ARCHITECTURAL RECORD

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BUILDING TYPES STUDY: COLLEGE BUILDINGS

RECREATION BUILDINGS

THE ROLE OF THE COMPUTER IN ENGINEERING PRACTICE

FULL CONTENTS ON PAGES 4 & 5

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ABOVE—Main Entrance: exterior mural in ceramic mosaics, 1″ sqs., Cerulean, Dove Gray, Citrin, Topaz with figures in Ebony. Plate 479.
BOTTOM LEFT—Corridor Walls: 6″ x 4¼″ in 52 Daffodil and 32 Tan Glo. Design: 6″ x 4¼″, 59 Parchment, 45 Salt & Pepper and 56 Leaf Green. Plate 480.
BOTTOM RIGHT—Cafeteria Wall: ceramic mosaics 1″ sqs., Beryl, Apricot, Petal Pink, Haze, Topaz. Plate 481.
Architect: John C. Ehrlich. Tile Contractor: Stearns & Bergstrom Inc.

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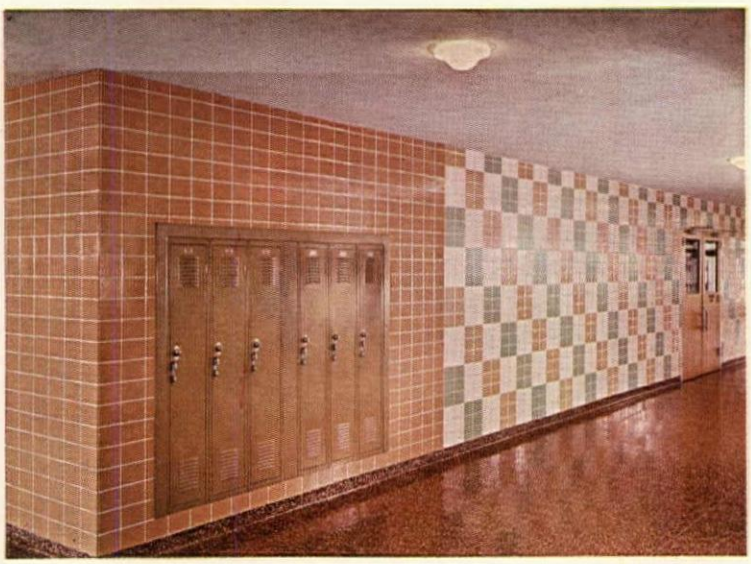

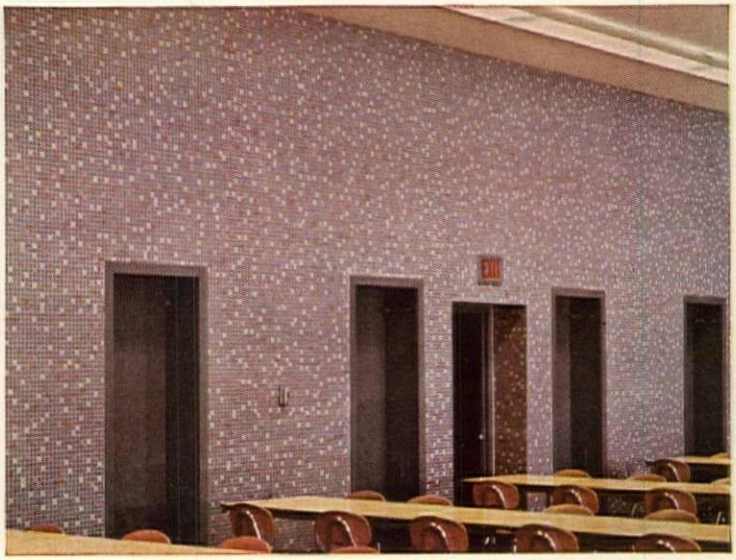

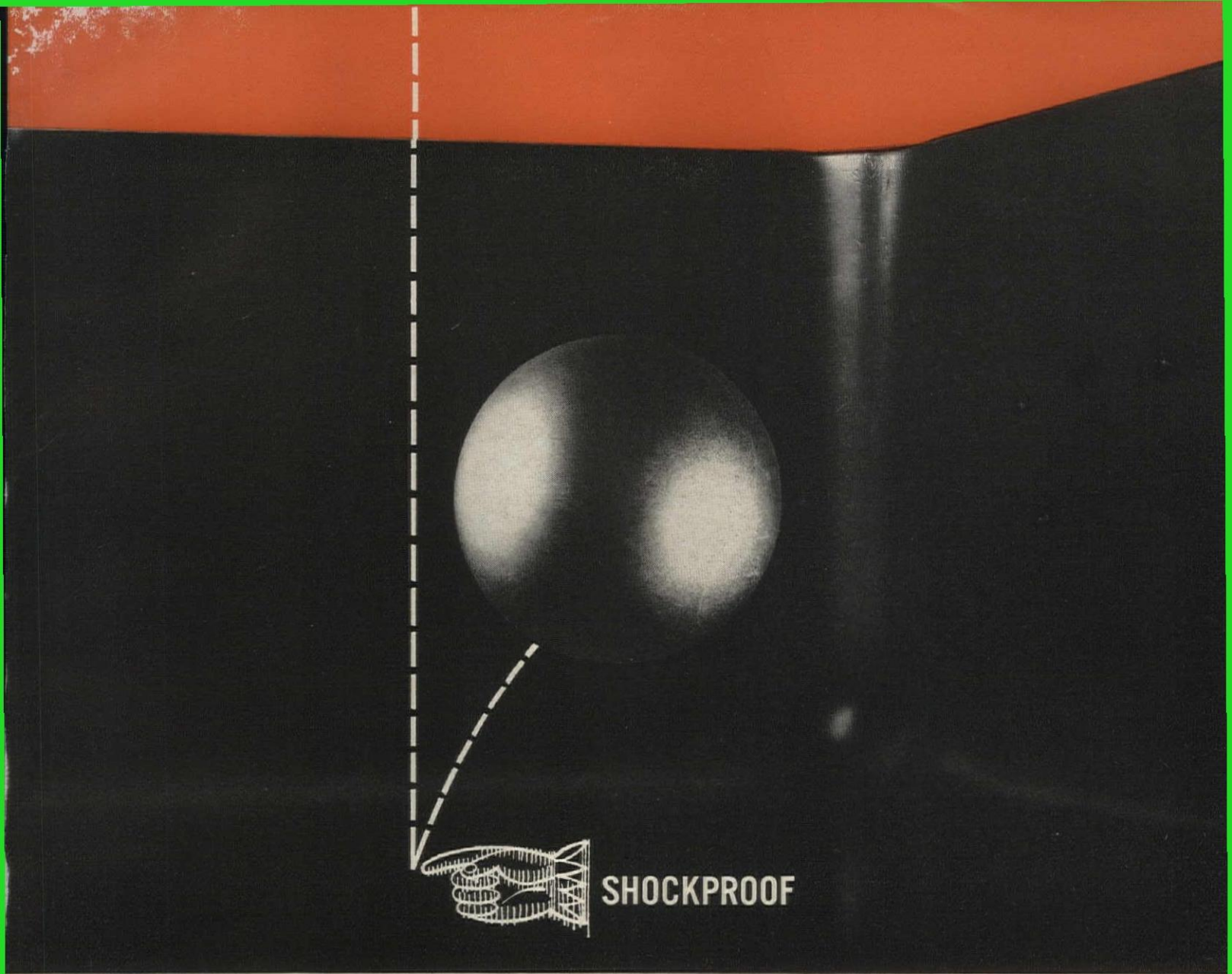

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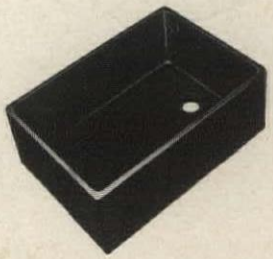

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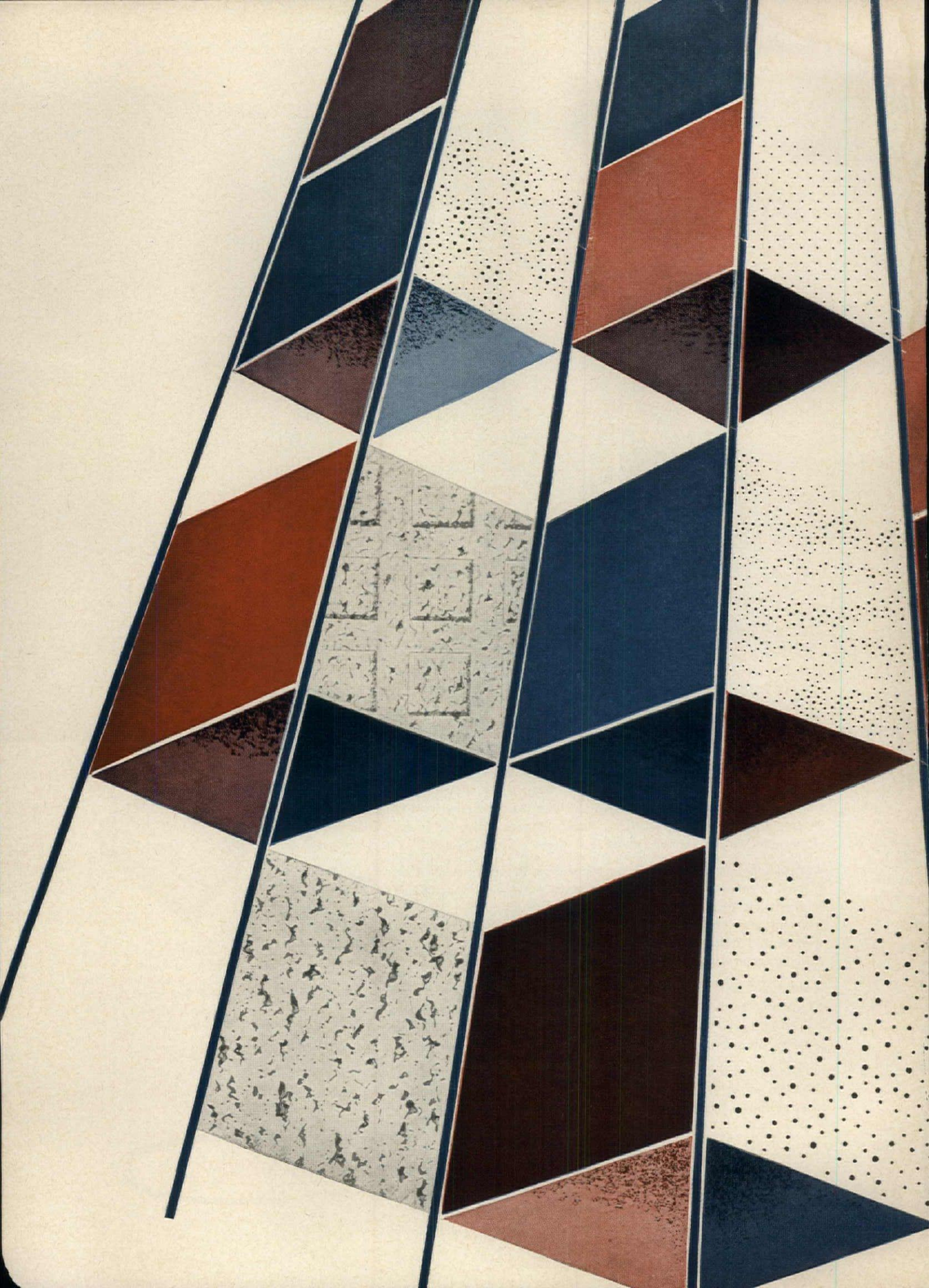

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Interior view of Sheldon Memorial Art Gallery, University of Nebraska, Lincoln. Philip Johnson Associates, Architects. University of Nebraska photograph by Kaz Tada

Advertising Index: 268

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Architectural Engineering

THE ROLE OF THE COMPUTER IN ENGINEERING PRACTICE 158

The authors, a structural engineer and a specialist in computer programing, provide a perspective on what the computer can be expected to do and how it will affect the organization of an engineering office

CENTRAL HEATING AND COOLING OF COLLEGE CAMPUSES 162

Studies of utilities for a new campus of Southern Illinois University and existing campuses at Yale and Princeton indicate both initial and operating economies for central distribution

BUILDING COMPONENTS: CONVERTIBLE LABORATORY FURNITURE 169

Modular units designed for a new science building at Southern Illinois University can be modified as student load varies and science disciplines change

PRODUCT REPORTS 173

OFFICE LITERATURE 174

READER SERVICE INQUIRY CARD 195

ARCHITECTURAL

Architects and Buildings:

BASSETTI & MORSE. Student Union Building, Western Washington State College, Bellingham 132

BECKET, WELTON, AND ASSOCIATES. 500 Jefferson Building, Cullen Center, Houston, Texas 153

BUFF, STRAUB & HENSMAN & ASSOCIATES. Recreation Pavilion for Ben Mirman, Arcadia, Calif. 152

DESMOND, JOHN. Robert Duncan House, Covington, La. 141

FOWLER, DAVID L. Summer Pavilion for Mr. and Mrs. M. Philip Davis, Lake Arrowhead, Calif. 150

HELLMUTH, OBATA & KASSABAUM, INC. Southern Illinois University, Edwardsville Campus 109

JOHNSON, PHILIP, ASSOCIATES. Sheldon Memorial Art Gallery, University of Nebraska, Lincoln 129

KETCHUM, GINA & SHARP. Queens College Dining Hall, Flushing, N.Y. 136

ODELL, A. G., JR. & ASSOCIATES. Student Union, St. Andrews Presbyterian College, Laurinburg, N.C. 134

PERKINS & WILL. Ernest A. Johnson Memorial Science Center and Freeman Science Library, Lake Forest College, Lake Forest, Illinois 139

SEIBERT, EDWARD J. Beach Facility for Sarasota County, Siesta Key, Sarasota, Florida 148

SKIDMORE, OWINGS & MERRILL. University of Illinois, Chicago Campus, Chicago 117

VOGLEY, JOHN. The Hills Swimming and Tennis Club, Oakland, California 146

Authors and Articles:

LEVY, MATTHYS P. AND CHARLES P. LECHT. "The Role of the Computer in Engineering Practice" 158

MORISSEAU, JAMES. "Some Basics of Campus Planning" 125

"CENTRAL HEATING AND COOLING OF COLLEGE CAMPUSES" 162

"CONVERTIBLE LABORATORY FURNITURE" 169

Record Reports

BEHIND THE RECORD 9

"Give 'em Hell"
By Emerson Goble

PRESIDENT RECEIVES HECKSCHER REPORT ON ART AND GOVERNMENT 10

BUILDINGS IN THE NEWS 12

CURRENT TRENDS IN CONSTRUCTION 18

A survey of the construction outlook at midyear by George A. Christie, Senior Economist F. W. Dodge Corporation

BUILDING CONSTRUCTION COSTS 20

A monthly feature prepared for the RECORD by Myron L. Matthews, Manager, Dow Building Cost Calculator, an F. W. Dodge Corporation Service

NEWS OF ARCHITECTURAL SCHOOLS 23

"FLIGHT" IS FIRMLY IN PLACE IN PAN AM LOBBY

CANADIAN ARCHITECTS CONVENE IN ONTARIO 24

REQUIRED READING 52

CALENDAR AND OFFICE NOTES 228

Features

LOGIC AND SIMPLICITY GIVE LIVABILITY ON A BUDGET 141
Architect John Desmond coordinates complex site and program needs into a handsomely simple house

RECREATION BUILDINGS 145 *Four small buildings designed to bring a high degree of visual amenity as well as convenience to the happy pursuits of leisure*

FIRST CULLEN CENTER UNITS OPENED 153
Welton Becket designs an unusual precast skin for Houston's newest office tower

RECORD

CONTENTS

August 1963

Building Types Study 323: College Buildings

Two completely new campus plans—one for an expansive country site, and one for a limited big city plot—and new buildings to expand existing college facilities

NEW SOUTHERN ILLINOIS CAMPUS IS PRE-PLANNED FOR CHANGE 109
Southern Illinois University, Edwardsville Campus, Hellmuth, Obata & Kassabaum, Inc., Architects

CHICAGO CAMPUS FOR UNIVERSITY OF ILLINOIS 117 *Skidmore, Owings & Merrill, Architects*

SOME BASICS OF CAMPUS PLANNING 125 *An article by John Morisseau*

AN ART GALLERY FOR A UNIVERSITY CAMPUS 129 *Sheldon Memorial Art Gallery, University of Nebraska, Lincoln, Nebraska; Philip Johnson Associates, Architects*

STUDENTS FINANCE AN ACTIVITIES CENTER 132 *Student Union Building, Western Washington State College, Bellingham, Washington; Bassetti & Morse, Architects*

PAVILION FOR DINING AND STUDENT CENTER 134 *Student Union Building, St. Andrews Presbyterian College, Laurinburg, North Carolina; A. G. Odell & Associates, Architects*

NEW FACILITY PROVIDES FIVE DINING ROOMS 136 *Queens College Dining Hall, Flushing, New York; Ketchum, Giná & Sharp, Architects*

NEW SCIENCE CENTER ADDED AT LAKE FOREST 139 *Ernest A. Johnson Memorial Science Center and Freeman Science Library, Lake Forest College, Illinois; Perkins & Will, Architects*

Coming in the Record

QUIET ARCHITECTURE OF HIGH DISTINCTION

New buildings at Phillips Academy, Andover, Mass., will be featured in a 16-page presentation of special interest not only for the considerable technical innovation of its architecture but also for its sensitive and sympathetic relationship to the older buildings on an old and beautiful campus.

BUILDING TYPES STUDY: APARTMENT BUILDINGS

With activity in the apartment building field rising toward another record year, according to F. W. Dodge records on contracts awarded, next month's Building Types Study will offer a review of trends and architectural accomplishments in the design of apartment buildings. Some interesting indications of new architectural approaches to the factors of increasing land cost and new attitudes on the question of density.

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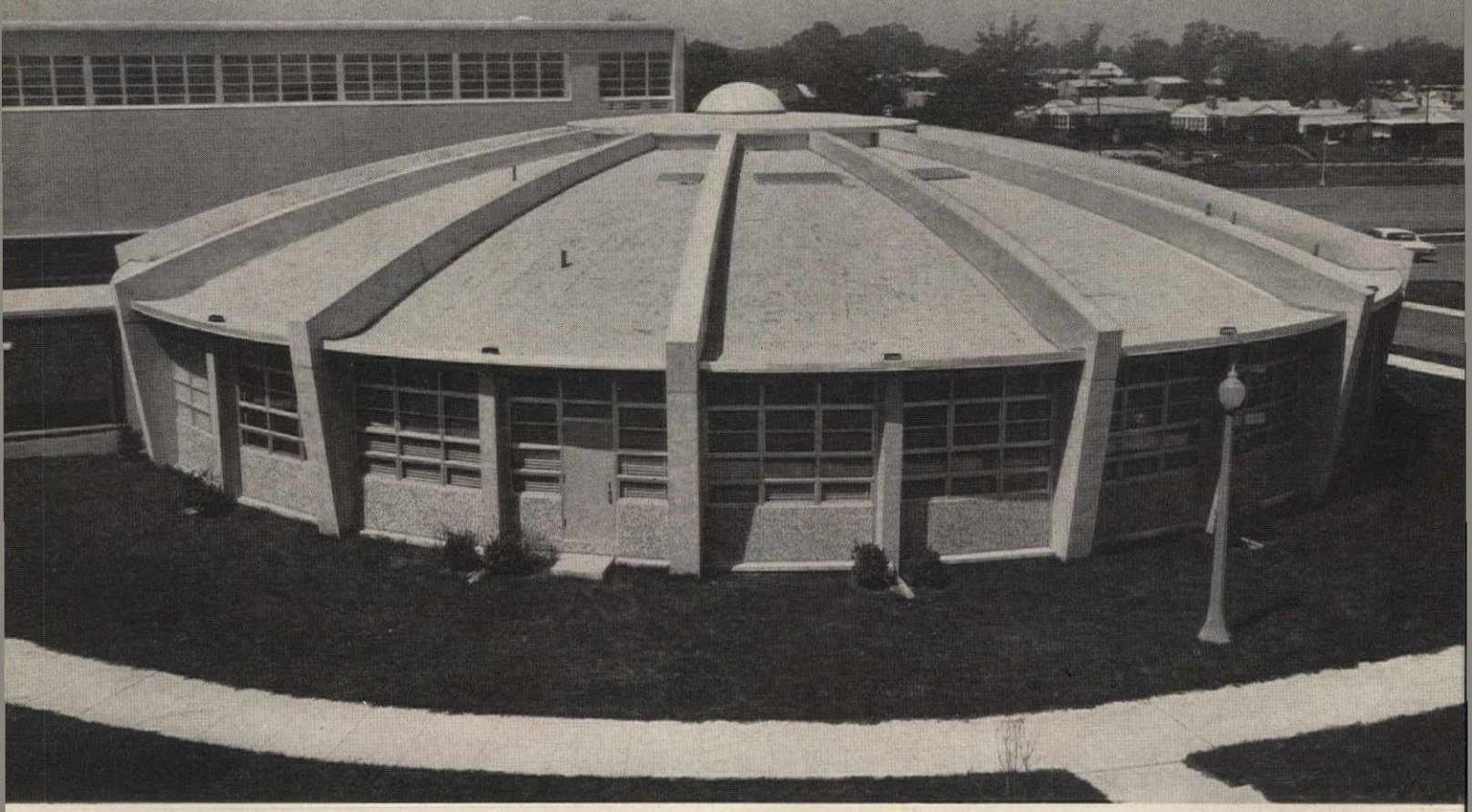
new shape in science education



SCIENCE BUILDING, LaREINE HIGH SCHOOL, SUITLAND, MARYLAND. Architect: E. PHILIP SCHREIER. General Contractor: VICTOR R. BEAUCHAMP, INC. (both of Washington, D.C.) Precast Concrete Supplier: FORMIGLI CORPORATION, Philadelphia, Pa.

There's educational significance in the circular shape of the Science Building at LaReine High School. Combined laboratory and lecture rooms, with amphitheatre-type seating in the lecture area, are ideal for science instruction. Triangular rooms, then, are most appropriate. This, in turn, suggests a circular building.

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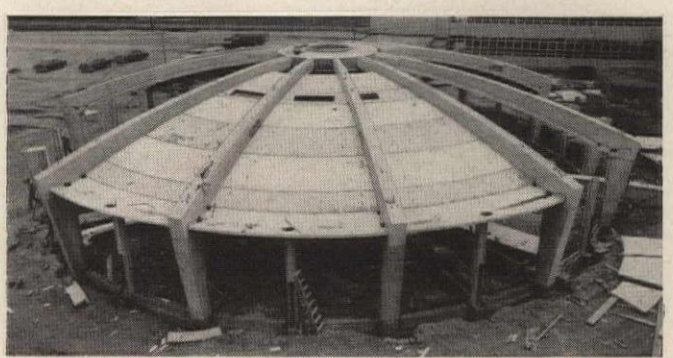
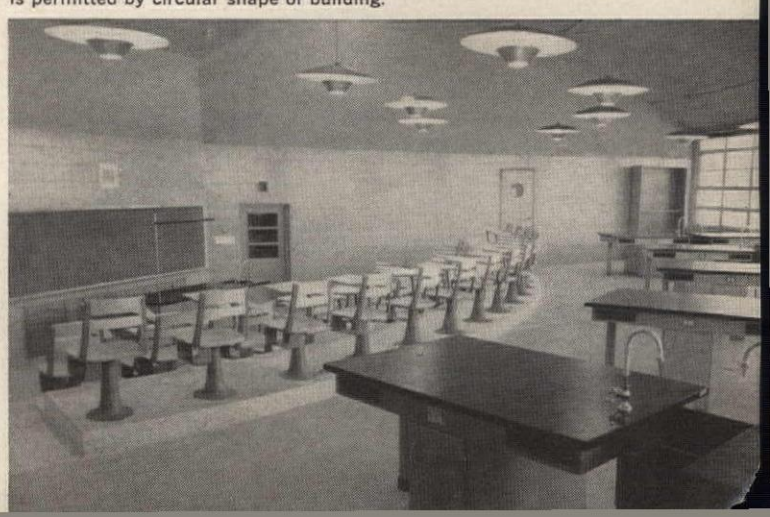


44-foot, 12-ton beams, precast with "Incor" 24-hour Cement, rest on cast-in-place center core and on 13-foot precast columns on the outside.

Advantageous arrangement of laboratory and lecture-demonstration areas is permitted by circular shape of building.



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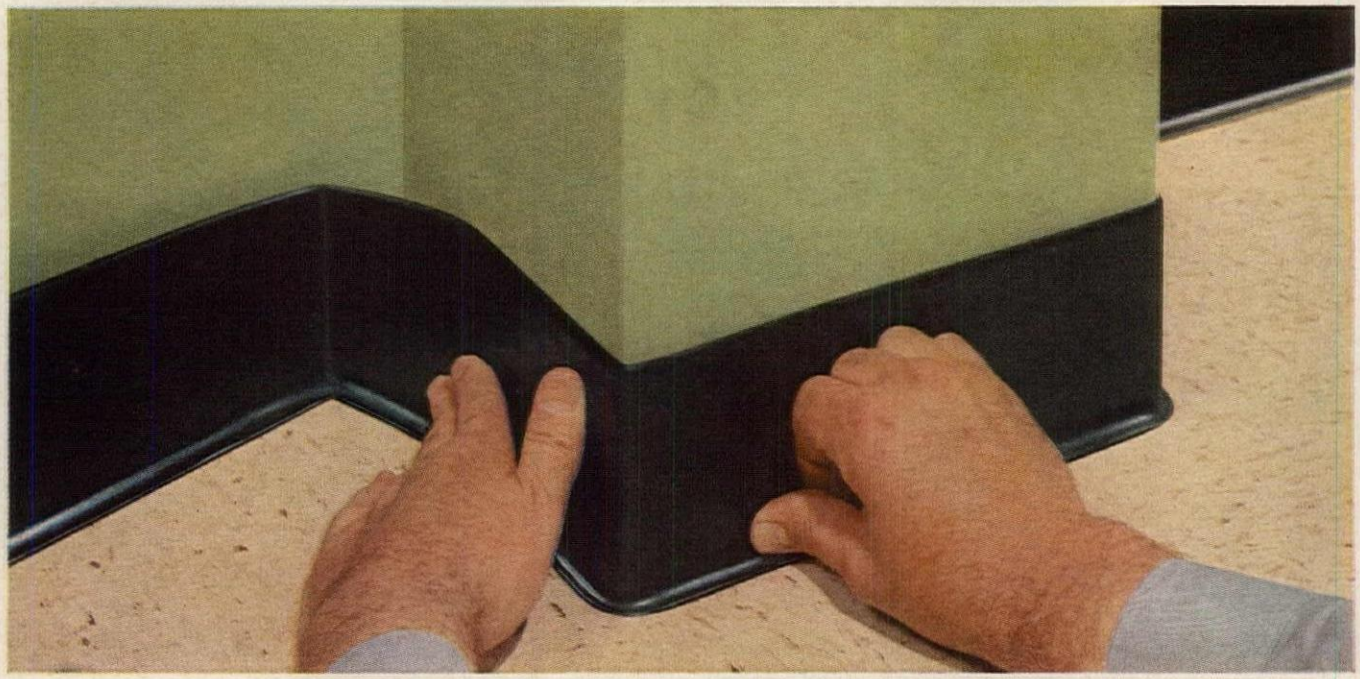

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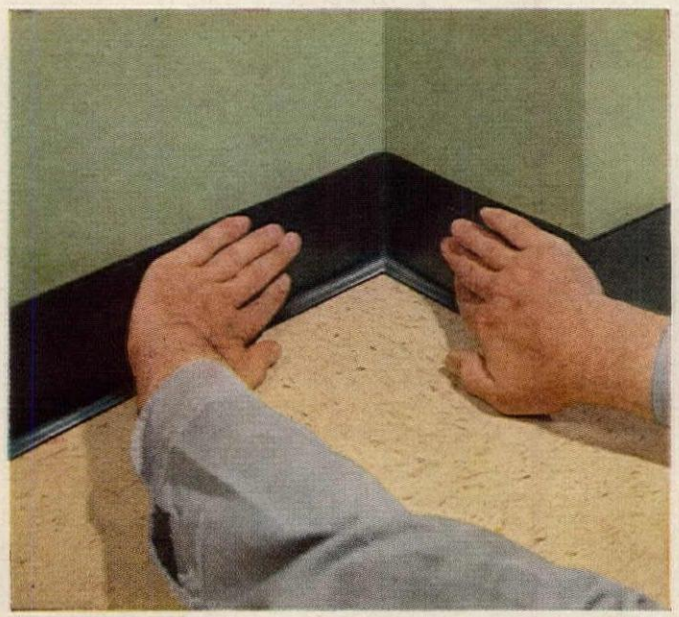

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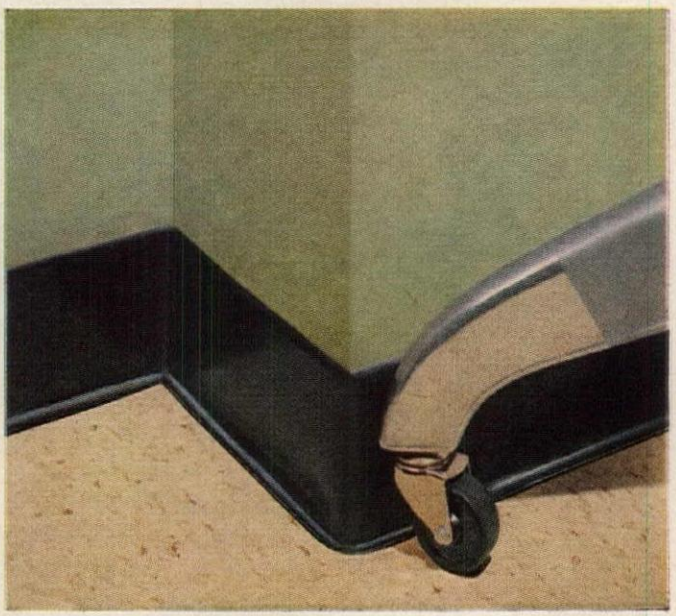

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KENTILE FLOORS

Give 'em Hell

This little admonition reduces to plain English what a great many architects compulsively urge upon editors. Normally I am not so ready to respond as I seem lately to be; I have twice devoted this page to some remarks on the general topic of giving 'em hell. Perhaps it was the naked intent of the last expression of it that makes me rise this time.

It came from an architect friend, who had cornered me for a spouting of spiteful recriminations against the bold and innovative and egocentric architects whose work we "put in the magazines." He was plainly saying that the old architecture was better, the new a lot of nonsense, and that my duty was plain—he put it in those simple words, "give 'em hell."

There was no delicacy, as there usually is, in the demand on an editor for criticism. Usually the plea is couched in expressions of noble intent; and normally, I believe, there is sincere belief in the idea that published criticism advances the art, that frank and penetrating evaluation keeps the stormy petrels to some course that satisfies some particular critic. So is the bold mariner prevented from misleading his faithful followers. Or so is the fearless leader deified should he in truth be about to discover the new land.

My friend washed it all aside. He was not asking for any picking and choosing among the innovators or their ideas. He was generalizing against them all. Give 'em hell. My duty was obvious—turn the guns on them and destroy them. Them and their crazy ideas.

Well, I shouldn't bother with it, except that it gives the chance to quote from a recent speech of Pietro Belluschi's, in which he recalled the positive search in the modern movement, and stated it so well:

"Our own modern movement began as a protest: the men responsible for its development meant to free architecture from forms which seemed to have spent themselves and become hollow. Tradition had become a collection of shells upon the beach of time, from which a noncreative society in a hurry could draw or borrow with impunity. The word Beauty itself was comprised by external images of ideas long dead; the obelisk, the Egyptian religious symbol, transmuted into the Washington Monument, finally prostituted into the Minneapolis Foshay Tower; the Greek Temple and its perverted image on Wall Street. It took great courage to redefine Beauty as an intrinsic quality and not an embalmed image of things past; it took courage to rediscover that Tradition, the word so often brandished by building committees, never meant to stand unchanged.

"Tradition, in fact, was found to be change, evolution, search. Human affairs have never been stagnant, and architecture in all great societies has had to come to terms with change. It was found that to stand still and copy, or to be awed by past symbols, was to weaken our own spiritual resources and to condemn our creative gifts to impotence—that the present, infinitely challenging, demands the utmost effort from each of us—and that opportunities for thought and action exist all around us."

In justice to Belluschi it should be added that this quotation is out of context; he was talking about church design (see ARCHITECTURAL RECORD, July issue), and he was really warning against letting this challenging search over-stimulate—"However, with his [man's] right to fashion his own symbols goes the duty to develop a strong inner discipline. It is all too easy to delude oneself into thinking of architecture as an exercise in cleverness."

But in or out of context, it is good to have in his words the call of our times. It expresses the reason we do not turn the guns on the innovators and destroy them. We shall urge the petrels into further flights, confident that their fellows will know when to follow, when to doubt. And let me say to my friend that I know he was just blowing off; he doesn't really want us to show eclectic architecture. I hate to think what he'd give us if we did.

—Emerson Goble

PRESIDENT KENNEDY RECEIVES HECKSCHER REPORT ON ART AND GOVERNMENT

On May 28, the President's Special Consultant on the Arts, August Heckscher, submitted his report on "The Arts and the National Government." The occasion was unusual not only because of Mr. Heckscher's assignment, which the President, in thanking him, termed "a new function in the Executive Office," but also because of the content of the report, a rare effort to determine the extent and effect of the Government's participation in the arts.

What Mr. Heckscher found was more government participation than is generally recognized, though much of it is willy-nilly and not faced as an esthetic issue. "Government in the normal course of its operations acquires by purchase of commission a considerable number of works of art. . . . Memorials, statues, murals, fountains, historic and decorative paintings—as well as works of art for public museums—are among the objects which government in some degree or other makes its own . . . In addition, in a number of often unrecognized ways the Government is constantly 'acquiring' art—by purchase, commission or creation by its own designers and producers. Examples of such activities are the commissioning of official portraits, the photographic and film projects of a number of Federal agencies . . . and the continuing art projects of the Air Force and the Navy. . . .

The report suggests that advisory committees on the arts could be useful in departments without such committees, and could be improved upon in other departments. It commended particularly the work of the State Department's architectural advisors on overseas building. (At the same time, the Report expressed the regret that "In the last several years, the value of this achievement has not been fully recognized. The foreign building program of the State Department has received inadequate support and has been cut back.")

Architecture, as a major area of government participation in the arts, receives proper attention in the report. It relies heavily on the Administration's official statement of last year, "Guiding Principles of Federal Architecture," and termed the implementation of that statement "of the first importance." In the section on public buildings, the Report says, "A basic assumption of this Report is that good design is not an added embellishment or an unnecessary extravagance."

To improve the architectural standards of government buildings, the Report suggests an extension of the advisory committee principle recommended for other areas: "An over-all panel on architectural policy might help assure that the standards achieved in our best Federal buildings, such as those hitherto constructed abroad, could be made to prevail in what is built at home for all the various purposes which government serves." The Report's concern with environment also covered the national parks, urban renewal, historic preservation and public housing.

While recognizing that, under American conditions, the role of government in the arts "must always be marginal," Mr. Heckscher nonetheless had some very specific recommendations for a broad policy and for its implementation. For administration, he suggested (1) the permanent inclusion of a Special Consultant on the Arts in the Executive Office; (2) the appointment of an Advisory Council whose functions would be "to continue and fill out the work of study and gathering information begun with the limited resources of the Special Consultant; to review Federal policies and make recommendations for improving design; to recommend long-range programs; and to assure the active participation of the artistic community in the Government effort"; and (3) the establishment of a National Arts Foundations, modeled on existing science and health foundations, to administer grants-in-aid to states and institutions.

Simultaneously with his Report, Mr. Heckscher submitted his resignation as the President's Special Consultant; he remains in the position, however, until the President appoints a successor.

FHA INVITES ENTRIES IN DESIGN AWARDS PROGRAM

Stating its purpose to be "to give recognition to superior design in homes, apartment buildings and subdivisions, to promote wider understanding of the principles of good design, and to carry out the National Housing Act objective of encouraging improvement in housing standards and conditions," the Federal Housing Administration has announced its 1963 honors program for residential design. These are the first FHA awards for designs undertaken under FHA commitments.

Awards will be made in the categories of single-family houses, multifamily projects, and nursing homes and housing for the elderly completed since Jan. 1, 1958. Entries may be submitted by architects, landscape architects, designers, builders or owners. The basis of judgment will be excellence of design and execution, as well as relation to environment.

Award certificates will be presented by the Commissioner at a ceremony in Washington. Further advantages promised include publicity in magazines and newspapers, and an FHA-prepared touring exhibition of the winners.

Registration cards are due August 10; entries must be mailed by September 1. Inquiries should be directed to Director, Architectural Standards Division, Federal Housing Administration, 811 Vermont Ave., N.W., Washington 25, D.C.

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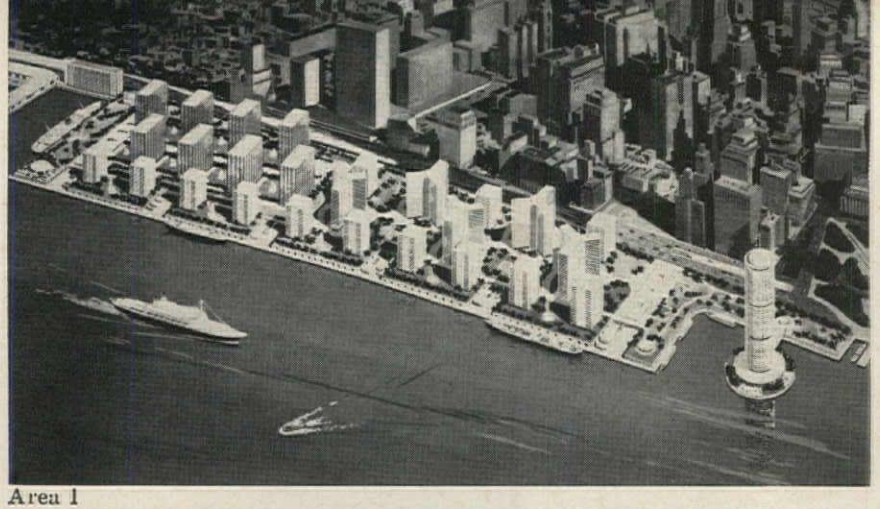
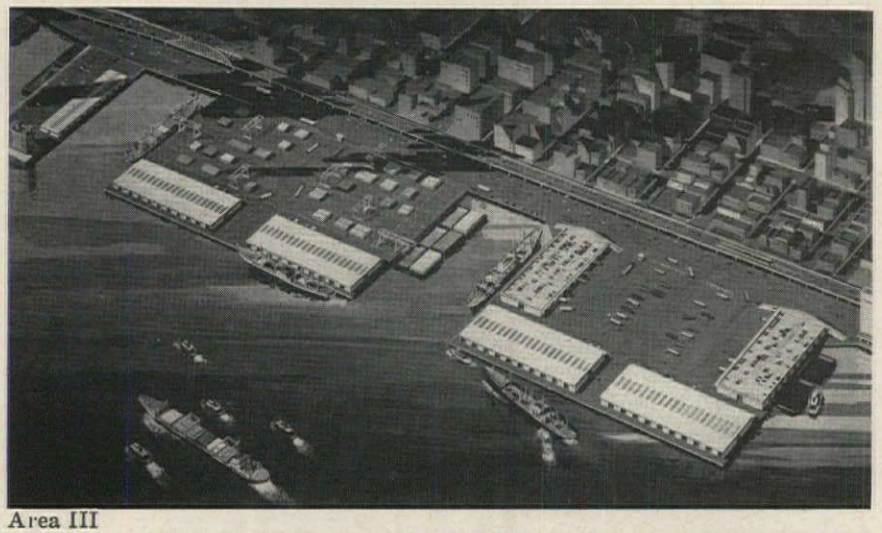


Area I



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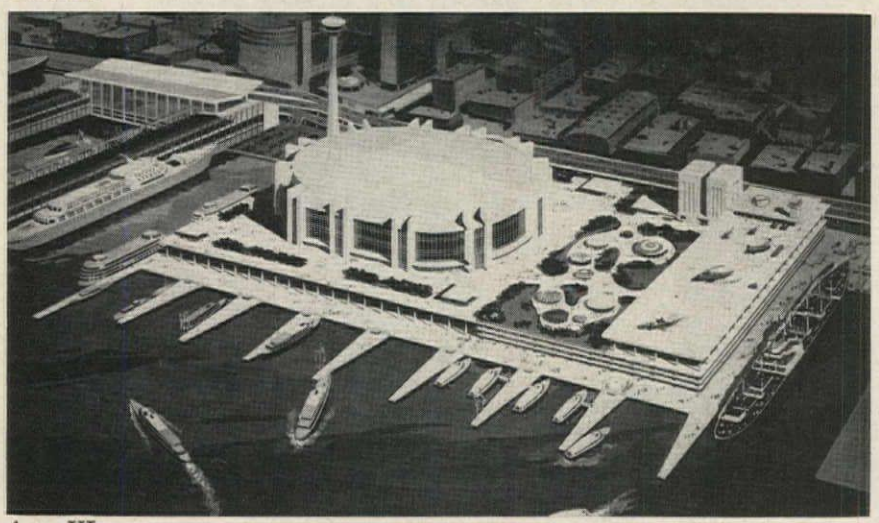


Area VI

Area VII

HUDSON RIVER WATERFRONT DEVELOPMENT

Mayor Wagner has announced New York City's long-range North River Development Plan, a plan which in 40 years would transform the city's North (Hudson) River waterfront from the Battery to West 72nd St.

The plan is based on the "recovery" of land now underwater, and it is calculated that this new land will add about 640 acres to the area of the island. The estimated cost of the development is $670 million.

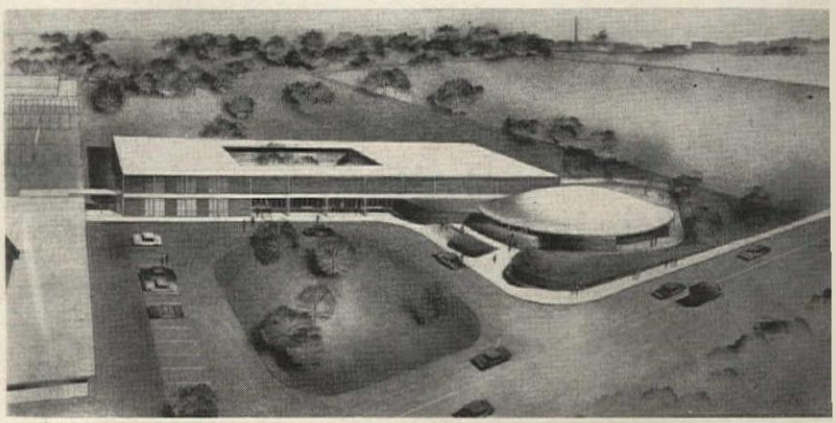
The plan divides the waterfront into nine areas.

Area I, extending from the Battery to Chambers Street, will restore residences and hotel facilities to the downtown district. Area II, from Chambers to Morton Street, and Area III, from Morton to Gansevoort Street, will compose a Downtown Distribution Center, with cargo terminals. Area IV, from Gansevoort to Little West 12th Street, will contain municipal services and open wharfage. Area V, from Little West 12th to West 37th Street, will constitute the Midtown Distribution Center. Area VI, from West 37th to West 43rd, is to be a sightseeing and convention center, providing terminals (docks and helistops) for both sightseeing and commuting; this plan also calls for a convention hall to seat 23,000. Area VII, from West 43rd to West 54th, will have three new passenger terminals, with a consolidated customs shed; the Mayor has given this area priority. Area VIII, from West 54th to West 59th, will provide docks for various city services—the Sanitation and Fire Departments, and utilities. Area IX, from West 59th to West 72nd, is called a transportation-recreation center.

Members of the 18-month study group which developed the plan were Ebasco Services Incorporated, management consultants; Moran, Proctor, Mueser & Rutledge, consulting engineers; and Eggers and Higgins, architects.

Experimental School in New York

New York's Board of Education has announced plans for a demonstration school, P.S. 219, to provide facilities both for teaching observation and for research. The domed satellite will house 176 early primary students in a flexible plan utilizing movable partitions; Educational Facilities Laboratories have given a grant for the special acoustical requirements. An adjacent building, rather more conventional, will house 892 elementary pupils. Caudill, Rowlett & Scott are the architects

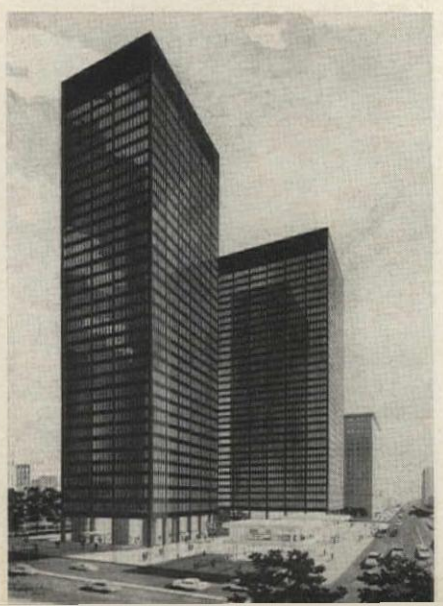


575 Technology Square

Technology Square is an urban renewal development undertaken jointly by Massachusetts Institute of Technology and Cabot, Cabot & Forbes Co. 575 Technology Square, shown here, is the second of four projected buildings, the first of which (twin to 575) has been completed. Structure is precast concrete with gray glass windows. The building was designed by Cabot, Cabot & Forbes Associates, Inc.; general contractors are Aberthaw Construction Co.

Los Angeles Office for IBM

Architect Eliot Noyes has designed this seven-story building as a centralized office for IBM's Southwestern aerospace operations. Structure is steel frame with a clear span from central core to exterior walls, providing each floor with 15,000 sq ft of column-free space. Curtain wall is precast concrete, each panel containing six small windows; each office will have at least nine of these windows. Associate architects are Jones & Emmons; George A. Fuller is the general contractor



Continental Square

To be built across from Philadelphia's City Hall, Continental Square will comprise two 33-story office buildings. Curtain wall will be gray solar glass, with outside structural members sheathed with a "velvet black" material, vertical mullions finished with a reflective black material. An exhibition building will be located in the landscaped plaza. Architects are Milton Schwartz & Associates, with Skidmore, Owings & Merrill as consulting architects

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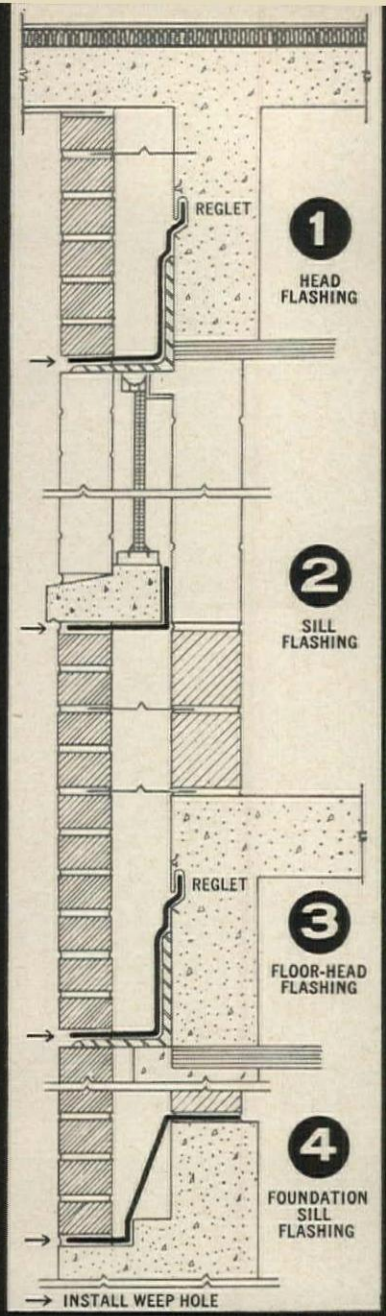

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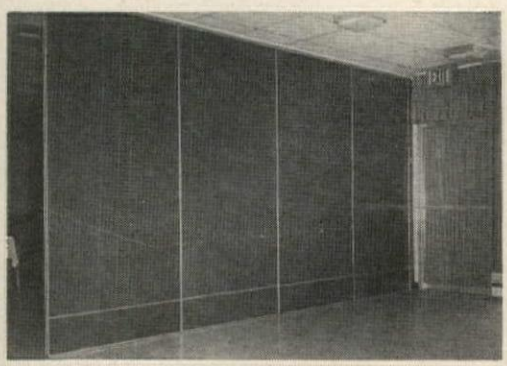

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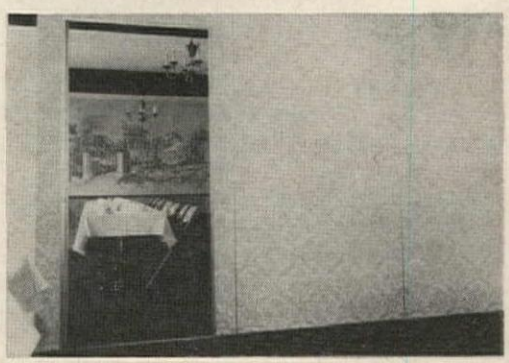

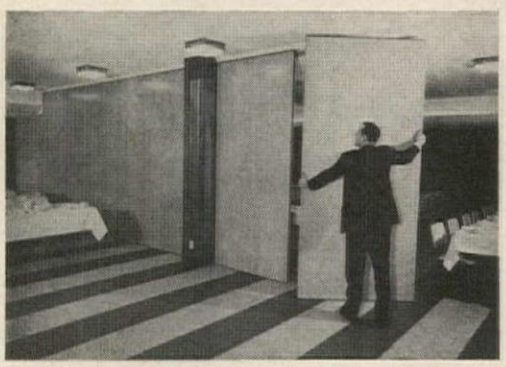

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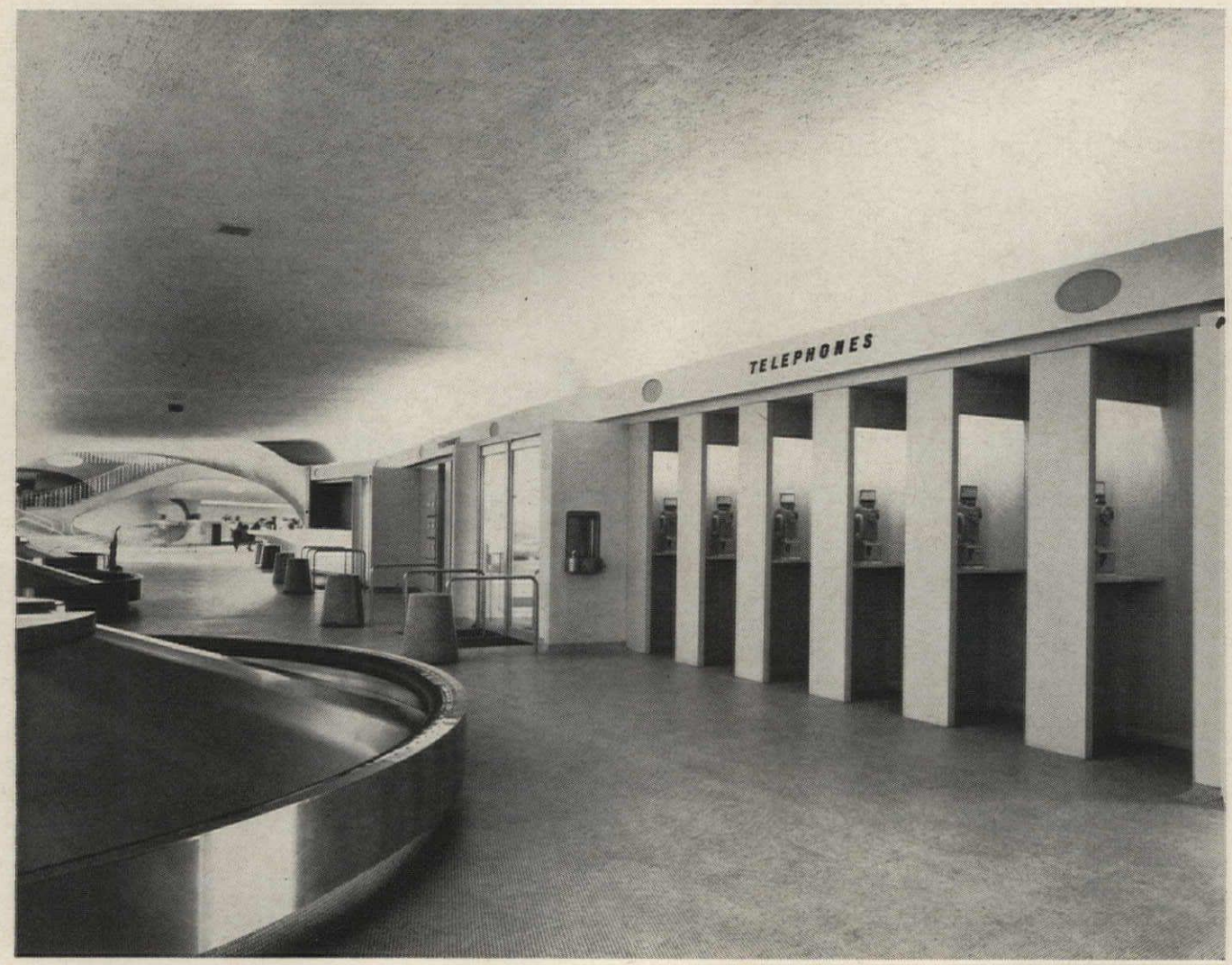

These simple, handsome telephone booths add even more drama to the exciting interior of the TWA—Trans World Flight Center at New York International Airport

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'63 CONSTRUCTION—ON TARGET AT MID-YEAR

By George A. Christie, Senior Economist, F. W. Dodge Corporation

With five months' experience in the books, it's time to see how well 1963 is measuring up to expectations. The Dodge forecast—quite a bit more optimistic than most—called for a 4½ per cent expansion in general business activity and a somewhat better gain of 5 per cent in the value of construction contracts.

So far, the year's results show both these measures just a shade ahead of the predictions, but a slightly slower rate of expansion in the second half ought to put the 12-month totals at $582 billion for Gross National Product (up 4.8 per cent) and $43.5 billion for construction (a 5.3 per cent gain). But while the forecast of *total* construction is standing up well, there have been a few surprises within the individual categories, and it's a good time to adjust the pieces to fit the whole.

Homebuilding certainly exceeded expectations during the first half as the strong demand for rental units continued unchecked. Through May, contracts for apartments led 1962 by no less than 17 per cent, with the West and Southwest showing the greatest gains. Vacancy rates, at least through the first quarter, gave no indication of saturation.

The housing market should continue to be strong through the balance of 1963, though below the extremely high current rate. Total starts of 1,550,000 (just over 1.5 million on a private, non-farm basis) with about 35 per cent of them apartments, should produce a contract value of $19 billion—5½ per cent over last year's record volume.

Nonresidential building was ahead in total contract value by 7 per cent through five months of 1963 and is a safe bet to maintain this lead for the balance of the year. The many diverse building types within the nonresidential group will show their typical wide range of activity. Commercial building, a shade behind last year to date, should pick up a bit in the second half to post a one per cent gain. Manufacturing, originally one of the doubtful categories, is responding to the general strengthening in plant and equipment outlays and will show a gain of about ten per cent for the year. Schoolbuilding is holding about even with last year in terms of square footage, but will be up about three per cent in value. The college market is becoming more and more important here. Hospitals and public buildings are both booming in 1963. Unusually heavy volume in the early months indicates full-year gains of 25 per cent or more. With religious building about even with last year, and social and recreational building up seven per cent, total nonresidential contract value for the year will amount to just under $14 billion.

The six per cent gain this year in total building—both residential and nonresidential—implies a slightly slower rate of contract activity in the second half compared to the red-hot pace of the months just past. Even so, the balance of 1963 will be substantially above the record-breaking 1962 levels.

Unlike the two building categories, non-building (public works and utilities) construction was behind the previous year's total at the five-month mark, though a sharp gain in May very nearly closed the gap. Both public works and utilities should show a brisker pace in the months ahead, but for the year, utilities contracts will barely equal the 1962 total. Public works, on the other hand, should end the year about four per cent ahead.

Altogether, 1963 is turning out just a bit better than anticipated. Total contract value will amount to $43.5 billion, putting the Dodge index at a new high of 126.

Revised Estimates of 1963 Dollar Volume of F. W. Dodge Construction Contracts

(48 states: figures in millions of dollars)

Classification	Year 1962 Actual	Year 1963 Estimate	Percentage Change
RESIDENTIAL BUILDING	18,040	19,000	+ 5.3%
NONRESIDENTIAL BUILDING	13,010	13,950	+ 7.0%
Commercial	4,220	4,250	+ 1 %
Manufacturing	2,090	2,300	+10 %
Educational & Science	3,060	3,150	+ 3 %
Hospitals & Institutions	1,080	1,350	+25 %
Public Buildings	680	900	+32 %
Religious Buildings	810	800	− 1 %
Social & Recreational	700	750	+ 7 %
Miscellaneous	380	450	+18 %
TOTAL BUILDING	31,050	32,950	+ 6.1%
NONBUILDING CONSTRUCTION	10,250	10,550	+ 2.9%
Public Works	7,900	8,200	+ 4 %
Utilities	2,350	2,350	
TOTAL CONSTRUCTION	41,300	43,500	+ 5.3%
DODGE INDEX (1957-59—100)	119.7	126	

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Building Construction Costs

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

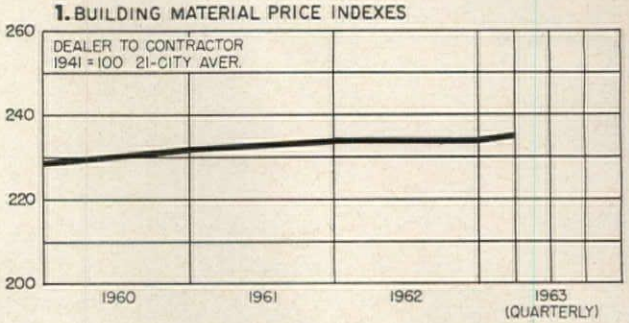
The information presented here permits quick approximations of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). The tables and charts can be used independently, or in combination as a system of complementary cost indicators. Information is included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

A. CURRENT BUILDING COST INDEXES—JULY 1963

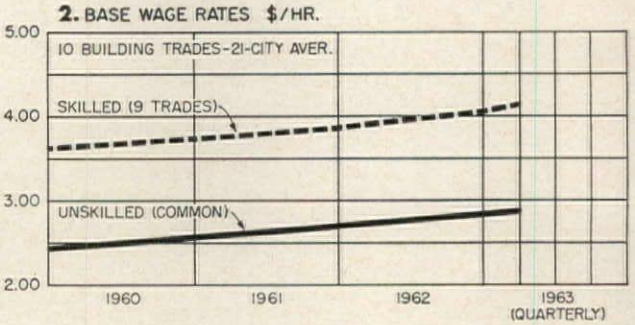
1941 Average for each city=100.0

Metropolitan Area	Cost Differential	Current Dow Index Residential	Current Dow Index Nonresidential	Per Cent Change Year ago Res. and Nonres.
U.S. AVERAGE— 21 Cities	8.5	257.7	274.5	+1.65
Atlanta	7.1	289.4	306.9	+1.81
Baltimore	8.0	261.2	277.8	+0.11
Birmingham	7.4	237.6	255.5	+0.84
Boston	8.4	231.1	244.6	+0.54
Chicago	8.8	286.0	300.8	+2.24
Cincinnati	8.8	248.7	264.3	+1.20
Cleveland	9.3	260.5	276.9	+1.63
Dallas	7.8	246.7	254.7	+3.06
Denver	8.3	262.2	278.7	−0.33
Detroit	8.9	258.3	271.1	+1.20
Kansas City	8.3	232.7	246.3	+1.41
Los Angeles	8.4	261.5	286.1	+1.96
Miami	8.4	257.4	270.2	+2.93
Minneapolis	8.9	259.0	275.4	+1.56
New Orleans	7.9	235.9	250.0	+0.73
New York	10.0	267.4	287.6	+2.70
Philadelphia	8.7	256.0	268.8	+0.07
Pittsburgh	9.1	243.8	259.2	+2.07
St. Louis	8.9	251.1	266.1	+3.18
San Francisco	8.5	327.3	358.2	+2.72
Seattle	8.5	236.9	264.8	+2.34

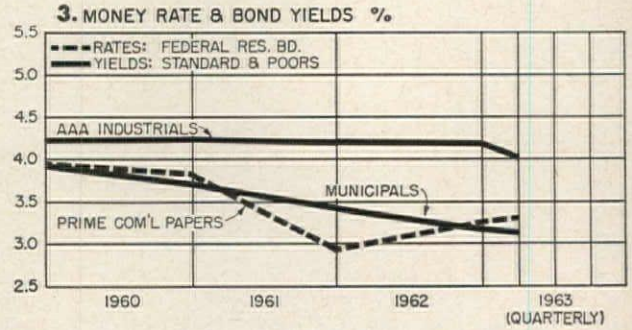
1. BUILDING MATERIAL PRICE INDEXES



2. BASE WAGE RATES $/HR.



3. MONEY RATE & BOND YIELDS %



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

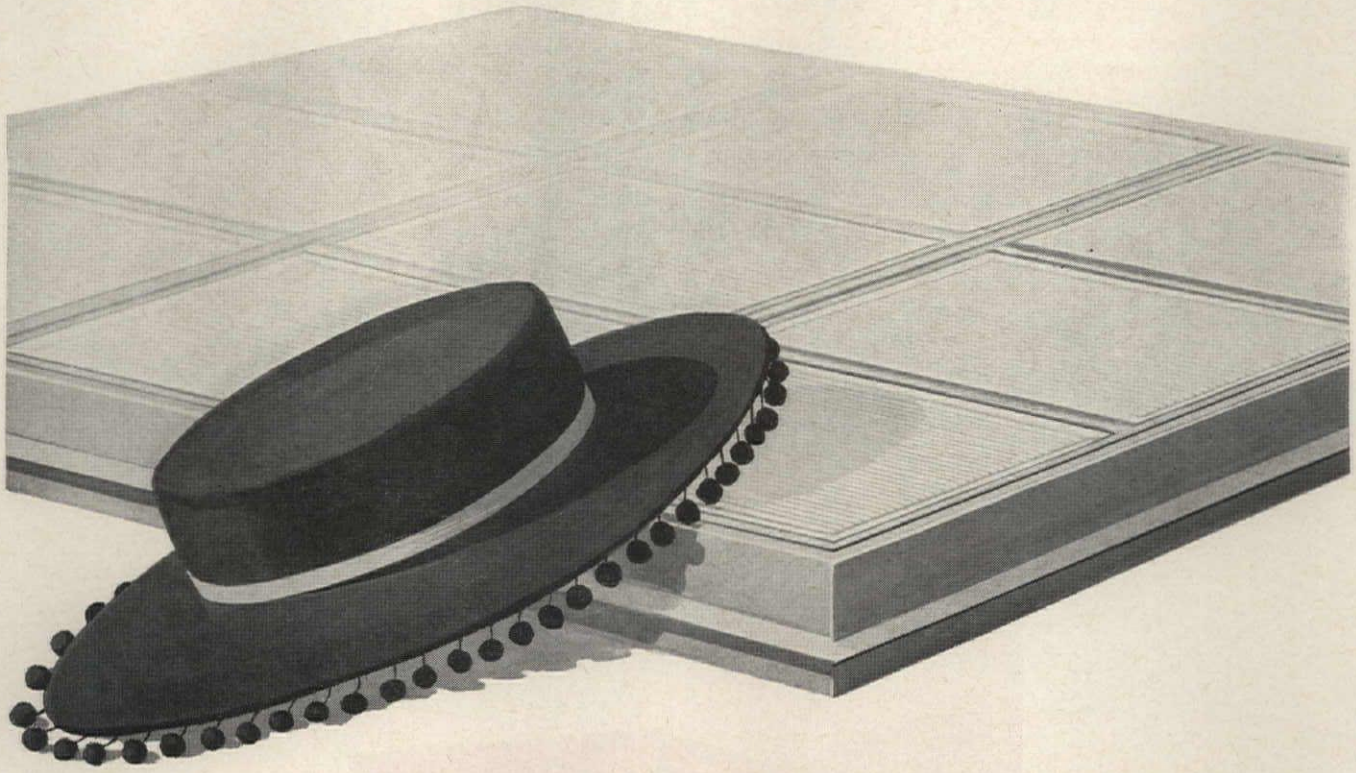
1941 average for each city=100.0

Metropolitan Area	1947	1952	1957	1958	1959	1960	1961	1962 (Quarterly) 1st	1962 (Quarterly) 2nd	1962 (Quarterly) 3rd	1962 (Quarterly) 4th	1963 (Quarterly) 1st	1963 (Quarterly) 2nd	1963 (Quarterly) 3rd	1963 (Quarterly) 4th
U.S. AVERAGE 21 Cities	185.9	213.5	244.1	248.9	255.0	259.2	264.6	265.1	265.9	267.4	268.7	269.4	270.3		
Atlanta	190.0	223.5	269.6	277.7	283.3	289.0	294.7	296.5	297.6	298.2	300.6	302.0	303.0		
Baltimore	181.0	213.3	249.4	251.9	264.5	272.6	269.9	270.5	272.6	272.4	271.9	272.3	272.9		
Birmingham	175.0	208.1	228.6	233.2	233.2	240.2	249.9	249.9	249.9	249.9	250.6	251.3	252.0		
Boston	187.0	199.0	224.0	230.5	230.5	232.8	237.5	238.5	239.9	240.4	240.4	240.4	241.2		
Chicago	182.0	231.2	267.8	273.2	278.6	284.2	289.9	289.9	289.9	292.6	295.8	296.4	296.4		
Cincinnati	178.0	207.7	245.1	250.0	250.0	255.0	257.6	257.6	257.6	260.0	260.0	260.0	260.7		
Cleveland	173.0	220.7	258.0	257.9	260.5	263.1	265.7	265.7	268.4	268.4	271.7	272.3	272.8		
Dallas	202.0	221.9	228.4	230.5	237.5	239.9	244.7	244.7	244.7	247.7	250.8	251.5	252.2		
Denver	187.0	211.8	245.6	252.8	257.9	257.9	270.9	273.1	276.3	275.3	274.8	275.0	275.4		
Detroit	158.0	197.8	237.4	239.8	249.4	259.5	264.7	264.7	264.7	267.1	267.1	267.1	267.9		
Kansas City	172.0	213.3	230.5	235.0	239.6	237.1	237.1	238.5	239.5	240.8	241.8	242.3	242.9		
Los Angeles	180.0	210.3	248.4	253.4	263.5	263.6	274.3	274.3	274.3	278.0	278.6	279.1	279.7		
Miami	193.0	199.4	234.6	239.3	249.0	256.5	259.1	259.1	259.1	260.8	262.4	262.4	266.7		
Minneapolis	176.0	213.5	235.6	249.9	254.9	260.0	267.9	267.9	267.9	269.5	270.8	271.4	272.1		
New Orleans	180.0	207.1	232.8	235.1	237.5	242.3	244.7	244.7	244.7	245.5	245.5	246.5	246.5		
New York	181.0	207.4	240.4	247.6	260.2	265.4	270.8	273.5	273.5	276.7	280.4	280.9	280.9		
Philadelphia	209.0	222.3	255.0	257.6	262.8	262.8	265.4	265.4	265.4	265.0	265.0	265.6	265.6		
Pittsburgh	191.0	204.0	234.1	236.4	241.1	243.5	250.9	250.9	250.9	252.1	253.5	255.0	256.1		
St. Louis	191.0	213.1	237.4	239.7	246.9	251.9	256.9	254.0	254.3	256.2	257.3	260.1	262.4		
San Francisco	243.0	266.4	302.5	308.6	321.1	327.5	337.4	339.1	340.8	344.5	348.7	350.1	350.1		
Seattle	175.0	191.8	221.4	225.8	232.7	237.4	247.0	249.0	251.9	253.7	255.3	256.5	257.8		

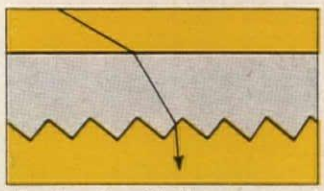
HOW TO USE TABLES AND CHARTS: Building costs may be directly compared to costs in the 1941 base year in tables A and B: an index of 256.3 for a given city for a certain period means that costs in that city for that period are 2.563 times 1941 costs, an increase of 156.3% over 1941 costs.

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

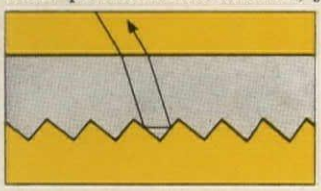
TABLE B. Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other: if index for a city for one period (200.0) divided by index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than those of the other.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



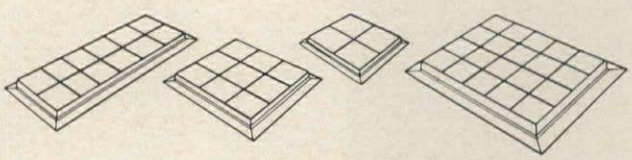
Tangential Tango



The tangent calls the tune when sunbeams dance down to pre-fabricated Toplite Roof Panels. Only light from the north sky and low-angled winter sunbeams are permitted to enter a room. Hundreds of artfully arranged little prisms send intense, jittery beams from the high summer sun back to learn good manners. By thus rejecting hot-dancing sunlight, Toplite Roof Panels provide soft, uniform light throughout the day, free from glare, bright spots, or shadows. They also reduce heat build-up, transmitting only about one-third as much heat as conventional skylights.



Toplite Roof Panels are dance-floor flat, not peaked or domed. Their low profile does not detract from the design of the structure. Installation is easy, done in jig time, with sizes attuned to buildings of all types. To get in step with this development, mail the coupon for complete technical information on the only skylight offering optical control of sunlight.



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PRODUCTS RESEARCH COMPANY
2919 Empire Ave., Burbank, California
410 Jersey Ave., Gloucester City, N.J.

PRC

SEND FOR TECHNICAL DATA

Products Research Company, Dept. AR-863
2919 Empire Ave., Burbank, Calif.

Please send me complete information about Toplite Roof Panels.

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CITY_____ ZONE____ STATE_____

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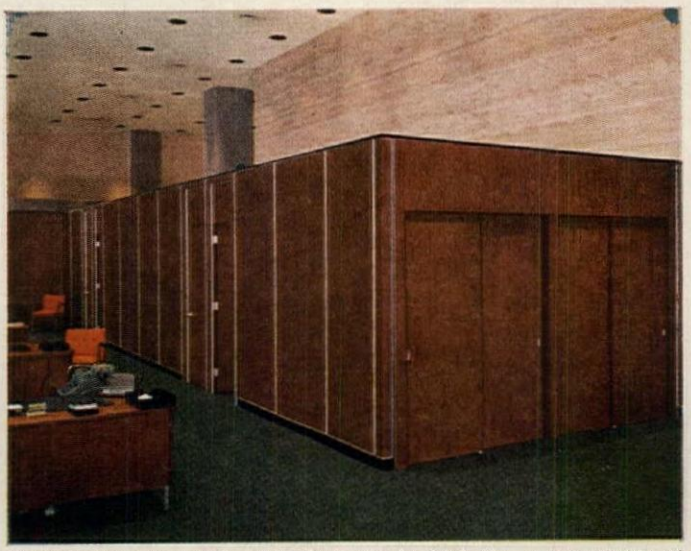
This bank not only lends money; it saves money with Nevamar® surfaces

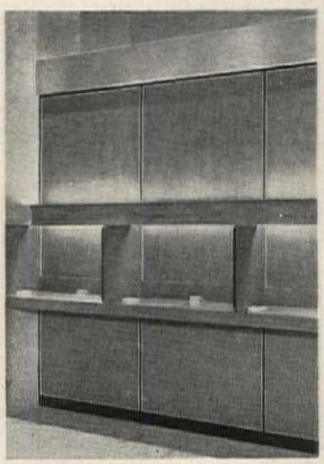
The Union Trust Company's new Baltimore office helps beat the high cost of upkeep with easy-care surfaces of Nevamar laminate. Because it requires virtually no maintenance, Nevamar makes good hardheaded business sense for counters, depositor writing desks and office partitions.

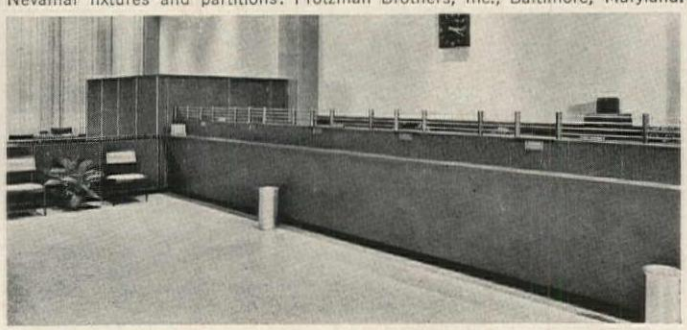
Elbows, bumps and ball-point pens don't begin to bother these hard-wearing surfaces. Nevamar also resists hot liquids, burning cigarettes, ink, alcohol and fruit juices.

When you select Nevamar laminates, you never have to compromise between beauty and practicality. There are many rich wood-grain reproductions to choose from, as well as scores of solids and patterns. Write for AIA file No. 35-C-12, or check Sweet's Architectural File 14a/Na.



Architect: Richard Hutman, AIA. Contractor for fabrication and installation of Nevamar fixtures and partitions: Protzman Brothers, Inc., Baltimore, Maryland.





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NATIONAL PLASTIC PRODUCTS COMPANY, INC., ODENTON, MARYLAND

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—*Drawn for the* RECORD *by Alan Dunn*

"The way they build partitions nowadays I'll never get my work done!"

ILLINOIS FOUNDS NEW SCHOOL OF ARCHITECTURE, APPOINTS LEONARD CURRIE AS ITS FIRST DEAN

Illinois has gained a new architectural school with the establishment of the College of Architecture and Art at the University of Illinois in Chicago. Its dean is Leonard Currie, formerly head of the Department of Architecture at Virginia Polytechnic Institute, and before that director of the Inter-American Housing Center in Bogota, Colombia.

The new school is a direct result of the University's development of its Chicago campus into a full university. Although students until now have been able to take three years of architectural training in Chicago, the program will be expanded to four years by the fall of 1964, and to a full curriculum when the college moves from the Navy Pier to the new campus at Congress Circle (pages 117-124). Though the program has been dependent for its direction on the College of Architecture and Art at Urbana-Champaign, it is now autonomous. The college has at present two departments—the department of architecture and the department of art; Dean Currie has said that other departments are hoped for in the future.

Harvard

Benjamin Thompson has been appointed chairman of Harvard's Department of Architecture, it has been announced by Jose Louis Sert, dean of the university's School of Design. Mr. Thompson, who simultaneously becomes Professor of Architecture, is a partner in The Architects Collaborative, with whom he has practiced since 1946. His recent professional services to Harvard have included the conversion of Boylston Hall into a language center and the renovation of some of the older dormitories in Harvard Yard.

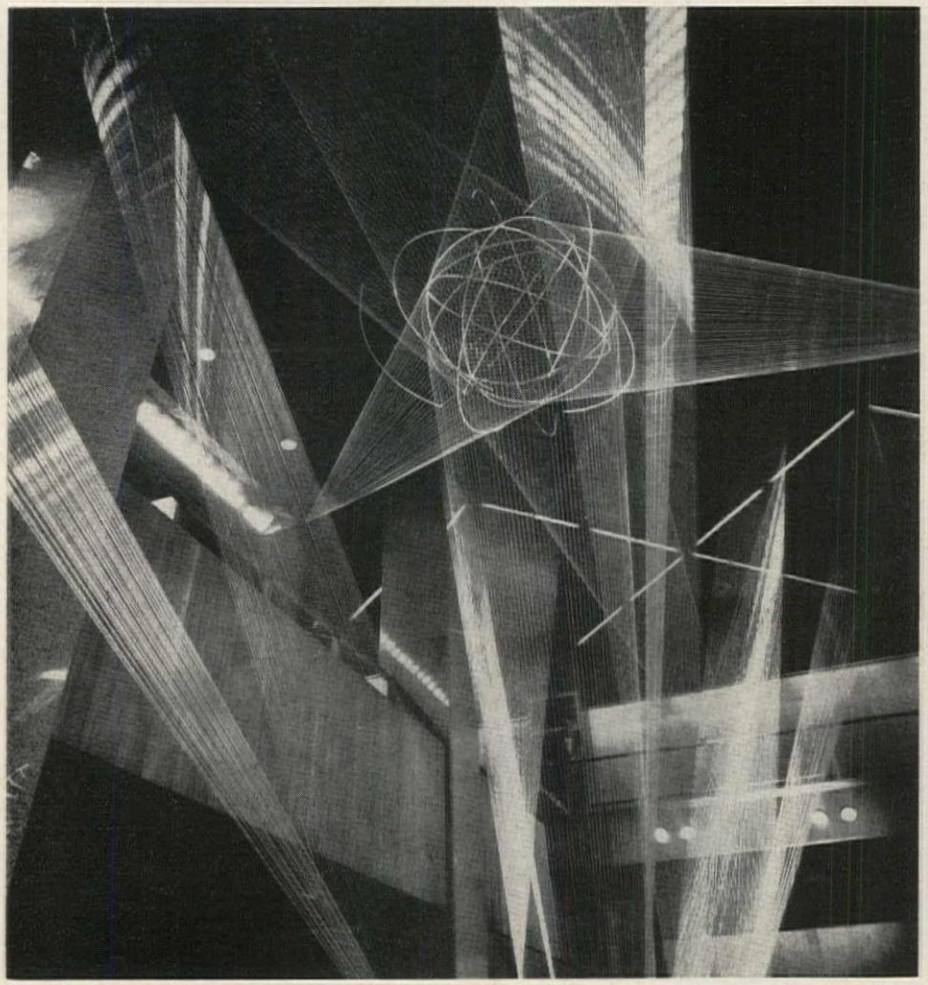
Southern Cal

The University of Southern California has announced the appointment of Eric Pawley as Professor of Architecture and as director of its program in architectural research. Professor Pawley has been Research Secretary of the American Institute of Architect with the headquarters staff in Washington, and has served with many of the Institute's research committees, and as technical editor of the A.I.A. Journal.

Dean Samuel T. Hurst said of Professor Pawley's appointment to the post, "We have made the first and most significant step toward the establishment of a program of research in architecture. Professor Pawley will work directly with students at all levels, developing research attitudes and methods necessary for the orderly investigation and solution of architectural problems, and will co-ordinate the research interests and capabilities of our teaching departments."

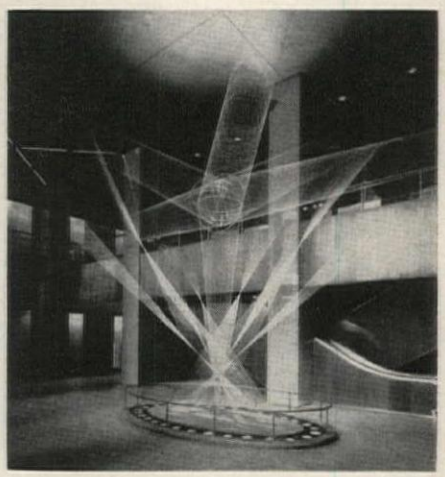
The appointment was made possible by the Architectural Guild, professional support group of the University's School of Architecture and Fine Arts.

"FLIGHT" IS FIRMLY IN PLACE IN PAN AM LOBBY



J. Alex Langley

For two months, visitors to the new Pan Am Building in New York stopped to watch Richard Lippold at work on his giant-sized sculpture, Flight. Mr. Lippold has departed now, leaving the gold and stainless steel sculpture in place. Visitors are greeted by a structure three stories high and 80 feet wide, symbolizing the world altered by air travel. It is visible from both the street level and the balcony level and, outside the building, from 45th Street and from the Park Avenue auto ramp which by-passes the building on the west.



CANADIAN ARCHITECTS CONVENE IN ONTARIO

At their 56th Annual Assembly, more than 200 members of the Royal Architectural Institute of Canada met at the Sheraton-Connaught Hotel in Hamilton, Ontario, for a four-day session beginning May 15. The theme, "Architecture in a Changing World," was introduced by Thomas Creighton, F.A.I.A., at the keynote luncheon. One of the convention's two major seminars also carried the theme title; the moderator, architect R. T. Affleck of Montreal, was joined by Powell Smily, public relations counsel to the Ontario Association of Architects, who viewed the architect's current public image; W. D. S. Morden, barrister and solicitor to the O.A.A., whose approach was that of the legal profession; Eric Harrington, engineer and president of Anglin Norcross Ltd., who took the general contractor's position; and E. A. Gardner, retired Chief Architect to the Department of Public Works, who took the view of the client.

The second major seminar, "Rebuilding the Central City," was moderated by Humphrey Carver, head of the advisory group, Central Mortgage & Housing Corporation. Panelists were architect Guy Desbarats, Douglas Shadbolt, Director of the School of Architecture at Nova Scotia Technical College, Halifax, and Murray Jones, former Planning Commissioner for Metropolitan Toronto.

Other speakers included engineer Alexander Tarics of San Francisco, who spoke at a dinner sponsored by the Steel Industries Advisory Council; Angus McClaskey, president of Don Mills Development Limited, who spoke at a lunch given by the O.A.A.; Peter Stokes, consulting restoration architect, who spoke at the Product Literature Awards Lunch; and Harvey McCullouch, Q.C., who spoke at the annual dinner.

New Officers

Members re-elected John L. Davies, F.R.A.I.C., Vancouver, as president. Other elected officers include F. Bruce Brown, F.R.A.I.C., Toronto, vice president; Randolph C. Betts, F.R.A.I.C, Montreal, honorary secretary; and James W. Strutt, F.R.A.I.C., Ottawa, honorary treasurer. Members of the executive committee are Gordon Arnott, Regina; Francis J. Nobbs, F.R.A.I.C., Montreal; James Searle, Winnipeg; Harland Steel, F.R.A.I.C., Toronto; C. A. E. Fowler, F.R.A.I.C, Halifax; Gerard Venne, F.R.A.I.C., Quebec; and H. L. Bouey, F.R.A.I.A., Edmonton.

KENNEDY RECEIVES A.I.A. CITATION FOR POLICIES ON ARCHITECTURE, ART

The American Institute of Architects has presented a citation to President John F. Kennedy in recognition of his actions and policies related to architecture and the fine arts. The award, voted by the A.I.A. board of directors, marks the first time a U.S. President has been cited by the 106-year-old national professional organization.

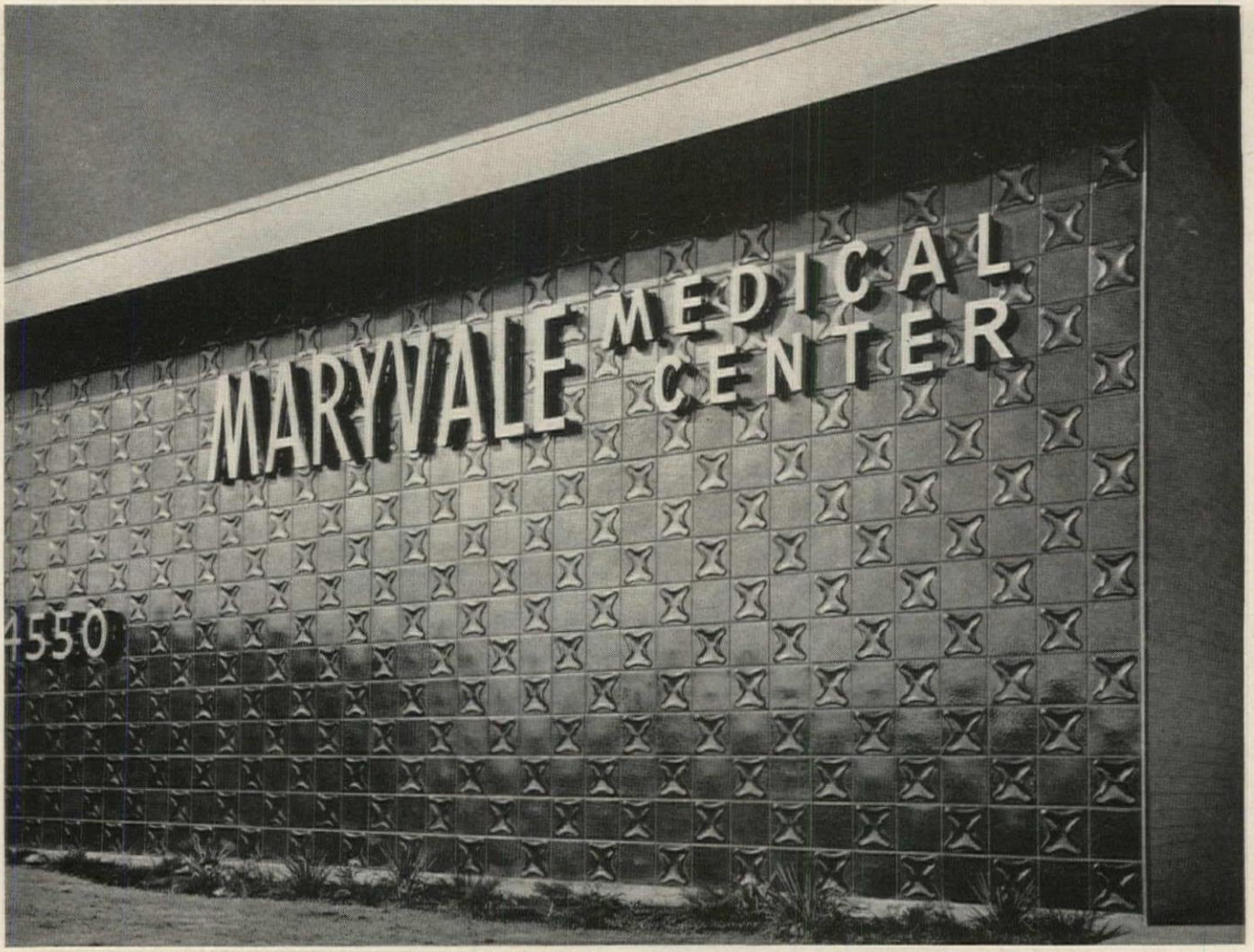
In presenting the citation, A.I.A. president J. Roy Carroll, F.A.I.A., said Mr. Kennedy was ". . . the first President of the United States—except possibly the first and third ones —who has had a vision of what architecture and its allied arts can mean to the people of the nation . . . But you have not just had this vision, you have actively set forth policies to ensure that the architecture of Government buildings will be an architecture of vitality and leadership, and you have thrown the full weight of your great personal prestige behind the cause of good architecture and sound planning."

The citation recognizes President Kennedy's "appointment of a Special Presidential Consultant on Arts; his adoption of a policy, recommended by a special Cabinet Committee of his appointing, calling for the finest contemporary American architectural thought in the creation of federal builings; his selection of a qualified advisory committee for the development of an appropriate expression of architecture and landscape architecture in the transformation of Pennsylvania Avenue in the Capital.

"All of these actions emphasize his awareness of the basic need of beauty in man's physical environment, the vital role of architecture in its development, and his readiness to employ the presidential power in achieving this goal."

Accompanying Mr. Carroll to the presentation ceremony were: first vice president Arthur Gould Odell Jr., F.A.I.A., Charlotte, N.C.; board member Charles M. Nes Jr., F.A.I.A., Baltimore, Md.; executive director William H. Scheick, A.I.A.; and Institute director of public services Kenneth C. Landry, A.I.A.

From right: The President; J. Roy Carroll Jr.; Arthur Gould Odell Jr.; Charles M. Nes Jr.; William H. Scheick



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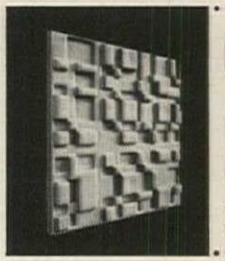
You now can subtly vary the interplay of light and shadow on exterior walls, to achieve unusual beauty and textural interest. This architectural distinction is attained with *Contours CV*, a new, lightweight ceramic facing with incised and bas-relief pattern. That shown in the photo is "Sculptured Shadows." For this Phoenix, Arizona, medical center, Architect G. Collum combined flat and sculptured units.

Contours CV is characteristically inert, never effloresces, cleans easily, retains its beauty through the years with minimum maintenance. Units are 11¾" x 11¾". They may be applied in the same way as glazed wall tile or as regular adhesion-type CV. Nineteen colors, ranging from pale pastels to rich tones, are available in semi-matte or mottled glaze. Over a dozen patterns now are standard.

Contours CV gives you the construction economy of lightweight, easy to handle, modular pieces of a high-fired ceramic, with a frost-proof body and a glaze impervious to weather. Its distinctive patterns and extraordinary beauty provide new opportunities for award-winning design. Yet it is priced to permit use in a wide variety of commercial, industrial and institutional construction, and will fit the budgets of most jobs. Write for literature showing patterns and specs. Better, visit one of our salesrooms where you can see and feel the beauty of *Contours CV* itself.



