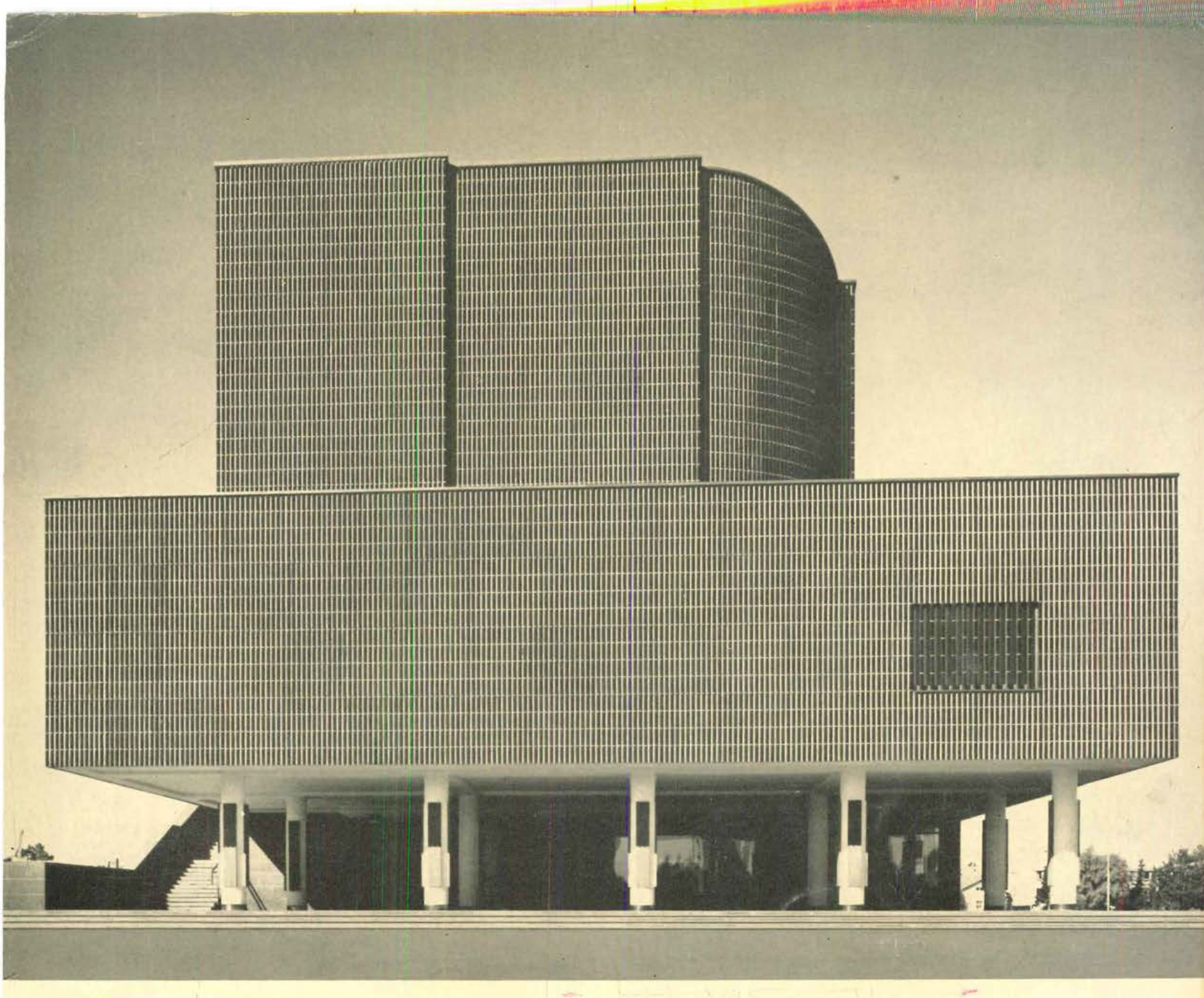


DURCON® LABORATORY SINKS resist the corrosive effects of hot stuff . . . hot or cold! Hot solutions don't affect these handsome black sinks. They don't discolor or stain when handling acids, alkalis, salts, solvents and other laboratory reagents in the toughest kind of service.

Durcon sinks stand up to hard knocks without cracking or spalling. Our tests prove they resist the impacts of a 3-lb. steel ball dropped from heights of 6 to 9 feet . . . far greater abuse than ever encountered in lab service. One-piece construction eliminates troublesome joints and seams that trap liquids and cause seepage. Smooth coved corners and dished bottoms assure complete drainage, easy cleanup. And these sinks are virtually impermeable to liquids.

With all their outstanding features, Durcon sinks cost less than stone and porcelain sinks. And original cost is just the start. Still more savings . . . in freight and installation . . . result because Durcon sinks weigh 60% less than old-style sinks. One man can put a Durcon sink in place without mechanical aids. And save space, too! With a wall thickness half that of stone and porcelain sinks, Durcon sinks fit easily into cramped quarters.

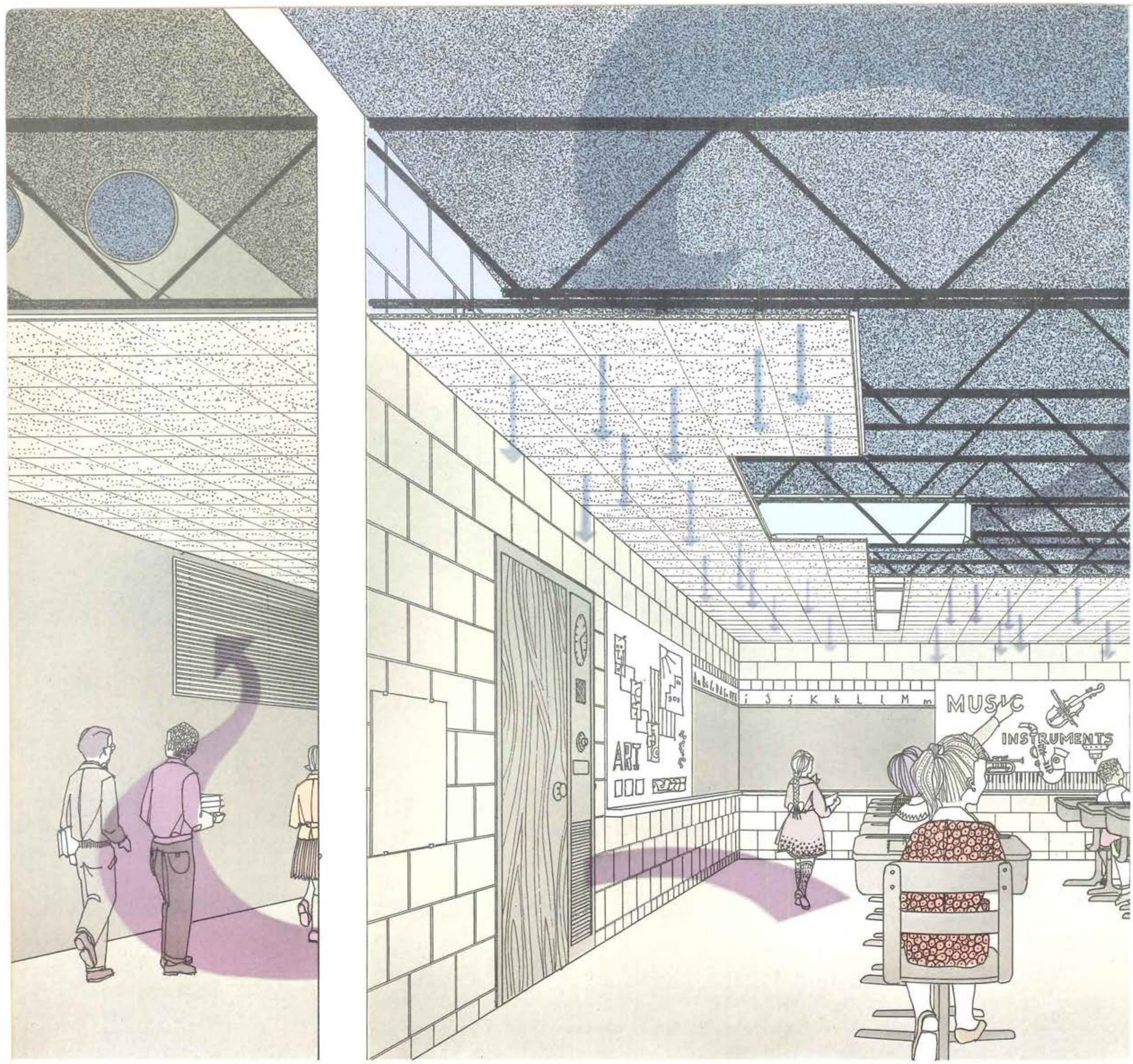
Get all the facts on Durcon Lab Sinks. Call your Laboratory Furniture Manufacturer, or write us for Bulletin PF/5d.

DURCON LAB SINKS give you a complete selection—Table Sinks, End Sinks, Drainboard Sink Units, Double Compartment Sinks, Cylindrical Sinks, Cup Sinks and Troughs . . . in a wide range of sizes.

THE DURIRON COMPANY, INC., DAYTON, OHIO DURCO

Represented exclusively in Canada by: SHAWINIGAN CHEMICALS LIMITED, Montreal, Que.; Weston, Ont.; Vancouver, B. C

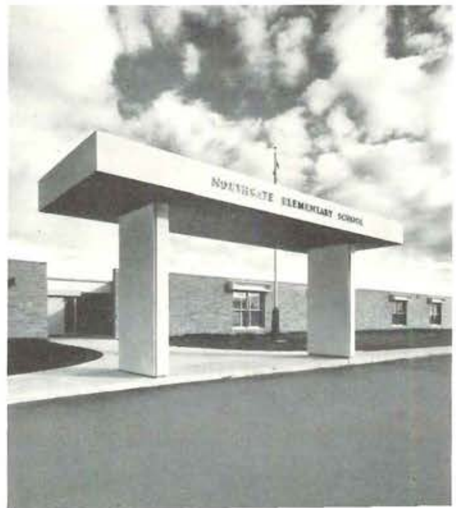
For more data, circle 3 on Inquiry Card

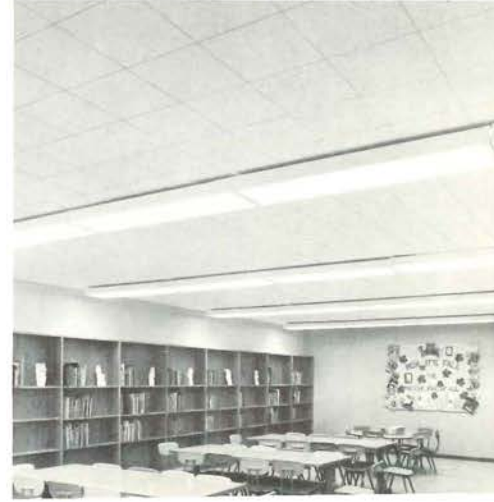


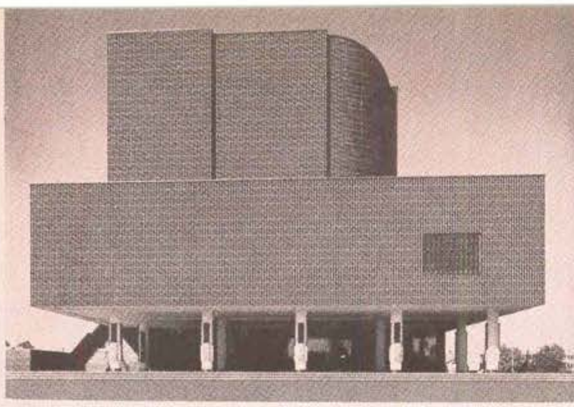
A bold concept, already accepted and applied to thousands

Northgate Elementary Public School, Bloomington, Minn. ARCHITECTS AND ENGINEERS: Hammel & Green, Inc., St. Paul. GENERAL CONTRACTOR: Adolfson & Peterson, Minneapolis. ACOUSTICAL CONTRACTOR: St. Paul Linoleum & Carpet Co., St. Paul.

RENDERING BY HELMUT JACOBY
PHOTOGRAPHY BY LAWRENCE S. WILLIAMS







Cover:

Sinäjoki Civic Center, Finland. Architect, Alvar Aalto. Photograph by Kalevi A. Makinen

ARCHITECTURAL RECORD April 1963 Vol. 133, No. 4 Published monthly, except May, 1963, when semi-monthly, by F. W. Dodge Corporation, a McGraw-Hill Company. This issue is published in national and separate editions. Additional pages of separate edition numbered or allowed for as follows: Western section, (including *Western Architect and Engineer*), 32-1 through 32-24.

Executive, editorial, circulation and advertising offices: 119 West 40th Street, New York 18, N. Y. Western Editorial Office: 2877 Shasta Road, Berkeley 8, Calif. Office of Publication, 10 Ferry Street, Concord, N. H.; second-class mail postage paid at Concord, N. H.

Subscription rate for individuals in the field served $5.50 per year in U. S., U. S. Possessions and Canada; single copies $2.00. Further details on page 6. Postmaster: Please send Form 3579 to Circulation Manager, ARCHITECTURAL RECORD, 119 West 40th Street, New York 18, N. Y.

Architectural Engineering

ARCHITECTURAL

Architects and Buildings:

Authors

Record Reports

Features

RECORD

CONTENTS

April 1963

Building Types Study 318: Office Buildings

Coming in the Record

NEW WORK OF HARRY WEESE

Among the younger generation of architects, Harry Weese is one whose architecture is notable not only for sensitive interpretation of function and appropriate expression of it but also for its quality of recognizing its relationship to tradition while being entirely contemporary. Next month's special feature will present six major new projects, with special drawings by the architect.

SPECIAL-PURPOSE SCHOOLS

In the vast volume of school buildings reported and anticipated in the activity reports of F. W. Dodge Corporation, there seem to be appearing a growing number of new kinds of schools—special-purpose schools to serve the needs of particular kinds of students: the handicapped, the underprivileged, the delinquent, the gifted, and so on. Next month's Building Types Study on Schools will feature a number of these new types, plus the famous Andrews, Texas, High School designed by Reid, Rockwell, Banwell and Tarics as one of the first schools expressly planned for team teaching.

Architectural Record is managed by the Publications Division of McGraw-Hill Publishing Company, Inc. Officers of the Publications Division: Shelton Fisher, president; vice presidents: Robert F. Marshall, operations; John R. Callaham, editorial; Ervin E. DeGraff, circulation; Donald C. McGraw, Jr., advertising sales; Angelo R. Venezian, marketing.

Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

SUBSCRIPTIONS: Available only by paid subscription. Publisher reserves the right to refuse nonqualified subscriptions. Subscriptions to Architectural Record solicited only from architects and engineers. Position, firm connection, and type of firm must be indicated on subscription orders forwarded to Circulation Manager, Architectural Record, 119 West 40th Street, New York 18, N. Y. Subscription prices: U. S., U. S. Possessions and Canada: $5.50 per year; other Western Hemisphere countries, to those who by title are architects and engineers, $9.00 per year. Single copy price, $2.00. Beyond Western Hemisphere, to those who by title are architects and engineers, $9.00 per year for 12 monthly issues not including Mid-May 1963 issue. Subscriptions from all others outside U. S., U. S. Possessions and Canada for 12 monthly issues, not including Mid-May issue, $24 per year.

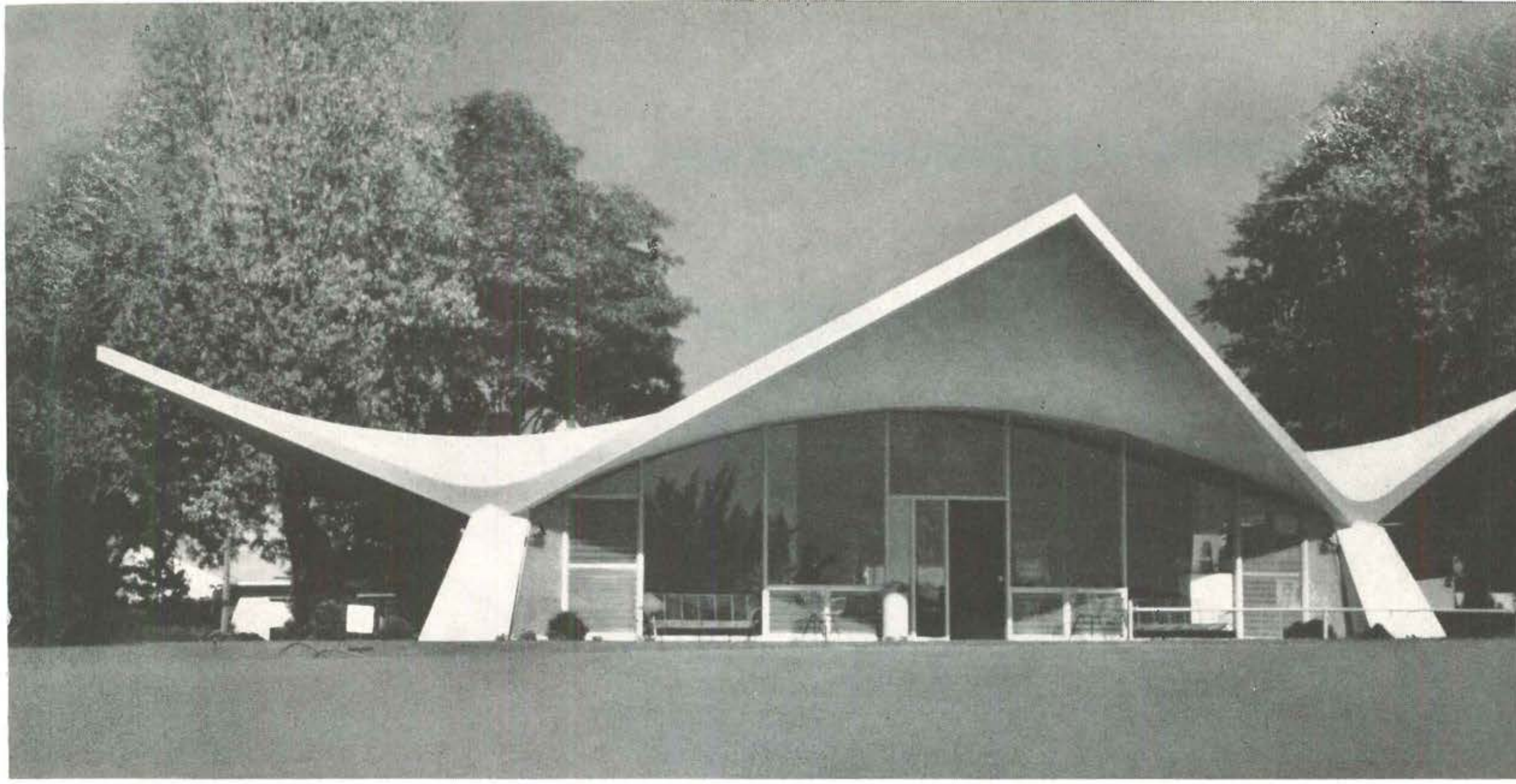
CHANGE OF ADDRESS: Subscribers are requested to furnish promptly both old and new address, sending, if possible, stencil impression from magazine wrapper; new postal zone number, if any, should be included. Allow one month for change.

UNCONDITIONAL GUARANTEE: The publisher, upon written request, agrees to refund the part of the subscription price applying to the remaining unfilled portion of the subscription if service is unsatisfactory.

OTHER F. W. DODGE SERVICES: Dodge Reports—Dodge Construction Statistics—Sweet's Catalog Services—Dodge Mailing Service—Home Planners' Digest—The Modern Hospital—The Nation's Schools—College and University Business—Hospital Purchasing File—Chicago Construction News—Daily Pacific Builder (San Francisco)—The Daily Journal (Denver)—Real Estate Record & Builders Guide—Dow Building Cost Calculator. OTHER McGRAW-HILL SERVICES to the construction industry: Engineering News-Record—Construction Methods and Equipment—Ingenieria Internacional Construccion.

Audit Bureau of Circulation

Associated Business Publications



GOLF STARTER HOUSE, PURDUE UNIVERSITY ■ General Contractor: KEMMER CONSTRUCTION CO. ■ Architects: PURDUE PHYSICAL PLANT DEPT. Engineers: PURDUE STRUCTURAL ENGINEERING DEPT., School of Civil Engineering ■ Ready-mixed concrete for footings and piers: CONCRETE READY MIX CO. ■ Ready-mixed concrete for floor, sidewalks and roof: VERPLANK CONCRETE & SUPPLY CO. ■ Lone Star Masonry Cement Supplier: SPEER BUILDING MATERIALS, INC. (All of Lafayette and West Lafayette, Ind.)

There's new simplicity in this university-designed thin-shell roof (made with reinforced concrete and Incor®)

Insulating panels of polystyrene foam, which constitute the form for the thin-shell reinforced concrete roof, are fastened to high tensile steel wires.

Now there's a new and simpler way to form thin-shell concrete roofs in graceful hyperbolic paraboloid shapes.

Purdue University's golf starter house—an experimental research project—provides an instructive example of how it's done. Steel edge beams, supported on concrete piers, were interlaced with steel wires. Polystyrene foam slabs were then fastened to the wires and grouted in place to form a base upon which lightweight concrete made with "Incor" 24-Hour Cement was cast. As a result, the profusion of forms and supports usually required in H-P concrete construction was eliminated. And still further savings in time and money were assured by the use of "Incor"—America's first high early strength portland cement.

"Incor" cement grout is broomed over insulation before steel reinforcing is placed.

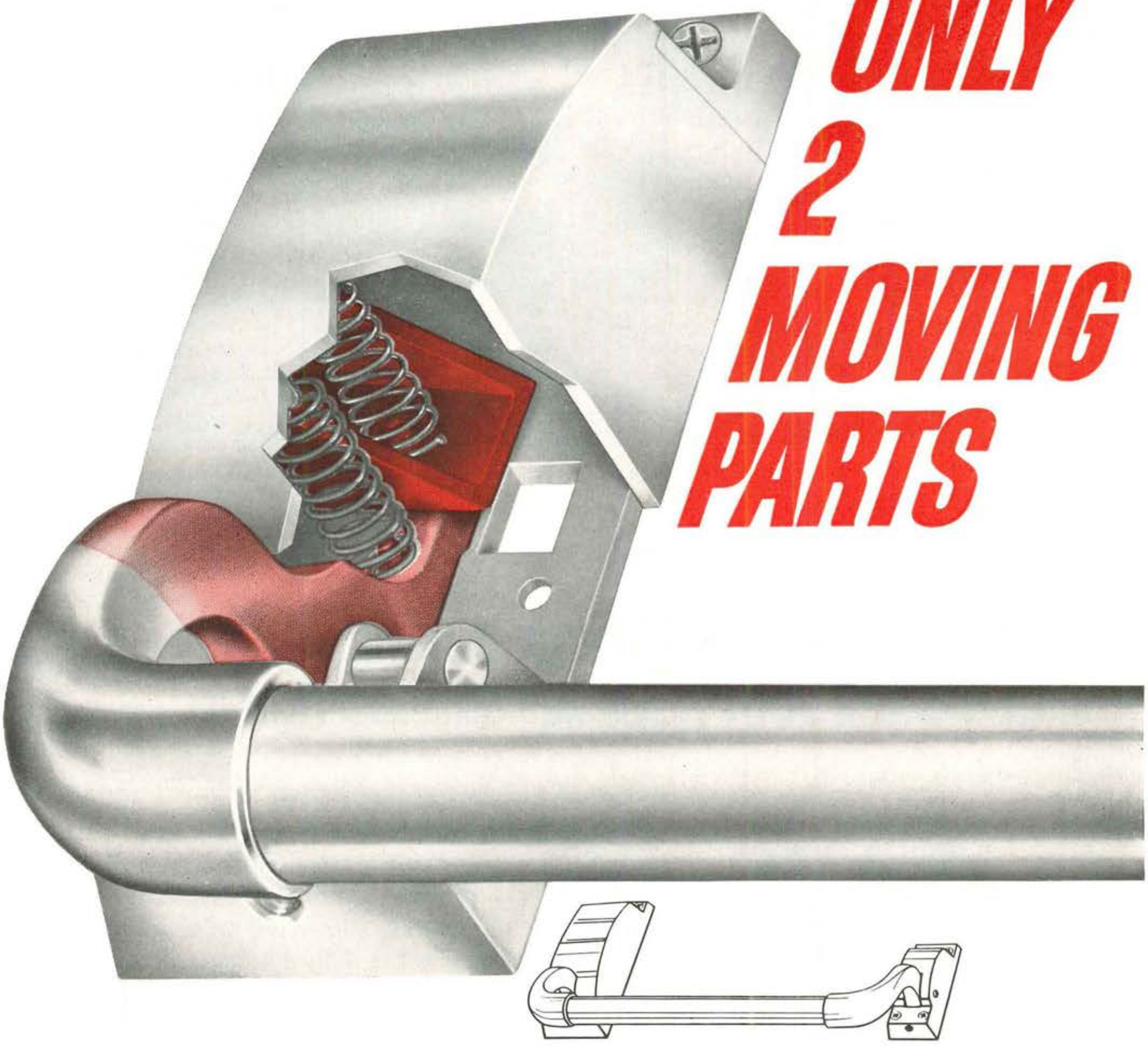
Lightweight "Incor" concrete roof slab is cast and finished over reinforcing.

LONE STAR CEMENT CORPORATION
New York 17, N.Y.

INCOR® 24-HOUR CEMENT

WHY S&G EXIT DEVICES LAST LONGER...

ONLY 2 MOVING PARTS



Less moving parts means less wear. S&G builds those two parts strong, hard... to endure and endure. Result? Our 5300, 5410 and 5560 Series (Rim, Vertical and Mortise devices) make building owners and operators completely satisfied... longer!

Other significant features of S&G Exit Devices include: UNI-TRIM® which offers precise location of trim because screws bolt through device case directly into trim lugs; identical outside appearance regardless of whether it's a Rim, Vertical or Mortise device.

Take advantage of the extra durability offered by S&G. Specify S&G Exit Devices with only two moving parts. Both the devices and your clients' satisfaction will last, and last... and last!

WRITE for complete information to Sargent & Greenleaf, Inc., 100 Bremen Street, Rochester 21, New York

SARGENT & GREENLEAF, INC.

ROCHESTER 21, NEW YORK

For more data, circle 4 on Inquiry Card

Sic Transit Transit

What the automobile has done to mass transit systems would seem to be obvious. And what it has done to our downtown cities is not difficult to observe. This particular observor was startled recently, however, to read some statistics on the steady demise of transit systems. These came in a paper by John C. Kohl, the assistant administrator for transportation of the Housing and Home Finance Agency. He also made some remarks on lack of attention given to it in most planning studies; perhaps some planners ought to see the statistics.

"Everywhere, in cities large and small," he wrote, "there seems to be a transit problem. In the seven years, 1954 to 1960, 131 transit operators quit the business, and were replaced in only 54 communities—77 urban areas completely lost mass transportation service. And, in the year just past, our new HHFA Office of Transportation has been in contact with 224 cities in 44 states.

"Yet, most community planners are still giving transit scant attention. Just five short paragraphs in 15 full pages of text dealing with circulation and parking appeared in a very recent report from a city noted not only for its progressive planning but for its civic accomplishments. In planning report after report from other metropolitan areas, public transportation is usually mentioned with some appropriate rationale discounting its significance . . ."

He continued: "Giving public transportation a fair consideration in urban planning does not, in my mind, portend any immediate cutback in present traffic and highway demands. Growth, in vehicles and in their use, is still very much in the cards, but the community growth will be far healthier if we can achieve some real balance in our transportation.

"We need to adapt the principle of diversity to our urban transportation resources—good highways and parking for auto use, and good public transportation as an alternate and standby for selected services determined through comprehensive planning. Otherwise it may be 'drive or you don't go' for a lot of city people."

Some other statistics, these from Business Week: "Since 1940, the bus and rapid transit industries have lost 28 per cent of their passengers, have decreased vehicle-miles operated by 17 per cent, and trimmed employment by 41 per cent. A 92 per cent increase in revenue, through a seemingly endless series of fare hikes that drive still more people to their autos, has been outstripped by a 116 per cent jump in operating expenses."

Sic transit transit.

Many large cities are turning, in their planning at least, toward mass transportation. San Francisco has voted a huge bond issue for a rapid transit system. Atlanta, Washington, even Los Angeles are working up plans. Philadelphia has successfully increased the use of public transit facilities, has strengthened its rail commuter systems, built parking garages near outlying rail stations. Boston is the scene of a huge experiment in rebuilding transit services.

President Kennedy is urging a huge Federal program of subsidies for expanding public transit facilities, on the ground that the Federal Government pays from 50 to 90 per cent of the cost of urban highways and freeways.

A worthwhile exercise is to figure out how many lanes would be needed by, say, 1980 for all of the people of that day to drive into a given downtown area, and then look at the physical city remaining. To build freeways for them would be, in the words of Lewis Mumford, "pyramid building with a vengeance; a tomb of concrete roads and ramps covering the dead corpse of a city."

—*Emerson Goble*

QUEST FOR QUALITY IN ARCHITECTURE IS THEME FOR A.I.A. MIAMI CONVENTION; NOTED SPEAKERS, SOCIAL WHIRL PLANNED

"The Quest for Quality in Architecture: The Role of Architecture as an Art" is the theme of the 95th Annual Convention of the American Institute of Architects, which meets May 5-9 in Miami Beach, Fla. A registration of 2,000 architects is anticipated.

Following two days of A.I.A. business sessions, the professional program will begin Wednesday morning, May 8, at the Americana Hotel, convention headquarters. Permanent moderator for the entire program will be Burnham Kelly, dean of Cornell University's College of Architecture. Speakers at one session will continue as panelists in succeeding sessions to provide unity for the entire program.

Sir Basil Spence, internationally known for his design of the new Cathedral at Coventry, England, will be one of the participants in the opening session devoted to "What Is Quality?" Others will be S. Robert Anshen, F.A.I.A., partner in the San Francisco firm of Anshen & Allen; Paul Rudolph, chairman of Yale University's Department of Architecture; and Dr. Edward T. Hall, anthropologist-psychologist, author of several books, including "The Silent Language."

"What (and Who) Influence Quality?" will be the second session topic, with speakers Nikolaus Pevsner, critic and author of "An Outline of European Architecture"; Karel Yasko, newly appointed assistant commissioner of design and construction for General Services Administration; and George McCue, critic and reporter, St. Louis Post-Dispatch.

Third and final professional session Thursday afternoon will be concerned with "The Attainment of Quality." Speakers will include critic Ada Louise Huxtable and architect John M. Johansen, New Canaan, Conn.

Five members of the A.I.A. Board of Directors comprise the planning committee for the professional program: William W. Eshbach, A.I.A., Philadelphia, chairman; Robert M. Little, F.A.I.A., Miami; Charles M. Nes, F.A.I.A., Baltimore; Oswald H. Thorson, A.I.A., Waterloo, Iowa; and Julius Sandstedt, A.I.A., Oshkosh, Wis.

Host Chapter Committee

A full schedule of social activities has been planned by the A.I.A.'s Florida South Chapter, host of this year's convention. They include a tropical garden tour, a tour of Palazzo Vizcaya, one of the country's finest estates, two special events for the ladies, and a "Tropical Night Caper," with Caribbean music and entertainment at Hialeah Park.

Host Chapter committee members are: Robert M. Little, F.A.I.A., regional director—Honorary Chairman; Earl M. Starnes—Chapter president; H. Samuel Krusé, F.A.I.A.—General Chairman; Wahl J. Snyder Jr., F.A.I.A., and Mrs. Wahl J. Snyder Jr—Hospitality and Ladies Events; Alfred Browning Parker, FA.I.A.—Reception; Russell T. Pancoast, F.A.I.A., and James L. Deen—Guidebook; Frank E. Watson, F.A.I.A.—Chapter Party & Entertainment; James E. Ferguson—Exhibits; C. Robert Abele—Tours & Transportation; Edward G. Grafton—Publicity; O. K. Houstoun Jr.—Student Program; Herbert R. Savage—Special Events; Verner Johnson—Architects-at-Home; Charles S. Broward Jr.—Finance.

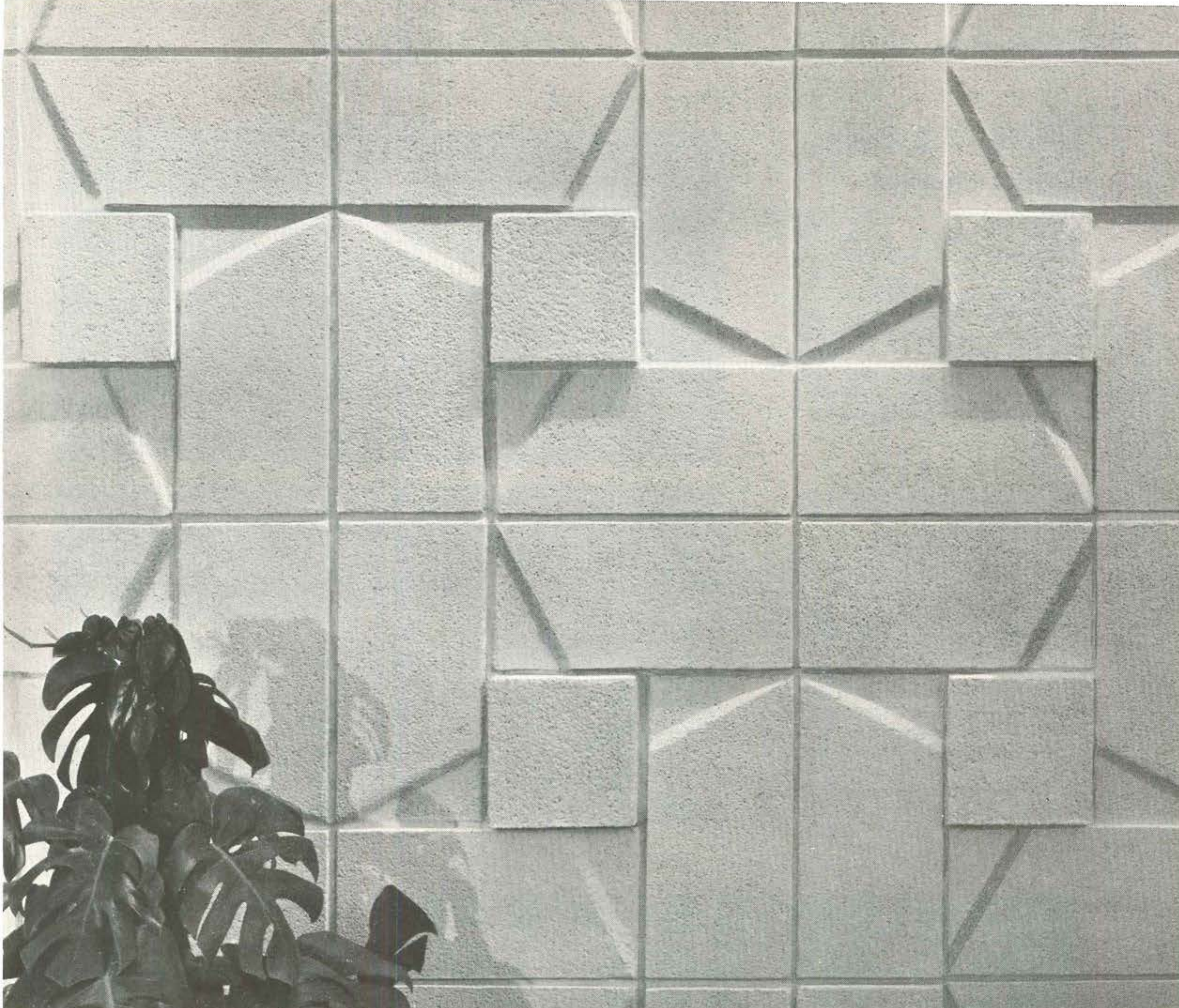
Related Meetings

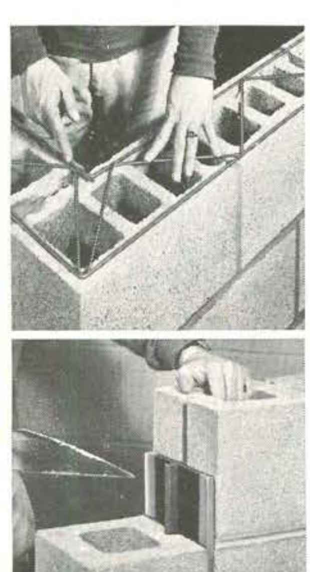
Meetings of the Association for Collegiate Schools of Architecture will be held May 3-5 at the Balmoral Hotel, Miami Beach. The National Council of Architectural Registration Boards will hold its conference following the A.I.A. convention, May 10-12 at the Americana Hotel.

A.I.A. NAMES 35 MEMBERS FOR FELLOWSHIP

The American Institute of Architects will advance 35 members to the rank of Fellow at its 1963 convention May 5-9 in Miami. The list follows:

Roger Bailey, Salt Lake City—Education
Charles Julius Betts, Indianapolis—Service to the Institute
Thomas Jones Biggs, Jackson, Miss.—Service to the Institute
Charles A. Blessing, Detroit—Design
John Savage Bolles, San Francisco—Service to the Institute and Public Service
Clinton E. Brush III, Nashville—Service to the Institute
H. Griffith Edwards, Atlanta—Service to the Institute
James Harrison Finch, Atlanta—Design
James Herschel Fisher, Dallas—Design
William Edward Hartmann, Chicago—Public Service
Ernest Daniel Ivey, Atlanta—Public Service
Paul Henton Kea, Hyattsville, Md.—Service to the Institute and Public Service
Edward A. Killingsworth, Long Beach, Calif.—Design
Roger Yuen Lee, Berkeley, Calif.—Design
Sidney Wahl Little, Tucson—Education
Charles Luckman, Los Angeles—Public Service
A. Reinhold Melander, Duluth—Public Service
Willis Nathaniel Mills, Stanford—Design
Frank Montana, South Bend—Design
George Nelson, New York City—Design and Literature
Louis C. Page, Austin—Design
Harry Daniel Payne, Houston—Service to the Institute
William Gray Purcell, Pasadena—Design
I. Lloyd Roark, Kansas City—Service to the Institute
Reginald H. Roberts, San Antonio—Service to the Institute
George Thomas Rockrise, San Francisco—Public Service
Walter Sanders, Ann Arbor—Design and Education
John Scacchetti, Union City, N.J.—Service to the Institute
G. Milton Small, Raleigh—Design
Lee Sorey, Oklahoma City—Public Service
Victor Steinbrueck, Seattle—Literature
John Stetson, Palm Beach—Service to the Institute and Public Service
Charles Rutan Strickland, Boston—Public Service
Frank Edward Watson, Miami—Design
Charles Day Woodford, Los Angeles—Service to the Institute



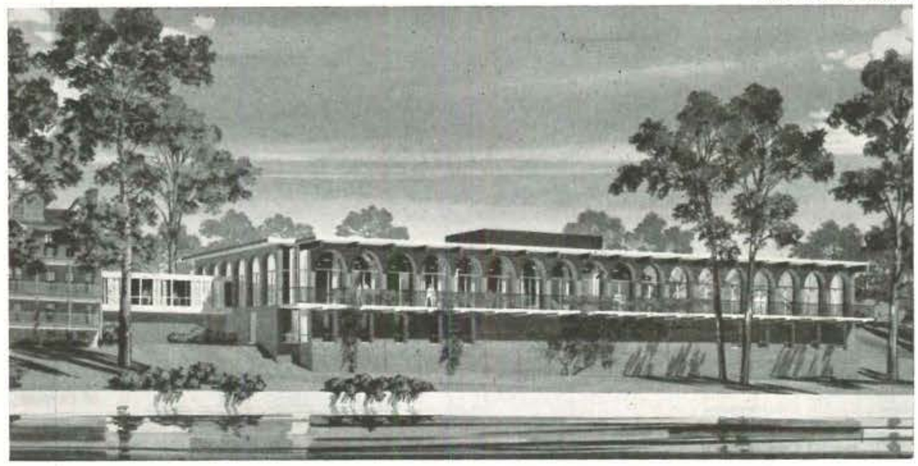


Strength with flexibility—the two basic factors for a repair-free masonry wall are assured by these engineered companion products. Dur-o-wal reinforcement, top left, increases the horizontal flexural strength of 8" concrete block walls from 60 to 135 per cent, depending on the weight and spacing of Dur-o-wal used, and type of mortar. The ready-made Rapid Control Joint, beneath, with its neoprene compound flange, flexes with the wall, keeps itself sealed tight.

Library Will Adjoin Bristol Mansion

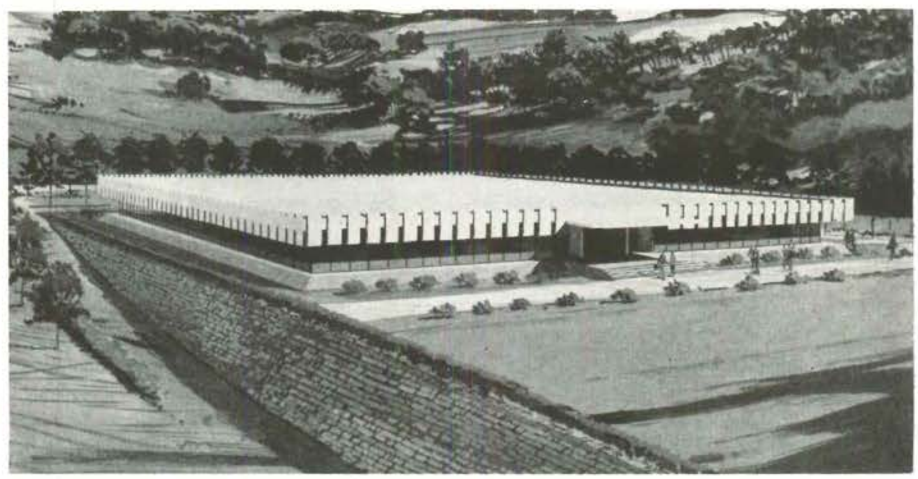
The new Margaret R. Grundy Memorial Library, Bristol, Pa., will be attached to the original Grundy mansion by a connecting passage, the old house to be used for special collections and research work. Walls of the new library are load-bearing masonry piers with exposed aggregate concrete and glass panels. Roof is of precast concrete, girders and roof plank. Estimated cost is $500,000. Architects are Carroll Grisdale & Van Alen.

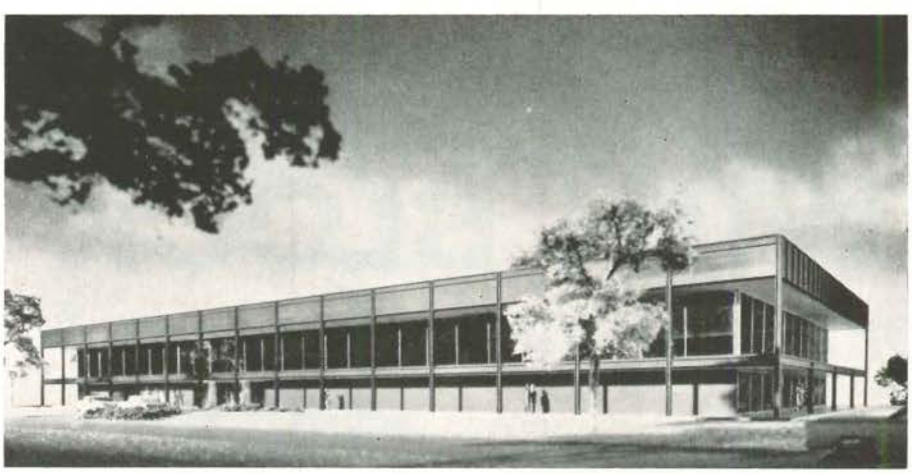
Alfred A. DeLardi



Telecomputer Center Near Pittsburgh

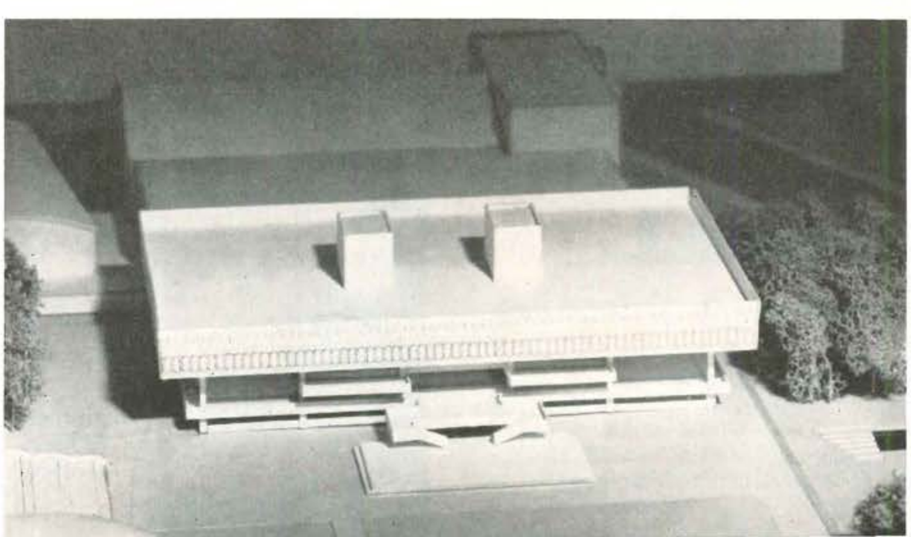
Westinghouse Electric Corporation Telecomputer Center, a mile from Pittsburgh, will be hub of the company's communications system. The one-story, 30,000-square-foot structure was designed by architects Deeter & Ritchey as a one-piece system through which 14-foot-high aluminum members, while carrying the roof weight, also serve as mullions framing windows. Initial occupancy of building began last winter. Structure is to be completed next spring. Contractor is F. H. McGraw.





Engineering Building For Lancaster, Pa.

Skidmore, Owings and Merrill designed the three-level (one below grade, two above) engineering building for the Armstrong Cork Company. Metal and glass enclose upper levels from floor to ceiling. Roof over-hang reduces glare, provides shade. Occupancy is scheduled for fall, 1964. Supervising the project is George A. Reinhard Jr., Armstrong director of engineering. Associate architect is C. S. Conrad Jr., Armstrong chief architect. Contractor is Turner Construction Company.

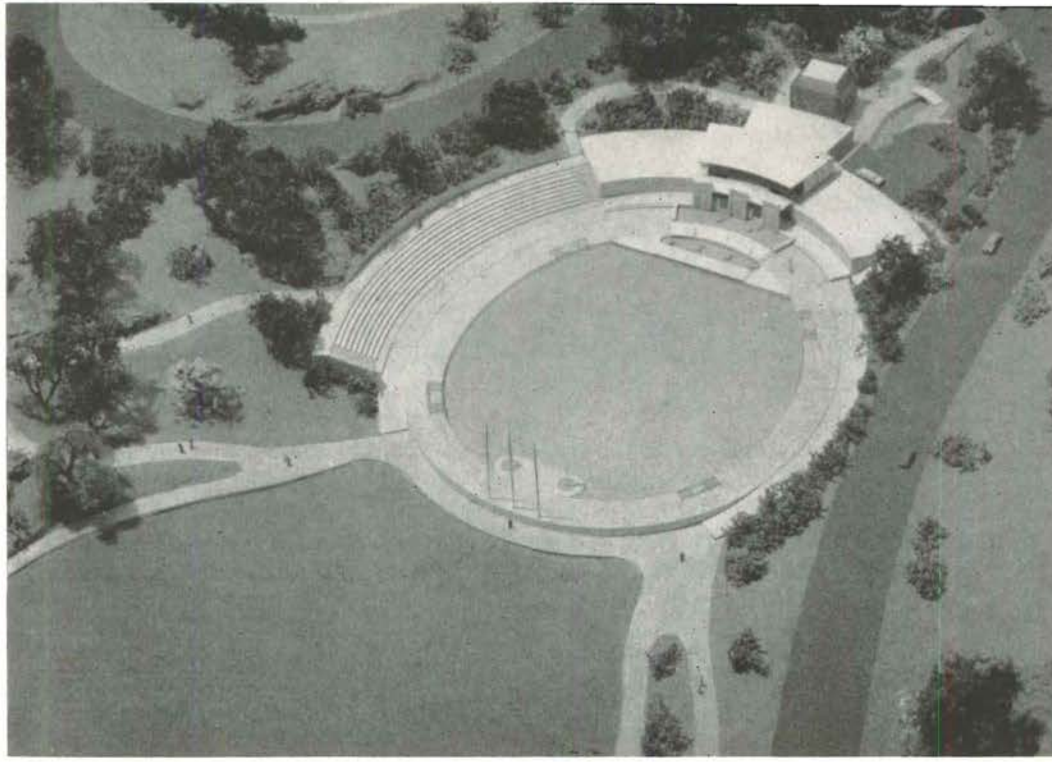


Student Center Planned for M.I.T.

General plans are completed for a $4,600,000 four-story student center at Massachusetts Institute of Technology. Eduardo Catalono, M.I.T. professor of architecture, is architect, in association with Brannen and Shimamoto. Basement and ground floor will house commercial facilities; main floor and mezzanine, social activities and dining; top floor, student organizations and individual recreation.

Pool-Skating Rink For Central Park

Planned for the Harlem Meer section of New York's Central Park is the Loula D. Lasker Memorial Swimming Pool and Skating Rink. The dual pool and rink, which can accommodate about 3,000 swimmers or skaters at one time, was designed by architects Fordyce & Hamby Associates. Budget estimate for the facility is $1,600,000. Floor slab of swimming pool will contain refrigerant piping for transformation from pool to rink. Area of oval swimming pool will be about 33,500 square feet. Uniform depth of water will be 3 feet 6 inches. Rink will be about 28,000 square feet. Brick and precast stone building adjoins pool and rink.



Luxury Hotel for L.A.'s Century City

Keystone for Century City, West Los Angeles high-rise commercial and residential development, joint venture of Aluminum Company of America and Zeckendorf Property Corp., will be the 22-story Century Plaza Hotel. Minoru Yamasaki designed the curving structure, which is to face the Avenue of the Stars, broad mile-long grand boulevard of Century City. The hotel's 800 rooms will each have a lanai and a view—northeast over Beverly Hills, the mountains and central Los Angeles or southwest to the Pacific Ocean. Its grounds will encompass three acres of terraced activity area, with pools, gardens and putting green. Underground parking will provide for 800 cars. Construction will begin in September, be completed by fall, 1965. The hotel management company will be Western International Hotels.

HAWAII A.I.A. MAKES 1962 HONOR AWARDS

In its annual honor awards program for 1962, the Hawaii Chapter, American Institute of Architects, has cited three architects as recipients of Certificates of Merit and six as recipients of Honorable Mention awards. Photographs of the award-winning projects are shown here.

Winner Thomas Wells has designed an office building in which all offices face an attractive garden court. Alfred Preis intends the U.S.S. Arizona Memorial to have an over-all effect of serenity. The form, he says, low in the center, strong and vigorous at the ends, expresses "initial defeat and ultimate victory." The 14-story co-op apartment building designed by Wimberly, Whisenand, Allison & Tong and Howard L. Cook contains 12 complete homes, each with 2,500 square feet of living area and covered parking for two cars.

On the jury were: Takashi Anbe, A.I.A.; Vladimir Ossipoff, F.A.I.A.; Kenneth Roehrig, A.I.A.; and Howard Wong, A.I.A.

Three Merit Awards

R. Wenkam

U.S.S. Arizona Memorial, Pearl Harbor, Honolulu
Architect: Alfred Preis, A.I.A.
Engineers: Alfred Yee Associates
Landscape Architect: George Walters, A.S.L.A.
Contractor: Walker & Moody, Ltd.

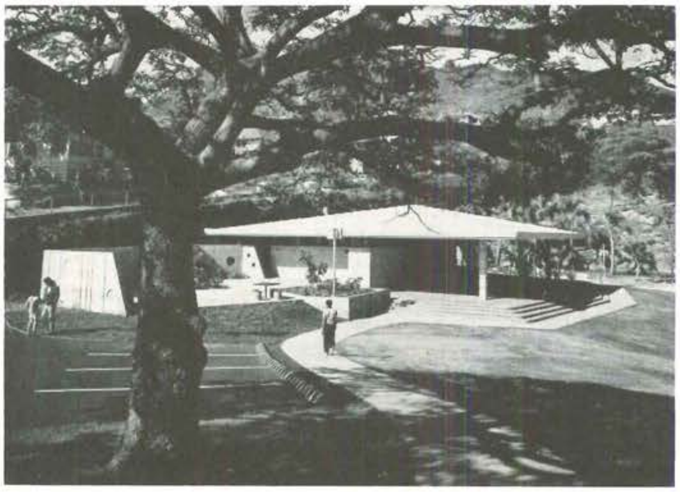
R. Wenkam

Office Building, Honolulu
Architect: Thomas Wells, A.I.A.
Engineers: Walter Lum Associates
Landscape Architect: George Walters, A.S.L.A.
Contractor: Haas & Haynie Corp.

Photo-Craft Co.

Co-op Apartment Building, Honolulu
Architects: Wimberly, Whisenand, Allison & Tong and Howard L. Cook
Engineer: George Whisenand, A.I.A.
Contractor: E. E. Black

Six Honorable Mention Awards



R. Wenkam

Doyle Playground, Honolulu
Architects: Belt, Lemmon & Lo

Alex Williams

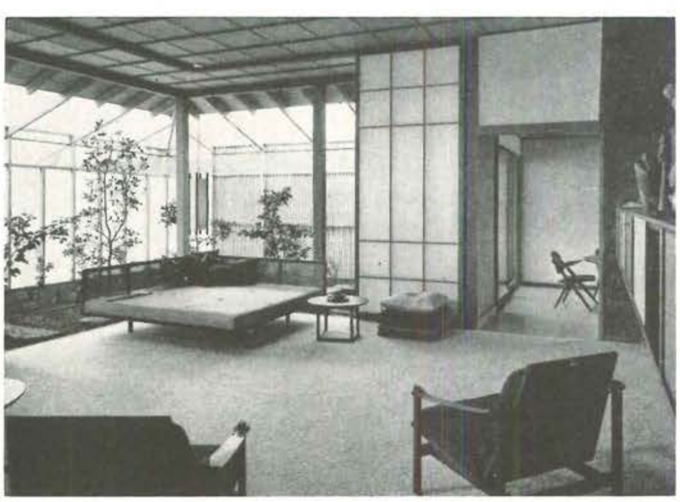
Harris Memorial Methodist Church, Honolulu
Architect: Shizuo Oka, A.I.A.
Contractor: Wilson Associates

R. Wenkam

Pershing Lo Residence, Honolulu
Architects: Johnson & Perkins

R. Wenkam

J. G. Harrison Residence, Honolulu
Architect: Alfred Preis, A.I.A.
Engineers: Walter Lum Associates
Contractor: Thomas T. Tanaka

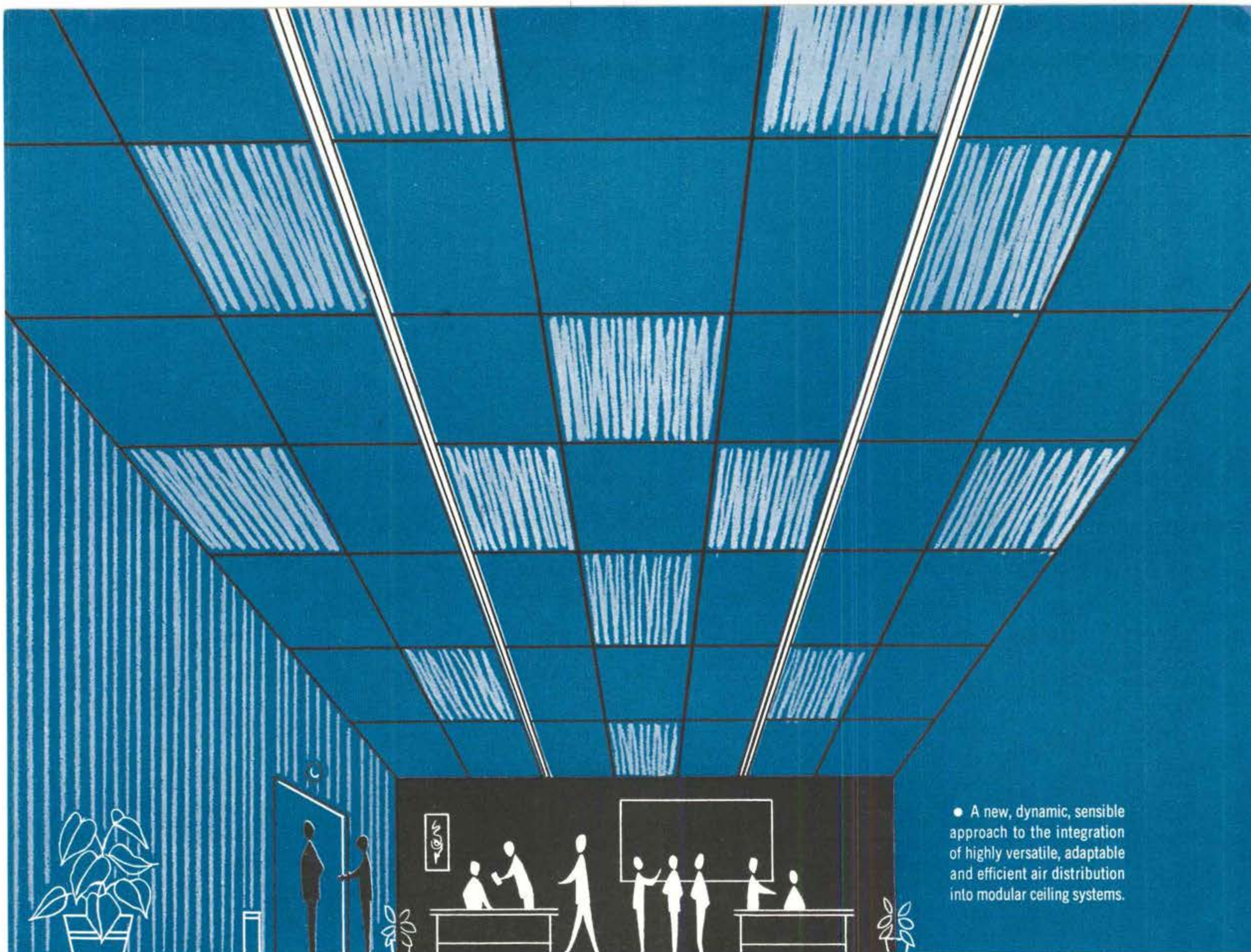


Camera Hawaii

Denis Y. Wong Residence, Honolulu
Architects: Design Associates (Frank Slavsky, architect; L. H. Whitaker, designer)
Contractor: James K. Shimizu

Camera Hawaii

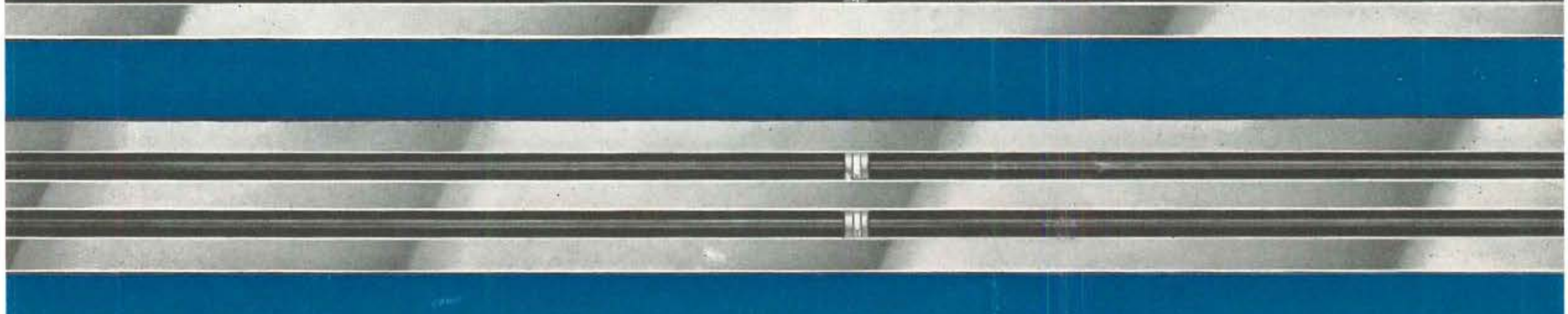
L. H. Whitaker Residence, Honolulu
Architects: Design Associates (Frank Slavsky, architect; L. H. Whitaker, designer)
Contractor: James K. Shimizu



• 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 permit them to be incorporated into the modular unit of most ceiling systems—including plaster.

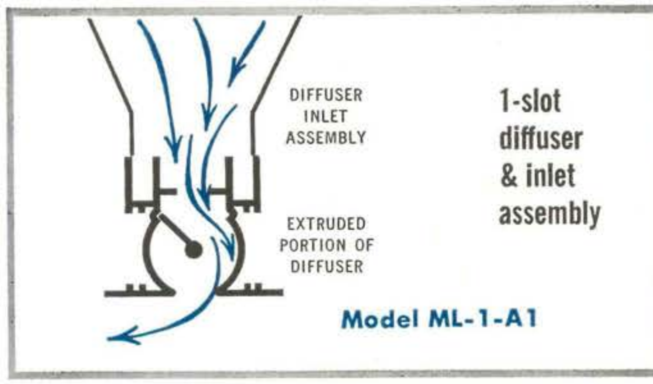
• **FULLY ADJUSTABLE AIR PATTERN**—a simple adjustment, from diffuser face, adjusts air flow a full 180° . . . permits a horizontal discharge (left or right), a vertical discharge, or any pattern in between. *Your assurance MODULinear will be flexible enough to provide the right air pattern—even for future needs!*

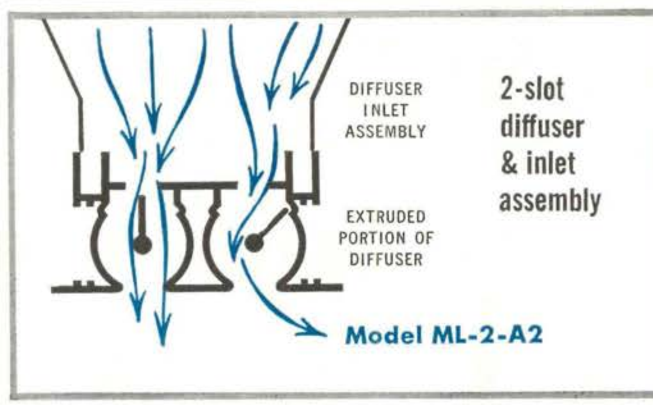
• **THE ULTIMATE IN EFFICIENT AIR DIFFUSION, AIR CONTROL**—the special internal design of Diffuser Inlet Assembly provides precisely the chamber necessary for spread and the ultimate in efficient air diffusion. Also provides the extra flexibility needed to adapt air distribution to the requirements as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

Positive acting damper, which operates from face of diffuser, assures precise air control at all times.

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

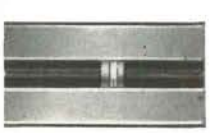
• **1-SLOT AND 2-SLOT MODELS**—the extruded aluminum diffuser portion of both MODULinear Models is available in one-piece lengths up to 8 foot. Sections butt closely together for use in continuous lengths. Furnished with choice of 2-foot, 3-foot, or 4-foot Diffuser Inlet Assemblies.

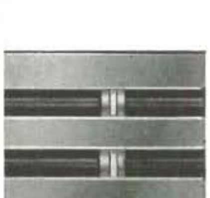




Air pattern controller, in both models, adjusts air flow a full 180° . . .
Patent applied for

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.

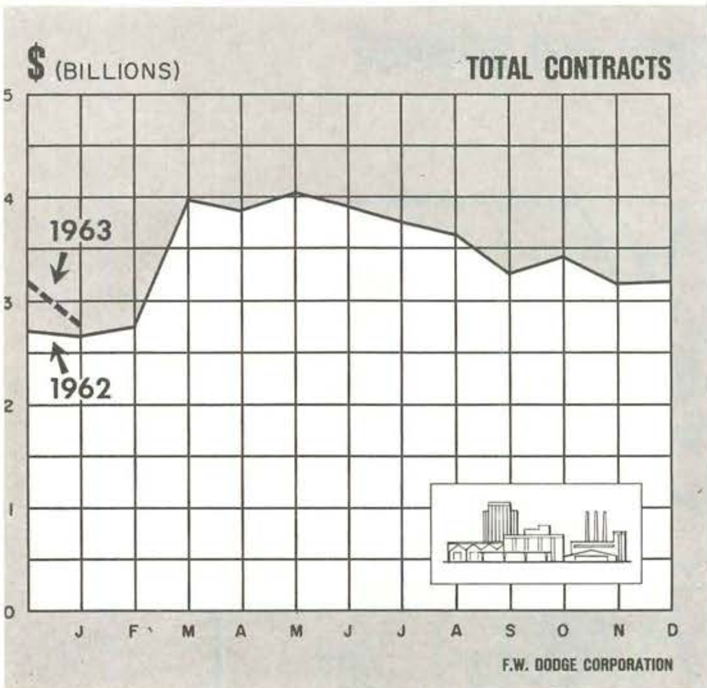
NAME__________

TITLE__________

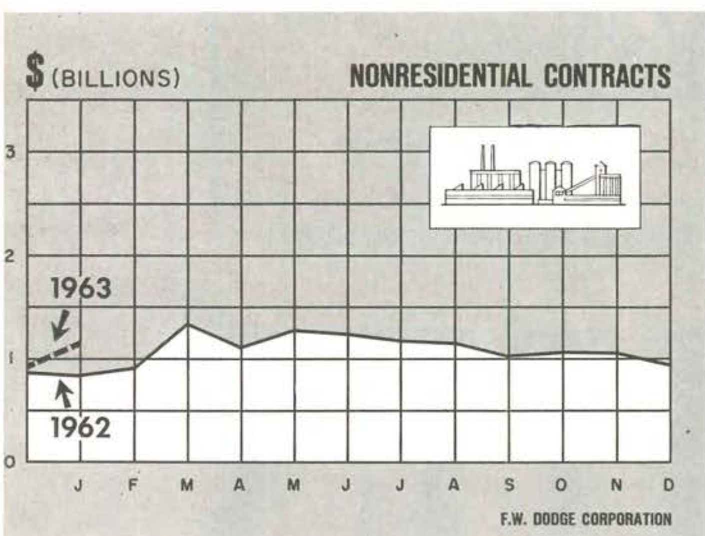
COMPANY__________

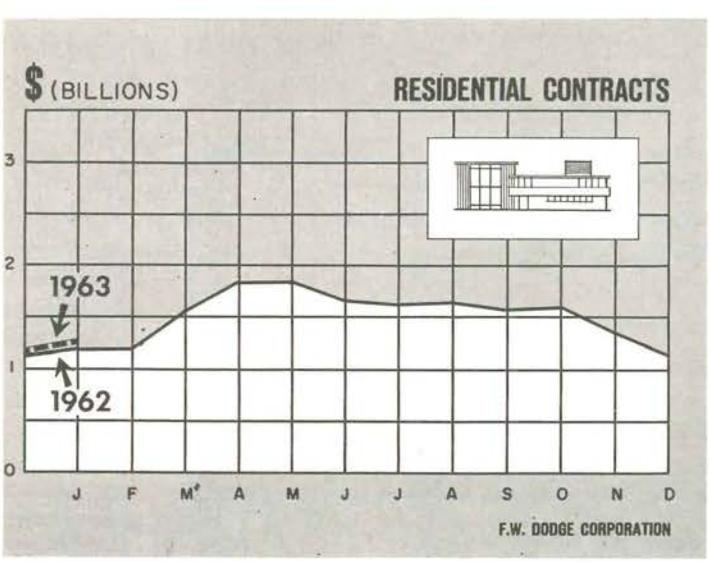
ADDRESS__________

For more data, circle 6 on Inquiry Card



Total contracts include residential, nonresidential and non-building contracts





OFFICE BUILDING AT NEW PEAK

An all-time record high, more than 20 per cent over 1961, was set by office building construction in 1962, as reflected in contracts reported by F. W. Dodge Corporation, and the first figures available for 1963 show activity continuing at record levels.

Off to a late start in the postwar period, office building was pushed ahead with a great surge between 1952 and 1956, when annual volume more than doubled. Since then, construction has continued at very high levels, climaxed by another sharp increase in the year just ended.

While total demand for offices has kept several steps ahead of the available supply, the factors behind this demand have been changing in character. The recent office building boom resulted from the need to build ahead and behind at the same time. Due to the virtual absence of this kind of construction during the thirties and early forties, firms found their offices bulging at the seams shortly after the end of the war. It was not until the early fifties that a noticeable dent was put into the backlog, but the catching-up process soon gained momentum.

Much of the rapid gain during the middle fifties, and the subsequent high level of office construction maintained since then, stemmed from this postponed demand. But it is also apparent at the same time office building was buoyed by a firm base of rising *current* demand. Throughout the entire period new need for additional office space continued to develop as the white collar work force expanded, and as space requirements per worker increased.

Since the war's end, employment in finance, insurance and other services—operations requiring white collar workers almost exclusively—has grown considerably faster than in manufacturing. And even within manufacturing white collar work has expanded greatly relative to production work. As a result, office staffs have grown by 40 per cent since 1950—more than double the 19 per cent rise in total employment.

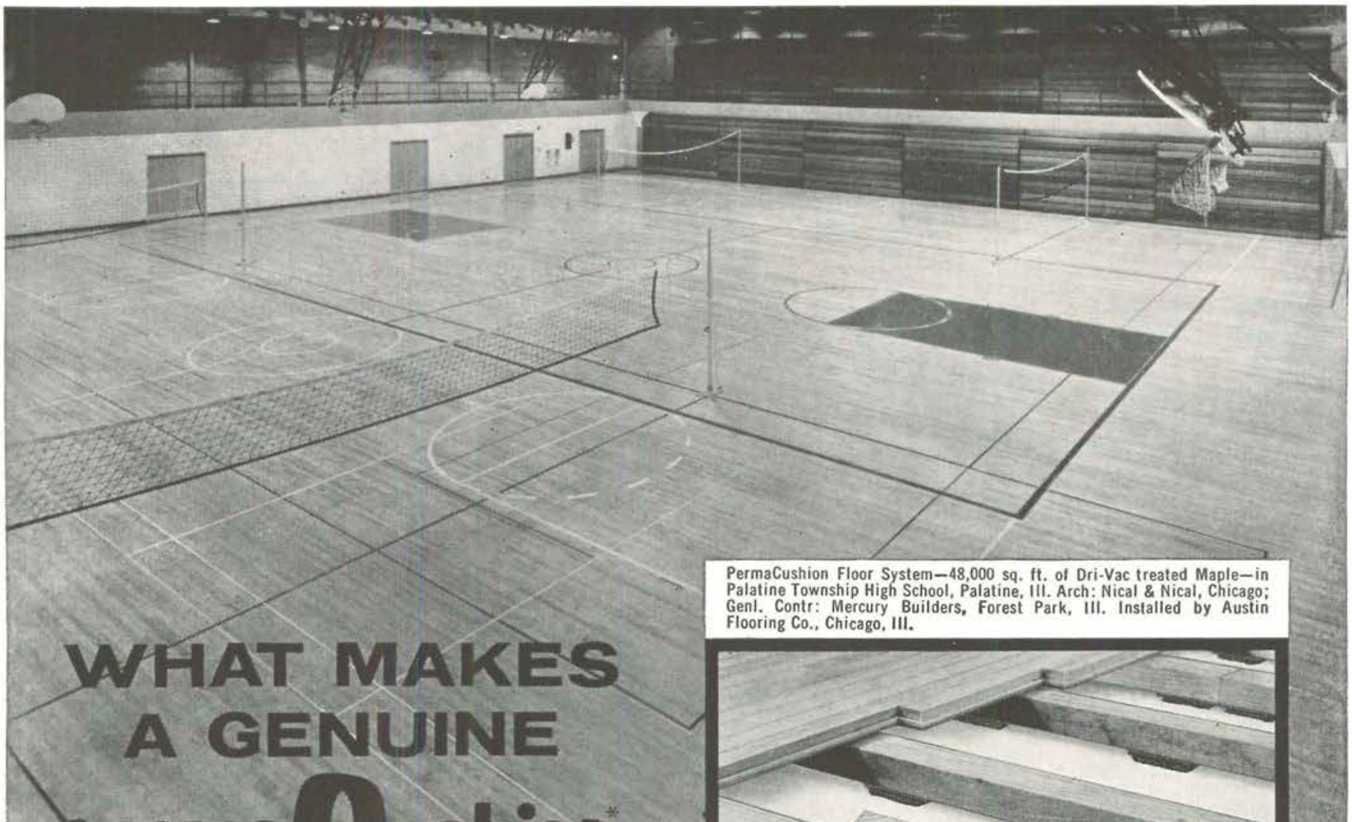
Various tendencies operating to increase office space *per worker* have also been a sustaining influence. These include a rising proportion of professional and technical people in the labor force (who average more floor space than clerical workers), an increase in the use of office machinery (which itself requires room), and the growing acceptance of such extras as libraries, health departments, reception areas and employe dining rooms.

The dizzy heights reached by office construction in 1962 raise the question of how much longer the market can support current building levels. The answer involves a balance of the following cross currents:

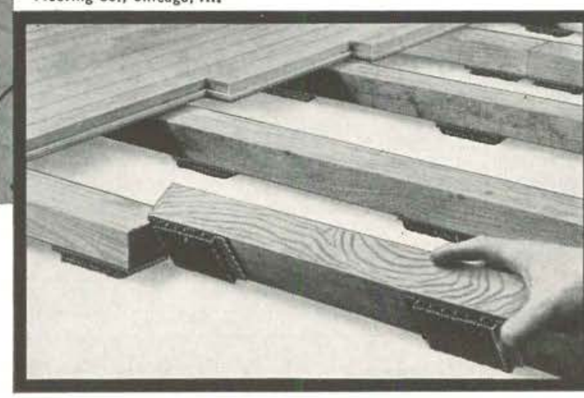
—*plus*: to date the national market is not overbuilt.
—*plus*: a continuing demand will come from the need to make room for the growing office work force.
—*plus*: replacement of the substantial portion of old buildings in the nation's stock of offices will accelerate.
—*minus*: there are indications that the backlog of demand—responsible for much of the boom—is about satisfied.
—*minus*: the recent high rate of building in New York City (a substantial part of the national total) was partly the result of a zoning regulation change, and reaction is anticipated in 1964.

The net effect of these factors will bring a fairly sharp decline in office buildings during 1964 and 1965. In the last half of the decade, however, volume will begin to grow again (at about 5 per cent per year), reflecting the long term trends in white collar employment and replacement needs.

Michael B. Ayre, associate economist
F. W. Dodge Corporation
A McGraw-Hill Company



PermaCushion Floor System—48,000 sq. ft. of Dri-Vac treated Maple—in Palatine Township High School, Palatine, Ill. Arch: Nical & Nical, Chicago; Genl. Contr: Mercury Builders, Forest Park, Ill. Installed by Austin Flooring Co., Chicago, Ill.



WHAT MAKES A GENUINE permaCushion* GYMNASIUM FLOOR?

PermaCushion is a combination of *proven* design and construction features. Imitators appear offering substitutes but only *patented* PermaCushion gives you these seven features so vital to durability, economy, beauty and *lasting* resiliency.

DESIGNED with floating sleepers to permit expansion of the flooring without setting up stresses which cause loose nails and flooring separation. Free-floating construction eliminates cupping and buckling with changes in humidity.

RESILIENT PADS attached to the underside of sleepers Designed and compounded of water-proof, non-oxidizing, synthetic rubber, unaffected by heat or cold to provide the correct amount of resiliency. Each pad acts as a bellows, inducing continuous air circulation when floor is in use.

SLEEPERS of select Douglas Fir, cut to uniform four-foot lengths to prevent twisting and end joint separation. DRI-VAC treated with Woodlife to resist moisture, rot, termites, insect and fungi attack.

FLOORING milled from top-quality Northern Hard Maple, world's finest flooring material. Extra thick — $\frac{33}{32}''$ — to provide strength and more wearing surface above the tongue, plus an additional area to resist compression.

POWERNAILING at an exact 45° angle, for *maximum* holding power, prevents splitting of flooring and hammer marks.

INSTALLATION authorized *only* by competent, experienced and reputable flooring contractors.

GUARANTEED materials, installation and performance by the contractor and the manufacturer. Double assurance for a trouble-free floor that lasts the life of the building.

When you specify PermaCushion your client is assured of all *seven* vital floor features. For literature and the name of your nearest franchised installer write Robbins Flooring Company, White Lake, Wisconsin. Attn: Dept. AR-463.

*Trade mark Reg. in U.S. and Canadian Patent Office

ROBBINS

MAKERS OF MODERN MAPLE FLOORS—Subsidiary of E. L. Bruce Company, (Incorporated), Memphis, Tennessee

For more data, circle 7 on Inquiry Card

Construction Cost Indexes

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

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

	NEW YORK					ATLANTA				
	RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.		RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	
PERIOD	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.8
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	246.4
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	252.1	254.7
1958	328.0	315.1	348.6	365.4	357.3	243.9	239.8	255.7	261.9	262.0
1959	342.7	329.0	367.7	386.8	374.1	252.2	247.7	266.1	272.7	273.1
1960	351.6	337.2	377.7	395.8	380.6	259.2	253.3	274.7	282.5	278.8
1961	362.5	343.0	398.2	422.4	397.0	256.7	249.7	275.8	284.5	275.8
1962	372.9	350.3	415.9	443.4	414.3	263.3	256.2	283.2	292.7	281.4
November 1962	377.7	355.3	421.7	449.6	419.4	266.3	259.6	286.6	295.8	284.3
December 1962	378.3	355.5	422.3	450.4	419.7	267.8	260.4	289.1	299.2	287.1
January 1963	378.6	355.6	422.7	451.1	419.9	267.8	260.4	289.1	299.2	287.1
	% increase over 1939					% increase over 1939				
January 1963	206.5	190.5	223.4	238.1	222.7	210.3	213.3	204.0	207.2	203.2

	ST. LOUIS					SAN FRANCISCO				
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219.8	216.1
1950	232.8	230.7	221.9	225.3	222.8	227.0	223.1	222.4	224.5	222.6
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7	249.6
1953	263.4	256.4	259.0	267.0	259.2	255.2	257.2	256.6	261.0	259.7
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4	279.6
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2	310.7
1958	297.0	278.9	304.9	318.4	313.8	289.8	274.9	311.5	326.7	320.8
1959	305.4	296.4	315.0	329.8	323.9	299.2	284.4	322.7	338.1	330.1
1960	311.4	301.0	322.2	337.2	329.2	305.5	288.9	335.3	352.2	342.3
1961	315.1	302.0	329.0	346.8	332.2	308.7	290.2	345.1	362.9	350.2
1962	322.1	307.2	341.2	360.6	341.8	316.5	297.0	357.1	375.0	359.8
November 1962	321.6	306.1	342.9	362.0	343.0	321.8	302.3	365.6	382.6	366.7
December 1962	321.7	305.1	344.9	365.9	344.1	322.0	302.5	365.2	382.2	363.9
January 1963	324.1	307.5	348.7	369.7	348.2	324.8	303.9	369.2	388.6	368.0
	% increase over 1939					% increase over 1939				
January 1963	194.1	187.4	193.8	208.6	192.6	207.6	206.0	214.5	218.8	215.9

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

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

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

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

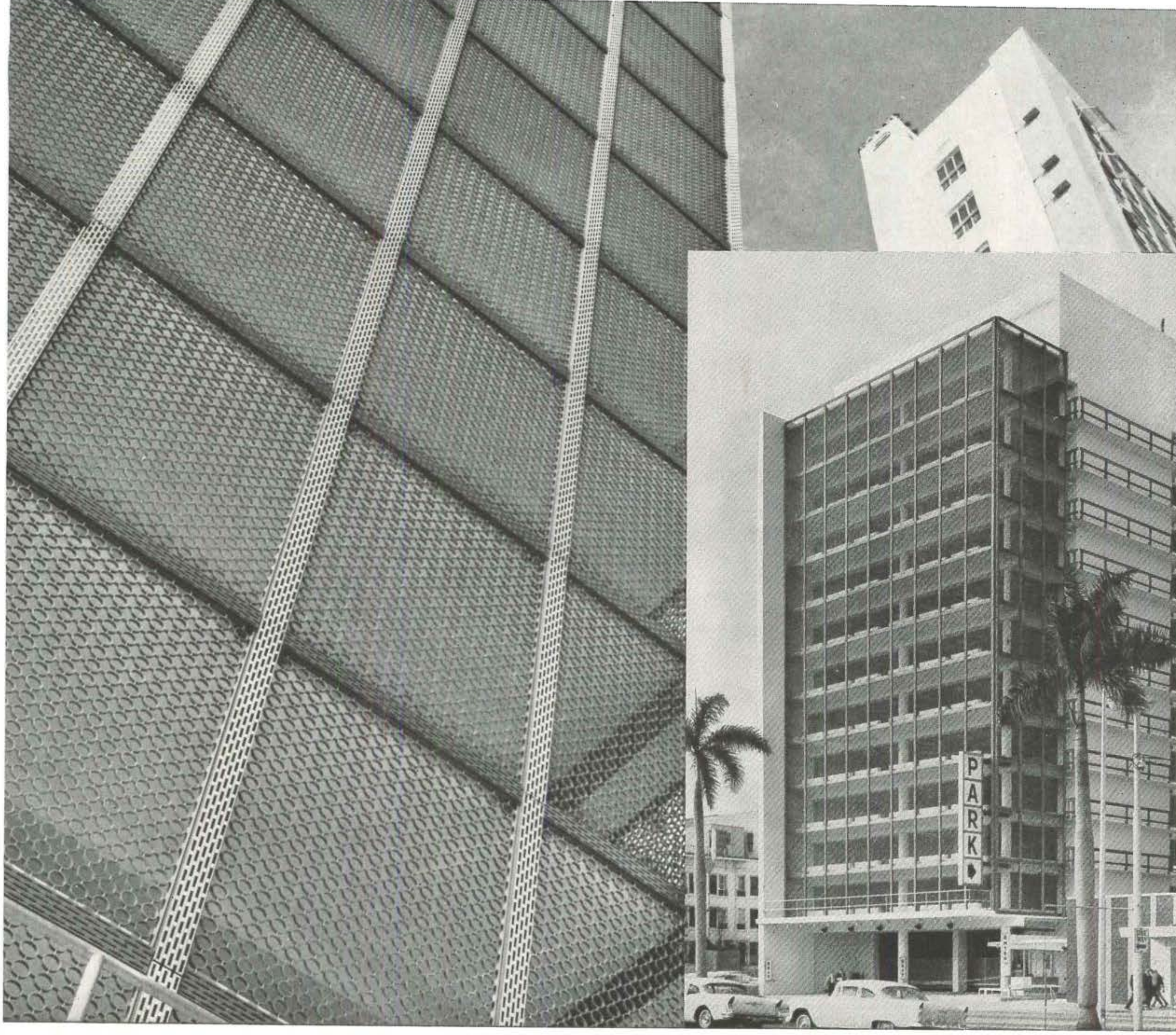
$$\frac{110-95}{95} = 0.158$$

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

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

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

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



BORDEN ARCHITECTURAL DECOR PANELS DECA-RING

Borden Architectural Decor Panels are finding preference as the modern medium of architectural expression. The decorative, sturdy, lightweight aluminum panels are used for facades, grilles, dividers and many like applications. They are available in several types and innumerable variations of the types.

Shown above is Borden Deca-Ring panel on a multi-level parking facility in downtown Miami. Here Deca-Ring provides safety, ventilation, and a touch of luxury in combination with efficient use of materials. The Deca-Ring screens are the only siding used on an otherwise stark concrete slab building. Individual panels of Deca-Ring are outlined with Decor-Plank to give added design emphasis.

