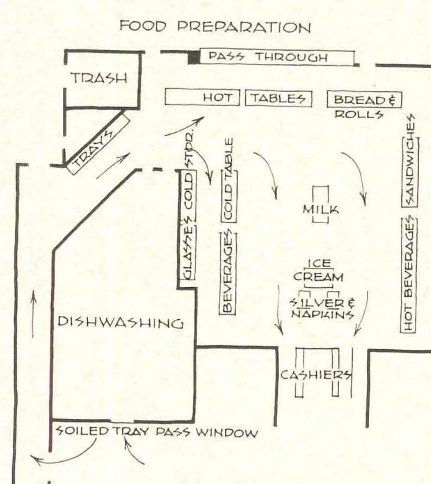
For example, when 2000 cadets march into the dining hall at Annapolis and are seated on command to a twenty-minute meal of ham and eggs, it is easy to see that the seating allowance could be close-order but that the fry-top allowance in the kitchen would be extensive. Both of these allowances would be quite different from those required for the varied-menu, straggle-breakfast service of the same number of people at some other university.

Where variety of dishes can be limited, as it is under many college service contracts, allowances for cooking, preparation, storage, and service areas can be as much as 30 per cent smaller than for the same number of meals in great variety.

Timing of food service has an important and obvious effect on design. The number of meals to be served per hour and the number of people to be seated at one time determine the selection of cafeteria counter arrangements and size of dining area.

One straight-through cafeteria counter can serve 10 to 12 meals a minute; but an expert cashier can check out only about seven trays a minute, which establishes the basic rate of service for the simplest counter-cashier arrangement. Where most meals are served under contract with meal tickets, flash cards, or other non-itemized checking systems, the rate of service per straight counter can approach 650 meals an hour.

For conditions that prevail at many universities, the service area may take the form of the so-called open corral or "free-flow buffet," where food can be set up in great variety at two or four shorter counters with duplicate menus. In addi-



Schematic plan of free flow buffet

tion there may be separate stations for bread, beverages, ice cream, etc. Traffic criss-crosses at will among the counters and leaves the service area through one or more cashiers' check-out stations. The corral system permits a meal service rate equivalent to two straight-through cafeteria counters in a given service area. If three cashiers' stations are set up, the corral can serve an equivalent of three straight counters.

Two timing elements are thus introduced into the spatial arrangements of college and university cafeterias: (1) The dining population arrives for meals in large, hasty groups at intervals coinciding with class programs. (2) Service cut-off and clean-up time must hold to a fairly rigid schedule so that dishes and utensils can be cleaned and returned to the channels of service quickly with minimum paid help.

TABLE 1—AREA ESTIMATES FOR PRELIMINARY PLANNING OF FEEDING FACILITIES

Dining Area:

14 sq ft per person seated;

For generous aisle space with tables for 4 or 6, use 15 sq ft;

For compact service, tables for 8 or more, 12 sq ft;

For close-order banquet, 10 sq ft.

Cafeteria Service Area:

About 20% of dining area;

Ratio varies irregularly, see Table 2.

Other Areas:

Kitchen, dishwashing, dry and refrigerated storage, and other service areas can be best estimated as an over-all allocation and on a basis of meals per day.

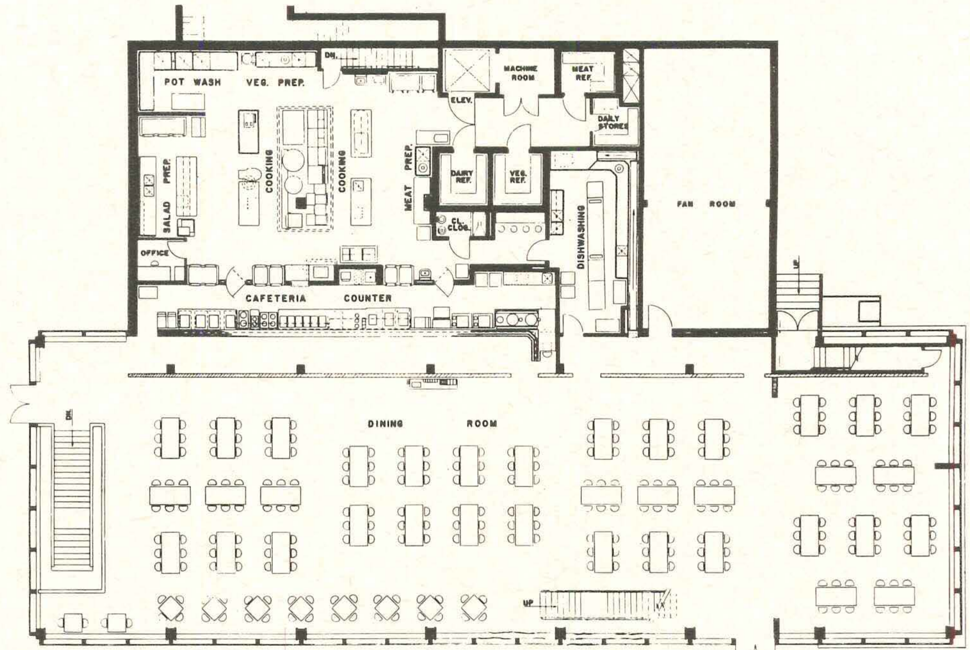
Estimates would be on a sliding scale between 2 and 5 sq ft per meal per day. Mid-values would apply when total service is about 3000 m/d.

Two factors affect the allowance chosen:

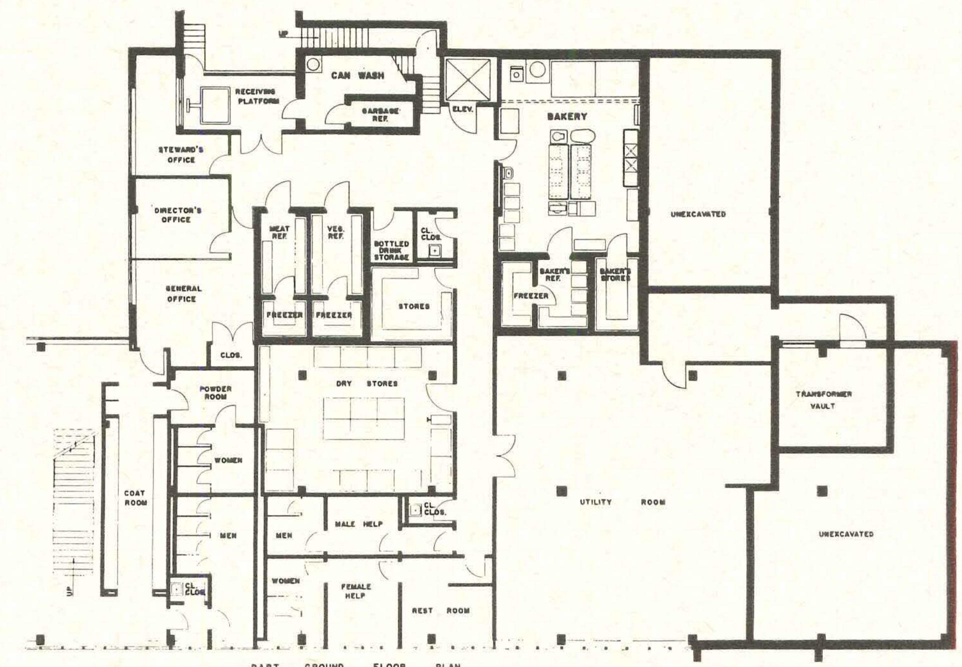
1. For more than 3000 meals per day, use figures at low end of scale. For fewer meals, slightly larger space per meal.
2. Buying and delivery practices have marked effect on these spaces. With ready delivery of semi-prepared foods (peeled or dry-whipped potatoes, pre-cut meats, etc.) the minimum of 2 sq ft per meal per day will probably be sufficient. For monthly purchase of bulk or unprepared foods, even 5 sq ft may not be enough.

TABLE 2—SIZES OF CAFETERIA SERVICE AREA FOR PRELIMINARY ESTIMATES

Meals/Hour	Relative Area	Approx. Area
100-200	Minimum	300 sq ft
300-500	Double	600 sq ft
600-1000	Add ⅓	800 sq ft

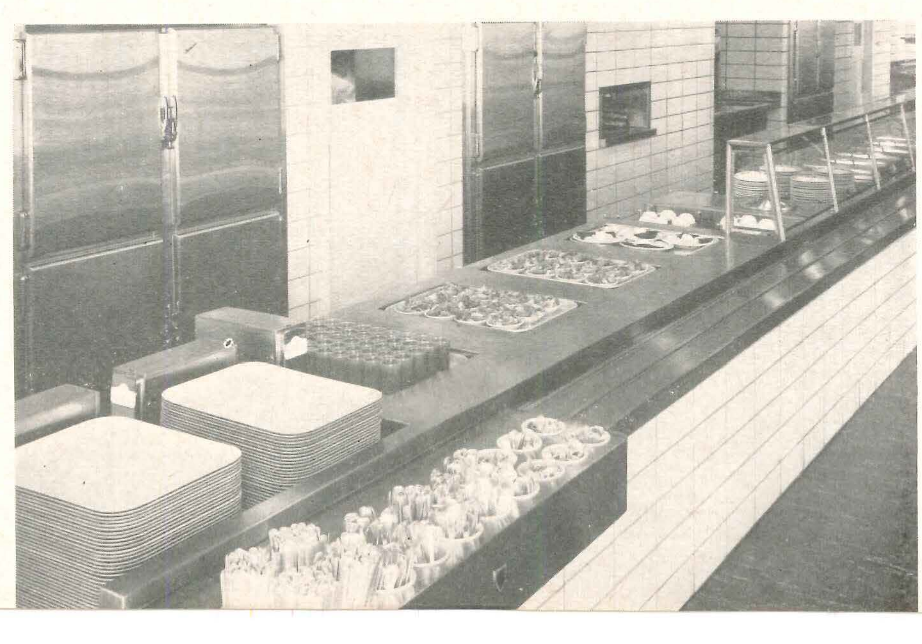


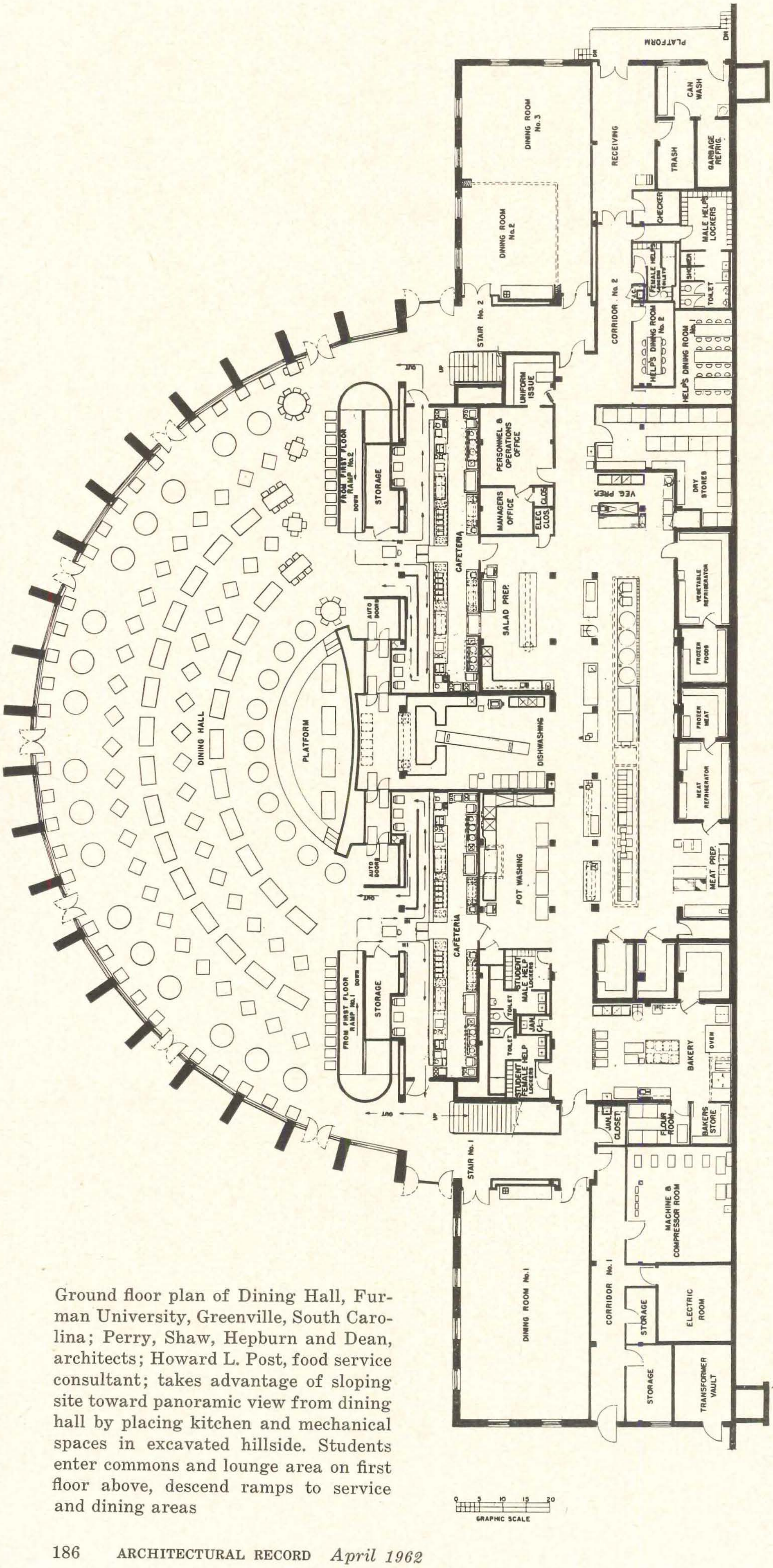
PART FIRST FLOOR PLAN



PART GROUND FLOOR PLAN

Serving counter at Brandeis' Kutz Dining Hall features mobile, self-leveling units for trays; built in, refrigerated, self-leveling dispensers for juices and salads; trays for latter are spaced by aluminum posts and are modular to fit pass-through refrigerator in rear wall; similar arrangement for desserts at far end; pass-through warmer at center serves steam table pans





Ground floor plan of Dining Hall, Furman University, Greenville, South Carolina; Perry, Shaw, Hepburn and Dean, architects; Howard L. Post, food service consultant; takes advantage of sloping site toward panoramic view from dining hall by placing kitchen and mechanical spaces in excavated hillside. Students enter commons and lounge area on first floor above, descend ramps to service and dining areas

The timing of student arrivals for meals is not likely to be disciplined for the convenience of cafeteria management. It is up to the architect, therefore, to provide agreeable non-dining space for those waiting to be served. This can be simple queuing space (about 4 sq ft per standee), or it may be lounge-sitting space, reading alcoves, book checking and coatrooms, washrooms, or what-you-will. Decisions regarding this space will affect the over-all plan of the dining commons building.

The effect of meal timing on space arrangements is seen in provisions for tray return, dishwashing location, and traffic flow patterns. Return of trays by students will meet less resistance if pass-through ports or collecting stations are located somewhere near the natural traffic path from dining area to exits. This may impose a conveyance problem between soiled dish deposit and central dishwashing facilities which should be located conveniently to serving and clean storage areas.

Space Arrangement

In addition to the factors of timing and logistics already mentioned, there are a few special considerations that pertain to arrangement of food service facilities:

(1) Many university administrators, although they bow to the cafeteria timing urgencies of breakfast and lunch, insist on the psychological and social advantages of the "family style" dinner. Under this plan, tables for six or eight are organized for the evening meal with an acting "head" (sometimes a faculty couple) who sees that serving platters of food are brought to the table by designated members of the group. These members by-pass the cafeteria serving counters and go directly to a cook's counter where platters and serving dishes of food are picked up.

Whatever the effect on student morale and manners, this system does affect the food service plan. Serving dishes are large and need storage space between once-a-day uses. An appropriate place for this storage is under, in, or adjacent to the cook's counter. Access to this counter from both preparation and dining areas must be provided.

(2) Another planning consideration is the economic limit of horizontal travel of materials and people in

the food service operation. Hot dishes cool rapidly. People walk rather slowly. Moving bulky deliveries takes energy and sturdy passageways. In cities especially, plot plans may be limited. A two-level arrangement with receiving, storage, and some other areas directly below preparation and cooking areas works well in counteracting these effects as at the Brandeis and Penn State installations illustrated on these pages.

(3) While all of the areas required for a complete food service installation are related to each other and to the over-all function, certain subgroupings of space form logical enclaves for separate consideration. For example, many campuses have separate dining establishments in several buildings which may be quite far apart. For this situation, a separate, central building for receiving, storage, and basic preparation of foods may be indicated. Penn State has such a facility, and the architects report a saving of about 30 per cent in storage and preparation areas required for ancillary dining halls such as the Pollock Circle project, next page.

(4) Similarly, within each building, function groupings suggest logical juxtapositions of various spaces. The dish return-washing-storage-service relationship has been mentioned. Another, perhaps less obvious group is formed by the receiving area, platform, office, trash storage, garbage refrigerator, and can room with can wash. A suggested estimating allocation of space for this group (within allowances suggested in Table 1) is one square foot per six or seven meals per day in a 3000 to 6000 m/d establishment. Many such function-space allotments might be worked out for a particular job. Unfortunately, each would be so hedged with variables that a more itemized breakdown of Table 1 by function would be more misleading than helpful in the present state of statistical information.

Rules of thumb for preliminary space allocation are most useful with full knowledge that the food consultant bases his detailing not only on the space arrangements but on a variety of data which the architect should be prepared to furnish. Some of the required items are:

(1) What is the college student and staff population?

(2) How many live on campus and how many meals per day are they ex-

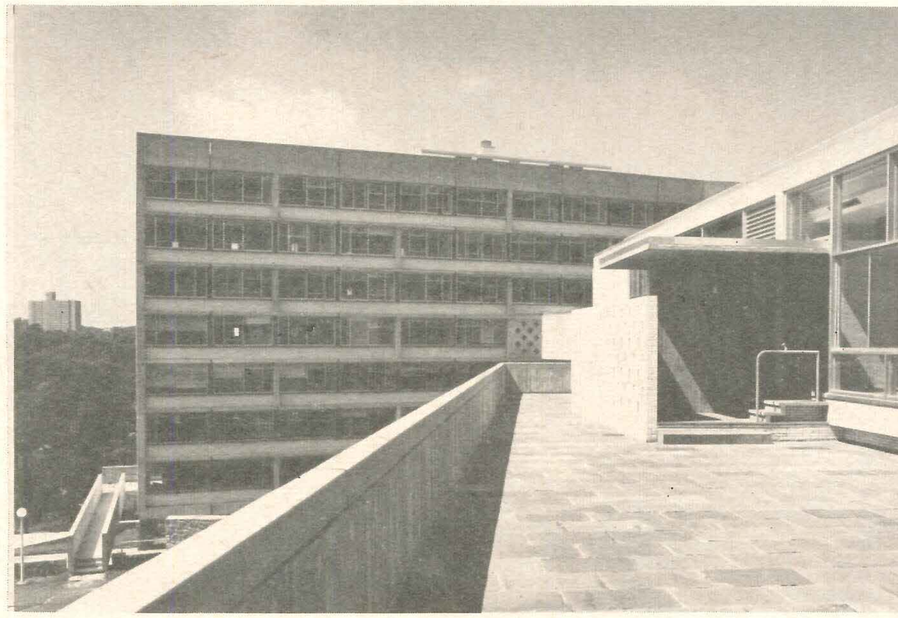
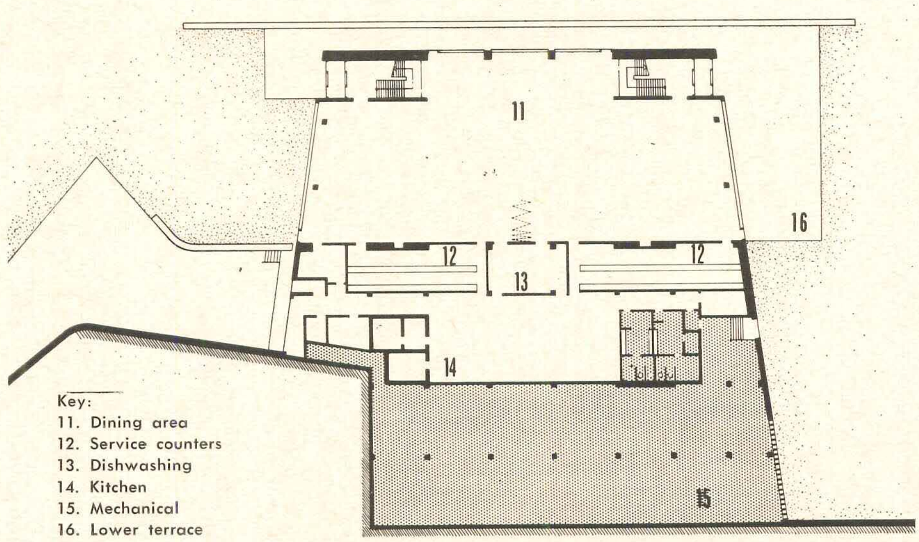


Photo: Shin Koyama

Terrace at second floor level of Community Hall, New York University, University Heights Campus, Bronx, N. Y., looking toward Residence Hall; Marcel Breuer, F.A.I.A., architect; Robert F. Gatje, A.I.A., associate. Terrace forms roof over cafeteria and mechanical spaces shown in plan below, and is a level walkway from campus



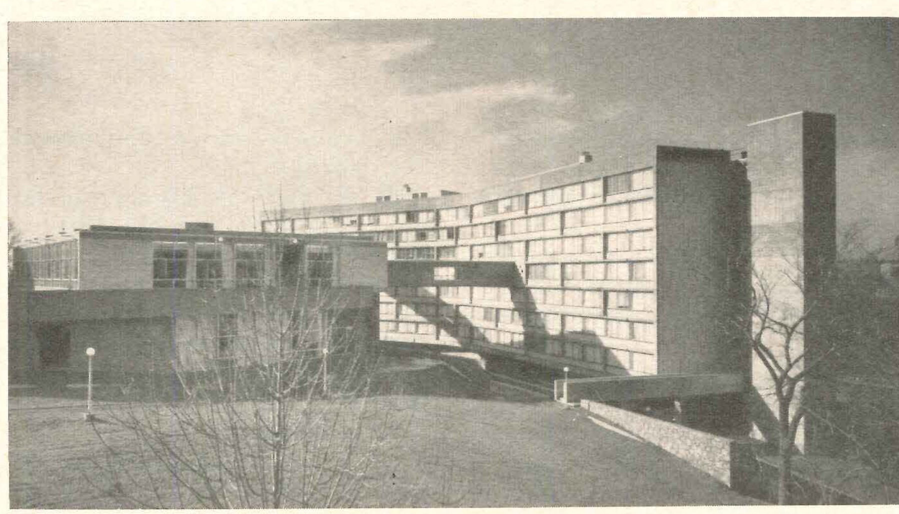
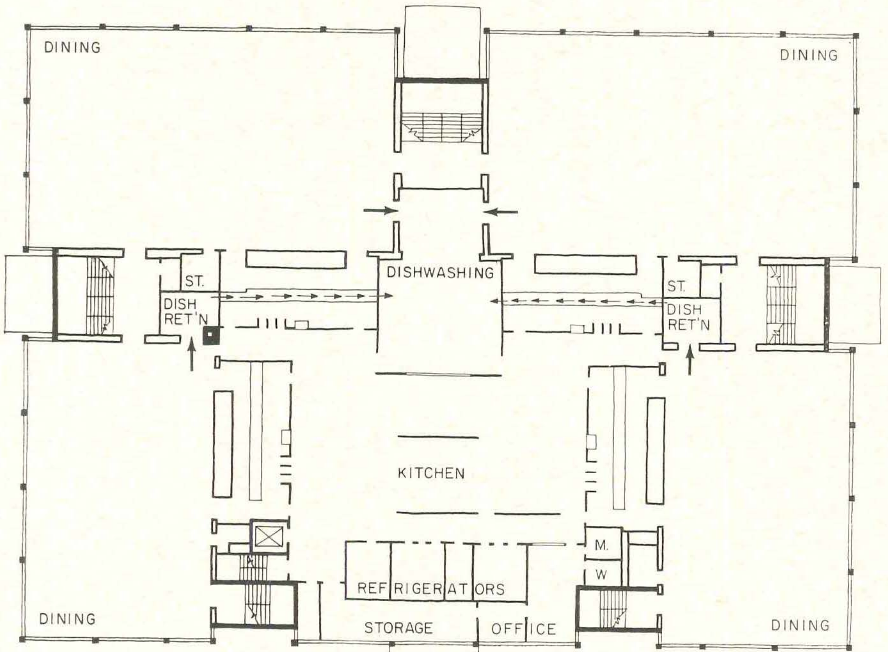
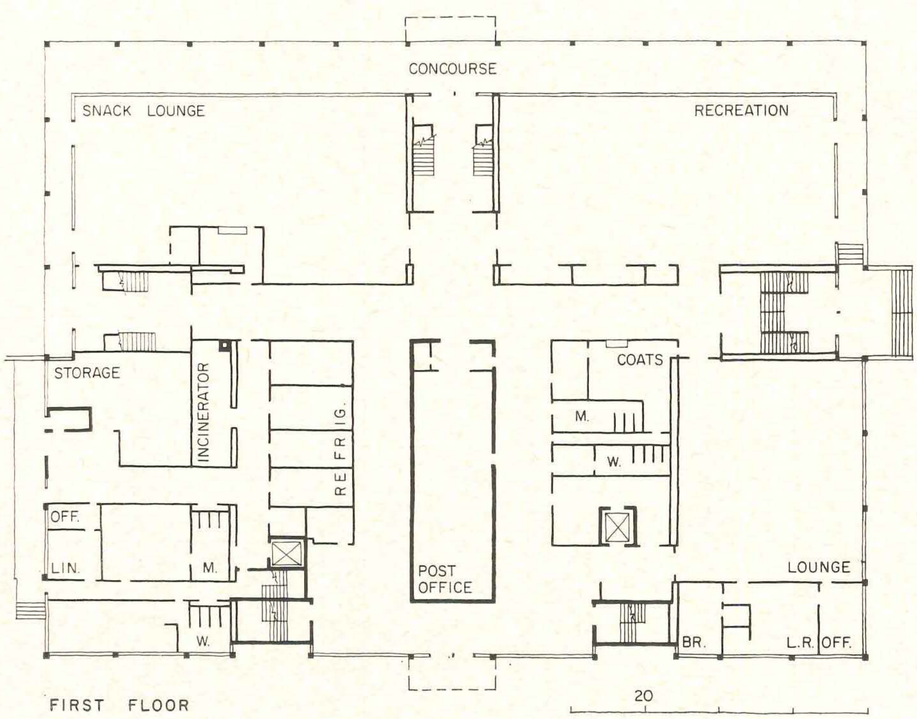


Photo: Ben Schnall

Access to Residence Hall is by monitored covered bridges to male and female wings from upper level of Community Hall



SECOND FLOOR



FIRST FLOOR

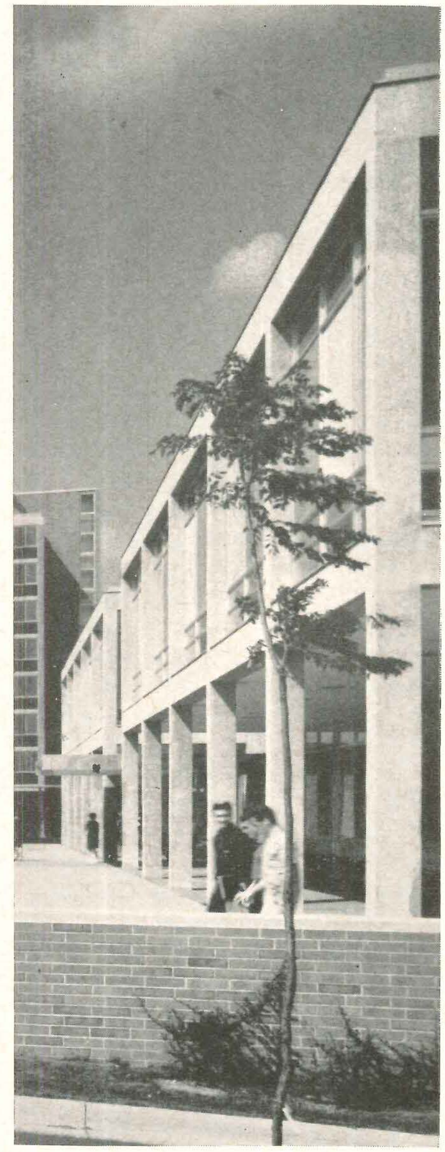


Photo: Cartland V. D. Hubbard

Dining-Commons building of Pollock Circle residence project at The Pennsylvania State University, University Park, Pennsylvania; Harbeson, Hough, Livingston & Larson, architects; serves 2100 men and women with opposite entrances for 1000 Circle residents and 1100 from dorms on adjacent campus. Note covered queuing space; also convenient dish return with conveyor under counters to central dishwashing

pected to eat at the dining facilities?

(3) Of meals served, what per cent will be on contract and what per cent sold for cash?

(4) Will the facilities be expected to serve banquets or outside groups such as might attend graduation exercises?

(5) Will there be a catering service for other locations on campus?

(6) Will baking be done on the premises?

(7) How much office space will be required for food service business?

(8) Is there a separate, central, food receiving, storage, and preparation facility?

On the basis of this information, space allocations can be related to feasible food service designs.

The food consultant in a typical case may proceed as follows:

(1) After preliminary design conferences, he gets a space allotment from the architect and makes preliminary diagrams.

(2) When working drawings are ready he checks his diagrams and makes allowances for other mechanical equipment in the space.

(3) He then makes a detailed specification of each piece of equipment.

(4) He submits specs, together with a list of reliable bidders, to the architect.

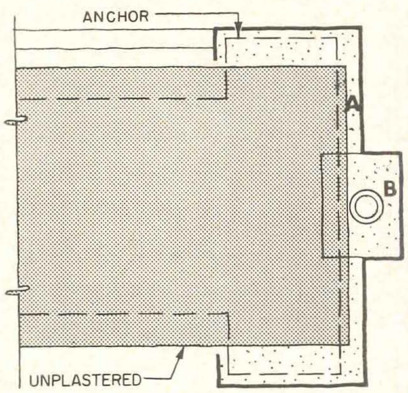
(5) The specifications are put out for bid by the architect. He and the consultant check carefully any substitutions or alterations suggested.

(6) The consultant checks shop and mechanical drawings, makes a physical check of the installation, organizes the food service operation, and draws up an outline of recommended food service methods.

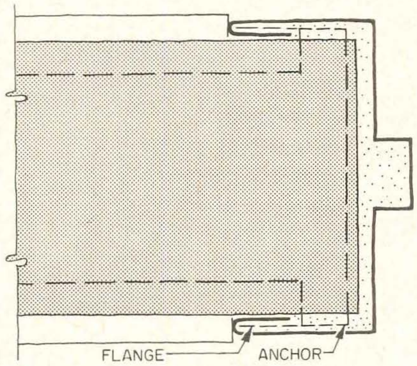
STEEL DOOR FRAMES FOR MASONRY WALLS

An architect suggests how to get neat appearance and sturdy construction

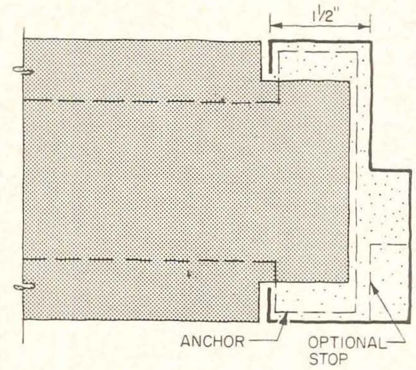
by Gannett Herwig, A.I.A., La Pierre, Litchfield and Partners



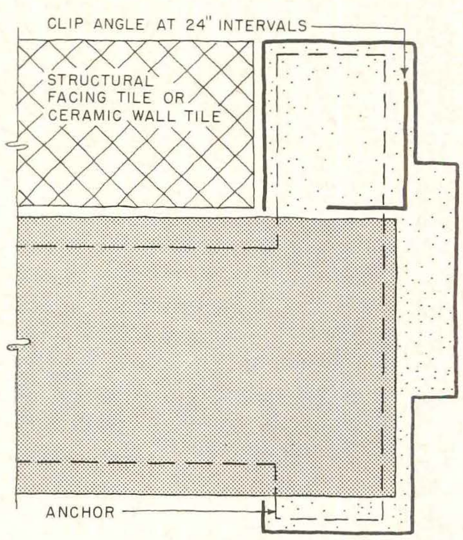
Works for either plastered or unplastered concrete block walls. Space "A" between frame and block must be filled with mortar to make frame rigid. Letter "B" indicates pipe (held by brackets in frame and fastened to the slab above) used to facilitate erection and increase rigidity of the door frame

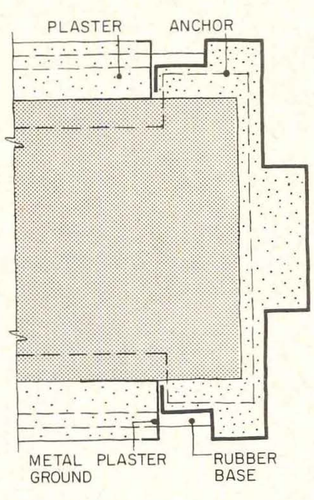


While this frame gives a more flush appearance than one at left, the joints are difficult to fill and paint and the bend on the full return may tend to be "wavy." The type of anchor shown here has to be "tipped in," but there are newer anchors similar to the Underwriters' anchor that avoid this



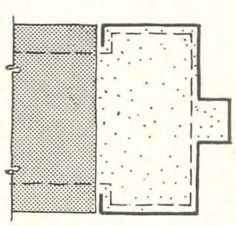
When the building is a large one, a reasonably priced, special block may be used which will give a flush appearance to exposed block walls. Note the narrow trim widths possible. Anchoring is good



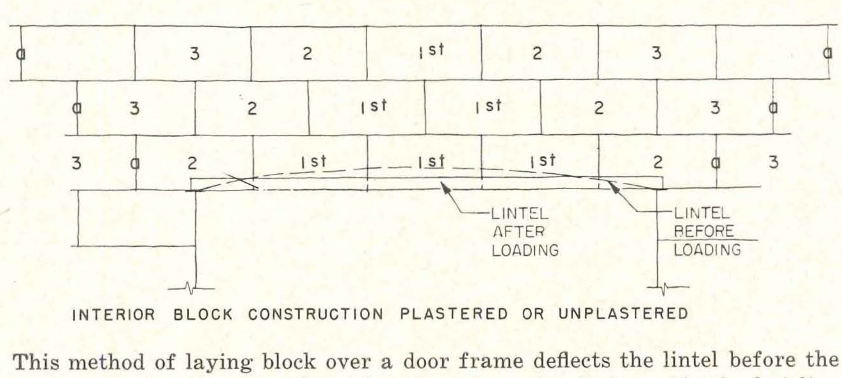


Far left: this type of frame allows glazed finishes to be erected after block walls

Left: if the architect wants to accent the door frame, he can use a frame profile such as this. The reveal can be painted a color to contrast with plaster and the frame



When block doesn't extend into the frame, there is a good chance that the mortar will fracture, leaving an open joint in the wall



INTERIOR BLOCK CONSTRUCTION PLASTERED OR UNPLASTERED

This method of laying block over a door frame deflects the lintel before the joints a-a-a to left and right of head are formed, which avoids the hairline cracks that usually form along this step pattern

FACTORY FOR A RADAR MANUFACTURER

Specialized requirements for testing are parlayed into architectural features

Technical solutions to the specialized problems of a radar manufacturer are also architectural highlights of this manufacturing and testing facility. Two hyperbolic-paraboloid-shaped towers used as targets in testing radar equipment provide unusual stability against the wind. Nylon-coated fabric "windows" through which radar equipment can "see" a target, balloon out from the third floor of the manufacturing building.

The hyperbolic paraboloid towers had to be located in the front of the building, opposite the test cells, so appearance was an important consideration in the design. To insure accurate calibration the top platform, about 80 ft above the ground, cannot sway more than plus or minus a half inch. The cross cable construction permits a wide base to give this stability.

The three-story structure is used for the assembling, manufacturing and testing of air-borne radar and tracking systems.

The entire third floor is used for final assembly and testing. One side of this floor contains a series of test cells into which radar units are moved and then directed toward electronic targets in the steel towers 200 ft away. Security precautions require that these devices be hidden from view; yet they must be tested through a medium which will not distort the image or interfere with the calibration. These requirements were fulfilled by a nylon-coated fabric which is secured in an air-tight clamping frame. The fabric is clamped between two continuous angle frames, one member of which is rigidly attached and sealed to the building. The other acts as a clamping frame. The fabric is made with a gum-coated hemmed edge which forms a positive edge seal.

Each test cell is pressurized to keep the fabric material stretched tight. An absolute seal is not required, and the air handling system is designed for approximately 15 per cent air leakage. Air locks in each cell prevent abnormal pressure loss due to personnel traffic in and out of the cell.

The building is fully air conditioned under semi-dust free conditions in order to protect the intricate electronic assemblies. Ceilings are composed of removable Milar-coated fiber panels set in an aluminum T-frame grid with integrated suspended lights installed as part of this grid system. The attic space thus created houses utility distribution systems, lighting ballasts, etc., and is accessible by removing any ceiling panel. Most of the light from the hanging lighting fixtures is projected upward, to give illumination free from glare. Ballast noise and heat is reduced, since the ballasts are located above the ceiling panels.

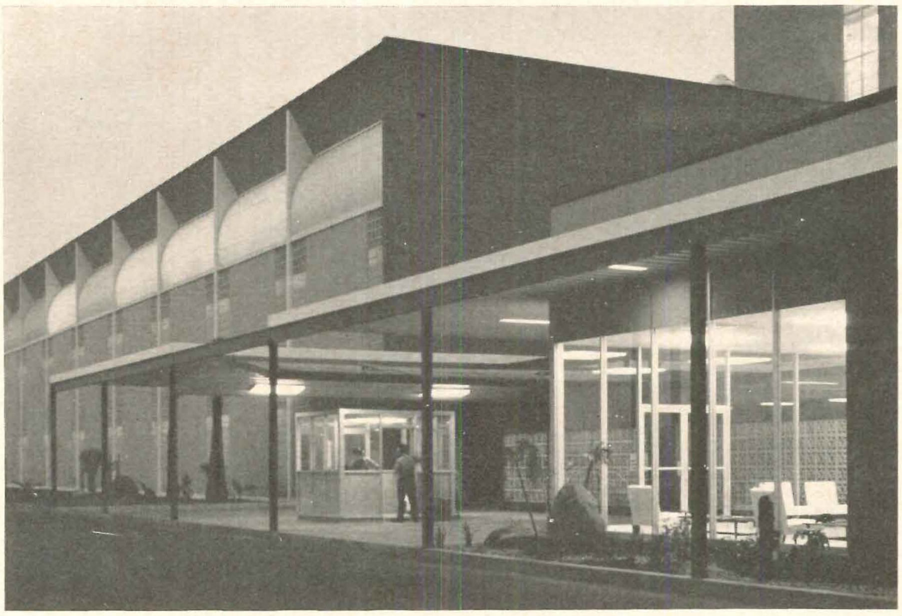
Attached to the three-story building is an eight-story tower with an elevator. Completed radar units are moved to the seventh and eighth levels of this building and calibrated by shooting at targets located elsewhere on the property. In the center of the building, supported on four steel bents, is a tower structure which houses calibration equipment for boresight tests. Equipment on the roof of the structure has unobstructed ranges in all directions and is high enough above the ground and the roof to insure accurate readings. Since it is essential that equipment be moved from manufacturing to testing positions quickly, the structures had to be attached to the main building.

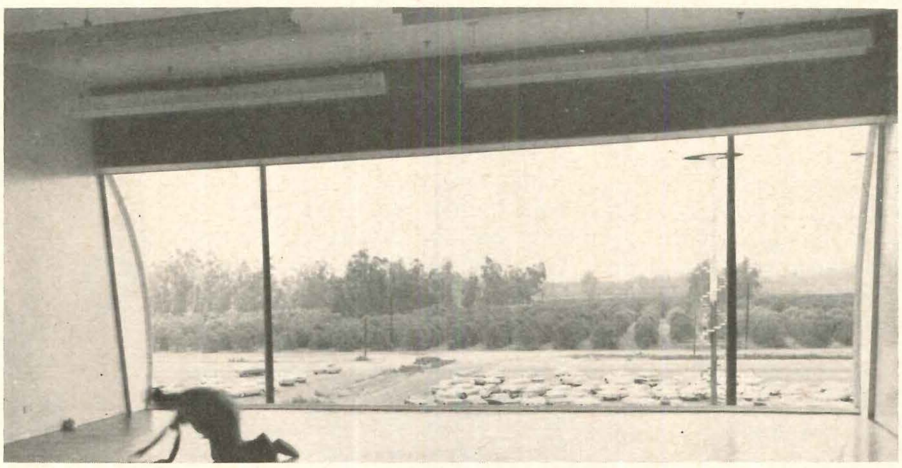
Autonetics Armament
and Flight Control Facility,
Anaheim, California

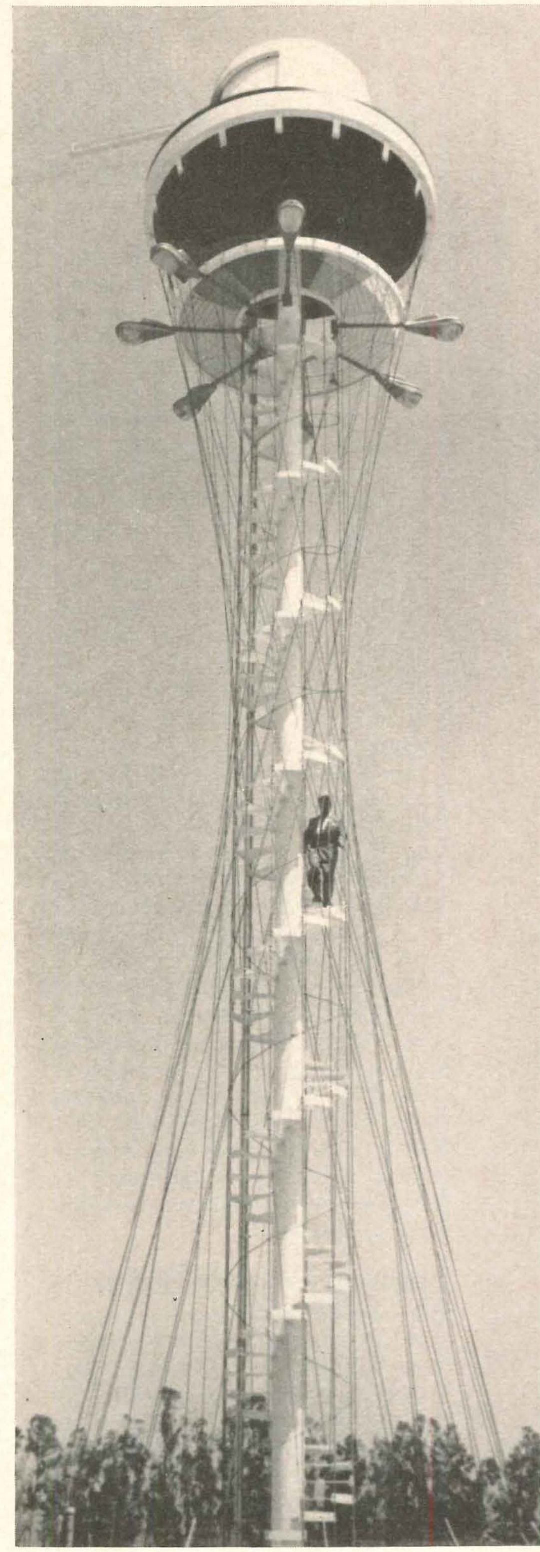
ARCHITECT: *Kenneth H. Neptune*

STRUCTURAL ENGINEER:
Richard R. Bradshaw

ELECTRICAL & MECHANICAL ENGINEER:
J. S. Hamel





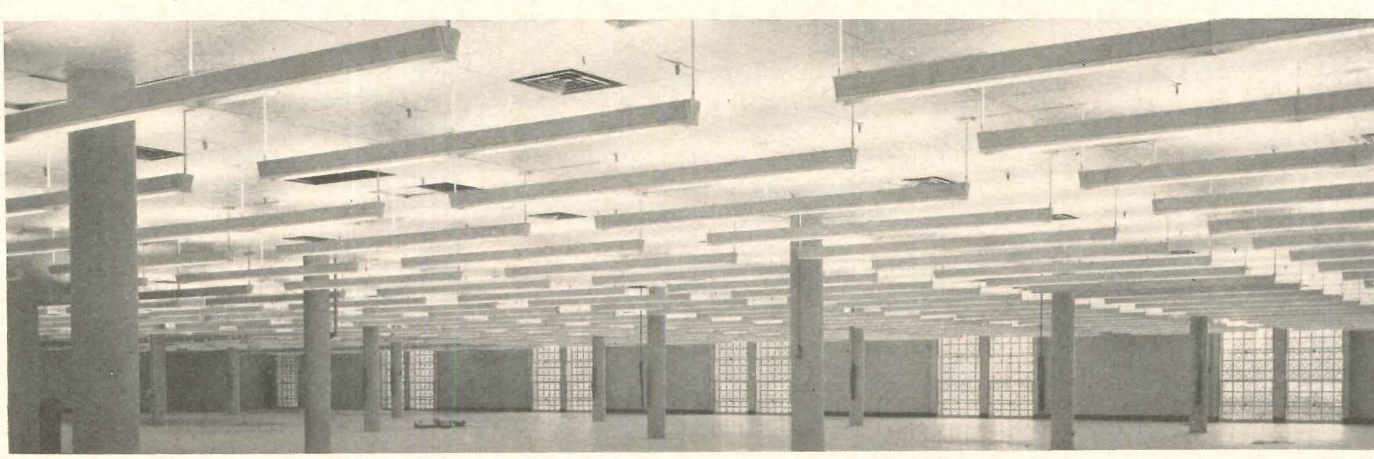


Top: Nylon-coated fabric "windows" at upper left mark cells for testing completed equipment. The roof surface above the test cells is recessed to accommodate an upward target angle of 45 degrees

Above: Picture taken inside a test cell before the fabric was installed, showing the nature of the fabric attachment frame

Right: One of the steel cable hyperbolic paraboloid shaped towers containing electronic targets

Below: Hanging lighting fixtures in manufacturing areas with ballasts above the ceiling to reduce noise and to disperse their heat



PHYSICAL PROPERTIES OF 113 DOMESTIC MARBLES: 1

by ARTHUR HOCKMAN, National Bureau Standards, U. S. Department of Commerce

Marble has always been regarded as an attractive and durable building material. In recent years the use of thin marble in the form of panels, slabs, and through-the-wall units in curtain wall structures has become more prevalent. For this reason, the National Bureau of Standards has compiled pertinent data regarding some of its physical properties.