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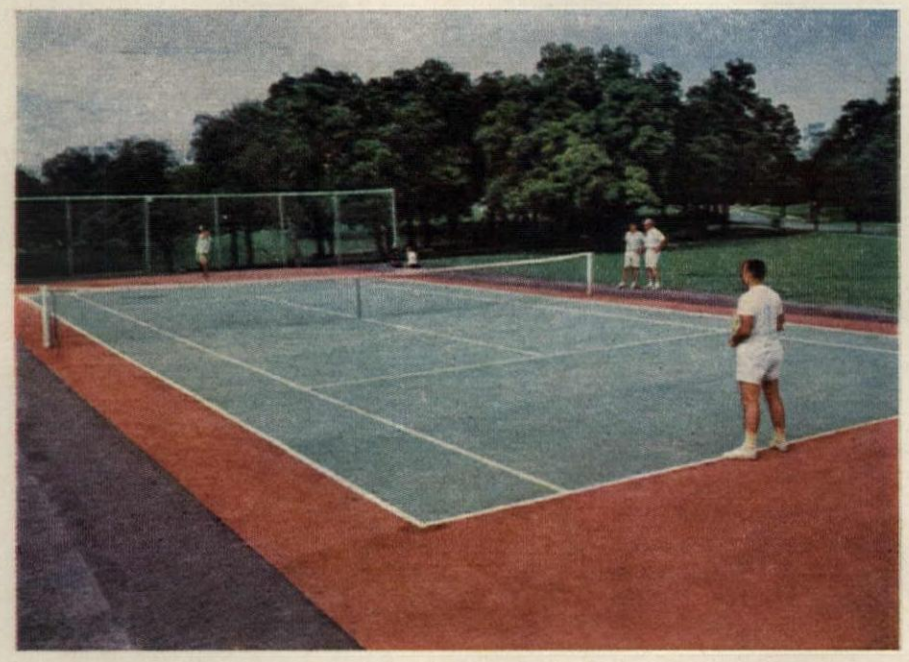

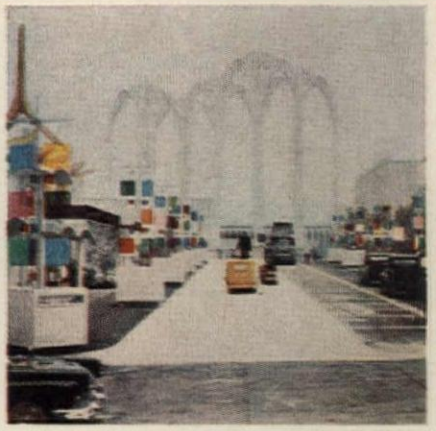

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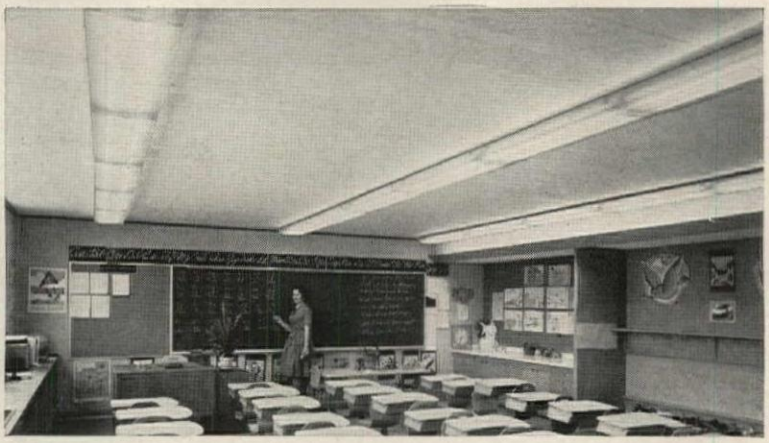

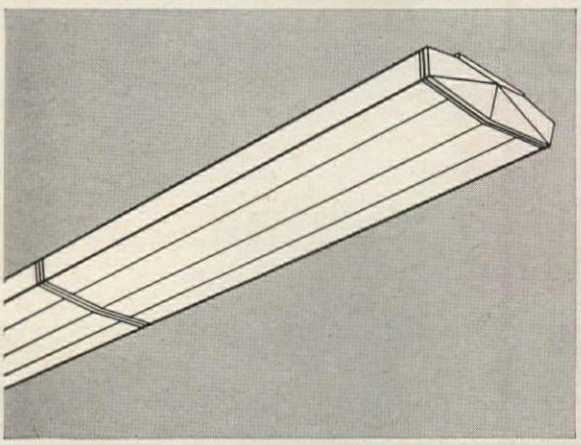

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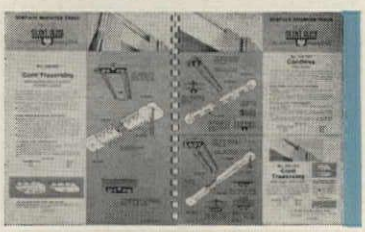

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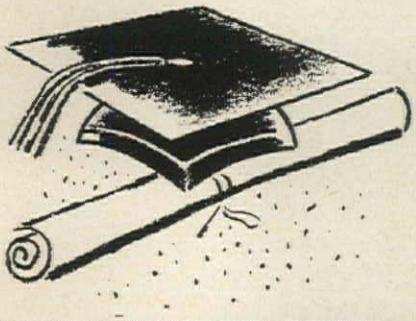

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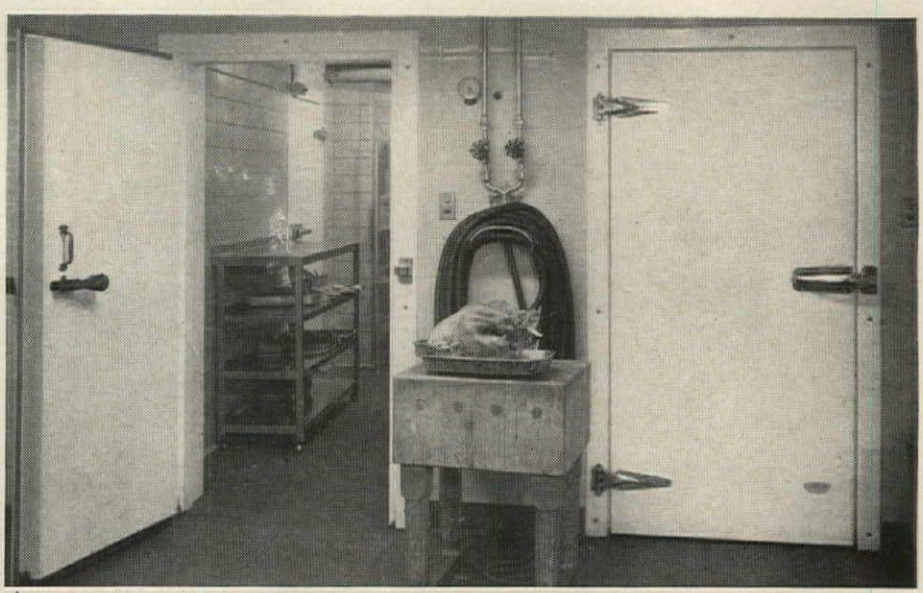

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Architects & Engineers: Belli & Belli, Chicago. General Contractor: A. W. Heinson and Company, Mundelein, Illinois. Steel Fabricator: Haven-Busch Company, Granville, Michigan. Panel Fabricator: Atlas Enameling Company, St. Louis. Panel Erector: Breliant Manufacturing Company, Maywood, Illinois.

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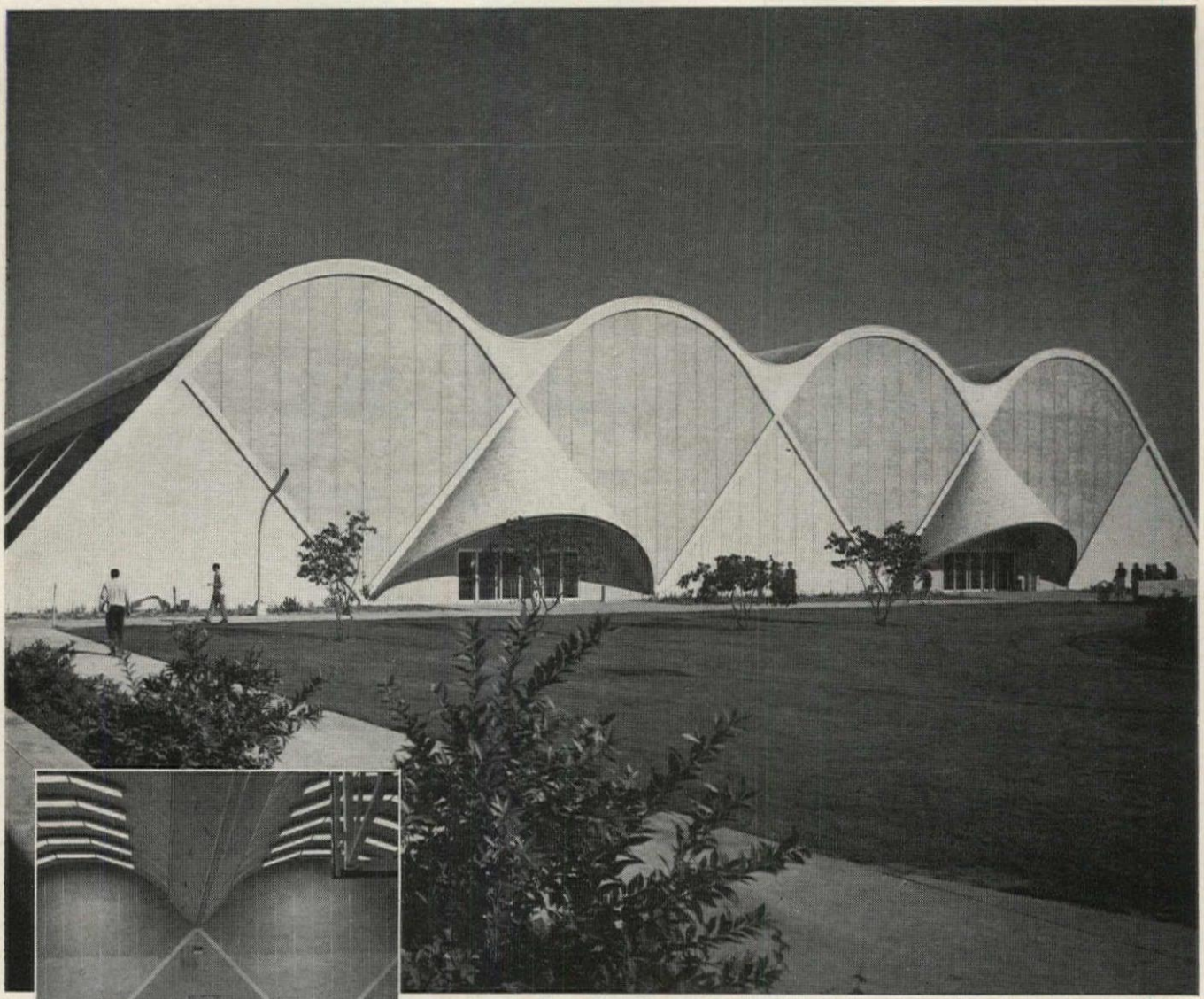

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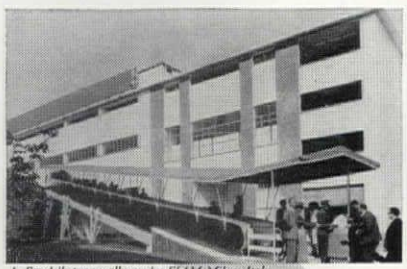

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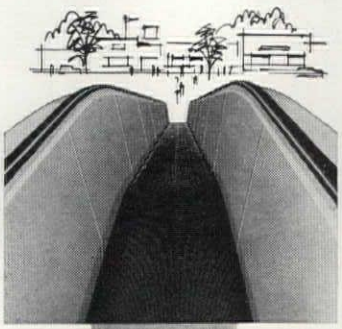

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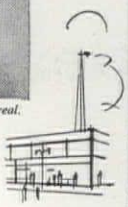
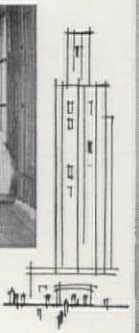


2. Sandvik type walkway, Sydney, Australia.



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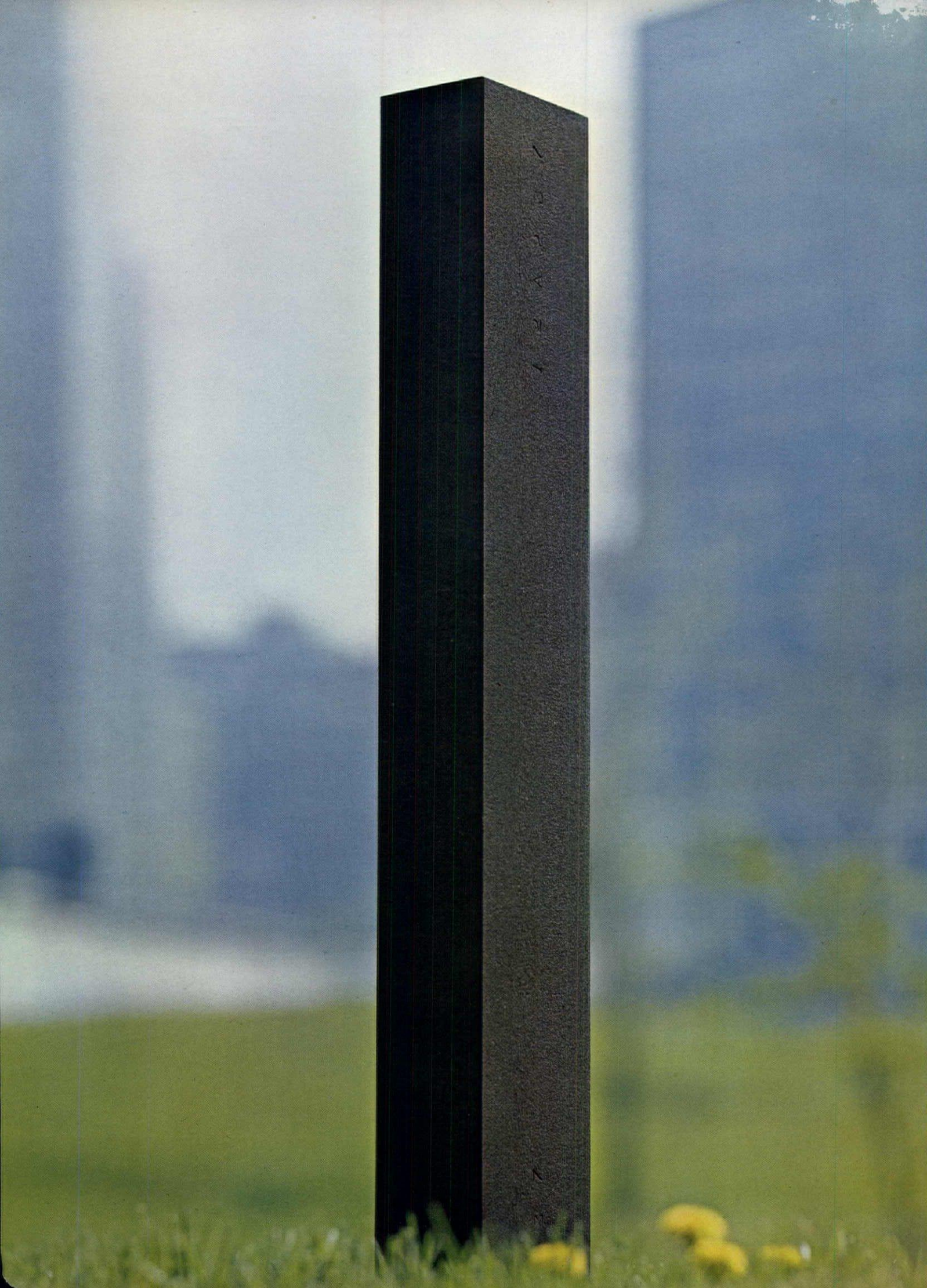

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When used bare on building exteriors, it weathers to a rich, earthy color of natural beauty, and if it is scratched, it heals itself. USS COR-TEN Steel is the name of this versatile material.

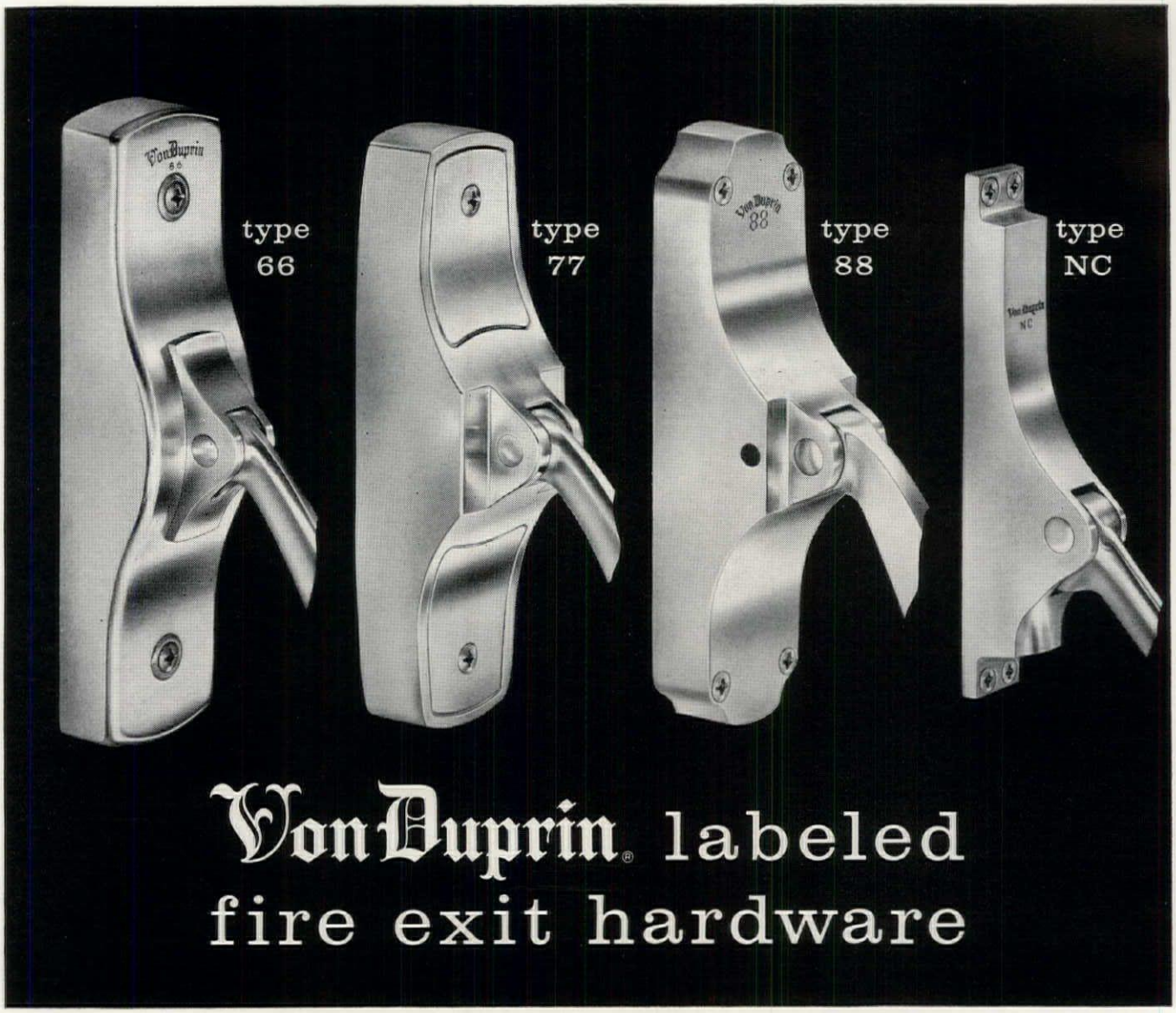
The oxide coating that forms on bare COR-TEN Steel is extremely dense and adherent, inhibits further corrosive attack and preserves the structural integrity of the member. Its brown-red-blue color gradually darkens with exposure to the elements and develops a fine-grained texture—a character only nature can give, as with stone or timber.

USS COR-TEN Steel is a high-strength low-alloy steel. It is up to 40% stronger than structural carbon steel, so it can be used in thinner sections to cut weight. It is readily weldable. And, when a color scheme *requires* painting of steel members, the paint will last twice as long because the oxide film is nonflaking. COR-TEN Steel is available in all rolled steel products —plates, structurals (including wide-flange), bars, sheets, strip and tubular products. For more information, write for our new folder, "COR-TEN Steel for Architectural Applications." United States Steel, Room 6774, 525 William Penn Place, Pittsburgh 30, Pa. USS and COR-TEN are registered trademarks.

United States Steel Corporation • American Steel and Wire Division • Columbia-Geneva Steel Division • National Tube Division • Tennessee Coal and Iron Division • United States Steel Supply Division • United States Steel Export Company

Steel . . . the architectural metal

United States Steel USS



● Take your choice! Our new line of fire exit hardware is listed by Underwriters' Laboratories, Inc., for use on labeled doors, and you can specify four different Von Duprin crossbar assemblies . . . with single door, mortise lock device installations . . . or with concealed vertical rod and mortise lock devices for double door installations.

Write for free Bulletin 623. It will give you a report on the exhaustive series of tests that won for us the UL listing . . . plus detailed descriptions of the full line of Von Duprin fire exit hardware in stainless steel, bronze and aluminum.

For Openings up to:	RATING					Choice of crossbar assemblies
	"A" label	"B" label	"C" label	"D" label	"E" label	
DBL 7′ wide x 7′ high	3 hour	1½ hour	¾ hour	1½ hour	¾ hour	NC, 66, 77, 88
SGL 4′ wide x 8′ high	3 hour	1½ hour	¾ hour	1½ hour	¾ hour	NC, 66, 77, 88
DBL 8′ wide x 7′ high	—	1½ hour	¾ hour	1½ hour	¾ hour	NC, 66, 77, 88

the safe way out

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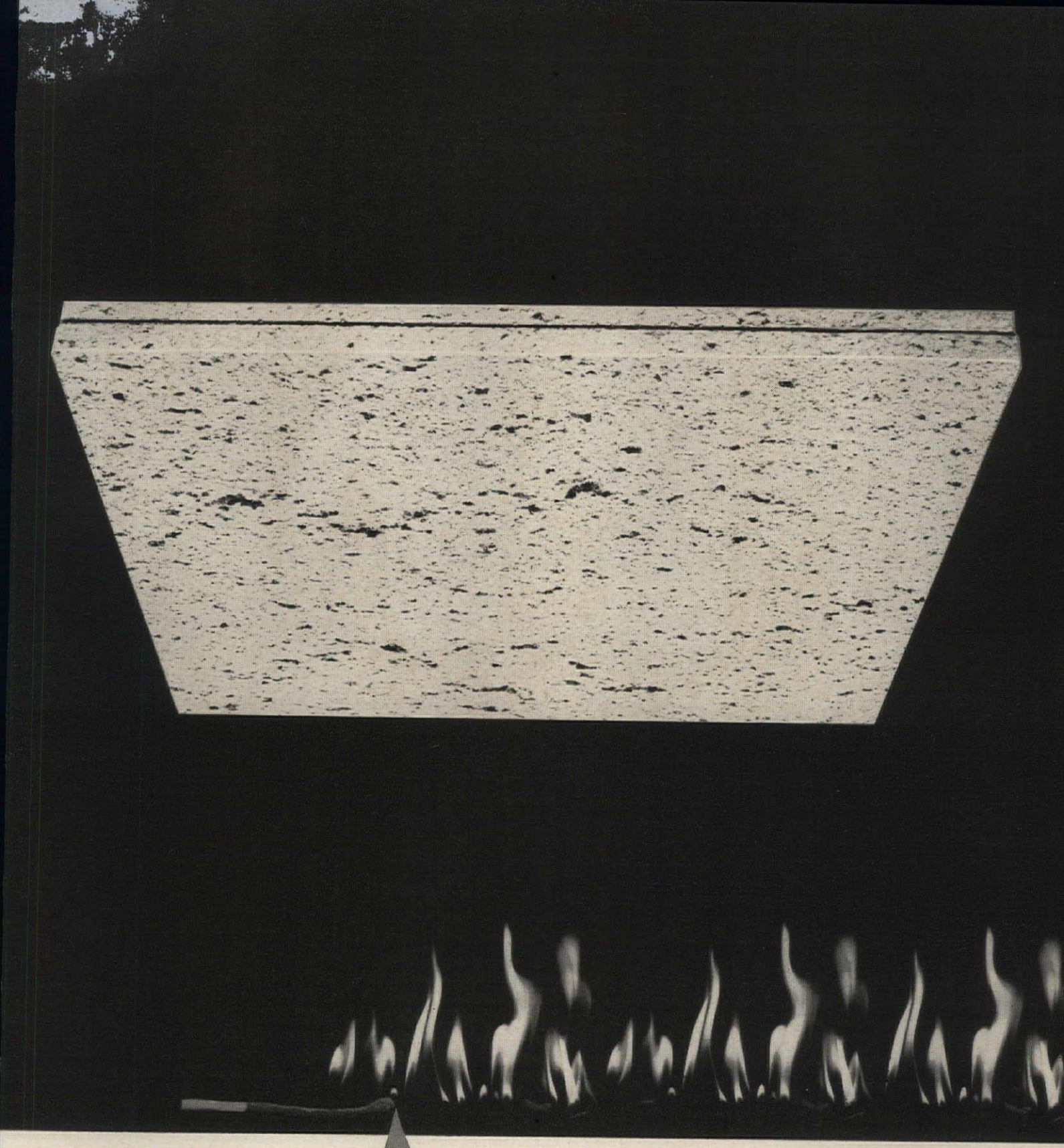
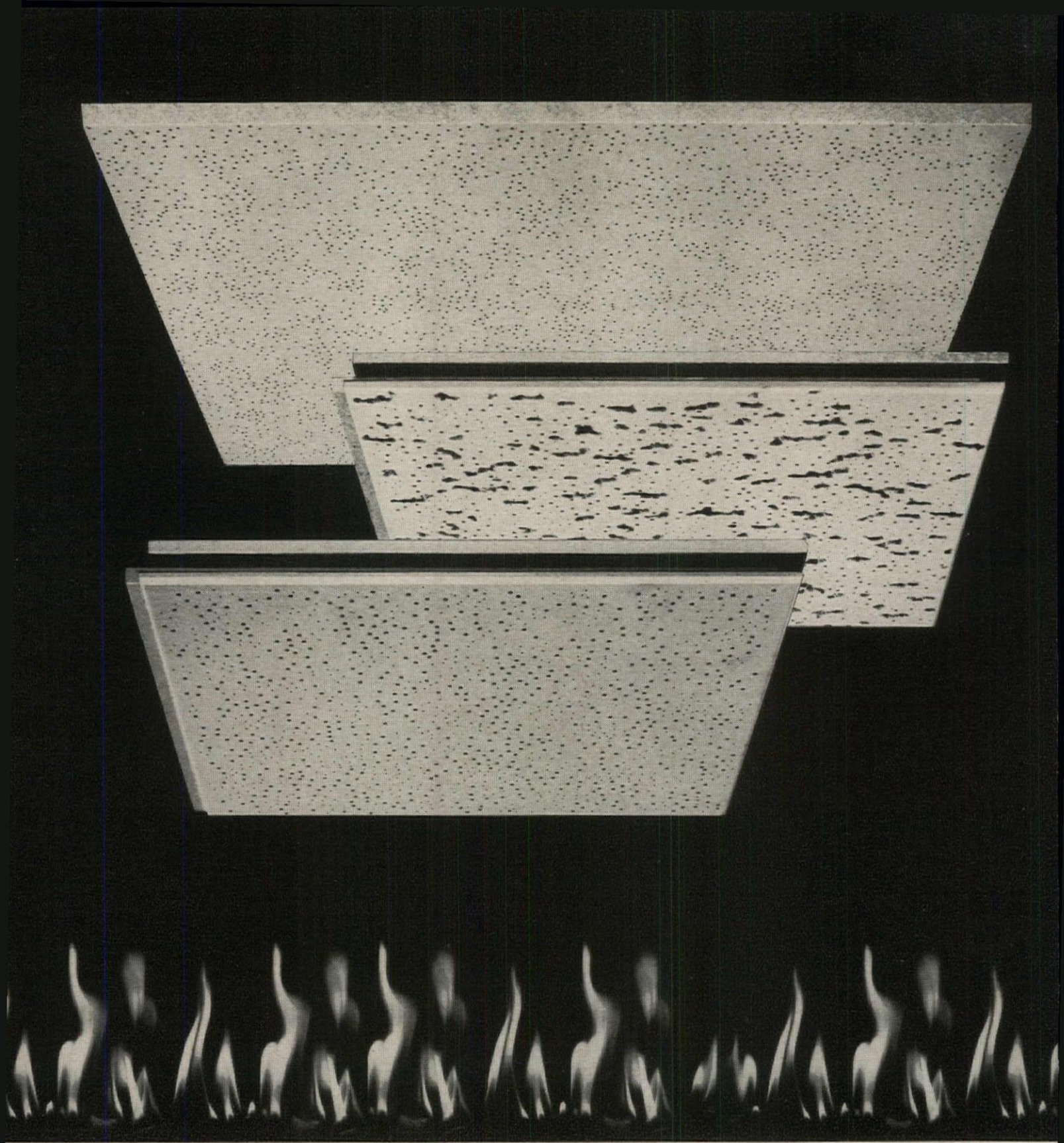
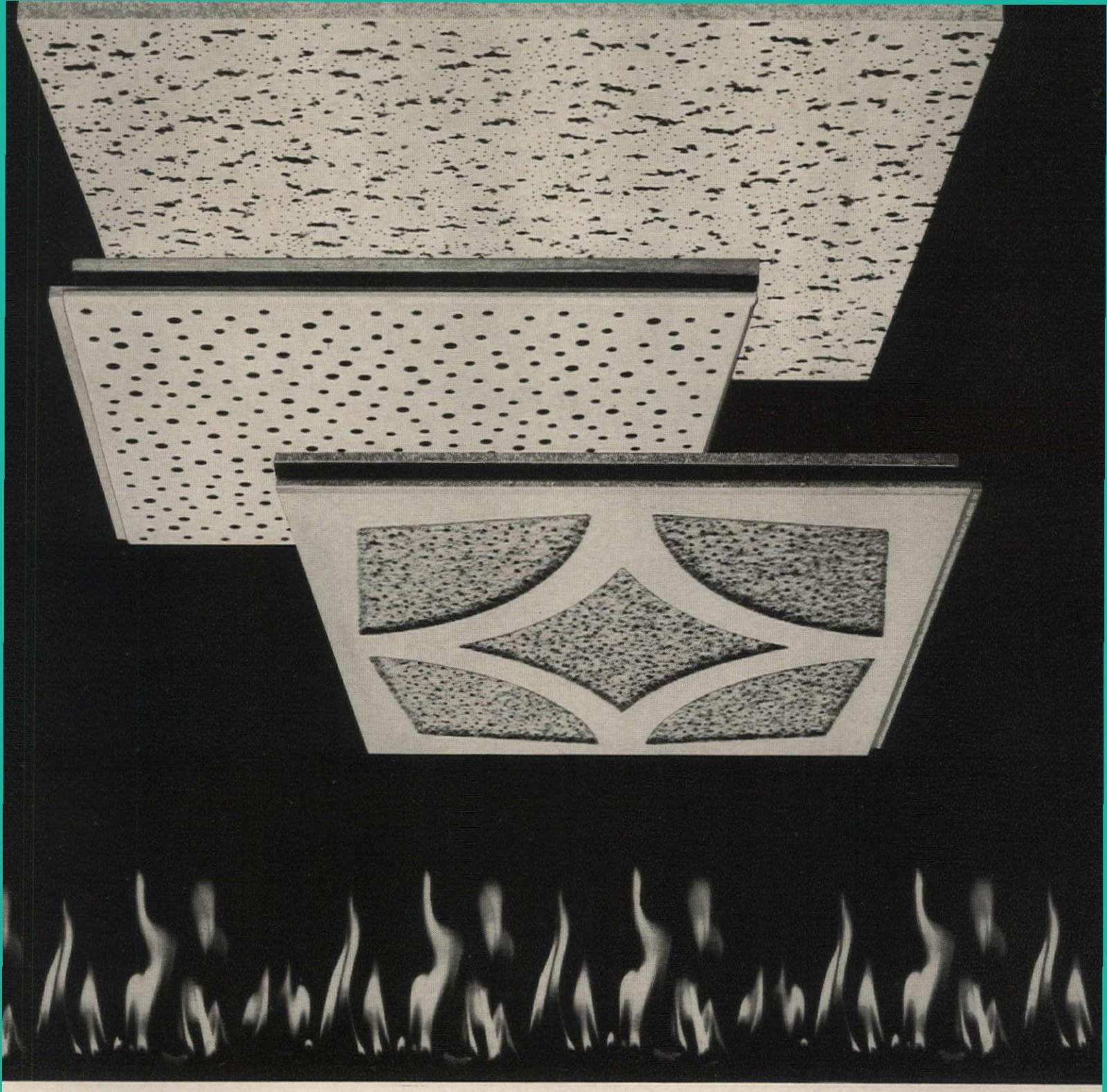
For more data, circle 97 on Inquiry Card



The Gold Bond difference:
Fire-Shield acoustical ceilings with...

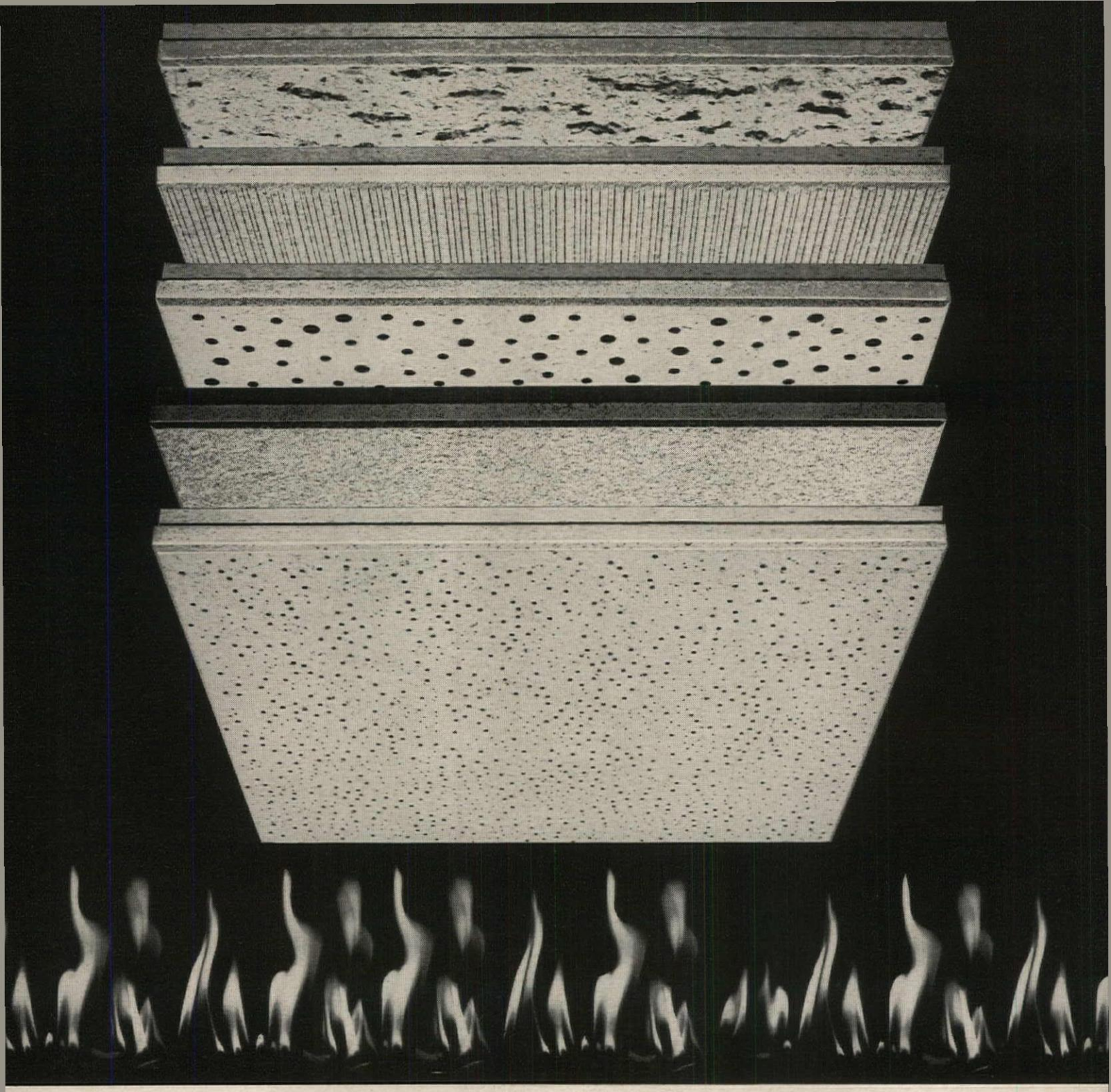


...a wide range of styles and patterns for 1, 2, or 3-hour fire-rated ceiling construction systems



Gold Bond offers you a complete selection of Fire-Shield tiles and panels. Above are some Fire-Shield Solitude patterns. Solitude tiles and panels are made of mineral fibers for good sound-absorption ratings. And they are available in a wide choice of modern and tasteful surface patterns. In panel form, Solitude is square-edged so you can install it fast in an exposed grid system. In tile form, it's tongue-and-grooved for installation with concealed "J" Suspension System. Both tiles and panels can be vacuum cleaned with an upholstery attachment, or repainted with a brush, roller, or spray gun.

Gold Bond
ACOUSTICAL PRODUCTS



To give you design freedom as well as fire protection

These Acoustiroc tile patterns are kerfed and rabbeted for a neat, clean, handsome installation. The long mineral fibers are uniformly interlocked, so they're resistant to high humidity or sagging. (This can save days in construction time, because there is no waiting until plaster dries before tile is installed.) Now that you've gotten a glimpse of Fire-Shield Solitude, and Fire-Shield Acoustiroc, we'd like to sit down with you and complete the picture. Because no one else in the industry can give a wider range of styles and patterns for 1, 2, and 3-hour fire-rated ceilings. And we have some more facts you should know about. There is a Gold Bond® difference. And it can make a difference to you. National Gypsum Company, AR-83, Buffalo 25, N. Y.

Gold Bond materials and methods make the difference in modern building

Gold Bond®
ACOUSTICAL PRODUCTS

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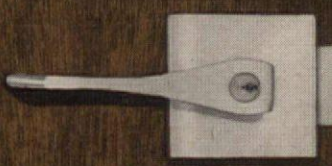
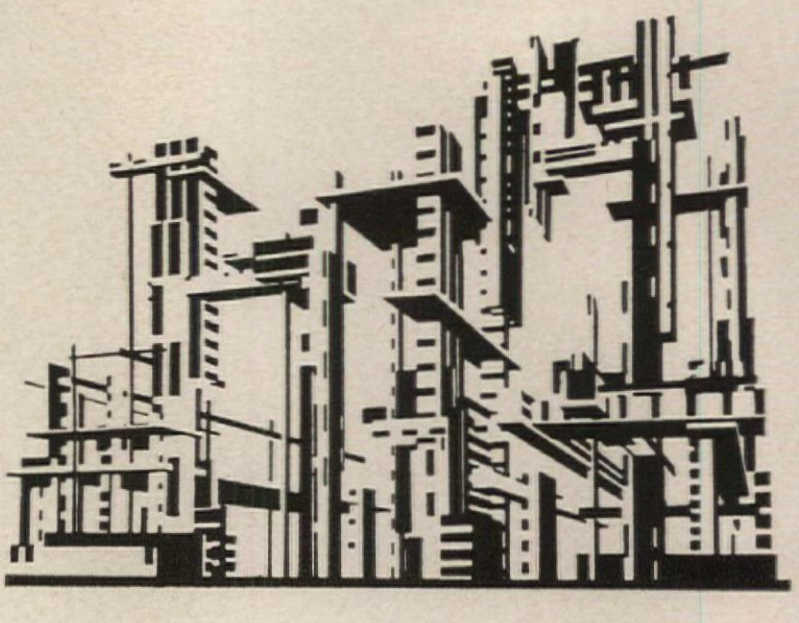
Doors are to open...



RUSSWIN



Experimental drawing by Iakov Chernikov, c-1930
—from "The Architecture of Fantasy"

Fuller

IDEAS AND INTEGRITY. *A Spontaneous Autobiographical Disclosure. By Buckminster Fuller. Prentice-Hall, Inc., Englewood Cliffs, N.J. 318 pp., illus. $6.95.*

If the specialized 20th century can be imagined to have a Universal Man, Bucky Fuller fits the description. The universality, rather than being humanistically oriented as in the Renaissance, is, to be sure, technologically oriented. Within the comprehensive (Fuller's word) span of his thinking, he includes, besides engineering, transportation, communication, economics domestic and international, geography, politics, health —all notable preoccupations of the 20th century. If his optimism concerning the capacities of science, his dream of Everyman's Utopia achieved through technology, seem a trifle outdated to those sickened by the recent achievements of scientists and technicians, it can be answered that Fuller's vision has no place for these accomplishments. Indeed, he would argue that a science dedicated to armaments, abetted by businessmen and politicians, is simply an impediment to serious work. (This is not to suggest that Fuller's political thought is developed here; like most technologically oriented thinkers, he appears to find politics beside the point. His aim is the *material* improvement of man's living conditions.)

Fuller's "autobiographical disclosure" is on the order of Sullivan's "Autobiography of an Idea." Although he has led an enormously varied and peripatetic life, and could drop names with the best of them, it is essentially the interior life which interests him. In his first two chapters, he does describe the experiences of his youth which formed his ideas: a boyhood spent with boats on the coast of Maine, a tour of duty with the Navy in World War I, an apprenticeship to a group of cotton mill machine fitters. He also tells of the illnesses and death of his four-year-old daughter, which he blames on poor housing, and of the birth of another daughter, which strengthened his resolve to look for a total solution to the problem. Otherwise, he writes only of the development of his thought: on housing; on domes; on efficient building systems; on cartography and navigation; on data gathering, and on design synthesis.

All of this, it should be said, is expressed in Fuller's unique semantics. But however unconventional the language, or some of the associations it describes, the content is itself a unique reflection of the more commanding factors of 20th century life.

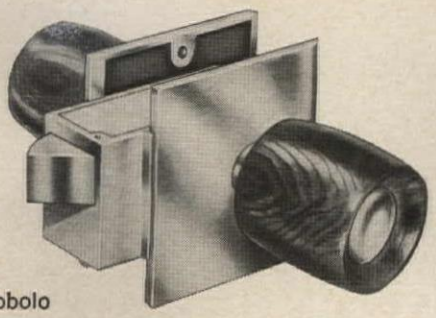
Urban Design

THE FACE OF THE METROPOLIS. *By Martin Meyerson, with Jacqueline Tyrwhitt, Brian Falk and Patricia Sekler. Random House, 457 Madison Ave., New York 22. 250 pp., illus. $7.50.*

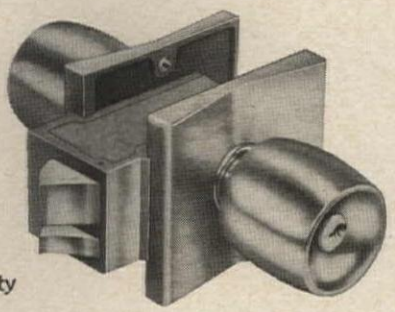
The authors see the metropolis as divided into three parts, each of which, on the design level, intimately affects the others. First, there is the Center City, until recently in a state of decay, but currently in an apparent state of recovery, thanks to large scale, even wholesale, planning. Second, there is the Middle City, still partly warehouse, partly slum, partly non-slum but debilitated housing, and ripe for housing projects, light industry, research and charitable institutions. And finally, the Outer City, with detached housing and new office buildings, and where the design problems, though relatively few, include transportation and the preservation of open space (especially for Outer City's recreation).

The book was written, and priced, in hopes of stimulating "a wider and more sophisticated public interest in urban design and architecture." It is, having this end in mind, a collection of recent and relatively recent designs for central redevelopment, as in Boston's Back Bay Center, or for individual buildings with broad effect on the surroundings, as in New York's Chase Manhattan Bank, or Hartford's Connecticut General. Because the collection is intended to show the possibilities and effects (not always favorable) of urban design, the organization may seem rather loose to architects and planners. There is nonetheless something to be gained in viewing these projects, in a comparative context and in so large a collection.

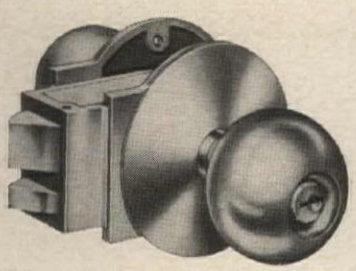
more books on page 58



Cocobolo

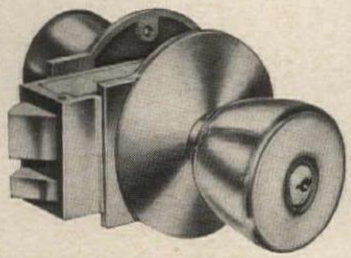


Unity

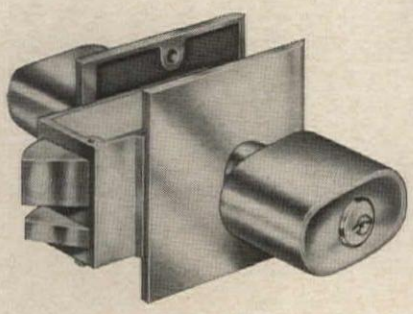


Mono

Moderalev



Mystic



Aero

Here are designs that help you use doorware *imaginatively*. And behind the good looks is good lockmaking. For these are Russwin Uniloc* Locksets..."unit construction" at its best. Completely factory-assembled (they "go on the door as they come out of the box"), Russwin Uniloc Locksets are built to last for the life of your building. See your Russwin supplier. Or write for literature to Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

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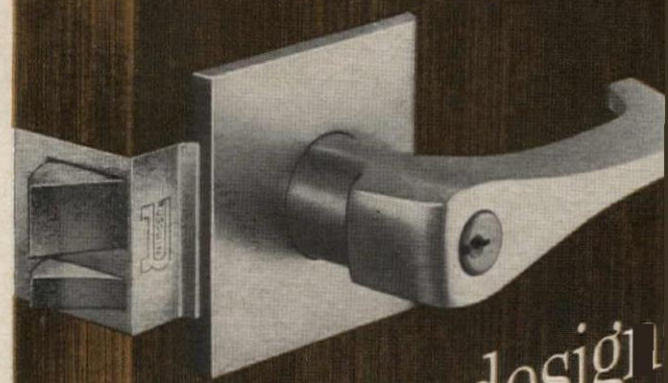
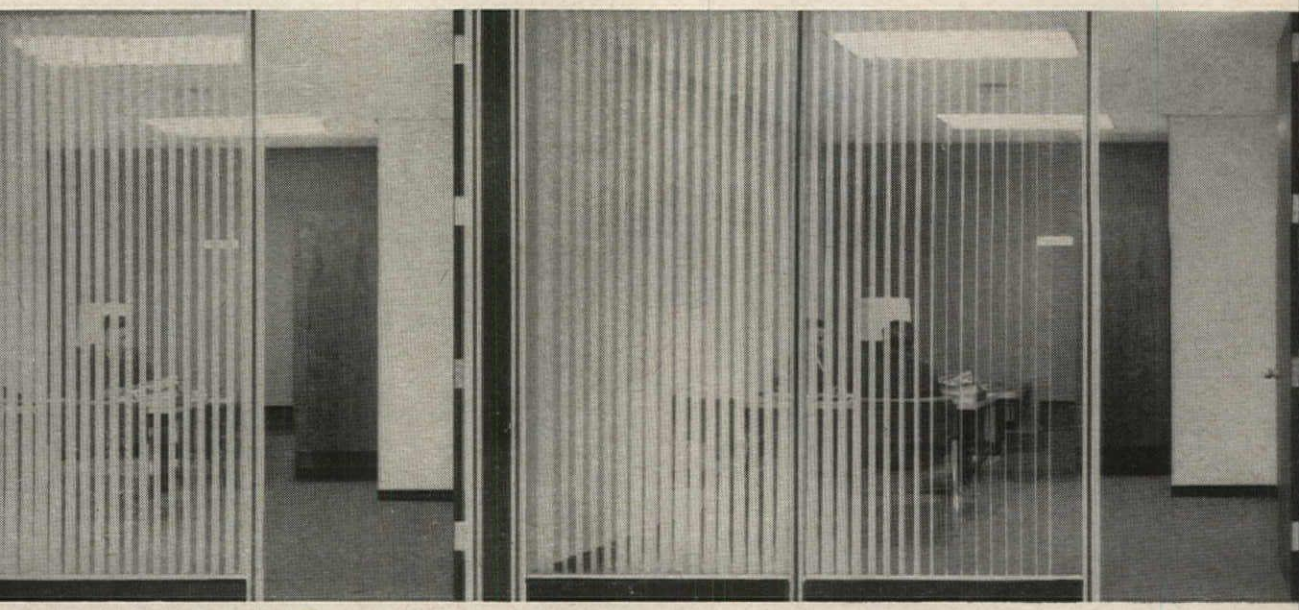
To help you open doors imaginatively.



Uniloc design by Russwin



ll-to-wall-to-wall-to-wall-to-wall-to-wall-to-wall-to-wall-to-

Yes.

Carpeted offices are a sign of the times. They're modern, they're sophisticated. They're good business.

They rent faster, they attract more desirable tenants who take pride in how their offices look. They boost employee morale, they cut down on noise.

A good choice for office carpeting is carpet made with Acrilan® acrylic fiber in the pile.

Acrilan is a man-made fiber. Because of its nature, it is extra-resistant to soil and stain, it has no cleaning

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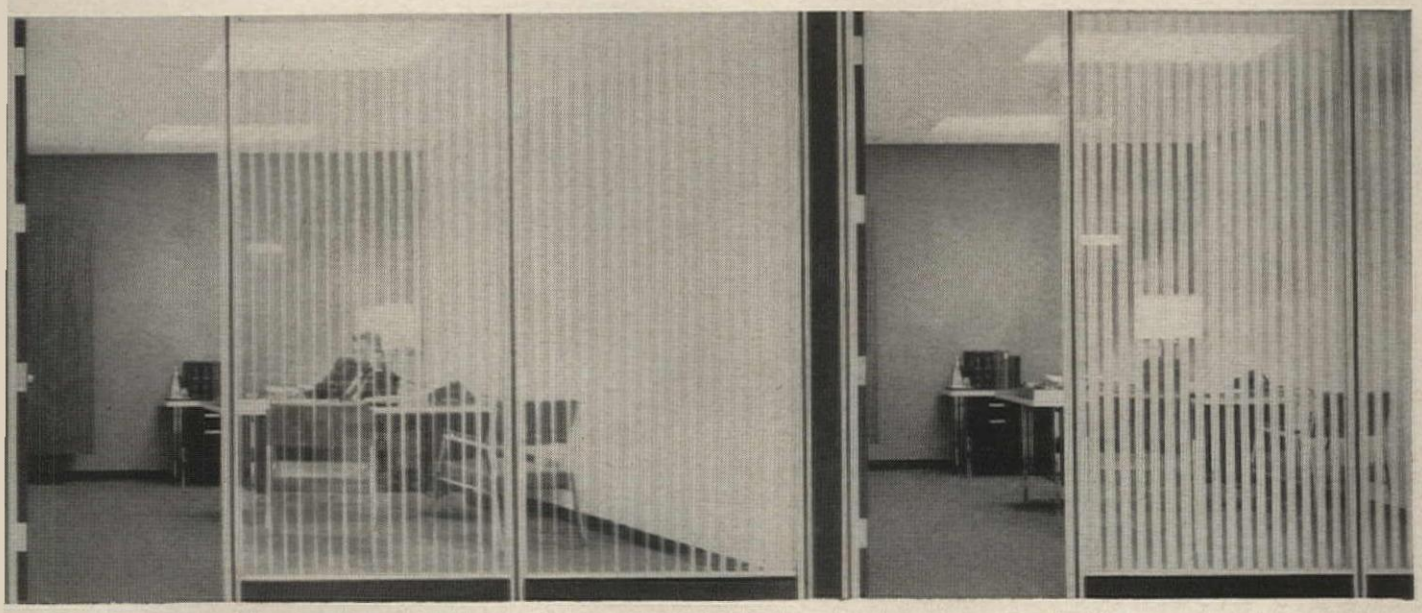
THESE ARE AMONG THE MILLS NOW LICENSED BY CHEMSTRAND



l-to-wall-to-wall-to-wall-to-wall carpeting in an office building?

problems and is non-allergenic.

Its initial cost isn't as much as you might think. And the big thing: luxurious carpets made with Acrilan are economical to maintain.

Mull it over.

If you decide yes to carpet your office space, do this. Write to Contract Carpet Dept., Chemstrand, 350 Fifth Avenue, New York 1, and ask about Acrilan.

Turn the page to see another interesting installation of Cabin Crafts carpet made with 80% Acrilan acrylic, 20% modacrylic pile.

ACRILAN® acrylic fiber CHEMSTRAND

CAROLINA • CANADA: CHEMSTRAND OVERSEAS, S.A., TORONTO • CHEMSTRAND, MAKERS OF FIBERS FOR THE WAY WE LIVE TODAY, MAKES ACRILAN® ACRYLIC FIBER AND CUMULOFT® NYLON FOR AMERICA'S FINEST MILLS. FOR ACRILAN: BARWICK, CABIN CRAFTS, CALLAWAY, CORONET, CRESTLINE, DOWNS, HARDWICK AND MAGEE, JAMES LEES, LOOMWEVE, MAGEE, MASLAND, MONARCH, ROXBURY, WUNDA WEVE. IN CANADA: HARDING CARPETS.

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Vitra-Tile

TILE-LIKE BEAUTY AND PROTECTION

On interior walls of masonry, concrete, wood, metal, plaster or gypsum board, Vitra-Tile produces a hard, smooth coating closely resembling ceramic tile *at a fraction of the cost.*

Vitra-Tile may be applied over new or old walls by brush, roller or spray. Its self-baking finish becomes extremely hard, is non-porous and resistant to abrasion and chemicals. It creates a continuous, hard surface in single color or decorated effects for great beauty at low cost.

For corridors...lavatories...operating rooms...laboratories ...classrooms...super markets, etc. Send for color brochure illustrating and describing Vitra-Tile and its application, or ask your P & L representative. Pratt & Lambert-Inc., 75 Tonawanda St., Buffalo 7, N.Y.

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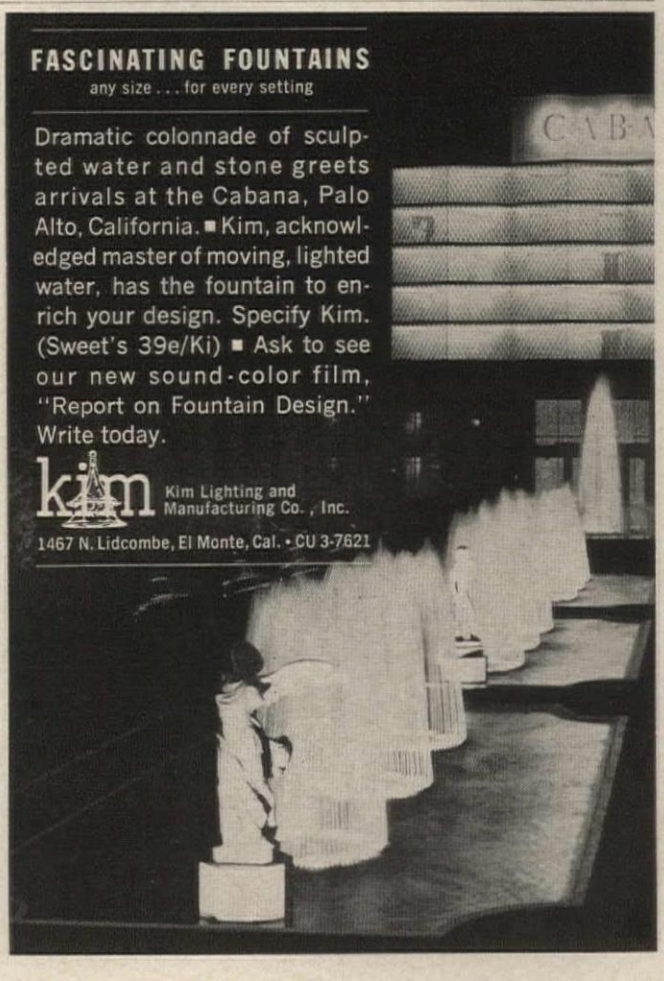
FASCINATING FOUNTAINS

any size . . . for every setting

Dramatic colonnade of sculpted water and stone greets arrivals at the Cabana, Palo Alto, California. ■ Kim, acknowledged master of moving, lighted water, has the fountain to enrich your design. Specify Kim. (Sweet's 39e/Ki) ■ Ask to see our new sound-color film, "Report on Fountain Design." Write today.



kim Kim Lighting and Manufacturing Co., Inc.

1467 N. Lidcombe, El Monte, Cal. • CU 3-7621

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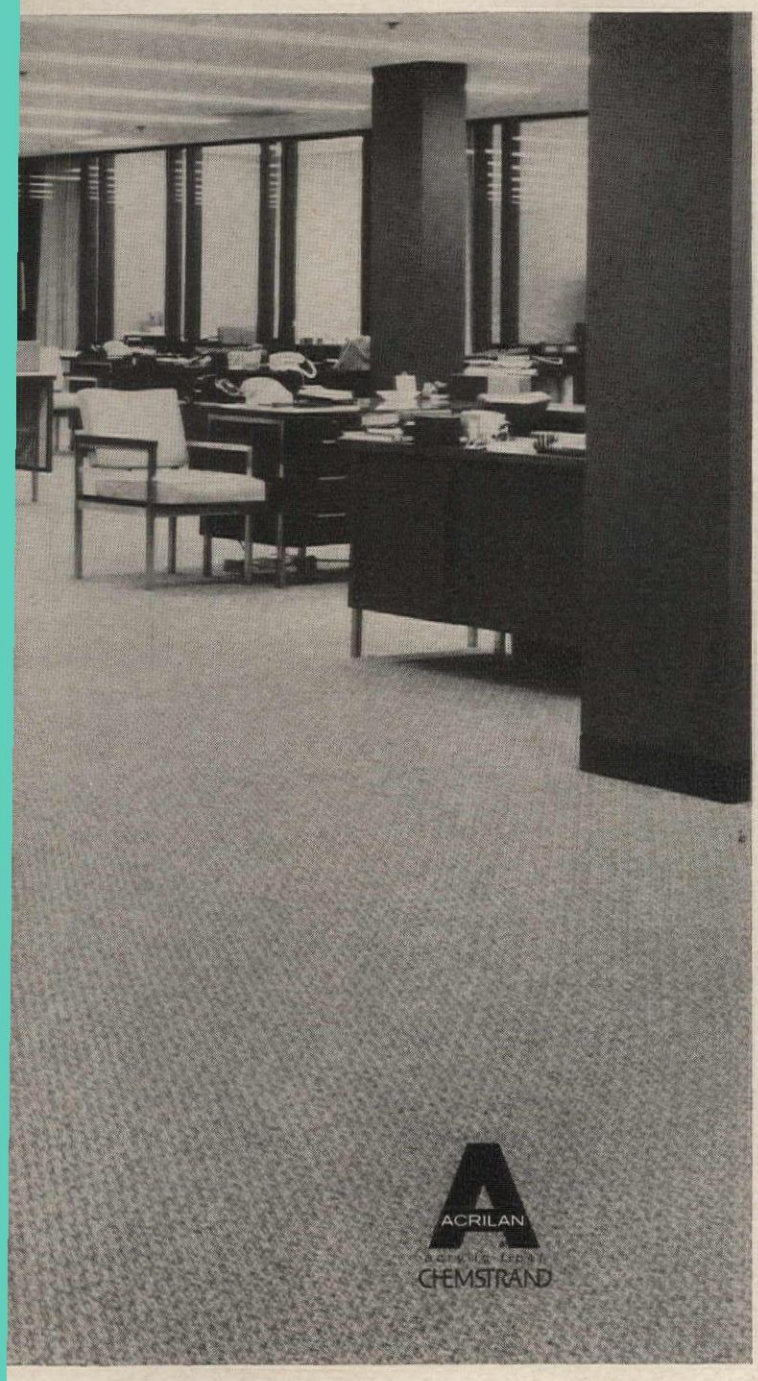
Cabin Crafts carpet with Acrilan looks luxurious in Alderman Studios' new offices, provides the quiet atmosphere essential to good working conditions.

Alderman Studios, specialists in home furnishings photography,

Alderman Studios' new 3-acre plant in High Point, North Carolina.



Heavy traffic on this staircase to offices calls for carpet with Acrilan's resilience, long wear, ease of cleaning. Cabin Crafts carpet fills the bill!

pick carpet by Cabin Crafts—specialists in carpets with Acrilan

Outside of Hollywood, there's nothing to compare with Alderman Studios. Their new 3-acre studio in High Point, North Carolina, is so vast that golf carts are used to cover the distances. Famous for photography in the home furnishings field, they think nothing of building a whole house right in the studio. And they have a full-time staff of twelve interior designers.

Small wonder, with their experience, that the people at Alderman know what's what in carpets! And what they want! Choice for their spacious new office area: Cabin Crafts handsome carpet with Acrilan acrylic and modacrylic pile. Custom-colored to their specifications, it presents visitors and clients with an impressive expanse of wall-to-wall luxury. It has Acrilan's resilience to keep it looking new despite heavy traffic—Acrilan's remarkable cleanability to cut down maintenance—plus all the advantages of Cabin Crafts knowledgeable handling of Acrilan. For carpets geared to the requirements of your special projects, contact the Contract Department, Cabin Crafts. Inc., Dalton, Georgia.

CABIN CRAFTS

For more data, circle 28 on Inquiry Card

Required Reading

continued from page 52

Visions

THE ARCHITECTURE OF FANTASY. *Utopian Building and Planning in Modern Times. By Ulrich Conrads and Hans G. Sperlich; trans., ed. and expanded by Christine Crasemann Collins and George R. Collins. Frederick A. Praeger, Publisher, 64 University Place, New York 3. 187 pp., illus. $16.*

Placing fantastic architecture into an organization perceptible to the reader is, to put it mildly, a very difficult task, since both the source and the results are very personal to each designer. Messrs. Conrads and Sperlich have included in this collection work as far out as the Palais Idéal, rising from the singular vision and after-hours labor of a French postman, to a space frame designed by Konrad Wachsman, rising from his preoccupation with the *mystique* of the structural joint. Men have been prompted to design and to build these fantasies because of their own highly individual sense of order, because of utopian ideals (esthetic and social), or because a casually found stone has struck a purely personal reservoir of creativity. The results have here been gathered into rough categories of the plastic, the framed, the geometric (plane and solid), the transparent, the Utopian.

But the authors have not intended a mere collection of curiosities. For one thing, the visionary architecture of today often develops, in some version, into the accepted buildings of tomorrow—witness Mies's early projects for glass skycrapers. More importantly, as the authors point out in their introduction, visionary architecture can reveal facets of the human imagination not revealed in the more commonly recognized fine arts. No painter, nor even sculptor, would be likely to have *these* dreams.

Aging

BUILDING FOR THE ELDERLY. *By Noverre Musson and Helen Heusinkveld. Reinhold Publishing Corporation, 430 Park Ave., New York 22. 216 pp., illus.* $15. ARCHITECTURAL DESIGNS: HOMES FOR THE AGED. *Ed. Robert B. Rutherford and Arthur J. Holst; sponsored by Forest Park Foundation. Howard Company, 2000 N.E. Perry, Peoria, Ill. 102 pp., illus. $12.50.*

The first book listed here offers advice to groups—private, fraternal and public—considering building homes for the aged. Better than half of the book includes examples of housing, individual and congregate, selected both for general design worth and for efforts made to de-institutionalize the institution. This section is amplified with a piece by Swedish architect Bo Boustedt, an old hand at de-institutionalization.

The second book is subtitled "The European Approach," and the first half of it contains an article by another Swedish architect noted in the field, Ake Lindqvist. The remainder contains examples from several European countries.

new, Kent Line partitions

by ASI cut materials and installation costs

Standard 5/8" gypsum board panels painted on the job

...or pre-faced with vinyl fabrics

No taping of joints—no field lamination

Versatile mullion design creates continuous wall surfaces or accents panel divisions

Vinyl baseboards are impact, abrasion and chemical resistant

WRITE FOR THIS NEW CATALOG TODAY

Not every new product is news . . . but this one is. The new Kent Line catalog tells you why.

Kent Line installed costs are substantially below 70% of the movable partitions on the market today. Architectural System's use of standard gypsum board panels with no laminating is one of the reasons why this is possible. Economical joinery channels, roll-formed from 20-gauge electro-galvanized steel, are another. And quick, easy assembly on the job, plus simplified lay-in wiring, drops installations costs. At the same time, these ASI partitions have an excellent sound rating because of their double thickness of gypsum board with entrapped air space between. And all Kent Line materials are either incombustible or highly fire-resistant.

Write us at 4301 36th Street, S.E., Grand Rapids 8, Michigan for your copy of the Kent Line catalog. For even quicker action, call us at 949-1050, area code 616.

We never forget how much you rely on Westinghouse

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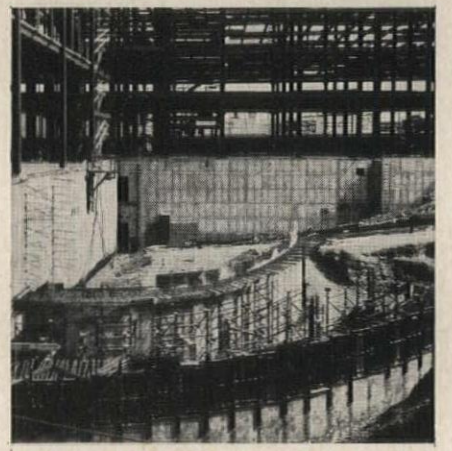
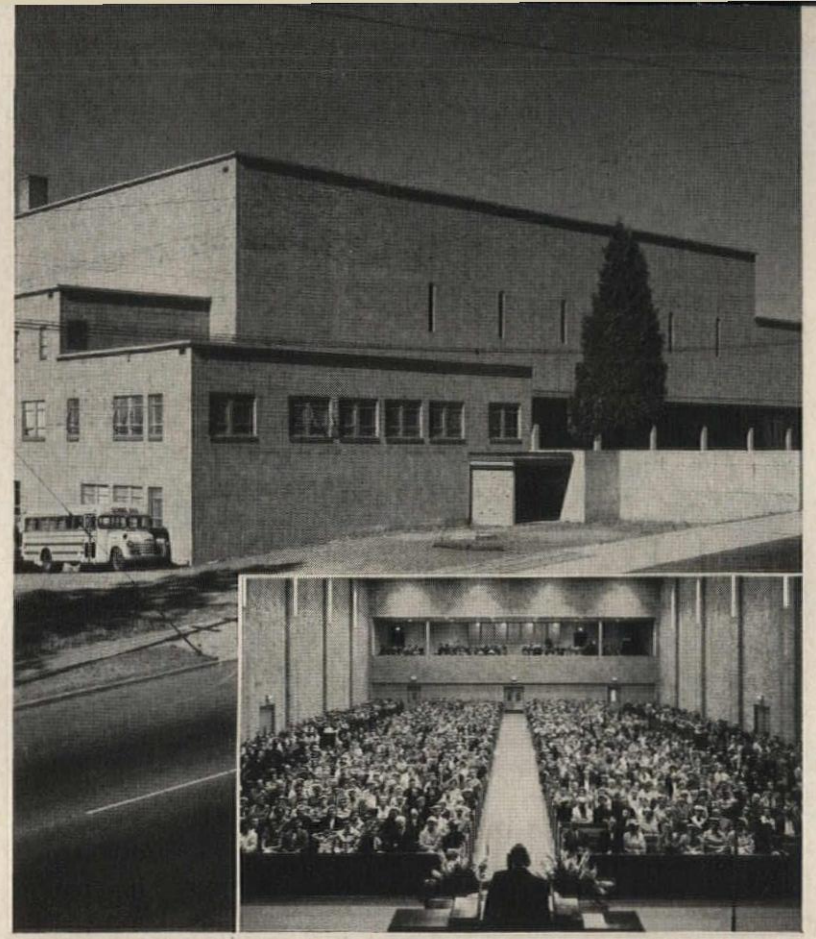
This $7,500,000 super service center of the Washington Water Power Company at Spokane marks an eloquent A. C. Horn testimonial. Inside and out, above and below-ground, eleven Horn products were used in construction, including three different waterproofing agents. Horn Dehydratine #4 was called on to provide a lasting barrier against water infiltration on exterior, below-grade masonry walls. This heavy-bodied asphalt coating develops maximum bond to "green" masonry . . . dries to a hard, elastic film unaffected by lime in cement. Dehydratine #22 silicone water-repellent was used to waterseal above-grade masonry, stop efflorescence and minimize staining and spalling. It also helps to keep interior dampness out. Hydratite Plus water-repellent admixture was specified to reduce mortar shrinkage and help assure tighter joints. General Contractors: Johnson, Busboom, Rauh. Architects: Kenneth W. Brooks & Bruce H. Walker. Structural Engineers: Wm. W. Wilson.

Dehydratine #22 cures efflorescence at Isolation Hospital. To immunize against efflorescence and other masonry surface problems at Isolation Hospital, Essex County, New Jersey, Dehydratine #22 was just what the doctor ordered. This improved silicone water repellent reduces water absorption up to 230 per cent better than other repellent treatments, after 20 freeze-thaw cycles. Its smaller molecules penetrate deeper, shut water out but won't trap vapor in. Bleeding-through of masonry salts is checked. Staining and spalling are minimized. Interior dampness is substantially reduced. Dehydratine #22 can be painted over. A single application lasts at least 10 years.



Metalon gets waterproofing verdict at Denver Courthouse. Doing justice to below-grade waterproofing of the new, block-long Federal Office Building and Courthouse at Denver, Colorado was a clear case for Horn Metalon. In accordance with specifications, 23,000 pounds of this metallic waterproofing agent were used to guard against water seepage. Metalon is a mixture of powdered iron and oxidizing chemicals used to provide heavy-duty water resistance on concrete or masonry. Premier Waterproofing Company of Denver handled the Courthouse application. General Contractor: Arthur Venneri Company, Westfield, New Jersey. Architects: Fisher and Davis, and James Sudler Associates of Denver.



Hydratites provide "built-in" water check at Central Bible School. The handsome new Central Bible School at Portland, Oregon is built to stay that way through rain, sleet and snow, thanks to Horn Hydratite Plus and Hydratite Powder. Hydratite Plus is a water-repellent admixture used in the mortar mix to minimize shrinkage, stop leakage at joints and control efflorescence. It also makes mortar more workable and reduces absorption of mix water by porous bricks or blocks. Hydratite Powder is an integral water-repellent admixture used in concrete, cement stucco and cement plaster mixes. It forms a built-in barrier that protects building interiors against water seepage. It also helps improve workability of the mix. Horn Dehydratine #22 silicone water-repellent was used on exterior masonry surfaces to wrap up the waterproofing job handled by Williamson and Bleid. General Contractor: A. V. Peterson. Architects: Church, Newberry, Rohr & Shuette.

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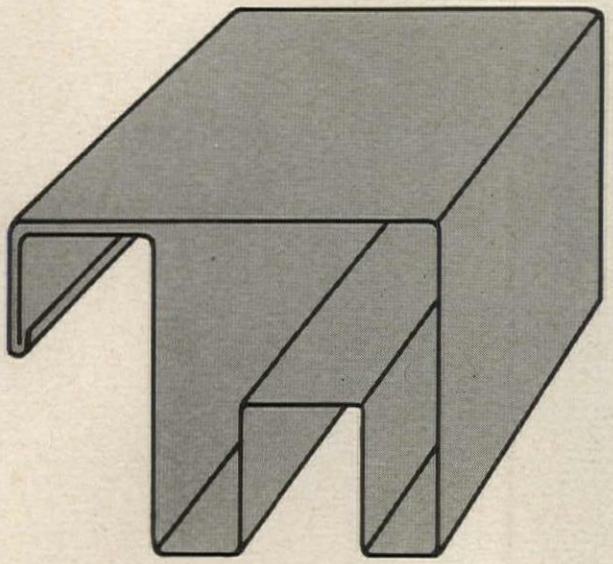
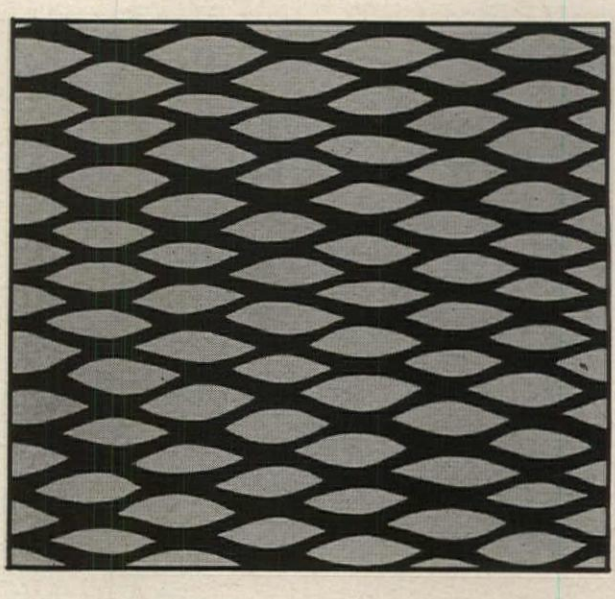


FOR FORM...

In the fabrication of certain components for sliding doors, J&L 300 series stainless undergoes 26 progressive forming operations. The drawing above shows the intricate designs involved in this application. The metal is roll formed to close tolerances without distortion or burnishing. The high strength/weight ratio of J&L 300 stainless permits the use of light gauges without sacrificing durability. Additional qualities which make this versatile design material popular with both architects and fabricators are: an attractive surface finish, good corrosion resistance, uniformity of formed parts, and adaptability to assembly by modern welding methods. Virtually all of these qualities lend added sales appeal to the finished product.



FOR TEXTURE

J&L 300 series stainless is proving itself as adaptable for textured finishing as for roll forming. An already durable and attractive surface can be given distinctive eye-appeal and greater scuff-resistance by the addition of any one of more than 60 varied patterns.* These patterns are available up to 48" in width—from textures .001" to .270" in depth—in natural finish or in color. Designs vary from directional (fluted and ribbed) to non-directional, from geometric to abstract. Textured J&L 300 series stainless is being used in a number of architectural applications, such as curtain walls, interior wall surfaces, building foyers, elevators, kitchens, cafeterias, stores, and for wainscoting, revolving doors, stair treads, walkways, and counter fronts.

*Producers' names on request.

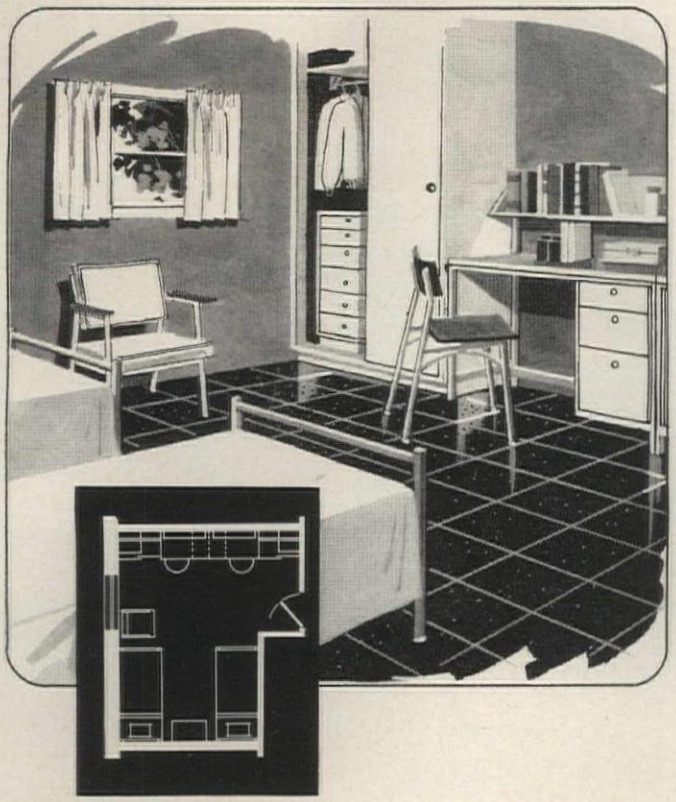
J&L 300 SERIES STAINLESS STEEL IS PROVING ITS VERSATILITY IN NUMEROUS ARCHITECTURAL APPLICATIONS. If you have in mind an application that might utilize the many versatile qualities of J&L 300 series stainless steel, let our Architectural Services provide you with specific information on both the basic material and fabricators capable of meeting your requirements.

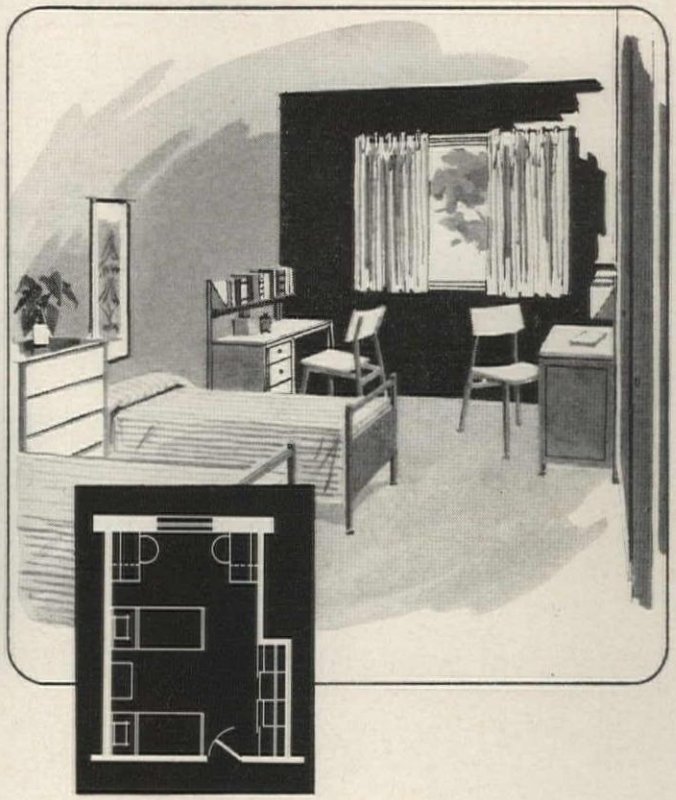
Jones & Laughlin Steel Corporation · **STAINLESS and STRIP DIVISION** · **DETROIT 34**

J&L STAINLESS

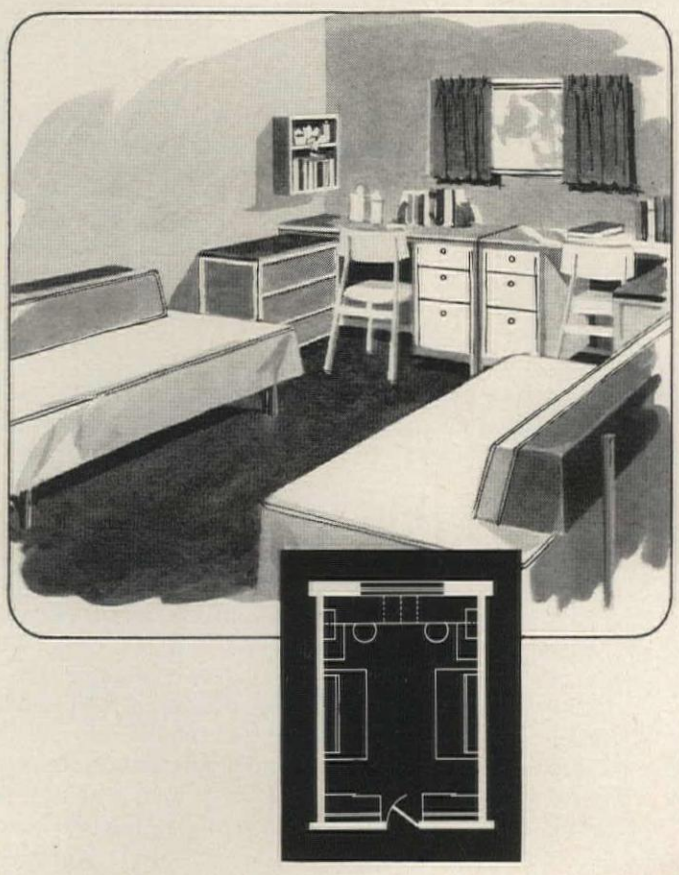
For more data, circle 32 on Inquiry Card

For more data, circle 33 on Inquiry Card ➔





have it your way
with versatile DORM LINE by SIMMONS



Here's Dorm Line versatility in action. Three floor plans, three different arrangements—all for the same size room. Dorm Line furniture lets you start with rooms of standard shape and size, yet achieve warmth and individuality. (Even existing odd-sized rooms benefit from Dorm Line's ability to make effective use of floor and wall space.)

Consider the flexibility of Dorm Line built-in units. Use them as corner elements, wall units or wall partitions. You can recess beds, desks and dressers, place them side by side or back to back, or separate them for semiprivacy.

Now add Dorm Line colors, finishes and upholstered fabrics for the final touch of home. Result: the Dorm Line look—functional beauty that lasts.

Next time you plan, plan with Dorm Line by Simmons, your wisest investment now and for the future. Write us for literature and see Dorm Line furniture soon.

SIMMONS

CONTRACT DIVISION • MERCHANDISE MART • CHICAGO 54, ILLINOIS

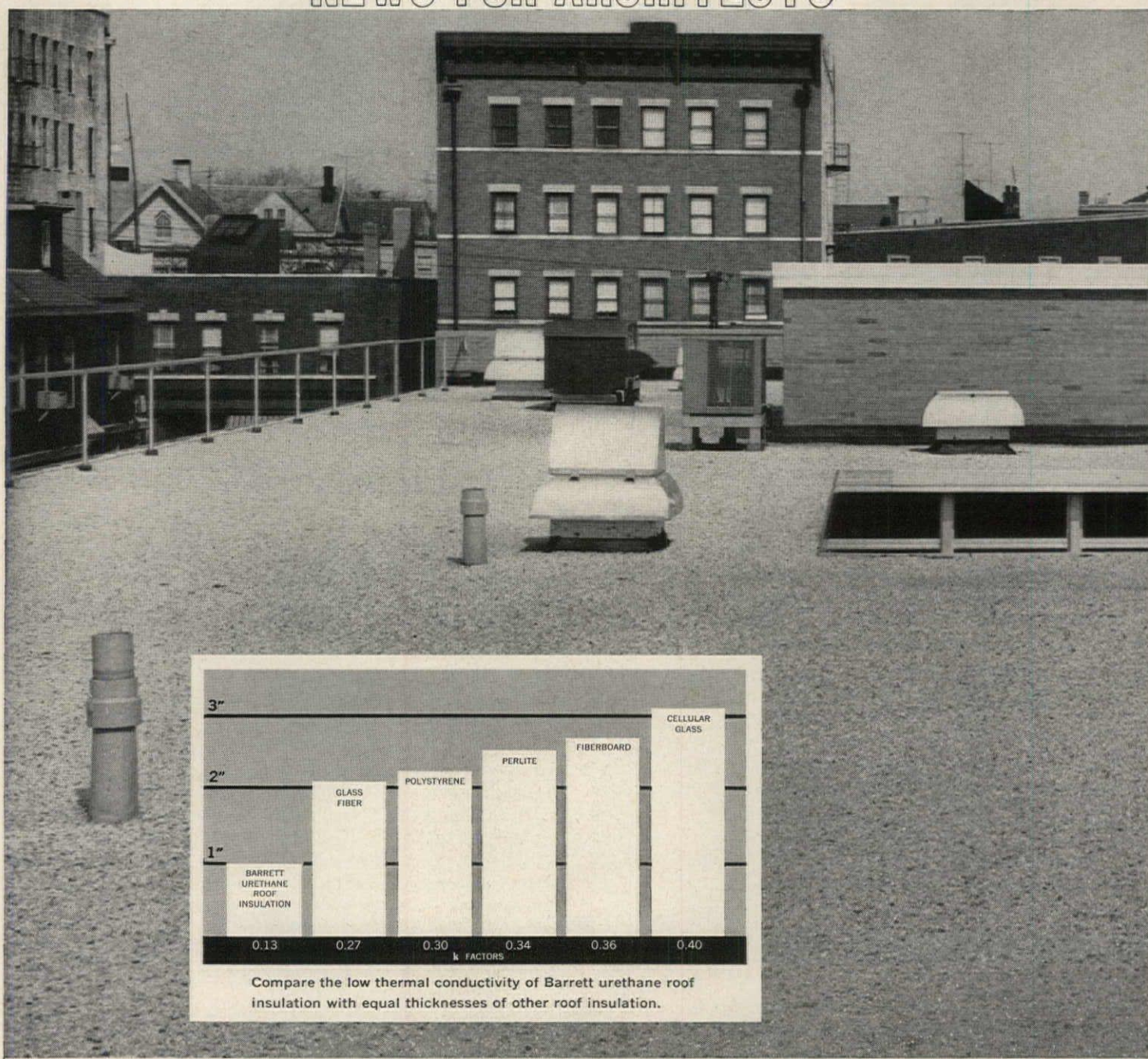
Simmons Company, Contract Division, AR-
Merchandise Mart, Chicago 54, Illinois
☐ Please send catalog
☐ We are building
☐ We are not building
Name_____ Title_____
Address_____
City_____ Zone____ State_____

For more data, circle 38 on Inquiry Card

BARRETT®
BUILDING MATERIALS

Allied Chemical

NEWS FOR ARCHITECTS



Compare the low thermal conductivity of Barrett urethane roof insulation with equal thicknesses of other roof insulation.

Barrett urethane roof insulation provides maximum thermal efficiency while reducing air conditioning equipment space and costs.

BARRETT URETHANE ROOF INSULATION CUTS APPLICAT N

Save duct and enclosure space, reduce air conditioning equipment size, and provide a more efficient heat and cooling system for your client. You can do this with Barrett urethane roof insulation, a new foamed plastic insulation panel containing billions of tiny, closed cells sandwiched between two layers of a tough roofing membrane. This assembly provides a unique combination of properties which make it a superior roof insulation—particularly for air conditioned or electrically heated buildings, and other structures designed for optimum comfort. Barrett urethane roof insulation has a K factor of 0.13 as compared to a range of 0.27 to 0.40 for commonly used roof insulations. This means you can design a roof that is half as thick, and still maintain maximum thermal efficiency.

Barrett urethane roof insulation is specifically designed to insulate built-up roofs. It will not bend, buckle or melt when mopped with hot pitch or asphalt. It has a rugged, work-on,

AND EQUIPMENT COSTS IN AIR CONDITIONED BUILDINGS

walk-on surface that stands up under normal roof construction. Urethane will not rot or absorb water. For less critical insulation requirements, Barrett offers and recommends surface-sized fiberboard insulation.

Free offer: Send today for a free copy of Barrett's heat transfer calculator, the fast, easy way to determine the thickness of Barrett urethane roof insulation for any insulation value.

BARRETT IS A REGISTERED TRADE MARK OF ALLIED CHEMICAL CORPORATION.

Allied Chemical Corporation, Barrett Division (Dept. AR-8)
40 Rector Street, New York 6, New York

☐ Please send me Barrett's Heat Transfer Calculator.

☐ Please have a representative call.

NAME_____

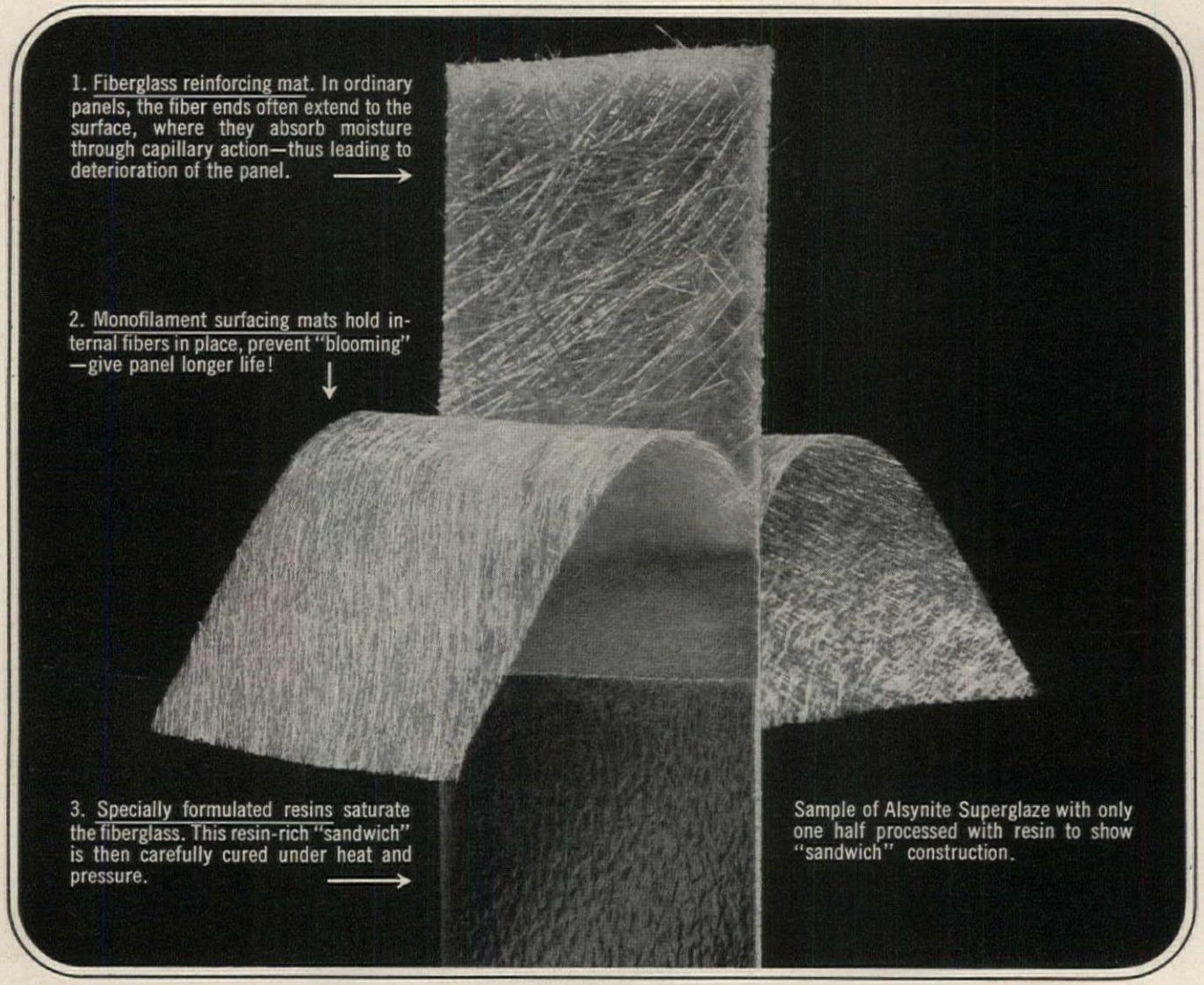
COMPANY_____

ADDRESS_____

CITY_____ ZONE___ STATE_____

Allied Chemical

For more data, circle 39 on Inquiry Card

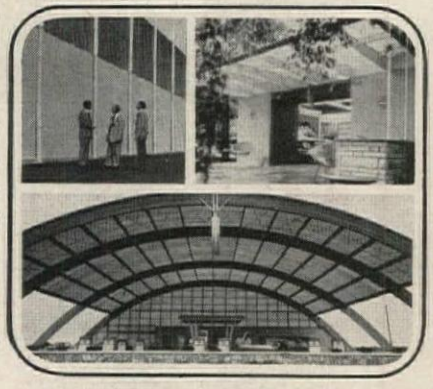


Here's why Alsynite can offer the only fiberglass panel with a 20-year guarantee

First: Alsynite Superglaze panels contain two monofilament fiberglass surface mats that hold in the fibers of the core-reinforcing mat.