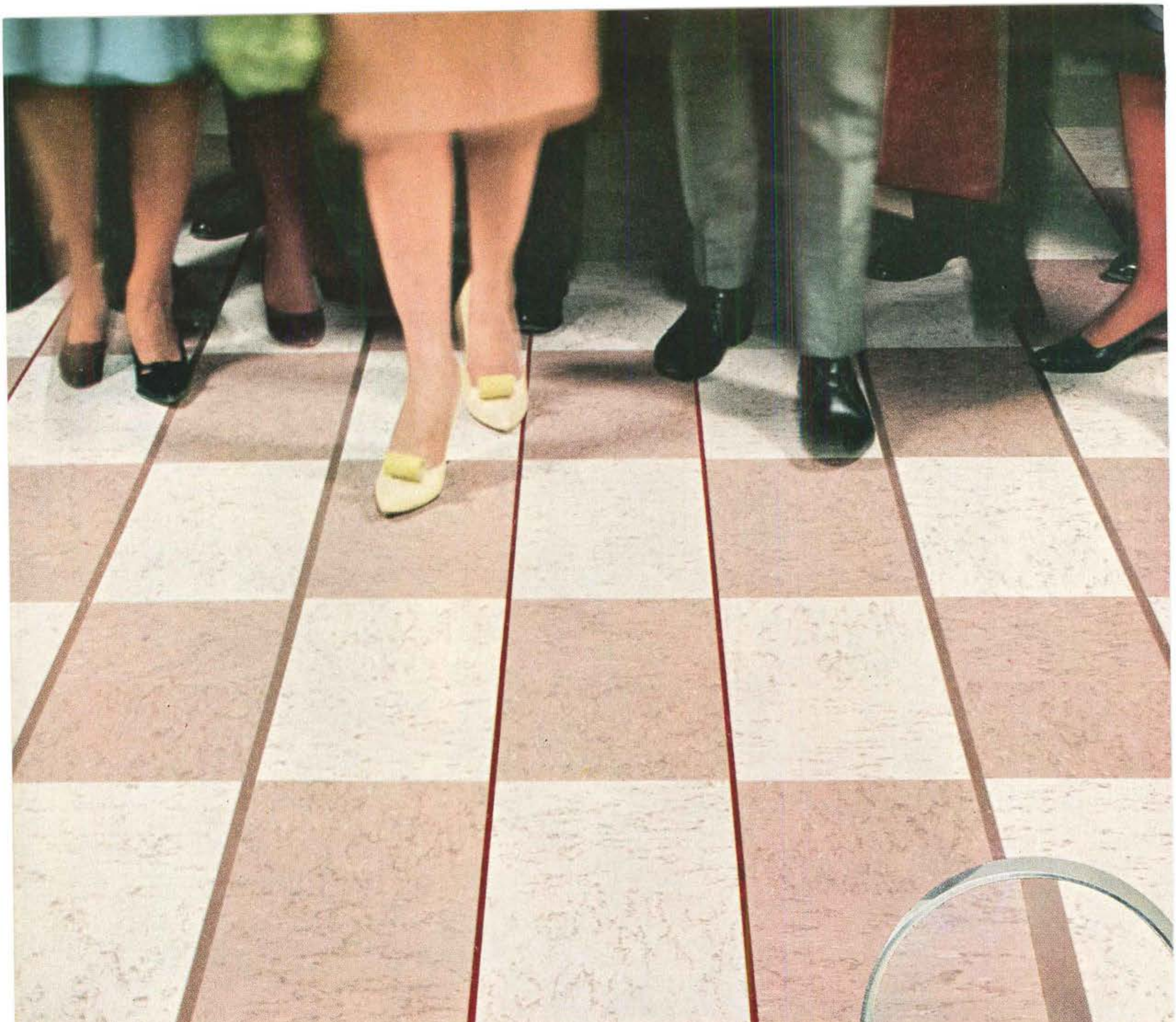
The circular Deca-Ring pattern is currently produced with 3½" O.D. rings assembled at 4½" centers. Depths of ¾" and 1" are available. For more detailed information on Deca-Ring and other Borden Architectural Decor Panels, including Deca-Gril, Deca-Grid, Decor Plank and their many variations and subtypes, write for our new eight-page catalog on Borden Architectural Decor Panels.

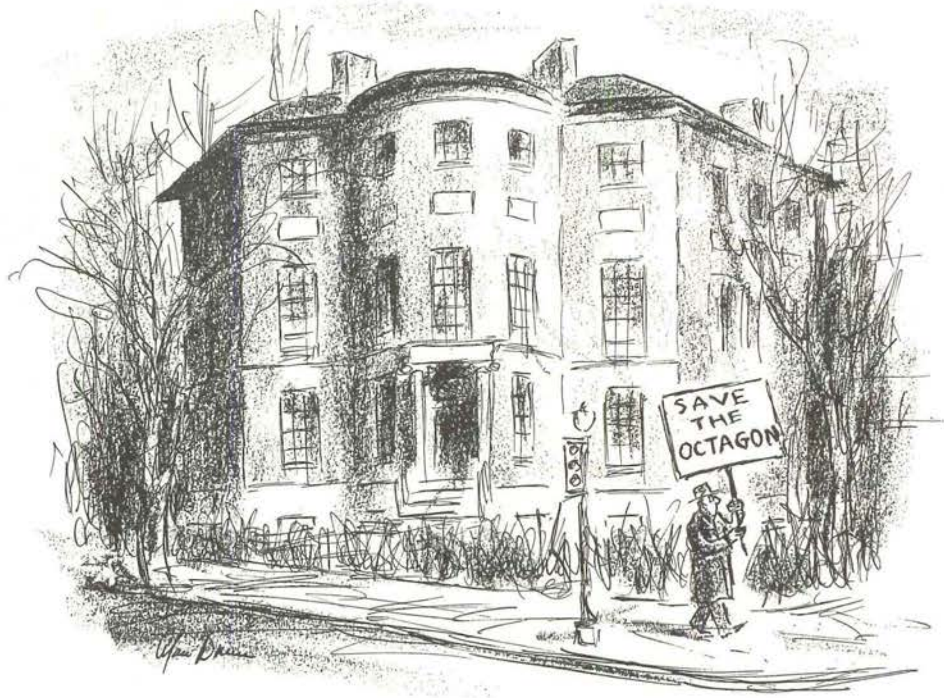
another fine product line of

BORDEN METAL PRODUCTS CO.

MAIN OFFICE: 822 GREEN LANE, ELIZABETH, NEW JERSEY • *Elizabeth 2-6410*
PLANTS AT: LEEDS, ALABAMA; UNION, NEW JERSEY; CONROE, TEXAS

For more data, circle 8 on Inquiry Card





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

"ARCHITECTURE, I'M FOR IT," YASKO SAYS: CHALLENGES "ARCHITECTS OF 50 STATES" TO MAKE ARCHITECTURE OF U. S. BUILDINGS

In his first public address before an architectural audience since taking office, the new chief architect of the Federal Government last month came out for Architecture ("with a capital A") and placed squarely on the architectural profession of the U.S. the responsibility for deciding when a new era in Federal architecture could begin.

Karel Yasko, who was state architect for Wisconsin until he took office in January as the assistant commissioner for design and construction of the Public Buildings Service of the General Services Administration, was speaking at a program on Federal architecture sponsored by the Architectural League of New York on March 14. His fellow panelists included his predecessor, Leonard L. Hunter, now a partner of John Carl Warnecke and Associates, Architects and Planning Consultants, of San Francisco; Frederick Gutheim, author, critic and president of the Washington Center for Metropolitan Studies, Washington, D.C.; and (as moderator and chairman of the evening) Douglas Haskell, editor of Architectural Forum and chairman of the Current Work Committee of the Architectural League.

Yasko's Creed

Mr. Yasko described as "my creed and my banner" the statement of "Guiding Principles for Federal Architecture" contained in the "Report to the President of the Ad Hoc Committee on Federal Office Space" (July 1962, pages 25-26 *et seq.*) and sent last June by President John F. Kennedy as a directive to all Federal agencies concerned with building construction.

"Within its guidelines," Mr. Yasko asserted, "we are permitted to produce the greatest architecture in the world—if we have the talent."

Every architect who works for GSA, Mr. Yasko said, now gets a copy of the statement—and usually a reading by Mr. Yasko as well. The excerpts Mr. Yasko selected to read:

"The belief that good design is optional, or in some way separate from the question of the provision of office space itself, does not bear scrutiny, and in fact invites the least efficient use of public money. . . .

"The Federal Government, no less than other public and private organizations concerned with the construction of new buildings, should take advantage of the increasingly fruitful collaboration between architecture and the fine arts. . . .

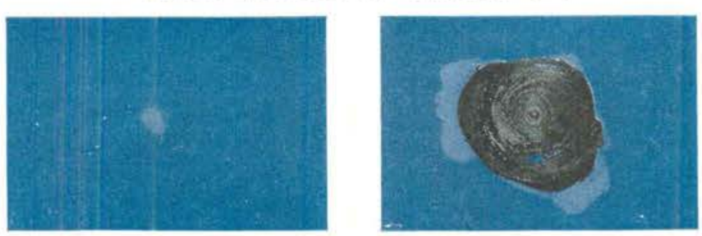
"Major emphasis should be placed on the choice of designs that embody the finest contemporary American architectural thought. . . .

"The development of an official style must be avoided. Design must flow from the architectural profession to Government, not vice versa."

continued on page 26

PREVENT THIS WITH ALLIANCEWALL

Porcelain shattering? Excessive chipping? Forget it! With AllianceWall, you don't have this problem so common with ordinary heavy porcelain panels. Here's why: AllianceWall is made of lighter gauge steel or aluminum, so it has a slimmer coating of porcelain enamel; made to handle more flex or twist than ordinary porcelain. Further, AllianceWall is shock absorbent. It's laminated to a hardboard backing that cushions construction jolts and blows like a sponge, meaning fewer job replacements.



Actual photograph of AllianceWall on the left and heavy gauge porcelain panel on the right subjected to blow from 10 lb. ram falling 6 in.

You can see the advantages of using AllianceWall. There's far less construction damage, and greater on-the-job workability, adding up to substantial savings in time and money plus longer life. You can choose from 28 standard porcelain enamel colors (any other color, too, for a small extra charge). Available as either a veneer or insulating panel, and in a variety of sizes, thicknesses and cores. For information write Main Plant and General Offices, AllianceWall Inc., P. O. Box 247, Alliance, Ohio.

AllianceWall

Regional Offices: Baltimore, 301 823-1606; Atlanta, 404 876-2005; Alliance, 216 823-6170; Milwaukee, 414 464-5684; Houston, 713 225-0509

Representatives in All Principal Cities

For more data, circle 10 on Inquiry Card

Federal Architecture

continued from page 23

And finally, the admonition of Pericles to the Athenians, quoted in the statement: "We do not imitate, for we are a model to others."

Who Makes Architecture

How and when the policy gets translated into Architecture "with a capital A," in Mr. Yasko's view, is up to "the architects of the 50 states," and he had some very forthright advice:

"Don't go around blaming that ogre, the Government, for your incompetency or your inadequacy—or perhaps your unwillingness to give the Government the very best you've got. . . . I say the level of architecture throughout the nation, be it private or public, reflects directly the quality of our profession.

"From my recently-gained viewpoint of public life—I'm out of private practice only three and a half years—I've drawn some sharp objective observations: that the profession of architecture in the U.S. can claim only a handful of pros, another little fistful of semi-pros, and the greater number are pedestrians.

"The reluctance to come to grips, the unwillingness to study, to explore ideas—many, not just a variation on the original theme—is a common failure. . . . Where is the architect who soaks himself in the project, goes at it with both fists, knocks himself out cold over creation: where is the agony and the ecstasy in architecture today?"

More "Crits" Needed?

Mr. Yasko also decried what he saw as a current tendency toward making architecture merely a channel for self-expression. "Modesty is a precious word and a modest architectural statement is so precious you can rarely find it." He cited as one of the rare examples of "talent without assertiveness" the Lafayette Square project in Washington, D.C. (John Carl Warnecke is the architect.)

Finally, he thought that what architects needed was not more freedom in designing public buildings—they have had that, he said—but more criticism; and he said his office would be prepared to provide any number of "crits" at every stage of any project, whenever an architect asked.

What Experience Taught

Mr. Hunter, who in his eight years as assistant commissioner for design and construction managed a quiet revolution in Federal architectural attitudes *without* any Presidential banner to wave, had some quite specific principles to offer.

Like Mr. Yasko, Mr. Hunter felt that President Kennedy's endorsement of what Mr. Hunter also regarded as a most enlightened statement on Federal architectural policy was a "most important" step toward a higher level of Federal architecture.

How should this directive be implemented, Mr. Hunter asked? And he answered his own question with 10 suggestions based on his own 28-year experience as an architect with the Federal Government. Mr. Hunter's 10 points:

1. GSA should divorce itself completely from outside influence in the selection of architects.
2. The GSA committee which reviews the qualifications of architects and recommends selections for specific projects should be expanded to include three architects from private practice.
3. All appropriations for new Federal buildings in Washington should be made to GSA.
4. Any architect selected for a project in "X" community should be required to associate with an architect "of design ability" when necessary.
5. The very first schematic submission of drawings required by GSA should be expanded to show more of the design concept.
6. A method should be set up in GSA to obtain and retain funds for fine arts in Federal buildings.
7. Control of the design organization in GSA should be returned to the professional architect or engineer; the Commissioner of Public Buildings should always be a top-flight architect or engineer.
8. Membership of the National Capital Planning Commission should be reconstituted so that a majority of its seven members are required to be professional planners.
9. Method of selection of Fine Arts Commission should be revised to let the appropriate professional societies offer nominations from which presidential appointees could be selected.
10. Design of Federal buildings should not be legislated but should be the outgrowth of environs, site and program.

The Public as Client

Promotion of professionalism in public service and recognition by private architects that public architecture demands extraordinary effort on their part were two of the important points made in the evening's opening address by Mr. Gutheim.

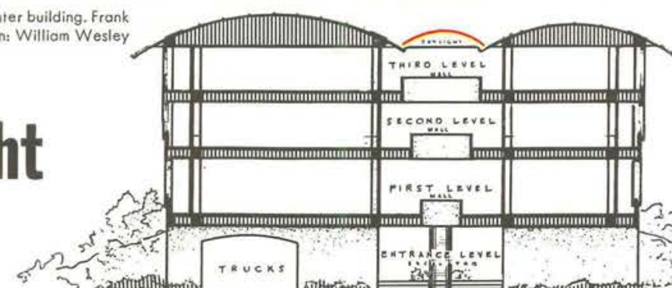
Introducing the theme which became a recurring one in the later talks, Mr. Gutheim said the problem as he saw it involved the private architects first of all. Are their expectations naive, he asked? Are they adequate to this kind of practice? Are they willing to accept it as involving special qualifications and endeavors, and to specially prepare themselves for it as they would, say, for hospital design? How can architects overcome their inexperience in public affairs, in working with public clients who have large-scale and complex operations?

On the government side, Mr. Gutheim suggested perhaps the most important difficulty is the public, whose taste and demands are reflected in the political process. How can they be educated, made to look ahead, brought to higher levels of cultivation and thus become better clients? In the relationship between the architect and his immediate client, the government, Mr. Gutheim asserted that efforts by the government alone cannot produce the desired results—the architects themselves, the architectural press, the building product manufacturers must all contribute to a solution.

Some guidelines for moving ahead offered by Mr. Gutheim:

1. Select only the best architects for public work—competitions are sometimes the answer; advisory panels of distinguished private architects like the panel so successfully used in the State Department's foreign buildings program ought to be considered.
2. Simplify and improve the relationship of the private architect with the Federal agency, and make it a stimulating encounter.
3. Provide technical support, better programs and especially more high-level staff architects, *not to do design* but to collaborate as "architectural clients." We need to value and respect the public staff architect, a new breed, the closest to a warm, live "client" in the Federal building process.

A soaring arch of Plexiglas admits natural light into mall areas of the Marin County Civic Center building. Frank Lloyd Wright, Architect; Taliesin Associated Architects of the Frank Lloyd Wright Foundation: William Wesley Peters, Chief Architect; Aaron G. Green, AIA, Architect Associated.



The 384-foot skylight is Plexiglas

Frank Lloyd Wright designed this skylight. PLEXIGLAS® acrylic plastic gave it form and substance. It is one of the distinguished features of a famed new structure, the Administration Building of the Marin County Civic Center, near San Rafael, California. The skylight is 384 feet long, 20 feet wide.

Each curved span consists of three large sheets of transparent PLEXIGLAS, supported by ribs made of channeled aluminum.

ROHM & HAAS
PHILADELPHIA 5, PA

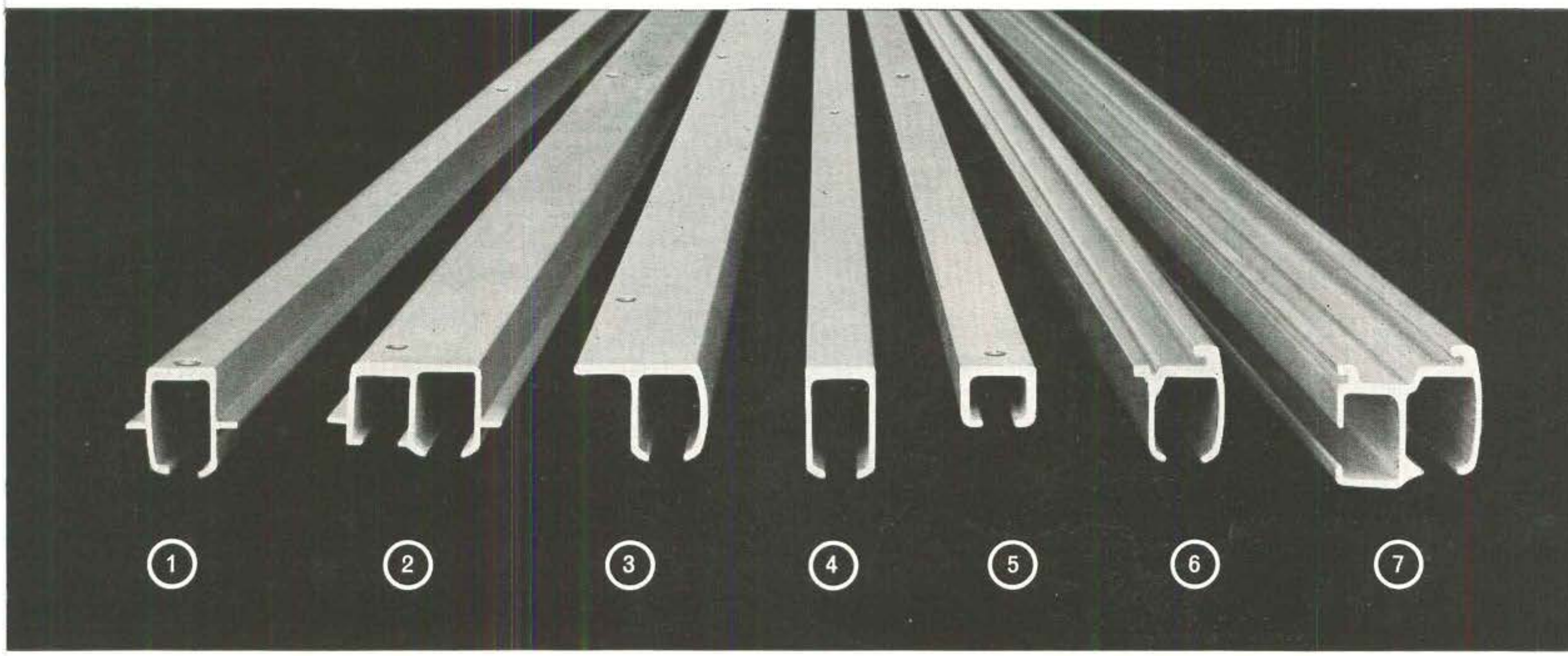
The PLEXIGLAS is only one-quarter inch thick. It provides the required combination of strength, weather resistance, crystal clarity, and light weight. We will be pleased to send you detailed information on the use of PLEXIGLAS for continuous-arch skylights and other architectural applications.

® Trademark Reg. U. S. Pat. Off., Canada, and principal Western Hemisphere countries. Sold as Oroglas® in other countries.

PLEXIGLAS

For more data, circle 11 on Inquiry Card

① **We make a hand traverse that can be recessed.**
② " " " **cord** " " " " " .
③ " " " **hand** " " " " **flange mounted.**
④ " " " " " " " " **flush** " .
⑤ " " " **cubicle track** " " " " " .
⑥ " " " **hand traverse** " " " **bracket** " .
⑦ " " " **cord** " " " " " " .



As you will see in our book when you send for it.

Kirsch ARCHITRAC® "ORIGINAL EQUIPMENT" DRAPERY HARDWARE CATALOG is free for the asking (also in Sweet's). Address your inquiry to: Kirsch Co., 310 Prospect, Sturgis, Michigan. Ask, too, for price-estimating information, and about our nationwide consultation service.

NAME__________ TITLE__________

FIRM__________

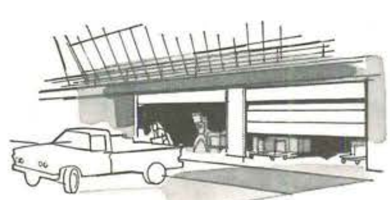
ADDRESS__________

CITY__________ STATE__________

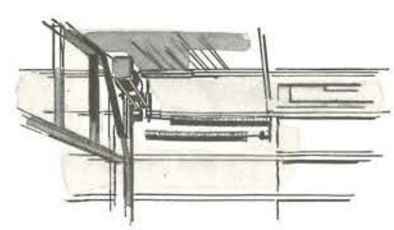
For more data, circle 13 on Inquiry Card

CONTROL FLOW OF TRAFFIC WITH THE DESIGN

SPEED is imperative in responding to emergencies. Heavy steel "OVERHEAD DOORS" on Fire and Crash Building rise in 9 seconds *automatically,* at the touch of a button from main control tower.



RELIABILITY is key factor in all maintenance facilities required to keep the airport mobile. Special 19-ft. "OVERHEAD DOORS" deliver day-in, day-out dependability in Main Terminal Building.



AUTOMATIC CONCEPT of new "AUTO-MATE" door operators, engineered to meet jet-age requirements, provides the flexibility and control the architect sought throughout his design.

YOU'RE IN CONTROL
with The "OVERHEAD DOOR"

Dulles International Airport, Washington, D. C. • Architects: Eero Saarinen & Associates, Hamden, Conn. Structural Consultants: Ammann & Whitney, New York City, N.Y. • Mechanical and Electrical Consultants: Burns and McDonnell, Kansas City, Mo. • Airport Consultants: Landrum & Brown, Cincinnati, Ohio. Planner: Ellery Husted, Washington, D.C. • Terminal Contractor: Corbetta Construction Co., New York City.

FLEXIBILITY OF THE "OVERHEAD DOOR"

At Dulles Airport, "Traffic" means much more than just people and planes. Traffic means a constant flow of air cargo *and* the ground vehicles to handle it. Traffic means a sizeable task force of fire and crash equipment *and* the maintenance crews to keep it "at the ready."

To solve these and many other problems in traffic flow, the architects called on the engineering experience and production facilities of Overhead Door Corp. Their confidence was well placed, judging by results. Already installed: 115 doors, 104 of them equipped with "AUTO-MATE" automatic operators, with more on order. Now, traffic flows smoothly, quickly, flexibly, with The "OVERHEAD DOOR." Installed side-by-side, and equipped with "AUTO-MATE" automatic operators, these doors become a movable wall. Opened as a group, they can give total access to an area. Opened individually, they can direct the flow of traffic, prevent pile-ups.

No limitations on materials—The "OVERHEAD DOOR" comes in aluminum, steel, and wood. With glass panels or without. Doors of any size or style to fit any opening.

THE "OVERHEAD DOOR" TRADE MARK

the original

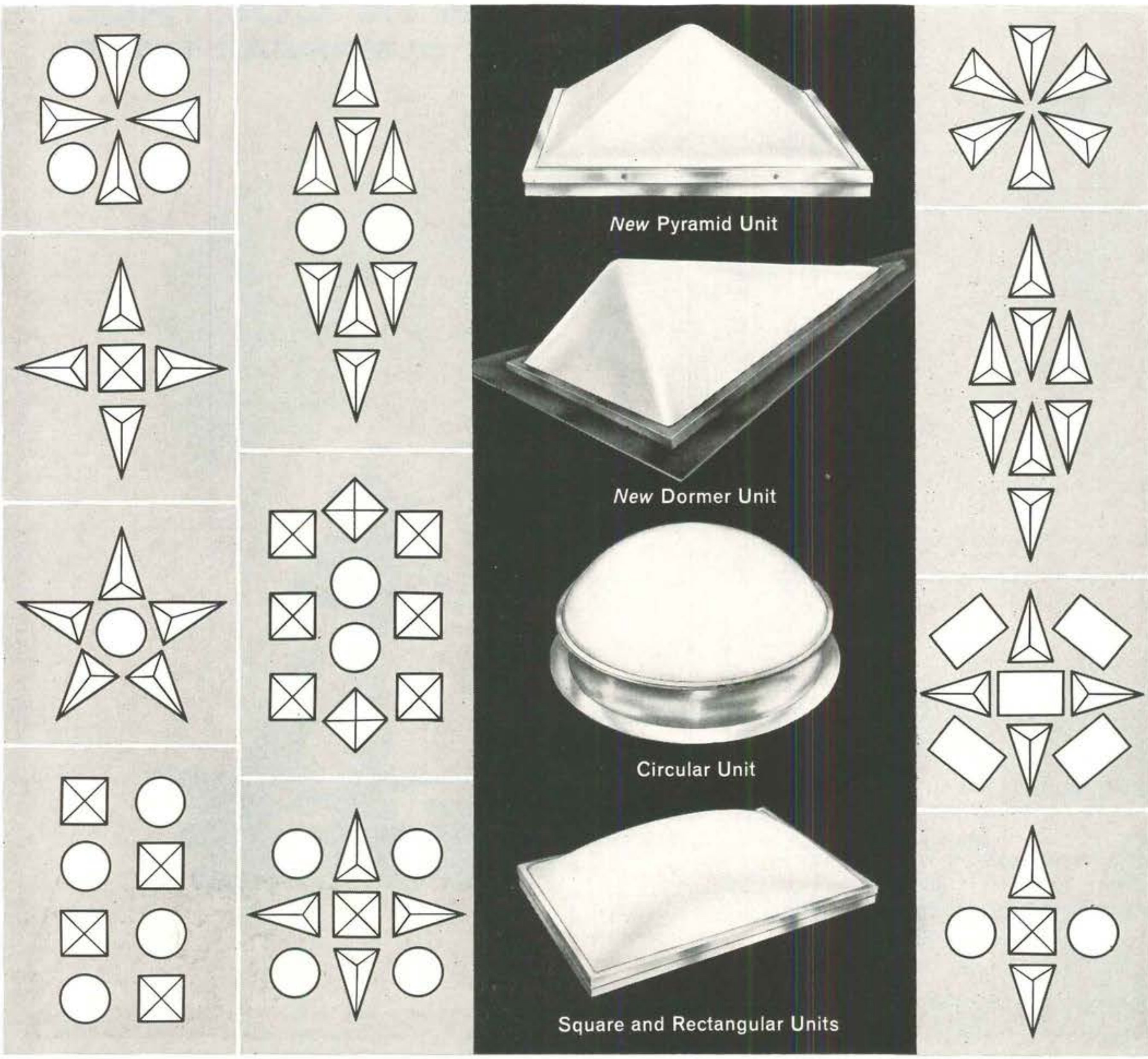
made only by

OVERHEAD DOOR CORPORATION

General Office and Manufacturing Division: Hartford City, Ind. **Manufacturing Distributors:** Dallas, Texas; Portland, Oregon; Cortland, N.Y.; Hillside, New Jersey; Lewistown, Penn.; Nashua, New Hampshire. **In Canada:** Oakville, Ont.

Get details from your local distributor—he's listed under "OVERHEAD DOOR" *in the white pages; or write to General Office above.*

For more data, circle 14 on Inquiry Card



NOW! CUSTOM LIGHTING EFFECTS WITH STANDARD SKYDOME® SKYLIGHTS

The Sky's the Limit . . . Take any of the standard Skydome units shown above. Combine them into patterns like those in the ceiling plans. You've got yourself custom daylighting . . . without custom prices.

There's no limit to Skydome combinations and applications. A ring of bright sunshine around a cafeteria. A diamond over a lobby. A shining star in an auditorium.

It's geometric poetry. Yet it's practical. Because like all Skydome units, these models permit fuller use of floor and wall space, make work areas brighter, and trim electricity bills.

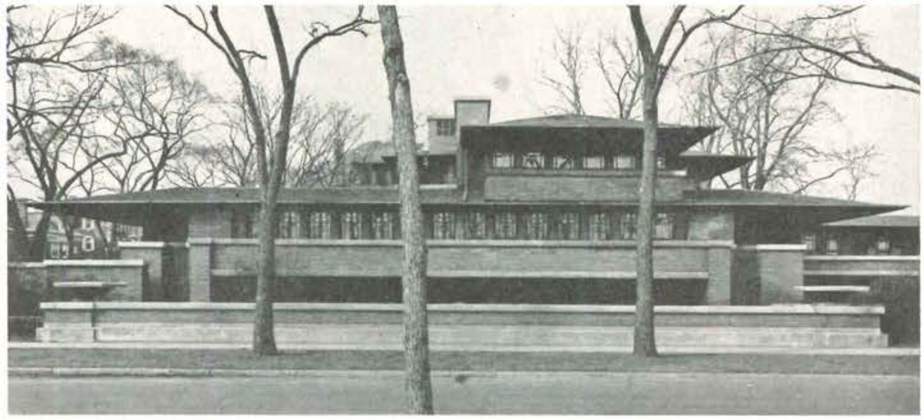
Design . . . with sunshine. When you use famous Skydome skylights, the sky's the limit.

For complete specifications, see Sweet's Architectural File 20a/Am or Sweet's Industrial Construction File 15c/Am . . . or write Cyanamid.

WASCO
SKYDOME®
ACRYLIC SKYLIGHTS

CYANAMID BUILDING PRODUCTS DIVISION • AMERICAN CYANAMID COMPANY • 5 BAY STATE ROAD, CAMBRIDGE 38, MASS.

For more data, circle 15 on Inquiry Card



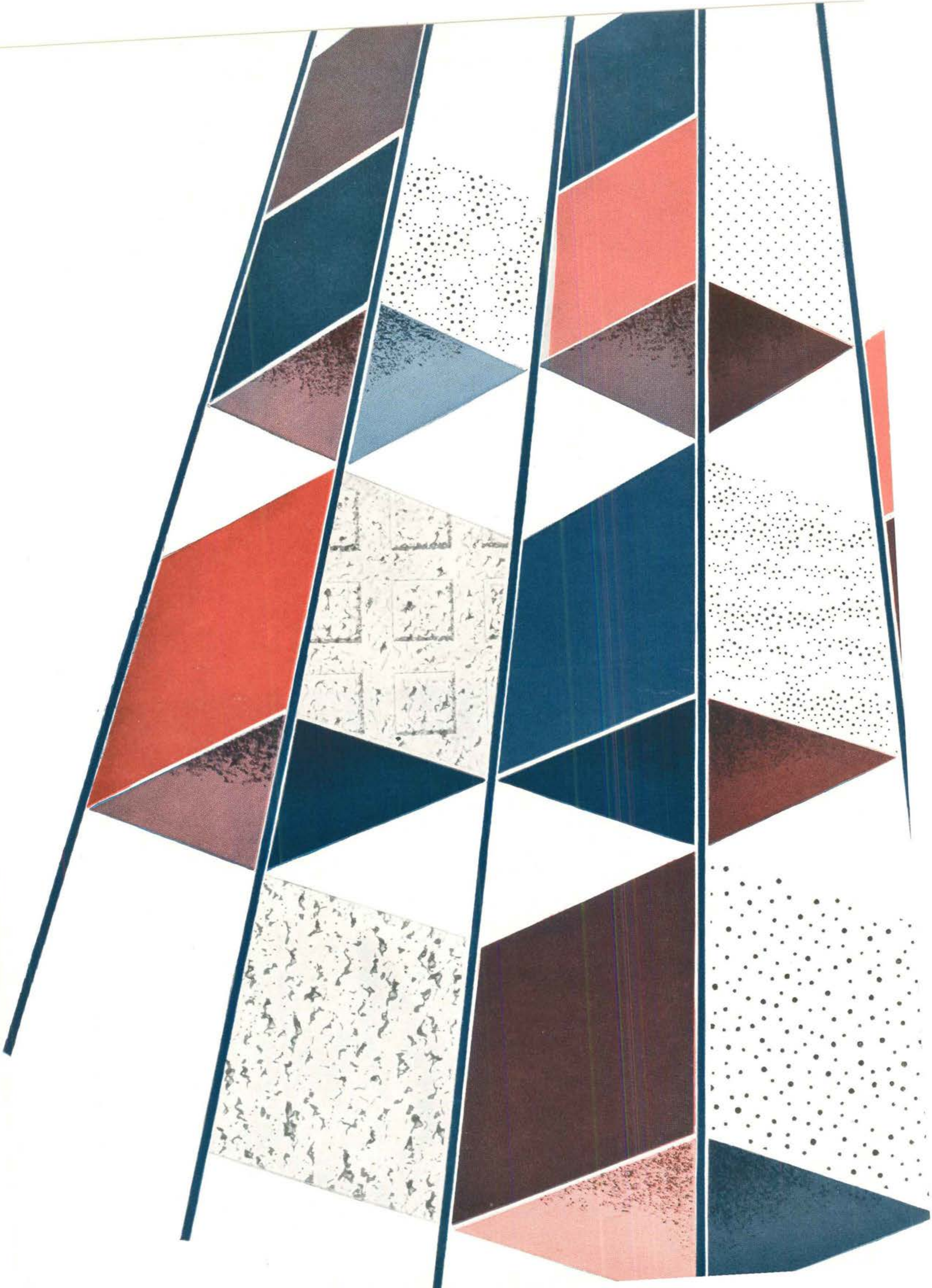
COMMITTEE PLANS RESTORATION OF ROBIE HOUSE

The restoration of Frank Lloyd Wright's famed Robie House in Chicago is the aim of an international campaign to raise a needed $250,000. At the campaign's launching in February, William Zeckendorf Sr., board chairman of Webb & Knapp Inc., presented the deed to the house to Dr. George W. Beadle, president of the University of Chicago. Mr. Zeckendorf spoke of the "imperishable value" of the house as a work of art and an object of beauty. Dr. Beadle said the university will maintain the house in perpetuity, but that its funds may not be spent for architectural restoration. The university will use and maintain the house for educational purposes.

Robie House, built in 1909 and perhaps the most famous example of Wright's Prairie Houses, was designated an irreplaceable landmark by the Commission on Chicago Architectural Landmarks in 1957. That same year, after plans were announced for the razing of the house, Webb & Knapp purchased the building for use as its construction headquarters. In its series, "100 Years of Significant Building" published in 1956-57, ARCHITECTURAL RECORD saw Robie House as tying for first place in the category of houses.

Ira S. Bach, Chicago city planning commissioner, is chairman of the Robie House Committee, composed of over 100 architects, architectural authorities and persons interested in preserving this landmark.

In an appraisal of Robie House, August Heckscher, special White House consultant on the arts, said: "The creation of contemporary works of lasting merit, now and in the future, is not possible if we fail to preserve with a certain love and piety the high points of our past achievements. Those who are working to save Robie House are doing a real service to architecture. . . ."



Why the pioneer in sound-control is your ablest helper today

▲ In the 20th century, sound control is *your* responsibility. When quiet happens in modern buildings, it is *made* to happen...and the process begins at the drafting-table.

▲ In the drafting stage, there are 361 good reasons why you should draw on the resources of Acousti-Celotex products—the pioneer in modern sound control. 360 of them are *beautiful!* 360 variations—in design, texture, base-material, size, shape, construction type and fire-ratings—all designed to please the eye as well as soothe the ear. These 360 variations in Acousti-Celotex products give you the widest range of precision-engineered materials to work with in esthetic sound-control!

▲ The 361st reason is a comfort to many a harassed architect. This is the huge body of *experience*—the lengthiest and most varied in the field—that the Celotex Corporation and Acousti-Celotex distributors have built up in solving acoustical-esthetic ceiling problems. *This experience is yours for the asking.* For free ceiling consultation service, specifications, samples, find your Acousti-Celotex distributor in the Yellow Pages—then call him.

ACOUSTI-
CELOTEX
REG. U.S. PAT. OFF.
PRODUCTS

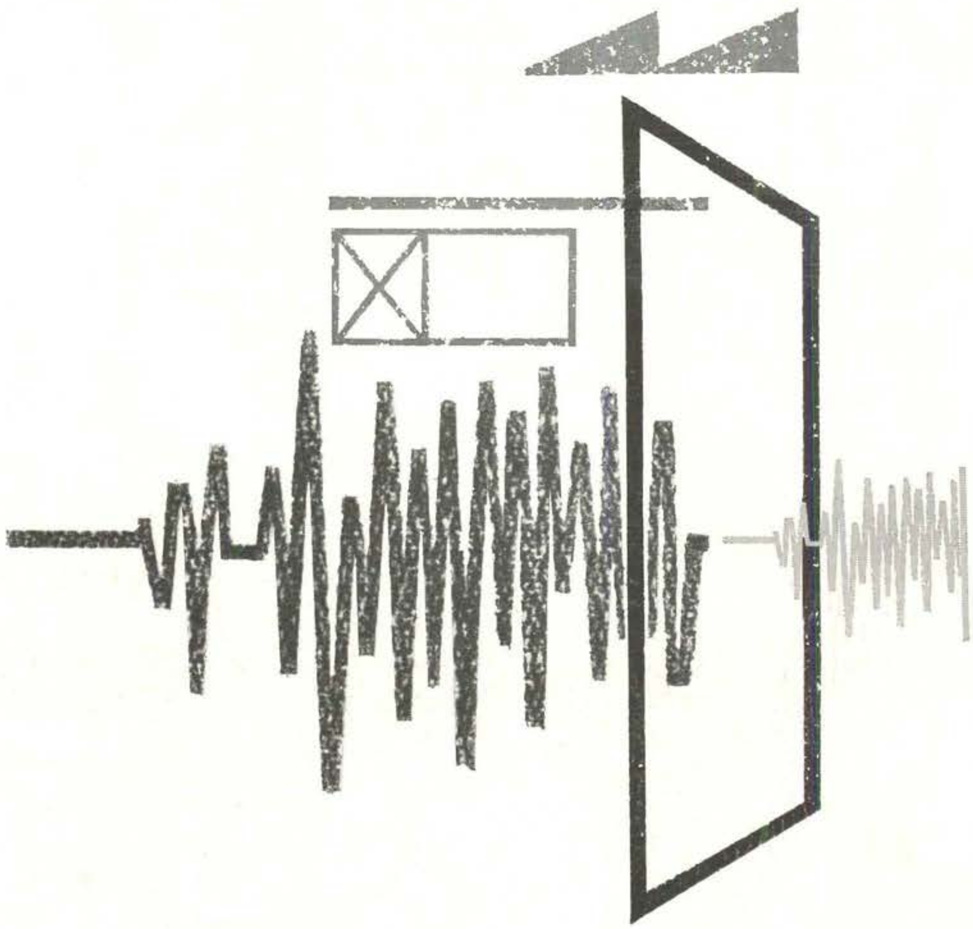
Problem-solver in esthetic sound-control

For more data, circle 17 on Inquiry Card

The Problem: Keep unwanted sound out

The Solution: Acousta-Pane®

The Producer: Amerada Glass Corporation

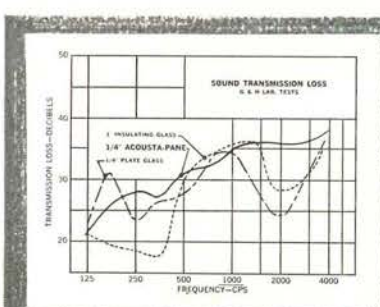


The development of Acousta-Pane has . . . for the first time . . . provided the architect with a glass which efficiently isolates sound.

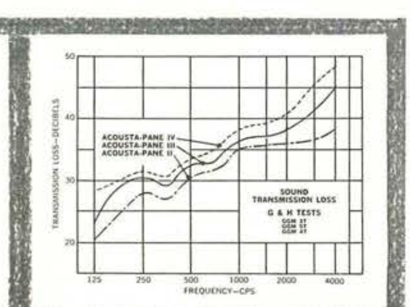
Acousta-Pane can be utilized effectively for both interior partitioning to achieve acoustical privacy, as well as for exterior walls which will control transmission of outside noises. No other glass equals the sound isolation properties of Acousta-Pane.

Acousta-Pane standard thicknesses . . . ¼" to ⅝" . . . require no special installation or handling. It is shatter-resistant and may be obtained in clear or with amber tint.

Acousta-Pane has broadened both the functional and esthetic utilization of glass. Its economy and practicability further commend Acousta-Pane to the architect's interest in the design of modern buildings. AMERADA GLASS CORP., 3301 S. Prairie Ave., Chicago 16, Ill.



Acousta-Pane is especially effective in the critical frequency range for speech and normal office sounds—from 500 cps to 4000 cps—where ordinary glass is relatively "transparent" to sound.



Relative proficiency of Acousta-Pane II (1/4") III (7/16"), and IV (5/8") in reducing sound transmission (measured in decibels) through the frequency spectrum from 125 to 4000 cps.

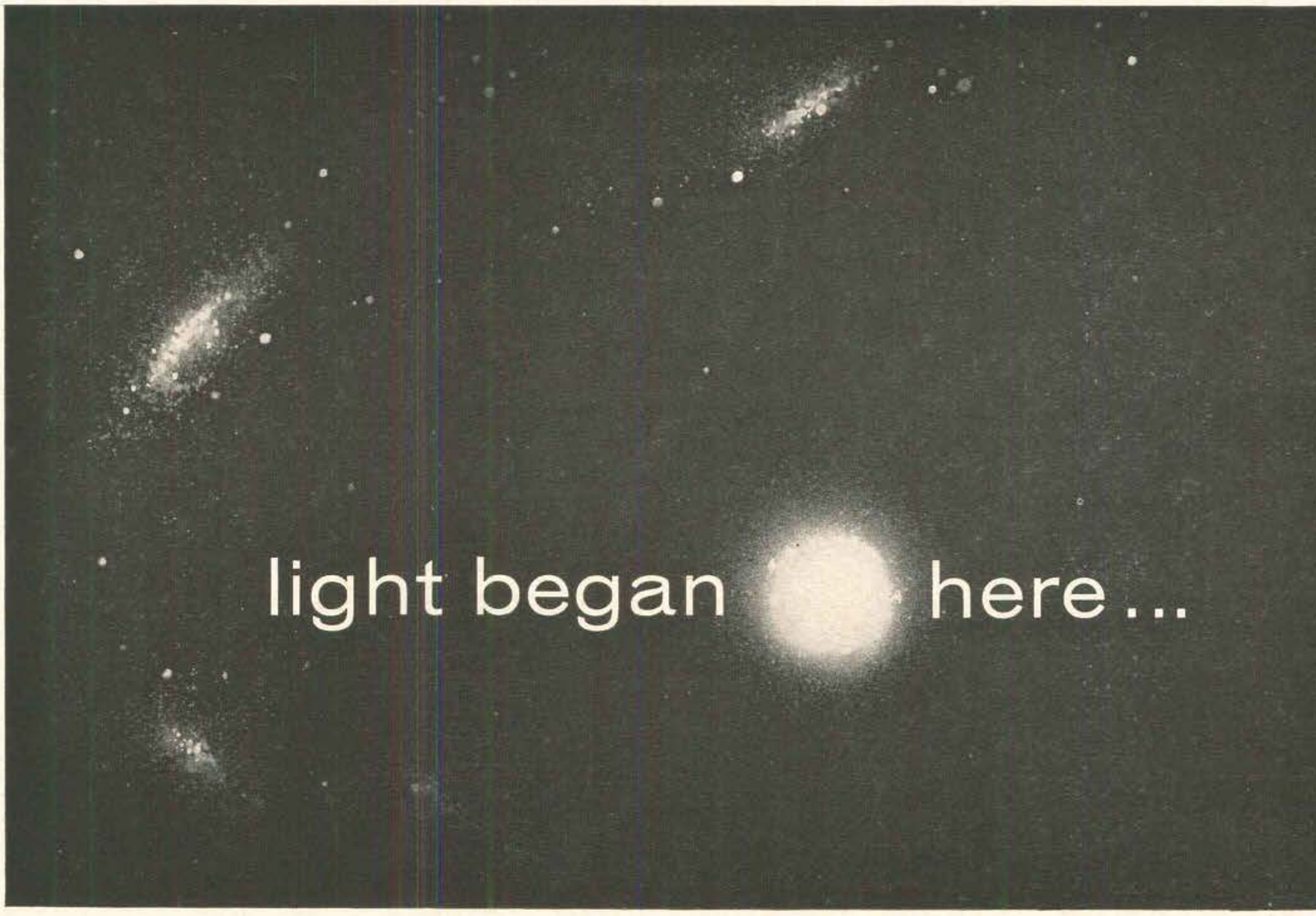
ACOUSTA-PANE®
by **amerada**

CREATIVITY IN GLASS

** See Sweet's 1963 Catalog, Section $\frac{7a}{Ae}$*

Write for descriptive brochures on Acousta-Pane and other Amerada architectural glass products.

For more data, circle 18 on Inquiry Card



In the past 25 years more progress has been made in the knowledge and application of light and lighting equipment than in the millions of years that went before.

The benefits of properly applied, modern lighting fixtures are enjoyed today inside and outside of offices, plants, schools and stores throughout the world.

You and your clients can enjoy these benefits, too. Easily and economically.

Let Sylvania help solve **your** lighting problems with their broad line of top-quality indoor and outdoor lighting fixtures.

For descriptive and specification information on Sylvania fixtures, see Sweet's Architectural File or write direct.

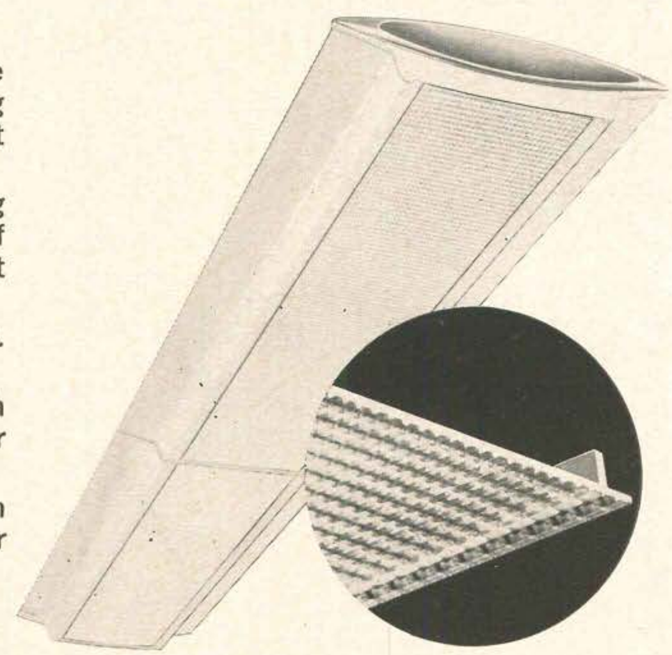
SYLVANIA LIGHTING PRODUCTS
A Division of SYLVANIA ELECTRIC PRODUCTS INC.
One 48th Street, Wheeling, West Virginia

LIGHTING FIXTURES BY

SYLVANIA

SUBSIDIARY OF

GENERAL TELEPHONE & ELECTRONICS GENERAL SYSTEM



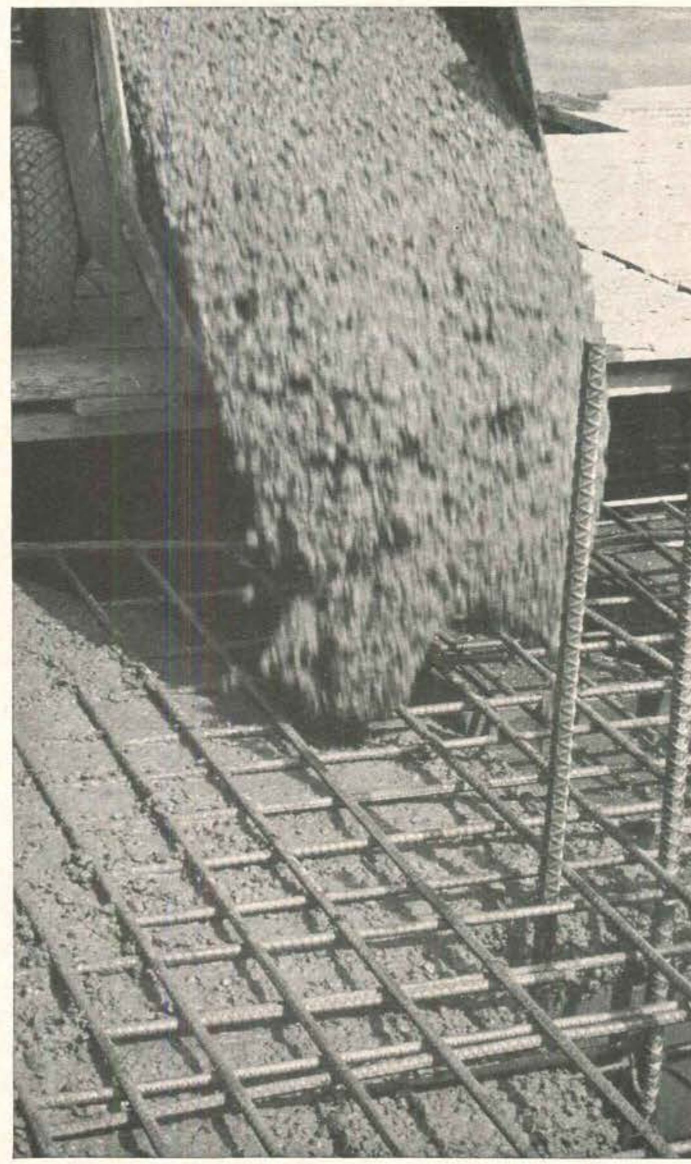
Sylvania's Newest Shielding

Sylvania's trim, distinctive Classic Series is now available with an exclusive Prismatic Plastic Lens in both 2-lamp and 4-lamp wide units. This attractive, low brightness shielding with its subtle glow provides an unusually tasteful design. Photometric data on request.

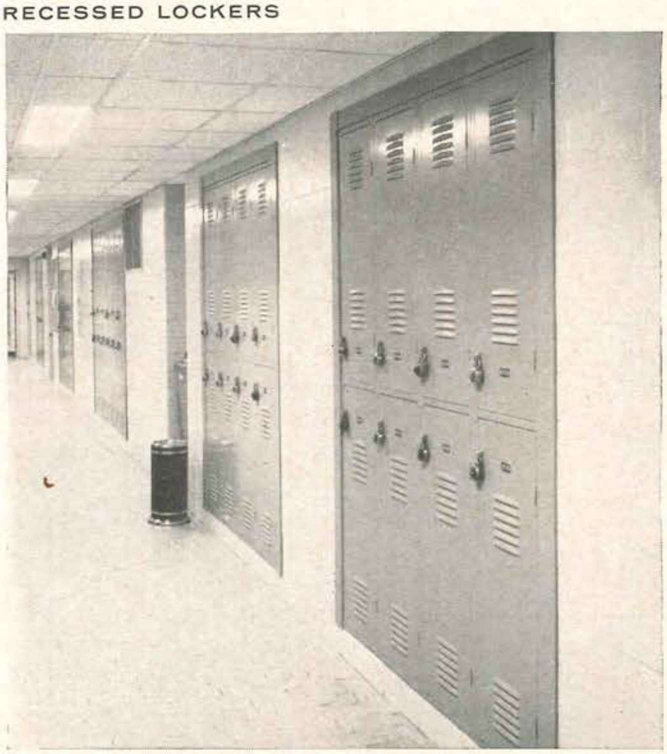
For more data, circle 19 on Inquiry Card

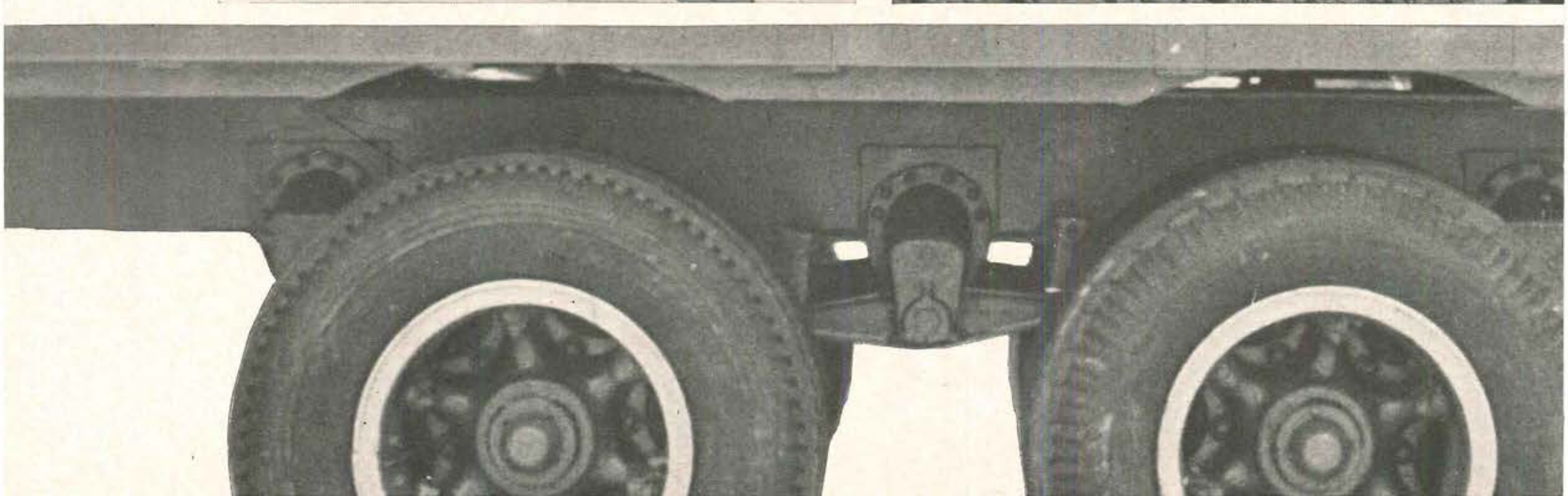
REPUBLIC'S NEW SINGLE-

RE-BARS

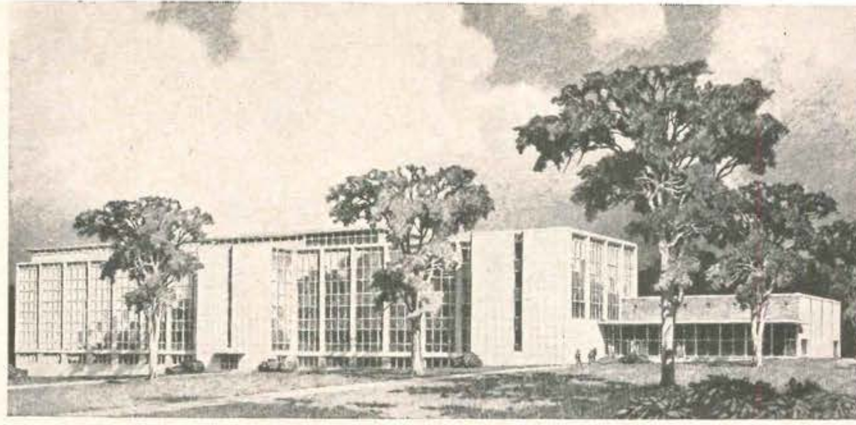


RECESSED LOCKERS





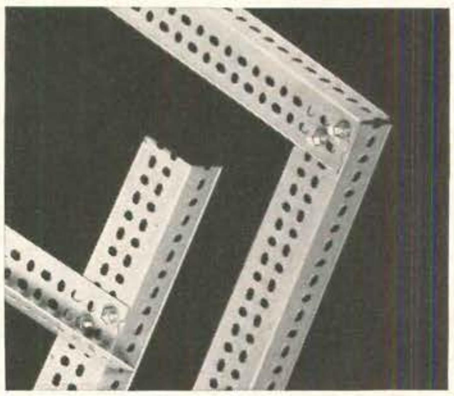
New John Schoff Millis Science Center on Western Reserve University campus, Cleveland, Ohio. *Architects:* Small, Smith, Reeb & Draz. *General Contractor:* The Albert M. Higley Company. *Mechanical Contractor:* Gorman-Lavelle Plumbing & Heating Company.



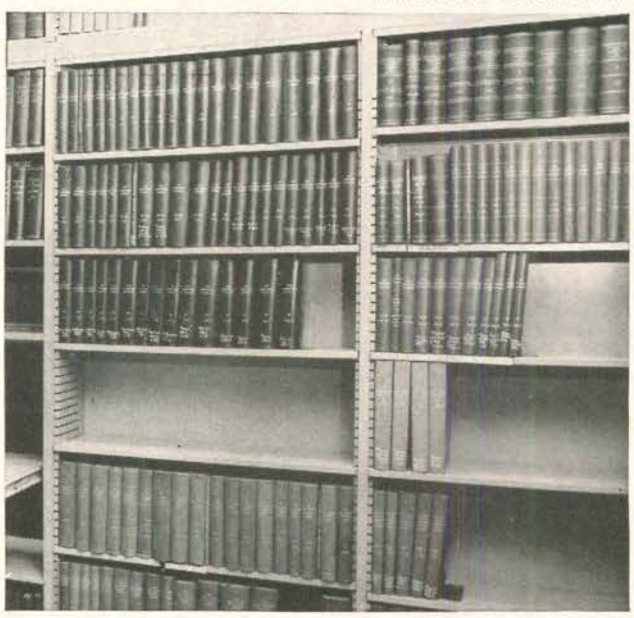
SOURCE SERVICE

saves time and costs at university science center

METAL LUMBER®



LIBRARY SHELVING



A single comment by one contractor on the building of this new science center tells the story: "Republic products were delivered on time."

On time means *on schedule,* too — and all the Republic products shown were delivered in coordination with construction schedules: *the kind of delivery that in today's cost climate can mean the difference between a fair profit and an unreasonable loss.*

When you can get so many of your building needs from a single source, why deal with more? Assure *yourself* a fair profit. Save at the planning stage — save in construction — save on completion time, with single-source single-responsibility supply of Republic building products, delivered on time!

REPUBLIC STEEL CORPORATION
MANUFACTURING DIVISION
DEPT. AR-5964, YOUNGSTOWN 5, OHIO

Put *us* on your schedule to receive literature on:

- ☐ LIBRARY SHELVING
- ☐ RECESSED LOCKERS
- ☐ RE-BARS
- ☐ METAL LUMBER

Name__________ Title__________

Company__________

Address__________

City__________ Zone_____ State__________

REPUBLIC STEEL

MANUFACTURING DIVISION • YOUNGSTOWN 5, OHIO

For more data, circle 132 on Inquiry Card

IT'S A COMFORTABLE FEELING...

to know that your DuKane Franchised Distributor can provide you with a total communications system designed to meet your specific needs

Everyone relies on experience . . . so why belabor yourself with designing or planning a communications system . . . eliminate the costly design time frustrations. Your burden is our specialty. Your local, factory-trained DuKane Franchised Distributor is a communications specialist. Depth of line . . . depth of experience and depth of service support this claim.

He can point with pride to literally thousands of Dukane Communications installations second to none in performance, flexibility, low maintenance, rugged dependability, and quality.

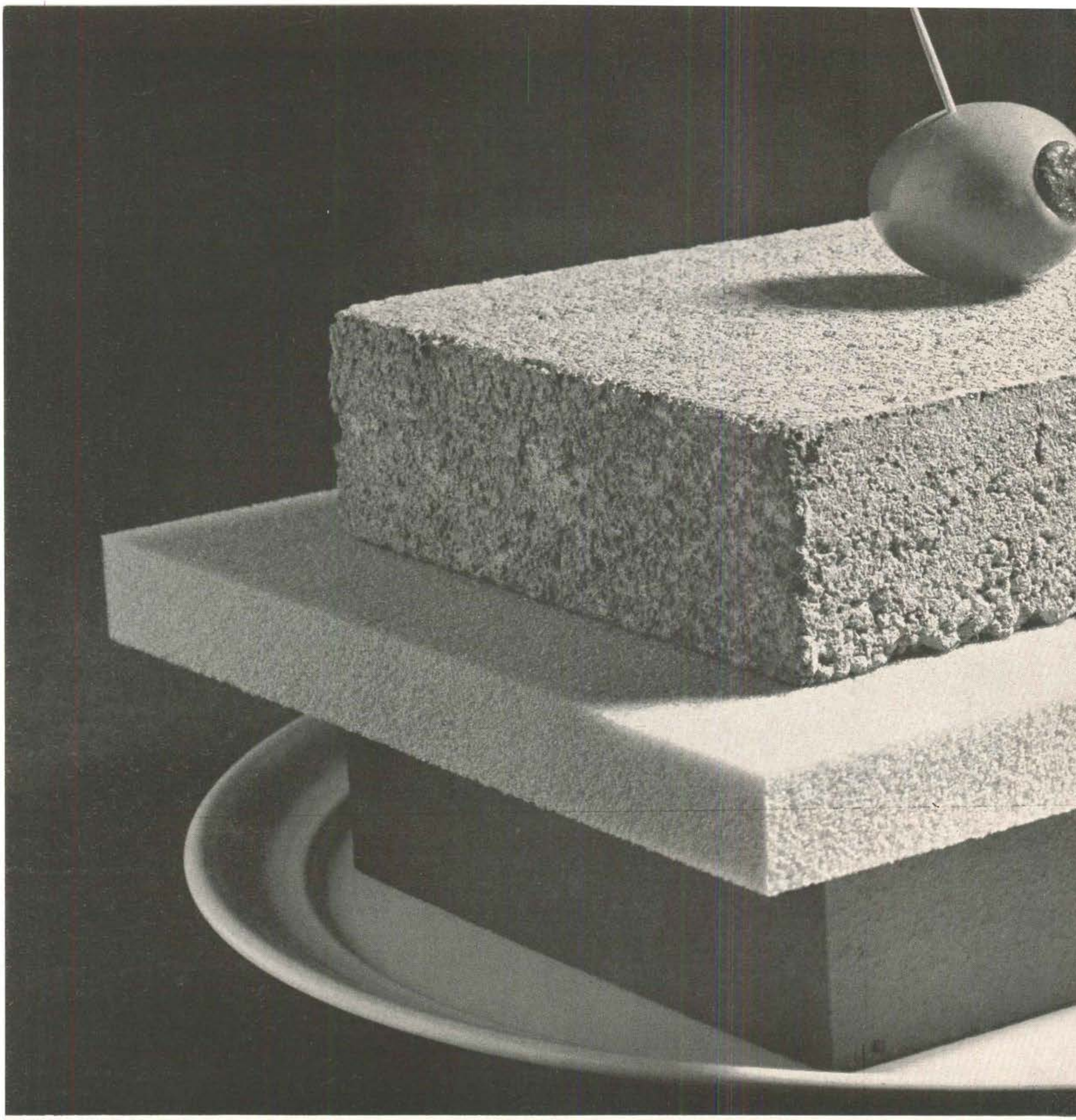
His proven "know-how" has established him as a communications expert in schools, hospitals, business offices, industrial plants, institutions, churches, hotels, motels, recreation centers, shopping centers, sports areas, etc. Service-wise, he's "Johnny-on-the-spot" for planning, installation, and follow-up service. To him, service and satisfaction are synonymous. It's *a comfortable feeling* to rely on his DuKane credentials. Call your local DuKane Distributor for an evaluation of your communications systems needs.

To the right are a few of the many DuKane communications systems.

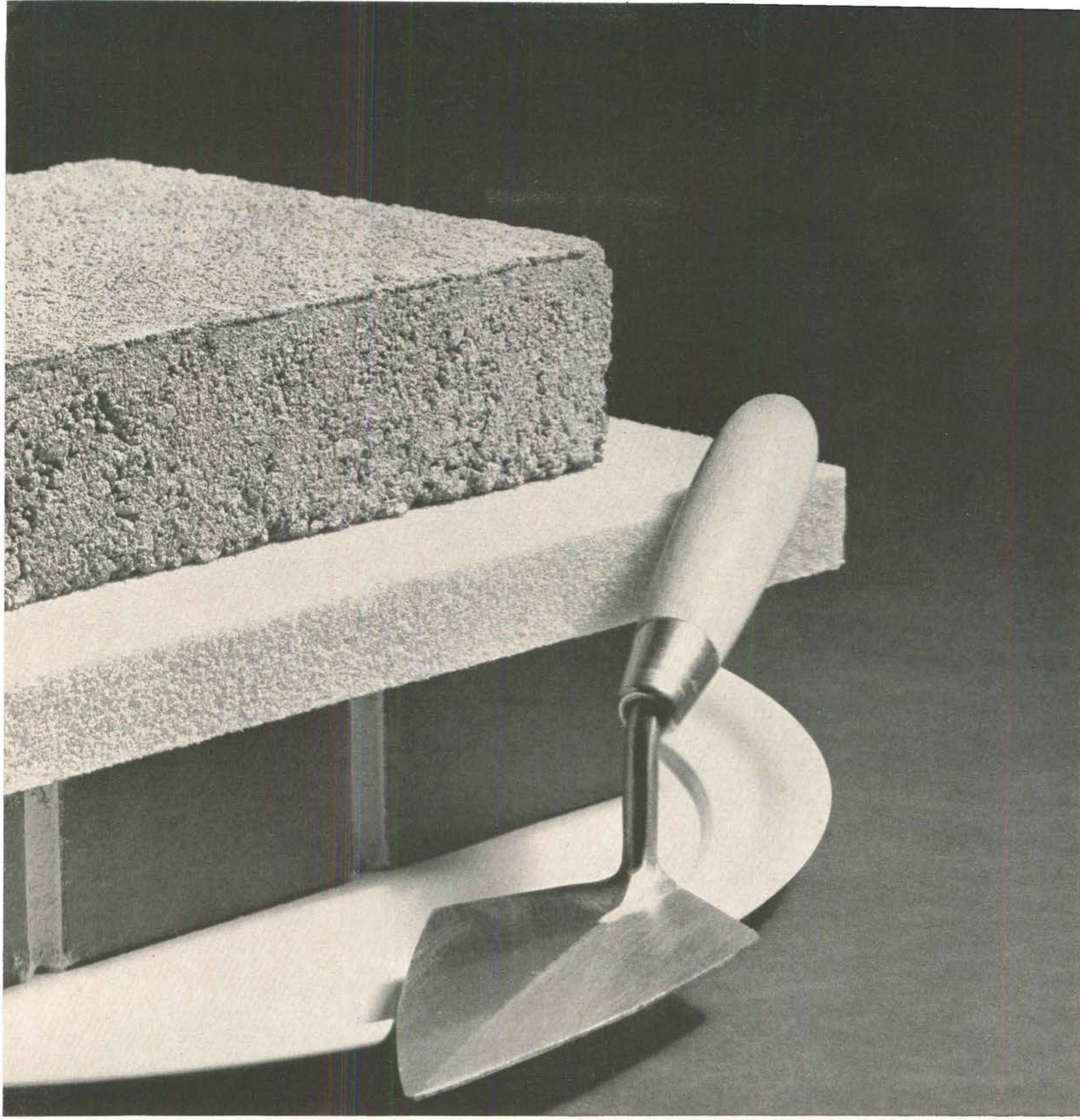
DuKane

COMMUNICATIONS SYSTEMS DIVISION
DUKANE CORPORATION
DEPARTMENT AR-43 • ST. CHARLES, ILLINOIS

For more data, circle 133 on Inquiry Card



This is only one way you make a



NEW styling in smart, exclusive CHF design. No. 430 Bar Stool with 834 Seat, shown.

NEW . . . matching base for tables, chairs gives completely integrated decor. Choice of new seats now available. Write:

CHICAGO HARDWARE FOUNDRY CO.
North Chicago, Illinois
Showrooms in All Principal Cities

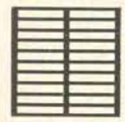
CHF

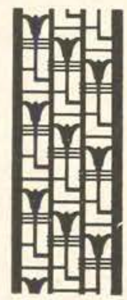
For more data, circle 135 on Inquiry Card

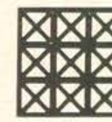
H&K
PERFORATED METAL GRILLES
(Send for Grille Catalog)

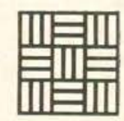
H&K
Perforated Decorative MATERIALS
(Send for Catalog 75)

Illustrations shown in reduced size









Harrington & King has been serving architects for 75 years with a wide selection of classic and modern designs in grilles and decorative materials.

H & K grilles are furnished in accordance with your specifications . . . in practically any type and gauge of metal . . . and in the finish desired. Perforations are clean and burr-free, margins are in alignment, and each grille is leveled and inspected before shipment.

H & K decorative patterns, from a vast selection of existing dies, are serving architects in many new and unusual ways. If your plans call for perforated materials, depend on H & K!

See Sweet's File—30f/Ha

FIND NEAREST H & K AGENT IN THE 'Yellow Pages'

Listed Under "Grilles"

THE Harrington & King PERFORATING CO. INC.

Chicago Office and Warehouse
5624 Fillmore St Chicago 44

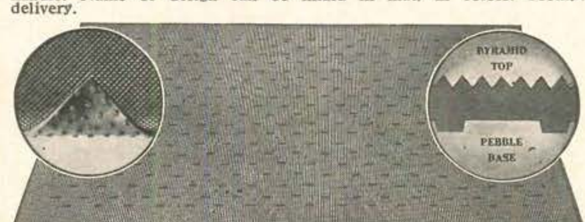
New York Office and Warehouse
114 Liberty St., Dept. AR, N.Y. 6

For more data, circle 136 on Inquiry Card

RC M

Safety Designed
MUSSON
PERFORATED RUBBER MATS
Inlaid or Plain

Feature safety, quality and beauty for entrances, lobbies, vestibules. Musson Mats are made in all sizes and shapes. Easy to clean and handle. Name or design can be inlaid in mat, in colors. Prompt delivery.



PYRAMID surface design in heavy, "live" rubber gives safest foot traction, ease of cleaning. PEBBLE BASE allows air circulation and drainage under mats.

PERFORATIONS: Newest designs. Spike heels will not catch. SIZES: Up to 72" x 16'6" in one piece, 3/8" or 1/2" thick, for surface or recess installation.

COLORS: Black, Brown, Red, Green, Gray, Sand.

MUSSON ALUMINUM MAT RECESS FRAME

Insure perfect fit of entrance mats, flush with floor surface, using Musson frames. Prefabricated at factory to match mats. Drop in place with ease. Complete with anchor keys and re-inforced corner pins. Save time and money for builders and installers. Save mats.

MUSSON MOLDED RUBBER STAIR TREADS

Musson makes treads of the toughest, heaviest gauge and weight molded rubber. They are designed for safety, beauty and durability. Try them!

Write For Catalog, Samples and Prices

THE R. C. MUSSON RUBBER COMPANY
1322 EAST ARCHWOOD AKRON 6, OHIO

For more data, circle 137 on Inquiry Card

Neat!

Why put up with a clumsy-looking water chiller? The new Chrysler Airtemp line of 20-100 HP packaged chillers now gives rugged reliability a sleek, new look!

Contrast the elegant, modern design of this 100 HP chiller with the usual maze of pipes, iron, sheet metal and gauges. Appearance is important, of course, but make no mistake about it — these new chillers will give you the same outstanding performance you've always associated with Chrysler Airtemp's line.

The new chillers also answer all the other major problems you once had to deal with. **They are quiet** — the only single compressor units of over 20 HP with a sound cabinet, permitting installation in quiet areas. **They are compact** — even the 100 HP unit will go through a 35″ by 6′8″ opening, which means the unit can often be taken to the roof right in the elevator.

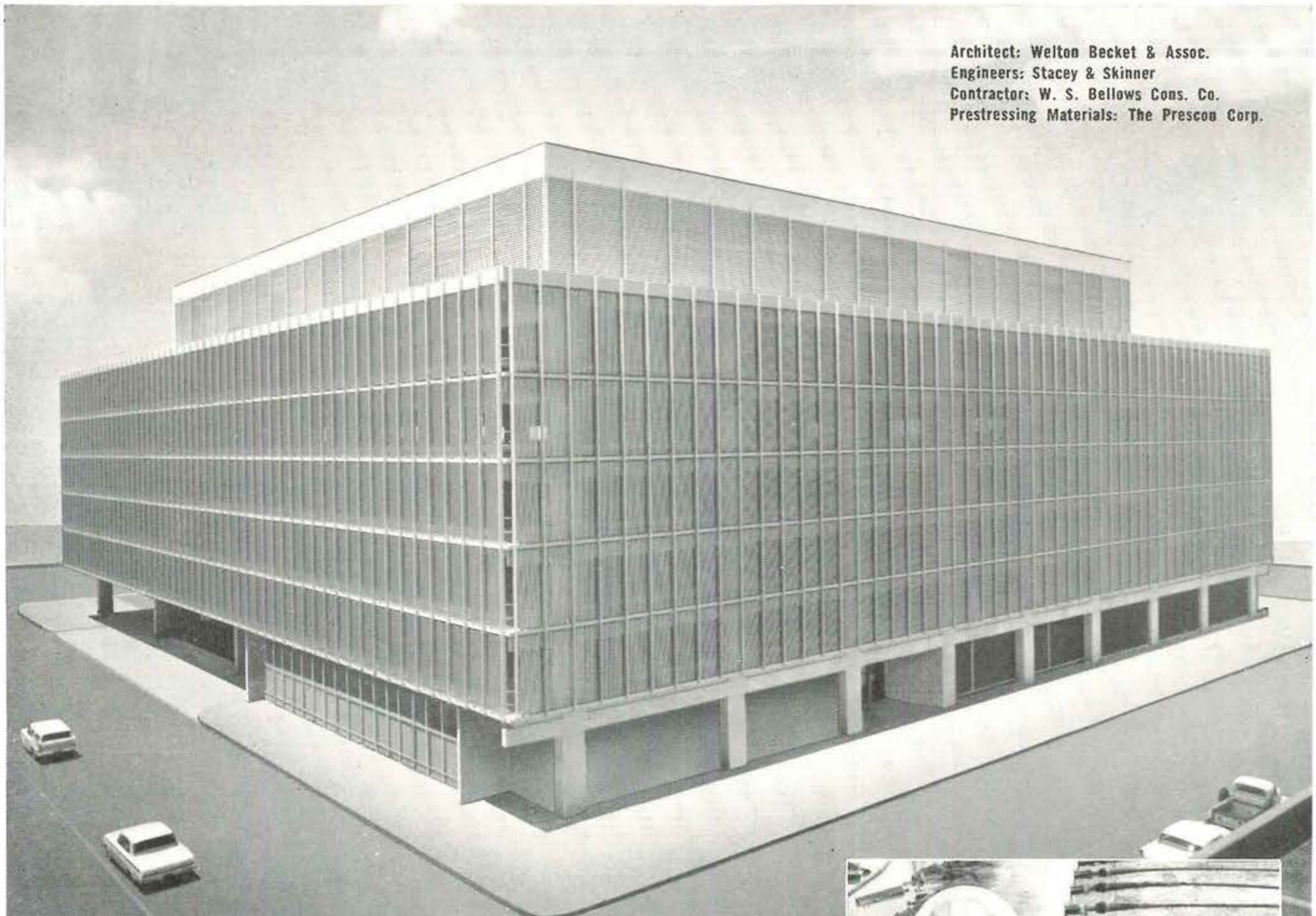
Other important features include a very precise and simple electric unloader (Chrysler originated individual cylinder unloading) . . . and easy accessibility (all controls can be reached from a removable 4′ x 4′ front panel.)

The new design translates useless pounds of structural steel into "mechanical muscle" for longer life and trouble-free service. You can find out more about this revolutionary new line by writing to Chrysler Corporation, Airtemp Division, Dept. C-64, Box 1037, Dayton 1, Ohio.

AIRTEMP DIVISION **CHRYSLER CORPORATION**

For more data, circle 20 on Inquiry Card

For more data, circle 21 on Inquiry Card →



Use of coupled tendons allowed reduction of pour size, minimizing shrinkage and creep losses.

PARKING FOR 1000-1200 CARS
IN POST-TENSIONED STRUCTURE

Heating and Cooling Equipment for 44-Story Building Carried on Top Level

When architects Welton Becket & Associates, and engineers Stacey & Skinner designed the parking garage for the new 44-story Humble Oil and Refining Office Building, Houston. post-tensioned prestressed concrete construction was specified. The contractor selected the Prescon System. This type of construction provided greater versatility in the utilization of parking space. Headroom was not decreased by beams as openings were formed in them, and the appearance of tees and slabs was clean. A bank and service station occupy a portion of the ground level.

Construction is of pretensioned beams, 63′ long and spaced 28′ apart, post-tensioned in place after the slab load was on them. The slab (7½″ thick—9″ for top level) is post-tensioned using coupled tendons totaling 252 feet. The two circular ramps (behind extension screen at center and right corner of photo) are post-tensioned cantilevers 17′. At no point does the ramp structure tie to or touch the parking level slabs.

Prescon representatives can show you applications of the Prescon System of post-tensioning prestressed concrete in poured-in-place, lift-slab, and precast construction in many types of structures. Write for brochure showing numerous buildings and listing almost 200 others which used the Prescon System.

NEW 3 COLOR BROCHURE ON PARKING GARAGES READY—WRITE FOR YOUR COPY.

PRESCON

©The Prescon Corp.

THE PRESCON CORPORATION

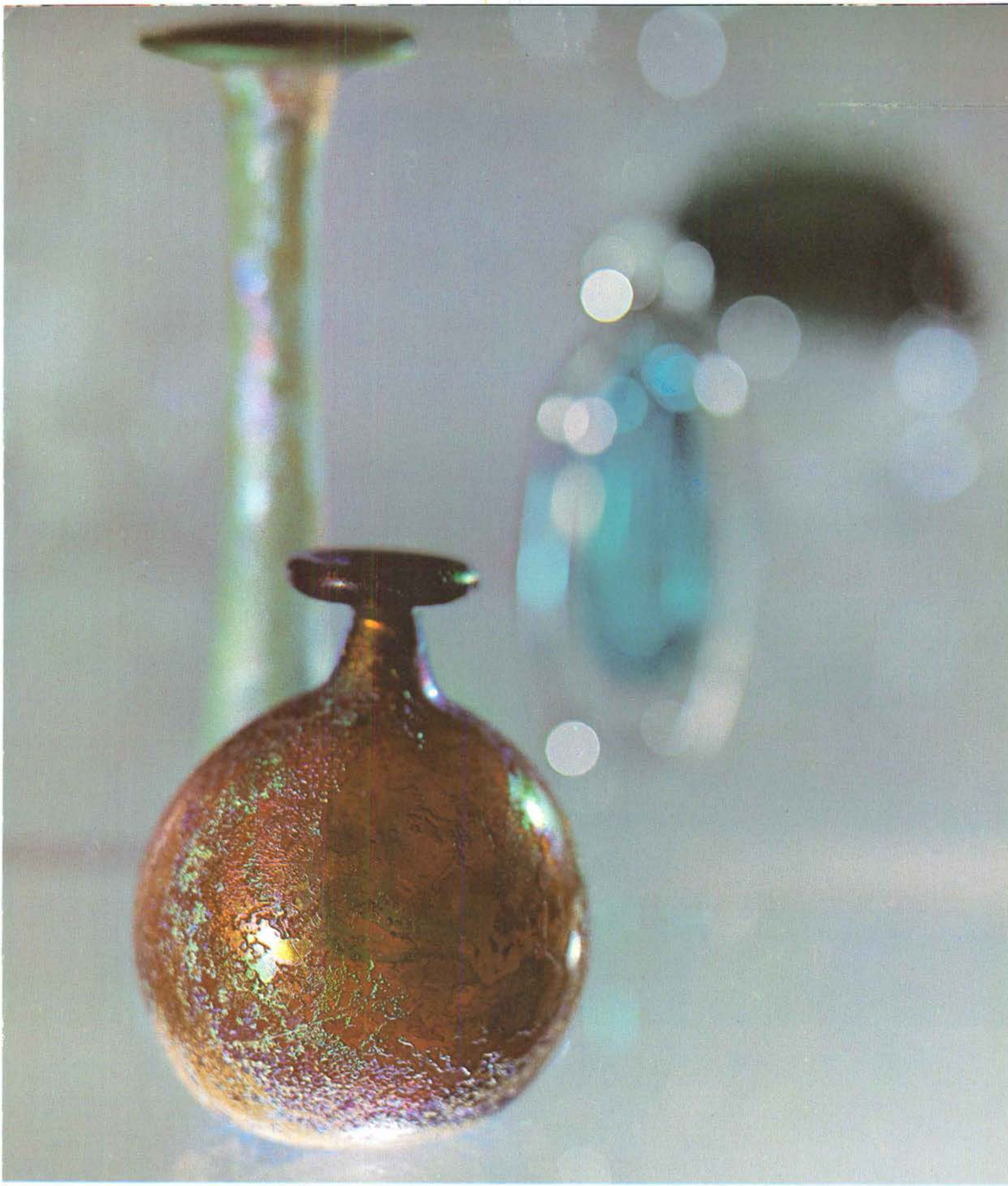
P. O. Box 4186 • Corpus Christi, Texas
Albany • Atlanta • Memphis • Dallas • Denver • Houston
Los Angeles • St. Louis • San Francisco • Seattle

MEMBER OF PRESTRESSED CONCRETE INSTITUTE

see our catalog in Sweet's S

For more data, circle 22 on Inquiry Card

For more data, circle 23 on Inquiry Card →


Roman Glass (First to Third Century A.D.), from the collection of The Detroit Institute of Arts.

INDIVIDUAL ARTISTRY HAS ITS PLACE IN MAKING GLASS...

YOUR FORD
ARCHITECTURAL GLASS
REGIONAL SALES OFFICES

WESTERN STATES
W. P. Fuller & Co.
222 N. Avenue 23
Los Angeles, California
CA 5-1212

DALLAS, TEXAS
Ford Motor Company
Stemmons Towers East
2700 Stemmons Freeway
ME 1-6430

DENVER, COLORADO
Ford Motor Company
P.O. Box 5588
Terminal Annex
AL 5-3461

NASHVILLE, TENN.
Ford Motor Company
P O. Box 1355
Nashville Glass Plant
CY 7-0911

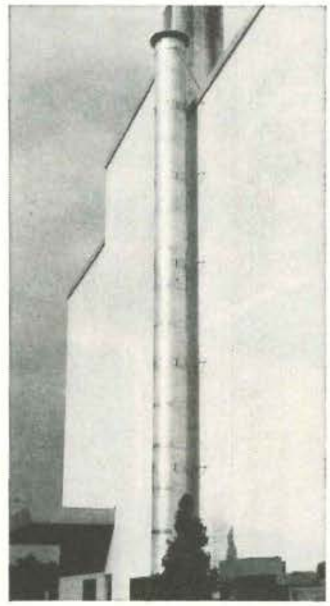
NEWARK, N.J.
Ford Motor Company
36 Park Place
MA 2-5211
(in N.Y., CO 7-3868)

PHILADELPHIA, PA.
Ford Motor Company
Pennsauken, N.J.
NO 3-2100

WIXOM, MICH.
Ford Motor Company
P.O. Box 100
FI 9-2400

Ford
ARCHITECTURAL GLASS
PRODUCTS OF Ford MOTOR COMPANY

VAN-PACKER®



Is The Only Medium Heat Appliance

Underwriters' Laboratories, Inc.
®
INSPECTED
Van-Packer Model HT Smokestack

THAT'S U. L. LISTED

Whatever the installation — incinerator, boiler or furnace — cut your costs safely with a U.L. listed Van-Packer Model H-T stack.