The following sheets give the results of tests for abrasive hardness, absorption and specific gravity for 113 samples of domestic marbles originally obtained from 25 quarries located in nine states.

Geologically, marble is defined as a metamorphic, recrystallized limestone composed predominantly of crystalline grains of calcite or dolomite or both, having interlocking or mosaic structure. Commercially, marble is any crystalline rock capable of taking a high polish and composed predominantly of one or more of the following minerals: calcite, dolomite or serpentine. About 85 per cent of the samples were in the class of marble as defined from the geological standpoint, while the remaining 15 per cent were classed as commercial marbles.

MARBLE CLASSIFICATION

The marble samples have been classed by the producers into four groups—A, B, C or D. The groups are defined by the Marble Institute of America[1] in their Marble Engineering Handbook (1960) as follows:

GROUP A—"Sound marbles and stones with uniform and favorable working qualities."

GROUP B—"Marbles and stones similar in character to those in Group A, but with somewhat less favorable working qualities. They may have occasional natural faults. A limited amount of waxing[2] and sticking may be necessary."

GROUP C—"Marbles and stones of uncertain variation in working qualities. Geological flaws, voids, veins and lines of separation are common. Standard shop practice is to repair these variations of nature by sticking, waxing and filling. These techniques have recently been greatly improved by the use of new adhesives. Rodding[3], liners[4] and other forms of reinforcement may be freely employed when necessary."

GROUP D—"Marbles and stones similar to Group C, subject to the same methods of finishing and manufacture, but with a larger proportion of natural faults. These have also a maximum variation in working qualities. This group comprises many of the highly colored marbles prized for their decorative qualities."

Marbles that are used for monumental, structural or veneer purposes and are to be exposed to the weather are generally selected from Group A. Marbles in Groups B, C, and D are usually selected for their color and decorative effects. Occasionally carefully selected marbles from these groups are used on surfaces exposed to the weather.

DESCRIPTION OF SAMPLES

Most of the domestic samples were in the form of hand specimens 3- by 5-in., ranging in thickness from ¼ in. to ⅞ in. With the small size and number of samples available for the tests, the test results should not be interpreted to represent the entire marble deposit available from each respective source.

TEST PROCEDURES

ABRASIVE HARDNESS—This test was made in accordance with ASTM Standard Test C241-51, *Abrasion Resistance of Stone Subjected to Foot Traffic.*

The specimens, 2- by 2-in. of various thicknesses, were first dried and weighed. These specimens were then abraded with No. 60 synthetic corundum for 225 turns of a lap (grinding wheel of testing machine on which abrasive material is fed). The wear resistance (H_a) expressed as a reciprocal of the volume abraded was:

$$H_a = \frac{(10G\ W_s + 2000)}{2000\ W_a}$$

where G is the bulk specific gravity, W_s is the average weight of the specimen (original weight plus final weight divided by 2), and W_a is the difference between the original and final weight of the specimen.

ABSORPTION—The absorption test was made in accordance with ASTM Standard Test C97-47, *Absorption and Bulk Specific Gravity of Natural Building Stone.*

The 2- by 2-in. specimens were used for the absorption and specific gravity determinations before the abrasion tests were made.

The specimens were dried for 24 hr, cooled and weighed, then totally immersed in distilled water for 48 hr. They were then removed from the bath, surface dried with a damp towel, weighed again, and the per cent absorption computed as follows:

$$\text{Absorption } (\%) = \frac{W_2 - W_1}{W_1} \times 100$$

where W_1 is the dry weight of the specimen, and W_2 is the weight of the specimen after soaking for 48 hr.

BULK SPECIFIC GRAVITY—This test was made also in accordance with ASTM Standard Test C97-47. After the final weighing was made for the absorption test, the specimens were weighed while suspended in distilled water and the bulk specific gravity was computed by the formula:

$$G = \frac{W_1}{W_2 - W_3}$$

where W_3 is the weight of the specimen suspended in water.

---

[1] Marble Institute of America, 32 South Fifth Avenue, Mount Vernon, New York

[2] Waxing, sticking and filling are methods used in the marble trade to repair and improve the appearance of marbles containing natural flaws, voids, veins, etc. Materials such as wax, shellac, coloring and marble dust are used for this purpose.

[3] Rodding is a method of reinforcing a slab of marble by cementing stainless steel or aluminum rods to the back of the slab.

[4] Liner is a thin slab of marble that is cemented to the back of the original slab in order to reinforce it.

PHYSICAL PROPERTIES OF 113 DOMESTIC MARBLES: 2

by ARTHUR HOCKMAN, National Bureau of Standards, U. S. Department of Commerce

SOURCE, DESCRIPTION AND PROPERTIES OF DOMESTIC MARBLES

NO.	SOURCE	DESCRIPTION[1]	ABRASIVE HARDNESS (H_a value)[3]	ABSORPT'N (48 hr) %	BULK[4] SPECIFIC GRAVITY	GROUP[5]
1	ALABAMA	[2] IVORY CREAM, TRANSLUCENT, very few green markings	14	.11	2.71	B
2		WHITE AND CREAM, TRANSLUCENT, bold prominent markings	14	.14	2.70	A
3		WHITE, TRANSLUCENT, well-distributed prominent markings	13	.13	2.70	A
4		CREAM, TRANSLUCENT, uniform clouded markings	9	.14	2.70	A
5		CREAM, TRANSLUCENT, some veining or clouding	11	.14	2.70	A
6		IVORY-CREAM, TRANSLUCENT, occasional traces of color	10	.14	2.70	A
7		WHITE, green veining predominating	20	.11	2.71	B
8		WHITE AND CREAM, very bold and prominent markings	18	.10	2.71	B
9		WHITE, prominent light clouds	16	.08	2.71	A
10		WHITE, light clouds	11	.09	2.71	A
11	ARKANSAS	DARK GRAY, light gray spottings	38	.14	2.69	B
12		GRAY WITH BROWN TONE, and white spots	18	.34	2.68	B
13		RED, WHITE AND GOLD spots, red veining	17	.19	2.65	C
14		ROSE, white and yellow spots	13	.23	2.67	C
15		GRAY WITH BROWN TONE, golden spots and veins	26	.27	2.68	B
16		DARK BROWN, abundance of small white spots	13	.43	2.66	C
17		DARK BROWN, abundance of small white spots	24	.22	2.68	C
18	COLORADO	LIGHT BROWN TO CREAM, some light rose (travertine)	13	1.10	2.47	C
19		LIGHT BROWN TO RED (travertine)	20	.75	2.52	C
20		CREAM, light brown to red veining (travertine)	18	1.58	2.46	C
21	GEORGIA	WHITE, profusion of blue-black veining	17	.09	2.71	A
22		GRAY, dark gray, wavy veins	16	.11	2.71	A
23		WHITE, gray veins and clouding	16	.12	2.71	A
24		WHITE, few gray veins and clouds	16	.10	2.71	A
25		ROSE TO LIGHT PINK, dark green and gray veining	13	.08	2.71	A
26	MARYLAND	DARK GREEN, mottled veins and markings (serpentine)	55	1.03	2.66	C
27		LIGHT GREEN, mottled veins and markings (serpentine)	43	1.56	2.63	C
28	MISSOURI	LIGHT GRAY, distinct darker gray veining	16	.59	2.64	A
29		LIGHT GRAY, gray veins resembling clouds	19	.83	2.64	A
30		GRAY, without any distinct veining	17	.86	2.63	A
31		ROSE, gray fossil markings	16	.14	2.69	C
32		LIGHT ROSE, numerous light and dark fossils	15	.16	2.68	C
33		GRAY, dark gray veinings, light brown markings	15	.63	2.64	C
34		LIGHT TO DARK GRAY, light brown veining	17	.36	2.68	C
35		GRAY, yellow or golden veins, fossil markings	20	.18	2.68	C
36		LIGHT GRAY AND GOLD, yellow veins	18	.40	2.67	C
37		LIGHT TO MEDIUM GRAY, many light and dark fossils	17	.30	2.67	C
38		MEDIUM BROWN, light and dark veining	19	.43	2.68	C
39		LIGHT TO MEDIUM GRAY, fine pencil-like markings	17	.46	2.64	A
40	N. CAROLINA	GRAY, blue-black wavy veining	19	.07	2.72	A
41	TENNESSEE	DARK PINK, dark veins	24	.07	2.70	A
42		GRAY, SLIGHT TINT OF RED, blue veinings	22	.07	2.70	A
43		DARK BROWN, white spots	25	.07	2.70	A
44		BROWNISH RED, with white veinings and markings	31	.06	2.71	A
45		VARIEGATED RED AND GRAY, white veinings	28	.07	2.71	C
46		GRAYISH PINK, blue veining and white spots	25	.07	2.71	A
47		GRAYISH RED, small blue veinings	23	.08	2.70	A
48		BLACK, occasional white markings	38	.15	2.72	B
49		DARK BROWN, white and red spots	27	.07	2.71	A
50		DARK BROWN, pinkish-gray spots	26	.05	2.70	A
51		REDDISH BROWN, white spots	22	.07	2.70	A
52		BROWNISH RED, variegated with white markings	44	.06	2.71	C
53		DEEP BROWNISH RED, mixed with gray markings, white spots	37	.02	2.71	C
54		BROWNISH RED, variegated with white markings	39	.01	2.71	C
55		BROWNISH RED, mixed with gray and white markings	27	.05	2.71	C

[1] The various descriptions of the samples were supplied by the respective producers.
[2] Capitalized portion of the description signifies the background color of the marble.
[3] The H_a value is an expression of wear resistance and is the reciprocal, multiplied by 10, of the volume of material abraded in a 5 min tests, using the National Bureau of Standards Abrasion Machine. The higher the H_a value, the more resistant to abrasion is the material.
[4] The weight per cubic foot can be determined by multiplying the bulk specific gravity by 62.4.
[5] As defined in the text.

PHYSICAL PROPERTIES OF 113 DOMESTIC MARBLES: 3

by ARTHUR HOCKMAN, National Bureau of Standards, U. S. Department of Commerce

SOURCE, DESCRIPTION AND PROPERTIES OF DOMESTIC MARBLES

NO.	SOURCE	DESCRIPTION[1]	ABRASIVE HARDNESS (H_a value)[3]	ABSORPT'N (48 hr) %	BULK[4] SPECIFIC GRAVITY	GROUP[5]
56	TENNESSEE	[2] GRAYISH PINK, mottled with white, pink, red and black	27	.05	2.71	A
57		BROWN, dark brown veinings, white spots	21	.09	2.70	A
58		DEEP BROWNISH PINK, fine dark veining	26	.04	2.71	A
59		DEEP RICH RED, small blue veining	22	.05	2.70	A
60		DARK TO MEDIUM GRAYISH RED, white spots	25	.07	2.70	A
61		VARIEGATED GRAYISH PINK TO RED, blue veinings	23	.08	2.70	A
62		LIGHT TO DARK PINK, small blue veinings	25	.06	2.70	A
63		MEDIUM TO LIGHT PINK, blue veinings	23	.05	2.70	A
64		GRAYISH PINK TO RED, dark veins, some fossils	22	.07	2.70	A
65		LIGHT PINK, dark colored veining	24	.09	2.70	A
66		GRAYISH RED, white spots	23	.01	2.70	A
67		GRAYISH LIGHT RED, white spots	27	.05	2.71	A
68		GRAYISH RED, white spots, red veining	28	.06	2.70	A
69		LIGHT PINK, blue veining	25	.06	2.70	A
70		GRAY, SLIGHT TINGE OF PINK, small blue veining	22	.07	2.70	A
71		GRAYISH PINK, darker veins	23	.08	2.70	A
72		GRAYISH PINK, small blue veining	24	.07	2.70	A
73		CREAM, yellowish brown veins, some fossils	21	.09	2.70	A
74		GRAYISH PINK, blue veining	21	.10	2.70	A
75		PINK AND GRAY, white clouds, veins, fossils	26	.05	2.70	C
76		PINK AND GRAY, reddish veining, some fossils	28	.11	2.69	C
77		DEEP RED TO PINK AND GRAY, dark veins	22	.06	2.70	A
78		GRAY WITH SLIGHT PINK, blue veinings	22	.10	2.70	A
79		GRAY, very close dark veinings	23	.09	2.70	A
80		LIGHT GRAY, few dark veinings	20	.11	2.69	A
81		PEARL, some blue-black veinings, clouds	23	.10	2.69	A
82		LIGHT AND GRAYISH PINK, dark veins, shell markings	21	.06	2.70	A
83		GRAY, scattering of white spots	28	.06	2.70	A
84		LIGHT CREAM, irregular gold veining	25	.58	2.65	C
85		DEEP ROSE, dark brown spots, white and gray markings	29	.02	2.71	C
86		LIGHT TO DARK ROSE, irregular blue veining	27	.07	2.71	C
87		LIGHT BROWN, white and gray fossils	28	.05	2.70	A
88	VERMONT	WHITE, gray clouds	13	.12	2.70	A
89		GRAY, darker gray veining	10	.14	2.70	A
90		WHITE, gray clouds	10	.12	2.70	A
91		WHITE, gray green clouds	11	.15	2.70	A
92		LIGHT GRAY, dark gray clouds	13	.11	2.70	A
93		NEARLY BLACK, gray flecks	24	.14	2.70	A
94		DARK GREEN, white veins (serpentine)	77	.18	2.72	C
95		MAHOGANY RED, white spots	34	.16	2.81	C
96		WHITE, faint flecks	8	.20	2.70	A
97		WHITE, faint green clouds	7	.20	2.70	A
98		WHITE, light green markings	8	.19	2.70	A
99		WHITE, light green clouds	9	.19	2.70	A
100		WHITE, CREAM, light green veining	10	.20	2.70	A
101		WHITE, light green veining	8	.17	2.70	A
102		CREAM, faint green veining	12	.17	2.71	A
103		WHITE, narrow green stripes	11	.21	2.70	A
104		WHITE, wide green bands	11	.17	2.70	A
105		WHITE, light green mottle	9	.16	2.71	A
106		LIGHT GREEN, occasional tan markings	9	.16	2.72	A
107		LIGHT GRAY, dark green veining	9	.19	2.72	A
108		GREEN, white clouds	10	.21	2.71	A
109		WHITE, heavy green clouds	9	.18	2.71	A
110		WHITE, abundant green clouds	8	.17	2.71	A
111		GRAY, darker gray clouds	9	.15	2.70	A
112		WHITE, gray veining	11	.15	2.70	A
113	VIRGINIA	BLACK, SLIGHT GREENISH CAST, occasional white or gray veins	53	.07	2.86	A

[1] The various descriptions of the samples were supplied by the respective producers.
[2] Capitalized portion of the description signifies the background color of the marble.
[3] The H_a value is an expression of wear resistance and is the reciprocal, multiplied by 10, of the volume of material abraded in a 5 min tests, using the National Bureau of Standards Abrasion Machine. The higher the H_a value, the more resistant to abrasion is the material.
[4] The weight per cubic foot can be determined by multiplying the bulk specific gravity by 62.4.
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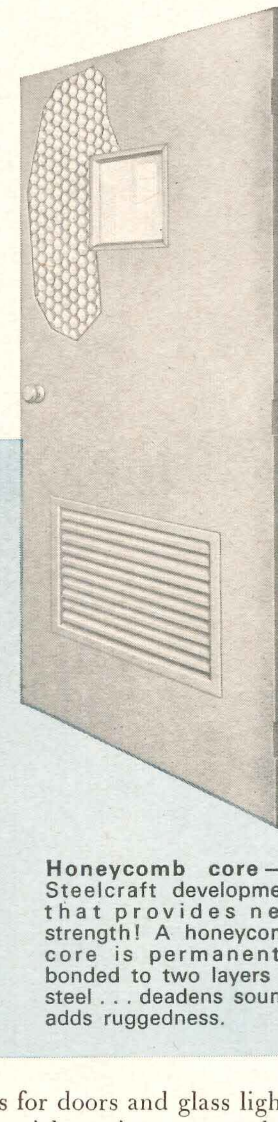

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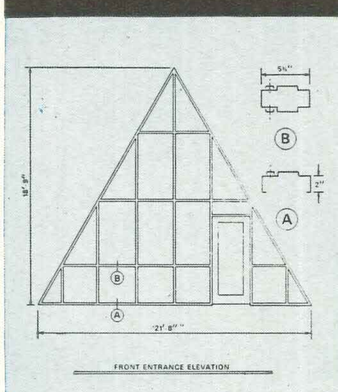

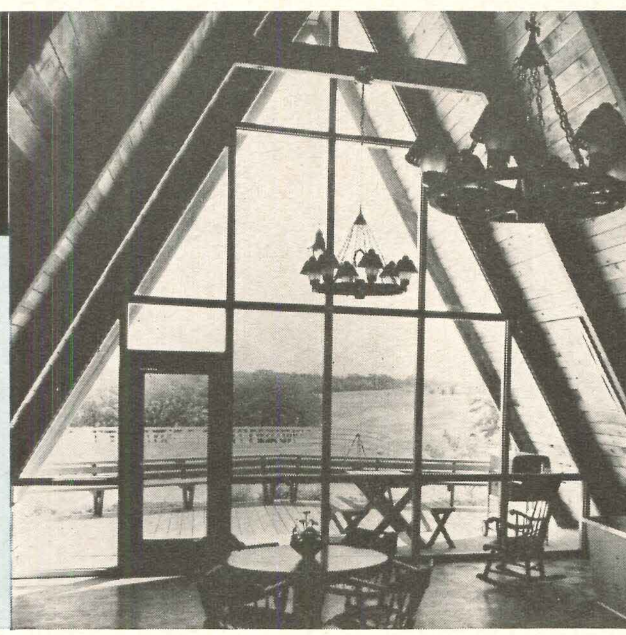

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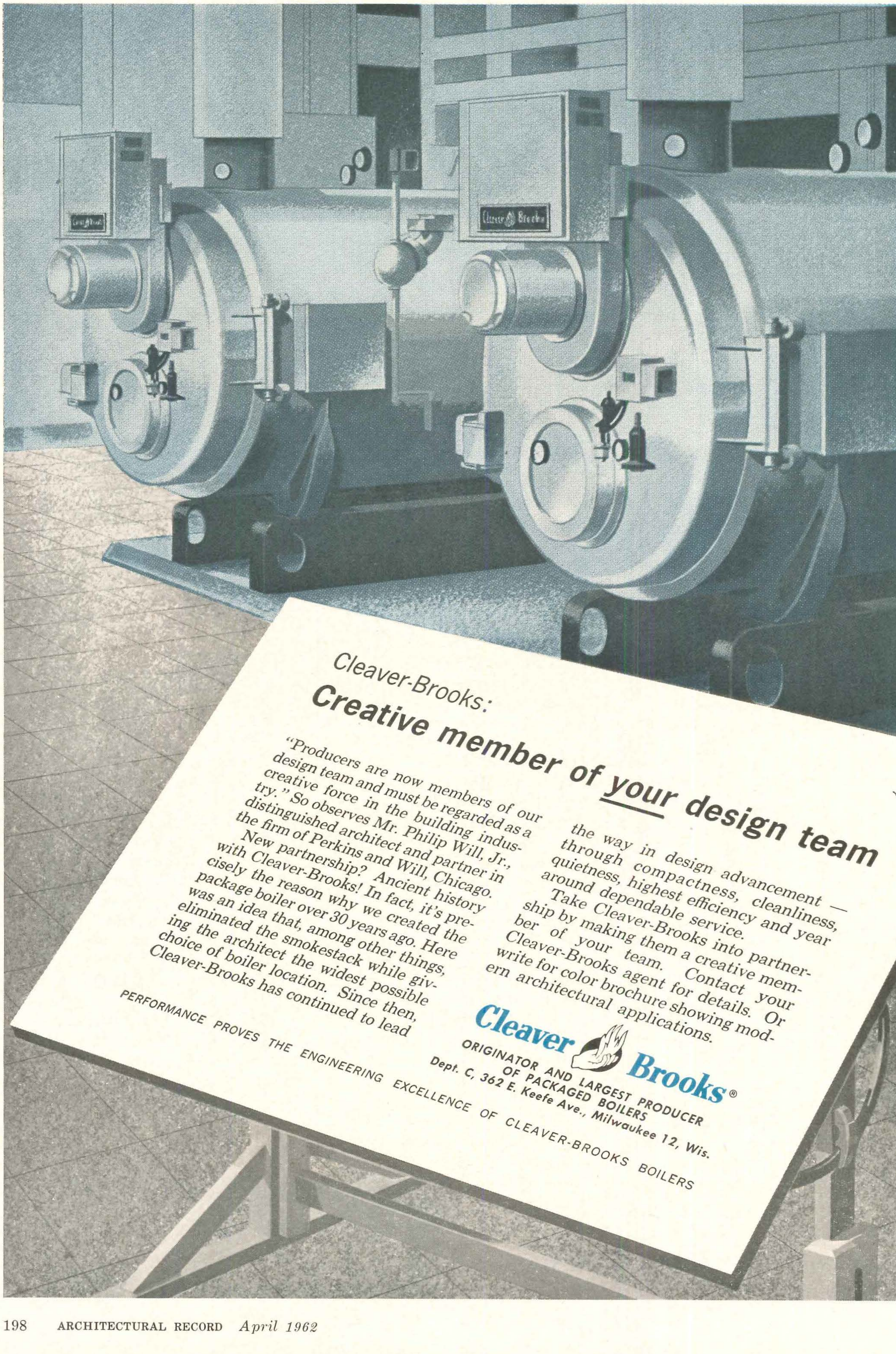
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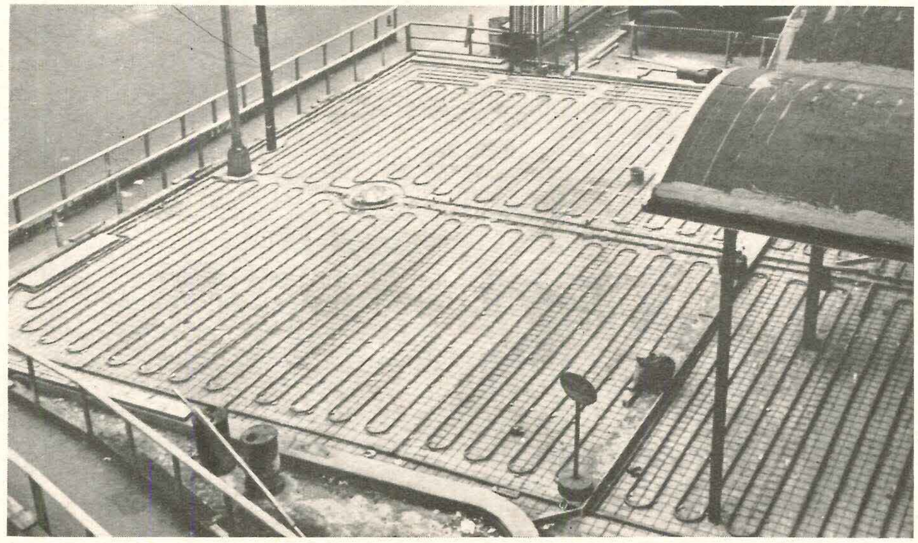


Ewing Galloway

by William Mulholland

Today there are thousands of snow melting installations of various kinds operating throughout snow-visited parts of the nation. The new aerial highway in Boston, Mass. has hot water pipes under 14 of its ramps to protect against snow and ice accumulation. The Philadelphia International Airport uses such a system on its passenger ramps and driveways. Sidewalks around the Alcoa Building in Pittsburgh, Best's Department Store in New York, and the Calumet Skyway Bridge in Chicago have snow melting facilities. In Waterbury, Conn., the daily newspapers utilize a snow melting system for their truck loading areas.

The reason is quite clear. Snow melting systems are now perfected enough so that often they prove more economical than any other kind of snow removal service which must be purchased, and they assure an efficient, positive means of eliminating the delays and hazards of a snow fall.

The engineering involved is actually quite complex if the system is to operate economically. In fact it wasn't until 1925 that the first snow melting system was installed in this country. With waste steam available, The Rochester Gas & Electric Corporation, Rochester, New York, placed steam pipes parallel to and about 14 in. below a concrete sidewalk of its new building.

But little work was done on snow melting systems until radiant heating came into use. Research on pipe sizing, grid design, optimum depth of lines, means of supplying heat, and methods of paving over the lines resulted in techniques and design procedures that not only made radiant heating efficient but opened the way for wider utilization of snow melting systems.

With the engineering perfected, demand for these systems began to increase. Owners and operators of retail stores, banks, office buildings, and factories have found that snow melting on entryways, sidewalks, and driveways is definitely worth the cost. Railroads, bus lines, and airlines have made increasing use of snow melting systems. Hospitals have begun to use these systems for ambulance drives. Such systems have been installed in many driveways and walks for private residencies.

Cost

Installation cost for the 50-ft driveway of a private house would run an estimated $300. For more complex systems costs are given by the square foot. A small system made with copper tube would run between $2 and $3 a sq ft. If the system is a fairly large one, some of the unit cost may be reduced to about $1 a sq ft. These costs are all for the more generally used hydronic heating systems; i.e., steam, hot water solutions, and hot oil.

For commercial systems of any size, careful computations should be made to assure efficient operation. Over-design of the system can only make operation considerably more expensive. Inadequate design may make the system incapable of handling really heavy snowfall. Weather bureau data combined with results of hydraulic studies have made sufficient information available for accurate computation, though, so there is no need to use guess work for any system.

The initial decision to be made in designing a system is the amount of snow that should be removed or melted in an hour. Weather Bureau data has shown that the majority of snowfalls observed over a period of years average 1 in. to 1½ in. per hour.

Extreme conditions will, of course, make a system less than adequate. For example, a sudden temperature drop and high winds can tax a system beyond its capacity so that despite the heat from underneath, remaining snow or moisture is apt to freeze because heat is drawn off too rapidly.

Data for the actual layout has been gathered for almost all ordinarily used tube and pipe sizes. Copper installed in concrete slabs should be used in a ¾-in. type L copper water tube and should be spaced on 12-in. centers.

Pipe Layout

Two arrangements for laying the tube are possible. One, the grid design employs two large diameter header pipes with smaller diameter piping between them. The other is the sinuous coil by which a contin-

WILLIAM MULHOLLAND, Special Consultant, Chase Brass & Copper Co.

uous line is run back and forth under the pavement. Several of these coils are normally connected in parallel.

In general the coil system is less expensive for small and medium size systems, for instance a sidewalk or short driveway. In addition, it offers the advantage of being more easily adapted to irregular areas such as a curved path. Coil systems require less fitting together. Friction is apt to be more of a problem with the coil system because of the added length of tube. In order to prevent a real burden from friction, it is advisable to keep lengths of each individual coil fairly short and rely upon several coils connected in parallel.

A grid pattern may be advisable when the system is large. The grid pattern cuts the length of fluid travel, reduces the velocity of the fluid, and offers less problem with friction.

Whatever layout is employed, proper venting must be arranged in accordance with standard hot water heating practice, and venting and traps should be installed if steam is employed. Care also should be taken to prevent short circuiting of the flow in parallel grid systems. Reverse returns are recommended to balance the flow and assure equal distribution of heat throughout the heat lines.

Operation and Control

A steam supply is a good source of heat and many systems use a heat exchanger between the steam and the fluid circulating to snow melting lines. Freezing of condensate in an idle line is a serious problem so that direct use of steam usually is not practical unless waste steam is available and the system is operated continuously.

Hot water also involves some of the same difficulty. Though it is a highly efficient heating medium, it too might freeze when the system is not in operation, and draining of the system between uses is very seldom practical. However, hot water, unlike steam, can be mixed with an antifreeze to protect the cold fluid in the idle system against freezing in cold weather.

Today most systems use water with an addition of commercially prepared ethylene glycol and rust inhibitor. The amount of antifreeze added to the system will depend upon the type of weather experienced in the area.

A problem with glycol is that it becomes corrosive in service. Inhibitors developed for automotive use prevent corrosion but also cut down the efficiency of glycol-water solutions. Other organic solutions are available which are designed specifically for the metals and the temperature range of snow melting facilities. A problem with these solutions has been their higher cost.

Oil has been considered for some systems, partially because it was readily available and partially because it overcomes the problem of freezing at low temperature. Use of oil has been discouraged chiefly because the specific heat of the fluid is low and pipe size must be larger for oil than for water-antifreeze solutions doing the same job.

Heat exchangers are desirable if the snow melting system is to draw heat from a boiler ordinarily used for other purposes. This avoids the problem of contamination of potable water supplies.

Larger systems may be equipped with a separate boiler system so that regular boilers won't be overly taxed in supplying heat to the snow melting system. Continuously operated steam systems are successful from a melting standpoint since the slab is always well above freezing, and snow never accumulates on the surface even when unusually heavy.

For practical operation the best idea is a compromise between intermittent and continuous systems. This system prevents the time lag that occurs when the system is started as snow begins to fall.

If a system is started with the snow falling, it will take some time for the concrete slab to reach melting point of snow. In the meantime, the snow will have had an opportunity to accumulate on the ground and become harder to melt because of its natural insulating characteristics.

The solution to this problem is a system which maintains a minimum temperature in the pavement at all times. When snow is expected, the system can be made to bring up the pavement temperature to 32 F in a short time. A further refinement to this latter system is to have two minimum settings, one for periods when snow is highly unlikely, and another at 32 F when it is expected.

Controls have been devised to start operations of these systems automatically when the first snow falls. One such unit is essentially a tray which collects the snow (rain rolls off at corners) and trips the starting mechanism by its weight when enough snow gathers. Such mechanism has an inherently slow response because it takes almost an inch of snow to weight the tray down sufficiently.

Another device of essentially the same collector type is considerably more sensitive to the weight of snow, so that the system is started almost as soon as snow begins to fall.

Still another device which will automatically start the snow melting system is one which employs a photoelectric cell.

In addition to automatic controls, almost all of these systems have readily accessible manual controls. The point is that if the system is started a short time before the snow begins to fall, it will be able to keep up with even a fairly heavy snowfall. When weather reports indicate that snow is imminent, it is wise therefore to start the system manually rather than wait for automatic controls to do the job. In the main, automatic controls are most useful to guard against evening and night snowfalls when an owner or maintenance man is not on the scene.

Installation of a snow melting system can be done many different ways. The most successful installations have been made in concrete paving. Two important points about any system are insulation to prevent downward loss of heat and complete embedment of the pipes in the paving materials.

Insulation will protect against undue heat loss to the ground beneath the pavement and will also keep water from seeping up next to the tube. Insulation can be installed directly above a base of cement, asphalt, crushed stone, or washed gravel. Such a base is usually about 4- to 6-in. thick. Use of cinders underneath the insulation is discouraged as it contains corrosive materials.

The improvement of snow melting systems to make them more efficient and more reliable has come at a time when there is a growing demand for this type of convenience. Experience has demonstrated that for commercial property this value is directly responsible for better business, reduced winter maintenance costs, and safer walks and drives.

CONCRETE SHELL ROOF SPRAYED ON FROM INSIDE

Layers of concrete and asbestos were sprayed onto the underside of an inflated fabric form to produce the roof of the warehouse building in Fig. 1. The thin shell concrete roof is similar in shape to other shells, but the *Harbild* method eliminates need for forming and shoring.

The 48- by 104-ft roof consists of a $2\frac{1}{2}$ in. thick concrete shell with an inch undercoating of Keasbey & Mattison *Limpet* sprayed asbestos insulation. The vinyl coated fabric form remains on the upper surface of the shell and serves as a roofing.

Advantages of the system include low cost for large spans and flexibility which makes a variety of shapes possible. Absence of exposed steel assures good fire resistance and low maintenance costs. The inflatable form, which comes to the job prefabricated, puts a cover over the work in one to three days.

The vinyl surfaced fabric is attached to the building walls with an airtight seal. High tensile steel strands are attached to the underside of the fabric and anchored to walls. Blowers are used to inflate the form to a pressure of 30 to 40 lb per sq ft. This creates tension in the steel strands and provides support for the wet concrete.

Workmen, who enter through a temporary air lock, next spray concrete until the tensioned strands are buried. The inflation pressure is held until the concrete sets, so that a prestress is created in the concrete shell when the pressure is released. Fig. 2 shows roof interior after concrete was sprayed. The criss-cross pattern indicates location of the reinforcing cables.

FIG. 1

FIG. 2

FIG. 3

FIG. 4

After the concrete layer hardens, an inch layer of *Limpet* asbestos is sprayed onto the underside of the roof (Fig. 3) and troweled (Fig. 4). The sprayed asbestos provides thermal insulation, fire protection, and acoustical control.

Load testing was done economically by reversing the air connections on the inflation blowers and pulling a partial vacuum on the interior. Thus, $2\frac{1}{2}$ times building code live load—$62\frac{1}{2}$ lb per sq ft loading—was applied and held for several hours while deflection and strain gage readings were taken. No excessive stresses or deflections were reported by the testers, Engineers Collaborative of Chicago.

Fig. 5 is an inside view taken from top of storage racks at middle of building showing the two rear sections. Lighting equipment is hung from pre-installed fixtures. Figure 6 shows the two forward sections of the roof.

Hanging lights, air ducts and piping can be seen in Fig. 7, which shows the shipping room located at the front of the building. Sprayed roof construction blends smoothly into the top of concrete side walls, along which steel storage racks are lined up (Fig. 8). *Harbild Assoc., Western Springs, Ill.*

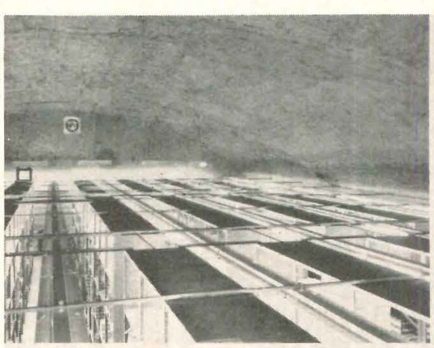


FIG. 5

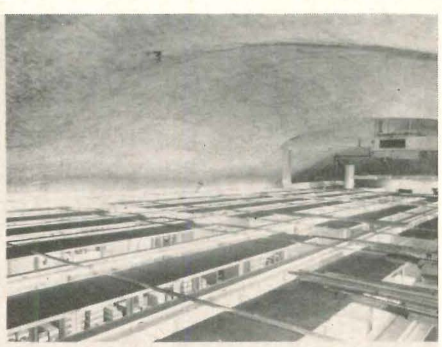


FIG. 6

FIG.7

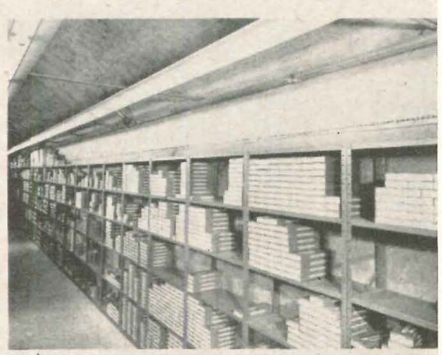
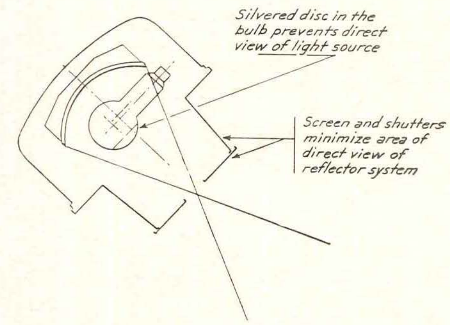


FIG.8

more products on next page

FLOODLIGHTS USE RECTANGULAR BEAMS FOR BUILDINGS



Floodlights with controllable rectangular beams make it possible to illuminate rectangular surfaces, such as buildings, airport runways, etc., with minimum light spillage.

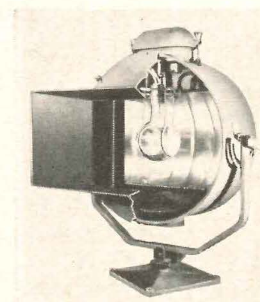
Control is achieved with a reflector system consisting of a series of overlapping curved reflectors of aluminum sheet having a specular finish. The floodlight, *Infranor INA-10,* is available in three parabolic and three elliptical systems which cover a range of light emergence angles from 8 by 25 degrees to 40 by 70 degrees.

Silvered discs in the incandescent lamps prevent direct view of the filament, while allowing higher output. Lamps may be offset from focus to yield a non-symmetrical beam adding further uniformity to the light projected on an oblique surface.

Outside shields help prevent side view of the filament and minimize the inside view of the reflector system. Two shutters are usually added for the elliptical reflector systems.

The weatherproof casings are mounted on adjustable forks which allow complete rotation of the units and provide 30 degrees tilt to either side in order to adjust the cut-off of the beam.

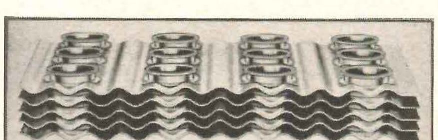
Because the beam can be closely controlled, each unit can thus be adjusted to the particular job with a minimum number of units required.



The units are movable, and bulbs of different intensities may be put in at any time. These lights have been used in Europe to floodlight many famous buildings including Versailles Palace shown above. *Infranor of North America, Inc., 798 Silas Deane Highway, Wethersfield, Conn.*

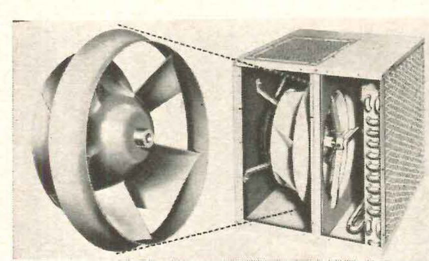
COMPACT AIR CONDITIONERS FEATURE NEW FINS AND FANS

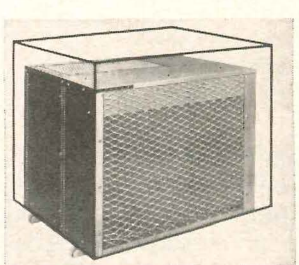
Many technical improvements are claimed for two lines of Trane central air conditioning equipment designed for residential and small commercial use. Both lines are available in horizontal self-contained units, split system units, and heat pumps.

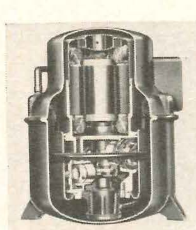


The four *Series MF* models in two- to four-ton sizes, feature a mixed-flow condenser fan (picture at right) which is as small as a propeller fan of equal capacity, but has the low noise-high pressure characteristics of a centrifugal fan.

The five models in *Series P,* in five- to 15-ton sizes have propeller fans with variable speed belts that permit maximum performance at slow speeds.