Second: Alsynite saturates this "sandwich" with superior acrylic modified resins specially formulated to resist every extreme of weather and sun, including the severe deteriorating action of ultraviolet light. This combination of 100% fiberglass "sandwich"—specially formulated resins —and manufacturing cure, results in a panel that is highly resistant to "blooming."

Blooming takes place in ordinary panels when surface erosion exposes fiberglass ends and water penetrates the panel through capillary action. Rapid deterioration follows.



By licking this problem with the Superglaze process, Alsynite panels have proved to last 2 to 3 times longer by ASTM testing procedures.

Alsynite Superglaze panels are available for industrial daylighting and sidelighting in high light transmission grades, or with the Filtron 25 resin formulation that blocks up to 93% of the sun's heat, where this protection is important.

Industrial uses: skylighting, sidelighting, glazing.

Commercial uses: natural daylighting, roofing, canopies, interiors.

Residential uses: patios, carports, windbreaks.

For complete technical data, write address below, Department AR18.

ALSYNITE®

The Original Translucent Panel

Division of Reichhold Chemicals, Inc.
RCI Building, White Plains, N. Y.

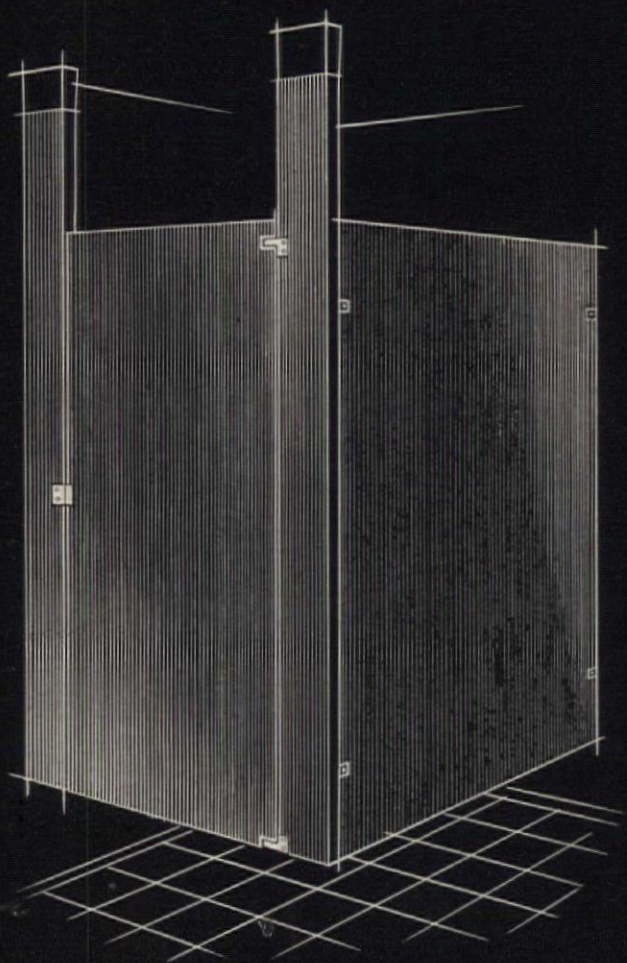
RCI

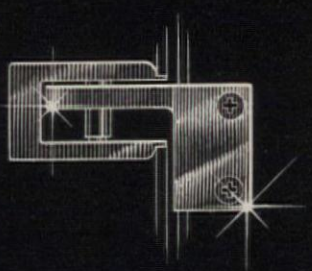
For more data, circle 40 on Inquiry Card

For more data, circle 41 on Inquiry Card ➔

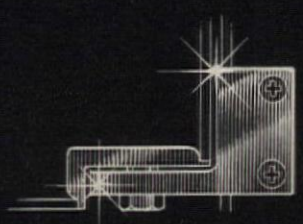
250,000 Kicks . . . and Still Swinging Smoothly!

Abuse centers on the hinges of all toilet compartment doors. And Mills laboratory tests prove conclusively that after more than 250,000 slam cycles — or "kicks" — Mills toilet compartment doors still swing smoothly, because they're supported by Mills super-strong, wear-resistant, corrosion-proof fittings —





Mills Top Hinges — sturdy stainless steel pintle — rigidly supported at 3 points, locked to a channel reinforcement, **welded** to inside of door. Suspension arm of hinge bracket rides on this shaft, protected by pressure-fitted, life-time Molybdenum Nylon bushing.



Mills Lower Hinges — cam-to-follower true gravity type; adjustable; factory-installed; concealed within door. Top follower: square-locked, secured to **welded** steel reinforcement. Lower cam: molded to knurled, hardened stainless steel shaft which axially aligns cam and follower. Both are naturally-lubricated, life-time Molybdenum Nylon.

All exposed parts of Mills hinges are non-ferrous, polished, and chrome-plated. **All working parts** are stainless steel; or corrosion-proof Molybdenum Nylon — heat-resistant and almost friction-free — eliminating the troublesome periodic adjustment required by miniature metal cams, rollers and bearings, and springs.

Mills Company toilet compartments are available in 20 decorator colors; in porcelain and baked-on enamel finishes, and plastic laminate.

MILLS
COMPANY
917 WAYSIDE ROAD • CLEVELAND 10, OHIO

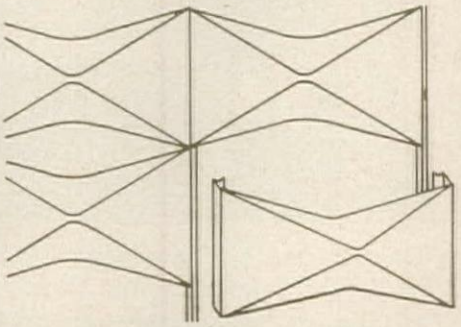

PULL

We won't let you use Duranodic 300 finishes for every application

We suggest you consider Alcoa® Duranodic* 300 finishes for monumental buildings. For outside surfaces that can't or won't be maintained. For strong color accents—in panels, solar screens, windows, mullions, trim and framing. For places where people step, grab or push—entrances, store fronts and kick plates, railings and push bars. If you're not concerned about wear and upkeep, then don't use Duranodic 300 finishes.

WHAT'S SO SPECIAL ABOUT DURANODIC 300 FINISHES? For one thing, they contain no dyes or pigments. The color you see—masculine bronzes, gray and black—is *integral with the metal*. The tones come about through electrochemical treatment of various architectural aluminum alloys. This extremely hard oxide coating is lightfast and permanent.

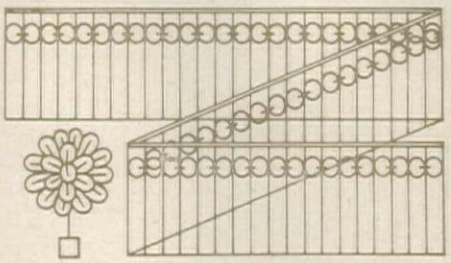
DURANODIC 300 FINISHES SHINE IN CORROSIVE ATMOSPHERES. Duranodic 300 finishes are pre-eminently suitable for outdoor use in highly corrosive areas. This comes about through the nature of aluminum and the hard-coating Duranodic process. In 52 years, pitting of untreated architectural aluminum alloys in industrial environments averages only three mils deep. With Duranodic treatment, it is virtually unmeasurable.



Alcoa Sol-Dec® screen patterns, including this new design, can be ordered in Duranodic 300 finishes.

DON'T SCUFF OFF. Aluminum hard coatings are so called because they are considerably thicker and more resistant to abrasion and wear than common anodic coatings. The thickness, weight and density of the coatings account for the longevity of Duranodic finishes in abrasive applications such as handrailing.

THREE NEW ALLOYS. Alcoa has developed three new alloys, Anoclad® Types 11, 12 and 13, for Duranodic 300 finishes. Specify them when you want thick-skinned durability. For good finishing characteristics, they are far superior to the standard and specialty alloys thus far developed. They provide better color control—bronzes that are deeper and richer looking than before and a black that's darker and more stable than any other black known.



THE FLOP EFFECT. We would be remiss if we didn't call your attention to what the finishing people call the "flop effect." Place two pieces of metal from the same anodizing bath side by side, deviate one ever so slightly from the same plane, and you'll notice a subtle difference in intensity or hue. You can see why we don't encourage the butting of Duranodic-finished panels against each other.

There is room for disagreement about our attitude, however. Some say the minute variation in color isn't detrimental to good design. There are those who consider the result pleasing to the eye because it breaks up an unrelieved surface. Feel free to indulge your own taste.

A WORD ABOUT SUPPLIERS. The Duranodic 300 process is licensed by Alcoa under written contracts with processors who pay royalties for use of the invention.

Tell us your name and we'll tell you the names of your nearest suppliers. Call your nearby Alcoa sales office or write Aluminum Company of America, 1785-H Alcoa Building, Pittsburgh 19, Pennsylvania.

*Trade Name of Aluminum Company of America

Entertainment at its Best . . . ALCOA PREMIERE
Presented by Fred Astaire . . . Thursday Evenings, ABC-TV

ALCOA

top right Brooks Brothers, Pittsburgh, Pa. Architect: Kanner & Mayer, Los Angeles, Calif. General Contractor: O. H. Martin Co., Pgh. Fabricator and Erector: Golomb Paint & Glass Co., Pgh. Duranodic Applicator: Baker Metal Finishing Co., Monterey Park, Calif.

middle left 757 Third Ave., New York City. Owner: Durst Builders, N.Y.C. Architect: Emery Roth & Sons, N.Y.C. Fabricator and Erector: Cupples Products Co., St. Louis, Mo. Duranodic Applicator: Cupples Products Co., St. Louis.

middle right The Pittsburgh Press Building, Pittsburgh, Pa. Owner: The Pittsburgh Press Co., Pgh. Engineers & Designers: Hunting, Larsen & Dunnells, Inc., Pgh. General Contractor: Martin & Nettrour Co., Pgh. Fabricator and Erector: Columbia Architectural Metals Co., Pgh. Duranodic Applicator: Stolle Corp., Sidney, Ohio

bottom left Grand Rapids Post Office, Grand Rapids, Mich. Owner: Thomas D. McCloskey, Philadelphia, Pa. Architect: J. & G. Daverman, Grand Rapids, Mich. General Contractor: Owen, Ames & Kimball, Grand Rapids. Fabricator and Erector: Marmet Corporation, Wausau, Wis. Duranodic Applicator: Stolle Corp., Sidney, Ohio

bottom right The Continental, Queens, N.Y. General Contractor and Owner: Cord Meyer Development Co., N.Y.C. Architect: Morris Rothstein & Son, Brooklyn, N.Y. Fabricator and Erector: Samson Window Corp., N.Y.C. Duranodic Applicator: Electro-Color Corp., N.Y.C.

For more data, circle 42 on Inquiry Card

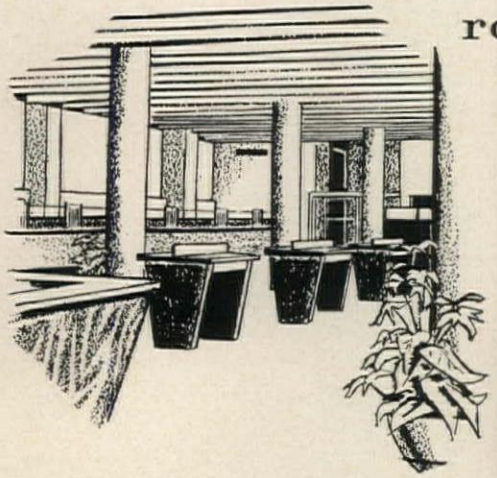
ARCHITECTURAL

IDEAS

by **SONOCO**

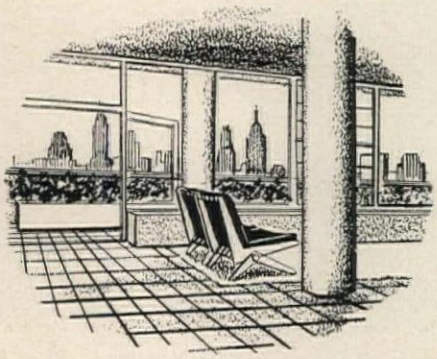
Always modern, always economical round concrete columns formed with

SONOCO
***Sonotube*®**
FIBRE FORMS



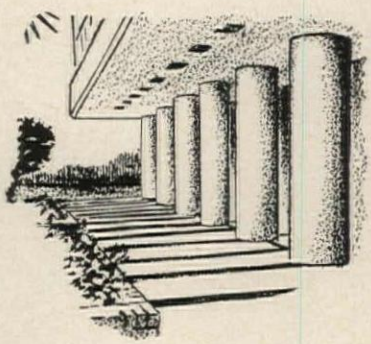
Round concrete columns add classic, graceful beauty while performing a support function. Specify forming with Sonotube Fibre Forms to save the contractor time, labor and money.

For light or heavy construction, wherever round concrete columns are desired, form them with Sonoco SONOTUBE Fibre Forms. Lightweight, easy to handle, they can be placed, braced, poured and stripped quicker. Save your contractor time, labor and money.



In or near glass or glass walls, round concrete columns are ideal supporting members . . . they occupy minimum space, offer minimum obstruction to light for a brighter interior.

Round concrete columns blend well with any type architecture for an impressive appearance, and offer wide range of surface finish possibilities.



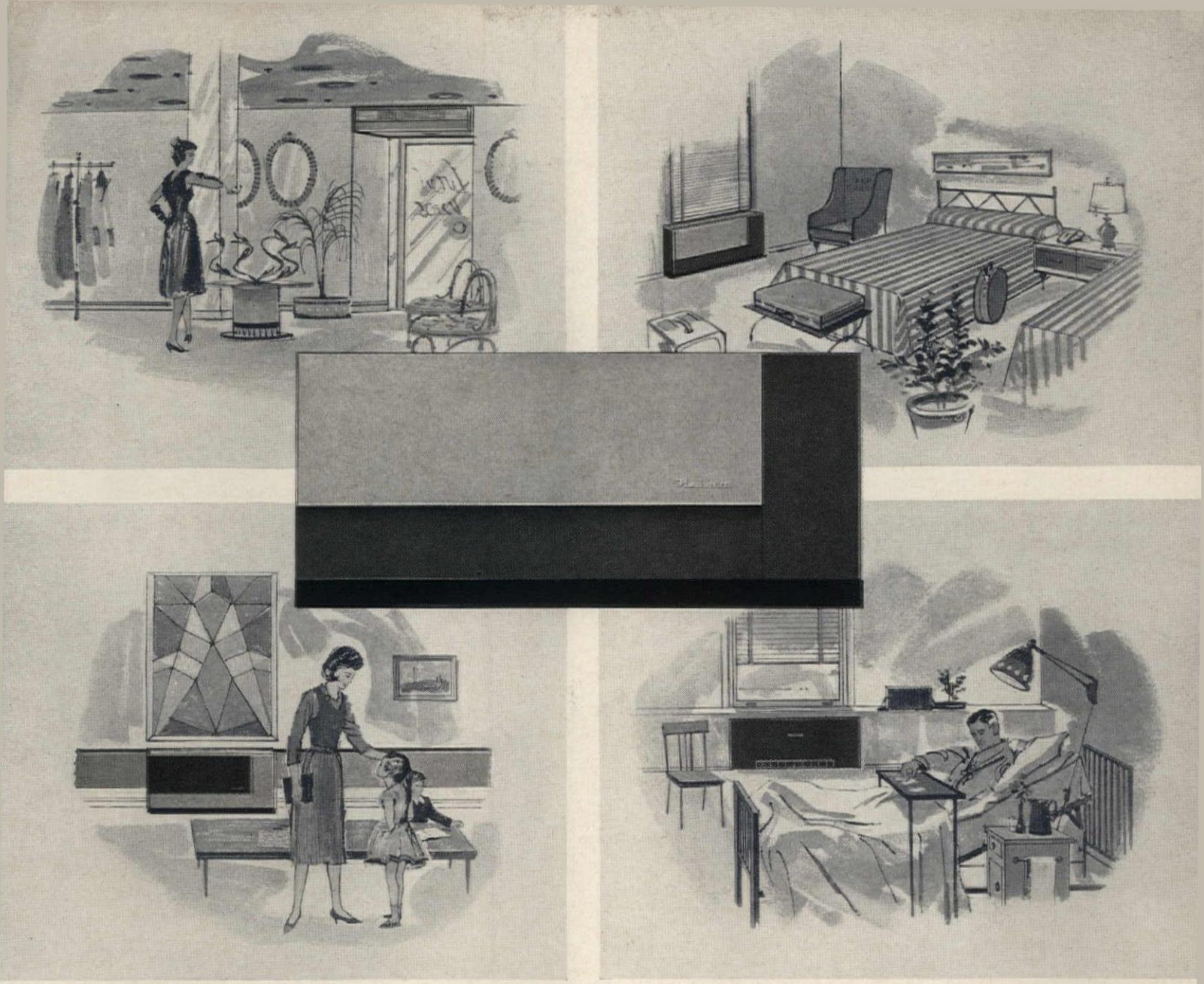
See our catalog in Sweet's

SONOCO
Construction Products

6479

SONOCO PRODUCTS COMPANY, HARTSVILLE, S. C. • Akron, Indiana • Atlanta, Georgia • Fremont, California • City of Industry, La Puente, California • Longview, Texas • Montclair, New Jersey • Mystic, Conn. • Ravenna, Ohio • Tacoma, Washington • **CANADA:** Brantford and Toronto, Ontario • Montreal, Quebec • **MEXICO:** Mexico City.

For more data, circle 43 on Inquiry Card



Roommate II®

The air conditioner that complements interior design . . .

No longer need you compromise contemporary design in order to employ cabinet air conditioners where you know you need them. Motels, apartments, offices, schools, hospitals, and similar structures definitely call for room-by-room control of the indoor thermal environment. But you don't like the looks of conventional "fan-coil units". . . and a duct system, though hidden, would be inflexible and more costly. So what is your answer? A Nesbitt Roommate in every room.

With Roommate II you get the clean, crisp lines and colors your plan deserves—and you provide today's most responsive and effective heating, ventilation, cooling and dehumidification for each space, exactly as dictated by its size, location and exposure, or the choice of its occupants.

You'll want to know about the broad range of sizes and capacities, the practically limitless mounting arrangements, the profusion of color treatments—and the exclusive Nesbitt HUMID-A-GUARD system that assures progressively accurate control of heating, cooling and dehumidifying from full flow of water down to positive shut-off! A beautiful full-color brochure and an engineering data book are yours for the asking.

John J. Nesbitt, Inc.
Philadelphia 36, Pa.
Offices in principal cities.

Nesbitt

Roommate II®

. . . dramatic new concept in year-round air conditioners

For more data, circle 44 on Inquiry Card

ACCREDITING BOARD ISSUES REVISED LIST OF SCHOOLS

The 1963-1964 List of Accredited Schools of Architecture, published by the National Architectural Accrediting Board, shows a gain of one school for the year—from a total of 52 to 53. The gainers are states of Arizona, where the University of Arizona has for the first time been entered on a provisional basis, and Texas, where William Marsh Rice University in Houston has also been provisionally entered. Arizona State University, first listed provisionally in 1961-1962, has been fully accredited on the current listing. Among other changes, Western Reserve University's architectural program, listed provisionally over the past five years, has been dropped. Kansas State University and the University of Oregon, fully accredited last year, are now listed provisionally.

Most of the schools offer degrees of B.Arch. upon completion of the professional curricula, except for the University of Cincinnati and Rhode Island School of Design, which offer a B.S. in Arch., and Rice, which offers a B.S. Arch. Princeton remains the only school which offers only a graduate degree for its architecture course: M.F.A. in Arch.

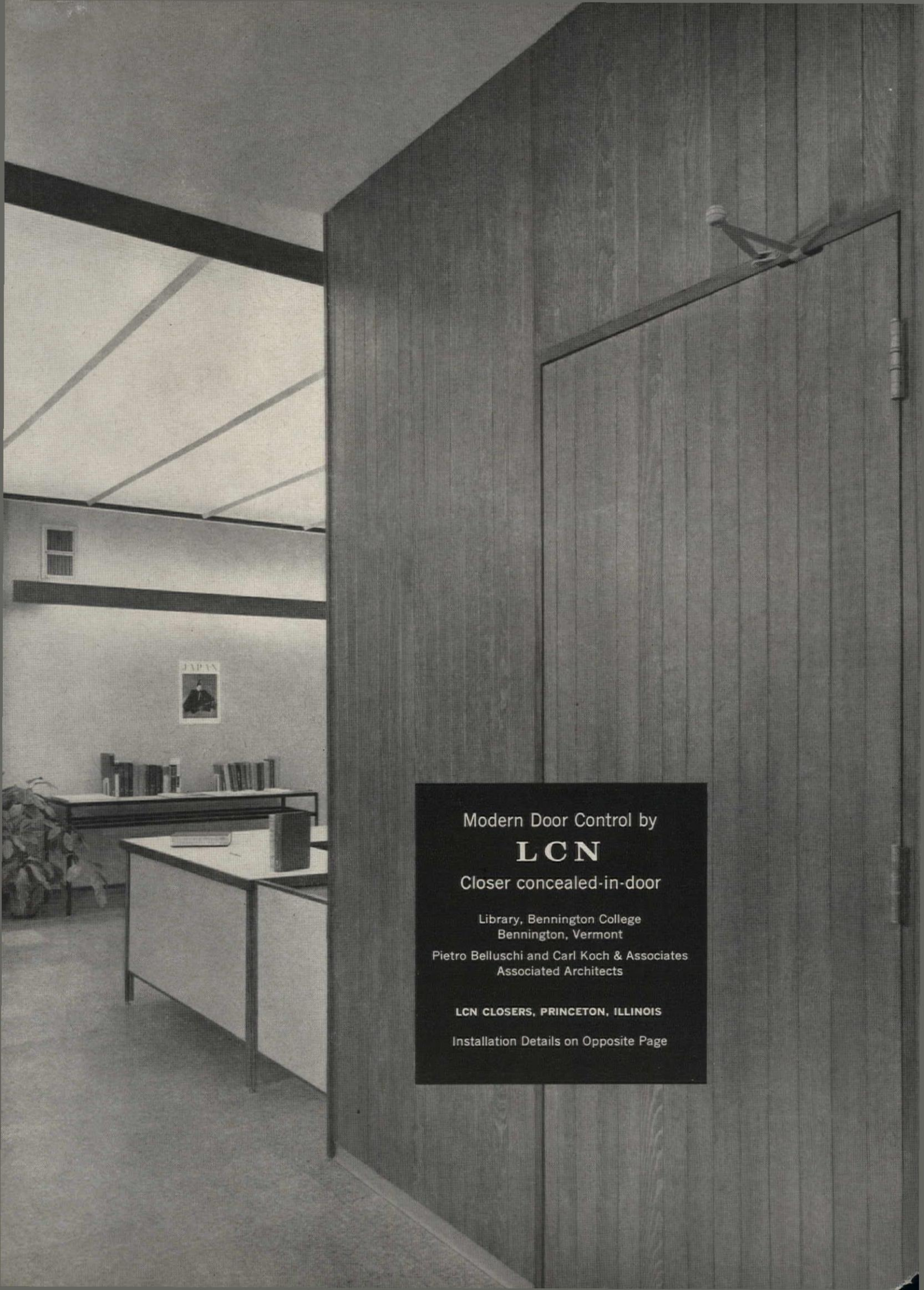
The schools included on the current list are: The University of Arizona (provisional), Tucson, B.Arch.; Arizona State University, Tempe, B.Arch.; University of Arkansas, Fayetteville, B.Arch.; Auburn University, Auburn, Ala., B. Arch.; University of California, Berkeley, B.Arch.; Carnegie Institute of Technology, Pittsburgh, B.Arch.; Catholic University, Washington, D.C., B.Arch.; University of Cincinnati B.S. in Arch.; Clemson A.&M. College, Clemson, S.C., B. Arch.; Columbia University, New York City, B.Arch.; Cornell University, Ithaca, N.Y., B.Arch.

University of Florida, Gainesville, B.Arch.; Georgia Institute of Technology, Atlanta, B.Arch.; Harvard University, Cambridge, Mass., B.Arch.; University of Houston, B. Arch.; Howard University, Washington, D.C., B.Arch.; Illinois Institute of Technology, Chicago, B.Arch.; University of Illinois, Urbana, B.Arch.; Iowa State University, Ames, B.Arch.; Kansas State University (provisional), Manhattan, B.Arch.; University of Kansas, Lawrence, B.Arch.

Kent State University, Kent, Ohio, B.Arch.; Louisiana State University (provisional), Baton Rouge, B.Arch.; Massachusetts Institute of Technology, Cambridge, B.Arch.; Miami University, Oxford, Ohio, B.Arch.; University of Michigan, Ann Arbor, B.Arch.; University of Minnesota, Minneapolis, B.Arch.; Montana State College, Bozeman, B.Arch.; University of Nebraska, Lincoln, B.Arch.; North Carolina State College, Raleigh, B.Arch.; University of Notre Dame, Notre Dame, Ind., B.Arch.

Ohio State University, Columbus, B.Arch.; Oklahoma State University, Stillwater, B.Arch.; University of Oklahoma, Norman, B.Arch.; University of Oregon (provisonal), Eugene, B.Arch.; University of Pennsylvania, Philadelphia, B.Arch.; Pratt Institute, Brooklyn, B.Arch.; Princeton University, Princeton, N.J., M.F.A. in Arch.; Rennselaer Polytechnic Institute, Troy, N.Y., B.Arch.; Rhode Island School of Design, Providence, B.S. in Arch.; University of Southern California, Los Angeles, B.Arch.; Syracuse University, Syracuse, N.Y., B.Arch.

Texas A.&M. College, College Station, B.Arch.; Texas Technological College, Lubbock, B. Arch.; University of Texas, Austin, B.Arch.; Tulane University, New Orleans, B. Arch.; University of Utah, Salt Lake City, B.Arch.; Virginia Polytechnic Institute, Blacksburg, B.Arch.; University of Virginia, Charlottesville, B.Arch.; Washington University, St. Louis, Mo., B. Arch.; University of Washington, Seattle, B.Arch.; William Marsh Rice University (provisional), Houston, B.Arch.; Yale University, New Haven, Conn., B. Arch.



Modern Door Control by

LCN

Closer concealed-in-door

Library, Bennington College
Bennington, Vermont

Pietro Belluschi and Carl Koch & Associates
Associated Architects

LCN CLOSERS, PRINCETON, ILLINOIS

Installation Details on Opposite Page

Building: Chas. Pfizer & Co., Inc., New York City *Interior Architect:* Leonard-Colangelo-Peters, New York City *Fixtures:* Lightolier, New York City
Gotham, Long Island City, N. Y.

Incandescent or Fluorescent–
glass makes good light last

See how glass works pleasingly, efficiently, and *permanently* with two kinds of light in this executive office reception area.

Prismatic PYREX® brand Lenslites in the incandescent fixtures yield controlled light that's comfortable. The lenses are made of borosilicate glass that ignores the heat from incandescent bulbs.

Over the secretaries' desks, a unique glass shielding gives the efficient light of a prismatic panel, yet softens and warms the light, too.

This glass is our Crystopal™ Pattern #71—crystal glass with low-brightness prisms for light control and with just enough opal glass added to provide diffused softness.

Simply because both the lenses and the panels are glass, they will never distort the light, or discolor, or warp, or sag, or burn.

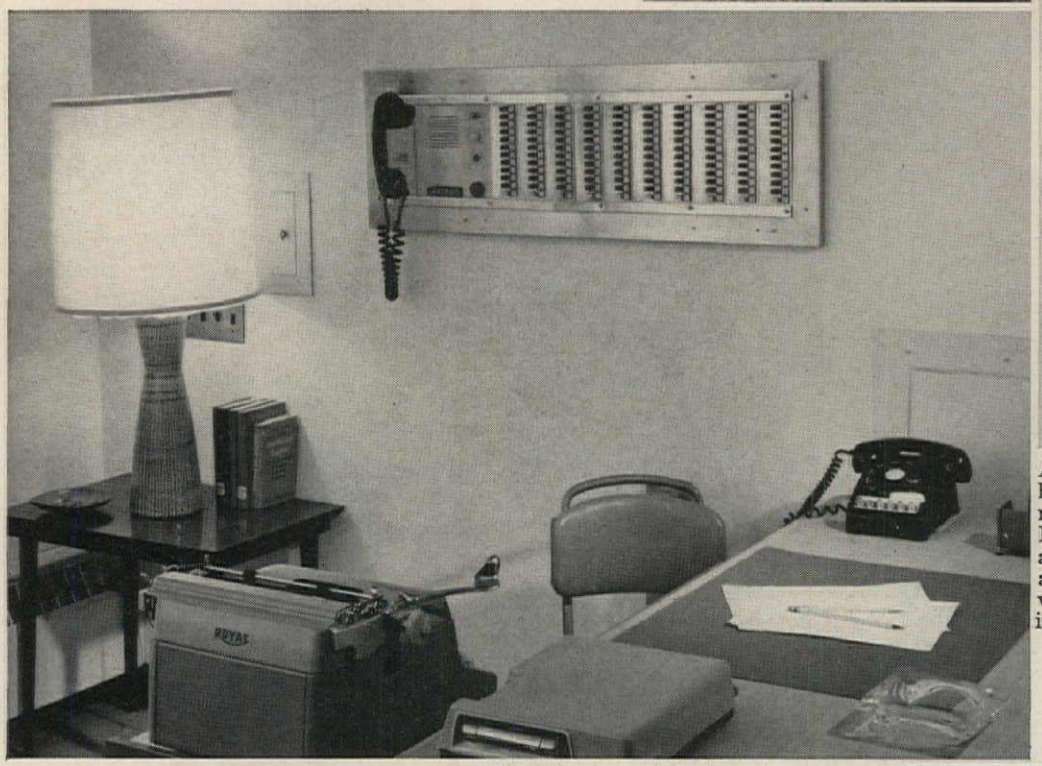
Specify permanent, pleasing, efficient light from any source in your buildings—with glass by Corning. Building Products Dept., Corning Glass Works, 8508 Crystal Street, Corning, New York.

CORNING
CORNING GLASS WORKS

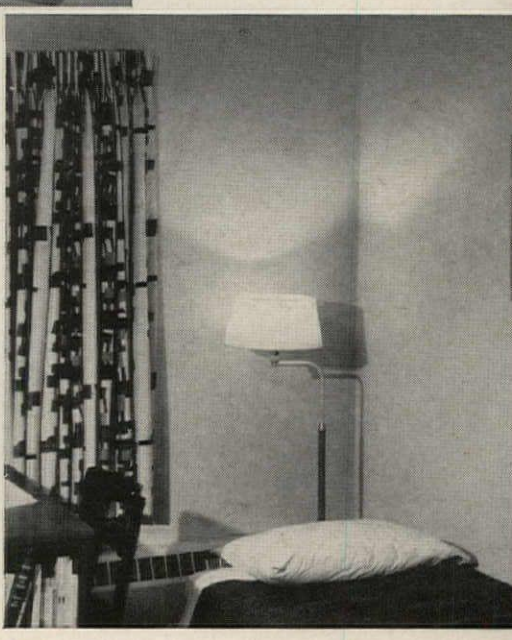
For more data, circle 49 on Inquiry Card

Up to five microphones can be used at once from any of three zones in the school Cafeteria-All Purpose Room. Five-way microphone connection is ideal for panel discussions or roving microphone use.

All it takes is a small closet to house the sound system equipment for the Cafeteria-All Purpose Room... Microphones and cable, amplifier, controls, and record player that provides background music during meals and social functions.



Control Station in each central office is connected to 102 room stations in building. Phone handset assures privacy of caller. Office can carry on conversations with each room or page all rooms simultaneously.



Wall-recessed room station blends perfectly with modern room decor. Light and chime announce incoming call. Privacy assured by talk button which must be depressed to complete the connection.

DORMITORIES AND DINING HALLS ERECTED BY
DORMITORY AUTHORITY OF THE STATE OF NEW YORK
ARCHITECTS
DORMITORY: HART-BENVENGA ASSOCIATES
DINING HALL: URBAHN, BRAYTON, BURROWS

STUDENTS GET THE MESSAGE FAST

at the New Paltz State University College

Executone intercom systems in four new buildings make 350 double rooms instantly available to central offices for messages, paging, emergency alarms and instructions.

Up-to-the-minute control and convenience in communications is an outstanding feature of the multimillion dollar building expansion at the State University College, New Paltz, N. Y. Exacting communication and sound requirements were met by two Executone systems: the dormitory intercom, and a flexible sound system for the combination Cafeteria-All Purpose Room.

Office personnel and students are saved considerable time and trouble by the Executone dormitory intercom system. No jam-up, no costly confusion at the central office. Messages are relayed immediately –simply by speaking over the system. Less chance of messages getting lost . . . for "message reminder" light in room stays on until the call is answered. Students may originate calls to the office at any time. The system can also be used to alert students and give instructions during fire, air raid alerts and other emergencies.

In the Cafeteria-All Purpose Room the sound system serves as a facility for background music as well as public address. Zone-type installation permits the use of five microphones at the same time from any or all of three separate areas in the room. This is ideal for panel discussions where several microphones are needed at once, and for meetings where "roving" microphones are desirable.

Avail yourself of Executone's wide experience in the college and university field when planning your sound and communication system. Have an Executone communications man go over your needs –recommend a system–estimate the cost–without any obligation. For full details write to Executone, Inc., Dept. F-9, Austell Place, Long Island City 1, N. Y. In Canada, 331 Bartlett Avenue, Toronto.

Executone

For more data, circle 50 on Inquiry Card

NEW YORK A.I.A. SPONSORS ANNUAL COMPETITION

The New York Chapter of the American Institute of Architects is sponsoring a third annual house competition to "stimulate an appreciation of attractive and efficient house design and to arouse the general public to the importance of good architectural design in daily living."

Awards will be made for the best design submitted in each of three categories: new houses; alterations to houses; and groups of houses, new or altered. The designs may be of buildings already standing or to be constructed in the near future.

The competition is open to any architect registered in the United States or its possessions who has designed a building in any of the three categories for construction in New York City. Designs for houses built anywhere in the United States or its possessions will be accepted from registered architects practicing in New York City.

All entries must be submitted by Sept. 17, 1963. Further details and registration forms are available from Harold Edelman, New York Chapter, A.I.A., 115 East 40th St., New York.

N.I.A.E. HOLDS COMPETITION FOR GRAPHIC DESIGN

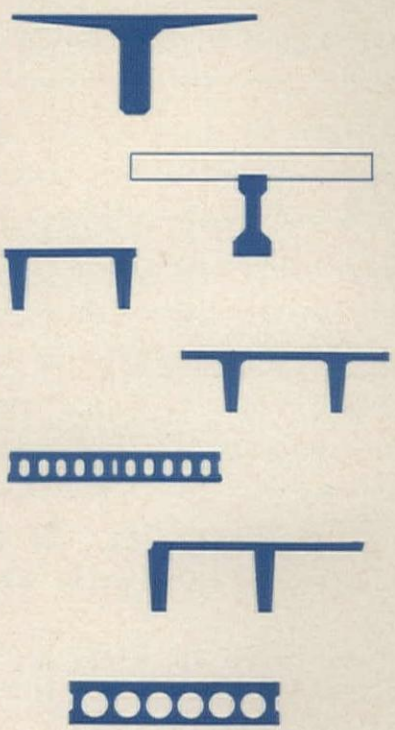
Graphic designers and other designers working or studying in New York City are invited to participate in a competition sponsored by the National Institute for Architectural Education. The problem is to design an Architectural Design Honor Award Certificate to be awarded for excellence in architectural design to winners of prizes in N.I.A.E. competitions. The prize is $250.

Each designer may submit not more than two entries. No registration fee is required.

Submissions are due by Sept. 30, 1963. Selection will be made in October. For copies of the program, write the N.I.A.E. at 115 East 40th St., New York 16, N.Y.

on PRESTRESSED CONCRETE means more than fire protection

Over 100 fire tests have been run on prestressed concrete assemblies in the United States. In addition to this extensive testing program the performance of prestressed concrete in actual fires has been excellent. ■ Two-hour Underwriters' Laboratories label service on commonly used prestressed concrete members gives *practical, measurable assurance* of protection for personnel and property.* ■ Beyond this is a long line of practical benefits: Should a fire occur, prestressed concrete's retardation of heat and flame enables damage to be localized and minimized. Chances are, operations can be resumed immediately—avoiding costly shut-downs. ■ Type of construction is a key factor in the determination of insurance rates. Low insurance premiums for buildings framed in prestressed concrete result in continuing savings. ■ Need for fireproofing, painting and other maintenance is eliminated for further permanent economies. ■ A wide range of architectural and structural shapes are available for virtually every type of permanent quality structure. ■ For these and other reasons—longer spans with shallow depth, construction speed, flexibility in design and low initial cost—consider prestressed concrete.



*Three-hour UL service on lightweight single Tee's.

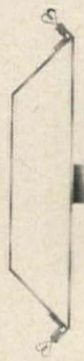
WRITE FOR *"An Interpretation of Results of Fire Tests of Prestressed Concrete Building Components"—and for information on PCI Professional Membership.*

PRESTRESSED CONCRETE INSTITUTE

205 W. WACKER DRIVE, CHICAGO 6, ILL.

PLAN TO ATTEND PCI ANNUAL CONVENTION, SAN FRANCISCO, OCT. 6-11. WRITE FOR INFORMATION.

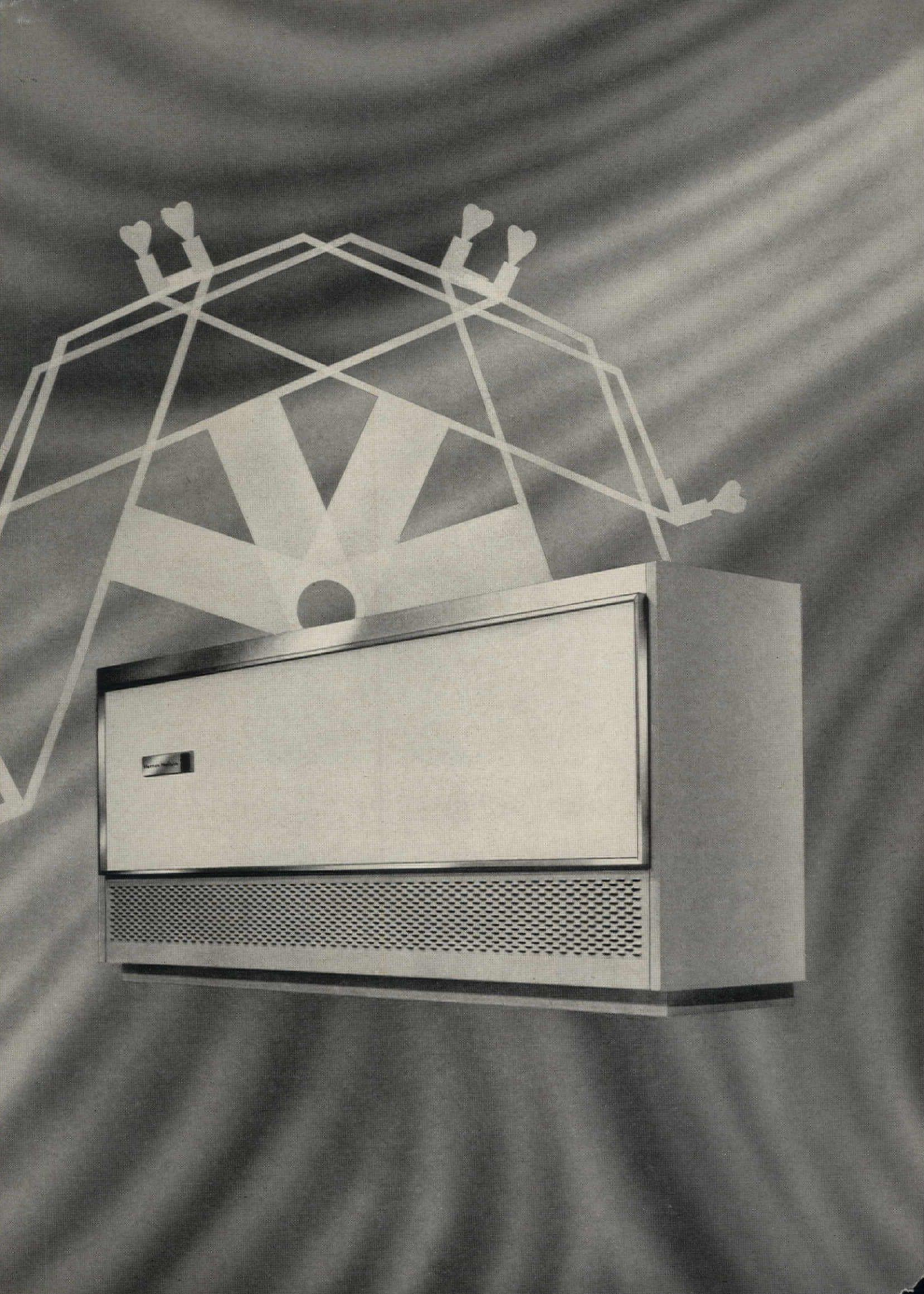
For more data, circle 52 on Inquiry Card



damper control feature cuts cost two ways

Some unit ventilators are *valve* controlled. Lower cost is just one of many reasons why Herman Nelson also offers *damper* controlled units. *Lower first cost* because you don't need expensive flow control valves. *Lower maintenance cost* because there are fewer things that can go wrong. It's one of the reasons we're able to offer a full five-year written warranty on our units—one that covers both parts and labor. Herman Nelson School Products Department, American Air Filter Company, Inc., 215 Central Ave., Louisville, Ky.

Herman Nelson AAF
SCHOOL PRODUCTS DEPARTMENT



BARCOL **performance-rated** OVERdoors take the gamble out of door specifications!

Why "trust to luck" with door specs based on lowest price . . . when BARCOL justifies your decision with documented door performance. Surveys of industrial and commercial installations from coast to coast prove BARCOL OVERdoors are superior in quality and operating efficiency. When compared in terms of continuous service . . . control of conditioned air, dust and dirt . . . step-saving, time-saving materials handling . . . easier housekeeping . . . insulation against weather elements . . . employee comfort . . . BARCOL OVERdoors provide maximum returns for your client's investment . . . offer you a positive way to gain client confidence. Write us or ask the BARCOL dealer near you.

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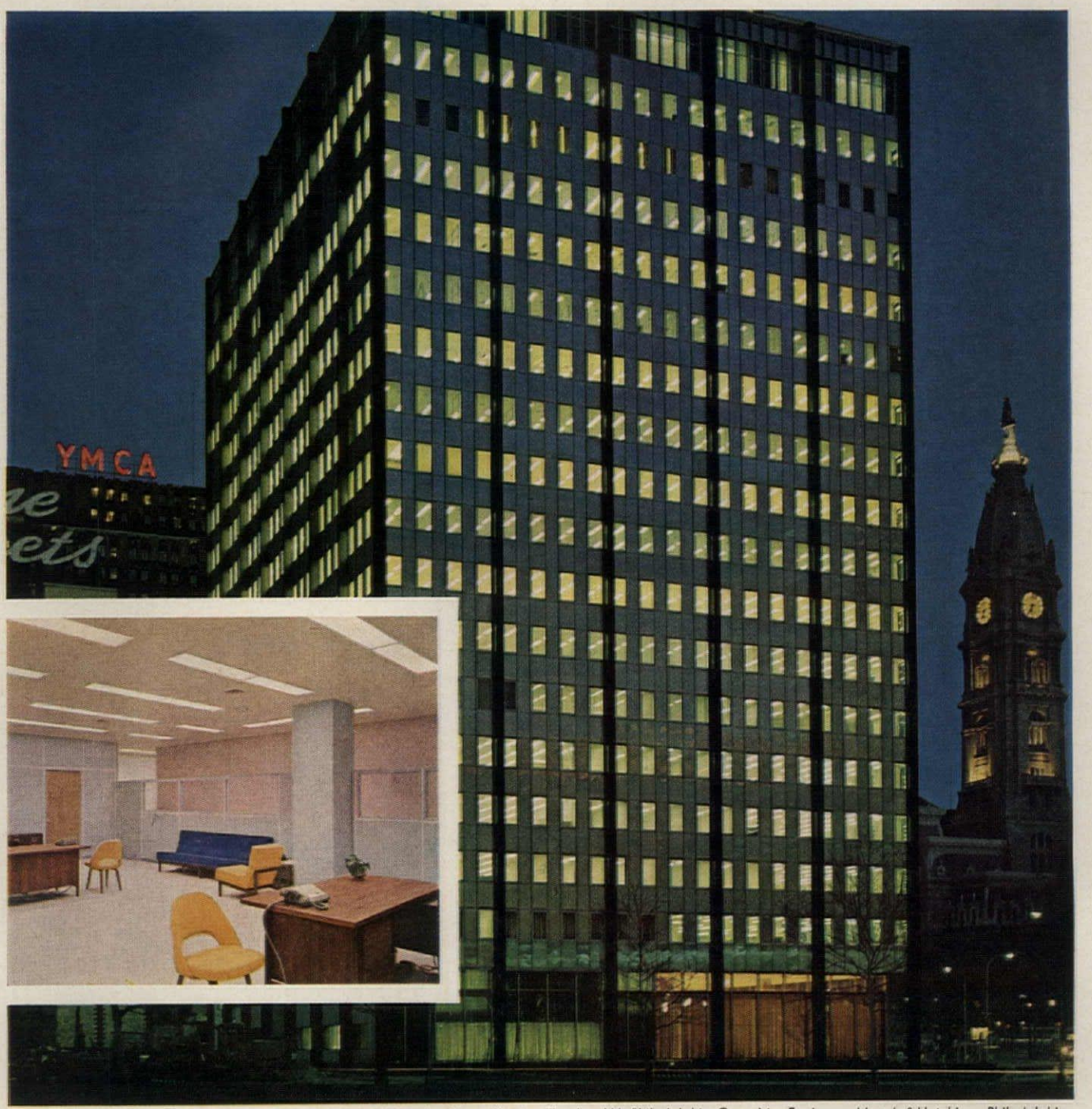

Bell Telephone Company of Pennsylvania Building, Philadelphia. Architect: Maurice Fletcher AIA, Philadelphia. Consulting Engineers: Moody & Hutchison, Philadelphia.

Lighting for prestige buildings— Plexiglas

Important buildings, large or small, deserve the best in lighting. At the new Bell Telephone Company building in Philadelphia, lighting of the highest quality is obtained through 13,000 control lenses injection molded of crystal-clear PLEXIGLAS® acrylic plastic. The precisely designed optical elements direct light to the required areas with minimal surface brightness. Because the lenses are made of PLEXIGLAS, they are strong and rigid. And they will remain free from discoloration through many years of use.

We will be pleased to send you literature, and the names of manufacturers of lighting equipment which includes control lenses of PLEXIGLAS, for lighting that stands out and stands up.

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IN 1957, ONE COAT OF WEST CONCRETE FLOOR TREATMENT WAS USED AT THE TUBESALES PLANT IN LOS ANGELES. IN 1963 . . . NO CHANGE!

SEE WHAT 6 YEARS OF HEAVY TRAFFIC HAVE DONE TO THIS FLOOR!

(PRACTICALLY NOTHING.)

West Concrete Floor Treatment is the one product that cures, hardens, seals and dustproofs new concrete floors with a single application! Goes on right after troweling!

Just *one coat* of West Concrete Floor Treatment seals concrete and helps minimize staining from acids, oils, and greases during the early construction phases. Protects surface from plaster, paint, mud and abrasive traffic during final construction period. No removal of West Concrete Floor Treatment is necessary prior to the installation of composition tile or other material.

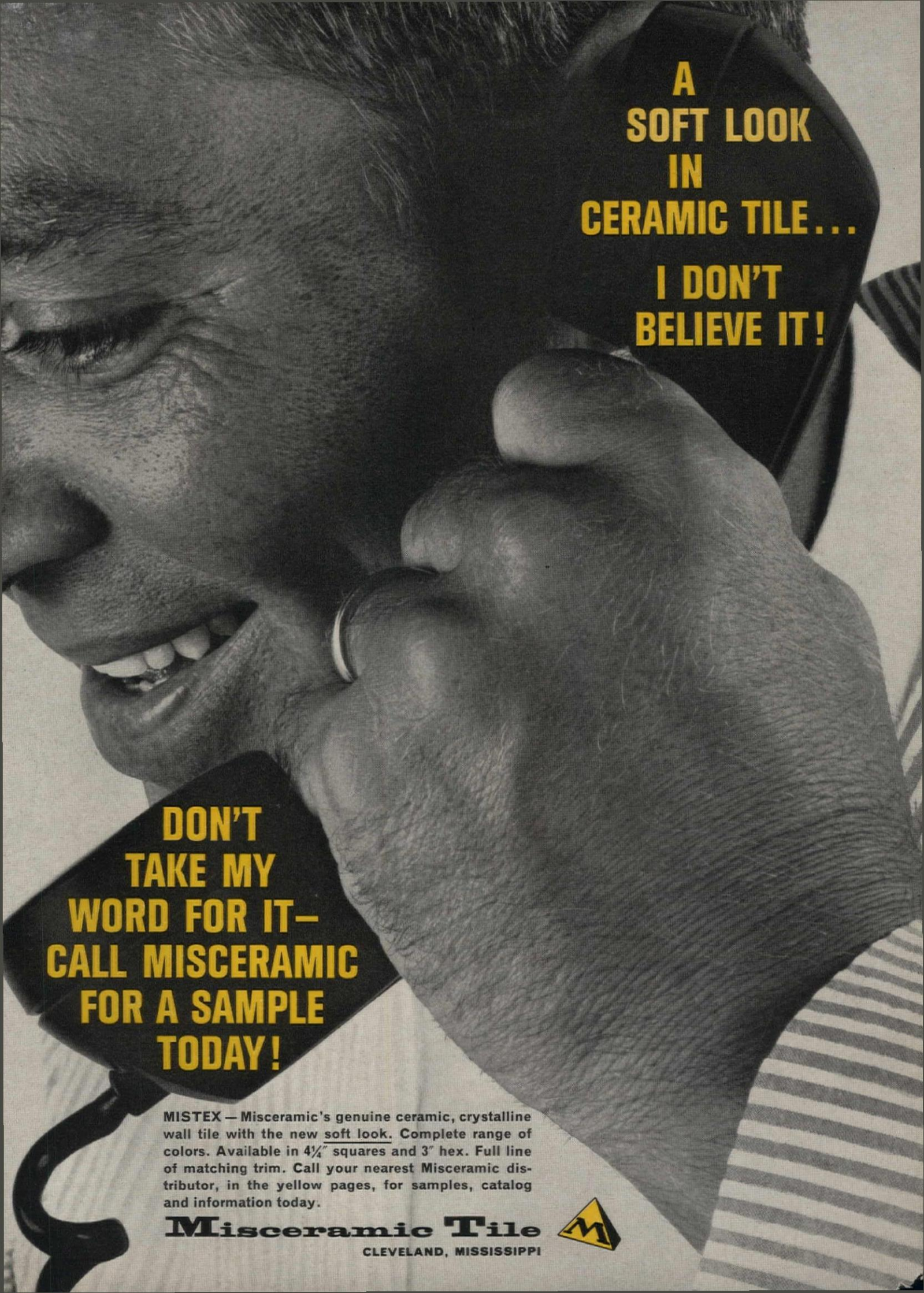
This remarkable time-and-labor saving treatment is effective on all concrete surfaces. It enables concrete to retain over 95% of its moisture. Permits a gradual and even release of moisture so that the curing, hardening and sealing processes occur simultaneously. And it meets ASTM specifications C-156 and C-309-58.

Why not contact the man to help you with specifications and additional information: your West representative. Look him up in your Yellow Pages, or write West Chemical Products, Inc., Construction Division, 42-16 West Street, Long Island City, New York.

WEST CHEMICAL PRODUCTS INC

For more data, circle 102 on Inquiry Card

For more data, circle 56 on Inquiry Card →



MISTEX — Misceramic's genuine ceramic, crystalline wall tile with the new soft look. Complete range of colors. Available in 4¼″ squares and 3″ hex. Full line of matching trim. Call your nearest Misceramic distributor, in the yellow pages, for samples, catalog and information today.

Misceramic Tile

CLEVELAND, MISSISSIPPI

ELECTIONS AND APPOINTMENTS

President Kennedy has appointed Paul A. Thiry, F.A.I.A., to serve on the National Capital Planning Commission. Mr. Thiry's background for this service includes the chairmanship of the American Institute of Architects' Committee on the National Capital, where he has served since 1960. His term is for six years.

Mr. Thiry succeeds Alexander C. Robinson, III, F.A.I.A., as one of the 13-member commission, and as one of the five members appointed by the President.

Edgar I. Williams, F.A.I.A., is president of the National Academy of Design for 1963. He was elected at the annual Meeting of Academicians held in mid-March.

Elected to Academicianship were architects **Philip C. Johnson,** New York; **Roy F. Larson,** Radnor, Pa.; and **Alfred Easton Poor,** New York.

Kurt F. Wendt, dean of the College of Engineering, University of Wisconsin, is the newly elected president of the American Society for Engineering Education. He will serve A.S.E.E. for one year, until July 1, 1964.

Elected vice presidents and members of the board of directors are: **Cornelius Wandmacher,** dean, College of Engineering, University of Cincinnati; and **J. Stuart Johnson,** dean, College of Engineering, Wayne State University. **George D. Lobingier,** director of the educational department, Westinghouse Electric Corp., Pittsburgh, has been renamed treasurer.

A. M. Young, Toledo, Ohio, manager of marketing for Libbey-Owens-Ford Glass Company, has assumed the presidency of Producers' Council, Inc., national organization of quality building products manufacturers. Mr. Young succeeds Don A. Proudfoot who recently resigned the Council presidency as a result of his resignation from the Barrett Division of Allied Chemical Corporation.

THE LOOK OF CLASSICAL COLONNADES

...concrete brings timeless beauty to this modern office building

Minneapolis embraces progress in new buildings such as the home of the Northwestern National Life Insurance Company, to be completed in the fall of 1964. Reinforced and precast concrete, the structure will be a dramatic contribution to civic beauty. • Rows of slender precast, prestressed concrete columns with flaring capitals soar 80 feet high, and extend beyond the building to create an impressive portico. For full development of the arched colonnade effect, the columns are brilliant white, achieved with quartz and white portland cement. Additional accent is provided by dark green walls of faceted panels flanked with gray glass. • Concrete offers endless opportunity for striking departures from prosaic design in structures of every purpose.

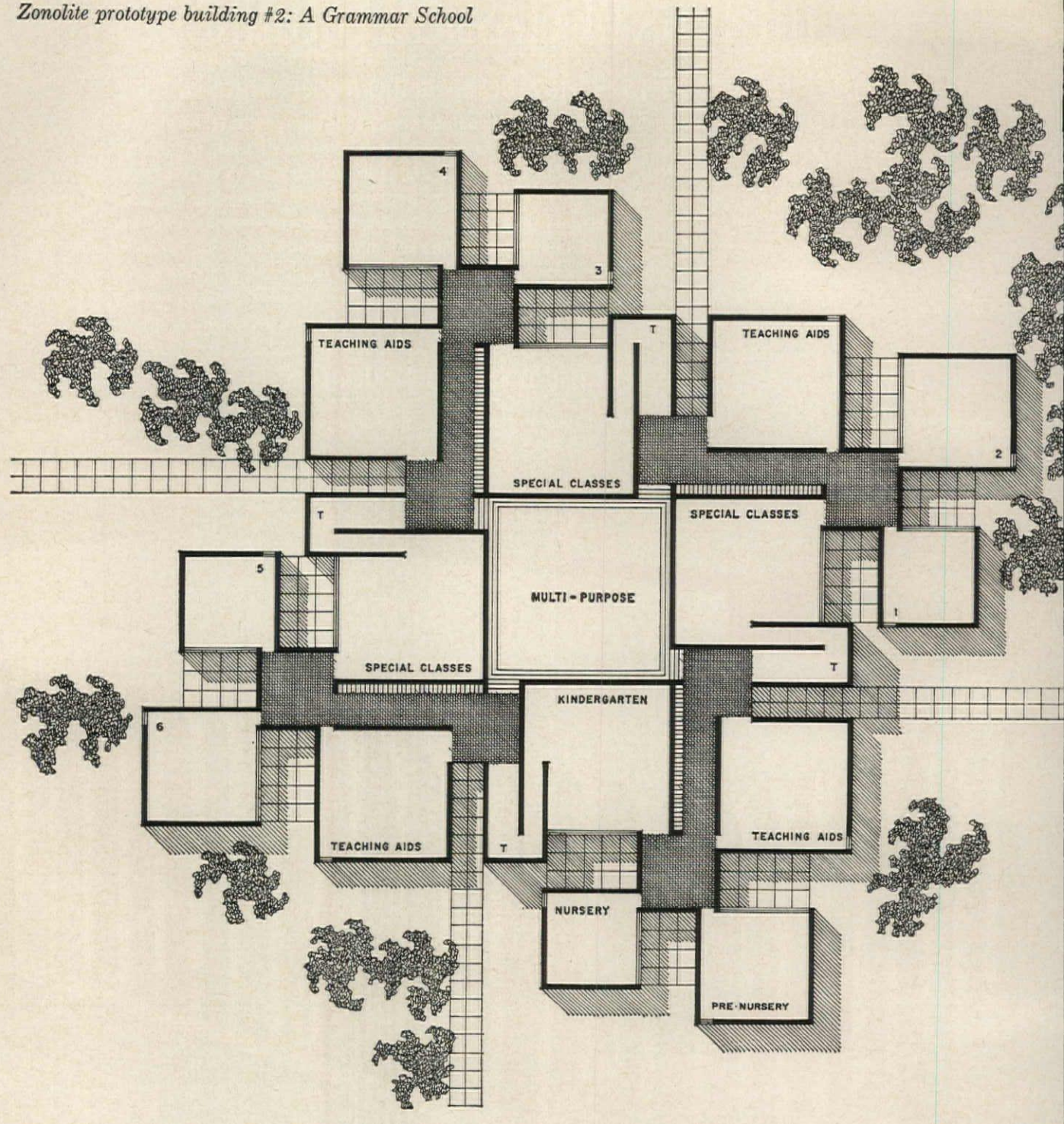
PORTLAND CEMENT ASSOCIATION

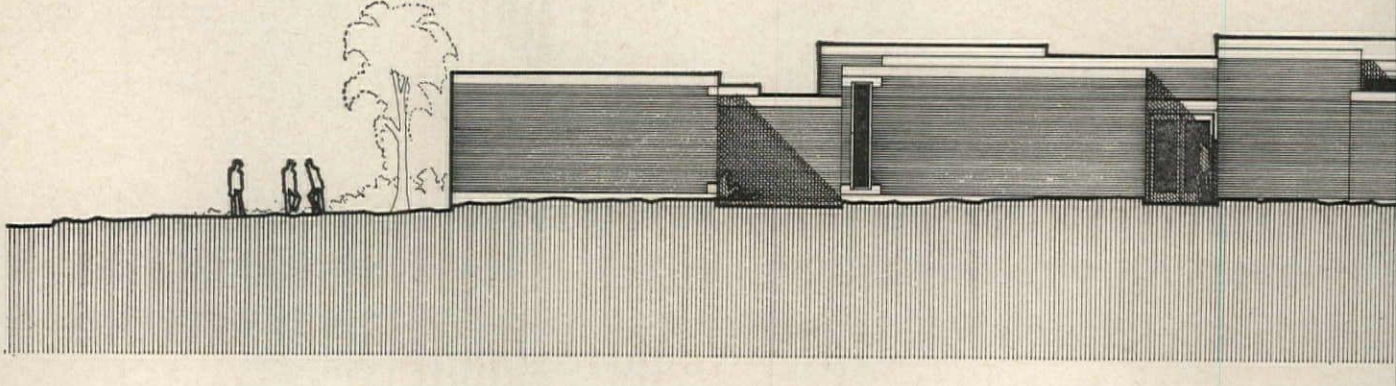
A national organization to improve and extend the uses of concrete

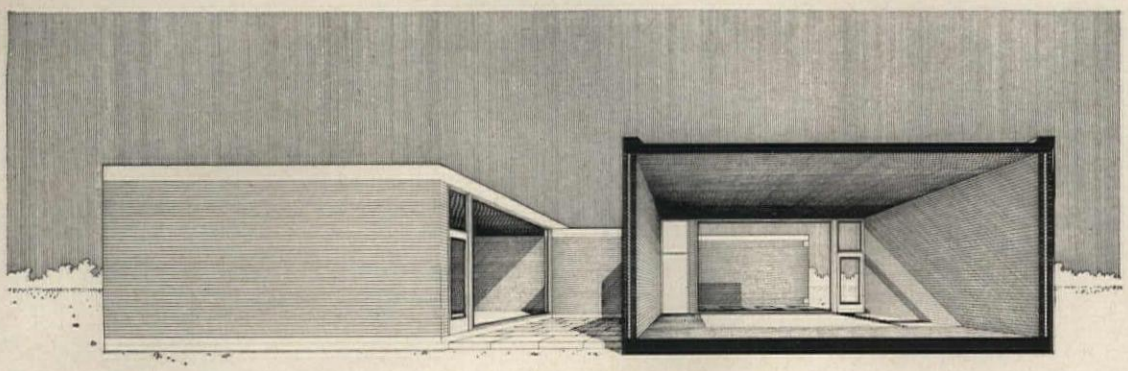
THE BEST IDEAS ARE MORE EXCITING IN CONCRETE

Architect: Minoru Yamasaki & Associates, Birmingham, Michigan • Structural Engineers: Worthington, Skilling, Helle & Jackson, Seattle, Washington • Owner: Northwestern National Life Insurance Company, Minneapolis, Minnesota

Zonolite prototype building #2: A Grammar School







This organic, yet classically ordered K-6 school is made eminently functional because Zonolite Masonry Fill Insulation is in the cavities

This grammar school was commissioned by Zonolite, designed by Stanley Tigerman of Tigerman & Koglin, Chicago architects, and engineered by Norman Migdal, Chicago consulting engineer.

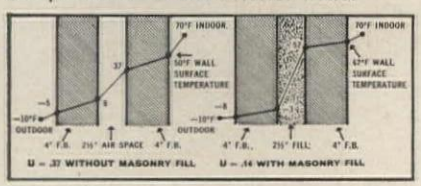
It demonstrates the different ways that Zonolite Masonry Fill Insulation contribute to the economy and comfort of a brick cavity building, some rather unexpected.

The initial cost of the building is reduced in two respects by filling the cavities with this product.

First, the interior surfaces of the walls can remain unfinished, because conventional insulation on the inside is not necessary for comfort. And second, the cost of the heating plant can be reduced somewhat because a smaller boiler (see chart) can be used.

The heating costs are reduced 17.6%; a savings amounting to over $600 annually.

Comfort is increased to a considerable degree. Note the difference in surface temperatures of the interior walls.



The water repellent nature of the material keeps interior walls dry as well as warm.

Another aspect of comfort derives from the sound dampening capability of the material . . . it reduces the loudness of sound transmitted through the walls 20% to 31%.

Contrast all these advantages with the approximate installed costs of the material for this cavity size; approximately 10¢ per square foot.

The installed costs are low for two reasons. One, the initial cost is low. Two, installation is easy and fast. The material just pours out of the bag into the cavity.

For more information about this remarkable insulation, write Department AR-83 for Bulletin MF-68. Zonolite Division, 135 South LaSalle Street, Chicago 3, Ill.

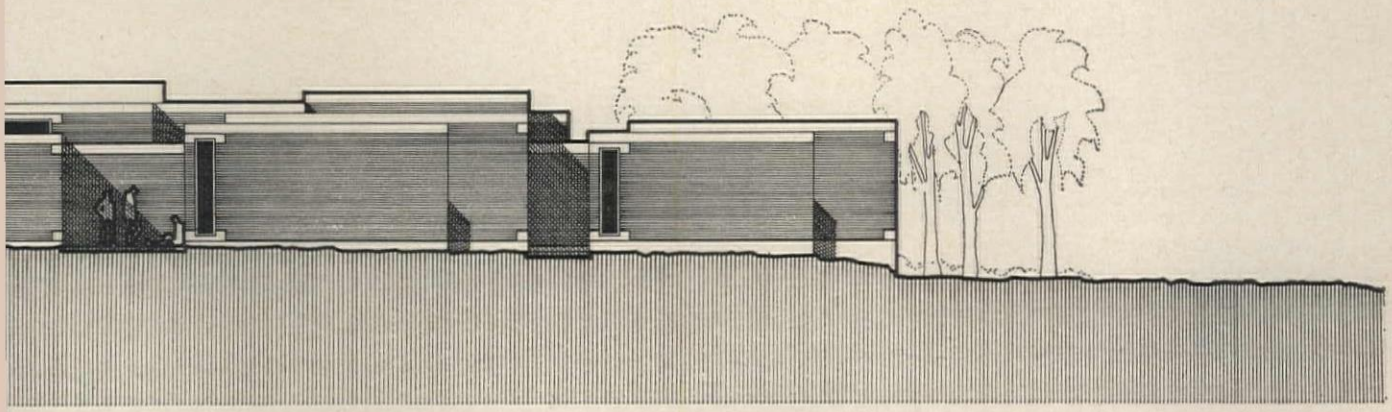
ZONOLITE

GRACE ZONOLITE DIVISION W. R. GRACE & CO.

DESIGN CONDITIONS			WINTER HEAT LOSS IN Btu/HR ASSUMING 70°F INDOOR −10°F OUTDOOR	
	WITHOUT MASONRY FILL	WITH MASONRY FILL	WITHOUT MASONRY FILL	WITH MASONRY FILL
TRANSMISSION LOSSES	2" EDGE INSULATION DOUBLE PLATE GLASS 8" CONC. ROOF WITH 2½" INSULATION		318,000	**318,000**
VENTILATION & INFILTRATION	7840 CFM		678,000	**678,000**
WALL	4" FACE BRICK 2½" AIR SPACE 4" FACE BRICK	4" FACE BRICK 2½" ZONOLITE MASONRY FILL INSULATION 4" FACE BRICK	395,000	**149,000**
TOTALS	—	—	1,391,000	**1,145,000**
SAVINGS WITH MASONRY FILL	—	—	% SAVINGS $\frac{1,391,000 - 1,145,000}{1,391,000} = 17.6\%$	

1. *Higher wall surface temperature reduces body radiant heat exchange, and minimizes wall surface downdrafts. (See chart at left for wall surface temperatures.)*
2. *Operating costs are reduced by over $600.00 per year.* First cost of insulation ($1340.00) can be paid off in less than 2½ years.*

**Based on six 113 degree days. 10 cents per therm, gas boiler. 45 hrs./week ventilation system operation.*



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The pattern wears all the way thru because the chips are all the way thru!

Circle Floor Co. installed Ruberoid Thru Chip Vinyl Asbestos Floor Tile for Grand Union in its new Hartsdale, New York, supermarket.

This sample machined down .025, .050 and .075 illustrates Thru Chip patterning.

New Thru Chip Vinyl Asbestos by Ruberoid for heavy heavy traffic!

Now—Ruberoid's Thru Chip gives the multi-color beauty of terrazzo in practical, easy-to-maintain, long wearing, low-cost vinyl asbestos. Created especially for heavy traffic, it's the ideal floor tile. Through and through chip patterning maintains a strikingly fresh appearance through the years. Highly resistant to spilled foods, most greases, acids and detergents. Available in 12 colors in ⅛" thickness, 9 x 9. ■ It's another step ahead for Ruberoid. A multi-million dollar investment in continuing plant and product improvement assures high standards of quality and style in all Ruberoid Floor Tile. Call your Ruberoid representative.

Keep your eye on RUBEROID!

RUBEROID

FINE FLOORING

The RUBEROID Co., 733 Third Avenue, N. Y. 17, N.Y.

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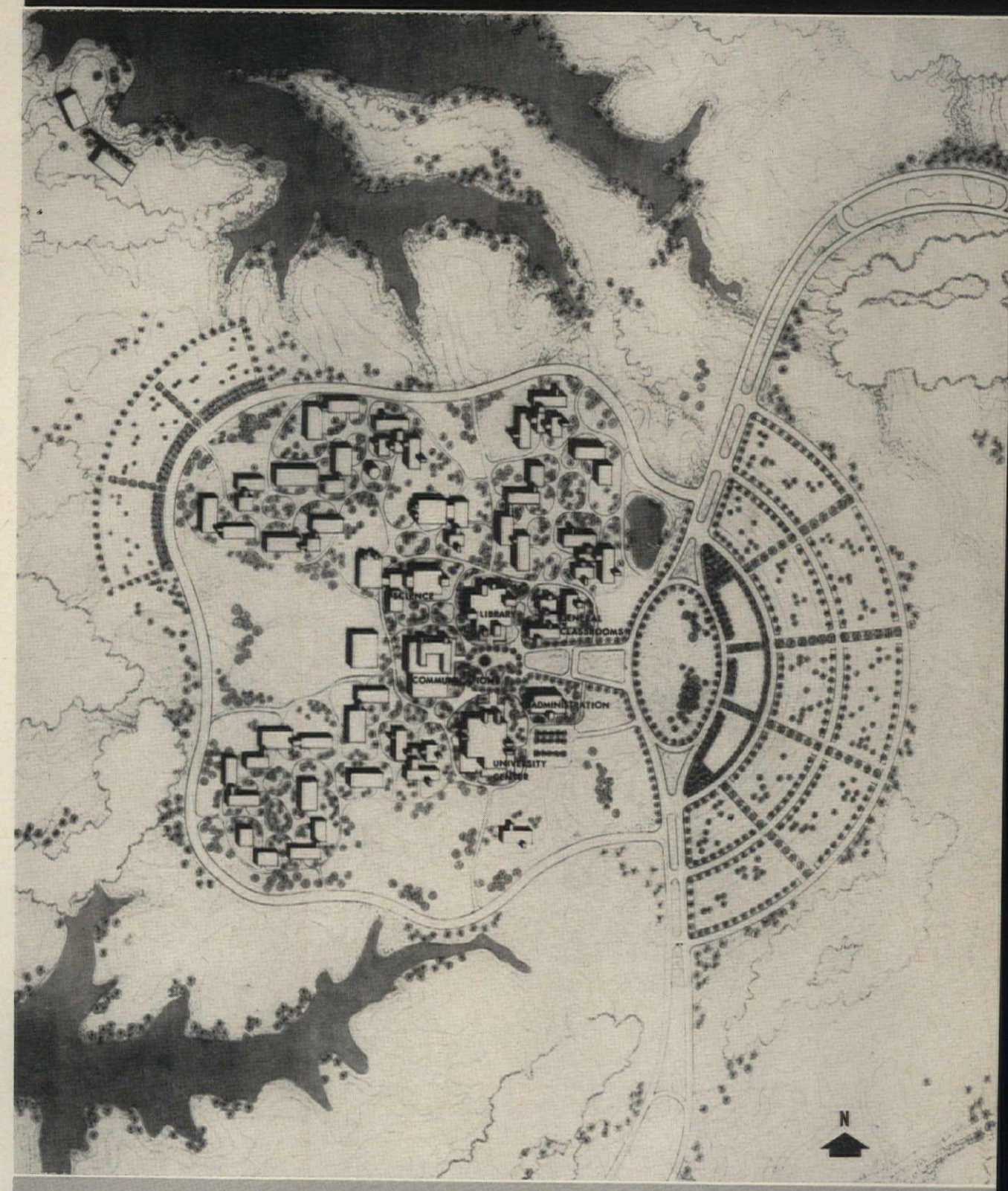
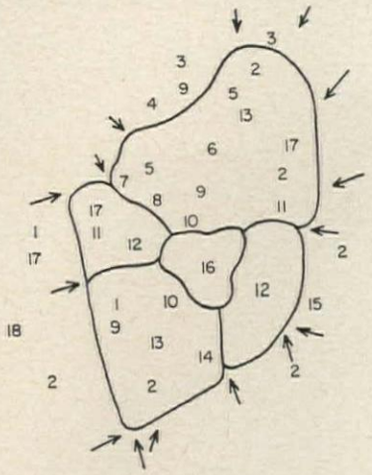


The New Edwardsville Campus, Southern Illinois University

BUILDING TYPES STUDY 323

COLLEGE BUILDINGS

Two completely new campus plans—one for an expansive country site, and one for a limited big city plot—and new buildings to expand existing college facilities



The site is allocated for future development as follows:

1. Physical Education
2. Research
3. Arboretum
4. Sewage Treatment
5. Utilities
6. Housing
7. Power Plant
8. Services
9. Outdoor Education
10. Academic Expansion
11. Housing Reserve
12. Parking
13. Conservation Reservoir
14. Continuation Center
15. Community Center
16. Academic Core
17. Recreation
18. Water Treatment

At an intermediate planning stage, a "finger" scheme for expansion was considered, with parking split among the general dark areas. Compare with the final master plan on the preceding page.

Southern Illinois University
Edwardsville Campus

ARCHITECTS:
Hellmuth, Obata & Kassabaum, Inc.
Gyo Obata, Principal in Charge of Design
Chester E. Roemer—Project Manager
George B. Hagee—Assistant in Design

MECHANICAL ENGINEER:
Robert E. Hattis Engineers, Inc.

STRUCTURAL ENGINEER:
The Engineers Collaborative

LANDSCAPE ARCHITECT:
Sasaki, Walker & Associates, Inc.

UTILITIES ENGINEER:
Warren & Van Praag, Inc.

ACOUSTICAL CONSULTANT:
Bolt, Beranek & Newman

NEW UNIVERSITY CAMPUS IS PRE-PLANNED FOR CHANGE

The "acceptance of change as the order of the day" formed the challenging nucleus of the architectural—and educational—concepts for this big, brand-new campus for Southern Illinois University. Part of this need for change was implicit in the expected quick growth of the campus, both in student population and in the educational programs offered. But a larger part stemmed from the desire to provide, in advance, for the inevitable turnover in teaching ideas and personnel that the coming years will bring. Maximum flexibility and convertibility for the entire campus thus became the first "functional" requirements. The resulting campus plan and buildings, whose designs are shown here and on the following pages, appear to solve these needs in a singularly simple and handsome manner.

The architects, Helmuth, Obata & Kassabaum, were originally commissioned to research and develop a master plan to accommodate 5,000 students and a four-year general education program. In addition, expansion schemes were to provide for future growth to 20,000 students and establishment of a graduate program.

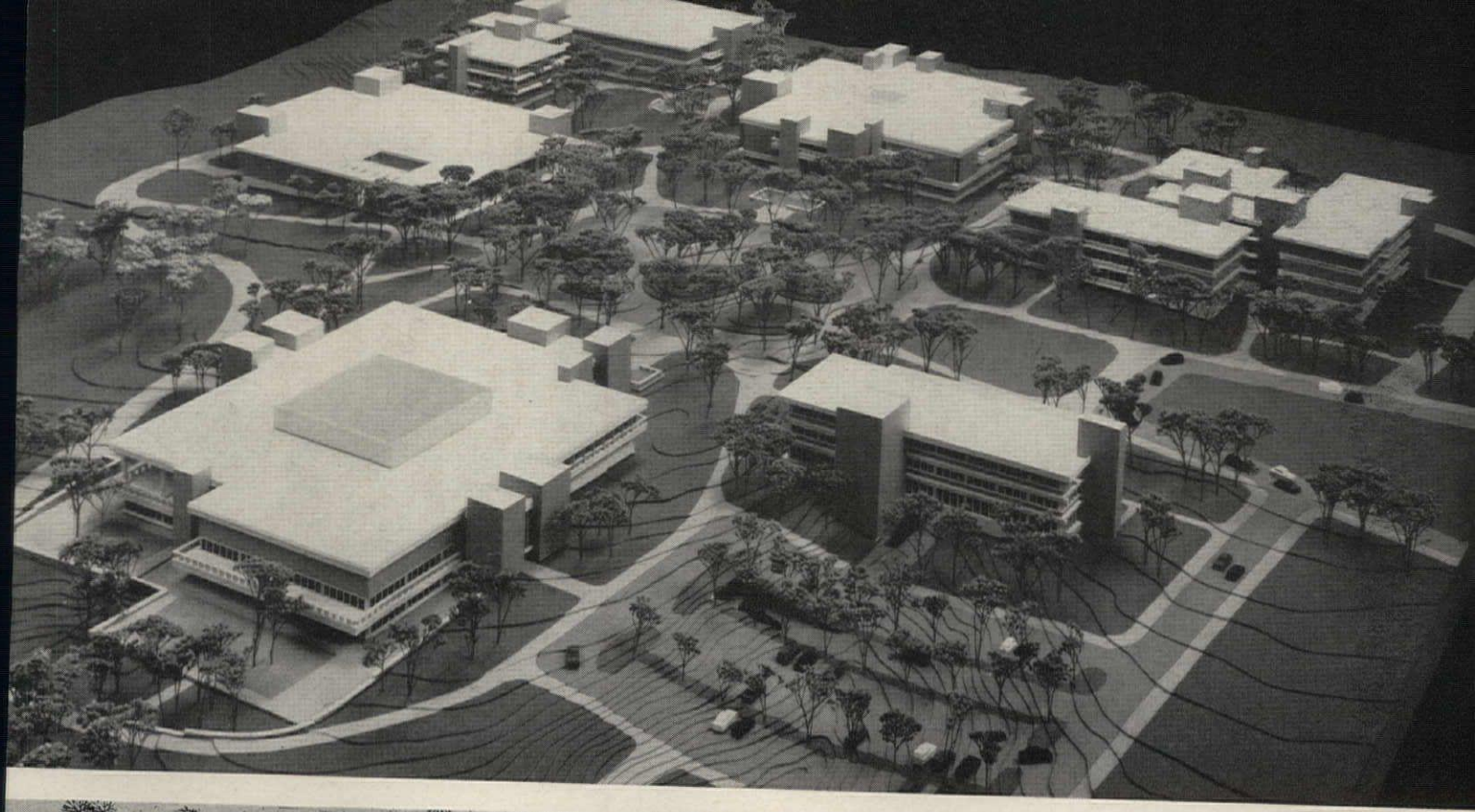
The site selected for the development of this campus is a beautiful one: 2600 acres of gently rolling farm land and wooded valleys along the bluffs flanking the Mississippi River. Its location might best be described as urban-rural, for within easy driving distance is a network of cities and towns comprising the second largest metropolitan concentration (next to the city of Chicago) in the State of Illinois. The first stages of the campus are planned for the entire student body and faculty to commute by automobile from the adjoining towns. All of the original $25 million available from a State of Illinois bond issue will be used for academic buildings, site work and utilities, and none at the outset for student housing. Dormitories and other facilities will possibly be added in the future expansion.

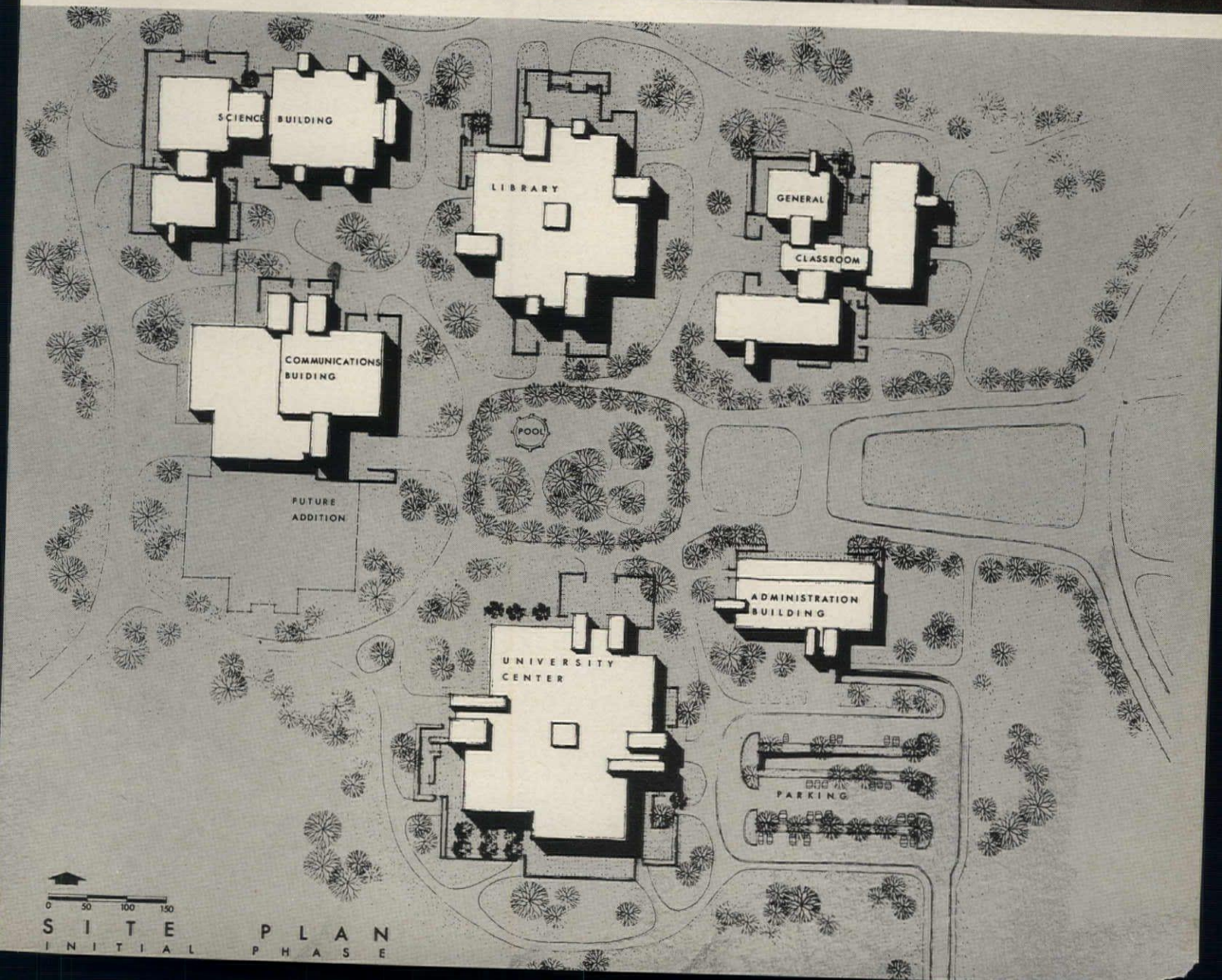
This campus at Edwardsville will supplement the University's big and still expanding division at Carbondale, and the near-by facilities at East St. Louis and Alton. All are under the direction of S.I.U.'s President Delyte W. Morris.

Master planning sessions for the new campus began in May 1960, with meetings of the architects, President Morris, and university staff architects Charles Pulley and John D. Randall. The first discussions centered on the general framework and objectives of the new institution, which is primarily intended to serve the needs of the people in the surrounding Illinois towns rather than also near-by, urban St. Louis. In view of this, the natural rural setting was to be preserved where possible, and the buildings quietly adapted to it. These weekly sessions led to a concept providing for educational spaces based on, and grouped according to function, rather than the usual departmental set-up.

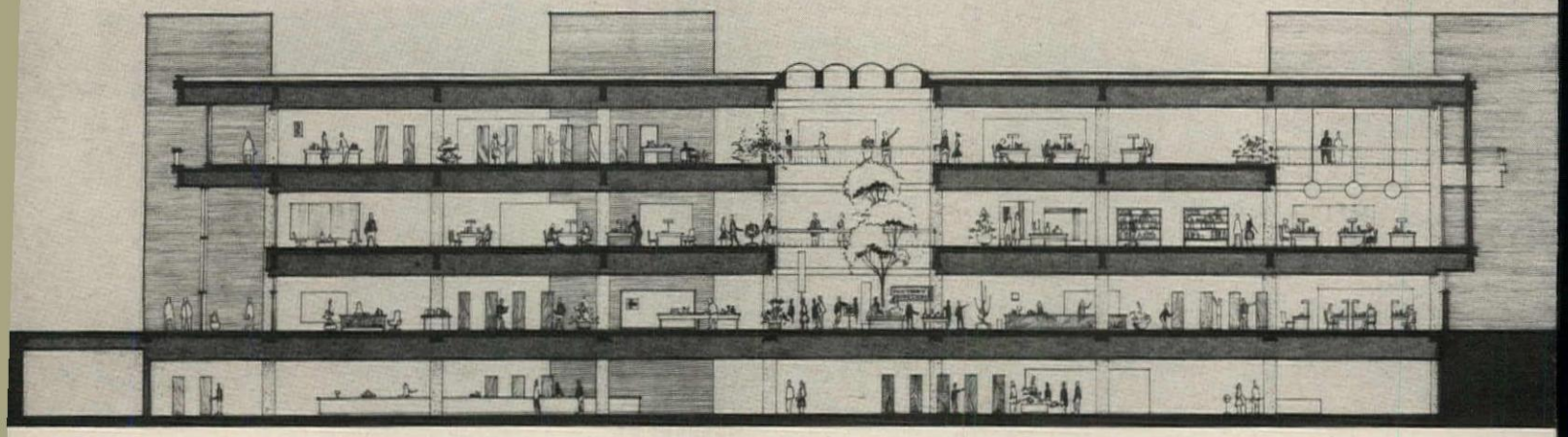
Through a grant from the Ford Foundation's Educational Facilities Laboratories, Inc., the architects were next able to call a series of seminars with educators from all over the country to explore the best new educational methods and thinking. From this research, which extended over a period of about six months, developed an initial curriculum consisting of four divisions: liberal arts core; business of commerce; education; and technical subjects, such as engineering and nursing, to fill the needs of the area.