Made of special refractory material, Van-Packer averages 3 times longer life than a steel stack. A Van-Packer costs no more than a comparable steel stack — less than brick or tile-lined concrete block stacks.

For incinerators, boilers or furnaces with a range of 8 diameters from 10″ to 36″, Van-Packer offers the safety, performance, and economy you require.

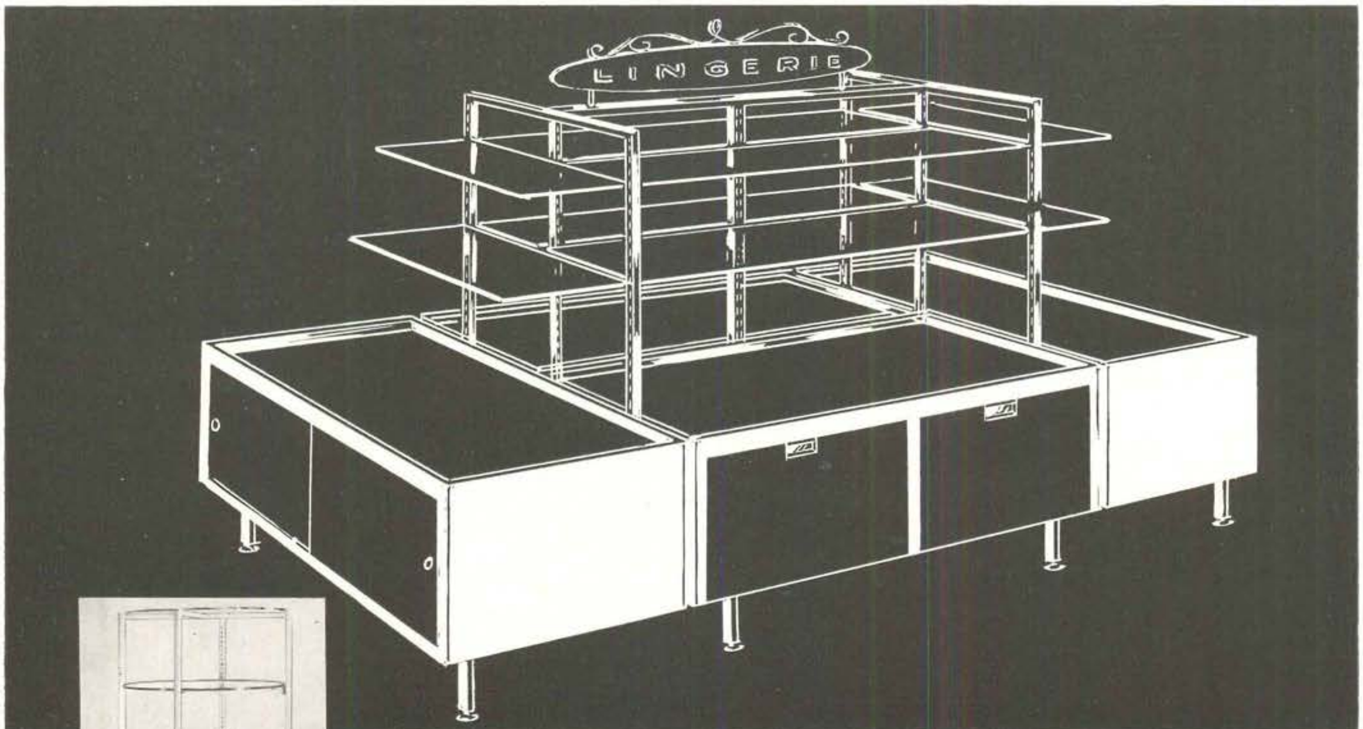
VAN-PACKER...
First choice to last!
For complete engineering and application data, write for Bulletin IS-57.

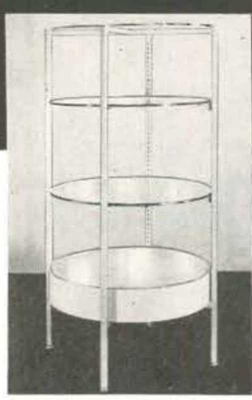
FLINTKOTE®

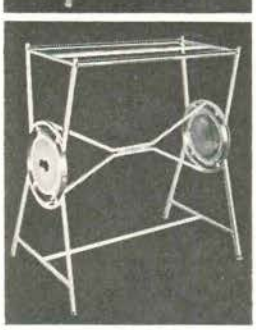
THE FLINTKOTE COMPANY
Van-Packer Products Division
30 Rockefeller Plaza, New York 20, N. Y.

← For more data, circle 23 on Inquiry Card

For more data, circle 24 on Inquiry Card







STORE EQUIPMENT

MANUFACTURED

TO your SPECIFICATIONS

American Fixture Inc. has the experience and manufacturing versatility required to produce the many merchandising fixtures so necessary to a modern department store's efficient and successful operation . . .

METAL FABRICATION and FINISHING including ELECTRO-PLATED FINISHES and HIGH-TEMPERATURE oven-baked EPOXY COLOR ENAMEL FINISHES • WOODWORKING and CABINET MAKING . . . over fifty years experience in producing fine quality wood fixtures, showcases, etc. for America's leading retail stores • PLASTIC LAMINATING . . . wood grains and colors to your specifications.

EXPERIENCED INSTALLATION CREWS are available to YOU when YOU work with "American"

Whether your plans are for a complete store or a remodeling project . . . LET US BID YOUR JOBS!

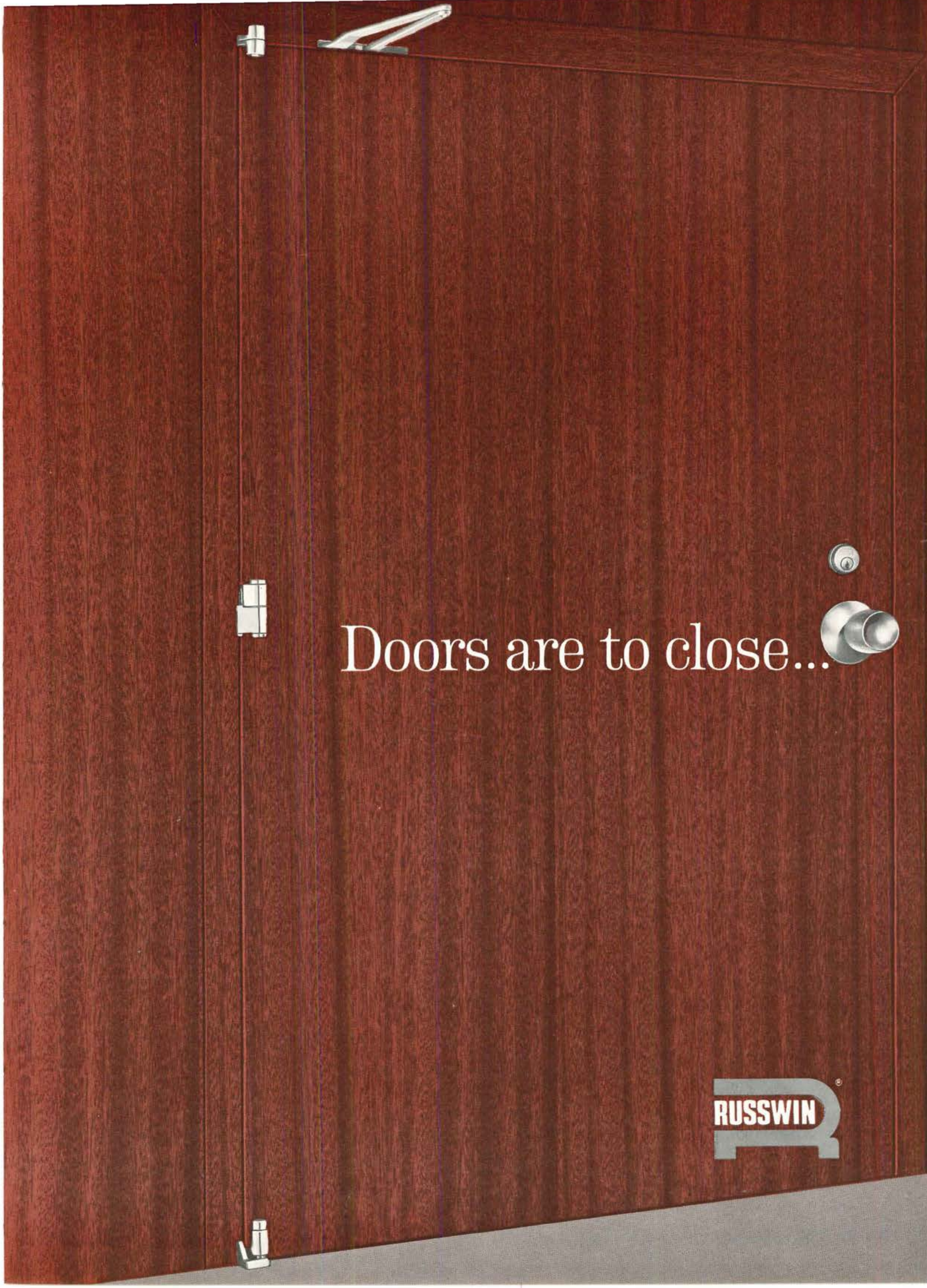
AMERICAN FIXTURE INC.

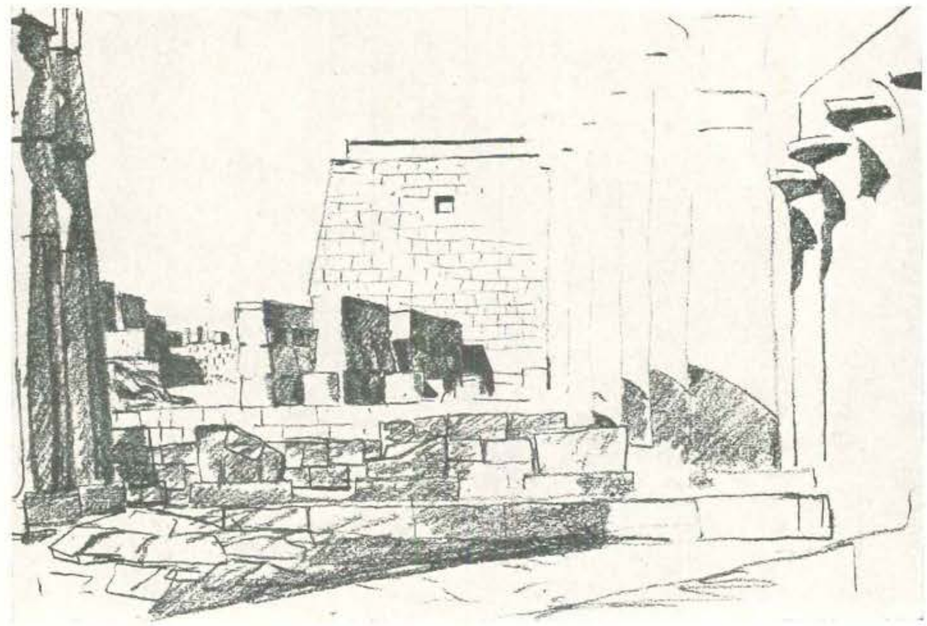
TRIM*Lok* STORE EQUIPMENT

U. S. PATENT NO. 3004814 and U. S. PATENT NO. 2810598

GENERAL OFFICES: 2300 LOCUST STREET • SAINT LOUIS 3, MISSOURI • AREA CODE 314 • GArfield 1-2170

For more data, circle 25 on Inquiry Card


Doors are to close...
RUSSWIN



Luxor, 1951
—from "The Notebooks and Drawings of Louis I. Kahn"

Kahn

THE NOTEBOOKS AND DRAWINGS OF LOUIS I. KAHN. *Edited by Eugene Feldman and R. S. Wurman. The Falcon Press, Philadelphia; dist. by Wittenborn and Company, 1018 Madison Ave., New York 2. No. pagination, illus. $14.50.*

This book is confirmation of what appears to be a trend to large-format volumes of well reproduced drawings. Mr. Kahn is adept with pen, pencil and crayon, whether he is applying them to conceptual drawings, finished perspectives or travel sketches.

Oddly, it is the travel sketches which seem to reflect best the architect's mind at work, as in the four drawings of the cathedral at Albi; impressions of structure, purpose, bulk and texture, are quite clearly evidenced. Of Mr. Kahn's own designs, probably the six drawings of the Medical Building are the most illuminating, progressing as they do from early sketches to a late definitive study. Part of this illumination undoubtedly lies in the reader's prior knowledge of the building and the reasoning behind its design. Which fact indicates the book's greatest disappointment—its paucity of factual information.

None of the drawings—thank heaven!—are the pretty pictures produced for the layman-client. But even the architect—studying a conceptual city plan, for instance—needs some idea of the problems to be met and the solutions derived. Without such an idea, he runs the danger of perceiving architectural drawings as a shallow esthetic pleasure in pattern and technique.

Nonetheless, most of the drawings *are* informative, the entire book *is* handsome, and the whole is amplified by selected writings of Mr. Kahn.

Giedion

THE ETERNAL PRESENT: THE BEGINNINGS OF ART. *By S. Giedion. Bollingen Series, 140 E. 62nd St., New York 21. 588 pp., illus. $12.50.*

Subtitling his book, "A Contribution on Constancy and Change," Mr. Giedion has begun (this is the first volume of his study) to compare and assess the discoveries made about primeval art during the past 50 years and the developments in contemporary art through the same period. This is not to suggest anything as simple as an examination of the derivation of modern techniques from admirations of cave paintings. (Prehistoric art, for the purposes of this study, is confined to European cave art.) Rather it is an effort to get behind the surface brilliance of prehistoric depictions of animals to find the essential concepts which governed the expression, and to find what relevance those concepts may have for modern life and modern art.

By far the largest part of the book, in terms of bulk, is devoted to symbolization. Most architects will probably be more interested in the sections on prehistoric space concepts. Mr. Giedion takes issue with the view that prehistoric man carved and painted in a primitive attempt to establish order or to assert his humanity in the face of overwhelming and terrifying chaos. Primeval man, he maintains, did not see himself as a creature apart, nor did he recognize space as a quantity which could be divided and controlled. As time was conceived as "the eternal present," space was conceived without distance and without direction. Art was, in short, pre-architectural: modern man's recognition of space relationships in the caves results largely from his experience of architecture. The subject of man's attempted dominion over space through architecture is promised for a second volume, "The Beginnings of Architecture."

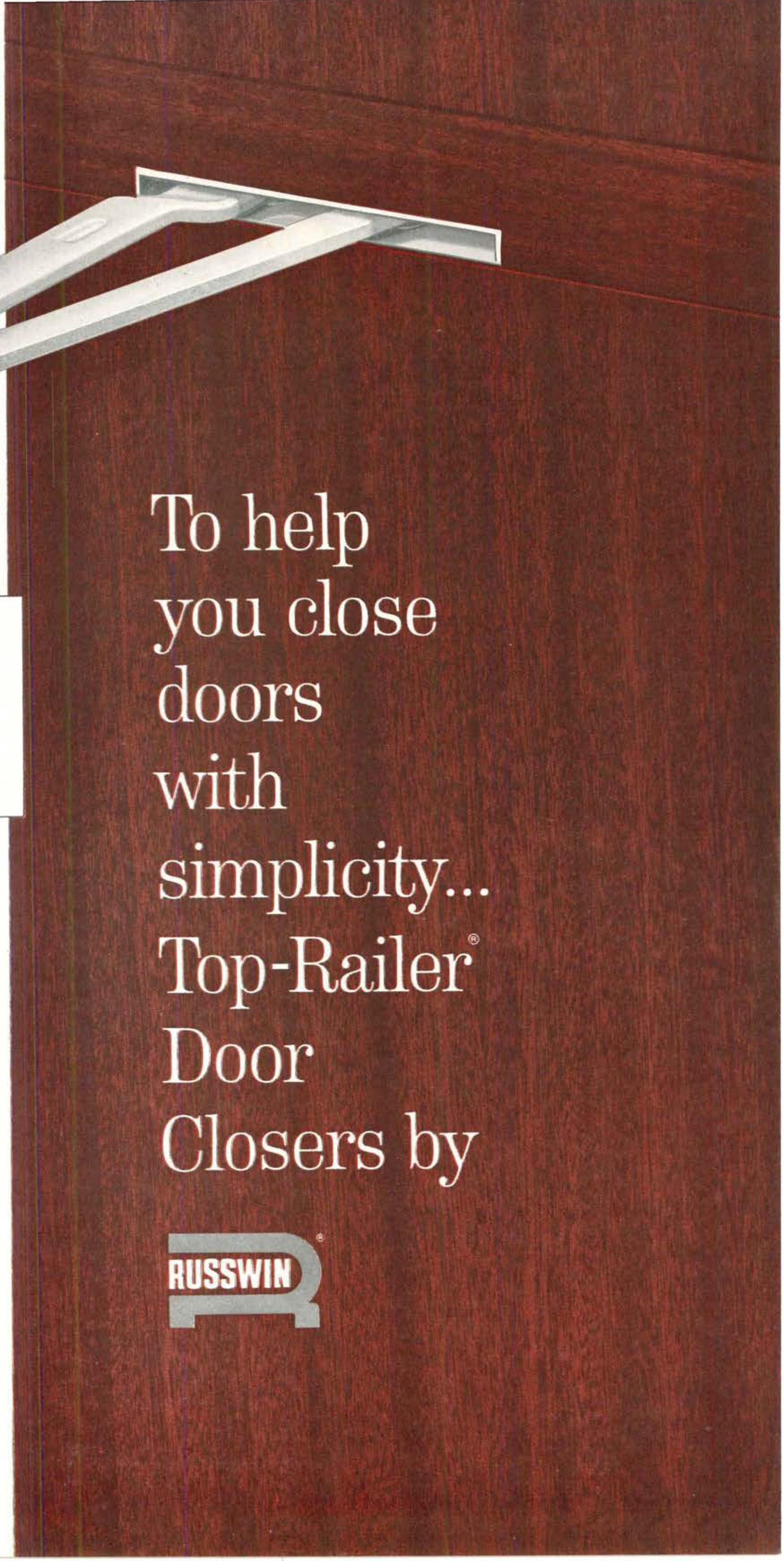
Illustrations include 351 half tones and 20 color plates.

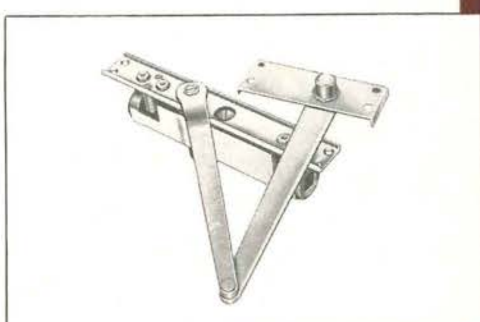
Churches

TOWARDS A CHURCH ARCHITECTURE. *Edited by Peter Hammond. The Architectural Press, 9-13 Queen Anne's Gate, London S.W. 1. 262 pp., illus. 30s.*

This is a collection of papers read over a period of years to Britain's

continued on page 56



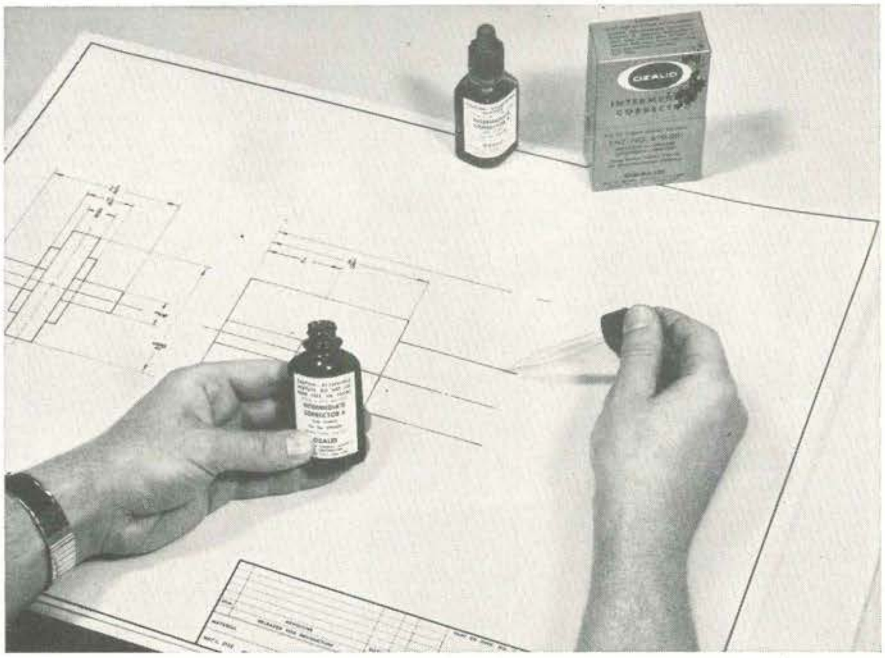


Here's a door closer so compact you can put it in the door instead of on it! Doors look better . . . so do your interiors. Even where you *must* have surface-closer installations, you can get the Top-Railer® with attractive covers that conceal the closer mechanism. Either way, your clients get complete door control. Separate adjustments regulate closing speed, latching, and back-check. High-strength construction throughout. See your Russwin supplier. Or write for literature to Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

For more data, circle 26 on Inquiry Card

OZALID NEWSLETTER

NEW IDEAS TO HELP YOU WITH ENGINEERING REPRODUCTION AND DRAWING



New ITX line of intermediates by Ozalid offers finest-line pick-up and fastest printing speed of any intermediates!

Three new diazo intermediates which fit their performance directly to your reproduction requirements are now available from Ozalid! They require no special equipment or processing and can be exposed on any Ozalid whiteprinter or similar machines.

Unmatched pencil-line pick-up power

The standard (402 ITX) and faster (404 ITX) intermediates reproduce faintest details faithfully. Their "pencil-line pick-up power"—the true measure of a good intermediate—is rated excellent by research and development technicians and by industry experts.

Improved 402 ITX—the standard intermediate in the new line, has greatest density and assures maximum readability in the final print.

All-new 404 ITX is a distinct improvement over other sepias and combines fast printing speed with high quality reprints. Its broad covering power results in sharpest images. The new 100% rag, transparentized and blue-tinted base gives faster printback speeds. 404 ITX narrows the gap between printing and reprint speeds; in many cases both speeds are identical.

Fastest intermediate you can get!

406 ITX—another new Ozalid intermediate, is twice as fast as 402 ITX. Density is a trifle less, but the remarkable increases in production, over 100%, offset its slight decrease in covering power.

New, easy-on-the-eyes, readability

The rich mahogany image color of the new ITX series contrasts sharply with the blue-tinted background, providing excellent visual acuity and exceptional readability.

Which to use? 402? 404? or 406?

402 ITX—because of its superior covering power—is of great value to architects, engineers and draftsmen who demand exceptional repro fidelity as well as good printback speed.

404 ITX (Fast Speed) and 406 ITX (Extra Fast Speed) increase productivity of slow speed machines. In production shops where the number of intermediates needed is consistently high, copies may be run off on both these new materials at far faster speeds.

The ITX intermediates, either separately or as a product family, offer important advantages to every diazo user.

Corrections are simple

Dye line eradications can be made quickly and easily with Ozalid® Intermediate Corrector. Special base stock readily accepts pencil and ink additions.

Repeated erasures don't ghost or lose "tooth"

The ITX product line has a 100% rag-tracing vellum stock as a base with a new plastic transparentizer. Even repeated erasures made on the same spot do not destroy the "tooth" or ghost in printbacks.

Get all the facts now!

For complete information about this new family of intermediates, write OZALID, Dept. 142 Binghamton, New York.

OZALID
WE REPEAT
OZALID

General Aniline & Film Corporation
In Canada: Hughes-Owens Co., Ltd., Montreal.

For more data, circle 27 on Inquiry Card

Decorate...

Define...

Direct...

Pave any project in color with new Viadon® and Miradon®

Now you can specify color wherever you specify paving—red, green, blue, yellow-gold and white. New Viadon and Miradon are unit-packed for economy on small jobs. They're heat- and fuel-resistant and provide superior strength for the heaviest loads. The color is part of the mix—*lasting* color with which you can create more attractive parking and recreation areas . . . safer floors, streets and highways . . . more elegant patios, pools and driveways. New Viadon and Miradon can be mixed in standard asphalt plants and laid with existing equipment. For a detailed brochure, write to our Asphalt Sales Department in Houston, Texas.

Esso

HUMBLE
OIL & REFINING COMPANY

IT PAYS TO DO BUSINESS WITH HUMBLE . . . AMERICA'S LEADING ENERGY COMPANY

Required Reading

continued from page 52

New Churches Research Group by architects and churchmen. The contributors are drawn from Roman Catholics, Anglicans and Protestant denominations.

Without exception, each urges liturgical reform and corresponding architectural reform. The argument—for greater community in worship, for an elimination of vestigial medievalism, and for architectural programs based on a reassessment of liturgical function—was described by Peter Hammond in "Liturgy and Architecture" (see Required Reading, April 1962).

Each of these writers also takes for granted the interlocking effects of liturgical and architectural reform. If a clearer idea of liturgical requirements is basic to a meaningful architectural expression of Christianity, so architecture, by providing churches which serve worshippers in communion rather than spectators in awe, may shape a more meaningful approach to liturgy. This interdependence is viewed from the vantages of theology, history, symbolism, sociology, even technology.

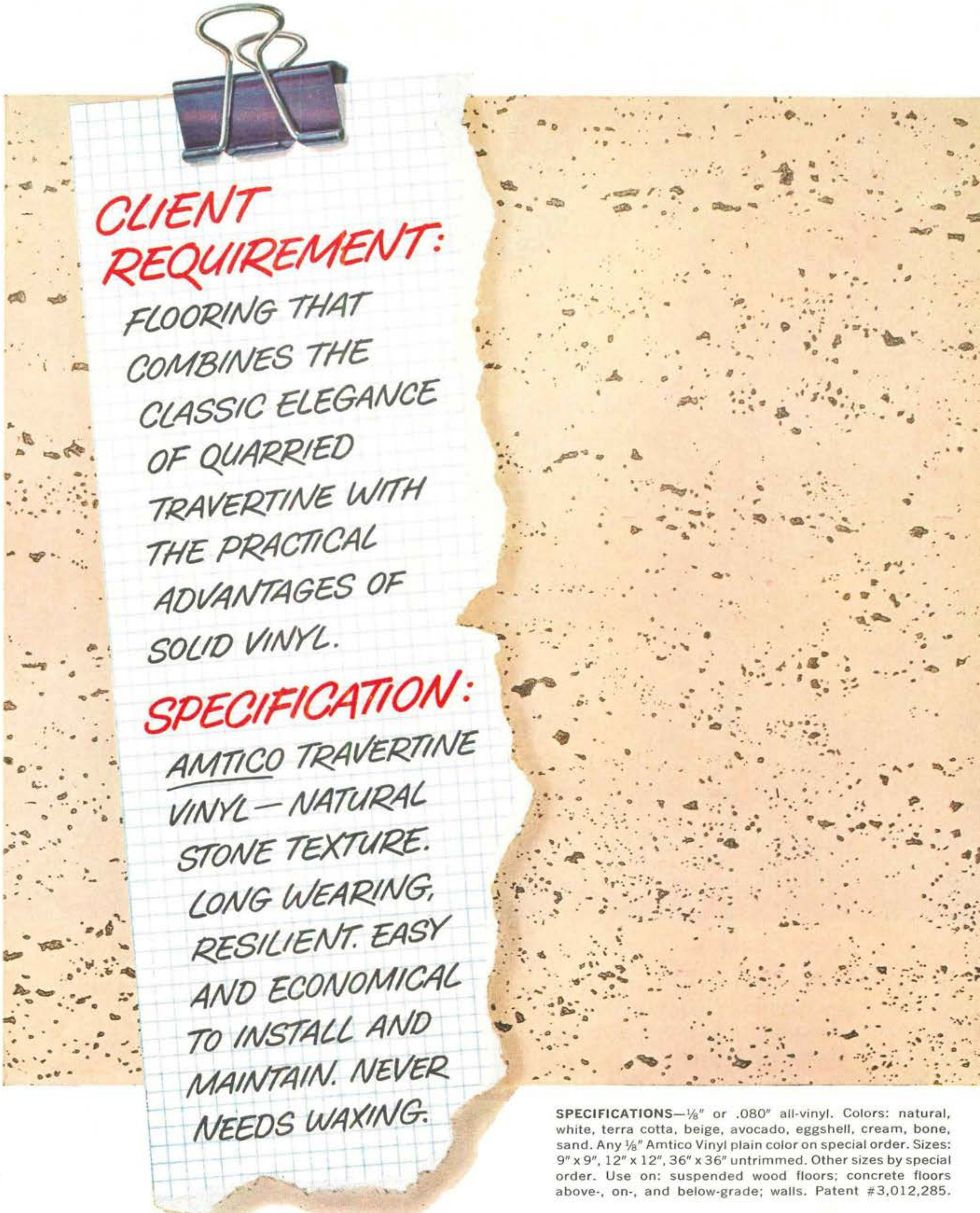
In light of liturgical changes which may quite possibly come out of the current ecumenical council, and in light of growing Protestant interest in re-examining liturgy and church architecture, these papers are must reading for architects involved in church design, as well as for church building committees.

Monographs

JAPANESE ARCHITECTURE. *By William Alex.* WESTERN ISLAMIC ARCHITECTURE. *By John D. Hoag.* PRE-COLUMBIAN ARCHITECTURE. *By Donald Robertson.* CHINESE AND INDIAN ARCHITECTURE. *By Nelson I. Wu. George Braziller, Inc., 215 Park Ave. South, New York 3. Each 128 pp., illus. Each $4.95.*

One of the difficulties scholars face when writing popular studies of exotic architecture is that their readers may range from the totally ignorant to the barely familiar. In earlier volumes in this series, covering the great ages of Western architecture, au-

continued on page 64



SPECIFICATIONS—⅛″ or .080″ all-vinyl. Colors: natural, white, terra cotta, beige, avocado, eggshell, cream, bone, sand. Any ⅛″ Amtico Vinyl plain color on special order. Sizes: 9″ x 9″, 12″ x 12″, 36″ x 36″ untrimmed. Other sizes by special order. Use on: suspended wood floors; concrete floors above-, on-, and below-grade; walls. Patent #3,012,285.

For free samples and detailed data, write Amtico, Dept. AR-13, Trenton 2, N. J.

The finest in Vinyl, Vinyl Asbestos, Vinyl Inlaid, Rubber and Asphalt Floorings

AMERICAN BILTRITE RUBBER COMPANY

TRENTON 2, NEW JERSEY

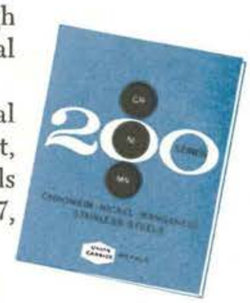
Showrooms: New York • Chicago • Los Angeles
San Francisco • Dallas • Toronto • London, England
In Canada: American Biltrite Rubber Company Ltd., Sherbrooke, Que.

Amtico FLOORINGS

For more data, circle 30 on Inquiry Card

Now...you can design for light weight with high-strength 200-Series Stainless Steels!

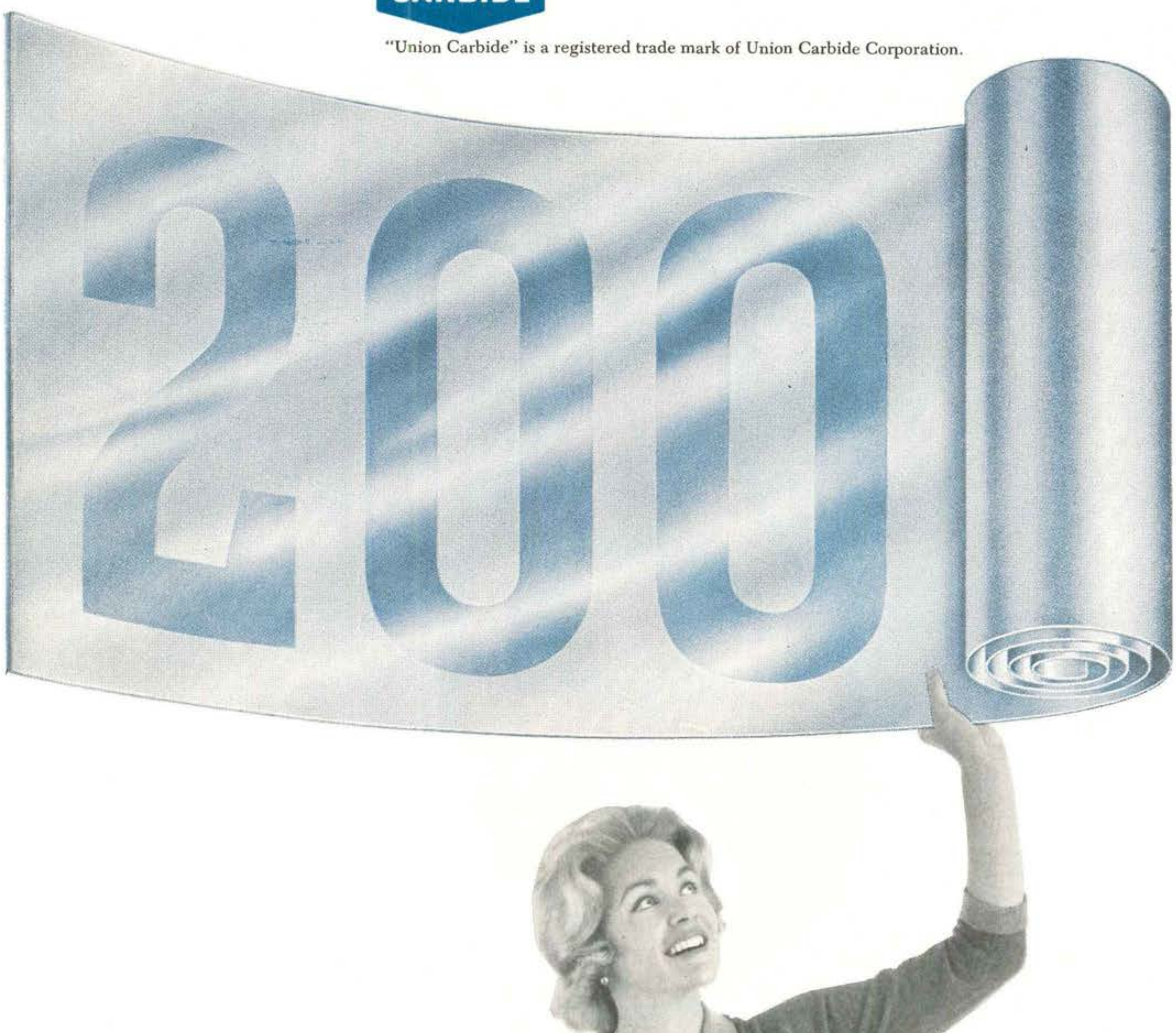
200-Series stainless steels make your product light by providing great strength in thin gages. This is because their yield strength in the annealed condition is 40% higher than corresponding 300-Series (18-8) stainless steels—already known for high strength-to-weight ratios. Moreover, the 200's save on material costs since less metal does the same job.



Also, fabricability and corrosion resistance of the 200's are excellent... in general equal to the 300's. For full data on properties and uses, write for the new booklet, "200-Series Chromium-Nickel-Manganese Stainless Steels." Union Carbide Metals Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, New York.

UNION CARBIDE METALS

"Union Carbide" is a registered trade mark of Union Carbide Corporation.



For more data, circle 32 on Inquiry Card

Required Reading

continued from page 56

thors could count on the reader's visual familiarity and cultural sympathy.

Mr. Alex, writing on Japanese architecture, had an advantage in being able to assume that his readers had some familiarity with this field. In a straightforward chronicle, he has shown sense and discrimination in citing comparatively few buildings for each period. This discrimination yields an added benefit: space enough for a number of illustrations of the more important buildings, e.g., the shrine at Ise, the Todaiji Daibutsuden, and Katsura Palace.

With the exception of tourists who have prepared themselves, most North Americans probably know less about Central and South American architecture of the Pre-Columbian period than about that of almost any other period or region. Mr. Robertson has not been too proud to adopt the journalist's axiom, "Never overestimate the reader's knowledge, never understimate his intelligence." He has written an informative introduction to Pre-Columbian architecture both as architecture and as archeology.

Chinese and Indian architecture is obviously an enormous subject. Attacking it with a sense of the limited space available to him, Mr. Wu has given a broad definition of resemblances between Chinese and Indian architecture in conjunction with their respective religions and cultures. His final chapter is an appreciation of the Chinese garden; unlike most Chinese architecture, which was socially oriented, the garden, as Mr. Wu sees it, is a free expression of the individual's relation to the universe.

Islamic architecture is a subject perhaps even more unknown and uncomprehended by Westerners than Asian or Pre-Columbian architecture. Under this burden, Mr. Hoag's effort to produce a monograph consistent with serious scholarship is valiant; but the ordinary reader, struggling under his own burden of ignorance, might wish a more basic presentation.

The illustrations in all the volumes are numerous, well reproduced, and enlightening, alone or in company with the text. The volumes are designed to match earlier editions in the series.

NIAGARA POWER PROJECT

LOCKS and BUILDERS' HARDWARE by *Lockwood*

By the *Power Authority of the State of New York*
Robert Moses, Chairman

General Engineering Consultants
Uhl, Hall & Rich,
Boston, Mass.
Subsidiary of
Chas. T. Main, Inc.

The nearly completed Niagara Power Project, one of the world's largest hydroelectric generating plants, is western New York State's most important source of electricity. Capable of generating enough current (1,950,000 kw) to supply the electrical needs of an entire city the size of Chicago, Niagara Power's continuous operating dependability was a paramount consideration.

Proposed equipment for the $177,170,000 plant was critically examined. Every phase of this project demanded the utmost in quality — when it came to locks and builders' hardware, Lockwood was used.

Year after year, Lockwood meets the most rigid specification for strength and maintenance-free operation.

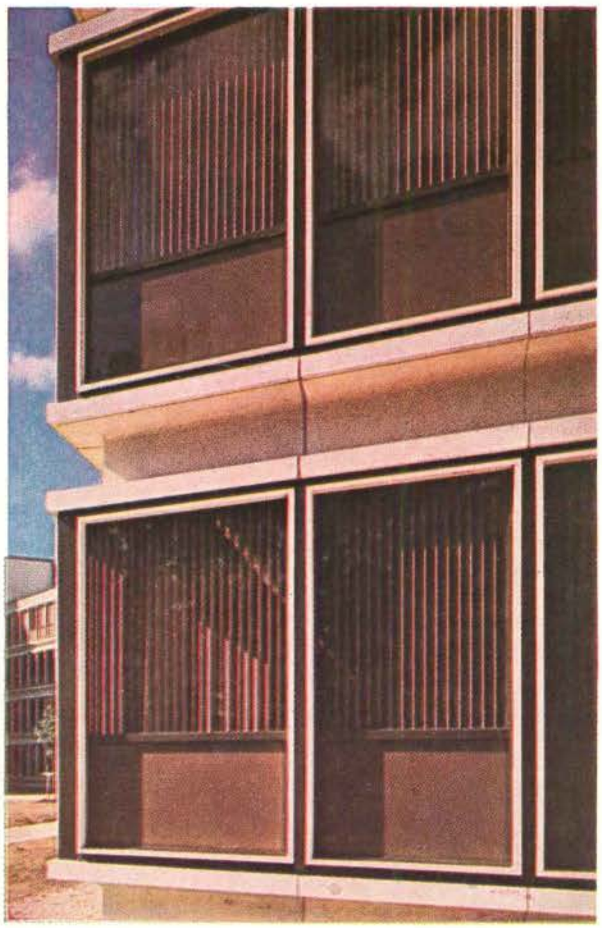
LOCK UP WITH LOCKWOOD

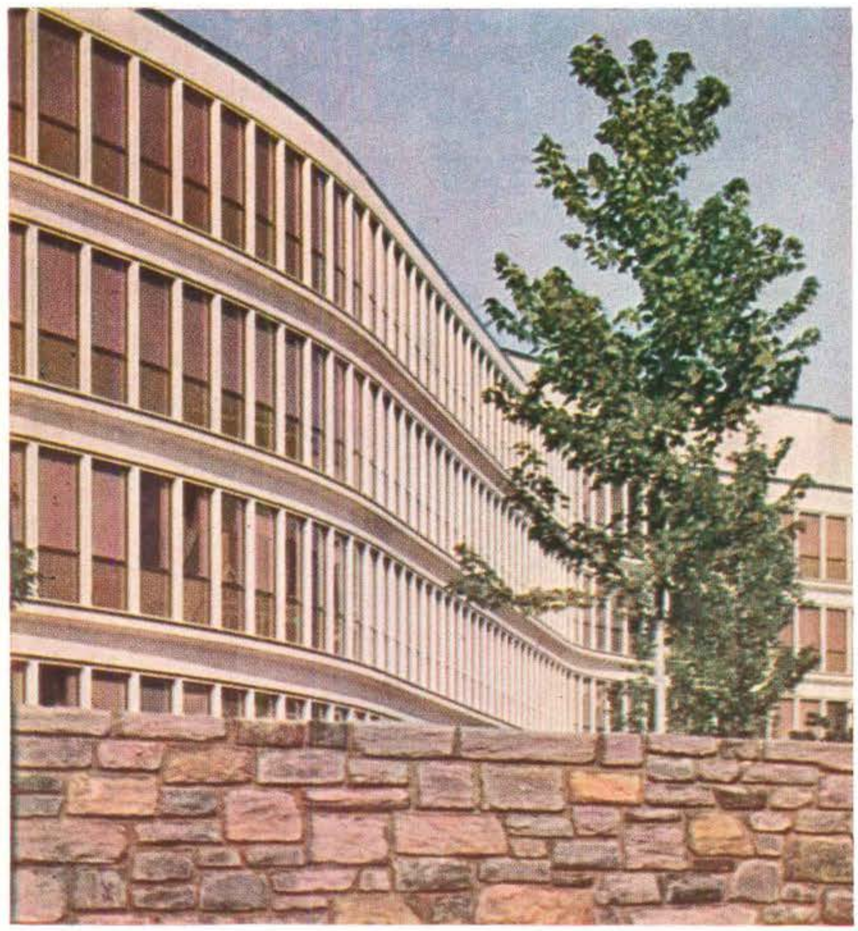
LOCKWOOD

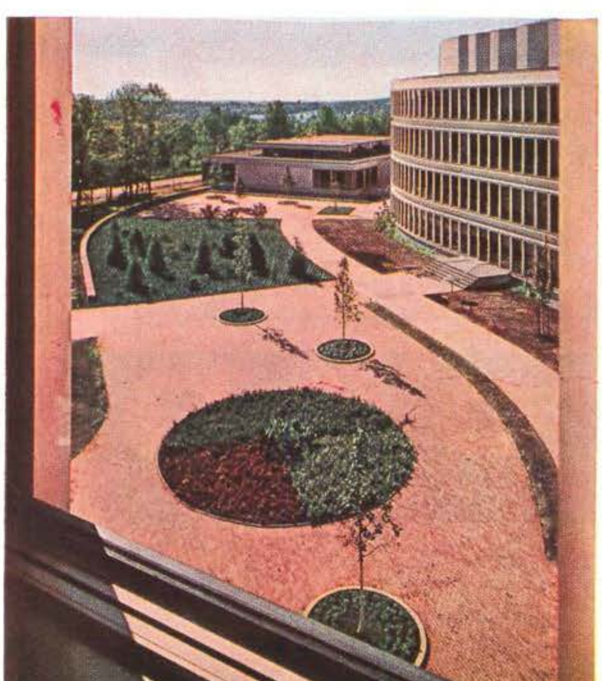
LOCKWOOD HARDWARE MANUFACTURING COMPANY, FITCHBURG, MASS.

For more data, circle 35 on Inquiry Card

Glass relates *indoors to outdoors...*



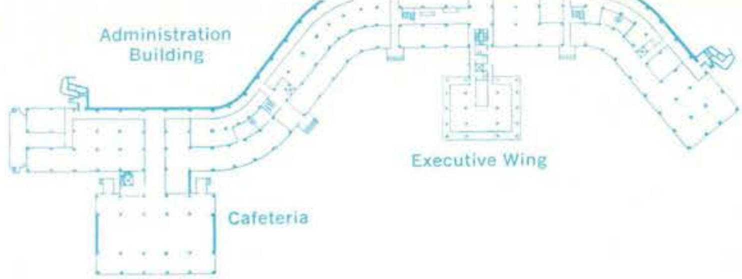




TRANSITION between modern building and rustic site (above) is softened by gentle curve of walls and subtle tint of the windows. Rib effect created by adjoining window frames gives vertical texture to walls, offsets emphatic horizontal spandrel lines.

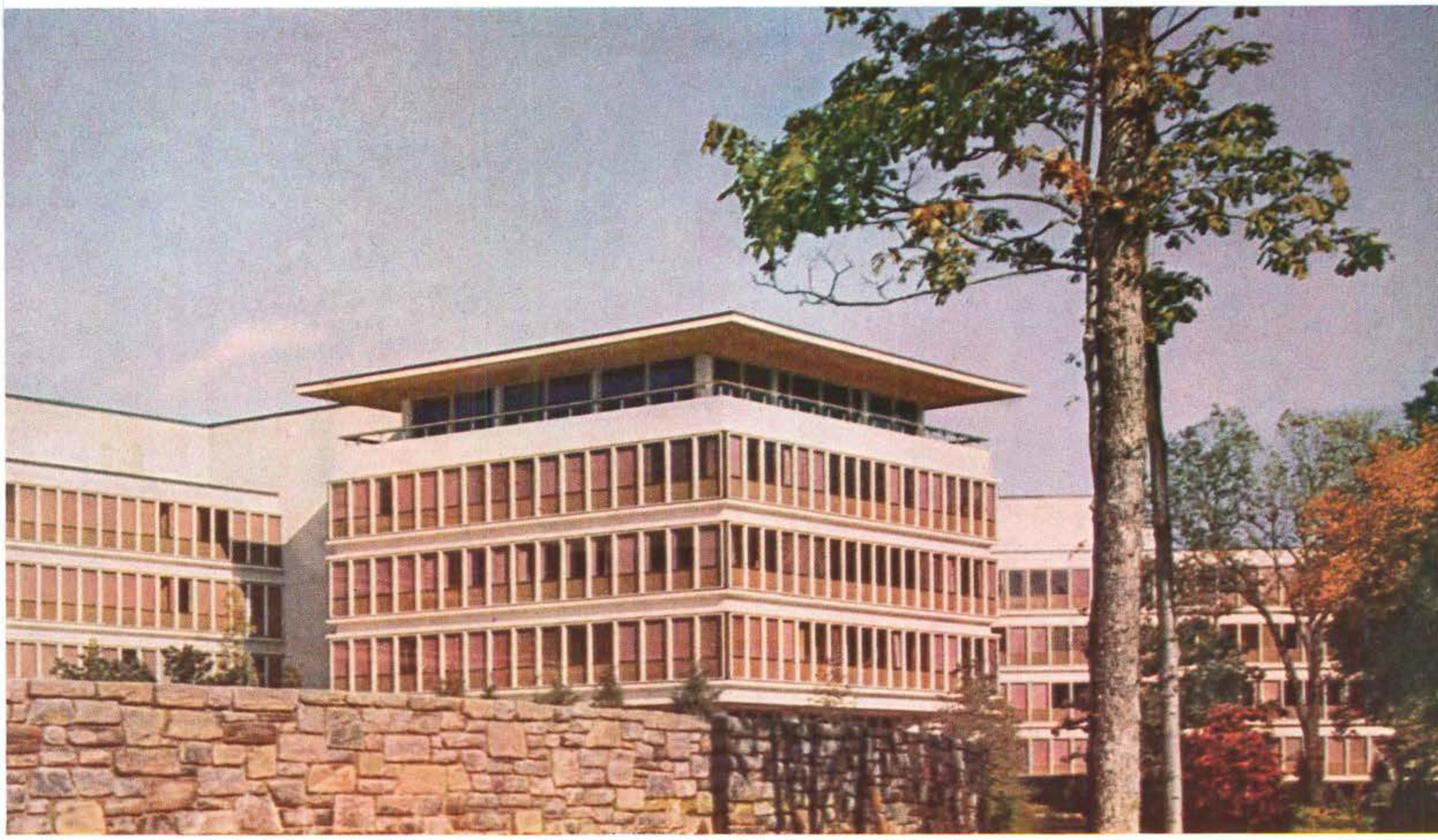
MASS AND SUBSTANCE (left above) are created by precast concave spandrel panels combined with windows of tinted transparent glass and panels of opaque colored glass. Window frames are extruded aluminum porcelainized off-white and articulated from each other and spandrel panels by bands of bronze-colored duranodic aluminum.

SWEEPING VISTAS are made possible by narrow building plan, which places every office within view of the outdoors. Curved terrace is light-tan colored brick.



SERPENTINE PLAN was inspired by site contours, gives employees view of surrounding valleys and hills and of other portions of the building itself.

building to site ... in an office in the country



A clean-lined, efficient office building to house 1400 employees of a major corporation. A rolling, wooded, 180-acre site. Wed the two. This was the problem faced by Architect Vincent G. Kling, FAIA, in designing new headquarters for American Cyanamid Company in Wayne, New Jersey.

An important part of Kling's solution was 23,000 square feet of ASG's smoked topaz plate glass, one of several building materials carefully chosen to soften the transition between modern building and rustic setting. From outside, the color of the plate glass blends with the surrounding woodland tones while its highly polished surface reflects the changing colors of the seasons and shifting patterns of cloud and sky. Inside, the glass transmits the true colors of the landscape and reduces solar heat and glare.

Architect Kling's dramatic and skillful use of plate glass is typical of the creative solutions available to architects in the broad range of glasses from ASG — the only U. S. producer of all major types of flat glass. Whatever *your* glass requirements, ASG's Starlux plate, Lustra-line sheet or Blue Ridge patterned glass will meet them. All the more reason for thinking ASG whenever you think glass.

For more information, see your local glass distributor or ASG representative, or write: Dept. D-4, American-Saint Gobain Corporation, Box 929, Kingsport, Tennessee.

AMERICAN-SAINT GOBAIN CORPORATION
Kingsport, Tennessee

SALES OFFICES: Atlanta, Boston, Chicago, Dallas, Detroit, Kansas City, Los Angeles, New York, Pittsburgh, San Francisco, Seattle.
PLANTS: Kingsport and Greenland, Tennessee; Jeannette, Arnold and Ellwood City, Pennsylvania; Okmulgee, Oklahoma.

Creative ideas in glass

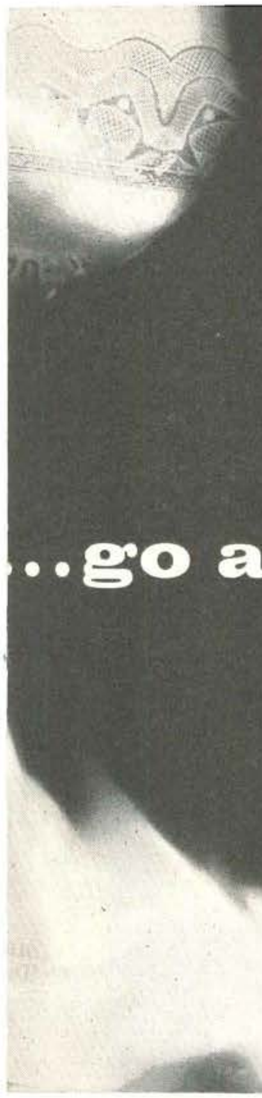
CHURCH INSTITUTE IS PLANNED FOR ARCHITECTS

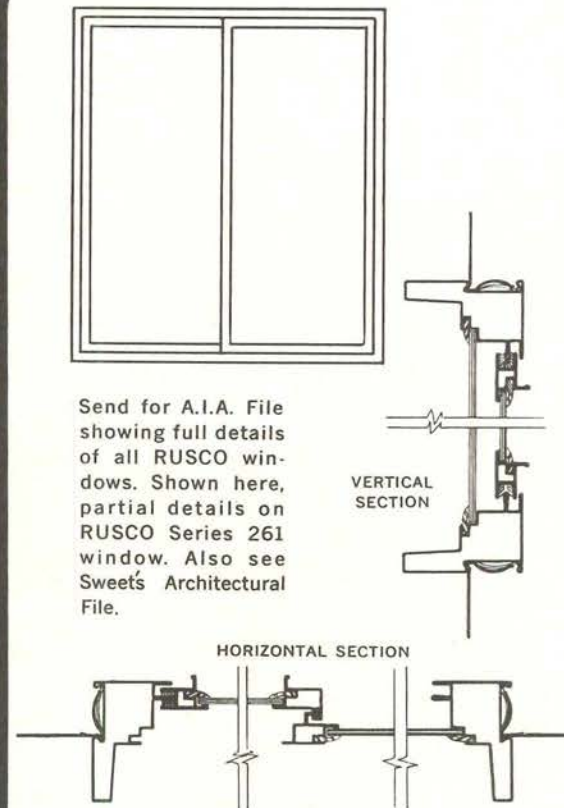
The Carnegie Institute of Technology, Department of Architecture, and the Pittsburgh Theological Seminary are jointly sponsoring an Institute of Church Design, to be held in Pittsburgh, June 3-14. The venture was conceived in the belief "that the serious church architect should be thoroughly conversant with present-day developments in those theological disciplines which will have a formative influence on church design . . . in the years ahead. Thus his creative work can flow from his own understanding rather than being dependent solely upon the views of building committees or pastors."

The Institute, which limits its enrollment to 25 architects interested in church design and who have demonstrated competence in the field, will offer lecture and seminar courses and workshops. Participating will be faculty members of Pittsburgh Theological Seminary; church architect Edward A. Sovik; Howard Saalman, architectural historial, and engineer James P. Romualdi, from Carnegie Tech.

Special feature will be informal group visits with architects Louis I. Kahn, Paul Schweikher and John Johansen.

The cost of the Institute, including registration, room, board and a weekend tour, is $200. For information, write Institute of Church Design, 616 North Highland Ave., Pittsburgh 6, Pa.





UNDERGRADUATES WIN ENGINEERING AWARDS

Fifty-five students in 22 universities and colleges throughout the United States participated in awards totalling $10,000 in the 14th annual Arc Welding Design Award Program for Undergraduate Engineers. Sponsored by the James F. Lincoln Arc Welding Foundation, Cleveland, the competition is held in the interests of advancing the design of arc welded structures and machines.

The jury consisted of Dr. E. E. Dreese, chairman, head, Department of Electrical Engineering, Ohio State University; Adrian R. Legault, head, Department of Civil Engineering, University of Nebraska; Edward Q. Moulton, assistant dean, Graduate School, Ohio State University; and Ralph M. Watson, associate dean, College of Engineering, Syracuse University.

First prize of $1,500 in the structures division was awarded Owen Francis Brown, Columbia University; $750 second award went to Bernard Jokiel, University of Alaska; $500 third award, to Paul D. Smith, University of Akron.

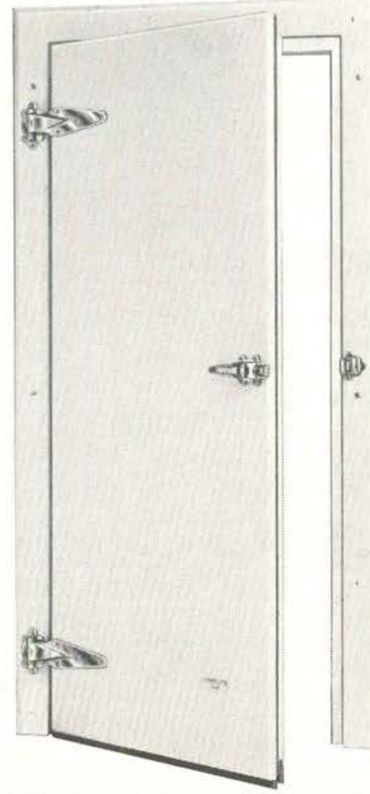
In the machinery division, $1,500 first award went to Richard B. Gwin and John W. Slemmons, Ohio State University; $950 second award, to Norman Abler, University of Wisconsin; $500 third award, to Harold L. Culp and James E. Necessary, Arkansas University.

Designs included bridges, roofs, steel cabins, shelters, cranes, sawmills—even an ocean floor corer.

JAMOLITE® PLASTIC DOOR

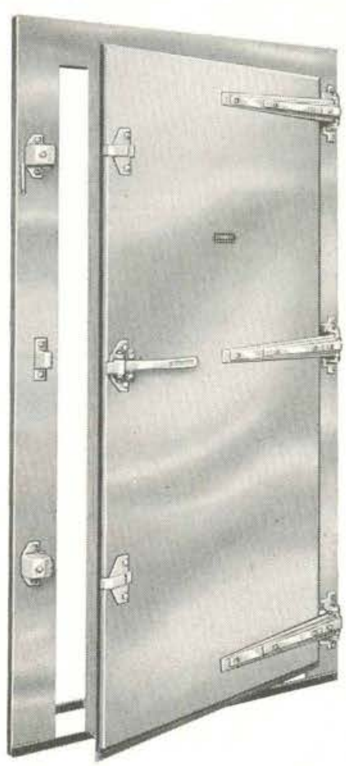
. . . colorful, attractive, lightweight plastic doors for cooler or freezer service.

- flush fitting
- insulated door jamb
- impervious to moisture and vapor
- hard, bright surface—easy to clean
- door weight: 4.5 lbs. per square foot, less hardware
- foamed-in-place polyurethane insulation 4″ thick
- lightweight chrome-plated hardware
- available in white and colors



JAMOLITE Door

Jamison Doors For Food Service improve appearance—increase efficiency



Model FS Door

JAMISON FS COOLER AND FREEZER DOORS

. . . specially designed to meet the requirements of food service applications.

- gleaming stainless steel cladding
- soft, resilient Low-Temp gasketing
- Jamison box-girder construction—greater rigidity, maximum insulation
- Adjustoflex hinges—self and hand adjustable
- heavy cast hardware, chrome plated
- E-Z Open two-point fasteners

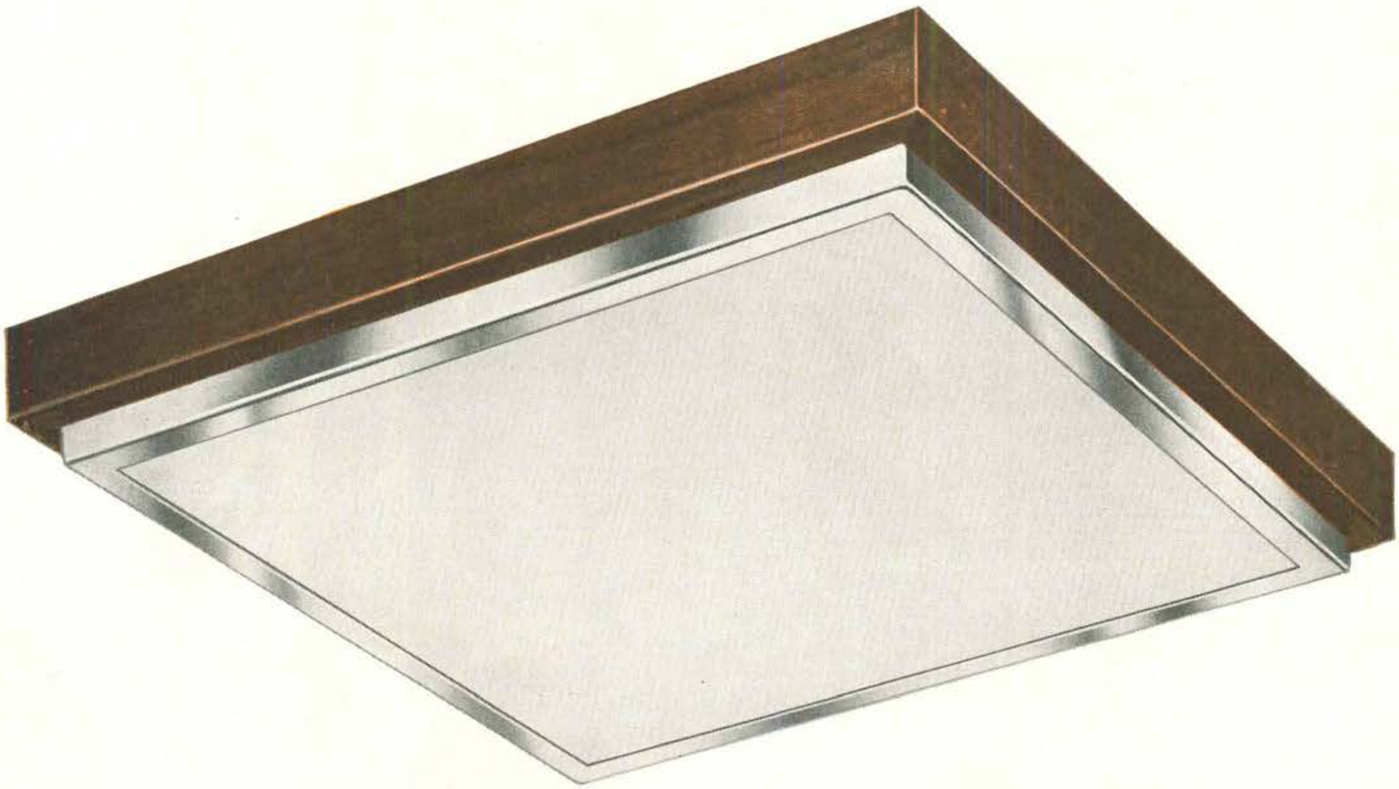
See Sweet's Catalog for complete details or write for bulletin to Jamison Cold Storage Door Co., Hagerstown, Md.

JAMISON

COLD STORAGE DOORS

For more data, circle 39 on Inquiry Card


From a fountain of concrete shells ...inspiring church design
From the lantern-like tower that floods the main altar with natural light, concrete parabolas spill out in widening rings. The second tier forms a clerestory. In the lower cluster, the arches shelter monastic side altars.
On the interior of this new chapel of the Benedictine Priory, near St. Louis, Missouri, twenty parabolas echo the architectural theme. They rise from the floor to converge at the base of the tower.
Only shell concrete, with its fluid look, could bring such easy grace and modern simplicity to this circular plan which is basically one of the most ancient used for churches.
The best ideas are more exciting in concrete
Architects: Hellmuth, Obata & Kassabaum, St. Louis. Structural Engineer: John P. Nix, St. Louis. Structural Consultant: Paul Weidlinger, New York. Contractor: McCarthy Bros. Constr. Co., St. Louis.
PORTLAND CEMENT ASSOCIATION
A national organization to improve and extend the uses of concrete



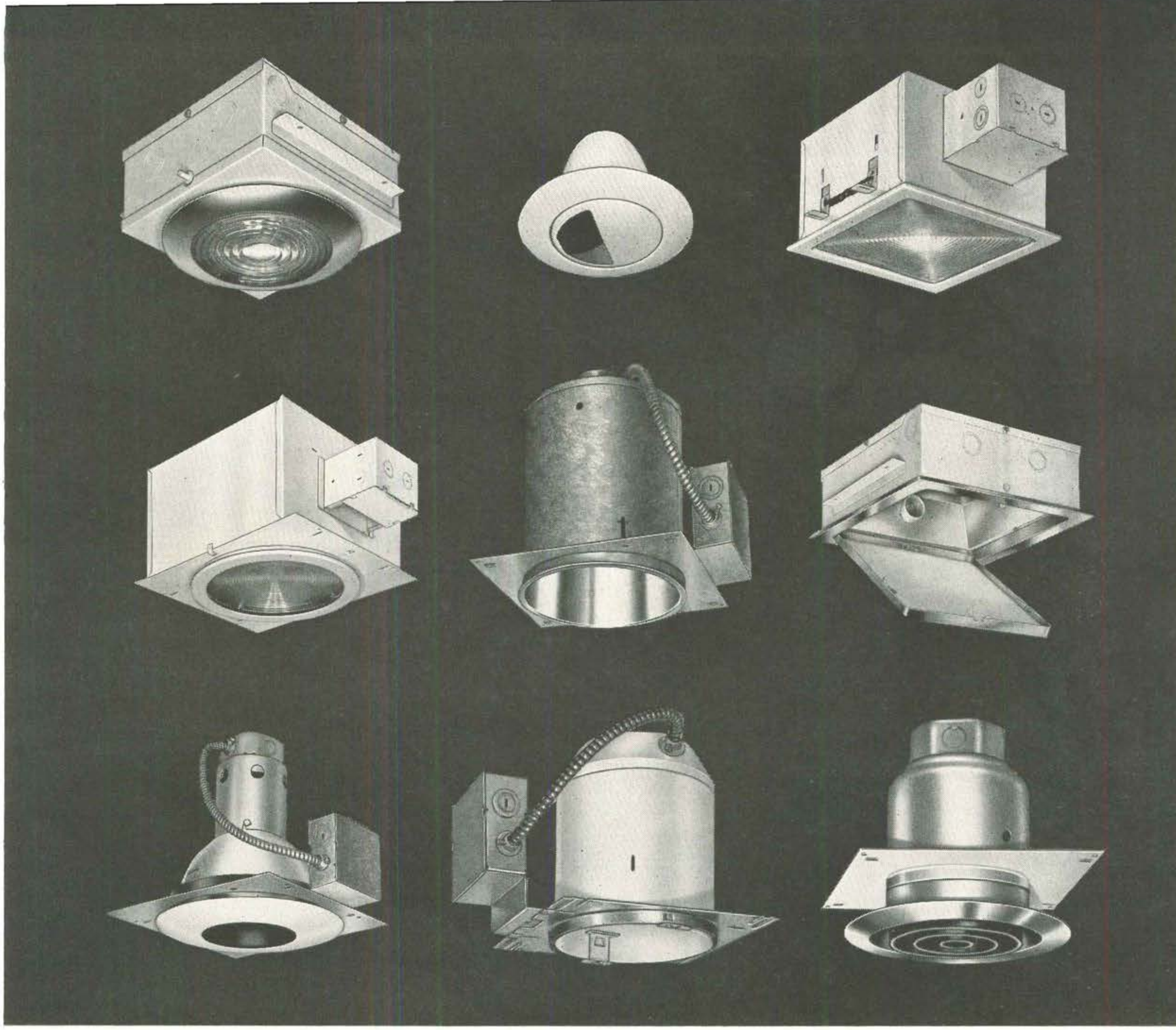
From Moe Light . . . walnut recessed trim

Moe Light's unique walnut trim—most dramatic advance in years

For the first time, solid natural walnut trim brightens recessed installations. In one move, you can customize new and relighting projects with a modern decorator look.

For professional offices, restaurants, stores and residences, the hand-polished beauty of this natural walnut adds a luxury look far beyond its modest cost. Smart and stylish, it's as practical as it is handsome. Available in 100-, 150- and 300-watt squares.

See this bright new advance in recessed lighting at your Moe Light Distributor's soon. It's only a part of the great new Moe Light recessed line.



. . . and everything else recessed, too

373 recessed combinations in a great new Moe Light lineup

There's every type of recessed lighting you could possibly need in this long, new line: 373 combinations to be exact.

We have rounds, squares, rectangles—ellipsoidals, multipliers—parabolics, baffles and louvered. Not to mention directionals, high hats and an exciting new wall wash. To top the line, there's a complete new group of concrete pour boxes, plaster frames and night lights.

Everything you need is at your fingertips in the new one-source recessed line from Moe Light . . . longest, most complete in existence. See it soon.

FREE 40-PAGE RECESSED CATALOG filled with complete specifications, short cut illumination tables, coefficients and light distribution curves.

Moe Light Div., Thomas Industries Inc., Dept. AR4
207 E. Broadway, Louisville 2, Kentucky

__ Send catalog __ Have Thomas Industries Sales Engineer call

Name

Company

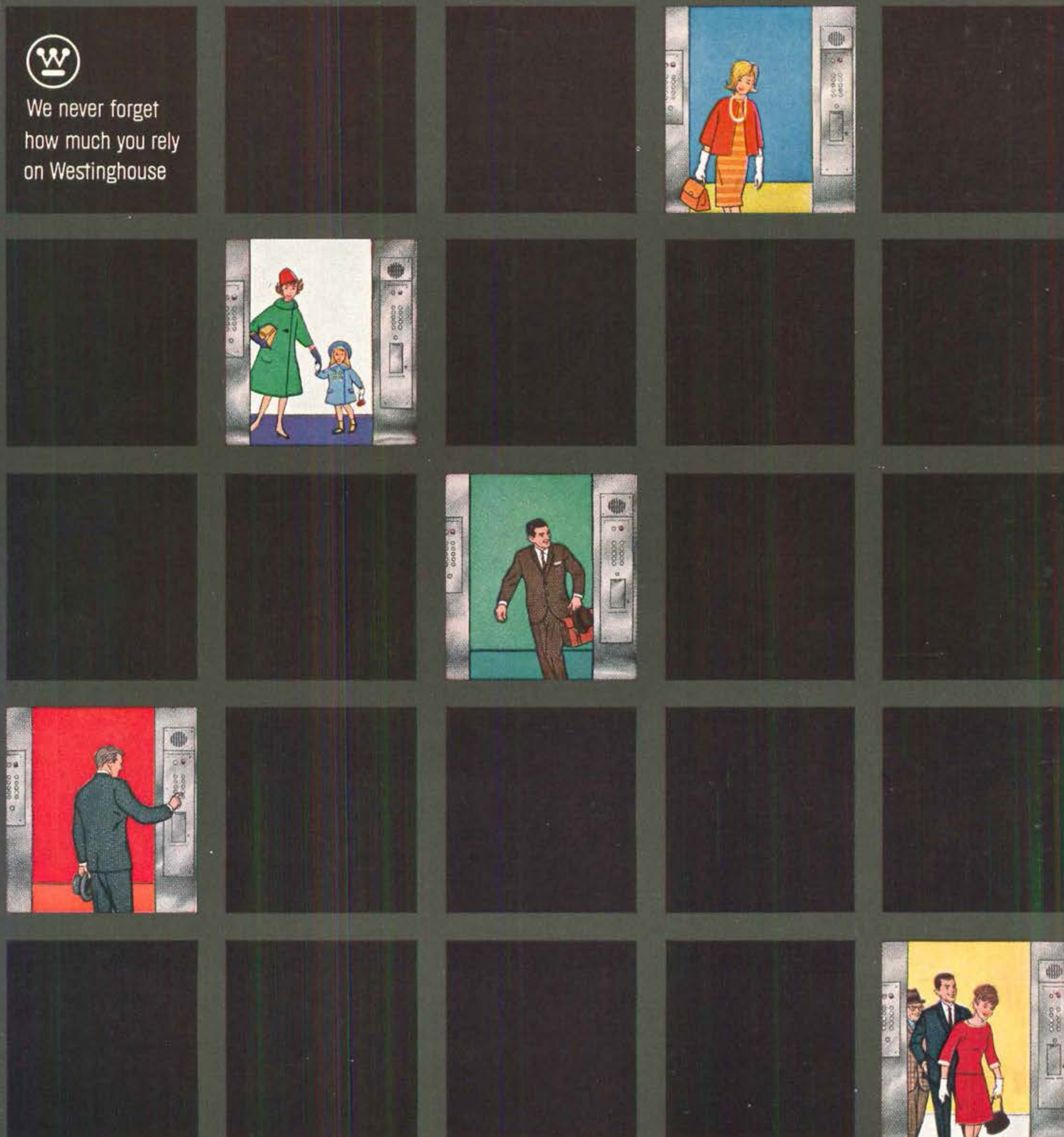
Address

City Zone State

MOE LIGHT DIVISION
THOMAS INDUSTRIES INC.
207 E. Broadway, Louisville 2, Ky.,
Moe Light • Benjamin • Enchante • Starlight

For more data, circle 40 on Inquiry Card

For more data, circle 42 on Inquiry Card →


We never forget
how much you rely
on Westinghouse

ARCHITECTS AND ENGINEERS WIN AWARDS FOR DESIGN IN STEEL

The American Institute of Iron and Steel recently honored 48 of the nation's architects, engineers and designers in its first national Design in Steel Award program.

Some 500 designs of structures and products in eight categories of steel were submitted. From them, 10 award winning designs and 16 honorable mentions were selected, judgment being based on imaginative use of the different kinds of steel and other criteria which included esthetic appearance, durability, economy of production, efficient use of space.

Members of the jury were: Edmund Friedman, president, American Society of Civil Engineers; Ronald B. Smith, president, American Society of Mechanical Engineers; Dr. Robert Raudebaugh, president, American Society for Metals; Leon Gordon Miller, board chairman, Industrial Designers Institute; Jay Doblin, past president, American Society of Industrial Designers; Arthur Pulos, head of industrial design program, Syracuse University; Morris Ketchum Jr., director, American Institute of Architects; A. G. Odell Jr., second vice president, A.I.A.; and Robert Anshen, F.A.I.A.

Award winners in Category I, Galvanized Steel Sheet, were James J. Nargis and Edwin S. Darden, architects, for a design of a calibrating station tower for the Division of Weights and Measures, Department of Public Works, Fresno County, Calif.

Calibrating Station Tower, Fresno County, Calif. Architects, James J. Nargis, Edwin S. Darden; structural engineers, J. A. Paquette & Assoc.; contractor, Lewis C. Nelson & Sons

Spencer and Lee, architects, were winners in Category II, Concrete Reinforcing Bars, for Vacation Village Observation Tower, Mission Bay, San Diego, Calif.

Vacation Village Project, Mission Bay, San Diego, Calif. Architects, Spencer and Lee; structural design, Robert Fogg of Lawrence, Fogg, Florer & Smith; ornamental iron work, Valentino Agnoli; contractor, M. H. Golden

continued on page 86

We could tell you how great this new drawing pencil is but you won't believe us until you try it.

So try it.

VENUS Pen & Pencil Corp., 50 W. 44 St., N.Y. 36, N.Y.

Gentlemen: I'll try it.

Send me the new Venus Drawing Pencil Sampler Kit so I can make my own drawing board test.

Name____________________

Company Name____________________

Address____________________

City__________ State__________

____
(Drawing Supply Dealer)

AR-4

For more data, circle 44 on Inquiry Card

For more data, circle 45 on Inquiry Card →

EVERY ARCHITECT SHOULD READ THIS TRUE STORY...BY BRADLEY WASHFOUNTAIN

The new school exists only in your mind and, in fragments, on your design roughs. Hour after hour, you rack your brain for ideas; the lash of your own professional pride forcing you to make every room perfect — functional, practical, aesthetically pleasing. Then you come to the shower room, and you ask yourself, "How can I satisfy every requirement . . . keep installation costs to a minimum, use as little floor space as possible, yet handle heavy traffic . . . and still retain some creative flexibility?" The answer: specify Bradley Group Showers. They serve as many as

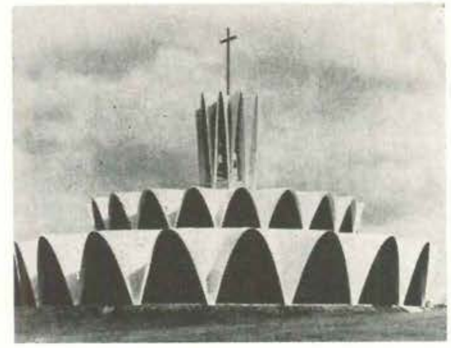

six people with only one set of plumbing connections, reducing installation costs as much as 80%! They require so little floor space that you can convert even the smallest area into a high-capacity shower room. They save water, maintenance time and expense. And they move traffic faster than any other showers. Creative latitude? There are five different types: Columns . . . Multi-Stalls . . . Wall-Savers . . . Panelons . . . and Modesty Modules. And each is available in stainless steel, or enameled mild steel in standard grey or special colors (except the stainless steel Panelons). Small wonder that Bradley Showers are now paying their way through schools across the country; and no wonder they're called . . .
THE SHOWERS THAT SOLVED EVERYTHING!
Ask your Bradley representative for assistance on specific applications. And write for latest literature. Bradley Washfountain Co., 2377 W. Michigan St., Milwaukee 1, Wisconsin.
Bradley
Column Showers
2, 3, 4, 5, and 6-person
Multi-Stall Showers
2, 3, 4, 5, and 6-person
Wall-Mounted Showers
Wall-Savers and Panelons
Modesty Modules
Shower-Dressing Room

Awards for Design in Steel

continued from page 82

Architects Hellmuth, Obata & Kassabaum, Inc. received top award in Category III, Welded Wire Fabric Reinforcement, for the St. Louis Priory Church, Creve Coeur, Mo.

In Category IV, Steel Plate, two winners were selected: Harry R. Powell and Bjorn A. Stiansen, consulting engineers, for a bridge at Sultan, Wash.; and International Engineering Company, Inc. for spillway gates at Karnafuli River Hydroelectric Project, East Pakistan.

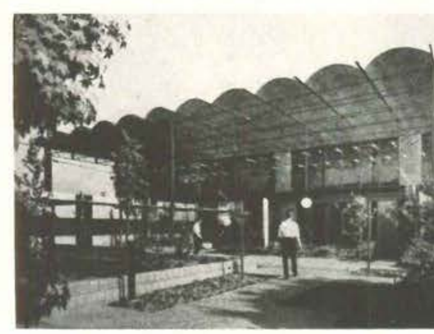


St. Louis Priory Church, Creve Coeur, Mo. Architects, Hellmuth, Obata and Kassabaum; structural engineer, John P. Nix; consulting engineer, Paul Wiedlinger; mechanical engineer, Harold P. Brehm; contractor, McCarthy Bros.

Award winners in Category V, Drawn Wire, were P. W. Freitag Jr., senior project engineer, and L. S. Kraft, staff development engineer, Goodyear Tire & Rubber Company, for design of a conveyor belt.

Hugh Acton, designer and manufacturer, won top award in Category VI, Steel Bars, for design of a folding pedestal table.

In Category VII, Steel Sheet or Strip, there were two winners. One was designer Henry Dreyfuss for design of the Pal Injector Razor for American Safety Razor Company. The other was Walter Furlani, J. W. Stringer and staffs of I.B.M. General Products Division for design of a Data Processing System.



Professional office building, Pasadena, Calif. Architects and engineers, Smith and Williams

Smith and Williams, architects, won top honors in Category VIII, Structural Steel, for use of this kind of steel in a professional office building in South Pasadena.

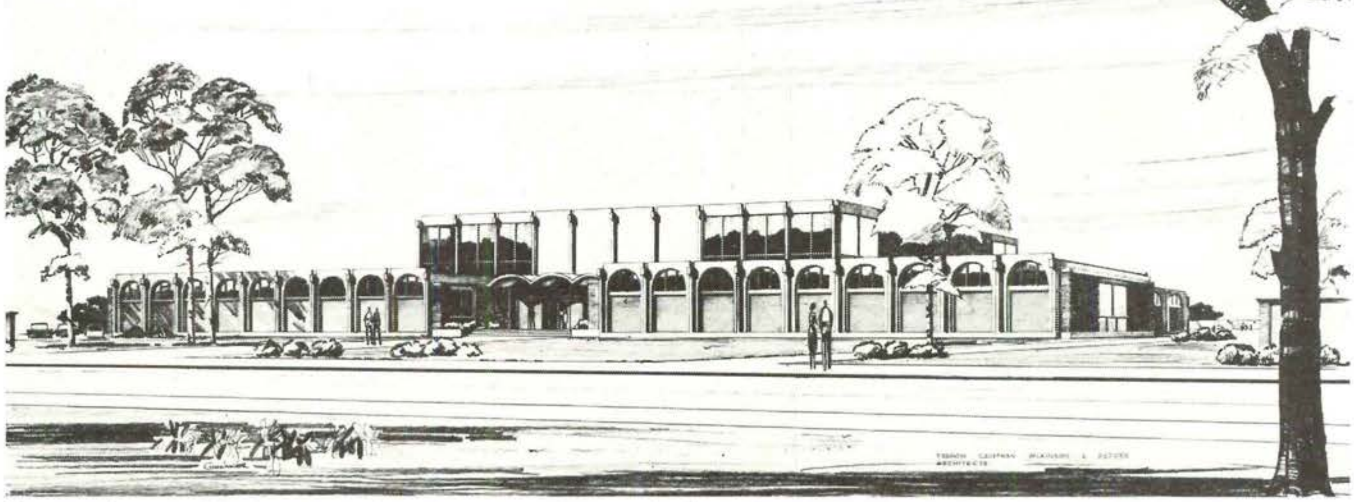
Honorable mentions are as follows:

Category I, Galvanized Steel Sheet—Harrell & Hamilton, architects, Republic National Bank, Dallas

Category II, Concrete Reinforcing Bars—Murray-Jones Murray, architects. roof of St. Patrick's Church, Oklahoma City

continued on page 99

prestressed concrete...



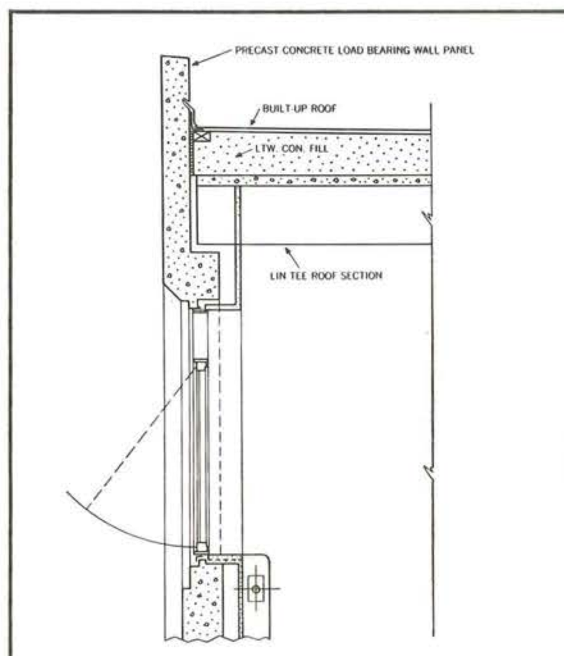
Prestressed concrete Lin Tees were used to achieve many advantages in this modern structure, the Nevil Field House for the Overbrook School for the Blind. Philadelphia, Pa. Architects: Francis, Cauffman, Wilkinson & Pepper. Engineers: Rothbaum & Davis, Contractor: J. S. Cornell & Son, Inc. all of Philadelphia, Pa. PRESTRESSED CONCRETE FABRICATOR: EASTERN PRESTRESSED CONCRETE CORP., HATFIELD, PA.

proves practical and attractive for field house

"Prestressed concrete was a logical material to use with the precast concrete wall panels which form the major part of the enclosing walls of this building," say the architects. And they add, "From an architectural point of view the prestressed members when exposed on the interior make a very handsome and interesting ceiling construction, particularly in areas where floating acoustical ceiling panels were used in conjunction with the prestressed members."

Structurally speaking? The contractor states that the ease of handling the prestressed members saved a great amount of time and that the building was "closed in" sooner than would have been the case with more traditional materials. The same crew that erected the walls also erected the prestressed roof members, resulting in easy coordination of labor and reduced erection cost.

Write or wire us for information on prestressed concrete. We are the original producers of prestressing wire and strand in this country and can give you the basic design and technical data you need. Just tell us what type of structure you are considering. We can also put you in touch with experienced engineers and fabricators in your area. The Colorado Fuel and Iron Corporation, Denver 2, Colorado—Trenton 2, New Jersey.



Section drawing shows how the prestressed concrete Lin Tees were connected to the precast load bearing wall panels with dowels (not shown) to eliminate all columns.