S-shaped fins used on all models (upper left) increase air turbulence to provide maximum heat transfer in minimum area. Compact size of the new models is demonstrated (lower left) by outline which shows size of similar previous model. Hermetic compressor (middle) is used in Series P equipment. Split-system outdoor refrigeration unit is shown (right)

The wide range of sizes in the two series permits accurate sizing for any load. Important controls are accessible through a single panel. This allows wider choice in placement and makes servicing easier. To insure quiet operation, fans are electronically balanced before assembly. Fan motors and compressors are floated on rubber. *The Trane Co., LaCrosse, Wisc.*

more products on page 230

Announcing an important new architectural window

New Arcadia series 700

A refined design with unbroken sight lines...combining superior all-weather performance, moderate cost, and unusual design flexibility

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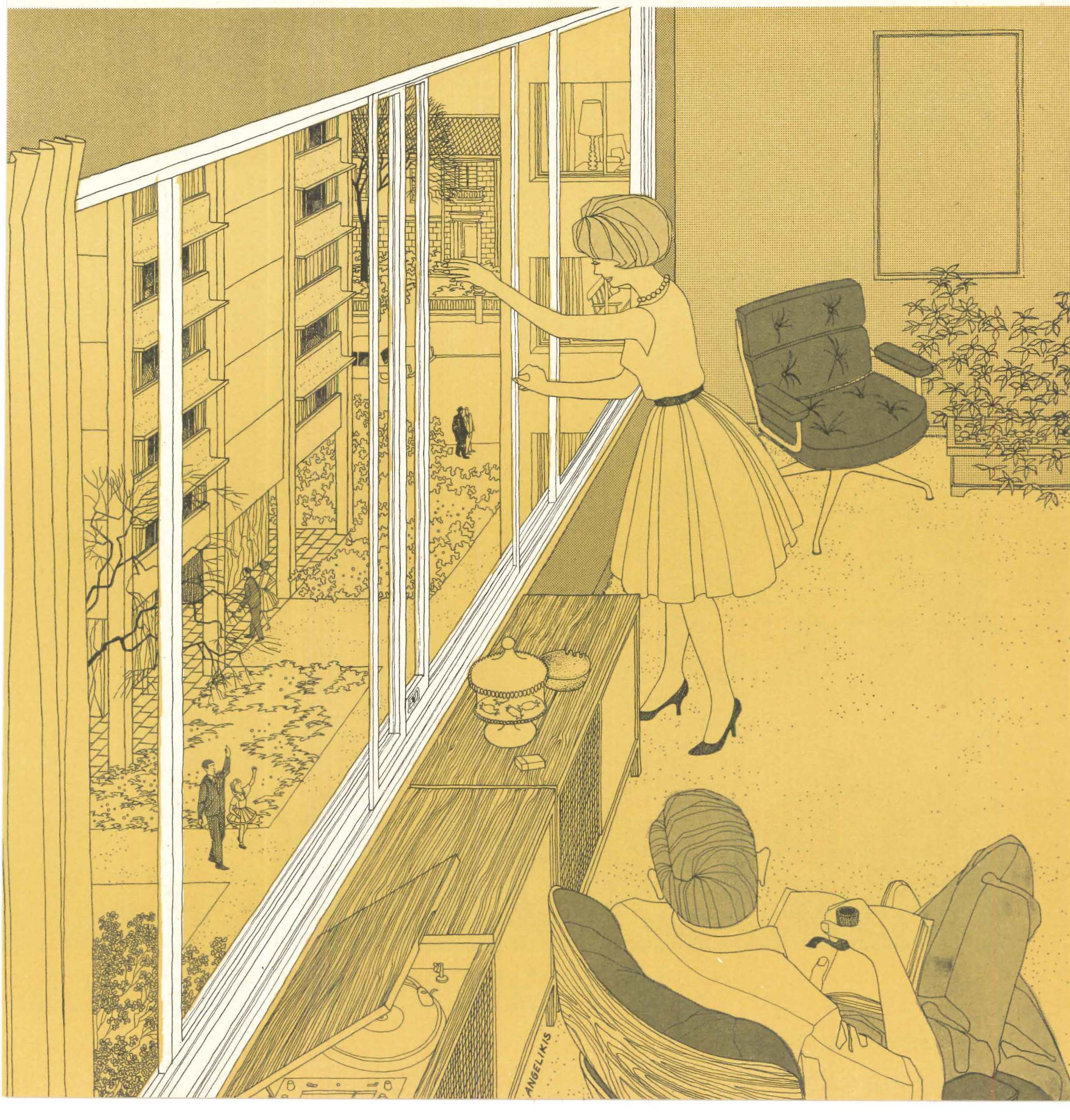
All aluminum with chrome finish flush hardware, available in stock and custom sizes up to 6'8" high, 15'10" wide...with choice of frame depth, screen provision and glazing. As cataloged in Sweets/1962. Another quality product to build the face of a city..from

NORTHROP ARCHITECTURAL SYSTEMS

5022 Triggs Street, Los Angeles 22/AN 2-6171/subsidiary of Northrop Corporation



A glass-walled entrance framed with vertically channeled siding and a plank-and-beam overhead creates an imposing approach to the interior court of the Bay Tree Apartments. This extraordinary 7-unit, 2-story design is located in Los Gatos, California. Architect: Fred Marburg.

Multi-Purpose Insulation

(A.I.A. 37-D-2) Six different types of *Spintex*, an insulating material felted from long siliceous fibers which can be used in air conditioning ducts, cold storage walls, and ceilings of metal buildings. The material is made in various flexible to rigid forms, with an assortment of vapor barriers or facings. *Johns-Manville, Insulation Div., 22 E. 40th St., New York 16, N.Y.*

Acoustical Ceilings

(A.I.A. 39-B) Detailed information and specifications for eleven acoustical ceiling materials are given in a 40-page booklet. Included are the new ventilating acoustical ceilings. *Armstrong Cork Co., Lancaster, Pa.**

Lighting for All Needs

A wide range of fluorescent, incandescent, and mercury vapor luminaires for both indoor and outdoor locations are discussed in a 64-page *Datalog*, which includes recommended lighting levels and layout aids. *Holophane Co., Inc., 342 Madison Ave., New York 17, N.Y.*

Decorative Wall Facing

Details of supporting members are shown in a folder describing *Facia-Wal*, a modular system of expanded aluminum panels secured by aluminum gridwork. The system can be used for both new and remodeled buildings, with supporting members fastening directly to exterior masonry surfaces. *Maco Corp., Huntington, Ind.*

Tile Color Comparison

(A.I.A. 23-G) Color comparison charts for both asphalt and vinyl asbestoes tile list comparable colors and patterns for tiles made by Amtico, Azrock, Congoleum, B. F. Goodrich, Johns-Manville, Kentile and Tile-Tex. Specification sheets for both types of tile are also available. *Asphalt and Vinyl Asbestos Tile Institute, 101 Park Ave., N.Y. 17, N.Y.*

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

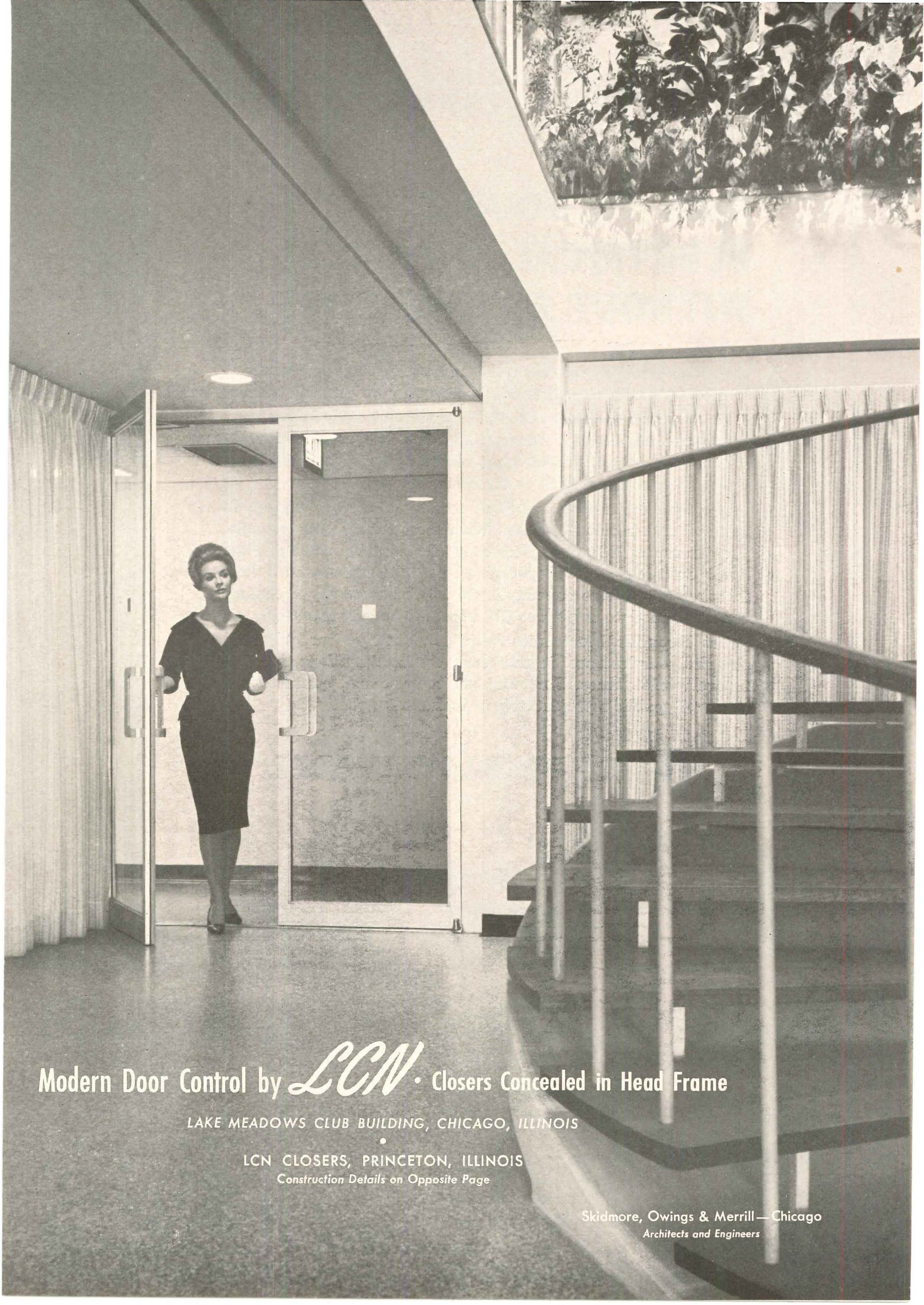
Guide to Western Pine Lumber

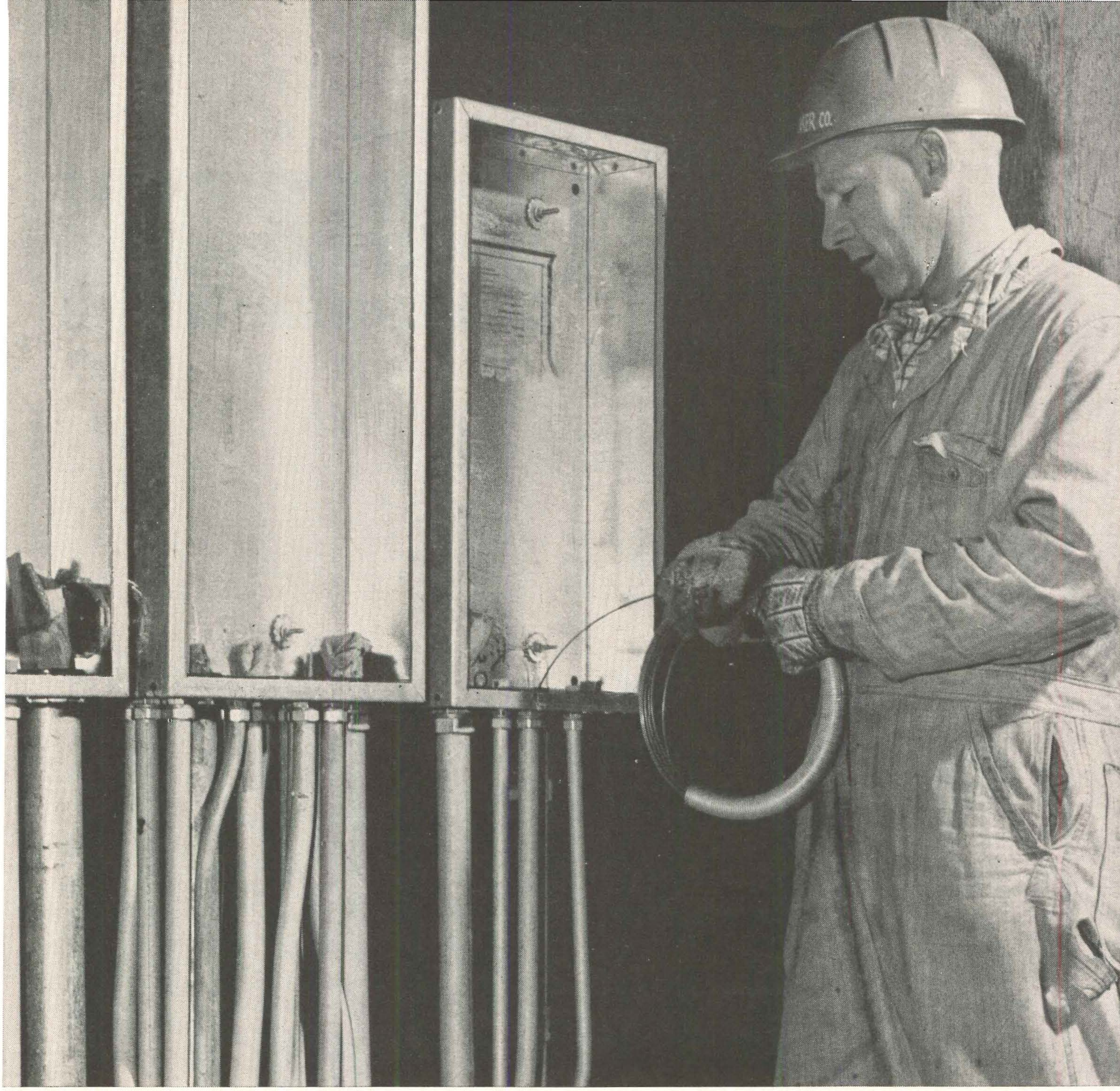
(A.I.A. 119-A) "Lumber Technical Manual" is a 28-page booklet with a product selector guide and detailed information about lumber sizes, grades, and special products for the ten western pine species. Also available, in file-folder form with order blank, is a list of 82 current technical, educational and merchandising publications about western pine. *Western Pine Assoc., 510 Yeon Bldg., Portland 4, Ore.**

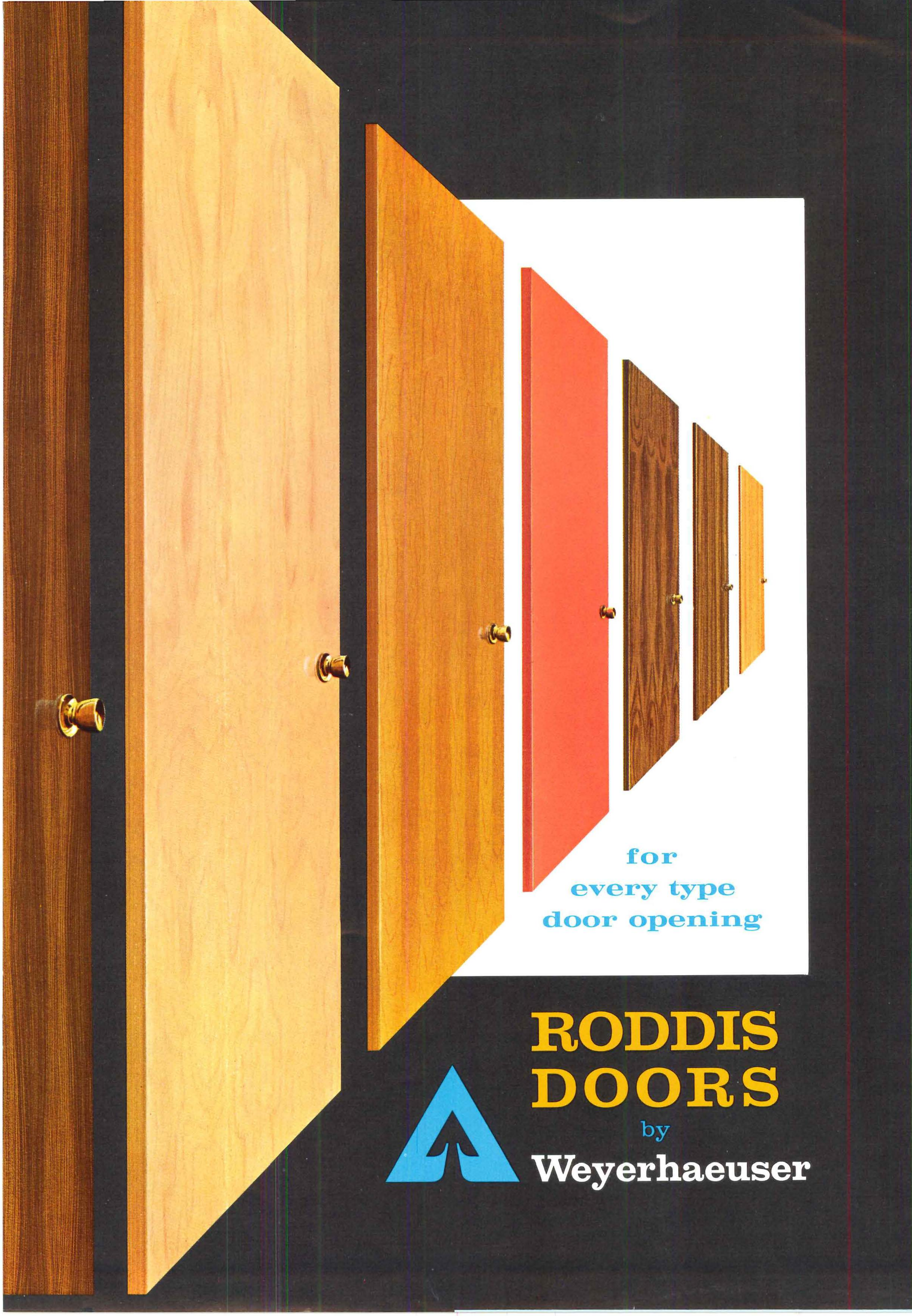
Floodlighting

Bulletin J gives selection and specification details for a variety of floodlights, including mercury vapor lamps and shielded lamps to minimize glare. Installation data and tables on footcandle levels are included. *Benjamin Div., Thomas Industries Inc., 207 E. Broadway, Louisville 2, Ky.**

more literature on page 218


Modern Door Control by LCN · Closers Concealed in Head Frame
LAKE MEADOWS CLUB BUILDING, CHICAGO, ILLINOIS
LCN CLOSERS, PRINCETON, ILLINOIS
Construction Details on Opposite Page
Skidmore, Owings & Merrill—Chicago
Architects and Engineers

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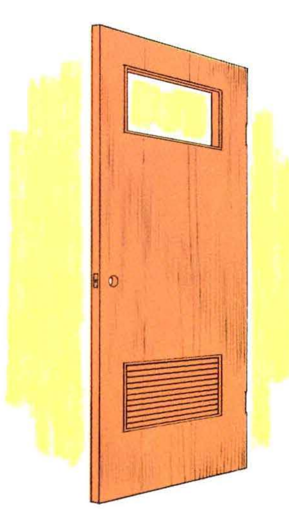

Fast service is offered on doors custom-made to your exact requirements. Order them factory prefinished to architectural specifications, pre-fit to openings, edges beveled, machined for hardware, light openings and moldings cut, louvers installed, and moisture protection installed at bottoms of exterior doors and light openings.

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Atlanta 18, Georgia
SY 4-4471

BALTIMORE
P. O. Box 2736
Baltimore 25, Maryland
ELgin 5-7000 Ext. 21

BOISE
113½ North 11th Street
Boise, Idaho
BOise 4-5571

BOSTON
Castle Island Terminal
South Boston 27, Mass.
ANdrew 8-3696

BUFFALO
1800 Broadway
Buffalo, New York
TX 6-5950

CHARLOTTE
118 East 28th St. (P. O. Box 10586)
Charlotte 1, North Carolina
33-35165 & FR 55547

CHICAGO
3865 W. 41st Street
Chicago 32, Illinois
FRontier 6-5300

CINCINNATI
836 Depot Street
Cincinnati 4, Ohio
471-0484

CLEVELAND
6599 Granger Road
Cleveland 31, Ohio
LAfayette 4-2931

DALLAS
816 Thomas Building
Dallas 2, Texas
RIverside 2-7275

DETROIT
13500 Rotunda Drive
Dearborn, Michigan
LUzon 2-1555

KANSAS CITY
2110 West 75th Street
Prairie Village, Kansas
ENdicott 2-8987

LOS ANGELES
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Los Angeles 7, California
RIchmond 8-5451

LOUISVILLE
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Louisville 13, Kentucky
EMerson 8-3331

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Memphis 12, Tennessee
FAirfax 3-4533

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Miami 38, Florida
PLaza 4-9568

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2960 112th Street
Milwaukee 8, Wisconsin
SPring 1-4650

NEW YORK
P. O. Drawer 629
Newark 1, New Jersey
MArket 4-7880

OMAHA
3873 Farnam Street
Omaha, Nebraska
346-7229

PHILADELPHIA
Richmond and Tioga Streets
Philadelphia 34, Pennsylvania
GArfield 6-6950

PHOENIX
221 E. Camelback Road, Suite P-7
Phoenix 12, Arizona
264-6149

PITTSBURGH
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Pittsburgh 20, Pennsylvania
EV 1-4800

PORTLAND
Room 914 U. S. National Bank Bldg.,
Portland 4, Oregon
CApital 6-1231

PROVIDENCE
Portsmouth, Rhode Island
683-2705

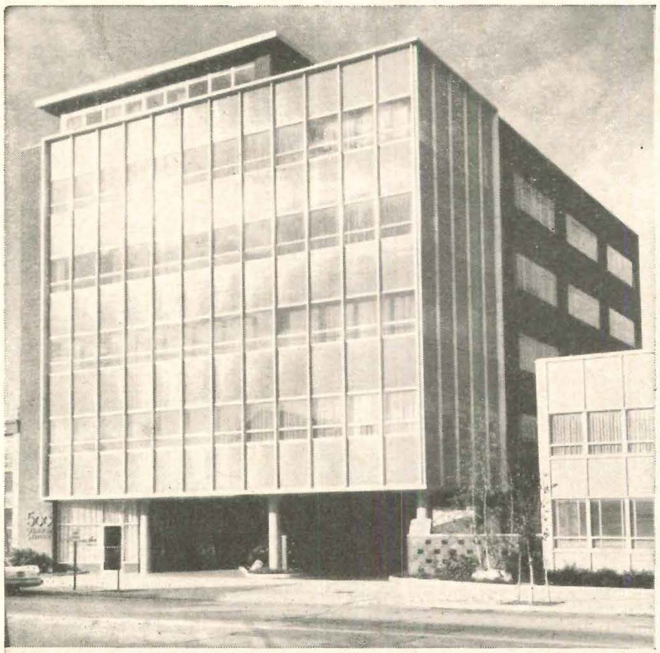
SAN FRANCISCO
375 S. Mayfair Ave., Suite 292
Daly City, California
PLaza 5-6781

SEATTLE
P. O. Box 247, Room 206
Boyd Building
Mercer Island, Washington
ADams 2-2525

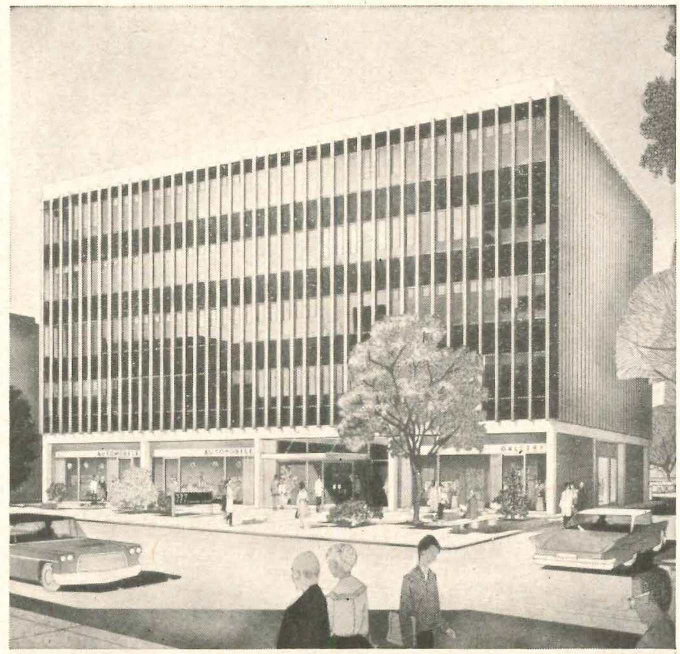
ST. LOUIS
3344 Morganford Rd.
St. Louis 16, Missouri
MOhawk 4-5591

TWIN CITIES
2563 Franklin Avenue
St. Paul 14, Minnesota
MIdway 6-7241

Weyerhaeuser Company
Wood Products Division
Tacoma 1, Washington



ARCHITECT (500 SUMMER ST.): STERNBACH & RHEAUME,
STRUCTURAL ENGINEERS — WEINBERGER, FRIEMAN, LEICHTMAN & QUINN.



ARCHITECT (777 SUMMER ST.): SHERWOOD, MILLS & SMITH,
STRUCTURAL ENGINEERS — WERNER, JENSEN & KORST.

One good $35,000 saving deserves another

. . . So they did it again . . . *with* STEEL

F. D. Rich Company specified STEEL in an attractive five-story office building they built and financed at 500 Summer Street in Stamford, Conn. They saved almost $10,000 in construction costs alone.

But also the building was ready for tenants two months earlier than possible with other materials — providing earlier income for the owner than expected.

The Rich Company, with an annual volume of over $20,000,000, promptly put up another with the Presidential Realty Corp. It is at 777 Summer Street. Naturally the new building is STEEL and the savings matched the savings down the block.

Here's what using steel meant to the owner:

Savings in construction costs in the first office building....	$ 9,375
Two months earlier rental income	$26,000
	$35,375
Same savings repeated in the second office building	X 2
Total saving	**$70,750**

It pays to build in STEEL —
— for lower construction costs and earlier completion.

American Institute of Steel Construction

101 Park Avenue, New York 17, N. Y.

Beautifully Washable...

Office Literature

continued from page 206

Zinc-Coated Steels
Selection and use of zinc-coated steels is the subject of a 28-page illustrated manual which covers four separate grades of standard paintable zinc-coated steels. *Armco Steel Corp., Product Information Service, Middletown, Ohio.**

Ceramic Lamps
More than 40 styles of handcrafted ceramic lamps are illustrated in a 24-page catalog. Price schedule is included. *Design-Technics, 7 East 53rd St., New York, N.Y.*

Versatile Building Panel
(A.I.A. 23-L) Color pictures of installations illustrate a 36-page booklet on *Weldwood Glasweld*, a permanently colored asbestos-cement panel which can be used both indoors and outdoors, in a variety of applications. *United States Plywood Corp., 55 W. 44th St., New York 36, N.Y.**

Certified Room Air Conditioners
The first directory of NEMA certified room air conditioners contains cooling capacity ratings in Btu per hour for 806 models, classified by brand name. Reference data include electrical characteristics and type of heating, if heating is provided. Revised editions of the directory will be published four times a year, with supplements as required. *Room Air Conditioner Section, National Electrical Manufacturers Association, 155 E. 44th St., New York 17, N.Y.*

Metal Lath and Furring Specs
(A.I.A. 20-B-1) A 20-page booklet contains the 1962 revised specifications for metal lath and furring. *Metal Lath Assoc., Engineers Blvd., Cleveland 14, Ohio*

Luminous Walls and Ceilings
Illustrations of luminous walls and ceilings are given in a four-page folder. Fluorescent tubes provide the light behind flat or molded plastic in combination with patterned grills of anodized aluminum. *Morris Kurtzon, Inc., 1420 S. Talman, Chicago 8, Ill.*

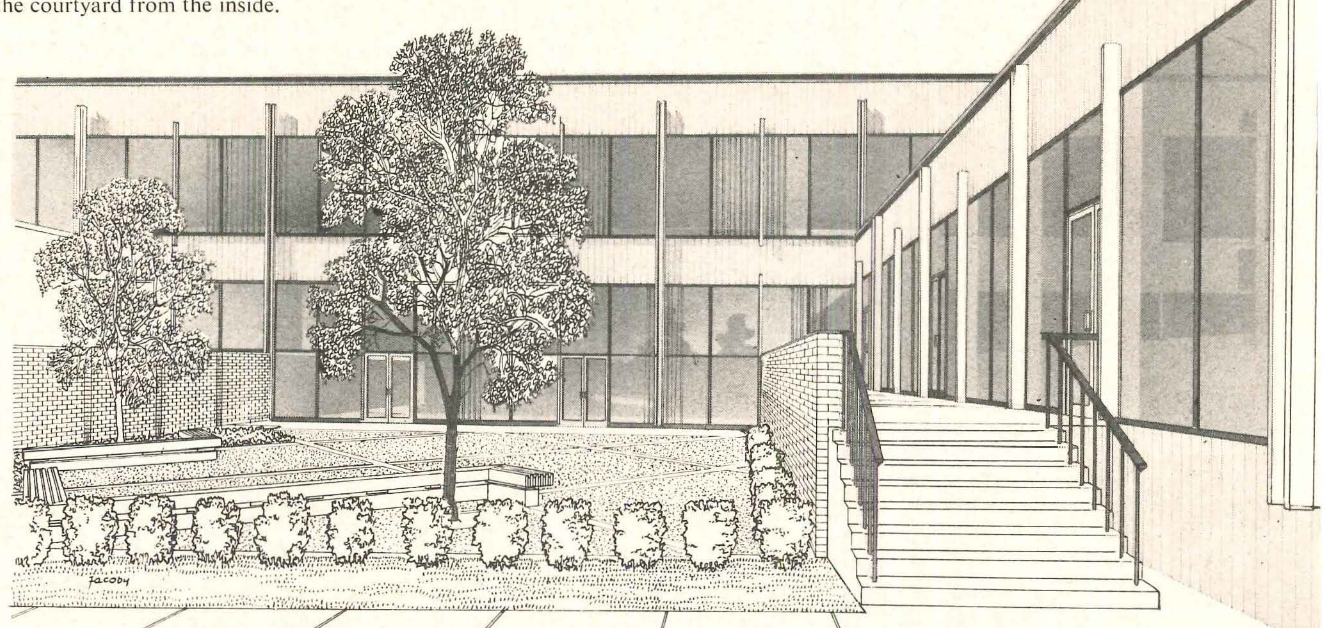
**Additional product information in Sweet's Architectural File*

more literature on page 222

SOLARGRAY® TWINDOW® provides wall-to-wall insulation and effective glare control in each office. The double-glazed, insulating units consist of an outer pane of 1/4″ SOLARGRAY Plate Glass, and an inner pane of 1/4″ clear plate glass.

Schick Safety Razor Company, Division of Eversharp, Inc., Milford, Conn.
Architect: Caproni Associates, New Haven, Conn.
Contractor: Vuono-Lione, Inc., Stamford, Conn.

This sketch shows how big, wide-open glass areas achieve architectural harmony, and afford added pleasure for those who view the beauty of the courtyard from the inside.



Office Literature

continued from page 218

Shingles and Siding
(A.I.A. 12) An eight-page booklet describes and lists specifications of *Fire-Chex* asbestos-plastic roofing shingles. Other booklets available from Carey Co. describe *Roofmaster* shingles for houses (A.I.A. 12), *Ceramo* sidewall shingles and clapboard siding (A.I.A. 12-F-1), *Stylex* colored siding with plastic finish, and *Met-L-Protex* bituminous coating for protection of industrial structures against corrosion and weathering. *The Philip Carey Mfg. Co., Cincinnati, Ohio.**

Fluorescent Light Troffer
(A.I.A. 31-F2) Recessed fluorescent light troffers designed for use with the Robertson *Q-Deck* roof span are illustrated in Folio Q-62. *Gruber Brothers, Inc., 90 S. First St., Brooklyn 11, N.Y.*

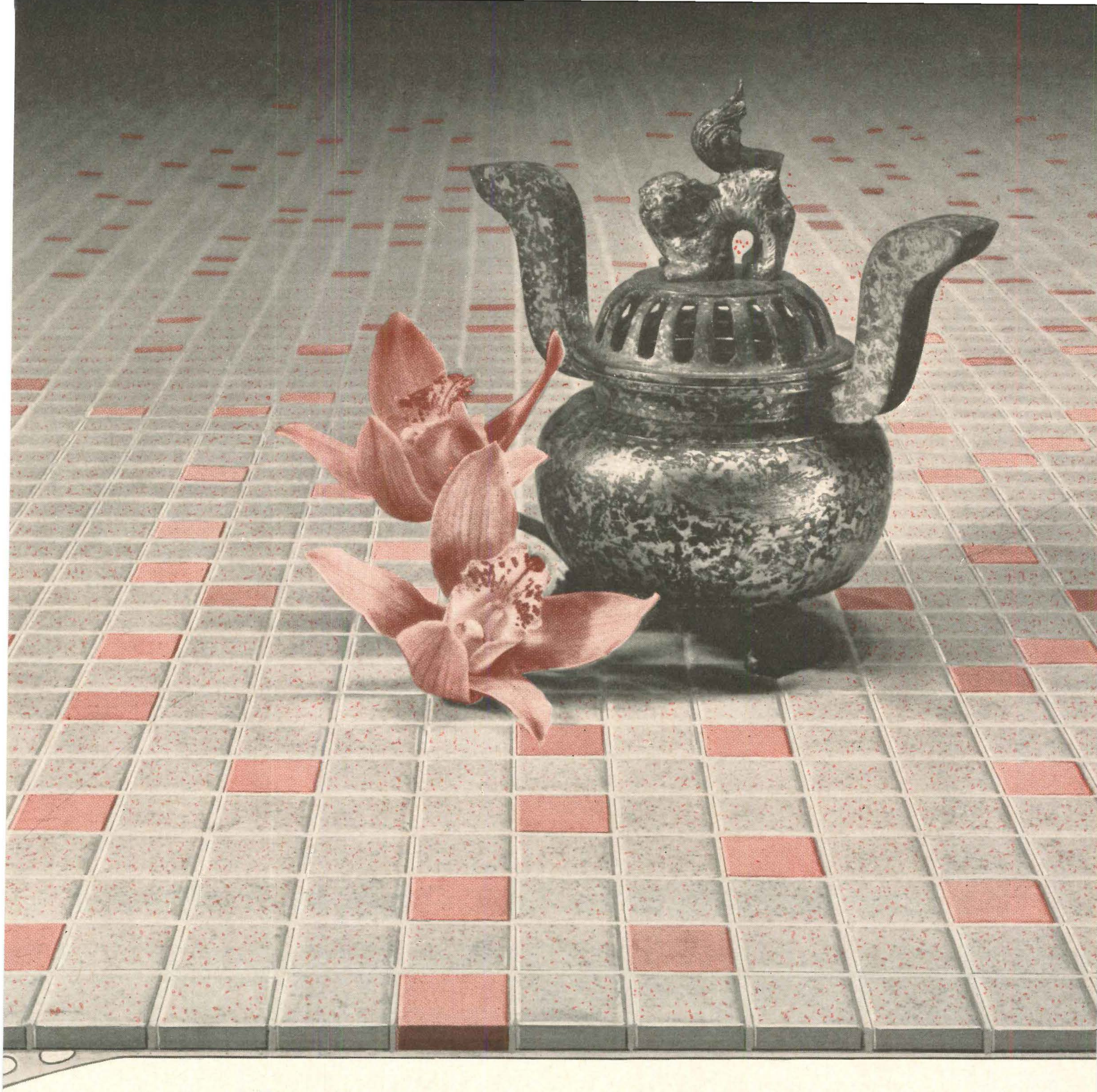
Floors and Surfacing Materials
Armstrong's 1962 pattern book has 174 pages and is divided into specific sections that have been indexed for convenience. All flooring materials are included, along with installation supplies. Also available is a 24-page booklet with general information and comparative data on floors, wall coverings, and counter surfacings. *Armstrong Cork Co., Lancaster, Pa.**

Translucent Wall Panels
(A.I.A. 17A) Installations and sample specifications for *Sanpan* translucent wall panels are included in an eight-page booklet. *Panel Structures Inc., 45 Greenwood Ave., East Orange, N.J.**

Clocks and Lamps
Clocks, lighting fixtures, planters, and room dividers are presented in a four-page folder, "Decorative Accessories." Another folder, "The Lantern Collection," contains illustrations of vinyl fixtures designed primarily for contract use. *Howard Miller Clock Co., Zeeland, Mich.**

Literature Requested
The new firm of Collins & Baricev, Architects, 108 S. Canty St., Pascagoula, Miss., would like to receive manufacturers' catalogs.

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



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Misceramic's cushion-edge ceramic floor and wall tile presents design variety unlimited in colors, patterns, sizes and their combination possibilities. See Misceramic's complete line of quality ceramic floor tile, wall tile and accessories. Catalogs, suggested applications, custom design information, specification details and actual tile samples are ready for your consideration now. Check the Yellow Pages for your distributor or write Misceramic directly today. See our catalog in Sweet's.

Misceramic Tile

Cleveland, Mississippi

Shown: Misceramic's "Coral Reef" in Buckshot Pattern, 1" x 1" tiles. Tiles also available in 1" x 2", 2" x 2" and in combination. "Speed Set" mounting provides a distinct aid to rapid installation and precise alignment.

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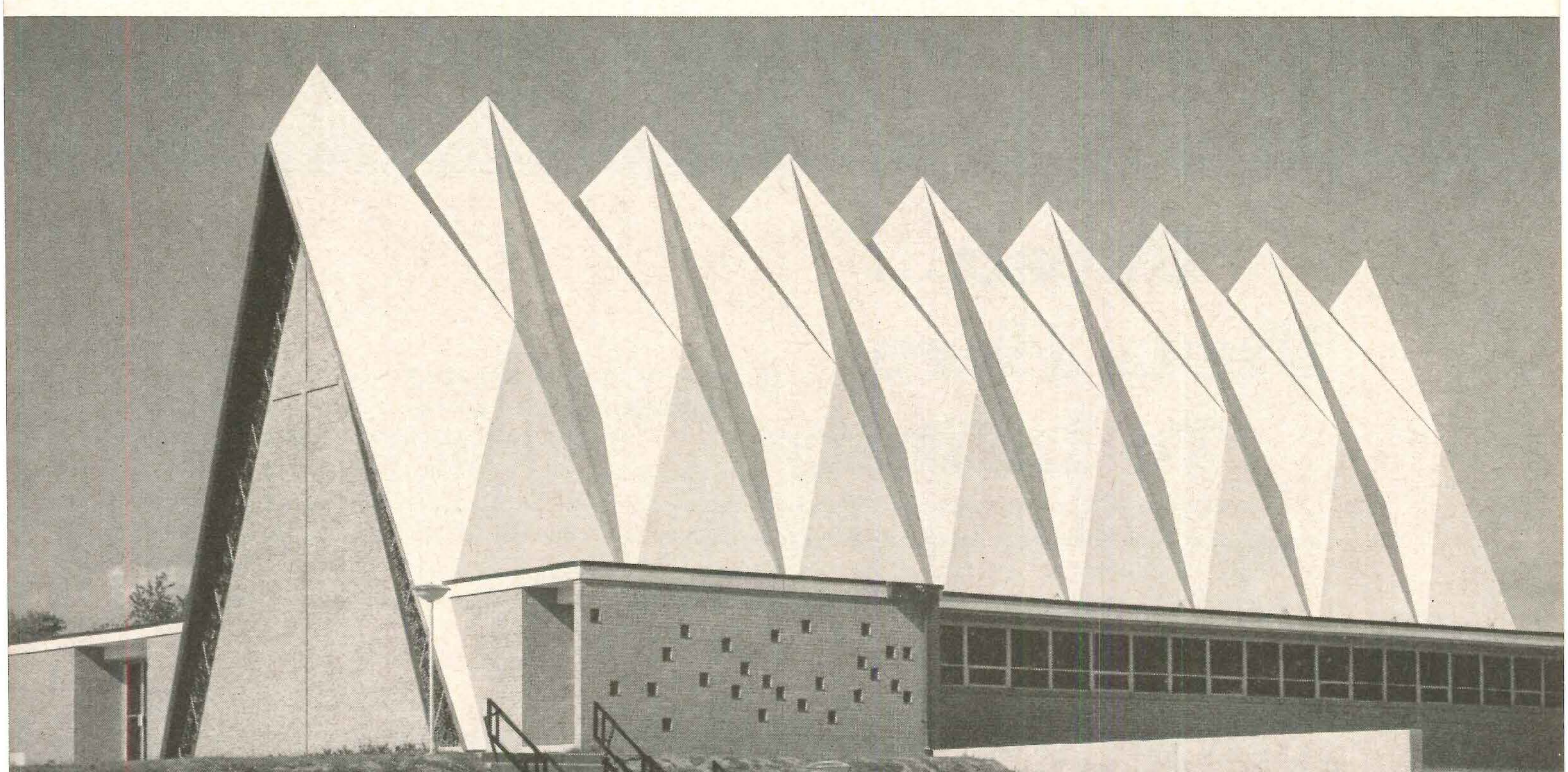

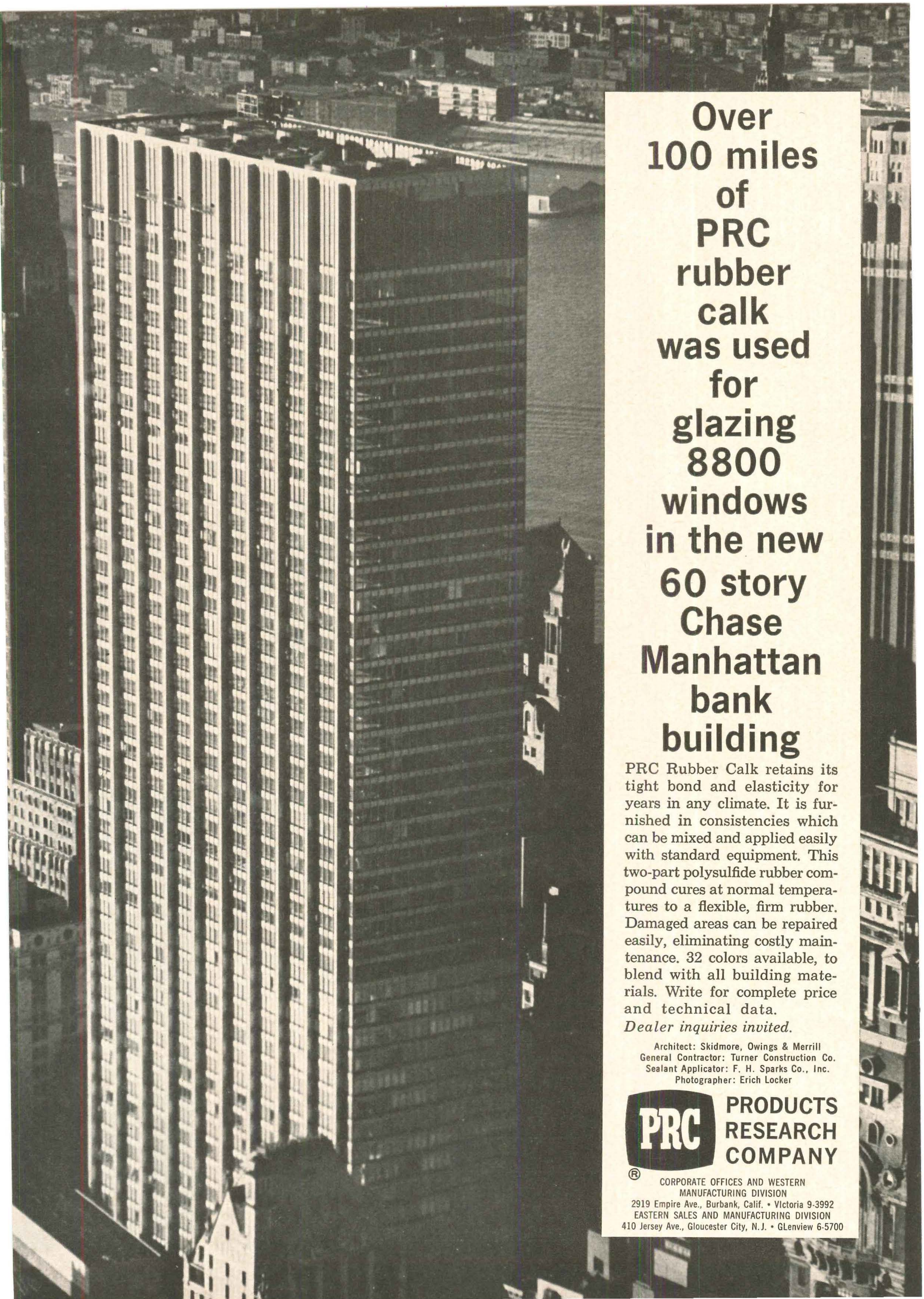
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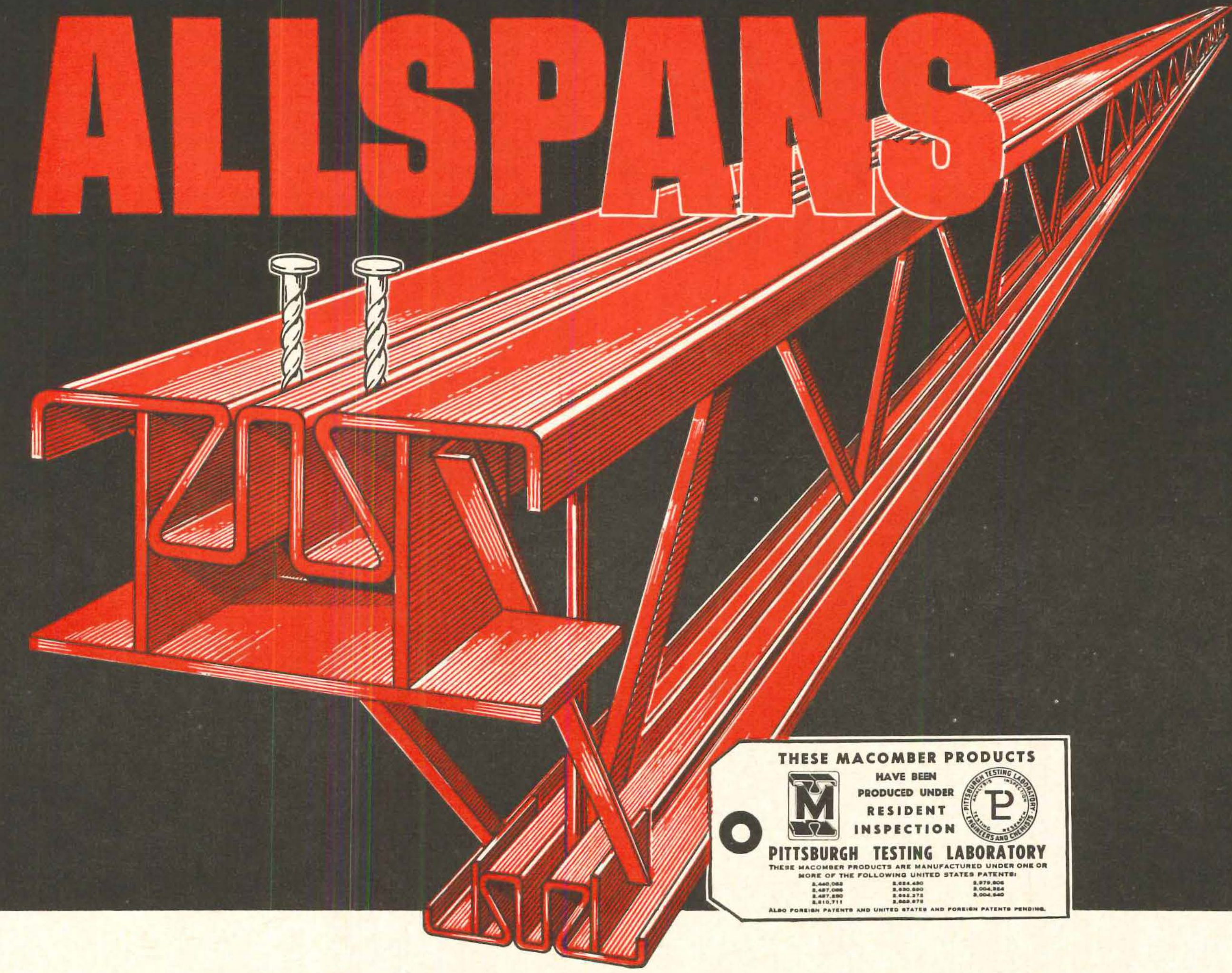

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Modine's initial studies predicted today's fast-growing demand for year-round air conditioning in schools. People were becoming more aware that comfortable students are *better* students. Also, schools were being used more for activities in the evening hours and summer months. Most important, research proved that schools could actually be constructed at *lower cost* if equipped with year-round air conditioning. One big reason: *more compact design* . . . no need of large areas for operable window sash, high ceilings and cross ventilation.