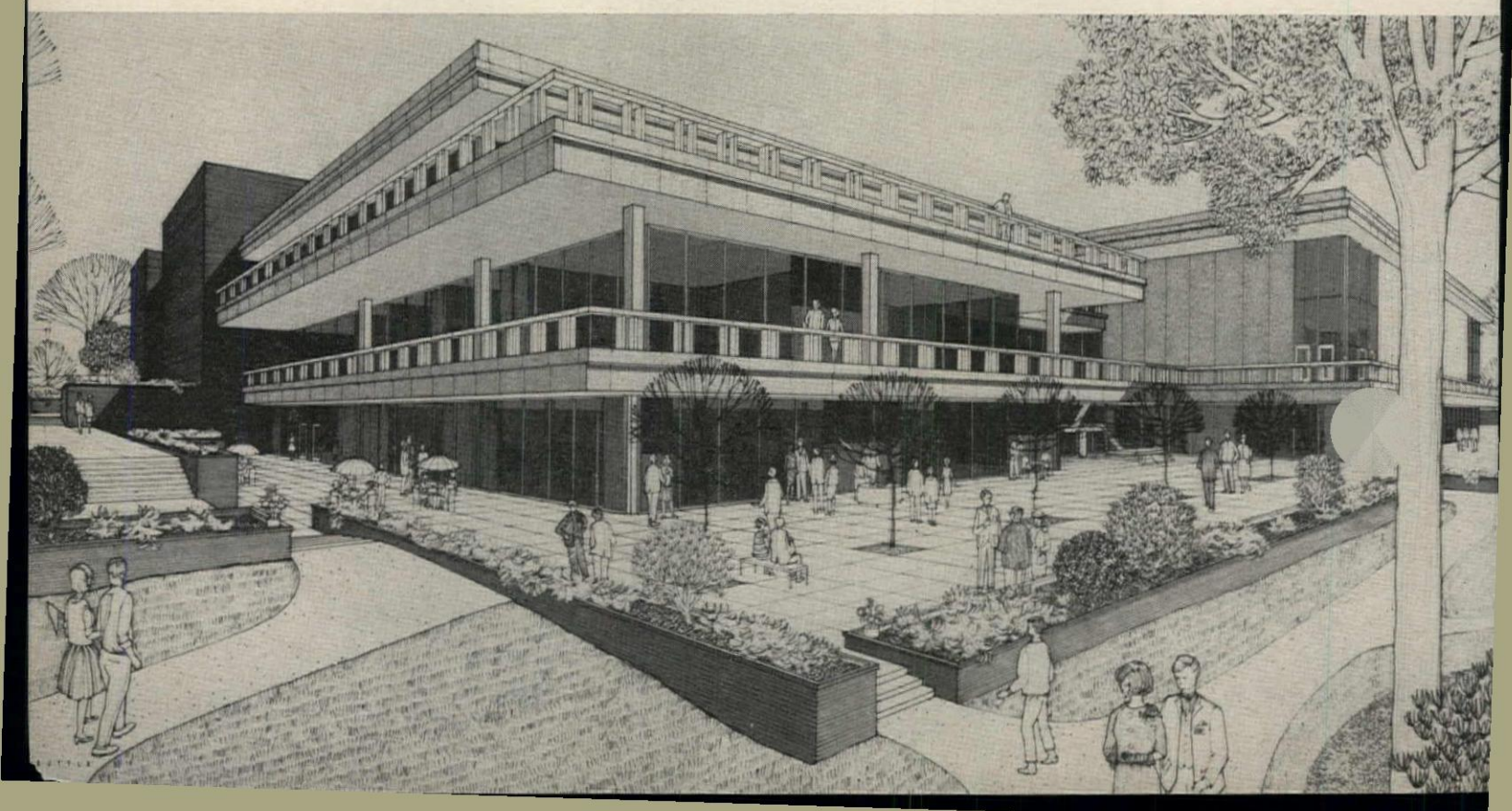
Five buildings, following the functional grouping idea, were de-



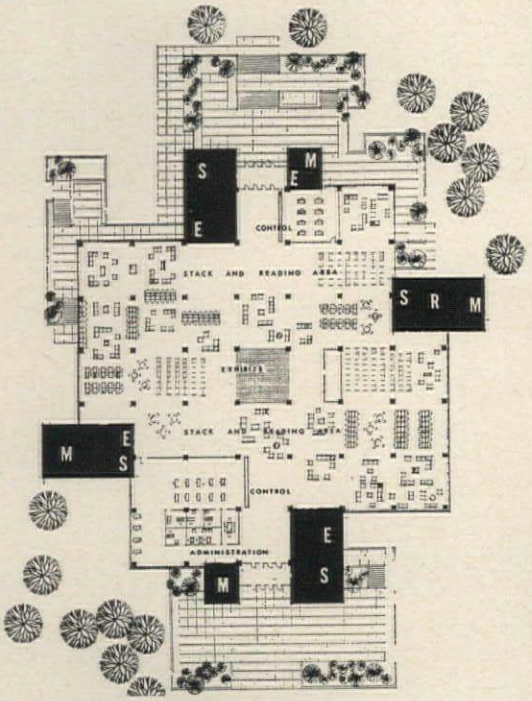


SITE PLAN
INITIAL PHASE

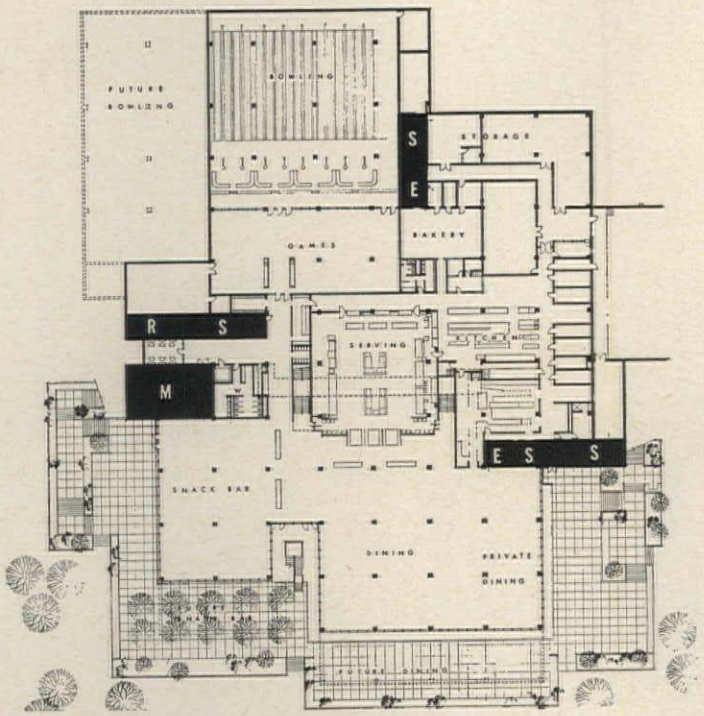




C CORRIDOR
E ELEVATOR
M MECHANICAL
R REST ROOM
S STAIRWAY



LIBRARY BUILDING



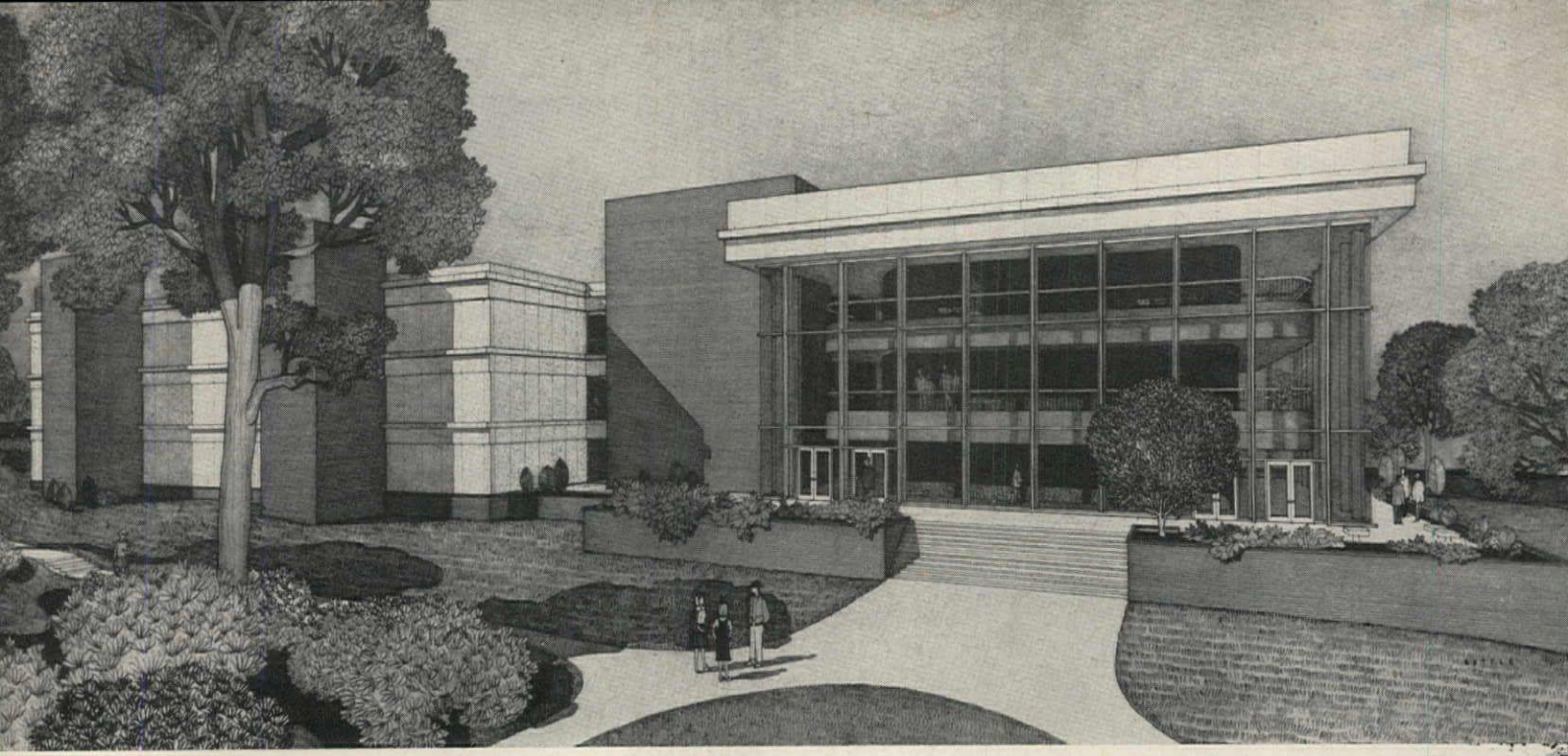
UNIVERSITY CENTER BUILDING

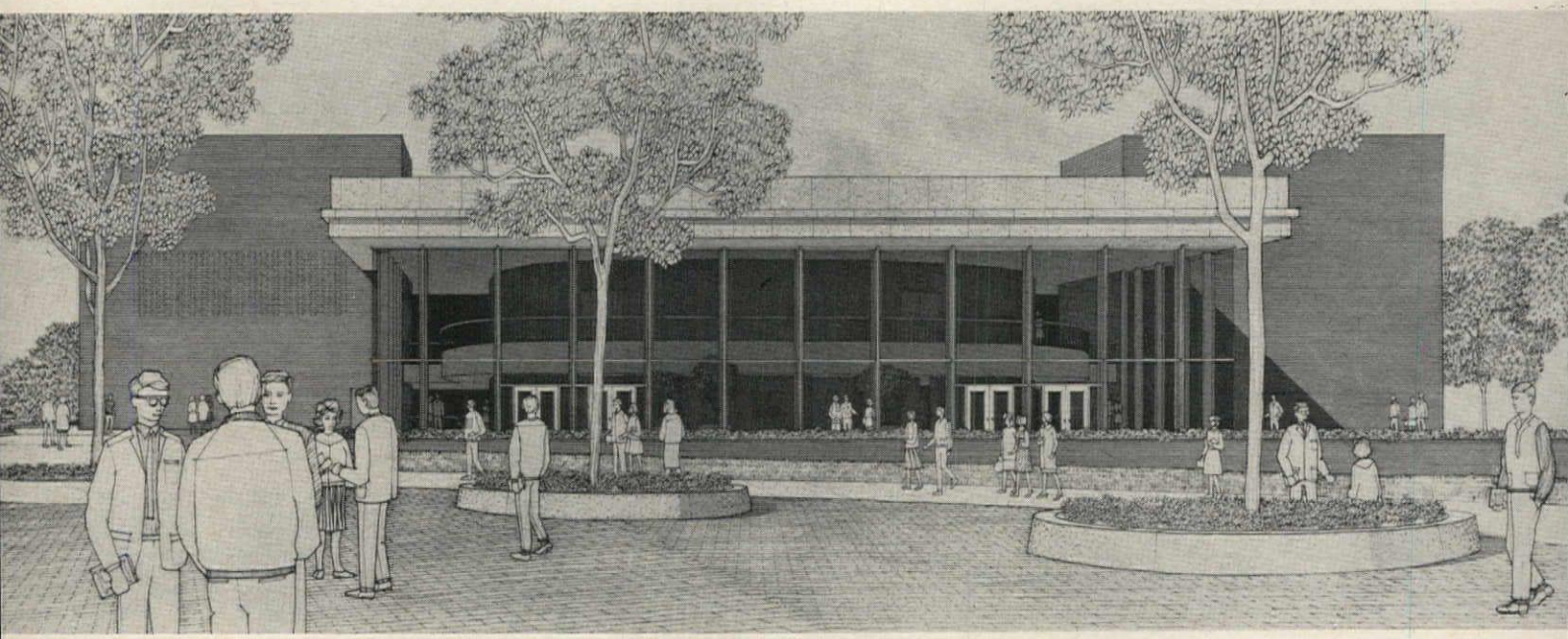
cided on to begin such a program within the budget: 1. non-specialized classrooms; 2. specialized rooms and laboratories; 3. a library; 4. a communications building (with television, FM radio and film production, and a theater); and 5. general service offices. In addition, a student center was to be built with funds from Federal Aid. Space requirements and relationships for each of these buildings were carefully studied at this stage.

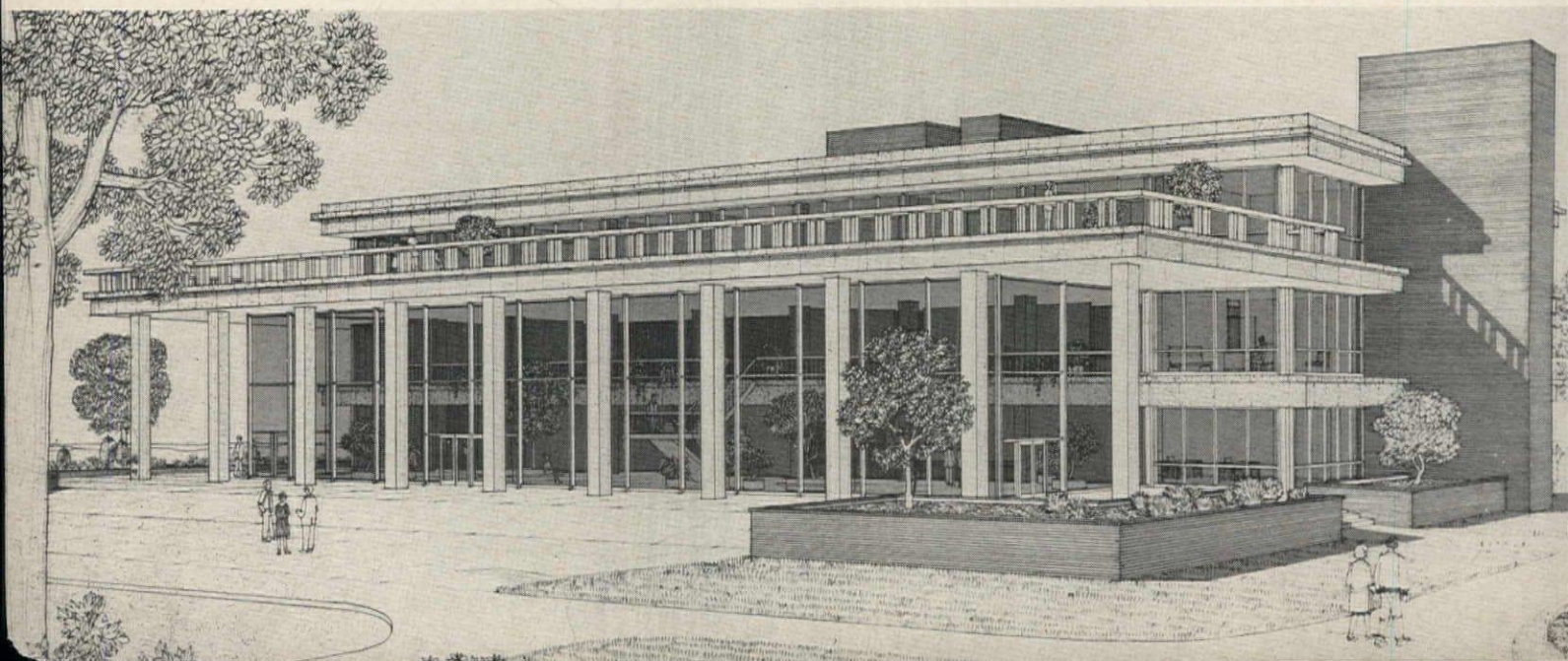
The next planning phase was a series of studies on how best to integrate traffic access, parking spaces and the disposition of present and future buildings on the site. Highways from all centers of population to the new campus were established, and plans for future highways coordinated in cooperation with highway officials. An outer loop road around the site was plotted to connect the highways. An area of about 200 acres was then set apart on high ground in the center of the site as the main (and initial) academic core, with an inner loop road for access. As can be noted on the diagram (page 110), the entire site was then "zoned" for future development of all facilities, and lakes were planned for three valleys on the site for recreational and utility use (for details on the utility plans, see page 162).

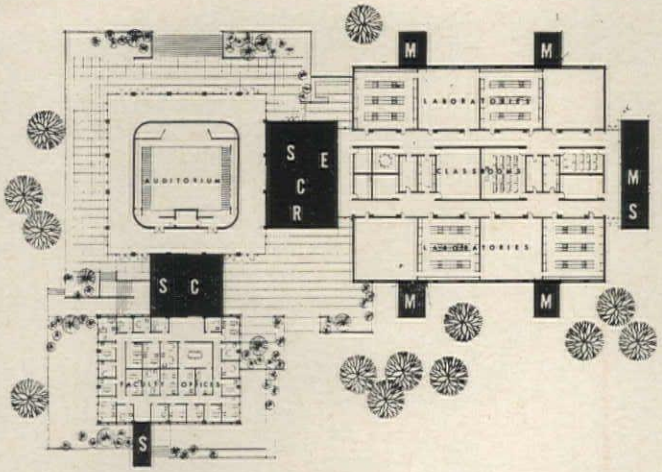
Parking requirements were considerable for such a commuter college: studies showed the need for spaces for 3,000 cars initially, and up to 12,000 cars in the future. From the outset, it was desired to keep a clear separation between automobiles and the "pedestrian campus" area. Innumerable schemes were studied to achieve this, and to preserve the natural setting. A series of little wooded valleys, which led off the central academic area, led to the investigation of a scheme where the buildings would radiate from a central mall in a series of "fingers", with parking between. One phase of this scheme is shown in the small plot diagram on page 110. A major objection to such a "finger" expansion idea was soon obvious: the last additions would have very tenuous relationships to their "parent" buildings by the central mall. Also, such a strung-out series of parking areas would obscure a great amount of the landscape. It was decided that looped clusters extending from the original center would be more workable.

At this point in the planning, a special seminar called EPEC (Environmental Planning Edwardsville Campus) was sponsored by EFL and the Maremont Foundation, and all the studies that had been made were re-

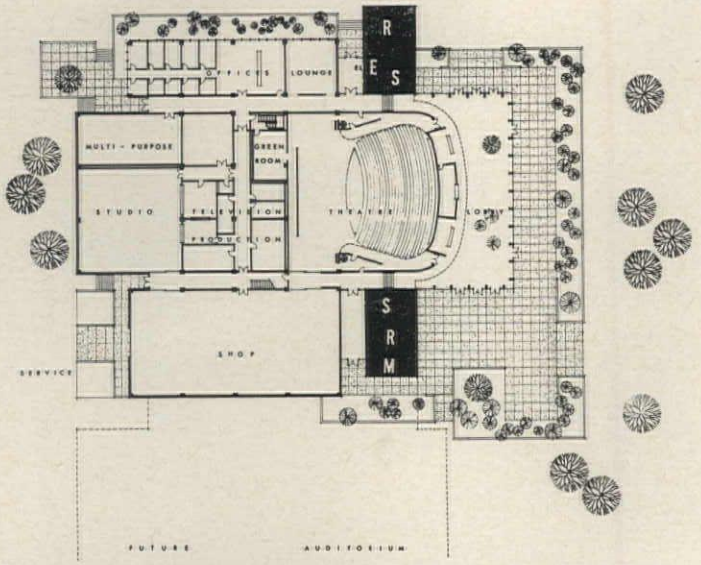




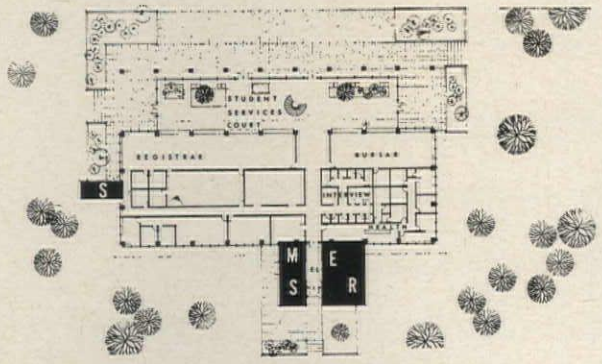




SCIENCE BUILDING



COMMUNICATIONS BUILDING



ADMINISTRATION BUILDING

viewed. The seminar included such people as city planner Ed Bacon, landscape architect Sasaki, Buckminster Fuller, Earl Bolton of the University of California, and sculptor-architect Paolo Soleri. One of the major developments from this session was the decision to consolidate all parking into two large landscaped areas, and restrict the central campus entirely to pedestrians. Only special service vehicles will ever be allowed into the area. The final master plan, shown on page 109, was subsequently developed and accepted by the Board of the University, and the architects were commissioned to design the individual buildings.

To give the required allowance for change in each structure, all fixed, static areas, such as stairs, toilets, elevators and mechanical rooms were placed on the periphery of the plan, and expressed by solid brick towers. The rest of the spaces in the buildings have wide spans or large bay systems, and are based on a five foot module to allow easy changes of lighting, air conditioning and metal interior partitions. Occasional changes in vertical heights, and the use of skylights, add spatial interest to the big loft spaces—as can be noted in the cross sections shown. On the exteriors, these adaptable areas are expressed by precast concrete panels with a rose quartz aggregate, and panels of gray glass in dark anodized aluminum frames. Each structure rests on a sort of brick podium, designed to fit the natural land contours.

The library building is designed as an open stack scheme, with control points at two major entrances. It was planned so that stacks, reading area, offices and carrells could be placed anywhere in the building. A 30 by 30 foot waffle-pan, reinforced concrete frame was established as the most economical and largest bay for a load of 150 pounds per square foot. Walls were staggered to block direct east and west light, but admit ample north and (shielded) south light. A space is left above the ceiling, and another in the basement for future electronic equipment and conduit. The building has three floors and a basement, and the structure is planned so that four more stories can be added for vertical expansion.

The science building houses interchangeable laboratories for all the science disciplines. It connects with a wing housing science lecture halls, and another for science faculty offices. The great flexibility of this building is analyzed on page 169.

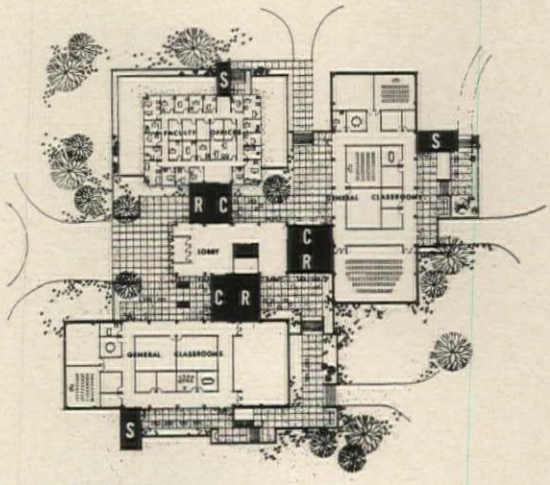
The communications center houses all the present electronic equipment available for

instructional purposes, including eight TV studios for closed-circuit programs. A utility tunnel connects it with the library for easy transmission of audio-visual materials. An auditorium for 1500 students will be added.

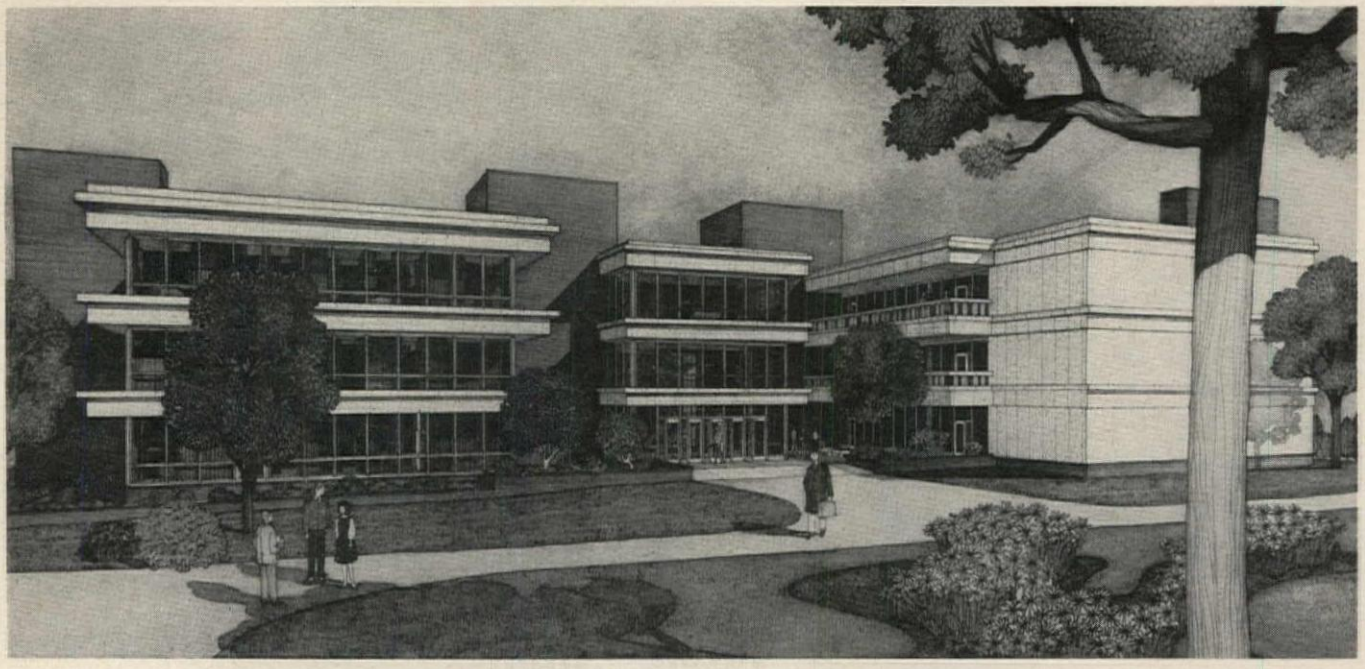
The administration building houses all main offices for the campus. There is a large two-story lobby-garden where visitors will first enter the campus, and where students will register each semester.

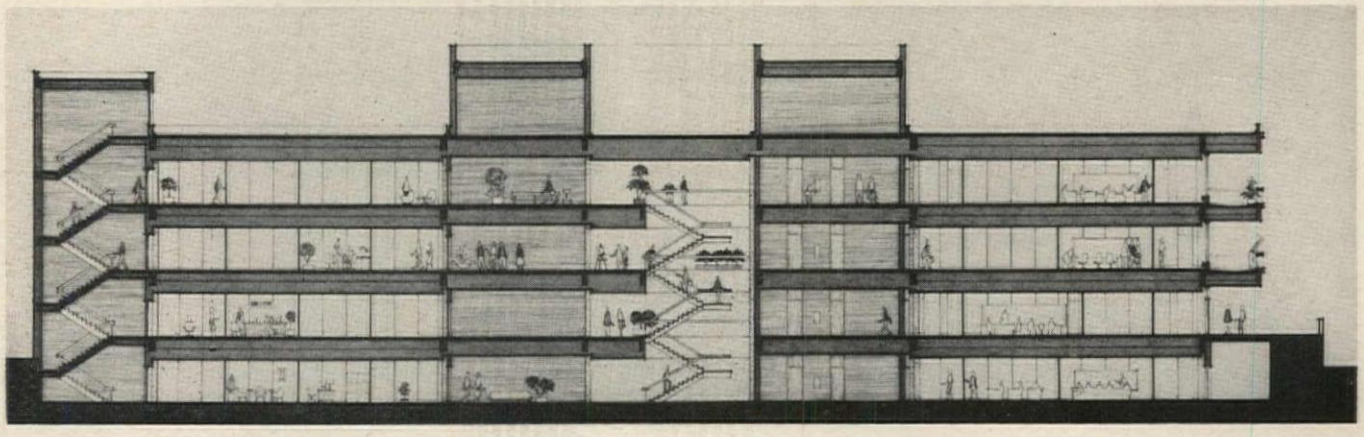
The general classroom building houses all non-specialized teaching spaces. Partitions can be easily moved to create spaces for 12 to 200 students. An equally flexible wing houses faculty offices. The entrance area to this building group contains lounges.

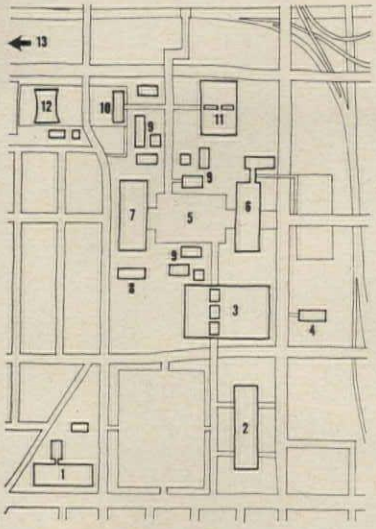
President Morris, who radiates pleasure when discussing the new campus, has stated that "the real secret (of good new campus planning) is that one must have flexibility in his architect as well as in the buildings . . . it is extraordinary how ours has been able to think broadly."



CLASSROOM BUILDING







1. Physical Plant Building
2. Physical education
3. Engineering and science laboratory
4. Engineering and science research
5. Lecture Center
6. Student Union
7. Library
8. Engineering and science offices
9. Classroom clusters
10. Faculty and administration offices
11. Fine and applied arts laboratory
12. Auditorium and Exhibit Gallery
13. Graduate study, research, service

CHICAGO CAMPUS FOR THE UNIVERSITY OF ILLINOIS

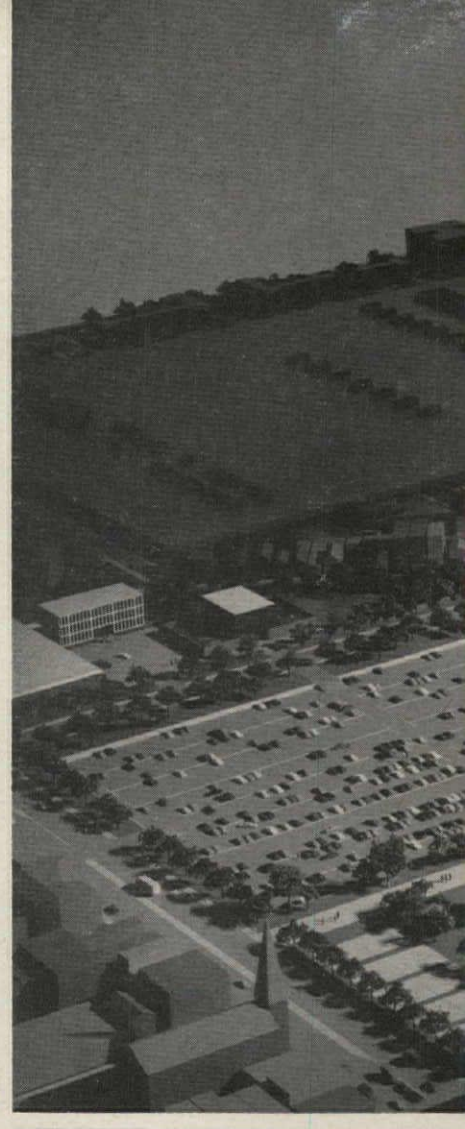
The scheme for the new Chicago campus of the University of Illinois departs boldly from tradition, and brings together in compact pattern—appropriate to its city setting—a group of buildings each designed to serve a function rather than an academic discipline. Unlike a typical campus arrangement—in which the chemistry building houses chemistry classes, laboratories for chemistry study and research, plus offices for departmental faculty and administrators—this plan revolves about the idea of housing various educational activities in buildings of a type that will serve most efficiently and economically for the particular purpose involved. Thus, in addition to the more conventional structures, there will be a number of classroom buildings disposed in clusters, a lecture center comprising a group of 21 variously sized lecture halls, a laboratory building for the sciences and engineering, and a high-rise staff and administration office building. Classrooms generate mass movements of students in the short periods between classes, so that such rooms can be appropriately housed in three- or four-story build-

ARCHITECTS-ENGINEERS:
Skidmore, Owings & Merrill
Campus planners, detailed site planning, library, classroom buildings, lecture center, engineering and science laboratories, staff and administration offices
LANDSCAPE CONSULTANTS: *Sasaki, Walker & Associates*
ACOUSTICAL CONSULTANTS: *Bolt, Beranek & Newman, Inc.*

Student Union Building
ARCHITECTS & ENGINEERS: *C. F. Murphy Associates*

Physical Plant Building
ENGINEERS AND ARCHITECTS: *A. Epstein & Sons,*

Boiler plant
ARCHITECTS: *Skidmore, Owings & Merrill*
ENGINEERS: *Sargent and Lundy*



1965

1969

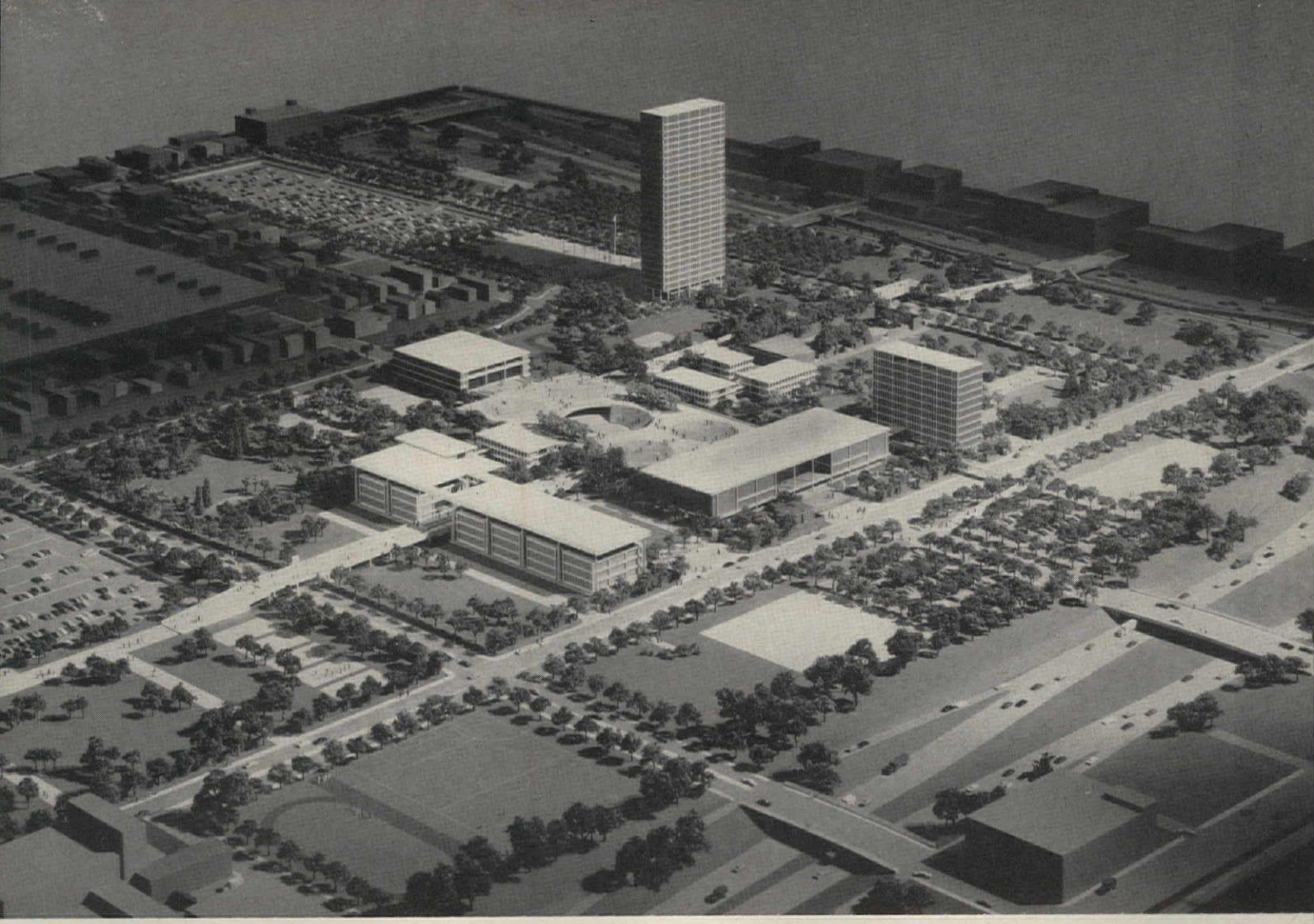
Hedrich-Blessing model photos

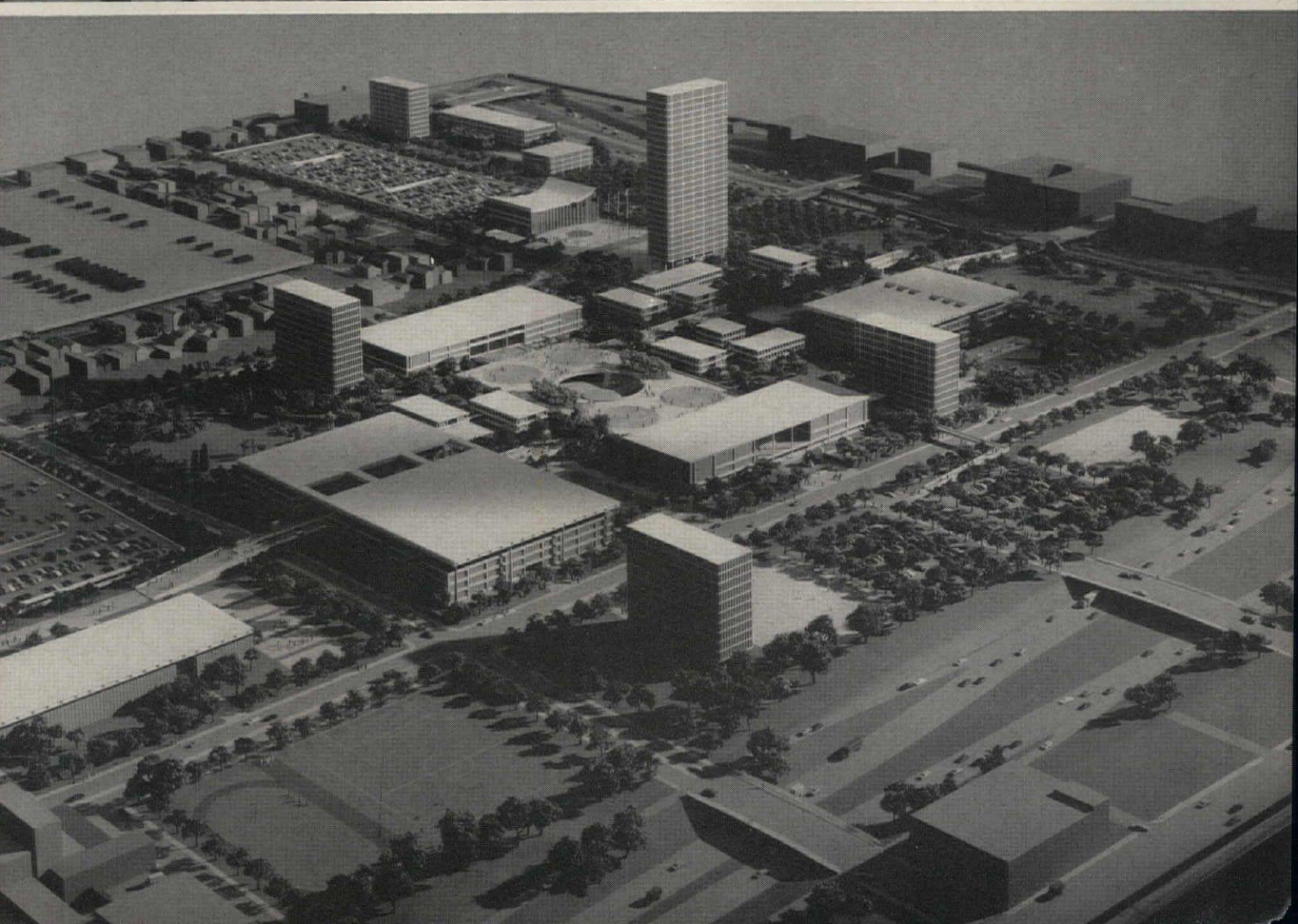
ings that do not require elevators. Laboratories will also be in low-rise buildings, but separated from classrooms, since such a separation will effect construction economies. Laboratories require 12-foot ceilings; classrooms only 9-foot ceilings. This design concept makes classrooms, lecture halls, and laboratories usable for various kinds of courses, resulting in interdisciplinary contacts that will help bring about a desirable closer relationship and understanding between the various academic divisions. Offices and seminar rooms, used by smaller groups and generating more evenly distributed traffic, will occupy high-rise, elevator-served buildings that will make maximum use of the land.

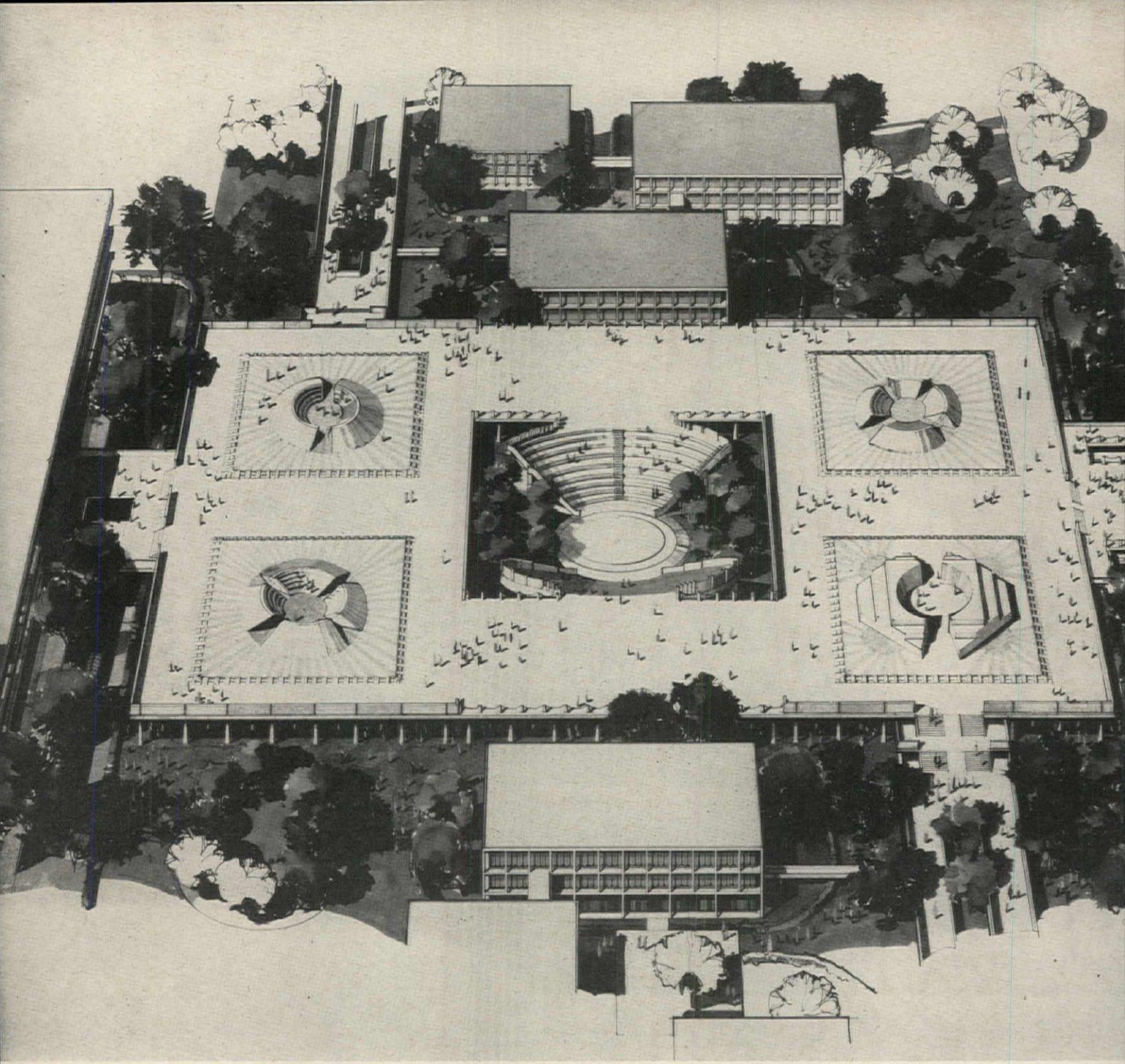
The architects faced the problem of providing a physical plant for 9,000 students in three years, designed so it could readily be expanded to serve 20,000 students within another five years. These facilities to be located on a 106-acre site located at the confluence of two expressways and a rapid transit line in the heart of Chicago just west of the Loop. This site, finally settled upon after considering (and making master plans for) four others, will be known as Congress Circle and is situated south and west of the junction of the North-South and Congress expressways. Its location will afford students and staff convenient access to the Loop, Opera House, Orchestra Hall, Medical Center, Art Institute and other cultural advantages.

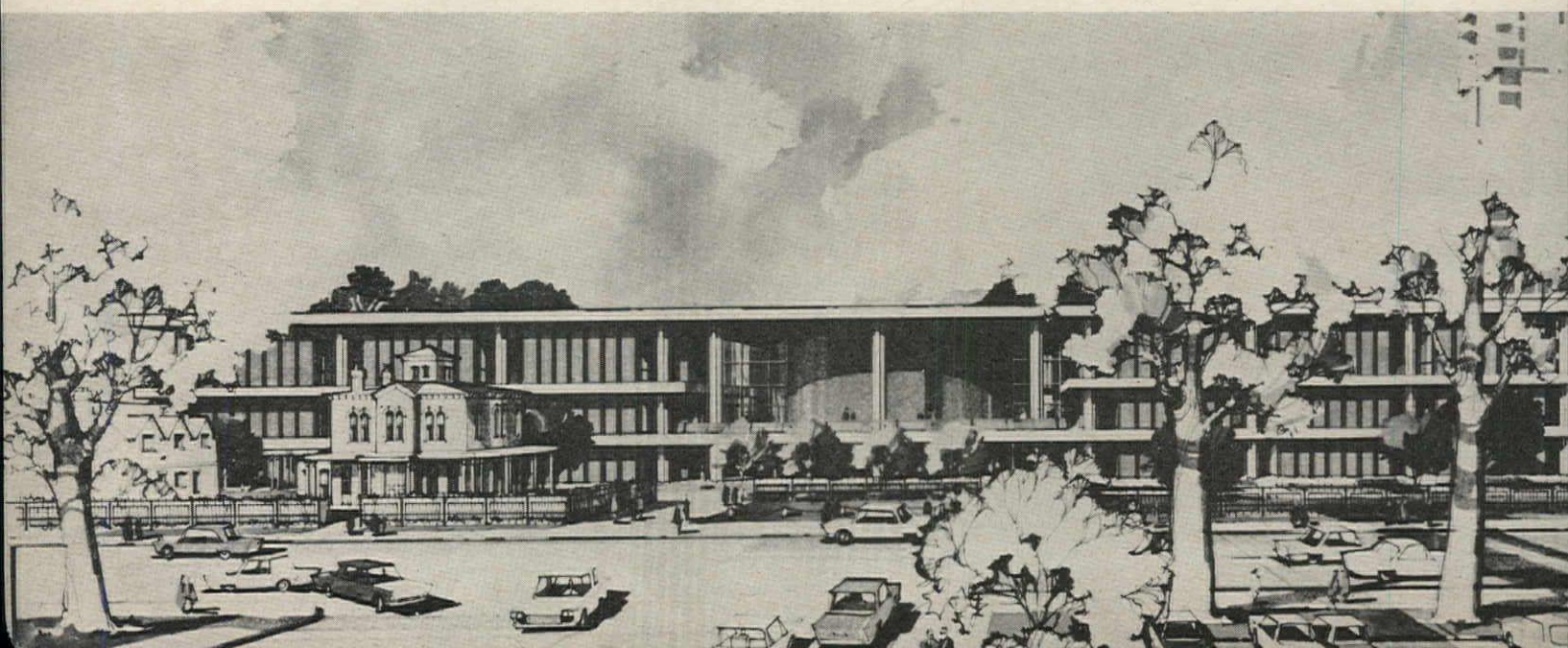
The architects' master plan, which is both bold and imaginative, relates the campus to its surrounding urban environment in pleasing and workable fashion; provides a coherent grouping of buildings set in a series of necessarily restricted but attractively handled open spaces; and takes care of the flow of traffic to the campus and within the campus. One should note that there will be no resident students or staff; thus enlarging the problems of library and student union, and eliminating the problem of dormitories.

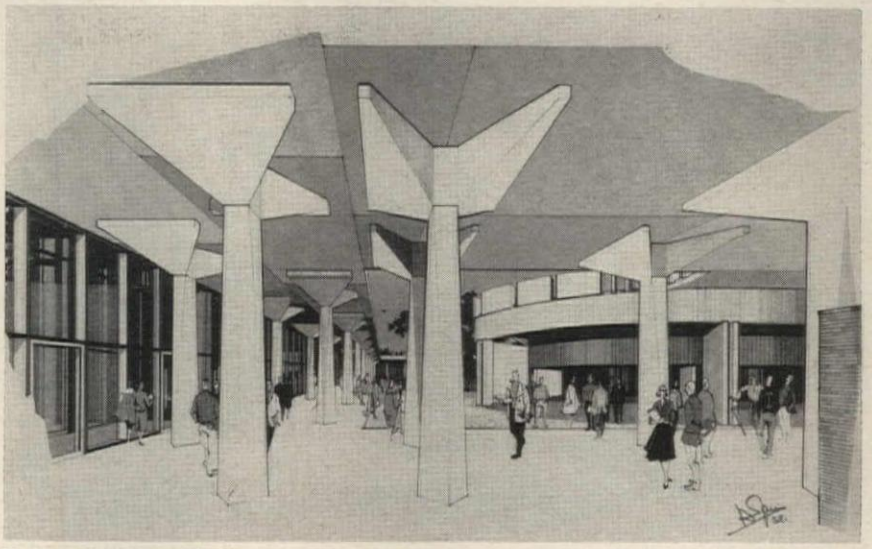
The arrangement of the buildings is shown by the photos of the architects' model. The high-rise buildings are disposed on the outer areas of the campus with relatively large open spaces between. This disposition provides maximum visual impact upon the surrounding city, offers a visual "border" to the inner campus, and establishes the university architecturally as an urban institution. The low-rise buildings are grouped in a more compact pattern at

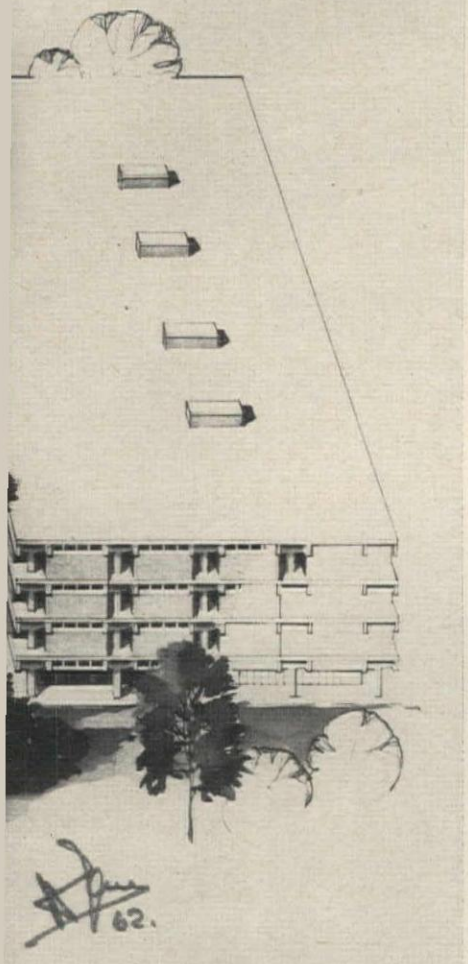












Left and above: Bird's-eye and ground level views of the Great Court and lecture center beneath. The four raised squares of the court—actually the roofs of four lecture hall buildings below—will have exedrae providing areas for lounging and reading in good weather. Some face inward, some outward; different textures of concrete are used for their construction; areas between the squares are of granite supported on concrete columns. A total of 21 lecture halls ranging from a capacity of 45 to 500 will comprise the lecture hall center

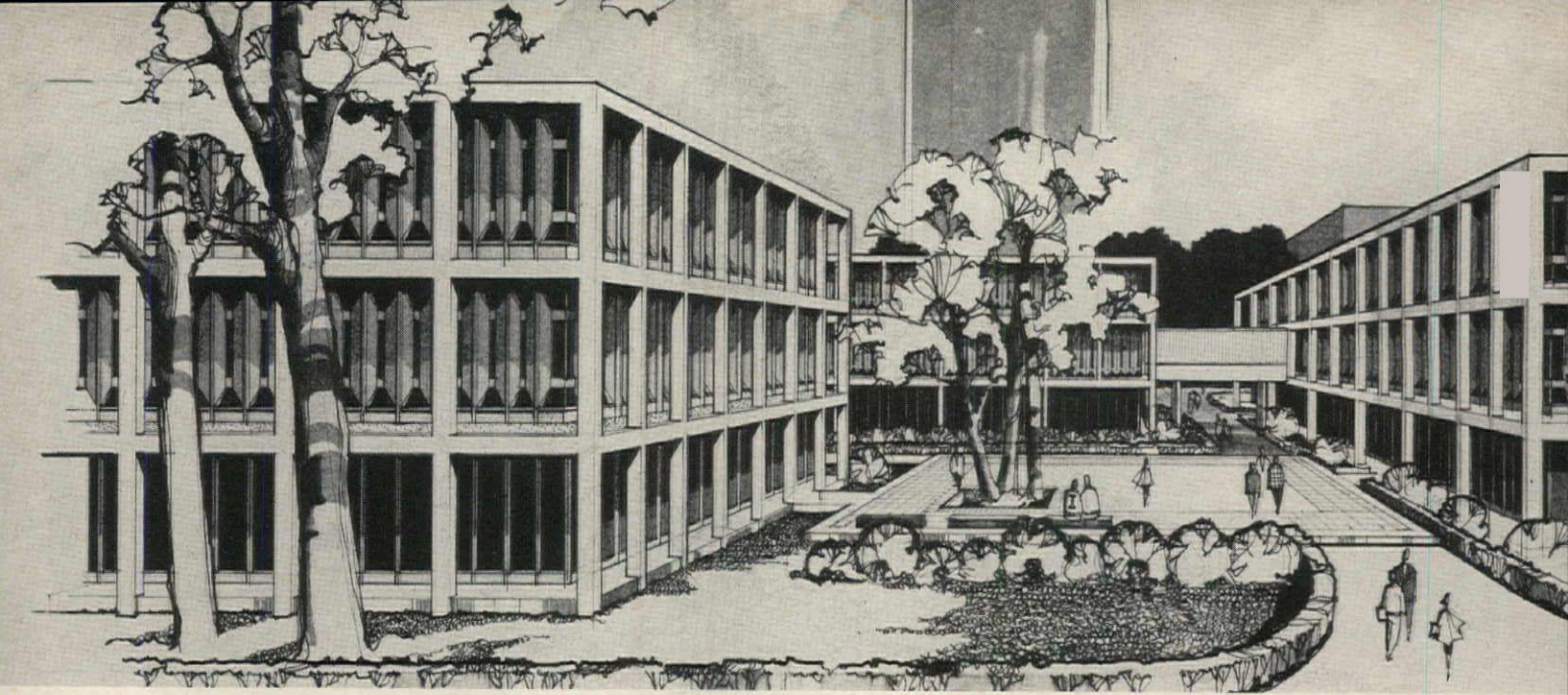
Bottom left: The Student Union consists of a low-rise element housing all food service facilities, a theater, the bookstore and recreational areas; and a high-rise element containing lounges, activity rooms, offices and meeting rooms. The original Hull House mansion (left foreground) will be restored, and together with its adjacent garden will form an appropriate memorial to Jane Addams

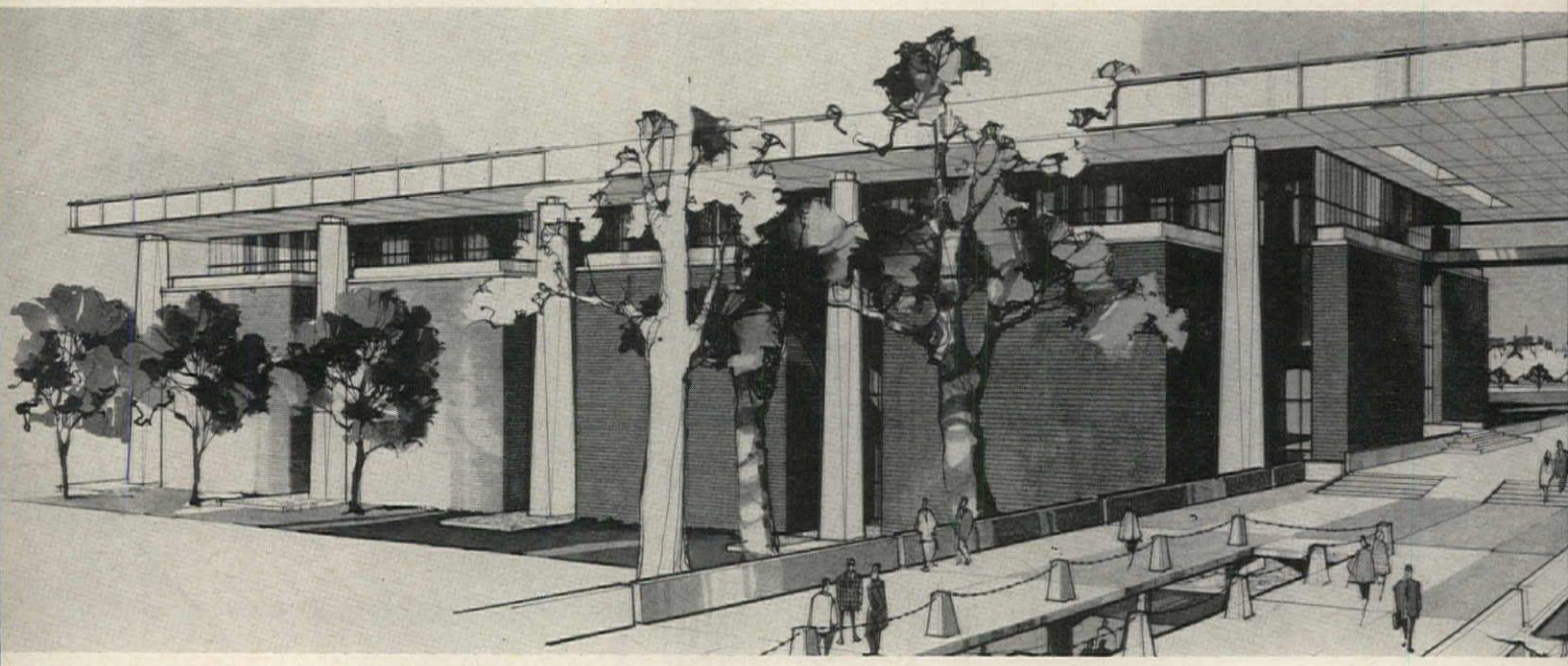
the core of the campus, surrounding the great court, giving the entire complex great cohesion and a fine feeling of unity.

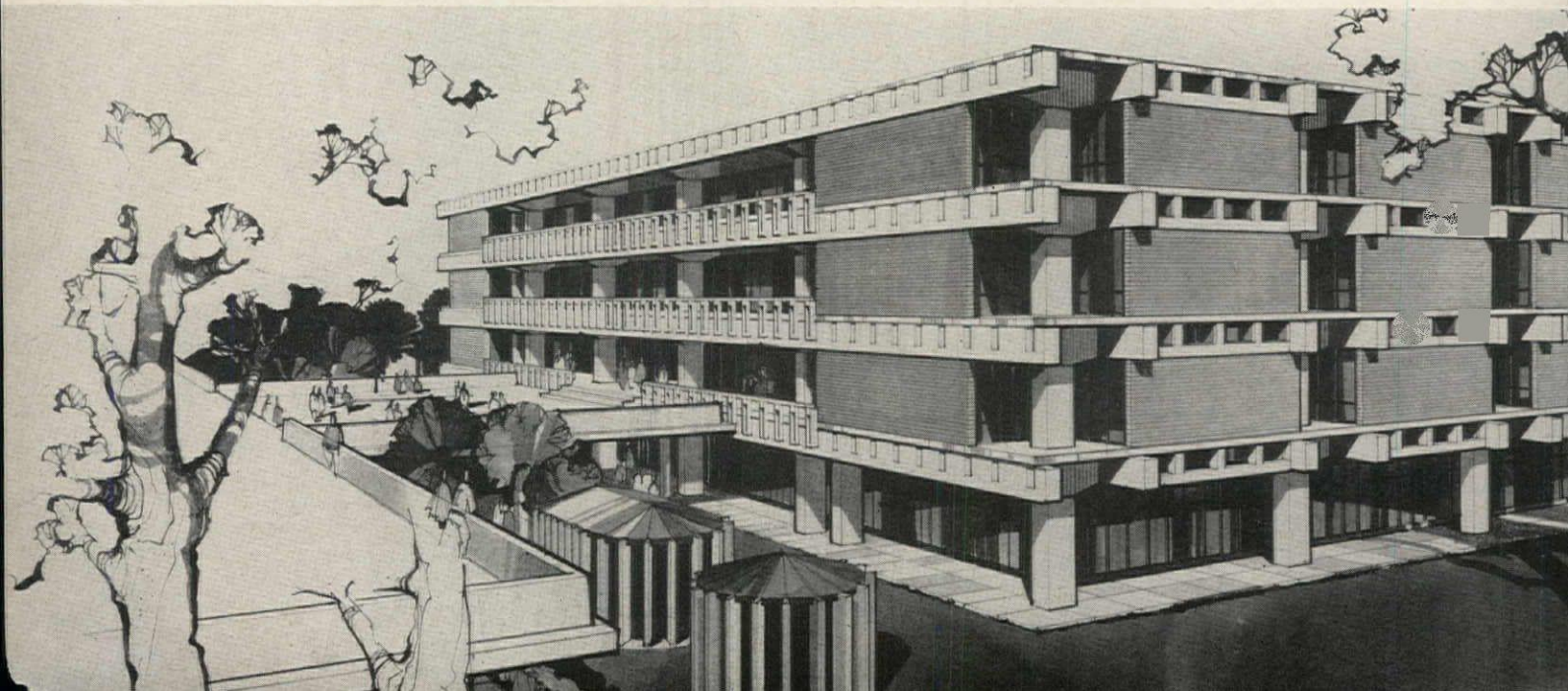
Traffic to and away from the campus—which will be almost equally divided between those in cars and those riding the rapid transit line—will touch the campus at four main points, all on the periphery of the plan. These consist of two parking lots and the two ends of an express walkway through the heart of the campus that extends from the rapid transit station at the north to several access points at the south. Traffic within the campus thus becomes purely pedestrian, except for service and emergency vehicles.

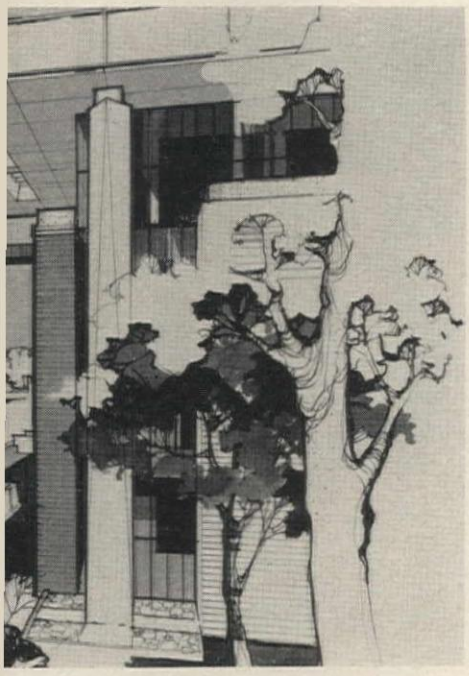
The express walkway and the central court are interesting features of the master plan that lend the campus an individual architectural character. The walkway is elevated and level with the second floor of most of the buildings, providing split-level access to the three- and four-story classroom, laboratory, library and student union buildings. Its elevation provides direct access and at the same time conserves limited open space for gardens and informal sitting areas. Areas beneath the walkway will be paved and will provide covered pedestrian ways during inclement weather. The elevated walk is divided into two 20-foot widths with a 10-foot division at the center for access stairs and occasional areas for seating. Considerations of low maintenance, durability, and resistance to salting action and snow removal led to the selection of granite slabs for the walkway. These slabs will be 10-by-20-feet in area and 1-foot thick; will be supported by concrete columns with butterfly capitals. The outside rails will be granite, while inside rails along access areas will be of bollard and chain.

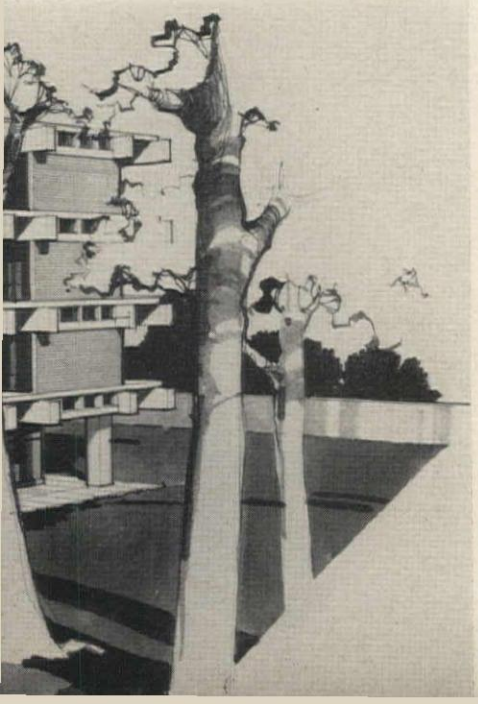
At the center of the campus—its focal point and academic core











—the north and south express walkways are echoed by two similar ones leading east to the student union and west to the library. All the walks converge upon the 450- by 300-foot Great Court, elevated slightly above the express walkway. The court is actually the roof of the four square lecture hall buildings beneath—expressed above by four exedrae providing a variety of seating arrangements. The Great Court centers on an amphitheater which can accommodate 2,500 persons.

As befits an urban university, the new campus is relatively dense in character, with construction covering 33 per cent of the 106-acre plot. However, a notable lack of crowding has been achieved, and open spaces are skillfully handled. The central academic core occupies 40 acres. In considering the eventual enrollment of 20,000, one can justifiably describe the new Congress Circle campus as one of the most intensively developed in the nation. Yet it manages to achieve good scale, convenience, efficiency, and pleasant open areas free of the automobile. Its design makes an important mark in the development of the urban university.

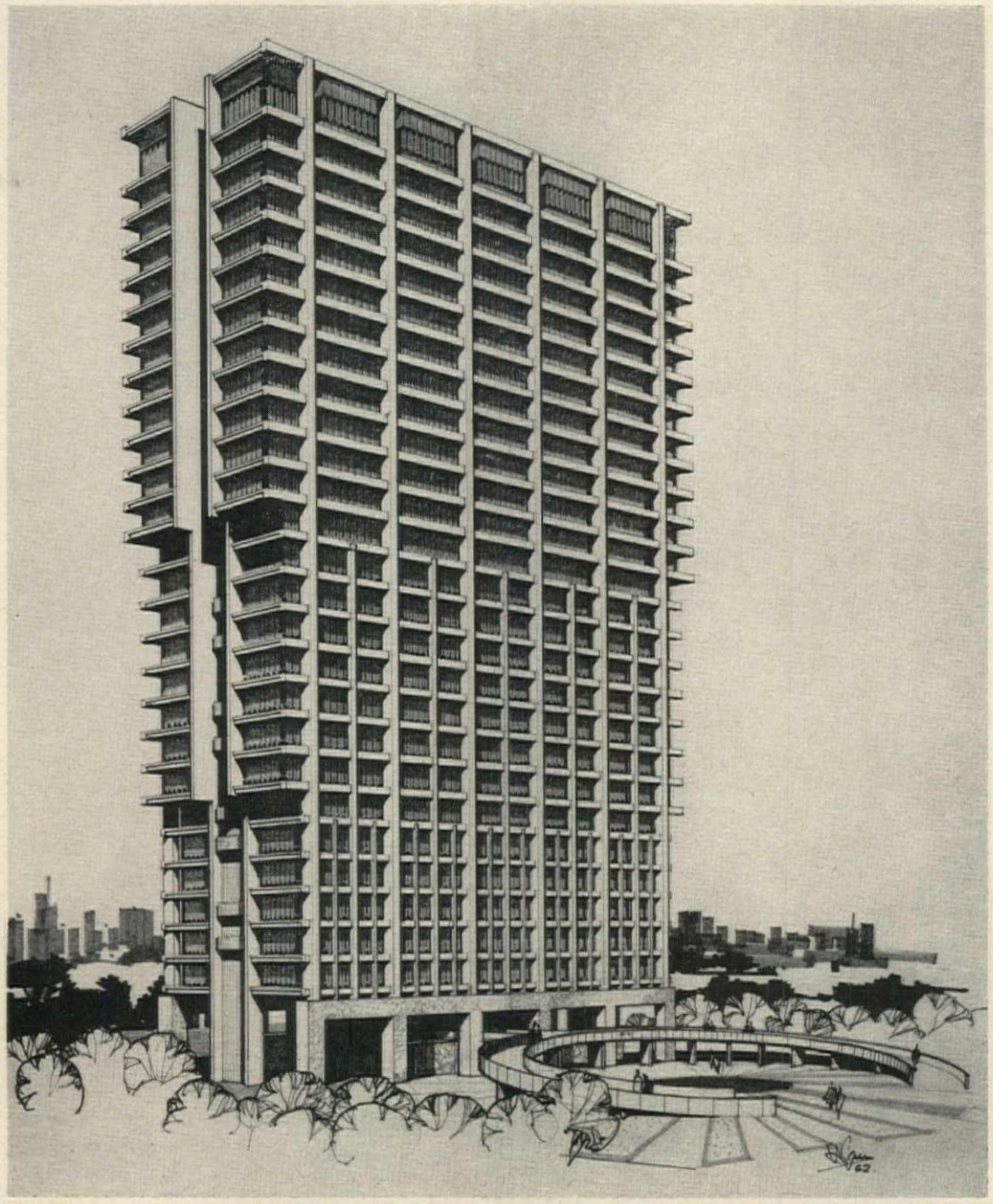
The architects and a university committee considered various concepts on the way, and even developed master plans for four other sites before Congress Circle became available. They considered grouping by colleges, by curricula, by building type (finally adopted), by college and enrollment, the idea of a large single or twin-enclosure, and the totally high-rise campus; schematic plans were made, and then the process of elimination led to the final concept. The architects set up these general criteria: relate the campus to inner individual environment and outer urban environment; establish integrated pedestrian circulation; assure convenient access from public transportation or car; establish a coherent, orderly design with a readily apparent relationship between each element and the whole; stress economy. The architects were further influenced by three principles that served as guide lines in their thinking and became "musts" as the design developed: buildings must be expandable to provide for orderly growth; they must be flexible and must be interchangeable in order to accommodate new teaching techniques and provide a closer interrelationship between the various academic groups.

The university will be built in three stages, as follows: stage one, permitting occupancy and use by 9,000 students in 1965, will con-

Top: The classroom buildings will be built in clusters of two or three, with access at second floor level from the elevated walkway. Each building will have an exposed reinforced concrete frame with the window walls set back. Glazing will be of laminated, low light-transmission glass set in metal frames

Center: The first phase of the four-story science and engineering laboratory will contain 65 laboratories most of which will be 25 by 50 feet, housed within three-story-high brick blocks. The laboratories will be separated by glass areas serving to daylight preparation rooms and vestibules. The top floor, framed by trusses, provides flexible research areas

Bottom: The four-story library will have an exterior of brick, concrete and laminated glass. Columns with large capitals support girders which are spanned by precast beams with upturned stub columns supporting the precast slabs. Ducts and lighting fixtures will occupy the channels thus created



The 28-story staff and administration building will certainly become a campus landmark, and may be one for Chicago's near west side as well. The building will have an exposed reinforced concrete structure. To obviate increasing the size of columns or adding more steel—from the roof to the ground—more columns were added, thus diminishing the bay size and its proportionate cantilever. Without the additional upper floor area, six more floors and two elevators would have been required. Heavy transfer girders at the second floor carry loads to the ground

sist of 15 buildings and the Great Court plus parking for 2,000 cars; stage two, to provide facilities for 20,000 students by 1969, will consist of seven additional buildings, additions to three buildings, and parking for 6,000 cars; stage three, an auditorium, an exhibit gallery, and four buildings for graduate, research and service facilities—these to be constructed soon after 1969.

The university established its Chicago Undergraduate Division in 1946, and has since that time been temporarily housed in Navy Pier on Chicago's lakefront, and has offered a two-year curriculum. The new Congress Circle campus will make the transition to a full four-year program possible.

SOME BASICS OF CAMPUS PLANNING

By James Morisseau

The extent to which a campus contributes to the institution's purposes, the efficiency and economy with which it functions, often are more the result of planning than of the design of individual buildings. Planning a college or university is a far more complex process than most persons, even those directly involved, realize.

"A college or university today provides in its complexity most of the elements, frustrations, and confusion of an urban society," commented Walter A. Netsch Jr., of Skidmore, Owings & Merrill, who has had an opportunity to confront the problem of campus planning in a number of places. The campus is like a city because it is the focus of the lives of those around it. A great variety of people on or near it work, play, visit, eat, acquire goods and services, and drive cars to the campus. In short, it has none of the nice simple qualities of single-purpose developments like suburbs and industrial parks. Lawrence Lackey, a California planner, observed that an enrollment of 25,000 plus faculty and staff and their families, plus the population needed to serve a community of this size, produces a total population in and around the campus of about 92,000.

In short, the campus administration must concern itself with all of the city's myriad problems on a smaller scale—transit, traffic, housing, zoning, utilities, health and sanitation, law enforcement, recreation, and, of course, the development of the surrounding area. And all this must be done from the framework of the college as a cultural and intellectual center of our society.

Planning for Change

The lifetime of a college and university "must be measured in centuries and you must expect change," according to Herbert H. Swinburne. Mr. Swinburne, who is handling the expansion plan at Temple University, maintains that the planner must look back 20 years and forward no less than 30. Some of his colleagues hold out for a plan ranging from anywhere from 20 to 50 years ahead. But Mr. Swinburne and his colleagues stress that detailed planning be limited to the first 10 years or so. Beyond that the future ought to be sketched out in broad strokes rather than in specifics.

One obvious answer is to design campus buildings to allow for changes in function over the years. Experience shows us that such changes occur in any event. Ohio State found this out when it recently converted office space into classrooms in a building that started out 50 years before as a chemistry laboratory. Building on such examples, many of the architects and planners now working on campuses are planning buildings to make transitions simpler, less painful, and less expensive. Planning for change is even more important now in an era of rapid transition and growth. Four-year liberal arts colleges are showing a tendency to grow into complex universities, with a broad range of departmental and research activities. Teachers colleges are being converted into liberal arts colleges. Two-year community colleges, intended in part to satisfy some of the demand for vocational and technical training, have proliferated. But many of them have been forced to neglect vocational programs to handle the flood of students who plan to transfer to four-year institutions for liberal arts degrees. Others have changed character entirely and have evolved into four-year institutions themselves. At least one has become a full-fledged university.

And, of course, the changing nature of American society itself places additional burdens on the campus planner. One of the most troublesome is the commuting student and his automobile. As Mr. Netsch put the latter problem: "Campuses originally pedestrian in nature now resemble urban parking lots with buildings."

Long-range planning would seem to be the only hope if chaos is to be avoided on the campus. Many educators have reached this conclusion and acted accordingly. But the evidence is that the majority are not planning either comprehensively enough or far enough into the future to meet the needs of their institutions or of the nation.

Planning is a complex and an expensive process. Southern Illinois University, for example, paid the St. Louis architectural firm of Hellmuth, Obata and Kassabaum $100,000 to create a master plan for its new center at Edwardsville. Months of conferences with leading educators and cultural experts, and with the faculty and administration, took place before a single line was drawn on paper. Similar expenditures of time and money went into other planning jobs investigated in preparation for this report. What was accomplished; just what goes into a master plan?

Educators maintain that the institution must first

JAMES MORISSEAU's article is a condensation of his chapter "The Campus", from the forthcoming book on college buildings, "*Bricks and Mortarboards*," published by the Ford Foundation's Educational Facilities Laboratories, Inc., 477 Madison Avenue, New York, New York. Mr. Morriseau is editorial associate of EFL. The book will be available free of charge on request in October.

arrive at its own understanding of the overall goals of higher education in terms of educational philosophy and national needs. Then, it must determine its role in the total picture.

The educational objectives then are translated into specific programs. The academic planners spell out what degrees will be offered and the courses of study leading to them. Then the academic organization is established as a coherent system of schools, colleges, departments (if there are to be such), research units, institutes, and service organizations. The academic calendar—the semester plan, trimester or quarter system—is adopted, and the length of the academic week and day established.

At this stage, projections are made of the enrollment expected (in the case of institutions required to take all comers) or desired at each stage of development. The analysis indicates the enrollments at each academic level and, if possible, a breakdown by sex and marital status.

The next step is to outline the facilities required at each stage of development based on enrollment and staff projections. The requirements are broken down by function: instructional; general, including administration, auditorium, chapel, stadium, and the like; auxiliary, including the student union, cafeteria, and infirmary; research; residential; and site, including outdoor recreation spaces, parking, utilities, and general landscaping.

Here, the physical dimensions of the campus begin to become apparent. In the instructional area, the average college or university has about 175 square feet of space per student. But it has been suggested that, with more efficient utilization, 125 square feet should be adequate.

Walter Netsch calls for the allocation of 150 square feet per undergraduate student, 200 square feet per graduate student, 235 square feet of housing for each resident student (substantially more for married students), and 300 square feet of parking and maneuvering area per auto permitted on campus. Others suggest that the library ought to seat half the student body at one time.

Figures such as these can be translated into total floor area requirements. From these findings, rough cost estimates can be made.

The Preliminary Master Plan

Once determined, these dimensions can be translated into a graphic presentation, a schematic, preliminary master plan. This plan, on which the elements of the campus are laid out in hypothetical fashion, helps the planners to identify what buildings are needed in first-stage construction and to come up with rough predictions of the buildings involved in later stages and their timing. At the same time, cost estimates can be made for each stage. It also helps determine the general nature of a site that would be adequate for development of the campus.

Size is the most obvious requirement in choosing a site, but even that is a relative question. The University of California has set 1,000 acres as the minimum for its new 27,500-student campuses, all of which are in more or less rural settings.

In contrast, the new University of Illinois campus in Chicago will encompass only 106 acres, and its academic core, only 40 acres.

The planners must be concerned with the shape of the site, the nature of the terrain, subsoil conditions, and natural hazards such as floods and earthquakes. The climate and even the microclimate, can be decisive. Official site selection criteria for the new University of California campuses require planners to avoid locations in the path of known "smog rivers."

The campus must be reasonably accessible by auto, bus, rail, air, and, in some cases rapid transit. On the other hand, it should obviously not be bisected by a railroad or heavily travelled highway. The University of Arkansas has such a severe transportation problem it has purchased its own aircraft to shuttle university officials to and from campus on business trips. Water, sewage disposal and utilities must be provided for.

The site should not be surrounded by urban blight, heavy industry, or as the University of California has found, under or near an airport approach path. In studying all these problems, planners prepare detailed circulation and access maps, land-use maps, and diagrams of utility lines for each proposed site.

When a site is selected, careful plans are drawn to fix the circulation patterns for automobiles and pedestrians, the location of utilities, and the types of buildings that will be placed on different parts of the campus.

Then there is the question of zoning. How shall the various elements of the campus be put together? The tendency has been to designate one zone as the academic core, restricted to the instructional process and contact between students and faculty. Another zone is set aside for residential purposes and limited pretty much to students. The last is the "activity" zone, where the student, the faculty, and the public come together for athletic and cultural events or as part of the administrative process. In some cases separate zones, and even separate "campuses," are designated for varsity athletics, research, and other facilities. Whether the development of such separate zones is beneficial to the institution's aims is a debatable question.

Landscape architecture—the placement of roads, walks, parking lots, and play fields, and the creation of large and small outdoor spaces between buildings—is as important in establishing a campus atmosphere as the exterior design and interior arrangement of buildings.

New Plans for Old Campuses

At this point, it seems appropriate to look at the planning process on existing campuses. There are no basic differences in principle. The objectives—a well-ordered, efficient plant and an atmosphere conducive to the academic process—are the same. But an existing institution embarking on an expansion plan has a different set of problems.

In the planning process these factors must be taken into account. The first step usually is to create a planning committee representing the administration, faculty, heads of specialized units and the trustees. The committee attempts to set directions in which all or a majority of interested parties will concur. But final decisions must be left to a single authority, usually the president and sometimes the business officer, subject to approval by the trustees if policy matters are involved.

Planners and consultants then undertake an intensive analysis (usually in map form) of the existing plant, grounds, circulation elements, utilities, and the neighborhood surrounding the campus to determine their adequacy for the new program. Buildings are studied to determine whether they require replacement or renovation or if their location blocks effective planning for expansion.

A new master plan then is drawn, setting forth by stages the new buildings required, necessary renovation, and other improvements.

Expansion need not be limited to the old campus. It may even involve its abandonment. It is pointed out that expansion can take four forms: an increase in the type of facilities already there; duplication through the addition of separate graduate or professional schools on the campus; duplication through the creation of a co-ordinate or satellite campus; or relocation, the creation of an entirely new campus on another site.

Formal or Informal

Most planners have concluded that the informal campus plans have survived better than the monumental, rigidly formal designs. Walter Netsch cited Harvard as an example of the informal and successful, and the University of Virginia as a case of the formal and less successful. Most of today's planners have taken the cue and lean toward the informal in their campus layouts.

However, they will tend toward rigid zoning in an effort to separate the academic, "activity," and residential areas of the campus. The effort now is to plan the campus so that each function can expand within its own zone. One solution to this problem is the system of "through-site campus zones" developed by Caudill, Rowlett and Scott. However, some observers have suggested that this insistence on rigid zoning may be among the many preconceptions upon which planners have proceeded that do not in fact prove to be true. It is possible, it was argued, to intermix facilities successfully on small campuses and on those which plan little growth without creating problems. Such intermixture may very well contribute to the creation of a far more integrated campus culture than the careful zoning of various aspects of collegiate life into neat planning packages. Harvard was cited as a case where various facilities have been intermixed with success.

The campus is beginning to lose its excessively open character through both design and necessity. Some planners have heeded those critics of city planning who argue that a variety of comparatively small, open spaces between buildings are perhaps more desirable than large spaces that create excessive distances between buildings and a disconnected, suburban-type campus. Intensive development of the site is no longer regarded as something to be shunned by all but big city institutions.

"Full Employment" for the Campus

In assigning space by function and striving for convertibility, the planners are attempting to insure that new buildings or new campuses will be better utilized than most existing facilities. Nor are efforts to step up efficiency on existing campuses being ignored.

Computers have been put to work on the problem at M.I.T. In a project supported by a grant from E.F.L., the 7090 computer has been used to simulate a college—its students, faculty, instructional program, and available facilities. Last fall, it was used to schedule 20 different programs for each of 1,000 entering freshmen at M.I.T. Data preparation took three days but the actual scheduling job was done in eight minutes flat, at a total cost of less than 20 cents a student. Normal time for the job is eight man-weeks at a cost of nearly $1.60 per student.

But the real advantages in the project, whimsically entitled GASP (for Generalized Academic Simulation Programs) may be in its potential use in testing the effects of program changes without subjecting the college to the risks and disruptions involved in trial runs. A change designed to improve utilization can be fed into the computer and placed in simulated operation. The actual effects of the change, including unforeseen problems, may be determined beforehand.

The trend to year-round programs or at least to a longer academic year has been followed by a growing acceptance of air conditioning as a necessary element in the design of college buildings.

Mr. Obata defended the use of air conditioning at the new Southern Illinois campus:

"Certainly it costs more to air condition. But this university is designed for year-round use from 7 in the morning to 10 at night. You just have to air

condition in the (summer) weather we get."

The University of California has adopted a statewide policy under which air conditioning is permitted if the "effective" temperature passes the discomfort point for the average person more than a certain number of days a year. The policy is liberal enough that 70 per cent of the building space at Irvine will be air conditioned.

The State College system in California has gone a step further, authorizing air conditioning in "core-type" buildings—those in which economy is achieved by keeping perimeter walls to a minimum and having a good deal of interior, windowless space. Harry Harmon, chief of college facilities planning for the system, said that savings resulting from the core or block design of buildings justify the cost of air conditioning.

For some of the same reasons, the planners are increasingly concerned with the problem of solar heat transmission through glass. Planners and architects have had to cope with the problem of what to do about older buildings having too much glass in the wrong exposures: i.e., on the south and west sides of a building. One answer has been to erect screens or sunshades of metal or concrete. Some new buildings have been designed with such screening, notably a new student union at USLA. And a new dormitory at Temple University, designed by Nolen and Swinburne, has what amounts to a second wall of glass hung a few feet out from the side of the building.

Heat-absorbent gray glass is used in both the windows of the building and the screen. The result is that 60 to 75 per cent of heat and glare from the sun are dissipated.

The Villain with Wheels

The war on the automobile and the effort to retain the pedestrian campus have imposed their own new patterns of campus design. Most common is the pattern of highway loops, one running the perimeter of the campus and, usually, a second circling the academic core. The loops and an accompanying system of perimeter parking lots reflect the planners' efforts to keep cars out of the academic core, thus achieving horizontal separation of auto and pedestrian traffic.

But, particularly in urban campuses, there is an effort to achieve vertical separation of the two types of traffic, something that long has been advocated for cities but never seriously tried. In Chicago, for example, Mr. Netsch has laid out a system of elevated pedestrian walkways running to the perimeter of the campus in four directions and converging at the plaza covering the lecture center. Limited truck and auto traffic then can be permitted into the campus at street level for deliveries and business purposes.

At Foothill College, Ernest Kump has taken advantage of hilly terrain to achieve verticle separation. All campus buildings are on two hilltops. All roads and parking areas are in the valleys, off the campus proper and out of sight.

An extreme answer was arrived at in Albany. There, Edward Stone placed the entire academic complex on a podium one story off the ground. All pedestrian circulation is on the podium. All auto and truck traffic stops at the edges of the academic complex. Deliveries of supplies and equipment are handled by electric trucks in a tunnel system running under the podium.

At other points on the Ohio State University campus, development plans call for the gradual creation of podium-type pedestrian plazas that will permit the movement and parking of autos below. The Ohio State University plan is indicative of the near-insolubility of the parking problem on many campuses. Parking will be provided there in huge, open lots, in ramp-type parking garages, under buildings and elevated plazas, and underground. Nevertheless, the planner could find room for only 23,000 cars, the number estimated to be needed when the enrollment reaches 34,500 students. The projected top enrollment is 43,000, at which point 27,800 parking spaces will be needed.

Caudill, Rowlett and Scott pointed out that, to provide 27,800 spaces, 191 acres of open lots, or 10.4 million square feet of floor area in garages would be needed. The garage area would be the equivalent of converting all existing campus buildings for parking and adding another 2.9 million square feet. The cost of providing garage-type space, they added, would come to $50 million. They closed their argument on a hopeful note: better rapid transit might head off the need for 27,800 spaces.

It might be noted here that the University Facilities Research Center at the University of Wisconsin conducted a study of parking facilities under an E.F.L. grant. The results indicated that, when the value of campus land reaches $3.50 to $4.50 a square foot, "it becomes advisable to consider construction of multi-level facilities rather than additional parking lots."

In some campuses, parking facilities are located so far from the academic core that transportation from parking lot to campus is required. Shuttle buses have been placed in service for this purpose on the University of Wisconsin campus. And the use of "elephant trains" has been suggested at other campuses. These are strings of passenger trailers hauled by small tractors, such as were used at both the New York and Seattle World's Fairs. They can be moved safely through pedestrian areas.

Elephant trains also have been suggested for use within the academic core at Ohio State University, but the proposal has not yet been accepted by the university.

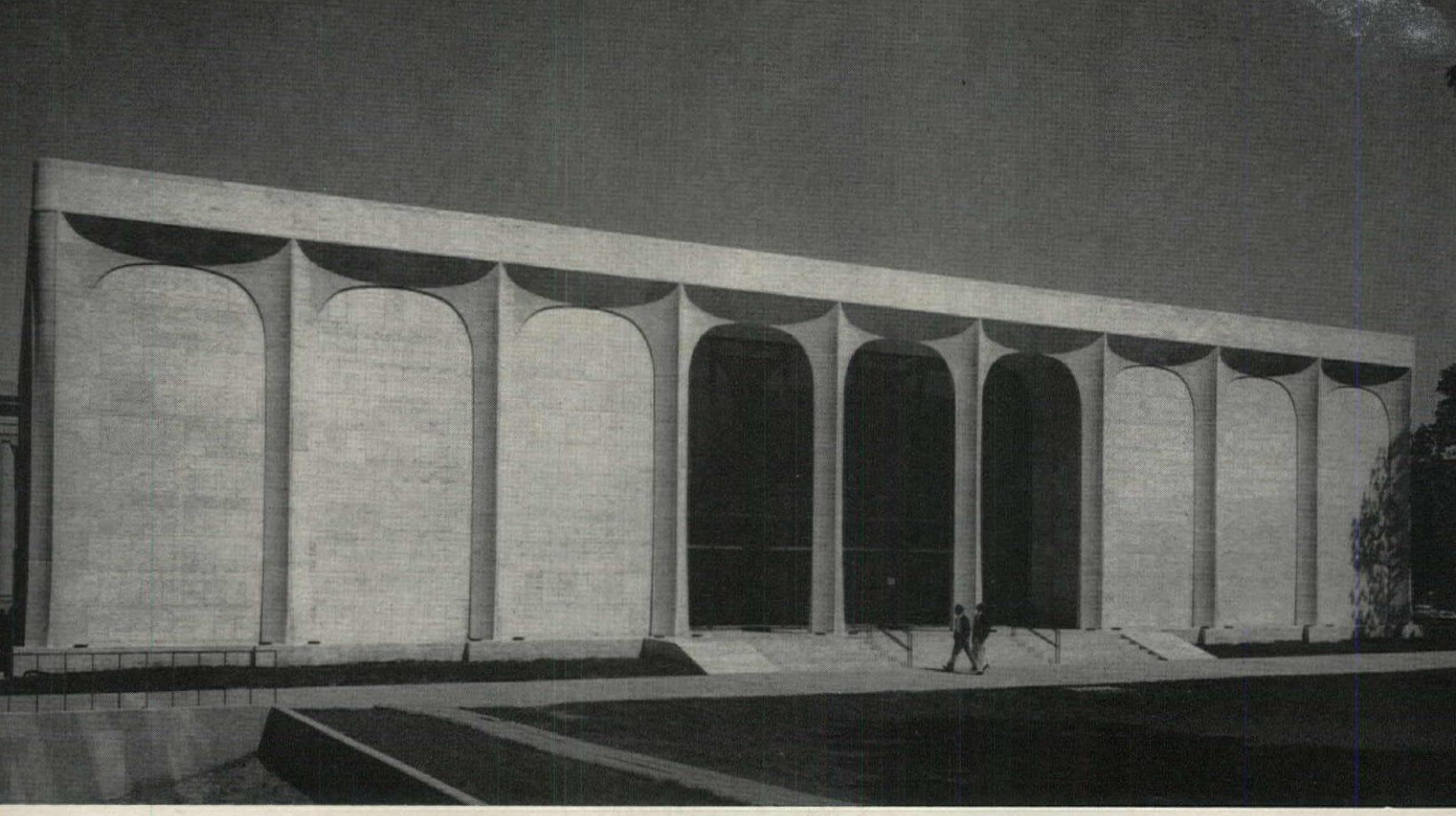
Kaz Tada photos

AN ART GALLERY FOR A UNIVERSITY CAMPUS

Sheldon Memorial Art Gallery
University of Nebraska
Lincoln, Nebraska
ARCHITECTS:
Philip Johnson Associates
STRUCTURAL ENGINEERS:
Leo Zetlin & Associates
MECHANICAL ENGINEERS:
Jaros Baun & Bolles
SUPERVISING ARCHITECTS:
Hazen & Robinson
CONTRACTOR:
Olson Construction Company

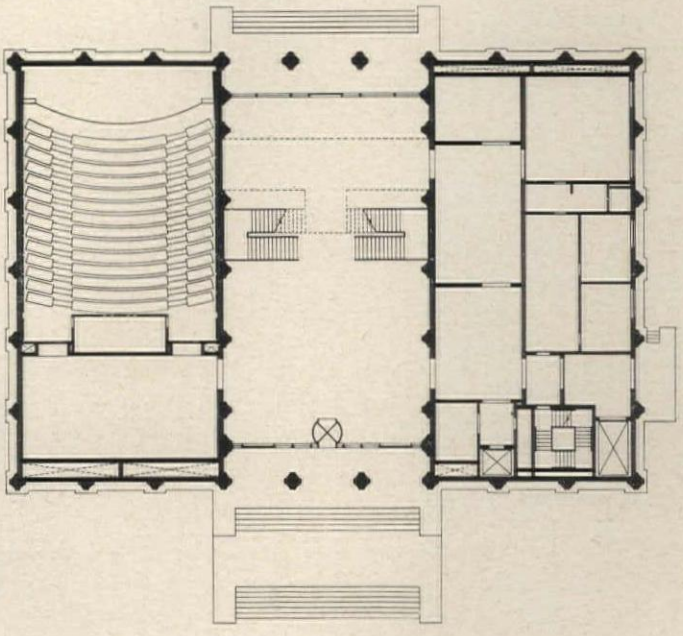
As a vital addition to its facilities for teaching the arts and humanities, this boldly elegant museum was designed to house the University of Nebraska's growing collection of contemporary American art. In addition to two floors of various-sized galleries, the building contains a 300-seat amphitheater with projection room and small stage, general offices, and a basement containing special storage and viewing rooms for students and specialists, as well as mechanical and service areas. The building is completely wired for television transmission, and has a television control room in the basement.