CF&I-ROEBLING
PRESTRESSING WIRE & STRAND

CF&I STEEL

For more data, circle 48 on Inquiry Card

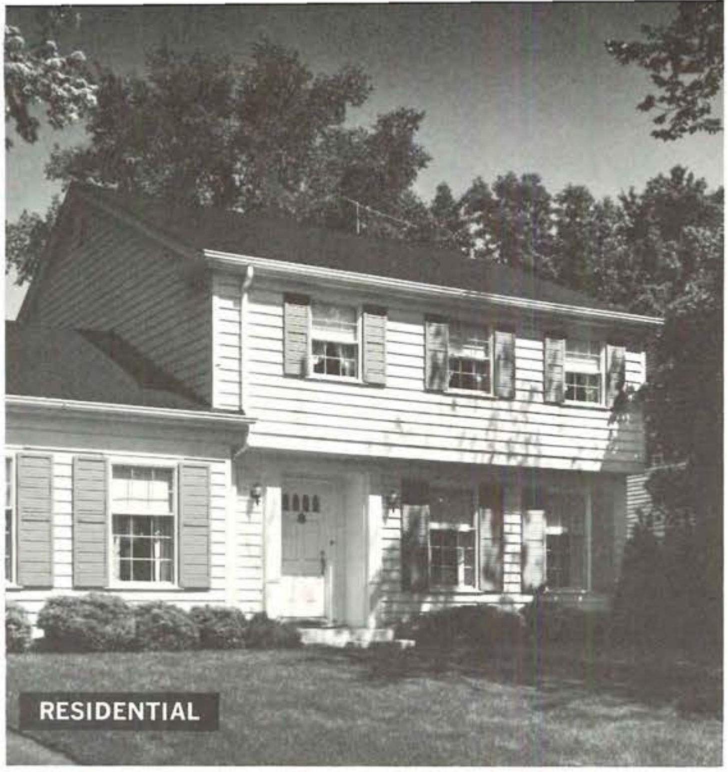
For more data, circle 49 on Inquiry Card →

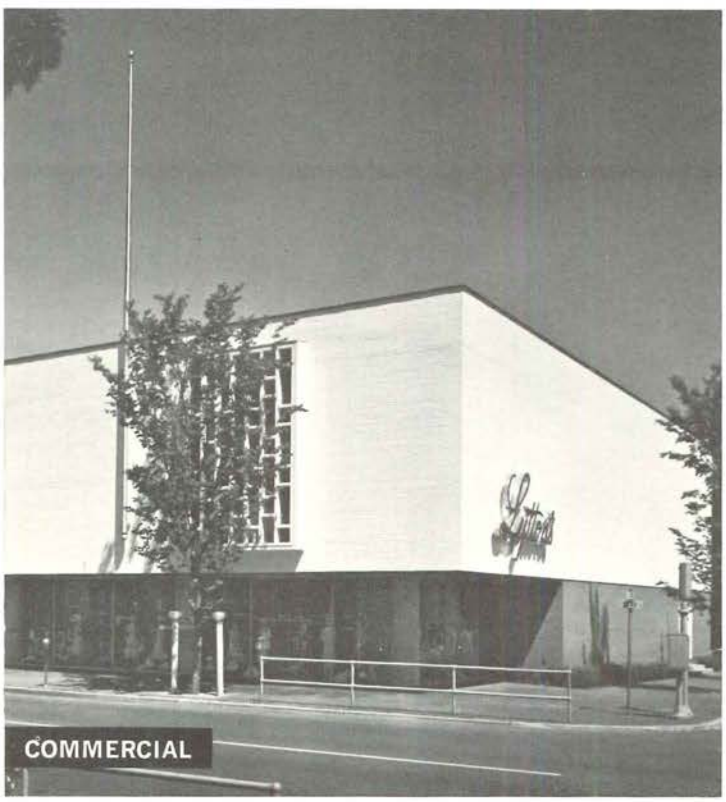
SPACE-RATED PAINTS .....A TITLE

Corrosive propellants and combustion gases, blistering sun, humidity and salt spray. These are a few of the many tough conditions Martin Marietta paints have to face while protecting the missiles and gantries at the Cape.

Martin Marietta paints were chosen to keep this equipment in "Go" condition only after intense competitive testing. They received this honor because they meet the stringent specifications better than any other paint.

The same research that produced Space-Rated Paints is working for you in the Martin Marietta products you use every day. Whether you're working in residential, commercial, institutional





EARNED IN THE BLAST OF LIFT-OFF!

or office building construction, you'll find a Martin Marietta paint designed to do a beautiful job of protection.

Ask your local Martin Marietta paint dealer or paint contractor about Space-Rated Paints or write Martin Marietta Corporation, 101 East Ontario Street, Chicago 11, Illinois.

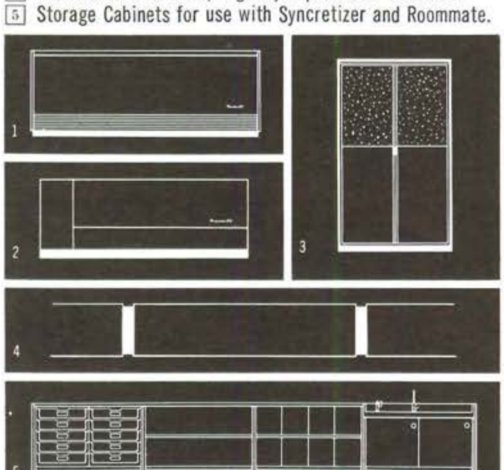
MARTIN MARIETTA

DEVELOPERS OF *SPACE-RATED* PAINTS

Nesbitt Architectural Sill-line

designed with you in mind

1 Syncretizer Unit Ventilator and Year-Round Conditioner.
2 Roommate, the new dramatic year-round air conditioner.
3 Tall Storage Cabinets for wardrobe and general utility.
4 Architectural Sill-line, high-style perimeter radiation.
5 Storage Cabinets for use with Syncretizer and Roommate.



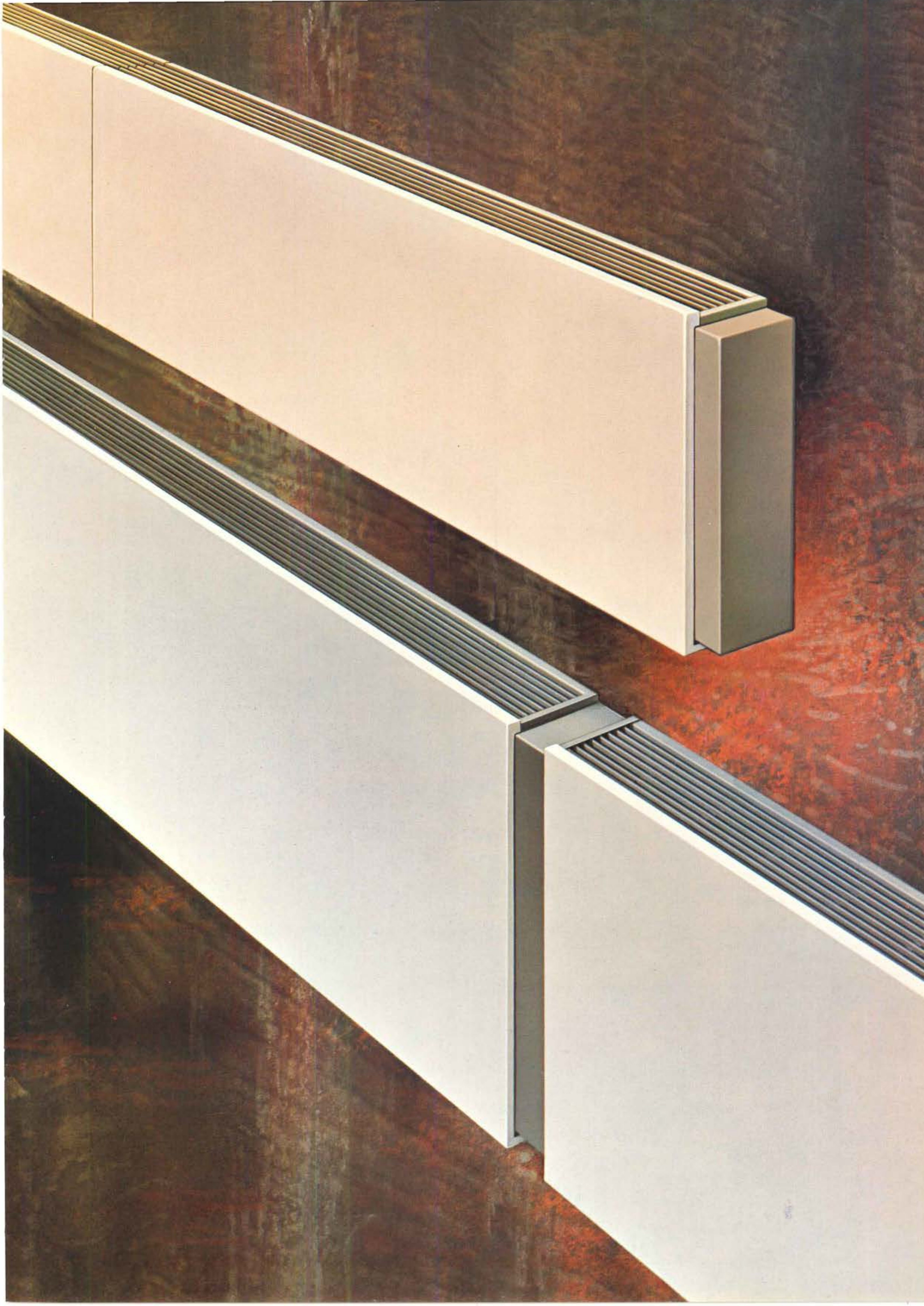
You are the man who must compose all the parts of a building—including the heating, ventilating and air-conditioning equipment—into an esthetic as well as utilitarian structure. You share the engineer's concern for a product's technical competence, quality construction, and proved performance, of course; but you value also the good elements of line, form, mass, space, and color—your tools of design.

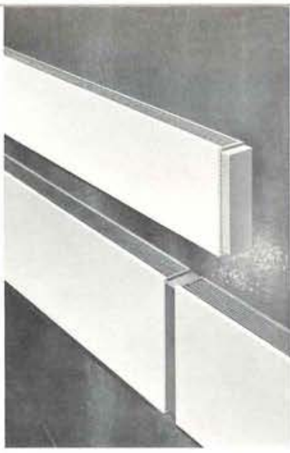
In more than 45 years of product development, we believe we have proved our ability to meet the needs of mechanical engineers and contractors—nor have we failed with architects and owners! But of recent years especially, Nesbitt has become more mindful of your particular need (and your narrowing choice) of heating, ventilating and air-conditioning equipment that is styled to serve the contemporary mode. A special department of styling and the counsel of Designer Paul McCobb have given us products such as those pictured on this page, and on the next two pages in living color.

Beauty and performance are but two facets of Nesbitt Excellence.

Nesbitt THERMAL COMFORT ALL WAYS

For more data, circle 50 on Inquiry Card





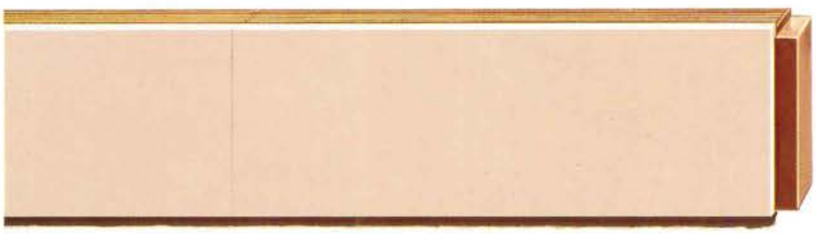
NESBITT ARCHITECTURAL SILL-LINE

the perimeter radiation that enhances the RHYTHM of contemporary architecture

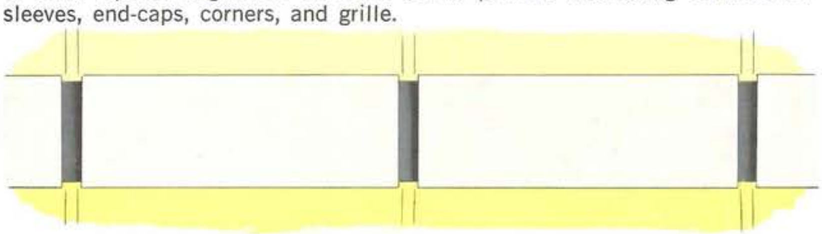
Architectural Sill-line has been added to the Nesbitt line for those many cases where the radiation must complement contemporary styling in today's finest interiors.

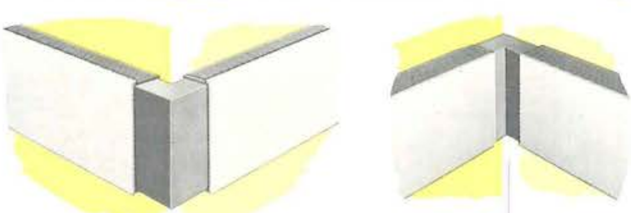
Sill-line puts heat at the perimeter of a room or office, for space economy and for the well-being and productivity of the occupants. Its comfort comes by gentle, silent convection and radiation; it blankets cold surfaces, prevents "window shivers."

These are reasons enough for your choice of Nesbitt Sill-line; and now Architectural Sill-line adds rhythm to reason.



The crisp, clean lines of Architectural Sill-line with its slab-type front, recessed sleeves, end-caps, corners, and the continuous bar-type grille have been created by Designer Paul McCobb. The linear flow of horizontal lines is accentuated by the folded bar-type grille when Architectural Sill-line is installed in continuous runs of standard length enclosures. Or, with the use of the telescoping sleeves for rhythmic accents, Architectural Sill-line is uniquely suited to panel wall structures and for mating with mullions, windows, or other optical segments. Two-tone colors provide interesting contrast for sleeves, end-caps, corners, and grille.

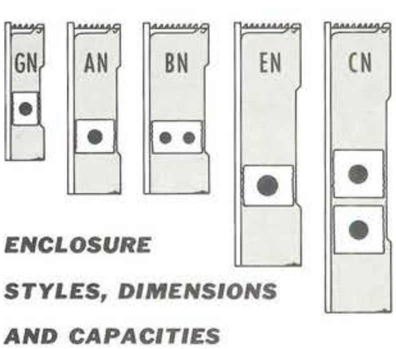




Inside and Outside Corners, in 3⅝″ and 7″ lengths, continue Sill-line around right-angle walls with a neat, adjustable fit.

The telescoping sleeves come in 3⅝″ and 7″ lengths, permitting exposures up to 6″ between enclosures. Along with seven standard length enclosures (1′, 2′, 3′, 4′, 5′, 7′, and 8′) and two modular lengths (3½′ and 4½′), it is easy to fit any space, to match mullions, or to accent as desired, without cutting.

- Enclosures consist of a heavy, one-piece back panel and a three-sided front enclosure of 16-gauge furniture steel, with a rugged continuous folded grille. Front enclosure and back panel are interlocked by a flange at the top and tightened by wing fasteners at the bottom, for a rigid, durable assembly.
- The back panels, heating elements, enclosures, and accessories are all packaged separately. Back panels and elements may be installed during early stages of construction; enclosure lengths may be ordered and shipped after precise measurements have been verified—and installed when the painted surfaces will not be marred.
- Accessories consist of telescoping end-caps, sleeves and 90° inside and outside corners; column enclosures, valve compartment, and a screw-operated blade damper.
- Heating elements of seamless copper tubes and corrugated aluminum fins are available in ten types, each in six standard lengths (2′, 3′, 5′, 7′, 8′, and 9′). A two-tube element is available for certain applications.
- Standard two-tone colors are light and dark beige; light and dark gray; the dark shade being used for discharge grilles and all accessories. Other Nesbitt colors are available on special request.
- Enclosures and accessories are finished in lustrous baked enamel, after a preparatory and rust-inhibiting process.



ENCLOSURE STYLES, DIMENSIONS AND CAPACITIES

Architectural Sill-line is available in five standard enclosure styles, sized to meet practically every need of capacity and appearance in perimeter heating.

GN Dimensions, 3⅜″ x 11½″. Capacities, from 700 to 1000 Btu/hr per linear foot of heating element.

AN Dimensions, 4½″ x 14½″. Capacity, 1400 Btu/hr per linear foot of heating element.

BN Dimensions, 5½″ x 14½″. Capacities, from 1840 to 1990 Btu/hr per linear foot of heating element.

EN Dimensions, 5½″ x 20½″. Capacities, from 2120 to 2530 Btu/hr per linear foot of heating element.

CN Dimensions, 5½″ x 24½″. Capacities, from 2230 to 2820 Btu/hr per linear foot of heating element.

Made and sold by
John J. Nesbitt, Inc., Philadelphia 36, Pa.
Offices in principal cities

Two levels opening on a central court are connected with a spiral steel stairway in this home designed by architects Nelsen & Sabin. Treads, hanging from steel bars, are set into triangular frameworks of light steel angles.

Some architect-designed steel stairways

On this and the following pages are a few examples of steel stairways designed by architects for steel-framed homes.

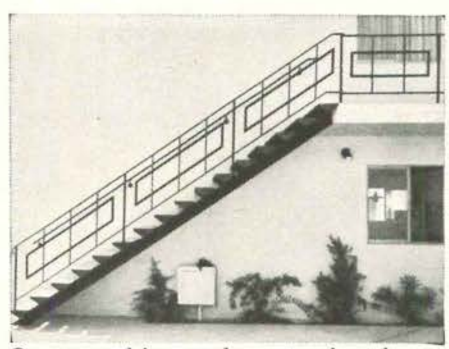
Some of the stairways are suspended. Some cantilevered. Some freestanding, supported by slender steel members. All are functional and handsome.

Often shop fabricated as a unit, steel stairways can be dropped in place with a crane and connected during erection of the framework.

In creating these designs, architects have used many types and sizes of Bethlehem structural steels—plates, tubing, channels, bars, flats, and angles.

BETHLEHEM STEEL

BETHLEHEM STEEL



Ornamental iron and structural steel go together attractively in this outdoor stairway designed by Gerald Neibart.

Architect J. Herbert Brownell designed this attractive stairway. Treads, composed of 3-inch thick laminated wood, are suspended on one end from $\frac{3}{8}$-inch diameter steel rods, and on the other end by 3-inch diameter pipe columns. The upper ends of the rods are welded to the bottom of one of a pair of 10 WF 15 beams which support the balcony.

Reflecting the nautical atmosphere of the San Francisco Bay Area, steel ship ladders are used in this house to connect the upper level to a sundeck on the roof. The ladders are welded steel plates, with $1\frac{1}{2}$-inch square steel tubes used as railings. Architect was Rolf Eiselin.

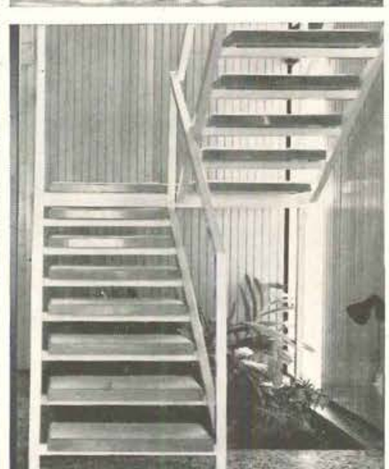
Thin lines of steel enhance the entry to this house designed by Craig Ellwood. The all-welded steel stairway is made up of small stock sections of structural shapes. Treads are of 14-gage sheet.

Steel stairways like these add to the beauty of any home

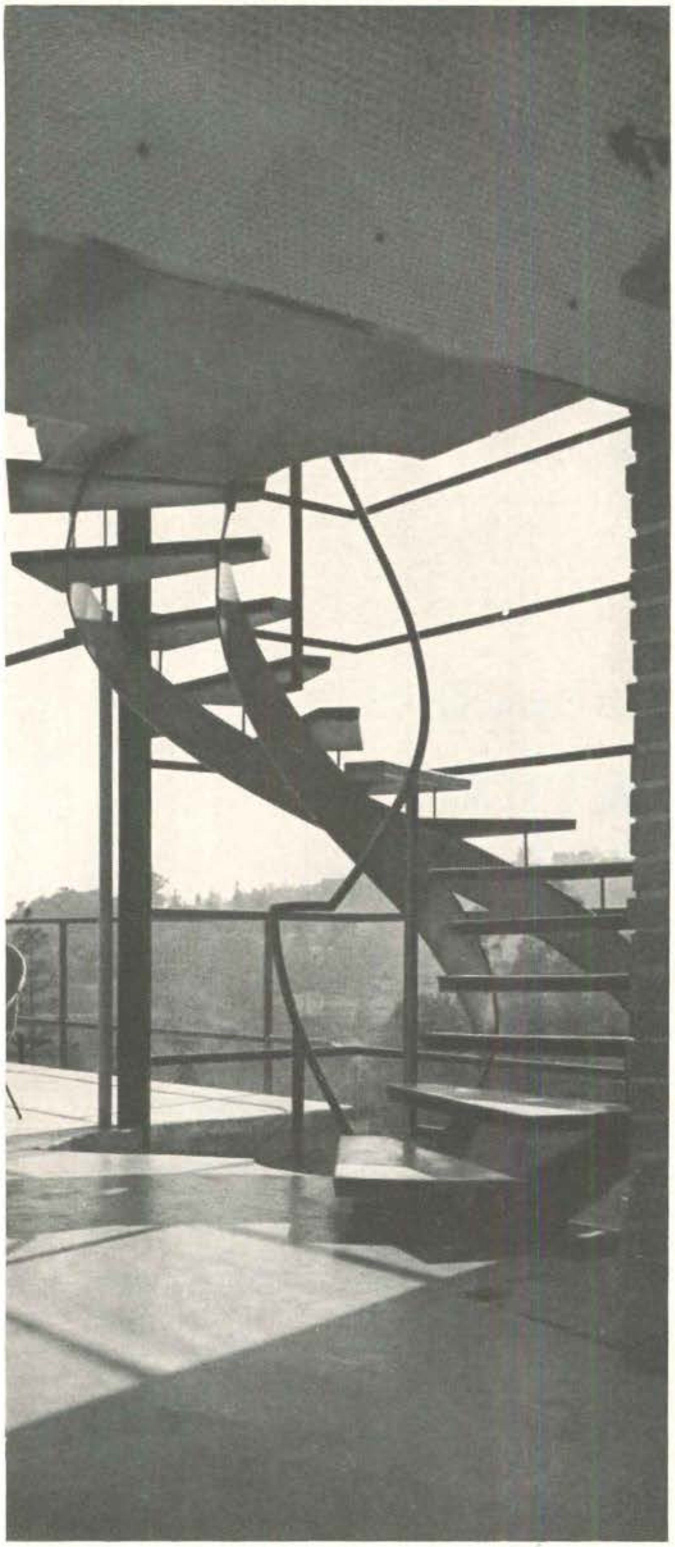
This attractive floating stairway is made up of two 12-inch steel channels boxed in with 12-inch wide cover plates, $\frac{5}{16}$-in. thick. Douglas Fir treads are supported by steel angles welded to the box core. Steel bars welded to the angles support handrails. The stairway spans 27 feet and is tied to a 14-inch wide-flange header beam across the upstairs opening. The structure was designed by architect Hewitt C. Wells.

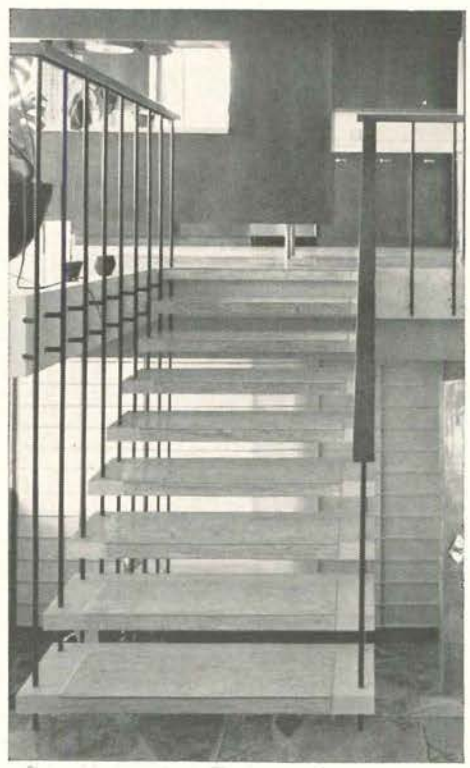
In this mountain retreat, a spiral steel staircase composed of plates and bars leads to a portion of the roof, which is used as a sundeck in the summer. The house was designed by Architect Thorne.

Spiral steel stairway fabricated from steel plate connects parking and garden areas with the upper floor terrace in this Pennsylvania home. Architects: George Fred Keck—William Keck.



Small steel angles, channels, and tubing can be utilized in the construction of stairways as in this home designed by Richard Jay Smith. Welded rectangular steel tubing provides rigidity for open stair treads. Treads are composed of heavy-gage steel sheet, covered with wood and foam rubber pads. The stairway floats free of the wall and of a 6-inch steel column, part of the rigid frame of the house.





IF THE NEW FLOOR DISCOLORS,

WHOSE REPUTATION WILL SUFFER?

Stop floor problems before they begin by specifying a floor maintenance program!

The new floor is beautiful. Everybody's happy. Happy, that is, until the floor begins to change color. The culprit? Improper maintenance. But how hard it is to convince others of this! When a new floor begins to look old, poor maintenance habits are usually the last to be blamed. "Should this type of floor have been specified in the first place?" ..."Was the floor laid correctly?"...and countless other thoughts may be running through their heads.

This is why Huntington suggests you prevent future floor problems by specifying a simple and correct floor maintenance program before construction begins. Our representative, the Man Behind the Huntington Drum, will be happy to assist you, at no obligation. His experience and wide range of laboratory-tested products will come in mighty handy. You'll find his name, address and telephone number on the back of our insert in Sweet's Catalog, 13m/Hu, or write us.

see our catalog in
Sweet's
or write for copy

Please send the following:

- ☐ Your folder with complete floor maintenance specifications and descriptions of Huntington floor care products
- ☐ The new Huntington Gym Floor Manual
- ☐ Have your representative contact me.

NAME TITLE

Tear out this coupon and attach it to your firm letterhead for more information.

Where research leads to better products... **HUNTINGTON**

HUNTINGTON LABORATORIES • HUNTINGTON, INDIANA • Lansdale, Pa. • Dallas 1, Texas • *In Canada:* Toronto 2

For more data, circle 52 on Inquiry Card

Design in Steel Awards

continued from page 86

Category III, Welded Wire Fabric Reinforcement—Cuthbert and Cuthbert, architect and engineer, Isabella County, Mich. Jail; Paul Rogers & Associates, Inc., consulting engineers, Nabisco Bakery, Chicago

Category IV, Steel Plate—California Division of Highways, Bridge Department, Peewan Creek Bridge and Whiskey Creek Bridge; Kazuyuko Matsushita, Hideki Shimizu and John O. Phillips, architects—Albert A. Kelly and Associates, structural engineers—Valentine, Fisher and Tomlinson, mechanical engineers, fountain dome, Seattle World's Fair

Category VII, Steel Sheet or Strip—William M. Schmidt Associates, designers, Commando, flexible construction vehicle; Paul McCobb Design Associates, heating-ventilating-air conditioning equipment for John J. Nesbitt, Inc.; Coston-Frankfurt-Short, architects-engineers, prefabricated bus shelter; Robert P. Gersin, industrial designer, electronic plotting board for Computer Systems, Inc.

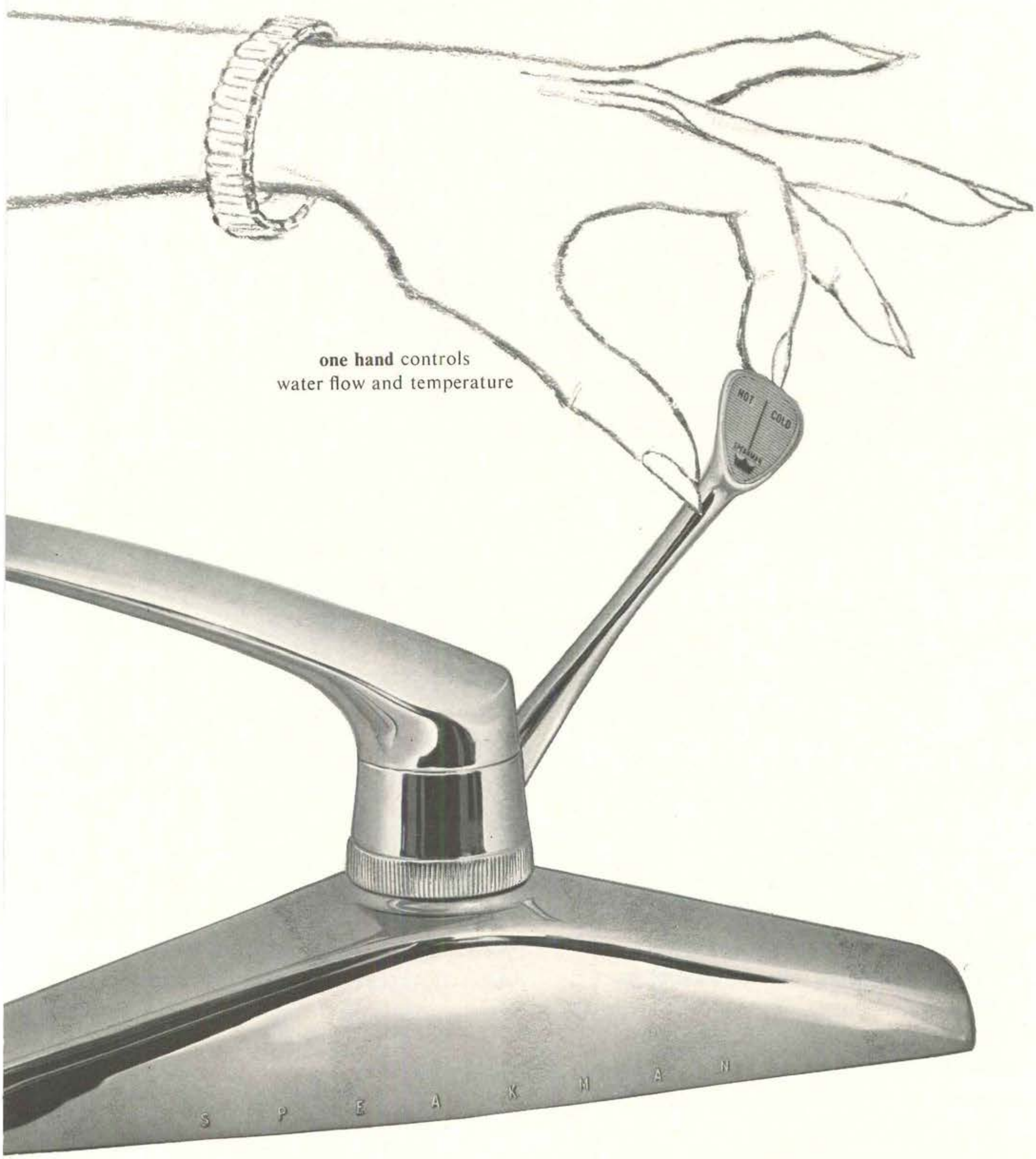
Category VIII, Structural Steel—John Byron Hackler, architect, school in Tazewell County, Ill.; David Thorne, architect, private residence, Marin, Calif.; Pierre Koenig, architect, private residence, Palos Verdes, Calif.; Robert Kitchen and John Funk, architects, dining commons of residence hall, University of California; Ferver-Dorland & Associates, structural engineers, radar antenna support towers for U.S.A. Satellite Communications Agency

URBAN RENEWAL EXHIBIT FOR LOAN

Regional offices of the Housing and Home Finance Agency have now available for loan to interested urban renewal groups a new exhibit portraying the urban renewal story, its objectives and accomplishments.

Weighing less than eight pounds when packed in its special reusable container, the exhibit consists of four 18- by 27-inch folding panels of photographs and descriptive matter. Display requires only a table top or desk 5 to 7 feet across. Complete instructions for setting up the exhibit are included in the shipping container.

The exhibit is not available from the central Washington office. Interested local or regional groups or organizations can obtain the new table top exhibit from the HHFA regional office serving their area.



WHEN YOU SPECIFY SPEAKMAN, YOU SPECIFY SPEAKMANSHIP—THE MODERN APPROACH TO WATER MANAGEMENT IN THE HOME, THE PLANT AND THE INSTITUTION

For more data, circle 54 on Inquiry Card

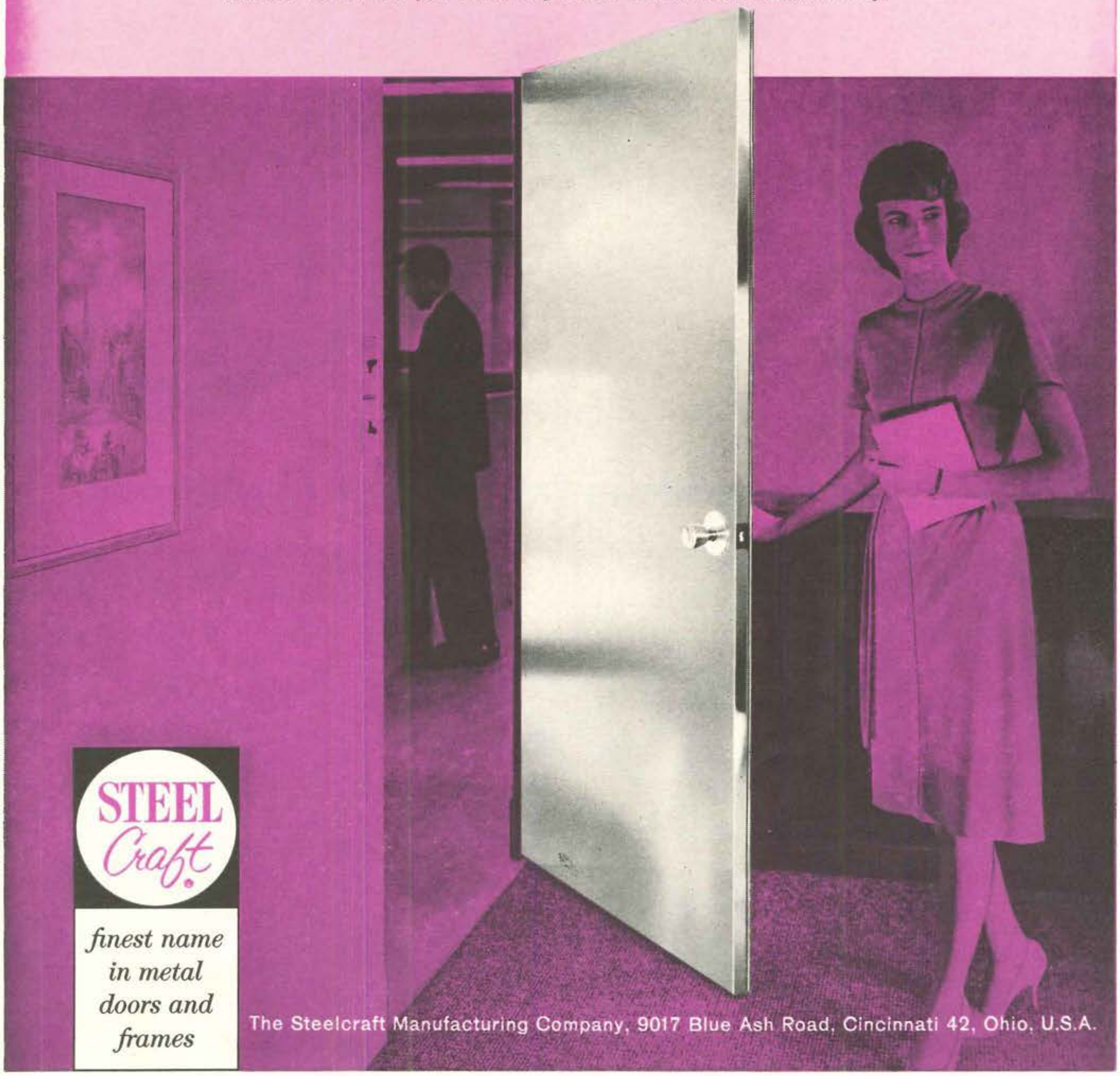
NOW. . . . in a STANDARD door
at STANDARD door prices at STANDARD door delivery

the brilliant beauty and practical permanence of

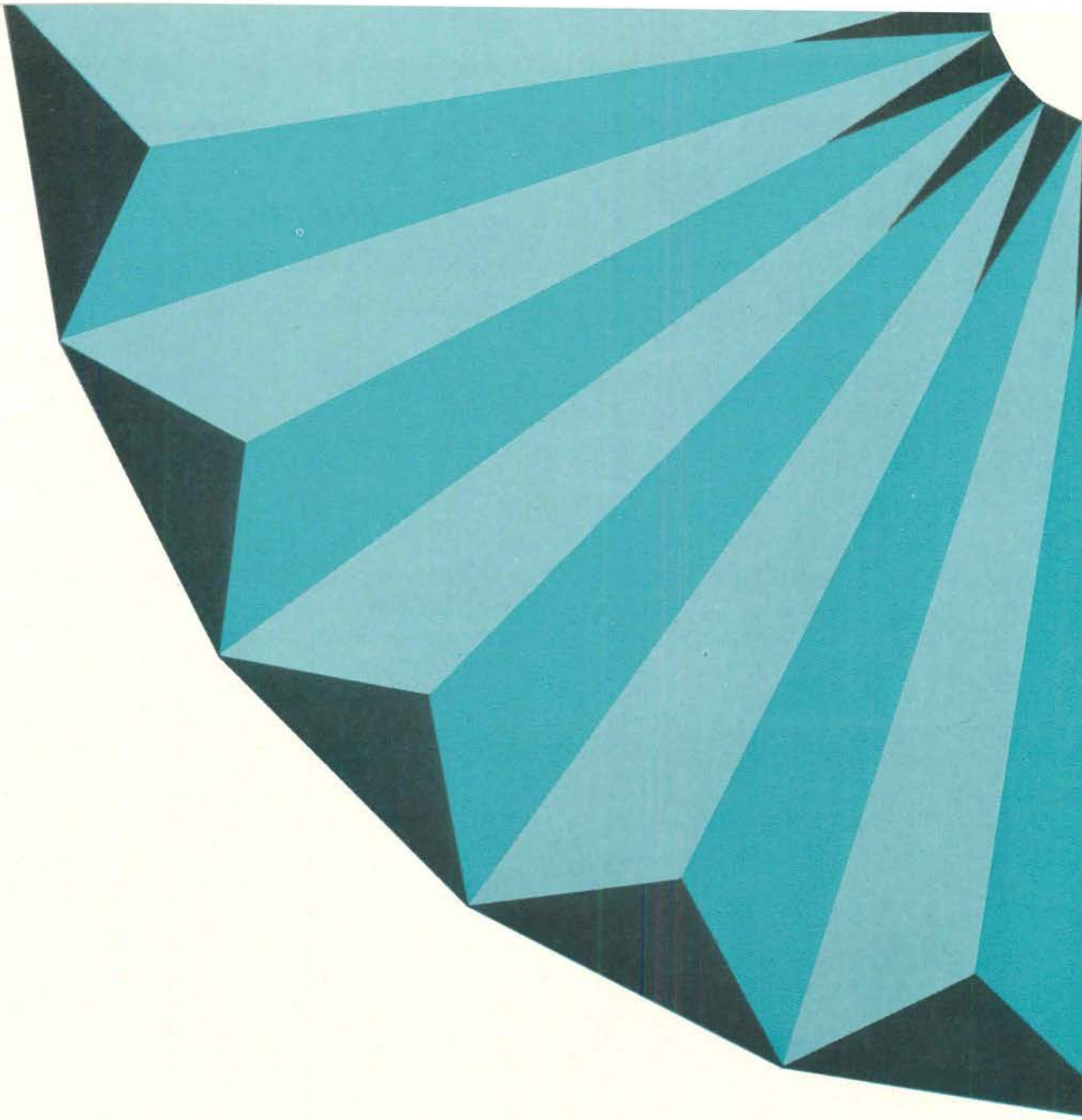
STAINLESS STEEL

• jewel-like finish • mirror-flat surface • precision engineered • maintenance free • sound deadened

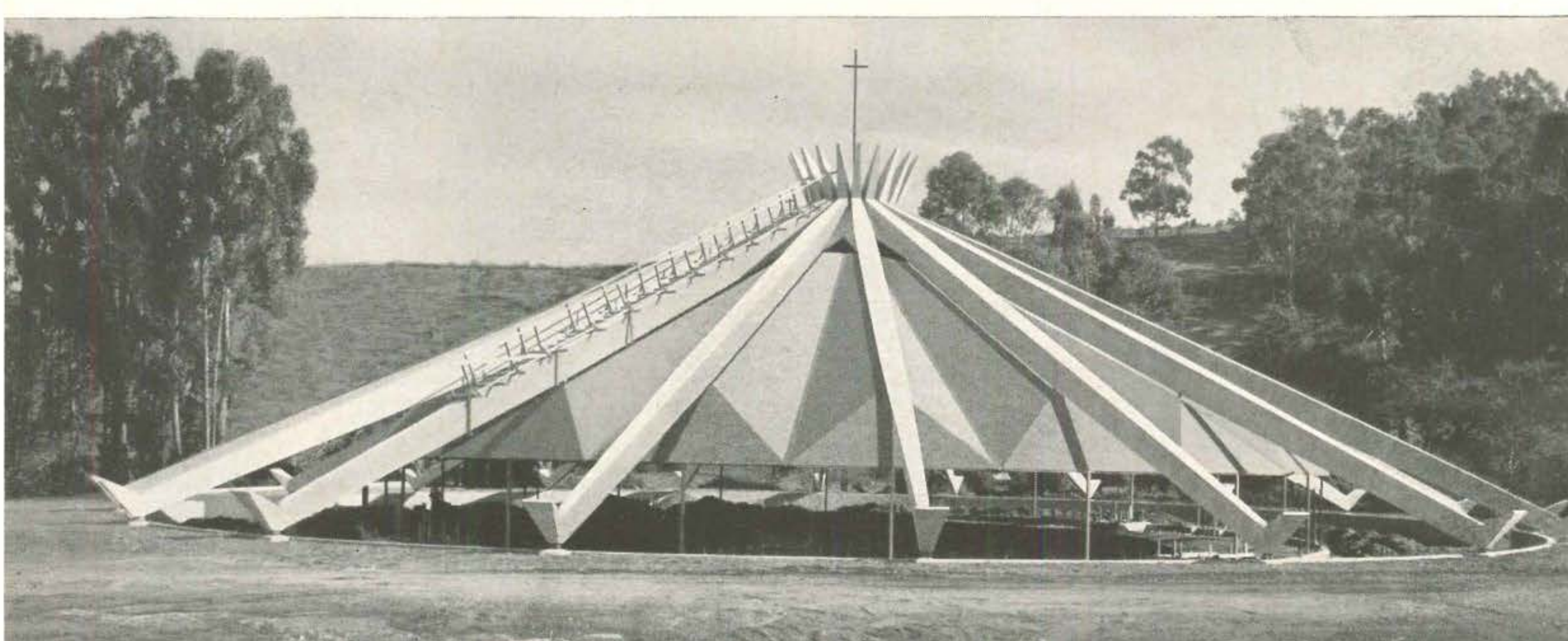
Write for the name of your technically trained Steelcraft Distributor . . . today!

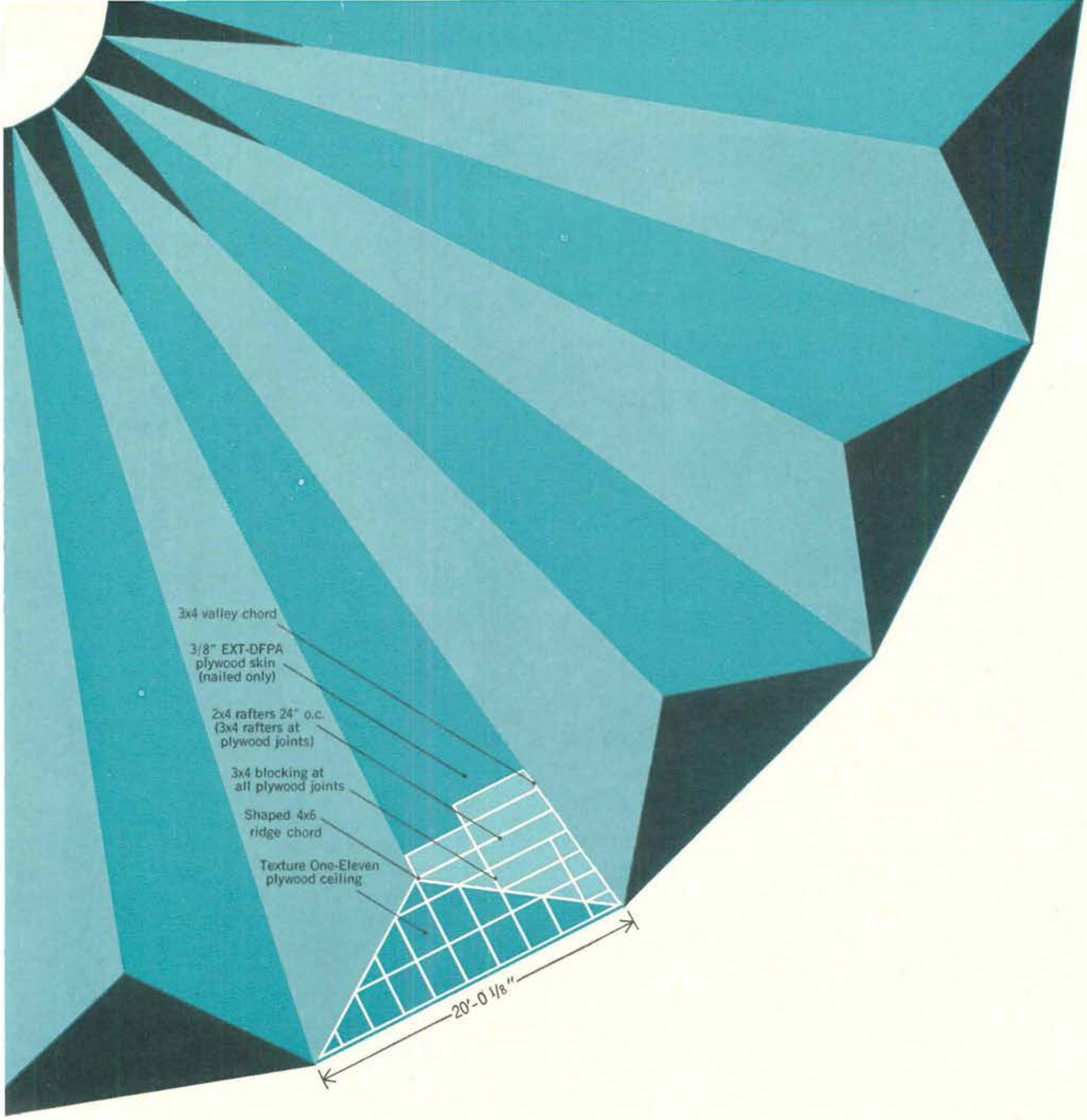


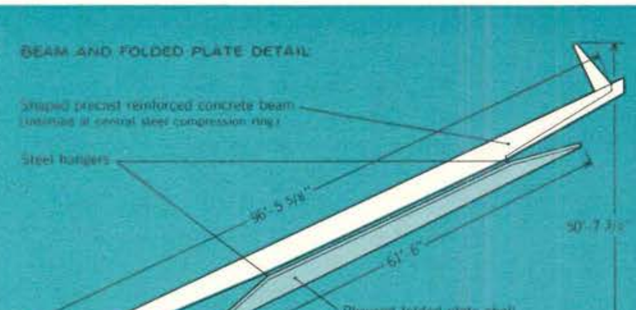
For more data, circle 56 on Inquiry Card



the most exciting ideas take shape in plywood







ST. PETER'S CHURCH, PACIFICA, CALIFORNIA

ARCHITECT:	MARIO J. CIAMPI, F.A.I.A. PAUL W. REITER, ASSOCIATE ARCHITECT SAN FRANCISCO
STRUCTURAL ENGINEER:	ISADORE THOMPSON, SAN FRANCISCO
CONTRACTOR:	PACIFIC COAST BUILDERS, SAN FRANCISCO

This parasol-like plywood folded plate roof, suspended beneath slender reinforced concrete beams, is another prime example of how modern materials and engineering systems can be combined to create a new architecture, free of traditional restraints. The plywood canopy is so nearly self-sustaining that each folded plate needs only two beam connections. The result is a large clear-span structure of remarkable harmony and simplicity. ■ Construction was efficient and economical. Components were site-fabricated with plywood and light lumber framing, and crane-lifted into place. ■ As in so many of today's new architectural forms, only plywood had the requisite design flexibility coupled with adequate structural and appearance values. For more information, write (USA only) Douglas Fir Plywood Association, Tacoma 2, Wash.

DFPA® TESTED QUALITY PLYWOOD

ALWAYS SPECIFY BY DFPA TRADEMARKS

PITTSBURGH HAS URBAN STUDIES: FELLOWSHIPS OPEN

Pittsburgh University's comprehensive education programs for urban studies could easily place many times the number of available graduates, says Donald C. Stone, dean of the Graduate School of Public and International Affairs. The shortage of qualified personnel for leadership in administering and revitalizing American cities is acute.

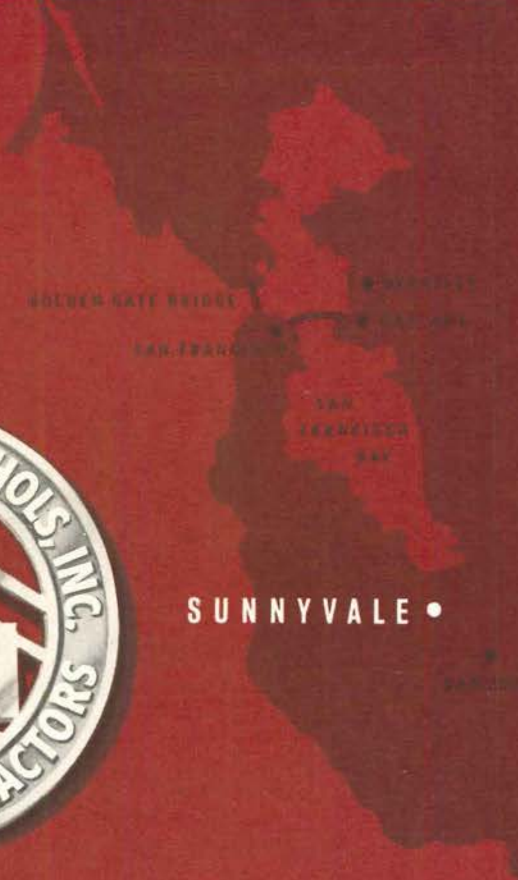
Four fields of urban specialization are available at Pitt: Urban Management; Urban Renewal; Metropolitan Studies; and Urban and Regional Planning. Enrolled for 1962-63 in the school's urban affairs programs are a total of 41 master's candidates (full-time and part-time). Of these 28 are engaged in urban renewal studies.

Each student has a program tailored to his background, needs and career objectives, as well as to his field of specialization. He may enroll as a candidate for the Master's, Ph.D. degree or as a special non-degree member.

Fellowship and loan funds are available for talented persons who require financial aid. For the second year, the Pittsburgh Plate Glass Foundation has granted the school's urban renewal program four fellowships. Eligible are men and women who need financial aid and have not been full-time graduate students, and who are U.S. citizens or are acquiring citizenship. A maximum stipend of $1,500 per term is given each fellow, according to need, awarded for a three-term program of professional education.

Candidates for these fellowships are judged on the following qualifications: previous education, experience, demonstrated leadership and breadth of vision. Applications for Urban Renewal and Redevelopment Fellowships should be submitted to the University no later than April 30, 1963.

For information on the fellowships or on Pittsburgh University's urban studies program, write: Dean Donald C. Stone, Graduate School of Public and International Affairs, University of Pittsburgh, Pittsburgh 13, Pa.



HUBER, HUNT & NICHOLS, INC. GENERAL CONTRACTORS

Huber, Hunt & Nichols, Inc.
is pleased to announce
the formal opening
of its Western Division Offices
in Sunnyvale, California

Mr. William B. Huffman, vice president
has been appointed Manager
of Western Division Operations

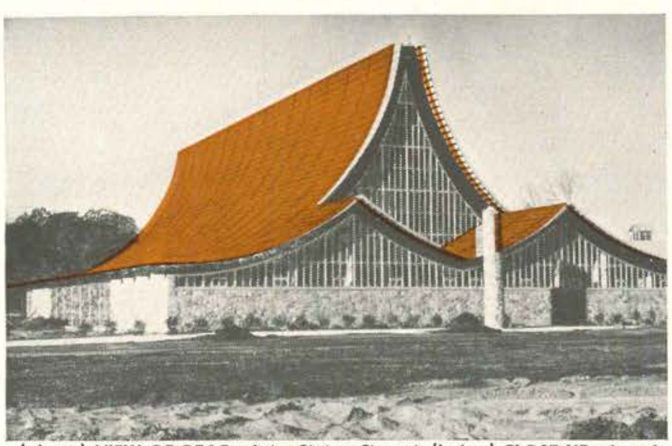
Huber, Hunt & Nichols, Inc.
1128 West Evelyn Avenue, P.O. Box 187
Sunnyvale, California
Telephone: A/C 408...245-4230

Pittsburgh • INDIANAPOLIS • Sunnyvale

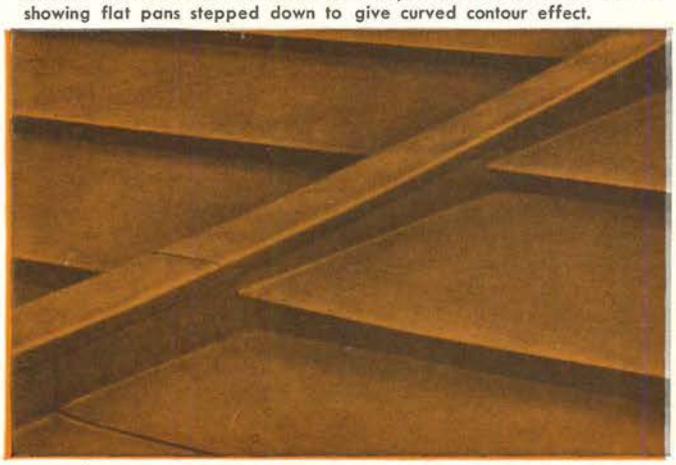
MODERN COPPER

Revere Sheet Copper enables Architect to combine beauty and long life in a striking, modern roof design . . .

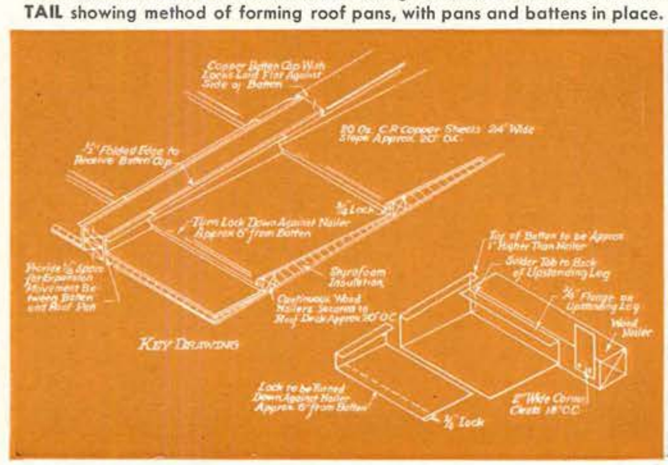
FOR SHRINE CHAPEL OF OUR LADY OF ORCHARD LAKE, DETROIT, MICHIGAN

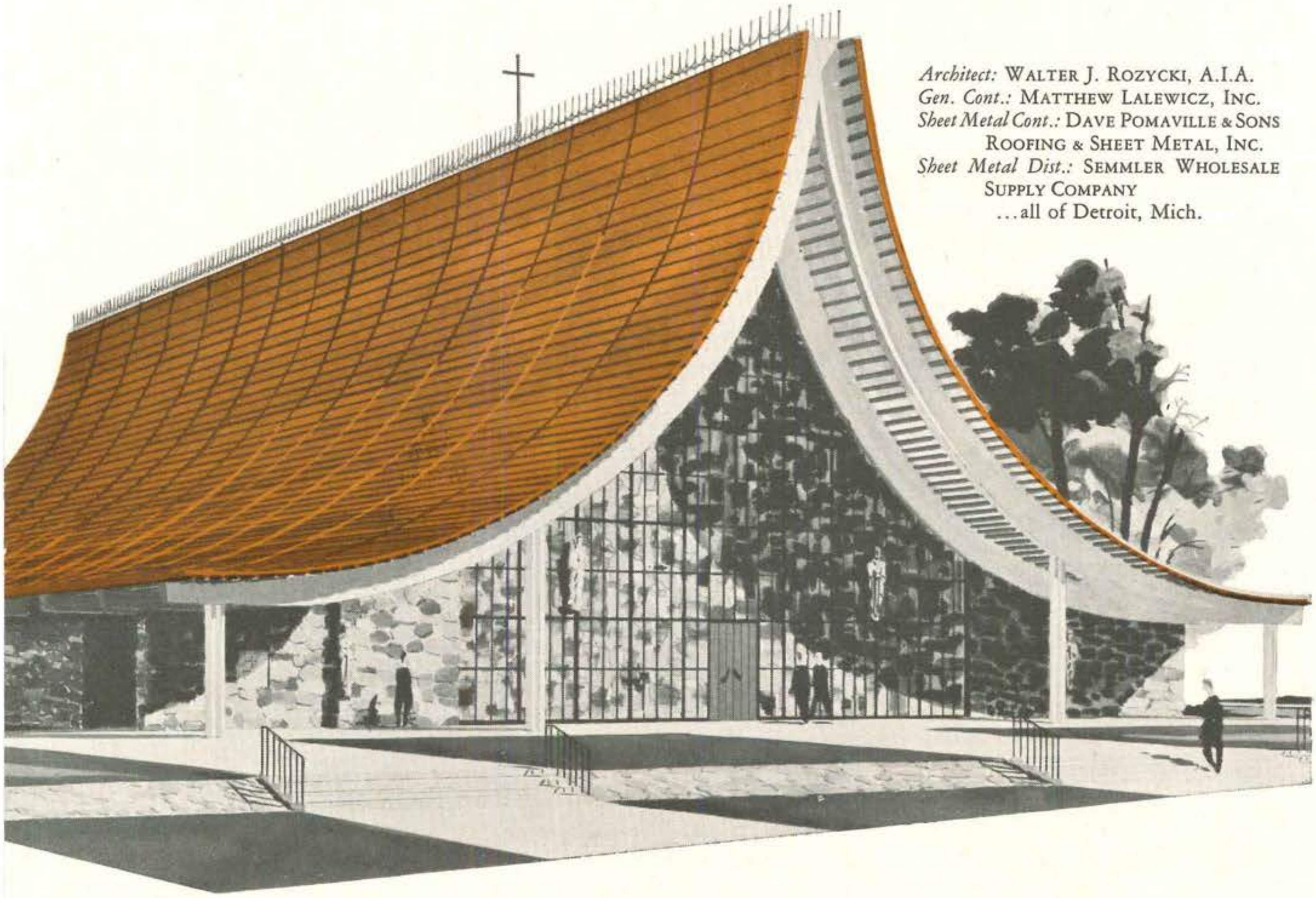


(above) **VIEW OF REAR** of the Shrine Chapel. (below) **CLOSE-UP** of roof showing flat pans stepped down to give curved contour effect.



(above) **HERE YOU SEE** batten covers being affixed. (below) **ROOF DETAIL** showing method of forming roof pans, with pans and battens in place.





In conceiving the design of this structure the architect, Walter J. Rozycki, visualized the bold, soaring sweep of the roof as the commanding element of the overall structure, both in size and contour. Said he, "Such a roof, without the use of copper and its characteristic design flexibility, would have been virtually impossible."

Other contributing factors in the selection of copper were its permanence, handsome appearance, and ease of fabrication. *And NOW—with the price of sheet copper the lowest in years, it pays to look first to copper.*

Mr. Rozycki's plans called for flat, stepped-down pans. While this is a novel method of sheet metal construction, Mr. Rozycki, in collaboration with the Revere Research and Development Department and Technical Advisory Service, worked out a technique which enabled the sheet metal contractor to install these pans using only standard tools.

Details of construction are shown in the accompanying illustrations. The 4″ x 4″ vertical battens are spaced 10′0″ on centers; the 2″ high steps running horizontally between the battens are spaced approximately 20″ apart. Horizontal roof pans are of 24″ wide sheets of 20 oz. cold rolled Revere Sheet Copper. A tapered layer of rigid roof insulation is laid between the horizontal steps.

All told, 35,000 lbs. of Revere Cold Rolled Copper were used in 24″ x 120″ sheets. The versatility and design flexibility of copper is abundantly evident in the unusual details and the final striking results.

For unusual and beautiful architectural effects, remember: "Design with Copper in Mind". Revere's Technical Advisory Service will be happy to work with you.

SEND TODAY for free copy of "Copper and Common Sense," Revere's 140-Page Brochure illustrating the design principals and techniques of sheet copper construction. Also free companion piece, "The Revere System of Copper Flashing," for the complete weatherproofing of masonry buildings. Address Dept. "S-2" at address below.

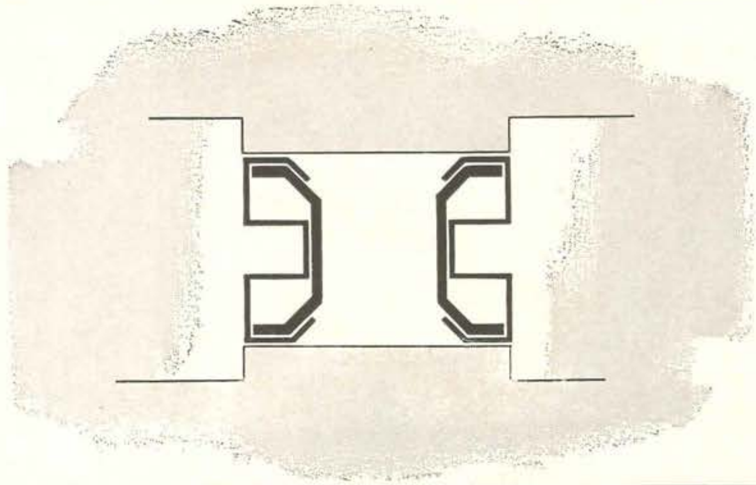
REVERE

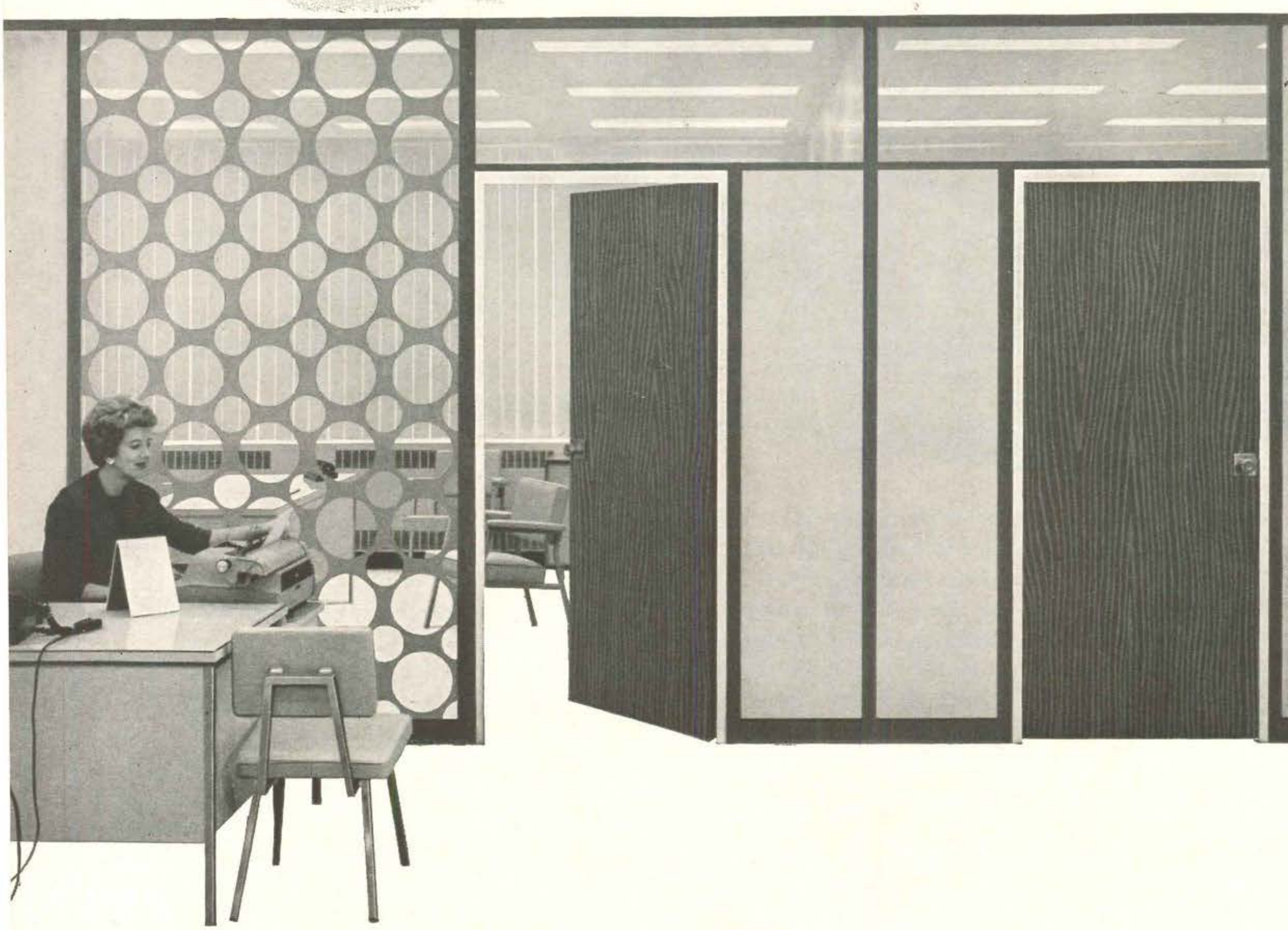
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Ave., New York 17, N. Y.
Mills: Rome, N.Y.; Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles, Santa Ana, Calif.; New Bedford and Plymouth, Mass.; Brooklyn, N.Y.; Newport, Ark.; Ft. Calhoun, Neb.
Sales Offices in Principal Cities . . . Distributors Everywhere

For more data, circle 58 on Inquiry Card





***Sensitivity of Definition in the Forecast Series of Movable Walls by Mills** creates rhythmic order in a variety of panel configurations of steel, glass, and wood. The emphatic, single-recess post above is one of twelve different ways Mills uses the third dimension to achieve fresh articulation in modern wall design. This flexibility in the Forecast Series gives designers complete freedom to create, with one Mills design group, unique interior wall systems for every client. Write us for details.*

The Forecast Series is installed throughout the new
McGraw-Hill Publishing Company Office Building, Heightstown, N.J.; Architect, Alfred Easton Poor.
The Forecast Series will also be on display at Booth 601, A.I.A. Convention, Miami.

MILLS
COMPANY
913 WAYSIDE ROAD • CLEVELAND 10, OHIO

For more data, circle 59 on Inquiry Card

For more data, circle 60 on Inquiry Card →

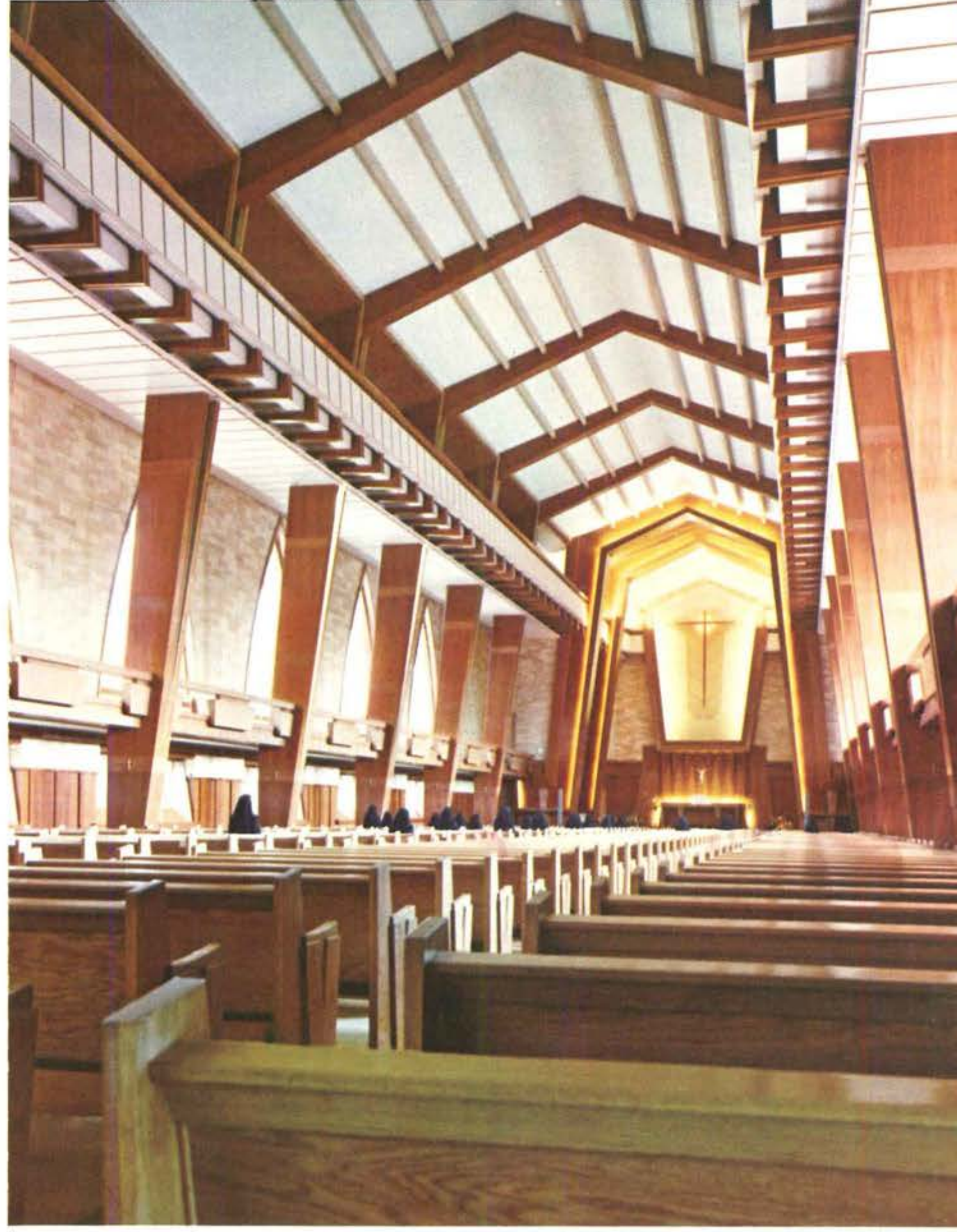
In Canada, architects specify Pratt & Lambert

Experience has proved the wisdom of their choice.

The quality control exercised by Pratt & Lambert at every stage in the manufacture of P&L paints and varnishes assures products that architects trust.

Throughout the United States and Canada, architects specify Pratt & Lambert products for their most particular jobs. Shown here are only a few of the fine buildings in Quebec and Ontario provinces in which P&L products have been used. Color styled with exclusive Pratt & Lambert Calibrated Colors®, these buildings reflect credit on their architects and owners.

Make full use of the knowledge and experience available from your P&L representative. He is equipped to offer helpful suggestions on finishing problems — surface preparation, color styling, specification writing, new products. Trust him to recommend the right materials for maximum protection and service. Phone him or write: Pratt & Lambert Architectural Service Department, 3301 38th Ave., Long Island City 1, N. Y.; 4900 S. Kilbourn Ave., Chicago 32, Ill.; 75 Tonawanda St., Buffalo 7, N. Y.; 254 Courtwright St., Fort Erie, Ontario.



CHAPEL, LES SOEURS DE L'ASSOMPTION DE LA SAINTE VIERGE, Nicolet, Quebec. P&L products used are Tonetic Wood Stain, "38" Pale Trim Varnish, Primafil and Solidex.

CLASSROOM, ECOLE SECONDAIRE MARIE VICTORIN, Varennes, Quebec. Architect, Charles E. Charbonneau. P&L products used: Vapex Wall Primer, Cellu-Tone Satin.

MAIN CHAPEL, PROVIDENCE VILLA and PROVIDENCE HOSPITAL, Scarborough, Ontario. Architects, Brennan & Whale. P&L products used are Vapex Flat Wall Finish, Tonetic Wood Stain, "38" Pale Trim Varnish.

DOCTORS' LOUNGE, ST. MARY'S GENERAL HOSPITAL, Kitchener, Ontario. Architects, Somerville, McMorrich and Oxley. P&L products used are Vapex Wall Primer and Lyt-all Flowing Flat.

■ OTHER BUILDINGS RECENTLY COLOR-STYLED WITH PRATT & LAMBERT PAINT AND VARNISH INCLUDE:

EGLISE SAINT-JEAN-BAPTISTE, Drummondville, Quebec. Architect, J. David Deshaies.
ARENA MAURICE RICHARD, Montreal. Architect, Jean Julien Perreault.
COLLEGE ST. BERNARD, Drummondville, Quebec. Architect, Louis-N. Audet, Ferdinand Blair.
HOTEL DIEU DE NICOLET, Nicolet, Quebec. Architect, Paul LaBranche.
SALON DE QUILLES NATIONAL LTÉE., Chicoutimi, Quebec. Architect, Desgagné & Coté.
HOTEL DE VILLE, Arvida, Quebec. Architect, Bertrand Dallaire.

CRAFTSMANSHIP IN THE PACKAGE

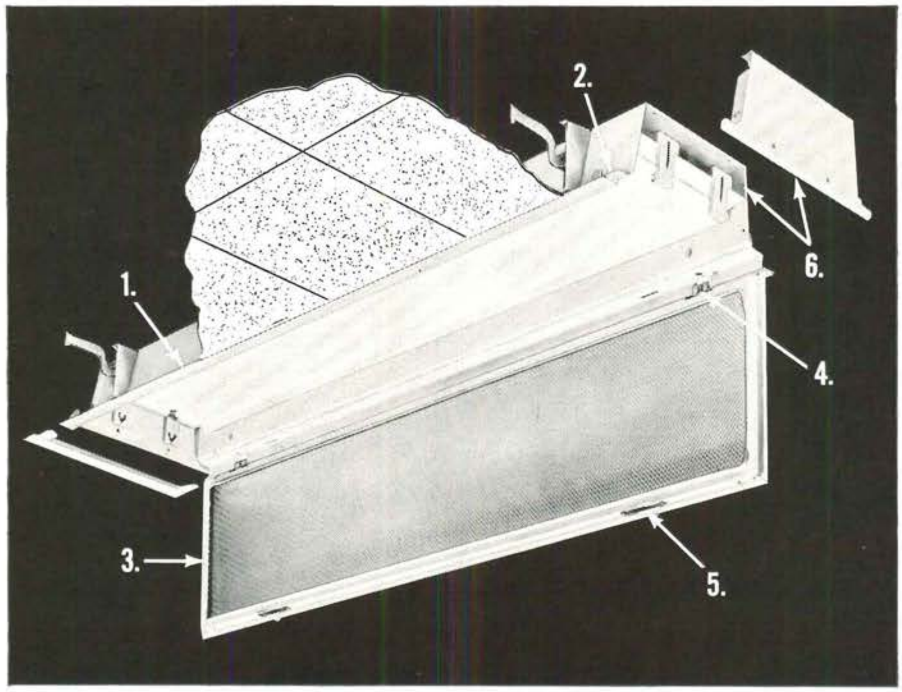
PRATT & LAMBERT-INC.

NEW YORK • BUFFALO • CHICAGO
ORANGE, CAL. • FORT ERIE, ONTARIO

PRINTED IN U.S.A.

We counted no fewer than 24 significant mechanical superiorities in LPI's new line of troffers. These features contribute unusual strength, rigidity, foolproof operation and light-tight construction. They mean fast installation, in any ceiling system, singly or in continuous rows. They assure an attractive, easy-to-maintain lighting job.

Two dozen ways you can measure quality in LPI's new fluorescent troffers



1. Integral, full-length side-trim flange is narrow and is formed back on itself for extra rigidity and clean, tight ceiling fit. **2.** Functionally designed multiple bends in the 20 ga. steel troffer body provide exceptional rigidity and form a precision, light-tight door jamb. **3.** Double-channel diffuser frame also features multiple bends with integral corner gussets for great rigidity and light-tight construction. Frame is full length of troffer for smart appearance in continuous rows or individually installed. **4.** Diffuser frames hinge from either side. **5.** Latch is simple, manual device providing positive closure. **6.** Troffer housing is trimmed to receive wrap-around end cap insuring tight flange joints with absolutely no progressive lengthening in continuous rows. A stiffening flange on end caps locks housing to correct width and forms diffuser frame jamb at ends. There are no light leaks. **7.** through **24.** To see all 24 of these important superiorities, why not let your LPI representative personally show you one of our troffers. Or write for our brochure "Two Dozen Measures of Exceptional Quality" plus our new 32-page Troffer Lighting Catalog.

LPI-3-211

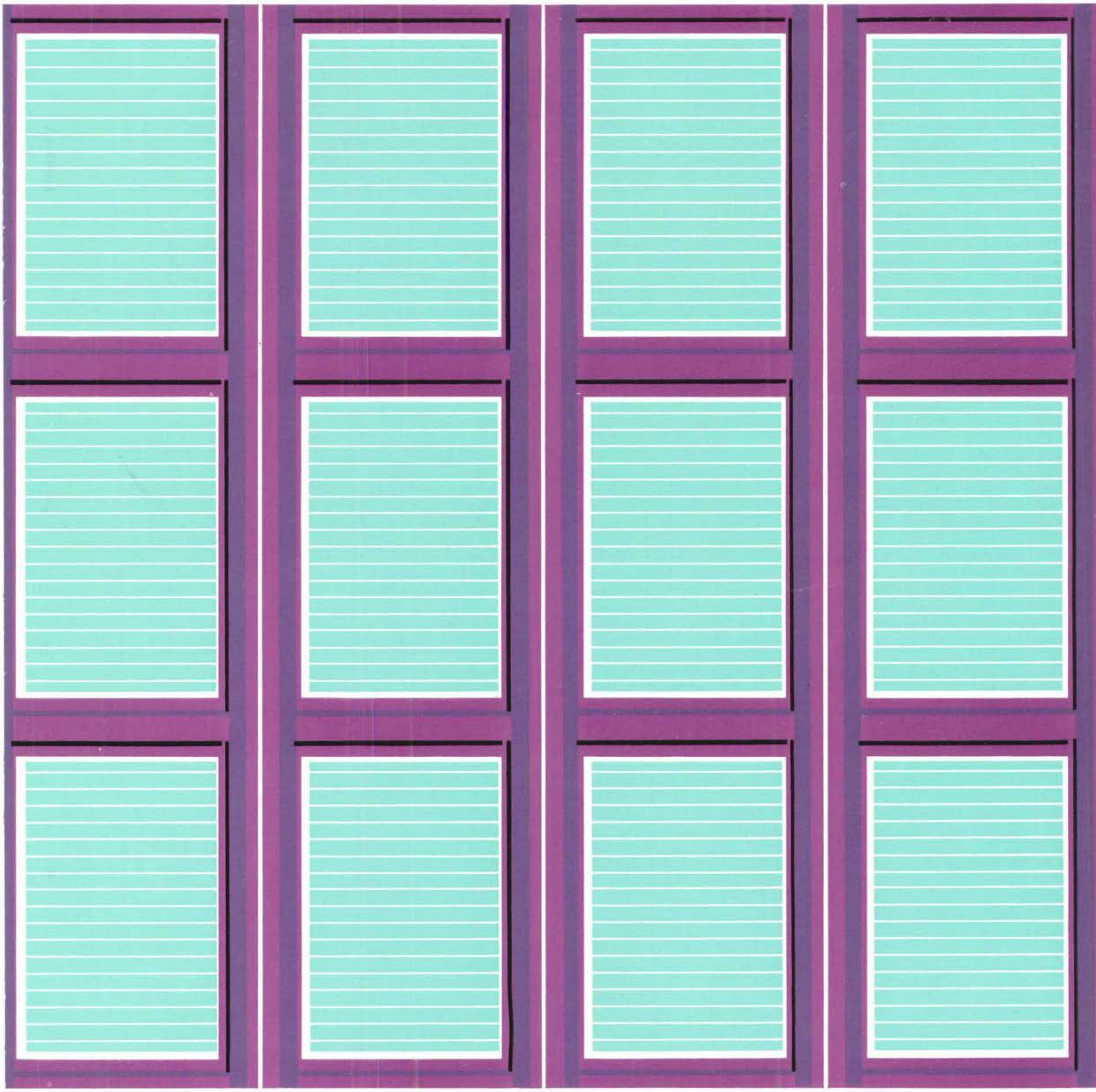
LPI FLUORESCENT LIGHTING

Lighting Products Inc., Highland Park, Illinois

For more data, circle 61 on Inquiry Card

For more data, circle 62 on Inquiry Card →

ANOTHER ADLAKE PRODUCT OF INGENUITY

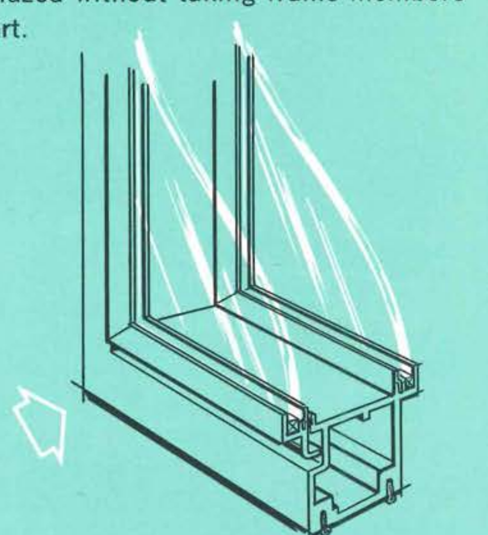


most THOUGHTFUL new window in a decade

New venetian VP* blind

EXCLUSIVE FEATURES

Vertical pivot action. Awkward, risky methods used to operate horizontally pivoted windows are unnecessary. *Concealed pivot mechanism.* Window can be reversed without raising venetian blind. *Removable aluminum glazing beads.* Window may be reglazed without taking frame members apart.



Square windows. All four corners are squared to lend approved architectural appearance. Initial glazing is faster, easier. Reglazing, too, if required.

Venetian blind controls. Control knob sets angle of louvers *(Inside glass)*. Side-hinged feature for easy cleaning. Gives access to inside surfaces of glass without awkward reaching or need for open holder arms.

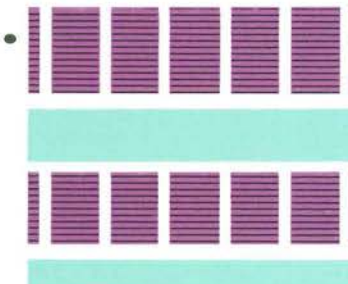
* Vertical Pivot point is the important difference!

VP*

windows from Adlake

Make all four corners square. Make the window pivot *vertically*. Conceal the mechanism. Then, make it next to impossible for anyone except the window washer to disturb the uniformity of the venetian blinds. *This is how Adlake designed the most thoughtful window in a decade!* Thoughtful of the architect, thoughtful of the owner, thoughtful of the tenant—and even thoughtful of old customers. It's basically the Series 1000 vertical pivot window, already proven in thousands of installations. How will it benefit you? Read on and see. Then contact your nearest Adlake representative.

better looking... and stays that way



. . . thoughtful of the tenant

This window was designed with people in mind. They choose the louver angle that is right for them. A twist of the wrist dials it. No exposed cords to tug. Blinds keep up to 65% of the sun's heat outside the building where it belongs. Less street noise, too.

THE WINDOW THAT'S...