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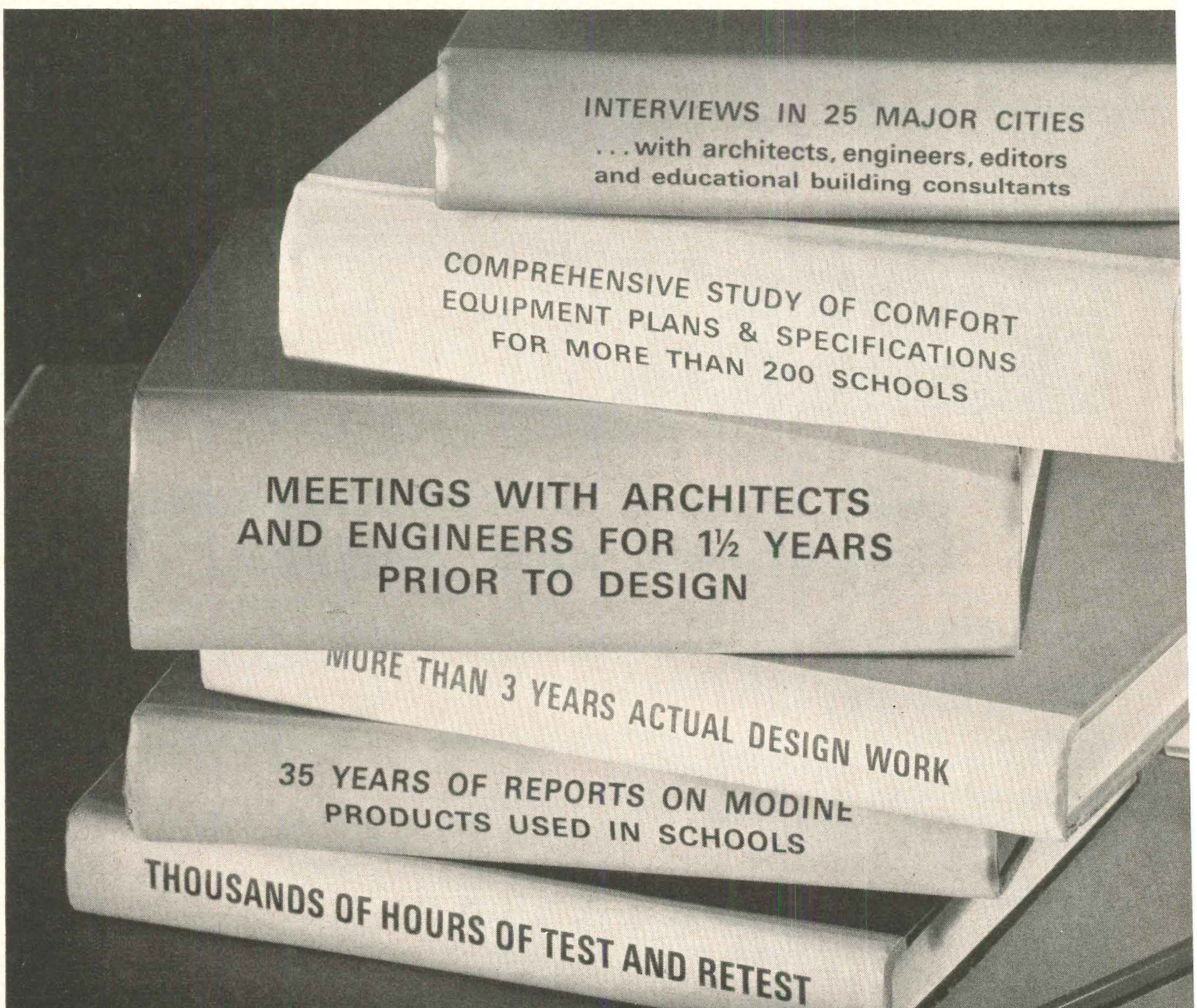
To design the most functional unit possible, Modine questioned engineers, architects and school officials.

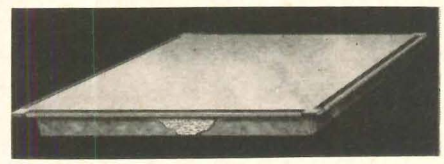


Product Reports

continued from page 202

THIN METAL PANEL

An insulated, porcelain enamel metal panel can be installed wherever quarter-inch glass can be used. Panels are made to size and slip right into regu-



lar glazing members. They are available in thicknesses of ¾ in., 1¼ in., and 2 in. *Alliance Wall Products, Div. of Crane Co., Box 809, Alliance, Ohio*

PATTERNED CERAMIC FACING

Both standard and custom patterns are available in *CV Durathin,* a ceramic facing material which provides

thinness, light weight, and units of large sizes. *Federal Seaboard Terra Cotta Corp., 10 E. 40th St., N.Y. 16, N.Y.*

SIDE COILING DIVIDER

Improved sound reduction is reported for *Twin-Coil-Wal.* The partition is concealed when stored and offers

both straight and curved runs. *Coil-Wal Partitions Co., P.O. Box 96, Dyersville, Iowa*

INCOMBUSTIBLE BUILDING SANDWICH PANEL

Decorative treatments can be readily applied to an incombustible structur-

more products on page 238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PLAN PROTECTION NOW
Specify tested and approved ALLENCO
● HOZEGARD CABINETS ● HOSE REELS, RACKS & CARTS
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eliminates wood at roof edge . . .
is available in many colors
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See Sweets Architectural File 8g/Mc. Write
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cantilevered sun cornice • cornice shade • marquee-canopy
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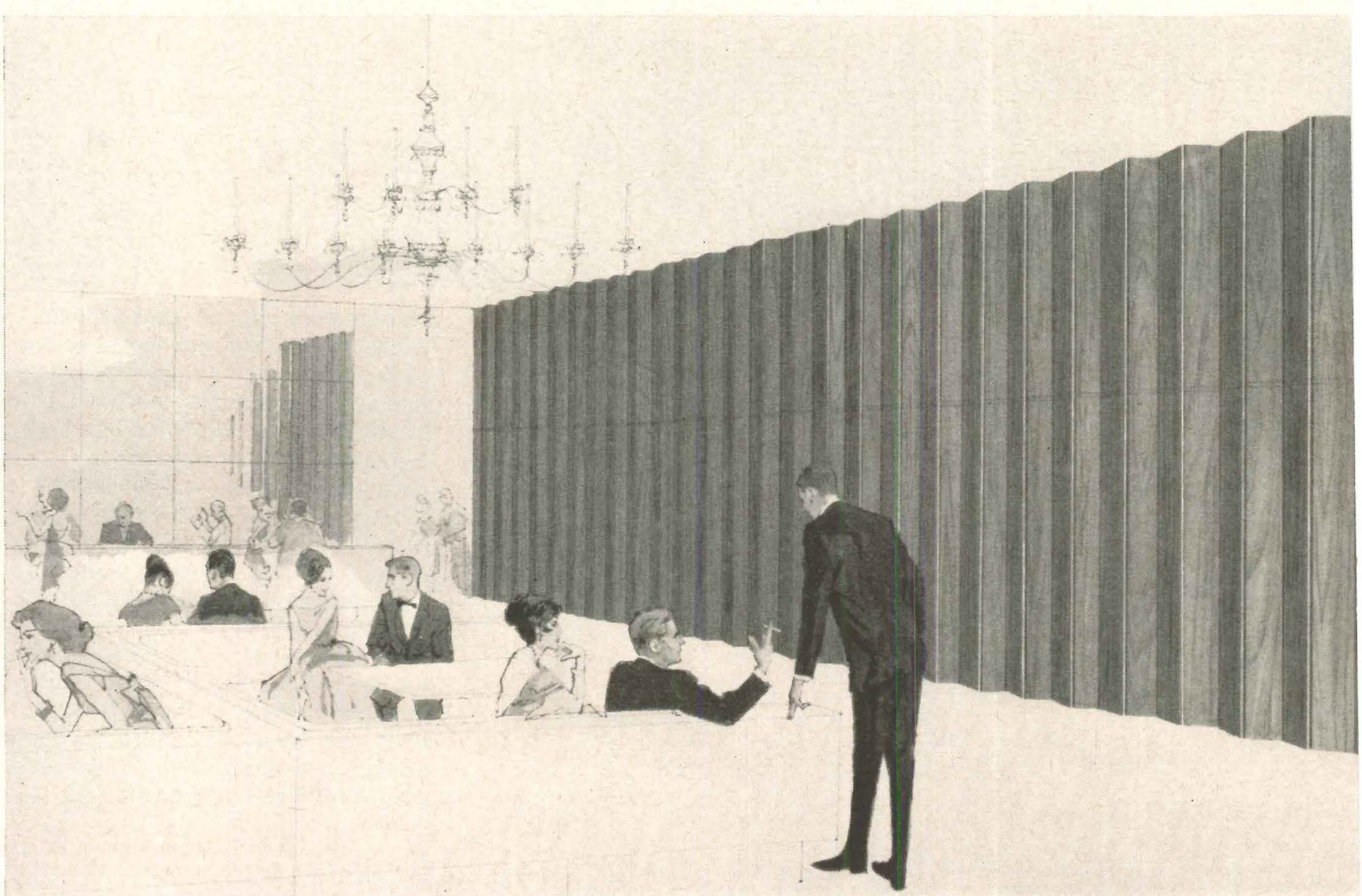

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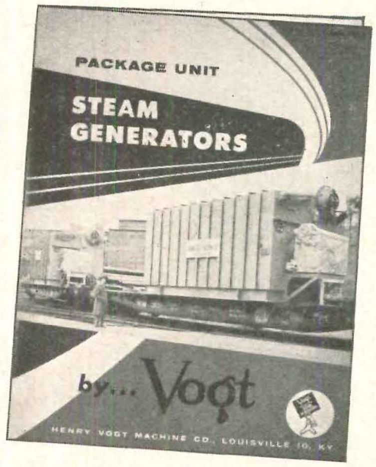

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are available in capacities of 10,000 pounds of steam per hour and above for either forced draft or induced draft with gas or oil, or combination gas-oil burners. Completely shop assembled and require only piping, electrical, and stack connections to place in operation. Available in three standard pressures of 175, 250, and 375 pounds S.W.P. Pressure tight steel casings permit outdoor operation, if desired.

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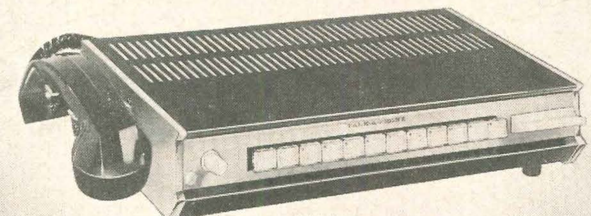

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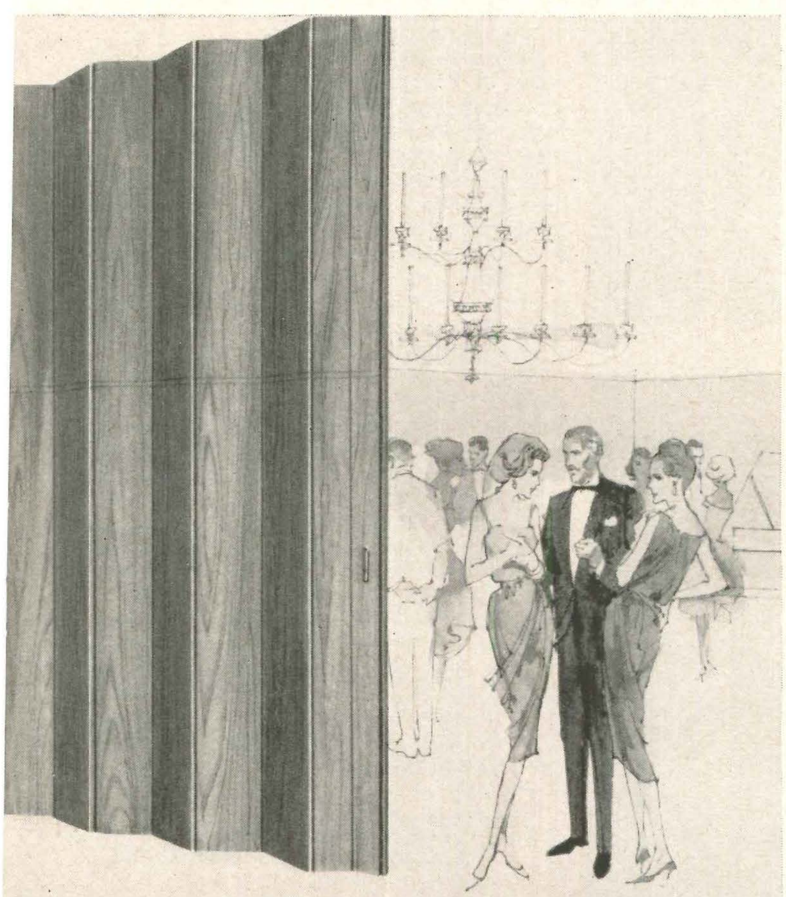

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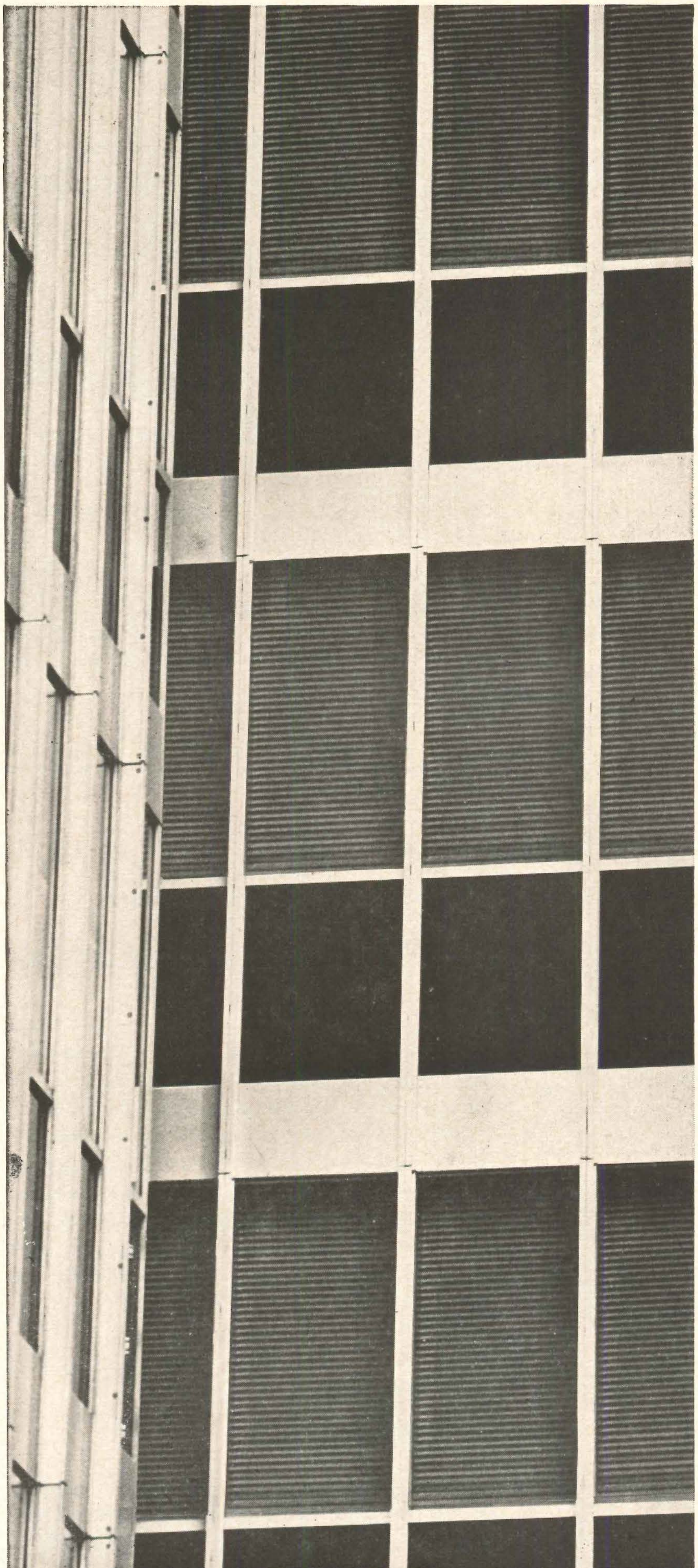

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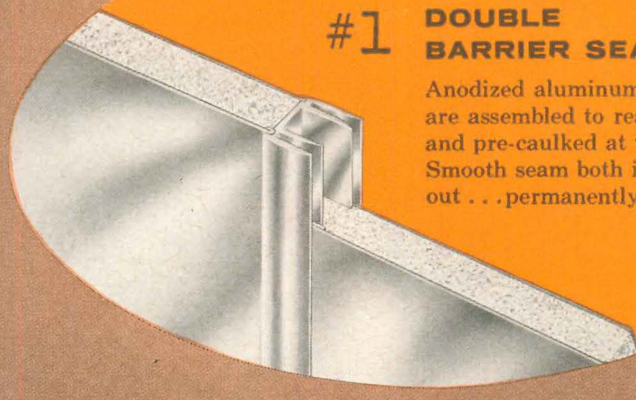
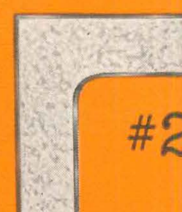


#1 DOUBLE BARRIER SEAMS

Anodized aluminum extrusions are assembled to rear panel and pre-caulked at the factory. Smooth seam both inside and out . . . permanently leakproof.



#2 COVE CORNER INTERIOR

All four corners have 1" radii with no corner joint, crack or crevice. Can't harbor grime and germs—sanitary—easy to clean.

FIVE KEY POINTS OF DESIGN SUPERIORITY PRODUCE A SHOWER OF EXCEPTIONAL QUALITY AND PERMANENCE

THE COMMANDER

Check the five key values found only in the new *COMMANDER* shower by *Fiat* and you'll find the answer to long-life, good appearance and low maintenance for shower rooms in school, college, club, industry and institution.

Just three factory-fabricated sections (plus headrail) complete the *Commander Cabinet* which erects on the widely used and approved *Fiat PreCast Terrazzo Floor*. Actual tests prove the *Wonderwall Commander* to be many times faster and much easier to erect than any conventional shower. Labor saving drastically reduces total installed cost.

Unlimited design and service requirements are satisfied by three models. Each model available in stainless steel, baked enamel or a combination. For complete information on the *Commander* write for copy of the new PLAN BOOK, or see Sweet's $\frac{26c}{Fi}$.

#3 *WONDERWALL* SANDWICH PANEL

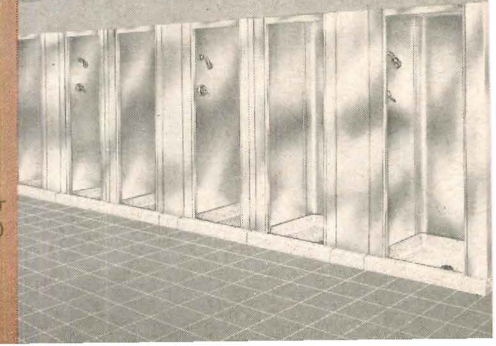
Full inch of expanded polystyrene is permanently bonded between two sheets of rust-proofed metal. Temperature changes, high humidity, boiling water, soaps, alcohol or detergents are daily duties the Commander handles in stride.

#4 STAINLESS PILASTER CAP

Added service and neat appearance maintained by factory applied stainless steel cap running the entire length of pilaster.

#5 DEEP TERRAZZO FLOOR

Permanently leakproof and sanitary; high shoulders keep wall joints well above water level. Stainless steel connecting flange and brass drain cast integral.



The rigid, rugged **Commander** cabinet combines with **Fiat** Dressing Enclosures as single units or in battery arrangements to provide added convenience and privacy. (Enclosures not illustrated.)

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ALL NEW SANDWICH PANEL, SOUND DEADENED, RIGID WALL SHOWER CABINET ASSURES SATISFACTION & COST-SAVING INSTALLATION

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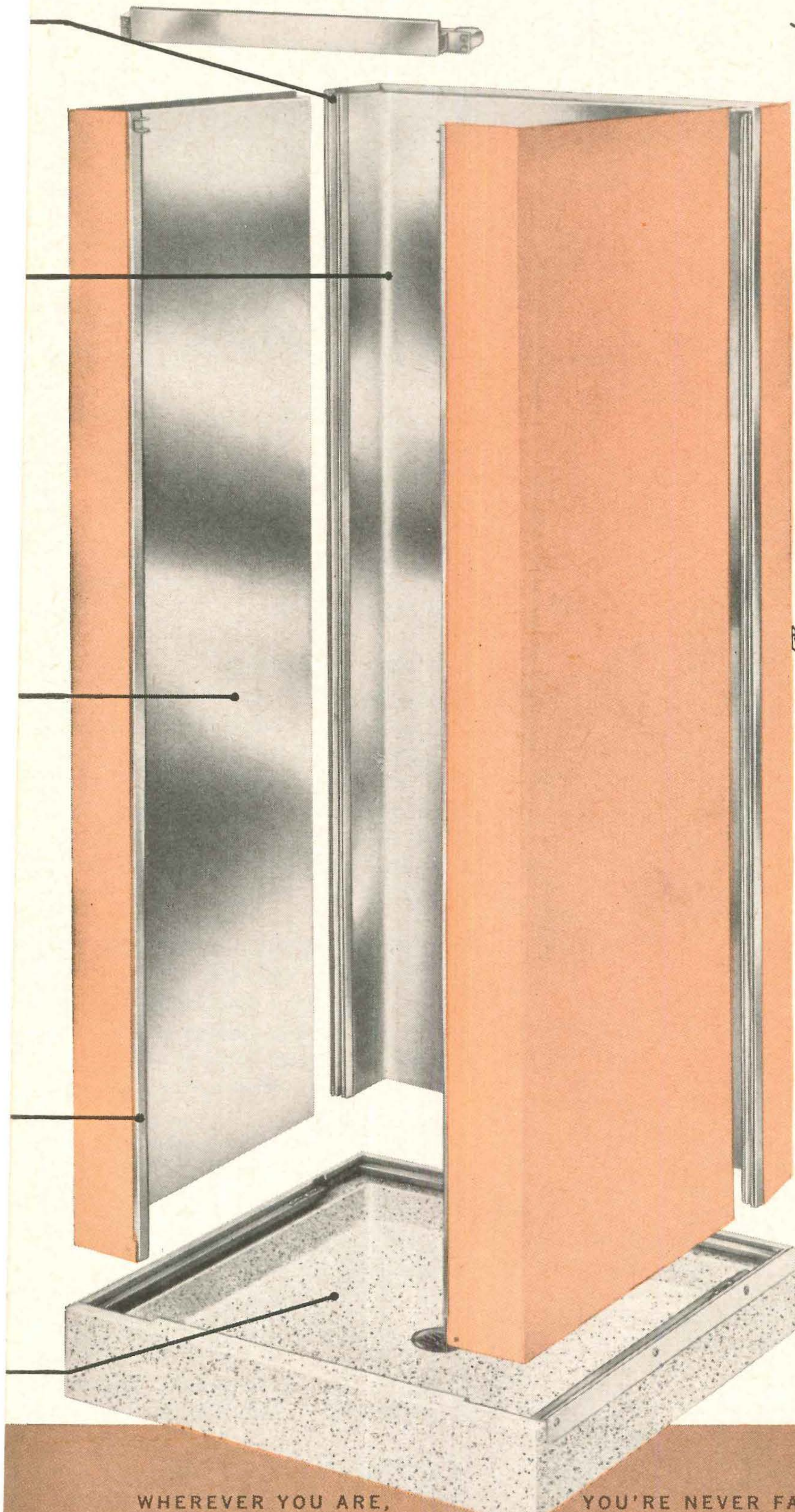

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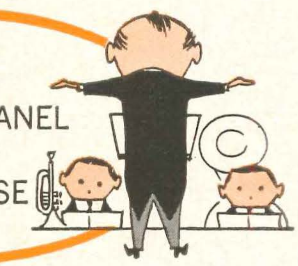

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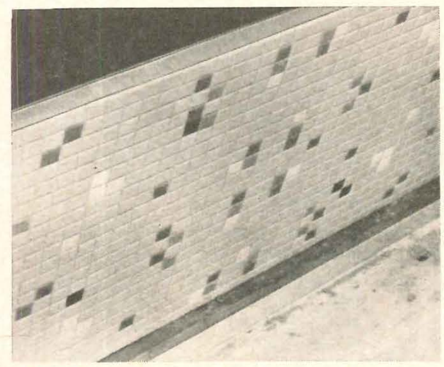
FIAT METAL MANUFACTURING COMPANY, INC.

Product Reports

continued from page 230

al building panel—a sandwich of fireproof materials faced on both sides



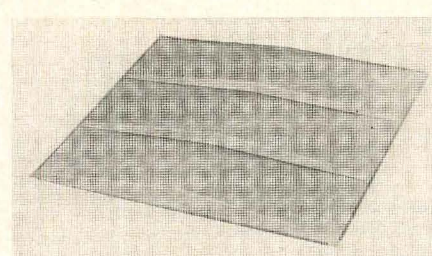
with an asbestos-cement building board. *Thermostone Transitop* is designed for curtain walls, partitions, and roof decks and is adaptable to all conventional systems of erection. The 4-ft wide panels come in lengths up to 12 ft. *Johns-Manville, 22 E. 40th St., New York 16, N.Y.*

ALUMINUM DOORS

Doors designed for commercial application have heavy gage Alcoa aluminum panel facings bonded to a core of impregnated paper honeycomb. A variety of designs and finishes is available. *The Steelcraft Mfg. Co., 9017 Blue Ash Road, Cincinnati, Ohio*

PRISMATIC VINYL LIGHTING PANEL CUTS GLARE

An embossed vinyl lighting panel has more than 30,000 prisms per sq ft to provide higher lighting efficiency with less glare. The panels can be



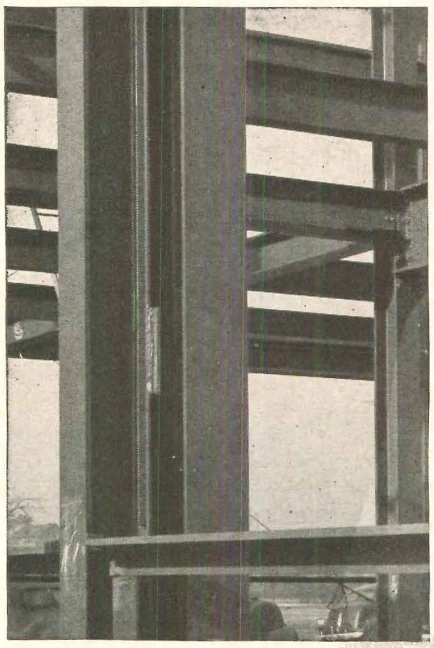
made to fit any standard fixture. *Lightonics Co., Oakland, Cal.*

SCHOOLROOM CABINETS

Steel combination storage cabinets accompany the Modine *School-Vent* unit ventilator. Sizes range from 24 to 48 in. long, $27\frac{1}{2}$ or $31\frac{1}{2}$ in. high, and $13\frac{1}{2}$ in. deep. *Modine Mfg. Co., 1500 DeKoven Ave., Racine, Wis.*

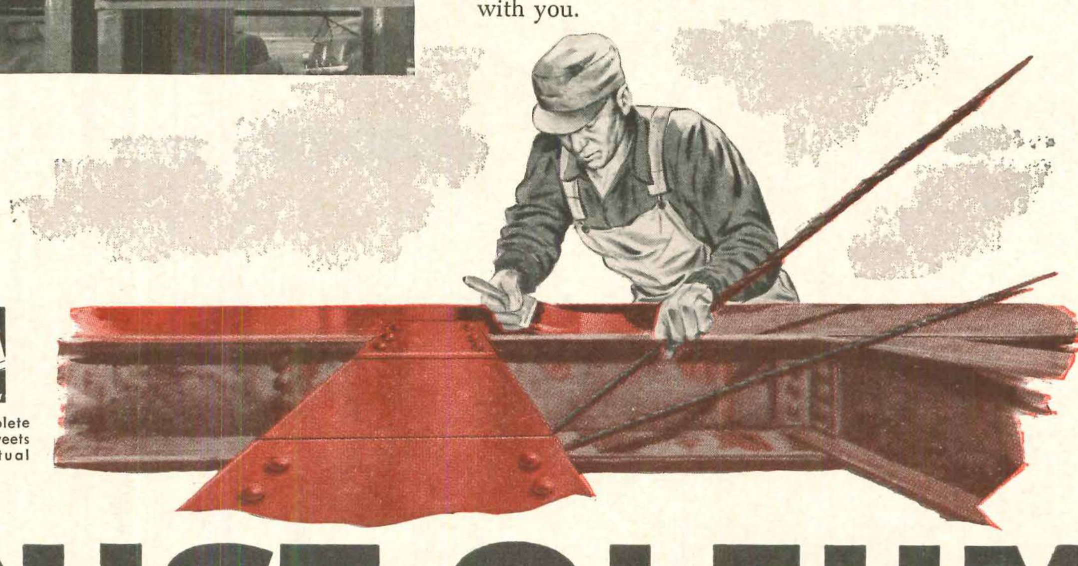
more products on page 246

There can be no compromise here!



The prime coat is the basic foundation that determines the long-lasting performance of coatings

There can be no compromise with the prime coat – it is the *basic* foundation, it must take hold and adhere tightly, it must provide a sound, compatible base for the finish coating. It is here that Rust-Oleum's experience as corrosion-resistant specialists can help you. Whether it's a shop coat by the fabricator, or job site application over structural steel, Rust-Oleum has the right primer for the specific job – from quick-drying primers for shop coating, unique primers to apply directly over rust, or bare metal primers. For the fullest measure of protection – specify the Rust-Oleum *System* of primer and finish coat. Your nearby Rust-Oleum Industrial Distributor and your Rust-Oleum Factory Specialist will be happy to work hand-in-hand with you.



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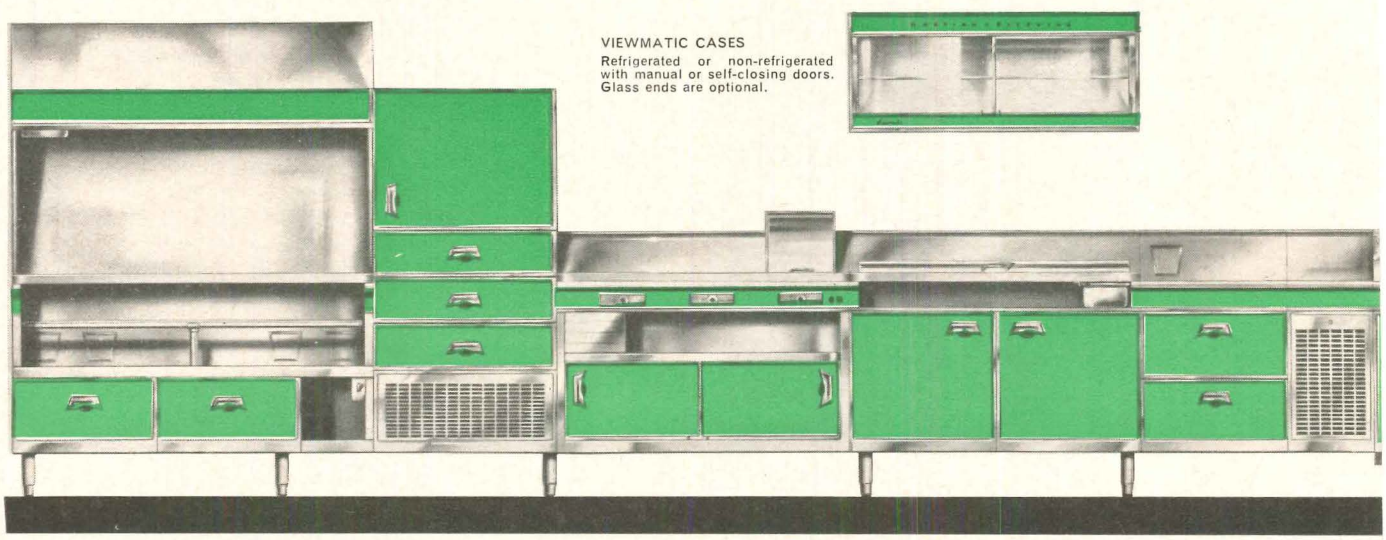


GRIDDLE STANDS
Many sizes. Exclusive appliance rails permit easy cleaning under units.

REFRIGERATORS
In combination of high and low temperature with doors or drawers.

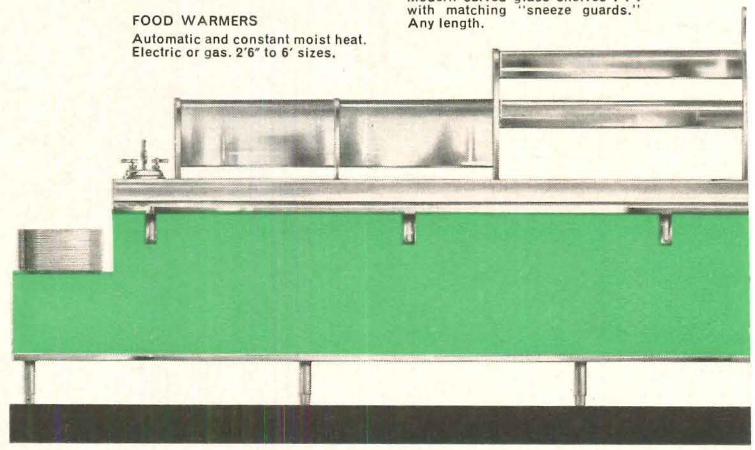
FOOD WARMERS
6 lengths to choose from. Electric or gas. Thermostatically controlled.

SANDWICH UNITS
Models in 2, 4, and 5 foot lengths. Toaster space or bread drawer available on some models.

COMPRESSOR ENCLOSURES
Removable ventilating panel for easy servicing. Standard in two lengths.

DISPLAY SHELVES
Modern curved glass shelves . . . with matching "sneeze guards." Any length.

FOOD WARMERS
Automatic and constant moist heat. Electric or gas. 2'6" to 6' sizes.



TRAY STANDS
2 standard models available. Space for napkins and silver bins.

PROTECTOR GUARDS
Curved to match shelving. With stainless steel top or plate glass. No fogging. Glass ends are optional.

Fiesta

CAFETERIA EQUIPMENT

Bastian-Blessing Fiesta cafeteria equipment consists of completely engineered, quality produced units, with a choice of individually styled tops or one piece custom tops. The complete flexibility of modular base construction combined with these custom-built, one piece tops, permits limitless possibilities as to length, arrangement and layout.

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Find Your Nearest Dealer In The Yellow Pages

MATCHING EQUIPMENT

Bastian-Blessing provides complete lines of quality built cafeteria counter and backbar equipment plus counter-restaurant food service equipment in 3 individual designs:

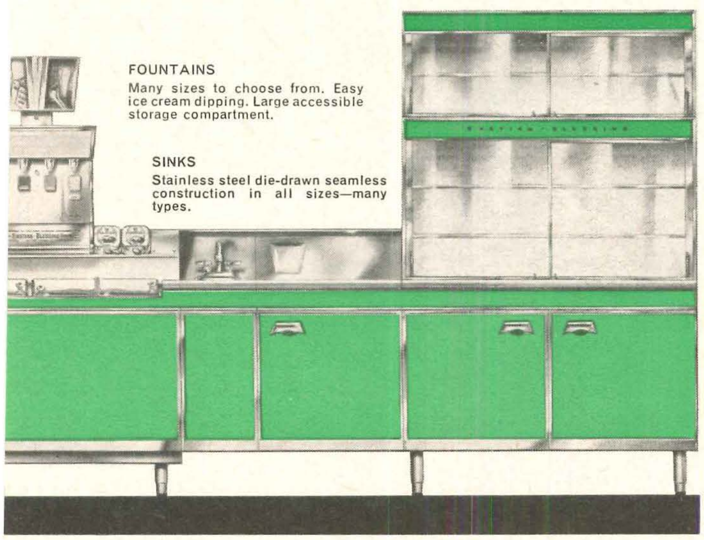
1. *All Stainless Steel Units* – Fiesta food service and cafeteria equipment is fabricated from heavy gauge STAINLESS STEEL. All exposed surfaces are satin finished for a look of rich conservative quality.

2. *Units With Color Trim Strips* – These stainless steel units have narrow trim strips below the rolled edge of the operator's side to which we can add a strip of plastic laminate to harmonize with your particular motif.

3. *All Color Models* – Any commercially obtainable plastic laminate can be factory applied to this equipment facing and trim strip bonded tightly to the stainless steel for complete color harmony.

FOUNTAINS
Many sizes to choose from. Easy ice cream dipping. Large accessible storage compartment.

SINKS
Stainless steel die-drawn seamless construction in all sizes—many types.



SHELVING
Various lengths. Also toaster, mixer, ice dispenser, and lowerator stands.

DISPLAY CASES
Self-contained, remote, and with refrigerated bases. For storage and display of perishable foods.

Fiesta

FOOD SERVICE EQUIPMENT

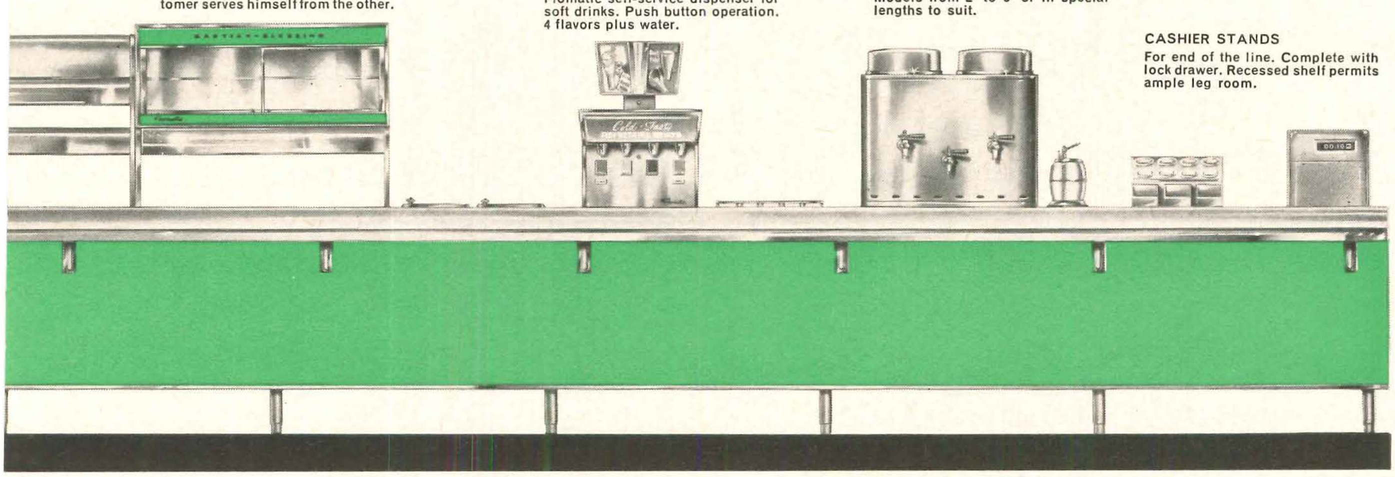
Fiesta food service equipment consists of hundreds of stock units with thousands of combinations all available with a classic styling that will remain fresh for years to come. Fiesta means color to blend with any decor . . . and all stainless steel construction means quality units that will last for years. Units feature chip-proof contoured tops, new magnetic doors, recessed flare handles, concealed hinges, improved "cold-wall" refrigeration.

PASS-THRU DISPLAY CASE
Operator fills from one side. Customer serves himself from the other.

DRINK DISPENSER
Flomatic self-service dispenser for soft drinks. Push button operation. 4 flavors plus water.

URN STANDS
Models from 2' to 6' or in special lengths to suit.

CASHIER STANDS
For end of the line. Complete with lock drawer. Recessed shelf permits ample leg room.



COLD PAN UNITS
2', 4', and 6' lengths. 1" and 4" deep refrigerated tops or 4" deep ice pan top. Refrigerated or open base.

REFRIGERATED BASES
For supplies of milk, salads, at counter. 4' and 6' models.