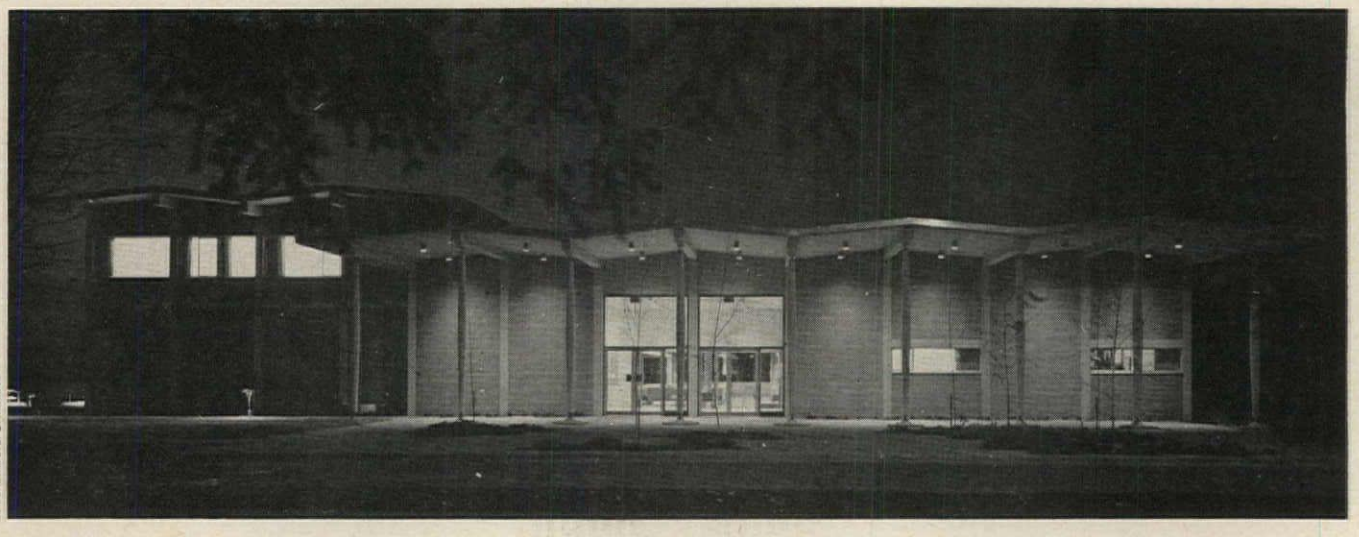
A series of tapered and curving piers, standing 16 feet apart, dominate the largely windowless exterior. The focal point for the structure is the central, 30-foot-high Great Hall, which is glazed at both sides and doubles as entrance and sculpture gallery. The building has a concrete frame with travertine used as surfacing for the exterior and the interior of the main hall. The arch system is carried into this area, and has ceiling divisions separated and emphasized by large circular recessed panels, covered with gold leaf. A bronze-faced, bridge stairway connects the second levels.



"The essence of the exterior design," Philip Johnson has commented about the Sheldon Memorial Art Gallery, "is, of course, the splayed column. I don't know where I got it. But the idea of these curving columns, curving up from their bases and then into the arch itself—that is the fascination of them. The rhythm of the columns makes the design. Also, the columns stand out from the building and any motion of one's head moves them further out. This creates a third dimension so lacking recently in modern architecture."

This gently plastic, variable quality is carried through the building, down to such faint echoes as the quiet variations in the travertine surfaces, and in the unusual but practical wall covering for the exhibition rooms—cotton pile carpeting of biscuit color. As a display surface, the carpet provides a soft, stipple-textured background for the paintings, and permits insertion or removal of nails at any point without marring the surface.





Art Hupy photos

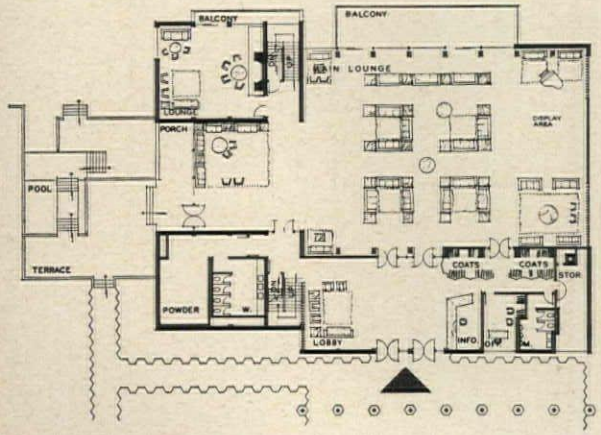
STUDENTS FINANCE AN ACTIVITIES CENTER

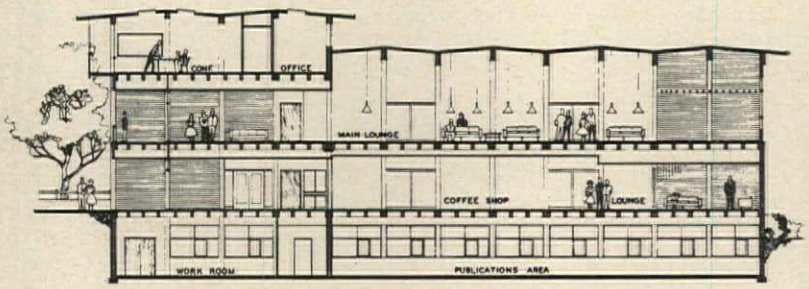
Student Union Building
Western Washington
State College
Bellingham, Washington
ARCHITECTS:
Bassetti & Morse
STRUCTURAL ENGINEERS:
Worthington & Skilling
MECHANICAL ENGINEERS:
Stern & Towne
ELECTRICAL ENGINEERS:
R. W. Beck & Associates
INTERIOR DESIGNER:
Douglas Bennett
GENERAL CONTRACTOR:
Hebb & Narodick

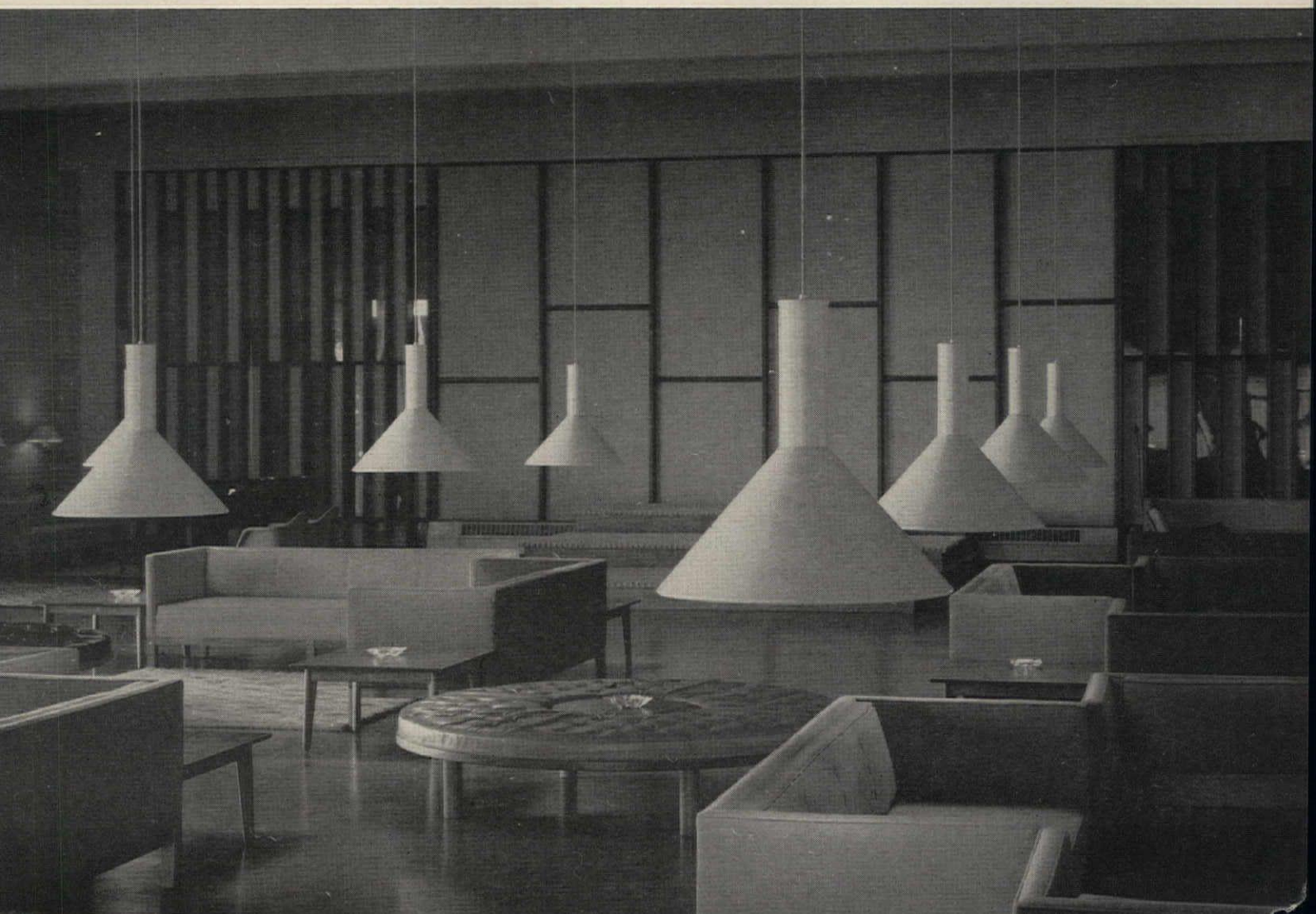
The clients for this college activities center were the students themselves. The architect was hired by them, and the structure was financed by them (through HHFA) via self-voted fees. Only the land was paid for by the state. The program called for facilities for a variety of functions, mainly social and recreational: spaces for between-class lounging, snacks, dances, meetings, ping-pong, billiards, cards, etc. In addition rooms were required for student government offices, student publications and a barber shop. The budget was set at about $485,000 for construction purposes. Outdoor areas were also desired to take advantage of a fine view to the west.

To give needed independence to these varied functions, the architects made full use of a sloping site to gain entrances to the building at four different levels. Thus portions of the building can be used as required in evening hours.

The structure is reinforced concrete frame, with pan-joist floors, prestressed beams, and combination precast and cast-in-place roof construction. Exterior walls are brick and stucco, interiors are mainly plaster. Flooring is magnesite and magnesite terrazzo on the stairs and in the lobby; pressed wood tile is used in the main lounge, which is used also for dances; vinyl asbestos tile is used elsewhere. The publications area has an acoustical tile hung ceiling with fluorescent lights.







Joseph W. Molitor Photos

PAVILION FOR DINING AND STUDENT CENTER

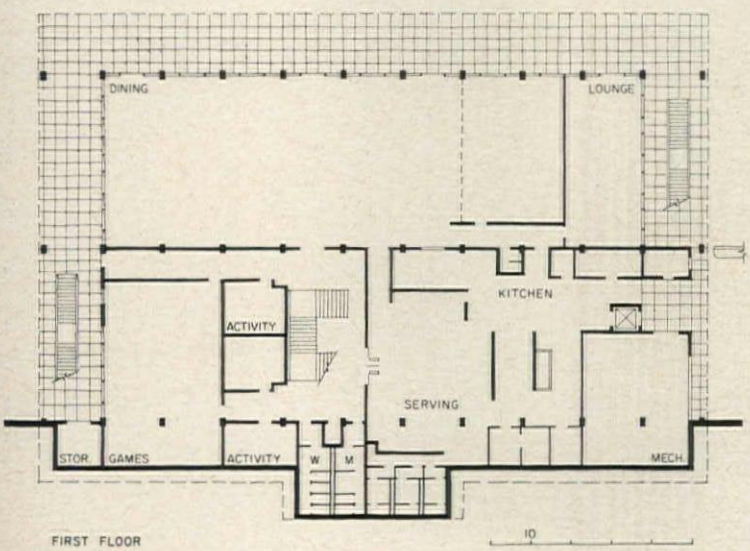
Student Union Building
St. Andrews Presbyterian College
Laurinburg, North Carolina
ARCHITECTS:
A. G. Odell Jr. & Associates
MECHANICAL ENGINEER
E. W. Bryan
EDUCATIONAL CONSULTANTS:
Engelhardt, Engelhardt & Leggett
LANDSCAPE CONSULTANT
Lewis Clarke

The focal point for the Student Housing section of the new 838 acre St. Andrews College campus is this open glass-walled student union. As a social center, its design was conceived to contrast with the more enclosed study areas in the other buildings, and to afford views of the adjoining lake and the rest of the campus.

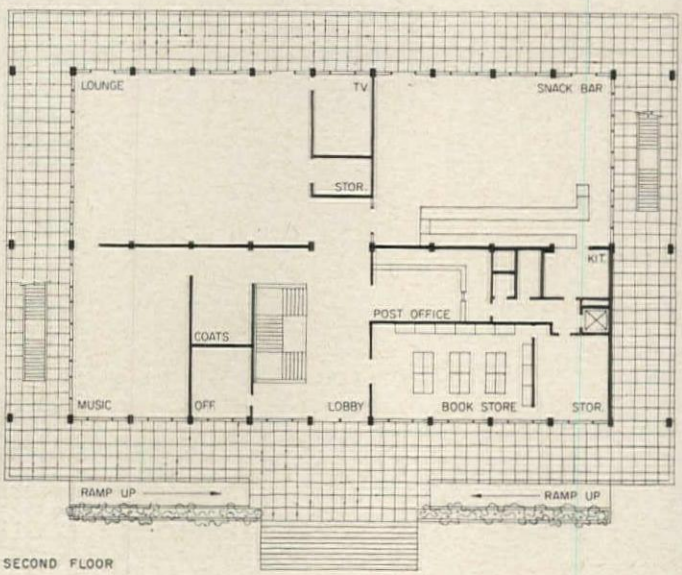
Academic and administrative buildings are on the opposite side of the 65 acre central lake, and connect with the housing and recreational section via a landscaped pedestrian causeway.

The student union building uses a slope in the land to permit direct entry from ground level for both floors. The top floor contains the college store, snack bar, mail room and lounges. The lower level is devoted to kitchen and student dining facilities, faculty and private dining rooms, and student activity areas.

The simple column and slab structure provides glare protection for glass walls by wide roof overhangs and a second-level balcony. The roof is made of pyramidal concrete forms topped with skylights. Interior walls are walnut, floors are vinyl asbestos.

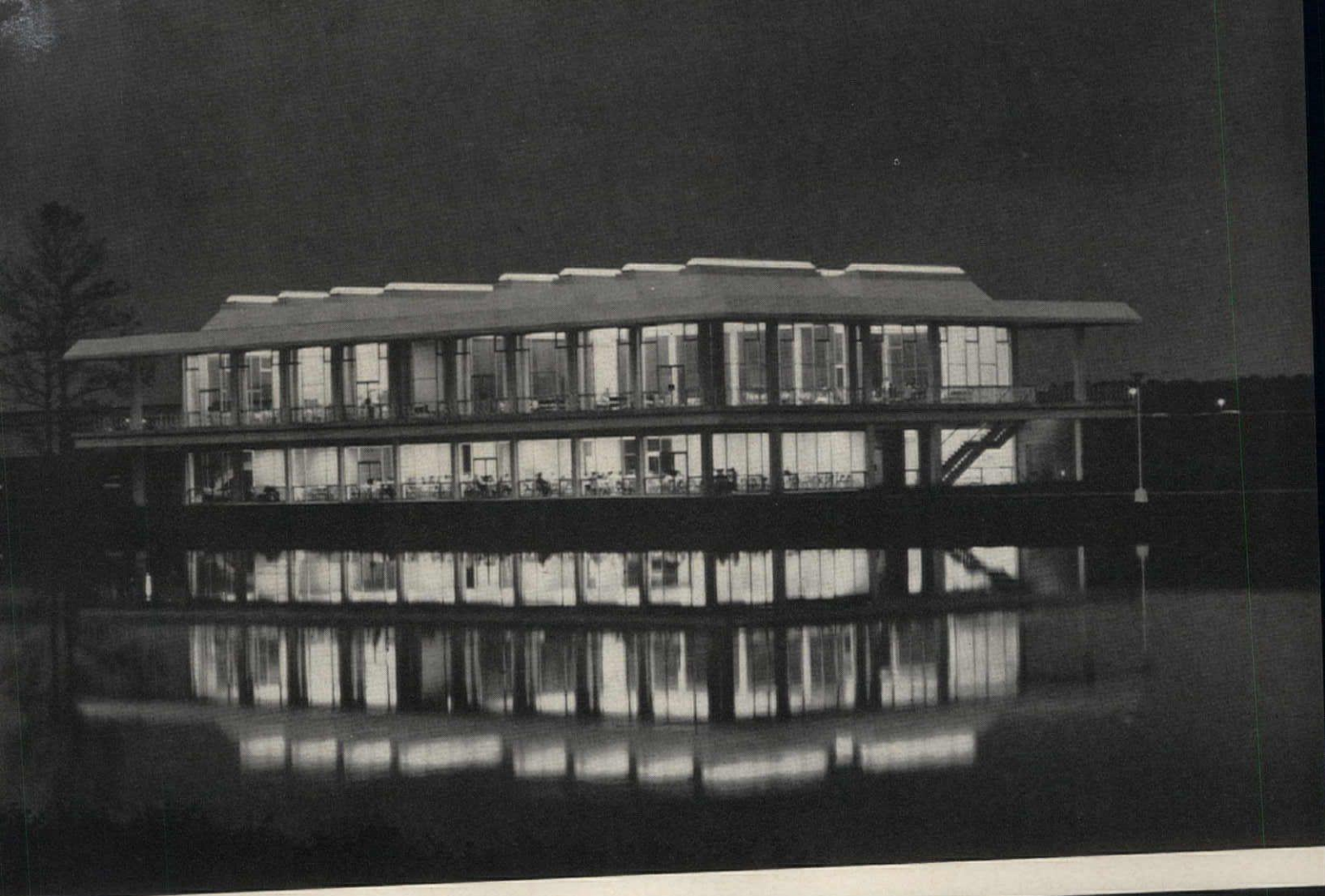


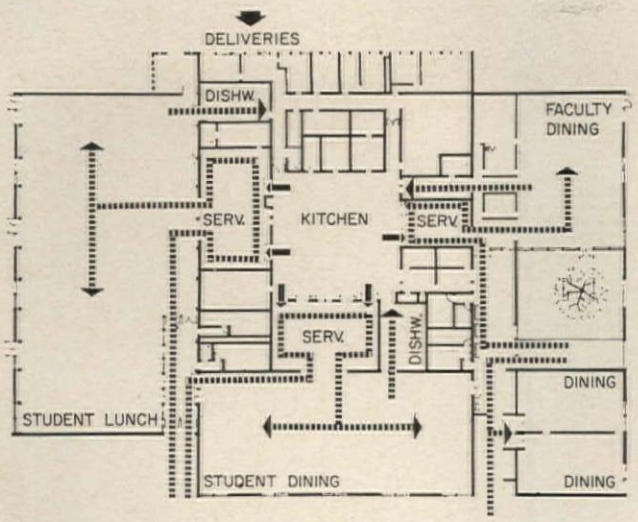
FIRST FLOOR

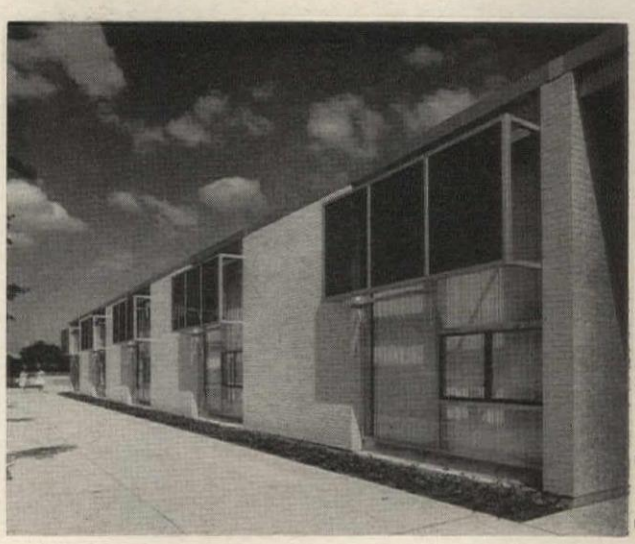


SECOND FLOOR

Wurts Brothers Photos, Courtesy American-Saint Gobain







George Cserna photos

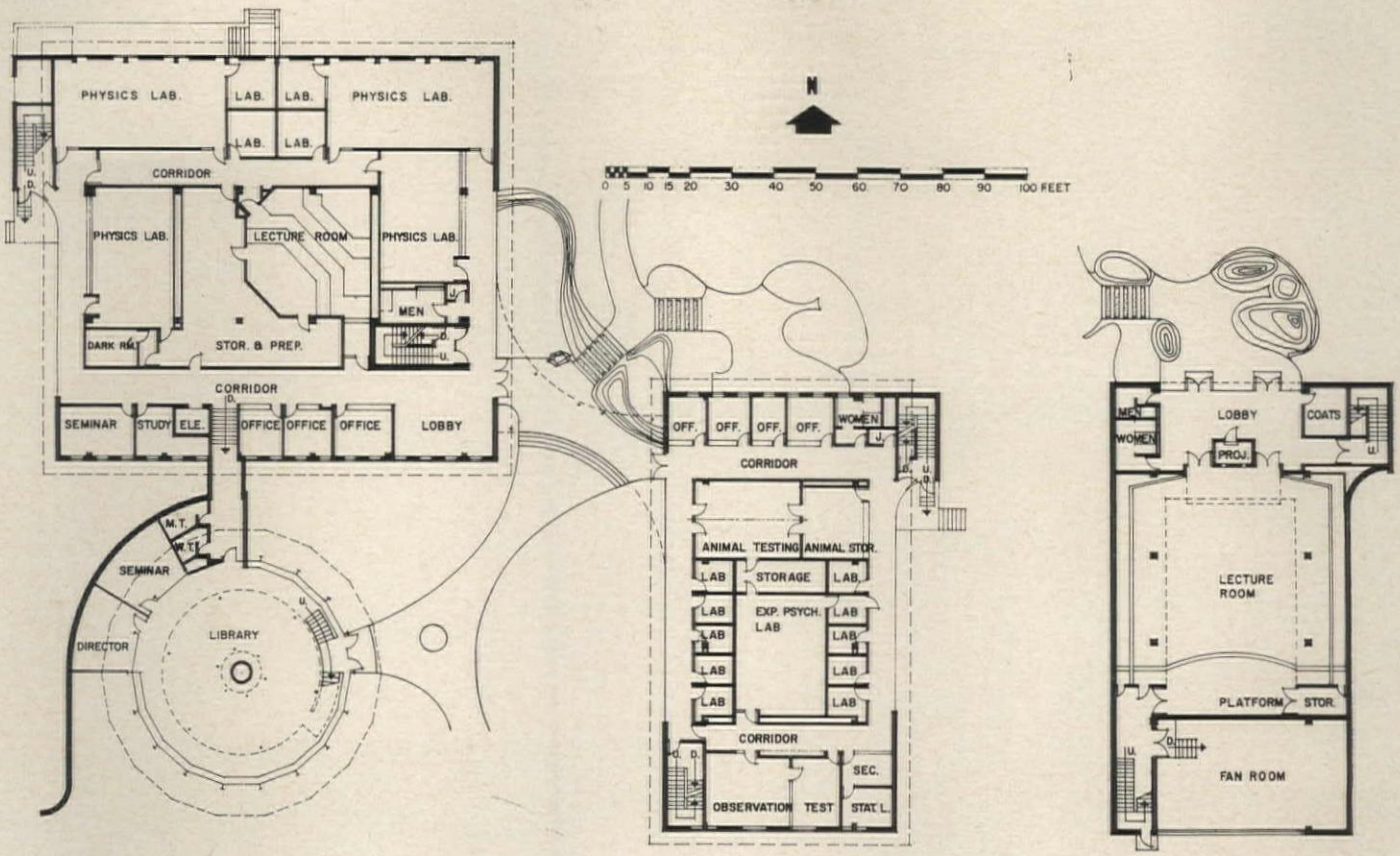
NEW FACILITY PROVIDES FIVE DINING ROOMS

Queens College Dining Hall
Flushing, New York
ARCHITECTS:
Ketchum, Giná & Sharp
PARTNER-IN-CHARGE:
Morris Ketchum Jr.
STRUCTURAL ENGINEER:
Severud-Elstad-Krueger
MECHANICAL ENGINEER:
Muzzillo & Tizian Associates
LIGHTING CONSULTANT:
Richard Kelly
LANDSCAPE CONSULTANTS:
Zion & Breen

When expanding enrollments at the City University of New York's Queens College outmoded the old cafeteria it was decided to replace it with a combined facility for students and faculty. Analysis proved that five types of dining spaces were needed. As most of the students live at home and may bring lunches, a prime requirement was a lunch room with a snack bar. For speedy service, a large room seating 700 and with three check-out centers, was provided. A large outdoor terrace extends from this room and is planned for outdoor lunches in pleasant weather. Wheeled serving carts with food items service the terrace.

For students desiring a complete meal, a dining room for 400, with two checkouts, was placed off a joint lobby for the students. In both dining and lunch rooms, students take their trays and soiled dishes to conveyor belts serving the dishwasher rooms.

The faculty dining room (*below*) can serve 160, and 40 more can be served in three small dining rooms opening off it. In addition, there are two auxiliary dining rooms for luncheons, teas, receptions and special meetings. Each will hold about 60 diners and one is furnished as a lounge. It is converted to dining use by folding tables.



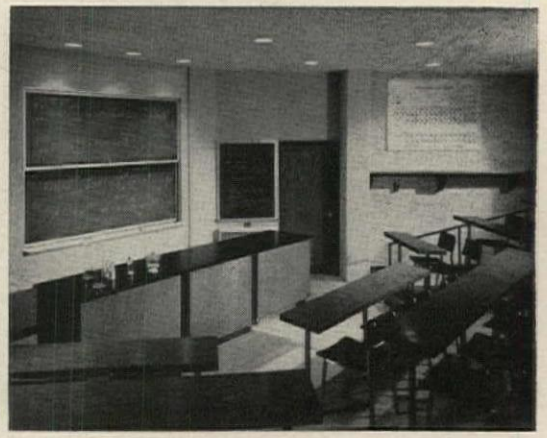
NEW SCIENCE CENTER ADDED AT LAKE FOREST

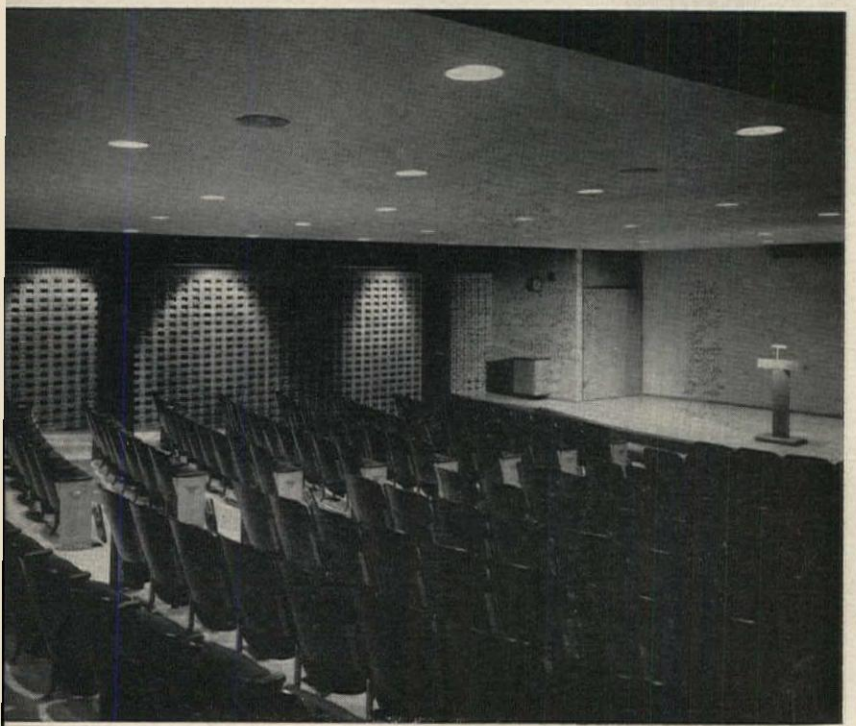
Ernest A. Johnson Memorial Science Center and Freeman Science Library
Lake Forest College
Lake Forest, Illinois
ARCHITECTS:
Perkins & Will
F. Lee Cochran, partner-in-charge
C. William Brubaker, project architect
William F. Doemland, designer
Robert G. Larsen, job captain
GENERAL CONTRACTOR:
Hansen & Werhane
STRUCTURAL ENGINEER:
Engineers Collaborative

A complex of three buildings, forming a complete undergraduate center, is part of a current program to expand facilities at this 106-year-old liberal arts college. The new center houses the departments of chemistry, physics, mathematics, astronomy, geology and psychology. The architects recommended the division into three connected units (teaching laboratories, classrooms, and science library) as it was felt that a single structure would be too large to adapt itself to the physical setting of the campus. The largest unit has a floor each for laboratories for physics, biology and chemistry. Each level also has a 40-seat tiered demonstration-lecture room backed up to a large storage and preparation area. This unit connects with the classroom building by a glass-enclosed corridor at the second level, and with the library at the lower level. The classroom unit has three levels, with the bottom floor devoted to a 196-seat lecture hall and auditorium.

Most dramatic of the three buildings is the circular science library. Its unusual roof is of laminated wood decking supported by laminated ribs, which rise from the concrete base and spring outward toward the glass exterior walls. A central core contains air-conditioning ducts, conduits, and roof drains.

The library has two levels. The first floor contains stacks, work areas, conference rooms and seventeen study carrels. The second floor forms a sort of "free-floating" mezzanine for reading and study. The entrance from the campus is at a mid-point between the two floors. The stacks have a capacity of 10,000 volumes.

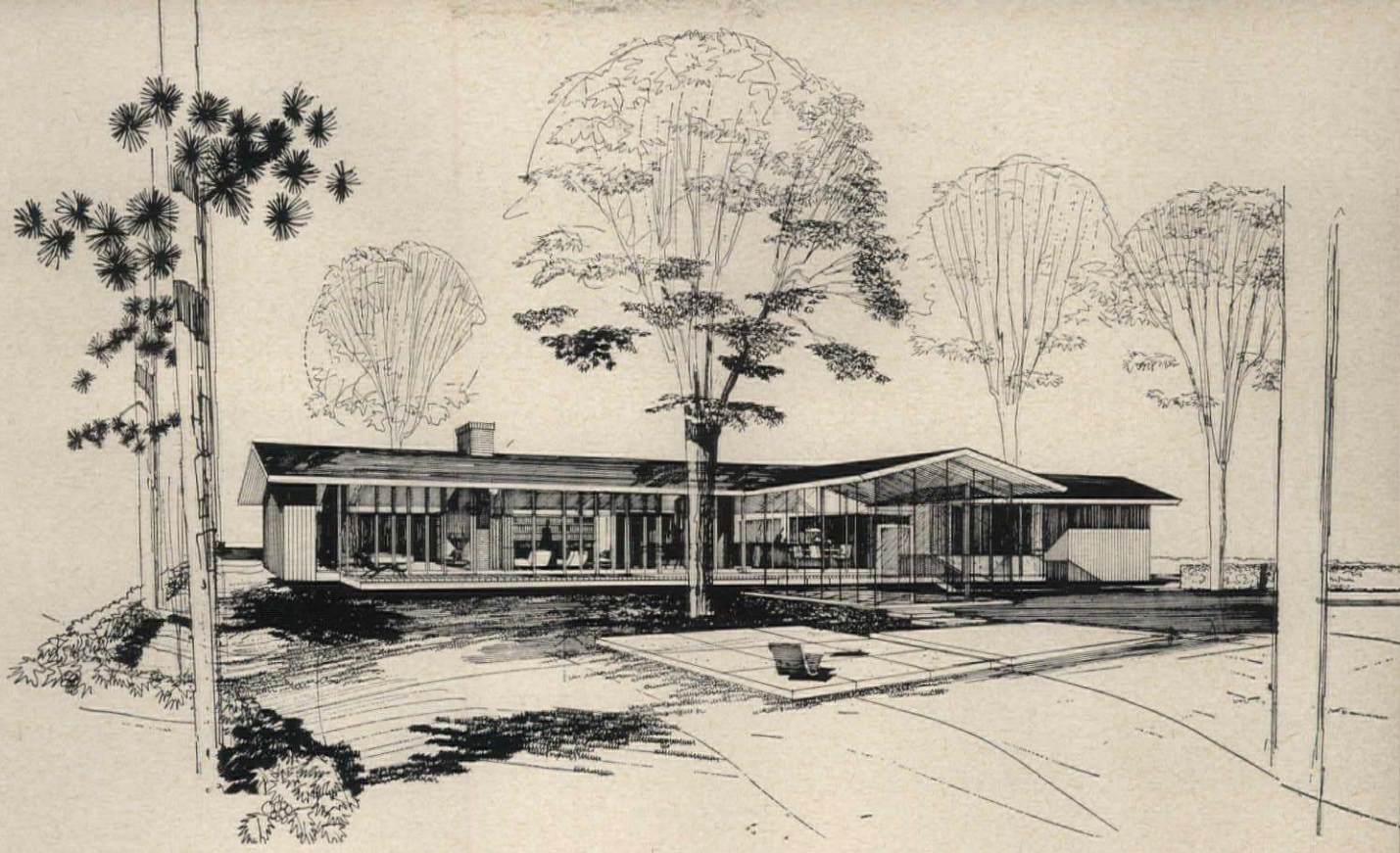




The library interior (*top left*) has a very open quality in contrast with the windowless lecture hall (*left*) and a typical tiered lecture room (*above*).

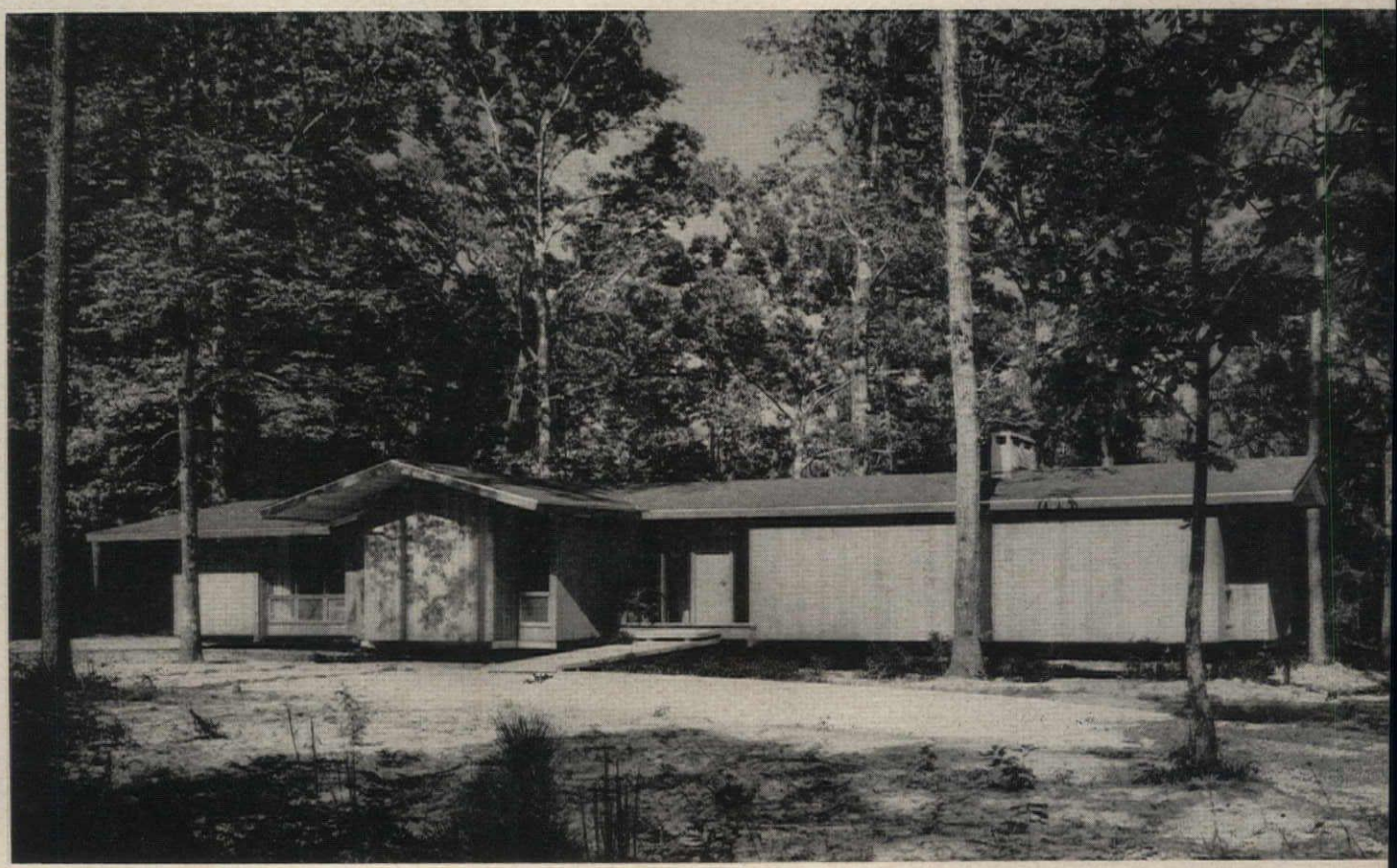
The cost for these three very specialized science buildings was $1,700,000.

Exterior walls are brick and curtain walls of aluminum and glass. Interior partitions are concrete block. All classrooms have acoustical tile ceilings and fluorescent lighting.



LOGIC AND SIMPLICITY GIVE LIVABILITY ON A BUDGET

John Desmond coordinates complex site and program needs into a handsomely simple house



Frank Lotz Miller photos

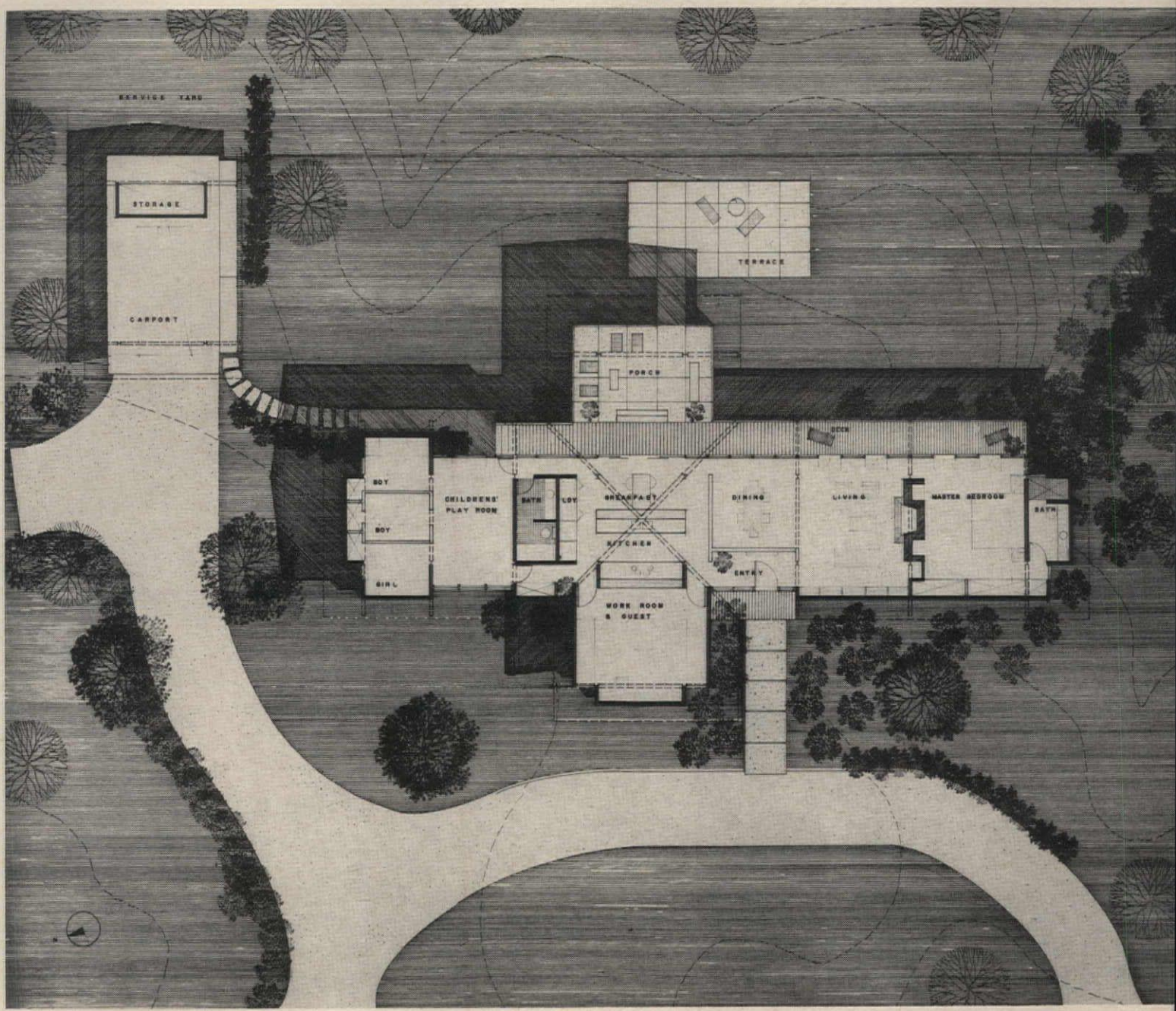
This modest-appearing house packs in an unusual amount of living space—zoned to fit the owners' requirements—for a budget of $25,000. The program had clearly stated requirements for: a "parents' wing," containing a large master bedroom, quiet living area and formal dining area; "a children's wing," with three bedrooms and a playroom (with bedrooms to be converted into a large space as the children grow up); and a central area containing all common and informal living, dining and service spaces. A guest bedroom and a work room were also required.

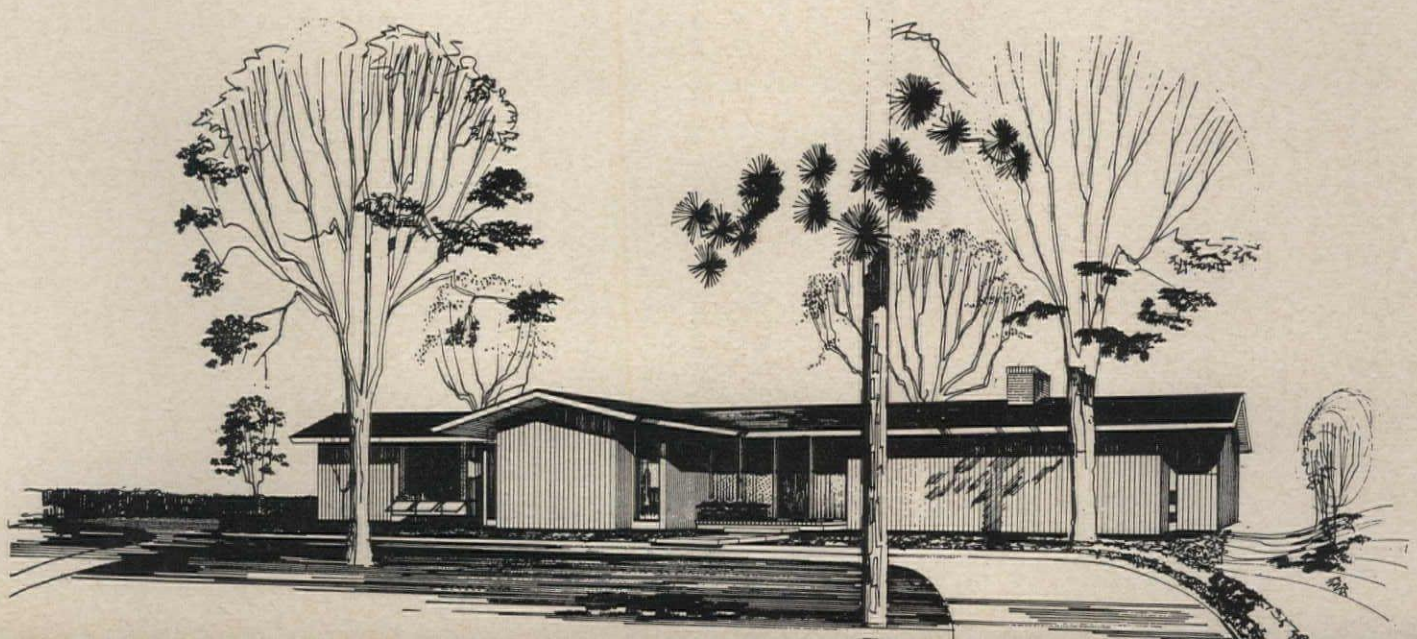
The plan at right shows how all these needs were very adequately provided in a simple, workable arrangement. The zoning requirements were respected, with the kitchen placed at the crossing as a control center and activity focus, looking down through the screen porch into the play yard and in the other direction into the combination work and guest room. All areas have convenient access to the outdoors.

Living and play areas flank all four sides of the "control center," and can be used separately or all together for large parties. Low partitions, and a ceiling following the roofline, increase the air of spaciousness. An added emphasis is given to the central space by the high ceiling created by the intersection of the gabled wings.

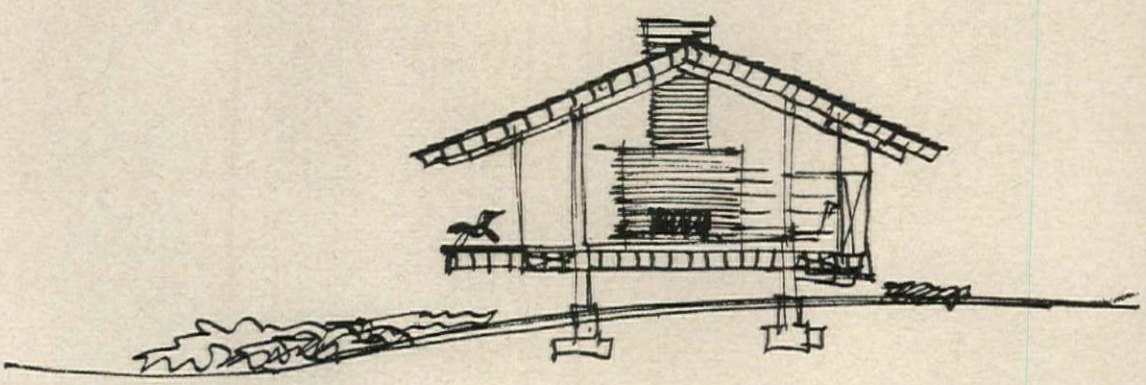
The site is a pleasant, sloping and wooded one, and it was desired to preserve this quality in future landscaping. Building materials were also chosen to further contribute to this quality. Exterior walls are of bleached cedar, and ceilings are natural finish hemlock. The roof is gray-beige asphalt shingles. Interior walls are pre-finished plywood and floors are oak, vinyl asbestos or ceramic tile. The house has year-round air conditioning.

Residence for Robert Duncan
Covington, Louisiana
ARCHITECT: *John Desmond*
ASSOCIATE: *Ralph Clampitt*
CONTRACTOR: *W. W. C. Oud*


SERVICE YARD
STORAGE
CARPORT
TERRACE
PORCH
BOY
BOY
GIRL
CHILDRENS' PLAY ROOM
BATH
LOV
BREAKFAST
KITCHEN
DINING
ENTRY
LIVING
MASTER BEDROOM
BATH
WORK ROOM & GUEST



The structure of the Robert Duncan house was designed to solve several problems in the simplest manner possible. It was desired to preserve the existing slope of the site, as well as the fine trees. The architects and owners also wished the structural frame to help define room spaces within the house, and to carry the loads of both the main floor and the roof. As finally developed, the structure is made up of a series of WF steel rigid frames, painted white, and accomplishes all of these objectives. Spot footings leave the ground undisturbed.



RECREATION BUILDINGS

Pages 146-147

SWIMMING AND TENNIS CLUB IN CALIFORNIA

The Hills Swimming and Tennis Club
Oakland, California
OWNERS: *The Hills Corporation*
DESIGNER AND LANDSCAPE ARCHITECT: *John Vogley*
CONTRACTOR: *C. E. Steidtman*
LANDSCAPE CONTRACTOR: *A. L. Neu*

Pages 148-149

BEACH PAVILION ON FLORIDA COAST

Beach Facility for Sarasota County
Siesta Key, Sarasota, Florida
ARCHITECT: *Edward J. Seibert*
LANDSCAPE DESIGNER: *L. H. V. Smith*
STRUCTURAL ENGINEER: *E. C. Seibert*
CONSULTANT: *E. M. Fearney, Architect*

Pages 150-151

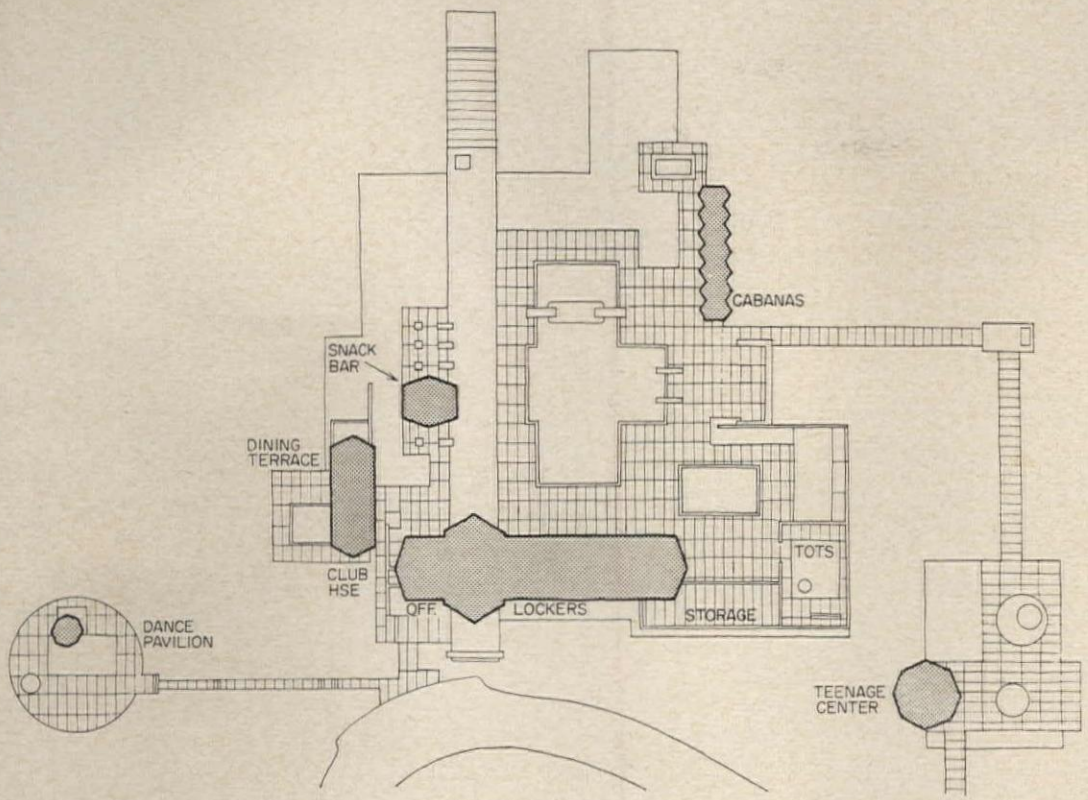
SUMMER PAVILION ON A MOUNTAIN LAKE

Summer Pavilion for Mr. and Mrs. M. Philip Davis
Lake Arrowhead, California
ARCHITECT: *David L. Fowler*
BUILDER: *M. Philip Davis*

Page 152

PLAY PAVILION FOR AT-HOME RECREATION

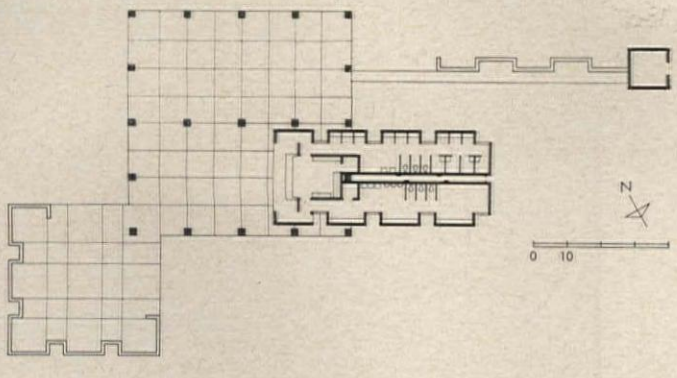
Recreation Pavilion for Dr. and Mrs. Ben Mirman
Arcadia, California
ARCHITECTS: *Buff, Straub & Hensman & Associates*
CONTRACTOR: *Floyd Mathews*

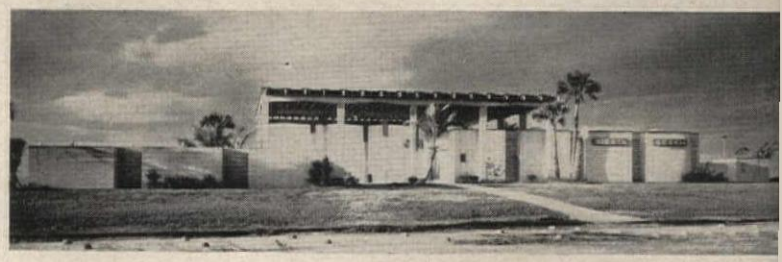


SWIMMING AND TENNIS CLUB IN CALIFORNIA

"The Hills"
Oakland, California
DESIGNER & LANDSCAPE ARCHITECT: *John Vogley*

The hilly site of this 500-member private swimming and tennis club in the hills above Oakland has been used to provide an unusually handsome recreational area. The buildings—an existing residence remodeled as a clubhouse, and an office and locker building—are at the street side of the property and act as a wind shield for the terrace. At the other side is a magnificent view east to Mount Diablo in Contra Costa County. At this level also are a large swimming pool and a wading pool. Forty feet below, on a shelf in the hillside, are tennis courts; on yet another level are picnic areas. A dance pavilion on the north and a teenage center on the south are planned for the future; these, too, will be on shelves in the hill. Stables are planned for construction in the parkland at the bottom of the hill, with trails to connect them with the crest of the hill. The hills have been disturbed as little as possible—even parking is on several levels to avoid cutting the hills—and as many trees as possible were saved. To emphasize the natural beauty of the location, the designer used wood, stucco and earth colors, and more lawn (for sitting and for games) than paved area.

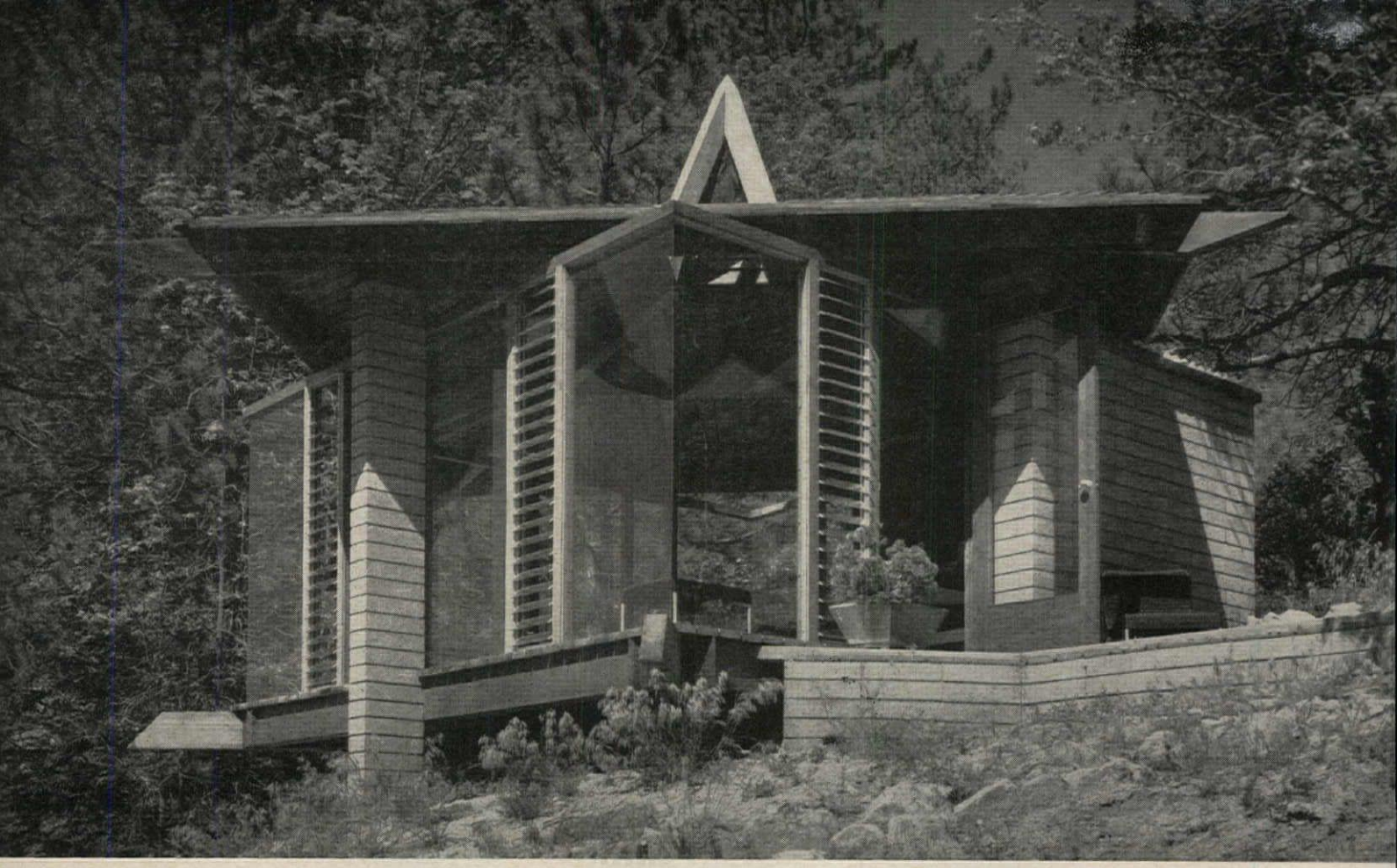


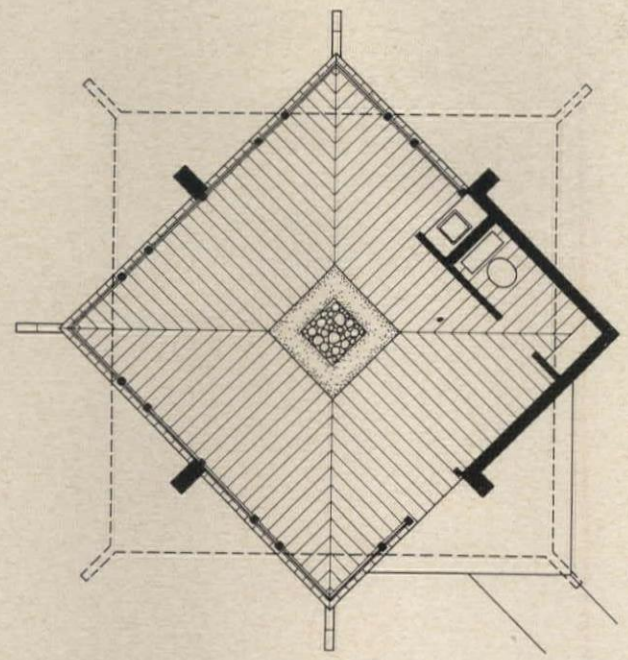


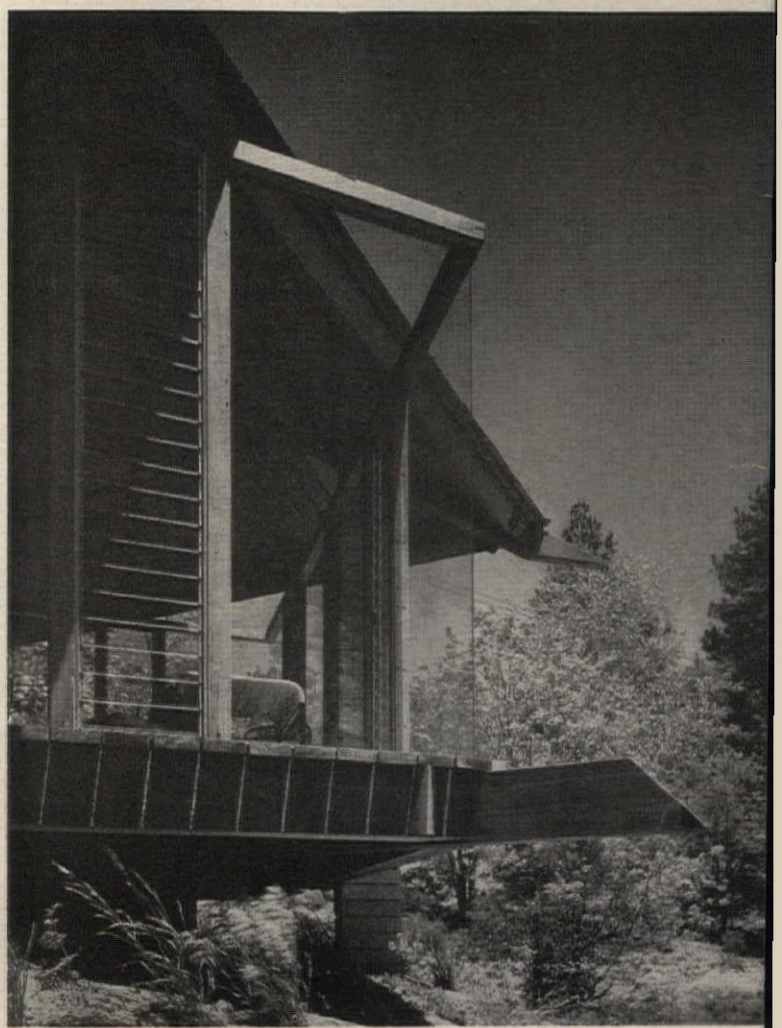
BEACH PAVILION ON FLORIDA COAST

Sarasota County Beach Facility
Siesta Key, Sarasota, Florida
ARCHITECT: *Edward J. Seibert*

Designed to give shade as well as to provide necessary shower and toilet facilities for a public beach, this low-upkeep beach pavilion is not only useful during daytime hours but during the evening—especially on moonlight nights—for square dances and picnics. The structures are of reinforced concrete and concrete block throughout, an appropriate and easy-to-maintain material for this salt-air location. Only the wood doors require painting. Columns were precast on the ground and hoisted into position. Beams were then formed and poured in place. Double-tee joists, precast and prestressed, laid across the frame, form the roof to the shade pavilion. Column connections to bases were precast in the bottoms of the columns. Since the site is exposed and vulnerable to tropical storm winds and water, an underground concrete bulkhead wall was put in for protection of the facility against storm waters. Some showers are located in the bath house; others are out-of-doors in the recesses of the wall to the east of the shade pavilion. At the end of this wall is a pump and storage house. A paved patio on the west side makes a sheltered place for sunbathing. The entire facility was built on a $50,000 budget.



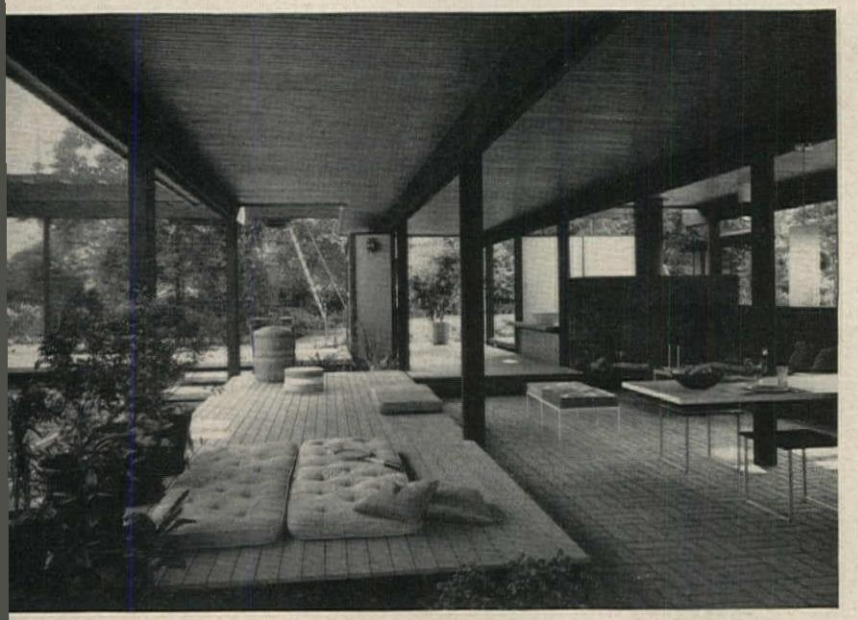


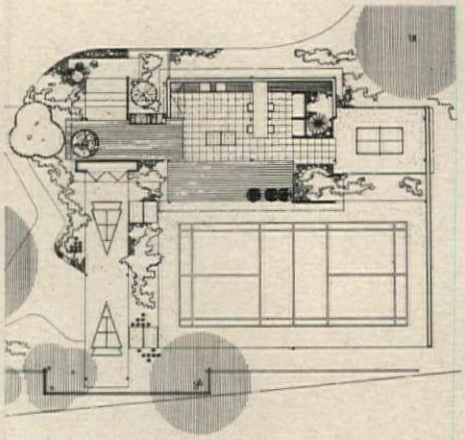


A SUMMER PAVILION ON A MOUNTAIN LAKE

Mr. and Mrs. M. Philip Davis, Owners
Lake Arrowhead, California
ARCHITECT: *David L. Fowler*

This gay little pavilion, overlooking the shore of an arm of a lake in the San Bernardino Mountains of Southern California, achieves with complete simplicity its purpose of being a modern gazebo and a lakeside shelter from sun, wind and occasional storm. Designed as a supplement to the main house on the hill above, it is both open and enclosed: glass walls on four sides afford views in all directions and protection from winds, but louvered panels permit cross ventilation; the shingled roof, whose diagonals are turned 45 degrees from those of the floor, is left open at its peak allowing a glimpse of the trees above, but does not project beyond its straight edges to cover the wall corners; the floor is made up of 2 by 6 inch redwood decking, spaced ⅜ inch apart to drain the small amount of rain and snow which enters through the open corners and roof peak. The roof is supported on four masonry piers independent of the walls. Smoke and heat from the fire pit, used for wiener and marshmallow roasts, are drawn out through the open roof peak. A dressing room, storage cabinets, sink and a refrigerator extend the usefulness of the shelter. Unfinished redwood is used throughout, and the masonry walls of natural sand-colored concrete block are left unpainted.





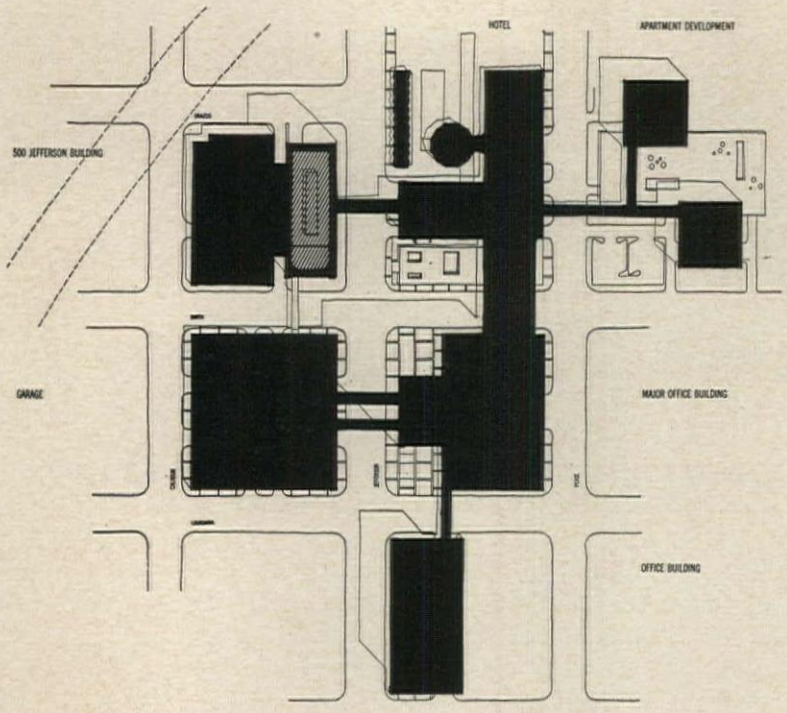
A PLAY PAVILION FOR AT-HOME RECREATION

Dr. and Mrs. Ben Mirman
Arcadia, California
ARCHITECTS: *Buff, Straub & Hensman & Associates*

Although this recreation pavilion is just a short distance from its owners' year-round residence, its environment is so completely different, and its facilities for entertainment and play so inclusive, that it might well be a vacation house in a quite dissimilar situation. It is in fact, an at-home vacation house in a city, designed to give all ages of the family so attractive a variety of recreational occupations that they would want to spend their time using its facilities. The pavilion is a simple post and beam structure, almost entirely open to the playing courts and garden. A food preparation area, fireplace, barbecue and bar make an entertaining center for a wide range of occasions. Surrounding it are several game areas, including a multi-game court (for badminton, basketball, volleyball, etc.), shuffleboard court and a ping pong table. Nearby, but adjacent to the main house, is a swimming pool. In one of the large trees on the site is a children's tree house. A raised platform along one side of the pavilion doubles as spectator seating for games on the badminton court and as built-in seating for entertaining. Materials are simple: the frame is Douglas fir, stained; the ceiling is also fir, unstained; such walls as are used are of brick or plywood; the floor is brick.

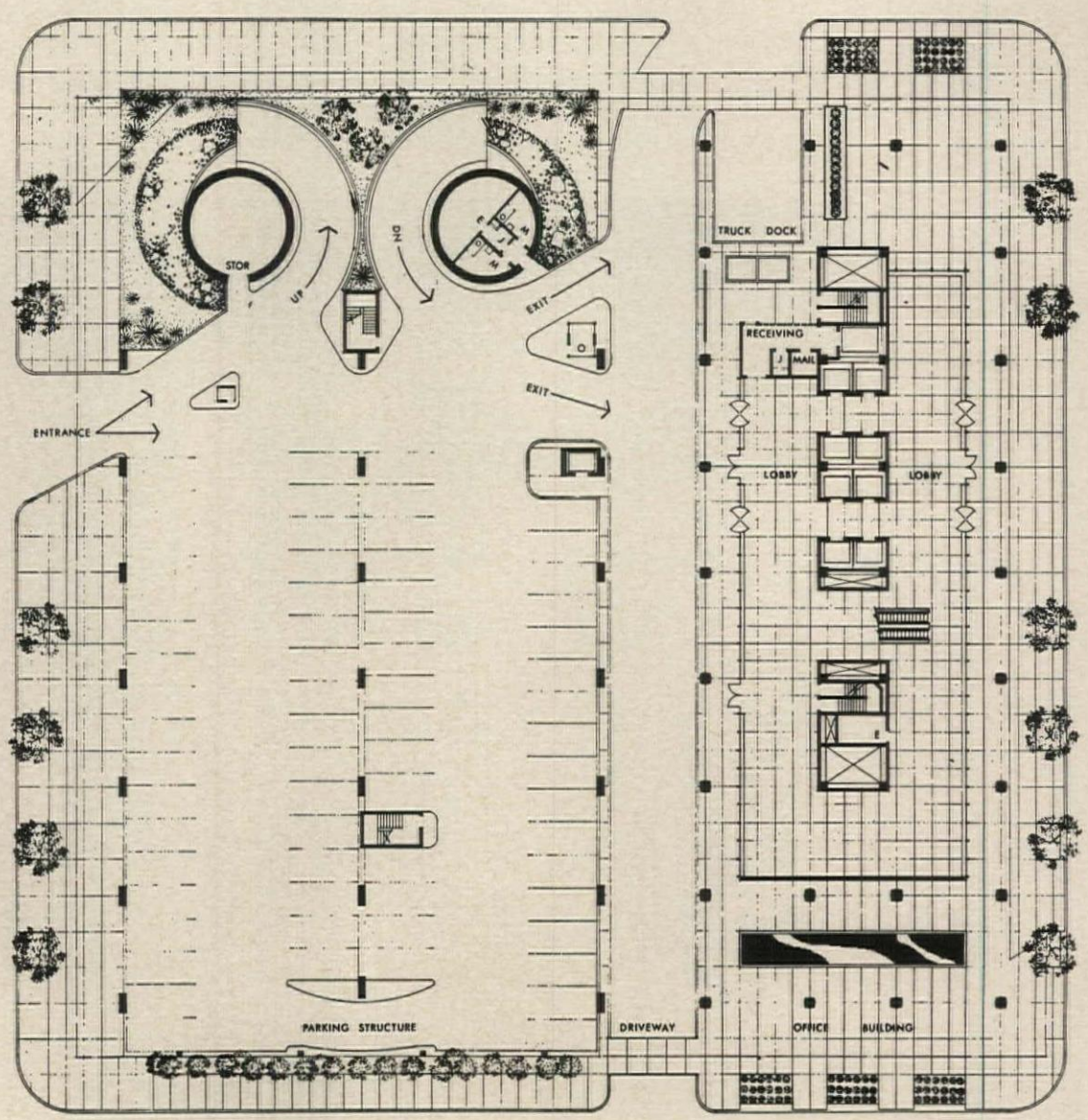
FIRST CULLEN CENTER UNITS OPENED

Located in downtown Houston, the first two units of Cullen Center—a planned six block commercial development—are completed and open. These are the 500 Jefferson Building, a 21-story office tower, and the 12-story, 325-room Hotel America. Both of these structures follow the concept for the entire center, and have their main lobbies at second floor level where they are joined by an air-conditioned pedestrian concourse bridging the street between them. Their ground level enclosures are recessed in order to make possible more extensive plaza areas about the structures. The tower and hotel are served by an adjacent five-level parking building that will handle 370 cars. It is shown at left in the photographs above and below. The tower features a pre-glazed, precast concrete curtain wall.

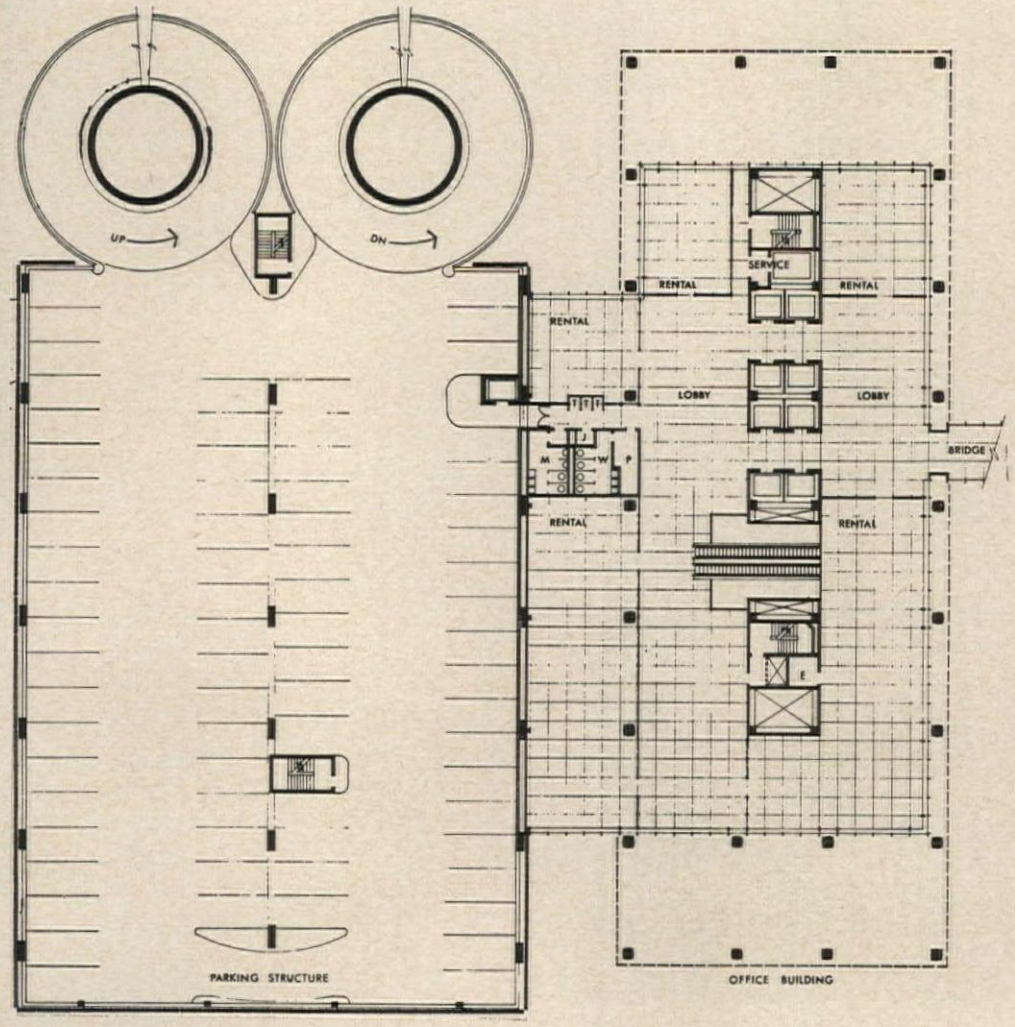


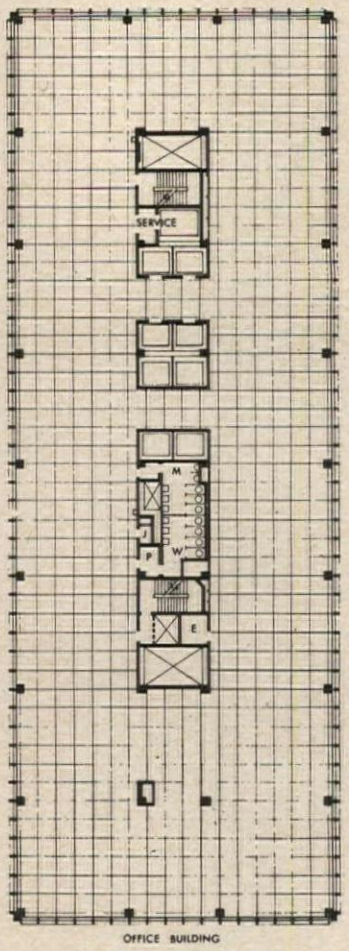
The plan for the six-block Cullen center is shown at left. Primary pedestrian traffic has been lifted one level above grade, where each structure has its main lobby, retail shops, and services. An enclosed, air-conditioned concourse bridges intervening streets and connects all the buildings at second floor level. Vehicular traffic continues on the existing street pattern and has immediate access to off-street parking in large parking decks. The total complex will include three office buildings, a hotel, two apartment buildings, and parking facilities.

The 500 Jefferson Building—pictures at right, plans below—has an unusual curtain wall of precast, quartz-aggregate units. Each frame (below, left) is four feet eight inches wide and one floor high. The units were designed to be pre-glazed in the casting yard, the glass held in place by a neoprene gasket. When erected, the frames serve as both exterior and interior finish. The window glass is gray, the spandrel glass is black, and they are set back 13 inches from the outer face. As a result, the pattern of the wall is unusually delicate.



Balthazar photos





Above: The ground floor lobby of the 500 Jefferson Building is joined by electric stairway to the second floor, which is in actuality the main lobby and primary pedestrian area. *Below:* A view at second floor level (refer to plans, page 155) looking from an elevator lobby through the enclosed, air-conditioned bridge which links the Hotel America with the office building.

Parking for both buildings is provided in an adjacent five-level structure. To avoid the usual traffic congestion attendant upon parking, loading and unloading, a private two-way drive was extended through the block between the office building and the garage. The use of prestressed beams for the garage made 64-foot clear spans possible; vertical movement of cars is speeded by a pair of circular ramps

500 Jefferson Building
Cullen Center, Houston, Texas
OWNER:
Cullen Center, Inc.
ARCHITECT-ENGINEER:
Welton Becket and Associates
STRUCTURAL ENGINEERS:
Stacey and Skinner
LANDSCAPE ARCHITECTS:
Robert White and Associates
GENERAL CONTRACTOR:
W. S. Bellows Construction Corporation

Architectural Engineering

How Does Thermal Comfort Affect Learning?

Will school children in a model thermal environment learn better than those in a marginal one? This was the question which professors at The Iowa Center for Research in School Administration (University of Iowa, Iowa City) set out to answer early in 1961. Part of their research has been completed, and one of the interesting discoveries was that the learning efficiency of high-ability students was more positively affected by a model environment than was that of low-ability students.

The model environment had equipment which maintained temperature from 70 to 74 F, relative humidity 40 to 60 per cent, and air movement 20 to 40 fpm. The only thermal control possible in the marginal room was that performed by the teacher in changing the heater thermostat or opening the windows. The experiment was conducted in a research school in Des Moines built in 1956 for Lennox Industries, Inc. The test school, designed by Perkins and Will, consists of two classrooms and an equipment room.

During the nearly two months' study (March to May 1962) heating was required only three per cent of the occupied time in the model room. Ventilation and mechanical cooling were required whenever the outdoor temperature rose above 50 F.

In this study two groups of students of equal ability, family background and school experience were used. Forty-four matched pairs of fourth grade students were divided into two equal groups. Tests were conducted on reasoning, clerical and new concept tasks. At the beginning of the experiment both groups performed about the same. But at the conclusion, students in the model environment did much better than those in the marginal environment.

The first study is summarized in a report, "Thermal Environment and Learning," by the Iowa Center for Research in School Administration. A more complete presentation is available in a thesis digest, "The Effects of Thermal Environment on Learning," by Charles Peccolo ($2.00).

Now a Prestressed Wooden Beam

Research on laminated wooden beams was selected as one of the 10 highlights of 1962 at the U. S. Forest Products Laboratory by its director, Edward G. Locke, in the organization's annual report just issued. Studies showed that not only can the prestressed beams carry larger loads than non-prestressed beams, but also a more reliable prediction of ultimate load can be made for a prestressed beam. Prestressing was accomplished by tensioning steel strands inserted in prepared holes in the tension portion of the beam. Research is being continued with the possibility that methods of design for commercial prestressed laminated beams may be developed.

Research on Lead and Zinc for Building

In an effort to increase markets for zinc and lead materials in applications varying from galvanized steel automobile bodies to lead roofing for buildings, member companies of the American Zinc Institute and the Lead Industries Association have in the last several years supported what is termed an Expanded Research Program which during the six-months period from October 1962 to April 1963 involved 72 active research projects. Typical among these is the acoustical testing for sound attenuation of lead in combination with panels of wood, fiberboard, steel and aluminum. Aiding the cost picture for this application is a new machine which permits the continuous casting of thin lead sheet directly from molten metal in a thickness as low as .010 in. Other examples include rolled zinc alloy for rainwater goods and zinc galvanized prestressing strand for concrete members.

This Month's AE Section

THE ROLE OF THE COMPUTER IN ENGINEERING PRACTICE, p. 158.
CENTRAL HEATING AND COOLING FOR COLLEGE CAMPUSES, p. 162.
BUILDING COMPONENTS: Convertible Laboratory Equipment, p. 169. *Products*, p. 173. *Literature*, p. 174.

THE ROLE OF THE COMPUTER IN ENGINEERING PRACTICE

By Matthys P. Levy, Associate; Paul Weidlinger, Consulting Engineer and Charles P. Lecht, Director, Advanced Computer Techniques, Inc.

Like the nonsense line from Lewis Carroll, "... For the Snark was a Boojum, you see," the electronic computer arouses the imagination while raising many questions of meaning and effect. The architect may fear that his artistic interpretation is put in jeopardy, while the engineer feels that his calculated judgment is being subordinated to a less personal logic. The question is raised: "Is such a fate within the realm of possibility, or is it so much nonsense?"

In order to explore this question three areas are of interest. The present state and potential of computer applications in architectural structures, the effect of computerization on the organization of an architectural engineering office, and the effect on the individual engineer or architect.

A wide variety of computing devices exist today (i.e.: special and general purpose analog or digital computers). Many of the remarks to follow are applicable to engineering offices either maintaining or desirous of maintaining any type of medium to large-scale computer. Primary emphasis, however, will be placed on the utilization of a medium to large-scale electronic digital computer.

The Computer's Real Role

The computer has a definite place in engineering practice, and it is bound to have an ever-enlarging role. But the engineer must carefully examine proposed applications lest they prove impractical in relation to conventional procedures. Some myths concerning automation have achieved such status that the engineer may expect too much. It is not enough to state what the computer "can do," but both the ease with which a task may be automated and the cost of automation also must be given.

The following five facts should be kept in mind when a computer application is being considered:

1. Computers or use of same can cost a lot of money
2. Not everything should be computerized (e.g. a simple, nonrepetitive problem)
3. Many computer salesmen have never prepared a substantial engineering problem for a computer
4. Some activities are not ready for automation
5. Faith in the "state of the art" statements about what computers can do may lead to overconfidence in their potential.

Background

During the past ten years, computer utilization in engineering design has matured to the point that many engineering offices currently make regular use of computers. Some maintain a computer "in-house," while numerous others use them at various service locations. Applications range from those concerned with difficult analytical techniques to actual design of structural members. The design tables in everyday use by engineers have in many cases been obtained through the use of a computer; increasingly complex analytical problems may now be solved; optimization of structures is now feasible. In fact, techniques in producing computer-prepared architectural drawings, mechanical drawings, etc., have been developed sufficiently to enable the definite prediction of substantially reduced draftsman's activities in the next decade. This remark also has far-reaching implications in the blueprint and general reproduction areas. Once computer technology establishes the modus operandi by which drawings can be produced with sufficient precision and clarity, the reproduction of these drawings at high speeds via further use of high-speed plotting or drawing devices is a foregone conclusion.

Effect of the Computer on an Engineering Staff

It is of importance to trace the manner in which individual engineering offices become acquainted with computers. The typical first problem is in the field of analysis. The consulting engineer finds himself faced with a difficult analytical problem. He investigates and finds out that by utilizing a computer to solve the problem, he can save valuable time in his office. Since personnel trained in programing disciplines are usually not available on his own staff, he goes elsewhere for help, usually to a consulting firm.

If the problem is successfully processed and accurate rapid results are achieved, it may be the start of computer activities within his firm which will grow at a rapid rate. The initial brush with the computer will leave blueprinted impressions of the potential uses of the machine in his own work. If over the years the firm finds that more and more problems lend themselves to computer solutions, it may well start to prepare itself for the demands which computerized operations will place on the firm's facilities and staff.

It becomes apparent that the organization with chief engineers, project engineers, engineers and draftsmen must now be supplemented by a computer section operating parallel to the project engineer. Even without having actual possession of a computer, someone in the firm must be completely familiar with methods of programing, coding, efficient usage of the computer and methods of analyzing data. This individual may be a mathematician or an engineer, but he must be a specialist trained in computer technology.