. . . thoughtful of the architect

With blinds raised only for cleaning, this new Adlake window offers effective control over a horizontal design motif. But that's not all. The same four corners that give the Series 1400 an accepted architectural appearance, also cut glazing costs. And what a choice of finishes! Adlake satin etched, Anodized, Anoclad greys, Kalcolor or Duranodic.

cuts costs before and after

. . . really thoughtful of the owner

Adlake's Series 1400 vertical pivot window really cuts maintenance and utility costs. The window is faster, easier to clean. Can be reversed a full 360° with no time out to raise the blind. And even when reversed, there's the positive seal provided by the neoprene impregnated fabric weatherstrip. A $2\frac{1}{4}$ inch air space between the panes acts as insulation. Naturally, heating and air conditioning cost less.

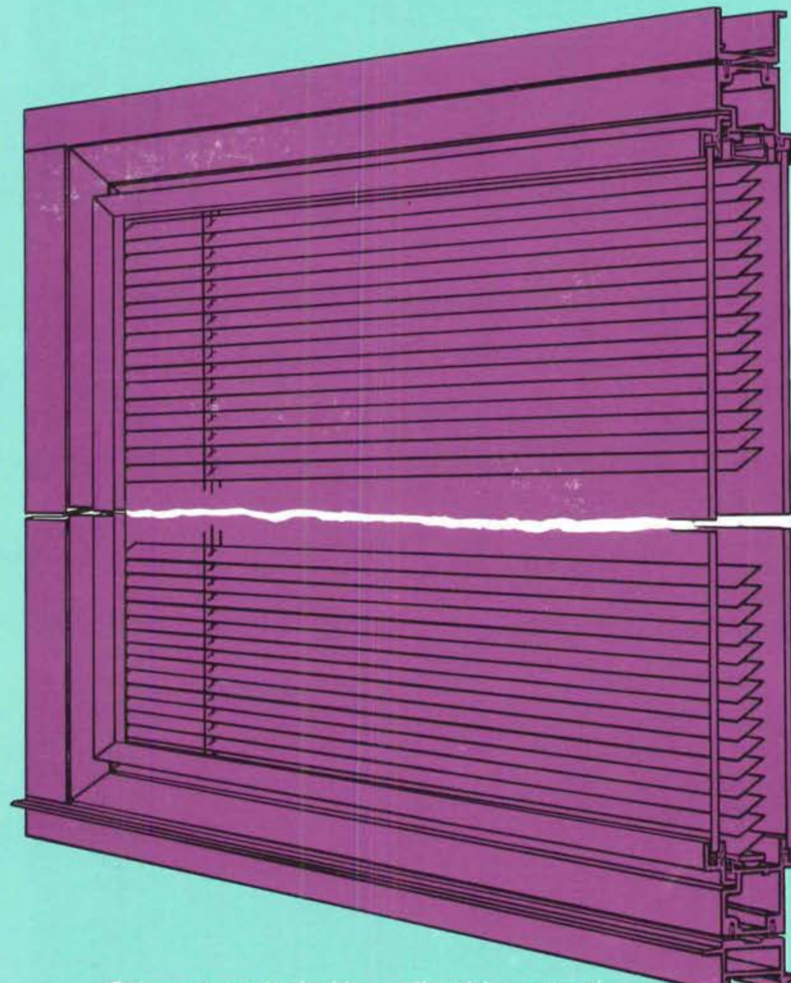
. . . and even thoughtful of old customers

The new Adlake Series 1400 vent fills the same size opening as a Series 1000. Owners who need the special features of the venetian blind window can substitute one vent for the other. Replacement is economical, easily arranged. Inconvenience is held to a minimum. Your Adlake representative will gladly supply details.

See other side for further particulars and name of your nearest Adlake representative

MORE FEATURES OF THE ADLAKE SERIES 1400 VP WINDOW

Neoprene glazing gasket. Neoprene impregnated fabric weatherstrip. *2¼ inch sealed air space between glass.* *Finishes.* Adlake satin etched, Anodized, Anoclad greys, Kalcolor or Duranodic. *Minimum air infiltration.* .070 cubic feet of air per minute per foot of vent perimeter at 50 m.p.h. wind velocity. *Key operated hardware for reversing vent.* Permits only authorized persons to reverse windows. Locks are designed to prevent removal of keys except when window is in a locked position.



Cutaway reveals double weatherstrip, squared corners, double panes and venetian blind.

A+dlake®
WINDOWS AND CURTAIN WALLS

for full particulars see your nearest representative

Brabner Building Spec. Inc.
P. O. Box 7366, Crichton Station, Mobile, Alabama

Will B. Erwin Co., Inc.
317 W. Markham Street
Little Rock, Arkansas

Kenneth Courtney
P. O. Box 393
N. Hollywood, Calif.

Rolph, Mills & Company
371 Fourth Street
San Francisco, California

Leever-Post Company
4350 Broadway
Denver 16, Colorado

Earl R. Smith, Inc.
1318 Kossuth Street
Bridgeport 8, Connecticut

J. Francis Blaine Co., Inc.
1011 Washington Street
Wilmington 1, Delaware

Thomas T. Tucker
230 Spring Street NW
Atlanta 3, Georgia

Hugh J. Baker & Company
602 West McCarty Street
Indianapolis 6, Indiana

Hugh J. Baker & Company
1028 South Barr Street
Fort Wayne 7, Indiana

Hugh J. Baker & Company
P. O. Box 505
Evansville, Indiana

Kennedy & Company
110 S. E. 6th Street
Des Moines, Iowa

Atlas Plaster & Supply Co., Inc.
30th & Greenwood
Louisville, Kentucky

Favrot & Pierson
P. O. Box 7116
New Orleans, Louisiana

The Lipper-Stutsman Company
301 Spring Street
Shreveport, Louisiana

Central Supply Company
238 Water Street
Augusta, Maine

The J. D. Slaughter Co.
2326 N. Charles Street
Baltimore 18, Maryland

Construction Specialties Co.
296 State Street
Boston 9, Massachusetts

C. T. DeHaas Company
P. O. Box 89
Marquette, Michigan

George Gohlke Company
2635 University Avenue
St. Paul 14, Minnesota

Arnold-Newbanks, Inc.
27 Southwest Blvd.
Kansas City 3, Kansas

Adolph Schmidt & Son
6417 Manchester Avenue
St. Louis 10, Missouri

Trustin-Carlson Associates, Inc.
2300 Block N. 18th Street
Omaha 10, Nebraska

Harry I. Davis Co.
P. O. Box 4055
Albuquerque, New Mexico

Bronsteel Products Corp.
1965 Sheridan Drive
Buffalo 23, New York

Campbell Associates, Inc.
101 Park Avenue
New York 17, New York

The Maurer Company, Inc.
31 Richmond Street
Rochester 7, New York

Ezra A. King
905 Glenwood Avenue
Syracuse 4, New York

Delph Hardware & Specialty Co.
2109 North Graham Street
Charlotte 1, North Carolina

Delph Hardware & Specialty Co.
223 Bickett Bldg.
Raleigh, North Carolina

Condit Construction Products, Inc.
1515 Cypress Lane
Cincinnati 6, Ohio

Condit Construction Products, Inc.
1026 West Goodale Blvd.
Columbus 8, Ohio

Condit Construction Products, Inc.
P. O. Box 58, Station A
Dayton 3, Ohio

Springer & Morrison, Inc.
2036 East 22nd Street
Cleveland 15, Ohio

Wm. C. Turnbull Company
P. O. Box 3044, Station C
Toledo 7, Ohio

Murray R. Womble Company
121 N. E. 26th Street
Oklahoma City 5, Oklahoma

Murray R. Womble Company
216 S. 16th Street
Tulsa, Oklahoma

Halteman Company
Allen & St. Cloud Streets
Allentown, Pennsylvania

Kenneth Kitson
P. O. Box 62
Oreland, Pennsylvania

James Hood Miller, Inc.
P. O. Box 10568
Pittsburgh 35, Pennsylvania

Delph Hardware & Specialty Company
506 Belt Line Blvd.
Columbia, South Carolina

Delph Hardware & Specialty Company
512 Rutherford Street
Greenville, South Carolina

The Currin Company, Inc.
1208 Carter Street
Chattanooga 1, Tennessee

Tri-State Iron Works, Inc.
P. O. Box 282
Memphis 1, Tennessee

Wilson-Weesner-Wilkinson Co.
202 West Morelia
Knoxville, Tennessee

L. B. Shifflett Co.
P. O. Box 108
Austin 62, Texas

Samuel A. Ellsberry Company
3136 Routh Street
Dallas, Texas

Samuel A. Ellsberry Company
225 Arthur Street
Fort Worth, Texas

Shelton W. Greer
P. O. Box 7327
Houston, Texas

Plains Builders Supply Co.
608 Broadway
Lubbock, Texas

Jno. A. Williamson Company
P. O. Box 8175, Wainwright Station
San Antonio 8, Texas

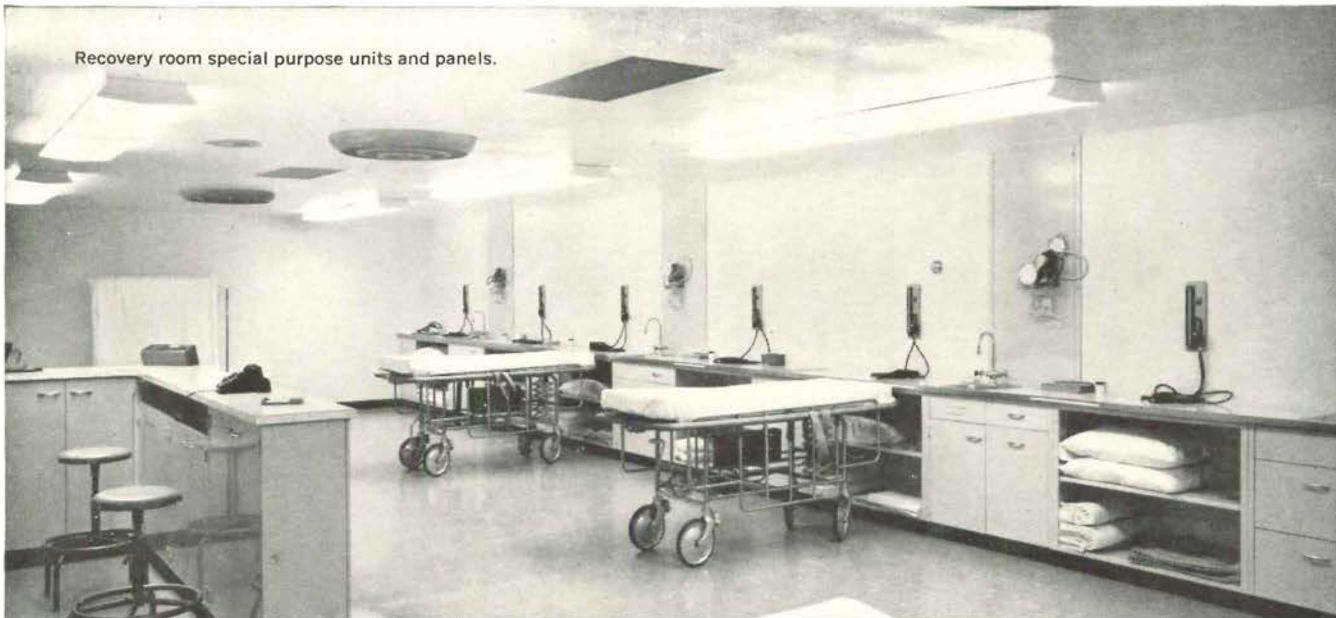
A. L. Horwitz
P. O. Box 496
Roanoke, Virginia

John Bagley
706 Dawn Street
Richmond, Virginia

J. Linc Kern Company
759 N. Milwaukee St.
Milwaukee 2, Wisconsin

West Virginia Steel Corp.
900 Brooks Street
Charleston 29, West Virginia

THE ADAMS & WESTLAKE COMPANY, Elkhart, Indiana
Phone Area 219; COngress 4-1141



Recovery room special purpose units and panels.

Casework for Progressive Patient Care

Installations throughout Lutheran Hospital and Medical Center, Wheat Ridge, Colorado, show clearly how casework by St. Charles can help to provide the utmost in "progressive patient care." To learn more about the many advantages of custom-created casework systems, write on your letterhead to:

St. Charles

Hospital Casework Systems

St. Charles Manufacturing Company
Dept. AR-10, St. Charles, Illinois

Patient line storage wall.

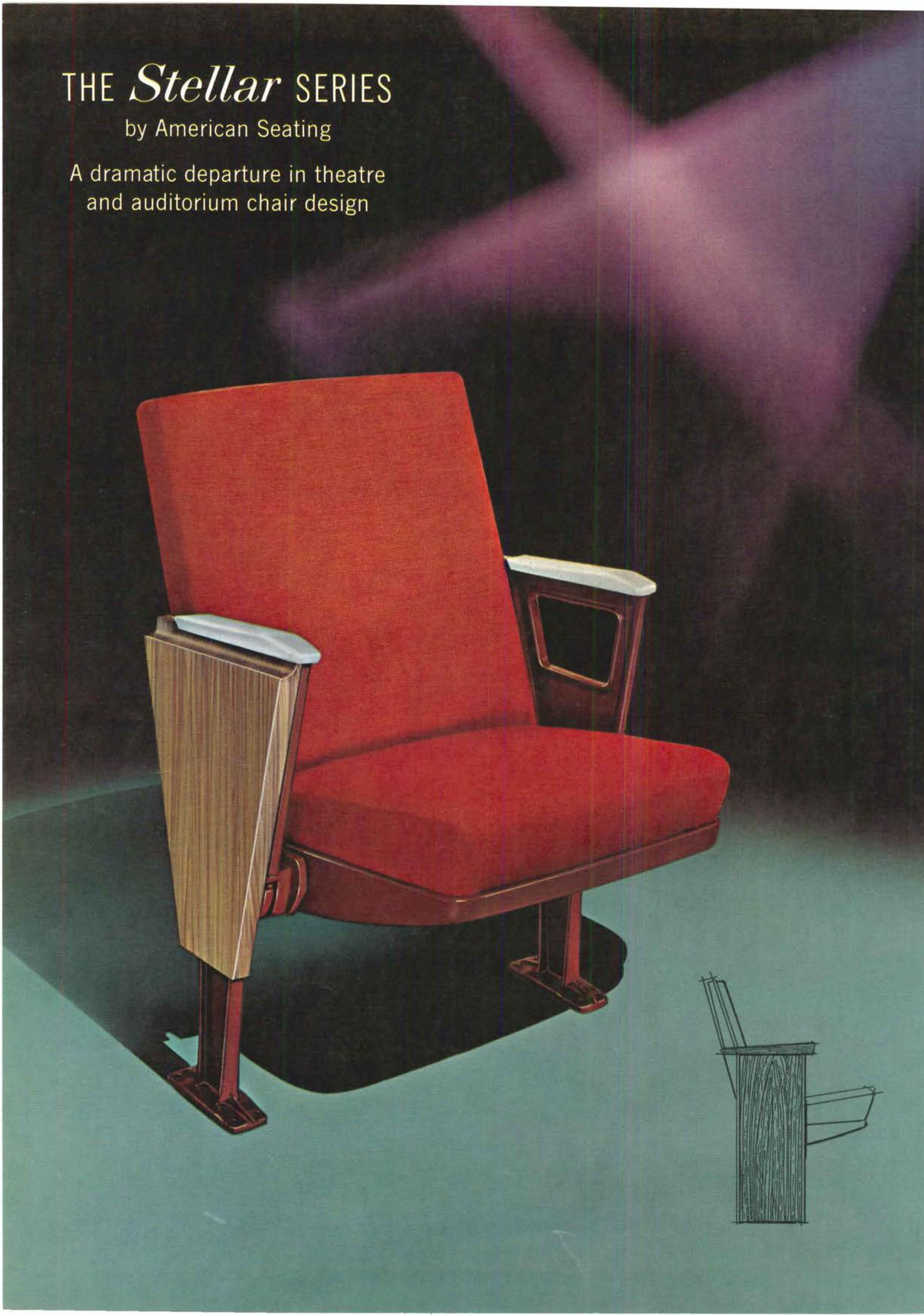
"Multi-care" unit for semi-private room.

"Intensive-care" units and panel.

"Multi-care" unit for private room.

← For more data, circle 62 on Inquiry Card

For more data, circle 63 on Inquiry Card


THE *Stellar* SERIES
by American Seating
A dramatic departure in theatre and auditorium chair design

The look is new

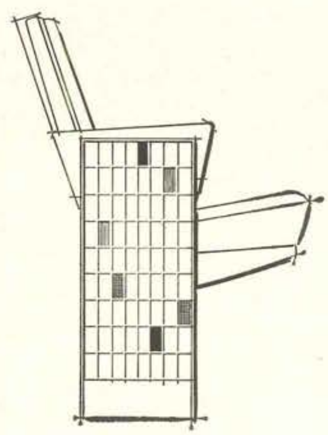
The idea is new

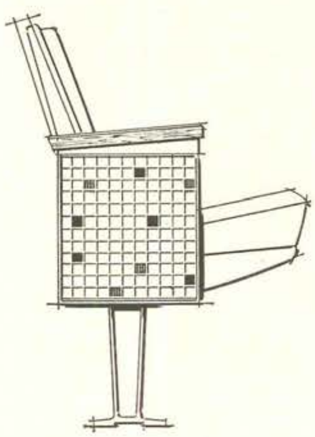
You select every element of the design

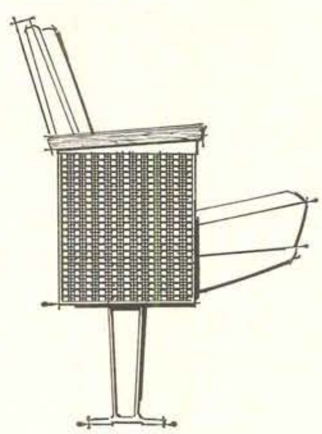
Colors, textures, shapes, sizes—you can work with them all. The Stellar Series by American Seating gives you free hand with fabrics, a wide choice of aisle standards. You can select from several widths and styles of seat and back, several types of mounting.

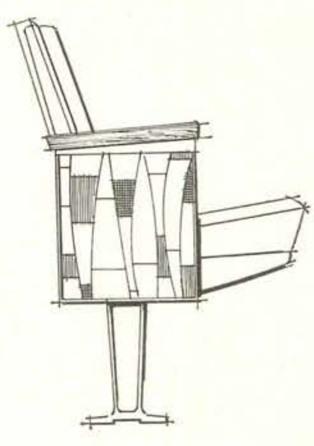
The idea? To make theatre seating an integral part of theatre design. The key to it is choice—and the Stellar Series is the first and only chair to offer you choice of every element of design.

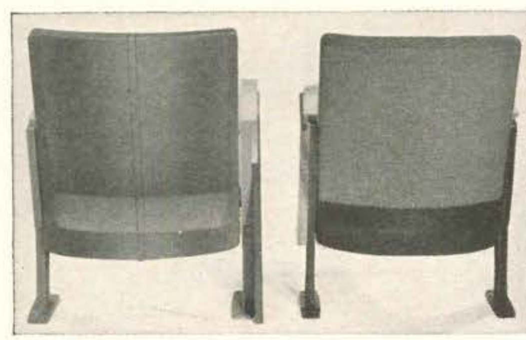
Talk to American Seating about any problem involving seating. Technical advice on floor plans, vision, chair spacing economies, and other subjects is available at all times. *Write Dept. AR-1 for brochure on new Stellar Series.*





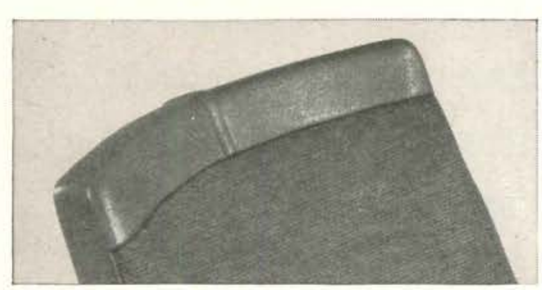






The Stellar chair has a very long back to protect the seat from feet. There are three variations of the Amerflex® plastic back (left), and two of the upholstered back (right).

Single or double armrests are available. You may choose either type.



Exclusive Soil-Guard (optional) protects the upholstery at the top of the chair back.

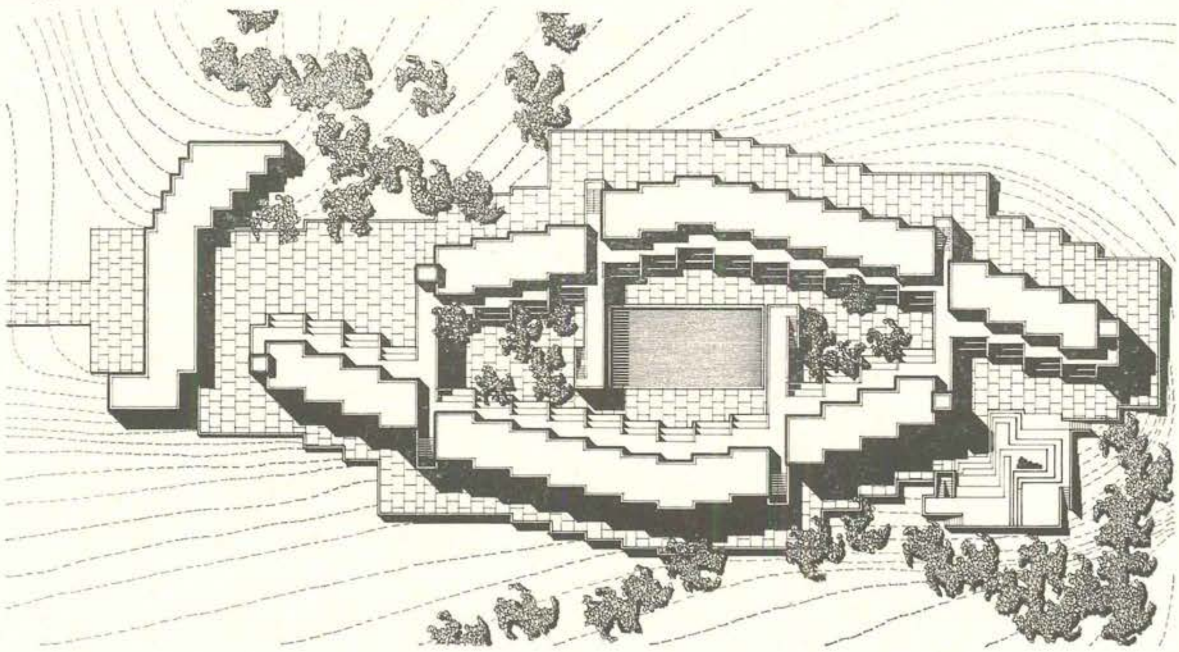
AMERICAN ® SEATING

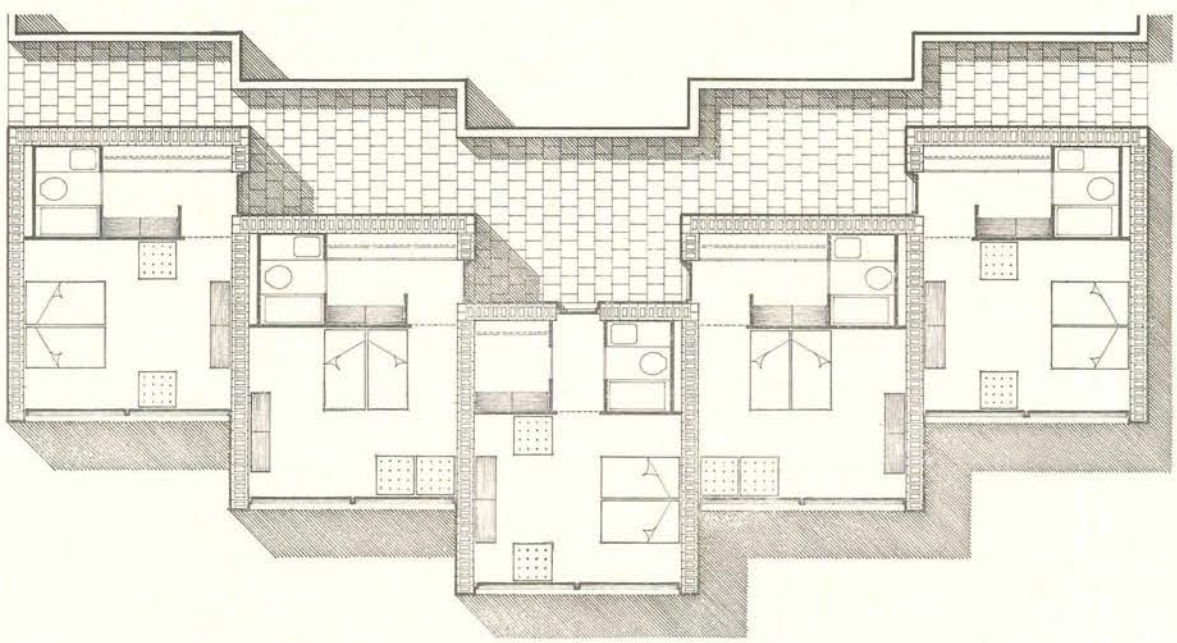
The standard by which all public seating is measured
GRAND RAPIDS 2, MICHIGAN

Manufacturers of school, church, and hospital furniture; auditorium, stadium, theatre, and transportation seating; folding chairs and tables

For more data, circle 64 on Inquiry Card

Zonolite prototype building #1: A Motor Hotel





Architect Stanley Tigerman creates a motor hotel of concrete block: Zonolite Masonry Fill Insulation makes it practical.

(see table)

Zonolite commissioned architect Stanley Tigerman of Tigerman and Koglin, Chicago architectural firm, and engineer Norman Migdal of Chicago to do this motor hotel of insulated concrete block.

It brings some interesting ideas to light.

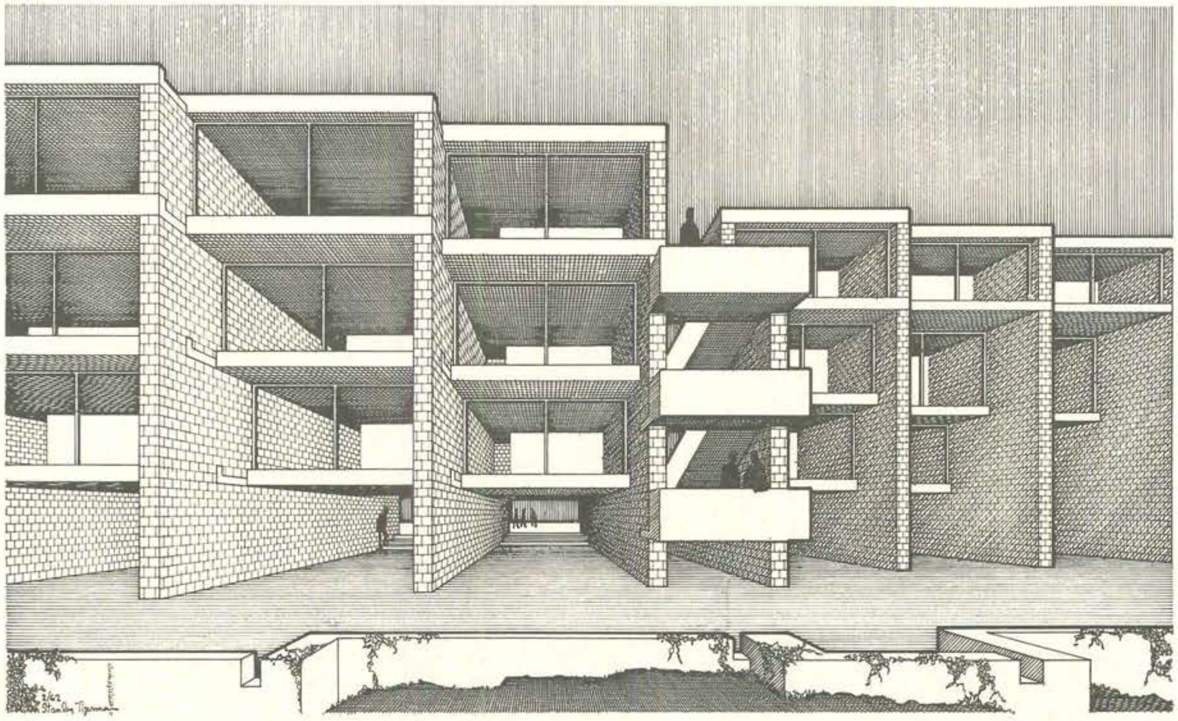
First, note that the interior walls are exposed block; the same block that is exposed on the exterior. Zonolite Masonry Fill Insulation in block cells cuts the heat transmission through walls from 35% to 50% or more, keeping interior surfaces comfortable. The water repellent nature of the material keeps moisture from collecting inside the wall, so that interior paint doesn't blister and peel.

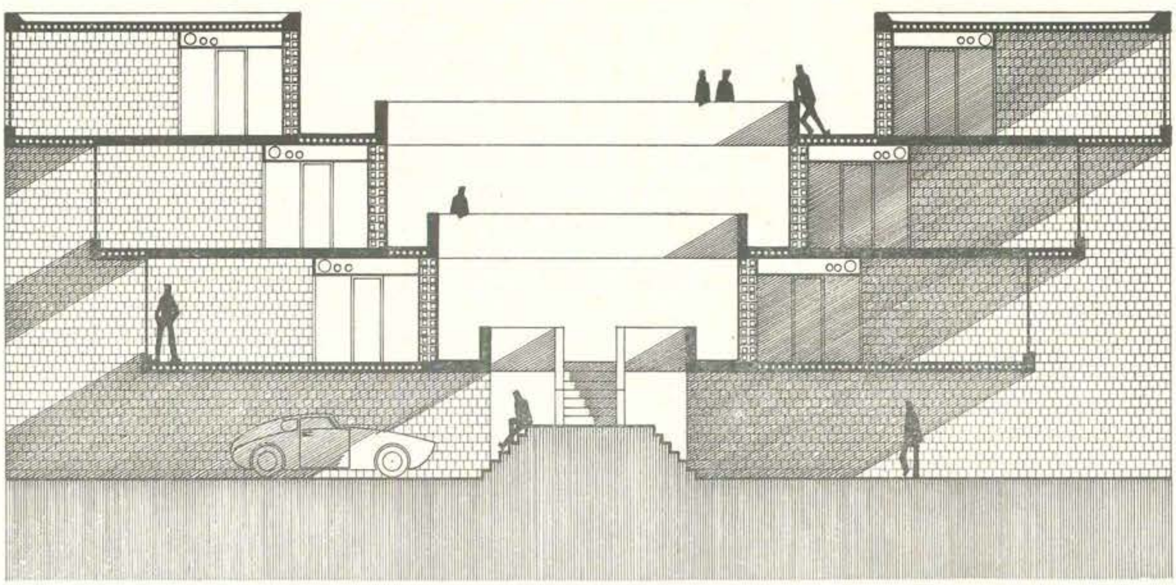
The insulation-filled cores in the cored concrete floor and roof slabs keep floors comfortable and minimize heat loss through the roof.

A benefit unexpected by most is the sound dampening capability of Zonolite Masonry Fill...a 20% loudness reduction in this case.

You have probably noticed from the table that the size and cost of the necessary heating and air conditioning units are considerably reduced by using Zonolite Masonry Fill Insulation.

Contrast this (and the reduced operating costs) with the approximate installed costs of Zonolite Masonry Fill Insulation.





approx. installed costs per sq. ft. of wall	6" block	8" block	12" block
	10¢	13¢	21¢

The installed costs are low for two reasons. First, the initial cost of Zonolite Masonry Fill Insulation is low. Second, to install it, you just pour it out of the bag into the block cells until the wall is full.

For more information about this remarkable insulation, write Department AR-43 for Bulletin MF-68.

ZONOLITE

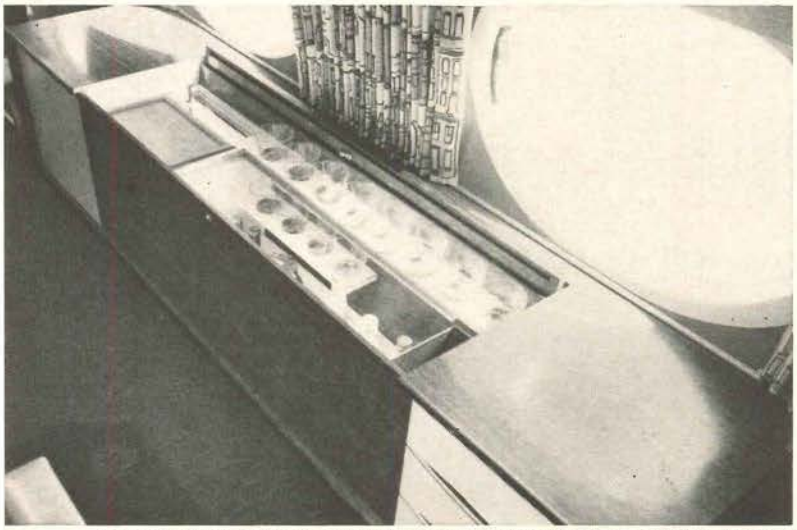
Zonolite Company, 135 South LaSalle St. Chicago 3, Ill.

THE ECONOMICS OF HEATING AND AIR CONDITIONING THE PROTOTYPE MOTOR HOTEL WITH AND WITHOUT WATER REPELLENT ZONOLITE MASONRY FILL INSULATION

	DESIGN CONDITIONS		WINTER HEAT LOSS IN BTU/HR Assuming: 70° F Indoor −10° F Outdoor		SUMMER HEAT GAIN IN BTU/HR Assuming: 80° F 50% RH Indoor 95° FDB 75° FWB Outdoor	
	without Masonry Fill	with Masonry Fill	without Masonry Fill	with Masonry Fill	without Masonry Fill	with Masonry Fill
ROOF	8" Concrete	8" Concrete with 4" Dia. cores filled with Masonry Fill	514,000	442,000	294,000	252,000
FLOOR	8" Concrete	8" Concrete with 4" Dia. cores filled with Masonry Fill	568,000	476,000	85,000	71,500
GLASS	Double Plate	Double Plate	576,000	576,000	253,000	253,000
WALL	8"x8"x16" Sand & Gravel Hollow Core Block	8"x8"x16" Sand & Gravel Hollow Core Block with Masonry Fill	734,000	463,500	70,800	44,730
INFILTRATION	—	—	249,000	249,000	4,000	4,000
LIGHTS	—	—	—	—	34,000	34,000
PEOPLE	—	—	—	—	10,000	10,000
TOTALS			2,641,000 BTU/HR	2,206,500 BTU/HR	750,800 BTU/HR or 63 tons Refrig- eration Req.	669,230 BTU/HR or 56 tons Refrig- eration Req.
SAVINGS WITH MASONRY FILL		% Savings	2,641,000 - 2,206,500 / 2,641,000	= 16.4%	% Savings	63 - 56 / 63 = 11.0%

NOTE—Sound transmission between adjoining suites is reduced by 2.9 db. using blocks filled with Zonolite Masonry Fill Insulation as compared to hollow blocks, or equivalent to 20% loudness reduction.

For more data, circle 65 on Inquiry Card



GRUMMAN AIRCRAFT ENGINEERING CORPORATION, Builders of the Gulfstream, Long Island, New York • ATLANTIC AVIATION CORPORATION, Custom Fabricators of plane interior, Wilmington, Delaware.

EERO SAARINEN & ASSOCIATES, ARCHITECTS, Designers of Dulles International Airport, Hamden, Conn. • GOTHIC ALTAR STUDIOS, FABRICATORS, Service and Ticket Counters, Bedford Hills, New York.

On the ground or in the air, depend on NEVAMAR® for durability

Years from now, the NEVAMAR surfaces at Washington's new Dulles International Airport will still look like new—despite 'round-the-clock punishment from elbows, bumps and baggage.

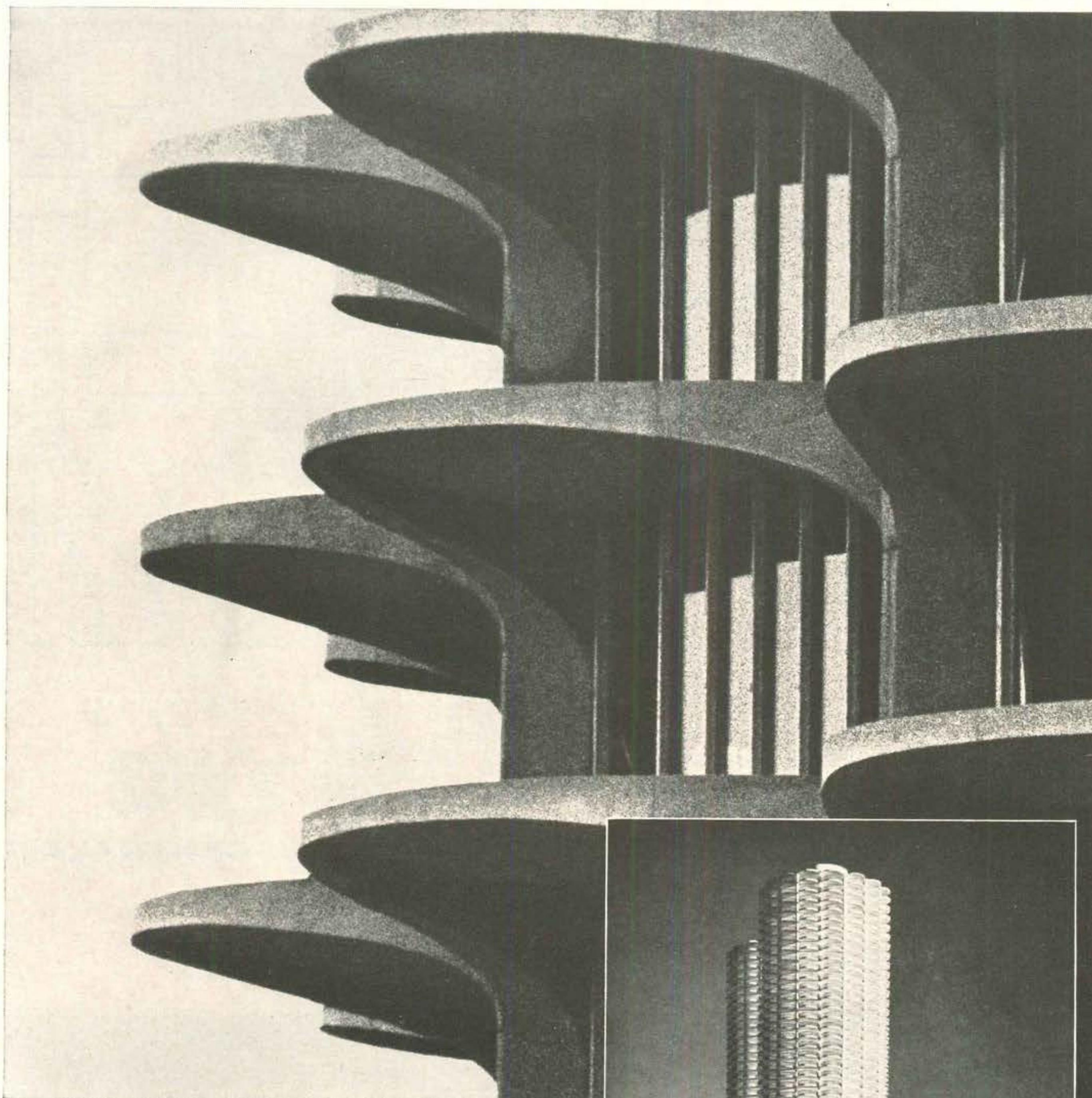
Flying high above this hubbub will be the new jet-prop Gulfstream of J. P. Stevens & Co., Inc. Here, too, NEVAMAR is at work supplying beauty and durability to the executive plane's interior.

NEVAMAR laminate is equally at home in busy public places and high-level custom installations. It never needs refinishing; withstands burning cigarettes, hot liquids, alcohol and ink; can be quickly cleaned with a damp cloth. Count on NEVAMAR for the kind of performance that keeps your clients happy. Write for AIA File No. 35-C-12, or check our catalog in Sweet's Architectural File 14a/Na.

NEVAMAR

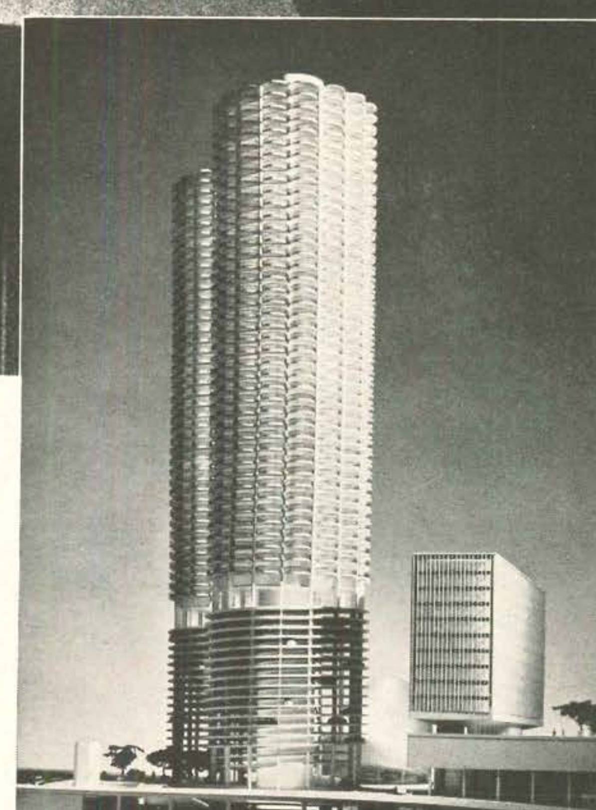
NATIONAL PLASTIC PRODUCTS COMPANY, INC., ODENTON, MARYLAND

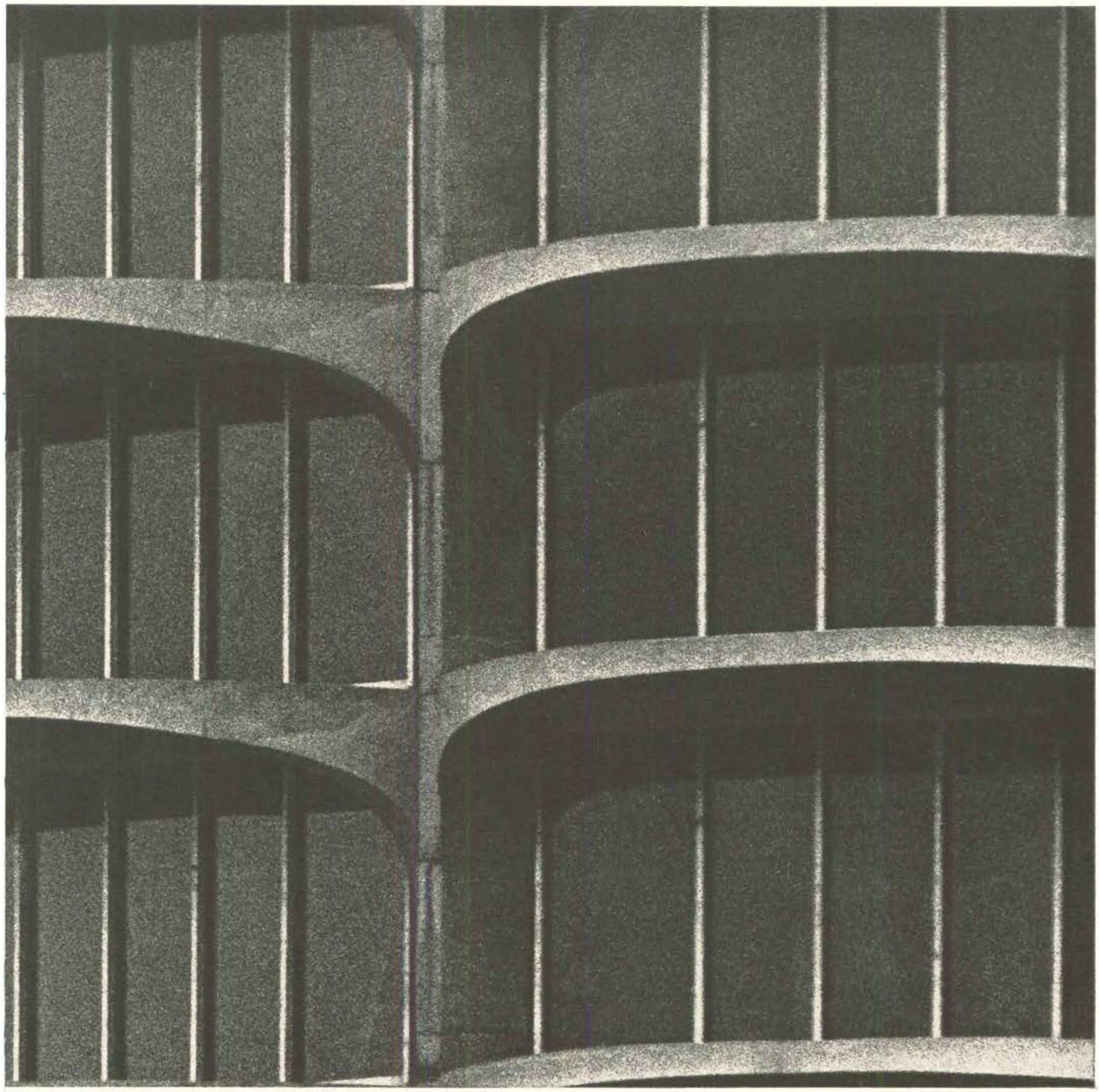
For more data, circle 66 on Inquiry Card



Marina City, Chicago, Illinois
New twin-tower apartment buildings presently under construction
Architects & Engineers: Bertrand Goldberg Associates
General Contractors: James McHugh Construction Company

exciting designs take form





What's wrong with this new washroom? Scott found 4 big design mistakes.

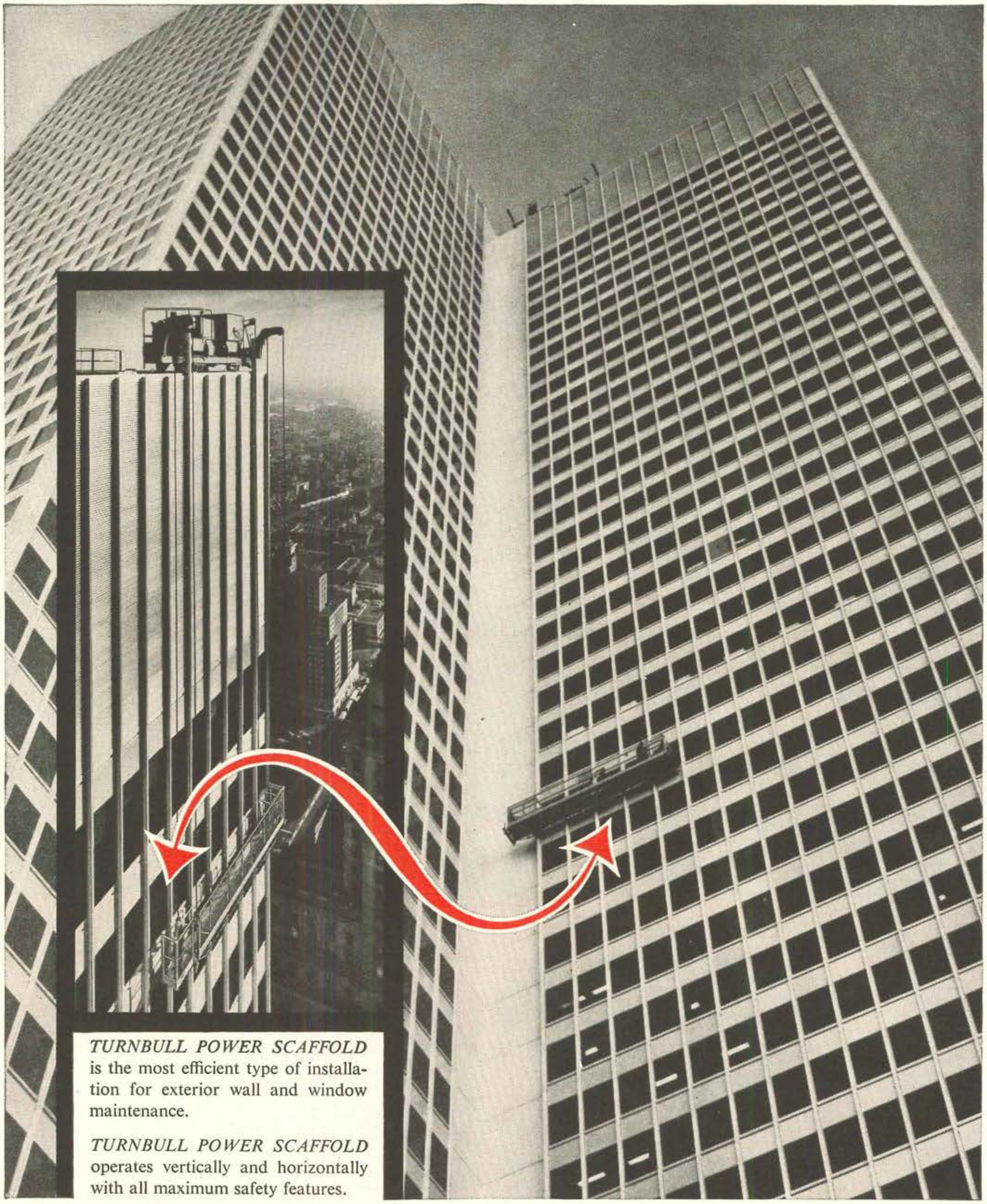
At first glance it looks great. Neat, clean, up-to-date. But there's more to a washroom than handsome fixtures. Scott's trained consultants found four planning errors in this layout:

- Mirrors are best located away from washbasins. That way people don't brush loose hair into sinks, and clog them. And successive users aren't kept waiting.
- The Scott towel dispenser should be located between the sink and the exit for a more efficient traffic pattern.
- The waste receptacle should be located between the towel dispenser and the exit, so people aren't kept waiting while each user dries his hands.
- Uncovered wall-hung waste receptacles increase maintenance efficiency, discourage litter, speed traffic flow.

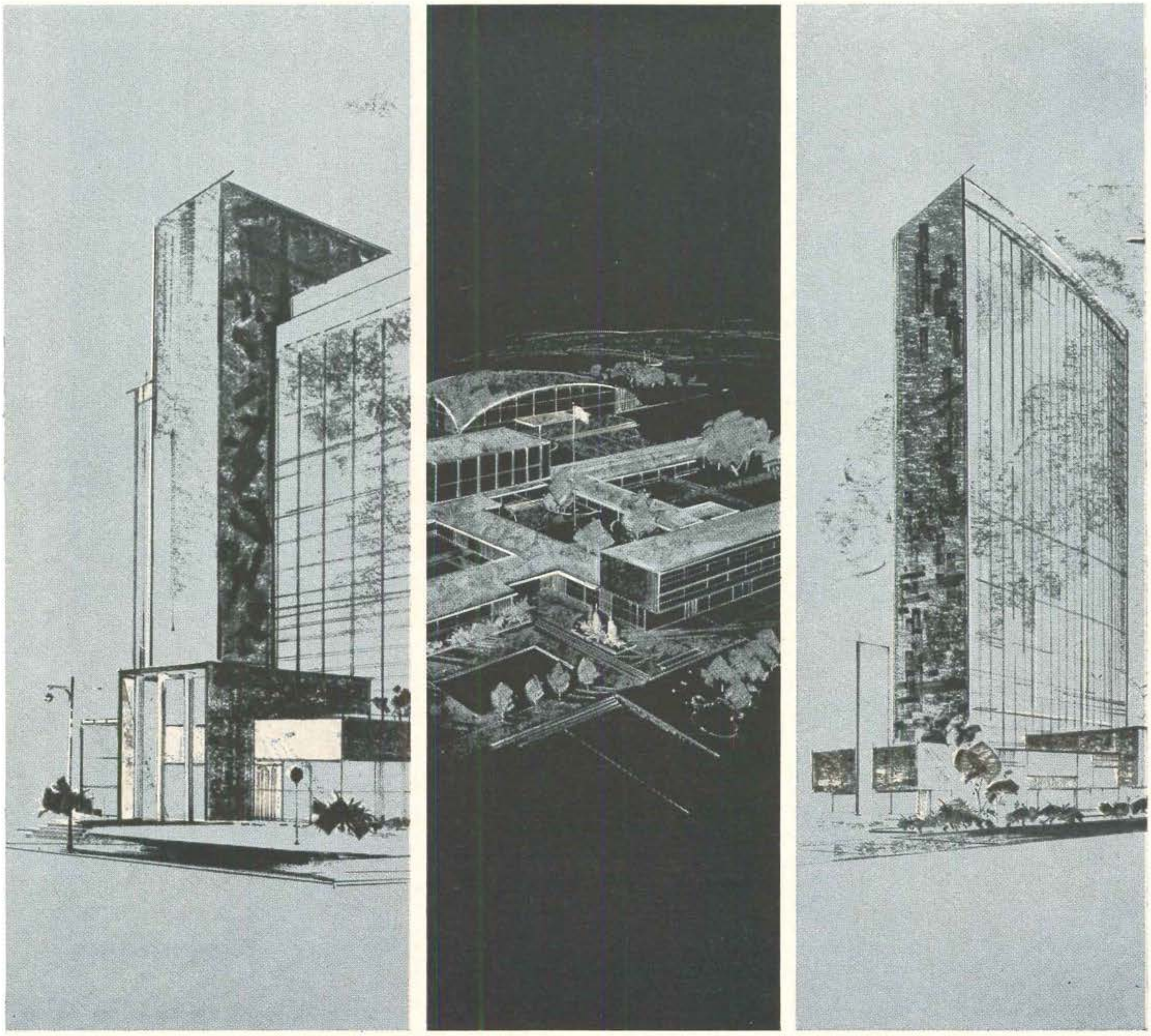
For the washrooms in your buildings, remember: 1) Scott fixtures give your clients years of value, dispensing the nation's finest paper products; 2) Scott's unique Washroom Advisory Service is always available to you, free of charge. Write for our 16-page washroom planning booklet, or call your local Scott office. Scott Paper Company, Philadelphia 13, Pennsylvania.

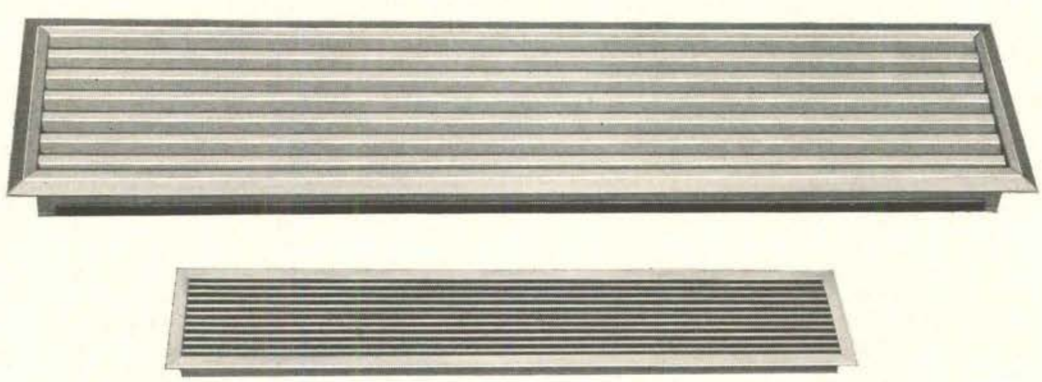
SCOTT MAKES IT BETTER FOR YOU

For more data, circle 68 on Inquiry Card



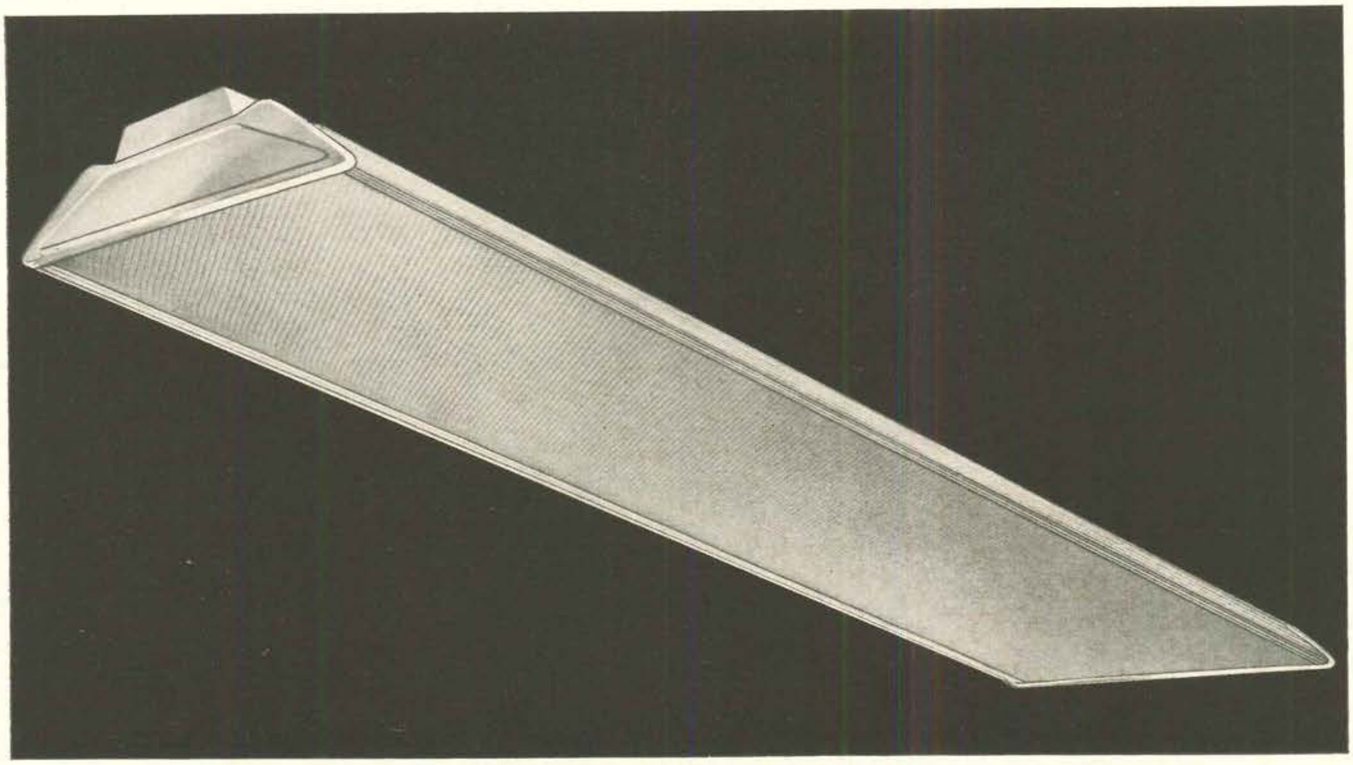
Turnbull Power Scaffold installation, Place Ville Marie—Montreal, P. Q.





TUTTLE & BAILEY

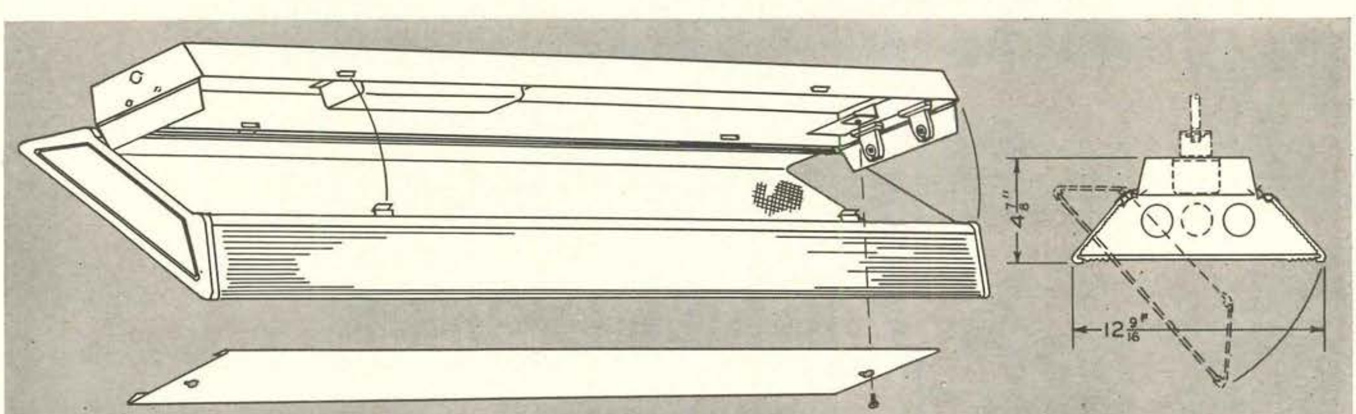
Division of Allied Thermal Corporation
New Britain, Connecticut
Tuttle & Bailey Pacific, Inc., City of Industry, Calif.



Flexibility of Use and Design Highlights Litecontrol Jamaica

The Litecontrol Jamaica — series 5000 — fixture is designed with quality components to a full 12$\frac{9}{16}$" width. It has the appearance of a functional, good-looking lighting fixture rather than a two or three lamp strip under plastic. ■ Jamaica's width makes it adaptable as a three lamp unit as well as two lamp. It is available in both four and eight foot lengths, and with 3 enclosures: acrylic side panels with Holophane #6150 Controlens® — acrylic side panels and an acrylic Stylux bottom panel — polystyrene side panels and a polystyrene Stylux bottom panel. ■ Jamaica provides high efficiency, excellent brightness control and gives widespread light distribution, often resulting in fewer fixtures being required. Using Jamaica, the architect and engineer has greater flexibility of design to fulfill many varied job requirements.

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



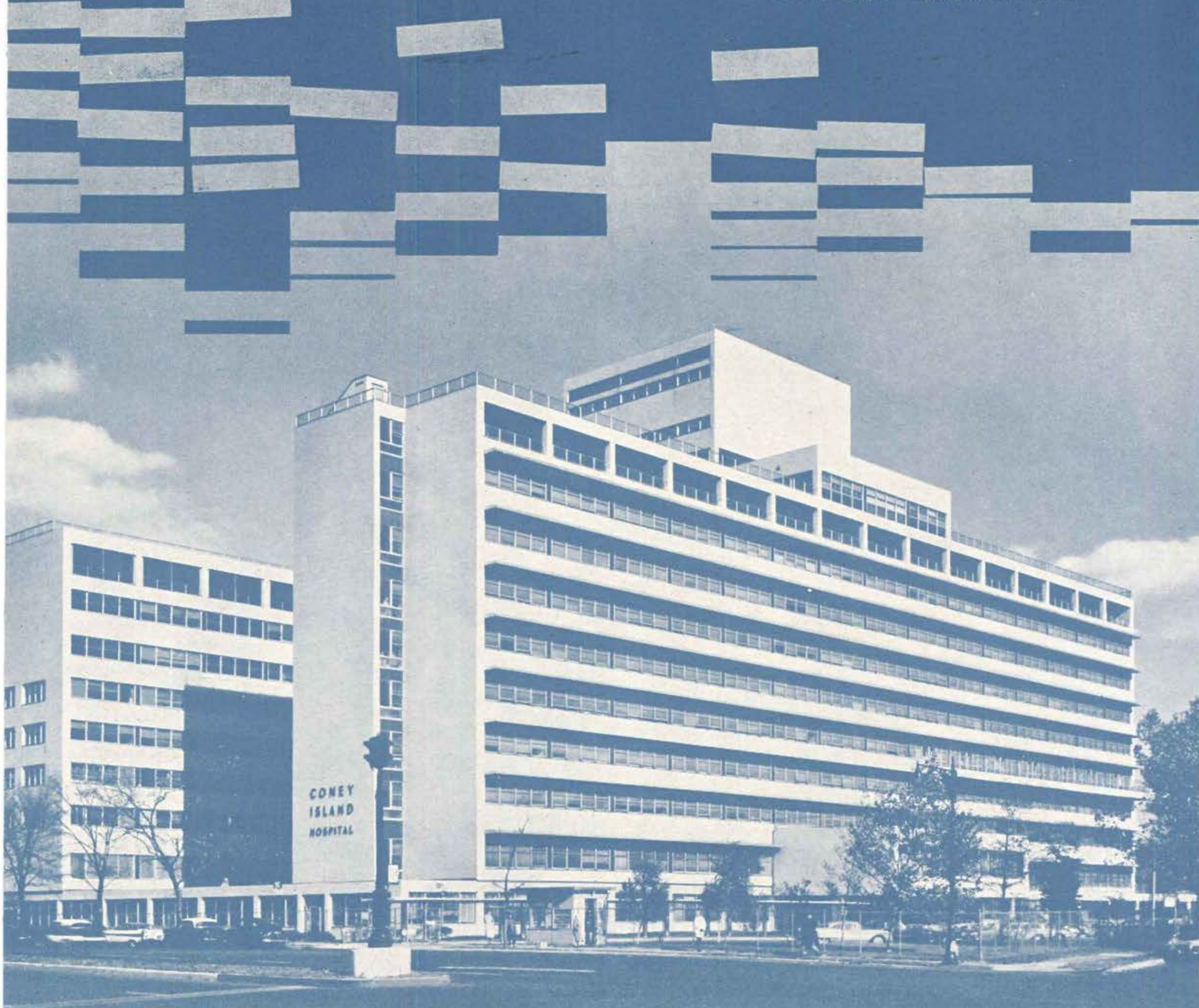
DESIGNERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS

For more data, circle 70 on Inquiry Card

For more data, circle 71 on Inquiry Card →

New York Hospital adds color . . . for life. This is the *new* Coney Island Hospital in Brooklyn, New York. The face is colorful and clean and will stay that way for the life of the building because the architects chose HANLEY Duramic® Glazed Brick for the exterior. If you want to add color, not costs, to your next project, take a look at HANLEY'S more than fifty shades of glazed brick and tile. Make your projects distinctive and colorful permanently because HANLEY Duramic® Glazed Brick is self-cleaning and colors do not fade. Specify uniform quality HANLEY Duramic® Glazed Brick for your next project.

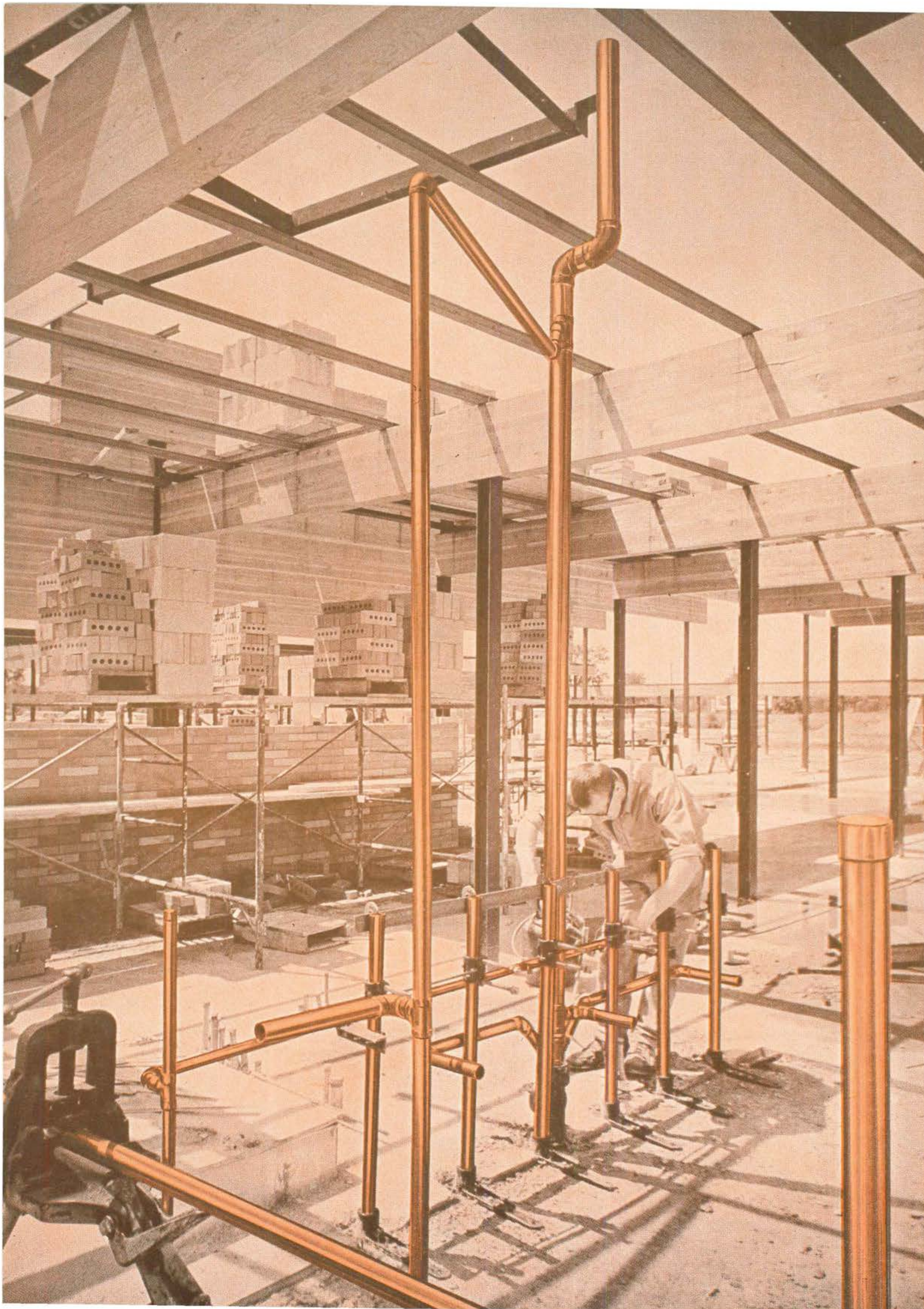
See the complete Hanley line in Sweets.

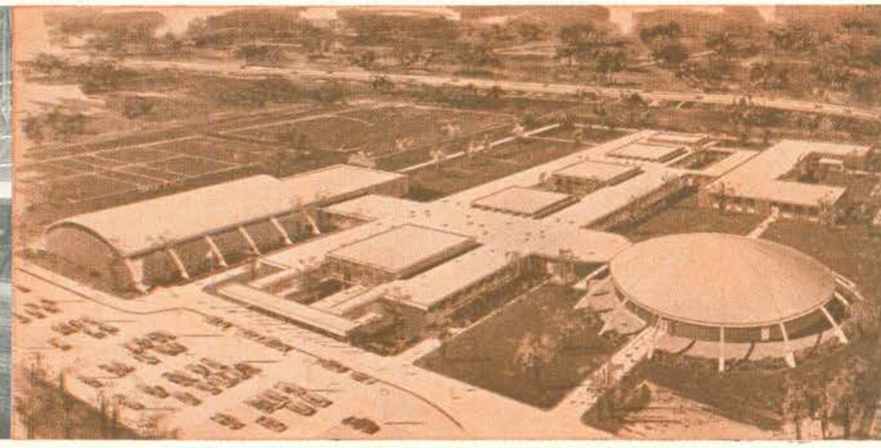


Coney Island Hospital, Brooklyn, N. Y. / Architects: Katz, Waisman, Blumenkranz, Stein & Weber / General Contractor: Gerace & Castagna, Inc. / Hanley Shade 623 Limestone Grey Fine Speck

HANLEY COMPANY

One Gateway Center, Pittsburgh 22, Pennsylvania
Sales Offices: New York • Buffalo • Pittsburgh



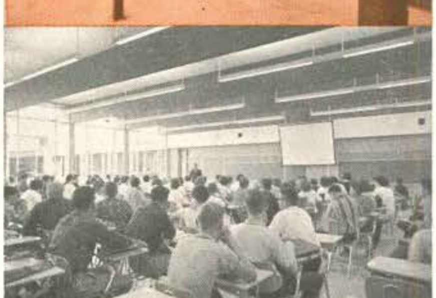



OUTSTANDING NEW HIGH SCHOOL INCORPORATES ALL MODERN FEATURES—INCLUDING *Streamline*® COPPER TUBE AND FITTINGS— FOR BOTH SUPPLY AND DRAINAGE PLUMBING

Architect: Frederick E. Wigen Architect & Associates, Inc., Saginaw, Michigan
Mechanical Engineering Consultants: Hyde & Bobbio, Inc., Detroit, Michigan
General Contractor: Consolidated Construction Company—Bay City, Michigan
Mechanical Contractor: Budd-Eurich Plumbing & Heating—Saginaw, Michigan



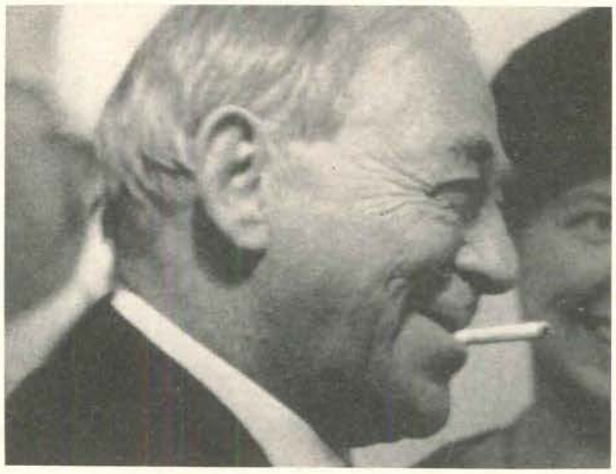


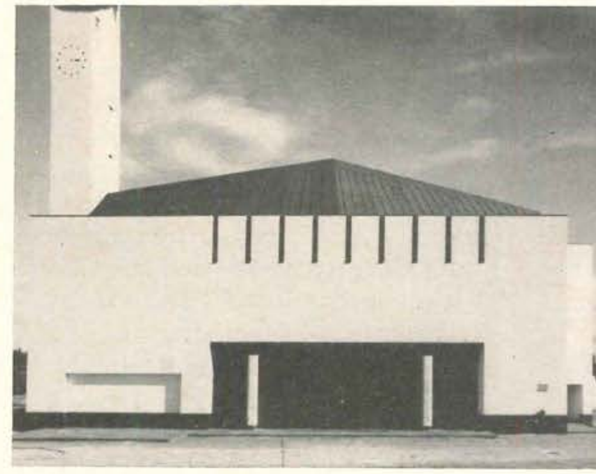


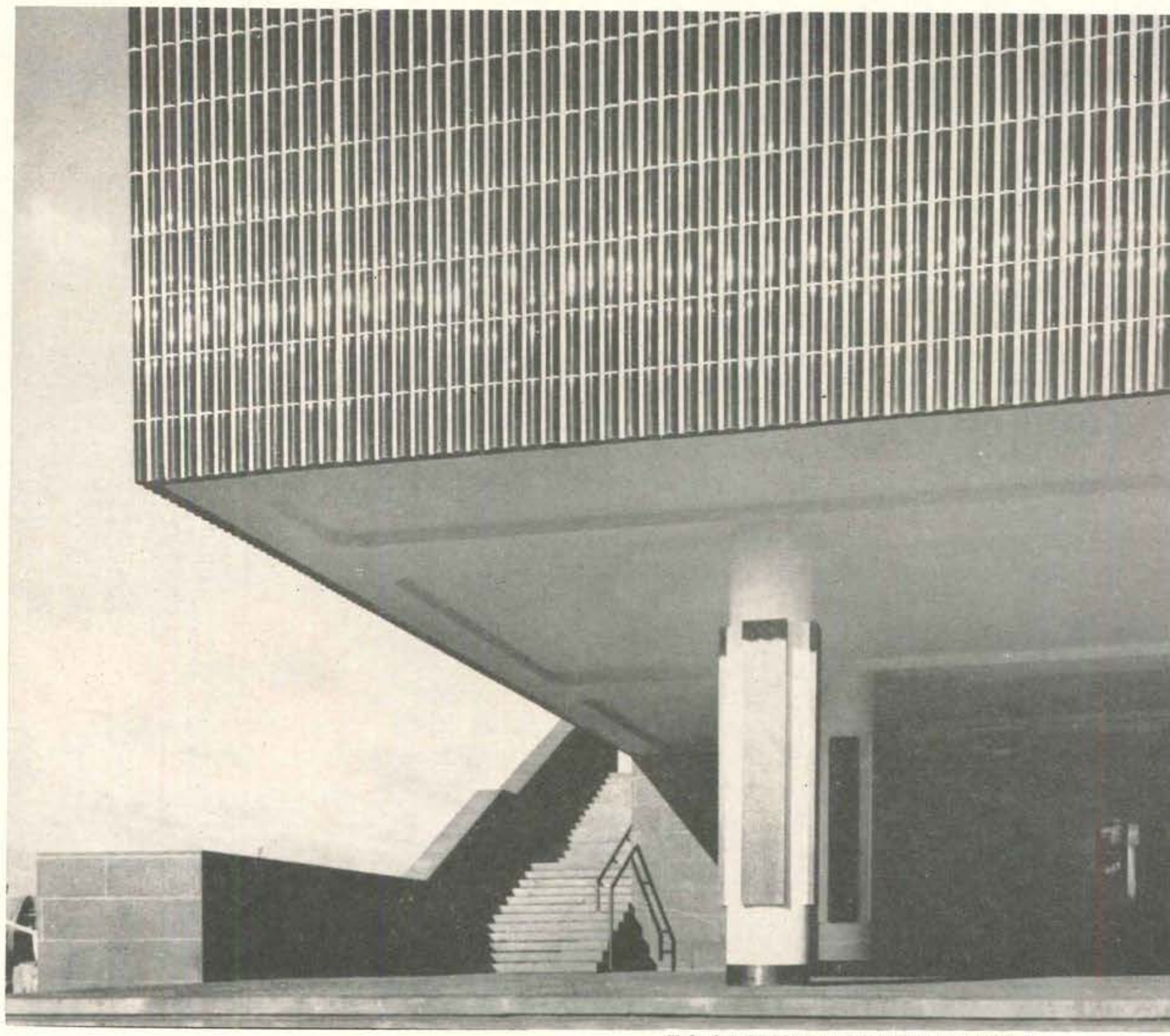
This striking new $2.5 million dollar Community High School in Bridgeport, Michigan, is completely modern . . . inside and out. Built to accommodate 1500 students, the school employs all modern educational aids . . . closed circuit television . . . language laboratories . . . and adjustable classroom areas. This new school has been classed as one of the most outstanding in the nation to be constructed in recent years. The plumbing is as modern as the teaching methods because both the supply and drainage systems were fabricated from Streamline copper tube and solder type fittings. Copper costs no more than rustable materials and the school will enjoy a lifetime of dependable service. All windows, curtainwalls, and entrances were supplied by Valley Metal Products Company, a subsidiary of the Mueller Brass Co.

MUELLER BRASS CO.
PORT HURON 8, MICHIGAN

For more data, circle 72 on Inquiry Card







Kalevi A. Mäkinen and Pertti Ingervo photos

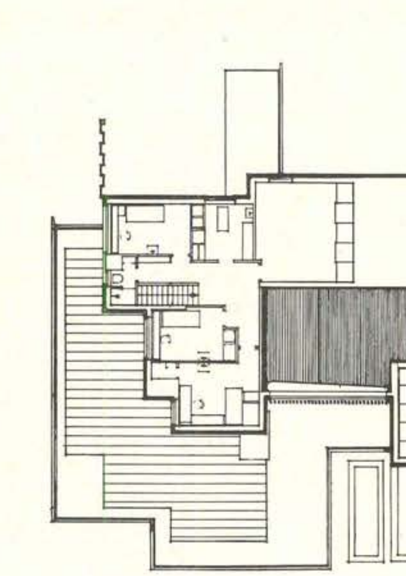
ALVAR AALTO TODAY

By Frederick Gutheim

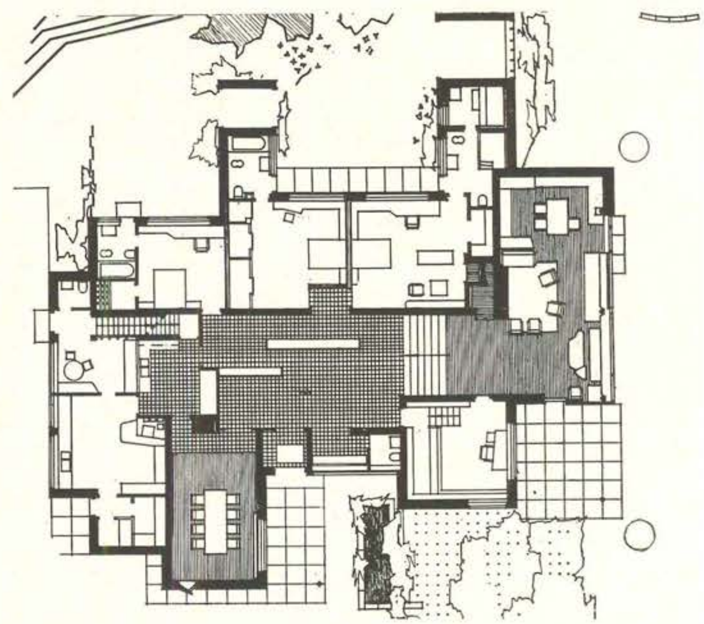
So often has the American Institute of Architects given its Gold Medal at the end of an architect's career—if not posthumously—that the award to Alvar Aalto is an interesting departure. While the Finnish architect is only 65 years old, he is at the peak of his productivity, with unmatched international building activities, and the added responsibilities of a national cultural leader. He is far beyond the celebrated youthful designer of exhibition pavilions and furniture, or of such humanistic buildings as the Viipuri library or the Villa Mairea, which launched his reputation in the 1930's. Behind him, too, is the "red period" which commenced with the rugged brick Baker House dormitory at Massachusetts Institute of Technology and culminated with the Säynätsalo town hall. Today he is Finland's architect of great public buildings, corporation headquarters and city plans; and the world architect with the most widespread practice and active projects in Scandinavia, Germany, France and the United States.

Aalto belongs to the generation of revolutionaries and pioneers who laid the foundations of our modern architecture. The strength of this movement and the individuals who constituted it is well illustrated by the high proportion of survivors and the vigor of their practice today. This vitality has its roots planted deeply in the humanistic and international idealisms of youth, and the rigors of economic austerity. The survival of this earlier architecture into today's more self-centered, divided and affluent world has not been accomplished without change, and often in the work of Aalto, as with his contemporaries, we are interested in how the transition to advanced building technology, more abundant space, more luxurious materials has been accomplished. The question is relevant to the future of architecture, and specifically its future in the Europe of the Common Market. If the speculative energies and appetites of Milan, Paris, London and the West German cities are to produce anything more than a crude and unworthy materialism, there must be a further development of architectural and urbanistic thought.