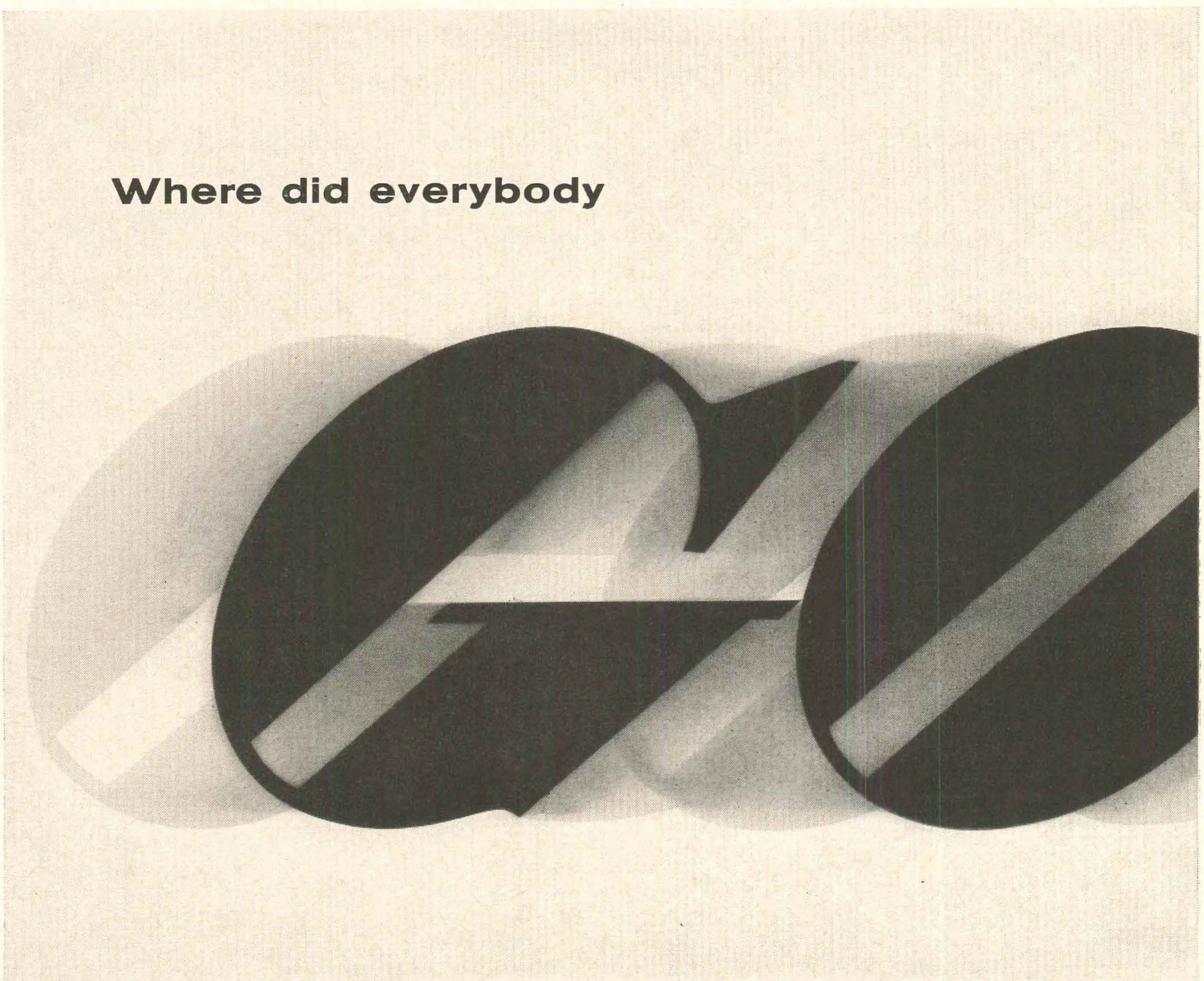
LOWERATOR STANDS
Self-service refrigerated milk or beverage carton dispenser. Also for dishes, cups, saucers, and glasses.

TRAY RAILS
3 or 4 tube rails or 14 ga. formed ridge type available.

Write for Fiesta brochure F-100

BASTIAN-BLESSING

4201 West Peterson Avenue, Chicago 46, Illinois, Dept. 4-D



The owners can get awfully lonely with an air conditioning system that has been put together with a variety of major components from different manufacturers.

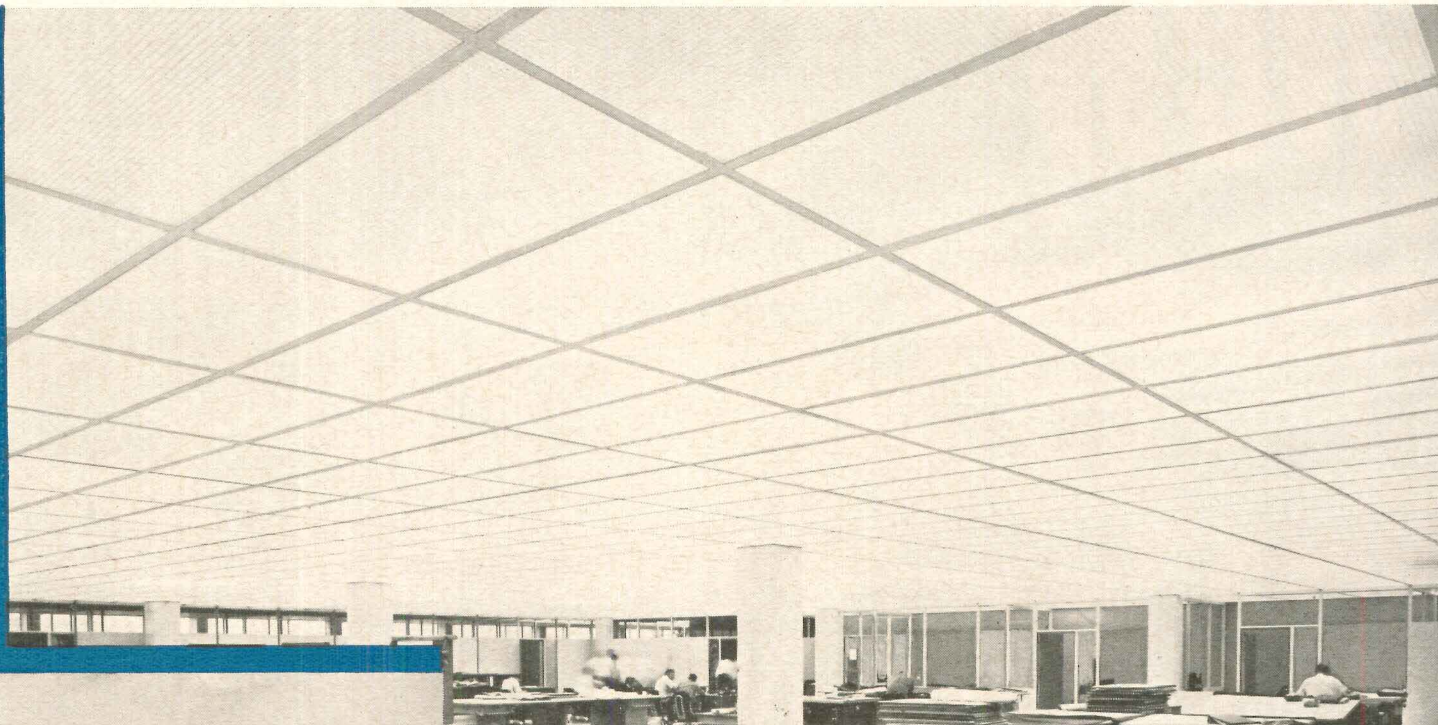
They may even have saved a few dollars—with refrigeration equipment from one source, cooling and heating coils from another and fans from somewhere else. But then when they try to fix responsibility for performance, where did everybody go?

Whom will the owners call if mechanical trouble develops? Which component needs attention? Where will they turn for service? The answers come easily when you specify equipment from one responsible supplier of major components—able to keep the equipment in first-class operating condition.

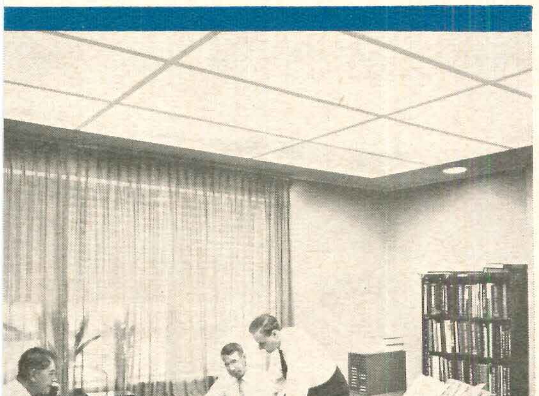
Although not the only air conditioning manufacturer offering a broad line of components, Carrier is best prepared to serve the owner. For our company and our dealers maintain the largest, best-trained service organization in the business—over 11,000 men strong.

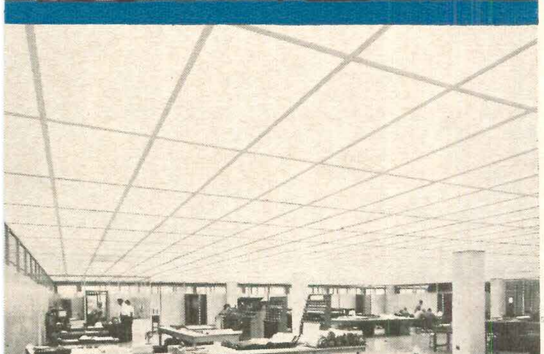
Carrier ***Air Conditioning Company***

Over 200,000 square foot installation *with* American's *New* 2½ x 5 foot louver...



EDITS: ARCHITECTS: Argonaut Realty, Div. General Motors
ELECTRICAL CONTRACTOR: Harlan Electric Co., Detroit, Mich.
CEILINGS: Custom Ceilings, Inc. Detroit, Mich.





CHOSEN BY GENERAL MOTORS FOR THE NEW TERNSTED OFFICE AND ENGINEERING BLDG. A MODEL OF PROGRESSIVE ARCHITECTURE

LUMINOUS CEILING: Completely covers the office and working areas. The new 2½ x 5 ft. plastic open cell 45° shielding louver ceiling, suspended below two-lamp high out-put slimline strips on 30″ centers, designed for 120 to 175 foot-candles.

MORE ECONOMICAL: The new 2½ x 5 ft. louver requires considerably less grid system, structural work, less parts to handle which permits simplification of the installation.

GREATER VERSATILITY: New louver size is ideal for 5 x 5 ft. modules and the new trend in larger variations of module patterns, island types, or complete ceilings.

UNINTERRUPTED LIGHT: Through the use of fewer structural members. This large louver panel provides more glare-free area with cleaner ceiling appearance, and easy lamp replacement.

STURDY CELL CONSTRUCTION: Of 9/16 x 9/16 x 9/16 cubes, offers sag-free shadow-less, high efficiency with low surface brightness.

SPECIFY AMERICAN'S NEW 2½ X 5 FT. LOUVERS ON YOUR NEXT LUMINOUS CEILING REQUIREMENTS

Write for free sample kit and specification sheets today.

american louver company

5308 NORTH ELSTON AVENUE • CHICAGO 30, ILL.

HOLCOMB & HOKE FOLDOOR®

New Super-Sound

14 separate barriers against noise with new STEEL PANELS!

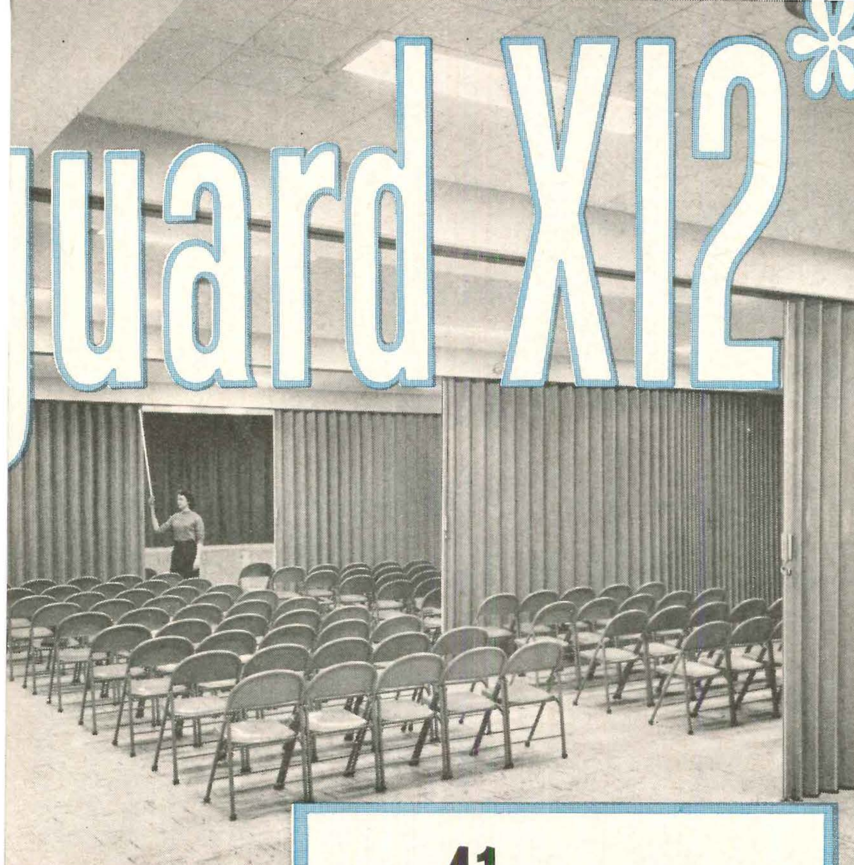
MORE HINGE STRENGTH WHERE IT COUNTS... AT THE VITAL POINT!

9″ overall depth at the pivot point on double row hinge plates as shown. See 7.

14 Barriers (7 on each side) plus complete perimeter sealing!

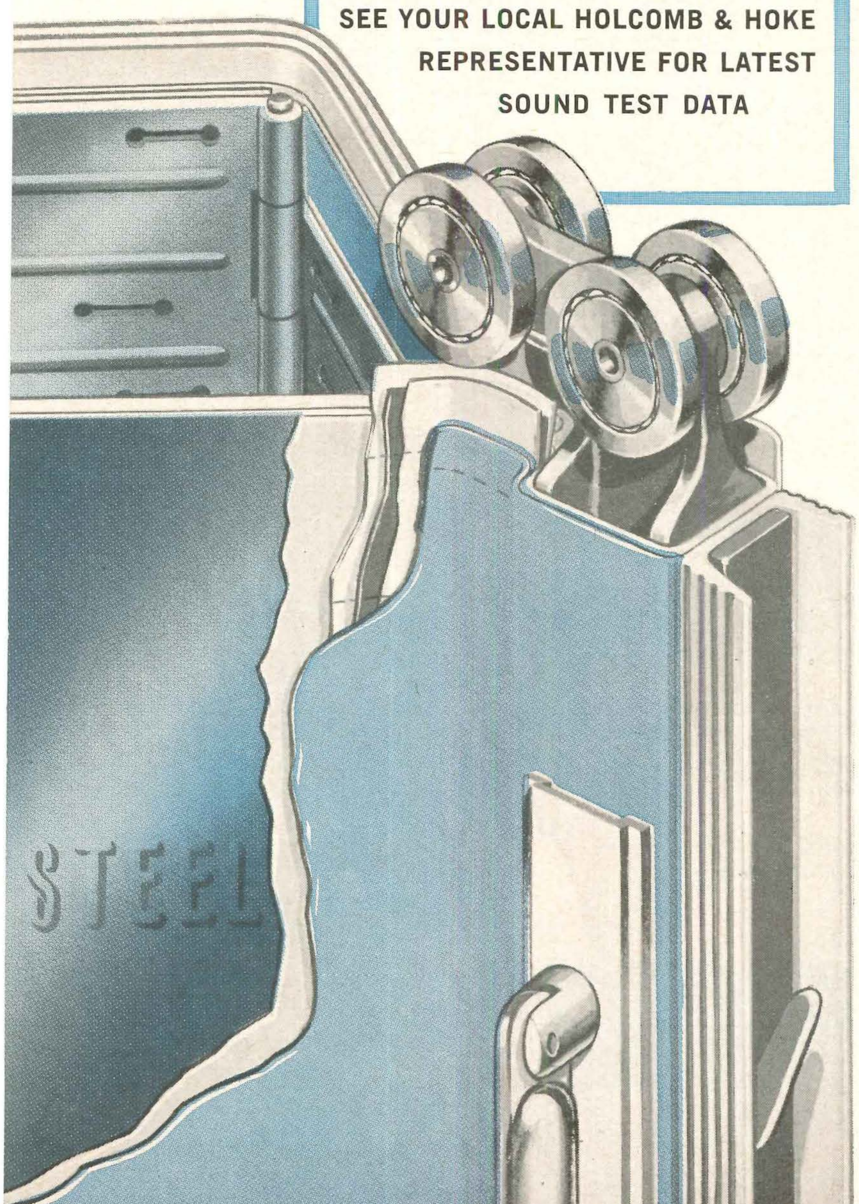
1. Fabric covering of supported vinyl in choice of 27 oz. or 45 oz. material with resin impregnated cotton backing for dimensional stability
2. Rubberized sweep strip sewn to felt seal
3. Sound absorbing felt seal
4. Rubberized sweep strip sewn to felt seal
5. Continuous, vinyl-coated 185-lb. membrane across entire surface
6. Panels of 24-ga. steel laminated to membrane
7. Hinge plates of 16-ga. steel, double-thick unpierced metal at mid-section with total depth of 4½″ at pivot point per hinge row.

Double hinge plates at top furnished on doors 15 feet and over in height.



OVER 41 decibel sound reduction at 9 frequencies

SEE YOUR LOCAL HOLCOMB & HOKE REPRESENTATIVE FOR LATEST SOUND TEST DATA



• STEEL PANELS
• Rugged Hinges
• Safety Draw-Latch

*12″ profile, providing less stack space than small profile partitions

When it comes to separating sound as well as space, no single folding partition can match the superior performance of Foldoor's new SUPER-SOUNDGUARD. From cover to cover, SUPER-SOUNDGUARD gives you 14 *separate barriers* to more effectively block the passage of sound.

Beneath the beautiful, durable fabric covering is a shield of steel—row after row of 24-ga. steel panels, extending from floor to ceiling on both sides of the partition and laminated to a continuous vinyl-coated 185-lb. membrane.

To prevent sound "leaks" around the partition edges, SUPER-SOUNDGUARD features complete perimeter sealing — at tracks, posts and all operating edges.

New 12″ heavy duty hinges in combination with intermediate ¼″ case hardened steel hinge and trolley pins at every other hinge, maintains rigid pantographic action assuring smooth, easy operation.

Safety draw-latch, exlusive with Foldoor, provides safe operation in time of emergency by unlatching partition with a natural downward pull of the pendant rod.

EXCLUSIVE WARRANTY . . . All Foldoor tracks are warranted for life of original installation. The entire partition is warranted for one year; hinges, trolleys and trolley pins are warranted for an additional 9 years. For details of warranty contact Holcomb & Hoke distributor.

HOLCOMB & HOKE FOLDOOR®

See us at the
AIA CONVENTION
Dallas, Texas
Booth No. 103

HOLCOMB & HOKE MFG. CO., INC., Dept. C-23
1545 Van Buren St., Indianapolis 7, Indiana

Please send complete data on:
- ☐ Foldoor SUPER-SOUNDGUARD X12
- ☐ Other Foldoor doors and partitions
- ☐ Have job in planning; please call

*Name*________________

*Address*________________

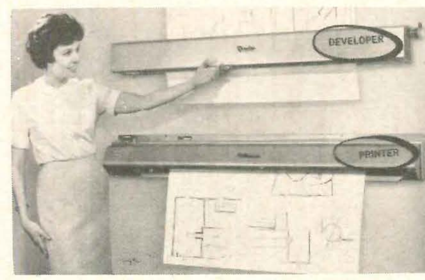
*City*____________ *State*________

Product Reports

conitnued from page 238

DIAZO DEVELOPER

Thermomatic diazo print developer features a heated roller which speeds up the action of the ammonia developer. It is used with the *Expeediter*



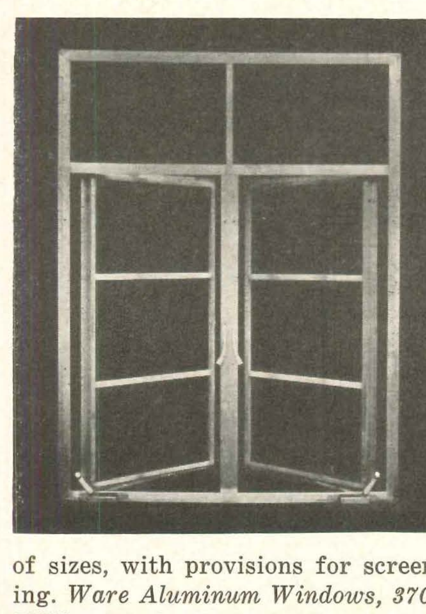
printer to turn out sepia prints and black prints as well as blue and white prints. The 30-lb unit is designed for wall mounting. *Rotolite Sales Corp., Stirling, N.J.*

VINYL BUILDING PANELS

Corrugated rigid polyvinyl chloride sheeting, after a decade of use in the chemical industry, is now available for domestic, commercial and industrial building. Five standard corrugations (both length-corrugated panels and cross-corrugated rolls) come in four pastel, opaque and translucent colors. *Kaykor Products Corp., Yardville, N. J.*

ALUMINUM WINDOWS

Awning windows for economical, standard, and quality installations; horizontal sliding windows; and casement windows all come in a variety



of sizes, with provisions for screening. *Ware Aluminum Windows, 3700 N.W. 25th St., Miami, Fla.*

more products on page 252

Theatrical Grill, Cleveland, O. • Designer: Leon Gordon Miller • Architect: Rudolph J. Orgler • Formica Walls: Weybrecht Lumber • Formica Fixtures: Kitchen Specialties

consider stained glass against a background of...

Backlighted stained glass adds dramatic impact to an otherwise conventional Formica laminated plastic screen in this distinctive restaurant.

Color intensity of the glass is variable with reostatically controlled fluorescent tubes.

The practicality of Formica on walls and fixtures in nearly any commercial application is unchallenged. For a variety of unusual ideas in the decorative use of the world's most famous surfacing, write today. You will also receive the Formica Red Book, a geographical and classified directory of Formica qualified commercial fabricators of laminated plastic.

FORMICA®

laminated plastic

FORMICA CORPORATION

subsidiary of CYANAMID

DEPT. X-2, CINCINNATI 32, OHIO

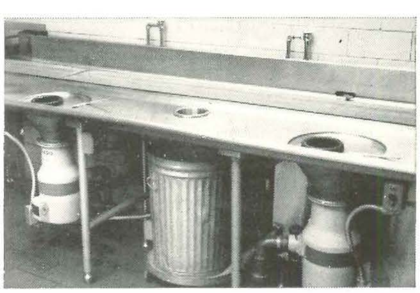
FD-3060

"Our Toledo Dishwasher gets tableware hygienically clean, and saves us money on water and detergent, too"

This Toledo R3T-20-R Rackless Dishwasher is on duty seven days a week in the beautiful new Floyd M. McDowell Commons on the campus of Graceland College. Architect: Dave Morgan and Associates.

"We *know* that our Toledo Rackless Dishwasher does a remarkable job in maintaining highest sanitation standards", says Lillian Flanders, Food Service Director of Graceland College, Lamoni, Iowa. "Our State Health Inspector reports that our dishes show bacteria count of four or less, and the allowable maximum is 100. Our Toledo is also three times faster than the rack type machine we were using, and takes less labor to operate. It has reduced our breakage, and uses less water, detergent and drying agent".

A Toledo Dishwasher can make your tableware sparkle with cleanliness, too. And bring you worthwhile savings in time, manpower and operating costs. Whether you need a compact counter machine, or a rackless unit with capacity to 15,000 dishes hourly, Toledo can meet your needs to a T.



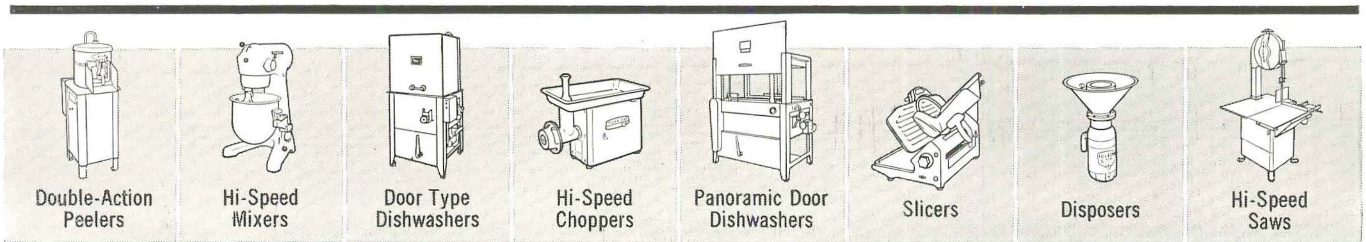
These Toledo heavy-duty waste disposers do away completely with food waste cans, eliminate offensive odors and garbage toting. Only one container is needed, to take care of paper waste.

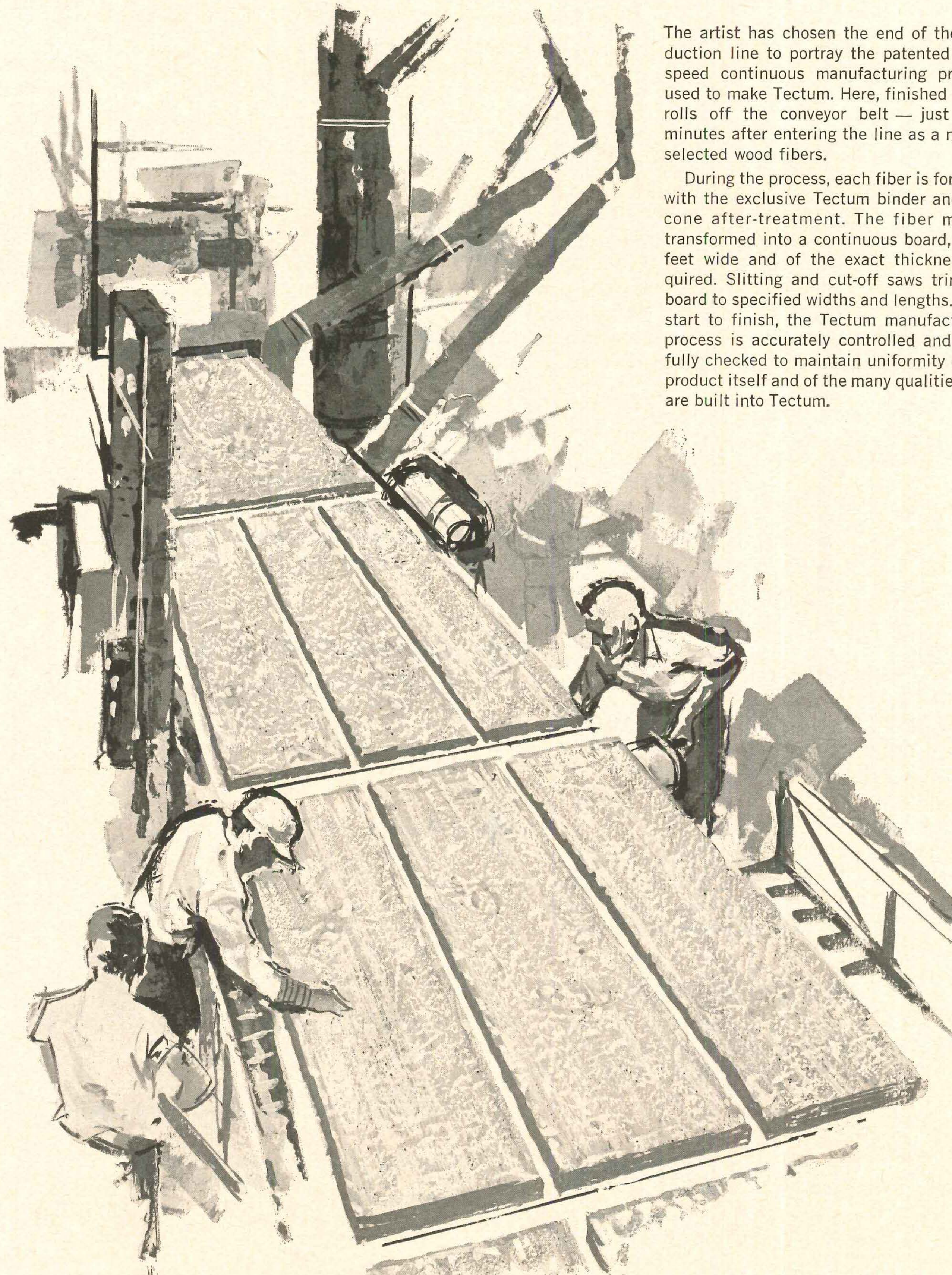
Your Toledo Kitchen Machine Dealer will assist you in selecting the right Toledo Dishwasher for your operations. Or, write to us for complete information.

TOLEDO® *Kitchen Machines*

Division of Toledo Scale Corporation, 245 Hollenbeck Street
Rochester 21, New York

SERVICE
Factory-Trained
240 Cities





The artist has chosen the end of the production line to portray the patented high-speed continuous manufacturing process used to make Tectum. Here, finished board rolls off the conveyor belt — just forty minutes after entering the line as a mat of selected wood fibers.

During the process, each fiber is fortified with the exclusive Tectum binder and silicone after-treatment. The fiber mat is transformed into a continuous board, eight feet wide and of the exact thickness required. Slitting and cut-off saws trim the board to specified widths and lengths. From start to finish, the Tectum manufacturing process is accurately controlled and carefully checked to maintain uniformity of the product itself and of the many qualities that are built into Tectum.

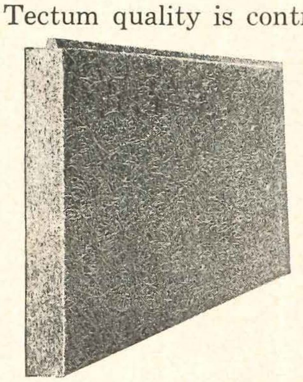
TECTUM CORPORATION....

Why do more Architects specify Tectum than any other roof deck of its type?

There is no equal for Tectum. At first glance, some roof deck materials resemble Tectum. The similarity stops here. There is no equal for Tectum because no other product is made like Tectum and in the making lie important hidden advantages.

Tectum is manufactured with a patented, continuous-belt process using an exclusive, fast-setting binder. The rapid chemical reaction is naturally compatible with wood fibers. The natural tensile strength and the high secondary strength of the live fibers, so important for impact resistance, are retained.

Tectum quality is controlled, continuously and automatically. As a result, Tectum has superior uniformity of thickness, density, binder dispersion, coloring and surface appearance.



Structural strength, insulating values and acoustical properties of a product are as consistent as its uniformity. One evidence of the automatically controlled uniformity of Tectum is the light reflective coloring of Tectum — an off-white tone that is the same throughout the board — not just a surface coating.

Designers appreciate the fact that Tectum is available in custom sizes for special modular requirements as well as in a wide variety of standard sizes. An "endless" board of Tectum eight feet wide rolls off the production lines continuously. Handling and shipping efficiencies are the only limitations to size.

As form plank, Tectum is ideally suited to the exciting shapes of thin shell concrete design.

Why do more Engineers approve Tectum specifications? A tough structural wood fiber board with exceptional impact resistance, Tectum is approved by engineers—even for areas where seismic conditions regulate building design. Its light weight, 40% to 100% less than similar products, makes Tectum ideal for light framing systems or buildings located on poor soil conditions.

Why do more Contractors prefer to work with Tectum? Tectum is easier to handle, erect and roof than any product of its type. Tectum's uniform thickness simplifies roofing and the contractor finds many timesaving benefits. If roof deck planks are not uniform in thickness, difficulties are encountered at joints contributing to possible leaks or future problems. Tectum's thickness is mechanically controlled throughout the forming of the material. Uniformity is assured. Tongue and groove plank edges and rabbetted tile edges are factory fabricated, permit firm, tight joints that increase the strength of the roof deck. Because of its binder, Tectum can be cut easily on the job site with conventional wood working tools. Since Tectum is resilient, not brittle, it withstands shipping and handling with less breakage. Tectum decks supply important safety against impact loads during construction and maintenance. With normal care, Tectum does not require painting. A ply of roofing felt is factory applied on the topside to protect Tectum during shipping and to provide an excellent mopping surface for built-up roofing. Tectum simplifies the job, saving time and labor.

Growing in preference through performance . . .

More Tectum is installed in schools, churches, industrial and commercial buildings than any other product of its type. The economies of easy handling and quick installation are important to the total building cost. Tectum pioneered this building material concept. Tectum holds exclusive patents on the manufacturing process.

There is no equal for Tectum because no other product is made like Tectum, performs like Tectum, can be handled like Tectum or has the acceptance of Tectum.

For complete information on Tectum, see Sweet's Architectural File (2h/Te) (2f/Te) (11a/Te) and Industrial File (2h/Te) (11a/Te).

This new Tectum General Catalog illustrates the broad application of versatile Tectum. Send for your copy today.

Tectum®

. . 535 EAST BROAD STREET, COLUMBUS 15, OHIO

Product Reports

continued from page 246

COOL FLOODLIGHTS

Special reflectors of 17 ultra-thin layers project visible light forward and transmit heat backward so that only one-third as much heat reaches the lighted object. Color quality from the incandescent bulbs is about the same as those in regular floodlights. Heat from rear of the lamps requires open or ventilated fixtures. *General Electric, Nela Park, Cleveland 12, Ohio*

OPTICAL BLACK COATING

An optical black liquid coating is used like normal paint, and is suited for applications in which light-scattering is a problem. *Minnesota Mining and Mfg. Co., 900 Bush Ave., St. Paul 1, Minn.*

PANELS FOR COLD BUILDINGS

A hardboard and foam sandwich makes up building panels that combine flexibility, strength, efficient

thermal insulation, and a surface capable of varied treatment. The panels are designed for use in refrigerated rooms and weatherable structures. Volume production of standardized sizes, based no 4-ft wide modules, is planned to reduce costs. *Dow Chemical Co., Midland, Mich.*

DETENTION WINDOW

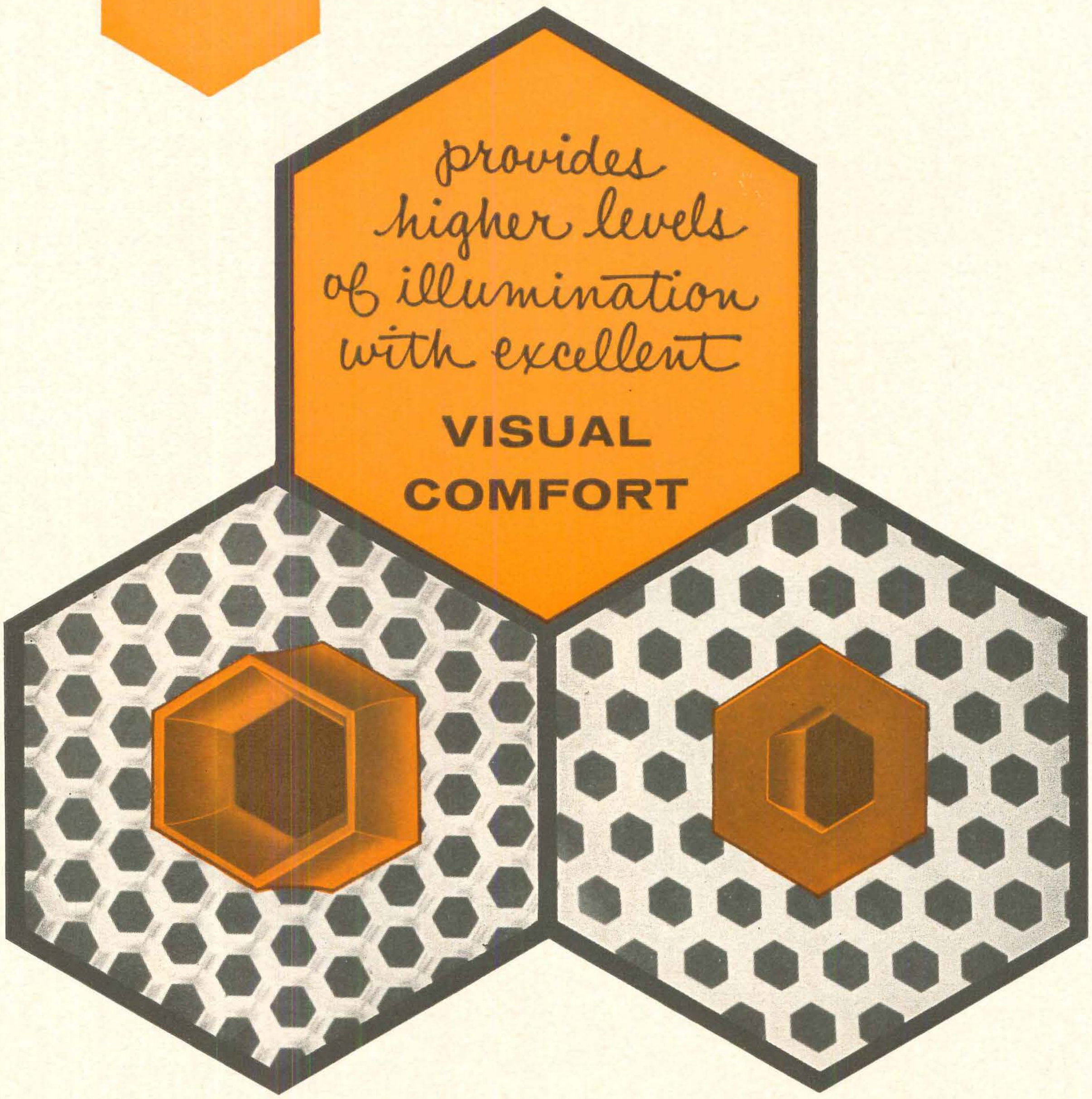
Horizontal detention bars are encased in a stainless steel window frame and serve as hinges on which

the louvers operate. The crank is removable, if desired. *Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa.*

more products on page 260

NEW NEW NEW NEW NEW NEW NEW

SINKO **PARAHEX*** LOUVERS' New Parabolic Construction



Bottom View of PARAHEX Louver

Top View of PARAHEX Louver

When the PARAHEX Louver is used in its metalized finish and is installed in fixtures and/or luminous ceilings, it controls the lamp brightness so well that it is sometimes difficult to distinguish whether or not the lamps are actually lighted — yet the PARAHEX Louver may be providing a maximum of illumination levels.

The new PARAHEX Louver offers new applications in lighting design and adds new functional beauty to lighting installations.

Not only is the PARAHEX a new advancement in lighting comfort, but it is also an outstanding achievement in the field of plastic molding. In the PARAHEX, Sinko has again proven its ability to meet the challenge of molding the unusual.

PARAHEX Louvers are available in one piece, nominal 2 ft. by 4 ft. panels, in either translucent white Polystyrene, specular and satin aluminum vacuum plated metalized finishes, and in Acrylic, either translucent white or crystal clear. PARAHEX cell dimensions are 1/2" high x 3/8" x 9/16" with 45° x 45° shielding.

We invite you to write today for design samples and engineering data sheets.

SINKO "THIN-CELL" louvers

SINKO MANUFACTURING & TOOL CO.

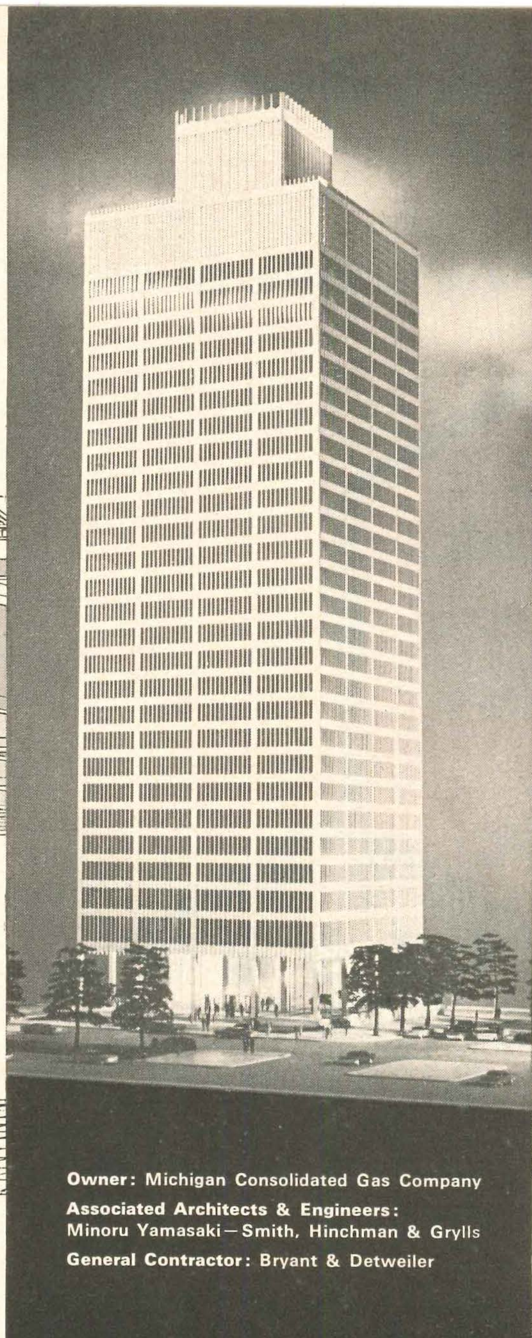
7310 W. Wilson Avenue • Chicago 31, Illinois

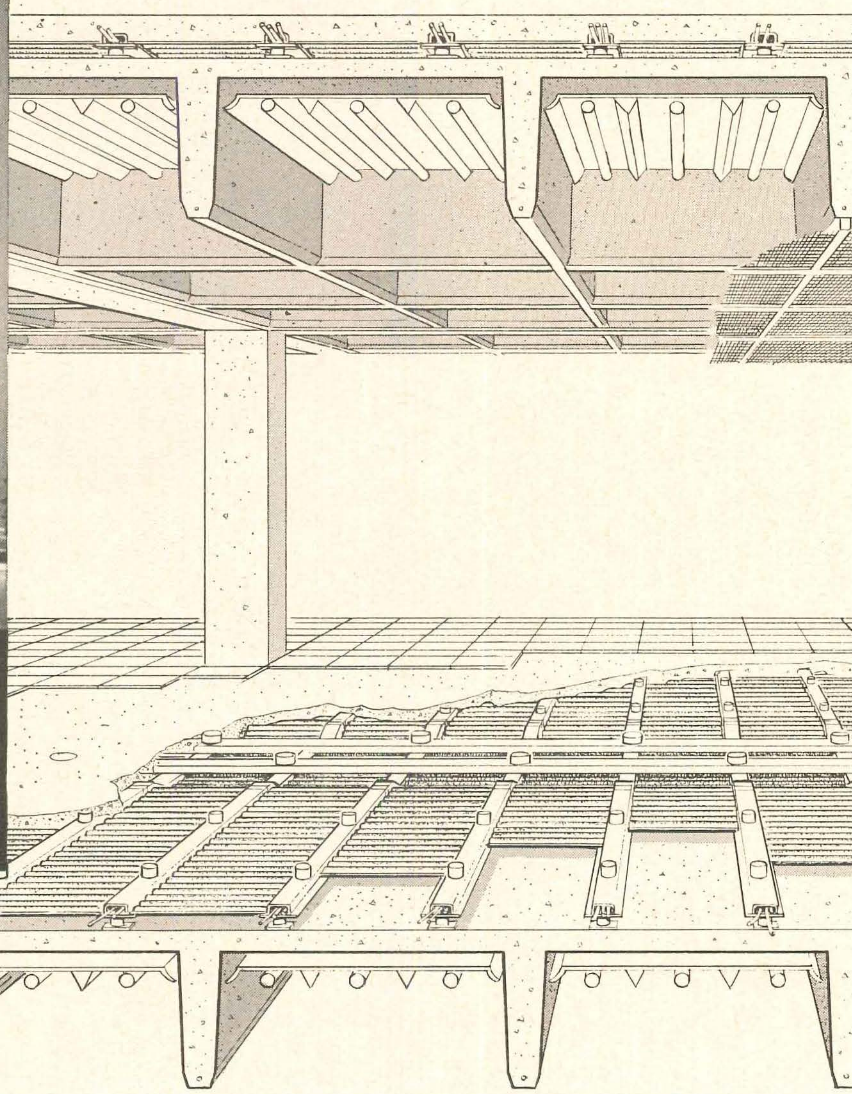
In Canada:
Sinko Manufacturing & Tool Co. of Canada, Ltd. 3550 Frobisher Street, Montreal, Quebec

*Manufactured under License from General Electric Company Pat. No. 2971083

How to put 28 storie a 26-story buildin

Granco A-E Floor combines air and electrical servi depth 25% in the new Michigan Consolidated G





One of the *hardest-working, compact* floor systems now available is incorporated into the new headquarters office building of the Michigan Consolidated Gas Company in Detroit—GRANCO A-E (Air-Electric) FLOOR.