The next step, once justified by the volume of work, is the acquisition of a digital computer. These courses of action are open: purchase, rental, cooperative rental with other firms. Purchase is not usually feasible because the cost, which runs over $100,000 for a small solid state computer, can not be justified in terms of possible obsolescence and long-term depreciation. Rental is the usual answer. Here again, cost is a vital consideration. A computer such as an I.B.M. 1620 rents at the equivalent of three and a half engineers per

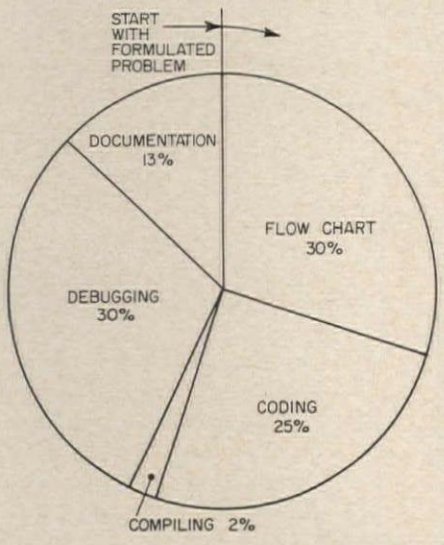
SPEED COMPARISON MAN vs. COMPUTER

	Input	Operation	Output
Man	2	4	1
Computer	40	50,000	150
	Read: words per second	Perform a simple arithmetic operation: number per second	Print: words per second

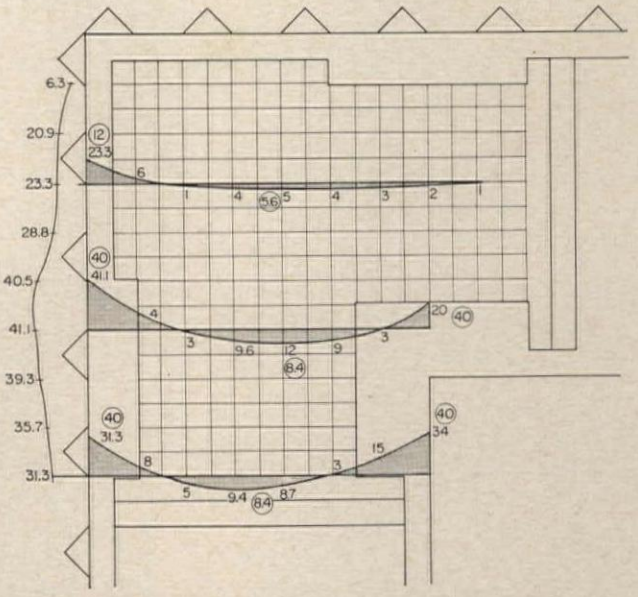
STEPS IN COMPUTER ANALYSIS OF AN ENGINEERING PROBLEM

1. Analysis of the problem in engineering terms
2. Formulation
   a. Mathematical statement
   b. Suggested computer methodology
3. Programing
   a. Flow Charting. (This technique schematically shows the steps which the computer must take to produce the answers required by the problem.)
   b. Coding. (In this step the mathematical statement is written into computer "language" in series of instructions which the computer can accept.)
   c. Compiling. (The coded instructions are translated into still another form by the computer which becomes the computer "program" enabling the computer to give answers to the problem.
   d. Checkout. (At this point any errors in the foregoing steps are detected and corrected.)
   e. Documentation. (All the foregoing steps are written down for reference purposes.)
4. Input Preparation
   a. Questions to be answered by the computer are placed on punched cards, paper or magnetic tape
5. Process Program
   a. Input is run through computer
6. Obtain results
   a. Computer prints answers in form to be used by the engineer
7. Interpretation of results

DIVISION OF TIME REQUIRED FOR PROGRAMING

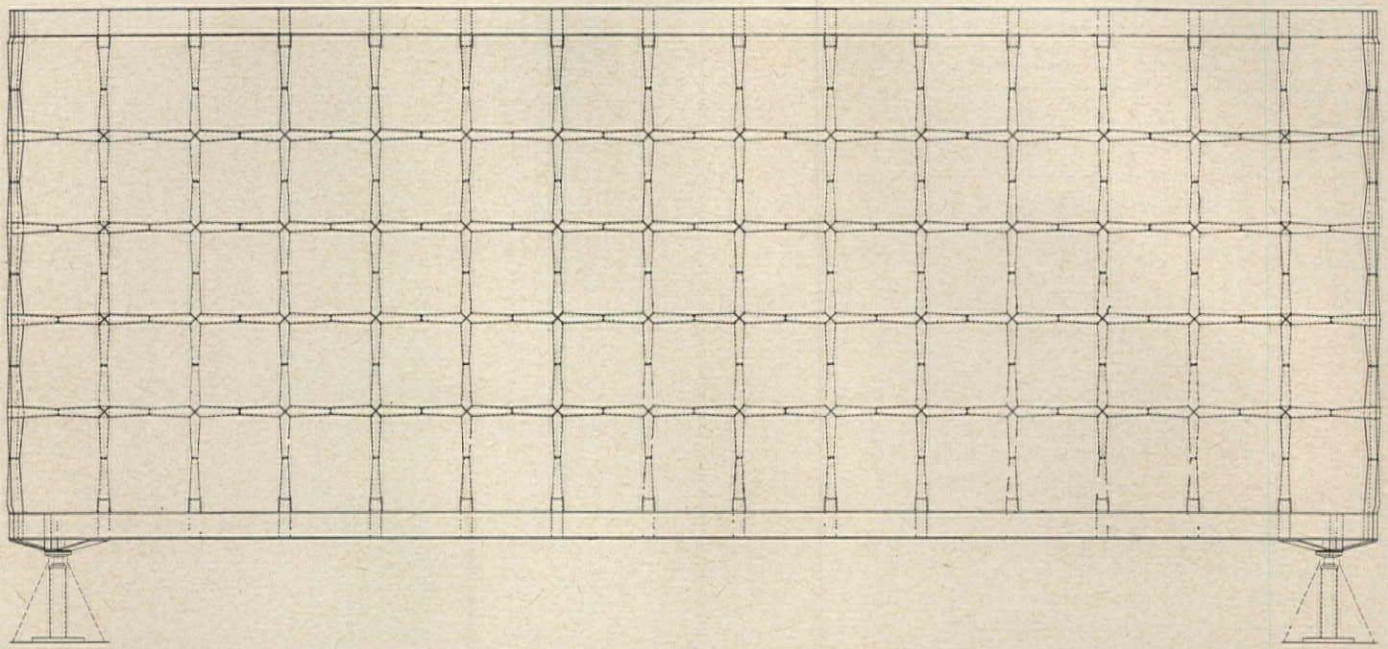


Two-way concrete plate floor slab of the C.B.S. Building by Eero Saarinen and Associates was analyzed by computer for moments to determine optimum reinforcement. Moment diagrams are shown shaded on the floor plan. Circled numbers indicate moments given by code solution



50 simultaneous equations of the form shown below were written in order to determine deflections at 50 points

$$Ax_{11} + Bx_{12} + Cx_{13} + \ldots\ldots\ldots + K_1 = 0$$
$$Ax_{21} + Bx_{22} + Cx_{23} + \ldots\ldots\ldots + K_2 = 0$$
$$Ax_{31} + \ldots\ldots\ldots$$
$$\ldots\ldots\ldots$$
$$Ax_{501} + \ldots\ldots\ldots + K_{50} = 0$$



Stresses due to wind in steel Vierendeel trusses of the Yale Rare Book and Manuscript Library were determined by computer

year. In addition to this, at least two full-time employes are needed to staff the computer section; one person to maintain the computer program system and a second to oversee the programing applications. This represents a total investment of about $50,000 per year including the cost of office space and supplies. Such an investment can only be justified in an office of at least 25 to 30 employes if full utilization of facility is to be achieved. A smaller office, unless it specializes in research, cannot absorb such costs. It is, however, possible for several smaller firms to join together in supporting a computer facility. This is not too desirable since only noncompetitive firms would join together and this implies a conflict of interests and methods of utilizing computer service.

What Activities Can Be Automated

In the field of architectural engineering, many applications of electronic computers have evolved:

1. *Repetitive structures* which involve routine but time-consuming calculations can be solved quickly and more accurately by computers. An instance of this is a floor slab in a tower building. In the case of Saarinen's C.B.S. Building the economy of the slab solution was proved by the computer analysis. The structure was designed by Paul Weidlinger, consulting engineer.

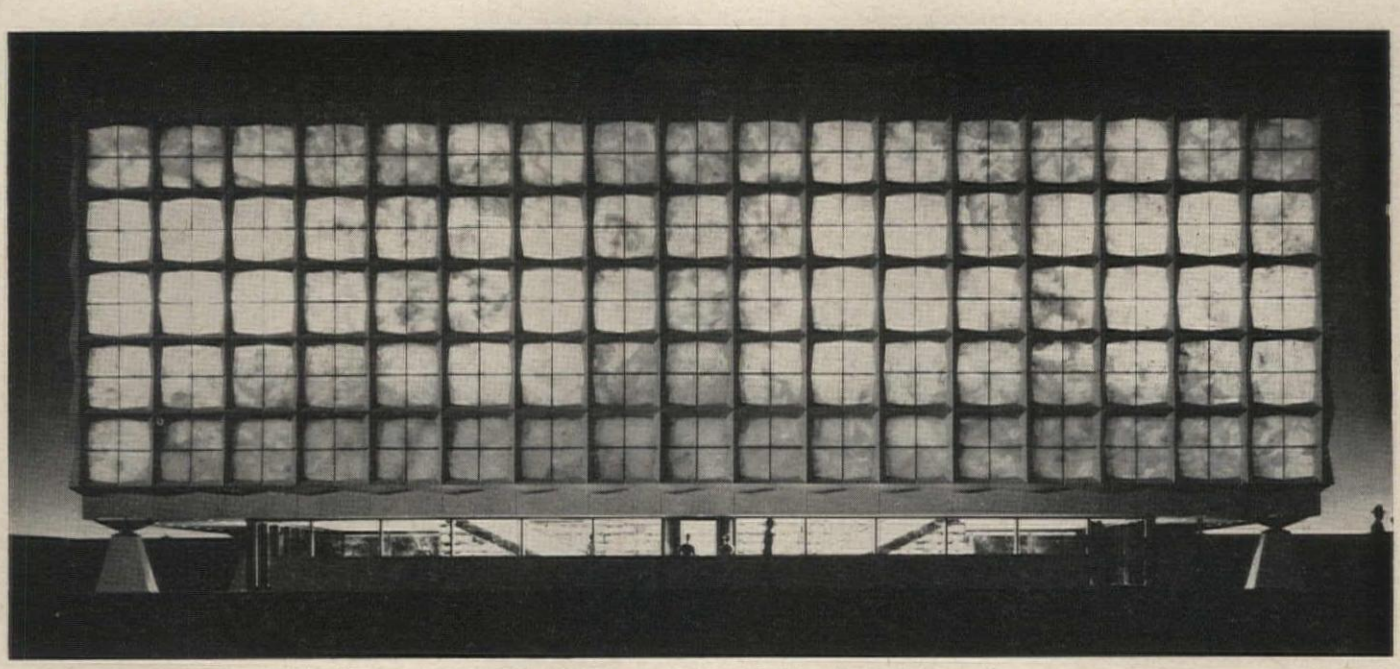
2. The analysis of *complex structures* such as elastic plates and grids, space frames, thin shells, multi-bay rigid frames. These involve the solution of numerous simultaneous equations or require a lengthy iterative process, if no exact mathematical solution exists. This type of problem was in the past either considered too complicated or required the use of gross approximation. The analysis of a multistory frame for wind is a typical example of this type of problem. One such problem recently solved is the multilevel Vierendeel trusses forming the exterior frame of the Beinecke Rare Book and Manuscript Library at Yale. This is a highly indeterminate problem for which stresses were obtained by the solution of a set of equations by computer. Architects are Skidmore, Owings & Merrill; structural engineer, Paul Weidlinger.

3. Comparative design of alternate structural solutions and *optimization of a structure*. The preliminary phase of any project requires a study of various structural schemes using either steel, concrete or a combination of the two. The "right" scheme is usually the most economical. Such a study requires rather complete designs in order to be meaningful and to present an accurate comparison. Naturally, complete designs require a certain amount of time which is usually not available since the client (architect or owner) is always anxious for results. The time saving in analysis of the structure and design of members afforded by the computer gives a real advantage.

4. *Job organization* and *construction scheduling by the* Critical Path Method. The use of CPM in scheduling the construction phase of a project is now well established for both large and small projects. The same procedure is now recognized as serving a similar function in organizing the project within the architect's office. The major aspect of CPM is that it allows the user full control of a project not only in determining which items of work lie on the critical path, that is, which may cause delay, but also in controlling costs where a time schedule is fully defined.

5. Data to finished product—the ultimate use of the computer is directed at the problem of the *complete structural design*. By feeding raw data such as span, number of bays in each direction, number of floors, loading, the computer can take over the analysis of the structure, the design of all component members and by use of a plotter the final working drawings can be obtained. This type of system is now being developed and when perfected will surely revolutionize the prevailing practice of the consulting engineer.

The rules of the game as defined by the codes specifying the design of construction materials can be programed to provide the basic methods for design of such elements as beams and columns by comput-



Night shot of model for Yale library designed by Skidmore, Owings & Merrill, Architects-Engineers

er. This can be extended to the design of rigid frames by the introduction of an analytical program. Many buildings can be completely designed with just these elements and in fact many industrial structures such as power plants and mill buildings have been so designed.

6. Mechanical Systems—a program for the complete analysis of ventilating and air-conditioning requirements of a building is being developed. This means that given the basic exposure and load data, air requirement, duct sizes and cooling load will be obtained rapidly and efficiently.

7. Increased concern with dynamic problems such as the aerodynamic effect of wind on light elastic structures and blast effects on structures call for more complicated analysis. These are ideally suited to computer solution since they usually involve step solutions in time of the response of a structure.

Programing

There is a new discipline which has invaded the total scientific and business fields in the past 12 years, and has imposed itself as a bona fide field in its own right. This field is that of "computer programing," the task of preparing applications, architectural or otherwise, for computer solution. As stated earlier, computer applications and use of computers can be quite costly. This cost, however, can be minimized by effective and well organized computer programing effort. One of the greatest misconceptions in the computer applications field is that of conceiving of the computer program as starting and ending with the computer.

Each application must be conceived and acted upon as a man-machine-environment system if it is to be successful. In the structural design problem, it would be folly to consider a "computerized routine" to design beams or columns without considering the demands placed on this routine by city codes, laws, etc. The professional programer working along with the engineer, if cognizant of this fact, can guarantee success in any application to be effected on a computer if it meets the requirements of formalization for computer solution; such formalization obviously excludes esthetic judgments.

Currently, because of the many months an application may take to be automated, there are only three reasons of an economic nature which could justify a computer program of any magnitude in architectural engineering: (1) To dispense with a simple but highly repetitive task; (2) to process great quantities of data; (3) to solve a complex problem which is not feasibly done otherwise. The examples given earlier fall into these categories.

A survey kept on programers for over two years during a well organized scientific programing effort is summed up in the "pie" chart. This chart shows the programer's activities on an average task to be automated. It provides an insight to the architectural engineer staffing his firm with computer programers as to a reasonable breakdown of the programer's task.

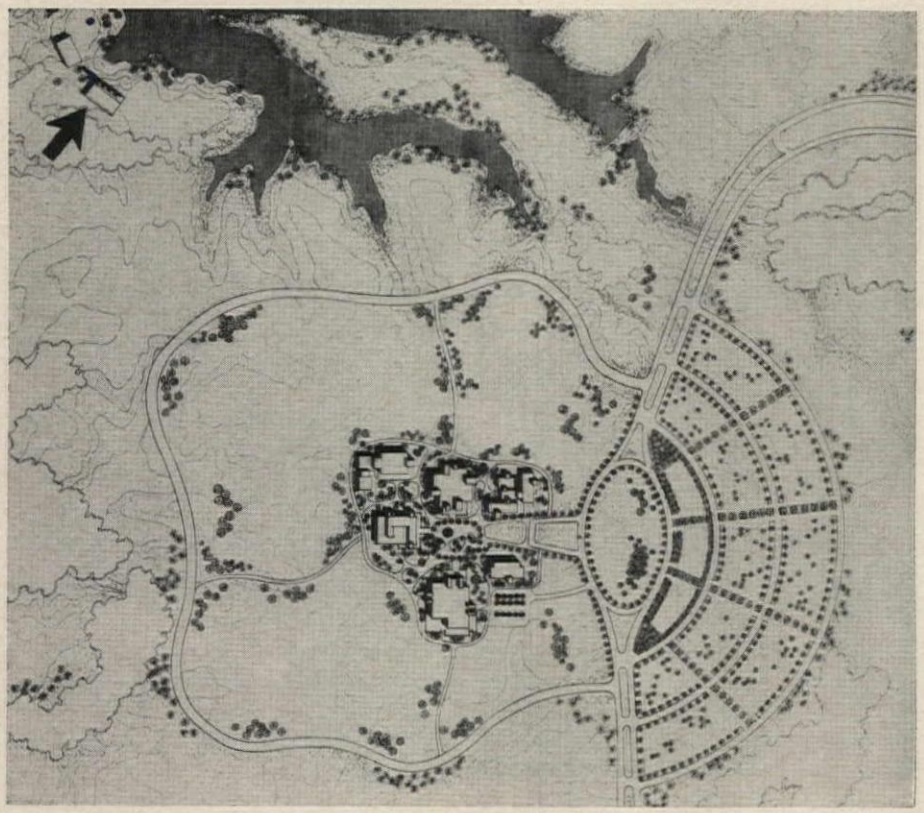
Preparation of any specific computer program may involve days, months, or years. It may involve very few instructions or many thousands of instructions to the computer. If the task is well organized from the precise mathematical formulation to the preparation of detailed final documentation of *how* it works, the *how* in architectural engineering computer applications will have been answered.

Conclusion

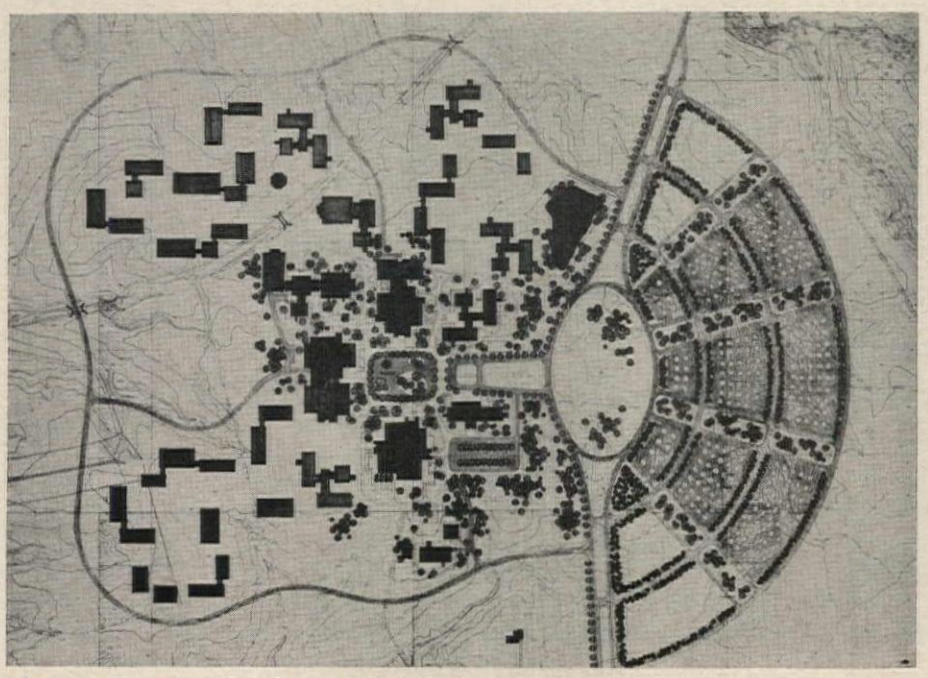
The computer will follow any logical process which man can devise. Once the rules have been decided upon, where does the designer fit in if the machine can presumably do his job? We have only to remember that we operate today under a set of rules and codes which 50 years ago were accused of stifling creativity. We have learned to live within the rules and have developed outstanding designers who have led the way in showing us how to use the rules to best advantage. The same is possible in dealing with the Boojum called computer.

CENTRAL HEATING AND COOLING OF COLLEGE CAMPUSES

Three recent cost analyses favor central systems for both new and old campuses



Campus at Southern Illinois University (Helmuth, Obata and Kassabaum, Architects) showing boiler plant (arrow) near artificial lake and first phase of construction for 5,000 students



Phase 3 of construction for 18,000 students

Three recent analyses of engineering and economic feasibility have led to acceptance of designs for central heating, cooling and/or utility systems at three U. S. campuses:

1. Heating, air conditioning and electric power will be supplied to all buildings of the new Edwardsville campus of Southern Illinois University (see this month's Building Type Study).
2. An updated central boiler plant and new refrigeration plant at Yale University will provide heating and air conditioning for the Pierson Sage Square section of the campus comprising a projected total of about 18,000,000 cu ft.
3. A central refrigeration plant at Princeton University will supply chilled water for an ultimate total diversified load of 7,836 tons of air conditioning.

Each of the reports analyzed owning and operating costs for a considerable variety of systems. Tables 1 and 2 demonstrate the kinds of information that enter into selection of the ultimate schemes. It should be noted that the actual dollar figures shown cannot be translated into general bases for comparing one system with another except under the particular conditions at each job. Similarly, selection of one system or another cannot be interpreted as a quality endorsement other than within the framework of job criteria.

S.I.U.

The report on heating, air conditioning and electric power for the Edwardsville campus of Southern Illinois University was prepared by Warren and Van Praag, Inc., consulting engineers.

Of the more than twenty schemes analyzed for this campus, eleven which received most serious consideration are listed in Table 1: and of those, Plan No. 1 is the one recommended for construction.

This plan consists of a power plant located near and using the cooling

water of an 80-acre artificial lake (constructed here at less cost than equivalent cooling towers) about ¾ mile from the campus center. The plant will generate electric power for the campus and will provide both high temperature water and chilled water to be circulated to each building. Use of boiler steam for drives and turbine exhaust for h.t.w. accumulator and absorption stage of cooling makes for high efficiency.

Compilation of cost data pertinent to the study for S.I.U. involved some interesting extrapolations. Initial enrollment for the fall of 1963 is fairly firmly pegged at about 5,000 commuter students. Enumeration of elementary and high school students within commuting distance indicates an enrollment potential of 18,000 commuter students by 1970. A three-phase building program is geared to that expansion plus limited housing, after 1970, for faculty and graduate students.

To predict peak loads and annual cost of utilities, the 8760 hours of the year were divided into ten typical operating periods on a basis of both seasonal and diurnal variation (winter nights, summer mornings, etc.). Thus peak demands as well as cumulative totals for the year could be estimated.

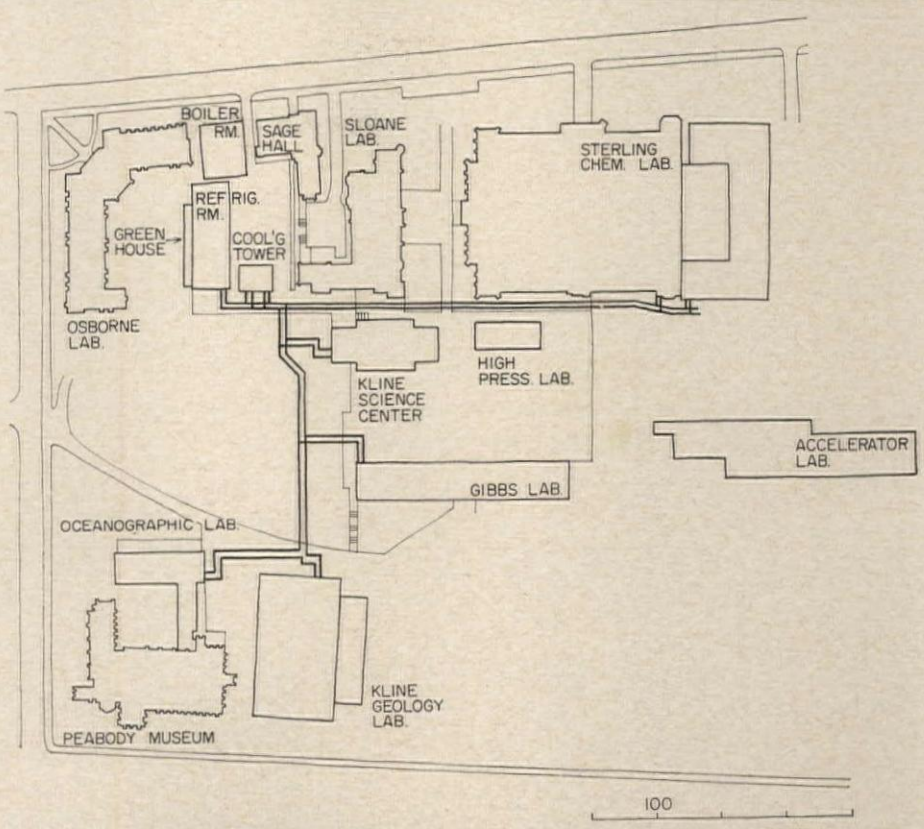
From a study of operating records of central heating plants at two other Southern Illinois campuses (Carbondale and Charleston), a load factor of 2.8 Btu per degree day per cubic foot of heated space was derived. Similarly, a ratio of average hourly heat demand to peak one-hour demand was determined to be 0.45.

Cooling load estimates were based on published data for structures similar to those in the master plan adjusted for known particular conditions. Thus, a loading value of one ton per 200 sq ft of conditioned space was adopted. This seemingly generous factor was somewhat modified by applying it to 75 per cent of the gross area of buildings; and central plant loading was determined by applying a diversity factor of 70 per cent.

TABLE 1.—COST ANALYSIS, VARIOUS S.I.U. SCHEMES

PLAN NO.	TYPE OF CENTRAL HEATING	BOILER OUTLET CONDITIONS PRESSURE/TEMPERATURE	ELECTRIC POWER	REFRIGERATION EQUIPMENT	CONSTRUCTION COST	ANNUAL BUDGET REQUEST	OWNING AND OPERATING COST
1	High Temp. Water	400 psig/600 F	Generate	Central: Centrifugal + Absorption	$ 8,230,000	$ 980,000	$1,472,601
2	High Temp. Water	400 psig/600 F	Generate	Subcentral: Centrifugal	9,808,000	1,110,000	1,777,775
3	High Temp. Water	400 psig/600 F	Generate	Packaged Chillers for Individual Buildings	14,192,000	1,298,000	2,580,554
4	High Temp. Water	150 psig/366 F	Purchase	Central: Absorption	3,565,000	1,306,000	1,541,120
5	High Temp. Water	150 psig/366 F	Purchase	Subcentral: Centrifugal	5,791,000	1,256,000	1,735,173
6	Steam	150 psig/366 F	Purchase	Central: Centrifugal + Absorption	6,546,000	1,311,000	1,752,954
7	Steam	400 psig/600 F	Generate	Central: Centrifugal + Absorption	9,418,000	1,132,000	1,699,735
8	High Temp. Water	150 psig/366 F	Purchase	Packaged Chillers for Individual Buildings	10,175,000	1,525,000	2,617,656
9	*Electric by Heat Pump	400 psig/600 F	Generate	Heat Pumps for Individual Buildings	21,610,000	1,205,000	2,410,000
10	*Electric by Heat Pump	150 psig/600 F	Purchase	Heat Pumps for Individual Buildings	9,310,000	1,461,000	2,206,000
11	*Electric Resistance	--	Purchase	Subcentral: Centrifugal	7,865,000	2,467,000	3,307,000

* Heating provided at individual buildings



Pierson Sage section of Yale University Campus showing new refrigeration plant and piping distribution

Yale

The report on a central boiler and refrigeration plant for the Pierson Sage Square section of Yale University was prepared by Meyer, Strong and Jones, consulting engineers. Here the problem was to take utmost practical advantage of an existing boiler plant (built in 1915) and steam distribution system in recommendations for additional boiler capacity and a new refrigeration plant to serve both existing and future air conditioning systems.

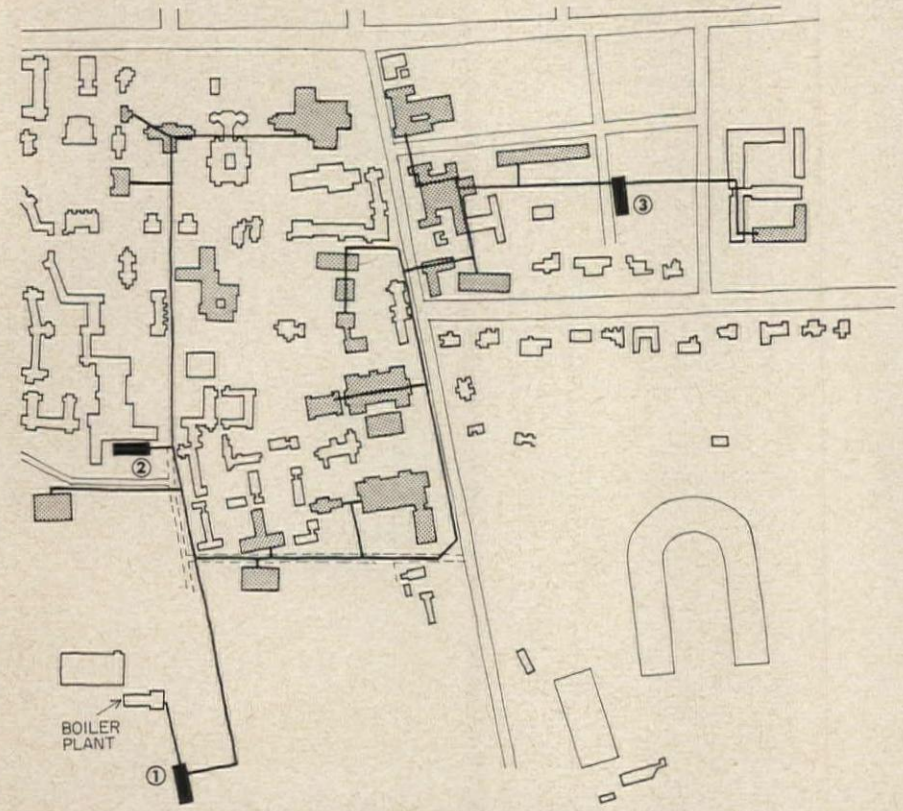
The existing plant had four boilers totalling 27,000 lb per hr steam generated at 30 psig. Already overloaded at peak conditions, existing boilers would be incapable of handling any addition of proposed new buildings.

There is also a small low-pressure plant in the Peabody Museum con-

taining two boilers with total capacity of 8,000 lb per hr. This plant serves both Peabody and the nearby Oceanographic building, a total load of about 6,000 lb per hr.

Existing steam piping is run through tunnels and basements, is designed for 125 psig and appears to be in good condition.

Estimates of present and future steam loads in pounds per hour were: for existing load on the Pierson Sage plant, 37,080; on Peabody boilers, 6,300 for three new buildings now under design, 17,500; for other future buildings 47,120; a total ultimate load of 108,000 lb per hr heating about 18,000,000 cu ft.



Princeton campus plan showing three locations analyzed for new refrigeration plant finally located near boiler plant at location (1)

TABLE 2.—COST ANALYSIS, PRINCETON REFRIGERATION PLANT

	Electric Drive		Turbine Drive [1]					
	Each Building		Near Boiler Plant		Near Generator Plant		Near Sub-Station	
	Initial	Future	Initial	Future	Initial	Future	Initial	Future
Mechanical Work Plant	$ 556,840	$1,378,350	$ 488,600	$ 457,280	$ 488,600	$ 457,280	$ 488,600	$457,280
Steam Piping Underground	—	—	24,000	—	1,000	—	320,000	—
Chilled Water Piping Underground	—	—	368,170	90,080	297,080	36,810	283,680	30,840
Electrical Work Plant	131,700	265,700	52,000	50,000	52,000	50,000	52,000	50,000
Electrical Work Underground	197,720	189,550	90,570	133,950	42,550	119,650	10,920	93,020
Contractor's Fees	88,630	183,380	102,340	73,130	88,110	72,340	115,510	63,110
Contingency	44,320	91,690	51,170	36,570	44,060	36,670	57,760	31,560
Total Mechanical & Electrical	$1,019,210	$2,108,670	$1,176,850	$ 841,010	$1,013,400	$ 832,750	$1,328,470	$ 725,810
Building	120,650	239,800	187,500	—	187,500	—	187,500	—
Total	$1,139,860	$2,348,470	$1,364,350	$ 841,010	$1,200,900	$ 832,750	$1,515,970	$ 725,810
Total Ultimate Cost	—	$3,488,330	—	$2,205,360	—	$2,033,650	—	$2,241,780
Annual Operating Cost	$ 80,675	$ 162,235	$ 80,945	$ 76,575	$ 80,320	$ 75,600	$ 80,655	$ 75,955
Annual Fixed Charges	84,480	97,390	99,990	64,675	87,420	64,040	111,545	55,815
Total Annual Costs	$ 165,155	$ 259,625	$ 180,935	$ 141,250	$ 167,740	$ 139,640	$ 192,200	$ 131,770
Total Ultimate Annual Costs	—	$ 424,780	—	$ 322,185	—	$ 307,380	—	$ 323,970

[1] Turbine drive was selected on the basis of similar analyses of five other systems including electric drive, absorption and various combinations.

Estimates of refrigeration loads total 2,200 tons for existing buildings; 1,500 tons for three buildings in design; 3,000 tons for future buildings; an ultimate total of 6,700 tons.

Recommendation of the report was that the original boiler house be enlarged to accommodate three new 30,000 lb per hr boilers. Two of these are to be installed initially; then two old boilers removed. This would establish, with one new boiler as spare, adequate capacity (43,500 lb) for all existing buildings. Adding one more new boiler, boosting pressure to 125 psig, then removing two remaining old boilers, provides 90,000 lb capacity, enough to take over the Peabody plant loading with one boiler spare. There would then be space in the Sage plant for two more new boilers; one for buildings now in design and one to handle ultimate load.

Extension of the boiler plant to accommodate refrigeration machines was a cost advantage since centrifugal refrigeration machines will be driven by steam turbines.

Estimated construction cost for the complete project is about $3 million; annual owning and operating cost will approach $442,000.

Princeton

The report on a central refrigeration plant for air conditioning various groups of buildings at Princeton University was also prepared by Meyer, Strong and Jones. It analyzed costs of various factors for three different plant locations and for six different primary drive arrangements. Table 2 shows the kinds of data assembled and actual figures for the selected system using turbine drive in a central plant located near the existing boiler plant. Location near the generator plant (2 in plan), a slight cost advantage, posed architectural and campus planning problems.

The new plant has a capacity of 2,700 tons and is designed for expansion to 6,300 tons. Estimated construction cost of the initial stage of plant and piping system is $1,364,350. Initial owning and operating cost will be $180,935; ultimately to be $322,180 annually.

In addition to the central system, there will continue to be several small systems serving individual buildings; largest separate system will be a 312-ton plant to serve the engineering quadrangle, now under construction.

High on a Hill in Bel Air

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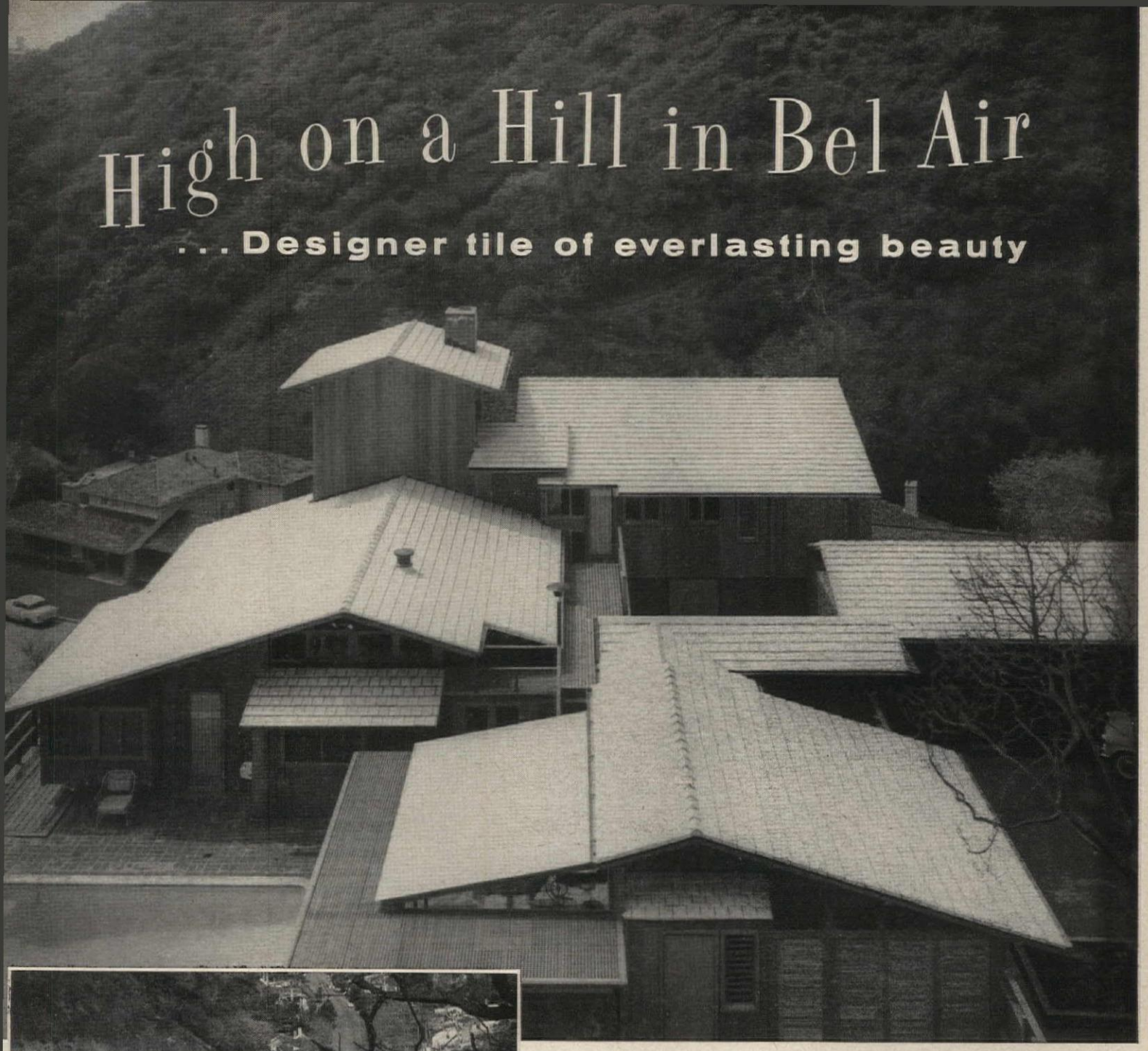

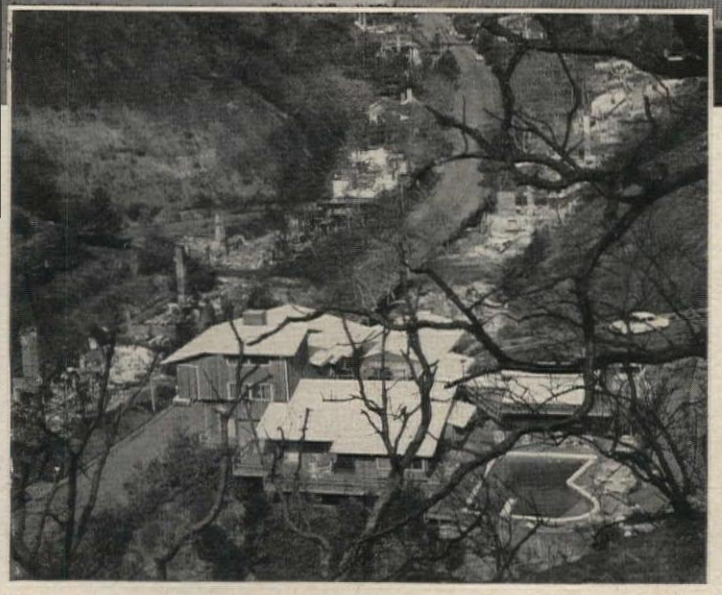

Fire scarred residential area surrounds unscathed home roofed with fire resistant Ludowici tile.

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*From Variety, Nov. 8, 1961

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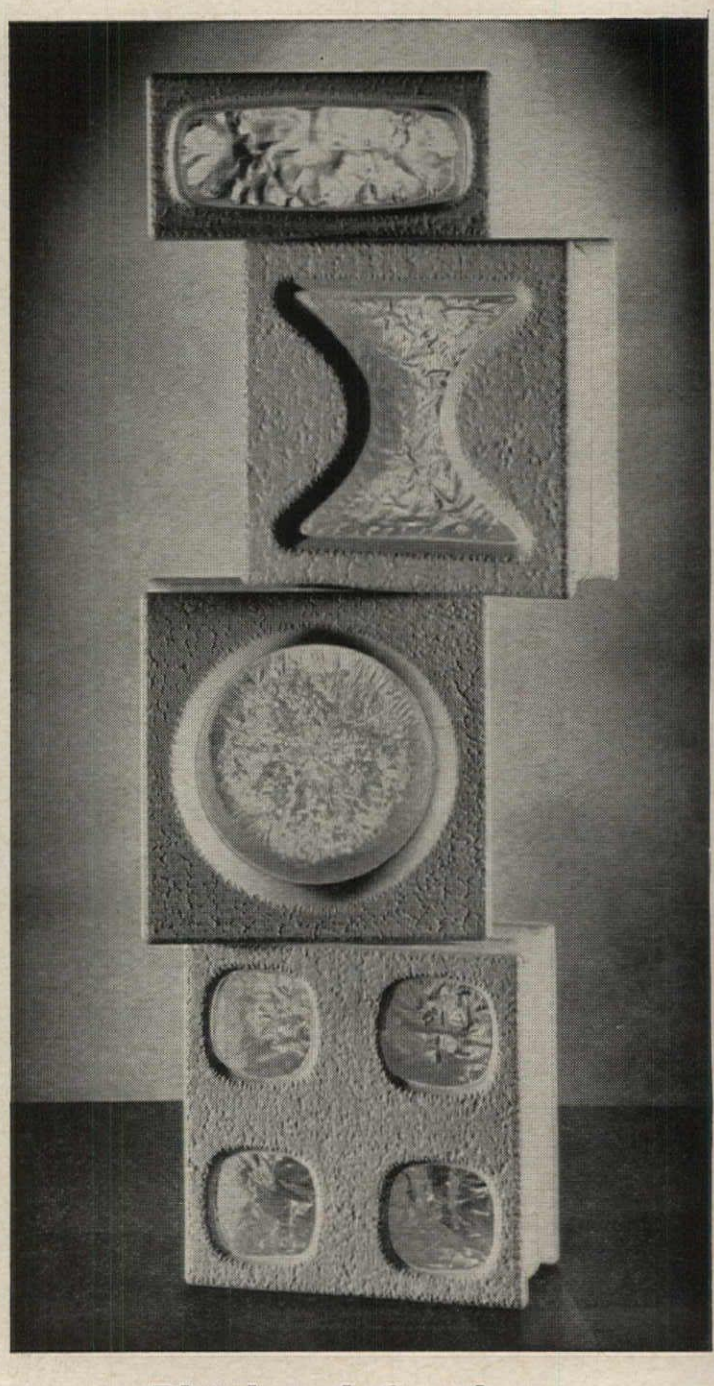
Pittsburgh Corning products offer unique solutions to some of building's most critical problems



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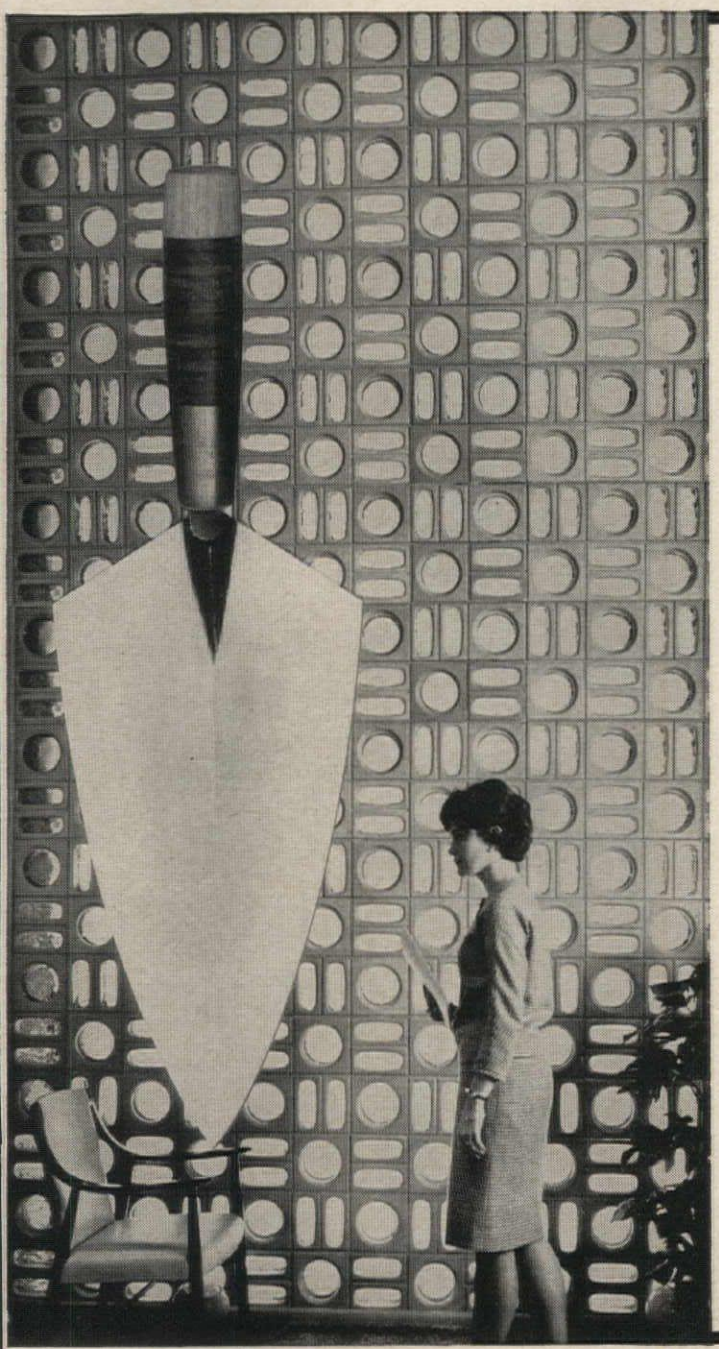

...one trade, one material, one cost: now glass and grill are one

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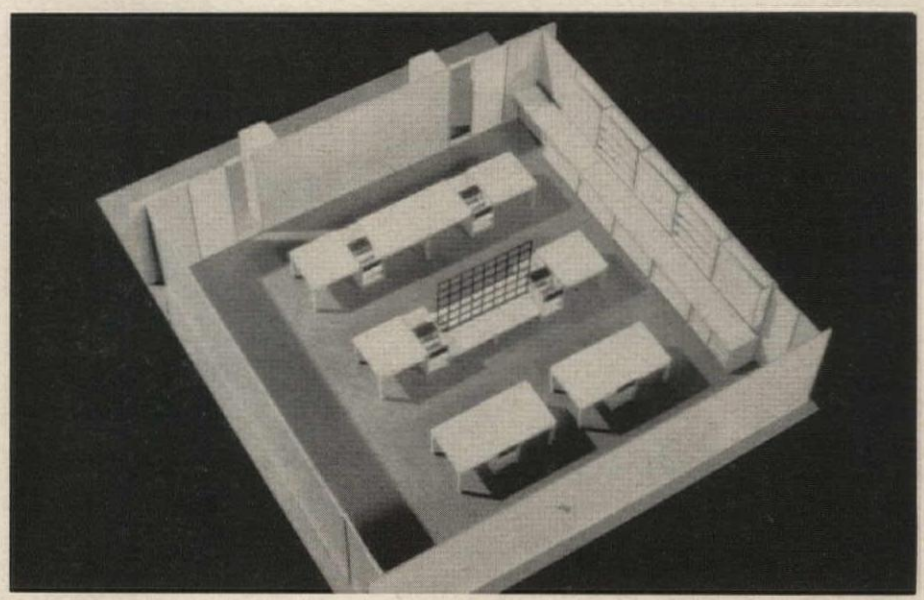
CONVERTIBLE LABORATORY FURNITURE

Components developed for new science building at Southern Illinois University can be rearranged as student load varies, science program changes

ARCHITECTS: *Hellmuth, Obata & Kassabaum, Inc.* CONSULTANTS: *Laboratory Planning Consultants*

What is a laboratory workbench for general chemistry one semester could be a workbench for physics or biology the next in the science laboratories designed for the new Southern Illinois University campus at Edwardsville. This has been made possible through the development of a new concept in laboratory furniture—convertible, modular components. The basic component around which workbenches are created is a utility cabinet which provides enclosure for wet or dry services and storage. The other components include metal frames and work tops, wet and dry utility outlet boxes, distillation rack for chemistry, and portable equipment container. These components can be arranged in various combinations to accommodate chemistry, physics, botany, biology and zoology disciplines.



All laboratories are 35 by 35 ft, accommodating three rows of laboratory benches. This model shows arrangements for general chemistry (top row); organic chemistry (middle row); and biology, physics and zoology (bottom row)

In contrast to the usual programming approach of providing a separate building for each scientific discipline, all of these disciplines are grouped within a single structure, in accordance with requirements set forth by Southern Illinois' president Delyte W. Morris. These requirements were based on his conviction that "departmentalized" architecture fosters "departmentalized" education.

It was determined that the design approach should exploit the similarities of each discipline particularly with respect to: (1) provision of equal laboratory spaces for all disciplines in order that little or no change of the building would be necessary when a change in discipline is required; and (2) provision of equipment that, where necessary, can be readily changed from one configuration to another to perform a specific function in a minimum of time and with a maximum of reused equipment components.

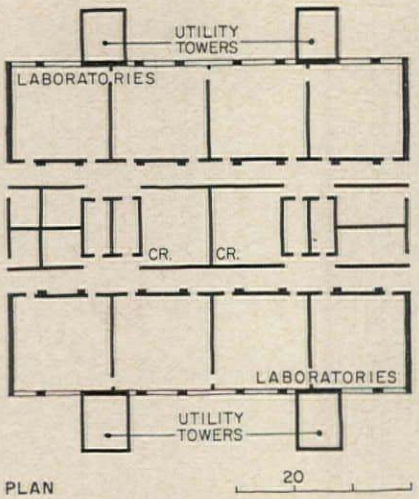
The structure of the building was designed to allow for relocation or alteration of utilities by utilizing perimeter towers, which permit vertical distribution of utilities without interfering with open interior spaces. Laboratories are grouped adjacent to each tower about the perimeter of the building. The quantity of utilities decreases in density away from the towers so that the internal rooms with fewest services are utilized as lecture rooms, classrooms and preparation rooms.

The laboratory room is square in plan to permit options in student orientation. Room dimensions of 35 by 35 ft were regarded as optimum since this allows a maximum of 24 students to be furnished with a 2- by 4-ft work space exclusive of service sink. This work space, in conjunction with adequate aisles, permitted the utilization of each of the four walls for storage, demonstration or supplementary student work space. One laboratory size, satisfactory for all scientific disciplines, reduces or eliminates the need to change walls to accommodate a change in disciplines.

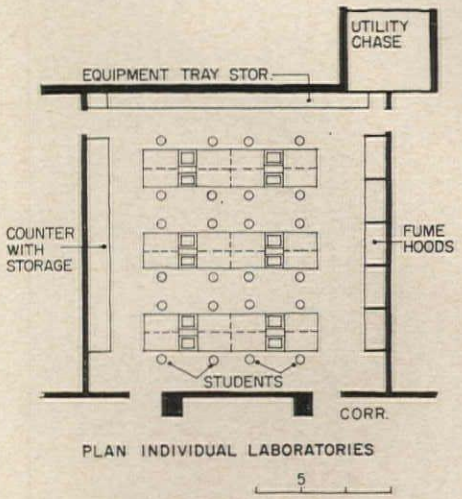
The floor structure consists of long-span joists. This removes columns from the interior of the laboratory rooms and permits utilities to emerge through the floor 2 ft 6 in. on center the entire length of the room.

An analysis of each of the disciplines indicated that four basic types of workbench plans would ful-

text continued on page 172

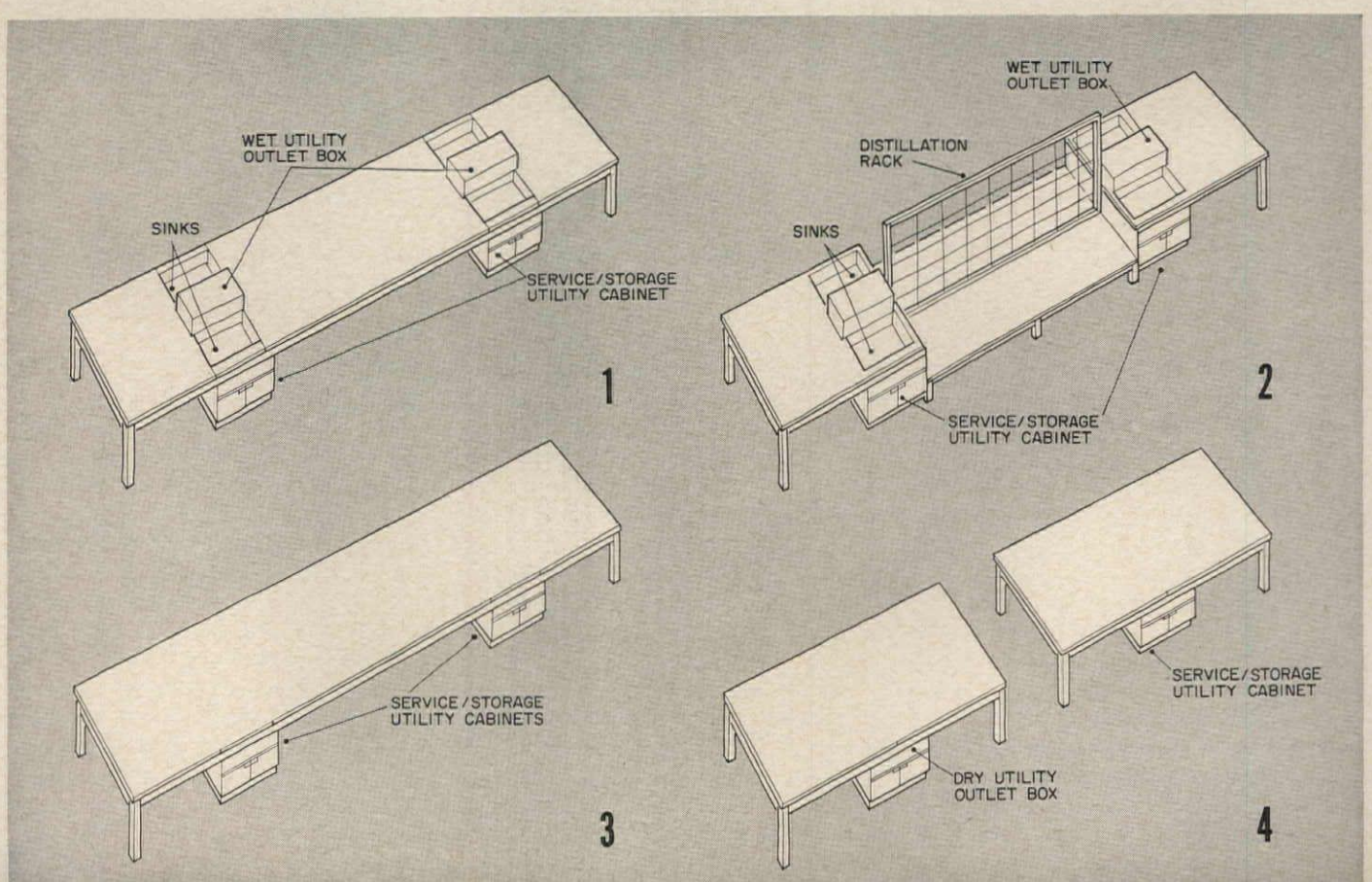


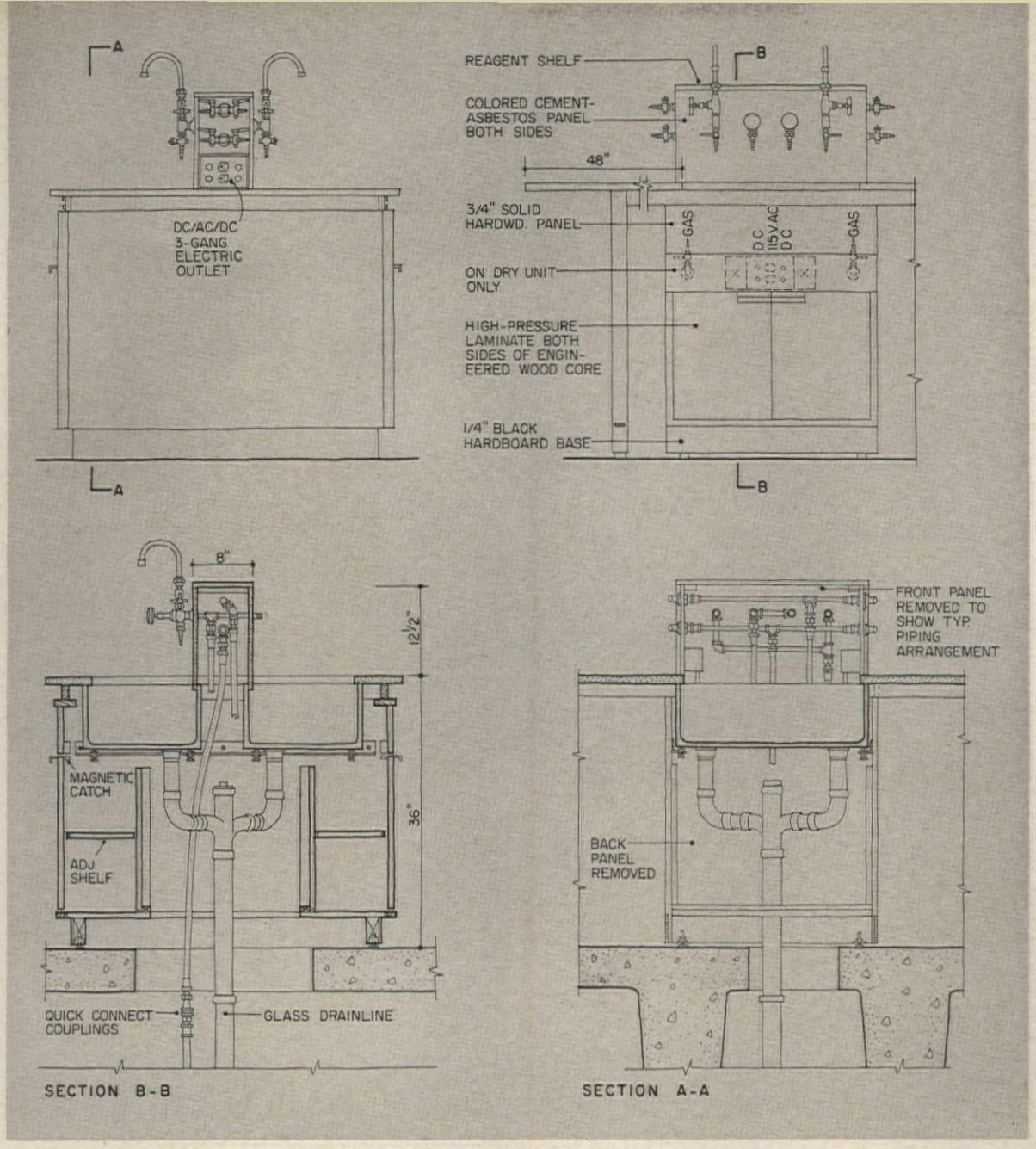
Vertical distribution of utilities is run in perimeter towers



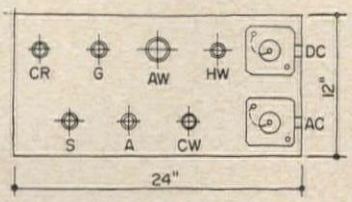
Three rows of lab benches provide 24 students with 2- by 4-ft work spaces

Left: To avoid need of various sizes of drawers at workbenches, students are provided with portable equipment containers stored in cabinets along the walls. *Below*: Four workbench arrangements show how components can be adapted to any of the science disciplines. Basic to all are the service/storage utility cabinets: (1) general chemistry; (2) organic and physical chemistry; (3) advanced physics (continuous work top); (4) biology, physics and zoology (center aisle aids supervision by laboratory instructor)

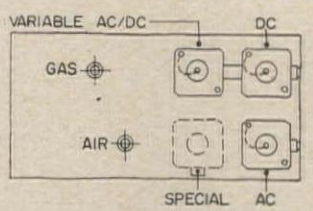




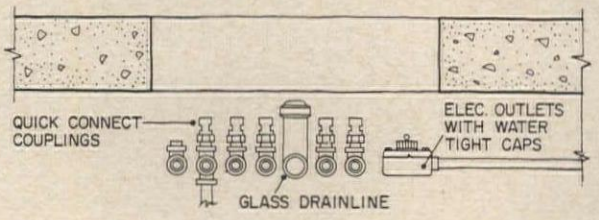
Above: Details of the center utility cabinet showing provisions for wet services. When this cabinet is a dry unit the wet utility box on top is removed and dry services are provided on the front of the unit as shown in dashed lines on the elevation. For the dry unit the sinks are covered. *Right*: Arrangement of services supplied to "wet" and "dry" center tables

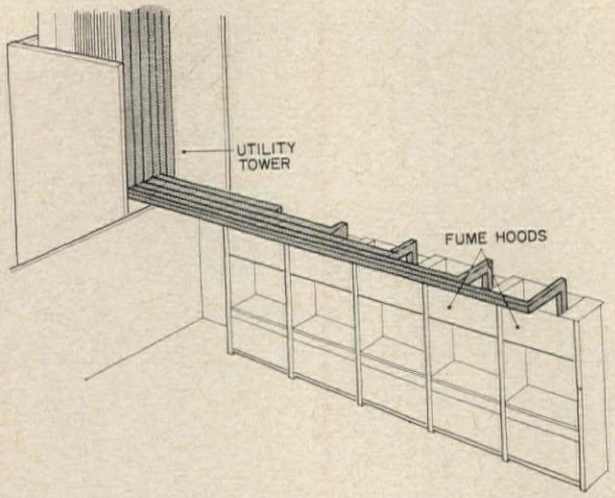


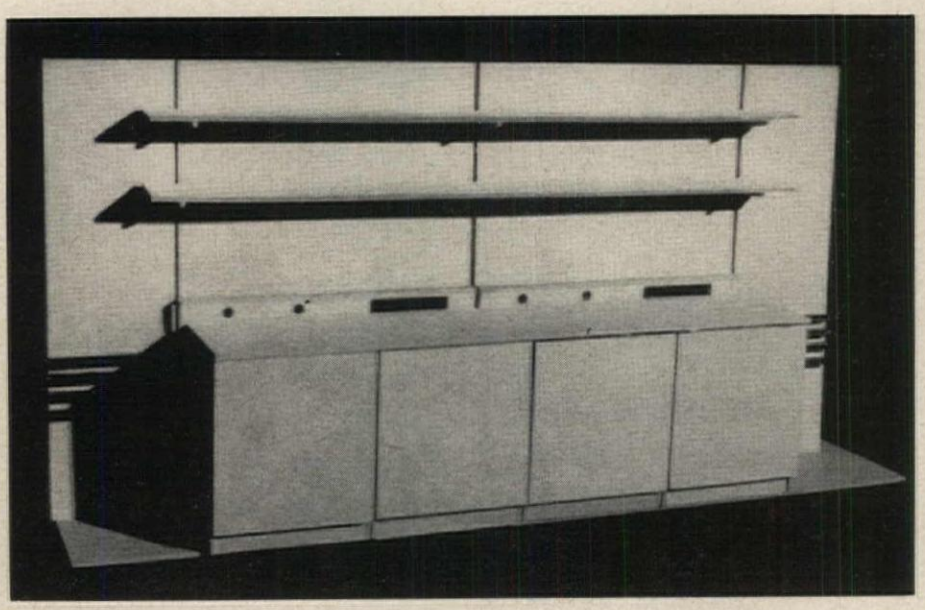
Center table wet services



Center table dry services







fill all science requirements. It was determined that three rows of benches, with two utility supply openings each, would provide each student and each discipline with direct and immediate utility access.

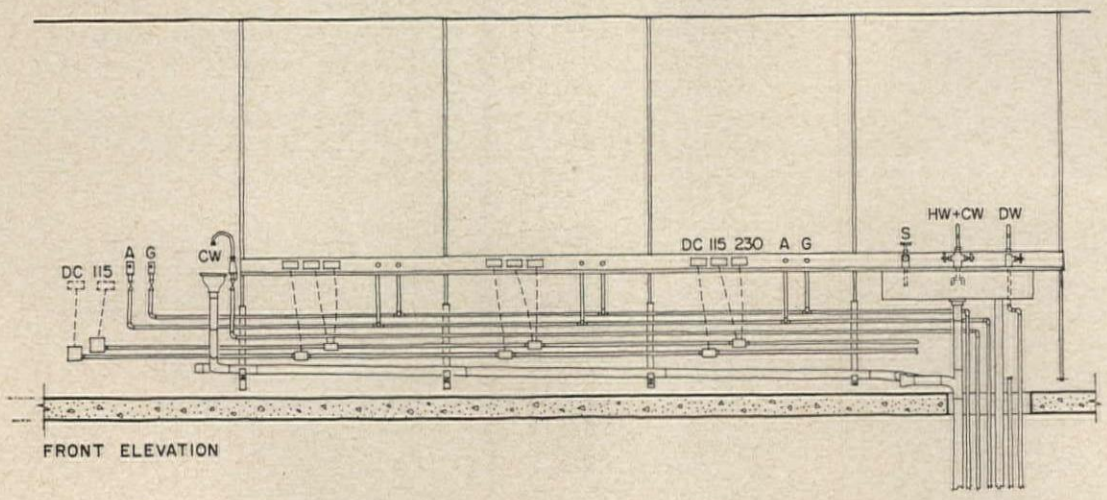
Floor openings will be of sufficient size to accommodate dry and wet utilities with all connections concealed within the utility cabinet. This cabinet, large enough to conceal the floor opening, would include an optional sink and control panels for all utilities. The utility cabinet location is intended to remain in a constant location in each of the four laboratory bench variations, but can, of course, be relocated if necessary.

The research leading to the development of the laboratory furniture was supported, in part, by funds from the Educational Facilities Laboratories, Inc.

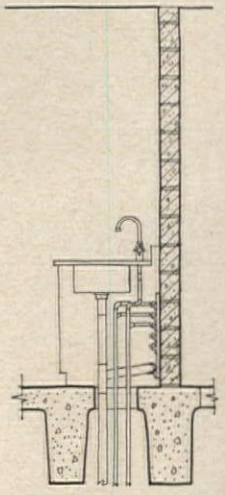
Patent procedures covering the equipment have been initiated by Southern Illinois University.

Left, above: As many as five fume hoods can be grouped along one wall of the laboratory with exhaust to the tower

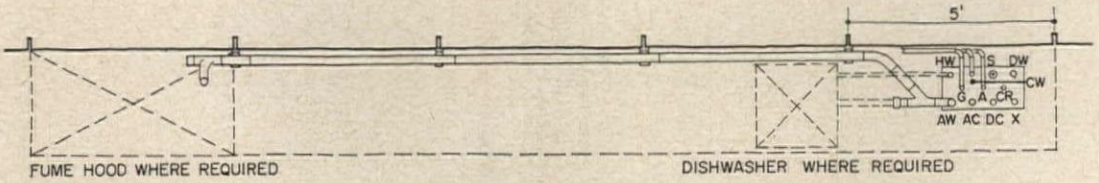
Left and below: Walls separating laboratories have steel struts to support partitioning material and utilities. Cabinets with a work top are shoved against the wall but not attached



FRONT ELEVATION



VERTICAL SECTION



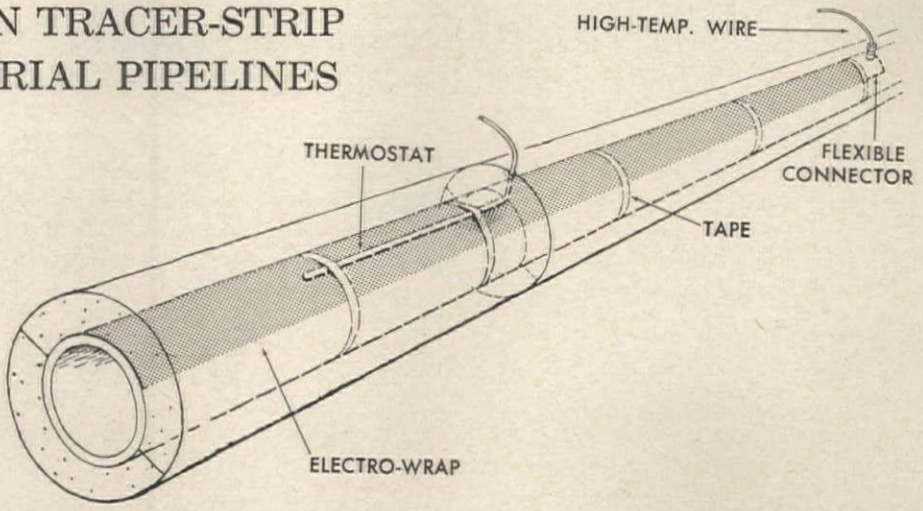
FUME HOOD WHERE REQUIRED

DISHWASHER WHERE REQUIRED

PLAN NEAR FLOOR

For more information circle selected item numbers on Readers Service Inquiry Card, pages 195-196

ELECTRIC CURRENT IN TRACER-STRIP FOR HEATING INDUSTRIAL PIPELINES



A new way of heating industrial pipelines utilizes a heavy-duty electrical tracer-strip called *Electro-Wrap*. Heating current is carried by a rugged silica-graphite layer inside two layers of flexible glass asbestos fiber. The sheet is insulated with Allied Chemical's *Aclar* plastic film to give a 300 deg F continuous rating. *Aclar* will not react with most chemicals, with the exceptions of alkali metals and organic amines.

Heat output is spread evenly over the wide surface. Low heat density of 1 w per sq in. eliminates cooking or spoilage due to hot-spots or overheating. It operates on 115 v, a-c or d-c. Heating current flows across *Electro-Wrap*, so no splicing is required. The strip is applied lengthwise on the pipe, not spiraled. Installation is simple.

Each 100 ft of pipe length requires its own circuit with thermostat. A flexible connector of DuPont's *Teflon* and aluminum (or stainless steel) and amp terminals are available from the manufacturer. Thermostat bulb is taped to top of strip, and standard insulation is used. *Electro-Trace Corp., Nash Bldg., 285 Riverside Ave., Westport, Conn.*

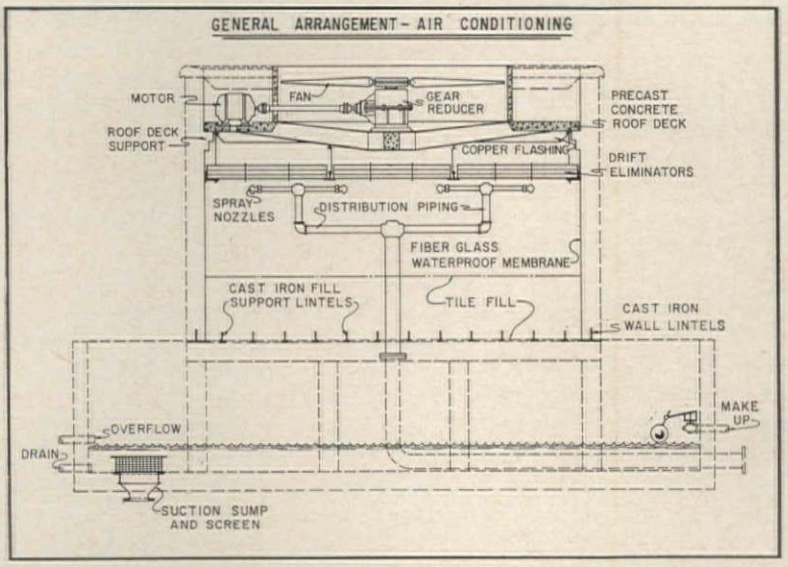
CIRCLE 300 ON INQUIRY CARD

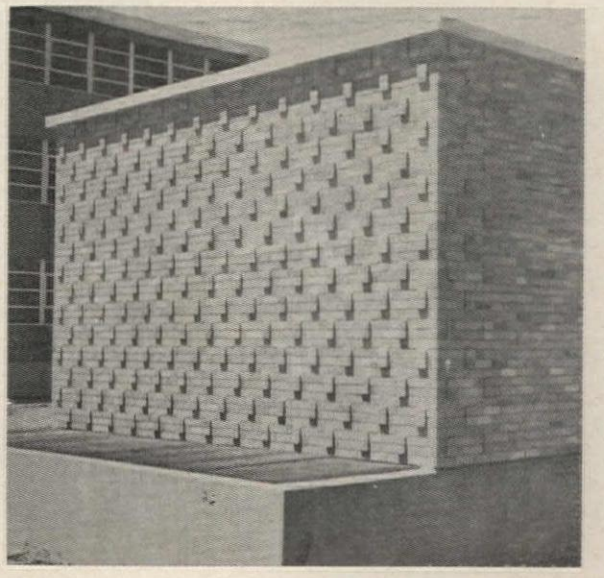
COOLING TOWERS WITH TILE FILL CAN HAVE ANY FACADE

A high degree of design freedom for large buildings is provided by *Ceramic Cooling Towers* which leave structural and facade features up to the architect. The interior fill is chemically inert *Perma-Grid* vitrified clay tile which does not deteriorate. A membrane of polyester resin reinforced with glass fiber sheets is securely anchored to interior walls, to prevent seepage to exterior walls. Reinforced glass fiber eliminators stop water carry-over and allow installation anywhere. Thus the cooling tower can be put near parking areas or can be an integral part of the building itself. *Acme Brick Co., Ceramic Cooling Tower Division, P.O. Box 425, Fort Worth, Tex.*

CIRCLE 301 ON INQUIRY CARD

more products on page 176





Office Literature

For more information circle selected item numbers on Readers Service Inquiry Card, pages 195-196

VENTILATING PRODUCTS

(A.I.A. 39-B) Two six-page folders give details and specifications for *Lo-Tone* mineral acoustical ventilating tile and ceiling board and *Lo-Tone F/R* (fire-rated) tile and board. *Wood Conversion Co., First National Bank Bldg., St. Paul 1, Minn.**

CIRCLE 400 ON INQUIRY CARD

CERAMIC TILE

"New Handbook for Ceramic Tile Installation" is designed to give architects and specification writers a summary of the latest methods of ceramic tile installation. *Tile Council of America, Inc., 800 Second Ave., New York 17, N.Y.**

CIRCLE 401 ON INQUIRY CARD

COLD STORAGE DOORS

Separate booklets give details on electric horizontal sliding doors for coolers and freezers. One discusses bi-parting doors; the other, single leaf doors. *Jamison Cold Storage Co., Hagerstown, Md.**

CIRCLE 402 ON INQUIRY CARD

LIGHTING FIXTURES

Lighting fixtures are described and illustrated in 16-page booklet. Included are renderings showing suggested uses in restaurants, air terminals, office buildings, museums and hospitals. *Sunbeam Lighting Co., 777 E. 14th Place, Los Angeles 21, Calif.**

CIRCLE 403 ON INQUIRY CARD

KITCHEN VENTILATORS

(A.I.A. 35-C-11) Commercial kitchen ventilators are illustrated in eight-page booklet, which includes a quick sizing guide. *Farr Co., Box 90187, Airport Station, Los Angeles 9, Calif.*

CIRCLE 404 ON INQUIRY CARD

EPOXY COATING

Data sheets describe a catalyzed epoxy coating which offers good resistance to alkalies, acids, water and solvents. *David E. Long Corp., 133-20 91st Ave., Jamaica 18, N.Y.*

CIRCLE 405 ON INQUIRY CARD

WINDOWS, CURTAINWALLS

Information about curtainwall systems, aluminum windows and steel windows is given in three booklets. Each booklet has product and installation pictures, as well as detail drawings, design data and specifications. *Ceco Steel Products Corp., 5601 W. 26th St., Chicago 50, Ill.**

CIRCLE 406 ON INQUIRY CARD

"CLEAN ROOM" PANELS

Folder gives information on *Superlite* panels with a baked-on melamine surface for "clean room" walls and ceilings. *Superior Wall Products Co., 4401 N. American St., Philadelphia 40, Pa.*

CIRCLE 407 ON INQUIRY CARD

OFFICE INTERIORS

Photographs of Lehigh furniture used in recent office buildings illustrate a 16-page booklet. A price and specification list is included. *Lehigh Furniture Corp., 16 E. 53d St., New York 22, N.Y.*

CIRCLE 408 ON INQUIRY CARD

WINDOW IDEAS

Full-color installation pictures of various *Pella* wood residential windows are shown in a 24-page booklet. Specification details are included. *Rolscreen Co., Pella, Iowa.**

CIRCLE 409 ON INQUIRY CARD

CONCRETE COMPOUNDS

Data charts for concrete admixtures, quick-sets, sealants and surface treatments are given in 12-page illustrated brochure. *Sika Chemical Corp., 35 Gregory Ave., Passaic, N.J.**

CIRCLE 410 ON INQUIRY CARD

METAL BUILDING DESIGN

The latest revision of the "Recommended Design Practices Manual" has 28 pages of engineering data useful in designing pre-engineered metal buildings. *Metal Building Manufacturers Assoc., 2130 Keith Bldg., Cleveland 15, Ohio*

CIRCLE 411 ON INQUIRY CARD

CHURCH LIGHTING

(A.I.A. 31-F-2) Ornamental and functional church lighting fixtures are described and illustrated in 68-page catalog. Price list is included. *Gruber Brothers, Inc., 90 S. First Street, Brooklyn 11, N.Y.*

CIRCLE 412 ON INQUIRY CARD

STEEL JOISTS

Two booklets give technical data on LA-, LS- and LH-Series longspan steel joists and J- and H-Series hot rolled and cold formed steel joists. Load tables, dimensions, properties, accessories and specifications are included. *Sheffield Div., Armco Steel Corp., Kansas City 25, Mo.**

CIRCLE 413 ON INQUIRY CARD

MONOLITHIC TERRAZZO

Engineering data on four types of monolithic terrazzo is given in data sheet. *The Camp Co., Inc., 9300 Sangamon St., Chicago 20, Ill.*

CIRCLE 414 ON INQUIRY CARD

NURSE CALL SYSTEMS

Two series of nurse call systems are described and illustrated in folder. *Notifier Corp., 3700 N. 56th St. Lincoln 4, Neb.**

CIRCLE 415 ON INQUIRY CARD

STEEL DOORS

Specifications guide for steel doors and frames show elevation drawings and available sizes. *Amweld Building Products, 100 Plant St., Niles, Ohio**

CIRCLE 416 ON INQUIRY CARD

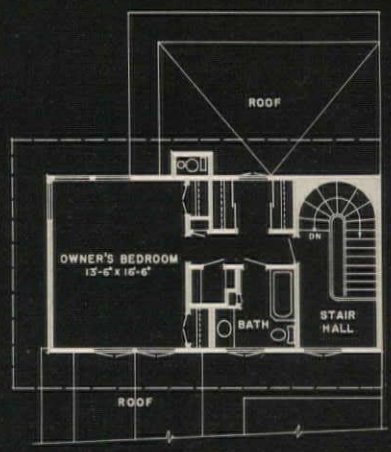
ARCHITECTURAL ALUMINUM

Booklet tells about a quality certification program for aluminum prime windows, sliding glass doors and curtain walls that will become effective Oct. 1, 1963. *Architectural Aluminum Manufacturers Assoc., 35 E. Wacker Dr., Chicago 1, Ill.*

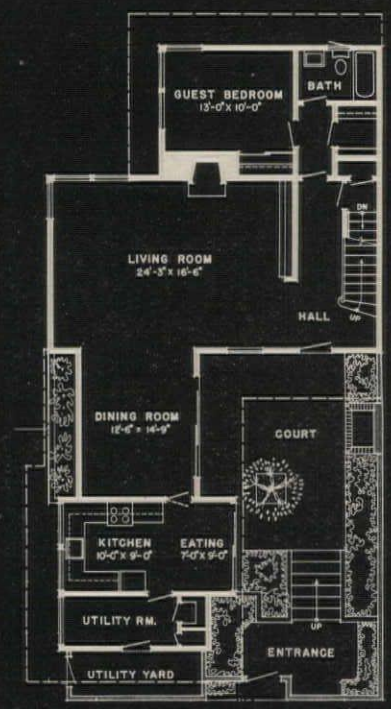
CIRCLE 417 ON INQUIRY CARD

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

more literature on page 216



SECOND FLOOR PLAN



MAIN FLOOR PLAN

Residence: San Francisco, California

Architects: Wurster, Bernardi & Emmons

Beauty comes naturally to Red Cedar Shingles

This is a versatile material, one that adapts itself to many moods. Warm color, interesting texture, strong line are only part of the value of Red Cedar Shingles. They're also rugged, long-lasting, maintenance free, and they offer good insulation. Best of all, Cedar Shingles age gracefully, gaining beauty and character with the years. For further information about specifications and application, write, wire or call: Red Cedar Shingle Bureau, 5510 White Building, Seattle 1, Washington. (In Canada: 550 Burrard Street, Vancouver 1, B.C.) **RED CEDAR SHINGLES**

Product Reports

continued from page 173

VINYL FLOOR COVERING

Vinylstep floor covering offers resistance to golfers' shoes spikes and high heels. It is also recommended for pool decks, locker rooms and patios because of its slip-resistant properties. *Kessler Products Co., Inc., 4521 Lake Park Road, Youngstown, Ohio*

CIRCLE 302 ON INQUIRY CARD

PORCELAIN ENAMEL CURTAIN WALL SYSTEM

Flexibility is a main feature of *Erveen* porcelain enamel wall system that has steel pilasters as well as steel panels so each panel is used as a structural member, eliminating horizontal mullions. Panels and sash are sealed to pilasters with extruded butyl sealants, and polysulfide sealants are used in all horizontal joints. *Erveen Corp., 4000 W. Ridge Rd., Erie, Pa.*

CIRCLE 303 ON INQUIRY CARD

LOUNGE SEATING

Scope-H furniture for reception, lobby and lounge seating gives flexibility and allows exact fitting to available space. Basic seating units com-

bine with drop-in and add-on chairs, benches and tables. *Harter Corp., Sturgis, Mich.*

CIRCLE 304 ON INQUIRY CARD

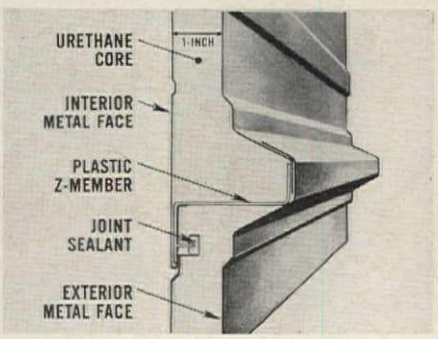
CENTRIFUGAL CHILLER

Sentry hermetic centrifugal liquid chiller, featuring complete factory assembly and factory running test, is offered in sizes from 125 to 600 nominal tons. Delivered completely charged and tested, the compact chiller requires only water and power connections to put into service. *Worthington Corp., Harrison, N.J.*

CIRCLE 305 ON INQUIRY CARD

BUILDING PANELS WITH URETHANE FOAM CORES

Butler F-103 building panels have a nominal thickness of 1 in. and a maximum thickness of 2½ in. Insulation is provided by poured-in-place polyurethane foam. Exterior faces are 26-gage galvanized steel with factory-applied finishes; interior faces

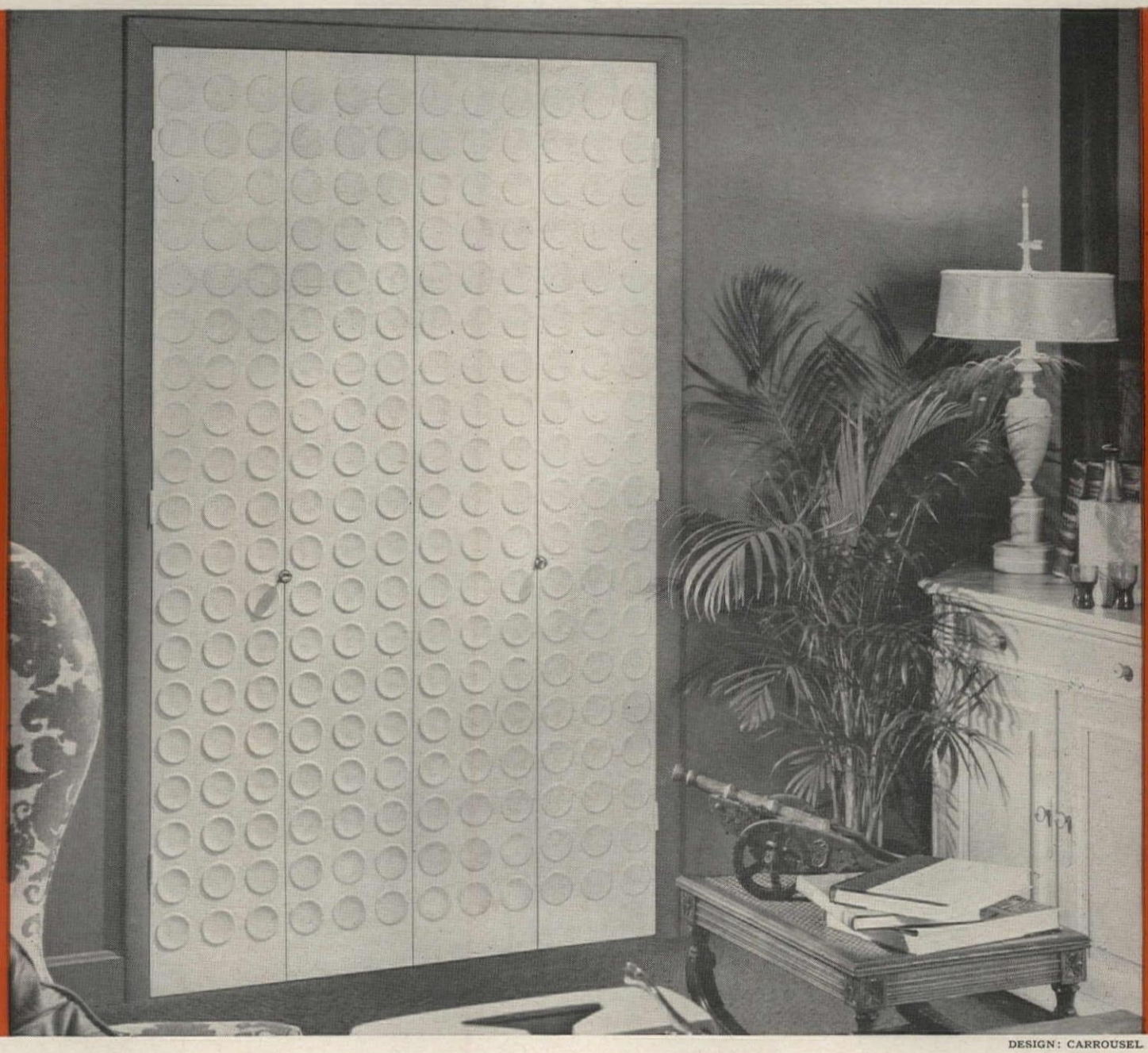


are 26-gage cold-rolled steel with factory-applied bone white finish. Plastic Z-members act as a thermal break between the faces. The panels are made in units 3 ft wide, up to 32 ft long. U-factor is .10. *Butler Mfg. Co., 7400 E. 13th St., Kansas City 26, Mo.*

CIRCLE 306 ON INQUIRY CARD

more products on page 180

LOOK WHA'S NEW N FOLD NG DOORS!



DESIGN: CARROUSEL

remarkable beauty, new economy of installation!
... a major breakthrough in closet door design.

NEW Homeshield PRE-HUNG FOLDING DOORS

Ideal for Apartments, Homes, Motels, Offices

Unlike any other folding doors . . . new Homeshield pre-hung folding doors achieve a striking focal point of interest in any decor . . . providing *broader scope, greater latitude* for developing interiors of higher interest and utility.

Four distinctive patterns available: Created from rigid, durable polymers artfully formed into four stunning designs.

Homeshield pre-hung folding doors can be installed in less than 10 minutes! They are pre-hung in a pre-finished aluminum frame, complete with all hardware in place. Delivered as one integral unit ready for immediate installation.

Quiet, positive operation: Specially designed, and patented spring hardware assures quiet operation, prevents sagging, holds doors in positive closed or open position. Enables doors to fold flat against wall for full access to closet opening.