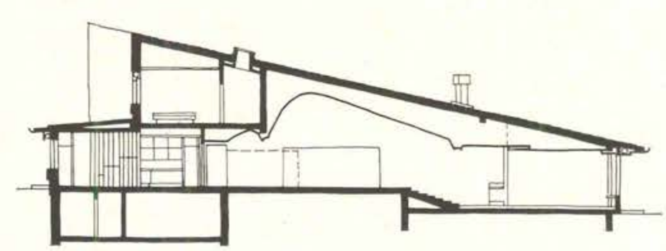
As should become apparent with the publication this summer of "Alvar Aalto 1920-1960," a collection comparable to the Girsberger edition, "LeCorbusier 1919-60," with its accumulating volume and longer span, one is naturally more conscious of evolution from earlier work and the continuity of earlier design themes and styles. In this perspective the Viipuri Library is the most seminal work; its sunken reading room, fine undulating wood ceiling, overhead lighting and certain other features introduced here repeating themselves over the years and still today. From the Villa Mairea one sees the L-shaped living room with its careful transitions of light and atmosphere from one part to another, the stately dining room, the secluded library, the management of levels to add spatial variety and richness—all echoed



SECOND FLOOR

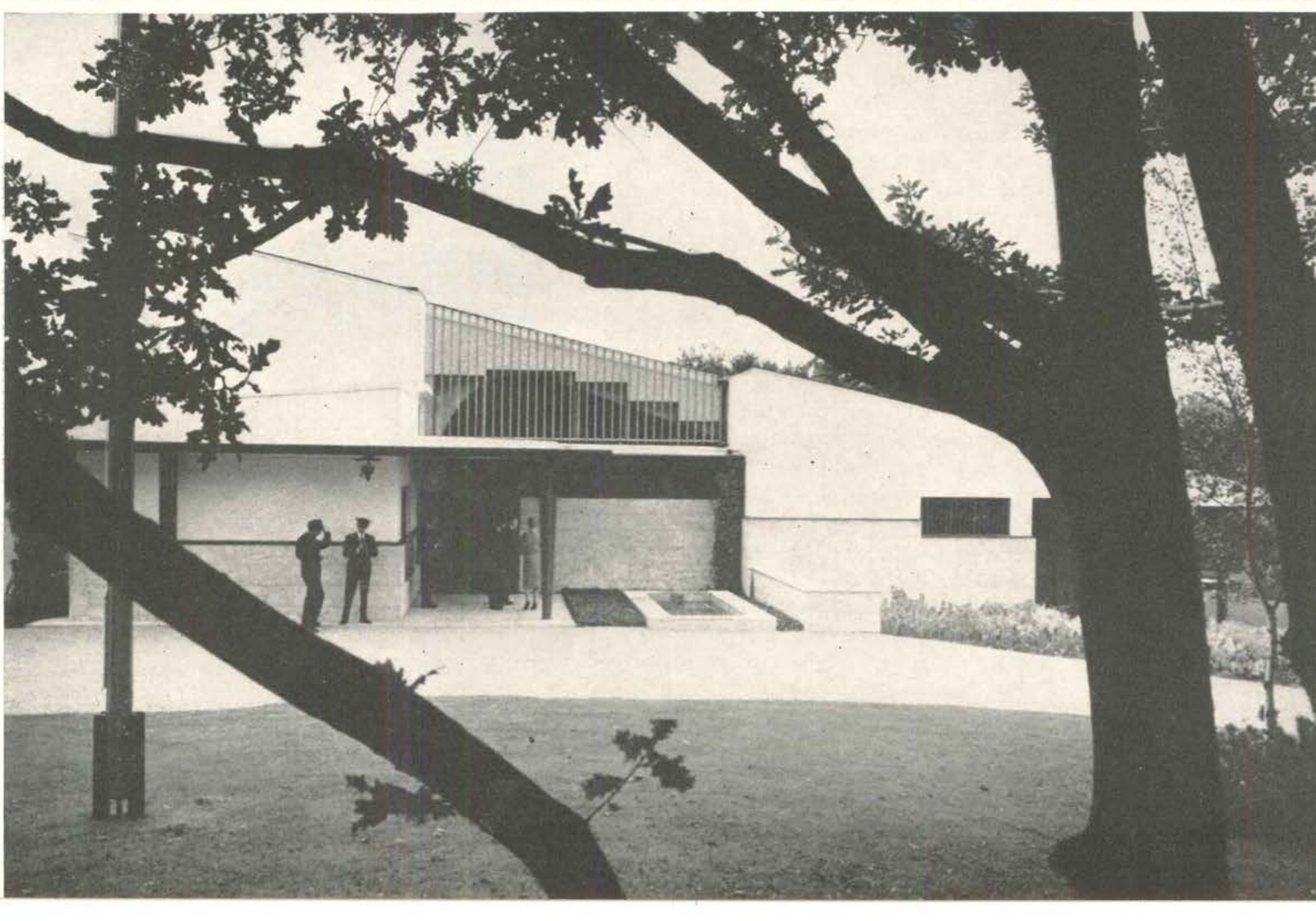


FIRST FLOOR



House Near Paris for Art Dealer Louis Carré

Dramatic driveway approach leads directly to entrance



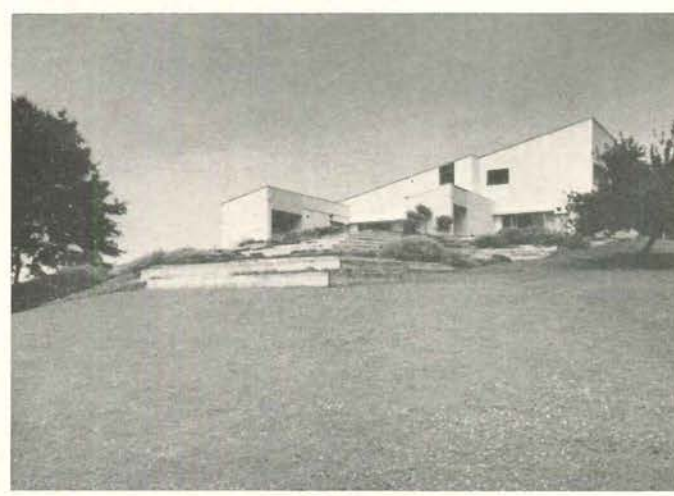
Heikki Havas photos

and developed further in later buildings and buildings still to come. A continuity is evident also in the treatment of interior spaces. The entrance halls and public courts that mark the Artek Building in Helsinki or Aalto's own summer home appear again in his larger and more formal works. But a more profound continuity of personal style is evident in Aalto's absolute control of the building, his achievement of sympathetic interior spaces with perfect sound, light, air and atmosphere, the masterful line defining silhouette and volume, and the command of detail, whether in the selection of materials or the design of hardware, lighting fixtures, furniture and fabrics. It is against this rather autocratic personal style that the playful, whimsical, imaginative and even irrational touches with which Aalto endows his buildings acquires a special value, humanizing what in other architects often regrettably becomes a cold absolutism.

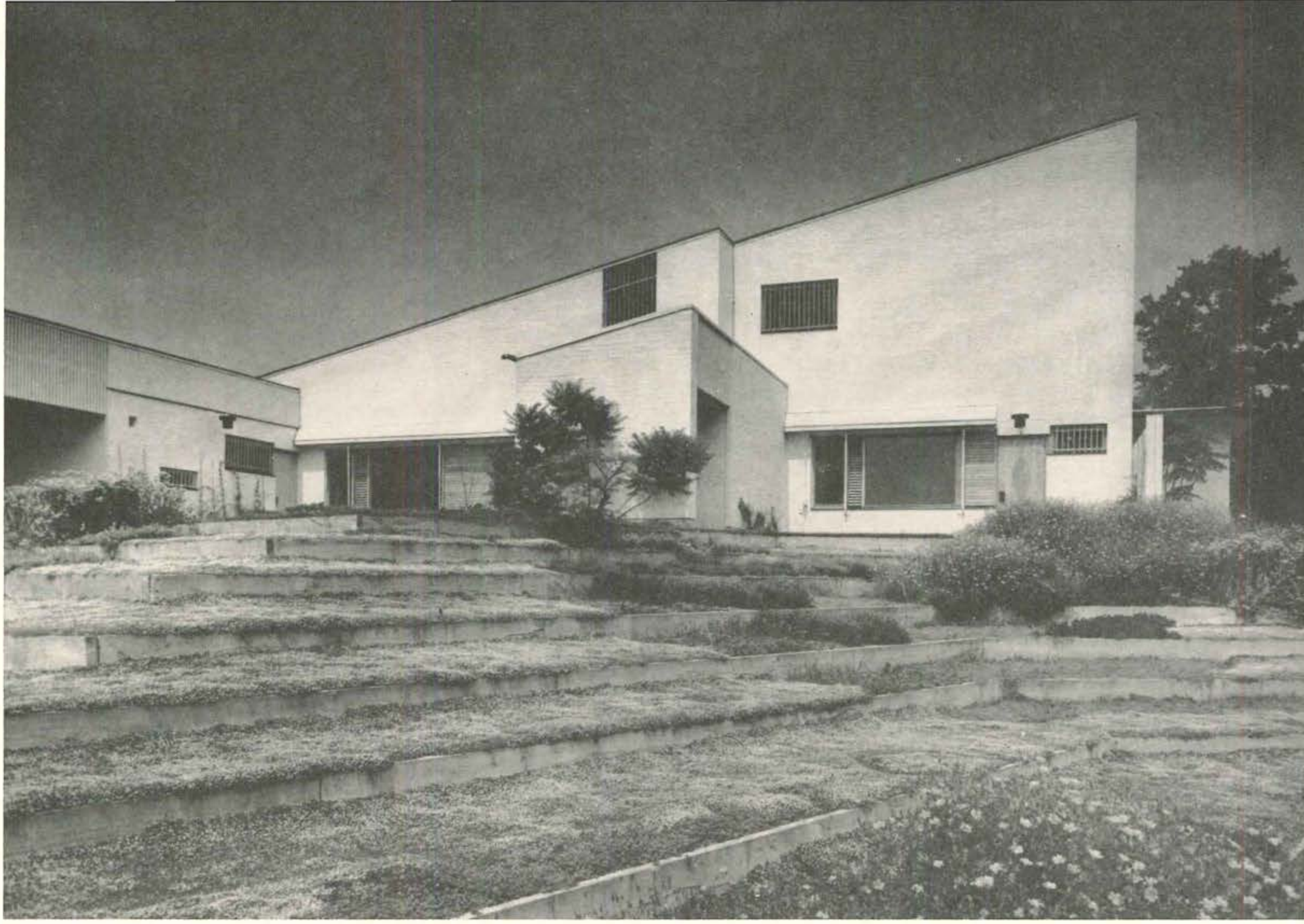
The origins of this style have been conventionally traced by European critics to the north, which they have endowed with a romantic and mystical quality we have reserved for the "Wild West" or the "great open spaces." Nonetheless, the regional character is profound as well as precise, and it extends beyond the specifics of climate, building materials and the habits of living; and unless you like these qualities in the civilization of the north you will not respond to them in Aalto's architecture. The woods and their solitudes, the shallow lakes with their splendid sky-reflecting colors and surrounding border of pines and birches, and perhaps most of all the wide horizons and mysteriously modulated light—these are the qualities to which we Americans particularly respond.

Although I had earlier visited Finland in the summer and fall, it was the present opportunity to go there in mid-winter that revealed the ultimate regional factor in architecture. When the snow covers the flat ground, as it does for half of the year, the dark woods are strongly silhouetted against the lighter snow-covered broad fields and lakes. In the neutralizing snowfall especially, a dark and light pattern forms in the atmosphere. Forms are flat and distinctly outlined although not sharply edged. The lines in this pattern separating dark and light, are of nature's making—and of man's. One sees the curving lines of the lake shore, the round masses of wooded areas, or even a reflection of the underlying geology in topography and vegetation. But one also sees the geometry of fences, roads, fields and other works of man, not least buildings. A blue tone floods the air, especially during the drawn-out hours of dawn and dusk, when nothing is black or white. The winter sun is intermittently seen, often brilliantly clear, its low angle casting long shadows which emphasize the patterns made by wind and shadow in the snow.

This is a world conducive to fantasy, in which the



An unusually well developed landscape plan has been manipulated by the architect to yield a rich dividend in privacy through changes in level, small courtyards and the "planting steps" earlier pioneered in the Säynätsalo town hall

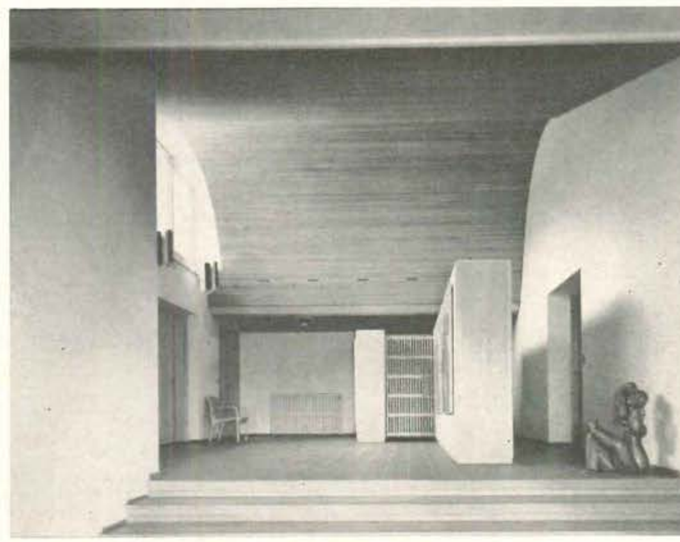


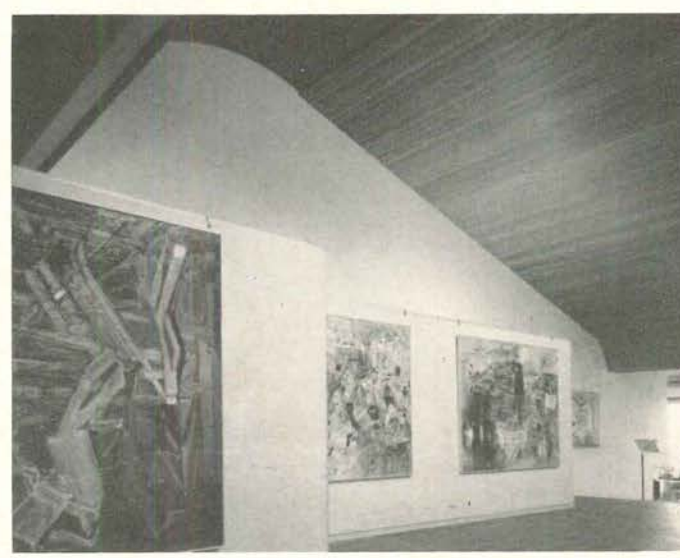
imagination operates free from the restraints of reality, challenging the designer of buildings to suggest in his work something comparable as an esthetic experience, yet a work of man not of nature, able not only to survive the incessant competition of these natural conditions, but actually to employ them. One may question if the climate and atmosphere of Finland are so wholly decisive. The answer is best found not by a comparison with other countries and other architectures but with the arts of Finland, especially the folk art of weaving as expressed in that unique creation, the wall rug (ryijy rug).

Maison Carré

If one looks for masterpieces in Aalto's work today the most impressive single accomplishment is the Maison Carré, an elegant holiday house for the Paris art dealer and collector, Louis Carré. While smaller in scale than the Villa Mairea, it embraces the same qualities of that much admired earlier work, and further incorporates later design themes explored in Aalto's own summer house and other buildings. Overlooking the characteristically rural landscape of the Ilé de France, at the edge of the town of Bazoches, some 30 miles south of Paris, the Carré house makes the most of its high situation and magnificent views. From the large entrance hall, with its beautiful natural studio lighting, framed by an undulating ceiling of pine strips, one is carried down to the living room with its panoramic windows beneath the overhanging roof. This entire area of the house is carefully studied and lit to provide wall space for a handsome collection of modern paintings. It also contains a generous working area for the owner. To one side a small library exploits the house's change in level to secure a surprisingly rich development of a small space, and its completion with fine cabinet work.

The Carré house exhibits the elegance and refinement one associates with Aalto's infrequent houses brought into harmony with its expression in France. While the dramatic and useful handling of spatial volumes is certainly the outstanding feature of the house, its superb livability, shrewd management of contours, and absolute control of interior atmospheres are clearly established. To have achieved this combination of the formality demanded by an almost oppressive burden of exhibiting great paintings and a relaxed, informal domestic environment is the solution to quite a different problem than the "studio house" for Mairea Gullichson in 1938. And to have handled such opulence and unbounded resources with modesty, yet without shrinking from true luxury, is an equally important achievement.

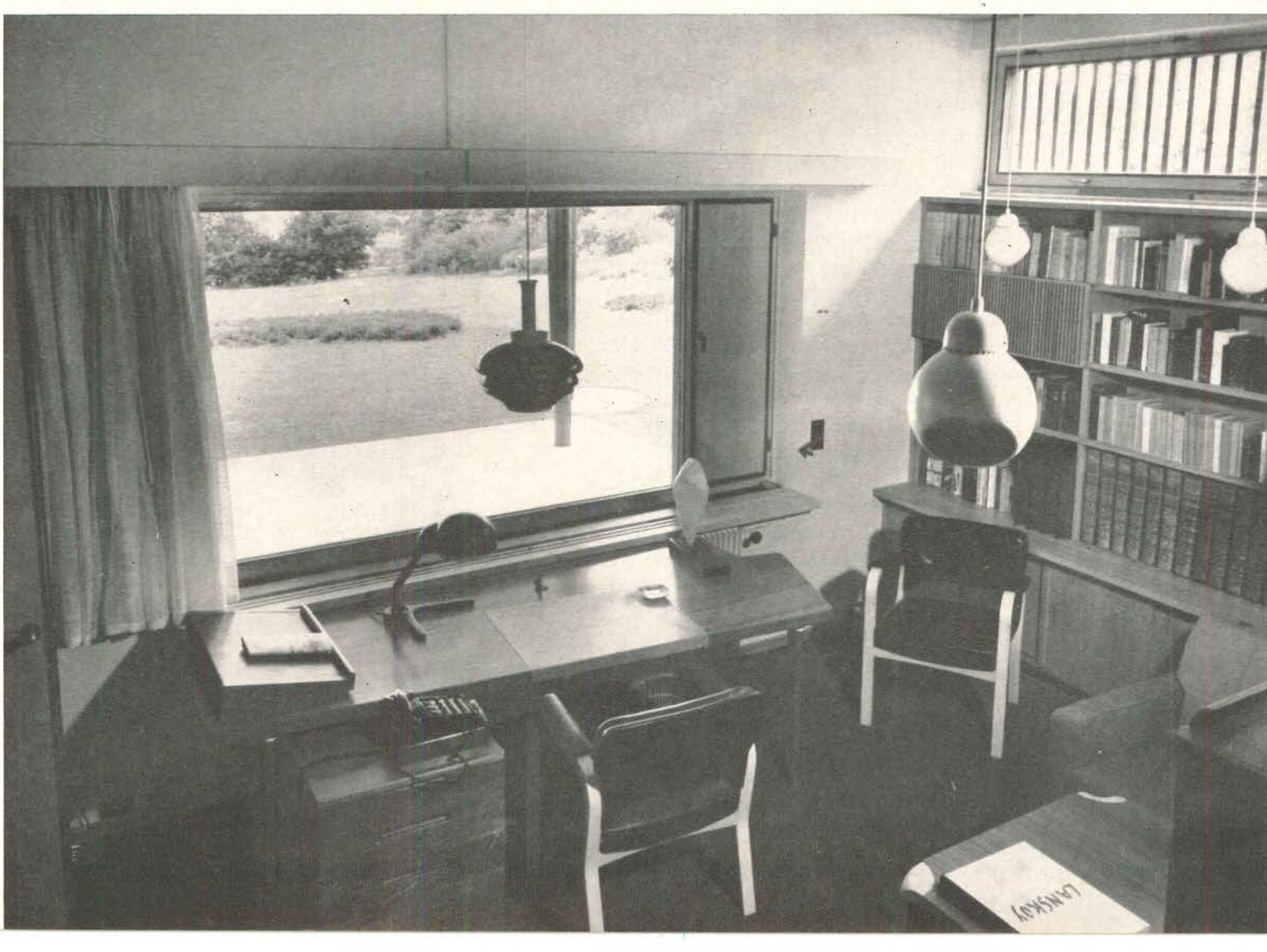




Above: Entrance hall and gallery with undulating ceiling of pine strips. Furniture and lighting fixtures shown in living room *(top right)* and study *(bottom right)* were designed by Aalto

Enzo-Gutzeit

A corporation headquarters for Finland's largest industry, the cellulose firm of Enzo-Gutzeit, challenged Aalto to meet a characteristic architectural



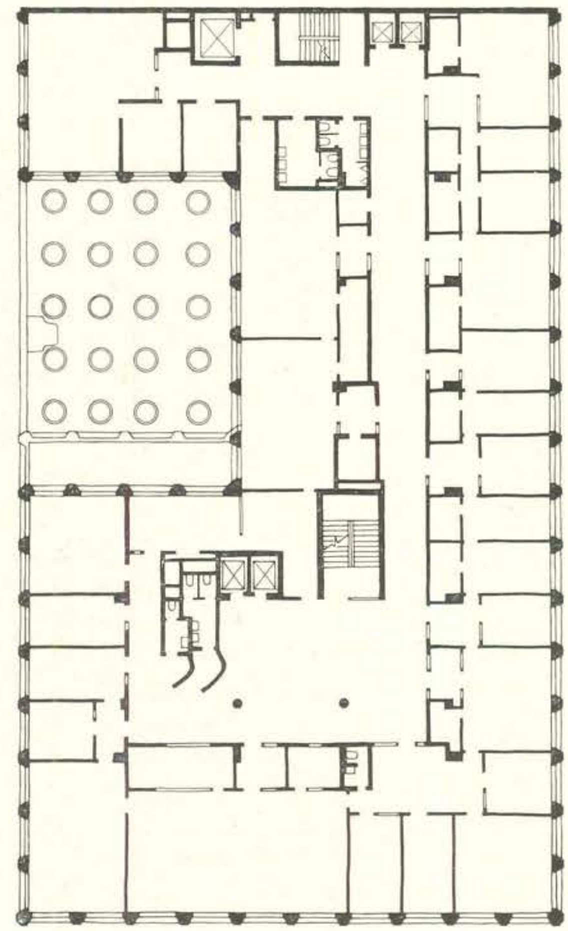
Corporation Headquarters for Cellulose Firm

problem comparable to our similar buildings for aluminum, steel, soap, whiskey and finance. The impressive site adjoins and overlooks the residence of the president of Finland, it fronts Helsinki's busy market square and picturesque harbor, and it is surrounded by such monumental buildings as the Russian cathedral, the town hall, the university and departments of the national Government. Enzo-Gutzeit itself is "a mixed enterprise," half of its capital being supplied by the Government, and in addition to its operations in lumbering, it is the principal producer of timber, millwork, plywood, wallboard and paper products, an important manufacturer of sawmill machinery, and the operator of an extensive shipping fleet.

Aalto's design is a deliberate effort to conform to these surroundings, and to meet the expectations of his client and the public. The architect has subordinated his characteristic personality. The resulting building, while it does no violence to its setting, adds little to an historic and architectural complex that is Finland's pride. The regular classical form is quiet, its scale conforms to the surrounding public buildings, its facing of Carrara marble contributes to the water approach to traditional Helsinki as "the white city of the north." An exercise in cultural humility, the architect has further contented himself with a practical solution to the functional problems of the building as an accommodation for top executives.

The more characteristic expression of the architect is found in the interior spaces where the corporate personality of the firm is projected in reception halls, executive suites, a board room and executive dining rooms. Here Aalto's long-recognized abilities as an unsurpassed architect of interiors are given full play. Deeply recessed, triple-glazed and specially ventilated windows regulate the temperature, humidity and natural light appropriately to Finland's long, dark winters. Laminated wood doors of double thickness (hardly a millimeter apart) provide virtually soundproof seclusion. The company's best materials are exhibited in flooring and especially in the paneling of the principal offices. Here Aalto has relied again on the laminated red plywood strips he first used in the undulating ceiling of the lecture hall in the Viipuri library. These are cut from pines that have "died a natural death" in the midst of the forest and remained standing to season themselves perfectly dry. The search for such selected trees is long, costly and difficult, and the material is treated with an appropriate respect that could hardly be equaled by the traditional Japanese. The laminated strips are slightly more than a half an inch in width, carefully matched and contrasted, and deliberately butted light against dark to emphasize the color range.

In the design of special lighting fixtures and hardware, and the specification of furniture, fabrics and decoration, Aalto has further defined spaces of pub-



Above: Plan at third floor level. Intermediate mullions have same profile as columns. The buildings rectilinear bulk and white carrara marble veneer make it a conspicuous addition to Helsinki's harbor *(above right)*

Eino Mäkinen

Mikko Karjanoja

lic purpose, great dignity and masculine character.

It is such a display of masterful interior design that will probably result from the invitation Aalto has received to design the offices of the Institute for International Education in the Harrison and Abramovitz building facing the United Nations Plaza, a most fitting opportunity for his first American project in 15 years, if something less than the full building opportunity one hopes he will still be offered in the United States.

Seinäjoki Civic Center

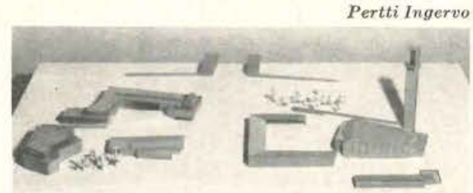
A church is a public building in Finland with its established religion, and church design is normally the result of an architectural competition. Aalto's important contemporary civic center for the central Finnish town of Seinäjoki commenced with his winning design for the city's church, a design closely resembling his concurrent Vuoksenniska church although more regular and conventional in plan. The church proved the start of a much larger complex, the second building in which is the town hall, completed last year. The master plan for the larger group further provided a buffer building between the church and the town hall, accommodating supplementary ecclesiastical activities, and two new buildings for a community theater and a library, work on the design of which is now proceeding. The complex as a whole is thus the result of evolution rather than master planning, but the reciprocal relations of individual building designs, and the development of the spatial pattern as a whole in the hands of a single designer illustrates an important borderland between architectural and planning design. The exterior of the Seinäjoki town hall, similar in structural outline to Aalto's town hall in Avesta, Sweden, is entirely faced in dark blue tiles manufactured by the Arabia potteries, a half-rounded design created and first used by Aalto in the interior public spaces of the Pension Bank and the Helsinki Hall of Culture. In another climate this glittering treatment would be less acceptable, and even here it is hard to divest the material itself of ignoble associations, yet in the total context an interesting and valid building has been created if not at the level of the earlier town hall at Säynätsalo.

The counterpoint between the white walls of the church and its dark copper roof with the blue tile town hall is less a matter of color than of silhouette.

A Plan for Central Helsinki

In the body of his work Aalto's contributions to city planning have been more significant than those of any other modern architect with the possible exception of LeCorbusier. One has but to recall his wartime reconstruction plans, the proposal for the delta city of Oulu, the regional city of Imatra to appreciate the power and originality of his creative abilities as a planner. Today these are being tested

Pertti Ingervo



Seinäjoki Civic Center: Church

Above: Model of plot. The church and one element of the town hall are now complete. Photograph of church *(right)* was taken from steps adjacent to town hall at edge of picture

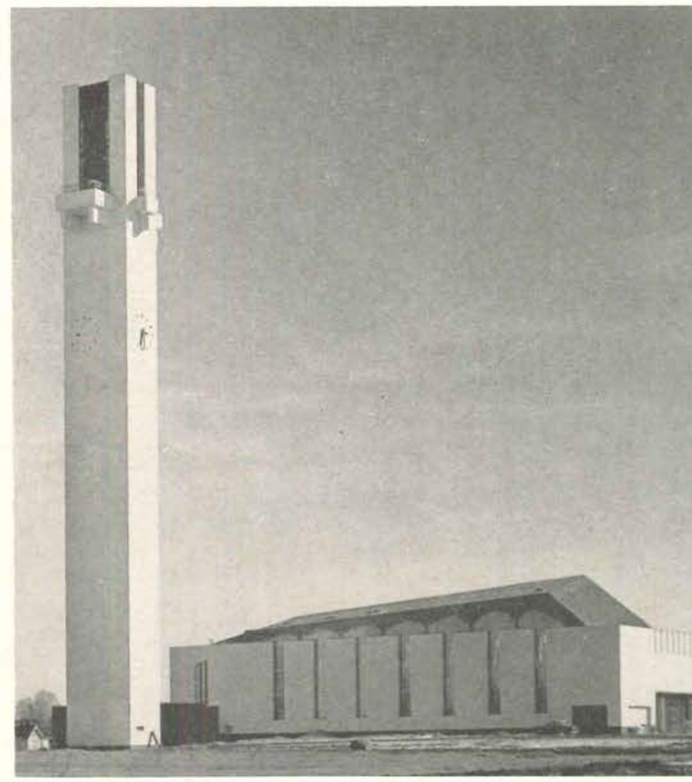
Kalevi A. Mäkinen photos

again in the solution of the problems of the center of Helsinki, the center of a rapidly expanding collection of suburbs and the capital of a rapidly developing nation. Without developing fully the institutional factors of politics, economics and social conditions which frame this plan, it is still possible to describe it sufficiently to reveal its distinctive character as a design, and to indicate its relevance to other cities of the Western world whose traditional urban fabric is torn by growth, change and most of all the automobile.

In the case of Helsinki its location on a peninsula has tended to preserve its rather ecological pattern, even as bridges have been built to the surrounding islands of the archipelago, yet the lack of a coherent metropolitan regional plan reflects an underlying inadequacy of municipal form, organization and planning technique. Successive plans for the rapidly developing central city have increasingly focused on the problem of circulation as the sprawling suburbs pour their busloads into the peak hour traffic. The congestion is especially acute in the sector around Siren's classical Parliament House, the elder Saarinen's railroad station, and the commercial retailing and white collar employment center.

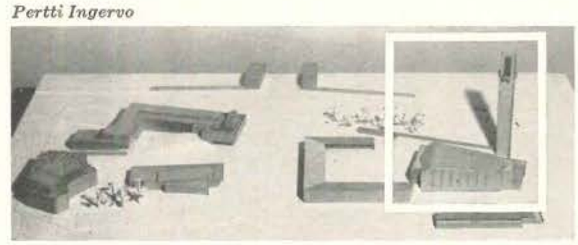
Aalto's plan for this area, prepared for a select commission following half a dozen earlier proposals by city planning agencies and as elicited by competitions, now appears likely to resolve deep-seated difficulties. His plan proposes a new express highway on the line of the existing rail approach, carrying traffic into and through the city. Large new parking areas will cover the existing unsightly railroad yards, and they in turn will be covered with new shopping facilities. Bordering the Töölö inlet, separating it from the new expressway, sites are provided for a battery of cultural buildings, including a concert hall, theater and museum, terminating at its upper end in the area dominated by the Olympic Stadium and exhibition halls. At the opposite end, the retail center would be freed of through traffic which would be carried below grade, and a large part of it would become a raised pedestrian platform. Not the least value of the plan as contrasted with earlier proposals is the removal of traffic and its attendant difficulties and pressures from the market square in front of the President's house, and from the historic and monumental quarter of the city. While the plan as a whole still lacks full acceptance it has gained impressive endorsement and parts of it are now being carried out.

A powerful designer's imagination is seen at work in Aalto's plan for the center of Helsinki, a project in every sense as important as Stockholm Centrum, or the comprehensive redevelopment plans for major American cities. By contrast with the earlier plans for this area he has succeeded in freeing himself from the sticky mess of engineering particulars and apparently irrevocable detailed considerations, and



Walls of church and tower are of brick painted white

Pertti Ingervo

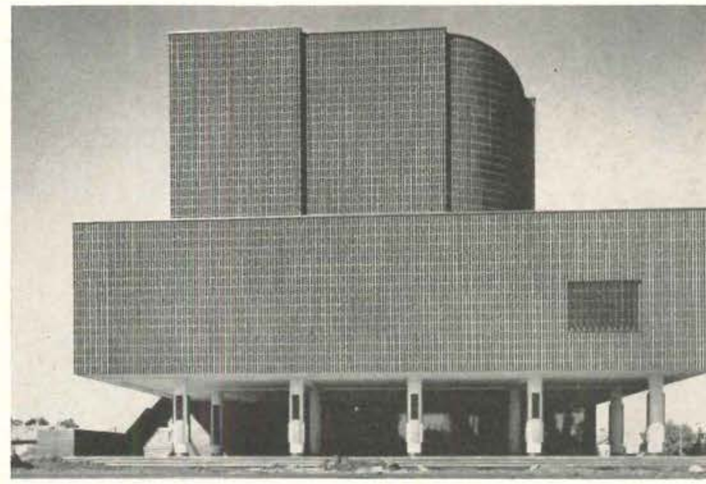


he has cut through to the essentials. As we have all seen, once the main outlines of a solution emerge, what had earlier been regarded as obstructive elements drop into their true perspective. This distinctively architectural ability, the lack of which condemns so many purely engineering and administrative solutions of the "practical" planner, involves the introduction of new factors not present in the problem itself—in the case of planning, a new system of circulation, a new arrangement of land use, a new pattern of open and developed areas.

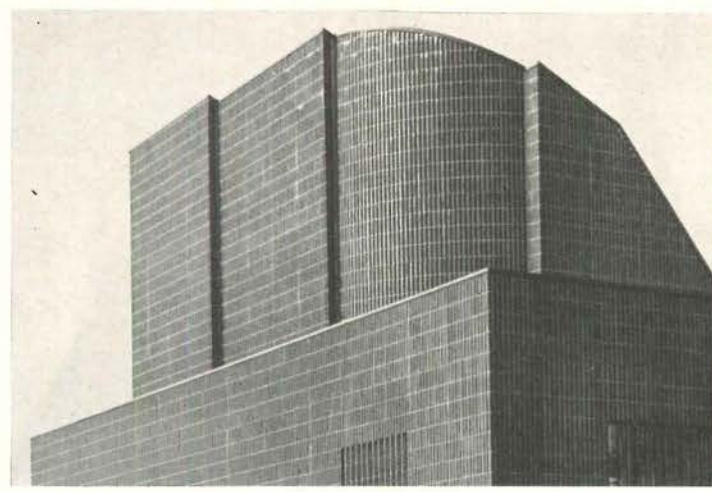
Current Projects

A review of the work in Aalto's 30-man office today (excluding inactive projects, competition efforts, similar work) shows an impressive volume at an unflagging creative level, a body of work international in scope, and, as throughout the architect's career, varied as to cost and purpose from the most practical architecture of industrial structures and housing to the most exalted of civic and cultural buildings. His concert hall for Helsinki forms one of the battery of cultural buildings Aalto has proposed on the shores of the Töölö inlet. Design is well advanced for what promises to be one of Aalto's greatest churches in Detmerode, Germany. A new library in the Lapland city of Rovaniemi, where Aalto's housing project for the National Housing Foundation has recently been completed, and the Seinäjoki library, forming part of the civic center, are both in the stage of final drawings. A large opera house for Essen, Germany, is under way, as is the Akademie der Kunst in Berlin. At the new university at Jyväskylä, the architect is adding a swimming hall to earlier academic buildings. The university museum opened last summer with the first retrospective exhibition of Aalto's work in a decade. At Ottaniemi, in suburban Helsinki, Aalto's earlier master plan for the Finnish Institute of Technology is now being translated into a series of building designs as construction starts on this long-deferred and badly needed university. Residual work is still being done on buildings under construction like a bank and office building in Helsinki, and such recently "completed" jobs as the 22-story apartment building for East German refugees in Bremen still being faced with tiles, and the Wolfsburg, Germany cultural center opened last fall.

From such a summary review it should be clear that Alvar Aalto is standing well the historic changes that have swept the post-war world, not least his native Finland where hydrofoil ferries now ply Lake Päijanne and traffic jams the streets of her once quiet and dignified capital city. The industrialization of building, the mechanization of life, the brutalization of large scale organization and autocracy—these to him are old enemies. While employing new tactics, the architect's entire life has been a long strategic encounter with these forces. It is the continuity with this effort we see in his work today.

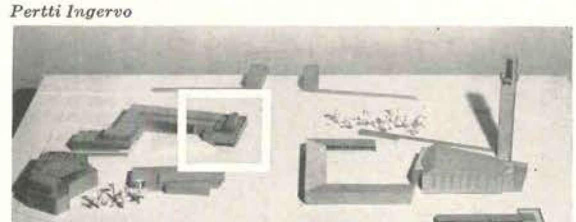


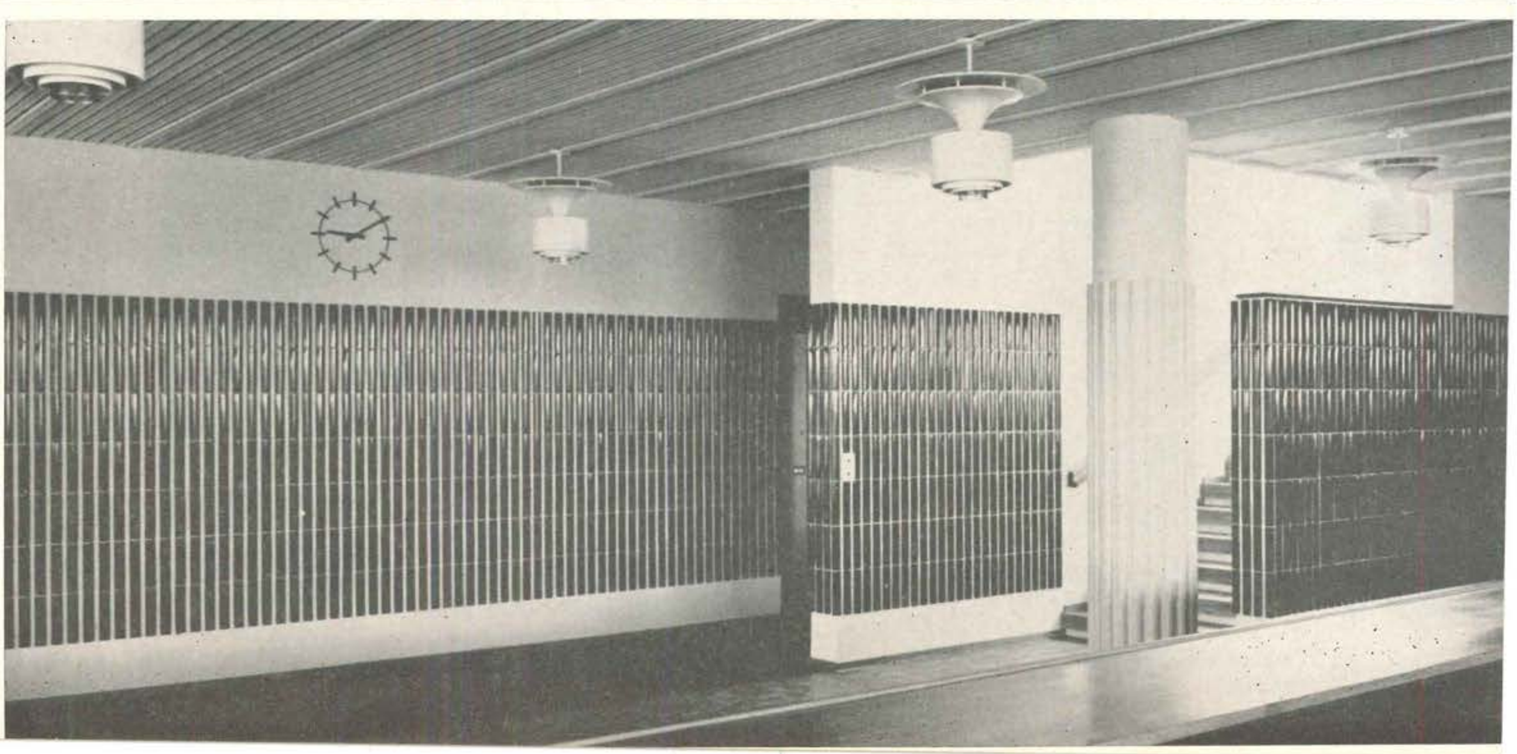
Exterior veneer of recently completed civic center consists of blue tile semi-circular in section. This material is also used on corridor walls. Lighting in meeting room is elegant, yet informal as shown in photograph on opposite page



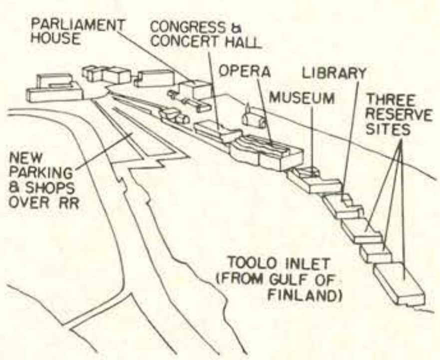
Seinäjoki Civic Center: Town Hall

Pertti Ingervo

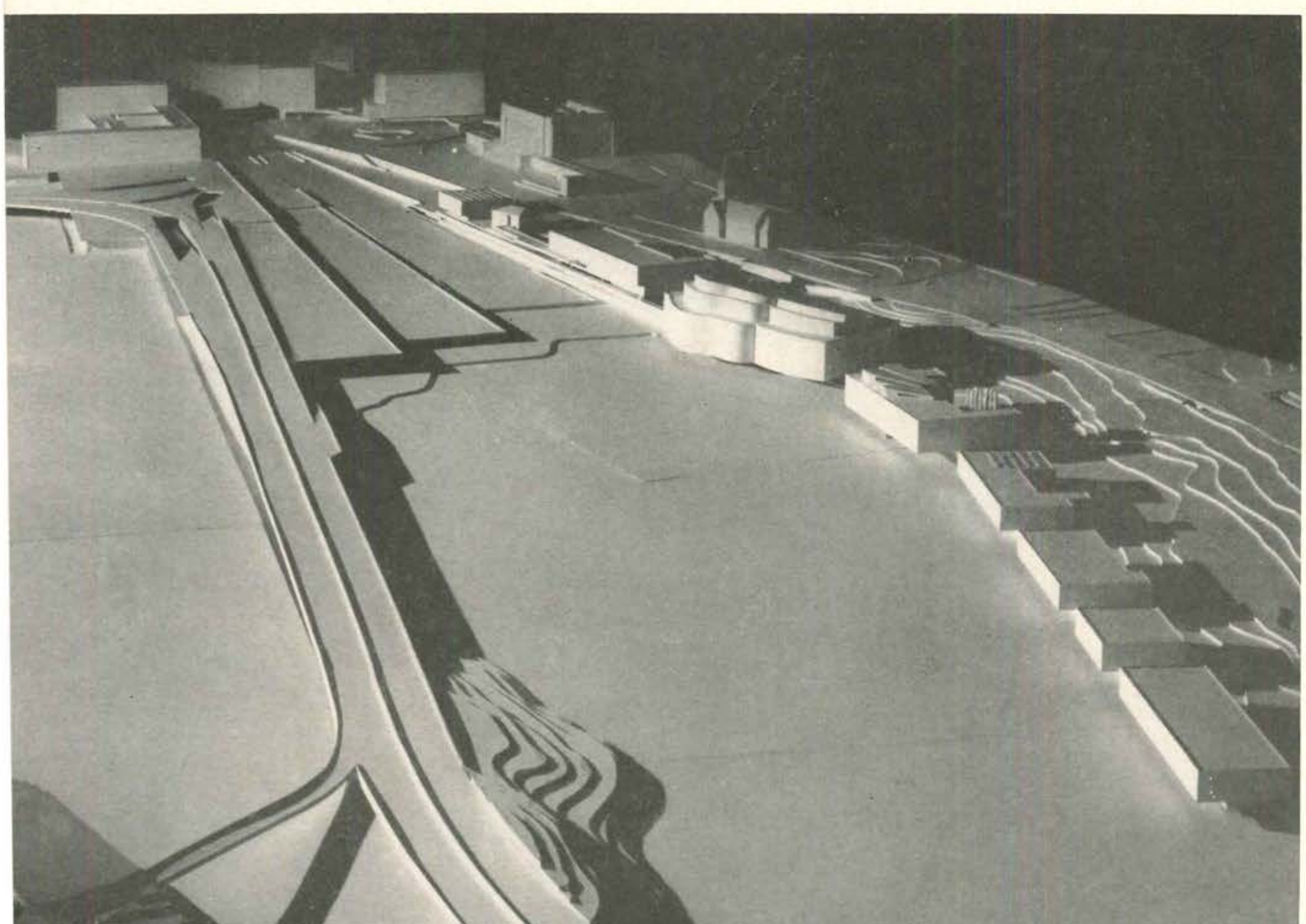




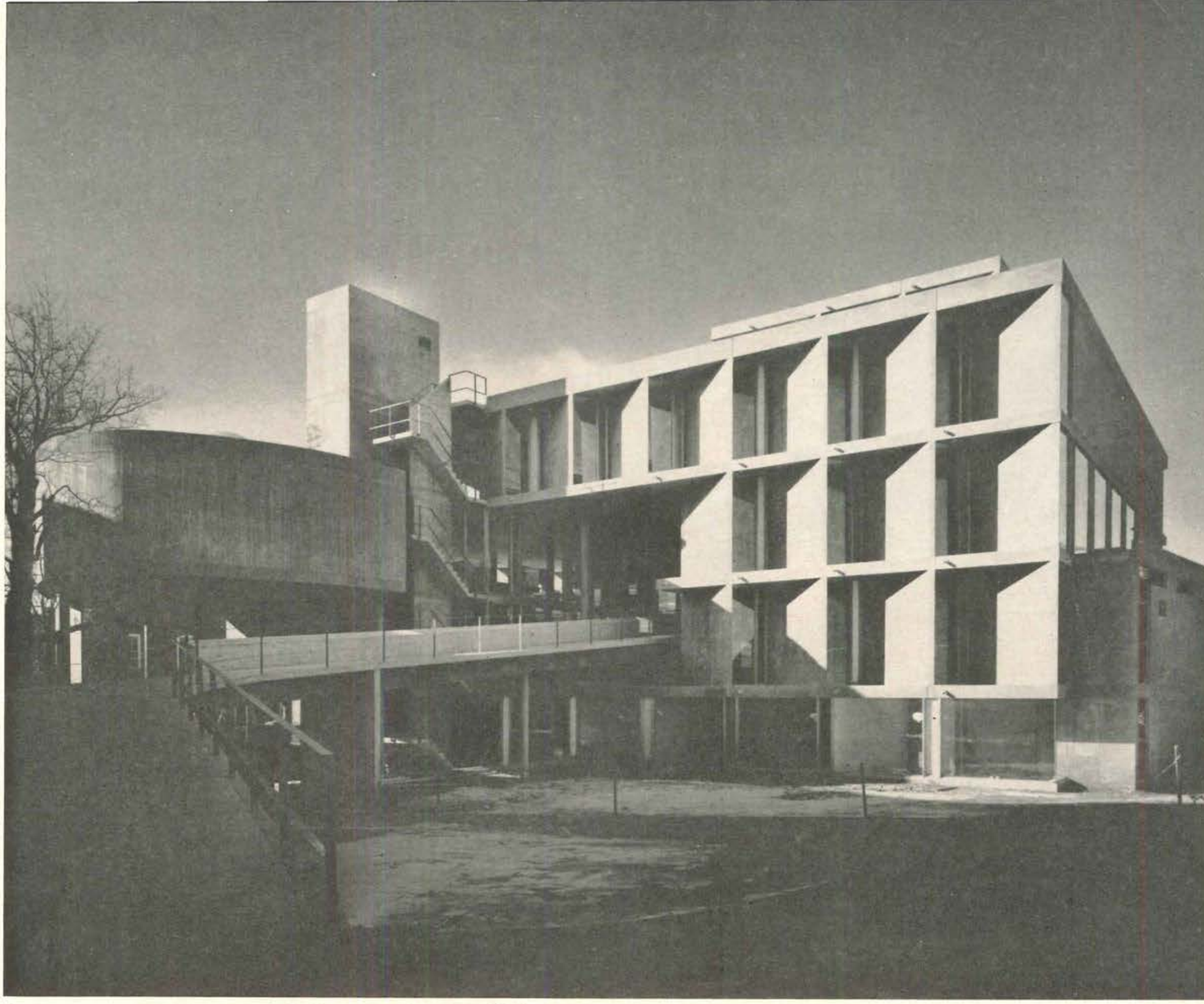
Plan for Center of Helsinki



A new express highway parallel to the shore of the inlet, has been proposed by Aalto. Following the line of the existing rail approach, the highway will connect with large new parking areas covering the existing unsightly railroad yards. These garages will be covered with new shopping facilities. The diagram *(left)* shows the location of the cultural buildings planned for the site



Pertti Ingervo

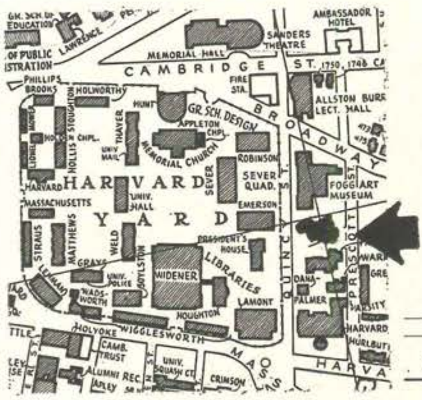


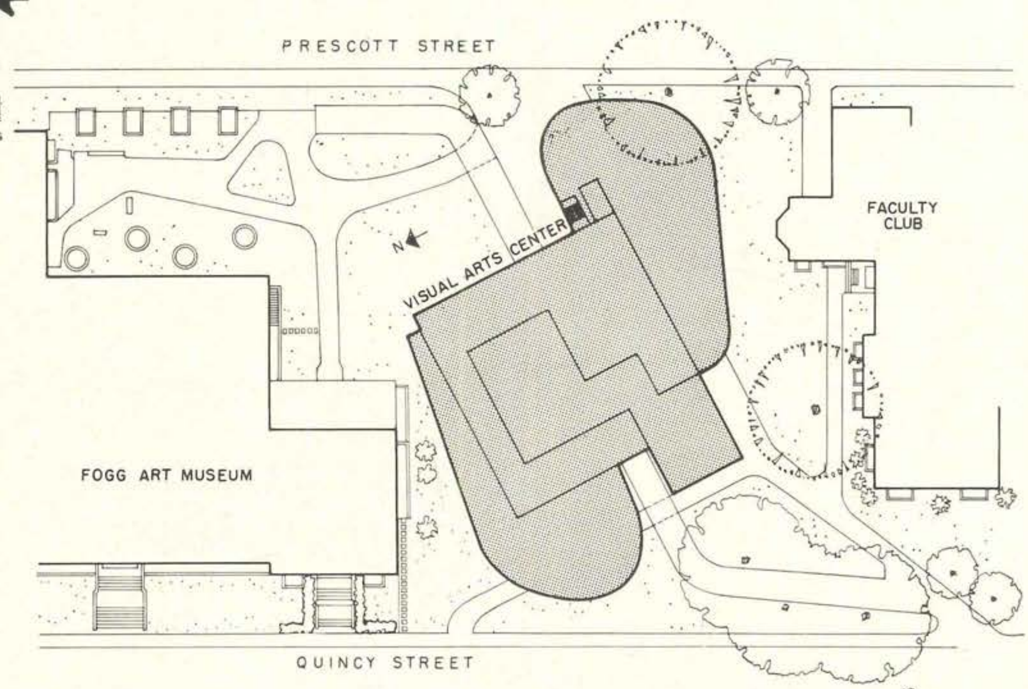
Joseph W. Molitor photos

Eastern exposure. *Brises soleil* shield vast work and exhibition spaces

LE CORBUSIER DESIGNS FOR HARVARD

Carpenter Center for the Visual Arts, the great architect's first U. S. building, is less bold than could be expected and the *beton* is not so *brut*



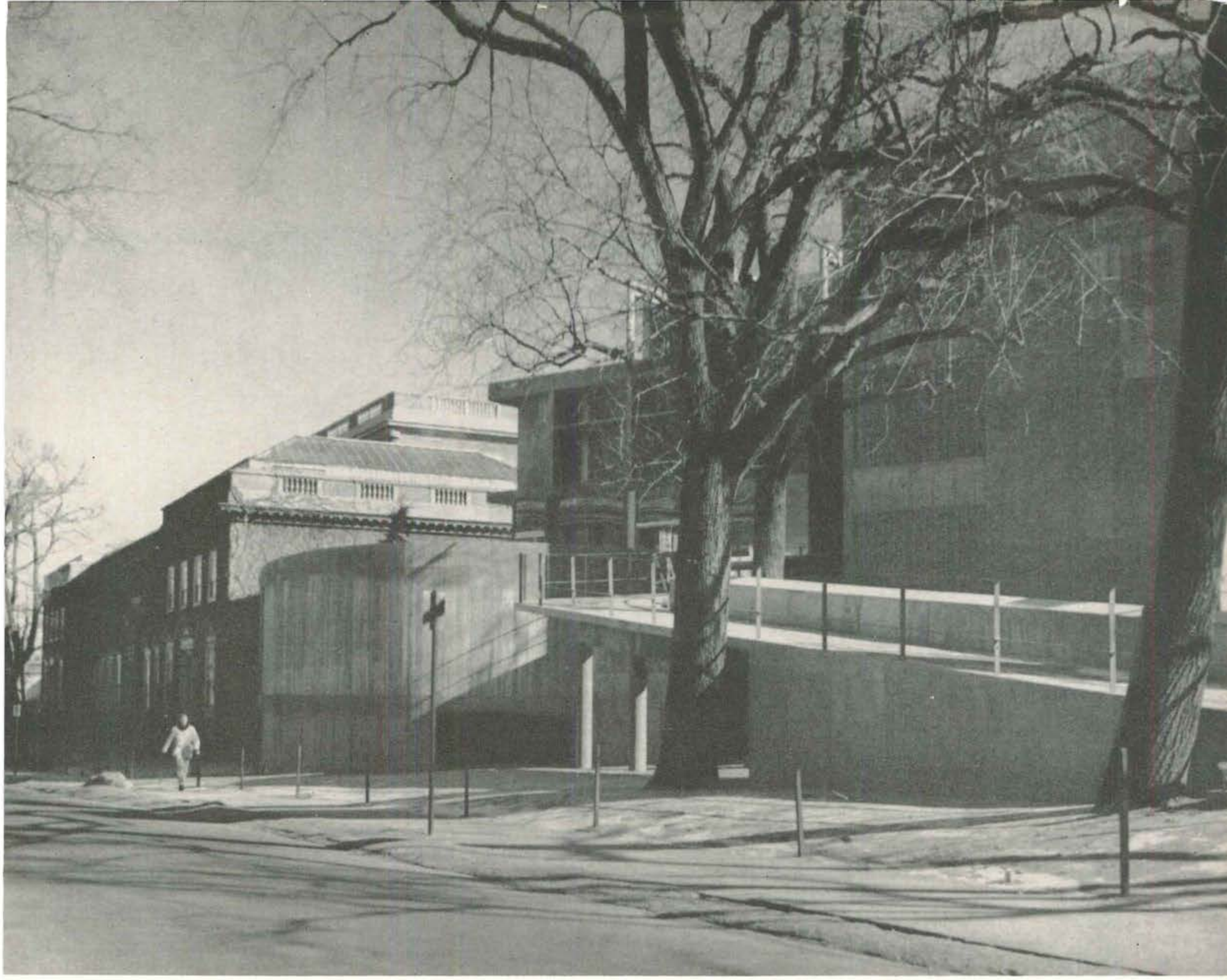


PLOT PLAN

Carpenter Center for the Visual Arts
Harvard University, Cambridge, Massachusetts
ARCHITECT: *Le Corbusier*
COLLABORATING ARCHITECTS: *Sert, Jackson and Gourley*
STRUCTURAL ENGINEER: *William Le Messurier*
HEATING AND VENTILATING ENGINEERS: *Delbrook Engineering Inc.*
PLUMBING ENGINEERS: *Tiot Engineering Inc.*
ELECTRICAL ENGINEERS: *Thompson Engineering Inc.*
GENERAL CONTRACTOR: *George A. Fuller Company*
SUBCONTRACTOR FOR CONCRETE FORM WORK: *Tucker Concrete Form Company*

Men and ideas are more important to Harvard than mere brick and mortar, as Harvard spokesmen will frequently assert, and the school has fought hard and successfully throughout its history to attract the most eminent men as teachers. When Harvard does consider brick and mortar, however, the same competitive demand for the best has made the University consistently hire the leading architects of the day. Today, the buildings by such men as Bulfinch and Richardson which grace the Yard are now joined by a gentle alien placed there by a surprisingly unassertive Le Corbusier.

Is it possible that Corbu designed an accommodating and modest visual arts center out of regard for the scale of the place? Harvard gave him a constricted site adjacent to Harvard Yard, tucked between the Fogg Museum with which the center has a functional relationship, and the Faculty Club, while tightly defined by two streets. Some of his other clients have given him somewhat more scope.

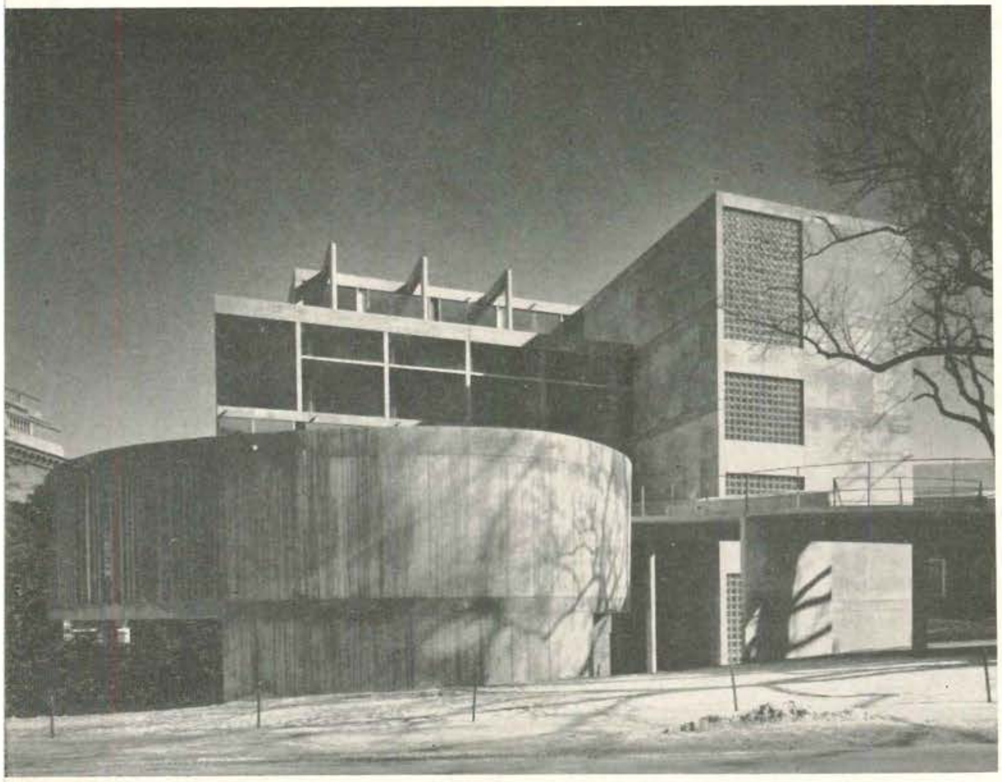


Approach from Quincy Street which borders Harvard Yard. Fogg Art Museum is in background

For its new capital the government of the Punjab set aside a great park north of Chandigarh extending in an unbroken sweep to the foothills of the Himalayas. The monks at La Tourette invited him to build on sloping farmland overlooking a forest near Lyon, and Ronchamp, as everyone knows, is on the top of a hill. The buildings which Corbu called forth for these sites are unforgettable in the power and strength of their images. Even when offered no scope at all as on the narrow suburban lots at Neuilly, near Paris, where he erected the famous Jaoul Houses from which much that is new in contemporary design has grown, Corbu achieved a vigor and raw boldness which he doesn't attempt at Harvard.

The new building is attracting notice and interest, however, and the Harvard community finds it diverting enough. The visual arts are practiced in the somber recesses of the Fogg Museum or in Robinson Hall which shelters the Graduate School of Design. Certain basic design courses in what Harvard calls the Architectural Sciences will now be conducted in Carpenter Center, along with programs in graphic arts, photography, film and television. In its strategic location Corbu's building is expected to give visually creative experiences a new prominence on the campus. A freshman who might never have thought of it may, at the sight of the new center, be moved to sign up for a beginning course called "Visual Composition," which could lead to his becoming an architect, a landscape architect or a city planner; or possibly an educated layman who has learned to see.

In plan the new center looks like a cubist guitar from one of the master's own still lifes. The curving perimeter wall asserts the building's independence from its neighbors while at the same time it defines the intervening spaces in a subtle and skillful manner. The wall planes are continuous, slatted or deeply angled in precise relationship to the movement



Curved element in foreground overhangs terrace partially screened by wall. Vertical slats admit light on north face but wall becomes continuous as it curves to the west. The directors studio workshop overlooks a planted terrace at the penthouse level, roof of curved foreground element will also be a terrace. *Brises soleil* are set at a 30 degree angle to screen the studio workshop from the late afternoon sun

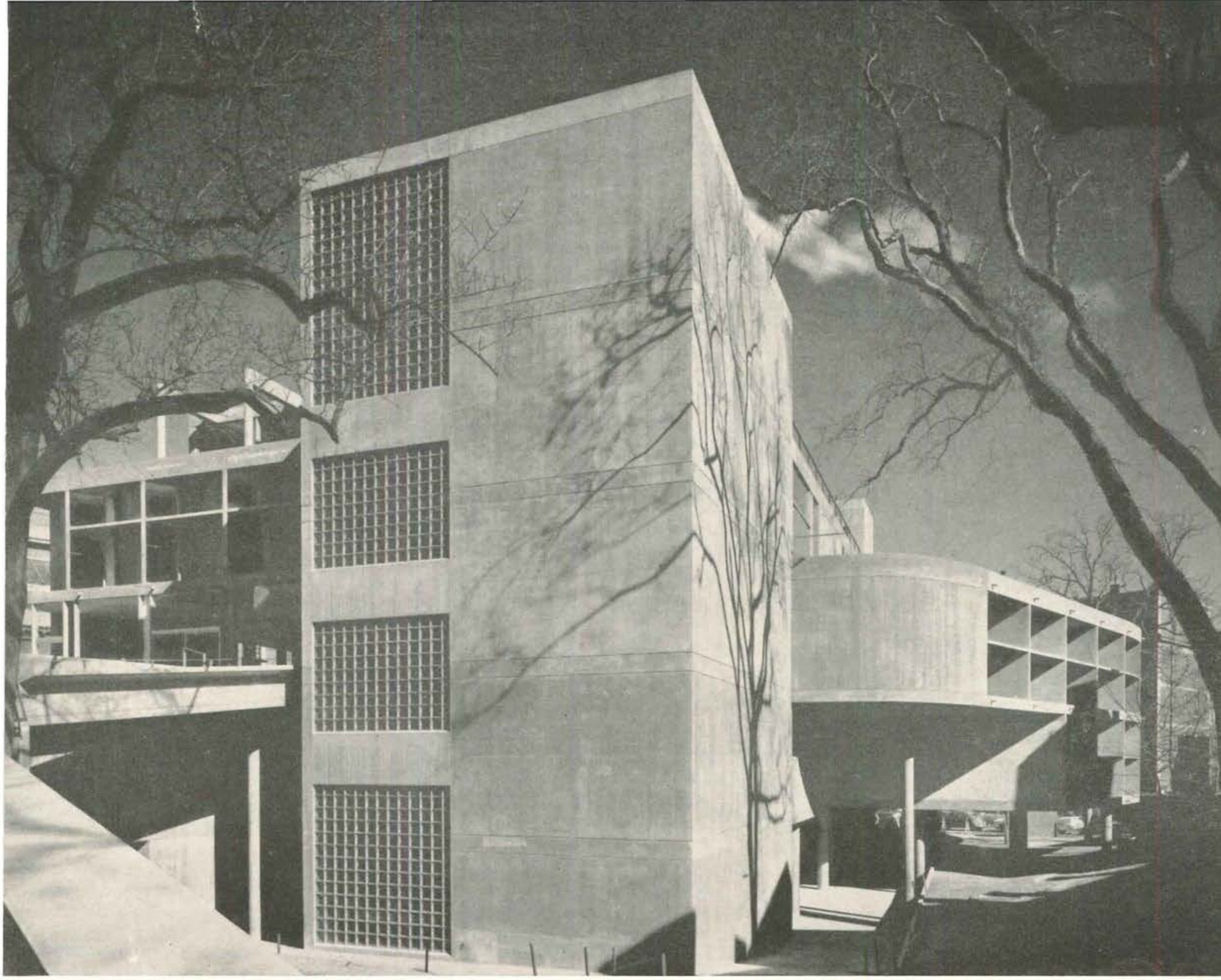
Above: Although the building may be entered at the first floor level, the ramp is the main access, passing through the third floor. From this entry point one can enter the main exhibition area, a studio workshop or the main stair hall. *Right*: Glass block illuminates stair tower which is the width of the panel of block. The concrete finish throughout the building is relatively smooth in contrast to the rest of Corbu's recent work

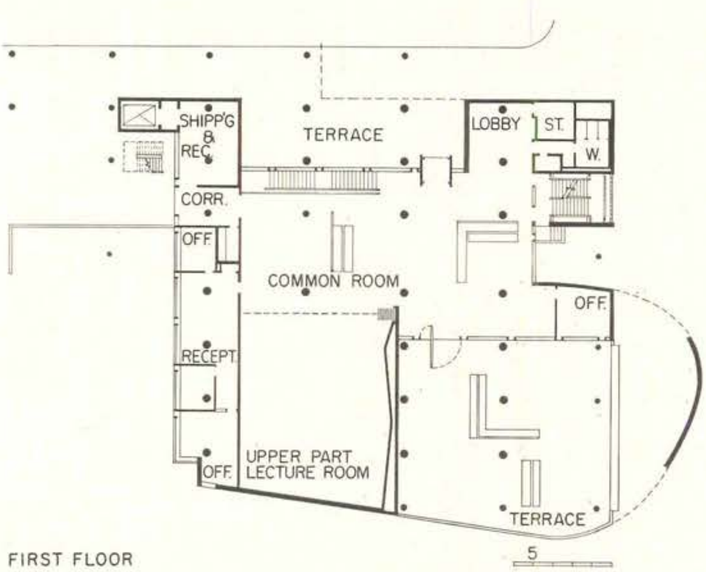
of the sun, while the round columns are of varying circumference, each expressing by its size the load it carries. The underside of each poured concrete slab is revealed, in deference to the Corbu edict that the undersurface of the slab shall not be violated, and where the slabs overhang the floors are exposed to cold underneath. The building is heated by means of an air floor laid between the structural slab and the finished concrete floor. According to engineer William Le Messurier, Corbu's "modulor" called for a thicker dimension than structurally necessary for the slab, and the air floor took up the difference quite nicely. The bulk of the space is not air-conditioned. Exposed pipes are painted bright green and the fan units, noisily visible, take up space as casually as furniture. In the Le Corbusier esthetic columns are articulated from walls and little can be hidden or tucked away.

The great curvilinear bisecting ramp connects the heart of the structure to both streets, and from its center the main stair and the great exhibition space are clearly accessible from any point within. There is an intriguing interplay between Corbu's interior and Georgian Harvard as perceived through the great panes of glass. Broad roof terraces which have been designed to carry a foot of earth for grass will, when planted, carry out the Le Corbusier dictum that the space which a building takes from the ground plane must be returned to nature at the building's roof plane.

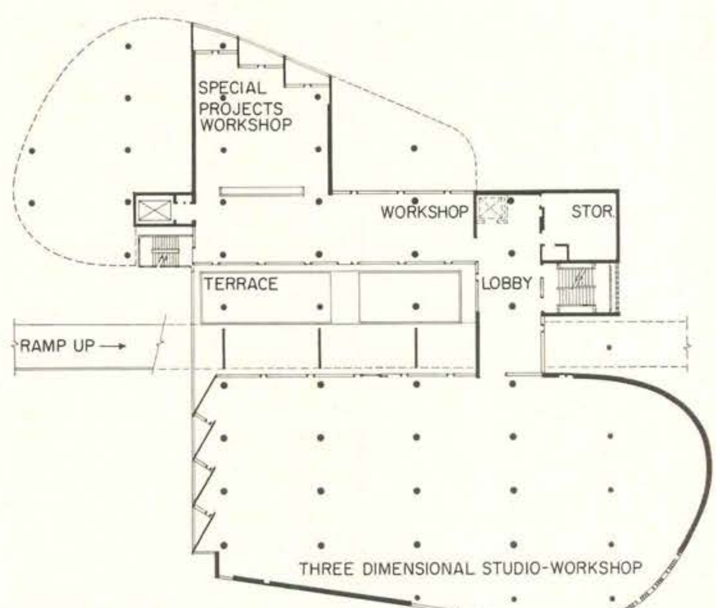
The art center had to be constructed on a tight budget within a grant given by the Carpenter family. Its cost was kept as low as $23 per square foot unequipped, and its entire cost was approximately $1,200,000 not including a subterranean addition to the Fogg.

It was an expensive building to engineer and to detail, however, according to Le Messurier. All cantilevers along the curving perimeters, for example, had to be designed to deflect the same, and long thin

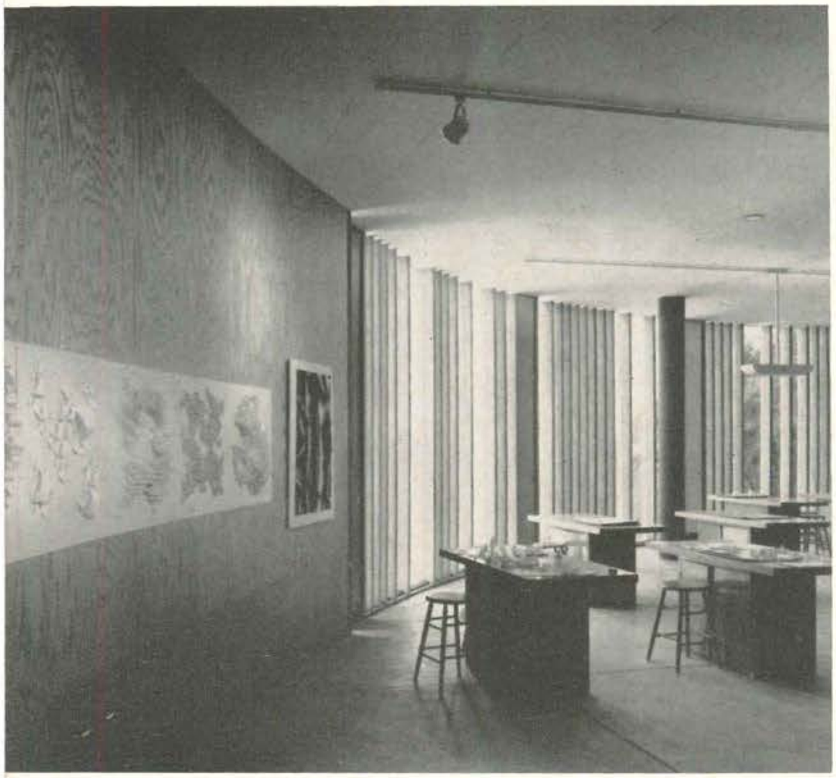


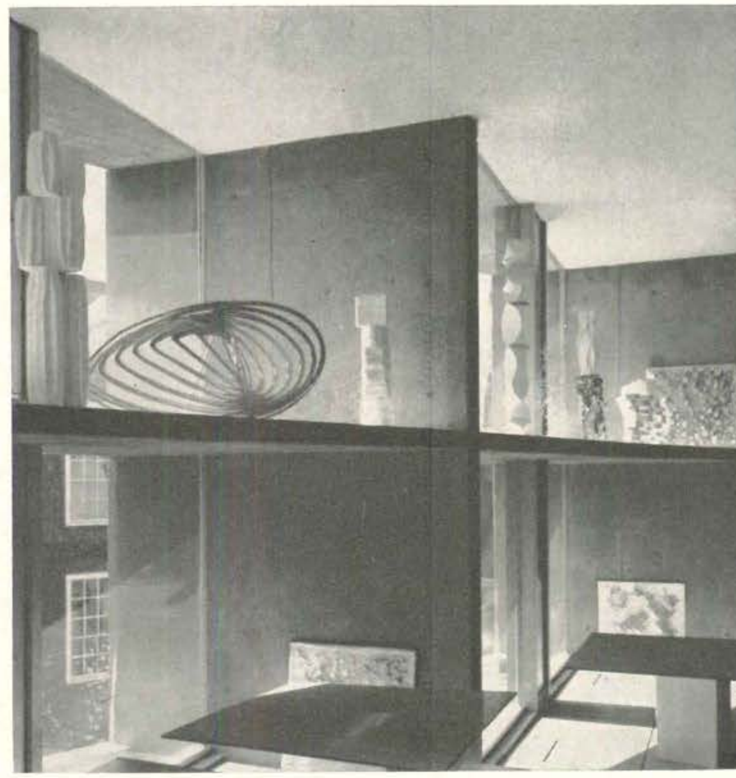


FIRST FLOOR



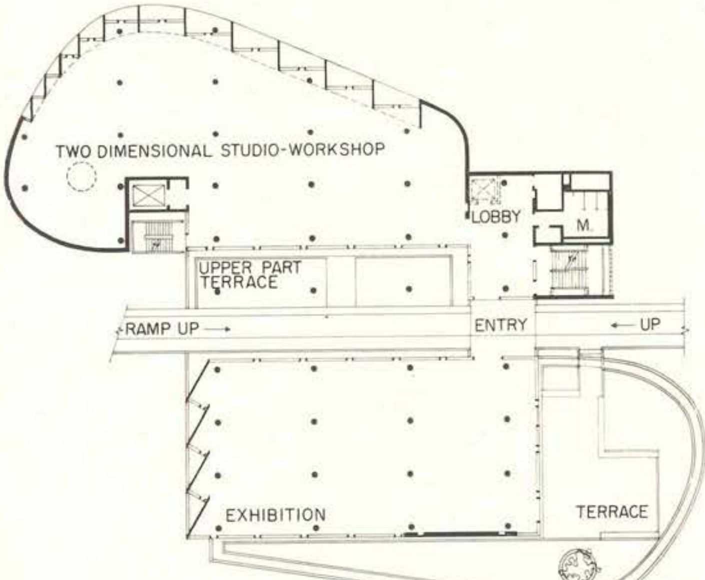
SECOND FLOOR



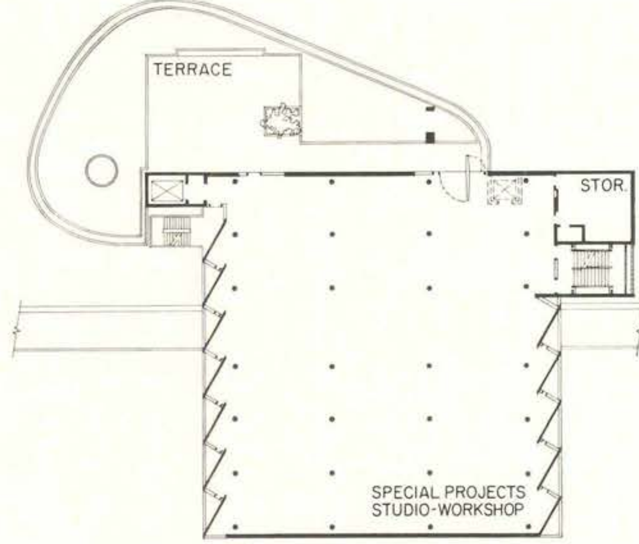


Studio workshop on second floor. During the day, lighting in all studios is excellent, but at night the work surfaces are lit solely by reflected ceiling light which will be augmented in the future by individual desk lamps. Ceilings are painted white; other concrete is left in its natural finish for the most part and brilliant colors, selected by Corbu, are used as occasional accents. Spaces are undifferentiated and nothing is built in

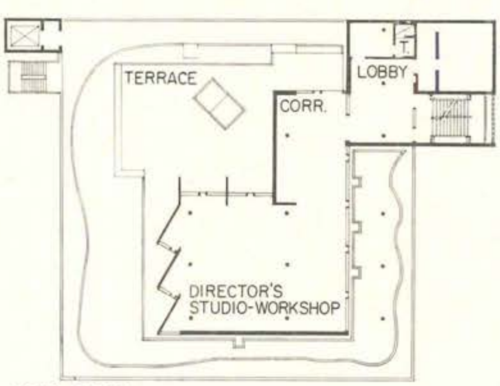
Above: Ledge bridging *brises soleil* makes a handy display for the work of the students of Mirko, well-known sculptor on the Harvard faculty. The building is not yet fully occupied and some of the arrangements are temporary which may account for the flimsiness of the work tables in the photograph at the right. From inside one sees Harvard's redbrick buildings framed in all kinds of ways by the great glass panes



THIRD FLOOR

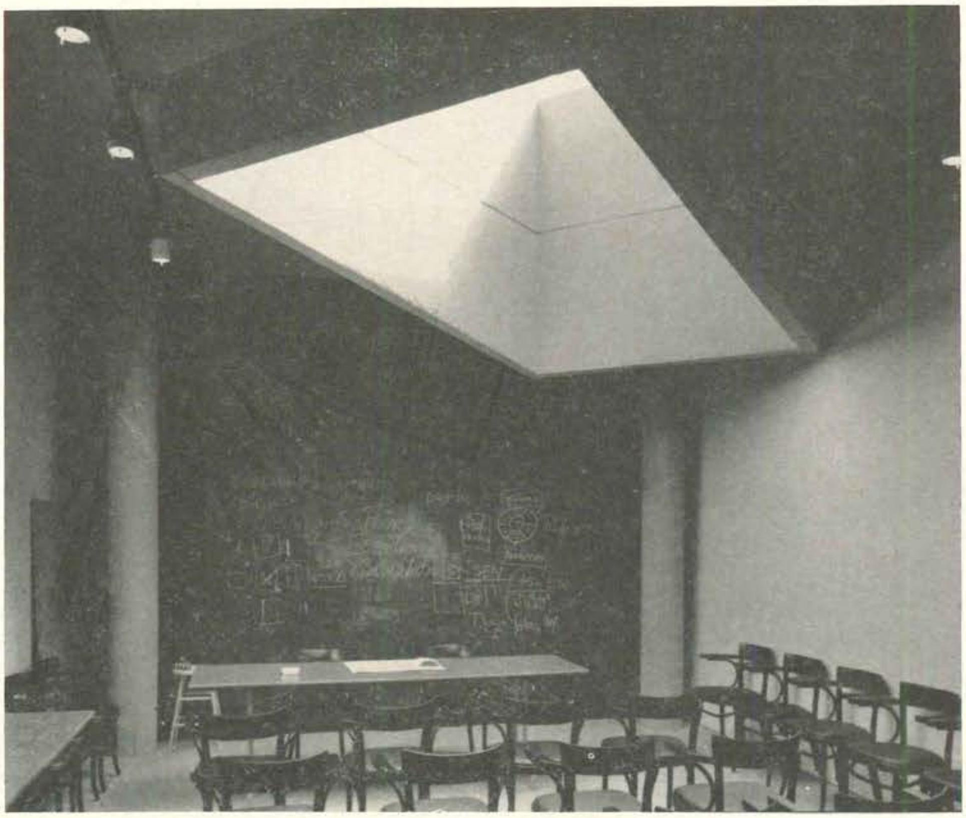


FOURTH FLOOR



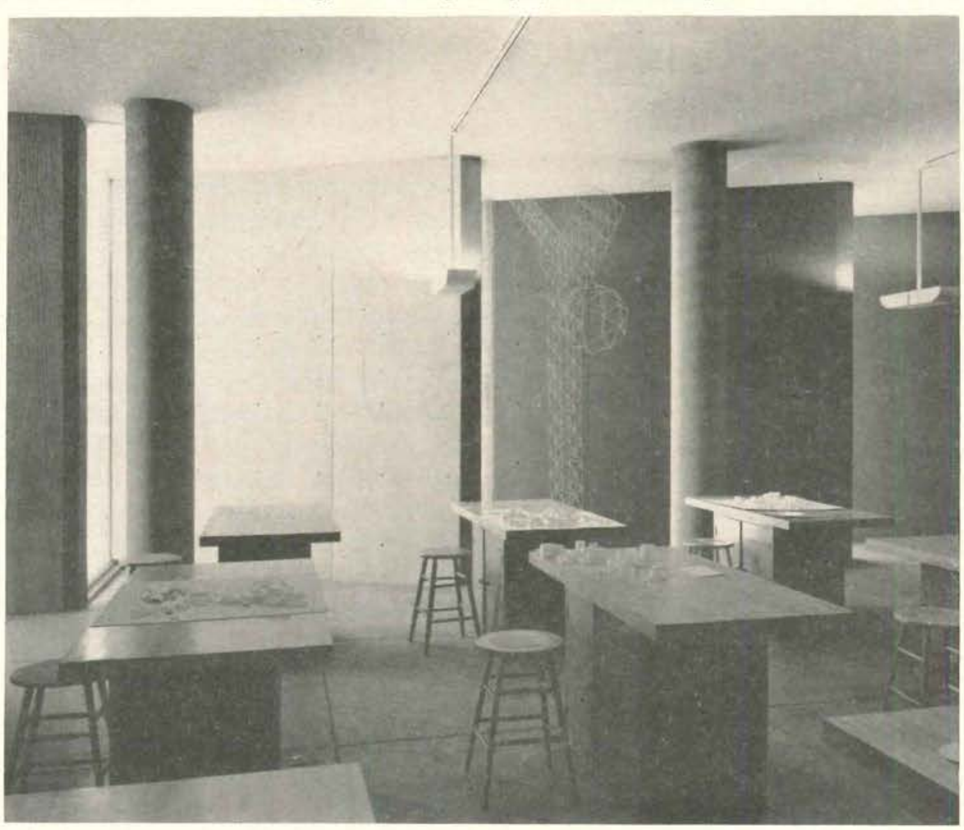
FIFTH FLOOR

columns have their complications. The office of Sert, Jackson and Gourley, which made the working drawings from preliminaries mailed to Cambridge from the Rue de Sevres, devoted long hours to devising the complex details essential to the realization of a work of art *a la Le Corbusier*. Corbu kept a tight control of the job throughout and permitted no basic changes in his design. A proposal by the collaborating architects to shrink the dimensions of the building by 5 per cent to better accommodate the budget, received a sharp veto from Paris. The concrete of the new structure has a smooth finish and a precision which is the opposite of the raw look which is the Corbu trademark, and is the result of expert concrete formwork on the part of the subcontractor. Brilliant accents of color are used with restraint on the exterior, but inside certain entire walls are painted a single strong color, carefully matched to Corbu's specifications, contrasting dramatically with white ceilings and unpainted concrete surfaces.