Hard-working because it combines architectural objectives with the needs of the mechanical, electrical and structural engineer:

1. Distributes conditioned air to interior and exterior zones through a 3-inch plenum, thereby eliminating a considerable amount of horizontal ductwork.

2. Provides horizontal and vertical wiring flexibility through large capacity cells fed by headers originating at the central electrical shaft.

Compact because it helped reduce total floor depth to only 3 feet compared to 4 feet or more in most office buildings—saved an estimated two stories in the 28-story building.

A Floor System That Doesn't Grow Old—Granco A-E Floor provides a "tool" for achieving the highest-quality combination mechanical and electrical system—has built-in assurance against obsolescence by facilitating easy expansion of these comfort, power and communications services as required. A-E Floor can be used with any type construction—remodeling or new.

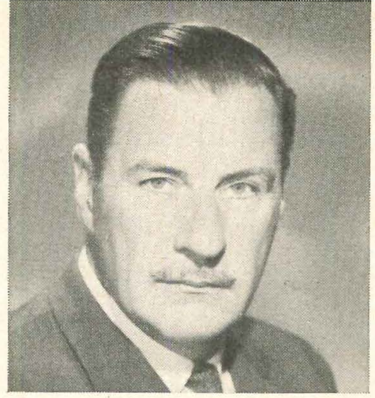
Optimum Air Capacity and Control—Basically, the A-E system consists of a finish floor supported by the main structural slab. This floor rests on adjustable steel supports, creating a plenum for conditioned air to be carried to floor and ceiling diffusers.

Steel

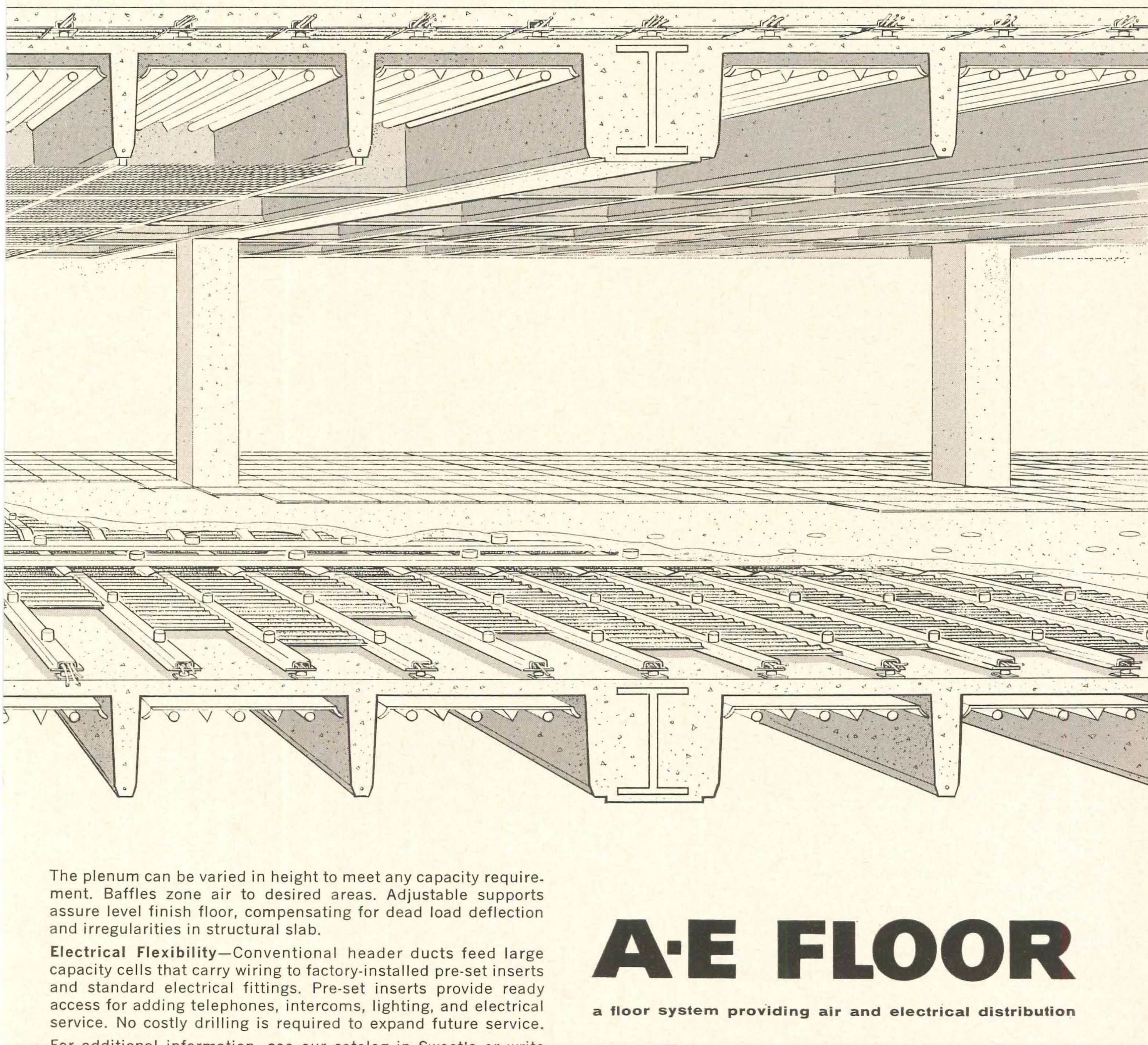
DISTRICT OFFICES: Atlanta • Chicago • Cincinnati • Dallas • Houston • Kansas City • Los Angeles • Minneapolis • New York • St. Louis

nto
height

-reduces floor
Company Building



"Granco A-E Floor, in conjunction with structural all-welded frame and waffle slab system, permitted us to achieve a luminous ceiling, underfloor air distribution and ideal electrical flexibility in a floor depth of only three feet. The reduced building height led to a considerable saving in structural steel and other materials." Frederick J. B. Sevald, Vice President, Smith, Hinchman & Grylls and Administrator for the Joint Venture.



The plenum can be varied in height to meet any capacity requirement. Baffles zone air to desired areas. Adjustable supports assure level finish floor, compensating for dead load deflection and irregularities in structural slab.

Electrical Flexibility—Conventional header ducts feed large capacity cells that carry wiring to factory-installed pre-set inserts and standard electrical fittings. Pre-set inserts provide ready access for adding telephones, intercoms, lighting, and electrical service. No costly drilling is required to expand future service.

For additional information, see our catalog in Sweet's or write for A-E Floor catalog No. 99-B62 (A.I.A. File No. 4-E-6). GRANCO STEEL PRODUCTS CO., 6506 N. Broadway, St. Louis 15, Mo. A Subsidiary of Granite City Steel Company.

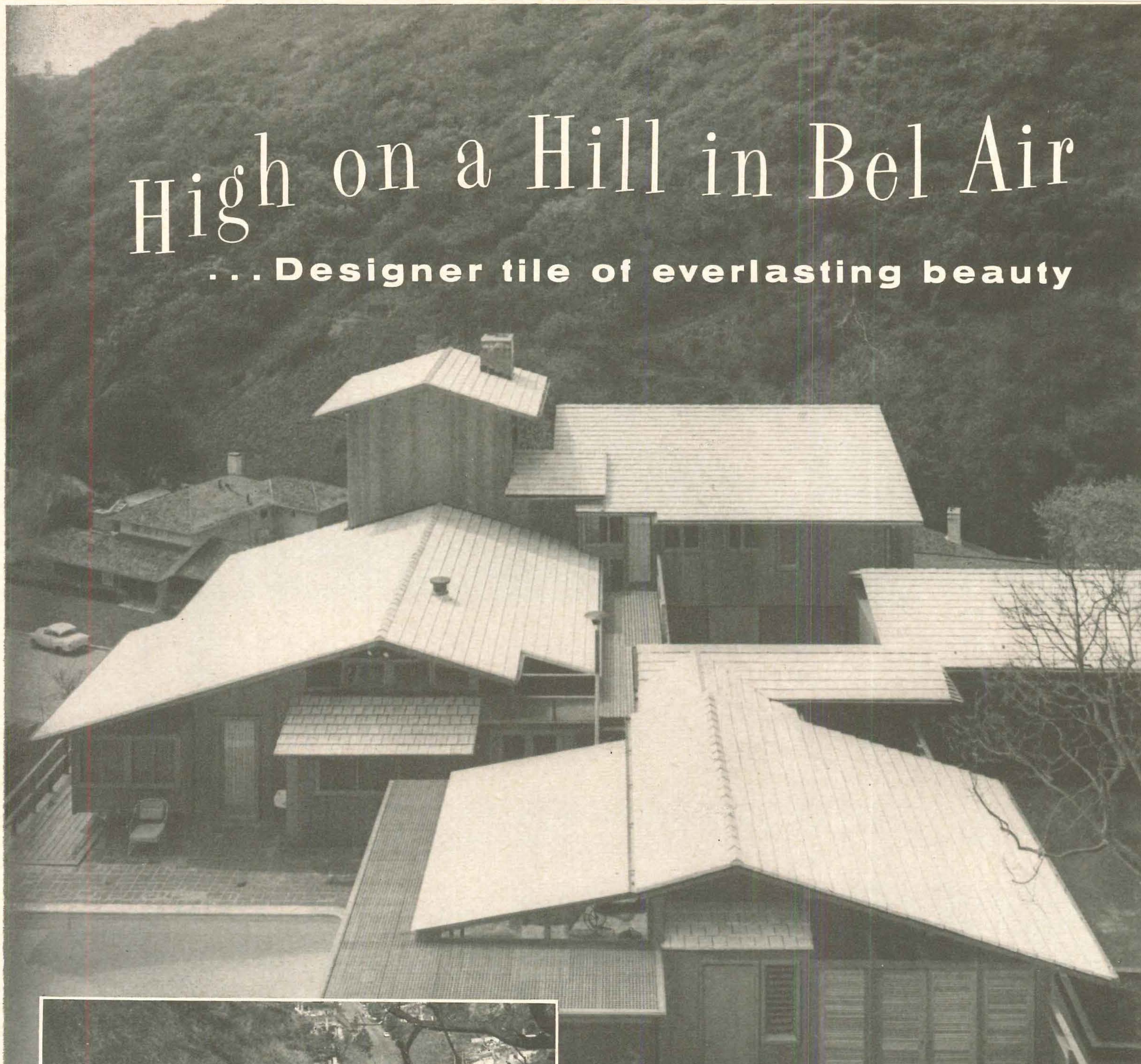
A·E FLOOR

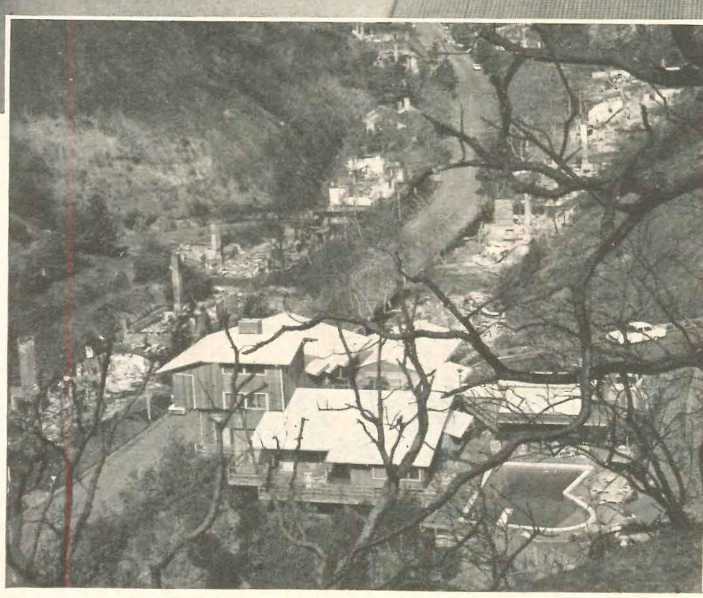
a floor system providing air and electrical distribution

GRANCO

San Francisco • Tampa • **DISTRICT REPRESENTATIVES:** Greenville, S.C. • Little Rock • Washington, D.C.

GRANCO





Fire scarred residential area surrounds unscathed home roofed with fire resistant Ludowici tile.

*"THE TILE ROOF SAVED IT"

During the recent disastrous fire in the Bel Air section of Los Angeles, this Ludowici-Celadon roofed home, on the east side of Chantilly Road, was the only house left standing on its block. As one fire official stated, "It is commonly known that tile roofs just do not burn or melt."

Although inherent fire resistance qualities of Ludowici tile saved this home, tile was originally chosen for its unique texture, color and beauty.

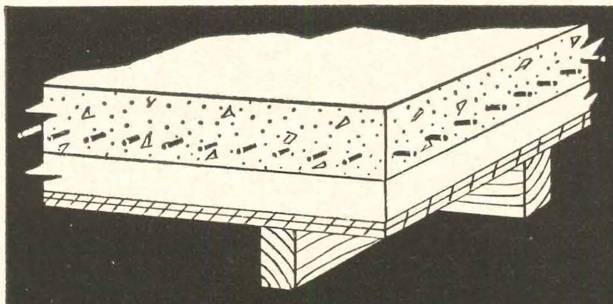
A multitude of colors, sizes, styles and textures are at your disposal. Write for the name of our consultant in your area, he's ready and willing to serve you.

*From Variety, Nov. 8, 1961

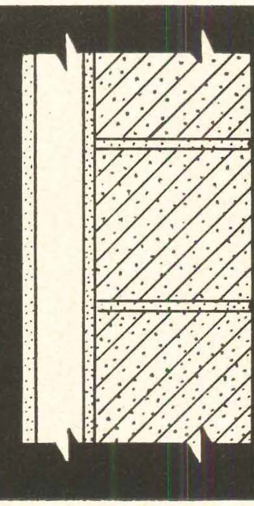
*** LUDOWICI-CELADON CO.** 75 East Wacker Drive, Chicago 1, Illinois

STYROFOAM®

Rigid insulation saves masonry insulating costs and time, gives permanent insulating values



COMBINED FORM LINER/INSULATION. Styrofoam insulation eliminates the need for a form release agent . . . acts as its own vapor barrier . . . and provides high, permanent insulating values. Concrete keys positively to the cellular surface of Styrofoam insulation. When forms are removed, permanent insulation is in place, ready for finishing.

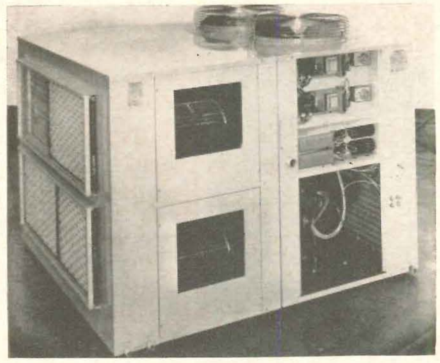


MASONRY WALL INSULATION Styrofoam insulation eliminates the need for furring and lathing. A new Dow method of quick installation permits adhering Styrofoam directly to the mqsonry, followed by the application of gypsum wallboard *without the use of nails* . . . or plaster can be applied directly to the face of the insulation.

Product Reports

continued from page 252

VERSATILE HEAT PUMP



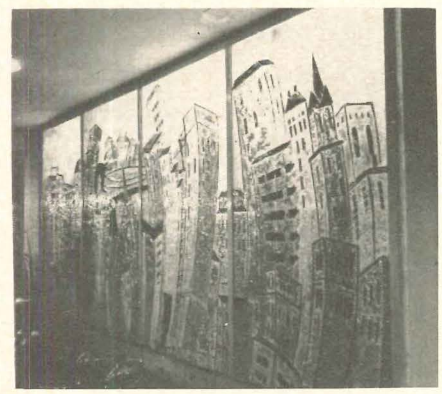
Duo-Aire Thermacooler is a heat pump which can control two different "climates" simultaneously. The 7½-ton unit comprises two separate systems, each powered by a four-ton compressor. Indoor blower mounting permits discharge of air from right or left sides. Electrical controls are housed in a separate compartment. *Thermador Electrical Mfg. Co., 5119 District Blvd., Los Angeles 22, Calif.*

LEASING MOVABLE WALLS

Hauserman Co. offers a lease plan for its movable interior walls which overcomes the initial purchase cost for owners. Rent can be extended over ten years. *The E. F. Hauserman Co., 7516 Grant Ave., Cleveland 5, Ohio*

GLASS MURAL

Three layers of glass interspersed with color and glass chips melted into one unit make up glass murals



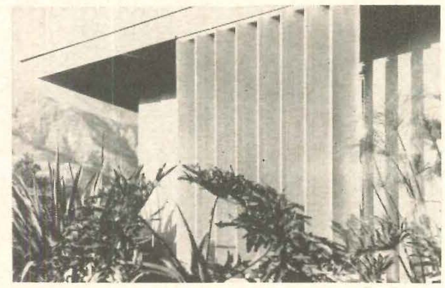
in both custom and standard designs. Lighting can be used for changing effects. *Leonard Rodier Co., 187 Lafayette St., N.Y. 13, N.Y.*

ELECTRIC HEATERS

Easy-to-install supplemental electric heaters are designed for use with any forced air system. The *1200 Series* incorporates a silent switch which gives instant response. *H. W. Tuttle & Co., 808 Evans St., Tecumseh, Mich.*

ADJUSTABLE ALUMINUM LOUVERS OF MANY COLORS

An inside crank permits setting adjustable aluminum louvers to any desired angle. The units are available in a variety of permanent colors and



are designed to withstand winds of gale force. *Hasco Mfg. Co., 3827 E. Colorado Blvd., Pasadena, Cal.*

YOU SPECIFY THE FLOORING!

Let him

SOLVE THE MAINTENANCE PROBLEMS

Shoes are murder.

Stiletto-like high heeled slippers. Dress shoes. Work shoes. Day in and day out, they'll pound any flooring you specify . . . grinding in abrasive dust, dirt, even gravel . . . robbing it of its appearance and condition . . . leaving behind the scars of time and traffic.

How do you protect your building *and* your reputation against these floor-killers? Simple. Just hand over your floor maintenance worries and headaches to the gentleman behind the drum. He'll love it. Solving floor maintenance problems has been his way of life for an average of 19 years.

Your Man Behind the Huntington Drum has the ability and experience to create an *overall* maintenance program: for every area of your building . . . for every flooring material you specify. In his zeal, he'll even supervise the maintenance crews to make sure application is proper.

So why not call in our floor-oriented friend? Discuss with him the flooring you're about to specify, and dump the problem of its care into his lap. You'll lose a headache . . . and gain an ally.

SEE OUR CATALOG S IN SWEET'S

FILL OUT AND MAIL THIS COUPON

Huntington Laboratories, Inc.
Huntington, Indiana

Gentlemen: I would like a Man Behind the Huntington Drum to call on me to discuss floor maintenance.
(☐ Ask him to leave his drum outside.)

NAME ______ TITLE ______

FIRM ______

ADDRESS ______

CITY ______ ZONE ______ STATE ______

luxurious towel bar
in sparkling chrome

accessories

make the bath...

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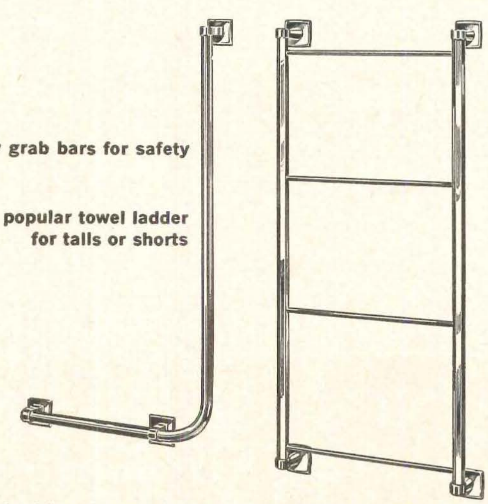

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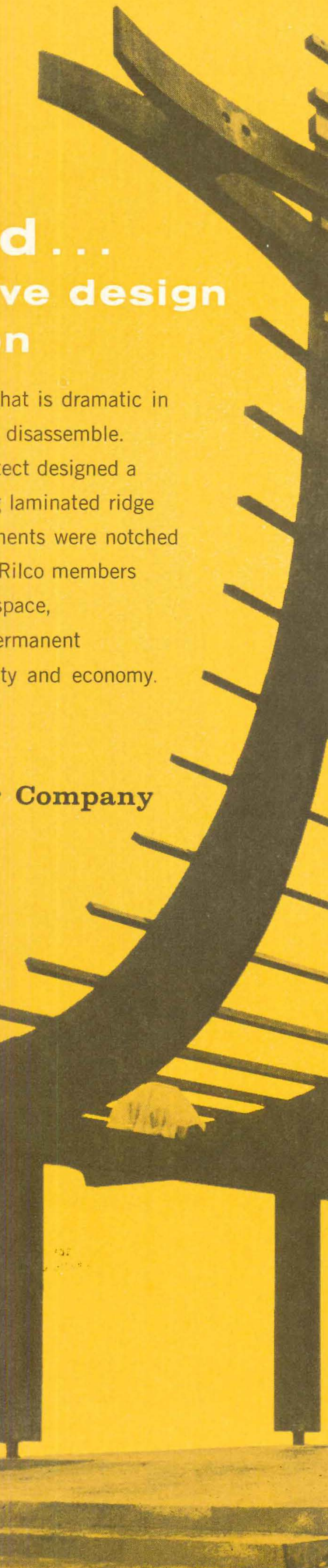
Rilco laminated wood . . .

the span between imaginative design and economical construction



The architect's assignment: create a temporary World's Fair shelter that is dramatic in appearance, yet simple in design, and make it economical to erect and disassemble. For this job, Rilco laminated wood members were a natural. The architect designed a symmetrical pattern of arches, and joined them to a gracefully curving laminated ridge member. Support was provided by sturdy glu-lam columns. All components were notched and bolted together to form a rigid framework. Precise engineering of Rilco members insured fast, low-cost assembly. The result: an inspiring silhouette in space, combining structural efficiency and architectural beauty. For your permanent structural systems, Rilco arches and beams offer the same versatility and economy. Field service engineers will assist you. See Sweet's Architectural Catalog File 2bRi and AIA File 19-B-3 or write Rilco Engineered Wood Products Division, Tacoma 1, Wash.

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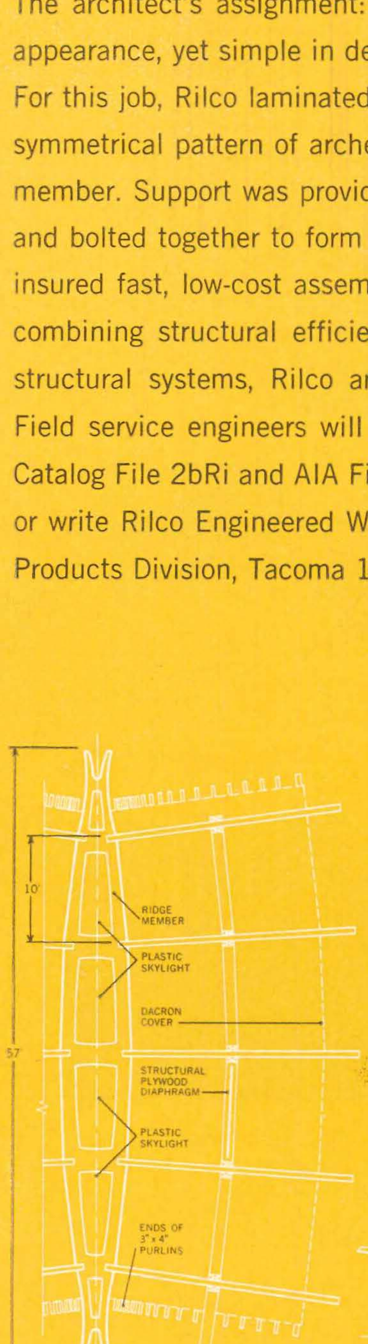
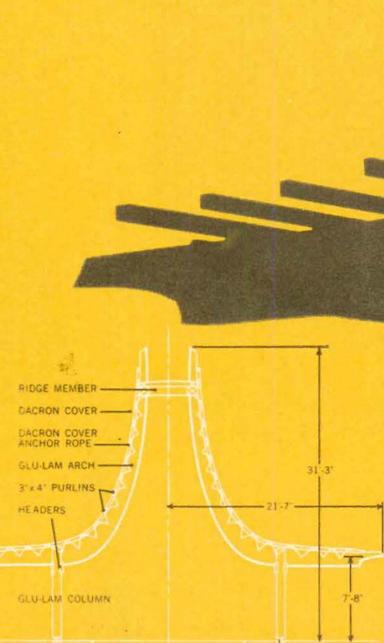
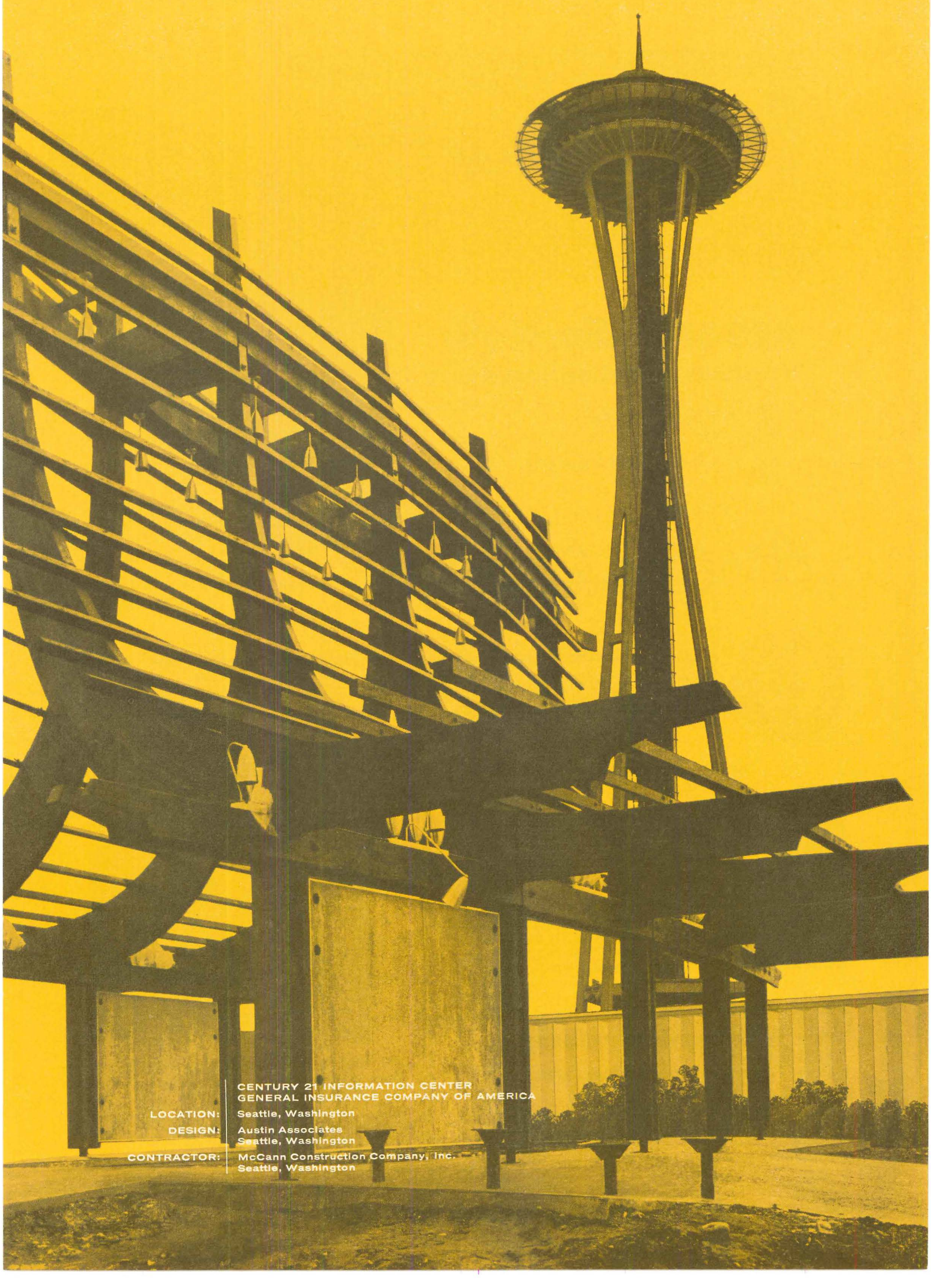




Ten Rilco arches rest on 3½" x 11⅜" spaced glu-lam columns. Spaced headers are 4" x 12" and 2" x 12", and the purlins are 3" x 4". The roof is a vinyl-coated dacron, anchored to the arches. Drop curtains are located in six bays and structural plywood diaphragms in the other two.



CENTURY 21 INFORMATION CENTER
GENERAL INSURANCE COMPANY OF AMERICA

LOCATION: Seattle, Washington

DESIGN: Austin Associates
Seattle, Washington

CONTRACTOR: McCann Construction Company, Inc.
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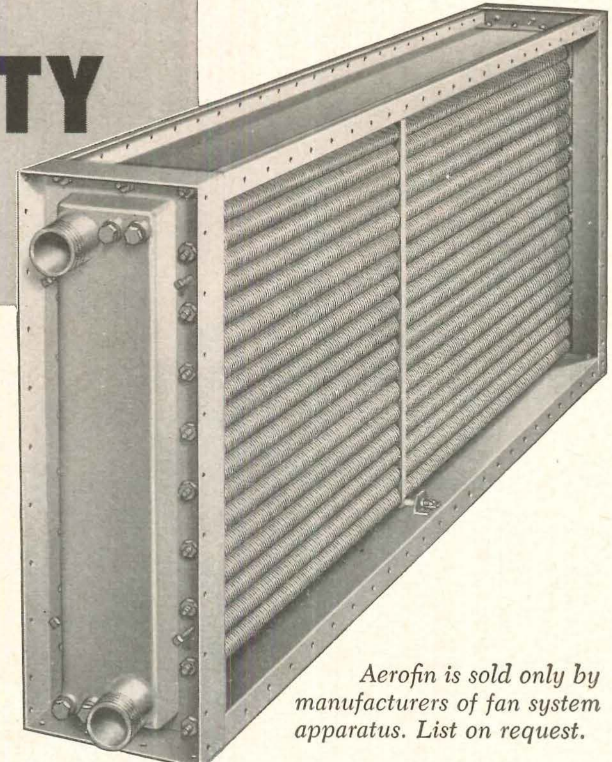

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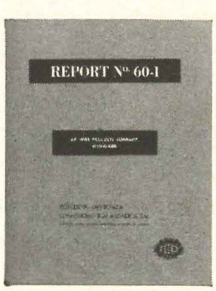

THE B.O.C.A. APPROVED BONDER
(Building Officials Conference of America)
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ELIMINATE BRICK HEADERS
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(Both Face Shells Shrink Equally.
Both Face Shells Must Be Reinforced)
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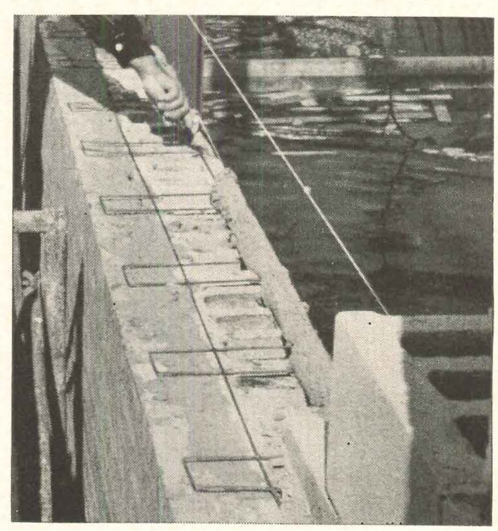
(Double bond is provided into hollow masonry back-up where only face shell mortar bedding is used)



Made of all 3/16" wire or all #9 wire. Made in 12 foot lengths with 4" wide box ties 16" O.C. (9 ties per length). Available finish: Galvanized box ties with brite basic side rods; all mill galvanized wire; hot-dipped galvanized after fabrication.

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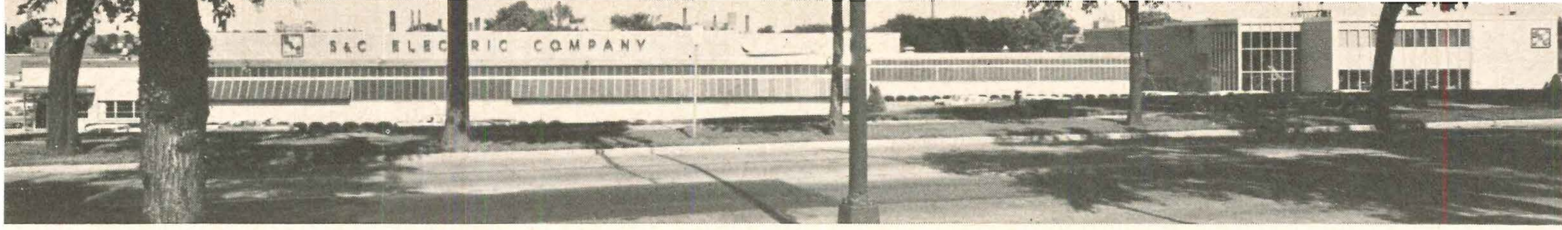
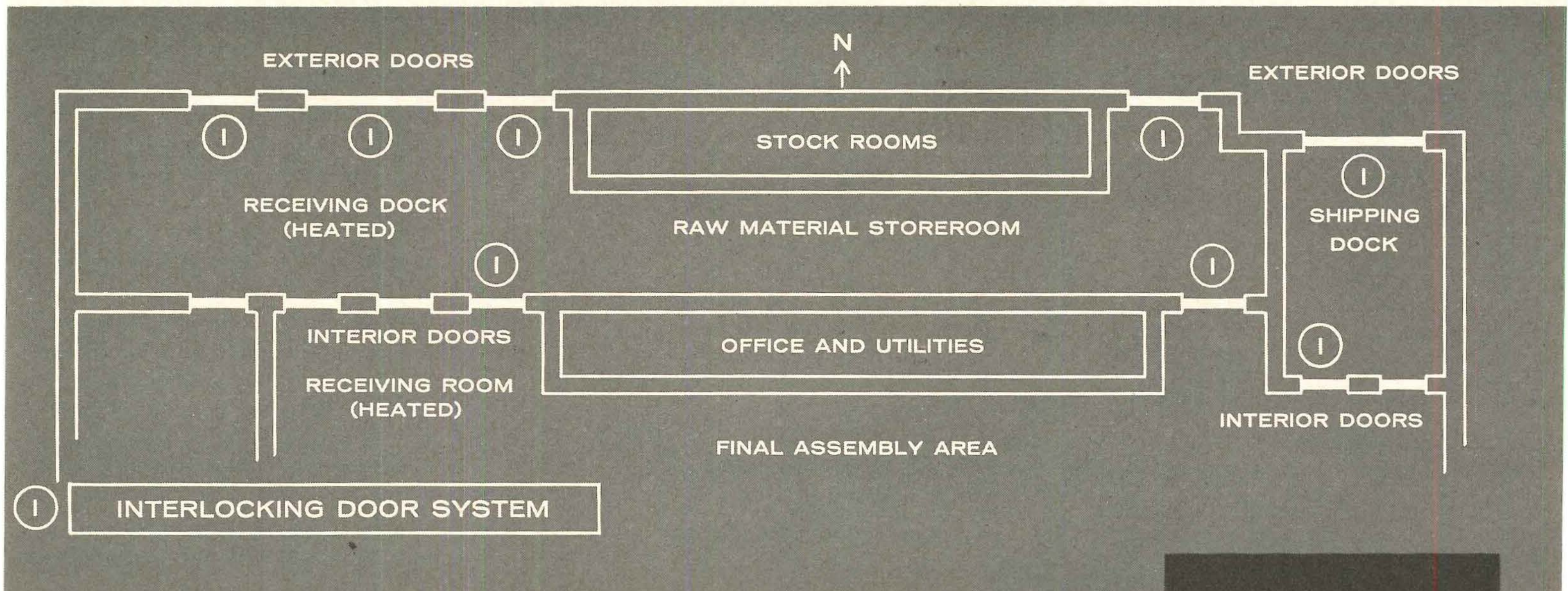


How Barber-Colman OVERdoors save hundreds of dollars on heat, improve employee comfort at S&C Electric Company



With rapidly expanding production calling for changes in plant layout, S&C Electric Company, Chicago, manufacturer of high-voltage circuit-interrupting devices, questioned the efficiency of its original door system. Was it in step with today's procedures? Was it providing the heat saving and protection necessary under new conditions? Here are some of the things they found out through a Barber-Colman study:

PROBLEM: When first occupied, the plant had only the five *exterior* receiving and shipping dock doors along its north wall. Since adjacent areas were used mainly for storage, interior doors were not necessary. But later, as growing numbers of production and office employees were moved to these areas they were subjected to wintry air blasts when doors were opened. Adding further complication to the problem was installation of an extra-heavy-duty exhaust system, which pulled in unusually large amounts of outside air when doors were opened. Result was even more employee discomfort . . . *plus* greatly increased cost for heating this extra volume of cold air.

SOLUTION: Installation of Barber-Colman Cam-Action Sealing OVERdoors with electric operators at *interior locations* and electrically interlocked with exterior doors. This Barber-Colman interlocking system prevents exterior and interior doors from being opened at the same time . . . forms an "air lock" in a relatively small area . . . holds cold air back from other plant departments. Exterior doors, which are also electric-operated Barber-Colman Cam-Action Sealing OVERdoors, were completely checked out for top operating efficiency.

With these improvements, employees are far more comfortable . . . heat savings are conservatively estimated at hundreds of dollars annually.

PROBLEM: Two large manually operated sliding doors were often left open for considerable lengths of time and opening/closing cycle was long. Cold air was let in . . . time was lost operating the doors by hand . . . machine operators often had to leave their work to help others push doors open or shut.

SOLUTION: Installation of Barber-Colman electric operators with special controls on both doors. Doors now open/close quickly to cut heat loss . . . and a substantial amount of production time (cost) is saved.

Do your clients' door systems meet the needs of their plants today? How much may inefficiencies be costing? Let the Barber-Colman AID (Analyze Inefficient Doors) Plan help you find the answers, too. Write today.

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helping industry boost efficiency

AID

Analyze Inefficient Doors

Analyze Inefficient Doors for your clients. The Barber-Colman 41-point checklist analysis can help prevent costly losses in production, labor, door repair, and maintenance. Hundreds of plants have saved thousands of dollars. See your yellow pages for the nearest Barber-Colman office—or write direct!

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C.S.I. ASKS "CHALLENGERS" TO ANNUAL MEETING; EDUCATION IS THEME FOR R.A.I.C.; FOOD SERVICE TOPIC AT CORNELL

C.S.I. Makes Challenge Its 1962 Convention Theme

"The Challenge of the Construction Industry" is the theme of the sixth annual convention of the Construction Specifications Institute, to be held April 23-25 at the Biltmore Hotel in Atlanta.

Representatives of C.S.I.'s four categories of members—architects, engineers, contractors and producers—have been invited to review and comment on C.S.I. activities.

Speakers will include Howard B. Cain, A.I.A., of Cleveland, a member of the Specifications Committee of the American Institute of Architects and president of the Architects Society of Ohio; George W. Poulsen Jr., of Salt Lake City, treasurer of the Consulting Engineers Council; C. P. Street of Charlotte, N.C., a past president of the Associated General Contractors of America; and Elmer A. Lundberg of Pittsburgh, president of the Producers' Council.

Sir William Holford Named As Keynoter for R.A.I.C.

Architectural education will be the theme of the 55th annual convention of the Royal Architectural Institute of Canada May 30-June 2 in Vancouver, and the keynote speaker will be Sir William Holford of London, noted British planner and educator and president of the Royal Institute of British Architects.

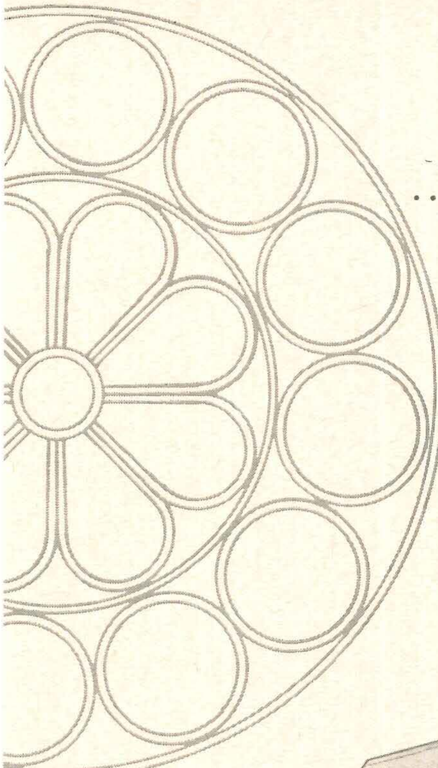
Plans are under way to bring a second foreign visitor to the Vancouver meeting—Torao Saito of Tokyo, editor of *This is Japan.*

Food Service Seminar Planned At Cornell

A seminar on food service design planned for architects will be held at the School of Hotel Administration, Cornell University, April 30-May 3.

The seminar is co-sponsored by the New York Chapter of the American Institute of Architects and the School. It will present authorities on food service and food service design from the field as well as Cornell experts.

For details, write: Prof. J. William Conner, Statler Hall, Cornell University, Ithaca, N.Y.



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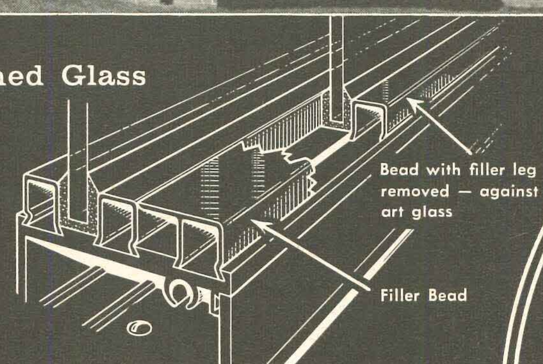
to the most daring contemporary...

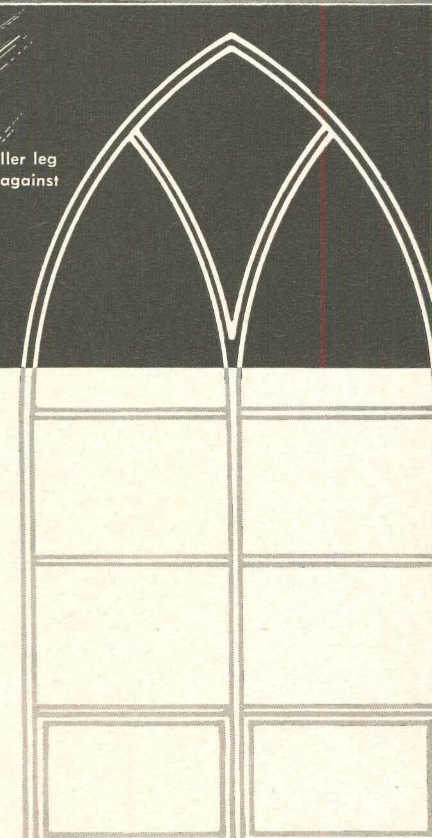
special glazing beads in MARMET CHURCH WINDOWS

St. John's Lutheran Church Strongsville, Ohio Architects: Wefel & Wefel Shaker Heights, Ohio

...Simplify Future Change to Stained Glass

Frame extrusions in the Church Series provide for triple glazing beads. In many cases where a church building is glazed originally with clear or obscure plate, a special, interior filler bead snaps in as a finish cover over two bead slots. When stained or art glass is added later, the filler bead, cover leg (which is scored) simply snaps off to receive the art glass.