25
ANNIVERSARY

HOMESHIELD® PRODUCTS for HOME and YARD

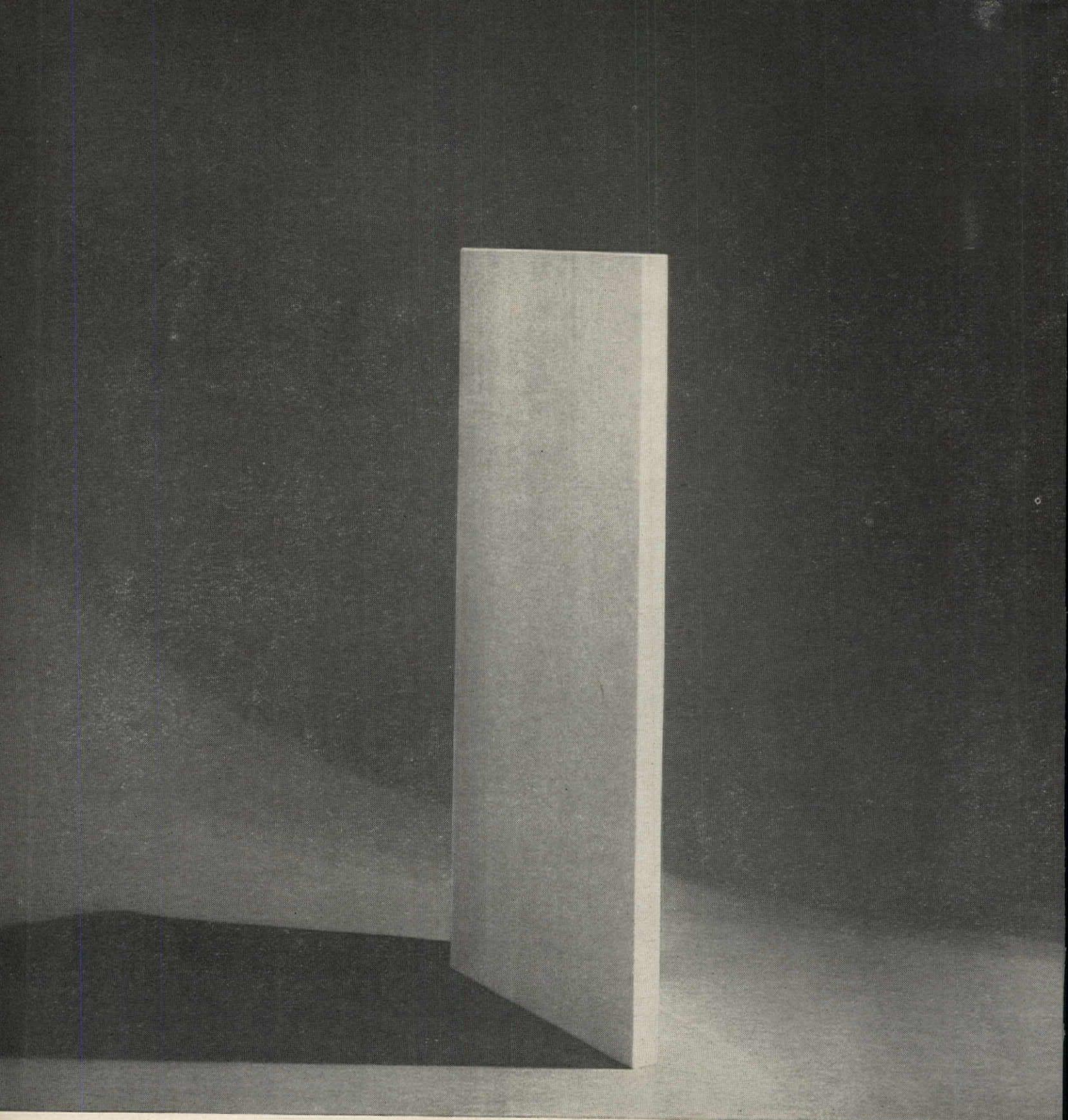
Doors have been fully tested and proved to withstand abuse, humidity and temperature extremes.*

No painting necessary: Oyster White matte finish can be left as is, or painted to match or contrast with walls.

Investigate the many advantages of these new pre-hung folding doors by HOMESHIELD today. Write for full specifications and details on four designed panels and sizes.

*(*Actual test report sent on request.*)*

AMERICAN SCREEN PRODUCTS COMPANY
Chatsworth, Illinois • Dept. AR-8



Roofmate FR is the most dependable insulation since Styrofoam®.

Like father, like son.

We extrude both from the same polystyrene, by the same exclusive process. Just like Styrofoam wall insulation, Roofmate® FR roof insulation stays dry permanently; keeps the insulating efficiency you specified. It also ends worries about roof blistering and cracking caused by waterlogged insulation.

Competitive in price as a material, Roofmate FR saves on installation: as much as one dollar a square! It's lightweight (less than 25 lbs. to the bundle) but tough. We give it a high-density skin top and bottom to take the beating a roof insulation gets. Roofmate FR is pleasant to handle; easy for roofers to fabricate, fit and install. Roofmate FR comes in thicknesses to meet standard "C" factor requirements. Want more data and specifications? Just see our insert in Sweet's Architectural File, or write us: The Dow Chemical Company, Plastics Sales Dept. 1001N8, Midland, Michigan.

DOW

For more data, circle 72 on Inquiry Card

Product Reports

continued from page 176

ATTIC ROOF VENTILATOR

An attic roof louver made of U.S. Rubber's *Royalite* thermoplastic is claimed to be almost indestructible. The ventilator nails in place without pilot holes, is not susceptible to bending or denting and is hail proof. *Home Comfort Products Co., Box 68, Princeville, Ill.*

CIRCLE 307 ON INQUIRY CARD

FINISH "FLAME-PROOFS" COTTON AND RAYON

A durable fire retardant for cotton and rayon fabrics is provided by Hooker's THPC. The chemical leaves the material pliable and survives cleaning for the life of the fabric. Material treated is rot- and mildew-resistant. Possible uses include tent and awning fabric, cloth window shades and drapery material. *Hooker Chemical Corp., Niagara Falls, N.Y.*

CIRCLE 308 ON INQUIRY CARD

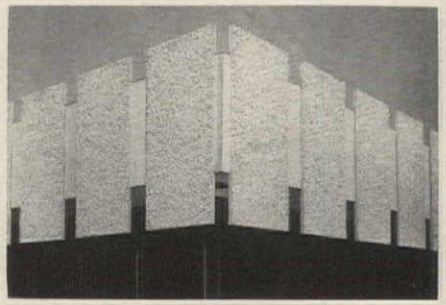
PLANTERS

Rectangular planters with a walnut and *Formica* finish are available in five sizes. All have galvanized iron liners which are coated on both sides with vinyl. Also available are four sizes of circular planters made of aluminum polished to a satin luster. *McDonald Products Corp., 261 Dukit Bldg., Buffalo 10, N.Y.*

CIRCLE 309 ON INQUIRY CARD

PRECAST AGGREGATE PANELS

Ar-Lite precast aggregate panels use natural aggregates imbedded in a copolymer thermosetting resin to produce a textured surface. Three types of panels are currently produced: facing panels, ⅝ to 1 in. thick; insulated panels, 2 to 4 in.



thick, using a foamed glass of polyurethane core; cast-in panels, ⅝ to 3 in. thick, with a cement asbestos back. *Architectural Research Corp., Ar-Lite Panel Div., Detroit 39, Mich.*

CIRCLE 310 ON INQUIRY CARD

MICROFILM FILING SYSTEM

Docuform miniaturized filing system permits more than 100 pages of standard-size documents to be stored and reproduced from each 5 by 8 in. film unit. Color-coded tabs permit speedy retrieval for viewing or reproduction on most microfilm reader-printer equipment. A *Docuform* filing cabinet about the size of a shoebox is said to be equivalent to 200 standard-size filing cabinets. *Documentation Inc., 4833 Rugby Ave., Bethesda, Md.*

CIRCLE 311 ON INQUIRY CARD

DUST-RESISTANT LIGHTING FIXTURES

A line of dust- and moisture-resistant lighting fixtures is mounted flat against the ceiling, with the entire lamp assembly protected by an acrylic enclosure and a positive seal gasket. *The Miller Co., Meriden, Conn.*

CIRCLE 312 ON INQUIRY CARD

more products on page 185

WHY CUT

SPECIFIED

OFF AT THE KNEES BY ADDING

"or equal"

Plant engineers have practical experience with the many products used in their plants. They have installed them; maintained them; cussed them; and blessed them. When ordering products for a new plant or plant expansion, they know exactly what they want.

Specifications coming out of plant engineering departments are always well written and very complete. A typical "spec" will provide all of the pertinent data on the coating. This will include the catalog number and name of the manufacturer. If they would stop at this point, life would be a lot easier for a lot of people. However, just to make sure everyone will be happy, some plant engineers add "or equal" to the specification.

Those two apparently peaceful words guarantee trouble. Many contractors interpret "or equal" to really mean "or cheaper" and submit their bids based on the use of inferior products. Even reputable contractors are forced to consider cheaper materials to stay in the bidding. Distributors and manufacturers are also caught in this squeeze with insistent demands for cheaper materials that only look something like the item specified.

Adding "or equal" is a fine and noble gesture. It proves you have good intentions and an open mind. However, in practice it leads to emphasis on cheaper materials and low priced jobs. It is high time we took a hard look at "or equal" and cut it out of American engineering language.

When you write your next specification, instead of "or equal" try "NO SUBSTITUTIONS." Your bids will be more realistic and you will have less trouble now and in the future. When you specify a product based on past experience, stick to it. After all, you will have to live with it for a long time.

Does a firm specification restrict competition? It sure does. It protects the manufacturer building a quality product. Without this protection, sales will be lost unless he is willing to lower the quality of his product. Should you restrict competition? You bet your life you should. You can force the supplier of inferior products to make improvements to meet your needs. This is certainly more constructive than forcing quality products to lower standards.

If you want long life, reliable operation, and lowest over-all cost . . . find the best product, specify it, and allow "NO SUBSTITUTIONS."

—*Adapted in part from* PLANT ENGINEERING, DECEMBER, 1962

P.S. Rust-Oleum emphatically endorses the above editorial and its philosophy. We know that there is no substitute for Rust-Oleum. We take pride in being the industry leader in rust preventive coatings with over 40 years of industry proof! Why "or equal" when there is only **one** Rust-Oleum?

There is only **one** Rust-Oleum.

Distinctive as your own fingerprint.

ATTACH TO YOUR LETTERHEAD

Rust-Oleum Corporation
2506 Oakton Street—Evanston, Illinois

Gentlemen: At no cost or obligation, please send me the following:

- ☐ 24-Page "Long Life Facts" Brochure.
- ☐ 38-Page New Color Horizons Catalog.
- ☐ Specification Charts for Coating Structural Steel and Steel Components.
- ☐ 40-Page "101 Rust-Stopping Tips" Booklet.

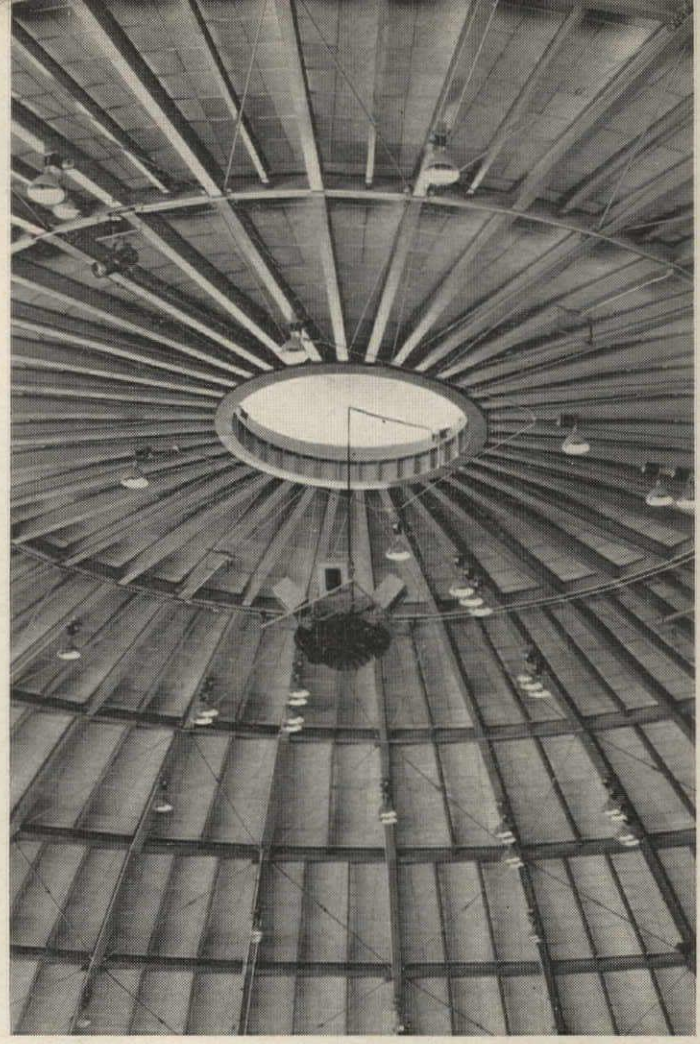
For more data, circle 74 on Inquiry Card

some feats are impossible without steel

Steel has the most favorable strength-weight-cost combination of any building material. Because of its strength, flexibility of fabrication methods, and wide range of available structural shapes, steel makes possible esthetic and space-saving achievements unattainable with other materials. Steel can be designed as a beam, rigid frame, continuously, compositely, plastically, orthotropically. Steel can be erected in any season, can be handled more roughly than other material. Because there are so many grades of structural steel of varying strength levels, it is never necessary to over-design.

Only steel columns could bear the load. The 30-story Michigan Consolidated Gas Company Building in Detroit is the world's tallest all-welded building for a reason: integrated architectural design prohibited use of columns larger than 2 ft., 4 inches square. Reinforced concrete columns that size couldn't carry the required 6½ million pounds. Connections were welded to eliminate bulkiness and achieve smooth right angles between beams and columns. Heavy columns for lower stories are four plates welded into a rectangular box section. Where extra strength was needed a fifth interior plate was added. Lighter upper columns are regular rolled sections. The field-welded wind-resisting system contains the equivalent of 40 miles of 5/16-inch fillet welds. American Bridge Division fabricated and erected 5,700 tons of steel, inspected welds by radiographic and dry powder magnetic particle techniques. Architects: Minoru Yamasaki–Smith, Hinchman & Grylls, Associated Architects & Engineers. Contractor: Bryant & Detwiler Co.

Steel dome saves Syracuse University $193,500. Fabricated and erected by American Bridge, the low-profile dome of the Syracuse University field house has a rise of only 32 ft. and a diameter of 300 ft. Because there are no interior supports, all of the 80,000-sq.-ft. floor is usable. Seating capacity is over 4,000 with room enough for basketball, track and field meets, or a 70-yd. football practice field. There are over 700 tons of structural steel in the dome and canopy. In a competitive bid with the alternate concrete design, steel saved $193,500. Architect: King and King. Engineer: Eckerlin and Kleper. Contractor: R. A. Culotti Construction Company.



High-rise truss walls—now possible with unique design and the "combination of steels." Through a new building design concept using four different steels of varying strengths, designers trimmed 200 tons of steel (and saved $300,000) from the skeleton of Pittsburgh's IBM Building, first high-rise building with truss walls. External framework is a diagonal, criss-crossing truss system. Only interior vertical supports are the six columns of the central service core. Outer truss walls direct all wind, wall and most floor loads down to two ground contacts on each side of the building. Using different strength steels (from 33,000 to 100,000 psi) engineers accommodated stress levels much as bridge designers have done in the past. This principle also kept truss members a near-uniform size from top to bottom regardless of stresses, and permitted American Bridge use of time-saving modular fabrication and erection.

Truss walls form the facade, eliminating spandrels and independent curtain wall system. Diagonals were fireproofed with asbestos plaster and sheathed in 22-gauge stainless steel. Architect: Curtis and Davis Associates. Engineer: Worthington, Skilling, Helle & Jackson. Contractor: George A. Fuller Company.

General Offices: 525 William Penn Place, Pittsburgh, Pa. Contracting Offices in: Ambridge • Atlanta • Baltimore • Birmingham • Boston • Chicago • Cincinnati Cleveland • Dallas • Denver • Detroit Elmira • Gary • Harrisburg, Pa. • Houston Los Angeles • Memphis • Minneapolis New York • Orange, Texas • Philadelphia Pittsburgh • Portland, Ore. • Roanoke St. Louis • San Francisco • United States Steel Export Company, New York

American Bridge Division of United States Steel

USS TRADEMARK

For more data, circle 75 on Inquiry Card

UNITED CALIFORNIA BANK BUILDING, WILSHIRE BLVD., at Camden Drive, Beverly Hills, California

FIVE HAUGHTON ELEVATORS HELP FULFILL A CREED..."Building as it Should Be"

This exciting new building of glass and marble is the largest in Beverly Hills ...and the eleventh major office building to be built by the Kreedman organization. Its superb blending of functional beauty, comfort and convenience clearly expresses the Kreedman creed—"building as it should be." For example: Five Haughton elevators under fully-automated electronic control answer calls with uncanny speed and efficiency. ■ A new, advanced-design computer created by Haughton Elevonics* constantly monitors traffic demand, and responds instantly to match elevator service with the need. Include Haughton elevators in your plans for building or modernization. ■ Ask your Haughton sales office (listed in the Yellow Pages) for details, or write to us. Haughton Elevator Company, Division of Toledo Scale Corporation, Toledo 9, Ohio.

S. Jon Kreedman & Co., Beverly Hills, Calif., an investment building firm. Owner—Builder ■ Charles Luckman Associates, Architects, Los Angeles, Calif.

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. Reg. in U. S. Patent Office.

Product Reports

continued from page 180

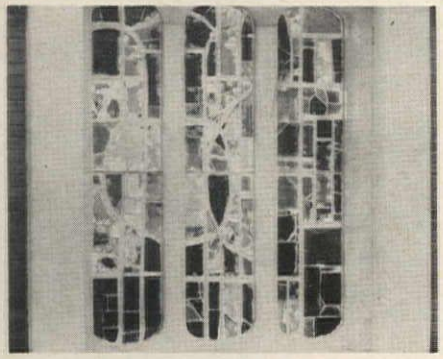
HOME SWIMMING POOL WITH SANDWICH PANELS

A below-ground swimming pool, 16 by 32 ft, has two-inch thick aluminum sandwich panels which serve as insulation from ground frost. The panels have two sheets of Alcoa aluminum with a core of Koppers' expanded polystyrene. The pool, with filtration system and vinyl liner costs $2,000. *Trojan Pools, Inc., Troy, N.Y.*

CIRCLE 313 ON INQUIRY CARD

EPOXY MATRIX FOR FACETED SLAB GLASS

A matrix based on Union Carbide's *Bakelite* epoxy resins is used for windows of faceted slab glass, consisting of small chunks of hand-



chipped colored glass arranged in a pattern. The slab glass setting compound is strong and adheres well to glass. The compound can be made in different colors and textures. *Benesco Co., 3326 S. 7th St., St. Louis 18, Mo.*

CIRCLE 314 ON INQUIRY CARD

FUME HOOD

A fume hood 70 in. wide is designed with a double hung sash that eliminates a centerpost. The hood has a working surface 30 in. deep, double-strength safety glass and a top blower enclosure. *Browne-Morse Co., Muskegon, Mich.*

CIRCLE 315 ON INQUIRY CARD

ROOFING, FLOORING IS SPRAY-APPLIED

Urapol 823A is a two-component urethane elastomer for roofing and flooring which can be sprayed in any thickness over wood, metal, asphalt and concrete surfaces. The resilient material also provides a seamless surface that will bridge concrete cracks. *Poly Resins, Sun Valley, Calif.*

CIRCLE 316 ON INQUIRY CARD

more products on page 204

← For more data, circle 76 on Inquiry Card

For more data, circle 77 on Inquiry Card

INDIVIDUAL ROOM

Seasonmaker®

AIR CONDITIONING UNITS FOR

Whisper quiet but loud in performance describes McQuay's individual room Seasonmaker air conditioning units, designed to best meet every conceivable requirement. These are the air conditioners so quiet you never know they're in the room—except for their good looks and the year-around comfort they afford. Along with this whisper quiet operation, though, the Seasonmaker line fairly shouts performance—lasting performance that has become synonymous with the name McQuay.

When you choose Seasonmaker, you get all the plus benefits of McQuay's many years of engineering and production know-how with fan coil air conditioning equipment—all designed to deliver full rated capacity. You also get the extra high efficiency of famous rippled fin Hi-F coils, in the biggest selection of styles and sizes ever available. Seasonmakers give you greater economy, too, not only at the time of purchase but the greater economy of installation and operation as well. To top it all off, you get the largest unit selection—five basic lines, 13 models, a total of 63 sizes—which means you choose, without compromise, the Seasonmaker exactly right for your requirements. The Seasonmaker lines are—

Thin-Line Seasonmakers—Real space savers, Thin-Line Seasonmakers feature ultra-thin design (only 8½ inches) and a full range of models for complete installation flexibility. Floor and basic models are available each in seven sizes—220 to 1240 cfm; ceiling and hideaway models are supplied each in five sizes, 220 to 640 cfm. All models are equipped with three-speed fan control.

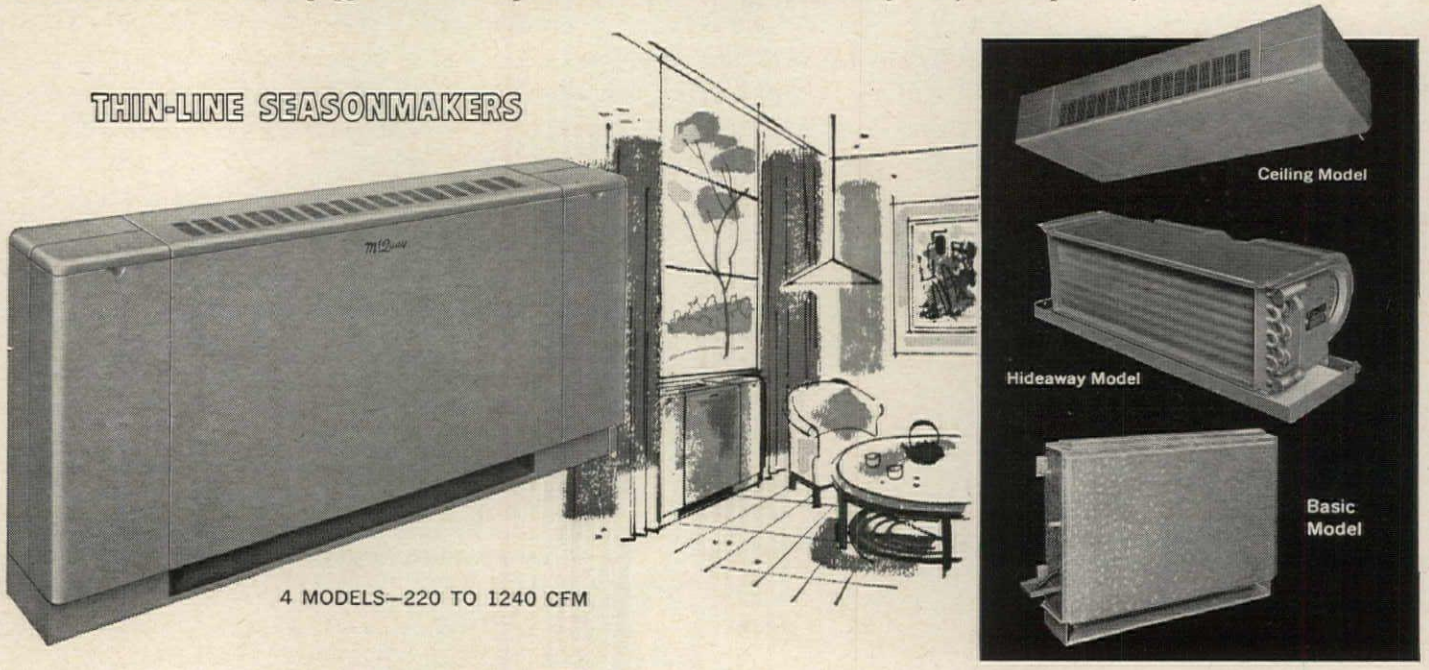
Lo-Line Seasonmakers—Designed to offer a low-silhouette and maximum versatility in modern building design, the compactly built Lo-Line Seasonmakers are available in free standing, flush wall, and concealed models each in six sizes from 200 to 1200 cfm, with tandem installation offering greater capacity. Three-speed motor control is featured on all models.

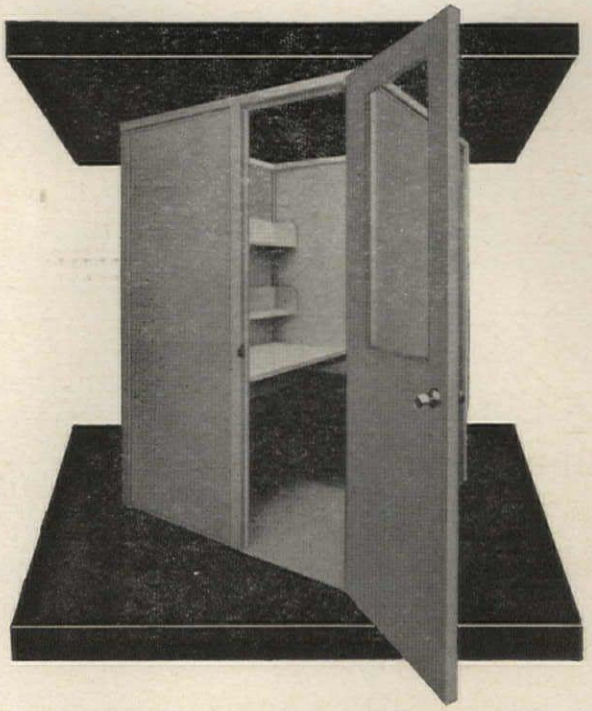
Wall-Line Seasonmakers—The Wall-Line Seasonmaker, popularly known as the Seasonmaker Junior, is available in recessed and free standing models each in two sizes—150 and 300 cfm. A rheostat-type slide bar control permits modulation of air volume from 50 to 100 per cent capacity.

Apartment Seasonmakers—The Apartment Seasonmaker is a single, compact unit designed to silently condition an entire multi-room apartment. Direct drive, vertical models are available in sizes of 800, 1200, 1600, and 2000 cfm with five step speed control.

Large Capacity Seasonmakers—Large Capacity Seasonmakers are heavy-duty units designed for ceiling or hideaway installation. The belt driven ceiling model is available in five sizes—500 to 3200 cfm; direct drive ceiling and hideaway models are available in four sizes—800 to 2,000 cfm.

Your McQuay representative, with complete information on all the Seasonmaker models, will be happy to help in your selection of the units best suited to your needs. Or write McQuay, Inc., 1605 Broadway N.E., Minneapolis 13, Minnesota.





Hideaway For Study—This Overly carrel at the University of Southern Illinois, Carbondale, Illinois, gives the student an uncluttered, private world in which to do research and general study. Crafted in enamel-coated steel, it will resist the wear and tear of endless years.

This is an Overly enclosure. The one shown above, and 94 others like it, are installed in a university library to provide private study areas for students doing research. They are known in use as carrels. Overly encloses all manner of things. Our telephone booths offer attractive cubicles that permit you to carry on normal conversations in the noisiest areas. Other Overly enclosures provide acoustical chambers for audiometric testing, industrial control booths, test vehicles, engines, turbines and noisy apparatus of all types. They are known by many names.

- METAL ENCLOSURES FROM OVERLY

Researchers in science and industry use Overly enclosures for environmental test chambers to carry on bacteriological testing. Our "clean rooms" provide controlled atmospheres that are completely dust-free. Overly convector enclosures quietly control and direct the flow of heated or chilled air in office buildings. We fabricate all types of enclosures that silently perform their designed function. Specify Overly for enclosing people, space, sound, engines or controlled environments.

Overly

Greensburg, Pennsylvania

For more data, circle 94 on Inquiry Card

Office Literature

continued from page 174

CONTRACT FURNITURE

Beds, desks, chairs, tables and chests for nursing homes, dormitories and motels are illustrated in eight-page booklet. Both free-standing and built-in models are available. *Carrom Industries, Ludington, Mich.*

CIRCLE 418 ON INQUIRY CARD

PREPAINTED METAL STRIP

Six-page folder gives details on *Colorstrip* prepainted metal strip—galvanized and cold rolled steel and aluminum up to 52 in. wide and .62 in. thick. *Marwais Steel Co., 6466 Gayhart St., Los Angeles 22, Calif.*

CIRCLE 419 ON INQUIRY CARD

AIR CONDITIONER

Bulletin 3230 describes the American-Standard *Remotaire Type 41* through-the-wall terminal air conditioner. *American-Standard Industrial Div., Detroit 32, Mich.*

CIRCLE 420 ON INQUIRY CARD

FIRE-RESISTANT PLASTER

(A.I.A. 21-C-1) Fire resistant, insulating and high sound absorption qualities of *Vonco* plaster are given in folder. *Vonco Corp., Inc., Box 423, Iola, Kan.*

CIRCLE 421 ON INQUIRY CARD

COOLING TOWERS

Brochure lists engineering data and capacities for *Series HC* cooling towers with nominal capacities from 100 to 600 tons. *Marley Co., 222 W. Gregory, Kansas City, Mo.**

CIRCLE 422 ON INQUIRY CARD

ELECTRIC HEATERS

Packaged electric supplemental duct heaters for use with heat pumps, air conditioners, electric furnaces and forced air systems are described in a 24-page loose leaf handbook. Included are performance data, dimensions, wiring diagrams and installation instructions. *H. W. Tuttle & Co., 808 Evans St., Tecumseh, Mich.*

CIRCLE 423 ON INQUIRY CARD

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

more literature on page 224

PROVED IN USE ON CHICAGO'S "MAGNIFICENT MILE"...

VERMARCO®

PANEL WALLS

Architects: C. F. Murphy Associates

The Blair Building is a striking addition to Chicago's North Michigan Boulevard. Spandrels faced in Vermarco Verde Antique® Marble provide the distinctive feature of this building.

Only 2" thick overall, these panels are made from an insulated core which is sandwiched between two asbestos cement sheets, then bonded to the marble slab. The unit is held in an aluminum frame by a vinyl weather-stop/expansion seal.

These space-saving walls have proved their utility through Chicago's summer heat and winter winds. And the beauty of this care-free Vermarco Marble will last the life of the building.

MARKWA®

MARKWA *thin* MARBLE TILE

As displayed at the Owens-Corning Fiberglas Center, New York City, in a Jane Ashley, A.I.D., interior. MARKWA is available in 15 colors, all ½" thick, high gloss or satin finish, 8" x 8", 8" x 12" and 12" x 12" size tiles, with matching trim, caps and corners.

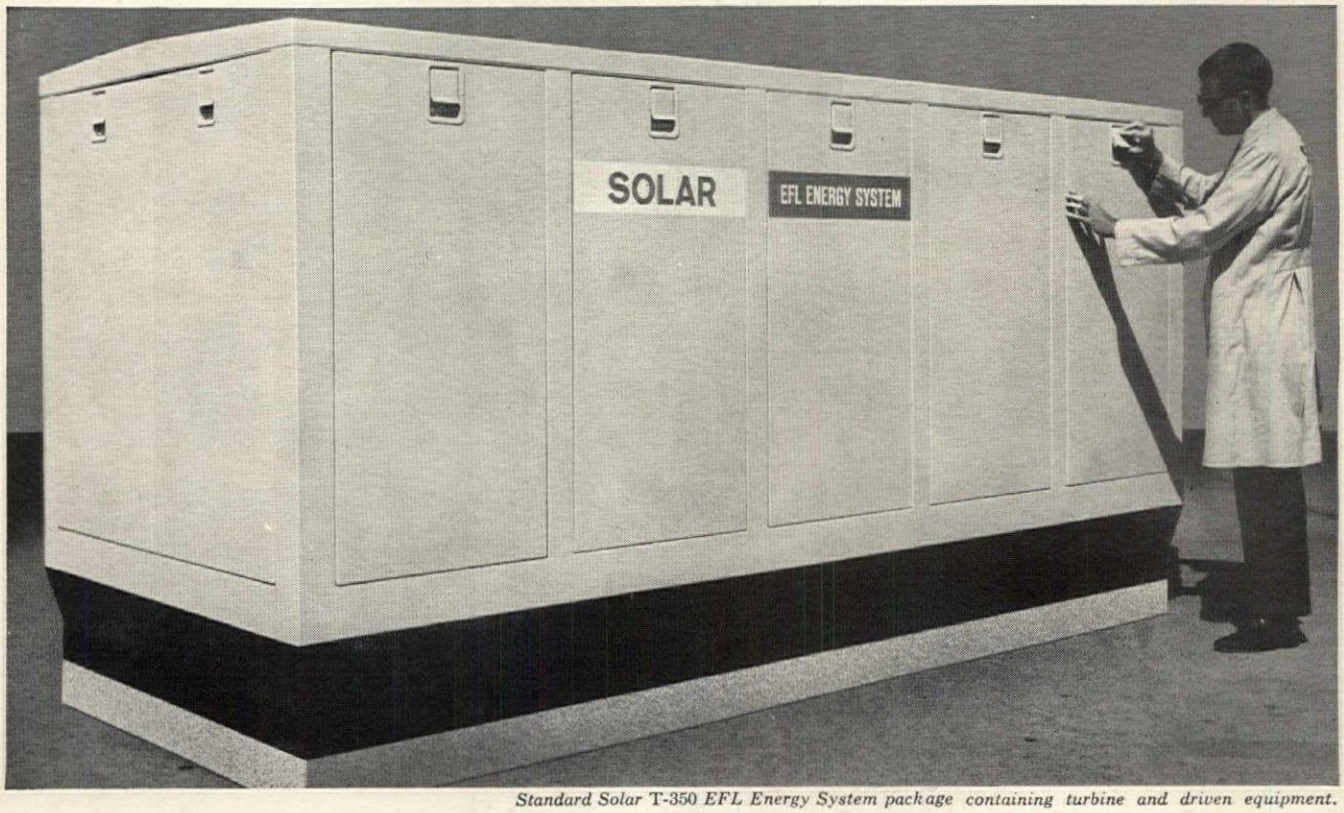
VERMARCO®

VERMONT MARBLE CO.

PROCTOR VERMONT

World's Leading Producer and Fabricator of Domestic and Foreign Marble for Every Exterior and Interior Application.

SALES OFFICES: BOSTON, CHICAGO, CLEVELAND, DALLAS, DETROIT: DETROIT MARBLE CO., HOUSTON, KNOXVILLE: GRAY KNOX MARBLE CO., PHILADELPHIA, LOS ANGELES, NEW YORK, SAN FRANCISCO, WASHINGTON, D.C. • **IN CANADA:** ONTARIO MARBLE COMPANY, LIMITED, TORONTO AND PETERBOROUGH, ONTARIO.



Standard Solar T-350 EFL Energy System package containing turbine and driven equipment.

Pipe coating process to make direct use of turbine exhaust from Solar EFL Energy System

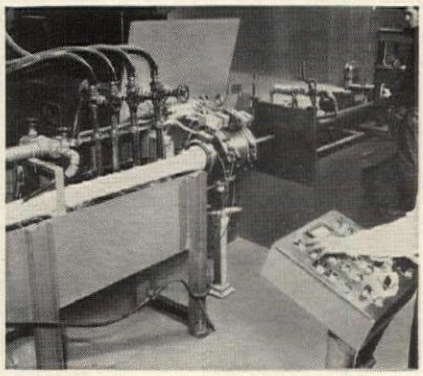
Standard Pipeprotection, Inc. will install two Solar *T-350* EFL Energy System Packages at its new plant in Houston, Texas. The turbines will drive 60 cycle, 200 kw generators that will supply electrical power used in the plant. The most newsworthy feature of this installation, however, is that the exhaust heat from the turbines will be used directly without any processing in the plant's pipe drying operations.

This is possible because the exhaust of Solar gas turbine engines supplies large quantities of clean, dry air heated to as much as 1000F. The new plant will provide plastic coatings for steel pipe used in underground installations. Coatings are applied to prevent external corrosion of the metal underground.

Heat from Solar gas turbines can be used directly without processing as will be done at Standard Pipeprotection, or it can be recovered in exhaust heat boilers. When converted to steam, it can be used for heating, absorption air conditioning or in numerous industrial processes. These systems using both the shaft horsepower and the exhaust heat of a Solar gas turbine engine are known as EFL Energy Systems. They reach thermal efficiencies of over 70% in a variety of commercial, industrial and marine applications, resulting in savings over competitive power almost anywhere in the United States.

Heart of Solar's standard 300 hp EFL Energy System being used in this application is the new *T-350* gas turbine engine which has been designed specifically for heavy duty industrial service. The turbine and the driven equipment are mounted in a standardized enclosure. Single or multiple units can meet virtually any load. New *T-350* EFL packages are also being installed by Washington Natural Gas Company, Lone Star Gas Company and Northern Natural Gas Company. Solar already has several EFL Energy Systems installed and in regular use in the 1100 hp, 800 kw range, using the Solar *Saturn* turbine.

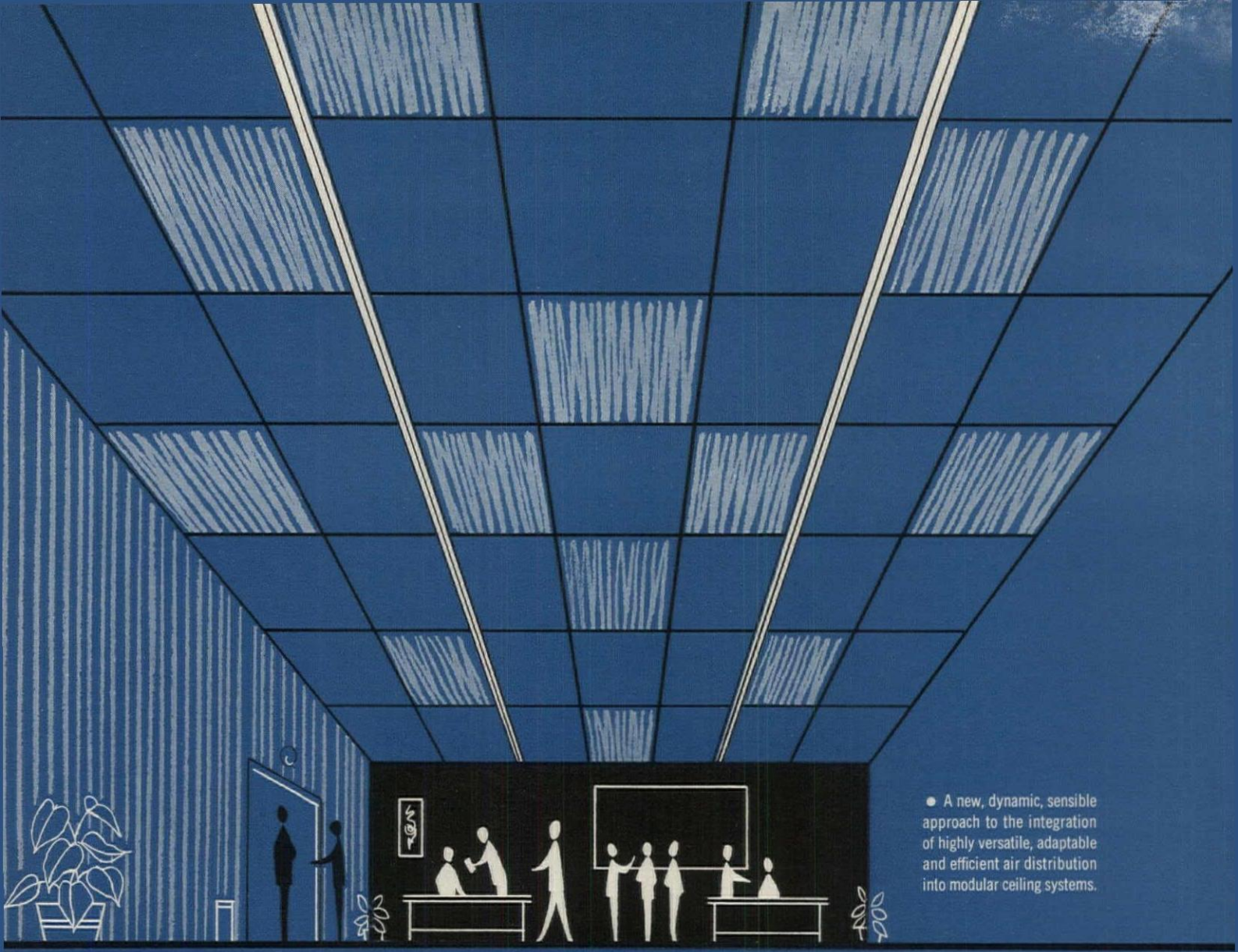
Write for More Information. For additional technical data on how Solar EFL packages can be tailored to your requirements to save you money over competitive power, write Solar, Dept. L-138, San Diego 12, California.



Pipe coating process at Standard Pipeprotection, Inc. which will use Solar EFL Energy System to supply electrical power and dry coating on pipe.

SOLAR
A Subsidiary of International Harvester Company

For more data, circle 108 on Inquiry Card



• A new, dynamic, sensible approach to the integration of highly versatile, adaptable and efficient air distribution into modular ceiling systems.

MODULinear

Ceiling Diffusers

New MODULinear–combines modern architectural design, superior air diffusion and true flexibility to the highest degree ever achieved in a linear diffuser!

• **FOR NEARLY ALL TYPES OF CEILINGS**—special extruded aluminum design of MODULinears permits them to be incorporated into the modular unit of most ceiling systems—including plaster.

• **INGENIOUS, SIMPLIFIED DESIGN PERMITS AIR PATTERN & AIR FLOW RATE CONTROL FROM SAME SET OF VANES**—vanes are quickly, easily positioned from diffuser face, to adjust air pattern a full 180° (horizontal discharge, left or right, a vertical discharge, or any pattern in between)—and to set air flow rate desired. *Both air pattern and flow rate can be set at any time before, during, or after installation . . . EITHER CAN BE ADJUSTED WITHOUT DISTURBING THE OTHER.*

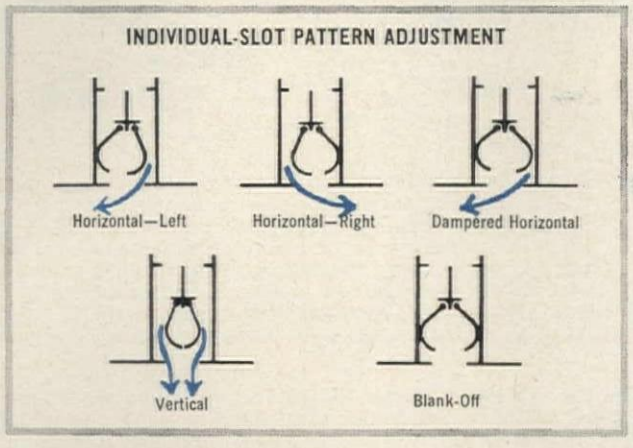
• **THE ULTIMATE IN EFFICIENT AIR DIFFUSION**—MODULinear can be furnished with special Diffuser Inlet Assembly which provides precisely the chamber necessary for spread and superior air diffusion. Also provides the extra flexibility needed to adapt air distribution to the requirements as dictated by changes in occupancy. Inactive sections of diffusers can be quickly, easily activated (and vice versa.)

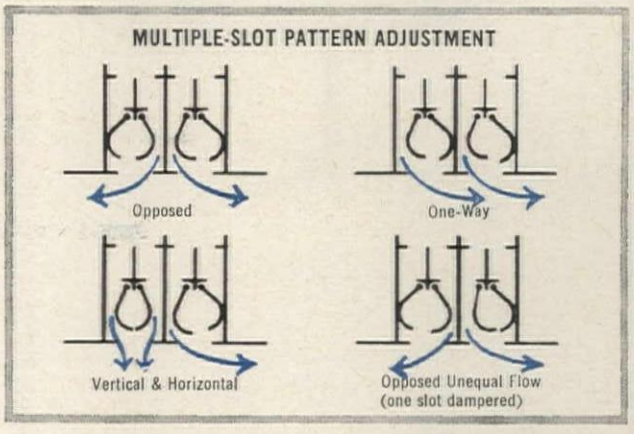
• **FAST, EASY INSTALLATION**—furnished with support clips for quick fastening to ceiling suspension system or Tee Bars.

• **SINGLE SLOT & MULTIPLE SLOT MODELS**—available in one-piece lengths up to 8 foot. Sections butt closely together for use in continuous lengths.

Patent applied for

The correct air pattern for any installation





For ½" slot, specify Series ML-3400. For ¾" slot, specify Series ML-3500.

by TITUS®

Mail Coupon for New MODULinear CATALOG

TITUS MANUFACTURING CORPORATION, Waterloo, Iowa

☐ Please send NEW MODULinear Ceiling Diffuser Catalog.

☐ Have Titus Representative call on me.

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

For more data, circle 103 on Inquiry Card

Another sealing challenge mastered by

Strucsureseal®

Six thousand gallons of STRUC*SURE*SEAL, in specially formulated bronze color, were used to "seal in" these intricate story-high panels of the world's largest office building . . . Pan American. Here is just one more example of the high regard architects and builders have for this proven polysulfide base sealant.

Other well-known buildings permanently weather-sealed by STRUC*SURE*SEAL include Seagrams, Pepsi-Cola, Cobo Hall, Crown Zellerbach, First City National Bank (New York), First National Bank (Ft. Worth), St. Louis Municipal Airport, Tishman (Los Angeles), and St. Paul Fire and Marine Insurance.

Knowledge of this sealant's reliable performance through the years in such major constructions has vastly increased architect acceptance and preference for STRUC-*SURE*SEAL among all the polysulfides. Its wide range of colors complies fully with requirements of ASA Spec. A116.1, as tested by independent laboratories. Outstanding "gunability" makes it the contractors' choice, too.

Do you have our latest sealant data file? It contains full details on our complete line of polysulfides, butyl caulks, rubber rod stock, and wide range of sealing tapes. Write or call Presstite, 39th and Chouteau, St. Louis 10, Mo., MOhawk 4-6000.

PRESSTITE DIVISION | Interchemical CORPORATION

For more data, circle 105 on Inquiry Card

S *See our catalog in Sweets.*

Architects: Emery Roth & Sons
Design Consultants: Walter Gropius (The Architects Collaborative) & Pietro Belluschi
General Contractor: Diesel Construction Co., Inc.
Sealant Applicator: F. H. Sparks Co., Inc.

Office Literature

continued from page 216

WATER LEVEL DECK POOLS

(A.I.A. 35-F-2) Typical installations and fittings used in swimming pools filled to deck level are described in folder. Overflow gutter is in the deck surrounding the pool. *Plumbing and Drainage Institute, 1018 N. Austin Blvd., Oak Park, Ill.*

CIRCLE 424 ON INQUIRY CARD

LIGHTING FIXTURES

(A.I.A. 31-F-2) Separate catalogs give details on *Marksman* ultra-thin fluorescent unit; *Clymatron* lighting and air flow unit; exit signs and general fluorescent fixtures. *Emerson Electric, Day-Brite Div., 6260 N. Broadway, St. Louis 15, Mo.**

CIRCLE 425 ON INQUIRY CARD

METAL GRATINGS

(A.I.A. 14-R) Three new catalogs give details on aluminum grating, welded steel grating and *Heavy-Weld* steel gratings. *Rockwell-Standard Corp., Grating Div., 4000 E. Seventh Ave., Gary, Ind.*

CIRCLE 426 ON INQUIRY CARD

CURTAIN WALLS

Curtain wall panels with *Mutane* foamed-in-place urethane core insulation are described in folder. *Mesker, Curtain Wall Div., 6002 N. Lindbergh, Hazelwood, Mo.**

CIRCLE 427 ON INQUIRY CARD

METAL TABLE BASES

New style concepts in metal table bases are illustrated in brochure which shows 17 bases and tables. *The Chicago Hardware Foundry Co., 2500 N. Commonwealth Ave., North Chicago, Ill.*

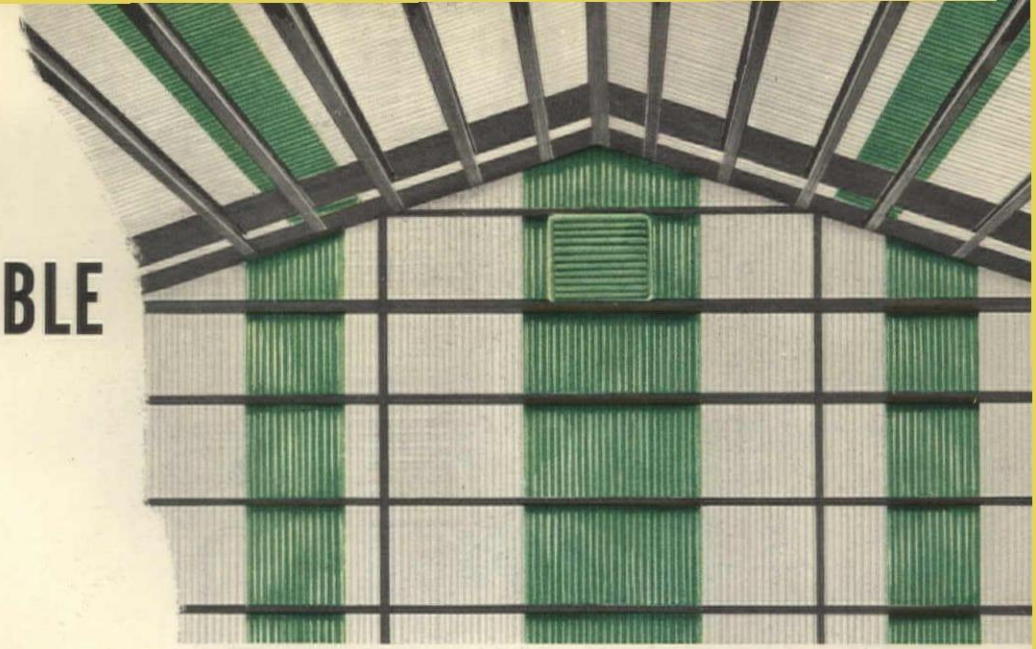
CIRCLE 428 ON INQUIRY CARD

ACCENT LIGHTING

Recessed adjustable and rigid stem lighting fixtures are designed to accommodate General Electric's *Cool Beam* lamps. The aluminum units have a satin finish and will accommodate all PAR 56 and PAR 38 lamps. Data sheets give details. *Swivelier Co., 30 Irving Pl., New York 3, N.Y.*

CIRCLE 429 ON INQUIRY CARD

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



NONCOMBUSTIBLE DAYLIGHTING
(AT NO EXTRA COST)
THAT LASTS

NEW MONSANTO
LUSTRA-SPAN® VINYL PANELS

Here's your answer to lighting, corrosion resistance, fire resistance, and quick remodeling. New Monsanto LUSTRA-SPAN panels were designed for lasting service and structural adaptability. Check these features.

Non-Corrosive: Monsanto LUSTRA-SPAN panels will last indefinitely. They're virtually immune to industrial fumes, solvents, and weather. Won't chip, blister, or peel.

Non-Combustible: Tested by Underwriters' Laboratories, listed by Factory Mutual Engineering Standards as non-combustible. LUSTRA-SPAN panels feed no more fuel to a fire than asbestos cement!

Strong: Will withstand maximum wind and snow loads in temperature extremes; properly fastened, will stay in place in winds of 100 miles per hour. A 4′ x 8′ panel, edge-supported, holds over a ton.

Formable: You can wrap LUSTRA-SPAN panels around right-angle corners, bend them length-wise on a 100 inch radius. They're easy as thin plywood to drill, saw, or file with ordinary carpenter tools.

Light-Weight: For easily supported partitions, canopies, and suspended ceilings.

Translucent: Give soft, diffused daylight; controls solar glare in sky lighting and vertical glazing.

Low cost—as material and in installation – each Monsanto LUSTRA-SPAN panel covers 4′ widths; 8′, 12′, and 16′ lengths. Order them in either translucent or opaque; choice of colors, in varied corrugations and flat sheets.

This coupon will bring you full information.
Fill it out and mail today.

Monsanto®

FIRST CLASS
Permit No. 3016
St. Louis, Mo.

BUSINESS REPLY MAIL
No postage stamp necessary if mailed in the United States

MONSANTO CHEMICAL COMPANY
Building Products Dept.
800 North Lindbergh Avenue
St. Louis 66, Missouri

HOW YOU CAN USE NEW

MONSANTO LUSTRA-SPAN Vinyl Panels for

...daylighting
...fire-resistance
...beauty that lasts

ALL AT NO EXTRA COST!

Flexibility to fit arched roofs...even wrap-around right angle corners.

Virtually immune to industrial fumes, solvents, and sun.

Soft, diffused daylighting beauty for sidelighting and suspended ceilings.

Up to 80% direct light transmission— no breakage, no panel replacement.

Mail this coupon for booklet on Monsanto LUSTRA-SPAN Vinyl Panel specifications and installation recommendations.

Gentlemen: Please supply information on Lustra-Span as per instructions below.

- ☐ Send product data and general installation guide on Lustra-Span.
- ☐ Ask your representative to call . . . I would like to discuss Lustra-Span with him.

Name_____

Organization_____ Title_____

Street Address_____

City_____ Zone_____ State_____

ABE

Monsanto®

Baptist Hospital of Miami

designed by
Sherlock Smith and Adams,
chose Remco Casework

- for its long life
- functional design
- good looks
- and they liked the job-site services that the Remco people always give.

consistent quality and service call **Remco**

HOSPITAL CASEWORK

101 New Laredo Highway, San Antonio 11, Texas WAlnut 3-7731

For more data, circle 109 on Inquiry Card

On the Calendar

August

5-9 Engineering Foundation Research Conference on Technology and Civilian Economy—Proctor Academy, Andover, N.H.

12-16 Engineering Foundation Research Conference on Comminution—Proctor Academy, Andover, N.H.

19-23 Engineering Foundation Research Conference on Engineering in Medicine—Proctor Academy, Andover, N.H.

25-29 Joint International Conference on Creep, sponsored by the Institution of Mechanical Engineers, the American Society for Testing Materials and the American Society of Mechanical Engineers—Biltmore Hotel, New York City.

26-30 Engineering Foundation Research Conference on Urban Transportation Research—Proctor Academy, Andover, N.H.

September

9-12 International Conference on Production Engineering Research—Carnegie Institute of Technology, Webster Hall Hotel, Pittsburgh

17-20 1963 annual meeting, Producers' Council—Shoreham Hotel, Washington, D.C.

29ff VII Congress, Union Internationale des Architectes, theme, "Architecture in Developing Countries"; through Oct. 3—Havana

29ff 1963 National Planning Conference, Community Planning Association of Canada; through Oct. 2—Chateau Frontenac Hotel, Quebec City

30ff National fall meeting, American Welding Society; through Oct. 3—Statler Hilton Hotel, Boston

October

5-11 Prestressed Concrete Institute Annual Convention; joint technical sessions with American Society of Civil Engineers—San Francisco; further sessions, Oct. 14-18—Honolulu

8-12 International Symposium on Architecture, sponsored by the International Union of Architects—Mexico City

12-18 Second Pacific Rim Architectural Conference; 18th Annual Convention, California Council, American Institute of Architects; Fifth California Regional A.I.A. Meeting;

continued on page 234

Holzer Hospital and Clinic, Gallipolis, Ohio, has this to say about this Van custom-made stainless steel conveyor: "We have been able to serve our heaviest meal in 20 minutes from the time the assembly line begins moving until the dietitian has checked all trays and they have started on their way to the floors . . .".

VAN Conveyor

Can help you save your client's money

You will be surprised what Van can help you accomplish in speeding up food service and soiled dish return of your projects with a conveyor tailor-made for each set of special needs. Not only will it make the operations faster . . . it will enable you to help your clients save money on help. Fabricated entirely of stainless steel . . . sturdy . . . easy to keep clean . . . flexible . . . can be made with any length or turn desired. Stainless steel slider pan, and drum, take-up and idler rollers, framing. Parts in contact with belt rust-free. Maintenance-free nylon bearings. Safety switches.

better food service

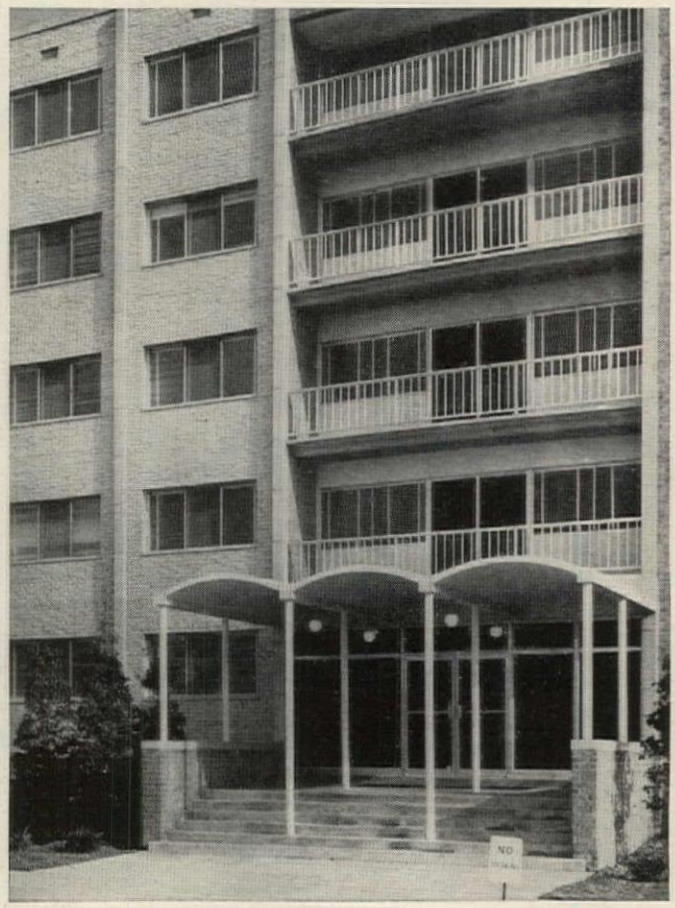
You can depend on Van's century of experience to design, fabricate and supervise installation of a conveyor system that will amortize its cost within a reasonable period. When you write, ask us how V. H. P. . . . our Hot Plate system assures service of hot meals to all hospital patients. THE JOHN VAN RANGE CO., 429 Culvert Street, Cincinnati 2, Ohio . . . dependable source since 1847.

VAN FOOD SERVICE EQUIPMENT

For more data, circle 112 on Inquiry Card

". . . look of luxury at low cost . . ."

says Howard Rivenburg of Builders and Developers—owners of Kent-Lincolnia Apartments in Alexandria, Va.



"We wanted both safety and beauty for our balconies in the Kent-Lincolnia Apartments. Anchor's All-Aluminum Picket Railing provided the positive protection we needed, plus a look of luxury at low cost —and I'm speaking of initial cost. We don't expect to spend a cent on maintenance."

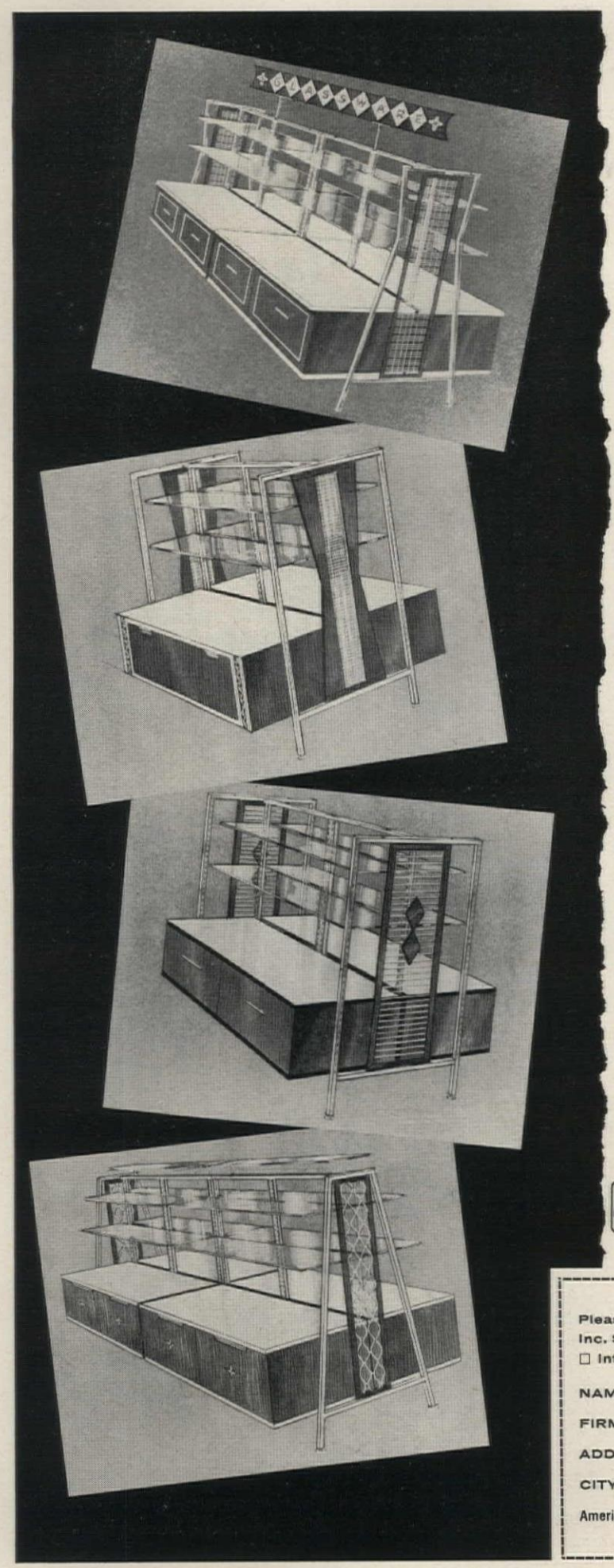
Anchor's All-Aluminum Picket Railing can make balconies, walkways, or other similar areas, more desirable. Bright, rust-proof Reynolds Aluminum pickets, posts, and handrails promise longer life. Anchor's national network of skilled erectors assures fast and efficient installation.

For detailed information, call your local Anchor office or write: ANCHOR POST PRODUCTS, INC., 6687 Eastern Avenue, Baltimore 24, Maryland.

AP ANCHOR POST PRODUCTS, INC.

Plants in Baltimore, Houston, and Los Angeles.

For more data, circle 113 on Inquiry Card



MR. ARCHITECT

MEETING YOUR EXACT SPECIFICATIONS

in distinctive store fixtures and equipment is assured when you work with "American". Our unlimited versatility gained through fifty years of wide and varied experience is your assurance that every detail will be beautifully executed.

•

MODULE WALL SYSTEMS

•

METAL FABRICATION and FINISHING including . . .

- Electro-plated finishes
- High-Temperature oven-baked Epoxy color enamel finishes
- NicKold Custom Color Finishes

•

WOOD WORKING and CABINET MAKING

•

PLASTIC LAMINATING . . . wood grains and colors to your specifications.

•

EXPERIENCED INSTALLATION CREWS are available to YOU when YOU work with . . .

AMERICAN FIXTURE INC.

TRIMLok STORE EQUIPMENT

Please send complete information about American Fixture Inc. Special Services To:

☐ Interior Designers ☐ Store Planners ☐ Store Architects

NAME_____ TITLE_____

FIRM_____

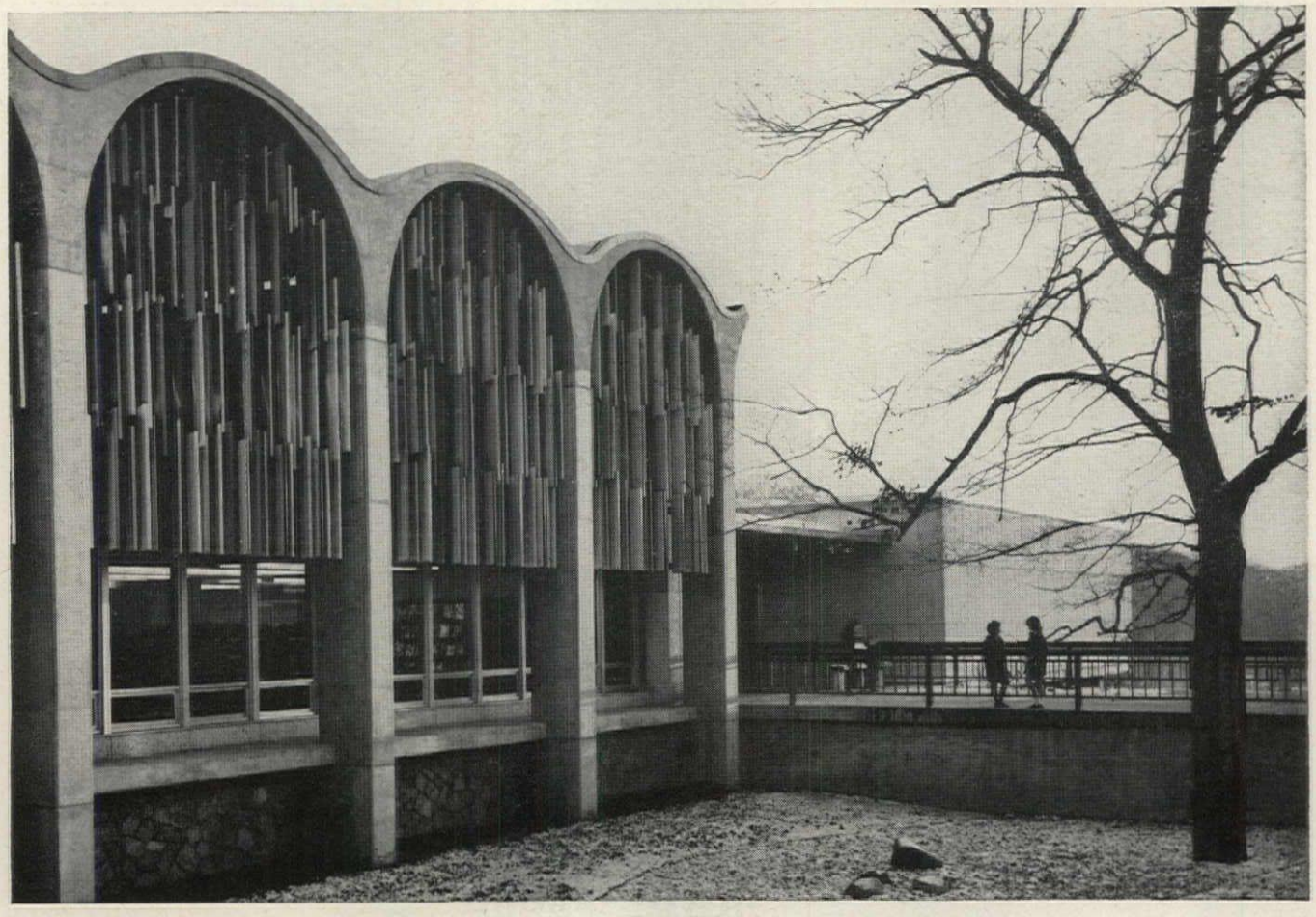
ADDRESS_____

CITY_____ ZONE_____ STATE_____

American Fixture Inc. • Dept. AR836 • 2300 Locust St. • St. Louis 3, Mo.

For more data, circle 114 on Inquiry Card

How the Dodge Reporter helped erect this ingenious library building



Attractive, spacious Sprain Brook Branch Library is an excellent example of how architectural ingenuity can overcome a formidable site problem.

Designed to augment the overtaxed facilities of the existing library of the City of Yonkers, the new building was logically located in the center of a new community growth area. The site, however, consisted of sharp dips and rises into and out of a wide marshy area. The task: to blend full library facilities, community service facilities and adequate parking space into this land.

To meet these requirements fully, yet retain the parklike atmosphere of the site, Architect Eli Rabineau developed this "open," multi-level design. Readers' service rooms are conveniently placed at street level, community service rooms on the lower level, and parking spaces cleverly tucked into the surrounding landscape.

"Reliance on the Dodge Reporter," says Architect Rabineau, "was a major part of our initial planning. We kept him supplied with details of the project as they were developed. In this way we were able to communicate our needs to interested contractors and suppliers. He certainly smoothed out the bidding time and traffic for us.

"In addition, he helped us review the work loads of available contractors, so we could schedule bid dates with a minimum of conflict. We feel that the Dodge Reporter definitely contributed to the success of our branch library project."

Sprain Brook Branch Library
City of Yonkers, New York
Architect: Eli Rabineau
General Construction: Chiappinelli-Marx, Inc.

This artfully designed building is a reinforced concrete structure throughout. The vaulting of the main wing answers the need for a clear span that creates an interesting form on the exterior and is also attractive from the interior. A unique feature of the exterior is a sun control screen to shade the large glass areas of the reading room. The screen is formed of porcelain enamel panels that control direct sunlight and diffuse it into the interior.

BUILDING PRODUCTS NEWS from Dow Corning

The mellow charm of brick

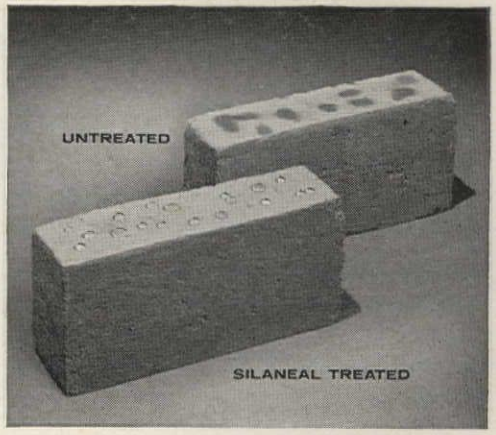
Carroll Hall, Bennett College, Millbrook, New York.
Brown, Lawford & Forbes — Architects.

Silaneal® protects it from dirt, efflorescence, leakage

Brick — for texture and richness — was the architect's choice for this dormitory. Set among the warm tones of Bennett College, Carroll Hall's antique white brick enriches the campus complex. Specification of brick factory-treated with Silaneal assures lasting protection against unsightly discoloration from water-borne dirt . . . efflorescence . . . leakage.

Keeps Brick Clean Many brick, particularly light and pastel shades, have high suction rates and offer little resistance to water penetration. Water carries dirt *into* the brick, causing discoloration; water leaches soluble salts *out* of the brick, causing efflorescence. Factory-applied Silaneal makes brick water repellent so dirt stays on the *outside*, where it's easily washed away by rain, and efflorescence due to water leaching is minimized.

Controls Water Absorption High suction brick absorb water from fresh mortar so rapidly that improper hydration and mortar shrinkage may occur. As a result of poor bond between brick and mortar, hairline cracks may develop to allow leakage. But Silaneal *controls* water absorption; proper hydration of mortar is assured for maximum bond, less leakage.



Proven By Tests Hundreds of transverse pressure tests — and tests simulating wind-driven rain — have demonstrated that wall sections built of Silaneal-treated high suction brick prove stronger and resist leakage better than similar untreated brick.

For brochure and list of sources, address your letterhead to Dept. C420, Chemical Products Division, Dow Corning Corporation, Midland, Michigan.

Dow Corning

For more data, circle 116 on Inquiry Card

On the Calendar

continued from page 228

13th Annual Meeting of the Women's Architectural League of California —Maria Isabel Hotel, Mexico City

12-23 Decoration & Design 1963, sponsored by the New York Chapter of the American Institute of Decorators, the Resources Council and the New York Herald Tribune—Seventh Regiment Armory, New York City

16-18 13th Annual Gulf States Regional Conference, American Institute of Architects—Dauphin Island, Mobile, Ala.

30ff Semi-annual meeting, Consulting Engineers Council; through Nov. 1—Disneyland Hotel, Anaheim, Calif.

Office Notes

Offices Opened

John Graham and Company, architectural and engineering firm of Seattle and New York, has opened an office at 120 Montgomery St., San Francisco.

Bernard Rothzeid, A.I.A., has opened an office for the practice of architecture and planning at 114 E. 40th St., New York 16.

John A. Fayko, formerly in charge of the Rochester office of Victor Gruen Associates, has announced the opening of his own firm, John A. Fayko, Architect, at 300 Midtown Tower, Rochester, N.Y.

Peter Munselle has announced the establishment of **Peter Munselle Associates,** which will practice architecture and planning; offices are at 315 South Beverly Drive, Beverly Hills, Calif.

New Firms, Firm Changes

Gordon W. Jones, with the architectural firm of Fenno-Reynolds-McNeil, 2000 Sheridan Drive, Buffalo, N.Y., has been admitted as a partner. The firm's new name is Fenno-Reynolds-Jones.

J. C. Williams Jr. has been appointed project administrator in the firm of Sanders & Thomas, Inc., consulting engineers. He will work out of the Philadelphia office.

Philip R. Cohen has been made a partner in the firm of I. M. Cohen, Architects, 26 So. State St., Chicago.

Andrew A. Halacsy, Ph.D., has joined the corporation of George S. Erskin and Associates, Inc., Engineers and Architects, 3205 Middlefield Road, Menlo Park, Calif., in the position of executive vice president.

A new architectural firm, **MST Architects and Planners Associates,** has been formed by Rolf Myller, Richard W. Snibbe and Edgar Tafel. Offices are located at 200 E. 37th St., New York City.

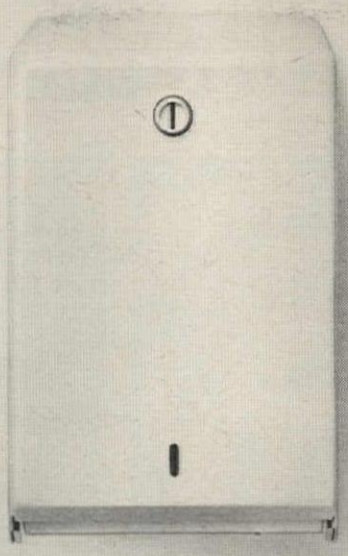
Lawrence Braverman has been named a partner of Leo Kornblath Associates, New York architectural and interior design firm. He had been chief designer since its founding three years ago.

E. Ray Schlick, partner in the firm of Lane and Schlick, Architects, A.I.A., 15840 Ventura Blvd., Encino, Calif., has retired. The firm is now **Howard R. Lane, A.I.A.** Senior staff member Nathaniel Abrahms is now director of production.

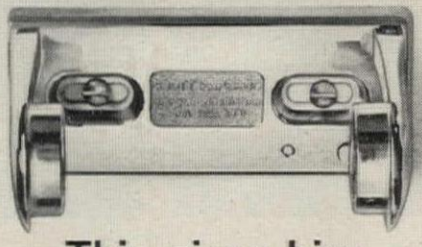
Malcolm Graeme Duncan, A.I.A., has joined the staff of J. Russell Bailey, A.I.A., Orange, Va.

Eggers and Higgins, Architects,

continued on page 242



This limits your client to a stiff grade of toilet tissue



This gives him a free choice

Given a vote in the matter, most people would choose a soft, absorbent toilet tissue—like Scott. But you never find such a high grade tissue in a wall cabinet.

Know why? Because cabinet tissue must sacrifice softness and absorbency so it will be stiff enough to dispense properly from the box.

You can give your client a free choice. Specify *roll* tissue dispensers in your washroom plans. Then your client can decide for himself what quality of tissue he wants to use.

Scott's line of single and dual roll holders will handle any grade of tissue. Look for our 16-page booklet in the Washroom Equipment section of Sweet's Catalog. Or write, and we'll send you a copy. Scott Paper Company, Philadelphia 13, Pennsylvania.

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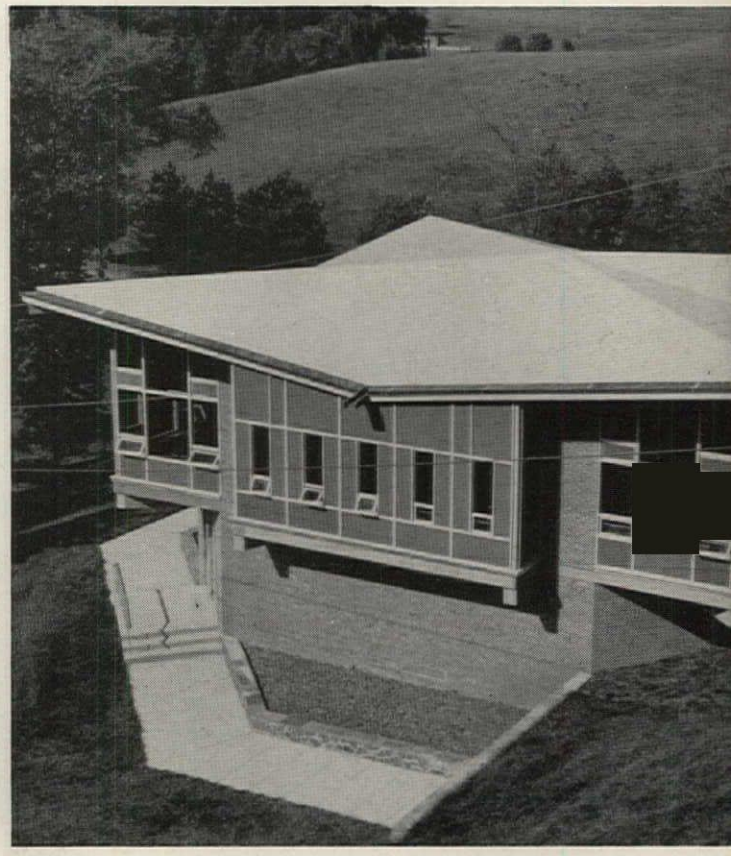
Du Pont TEDLAR® is a tough film-finish that keeps roofing and



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Unlike a liquid or a spray, TEDLAR* PVF film is a tough, new exterior finish of plastic film. Extensive testing by Du Pont shows it resists chipping, cracking, blistering, peeling, fading and chalking to a remarkable degree.

TEDLAR is factory-bonded to building products, using special Du Pont adhesives. Bonded in this way, TEDLAR becomes an inseparable part of the material it protects.

A surface of TEDLAR gives long-term protection without refinishing. How long is long-term? We frankly don't know because we haven't been able to wear it out yet. But, properly bonded to a stable material, we predict TEDLAR will last up to 25 years . . . perhaps even longer.

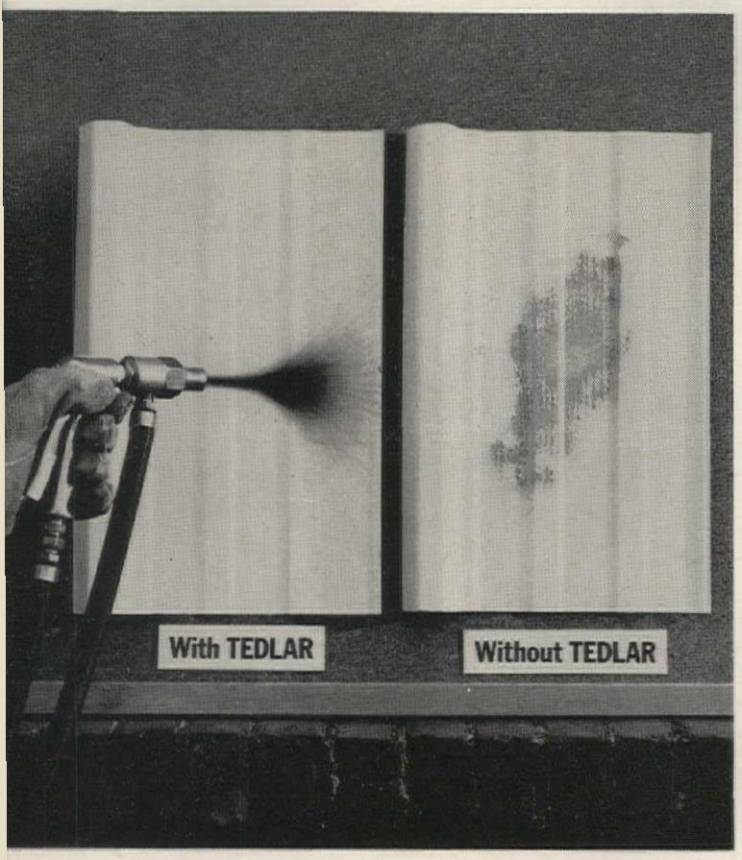
Surface any shape roof

This school library has a built-up roof containing only two plies: a base sheet plus a top membrane surfaced with TEDLAR. Applied with conventional techniques, roofing surfaced with TEDLAR will cover any shape from folded plate to compound curves.

Because TEDLAR retains its original high reflectivity, air-conditioning loads are reduced.

Whether the climate is drenched with humidity or baked dry, TEDLAR lives a long and beautiful life.

siding looking new for up to 25 years.



Sandblasting tests prove durability

The siding on the left, surfaced with TEDLAR, was subjected to a punishing sandblasting test—and came through unharmed. The same test ripped apart the conventional finish on the other siding. This durability of TEDLAR makes it virtually impervious to heat, cold and ultraviolet light. Weather, good or bad, doesn't affect it.

No ordinary hazard—like rust, tars, acids, alkalis—will harm TEDLAR, either. This finish, available in a range of colors, is perfectly smooth, with no pinholes to let in moisture. Atmospheric corrosion can't harm it. And howling sandstorms may leave a layer of dust, but that's all.

Stays new-looking without refinishing

These building panels surfaced with TEDLAR will retain their original appearance for up to 25 years or more. Over the long run, TEDLAR, with its unusual durability, is probably the most economical finish available for exteriors.

Already many building products are surfaced with TEDLAR. They include siding, roofing, insulation jacketing, trim and accessories. TEDLAR can be bonded to aluminum and other metals, plywood, asbestos-cement, wood and reinforced plastics.

For a list of these products or any other information about TEDLAR, write the Du Pont Co., Film Dept., Building Materials Sales Division, Box 55, Wilmington 98, Delaware.

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NO. 13

curtain wall joints

a.i.a. file: 4a

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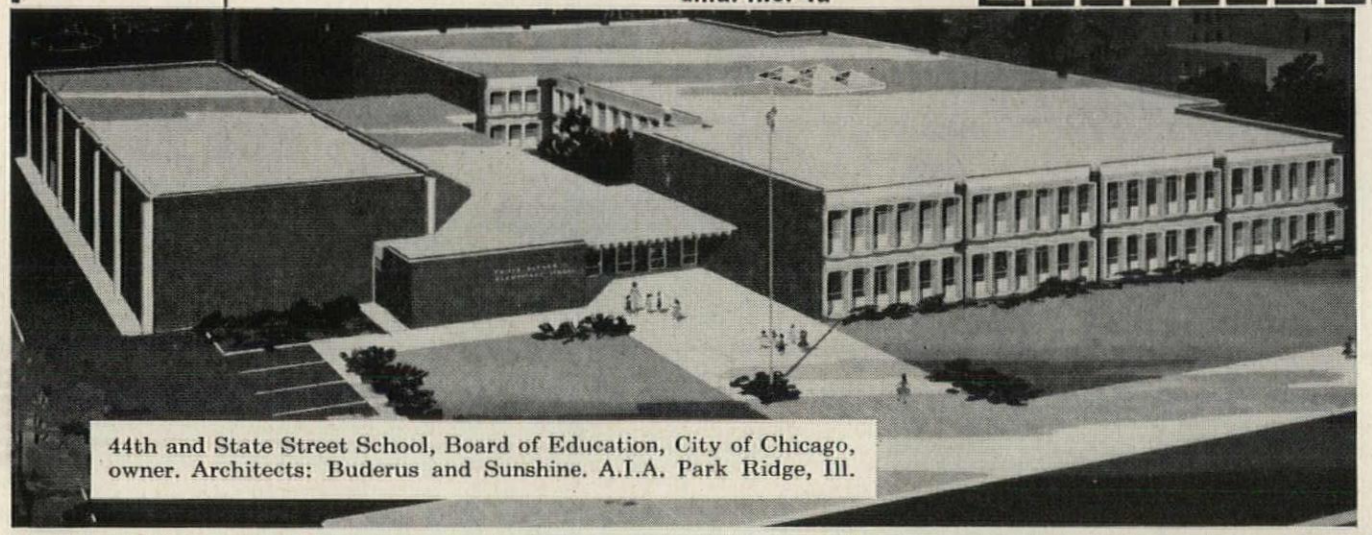
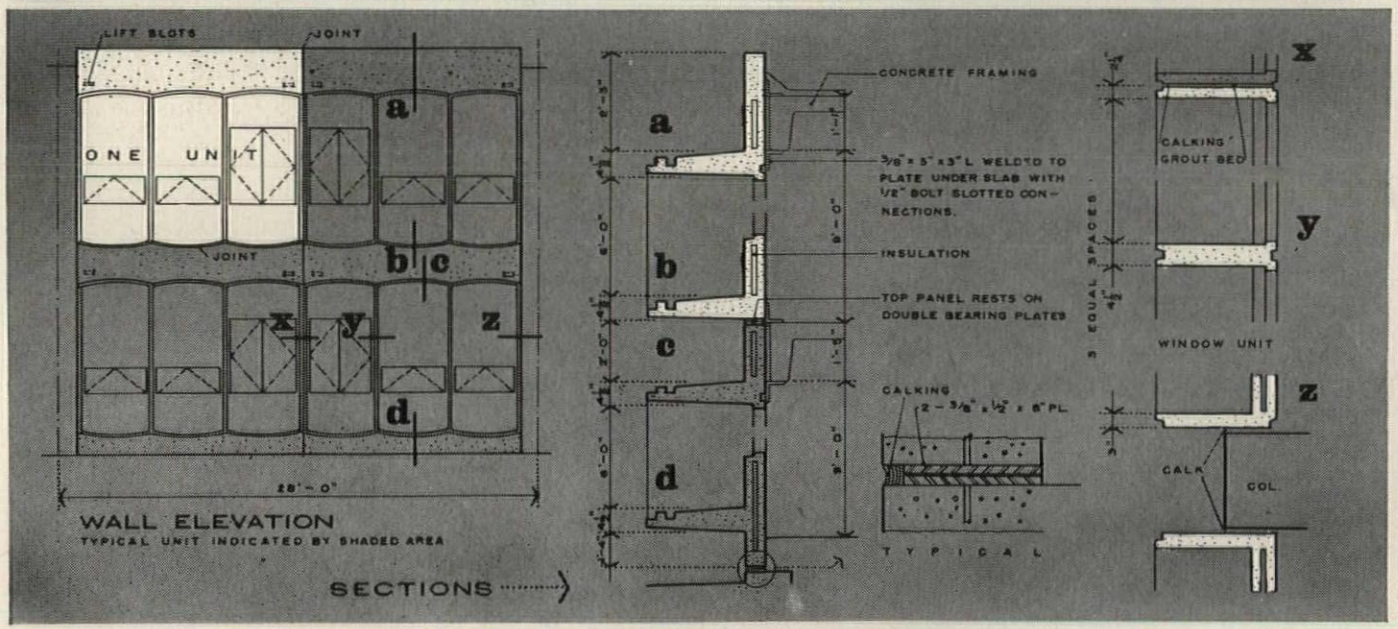


44th and State Street School, Board of Education, City of Chicago, owner. Architects: Buderus and Sunshine. A.I.A. Park Ridge, Ill.



If concrete were free to deform, normal volume changes would be of little consequence, but since concrete is usually restrained by foundations, spandrels, reinforcement or connectors, significant stresses may develop. This is particularly true when tension is developed; thus restrained contractions causing tensile stresses in concrete are usually more important than restrained expansions which cause compressive stresses.

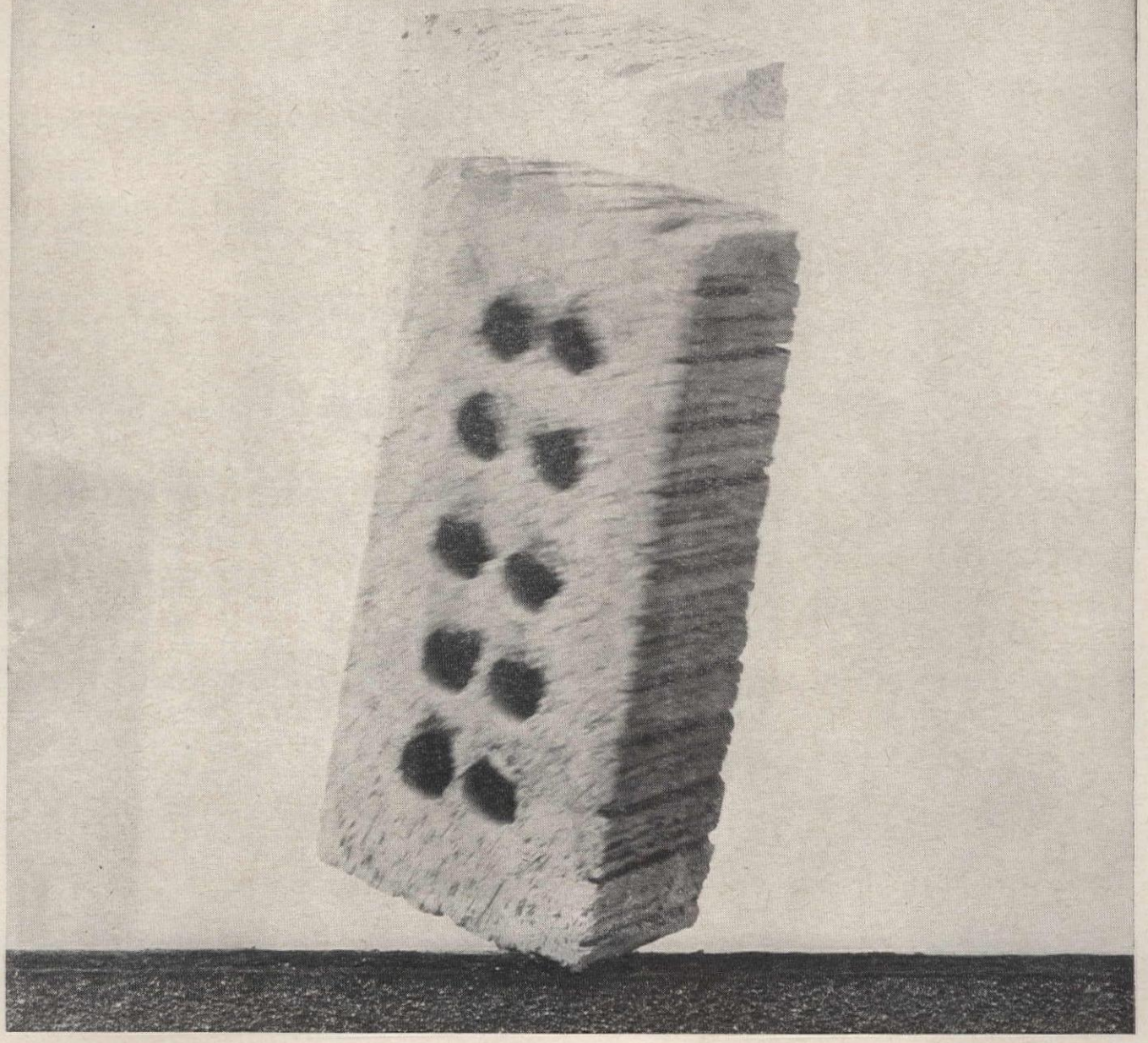
The adjoining details illustrate an excellent jointing method which allows for movement after the units are placed. The double bearing plates at the floor line and the 2-way slotted connectors at the spandrels insure free movement.

Thermal expansion and contraction of concrete vary with factors such as aggregate type, richness of mix, water-cement ratio, temperature range, concrete age and relative humidity. Write for additional free information. (U.S. and Canada only.)

Some helpful criteria to reduce volume changes

1. Limit the water content of concrete to the minimum required for proper placement.
2. Avoid conditions that increase the water demand of concrete such as high slumps and high concrete temperatures.
3. Use the largest total amount of aggregate in the mix that is practical.
4. Use the largest maximum size coarse aggregate to fit the job conditions.
5. Use fine and coarse aggregates that exhibit low shrinkage characteristics when used in concrete.
6. Avoid use of aggregates that contain an excessive amount of clay.
7. Use steam curing when applicable.