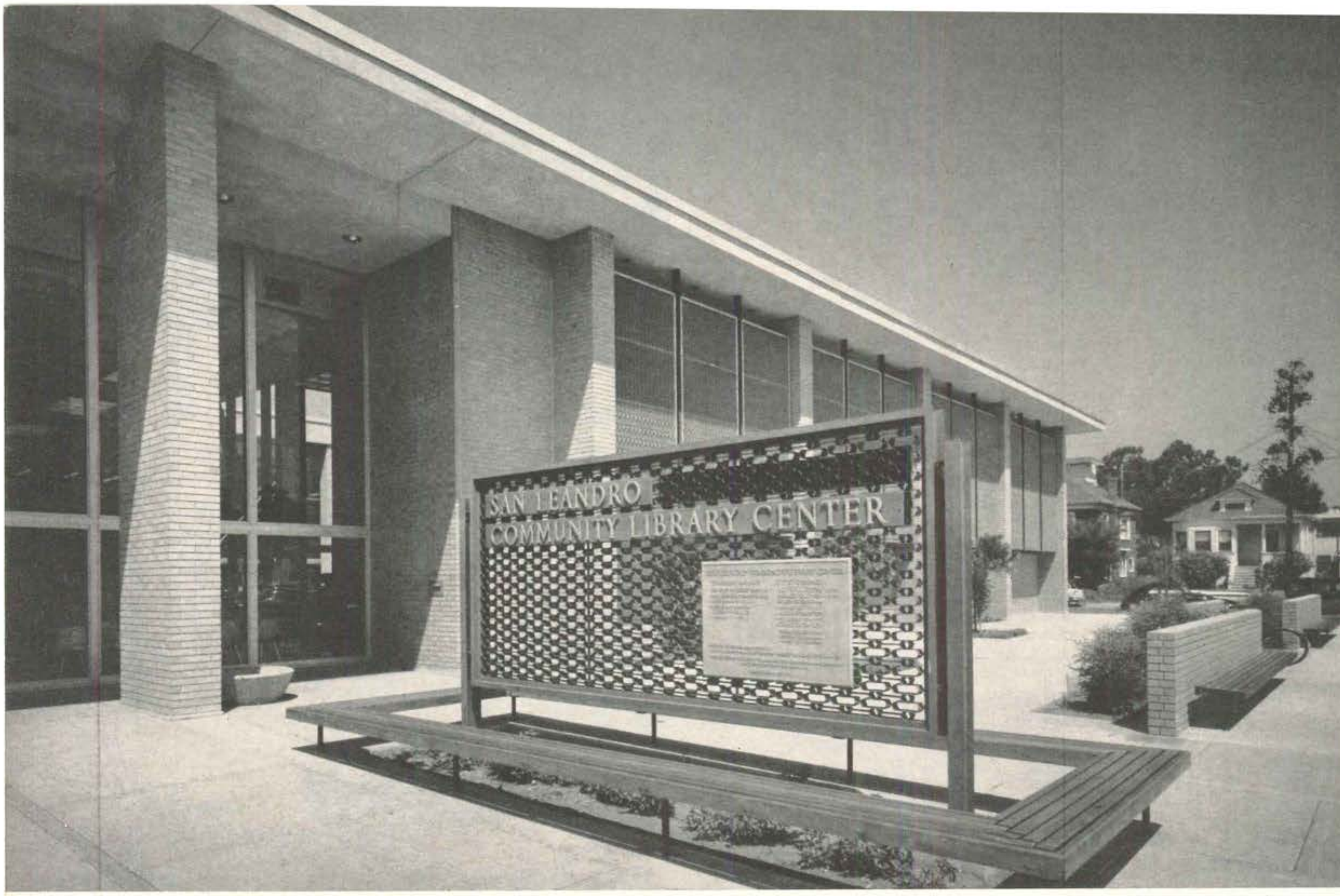


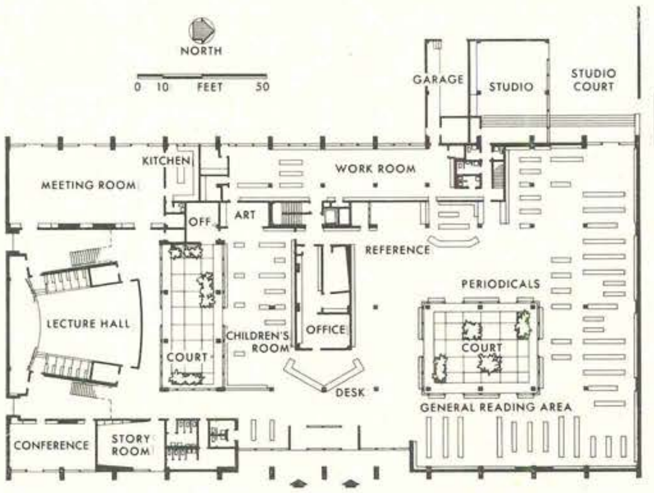
Skylight illuminates an enclosed area on the fourth floor

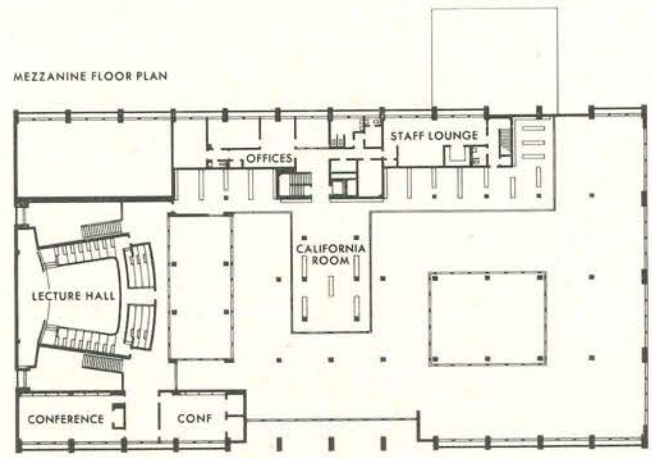
All columns are freestanding, a Corbu principle, and interior partitions are movable



Small LIBRARIES


SAN LEANDRO
COMMUNITY LIBRARY CENTER





A COMMUNITY LIBRARY CENTER

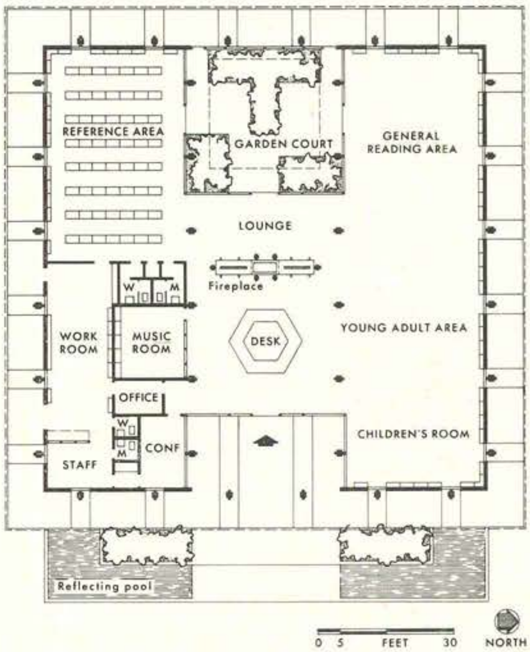
San Leandro Community Library Center
San Leandro, California
ARCHITECT: *Francis Joseph McCarthy*

This main library building for San Leandro, a rapidly-growing city on the east side of San Francisco Bay, is more than a repository of books. Its formal name gives a clue to the library's many-sided program of activities: a "community library center." The building not only provides for an ultimate book capacity of 120,000 volumes but also for a full range of community activities—civic, educational and cultural. A lecture hall, meeting and conference rooms, and a painting, sculpture and crafts studio with its own court, are available for use by the public. All but two of these facilities (the two smallest) can be used independently of the library proper. The plan is organized around two garden courts—one for children, opening off the children's room and giving daylight to it and to the corridor along the wall of the lecture hall where exhibits are hung; and the other in the adult reading area. These sunny, protected outdoor areas bring daylight into the building interior and add color and informality to the reading areas without sacrificing the convenience of good relationship between various areas and services. On the second floor, in addition to the librarian's offices, staff offices and lounge, and a special collection on California history, there is space for expansion as the library grows.

Roger Sturtevant photos

Story Hour Room

Meeting Room

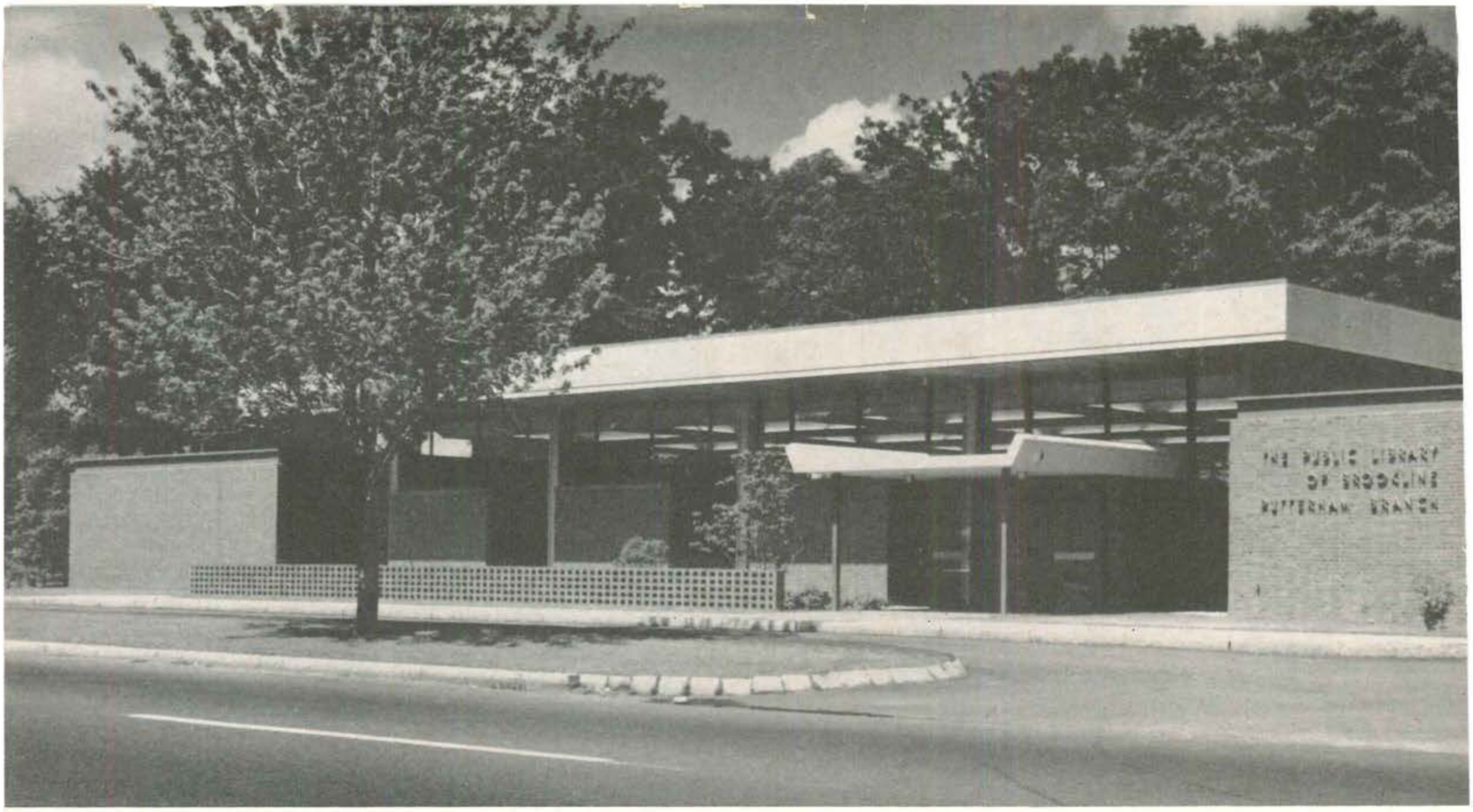


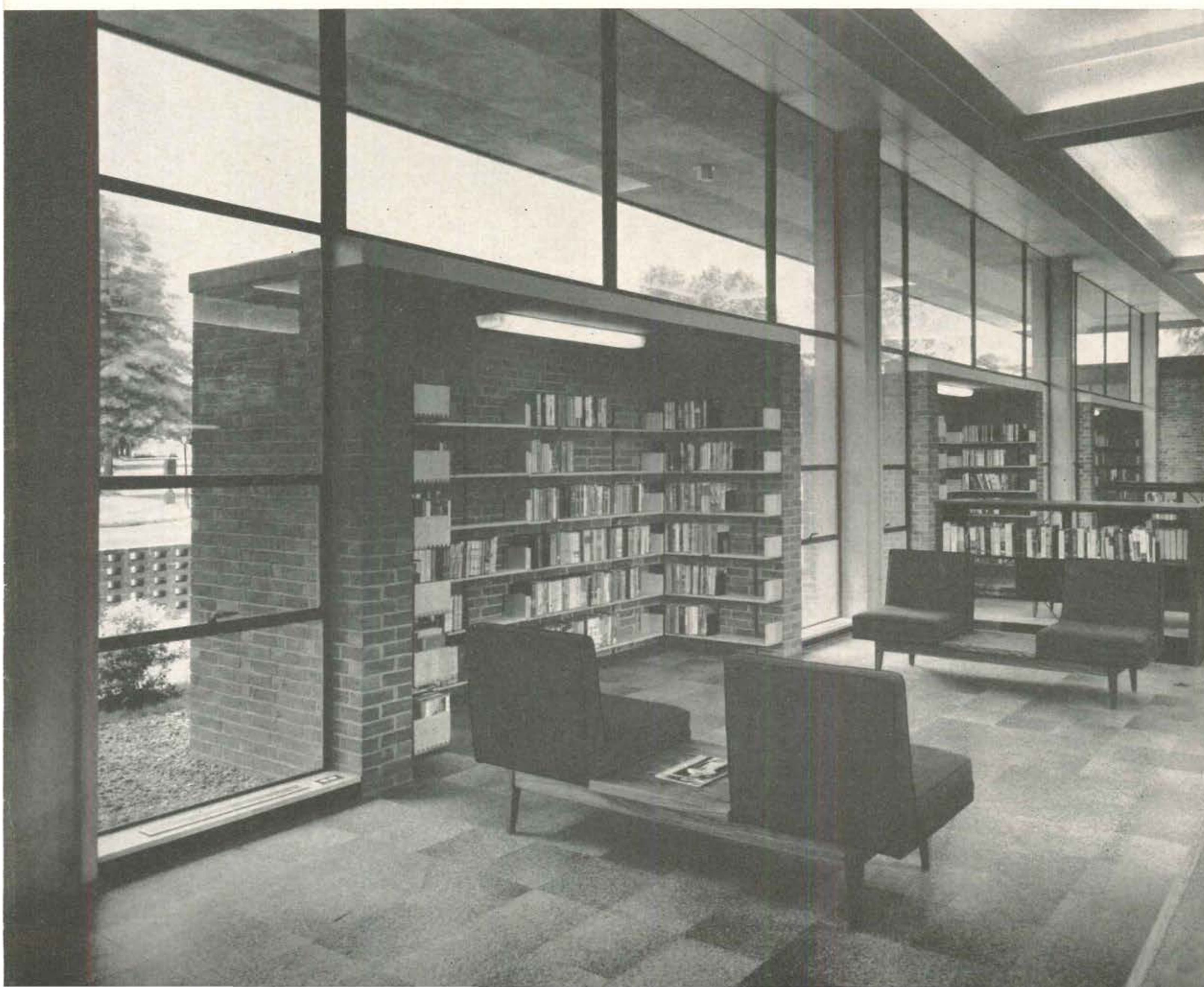
Julius Shulman photos

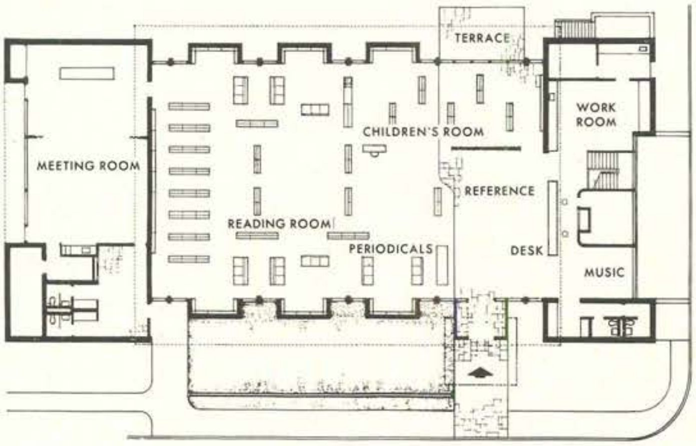
GARDEN COURT FOR OUTDOOR READING

Santa Fe Springs City Library
Santa Fe Springs, California
ARCHITECTS: *William L. Pereira & Associates*

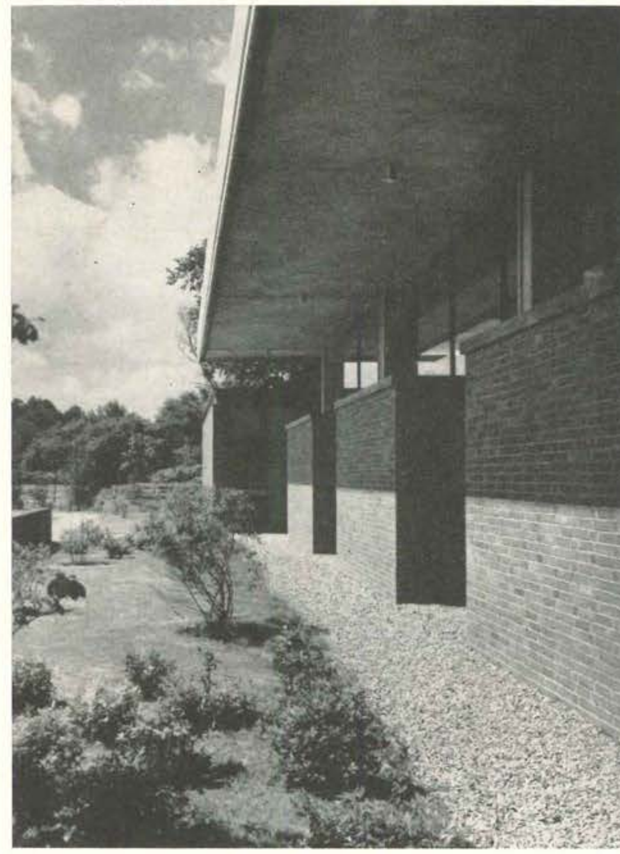
This inviting library is the first building to be completed in a group which will become the town center for Santa Fe Springs, a relatively new town in Southern California. Eventually the center will include civic, commercial, recreational and residential buildings in a park-like setting from which vehicular traffic will be excluded. The library plan is entirely open except for the music, work and staff rooms. An unusual and pleasant feature of the building is the garden court at the rear of the building, usable during most of the year as an outdoor reading room because of the area's mild climate. The lounge with its large fireplace, opening off the general reading area and connecting directly with the garden court, is another unusual provision. Although the materials used for walls and column facings are simple—concrete block and precast concrete units—the overall effect is one of richness and texture. Entrance is by a bridge over a reflecting pool almost as long as the building front.


THE PUBLIC LIBRARY
OF BROOKLINE
PUTTERHAM BRANCH





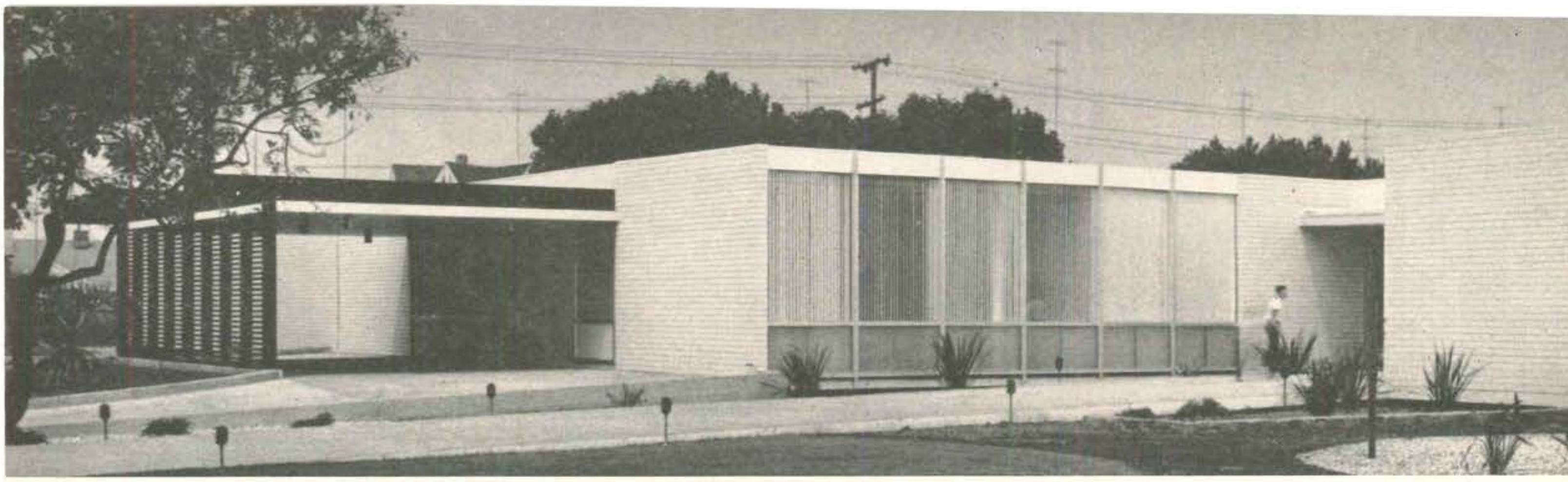
Louis Reens photos

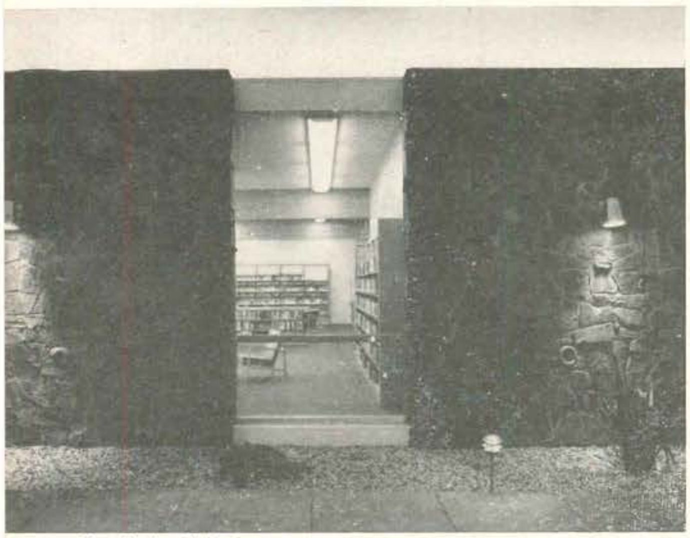


BRANCH LIBRARY AMONG RESIDENCES

Putterham Branch Library
Brookline, Massachusetts
ARCHITECTS: *The Architects Collaborative*

Related visually in scale and material to the residential neighborhood in which it is located, this branch library nevertheless expresses its public function. Red brick is the predominant material used, with natural concrete for the canopy over the entrance and for the fascia. A special feature of the single, large, high-ceilinged space which encloses the reading rooms is the alcoves along two walls of the room. Low furniture groupings, oriented to these alcoves, differentiate between adult and children's reading rooms and periodicals area, giving an unusually open feeling to the room. On one side the wall is all glass, except where interrupted by the alcoves, providing daylight and an outlook on graveled terraces and low planting along the steep slopes at the rear of the site. The control desk is at one end of the room, near the entrance. A decorative wood screen separates the children's room from this entrance area. At either end of the reading room are low, brick-walled elements, one containing a music room and staff work room, the other containing a 100-seat meeting room which can be used independently for functions not related to the library. A stepped terrace is to be developed off this room.





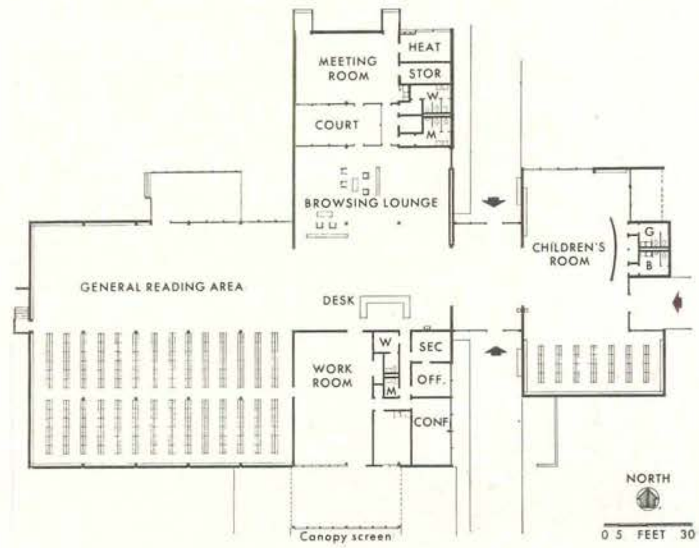
Marvin Rand photos

Karl H. Riek photos

FOR EXPANSION IN TWO STAGES

Salinas Public Library
Salinas, California
ARCHITECTS: *Welton Becket & Associates*

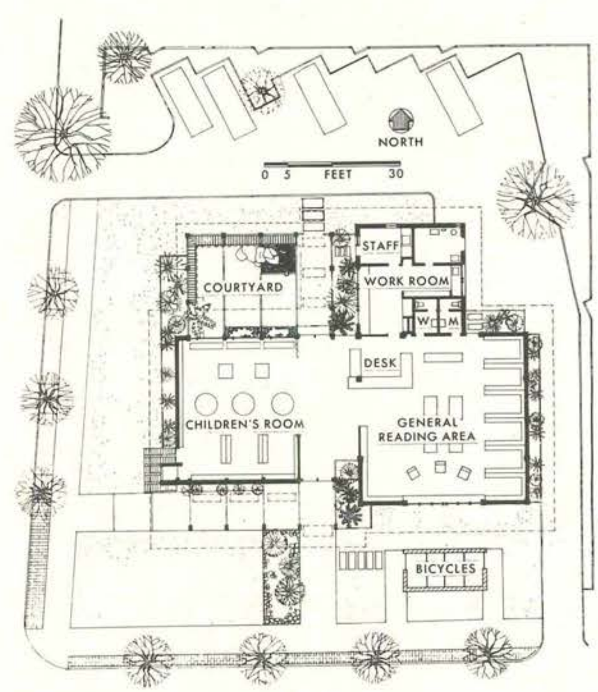
This library, the second building to be completed in the Salinas civic center, was designed not only to blend with the first building but to permit expansion in two stages to an ultimate doubling of capacity. The three wings of the present plan, controlled by the centrally located desk, would remain, the expansion taking place in the general reading area, enlarging the stack space and, in the last stage, the work room as well. A special feature is the browsing lounge which overlooks a paved and landscaped court with a reflecting pool and fountain. Beyond the court is a meeting room, available for community groups. The building cost $250,000, somewhat less than the city's budget for it.

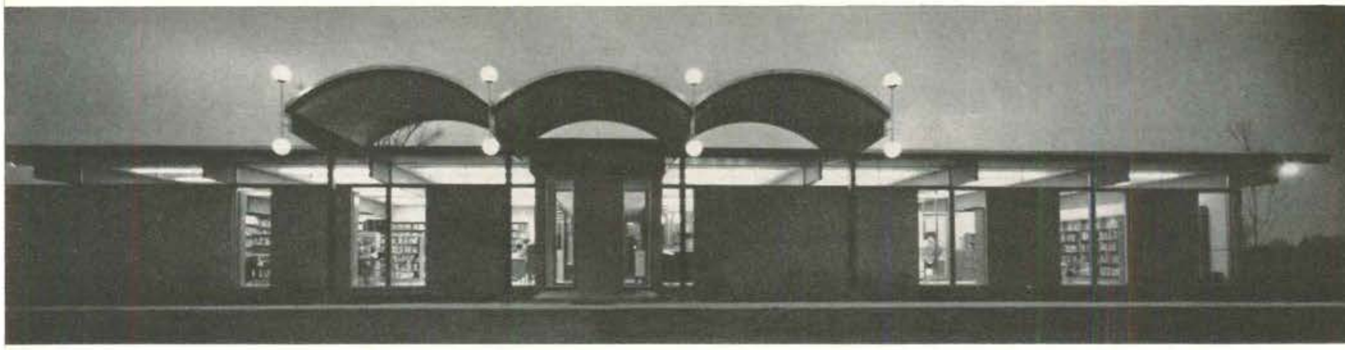


DESIGNED FOR LOW MAINTENANCE

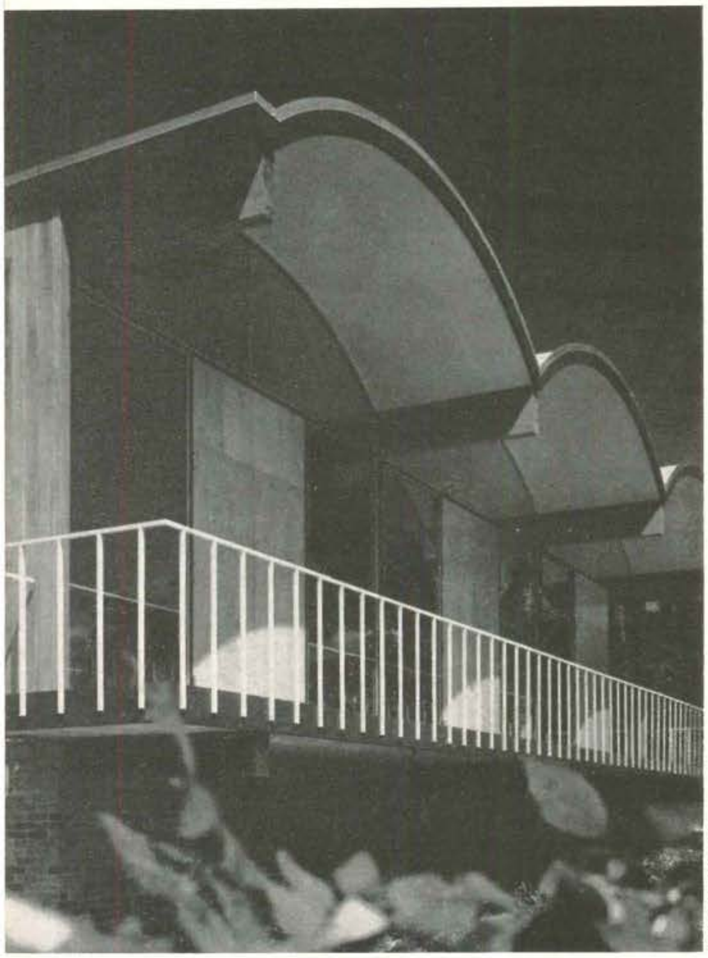
South Branch, Berkeley Public Library
South Berkeley, California
ARCHITECT: *John Hans Ostwald*

All materials used in this branch library were selected for their ease of maintenance as well as because they were appropriate to the building and its very tight budget ($60,000). Walls are of concrete block, integrally colored and exposed inside and out. The same block, turned on edge with the openings filled with amber glass, is used for trim. The roof of the adult reading room, which rises to a height of 16 feet, is crowned by a skylight which is a source for both daylighting and indirect artificial lighting. The ceiling of this room is surfaced with hemlock boards. Elsewhere ceilings are of acoustical plaster. The children's room opens directly into a small landscaped courtyard for outdoor reading or story hour programs in good weather.





Lens-Art



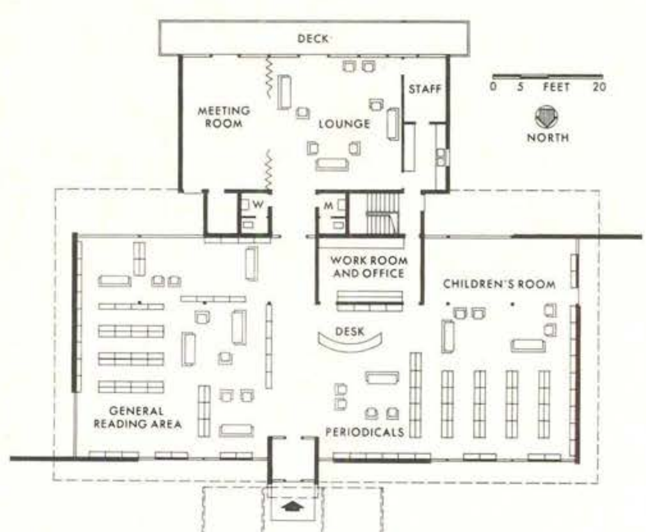
Baltazar Korab

LIBRARY WITH TWO FUNCTIONS

West Bloomfield Township Public Library
West Bloomfield, Michigan
ARCHITECTS: *Frederick Stickel Associates*

Located in a new and fast-growing suburb of Detroit, this building not only meets the normal requirements of a library but also provides a place for civic and social gatherings, a facility which the town has not yet built. Both functions are provided on the same level, with mechanical equipment on the lower level. Since the reading room relies on artificial lighting, its walls are solid for the most part; in contrast, the lounge-meeting room is more open, with one wall entirely of glass to take advantage of a fine view to the south. This room has an outside entrance for use independent of the library, but is accessible also through the library.

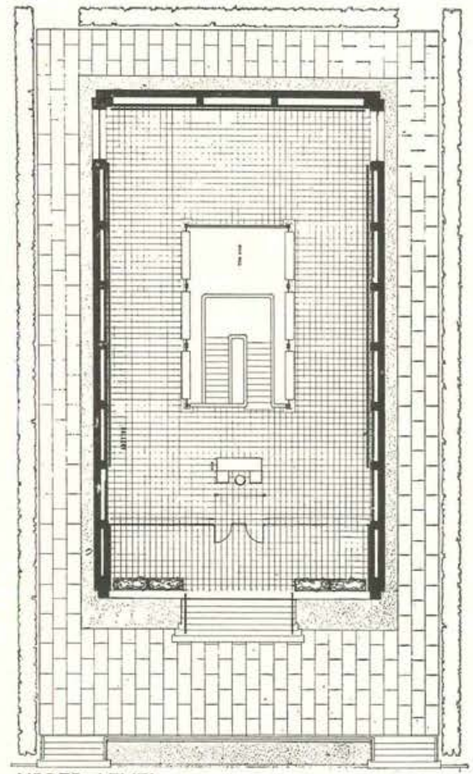
Lens-Art



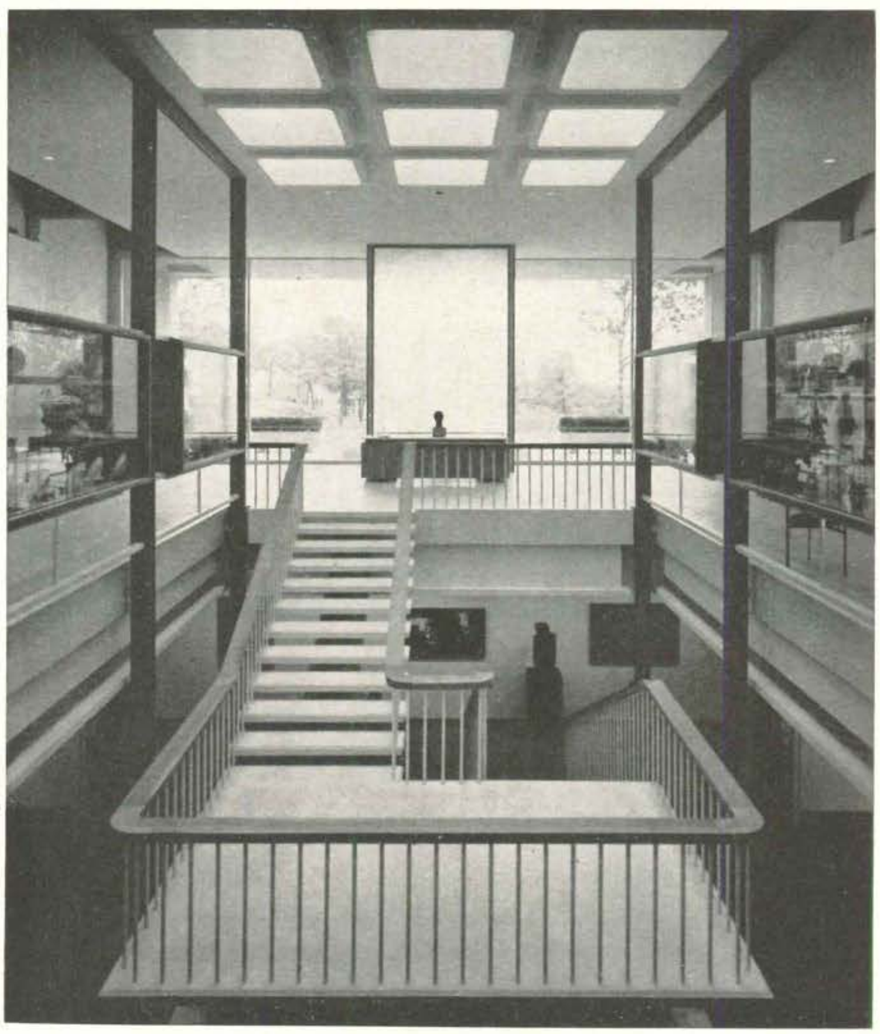
A LESSON IN UNITY

Rose Art Museum
Brandeis University
Waltham, Massachusetts
ARCHITECTS:
Harrison & Abramovitz
STRUCTURAL ENGINEERS:
Linenthal & Becker
MECHANICAL AND
ELECTRICAL ENGINEERS:
Jaros, Baum & Bolles
INTERIORS:
Alice Tiebout Interiors
GENERAL CONTRACTOR:
George B. H. Macomber Company

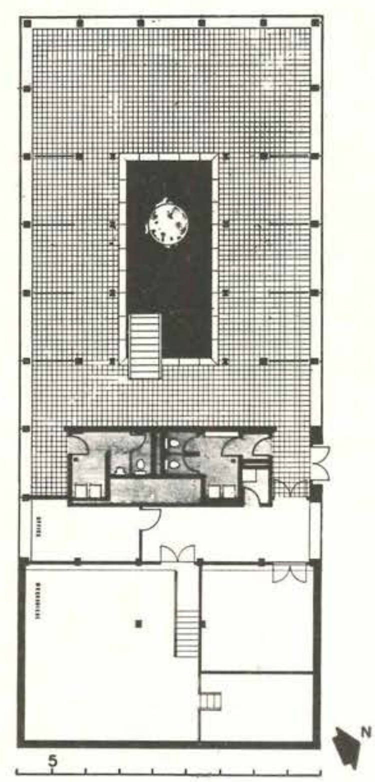
Brandeis University's first building devoted solely to the housing and display of art offers visitors a stunning example of architectural unity; a compelling lesson in how a two-level building can be designed to give the effect of a single space containing an incidental floor. Visually, a strong vertical movement is set up by the successive effects of central skylight, open well, cantilevered stair and pool. But interior space moves laterally as well, since each level opens freely to the central verticality. The total effect is dramatic, and provides the further advantage that the visitor can —from any point—readily orient himself. Architect Max Abramovitz points out that the design seeks to avoid the feeling of being shut away in a series of separated exhibit spaces, in deference to the quality of openness and a sense of more to see. The museum is a gift of Mr. and Mrs. Edward Rose of Boston, and houses their valuable collection of rare china and small art objects, as well as the University's collection.



UPPER LEVEL



©Ezra Stoller Associates photos



As the plans reveal, the upper level is set within a terrace for sculpture, while the lower level has a portion of its space devoted to wash rooms, office, storage and work areas. The entire building is air-conditioned, with specified humidity control to insure maximum protection for art treasures. The foot-deep pool of circulating water has a marble curb, a bottom of gray-black pebbles, and yields sufficient income from coin tossers to pay for its occasional cleaning!

The photo (*top*) shows how the Rose collection is displayed in six cases of natural walnut flanking the central open well. In addition to the flood of daylight from overhead, the cases are illuminated by built-in quartz lamps. Peripheral walls on this level are washed by diffuse light angled from concealed troffers (*bottom*). This basic lighting is supplemented by a pattern of downlights for maximum control. All woodwork is unfinished walnut; the floor is beige travertine; walls and ceilings are white plaster. The structural frame is concrete

The Training and Education of Architects

The concept of training within education, and some suggestions for improving the curriculum

*By William Allen, A.R.I.B.A.**

Architectural education has found its way to much the same form all over the English-speaking world. There is generally a five-year curriculum which embodies a substantial amount of training in the studio. It is designed to produce general practitioners and it produces other types only seldom and largely by chance. There is little postgraduate study or research, but we lay down a requirement for postgraduate practical experience before qualification.

The unusual feature here is the training, the studio work. You may be surprised that I call it "unusual" because, of course, to us it is the most natural thing in the world—so natural that we hardly ever question it, at least in principle; sometimes we get worked up about detail. However, outside observers are sometimes puzzled by it, especially when they note that some of the professions apparently closely allied to our own do not incorporate much, if any, training with their education. I've no doubt they wonder whether we have ourselves looked sufficiently critically at this part of our system and quite frankly I do not think we have. Let me therefore take a glance at it now.

What do we use it for?

The short answer is, to acquire skill. A professional person, let me remind you, is a person who professes *skill* in the application of some body of knowledge. Skill is not the same thing as knowledge and we want to be quite clear what the difference is because our whole education system depends on it. We can get knowledge from books, from lectures, from experience and from all the sources you know as well as I; but skill implies an ability to do something with this knowledge which requires dexterity, balance and judgment, and a capacity to make decisions. One can be very knowledgeable, therefore, without being at all skillful. And I think the implication of this is quite clear, that a professional person must acquire both skill and knowledge; and increasingly today he is made responsible in law for possessing them before he offers his services. It is this which particularly distinguishes fully professional people from scientists, historians, men of letters and others of that ilk who seldom have statutory or implied responsibilities of this kind.

The question, then, is not whether an architect shall acquire skill, but how and when. We have fallen into the practice of cultivating it in parallel with our formal education. The medical profession meets the problem in much the same way except that it tends to concentrate its training in an end-to-end arrangement late in the curriculum, which, incidentally, takes the same total time as ours. I understand it is now moving towards the parallel arrangement. Most other professions except law, which is too confused to be easily summarized, and music, which has no statutory responsibilities, seem to have presumed that the prequalification period of practical experience is for this purpose.

A question that springs to mind at once is the relative merit of the parallel and end-to-end arrangements.

I think one answer to this arises from our particular needs. Most architectural students when they begin have had no previous sensitizing to visual matters and little, if any, art training, a weakness of our secondary education that has for us the sole advantage that few prejudices have been formed. We assume we start from zero, therefore, and our first problems are to teach the use of the hands to make meaningful marks on paper, and to cultivate an ability to envisage and express on paper related enclosures of space, knowing in particular how they will satisfy use by people. By the end of the first year at the A.A., as in most schools, the student is generally expected to have enough knowledge and skill to design a simple building, and it is generally possible to detect at this stage any people really without capacity to develop skill as an architect.

From this time forward studio work in most schools is chiefly characterized by design projects graduated roughly in complexity and different enough to give exercise in different kinds of problems. These are criticized by studio tutors and lecturing staffs as they develop, and then by major juries including outside practitioners and acting clients. The student accumulates a portfolio on which in this country external examiners pass judgment at the third and fifth years.

This is familiar to most of you, but it tells us little of the real nature of design as a process, and it is this which must be understood if one is to comprehend what training is really for. If you dissect the design process in the finest detail, as a scientist explores the smallest particles in order to understand nature as a whole, it will be found that what is being

* Excerpts from a recent paper by the author, who is principal of the Architectural Association School of Architecture, London, England

cultivated is an intimately alternating process of imagination and analysis. To put it very briefly and crudely, you first get the problem in your mind and try to identify its critical aspects. The imagination —a remarkable bit of mental machinery that can integrate several variables at once into a single concept and thus make design possible—goes into action, lines go on paper to fix the concept, and then the imagination rests for a moment and analysis takes place. Faults and new possibilities are seen and the imagination takes over again, and so on, the process repeating continuously, to modify and extend the ideas. At first only simple concepts can be handled and only slowly, but with experience the process becomes mainly automatic and subconscious. Skill is developing.

The imagination acts intuitively, without reasoning but not without guidance. The kinds of things it formulates are the result of one's purpose and one's capacity to analyze and criticize constructively. This is the source of its guidance. The analytical faculty thus becomes, as I see it, the instrument of one's taste, one's judgment, one's set of values and ethics, and one's knowledge. We cannot create imaginative genius in schools, but we can cultivate imaginative skill by training, and we can develop analysis by education and observation. This is the microcosm of our method and intention.

Now why have I taken so much time to discuss and dissect something that is never seriously questioned in the profession anyway? To your born researcher that would itself be a good enough reason, of course, but it is not what I had in mind. The real and much more serious reason is that a long, hard look is being taken at higher education in Britain today—the Robbins Committee is its spearpoint—and an equally searching look will have to be taken at individual branches of learning by those responsible for them. If something has become a habit rather than a necessity, it should be questioned; if something is exceptionally good it perhaps ought to be recommended to others. Our studio curriculum occupies a lot of time and it is not something that is found similarly developed in any other profession; what view should we take of it?

I do not think there is any doubt that the great majority of architects would agree that what we have is a very good thing, at least in principle. If we were deprived of it by some imaginary but quite possible administrative stroke that produced, for example, one of the evident alternatives, a shorter formal education with the training left to offices, I think we would all expect a drop at once to much lower standards both of architecture and of professionalism. The links between education and design would be severed in time and space, and organized development of design skill under criticism would largely collapse. I do not think anyone would like the result, or find it to the national or personal advantage.

There is, then, the other side of the argument; if we think it sound for us, do we think it should be advocated to others? Most of us have not thought much about this, but it interests me a great deal and I would like to make one or two remarks about it.

First, as a matter of principle it seems to me that professional education generally should be viewed as a category in which the cultivation of skill is a part of the system, to be carried out in an integrated manner alongside the formal education.

I doubt if there is an equivalent need either in the sciences or the arts subjects, and therefore it follows for me that we should perhaps visualize that professional education ought to be longer than those others for the same intellectual levels. I think the incorporation of training could add very valuably to the level and power of professional skill.

My second remark is that so far as our leadership of the building industry is concerned, one of our major problems is that the professions most closely associated with us do not strongly cultivate either a design skill, in the sense in which I have used that phrase, nor a similar social ethos, nor similar working methods. All of these are or should be part and parcel of professional training, and if the country is to be given the service to which it is entitled from its largest spending group of professions, we will have to have a much more consistent educational technique amongst us. Let me in passing commend at least two of these professions which have achieved most heartening developments of outlook in the past five years: the quantity surveyors and the structural designers. The results are very evident and comforting to us.

And my final remark in support of training for professions is this. At the very least it develops organizational thinking, by which I mean the capacity to face a very complex set of factors and resolve them together into a system of some kind which is not merely a set of compromises, but one in which all parts work together in an optimum manner; and at its best it transcends this commonplace. Whatever we make or build that forms part of our visual environment affects people's feelings and spirits, quite regardless of whether we deliberately intend to affect them or not, and it is wasteful, as well as terribly wrong, to ignore the study of this in educational systems. By wrong I mean morally wrong; and here you see emerging an aspect of architectural outlook that is one of our least discussed but most deeply ingrained feelings, that professional life of almost any kind is a service to society and is to be inculcated throughout as such. Professions must be socially conscious; few are.

But I am straying now too far towards the edge of my subject and must return. I have said quite a lot in praise of our studio training in principle, and I wish I could extol the detail, but here I have some misgivings, not about the A.A., which in many ways is exceptionally fortunate, but about our general practice in schools. I am, of course, too new to do more than cast a suspicious glance here or there. Could we look in particular for a moment at our studio program itself?

There was a time when the ideal of this was to cover all the main types of design and forms of construction. The objective was, on the face of it, commendable and it has left its mark upon us in the pricks from our conscience when we drop some time-hallowed item. But was it ever sensible or even possible? Was it, I wonder, the real origin of our five-year curriculum? Whatever the truth of this, I think today we may still have too large a variety of similar things, if you will forgive the Irishism. We seem to have quite a number of building types studied at much the same sort of depth, and the danger is that we end up knowing too little about too much, and perhaps never feeling the sense of perspective, security and authority you get from knowing how deep you have to go to obtain real understanding. It is the unknown that most of us fear.

I am not going to take you through a catalog of possible studio objectives, but I would like to identify one question that crosses my mind time and again; do we sufficiently experience thoroughness? You will note the distinction implied here beween comprehensiveness, about which I have just expressed suspicion, and "thoroughness." We cannot be thorough in the sense of being comprehensive, but I believe we can and ought to know thoroughness as an experience. Our chief educational problem is not to stuff people full of facts of immediate usefulness, but to reveal to them the depth of architecture in its modern context, to equip them to comprehend deeply what they look at, whether it is their own work or the work of others; and above all how to penetrate new problems and come to reliable conclusions. A set of values and a kit of tools, embodied in an outlook and a method of attack: this is another way to state our problem in training. We would all subscribe to this; my fear is that too few of us have the courage to face its implications in education.

One unexpected risk attends the development of thoroughness. Preparatory study for a design can become a fascination in itself to the point where one begins to believe there is always more to be known, and decisions become difficult to take. Sometimes, in fact, this can almost totally inhibit design. The danger is perhaps especially near the surface at present when life is full of experimental work, and it reveals a facet of the handling of science in architecture which relates the art-science tension intimately and in a surprising way to education.

The Development of Analysis

Now, I have said quite a lot about our methods of developing skill but nothing about the educational content of the curriculum where we acquire much of our basis of analysis. We depend upon our imagination to do design, but imagination itself depends upon the terms of reference we give to it, and these are largely developed in our formal education. If this is well-balanced and penetrating, well and good; if it is lopsided or has big gaps in it, our design will reflect this.

What about our formal education then? Is it of the right sort, and has it got in it what we need? Looking at the situation generally, I confess I am not very thrilled.

I could perhaps document this by pricking holes in what we do at present, but instead I am going to describe roughly the kind of pattern I think we ought to have, and see where that leads us.

The first element in my pattern would be the study of people, as individuals and as groups.

As individuals they chiefly are of concern to us as sensory systems, for in these lie not only the fundamental and constant determinants of human comfort and convenience, but also the whole of the emotional response characteristics to which the highest practice of our art is directed; it is not merely what kind of environment gives comfort, but what gives delight, or moves us deeply in some way.

As groups the collective behaviors of people and their needs are our constant concern as the basis of planning. Families, crowds, meetings and movement, pleasures and necessities in everything from one-room flats to whole cities, these are our responsibilities. At once for this purpose we reach towards such studies as psychology, philosophy, sociology, economics, and flow systems.

An entirely different part of the pattern concerns the technique of building. Structural design, construction, materials, equipment, the prediction and control of cost, the problems of building organization and craftsmanship—all these (and perhaps one or two I have forgotten) form the substance of our technology.

An important element in our scheme of things is communications, by which I mean the flow and movement of vehicles, of people, of power, of liquids, gases, of wastes and production. They have important similarities which are causing us to teach them in future as a group at the A.A., but regardless of how they are handled, they provide on the one hand part of the theory of planning and on the other an important element in technology.

History has always been dear to us, not so much because it is a generally civilizing study as because it exemplifies the way in which our raw material has been processed together by the minds of earlier designers to make architecture. Then, too, it shows us totality, for which we are always striving, so that those qualities which we cannot yet formally explain and teach in a fully reasoned manner may yet become apparent: scale, for example, or rhythm and texture and character. In this sense it has been perhaps a better insurance against our other educational deficiencies than we realized. Of course, above all else it documents for us the manner in which our art becomes the physical embodiment of society's outlook and character.

My list concludes with the professional material which is our introduction to law, management and the ethics of practice, a group which now will have a heightened importance as we enter a phase of history when our productivity will have to take a great leap forward and society has become claims-conscious, aware of its rights and our duties.

There are several studies, such as landscape and civic design, that perhaps do not seem to have a place in my pattern, but I am only concerned here with a rough outline and will not delay to fit them in. Others, such as lighting and acoustics, have not disappeared from my picture but are divided up among the groups I have mentioned.

Now, any architectural educationalist can look at my outline and, if it is as comprehensive as I hope, he could pick holes in existing curricula. This, however, is not the use which I want to make of it, for it reveals to me two problems of far deeper concern to which I want to draw attention.

The first is this, that the subjects themselves have to be formed in almost every case by combining borrowings from several other fields of learning and specially processing them for our use.

Take structures, for example. Structural design is a well-known branch of engineering, yet in its native form it is not very satisfactory for us, as any structural engineer who has taught architects will tell you. What we are chiefly concerned with are structural *systems*, understood as such, and not so much in a computational sense as in form. "Strength through shape" would be a way of summing up part of this concept; but in addition we have to see these systems in terms of economics and build-ability for the kind of design problem confronting us. We do, in fact, also require computational skill up to a point, but this is not our main problem.

Now, some may say that you cannot understand structure without considerable mathematics. If we admit this we admit something which goes against much evidence of recent years. What I would suggest is that if you have mathematical ability you may be able to understand structures in one way and to a relatively advanced level; but if you are not mathematical—and many good architects are not—I think we have to believe it can be taught successfully in another way less dependent upon numbers. The fact is that collaboration in recent years between architects and sympathetic, imaginative structural engineers is yielding real advance towards mastery of structural form on both sides, without any improvement in architects' mathematics at all. To a large extent we seem to act and learn by forming conceptual models.

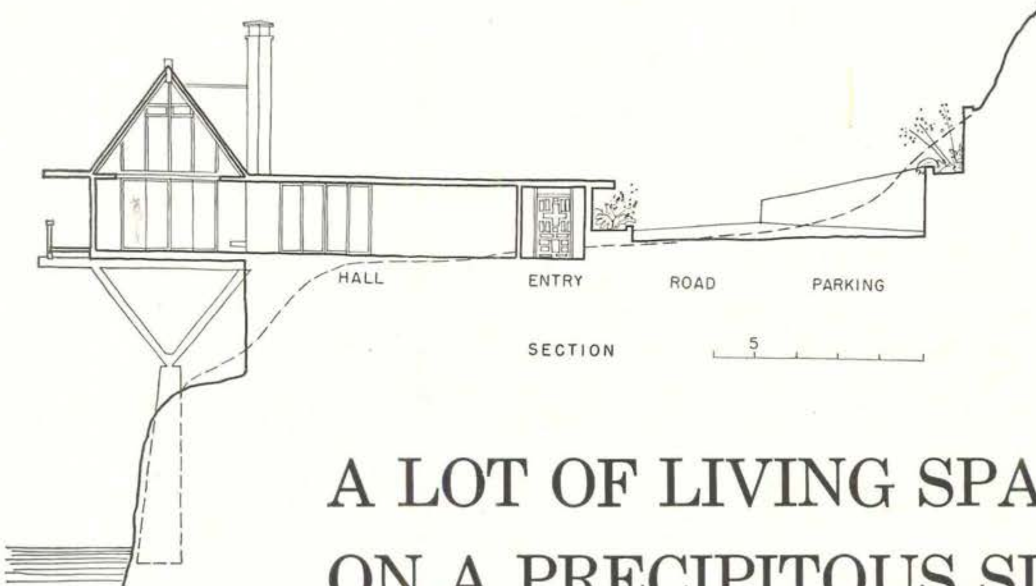
I believe we have lacked the courage of our convictions as a profession in this matter. We have taken a really disproportionate part of our education time and effort to get as near to engineering computational standards as we can, and the going is so hard that many of us miss these by quite a long way—and also miss the opportunity to make a truly architectural study of structure. In some ways numbers can get in the way of ideas, which are the things we really want to produce. It may be interesting to report that we give here about 135 hours of tuition in structures, comparable with the lecture curriculum of good engineering schools, but we cannot pretend to produce structural engineers, even with students of comparable mathematical standing to begin with and excellent teachers. We must take a fresh look at this subject.

Another problem revealed in my rough outline of a curriculum is our long-established duet of construction and materials.

Both of these are combinations of crafts, sciences and technologies. They are vital to our education, but even so it has been a great struggle to get them geared up to anything like reasonable levels. Once again it is our predicament that neither subject is an academic discipline which we can lift straight from somewhere else, and only recently have we begun to feel less lonely about them, as advanced studies of building have begun to develop in colleges, and to experience similar needs. Even so there are differences between designers and constructors that make for big differences in the courses.

Take finally a third subject, this question of the individual as a sensory system. All sorts of people study him, neurologists, physiologists, psychologists, even physicists and chemists. Most of them, in true scientific fashion, study some special aspect only; few look at the whole of one sector, and even fewer are concerned with the whole man as a perception mechanism, which is our interest. Pity the poor teacher of architects! How is he to build up a course of relevance and quality in a subject like this?

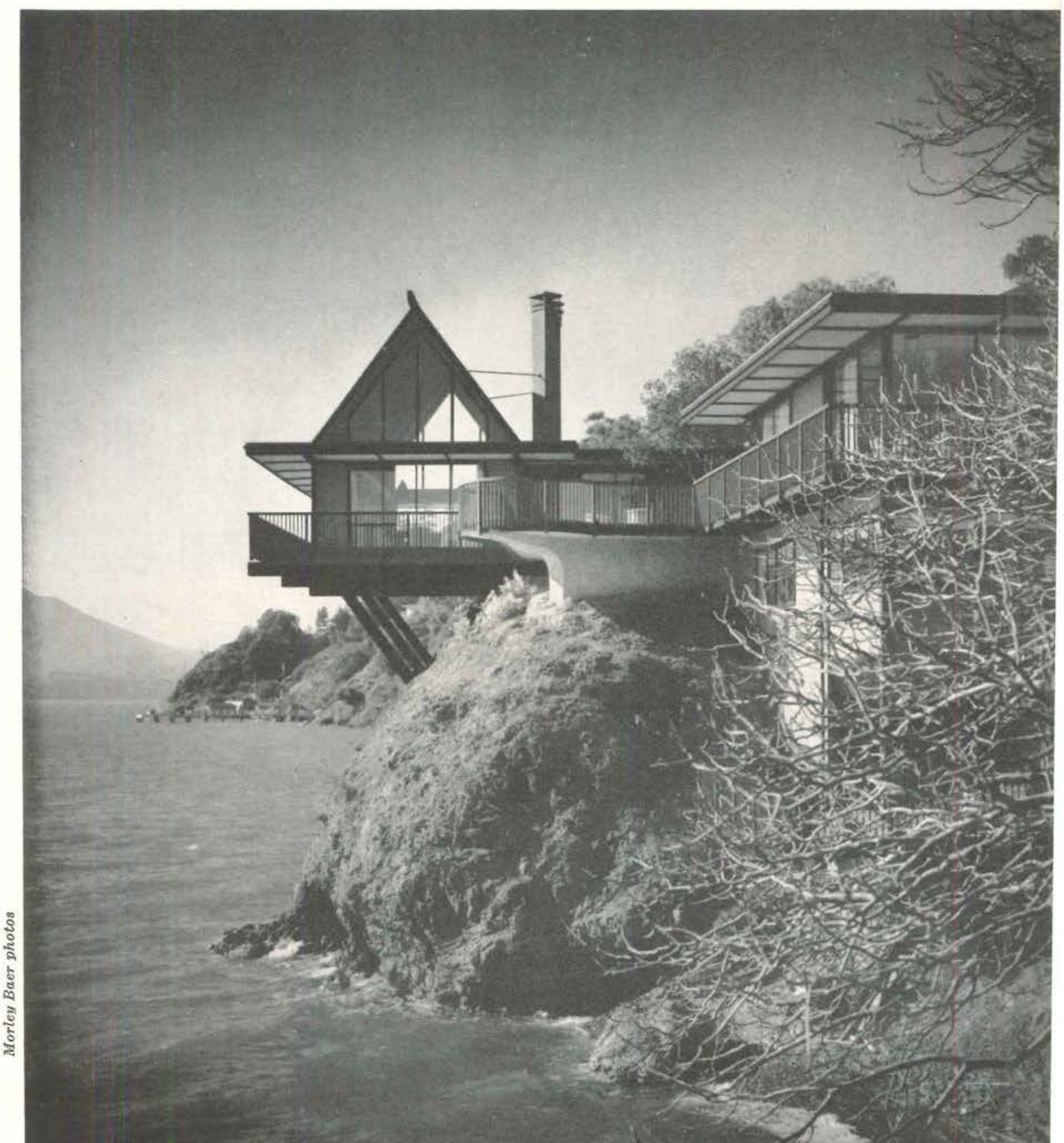
I could add the remainder of the courses to the catalog, with perhaps the exception of history, but these will serve my purpose, which is simply this: to assert as clearly as I can that almost throughout the variety of subject matter which we properly should have in our curriculum, there is to be found no major subject which we can take directly from any other field of study at present; and that we therefore cannot expect to find either courses or ready-made teaching staffs in reasonable numbers and high quality. We have lived too long without facing up to the implications of this fact of life, and until we do so, we will not get down to lifting ourselves by our own boot straps, which is precisely what we have to do if we are to get our education geared up to the kind of level we know to be possible and necessary.

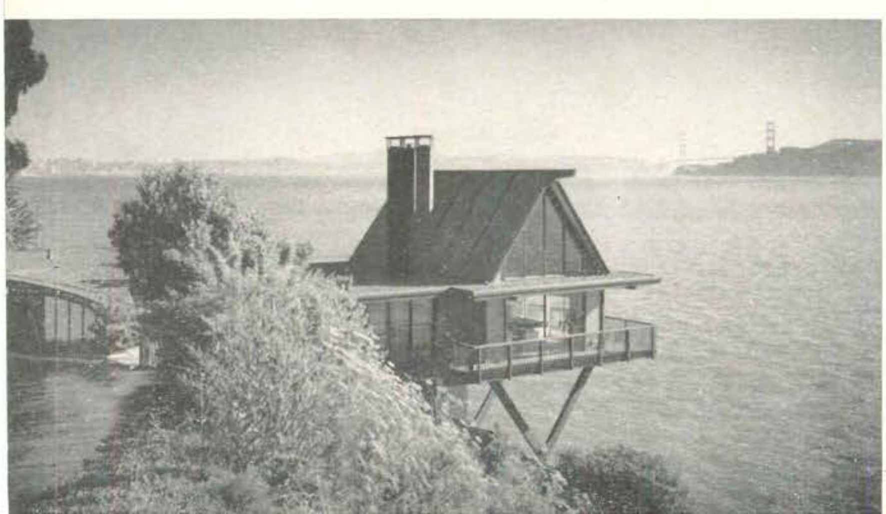


A LOT OF LIVING SPACE ON A PRECIPITOUS SITE

Rockrise and Watson fit a big house on an almost nonexistent building plot

Morley Baer photos





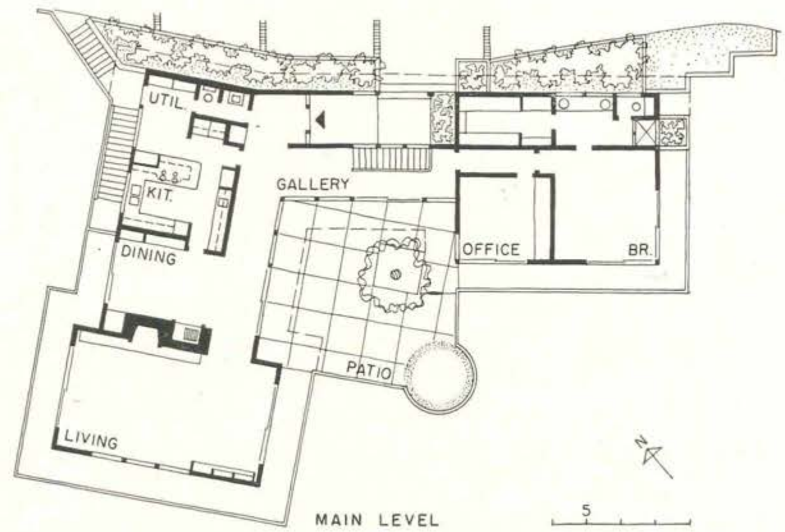
Residence for Mr. & Mrs. Merrill Matzinger
Belvedere, California
ARCHITECTS: *Rockrise and Watson*
ENGINEERS: *Gilbert, Forsberg, Diekmann & Schmidt*
CONTRACTOR: *Charles J. Hendrickson*
LANDSCAPE ARCHITECTS:
Lawrence Halprin & Associates
INTERIOR DESIGNERS: *Doree Kerr Associates*

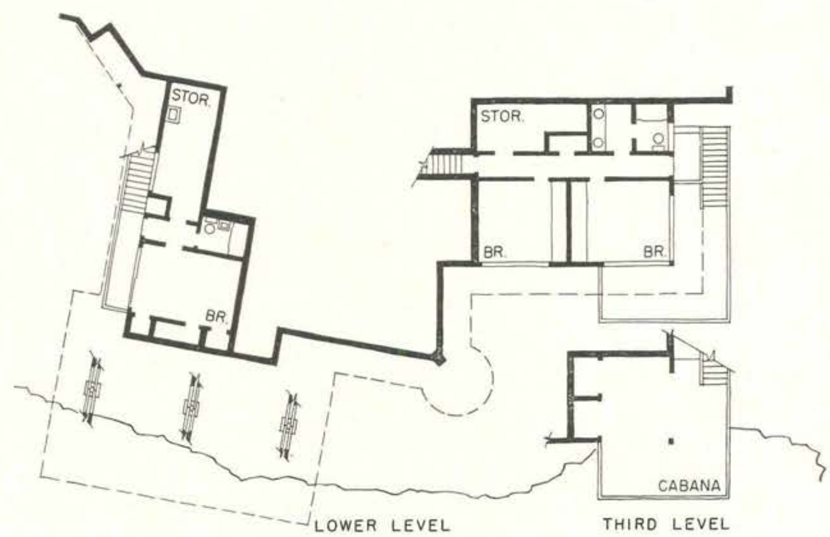
A remarkable amount of ingenuity was used to reconcile the program for this handsome spacious house with the tiny, steep building space available.

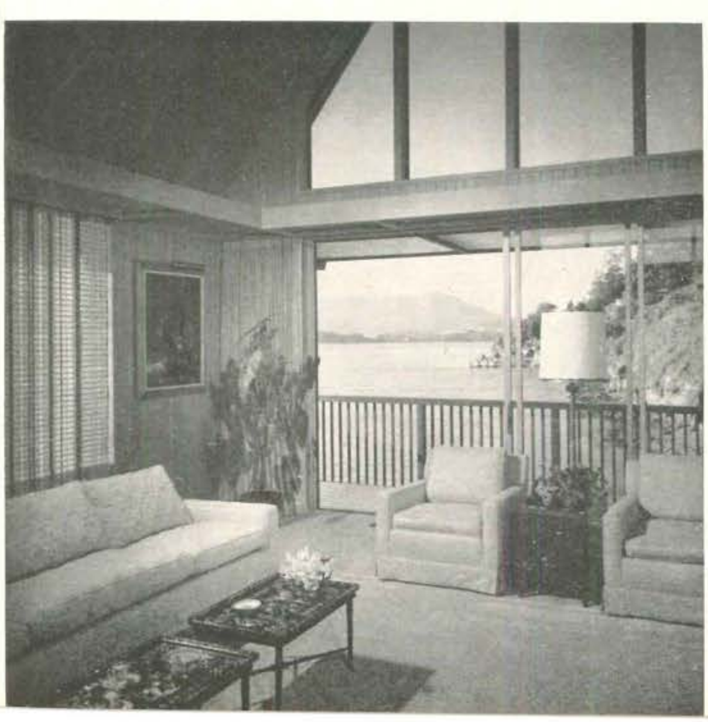
The site was chosen for its spectacular views of Golden Gate, Sausalito and Mt. Tamalpais—and for its location on Belvedere Island, a beautiful little neck of land, heavily wooded, which juts out from the Marin County side of San Francisco Bay. Little "buildable" flat land is left in this section. This plot had a 300-foot frontage on the bay, and a very small projecting knoll about 35 feet across, which drops 60 feet to the beach line. The balance of the site is simply a steep bank, an existing private road cut into the wooded cliff face, and a small cove with a little beach below a wooded grove.

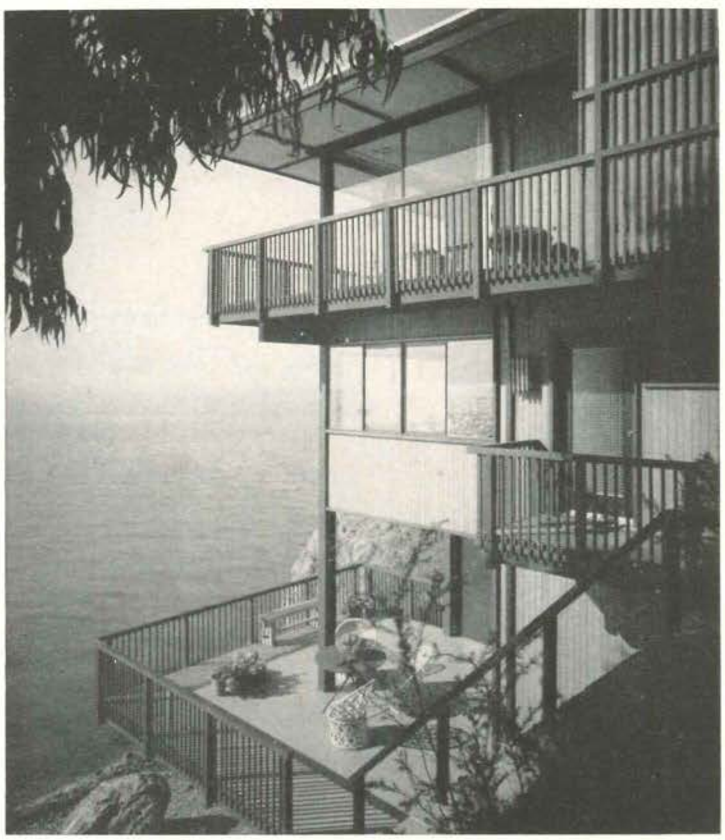
The program, as can be noted from the plan, required very ample living spaces (indoors and out) plus a bedroom-study suite for the parents, separate childrens' bedrooms which could be closed off when they are away, and separate servants' quarters to be occupied by a caretaker if the family is away.

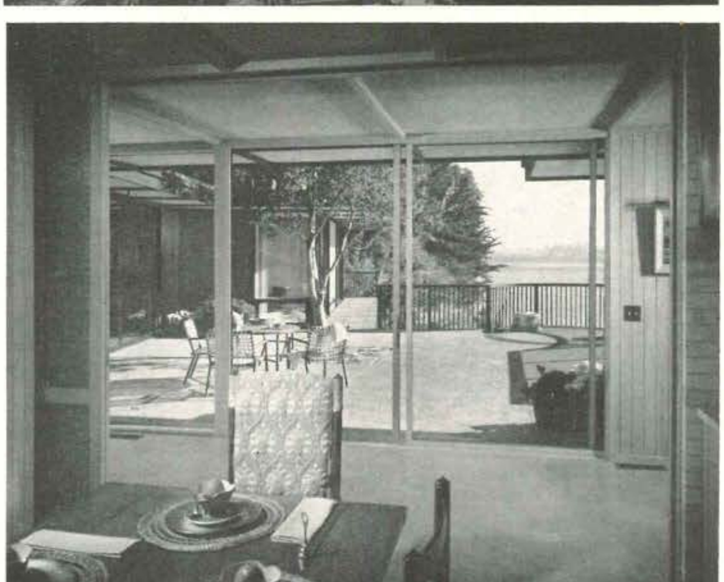
The final plan is a three-level scheme, which gains space by placing the living room and its surrounding deck on wood struts over the water—high to capture the entire view. Next to this, the crown of the knoll was lowered to provide a 600-square-foot patio on grade, which connects with all major rooms via balconies. Bedrooms for children and servants are on the middle level, and at the lowest level is a cabana for entertaining near the little beach. Parking is provided in a widened section of the private drive, and in a graveled section of the grove.











The surprising amount of outdoor living space in the Matzinger house, considering the sharp fall of the site, can be noted in these photos. *Top*: A little terrace and garden give a pleasant entrance. *Center*: The photo shows the variety of balconies and terraces on the three levels. *Bottom*: The large patio opens off the major living rooms.

The house is wood frame on concrete foundations. The exterior is redwood and stucco, with a heavy aggregate roof over the flat portions, shingles over the peaked living room. Main rooms have walls of clear hemlock paneling, floors of quarry tile. The rest of the house is finished in gypsum board, with carpeted or vinyl tile floors. The heating system is a gas-fired, warm-air, perimeter one with three furnaces

BUILDING TYPES STUDY 318
®

OFFICE BUILDINGS

Here and there in many outlying towns and villages, some seemingly new kinds of office buildings are appearing. The Michigan Bell Telephone complex (page 184) and McGraw-Hill's Hightstown buildings (page 189) represent one of these new types. Both were built to house extensive, relocated, clerical and other "paper work" operations which their owners found to be relatively independent of their former urban locations. Diversity in their design, of course, reflects architectural solutions to two different programs for two different sites. They are, nevertheless, one kind of relocation.

Another kind of ex-urban office structure is represented by American Airlines Data Processing Center (page 194). Here, all reservations and loadings for all scheduled flights of the line's entire network are handled by a battery of machines fed by wires and supervised by a relatively small staff. Similar centers handle such massive tabulating and sorting tasks as credit card billings or (see page 198) telegraphed florists' deliveries. This type is relatively independent of location. Many data centers are, of course, in cities. But they are finding increasing welcome as congenial taxpayers in outlying towns. A data processing center of very large capacity can be housed in compact quarters. The American Airlines center, one of the largest one-company computer centers in the country, has a machine room of only 7,000 square feet in a total building floor area of 20,000 square feet.

Still a third out-of-the-city office type is being located in industrial parks throughout the nation. Some of these, such as the Facit offices (page 196) are quite conventional in program and serve as national, division or distribution headquarters. Others, such as U. S. Steel's Engineering building in Monroeville, Pennsylvania (page 182), house a variety of special office functions which may or may not be limited to serving the operations of nearby manufacturing or research establishments.

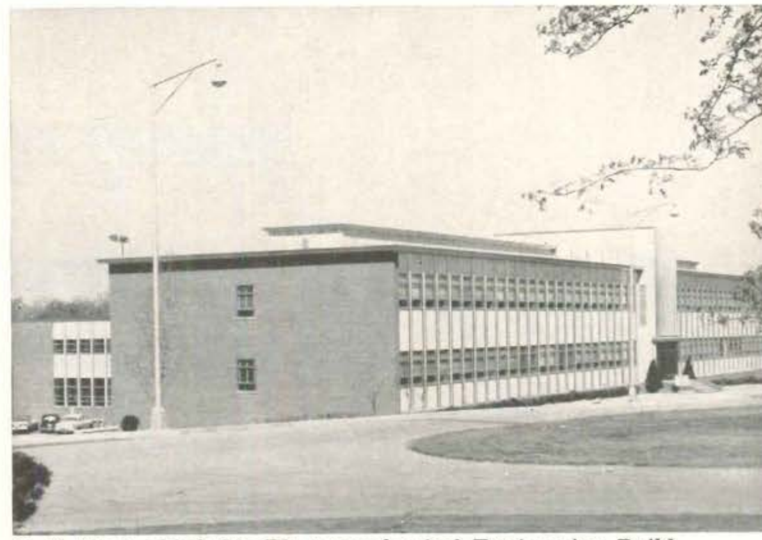
All of these out-of-town types have one motivation in common: economics. As their parent companies grow into increasing space requirements while urban values spiral, certain changes in outlying conditions are making these new types feasible and logical. Business operations which do not require the physical convergence in cities of diverse specialized personnel are following an increasing supply of reliable clerical help well fortified by supervisory and other specialists who are willing, in fact eager, to forego the contact advantages of commutation to the city. To the obvious real estate and tax advantages of country location, three maturing technical developments add their weight to executive decisions to move at least some of their operations out of town: the automobile and its associated highways; the computer, with its labor-saving, wire-connected independence; and the telephone, offering new, wide-area, fixed-fee services and data-phone devices for transmission of "machine talk" from one computer to another. A telephone executive predicts that this data load will one day exceed the voice load.

This new freedom of location has, indeed, induced some spectacular relocations of corporate headquarters such as those of General Foods and I.B.M. (page 182). But these instances by no means establish any mass exodus of corporations from city office space. The Real Estate Board of New York, surveying "the largest commercial construction program in human history" in New York City, reports that 99 per cent of post-war completed office space is occupied. The giant Pan Am Building was 86 per cent rented three months before its completion date. The urban office building boom is nationwide and includes such first class rental space as the First Federal Building in Detroit (page 202) and corporate skyscrapers like New York's Union Carbide and Chase Manhattan buildings and Humble Oil's "tallest building west of Chicago" in Houston.

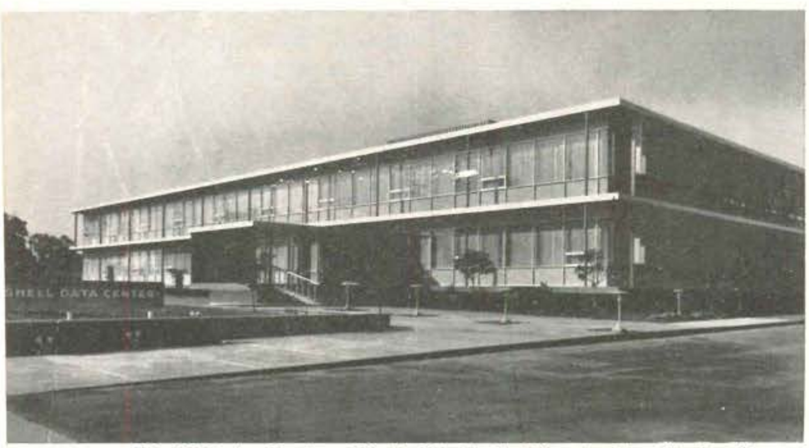
A survey of 74 office buildings constructed in the last five years by 22 of the nation's largest industrial corporations, reported on the following two pages, shows all of the diversity mentioned above—and two-thirds of those buildings are in cities.

The trend, then, if there is one, seems likely to be toward flexibility of urban office spaces for tenant and executive occupancy, but without the huge, uncuttable expanses for clerical occupancy.

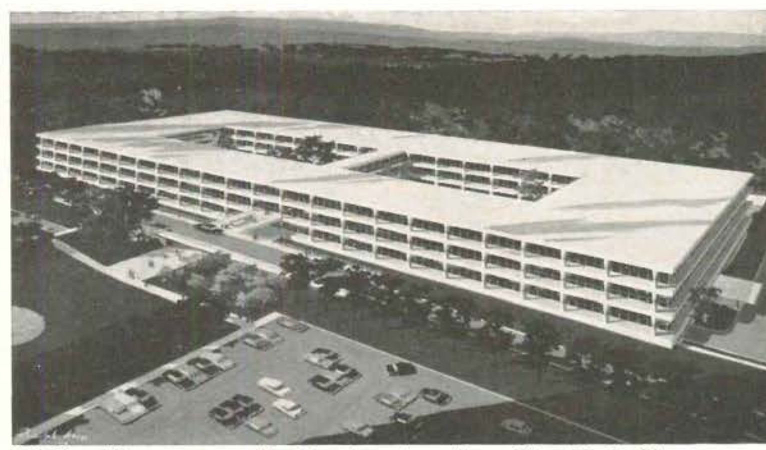
General Foods' headquarters by Voorhees, Walker, Smith, Smith and Haines, 1954-1963, are nearing final phase (*above*) in White Plains, 20 miles north of New York City



U. S. Steel added this Electromechanical Engineering Building by Charles M. and Edward Stotz Jr., 1960, to its Applied Research Center in Monroeville, Pennsylvania



Shell Data Center, Menlo Park, California, by Clark, Stromquist, Potter and Ehrlich, 1962, houses punch-card and magnetic tape machines to process credit card billing

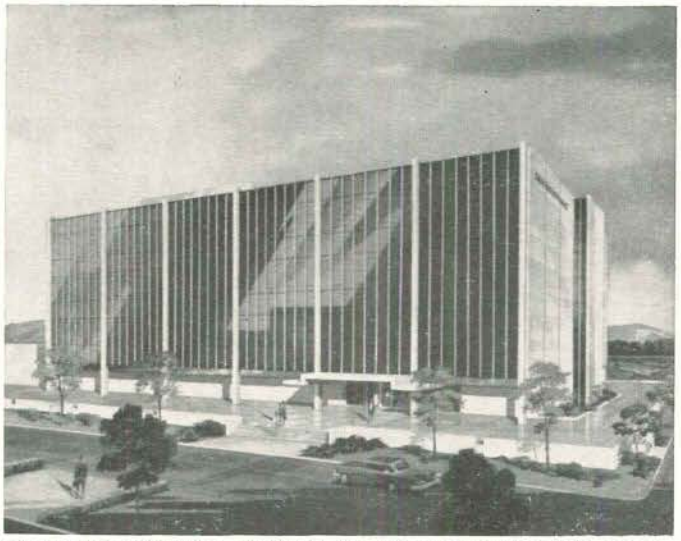


I.B.M. will move executive headquarters from New York City to this 400,000 square foot building by Skidmore Owings & Merrill to be built this year in suburban Armonk, N.Y.

A SAMPLING OF OFFICE BUILDINGS FOR INDUSTRY

Buildings shown above and opposite are a sampling of the kinds of separate office structures (not attached to manufacturing plants or warehouses) represented by current building activity of large industrial firms. New corporate headquarters, regional offices, data centers, and specialized office buildings are extremely diverse in site location and in financial arrangements for ownership or leasing.

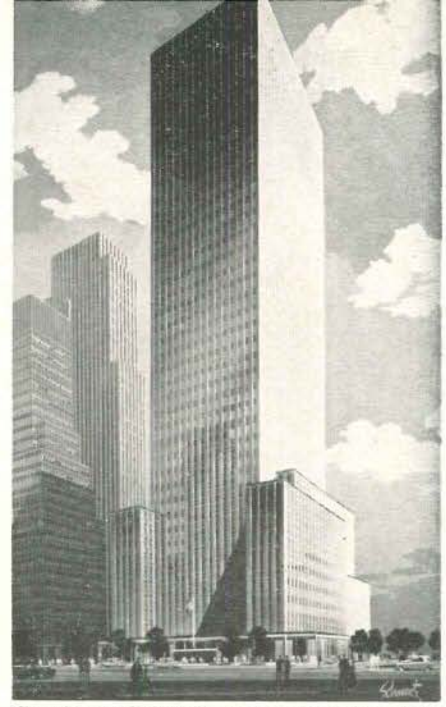
To spot any evidence of trends toward new kinds of offices or new site criteria, a survey was made of the largest U. S. industrial firms (in terms of 1961 net sales). Elicited comments show that hard economics and inherent business differences determine the variety in office building programs and locations. While no statistical extrapolation is warranted from the sample taken, a tally of the 74 new occupancies reported by 22 firms show some interesting distributions: 34 were corporate or division headquarters, the other 40 were for special functions; 61 were occupant-owned; 49 were built in cities.



Rocketdyne Division of North American Aviation will occupy this 60,000 square foot headquarters by Kenneth Neptune, 1963, built next to R.D. plants in Canoga Park, California

Bethlehem Steel's Seattle office building by Bindon & Wright, 1960, is one of four such regional city offices (another is at right, center) built since 1959 in urban business centers

R.C.A. will lease four floors (42,000 square feet) of this Hollywood building by Albert C. Martin & Associates, 1963, for new Victor Record Division studios, offices and data processing



Continental Can is major tenant of this New York high-rise by Harrison & Abramovitz, 1961, owned by realtors

Bethlehem Steel's own downtown San Francisco offices by Welton Becket, 1959, has 13 floors, no inside columns

Western Electric's 31-story glazed brick home by Shreve, Lamb & Harmon is near parent AT&T in New York City

Baltazar Korab photos

SERVICE OFFICES GATHERED ON A PROBLEM SITE

Michigan Bell Northwest Office Center, Southfield, Michigan
OWNER: *Michigan Bell Telephone Company*
ARCHITECTS—ENGINEERS: *Smith, Hinchman & Grylls Associates, Inc.*
B. L. Miller, partner in charge
Sigmund Blum, associate in charge of design
LANDSCAPE ARCHITECTS: *Eischstedt Johnson Associates*
GENERAL CONTRACTOR: *Bryant & Detwiler Company*

The building program of the Michigan Bell Telephone Company included centralization of four basic office functions on a 41-acre suburban site. The four operations to be relocated were: Detroit Disbursements Accounting, the Woodward Division office, Engineering, and Telephone Directory. The company had decided on the move to consolidate operations and to take advantage of lower land costs and lower taxes. The site was purchased in a developing residential area where high quality clerical personnel would be available.

The order of construction was not fixed at the beginning of the project except that the Detroit Disbursements Accounting Building was to be the first ready for occupancy. Space requirements for this building had already been determined including functional relationships between various areas and a 16- by 24-foot bay size which had proved suitable to similar functions in the client's Port Huron Accounting Building completed a year previously. The determination of these criteria, and the zoning restriction at the site stipulating the maximum height of 35 feet above grade, resulted in a three-level building, 480 by 96 feet in plan. Functional relationships established that the main building entrance would have to be more or less central in the long side. This seemingly small detail played a major part in development of the various buildings on the site.