Few structures have such unusual fenestration requirements as churches . . . both in form and in large expanses of glass. There are many reasons . . . beyond their gleaming permanence, to specify MARMET aluminum windows. The Series 100-160 framing is extruded on special dies for a frame depth of either 2¾″ or 5″. Use of MARMET's 12″ section (also available in this series) permits bays up to thirty feet in height *without* steel reinforcing or other intermediate support. A choice of heavy or thinline muntins provides varying effects for delicate or massive treatment.

Whether you are designing the traditional gothic or a daring contemporary edifice . . . MARMET church windows are engineered to achieve the correct effect . . . both in function and form.

For additional information on the complete line of MARMET products — consult Sweet's Catalog or write MARMET.

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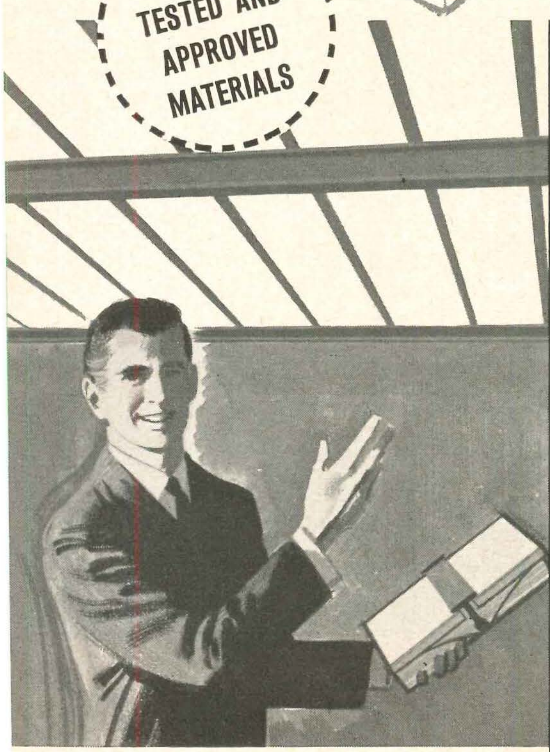

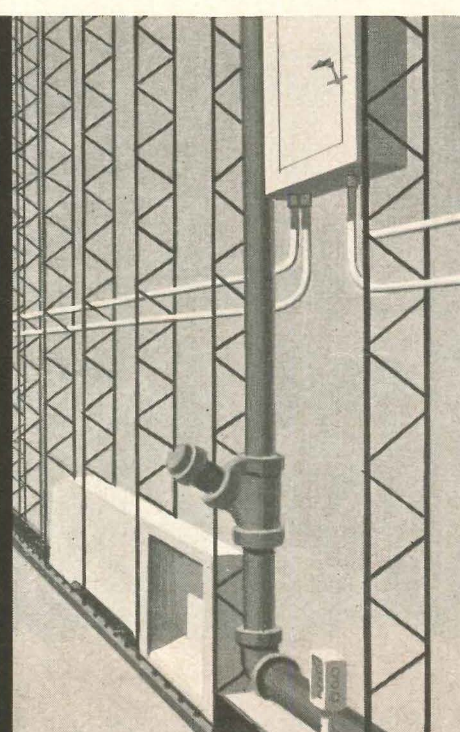

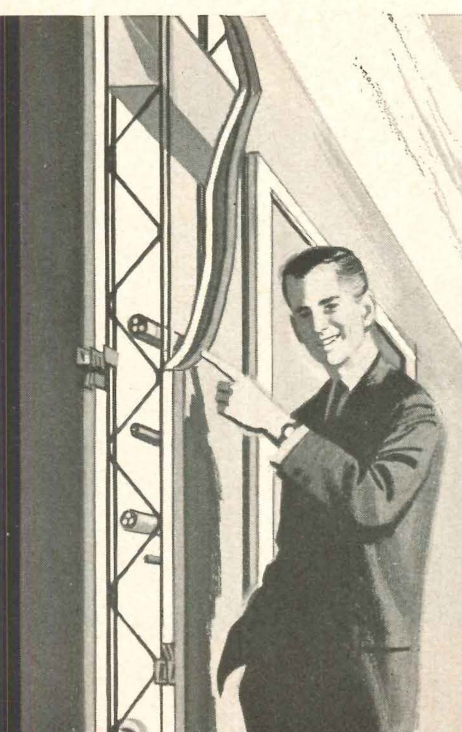

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PYROFILL* Gypsum Concrete Roof Decks offer unique advantages in low-cost fire protection, design flexibility and structural integrity. A variety of U.S.G. Formboards are available to meet specific design requirements by providing high insulating, acoustical and light reflecting properties.

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The TRUSSTEEL* Stud System takes pipes, conduits easily. Needs little maintenance and gives excellent fire resistance, sound transmission loss and low *over-all* construction cost. (Note: 1⅝" stud may be substituted for concrete block without necessitating a change in engineering drawings.)

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ROCKLATH* Plaster Base and RED TOP* Plaster provide economical, durable, easily decorated and maintained finishes for walls and ceilings—and give maximum fire protection. The broad TEXOLITE* paint line gives "color control" in classrooms—and practically every school area.

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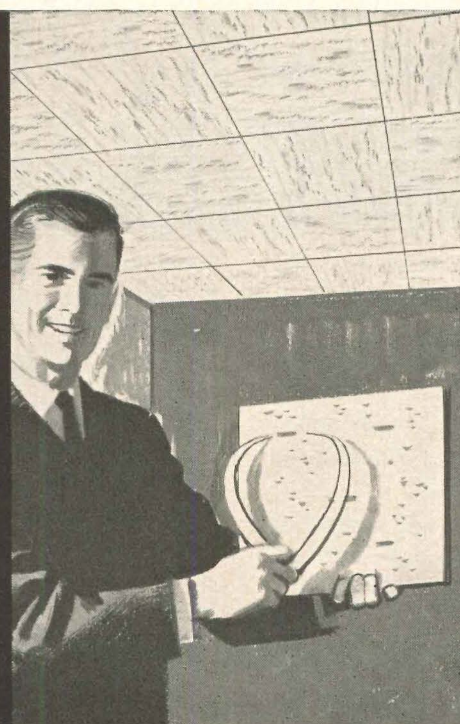

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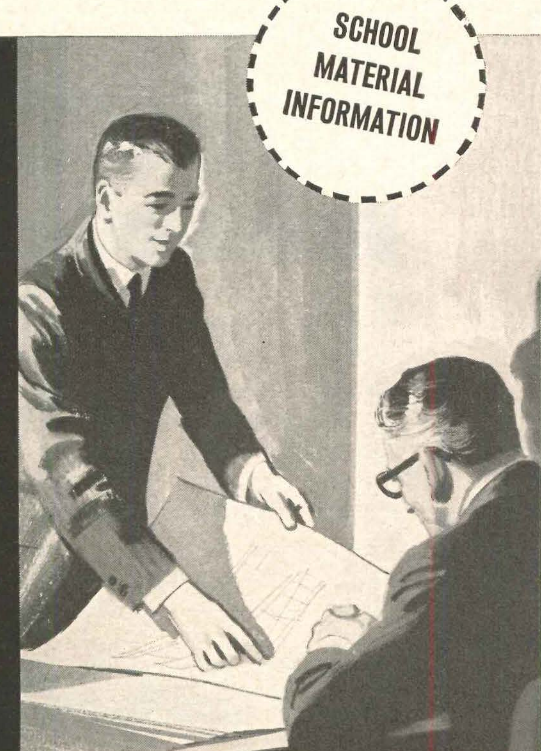

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A greatly expanded service, to provide you with information on the broad lines of U.S.G. products and systems, and their application to your design ideas. News, too, about the latest developments in U.S.G. research into better ways to build, modernize and expand schools.

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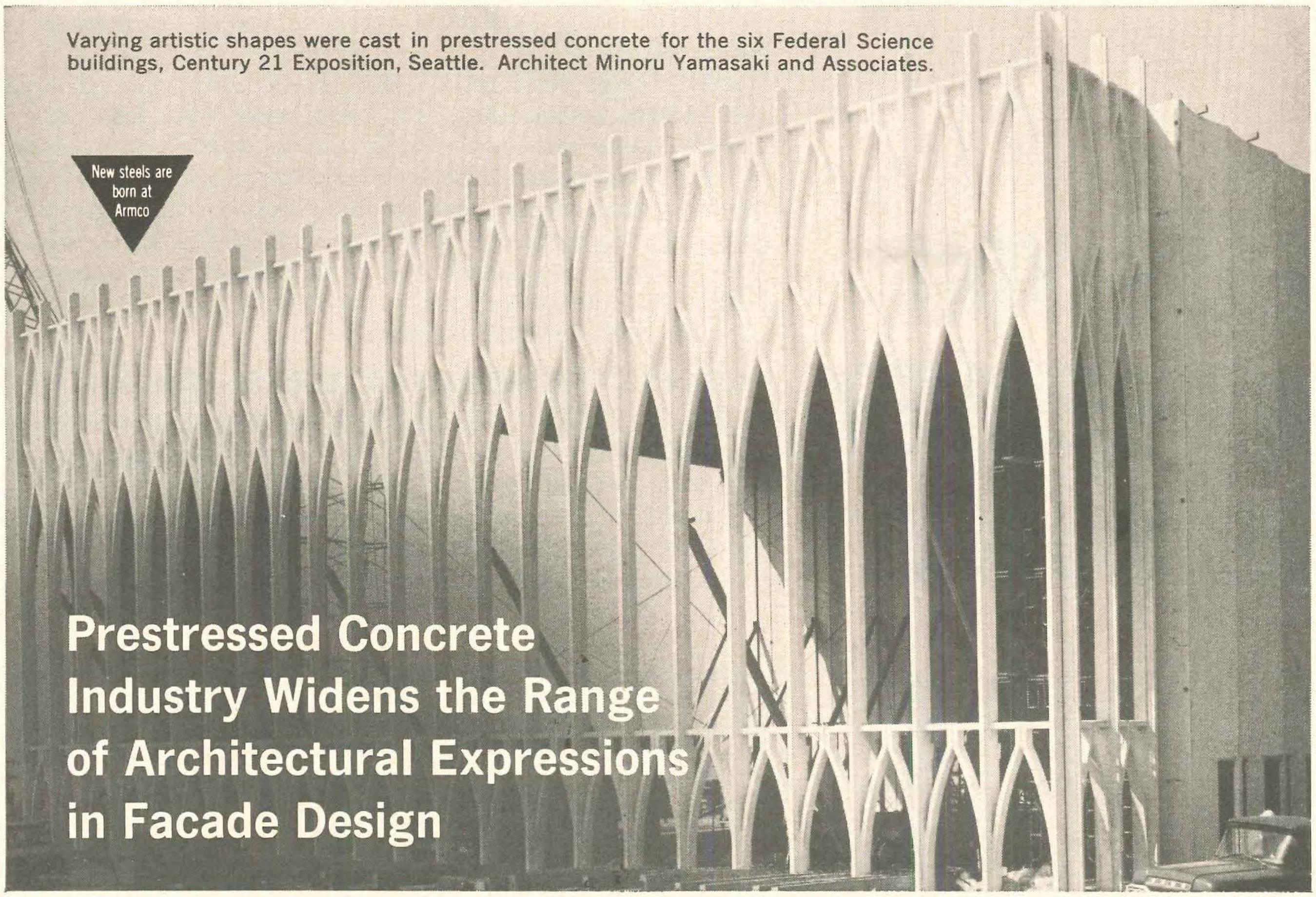


In your search for materials with which to put warmth, depth, and texture in building facades, have a look at prestressed concrete.

Relatively new developments in forming materials, such as fiberglass, enable the prestressed concrete industry to prestress wall panels into any shape and with many textures. These may be flat and used as curtain walls or shaped to double as wall-bearing members.

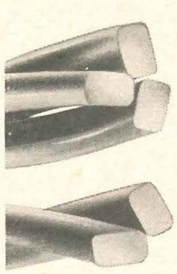
You can get away from the monotony and confining limitations imposed by conventional materials in many ways. Unique and striking architectural effects are sculptured in panels. Surface finishes may be textured, glossy smooth, or sheenless smooth. Colorful aggregate materials may be exposed. Almost limitless choice of colors may be integrated in the architectural concrete mix.

Surfaces are free of open air or water pockets. Since prestressed members remain crack-free, a maintenance-free building exterior is produced.

Have your prestressed concrete producer show you the possibilities of this new wall panel technique and its many economic advantages.

UNION *Wire Rope*

Increases Bond Strength 100% With New Tuf-Lock Strand



Union Wire Rope research developed this new strand to enable the industry to move still further ahead.

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

Note the shape of the wires. A locking action takes place as the strand, in seeking release from tension, tends to orient itself. A gripping effect is set up in the concrete locking the strand all along the axial path of the shaped wires.

Write **Union Wire Rope, Sheffield Division, Armco Steel Corporation, 2312 Manchester Ave., Kansas City 26, Mo.,** for brochure on Tufwire Prestressing Products.

ARMCO Union Wire Rope

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Architect: Schafer, Flynn & Williams; contractor: The Hunkin-Conkey Construction Co.; structural engineer: Barber, Magee & Hoffman.

BETHLEHEM STEEL SLABFORM
cuts concrete forming costs

To house the medical research department at Cleveland's Lakeside Hospital, a new wing was constructed with 6 floors and roof of Bethlehem Steel Slabform, used as a permanent form.

ECONOMICAL FORM FOR STRUCTURAL SLABS— The heavier Slabform weights are particularly suited for forming reinforced structural slabs on spans up to 8 ft without intermediate supports. Savings up to one-third over conventional forming have been realized on actual jobs.

COVERS THE FLOOR AREA QUICKLY, resulting in lower labor cost. And because Slabform is a permanent form, the entire cost of stripping is saved.

Design load capacities, suggested specifications, and other information appear in Sweet's Architectural File. The nearest Bethlehem sales office would be glad to send full details or talk with you about your job. No obligation, of course.

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A.G.C. ANNUAL CONVENTION OPPOSES SHORTER WORK DAY AND SUPPORTS SINGLE CONTRACT

A.I.A. President Philip Will, Jr., Tells Contractors of Plans to Combat Package Dealers, Asks Support; Frank F. Burrows Installed as A.G.C. President

Resolutions opposing the shorter work day and reiterating support of the single contract method of construction were among the 14 resolutions approved by delegates to the 43rd annual convention of the Associated General Contractors of America, held February 26-March 1 at the Biltmore Hotel in Los Angeles.

The resolution on the work day, unanimously approved, protested settlements such as the recent New York electricians' pact (March, page 12) where a portion of the increases granted was in the form of a reduction in the stated work week. This, the A.G.C. resolution said, did not contemplate any reduction in the hours actually worked and was made at a time when there was no current unemployment problem with the affected craft. The resolution took a strong stand against shortening of the work day or week as a disguise for wage increases in the form of an assured increase in overtime.

Architects Ask Support

A strong plea for the continued cooperation of the general contractors with architects was made by Philip Will, Jr., of Chicago, president of the American Institute of Architects, in his address to the convention.

Mr. Will described the current plans of the A.I.A. to combat the increasing competition of the package dealer by expanding architectural practice to include most of the services now offered by the package dealer but on a strictly professional basis. The new services would include site assembly and financing: "and for construction," said Mr. Will, "we can offer the well-known advantages of competitive bidding by qualified general contractors."

New Officers Installed

Frank F. Burrows, president of the Belmont, Calif., firm of Williams & Burrows, Inc., was installed as president of A.G.C., succeeding M. Clare Miller of the San Ore Construction Co., McPherson, Kan.

Other officers installed were Charles Keller Jr., head of Keller Construction Corp., New Orleans, who succeeded Mr. Burrows as vice president; and Arthur S. Horner, of A. S. Horner Construction Co., Denver, re-elected secretary-treasurer.

William E. Dunn succeeded the late James D. Marshall as executive director last year.

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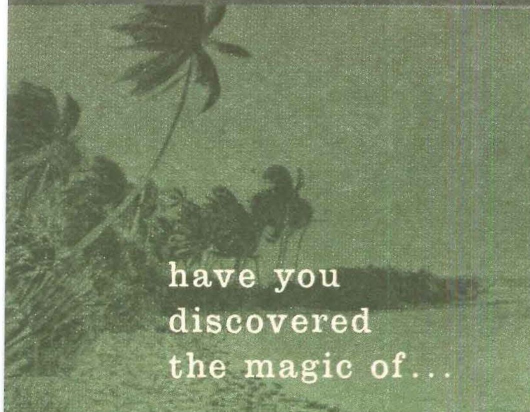

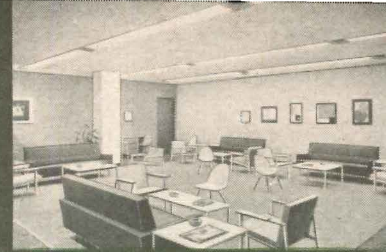

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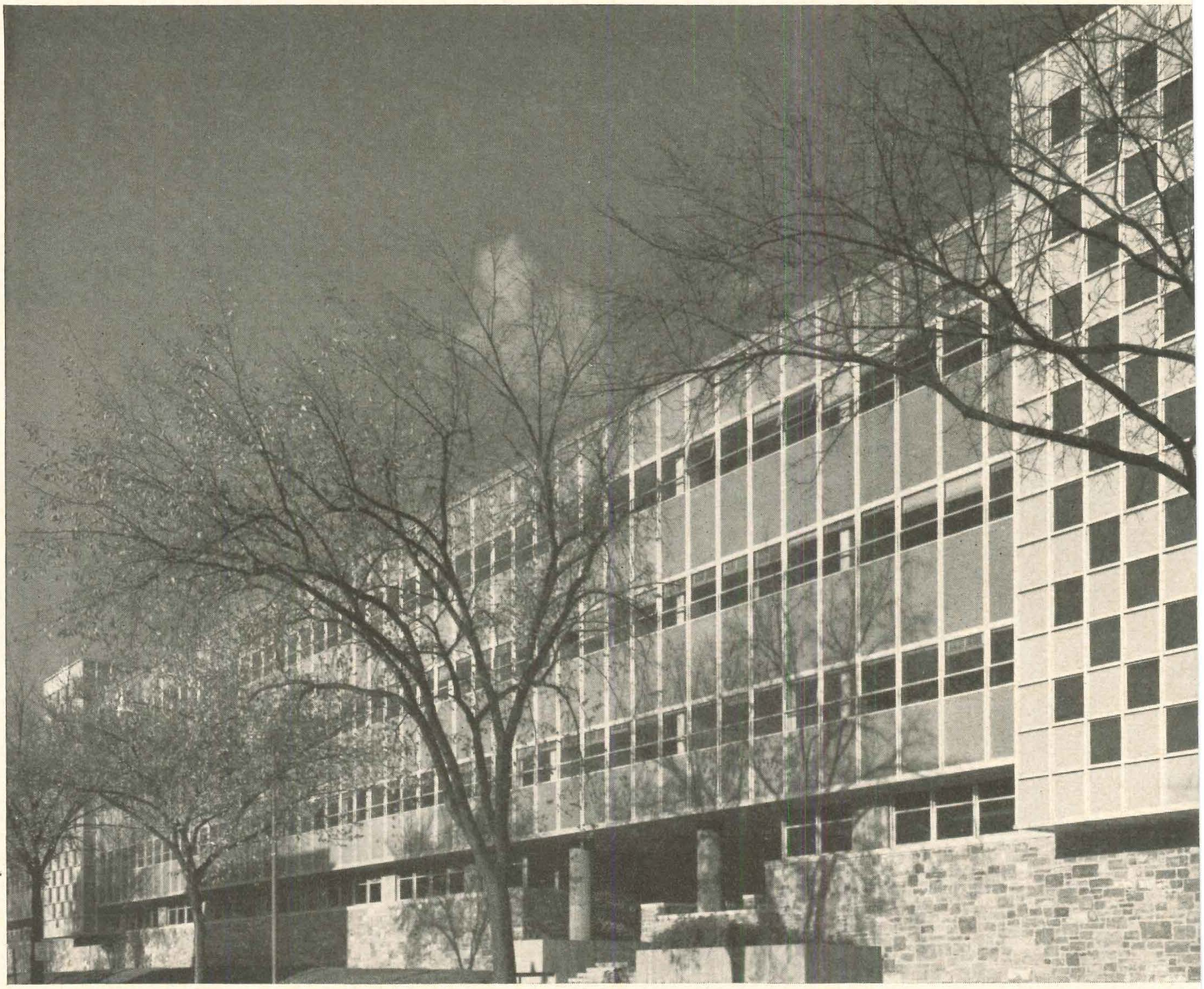
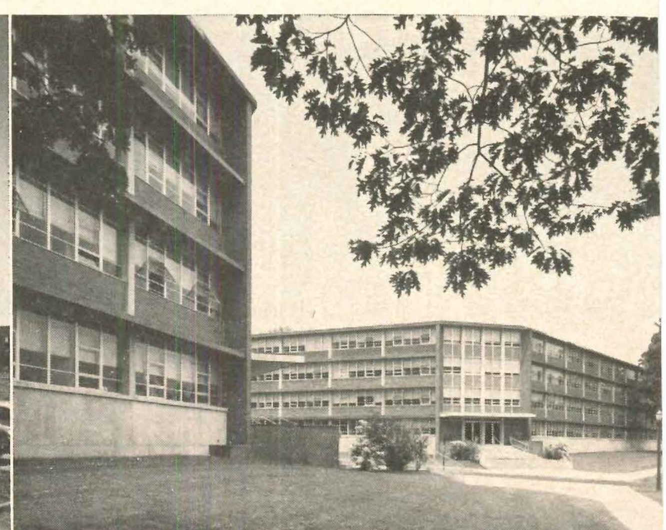
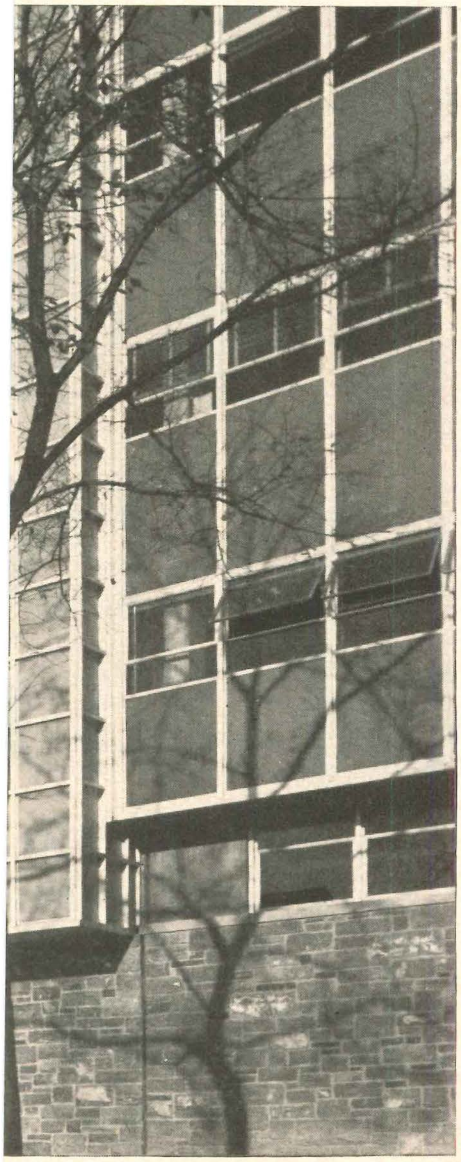


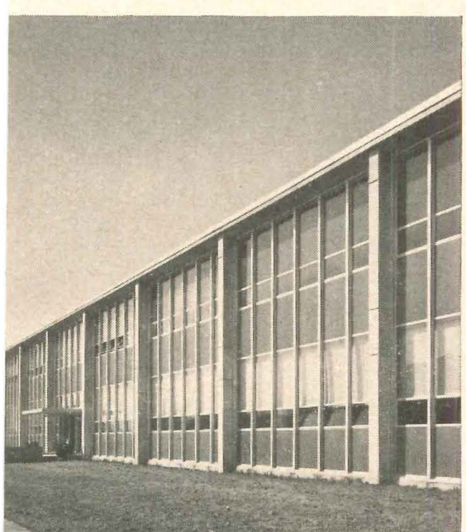
Hammond Engineering Building, Pennsylvania State University, University Park, Pa. Architects and Engineers: Howell Lewis Shay & Associates, Philadelphia, Pa. Contractor: S. H. Evert Company, Inc., Bloomsburg, Pa. Photo by C. V. D. Hubbard.

Women's Dormitories and Cafeteria, University of Missouri, Columbia, Mo. Architect: Hellmuth, Obata and Kassabaum, St. Louis, Mo. Contractor: D. C. Bass & Sons Construction Company, Enid, Okla. Photo by Piaget Studio.



Social Science & Humanities Building, University of Connecticut, Storrs, Conn. features Lupton engineered windows and curtain walls. Architect: Golden-Storrs, W. Hartford, Conn. Contractor: Jos. Rugo, Inc., Dorchester, Mass. Photo by C. V. D. Hubbard.





w Jersey State Teachers College, Montclair, N.J. chitect: Emil Schmidlin, E. Orange, N.J. Contractor: ırtin-Infante Co., Lodi, N.J. Photo by C.V.D. Hubbard.

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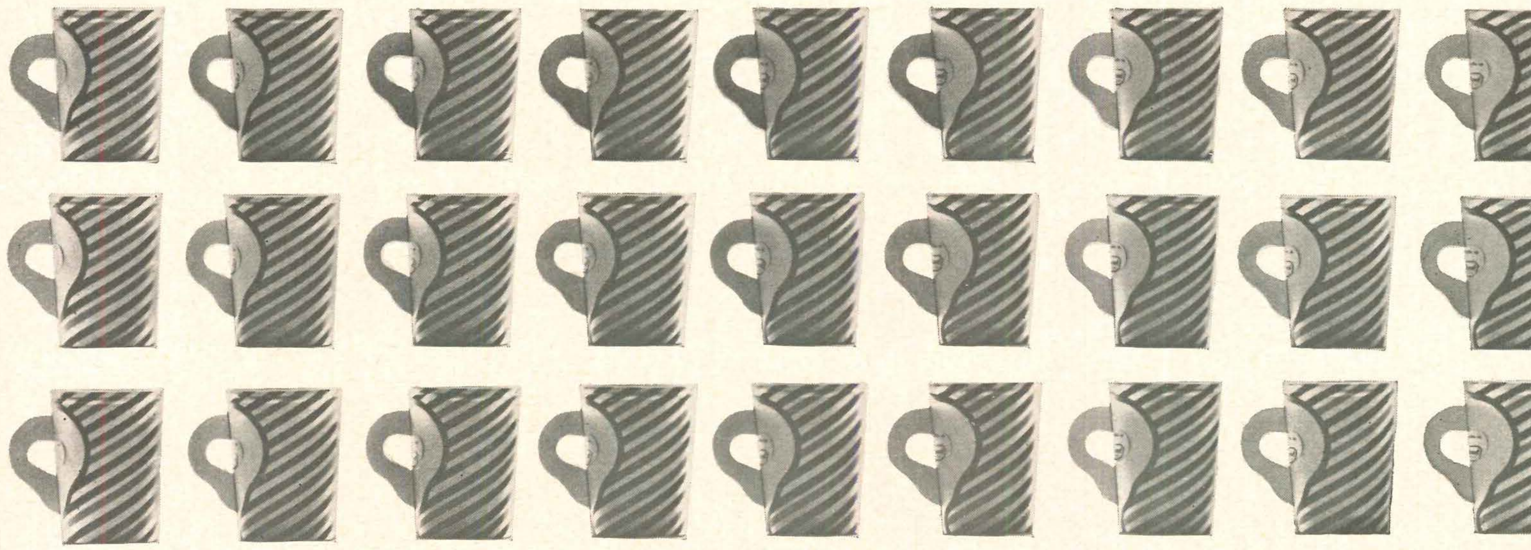

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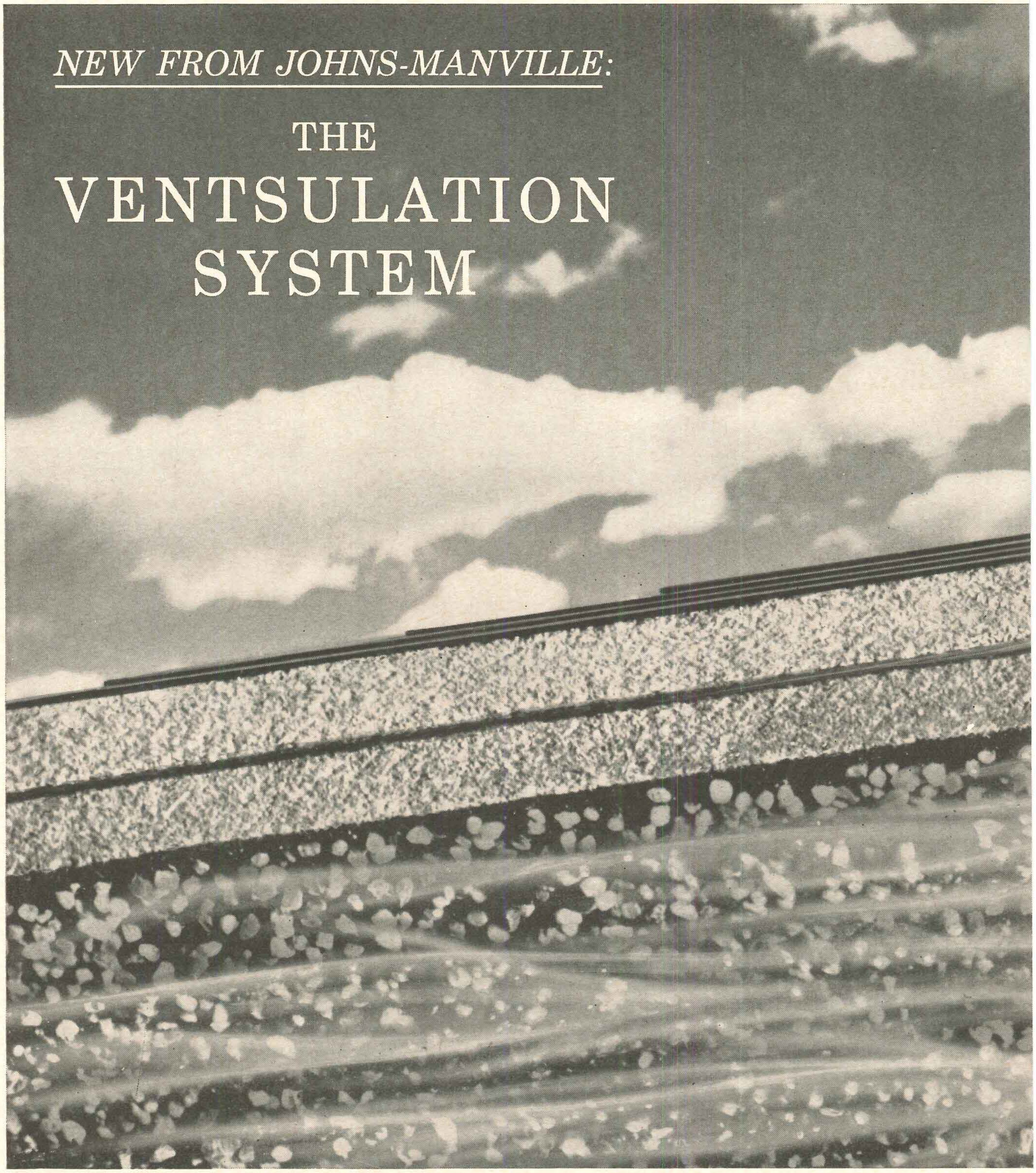

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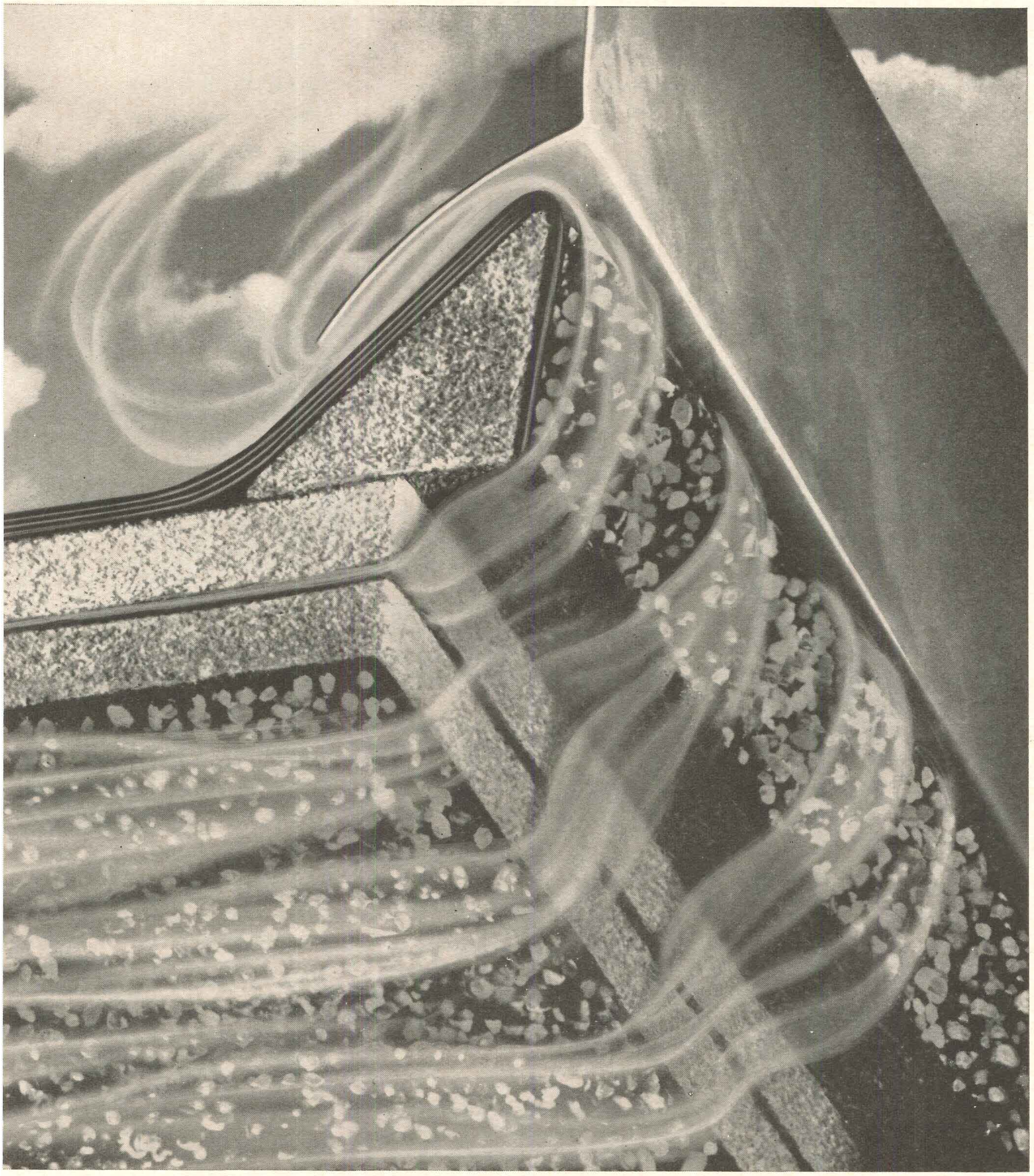

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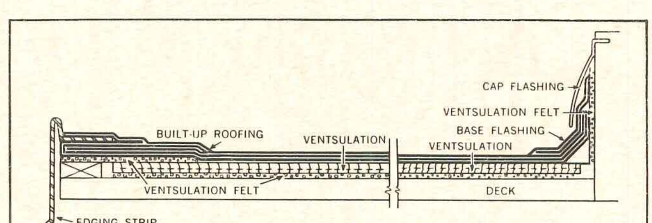

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On the Calendar

April

9-13 43rd Annual Convention and Welding Exposition, American Welding Society — Sheraton-Cleveland Hotel and Cleveland Public Auditorium, Cleveland

12-13 14th Annual National Engineering Conference, sponsored by the American Institute of Steel Construction—Deshler-Hilton Hotel, Columbus, Ohio

13-14 Sixth Urban Design Conference, sponsored by the Harvard Graduate School of Design and its Alumni Association; theme: "Designing Inter City Growth"—Harvard University, Cambridge, Mass.

23-25 Sixth Annual Convention, Construction Specifications Institute—Biltmore Hotel, Atlanta

24-26 Building Research Institute Spring Conferences—Shoreham Hotel, Washington, D.C.

27-28 Conference on Architectural Acoustics, presented by the University Extension Division Engineering Institutes—University of Wisconsin, Madison, Wis.