CATCH IT! BEFORE IT RUINS YOUR CLIENT'S ROOF



Picture it. The roof's down on your client's building. A workman carrying bricks for further construction above it drops one from a ladder or scaffold. Wham! It punctures the roofing. What happens to the insulation the next time it rains?

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And we guarantee this kind of security for 20 years, in writing, without charge to your client.

You see, FOAMGLAS stays dry indefinitely. Its sealed glass cells can't absorb moisture. That's pretty comforting when you consider the 101 human errors that can damage a roof. Things like ladders, wheels, heels, knives, tools, and pipe can all cause punctures that go undetected until it's too late. Next thing you know the insulation's wet. You may have to replace the whole roofing system.

Considering the added value of *constant* thermal efficiency in reducing the investment in air conditioning equipment and in cutting operating costs, you'll do your client a service that lasts the life of the building if you specify FOAMGLAS Roof Insulation.

Write today for your sample of the FOAMGLAS guarantee. Remember, it will be like money in the bank when we're asked to sign it.

Write to Pittsburgh Corning Corporation, Box B-83, One Gateway Center, Pittsburgh 22, Pa.

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For more data, circle 119 on Inquiry Card

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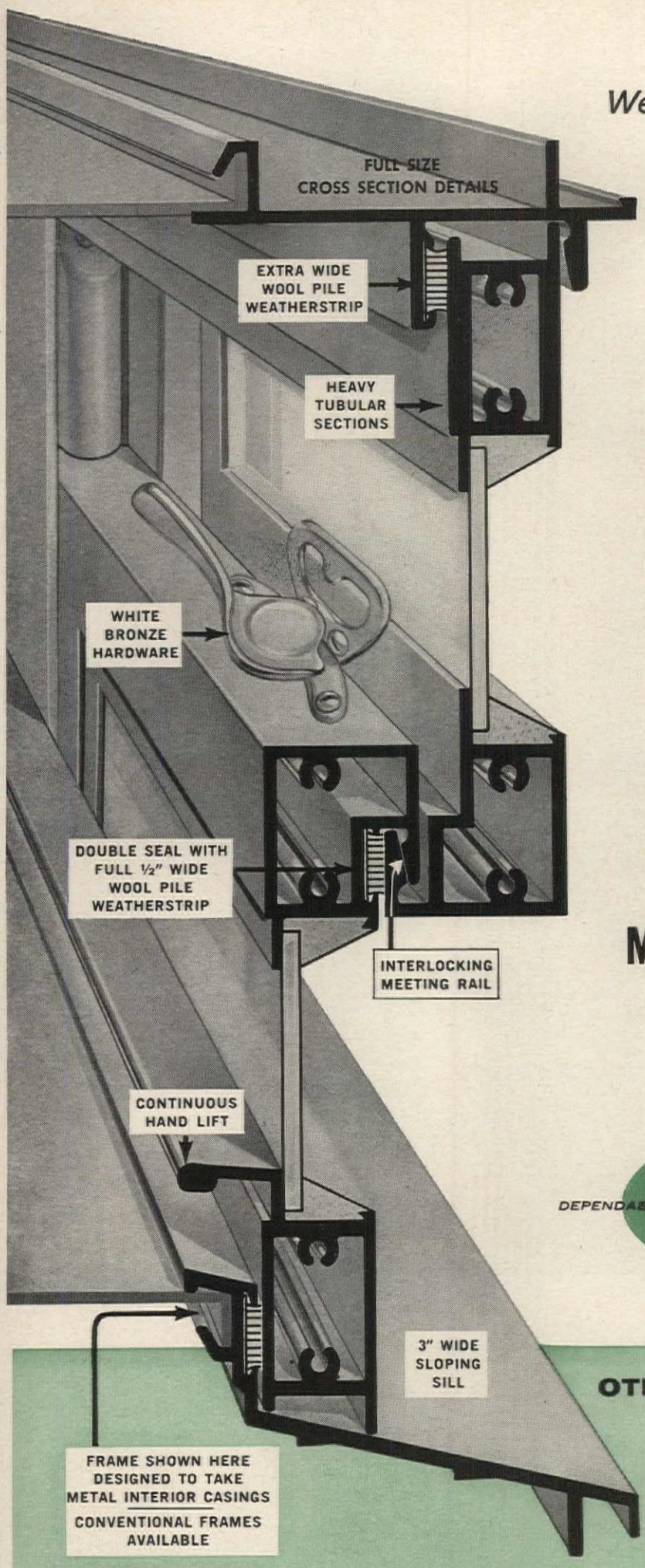

Cupples new "Series 30)" double-hung aluminum window was designed especially for architects and owners who want a better-operat ng, stronger, sturdier window fo r use in Apartments, Hotels, Motels and College Dormitor es.

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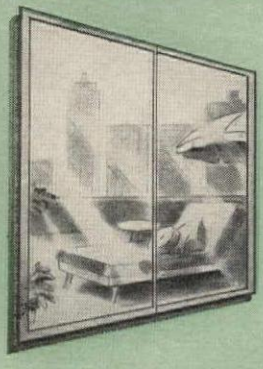

CUPPLES SERIES 1100 SLIDING GLASS DOORS

For rooms leading to balcony or terrace. Beautiful Alumilite finish. Extra strong, sturdy construction with tubular vertical rails. Adjustable ball bearing rollers. Interlocking meeting rails plus double wool pile and vinyl weatherstripping. In 2, 3 and 4 door units from 6 ft. to 20 ft. width. Sliding screens available.

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INSTEAD OF TAKING METAL OUT, and designing the Cupples "300" window downward to a price, or to fool bargain hunters, we beefed up the sections to make it stronger and sturdier. We used double width wool pile weatherstrip all around the window and at the meeting rail to keep out dust and dirt as well as rain and cold drafts. We made the "300" a foolproof, easy-operating window that will give satisfactory, maintenance-free performance for many years to come. It's a window you should specify for any apartment house or for the hard, rough usage of hotels and college dormitories.

Sure the Cupples "Series 300" costs a few dollars more (approximately $3 to $4) than lightweight minimum standard residential windows, but its heavier sections, better weathertightness and foolproof operating qualities make it a worthwhile investment that will pay handsome dividends in lower maintenance and tenant satisfaction.

Before you specify or order aluminum windows for your next job be sure you investigate the Cupples "300." Remember, too, that when you deal with Cupples you get DEPENDABILITY of product, quality, service, delivery and a well-established Company behind the product (Cupples is a division of ALCOA). Our representative in your area will be glad to consult with you at your convenience. Write for full size details and complete information. Address Dept. AR-638

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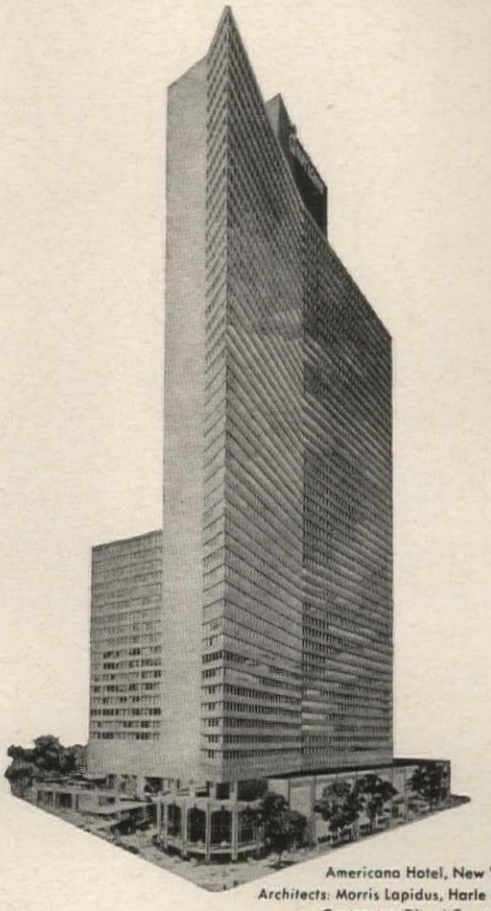

Americana Hotel, New York, N. Y.
Architects: Morris Lapidus, Harle & Liebman
Contractor: Diesel Construction Co.

Bronx Park East Apartments, Bronx, N. Y.
Architects: Brown & Guenther
Contractor: Gotham Construction Corp.

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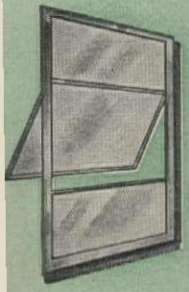

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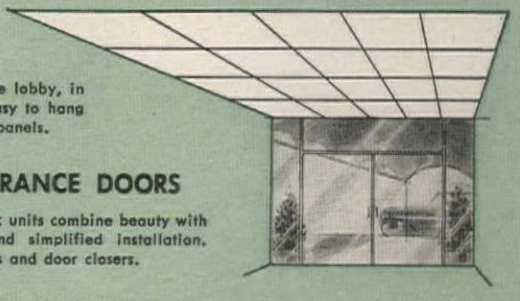
These strong, sturdy projected windows will take usage for many years. All horizontal rails in frame and sash are tubular for extra rigidity and strength. Adjustable, patented 4-bar operator mechanism. White bronze hardware. 5/8" glass rabbit. Interior or exterior metal snap-in bead glazing optional.

CUPPLES ALUMI-COUSTIC CEILING GRID

For luminous or acoustical ceilings in the lobby, in kitchens and bathrooms. Inexpensive. Easy to hang aluminum grid. Holds 2' x 2' or 2' x 4' panels.



CUPPLES ENTRANCE DOORS

New "40 LINE" of stock units combine beauty with flexibility of design and simplified installation. Choice of hardware locks and door closers.

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Office Notes

continued from page 234

100 E. 42nd St., New York City, have announced the admission of two new partners, **C. Gates Beckwith,** A.I.A., and **Gustave R. Keane**, A.I.A.; both have been associate members of the firm since 1957.

Fordyce & Hamby Associates, Architects, 717 Fifth Ave., New York 22, have admitted architect **Lloyd H. Slomanson** as an associate.

A. Corwin Frost has been made an associate of the firm **Frederick G. Frost Jr. & Associates,** New York.

Joseph Handwerger has been appointed planner designer with the firm **Cohen, Haft A.I.A. & Associates,** architects and landplanners of Washington, D.C.

Charles Luckman Associates, 680 Fifth Ave., New York 19, and 9220 Sunset Boulevard, Los Angeles 69, have appointed **Harry Greene**, architect as director of production.

Perkins & Will, Architects, 309 W. Jackson Blvd., Chicago 6, have named as senior associates **Wesley S. Wieting** and **Hem C. Gupta** of the Chicago office, and **Wesley V. Pipher,** of the firm's White Plains, N.Y., office; appointed at the same time as associates are **Eugene W. Barish, Frank Abatangelo** and **David L. Grumman**, Chicago, **Friedrich W. Capelle, Pierre Paul Childs, Paul Heimlich** and **H. Allen Tuttle**, of White Plains, and **James D. Stillwell,** in the firm's Washington office.

Howard H. Perry and **David B. V. Travers**, Architects, have announced the dissolution of their partnership; Howard H. Perry, Architect, will practice at 10 Leonard St., West Haven, Conn., and David B. V. Travers, Architect, will continue to practice at 7 River St., Milford, Conn.

Sasaki, Walker and Associates, Inc., of Cambridge, have appointed as principals in the firm **Stuart O. Dawson, Kenneth DeMay, Paul Gardescu** and **Masao Kinoshita**, as associates **John Adelberg, Katherine DeMay, J. E. Robinson and Richard H. Rogers.**

Ronald E. Sattelberg, A.I.A., has been made a partner in the firm of **Barrows, Parks, Morin, Hall and Brannan,** Rochester, N.Y.

Laramey White, A.I.A., Architects, is a new firm resulting from the merger of the offices of **Robert Dean Laramey** of Denver and **Ken White and Associates** of Aurora, Colo.; offices are in the Bank of Aurora Building, 9000 E. Colfax Ave., Aurora, Colo.

New Addresses

Brown & Guenther, Architects, 221 West 57th St., New York City.

S. Cabell Burks, A.I.A., 101 Professional Building, Madison Heights, Va.

Rex Whitaker Allen and Associates, Architects, 693 Mission, San Francisco.

Samuel Wacht Associates, Architects and Engineers, 1850 Westwood Blvd., Westwood, Calif.

Correction

In the RECORD's story on the Seibu Department Store, Los Angeles (June 1963, page 180), William Simpson Construction Company, rather than C.L. Peck, should have been credited as general contractor.

Mo-Sai®

CAPTURES THE SPARKLING FRESHNESS OF A SUNLIT SEA!

Shilshole Bay Marina, Seattle, Washington—Architects: Durham, Anderson & Freed — Contractor: Absher Construction Co.

Shilshole Bay Marina, Seattle, is a glowing example of the way Mo-Sai precast concrete exposed aggregrate panels will enhance the beauty of any building set in naturally lovely surroundings. The cool glitter of the white quartz aggregate reflects the gaiety and sparkle of the bustling sunshine-bathed Shilshole Bay Marina.

Approximately 7,000 square feet of 7′ x 15′ x 4″ panels of white quartz aggregate, set in a tan and buff cement matrix, were used to give this gracious structure dignity and distinctive charm.

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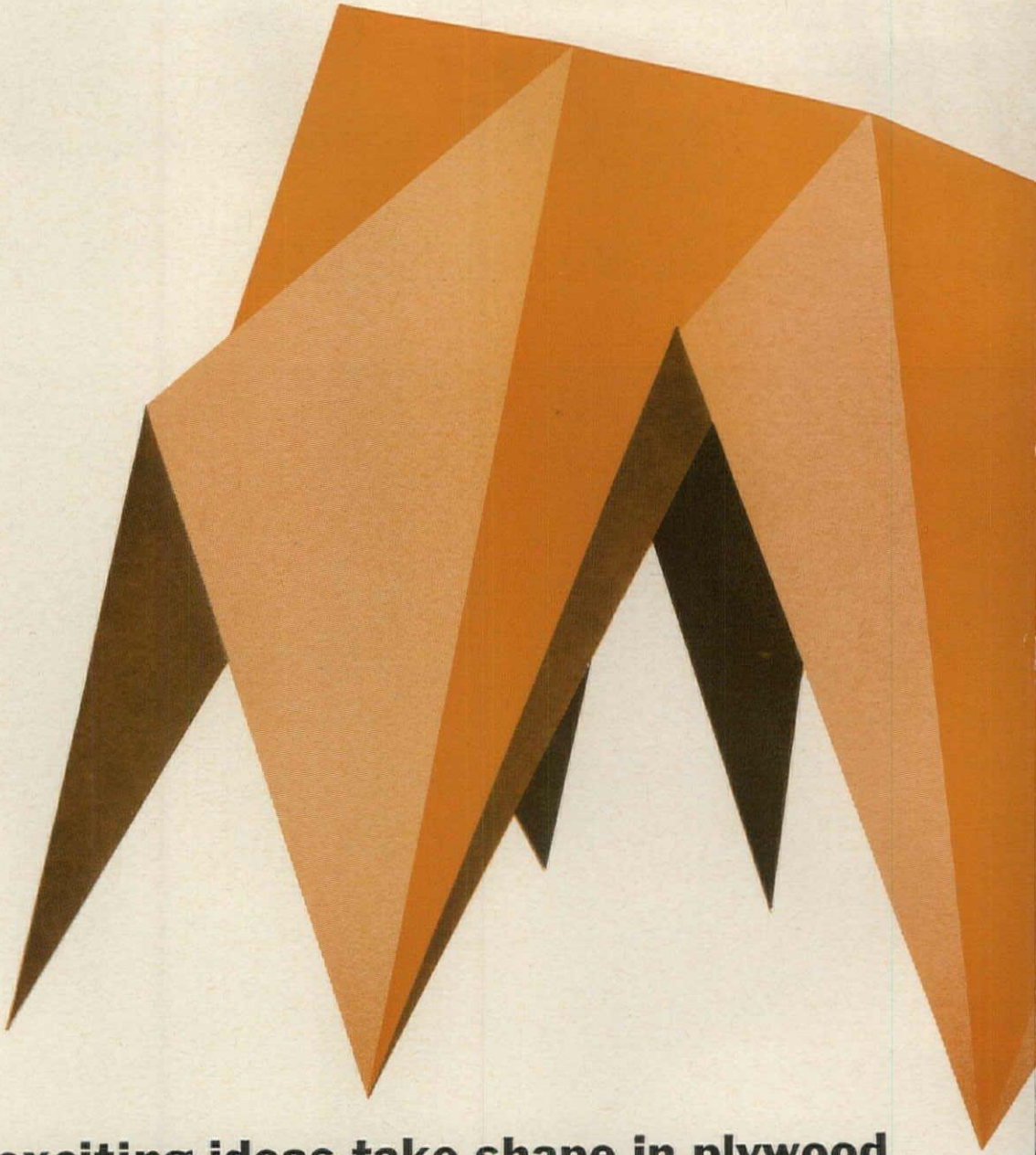
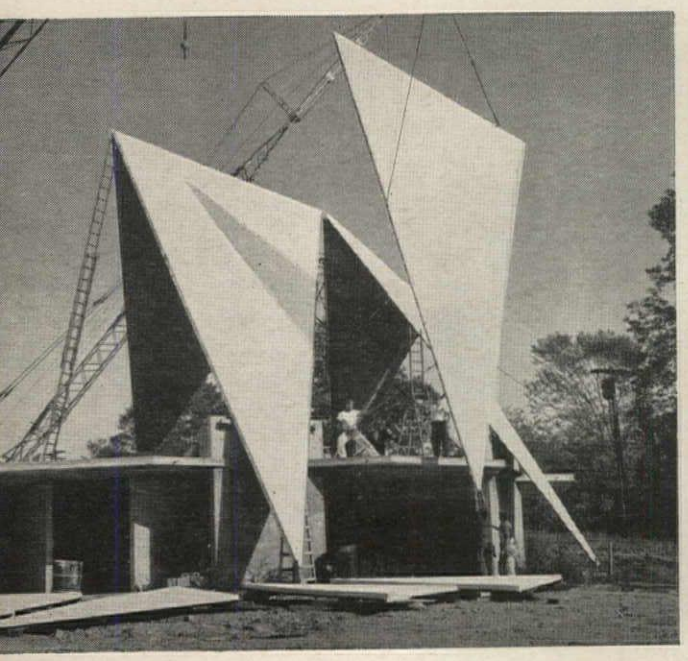
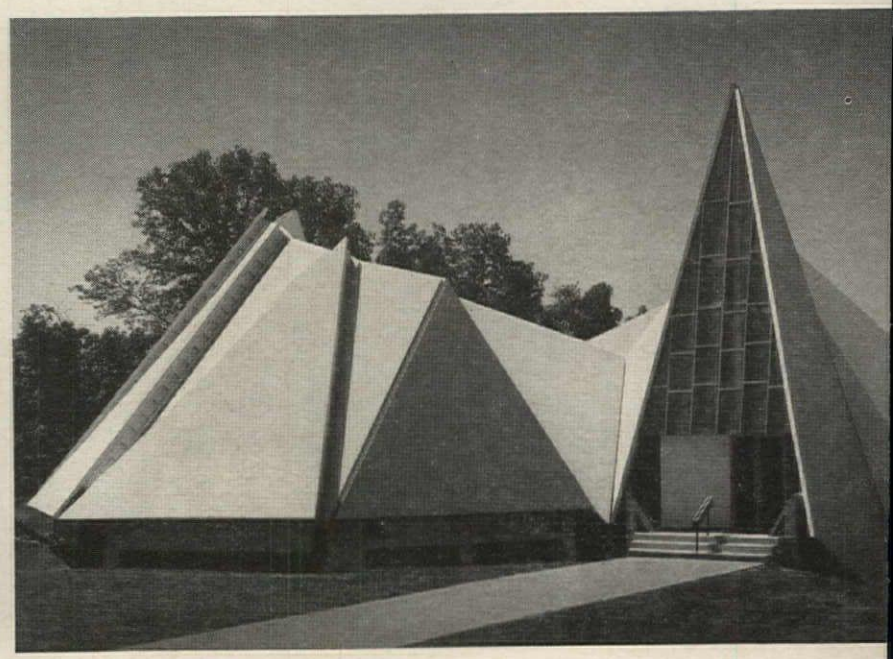
Omaha, Nebraska

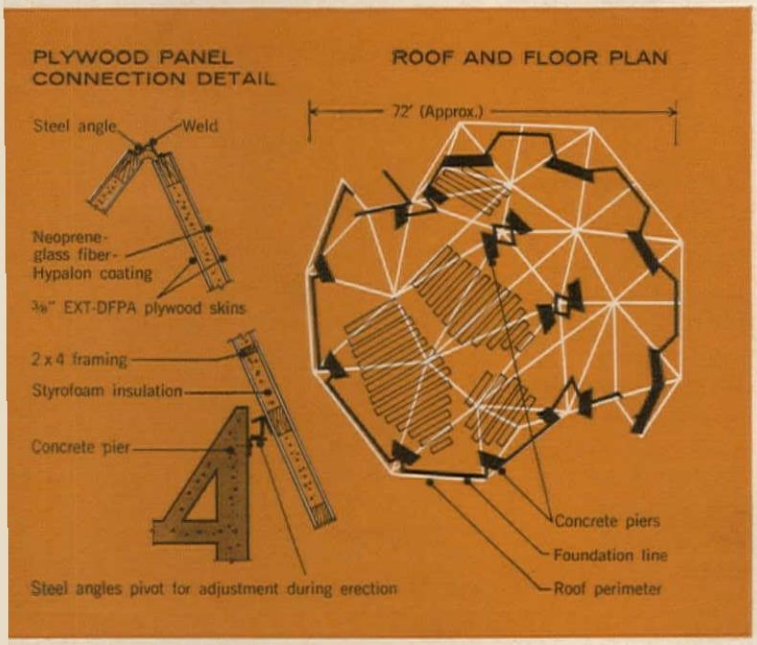


the most exciting ideas take shape in plywood





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



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

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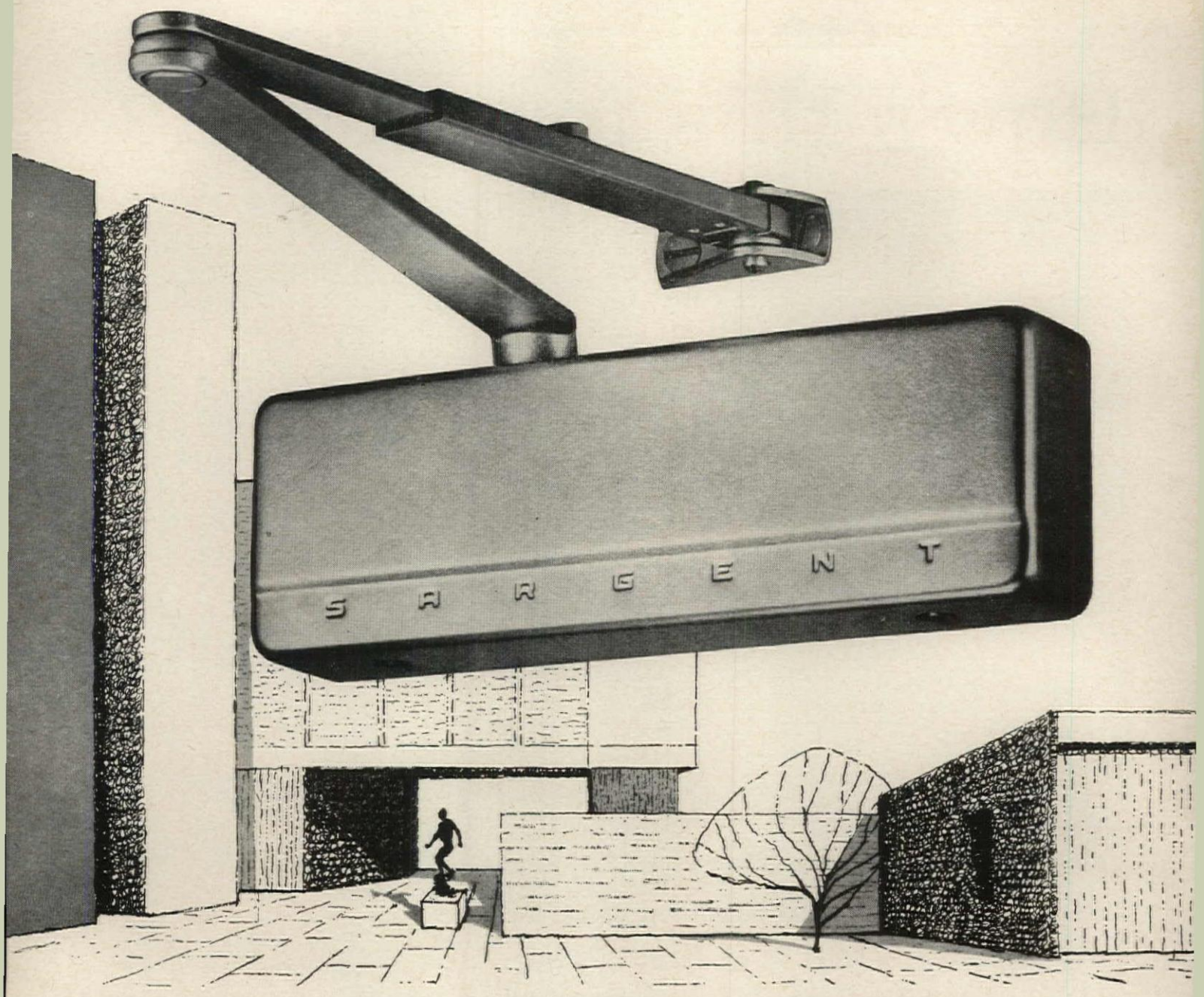
ANNEX FOR LOUIS SULLIVAN'S AUDITORIUM

Roosevelt University, now owner and occupant of the Chicago Auditorium Theater designed by Adler and Sullivan, has announced plans for a new addition to the building and for general renovation and repair of the old building.

The new building, scheduled for construction sometime within the next seven years, was designed by Perkins & Will, Architects. The lower ten floors will contain science laboratories, a library and classroom; the top ten floors will contain dormitories to house the university's increasing out-of-state and foreign student body. It will be located on a site north of the auditorium acquired by the school last year.

Plans for the old building, which the university acquired in 1947, include major rehabilitation, repair and air conditioning. Funds for this work are being raised in part independently by a private group, the Auditorium Theater Council. The university has until now been hampered by lack of funds in improving a building which it recognizes as a landmark.

Both of these building projects are major aims in the university's Quarter Century Plan, to be completed by 1970, the 25th anniversary of the school's establishment. The $16.5 million which it hopes to raise will be applied, in addition to the new building, to increasing faculty salaries and scholarships, recruitment of faculty and students, expansion of the adult education program, and the establishment of a cultural center by developing programs for the Auditorium Theater.



Over tomorrow's threshold: today's door closers from Sargent

With the sleek geometric lines of the Sargent Powerglide, architects now have a fully matched, fully contemporary line of door closers — one for every conceivable type of closing application, for any door — interior or exterior, metal or wood. Now modern interiors retain their design simplicity . . . with Powerglide's simple grace belying its heavy-duty dependability.

Under Powerglide's trim rectangular case lies a horizontal hydraulic workhorse — the simplest, strongest, smoothest closing mechanism you can specify. Powerglide's action is controlled power — it eases the heaviest door to its jamb, silently, surely.

Where reliable door closer performance is important, specify Sargent — your single source of responsibility for quality closers, locksets, exit devices and other safety hardware. See your Sargent hardware supplier, or write Sargent & Company, New Haven 9, Connecticut.

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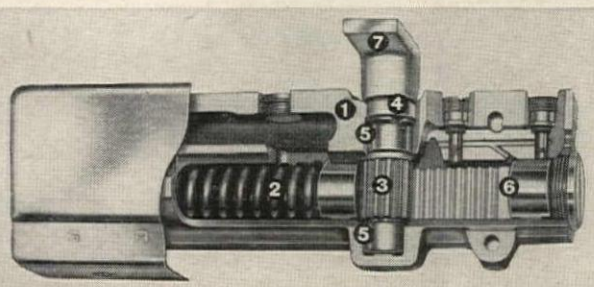

Part for part, the Powerglide closer does a bigger job better:

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NEW CURTAINLINE AIR DIFFUSERS

The clean, simple, uncluttered lines of this diffuser make it work well in ceiling or side wall. May be ordered up to eight feet in length. Positive joint spline insures perfect alignment. Units butt together for continuous strip installation. Mitered corners can be furnished with throw to either inside or outside of the corner.

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AND CURTAINAIRE GRILLES

Provides same clean, unobtrusive appearance as Curtainline above. Available in zero or 15 degree deflection. Heavy duty construction has extreme rigidity. Ideal for sill, floor, side wall or floor installation. Corrosion resistant. Simple to install. Write for Catalog 961.

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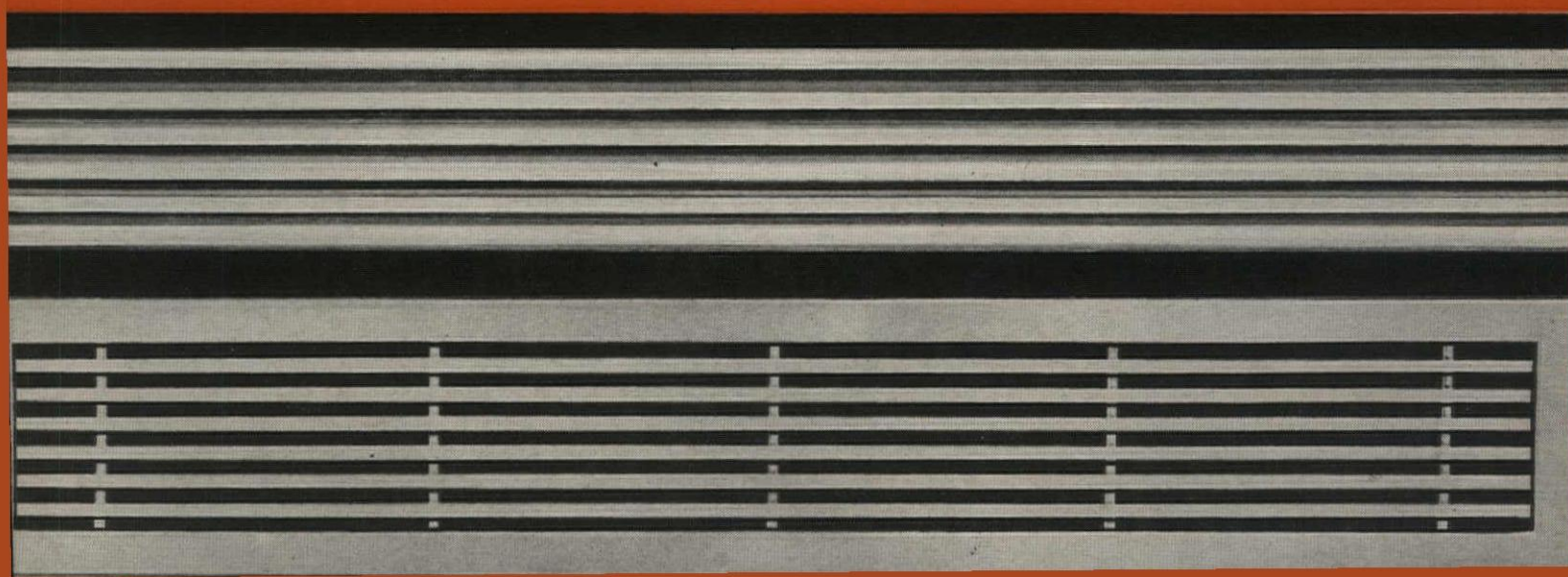


NEBRASKA OPENS CONFERENCE CENTER

Most university student unions and dormitories have dealt with the problem of summer educational conferences, and many new college buildings have been designed with this secondary function in mind. The University of Nebraska, recognizing the demand of adult professional and youth groups for noncommercial conference space, faced the situation as permanent and separate from ordinary university duties. With the help of the Kellogg Foundation, it has established the Center for Continuing Education at Lincoln.

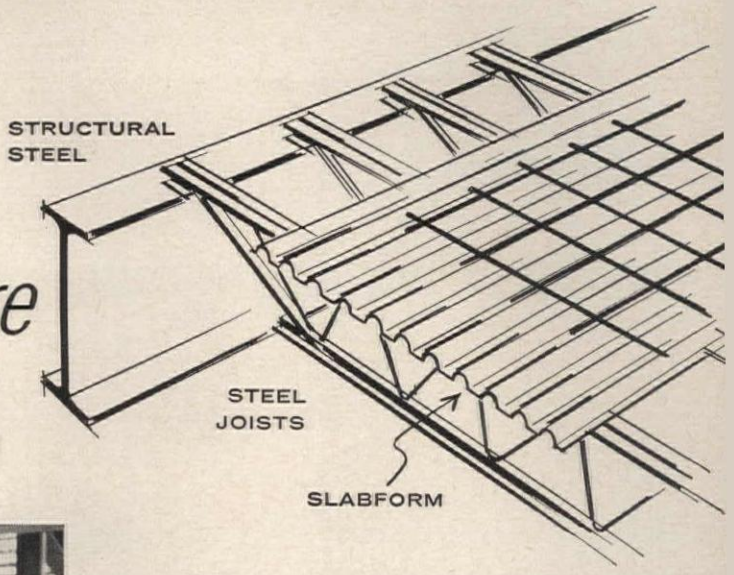
A nine-story Adult Education Wing provides conference rooms, a 700-seat auditorium and dining facilities for 1000; the top seven floors of the building contain sleeping accommodations in the form of double rooms with bath.

A three-story Youth Wing contains conference rooms, cafeteria with access to the central kitchen, and 16-bed dormitories.

The site, which can be reached only by automobile, is provided with off-street parking.

Selmer A. Solheim & Associates, Inc., were the architects and engineers, with Welton Becket & Associates as consulting architects. General contractor was Parsons Construction Co. of Omaha.

Design your next light-occupancy structure with steel like this



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Easy... Steel joists allow for easy passage of pipe, wire, and conduit through the open webs—in any direction.

Economical Slabform saves both time and money compared to flexible-type centerings. It's a safe working platform, too.

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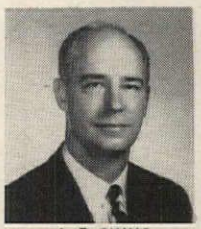
Profiles in total-electric design...with General Electric

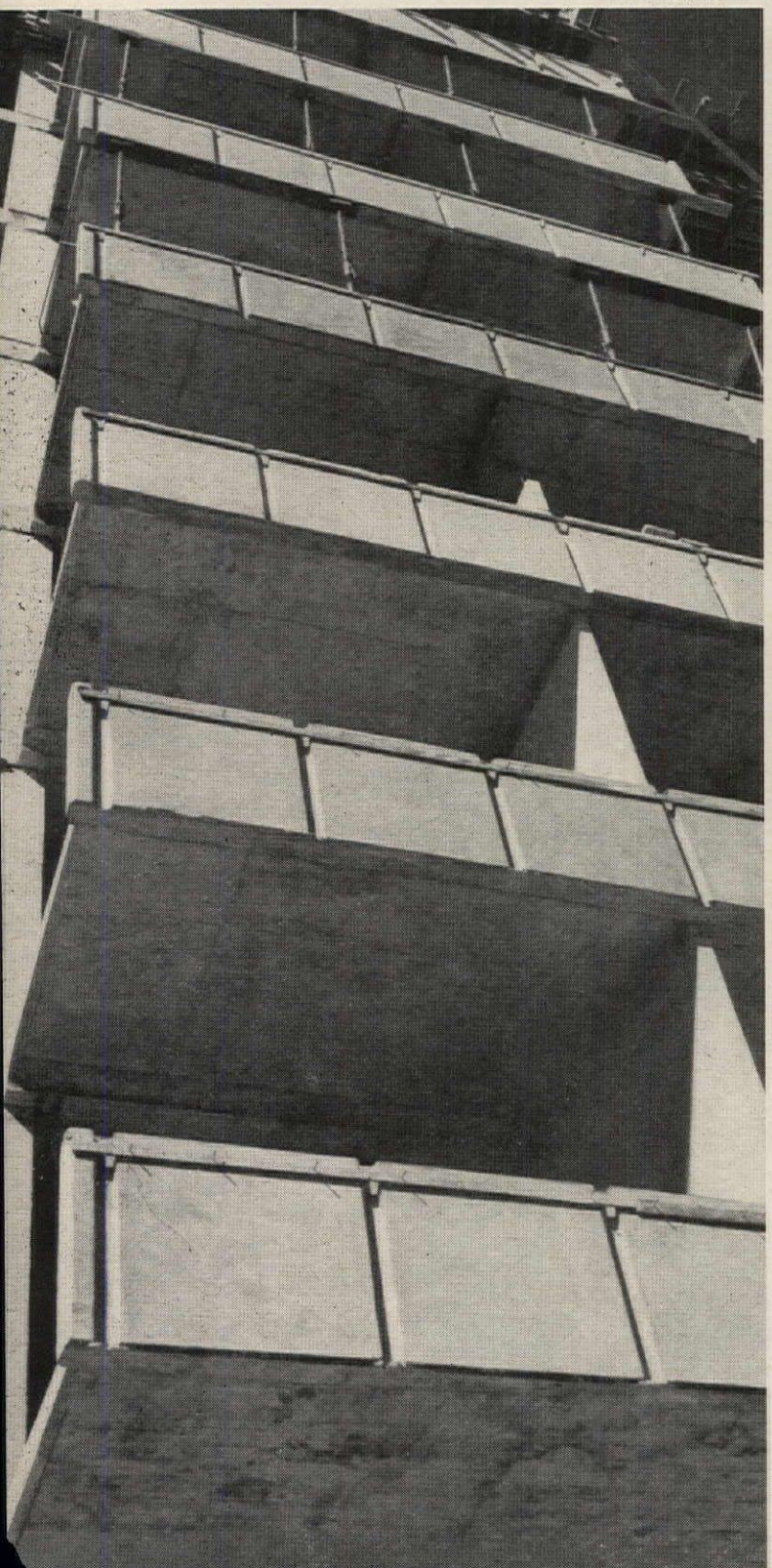
Developer A. B. Simms' Atlanta Towers is due for completion this summer. The 21-story structure housing 120 one- and two-bedroom Gold Medallion units will be Georgia's first total-electric high-rise apartment project. Each unit is equipped with complete General Electric kitchens and Zonelectric heating and cooling. Architect: R. Aeck Assoc., A.I.A.

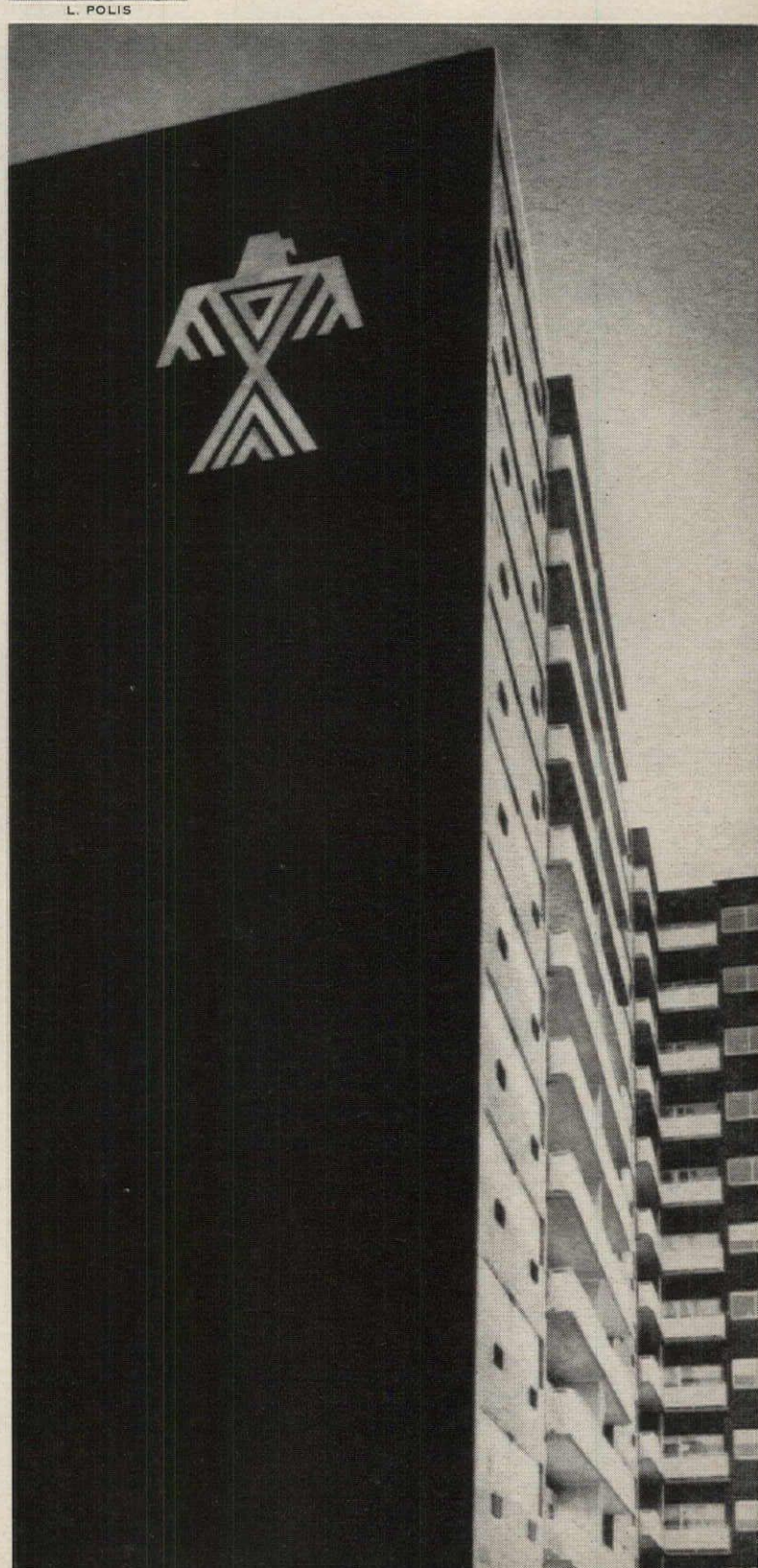


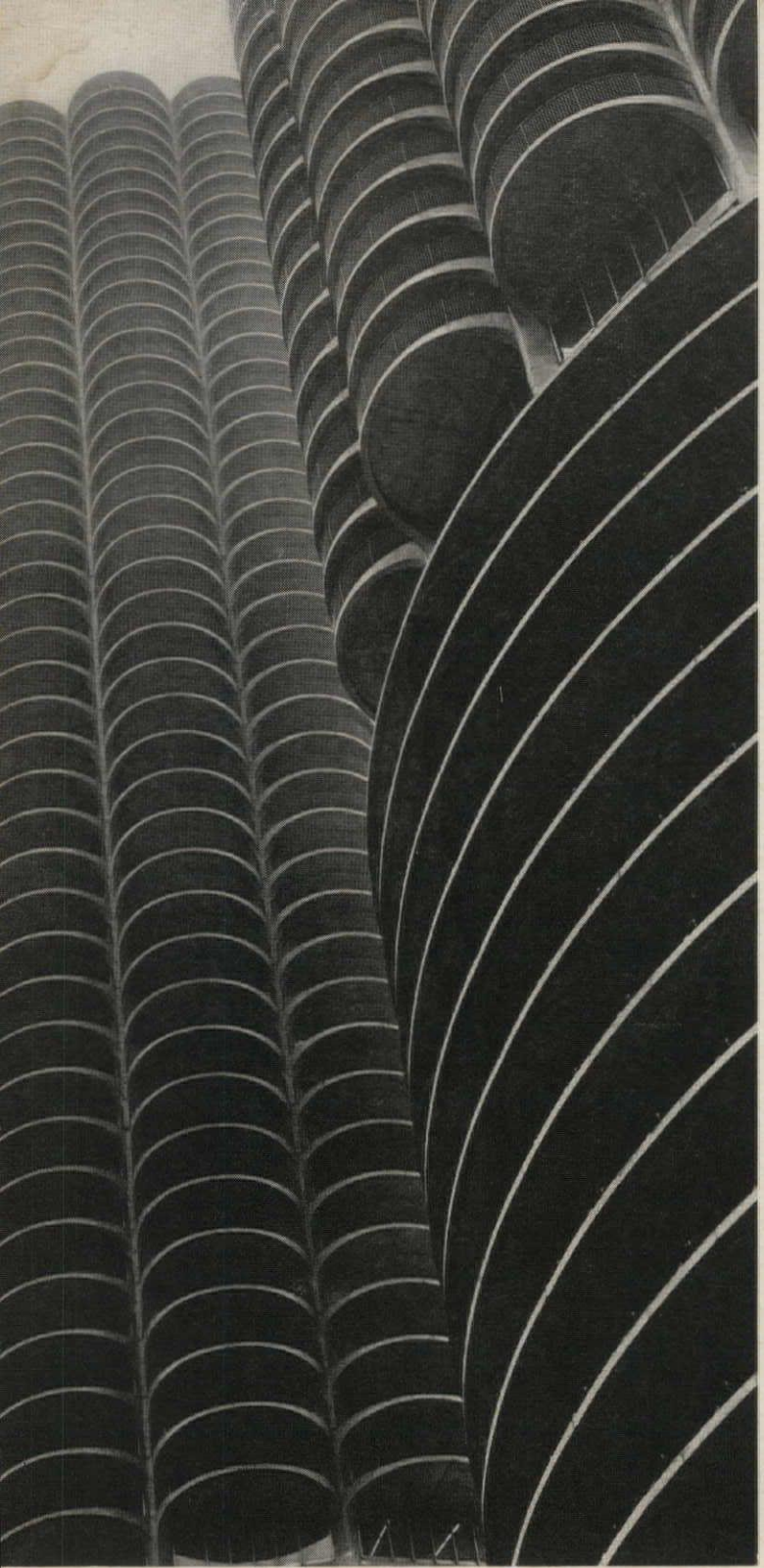
A. B SIMMS

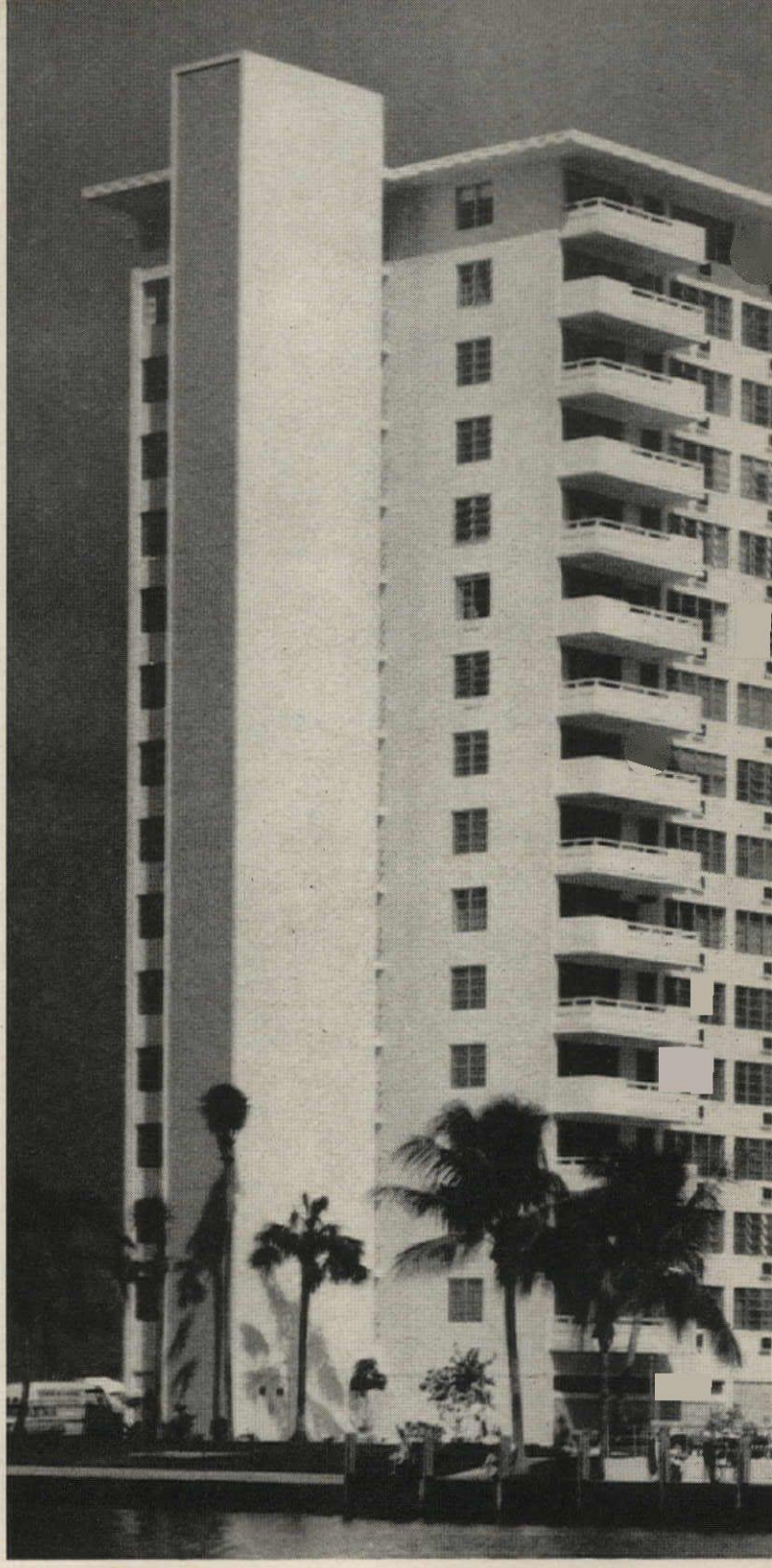
L. POLIS

Engineer Wm. Lattanze designed a cost-saving 2800-kw connected-load electrical system for Leonard Polis' Iroquois Apartments. The system, worked out in cooperation with General Electric and the Philadelphia Electric Company, keeps the 132 Gold Medallion units well supplied with power for total-electric living. Architect: L. Levin, A.I.A.









Two 60-story towers housing 896 families, recreation and shopping facilities and a 700-boat marina —this is Chicago's Marina City, sponsored by the Marina City Building Corp., Wm. L. McFetridge, President. All of Marina City's apartment services are supplied by an electric line and one cold water line. Architect: Bertrand Goldberg, A.I.A.

W. L. McFETRIDGE

J. S. HUNT

From its infra-red ceiling heaters in baths to its 330 G-E kitchens, Coral Ridge Towers is total-electric. Adm. J. S. Hunt's second co-op apartment, Coral Ridge Towers, North, will be completed this winter. Rentals are being accepted on his third total-electric high-rise apartment, Royal Admiral. Architect: C. F. McKirahan, A.I.A.

General Electric's technical, design assistance and customized promotional programs were put to good use in these total-electric buildings. For complete information on how General Electric may be of service to you, send in this coupon.

GENERAL ELECTRIC

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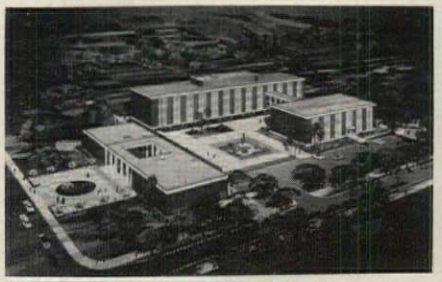


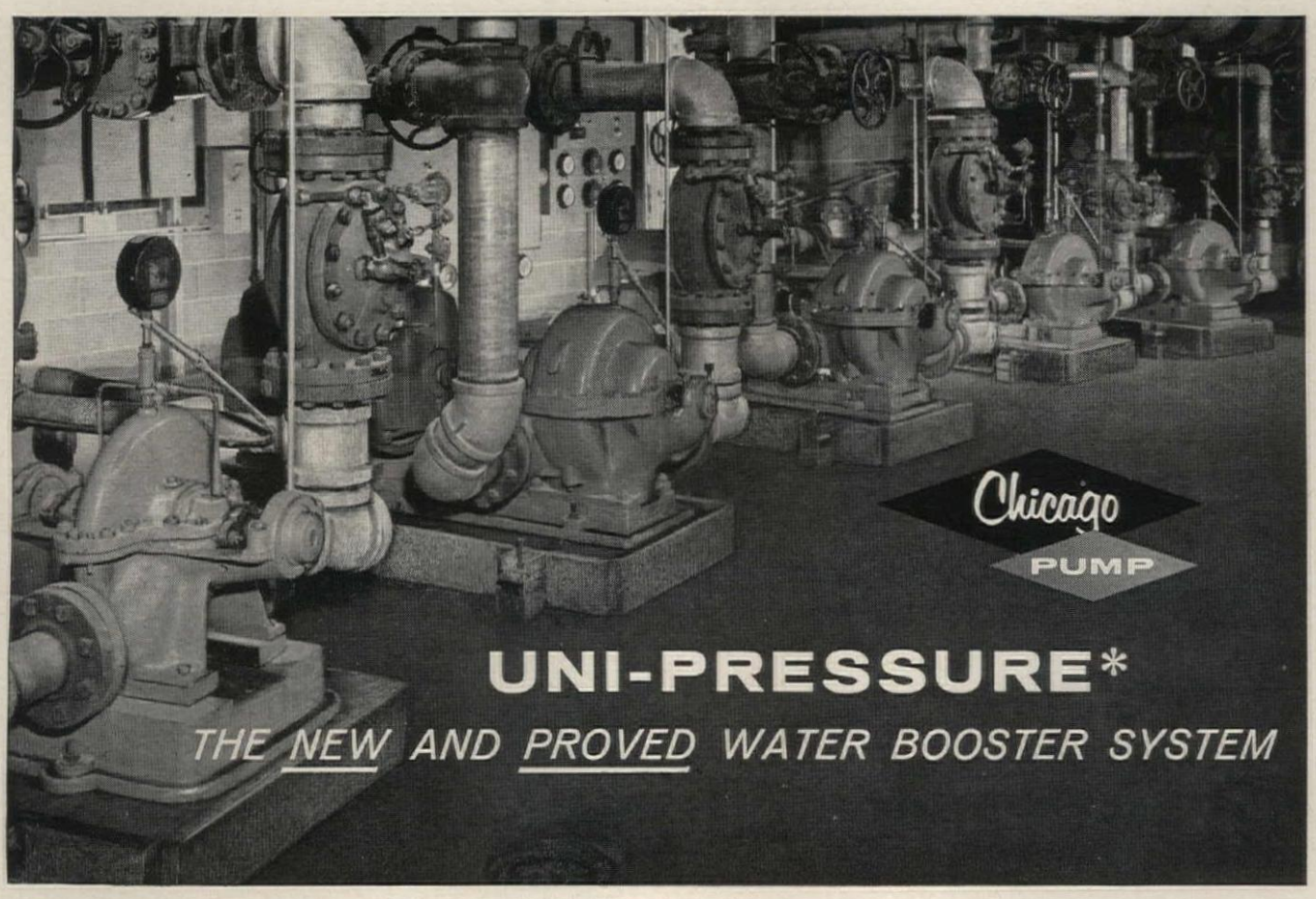
Construction of the College of Architecture and Fine Arts of the University of Florida has now begun, 15 years after the building complex was first proposed. The units are to accommodate classes in architecture, building construction and art.

Included in the complex are a four-story classroom and drafting room building (rear), an architectural library and administrative offices (right), and two small lecture halls and an art gallery (left).

Architects are Kemp, Bunch and Jackson; contractor is Tassinani Construction Co.

SANTA BARBARA CLASSROOM TOWER FOR ENGINEERING

Plans have been approved for a five-story School of Engineering building for the Santa Barbara campus of the University of California. It will tie in with other, smaller structures through the use of the same exterior materials—exposed concrete and plain and patterned concrete block. Each window area will have a folded concrete plate sunscreen overhang. One story extending beyond the tower area will include a computation room and a 200-seat lecture-demonstration room. Target date for completion of the $2.5 million building is the summer of 1965. Architect is Charles Luckman Associates.



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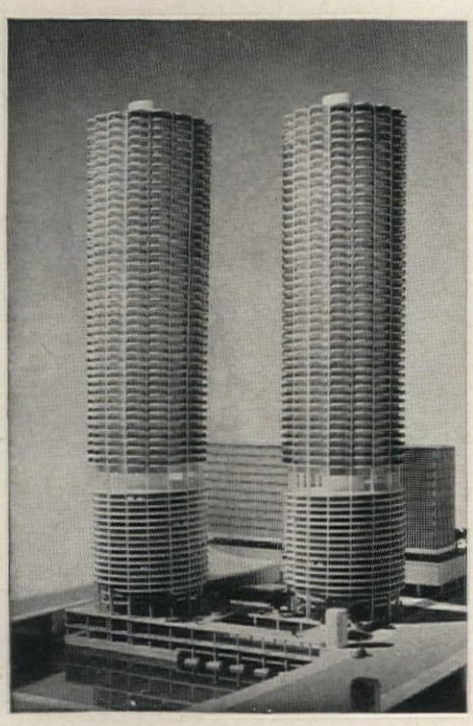

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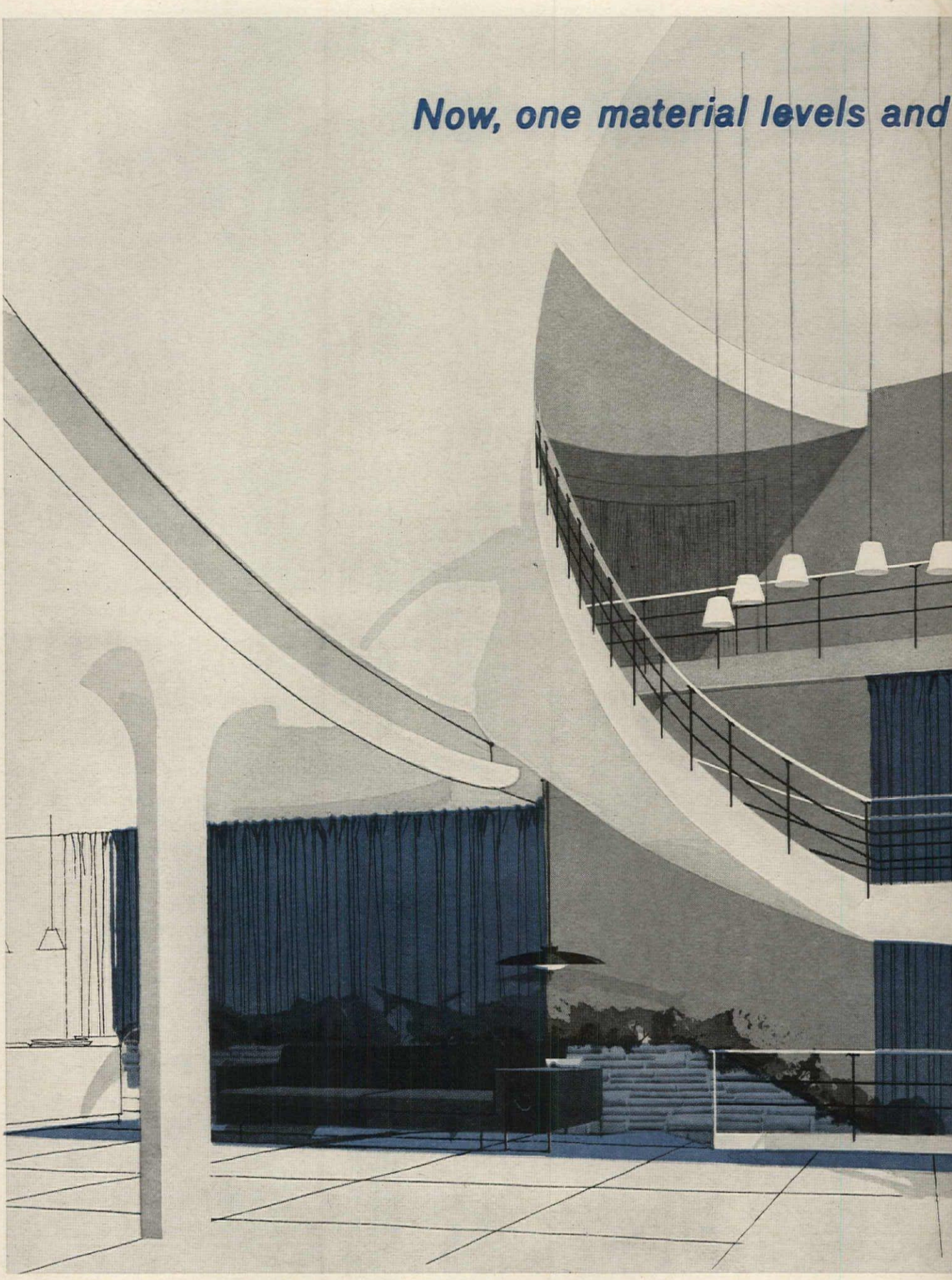
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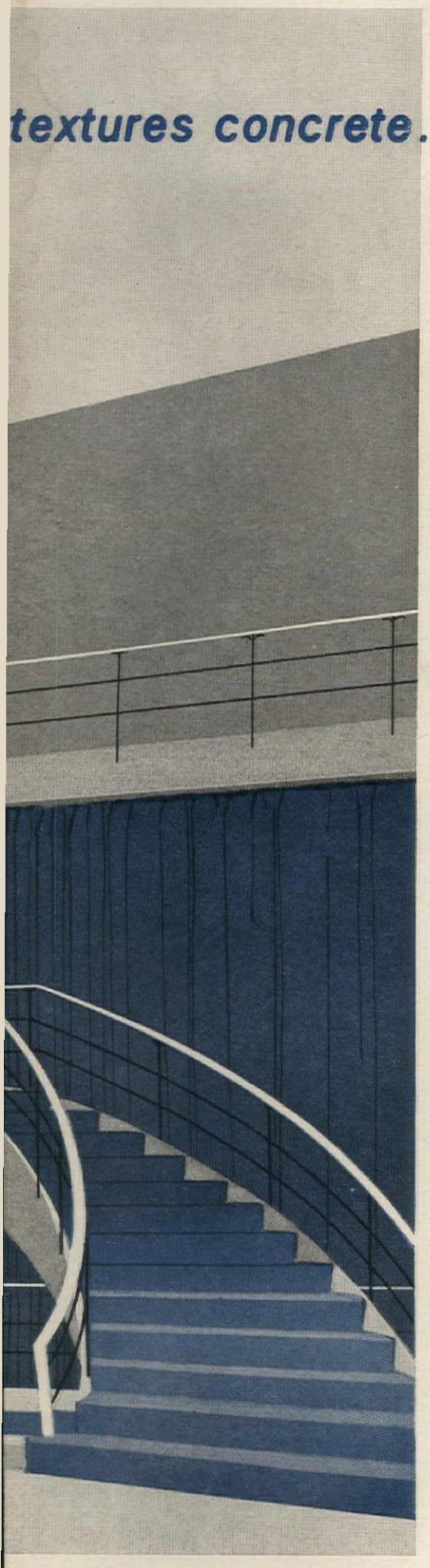

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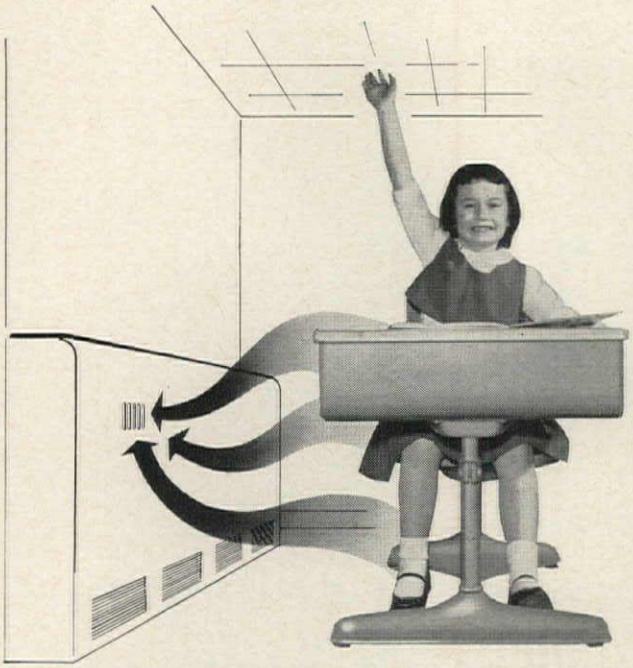

Comfort zone sensing . . .
proved best for accurate
temperature control

Comfort...a *vital*

Educators and architects today agree that classroom temperature has a vital effect on the learning process

Teaching and learning efficiency drop significantly when room temperatures vary from the ideal norm of 70 to 75° F.* It stands to reason, then, that temperature sensing and control equipment must respond rapidly to temperature variations in order to prevent overheating.

"Dynamic Sensing", developed by Barber-Colman, locates the thermostat within the unit ventilator. Here it continuously samples moving air, drawn from the comfort zone, responding rapidly to even the slightest temperature changes. Corrective action is initiated seconds after the changes occur, and comfort conditions are continuously maintained to insure maximum learning efficiency and end classroom discomfort.

Sound expensive? It's not. "Dynamic Sensing" can actually save you construction dollars. It can be factory-mounted by unit ventilator manufacturers. It eliminates the cost of wiring and piping for wall thermostats.

"Dynamic Sensing" saves maintenance, too. There

* *A Study of Factors Involved in Establishing a Satisfactory Thermal Environment in the Classroom*—Doctoral Thesis of Homer Franklin Mincy, The University of Tennessee, August, 1961.

MANUFACTURERS OF QUALITY BUILDING PRODUCTS · THE PRODUCERS' COUNCIL

BARBER COLMAN

factor in learning!

are no moving parts in the thermostat—nothing to wear out. Controls are fully protected against tampering or accidental damage. (They are mounted inside the unit ventilator or at some remote control point.)

This new concept fits perfectly into the growing trend to more flexible design in school buildings. "Off-the-wall" thermostat location permits complete freedom in room partitioning. Walls and panel dividers can be moved without altering the temperature control system. What's more, it cuts the cost of future building expansion. "Packaged" controls can be installed independently of all other controls in the building.

Barber-Colman now offers "Dynamic Sensing" for use in practically all types of heating, cooling, ventilating and year-round air conditioning systems. For complete details on the important benefits of this new development in temperature sensing, contact your nearest Barber-Colman Automatic Controls field office.

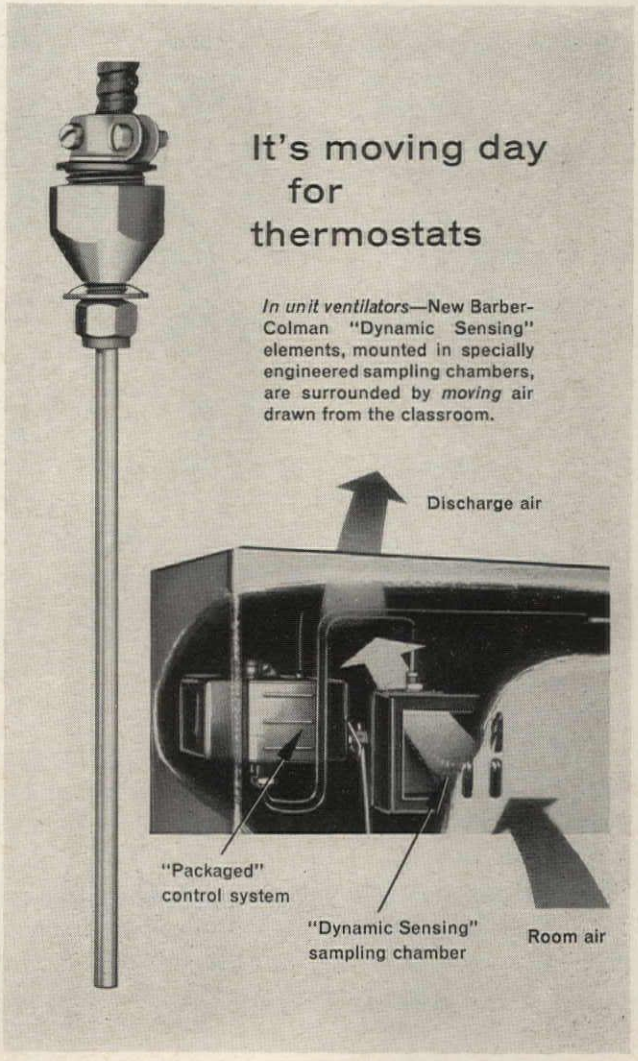

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Photo courtesy of Thompson Auto Album and Aviation Museum

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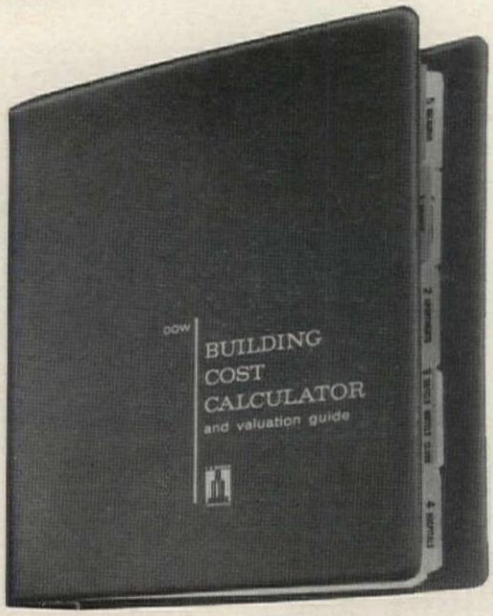

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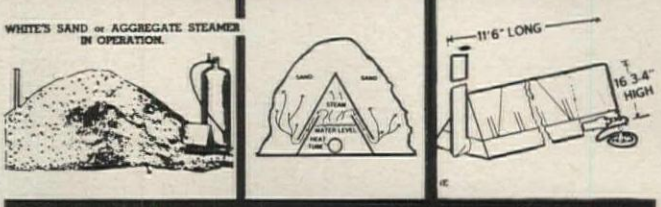

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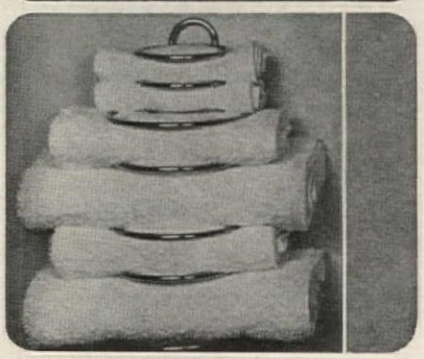

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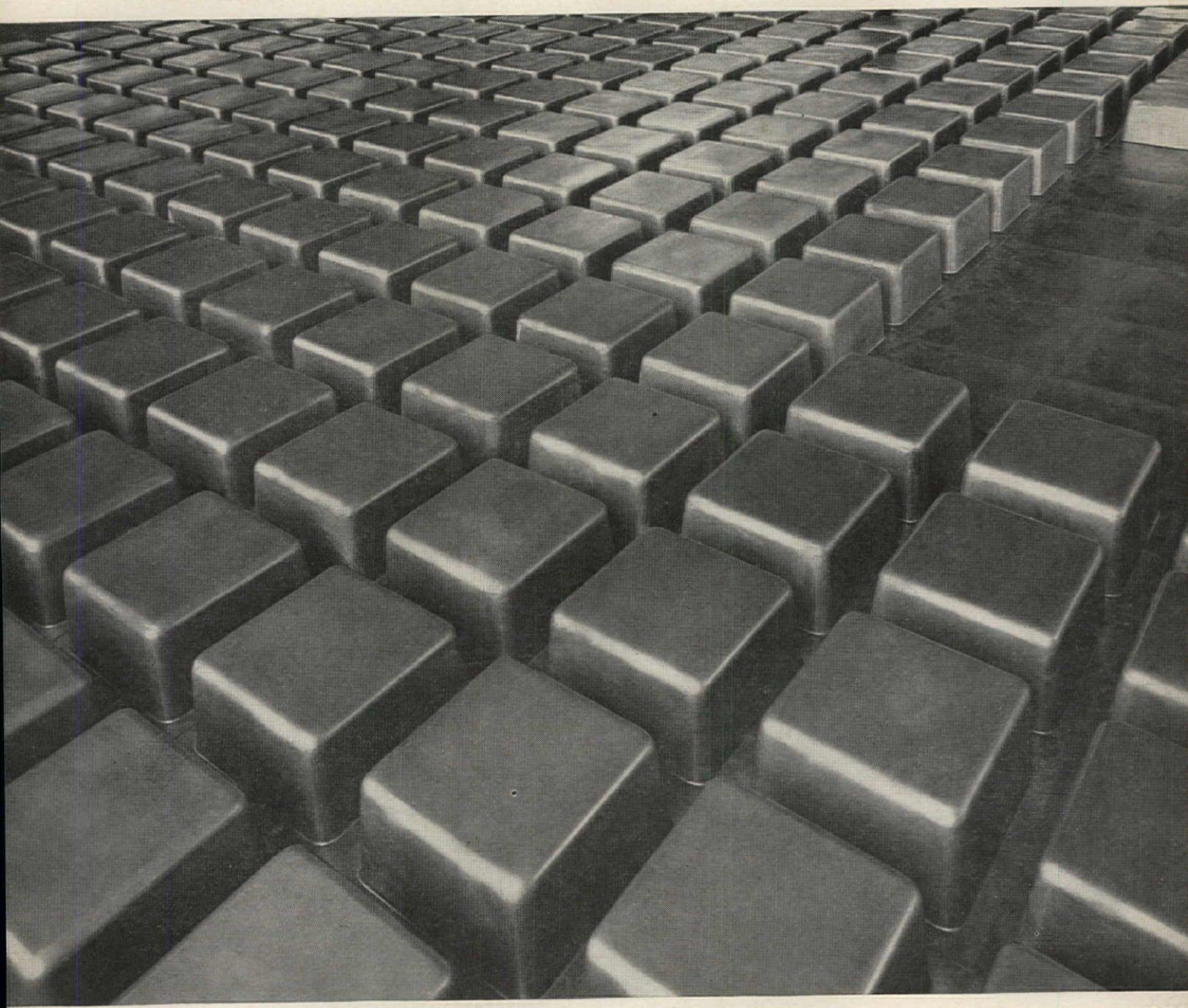
Deeper Steeldomes fill the need for longer spans... stronger waffle slabs!



***Longer** spans . . . **stiffer** floors . . . **heavier** loads . . . now made possible with CECO's new Deep Steeldomes. This is a typical layout of 16" deep 30" x 30" Steeldomes ready fo placement of reinforcing steel. For full particulars, see your Ceco man or fill out the coupon*

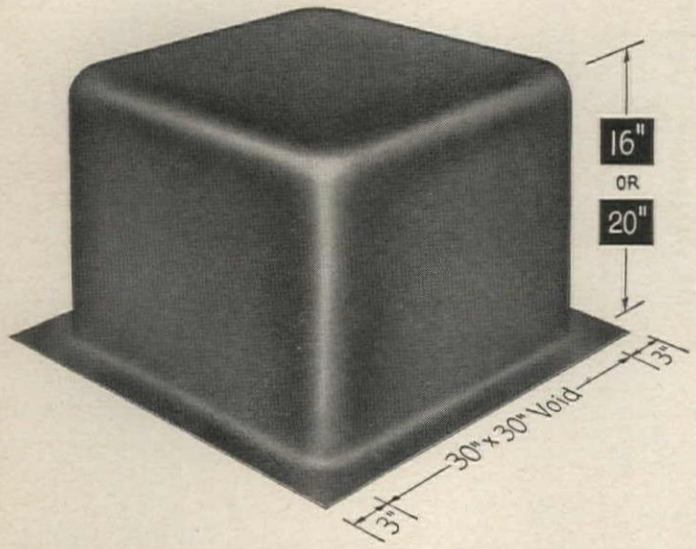
Now you can design spans in the 50-ft. range... in *monolithic* reinforced concrete waffle flat-slabs... using Ceco's new 16" or 20" Deep Steeldomes. Combined with Ceco's regular depths, these Deep Steeldomes offer architects and engineers a complete range of standard Steeldomes to meet the needs of any project.

All Ceco Steeldomes—from depths of 4" through 20"—are one-piece units—the best for waffle construction. More rugged and rigid. No excessive deflection—no excessive concrete — no excessive clean-up problem. And the ceiling finish of the last-poured slab is as good as the first.

CECO Steelform Service

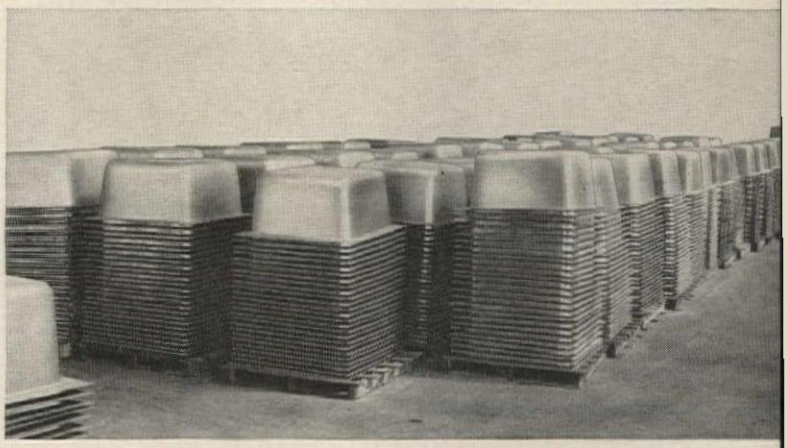
expansive? yes! / expensive? no!

Start of new Mormon Temple Plaza parking garage in Salt Lake City. Here Ceco is forming nearly three-quarters of a million sq. ft. with 16" and 20" Deep Steeldomes. Church of Latter Day Saints, owners / George Cannon Young, architect / George S. Nelson, engineer / Jacobsen Construction Company, general contractor.



Ceco's new Deep Steeldomes are 16" or 20" in depth.

Below—Typical supply of Ceco's new Deep Steeldomes



CECO'S FULL LINE OF STANDARD STEELDOMES

SYSTEM	30" x 30" voids	19" x 19" voids
MODULE	36" x 36" overall	24" x 24" overall
DEPTH OF DOMES	8", 10", 12", 14", 16" or 20"	4", 6", 8", 10" or 12"

Waffle flat-slabs formed with Ceco Steeldomes make the most efficient use of concrete and steel—reduce deadload over comparable systems—give additional savings throughout the structure in beams, girders, columns and footings.

Ceco Steeldome Service is backed by more than 500 million square feet of Steelform experience. Among currently-let projects using Ceco's Deep Steeldomes are Technical classroom building, M.I.T. campus, Cambridge, Mass.; Residential hall, Illinois State Normal University, Normal, Ill.; and Mormon Temple Plaza parking garage, Salt Lake City, Utah.

CECO

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*Forum figures exclude foreign

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Exclusive advertisers—1962	189 ★	108	93
Advertising pages—1962	2,333 ★	1,303	1,583
Advertising pages—6 months 1963	1,300 ★	638	755
Gain or loss from year ago	+98 ★	−24	−27

SOURCES:

Circulation figures and renewal rates: ABC Publishers' statements.

Preference studies: Summary of 191 studies among architects and engineers sponsored by building product manufacturers and advertising agencies.

Editorial pages: Architectural Record Research Department.

Market Coverage: Continuing statewide studies of Dodge Reports.

Index to Advertising

PRE-FILED CATALOGS of the manufacturers listed below are available in the 1963 Sweet's Catalog File as follows: (A) Architectural File (green), IC Industrial Construction File (blue), (LC) Light Construction File (yellow).

Aerofin Corporation 269
A-IC Allied Chemical Corporation Barrett Division 78-79
A-IC Alsynite Company of America, Reichold Chemical Division 82
A-IC Altec Lansing Corporation 228
A-IC-LC Aluminum Company of America . 84-85
IC American Air Filter Co., Inc. ... 98-99
American Bridge Division 182-183
A-IC American Cyanamid Company (Bldg. Prods. Div.) 14
American Fixture, Inc. 231
American Gas Association 210-211
A-LC American Olean Tile Company 2nd Cover
American Screen Products 177
A-IC-LC American Sisalkraft Company 209
A-LC American Telephone and Telegraph Company 17
Anchor Post Products, Inc. 230
Anemostat Corporation of America 219
Architectural Record 266-267
A-IC Architectural Systems, Inc., div. of Westinghouse Electric Corp. 59
A-IC-LC Armstrong Cork Company ... 25 to 32
A-LC Azrock Floor Products Div. 3rd Cover

A-IC Barber-Colman Company 258-259
A-IC Barcol Overdoor Co., sub. of Barber-Colman Co. 100
A-IC Barrett Div., Allied Chemical Corp. 78-79
A Bayley Co., The William 33
A-LC Bell Telephone System 17
A-IC Bethlehem Steel Company 70, 251
Bigelow Sanford Carpet Co. 16
A-IC Borden Metal Products Co. 19

Cabin Crafts 56-57
Carnes Corporation 249
A Carpenter & Company, L. E. 250
A-IC-LC Carrier Air Conditioning Co. ... 210-211
A-IC Ceco Steel Products Corporation 264-265
A-IC Celotex Corporation, The 2-3
Chemstrand Corporation .. 54-55, 56-57
Chicago Hardware Foundry Co. ... 222
Chicago Pump 255
A-IC Cookson Co., The 96
A-IC Corning Glass Works 93
A Cupples Products Corporation . 240-241

Da-Lite Screen Co., Inc. 254
A-LC Devoe & Raynolds Company, Inc. .. 188
Dodge Reports 232
A-IC-LC Douglas Fir Plywood Association 244-245
Dow Building Cost Calculator 262
A-IC-LC Dow Chemical Company, The .. 178-179
A Dow Corning Corp. 233, 246-247
Du Pont de Nemours & Co., E. I. 236-237
A Duriron Company, Inc., The 1
A-IC-LC Dur-O-Wal, Inc. 11

A Electromode Div., Commercial Controls Corp. 92
Executone, Inc. 94-95

A Floor Tile Division of the Ruberoid Company 108
A Follansbee Steel Corp. 91

A-IC-LC General Electric Company 252-253
A Geneva Industries, Inc. ..... 71 to 74
A Global Steel Products Corp. 263

A Hall-Mack Co. 208
A Harrington & King Perforating Co., Inc. 54
A Haughton Elevator Company 184
A Haws Drinking Faucet Co. 104
A Hillyard Chemical Co. 40
A-IC-LC Honeywell ..... 191 to 194
A Hope's Windows, Inc. 80
A-IC Horn Products, A.C. 60-61
A Humble Oil & Refining Company ... 35

A-IC-LC Inland Steel Products Co. 189
International Pipe & Ceramics Corp. 34
A International Register Co. 250

A Jamison Cold Storage Door Co. 38
A-IC-LC Jones & Laughlin Steel Corp. 62

A-IC-LC Kentile, Inc. 8
A Kim Lighting & Manufacturing Co., Inc. 55
A-IC Kinnear Mfg. Co., The 212
A-IC Kohler Co. 67
A Kwik-Wall Company 14

A-IC Laclede Steel Co. 168
A LCN Closers, Inc. 88-89
Lighting Products, Inc. 36
A Lightolier, Inc. ..... 63 to 66
A Linen Supply Association of America 190
A Lockwood Hardware Mfg. Co. 90
Lone Star Cement Corp. 7
A Ludowici-Celadon Co. 165

A-IC Macomber, Inc. 229
A-LC Marsh Wall Products, Inc. 270
McGraw-Hill Book Co., Inc. .. 246, 263
McQuay, Inc. 186-187
A Mills Co. 83
A-LC Misceramic Tile 103
IC Monsanto Chemical Co., Plastics Div. 225-226
A Mosaic Tile Company 68-69
A Mo-Sai Institute, Inc. 243
A-LC Mueller Brass Co. 205

IC Nalgene Piping Systems 254
National Concrete Masonry Assoc. . 76
A-IC-LC National Gypsum Co. ..... 47 to 50
National Lumber Manufacturers Association 206-207
A National Plastic Products Co., Inc. 22
A-IC-LC Nesbitt, Inc., John J. 87

Olin Mathieson Chemical Corp., Winchester Western Div., Ramset 15
A Otis Elevator Co. 81
A Overly Manufacturing Co. 214-215

Pemco-Kalamazoo 234
A-IC Pittsburgh Corning Corp. . 166-167, 239
A-IC-LC Pittsburgh Plate Glass Co. 202-203
A Plaza Towel Holder Co. 262
LC Portland Cement Association .. 105, 238
A Pratt & Lambert, Inc. 55
A-IC Presstite Div., Interchemical Corp. 223
Prestressed Concrete Institute 97
A Products Research Co. 21

A-LC Red Cedar Shingle Bureau 175
Remco 227
A-LC Republic Steel Corp. 75, 260-261
A-IC Richards-Wilcox Mfg. Co. 185
A Rohm & Haas Company 101
A Ruberoid Co., The 108
A Rusco Industries, Inc. 176
A Russell & Erwin Div. 51, 53
A-IC Rust-Oleum Corp. 181

A Sargent & Co. 248
Schemenauer Mfg. Co. 204
A-IC-LC Scott Paper Company 235
A Sedgwick Machine Works 180
A Silent Gliss, Inc. 37
A Simmons Company 77
A-IC Sloan Valve Company ..... 4th Cover
Solar 218
A-IC Sonoco Products Co. 86
A-IC Standard Conveyor Company 54
Sweet's Catalog Service 269
A-LC Symons Mfg. Co. 216

A T & S Brass and Bronze Works, Inc. 222
A-IC Taylor Co., Halsey W. 224
A Titus Mfg. Corp. 220-221
A Torjesen, Inc. 58
Turnbull Elevator, Inc. 43

A-IC United States Gypsum 256-257
A-LC United States Plywood 41-42
A-IC United States Steel Corp. (Subs.) 39, 44-45, 182-183, 213
A Universal Atlas Cement 213
A-LC Uvalde Rock Asphalt Co. .... 3rd Cover

A-IC Van Range Co., John 230
A Vermont Marble Co. 216-217
A Von Duprin Division 46

A Weis Mfg. Co., Inc., Henry 201
A-IC West Chemical Products, Inc. 102
A-LC Weyerhaeuser Company ..... 197 to 200
White Co., Inc., L. B. 262

A Zero Weather Stripping Co., Inc. . 242
A-LC Zonolite Division 106-107

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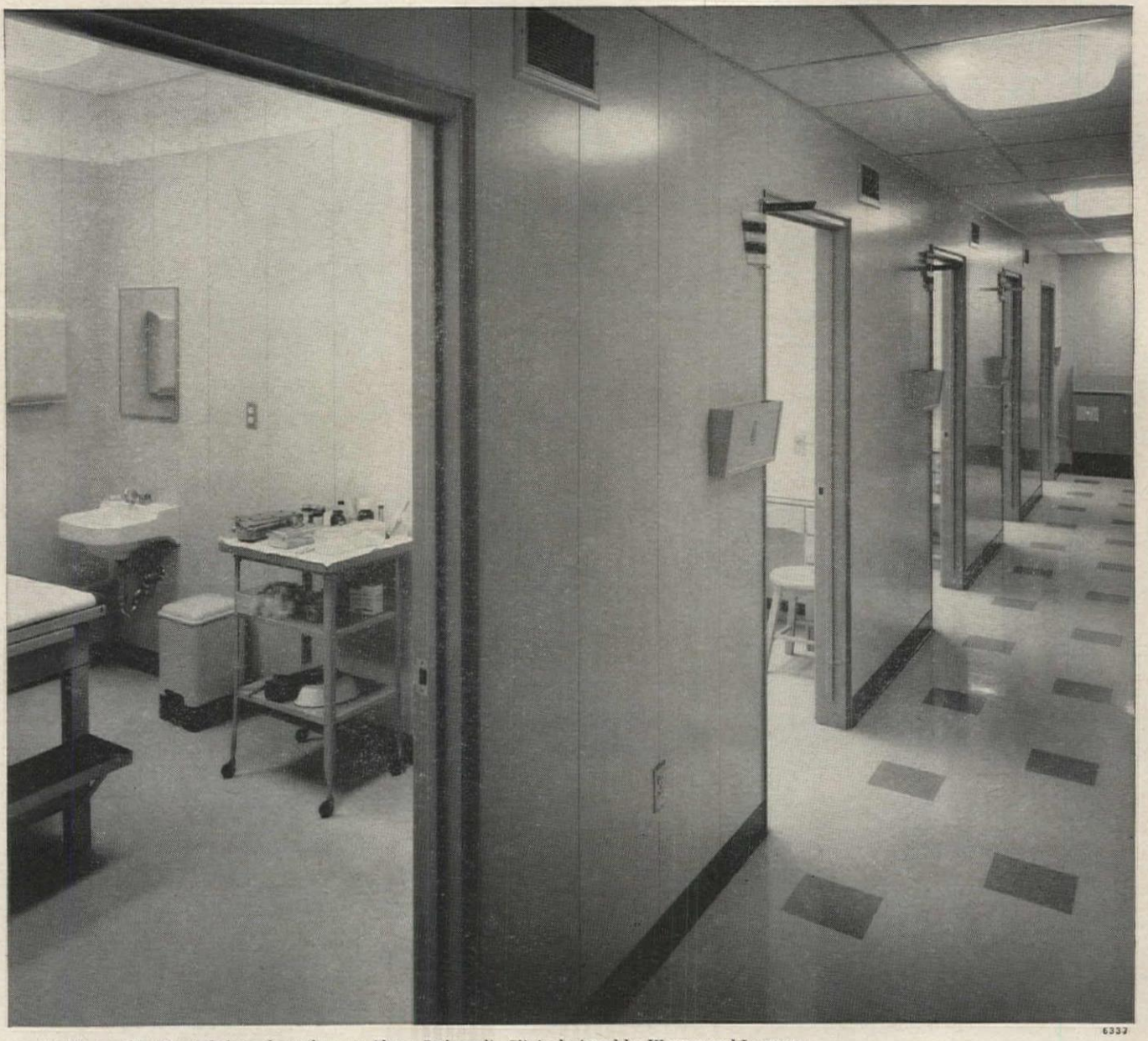

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