27ff 31st Annual Conference, American Institute of Decorators; through May 1—Jack Tar Hotel, San Francisco

29ff American Society of Planning Officials National Planning Conference; through May 3—Traymore Hotel, Atlantic City

30ff Design Engineering Show and Conference, sponsored by the machine design division of the American Society of Mechanical Engineers; through May 3—McCormick Place Lakefront Exposition Center, Chicago

May

5-7 Annual convention, Association of Collegiate Schools of Architecture—Sheraton-Dallas Hotel, Dallas

7-11 National convention, American Institute of Architects—Dallas

10-12 1962 Annual Meeting, Consulting Engineers Council—Royal Orleans Hotel, New Orleans

11-22 Sixth Annual United States World Trade Fair—The Coliseum, New York City

21-25 National Fire Protection Association's 66th Annual Meeting—Sheraton Hotel, Philadelphia

22-24 13th Annual Convention, Wisconsin Chapter, American Institute of Architects; theme: "Architects in

continued on page 292

Architects: Minoru Yamasaki and Associates, Detroit • Naramore, Bain, Brady & Johanson, Seattle
Engineers: Worthington, Skilling, Helle & Jackson, Seattle
Exhibit Designers: Walter Dorwin Teague Associates, New York • Charles Eames, Venice, California
General Contractors: Purvis Construction Company, Spokane
Prestressed Concrete Fabricator: Associated Sand & Gravel Co., Inc., Everett

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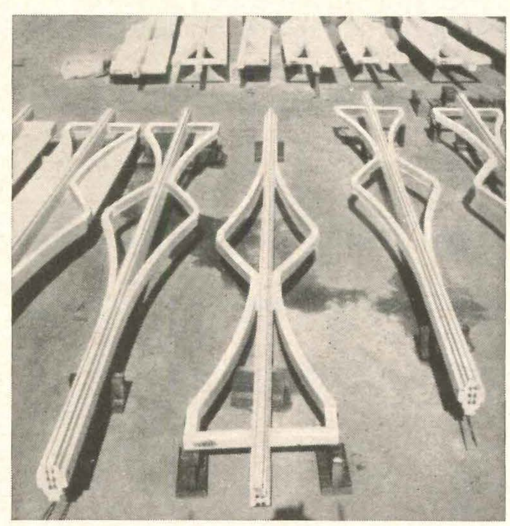

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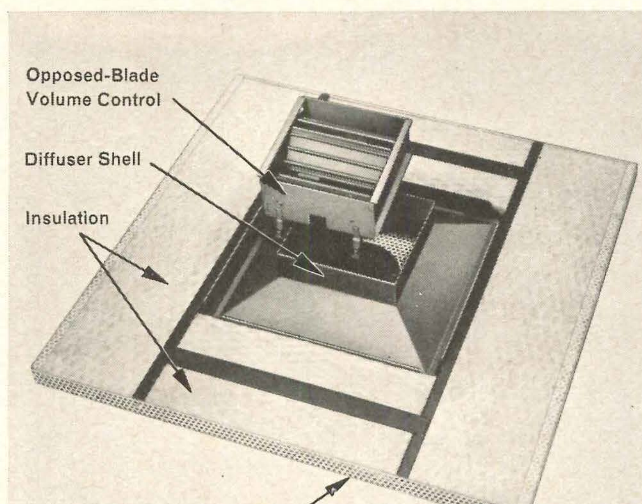

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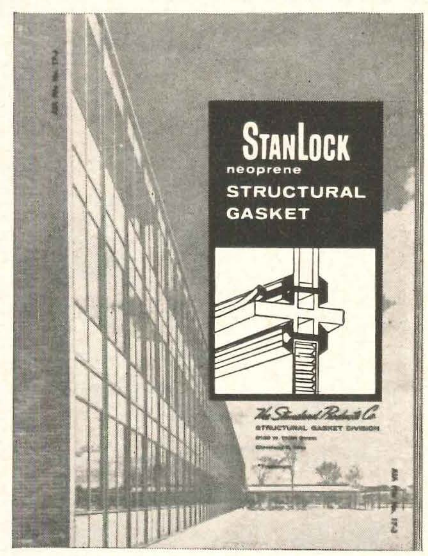

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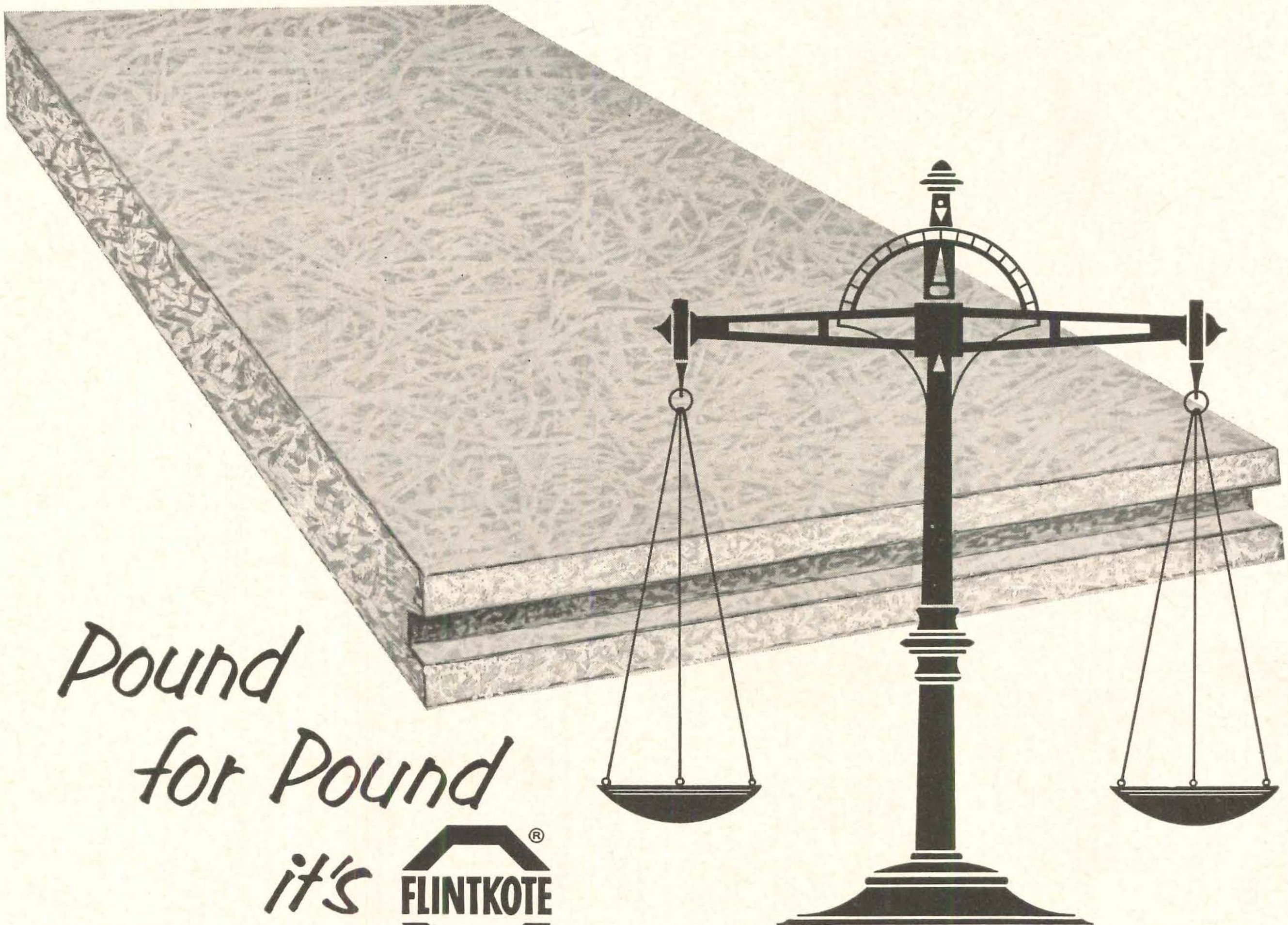

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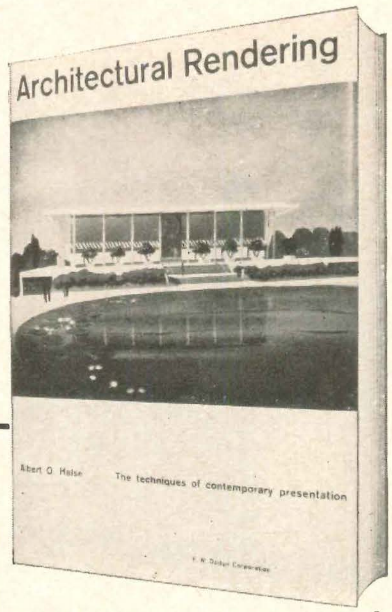

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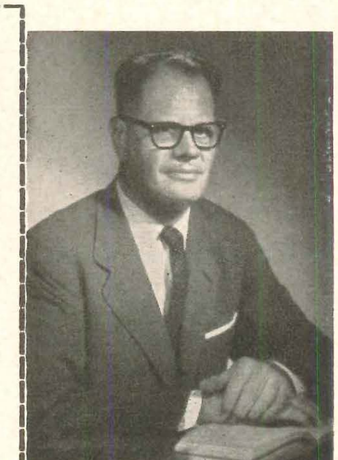
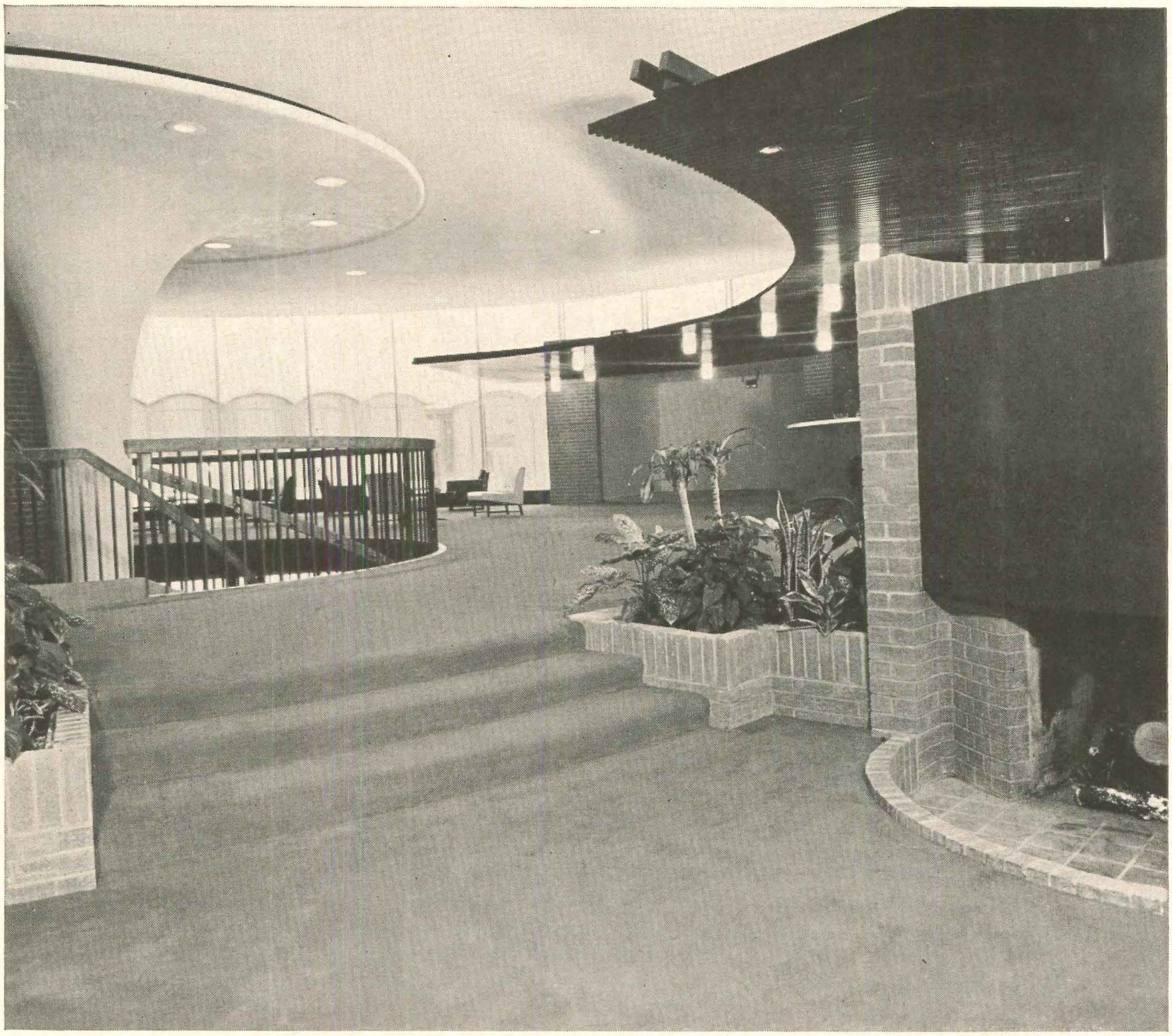


Albert O. Halse, A.I.A., one of the foremost teachers of delineation in the United States, has had 30 years of experience as a designer, architect, and professional renderer, and has been a successful color consultant and interior designer as well. For 13 years he has taught delineation at the School of Architecture, Columbia University, during which time he has been able further to develop, test, and prove the theories and principles of delineation set forth in this book. He is well known also as a practicing New Jersey architect, and he was recently honored by the Architects' League of Northern New Jersey for his distinguished service to the profession of architecture.



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On the Calendar
continued from page 284

Action"—Lake Lawn Lodge, Delavan, Wis.
27-30 Annual meeting, Air-Conditioning and Refrigeration Institute—The Homestead, Hot Springs, Va.
30ff 55th Annual Convention, Royal Architectural Institute of Canada; theme: "Architectural Education"; through June 2—Vancouver

Office Notes

Offices Opened

The architectural and engineering firm of **Katz Waisman Weber Strauss Joseph Blumenkranz** has opened new offices at 305 E. 45th St., New York 17.

John T. Collins, and Peter J. Baricev announce the opening of an office at 108 South Canty St., Pascagoula, Miss. The firm is to be known as **Collins & Baricev, Architects.**

New Firms, Firm Changes

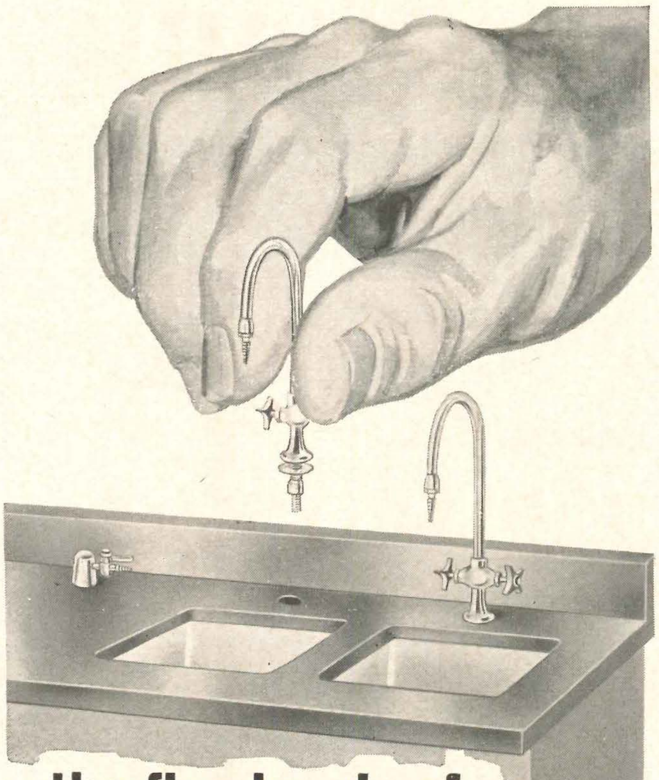
The new architectural firm, **Wimberly, Whisenand, Allison & Tong** succeeds the firm of Wimberly & Cook. The new company has taken over the practice of the Wimberly & Cook offices and occupies present quarters at 315 Royal Hawaiian Ave., Honolulu. Former partner Howard L. Cook will open his own Honolulu office. Associates in the new firm are George J. Wimberly, George V. Whisenand, Gerald L. Allison and Gregory M. B. Tong.

The firm name of Herman and Simons, Architects, 144 W. Lafayette Blvd., Detroit, Mich., has been changed to **Herman, Simons, and Bassett, Architects.** Included in the new corporation are: Aloys Frank Herman, Howard C. Simons, James M. Simons and Arthur F. Bassett Jr.

Valeton J. Dansereau has been appointed an associate in the firm of Curtis and Davis and Associated Architects and Engineers, New Orleans and New York City.

Robert G. Pease has become a full partner in the firm of S. Elmer Chambers, A.I.A., 205 Harrison St., Syracuse, N.Y. The firm continues under the name of **S. Elmer Chambers and Robert G. Pease, Architects, A.I.A.**

Named associates in landscape
continued on page 300



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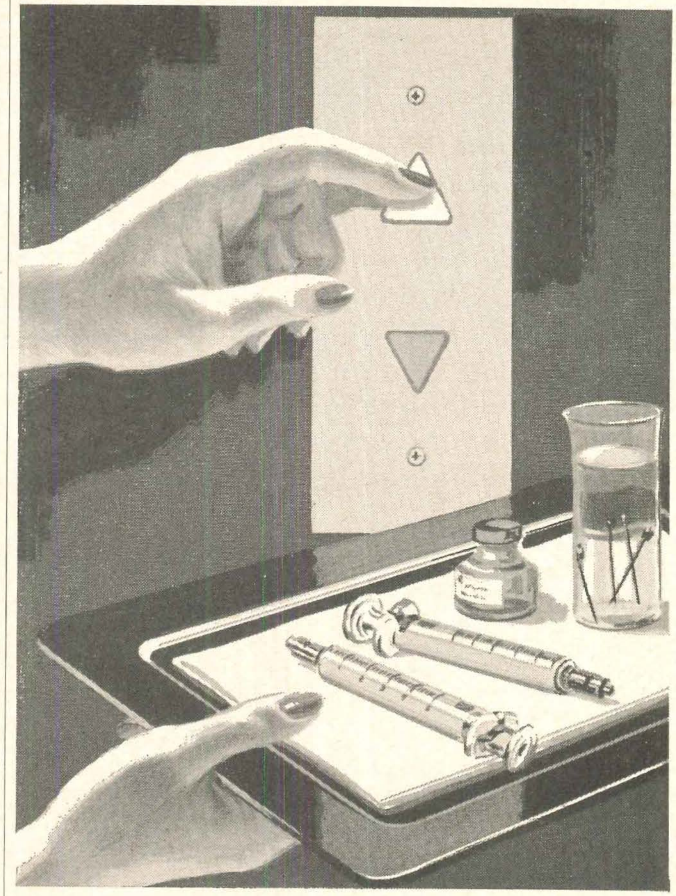

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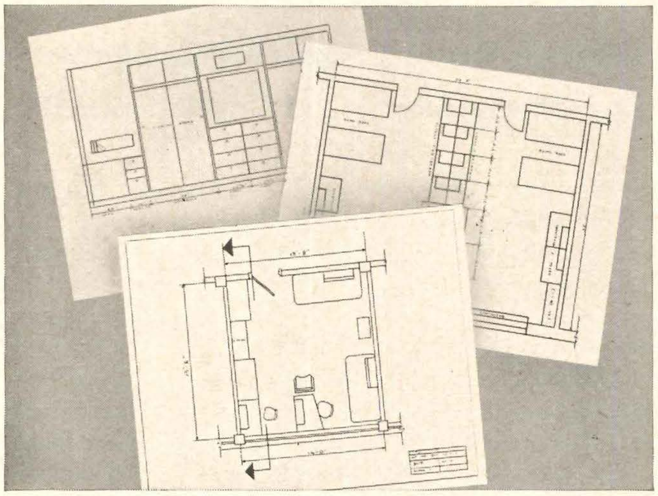

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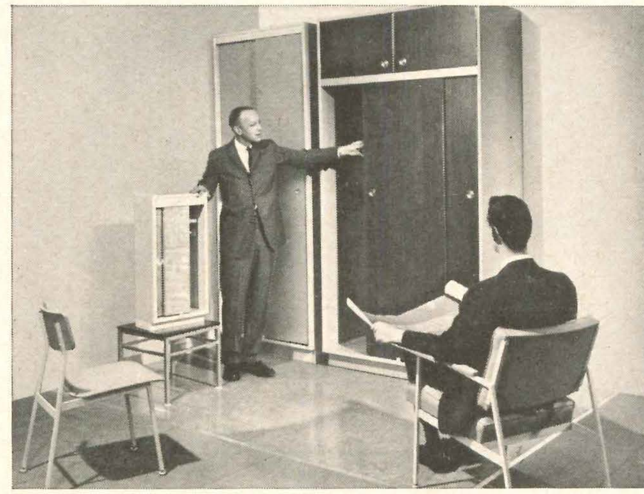

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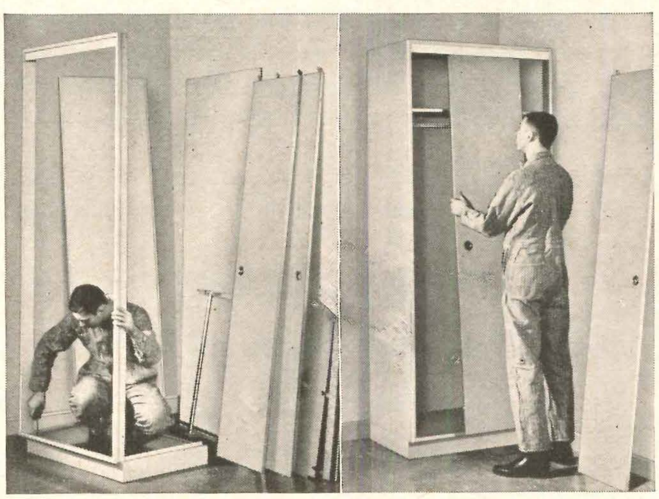

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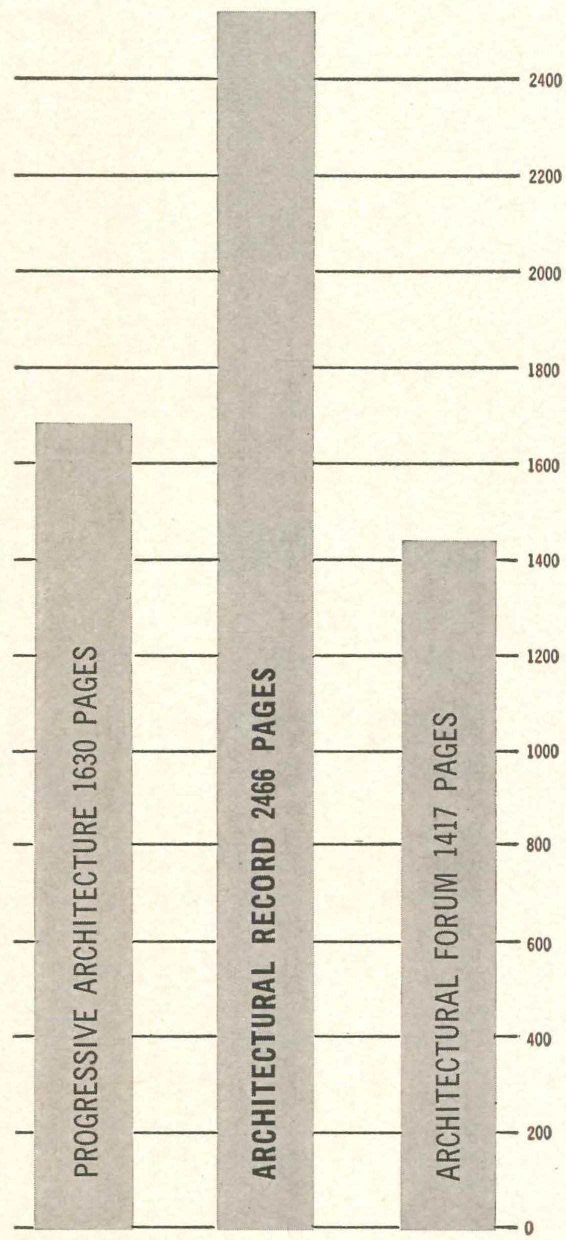

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Office Notes

continued from page 292

architecture and site planning in the firm of Morton S. Fine, Professional Engineer & Land Surveyor, Connecticut, Massachusetts, New York, are **Stanley R. Geda and Theodore M. Randmetz.**

William B. Wright, chief of survey, and **George W. Potter,** manager of the Los Angeles office, have been named new principals of Wilsey, Ham & Blair, Engineers and Planners, 111 Rollins Road, Millbrae, Calif.

Sioux City's director of planning, **W. Burnett Austin,** has joined Henningson, Durham & Richardson, Omaha-headquartered engineering and architectural firm.

Bertram Berenson and Edmund Glenny have formed a partnership known as **Berenson-Glenny, Architects,** 889 West McKinley St., Baton Rouge, La.

Herbert J. Koopman has become associate in charge of materials research and specifications with Hellmuth, Obata & Kassabaum, Inc., Architects, 315 No. Tenth St., St. Louis.

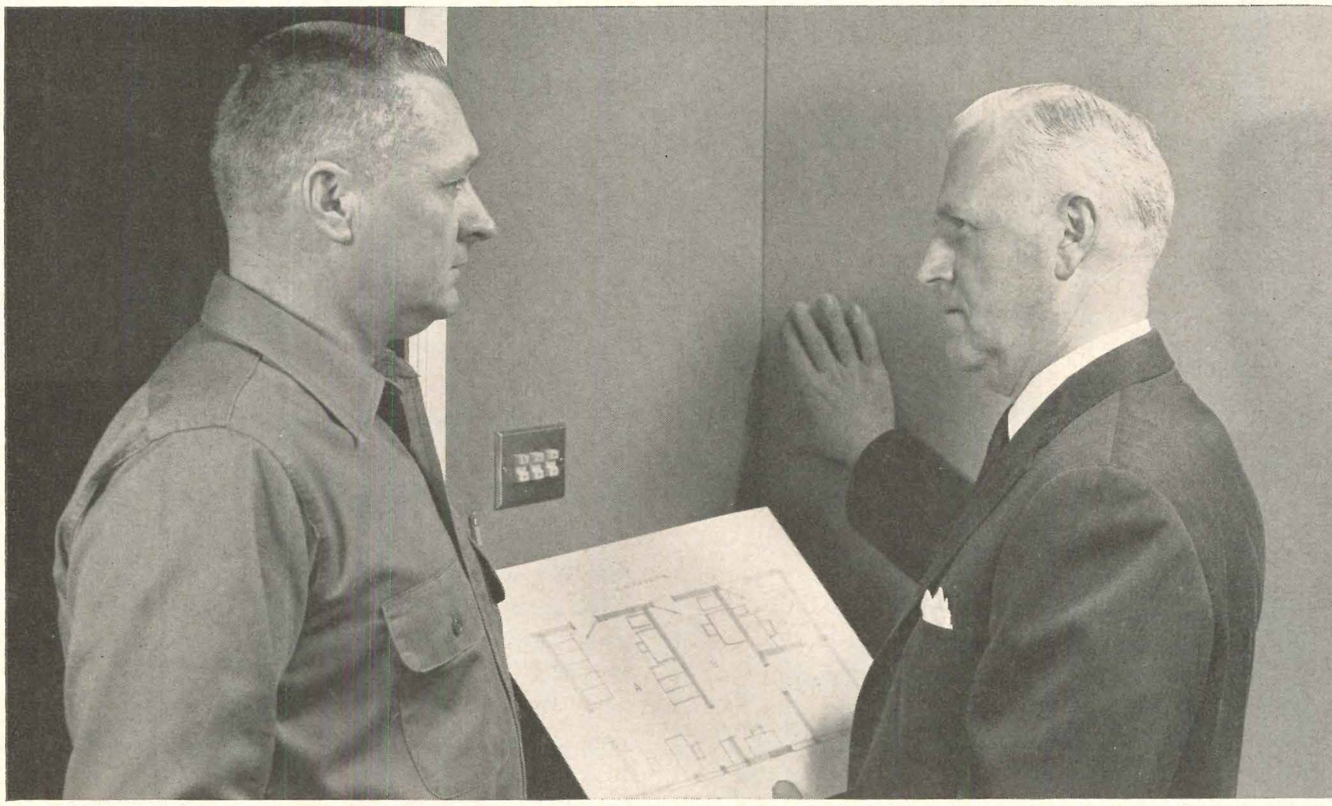
A.I.S.C. Invites Entries For Awards of Excellence

All registered architects practicing professionally in the United States are invited to enter the third annual Architectural Awards of Excellence Program for steel-framed buildings, sponsored by the American Institute of Steel Contruction.

Entries, to be judged by a professional jury, may be one building or a related group completed or occupied during 1961. Deadline for receiving entries is April 25. Address: A.I.S.C., 101 Park Ave., New York 17.

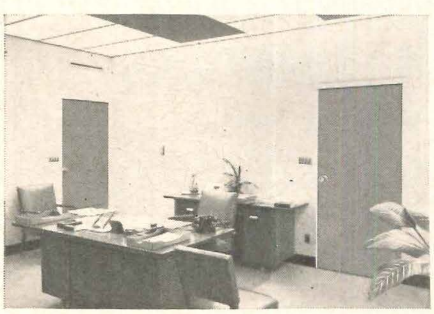
Addendum

In the February issue of AR, p. 13, credits on the National Geographic Society's new headquarters building in Washington, D.C. should have included: Henry Gorlin, structural engineer, and Costentini Associates, mechanical engineers.

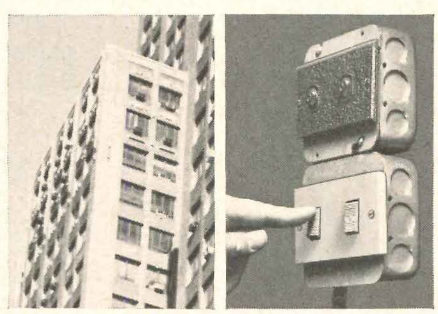


When movement of partitions involves high cost or work interruptions because of wiring to switches: Control above-ceiling lighting circuits with 24-volt General Electric Remote-Control wall switches and relays. Connections can be made on terminals in relay boxes, spaced along permanent walls. Changing switching to suit partition changes is then a fast, simple job!

When you have these lighting-control problems... G-E Remote-Control Wiring is your best solution



When more extensive switch control is needed, without increased costs of installation: General Electric low-voltage control circuits save expensive switch loops.



When centralized automatic or manual master control is required to reduce cost of electric power and lamp replacement by turning OFF needless lights: Use G-E Remote Control.

When specialized control devices for hospitals, homes for the aged, schools, etc. are wanted: Specify General Electric Remote Control. It's the most "flexible" wiring system.

When additional safety for high-voltage lighting systems is desirable: Call for G-E Remote Control. Its low-voltage relays isolate high voltages from wall switches.

Write for details about G-E Remote-Control Wiring. General Electric Company, Wiring Device Department, Providence 7, Rhode Island.

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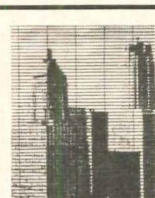

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SEVENTH ANNUAL
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That more and more millions of families may live in houses of sound design and individuality—be they custom-planned or ready-built—the editors of "Record Houses" have set themselves these goals:

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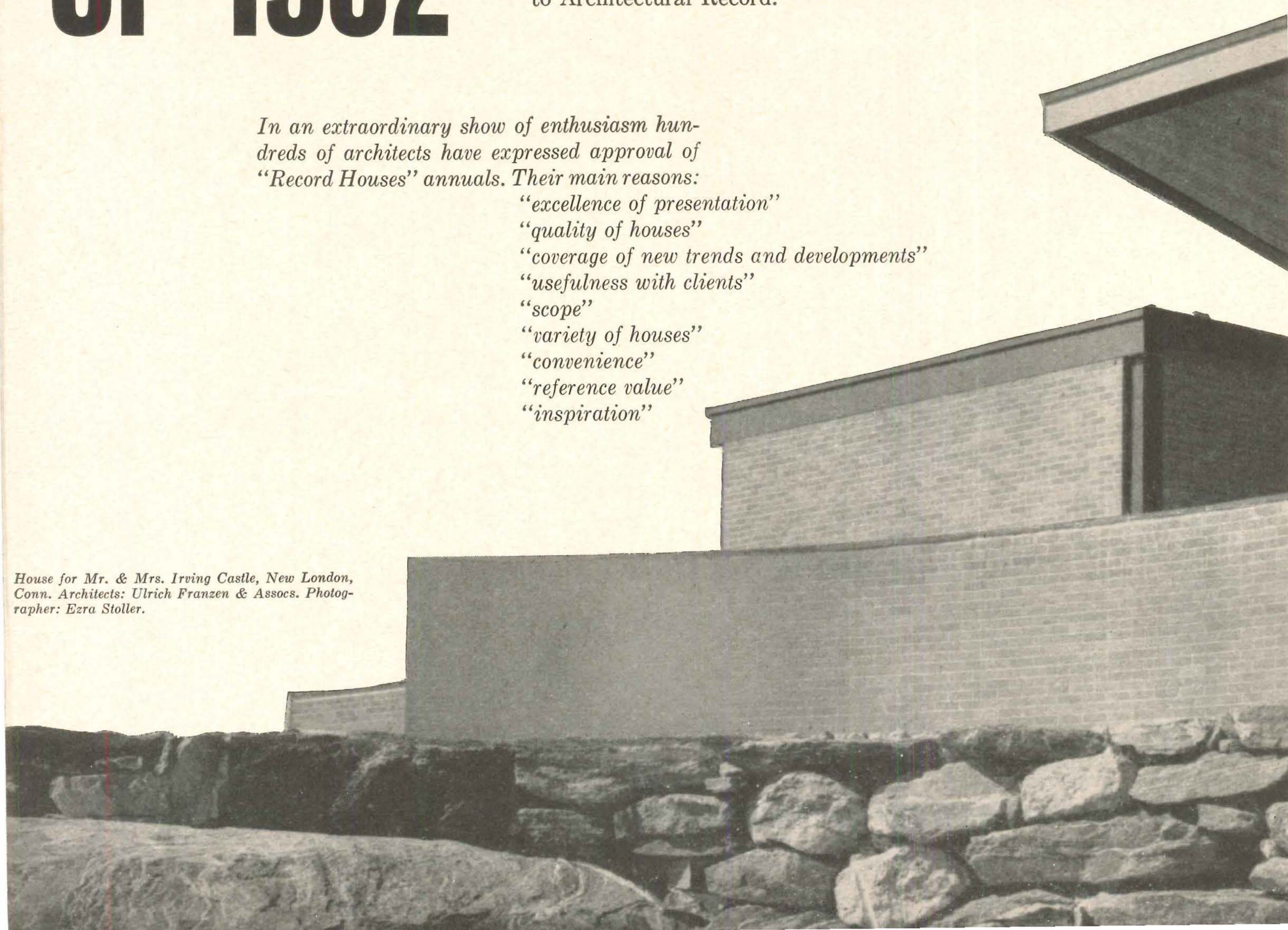
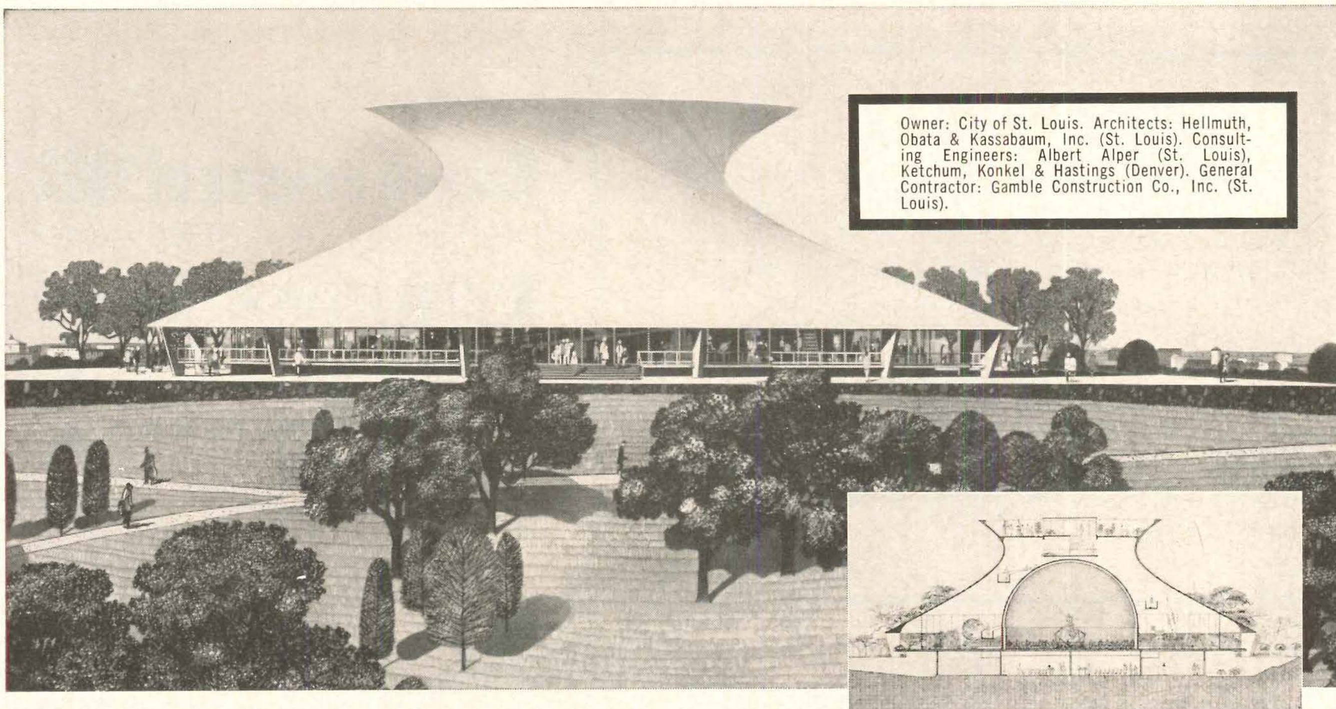
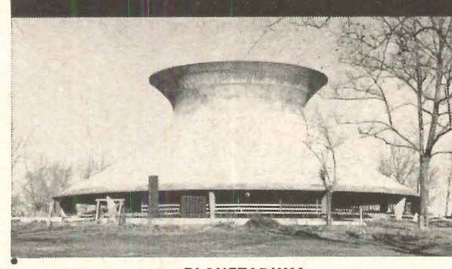
"inspiration"



House for Mr. & Mrs. Irving Castle, New London, Conn. Architects: Ulrich Franzen & Assocs. Photographer: Ezra Stoller.





PLANETARIUM

PRESCON SYSTEM* OF POST-TENSIONING CONTRIBUTES TO PLANETARIUM UNIQUE DESIGN

The unique and new design of the St. Louis Planetarium—a hyperboloid of one sheet—combines the advantages of a domed and a flat roof. The ring beam and hyperboloid were monolithically placed, with the beam post-tensioned by the Prescon System of prestressing. Pilasters formed in the ring beam, and positioned over each of the twelve support columns provided for post-tensioning.

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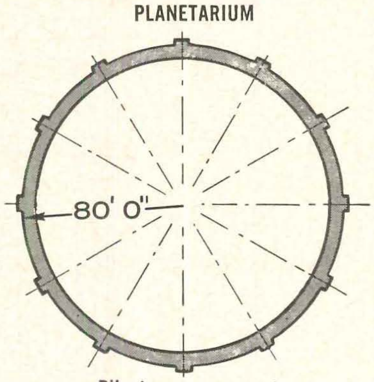
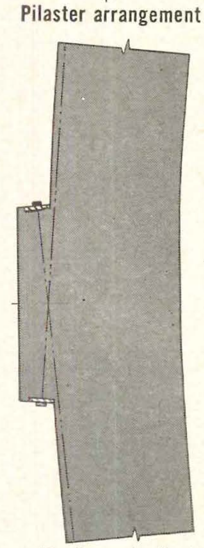
**The Prescon System consists of these components: (1) high carbon steel wires with cold-formed button-heads for positive end anchorage, encased in (2) slippage sheathing, and (3) threaded thru end anchorages (steel spread plate at fixed end and stressing washer and bearing plate at stressing end) plus shims for maintaining tension.*



Pilaster arrangement



Tendons at pilaster

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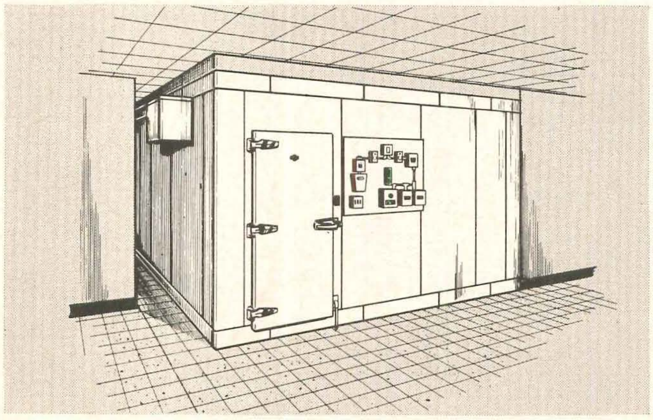

Installation in the Eastern Pennsylvania Psychiatric Institute, Philadelphia, Pa. Specifications prepared by Fred J. Green, Food Operations Consultant, 200 N. Paca Street, Baltimore 1, Md. in collaboration with Dr. Gilbert Ling, Dept. of Basic Research at the Institute.

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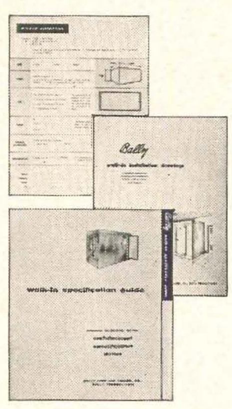

See Sweet's File section 26a/Ba.

*Based on cost scales in Metropolitan areas.

Bally

Bally Case and Cooler, Inc.
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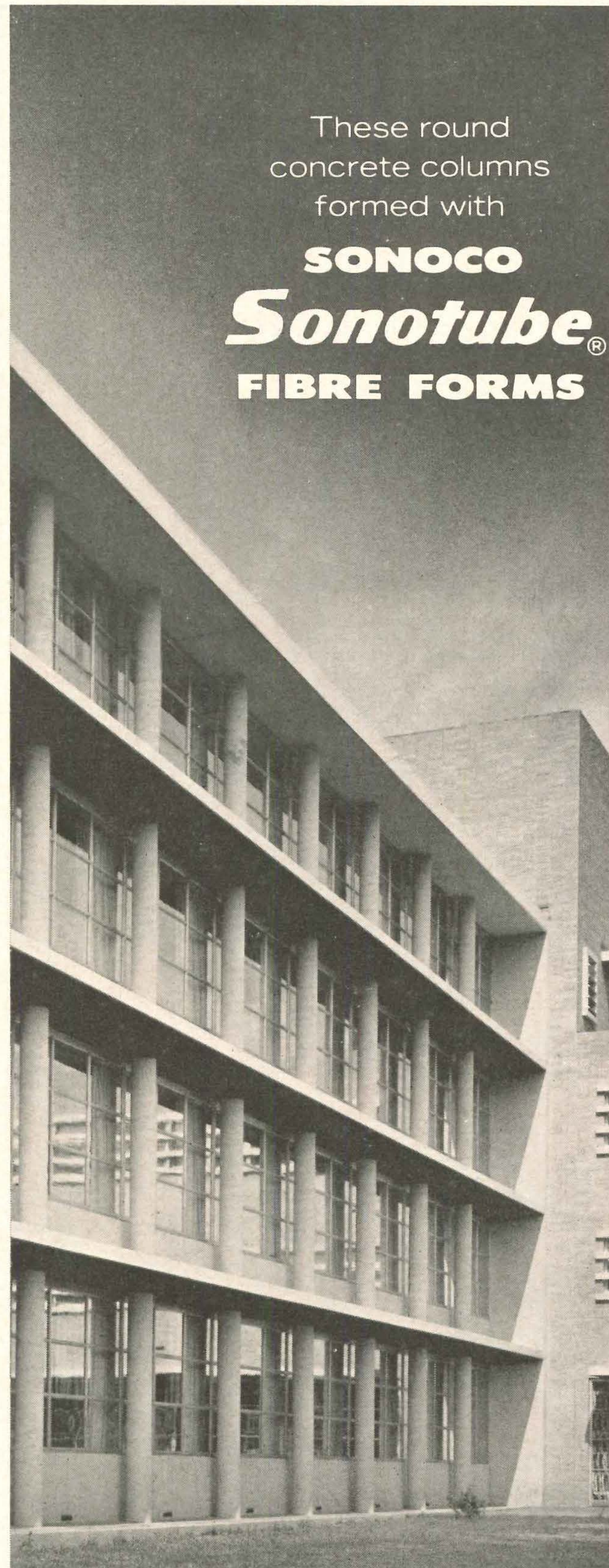

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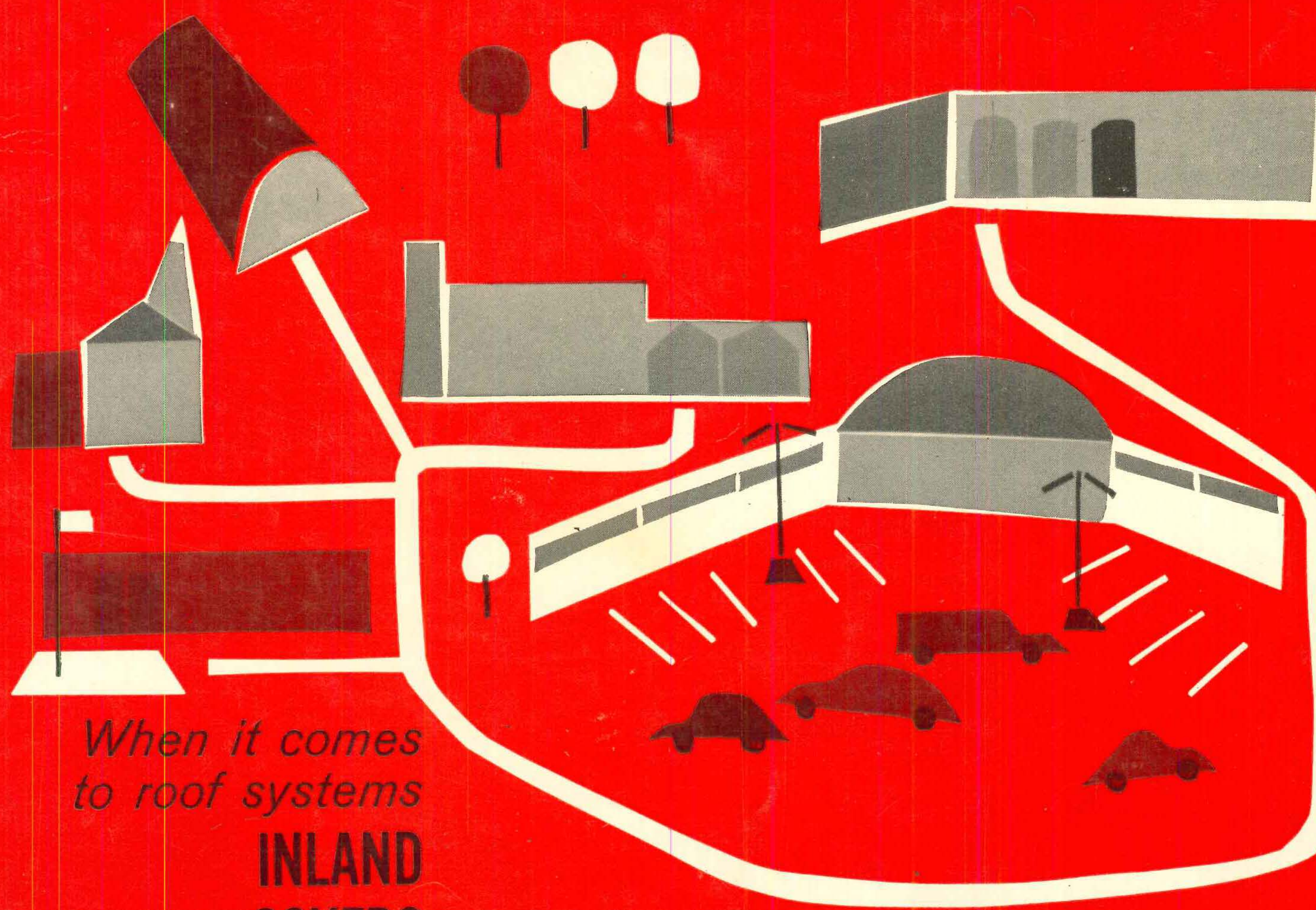

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Write for your copy of Catalog 248 today, or refer to Sweet's section 2i/InL. For consultation on unusual problems, you can draw upon the diversified experience of Inland Sales Engineers. Write or call the Inland office nearest you.

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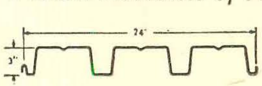

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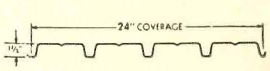
for spans 10′0″ to 16′0″



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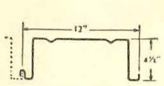
Type B Acoustideck
for spans to 10′0″



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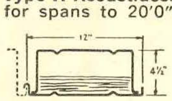
Type H Acoustideck
for spans to 20′0″



Type HF Acoustideck
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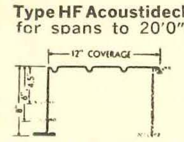

Type T Roof Deck
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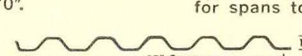
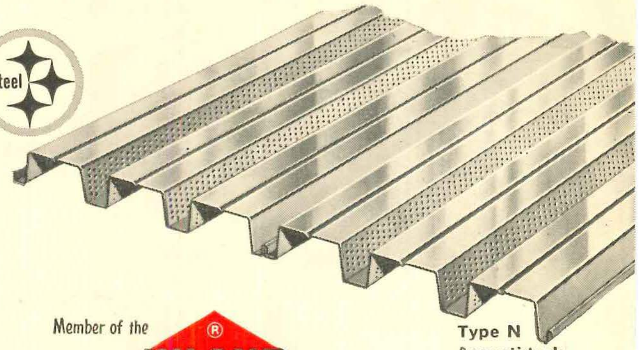


Ribform, permanent steel centering for spans to 8′0″



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