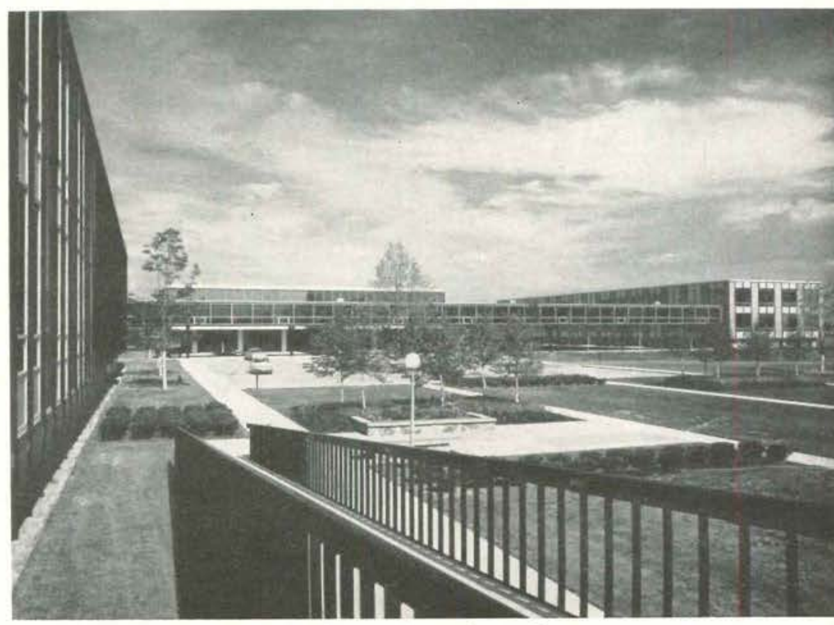
Although 41 acres seemed a generous allotment for the project, it was determined that state highway easements would require about five acres, township zoning setbacks would prohibit building on about 10 acres, and the client's reserve for future development or sale eliminated about seven acres at the east end of the site. All of these deductions reduced the area available for actual buildings to about 20 acres. Other site restrictions, in addition to a maximum height of 35 feet above grade, included a usable floor area not to exceed 40 per cent of the land occupied and a parking ordinance requiring 1½ square feet of parking area to one square foot of usable floor space.

The site itself was practically level with a surface swamp in the middle, no storm or sanitary sewers, and a water table following from 1 to 6 feet below natural grade. A sanitary sewer was installed before the first building was occupied. Drainage ditches were put in along north and south property lines with head walls at the west end to allow slow run-off. The center of the site was filled to a depth of 3½ feet. And, since windows would be needed in some basement areas, buildings were raised so that the maximum ordinance height above grade would be achieved.

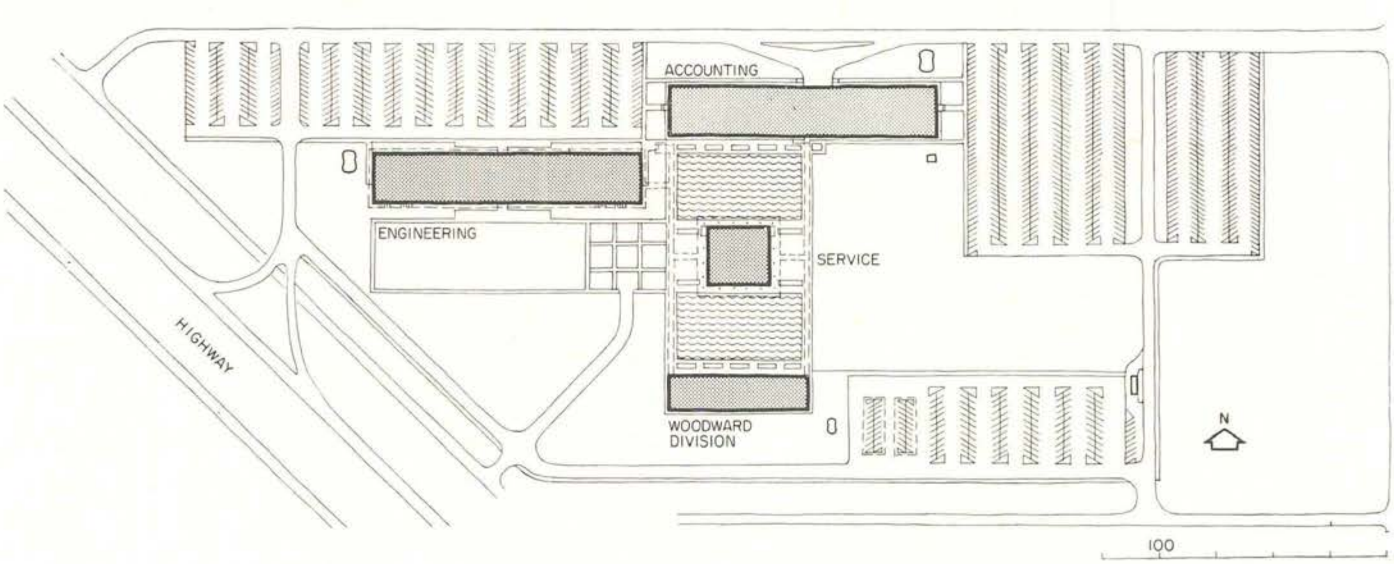
Construction program and dissimilar occupancies more or less dictated three buildings similar in shape and one building considerably smaller to house certain common services such as cafeteria, medical department and employment office. Since the Disbursements Accounting Building was to be the first constructed, its basement was assigned to as many as possible of the project's central mechanical facilities including boiler room, primary switchgear, shipping and receiving, maintenance shops, etc.

The ultimate plan was developed as four large masses of office buildings (three are now in place with mall space for a future fourth) grouped around

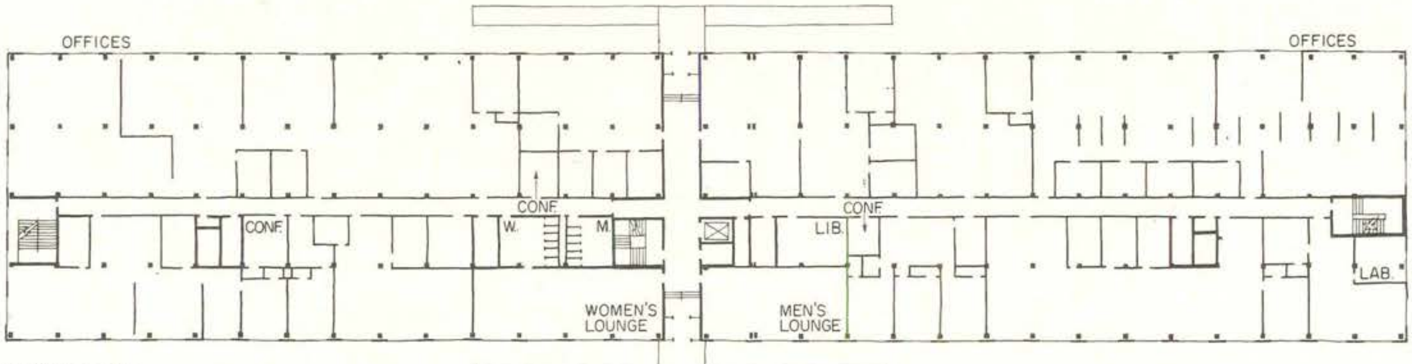
View from Woodward office across south pool



Ramp from engineering building exit to the mall



Western facade of service center (*right*)



Engineering building

and connected by enclosed bridges to the smaller service center building. The large buildings were designed to be almost identical in appearance and to contrast sharply with the more freely designed service center. This was done to assure a pleasing composition regardless of the order of construction. Two large reflecting pools flanking the service center enhance the mall and serve as a storm water control element.

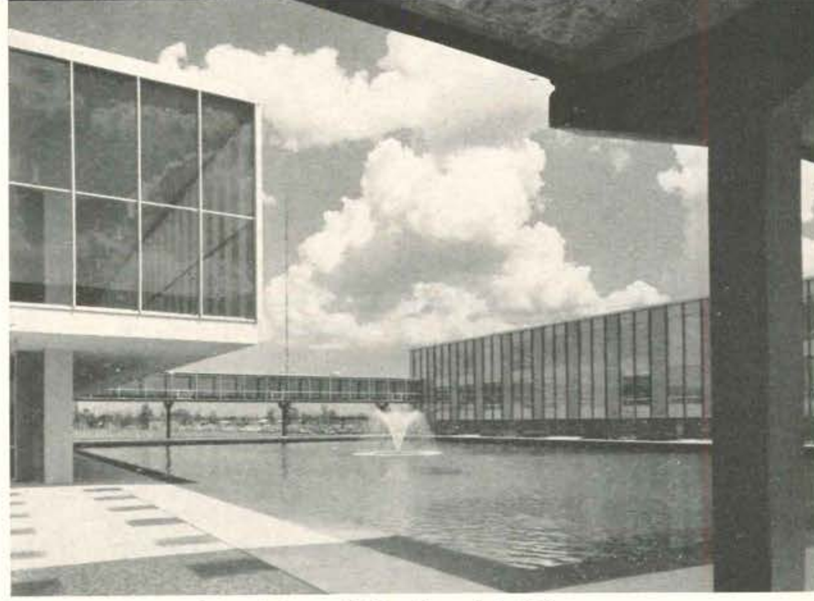
The office buildings are of window wall exterior set on recessed bases of colorful glazed brick. Framing is structural steel and reinforced concrete. Spandrels are porcelain enamel and glass. Interior walls are painted steel and block. Floors are concrete over cellular steel deck finished with asphalt or vinyl tile. Ceilings are lay-in grid system. Windows are ¼-inch gray plate glass.

Treatment of the service center was varied both visually and structurally. White fascia and mullions of the upper, cafeteria floor overhang a columned walkway around the recessed main floor which contains reception, employment and medical areas. A lower level houses kitchen and storage areas.

Pyramidal shapes of the three-dimensional ceiling of the upper level reflect actual roof construction of 24 inverted pyramids supported by single columns at each vertex. Top tension ribs form a system of air supply ducts as well as lateral bracings. Columns contain roof drain pipes with heating devices to prevent freezing.

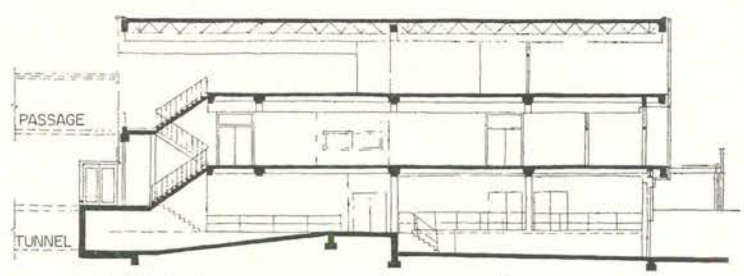
Elevated, glass-enclosed bridges connecting all buildings to the upper level of the service center consist of paired parallel vierendeel trusses with metal roof deck resting on the top cords and a 4-inch concrete floor resting on the bottom cords. Bridges ride freely on Y columns set on 42-foot centers. The 500-foot bridges are anchored at the center Y columns to allow free movement on lubrite bronze shoes toward each end.

Landscaping was designed as a central mall with various centers of interest within the discipline of a concrete grid of walkways. These centers are in the form of terraces where small groups can sit and converse or eat luncheon in pleasant weather.

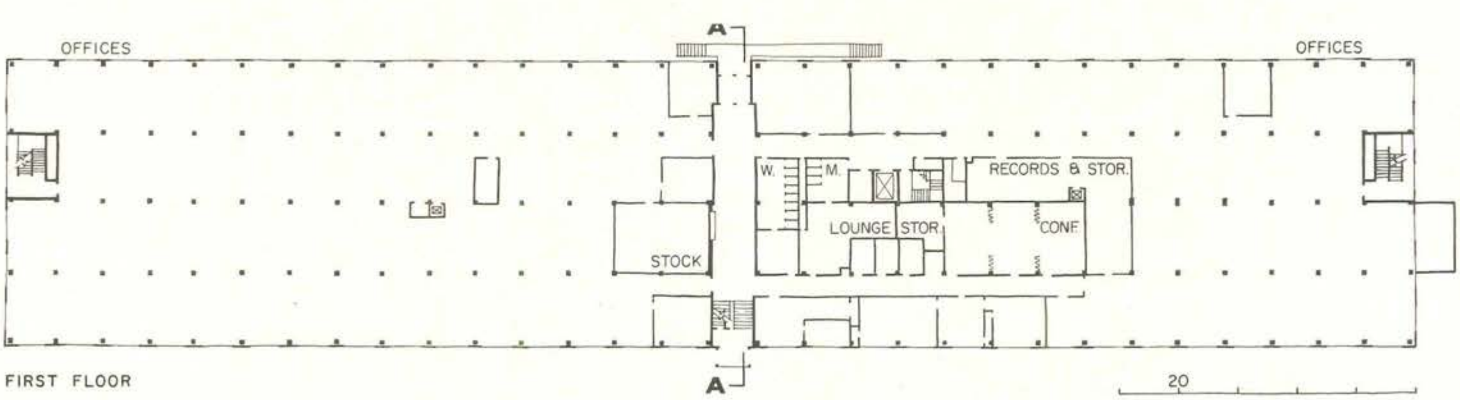


View across south pool toward Woodward building

Engineering building (*left*); accounting building (*right*)



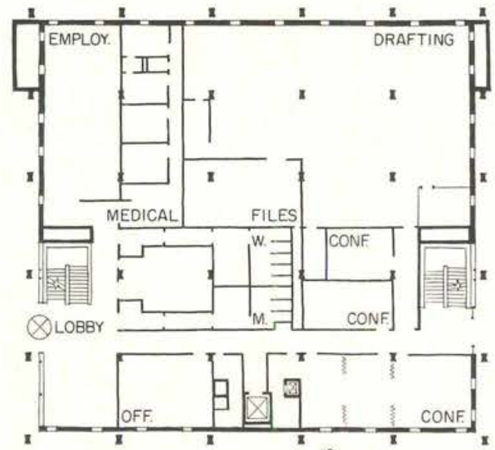
SECTION A·A



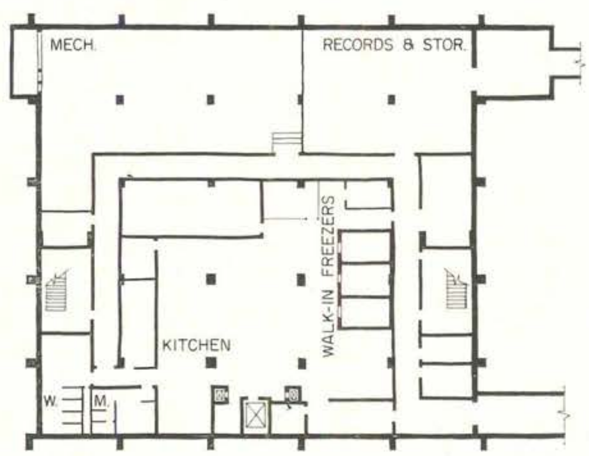
FIRST FLOOR

Accounting building

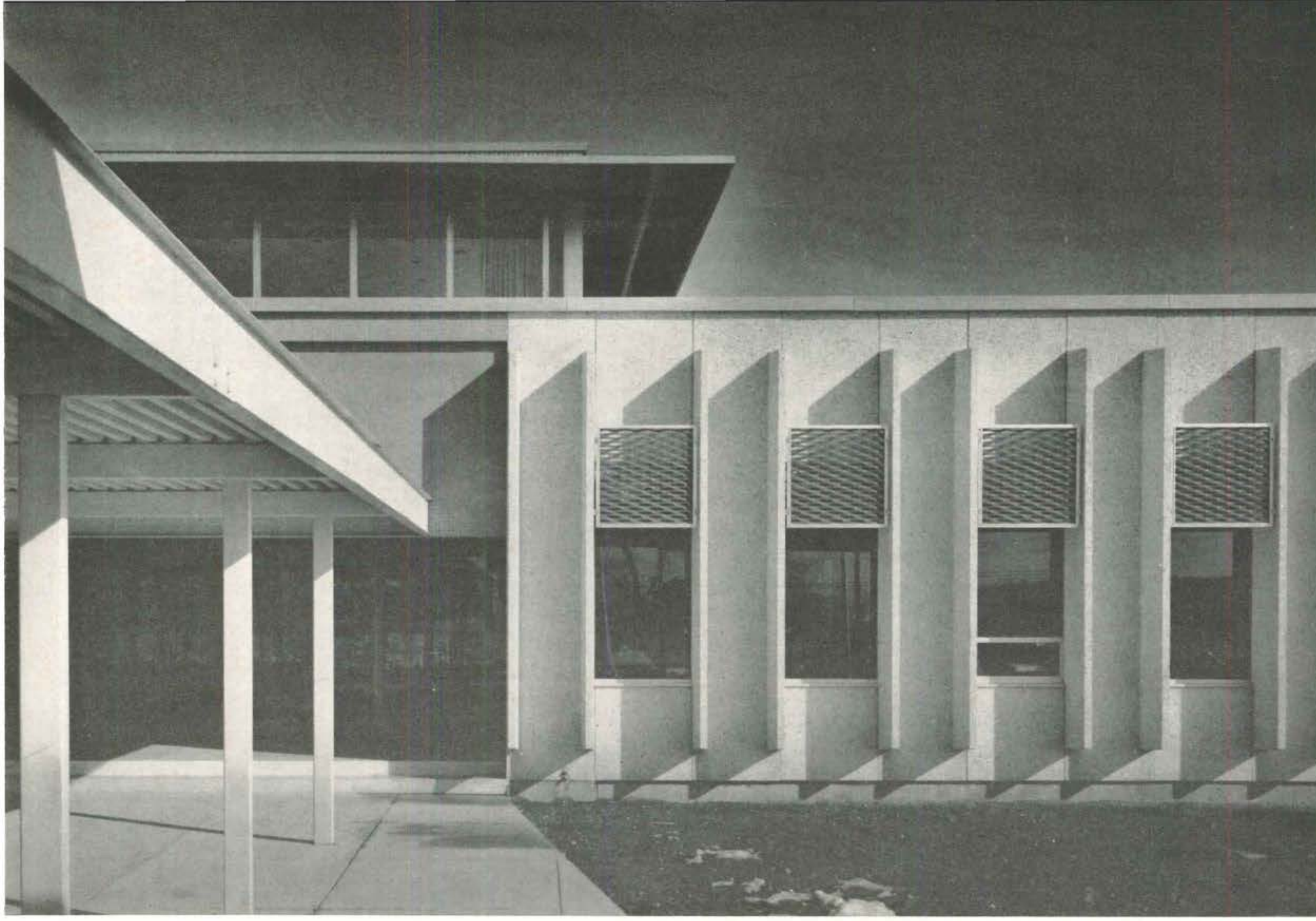
Service center building at the Michigan Bell complex is a three-level structure, approximately square in plan. Main level is entered from the mall and contains visitors' lobby (*below*) with access to employment and medical offices to the north and various service and conference rooms to the east. Large open space at the northeast is now used as a drafting room. Lower level contains mechanical rooms and a kitchen which serves, via dumb waiters and elevators, a cafeteria on the glass-walled upper level. View (*at bottom*) shows pyramidal roof structure expressed in ceiling of the upper level. Enclosed bridges give access to this level from three office buildings



MAIN LEVEL



LOWER LEVEL



FLEXIBLE SPACES, FOR PAPER WORK, IN THE COUNTRY

McGraw-Hill Office Buildings
Hightstown, New Jersey
OWNER: *McGraw-Hill Publishing Company, Inc.*
ARCHITECT: *Alfred Easton Poor*
STRUCTURAL ENGINEER: *Marvin Lovett*
MECHANICAL ENGINEERS: *Syska & Hennessy, Inc.*
SITE PLANNERS: *Stelling, Lord-Wood and Van Suetendael*
INTERIORS: *Doris LaPorte*
LIGHTING CONSULTANT: *Berlon Cooper*
GENERAL CONTRACTOR: *Irwin & Leighton, Inc.*

When McGraw-Hill faced the need for a new office building several years ago, many firms with large offices were blithely announcing plans to move to the country, where the grass was obviously greener. Some of them did forsake the city, building great horizontal office buildings in parklike surroundings. Others studied the idea carefully, decided that the city had advantages not to be sacrificed, and built new buildings in downtown locations.

The new Hightstown office buildings of McGraw-Hill represent a studied answer to such a problem, one which realizes the advantages of both alternatives. The question of country vs. city was broken down into specifics—who and what should be in the city, who and what in the outlying community. The resolution suggests a concept of office arrangement which might have important effects on building design, either in or out of the city.

The Hightstown buildings are not in the suburban pattern. Hightstown is 49 miles from New York and 47 miles from Philadelphia. The area was first chosen as a distribution and warehouse center for McGraw-Hill's huge book operation. Employes were largely recruited locally; there was never any thought of extensive commuting by anybody.

Further analysis indicated that such a location was also good for many of the clerical and data

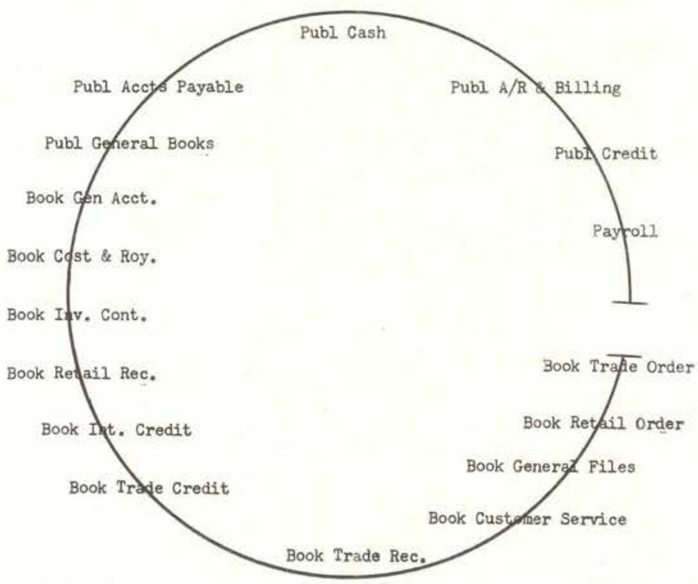
DEPARTMENT ____________
PREPARED BY ____________ DATE ________
APPROVED BY ____________ DATE ________

AVERAGE DAILY ACTIVITY OF (CHECK ONE):
1. PERSONAL CONTACTS ____________
2. TELEPHONE CALLS ____________
3. TELETYPE AND WIRE COMMUNICATIONS ____________
4. REGULAR OF
5. REGULAR OF AND PACKAG
6. SPECIAL HA

TO: BOOK COMPANY DEPARTMENTS (1–12); PUBLISHING COMPANY DEPARTMENTS (13–18); CENTRALIZED SERVICES DEPA (19–)

	FROM	1. G.A.	2. C&R	3. TOS	4. ROS	5. Cust. Svc.	6. Gen. Files	7. Tr.Cr. & Col.	8. I.C.& Coll.	9. Ret. Rec.	10. Tr. Rec.	11. Mlg. List	12. Inv. Cont.	13. A.P.	14. Cash	15. Cust. Rec.& Bill.	16. Gen. Bks	17. Pay. Serv.	18. Cr. & Coll.	19. Pub. Meth.	20. Book Meth.	21. Comp. Pln. Prog.	22. Office & Bldg Serv.	Ke
BOOK COMPANY DEPART-MENTS	1. General Accounting	X																						
	2. Cost & Royalty		X																					
	3. Trade Order Service			X																				
	4. Retail Order Serv.				X																			
	5. Customer Service					X																		
	6. General Files						X																	
	7. Trade Cr. & Collec.							X																
	8. Inter Cr. & Collec.								X															
	9. Retail Receivables									X														

Portion of average daily activity form

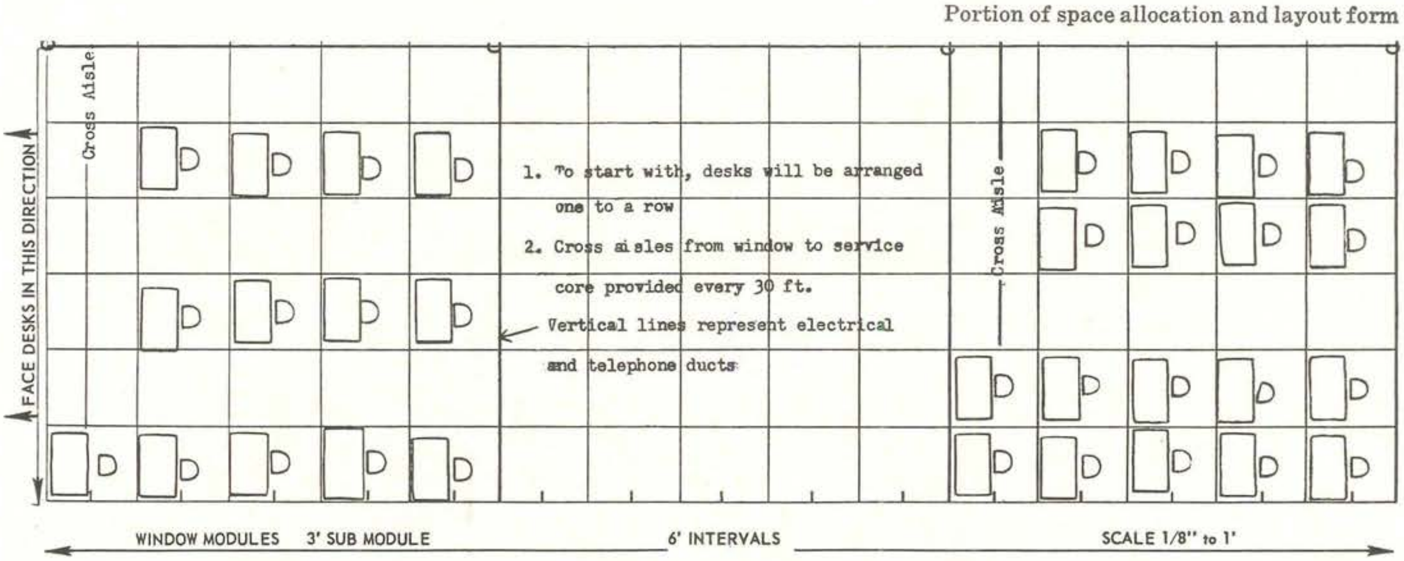


Relationships of book company functions

The extent and thoroughness of the use and space studies that preceded the design of the McGraw-Hill Hightstown buildings are indicated by the forms shown here. The average daily activity form (*above*) helped establish quantitative data on the volume and flow of departmental contacts, communications and materials. In this way, relative locations of departments and activities were established. From analysis of these forms and other data, functional diagrams, such as that on the left, were prepared.

The space allocation and layout form (*below*) was used for study of desk arrangements and the finer details of space planning. An important principle of the final space planning decisions was the establishment of a 5- by 6-foot, one-desk module. Expansion is built-in, as shown by the diagram. At first desks are spaced with one-module aisles between, as shown in the left portion of the diagram. As a department grows, desks are arranged in pairs, with one-module aisles between pairs. Such diagrams were extremely useful during study of the building planning and have continued to be useful as tools for rearrangement of spaces as needs occur

Portion of space allocation and layout form



DEPARTMENT ____________ PREPARED BY ____________ DATE ____________ processing operations of a large organization, especially since computers and modern communications systems pointed toward outlying centers. Indeed a real trend in this direction is noted elsewhere in this study.

The occupancy of the midtown building—the famous green one designed by Raymond Hood in the thirties—is shifting gradually, as the move is accomplished, to greater concentration on the activities and personnel which do need the bustle and contacts of the downtown city. Company executives, editors and salesmen cannot operate at full effectiveness in country isolation. Many of the companies which did move out in the earlier suburban exodus discovered, as Lewis Mumford reminds us, that the pace, stimulation and facilities of the city are necessary to most operations of modern business or science. So McGraw-Hill's midtown building is changing in use and concept.

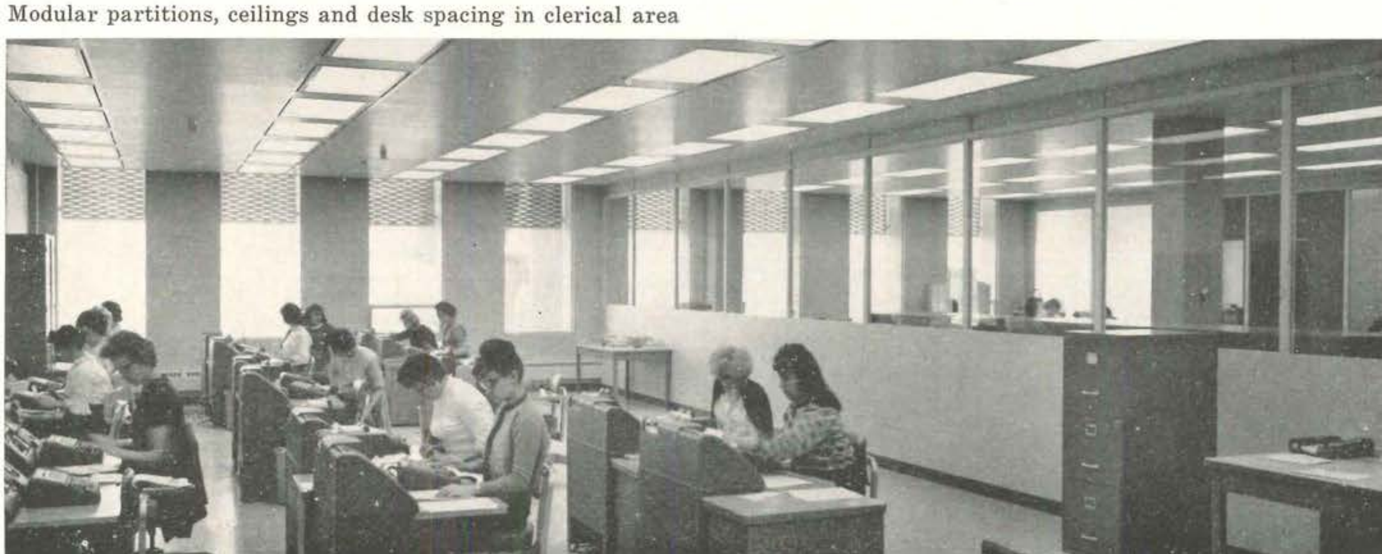
Perhaps the McGraw-Hill experience suggests that the design of expensive downtown buildings will focus more on individual office spaces and less on large bull-pen or punch card areas. The design of the Hightstown offices is based on the opposite principle. Since the people who occupy the buildings are mostly involved in clerical work and machine operations, there are few private offices. Interior spaces are large and open, with only a minimum number of partitions.

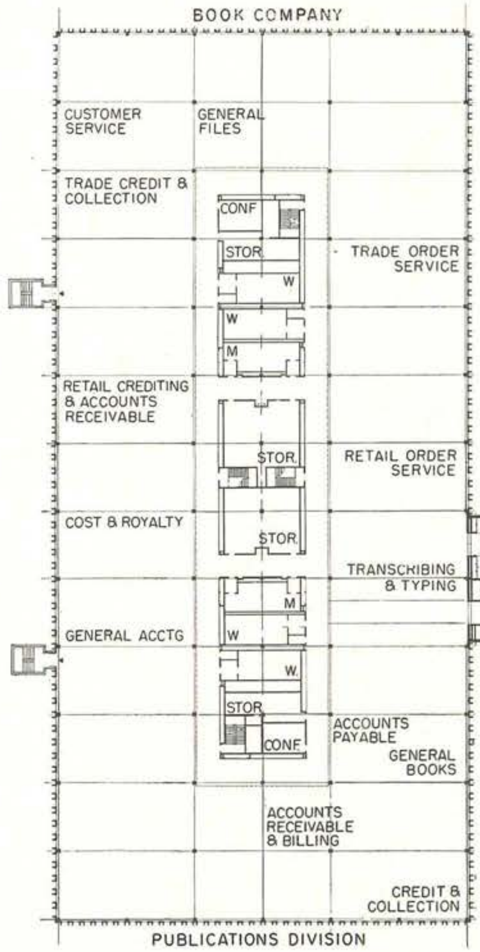
In the late fifties, a company committee, with the aid of management consultants—and later the architects—began the studies that eventually led to relocation of some McGraw-Hill operations at Hightstown. The operating heads of all divisions of the company were also involved in the studies. Beryl Robichaud, a McGraw-Hill vice president, who is experienced in office space planning, took charge of relocation, and followed the project through from inception to completed buildings.

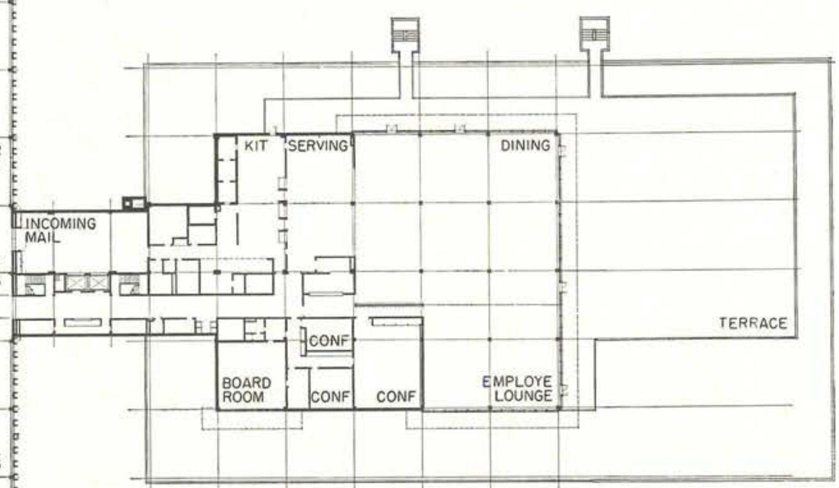
Main reception area, computer room in background

Glass wall displays entire computer room to visitors

Modular partitions, ceilings and desk spacing in clerical area



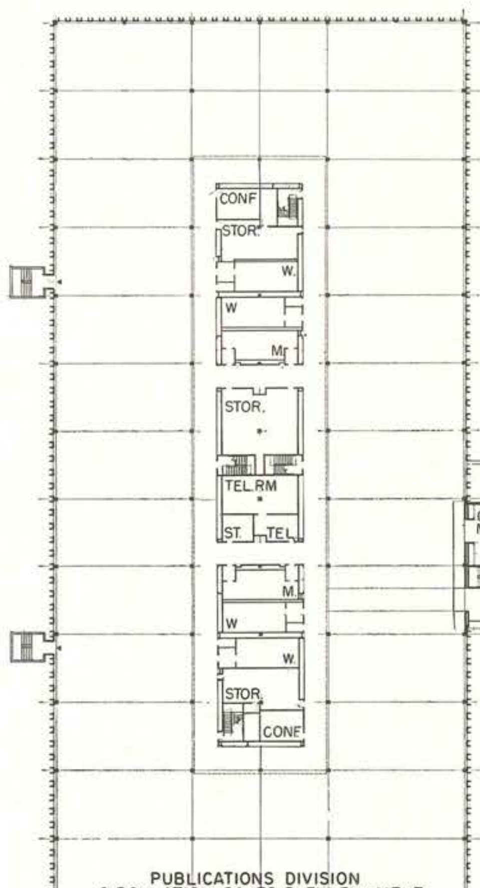


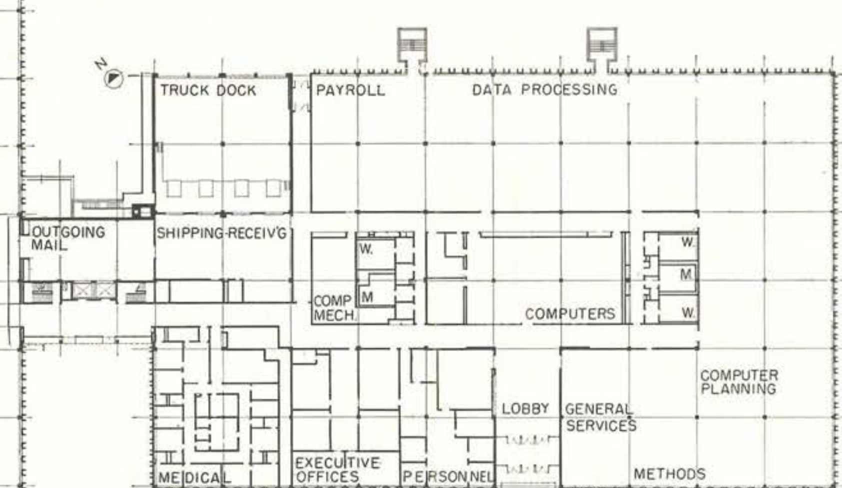


SECOND FLOOR

The major elements of the plan are the west building (*left*) housing operating departments, and the east building (*right*) containing data processing and service facilities. From parking lots near each major department, employes enter the building through side doors near their working positions. Departmental storage rooms and employe coat areas and toilets are conveniently located in service cores of each building. A partial basement and penthouses contain mechanical, electrical equipment.

The structure is steel frame, with precast, exposed quartz aggregate exterior walls and sun shields; these reduce air-conditioning loads considerably. Interior finishes, vinyl asbestos and terrazzo flooring, vinyl wall coverings and glazed brick, were chosen for appearance and low maintenance. Combination light fixture-diffusers were used. First stage expansion will be a building similar to the west building, constructed at the other end of the east building, changing the T-shaped plan to an H





GROUND FLOOR

Studies were made of transportation, communications, land and construction costs, and sources of employes in various geographical areas. The Hightstown area qualified on all counts. Checks were made of relationships of each company department with other departments and outside the company. Records were kept of contacts made by telephone, teletype, mail, and other means including personal contacts. Such studies indicated the feasibility of decentralizing some of the company's operations. The studies also led to close analysis of space relationships within the projected buildings, and to preliminary decisions on space allocations to various departments.

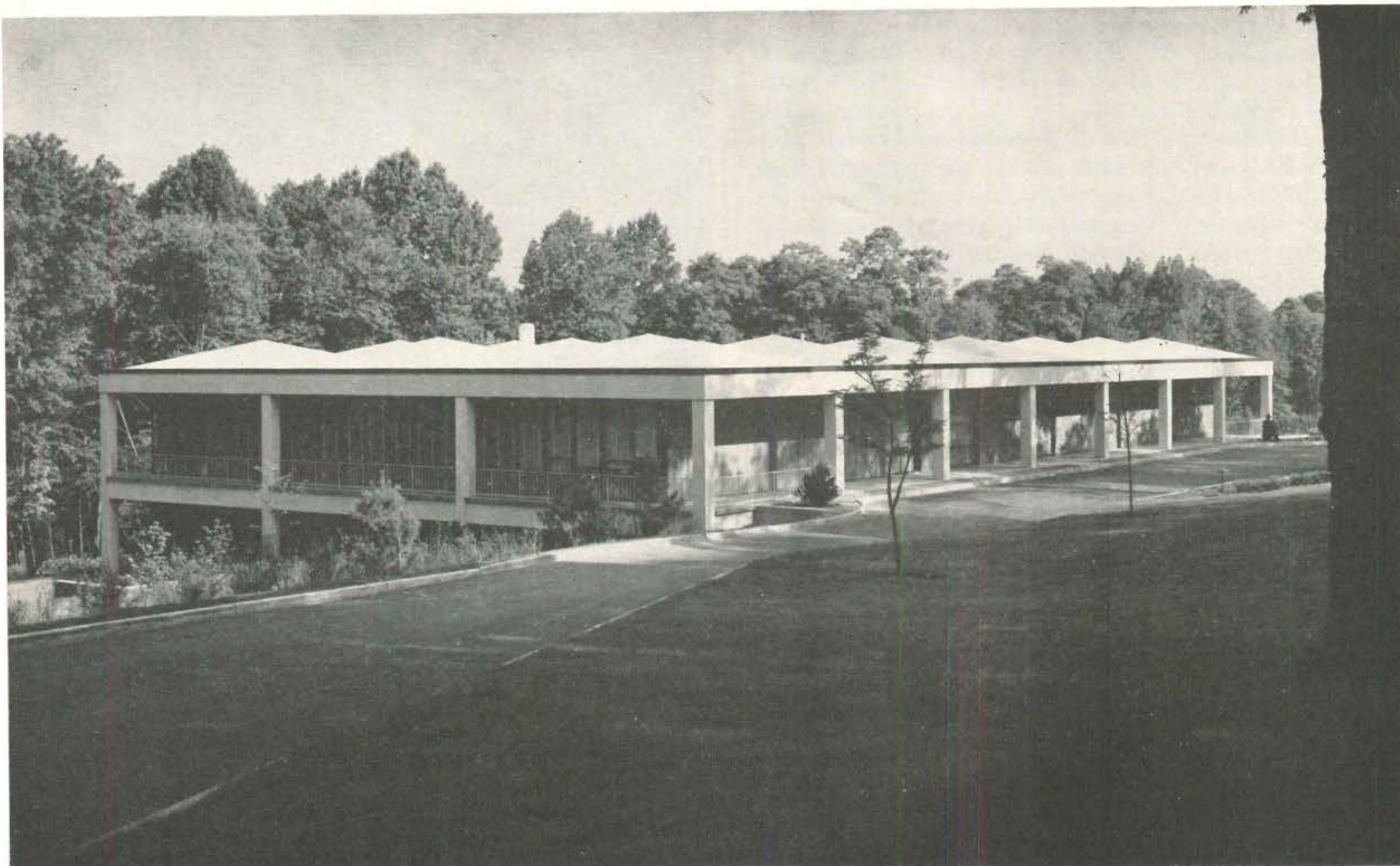
As time went on, the analyses went into finer detail. For example, since almost all of the people to be housed in the new buildings would be desk workers, the studies led to a module based on one clerical unit—a person and his desk. The optimum size of the module turned out to be 5 by 6 feet, based on the use of 5-foot desks without aisle space. Aisles were eventually sized at 5 feet.

From such basic space decisions, the general scheme of the major office building was derived. Two stories in height, this building was planned with a central core, around which is wrapped a 60-foot-wide, 12-module, columnless office area. This area is, for the most part, free of partitions except where absolutely necessary for privacy.

Without the intense and thorough study given to the location and operations of this building, the results might have been much less satisfactory. As it is, the relocation and planning studies were effectively performed and have resulted in efficiency and comfort. This is not only true of the major work areas, but also of the well-equipped medical offices, the pleasant cafeteria, employes' lounge and second-level terrace complex, and the executive offices and conference areas.

Executive offices have ceiling-high rough blank glass partitions

Supervisor's offices have 6-foot-high metal and glass partitions



Joseph W. Molitor photos

DATA CENTER: IS A NEW SUBURBAN TYPE

Sabre Data Processing Center
Briarcliff Manor, New York
OWNER: *American Airlines*
ARCHITECTS: *Perkins and Will*
A. W. Murphy, partner in charge
STRUCTURAL ENGINEERS: *Garfinkel & Marenberg*
MECHANICAL ENGINEERS: *Air Research Associates*

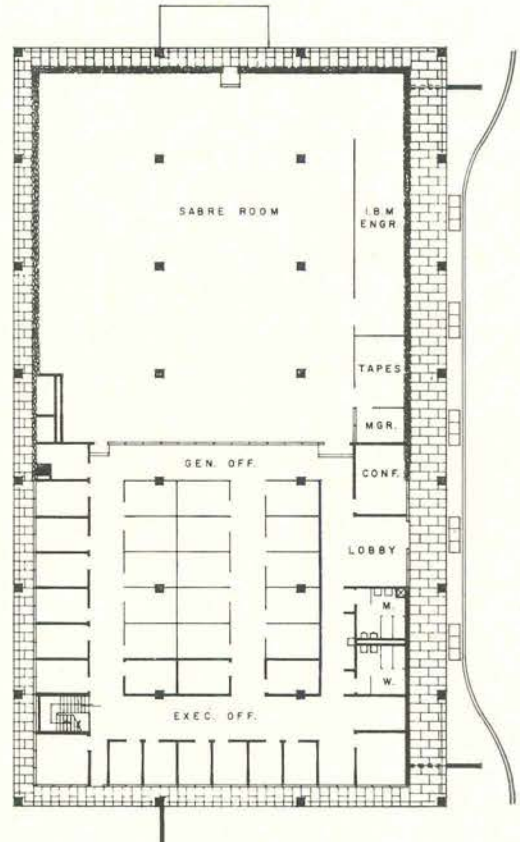
As utilities and highways fling their networks over the countryside, commerce and industry find increasing advantages in ex-urban locations for many segments of their operations. An example of such cost-saving freedom of choice is this electronic data processing center for American Airlines. Large enough to keep instant tabs on all reservations, schedules, cargoes and other details of a nationwide flight pattern, it fits unobtrusively into the residential suburbs of New York's Westchester County. The 10-acre site was selected over an urban alternate in spite of the owner's stipulations of nearly-infallible electric service, and the land was rezoned on the basis of architects' demonstrations of the building's suitability.

Site for the building is steeply sloping down from the highway. The roof, visible from the highway, is framed in steel pyramids over each 24- by 32-foot bay to provide a textured appearance compatible with the residential area. Exterior columns and fieldstone motif contribute to this compatibility.

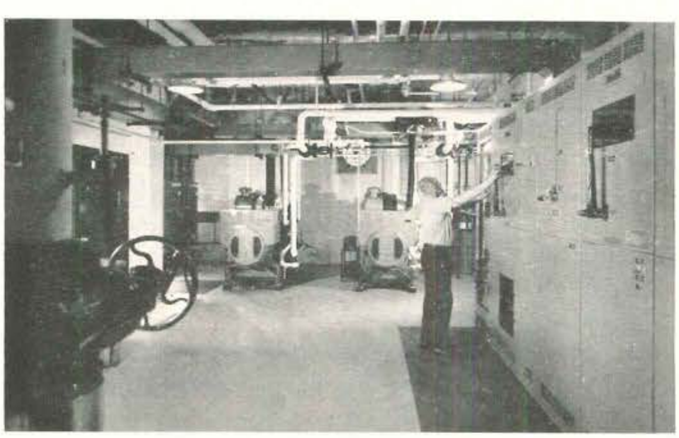
Data processing machinery occupies only 7,000 square feet of a total building floor area of about 20,000 square feet. This heavy concentration of electronic machines requires a raised floor that will take 120 pounds per square foot live load, permit unlimited accessibility to connecting cables at any point through removable, 18-inch-square, cast-aluminum panels, and serve as a plenum to deliver over 100 tons of air conditioning with a full air change every minute. Air enters the room through peripheral grills and through cable holes under machines. Each machine has a circulating fan to draw room air through it. Air is returned through ceiling grills which enter an overhead plenum ducted to fans in mechanical space on the lower level. A separate cooling and heating system serves office and reception spaces in the building.

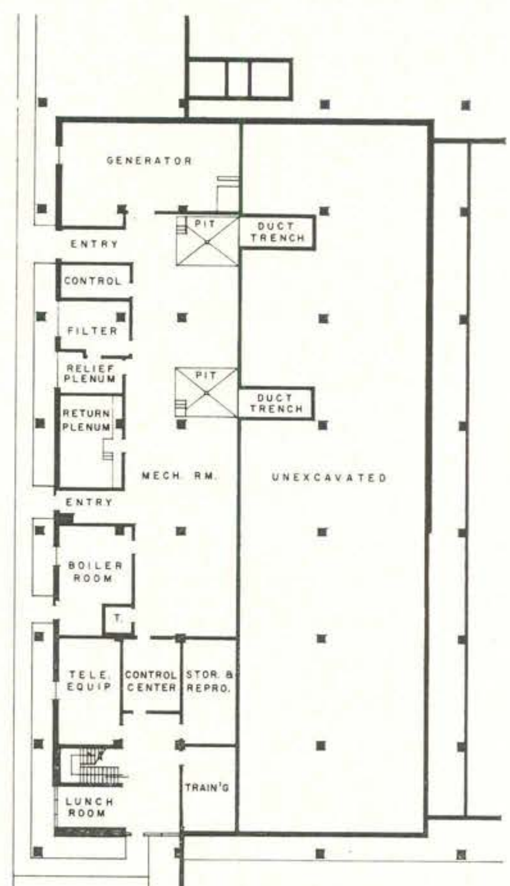
The stipulation of absolute continuity of operation of the Sabre room required duplication of all cooling and electrical supply equipment with automatic change-over from one system to another in case of any failure. Electricity is supplied from two utility substations, and two stand-by diesel generators are ready to come on the line in seconds should utility power fail.

Framing of the building is structural steel. Interiors are plaster or wood panel partitions with vinyl asbestos or asphalt floor tile and acoustical tile ceilings. A 50-car parking lot is nearby for visitors and a staff of 80. The building can be extended at one end for future expansion.

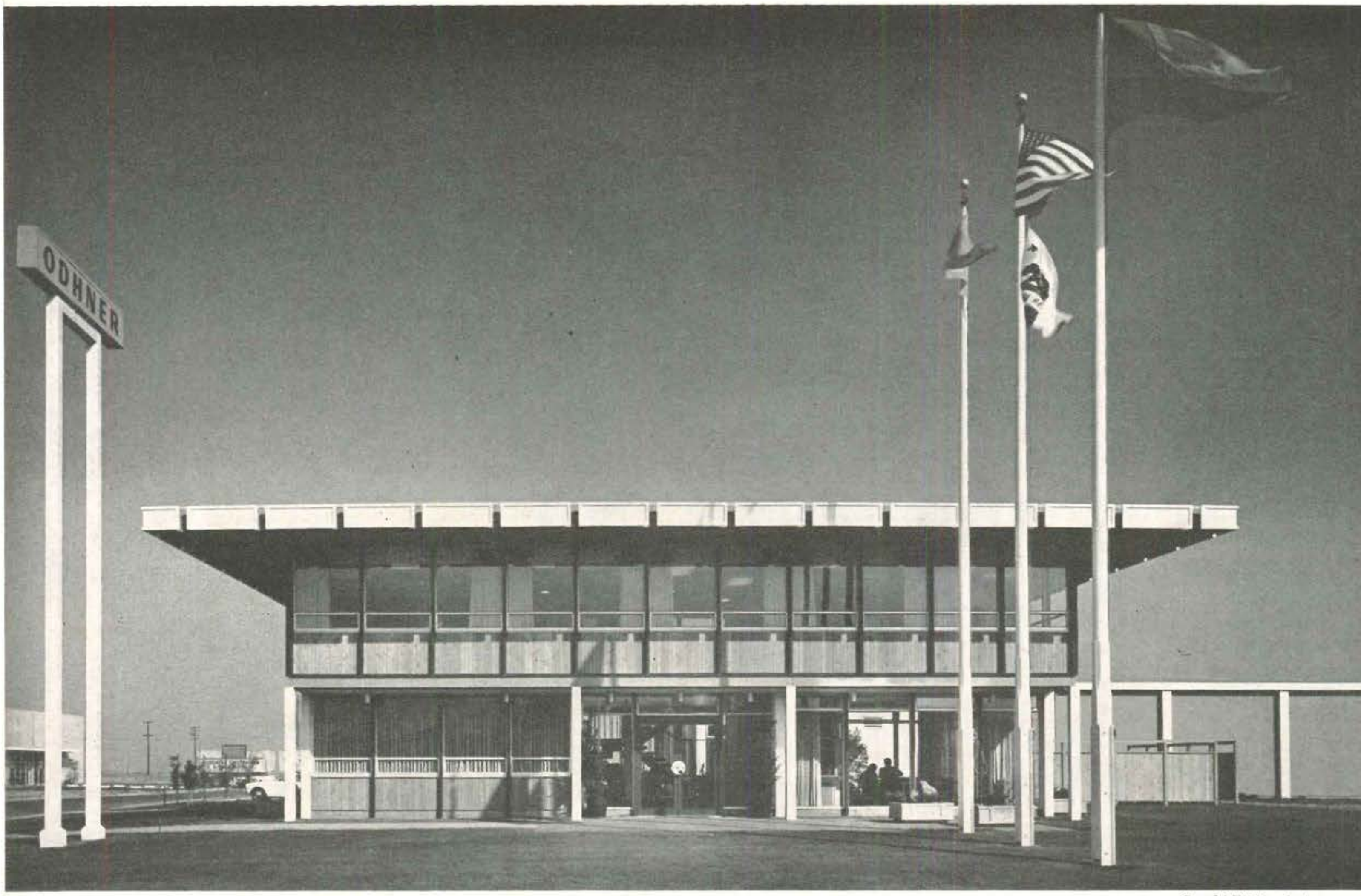


UPPER FLOOR





LOWER FLOOR



Gerald Ratto photos

OFFICES AND WAREHOUSE FOR AN INDUSTRIAL PARK

Facit, Inc., Headquarters, Burlingame, California
OWNER: *Haas and Haynie Corporation*
ARCHITECTS: *John Carl Warnecke and Associates*
MECHANICAL AND ELECTRICAL ENGINEER: *Alexander Broome*
STRUCTURAL ENGINEERS: *Chin and Hensolt*
LANDSCAPE ARCHITECT: *Michael Painter of John Carl Warnecke and Associates*
GENERAL CONTRACTOR: *Haas and Haynie Corporation*

Many companies find it expedient to build headquarters offices adjacent to outlying manufacturing or distribution facilities. This dual-purpose arrangement for the U.S. subsidiary of a Swedish manufacturer of office machines and furniture houses the headquarters office of western U.S. operations and serves as a distribution and service center for equipment and parts. It represents a kind of lease-purchase office building for which a characteristically tight schedule of 11 months from start to occupancy, including site selection and financing, seems to have imposed no sacrifices to distinctive appearance and efficient flexibility.

Located on a level site in an industrial park just south of San Francisco Airport and off the Bayshore Freeway, the two elements—offices and warehouse—are physically separated from each other but are tied together visually by carefully detailed wood fencing and landscaped courtyard.

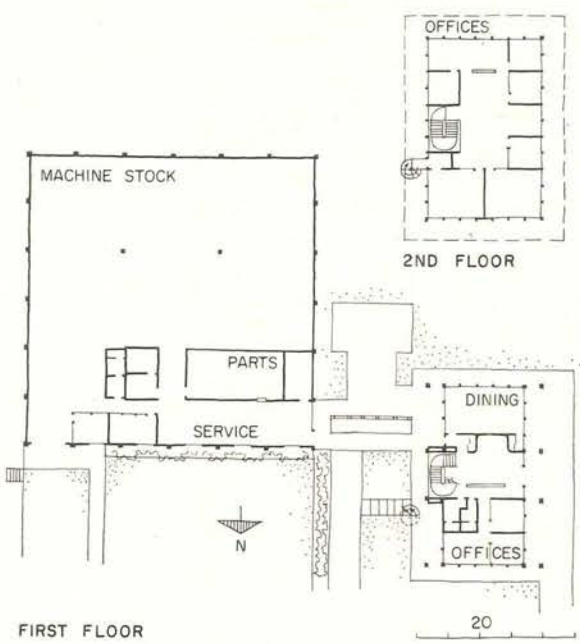
Simple yet rich, the office building has exposed light steel framing, painted white, on the ground floor. Mullions between the aluminum sash are black, contrasting with the white of the structure and fascia and the gray of natural cedar spandrel panels.

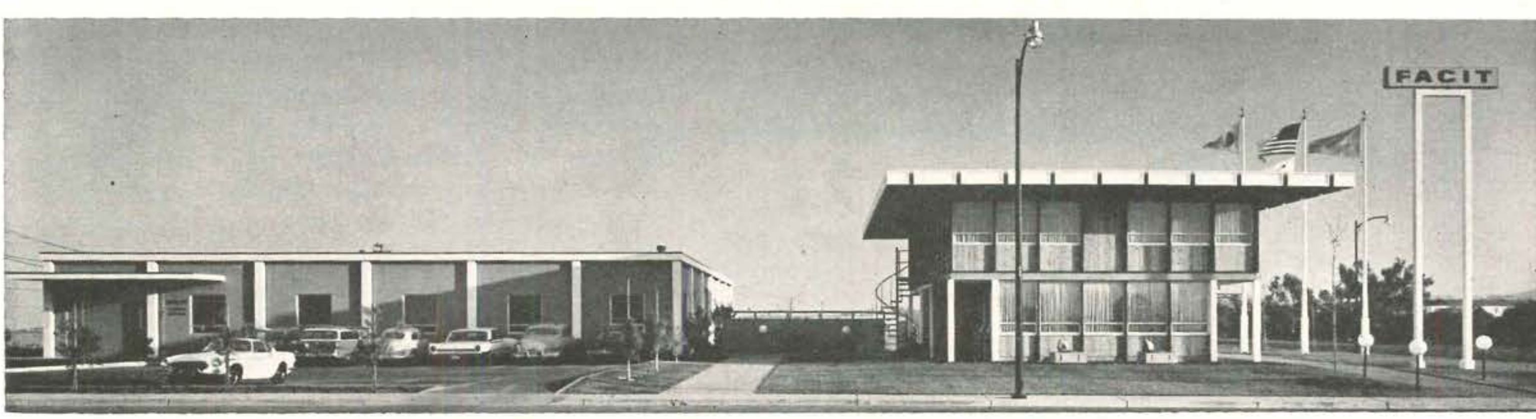
The treatment is continued around the office element, making it all of a piece and providing a 360-degree sweep of windows overlooking the surrounding area. The protective overhang, 7 feet deep, has a gray cedar soffit.

The basic structure of the office building is steel frame with wood frame floors and roof; that of the warehouse tilt-up concrete with four interior columns and wood frame roof.

A major design element of the office interior is a circular stair with 3-inch-thick oak treads mounted on a central tubular steel support. Interior partitions in this building are glass or are finished with cedar paneling except in the cafeteria where wallpaper is used. Ceilings are light color acoustical tile panels.

Both offices and warehouse were planned for expansion.





Baltazar Korab photos

STUDIED DETAILS IN CONCRETE FOR A MESSAGE HUB

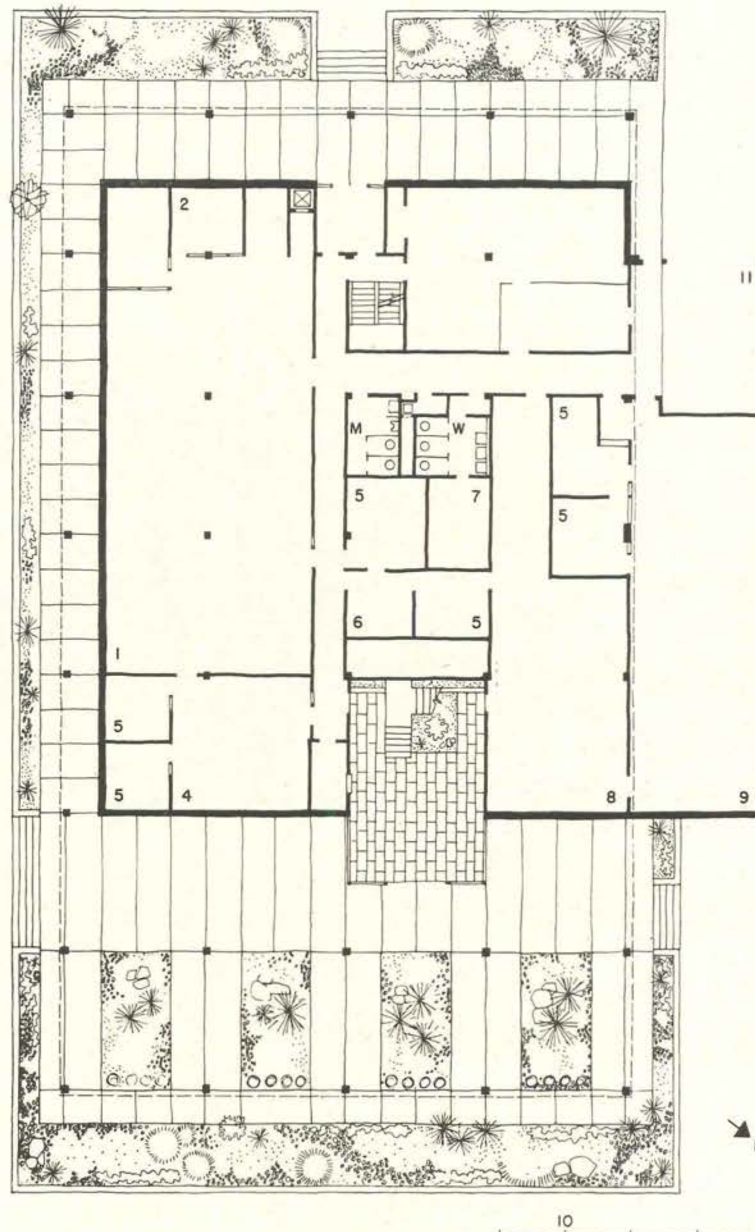
Florists' Telegraph Delivery Association
International Headquarters
Detroit, Michigan
ARCHITECTS: *Frederick Stickel Associates*
STRUCTURAL ENGINEERS: *R. H. McClurg Associates*
MECHANICAL ENGINEERS: *Hyde & Bobbio, Inc.*
LANDSCAPE ARCHITECTS: *Scott-Alger Associates*
CONTRACTOR: *Walter L. Couse & Company*

The nicely-proportioned, well-detailed precast concrete curtain wall wrapped around the second floor of this small office building is—at first glance—its most striking feature. Inside the building, which functions as the international headquarters of F.T.D.A. (Florists' Telegraph Delivery Association), the proportions and detailing are equally well handled. Located adjacent to the John Lodge Expressway leading from northwest Detroit downtown, the building is the first completed in a new urban redevelopment area.

Constructed of poured-in-place reinforced concrete with precast double tee roof construction, the building is enclosed on the ground floor with blue glazed brick and a glass and aluminum store front, on the second with a precast concrete curtain wall finished with exposed quartz aggregate and white cement. Curtain wall panels are one module wide—5 feet 3 inches—and of story height. Windows are fixed aluminum with plate glass. Interior partitions are painted gypsum plaster on metal lath or movable aluminum with glass and mahogany or vinyl finishes. Flooring is vinyl tile; ceilings are mineral acoustical tile.

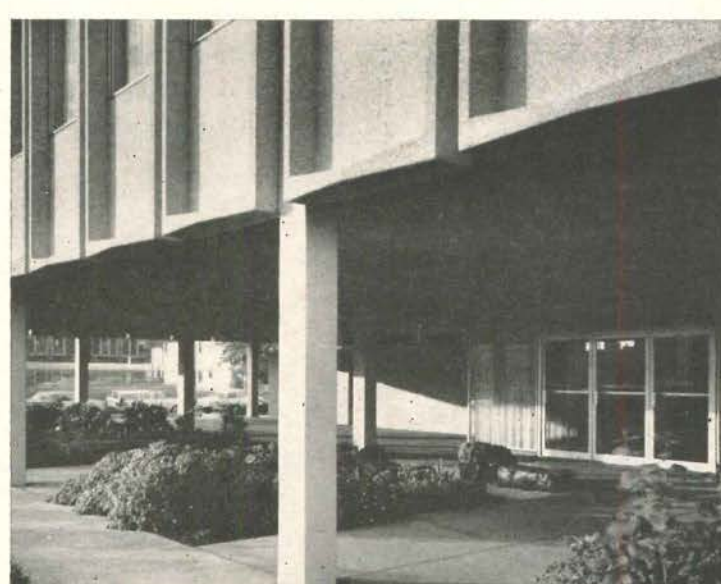
Functionally, the F.T.D.A. building divides in two; the data processing clearing house, printing and mailing areas are located on the ground floor. In this manner, not only were different functions separated completely from each other, but all of those requiring heavy equipment were placed on the ground floor. Since the organization had suffered—in its former headquarters—from the encumbrance of large columns in small bays, in this building the second floor was designed with a clear span creating columnless space on the interior. To accomplish this, precast concrete double tee joists spanning 42 feet were used.

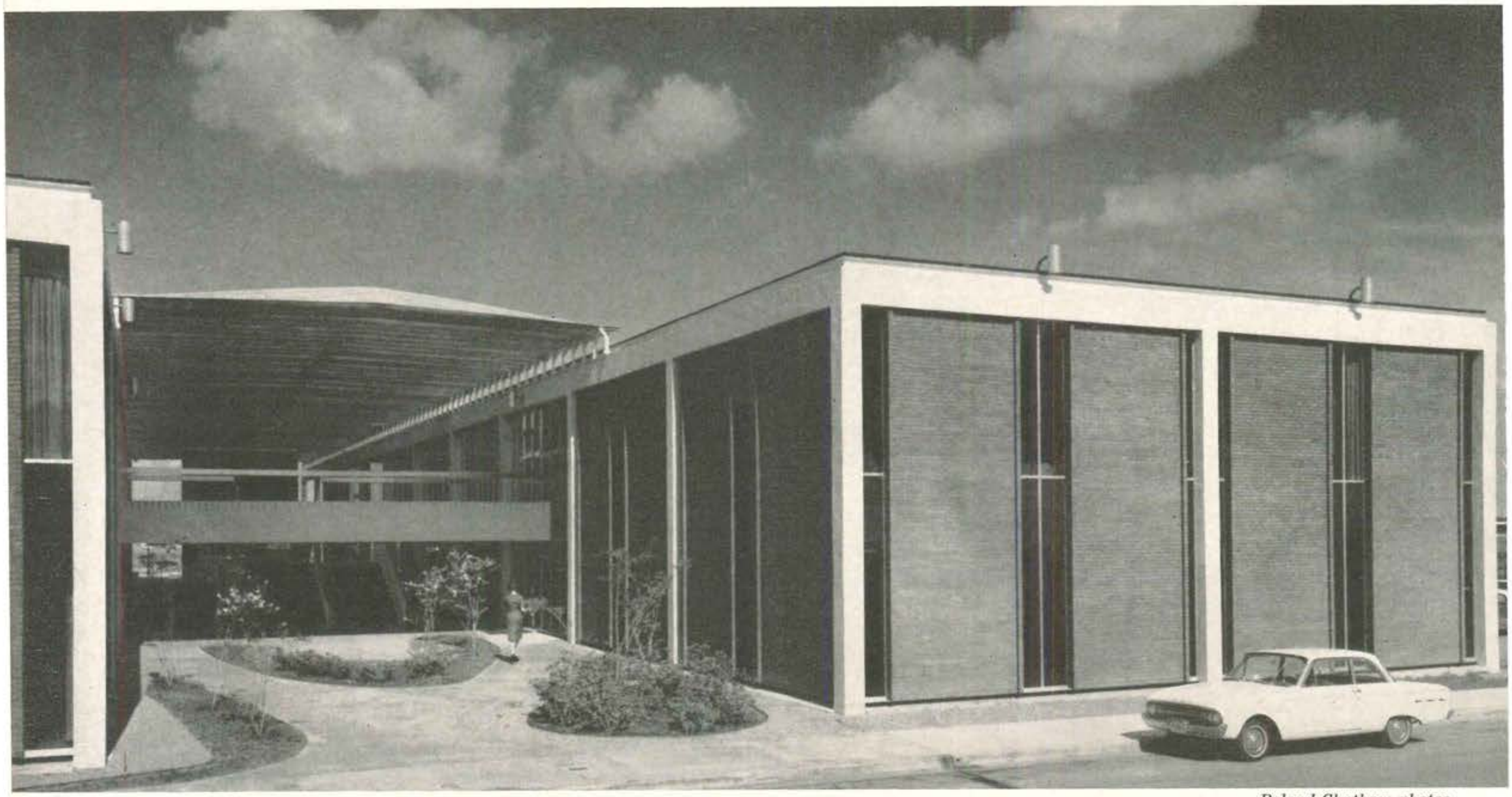
Bays in the building are 21 feet; each is subdivided into four 5-foot 3-inch modules. On the module lines throughout the building, a 3-inch-wide strip is built into the ceiling to receive the heads of partitions. This also makes possible strict concurrence with a 1-foot even dimension ceiling tile pattern with no cutting of tile panels.



PLAN LEGEND
GROUND FLOOR

1. Clearing House
2. Supervisor
3. Manager
4. Interflora
5. Office
6. Secretary
7. Rest Room
8. Mailing
9. Printing
10. Receiving-storage
11. Garage





Roland Chatham photos

THREE DIVISIONS BUILD AROUND A GARDEN LOBBY

Dow Center, Houston, Texas
OWNER: *Century Properties, Inc.*
ARCHITECTS-ENGINEERS: *Caudill, Rowlett and Scott*
Charles Lawrence, project designer
LANDSCAPE ARCHITECT: *James Dalrymple*
CONTRACTOR: *Farnsworth & Chambers Co., Inc.*

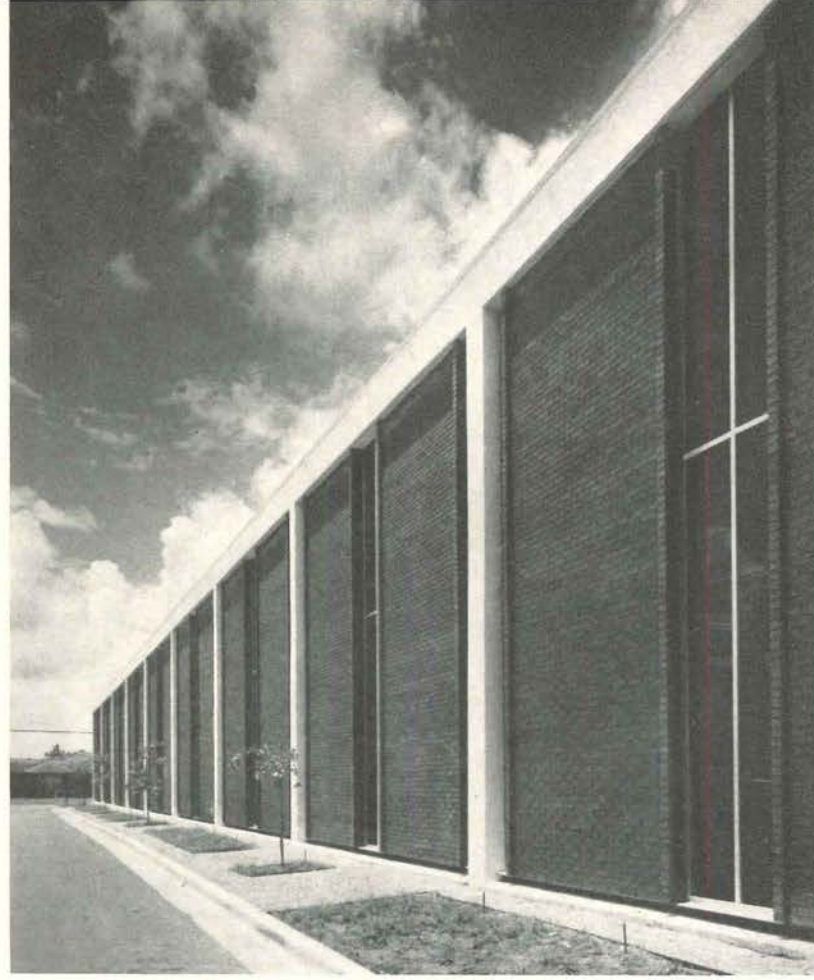
When Dow Chemical Corporation's Brazos Oil and Gas Company Division grew out of its downtown Houston office base, a census of employes revealed that most of them lived in southwest Houston and were feeling the pinch of high parking costs downtown. At the same time, Caudill, Rowlett and Scott were also looking for new Houston offices. Investigating whether a joint office structure might develop something more attractive than either organization could achieve on its own, the architects approached Century Properties which had suitable land and finances to handle the project. Dow's other Houston divisions, the Engineering and Construction Services Division and the Regional Purchasing Office joined in a program of relocation and outlined their space needs. A total of 125,000 square feet was the ultimate assignment to be provided in several stages.

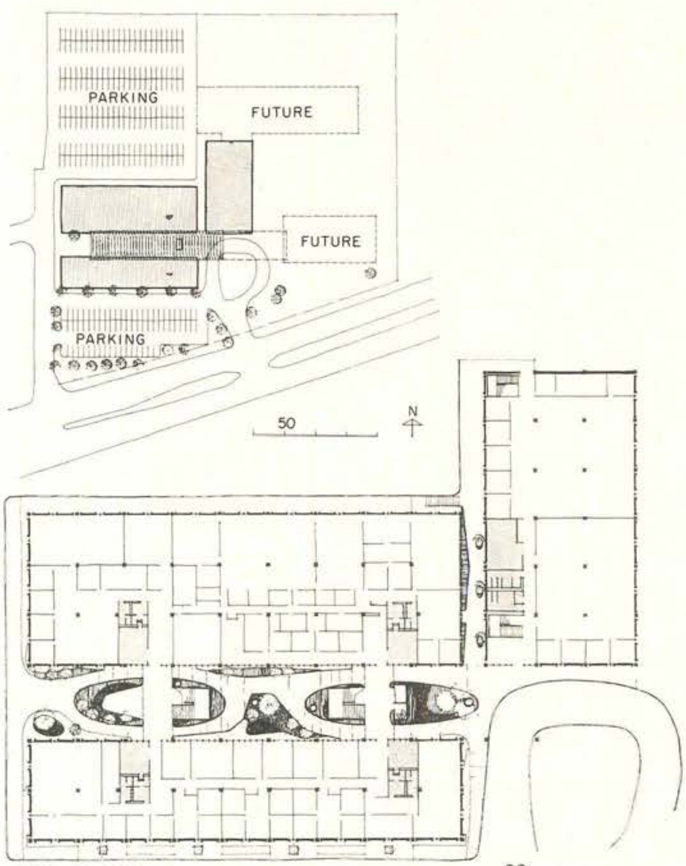
To maintain tenant identity while effecting economies in needed climate control, a complex of three rectangular structures tied together by a lobby was designed. The lobby is an open garden with translucent plastic roof. Walls facing the lobby are of glass, while all other building walls are dark brick with narrow slits of glare-reducing glass, providing protection against the sun, and accentuating a reinforced concrete structural grid set on a 24-foot module and painted off-white.

The canopied garden lobby provides a tempered transition between outside weather and air-conditioned space. It also houses connecting hallways and stairs, removing these spaces from the air-conditioning load. All landscaping is concentrated in the lobby area, and the translucent roof shields glass walls of the court from the sun. The canopy roof consists of reinforced plastic structural beams, 3 feet wide, 38 feet long and ¼ inch thick, built up of liquid polyester resin and glass-fiber cast in shallow elongated pyramids. These provide for 20 pounds per square foot live load while permitting 20 per cent light transmission to allow plant growth in the landscaped lobby.

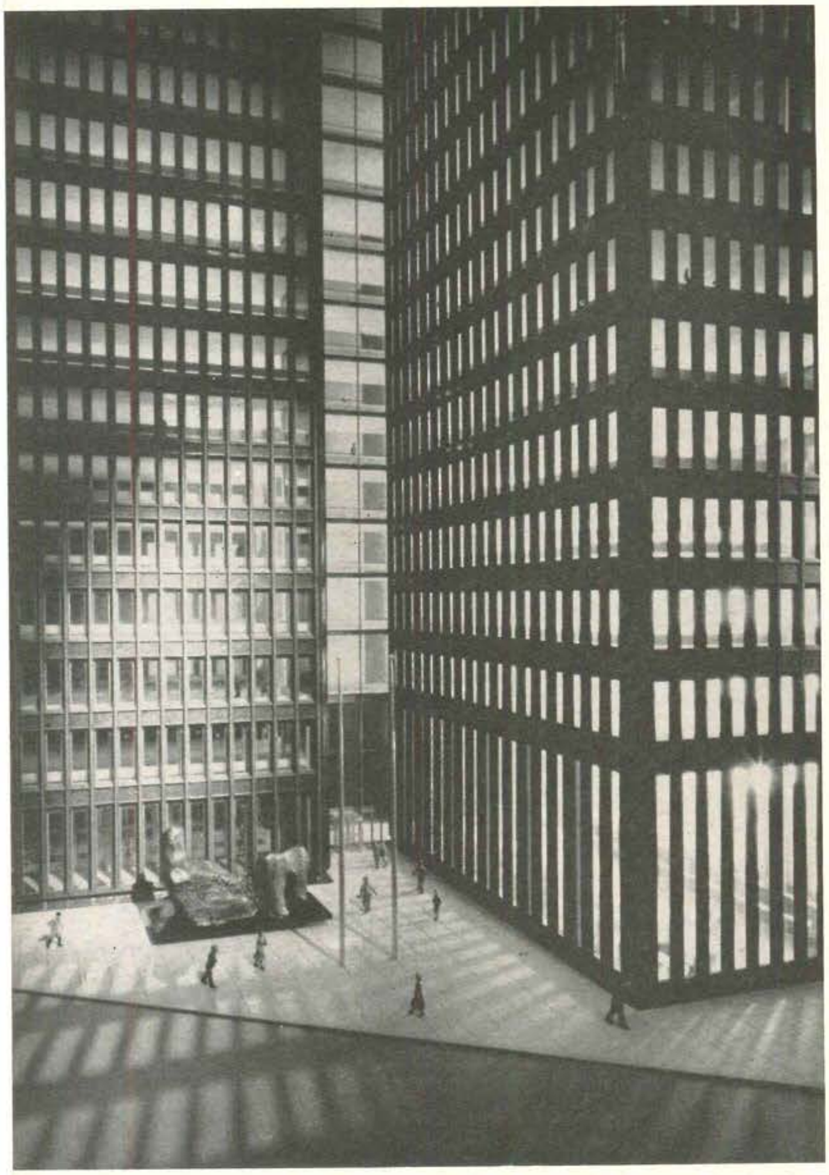
Interior flexibility is practically unlimited, with only the mechanical facilities in fixed positions. Three-phase electrical distribution is through an under-floor duct system. An under-floor telephone raceway system also contributes to layout flexibility.

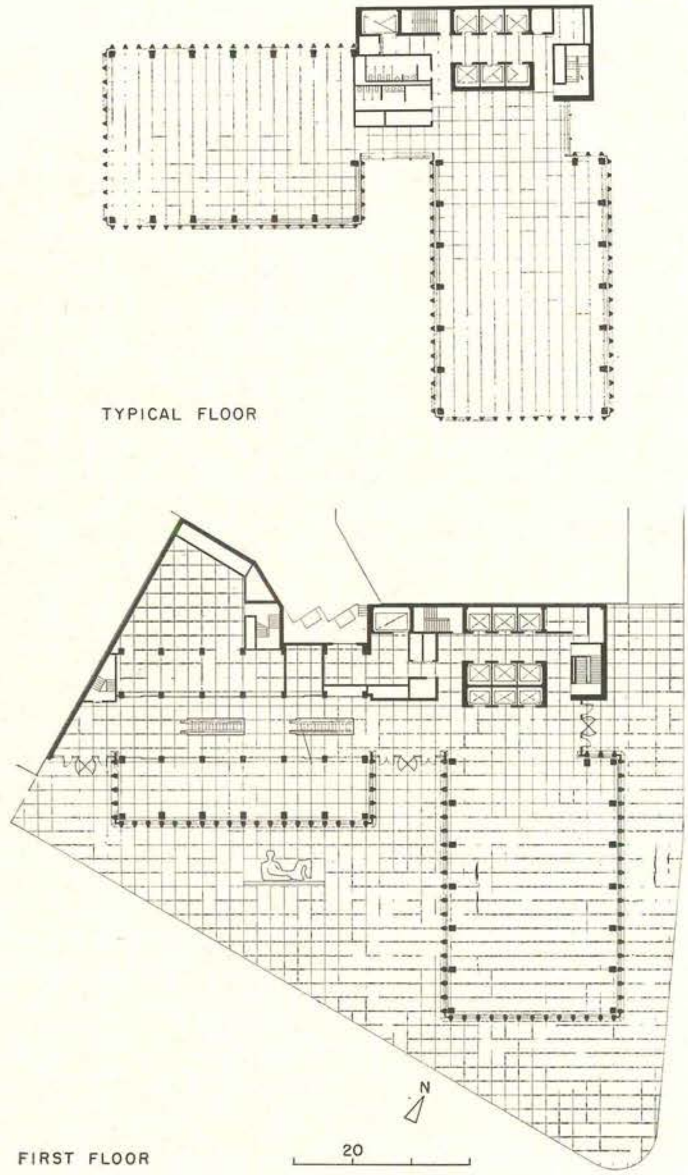
The Dow Center of Houston won the Texas Society of Architects' Award of Merit in 1961.





FIRST FLOOR





TYPICAL FLOOR

FIRST FLOOR

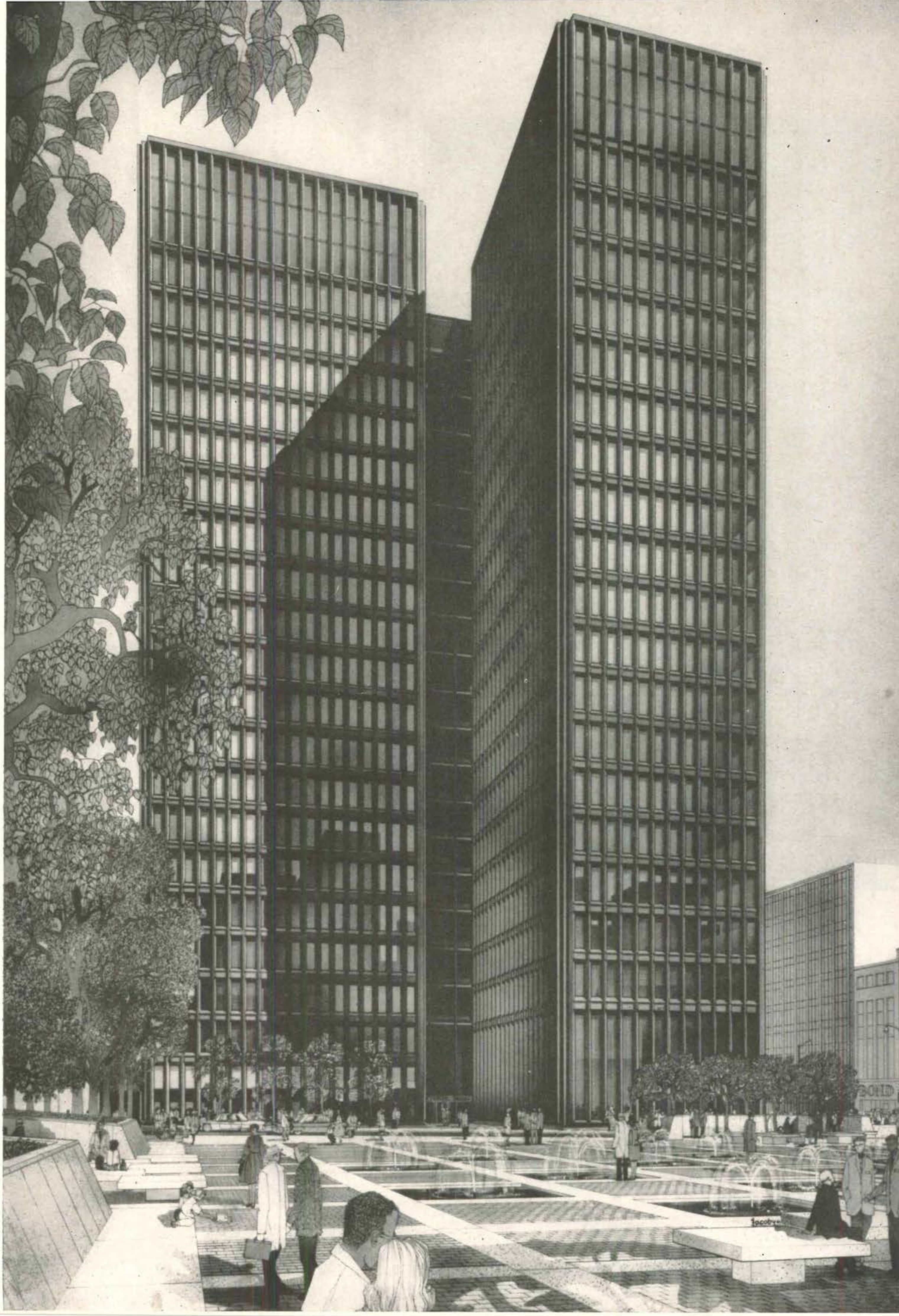
GRANITE SKYSCRAPER FOR A DETROIT LOAN ASSOCIATION

First Federal Savings and Loan Building, Detroit, Michigan
OWNER: *First Federal Savings and Loan Association of Detroit*
ARCHITECTS-ENGINEERS: *Smith, Hinchman & Grylls Associates, Inc.*
F. J. B. Sevald, principal in charge
Sigmund Blum, associate in charge of design
ACOUSTICAL CONSULTANTS: *Bolt, Beranek & Newman, Inc.*
INTERIORS: *W. B. Ford Design Associates, Inc.*

Financial buildings are a basic city element, and the site chosen for the First Federal Savings and Loan Building is at the center of the financial and commercial activity in downtown Detroit. One of the difficulties posed by the triangular site was in relating the new building to the existing buildings and to the old City Hall park. To establish a rectilinear and unified background for the park the First Federal Building was placed squarely at right angles to Woodward Avenue rather than following the line of Michigan Avenue as the old Majestic Building on this site had done. In the final triple-tower design, this orientation set off the east tower as a dominant element visible from many points in the city.

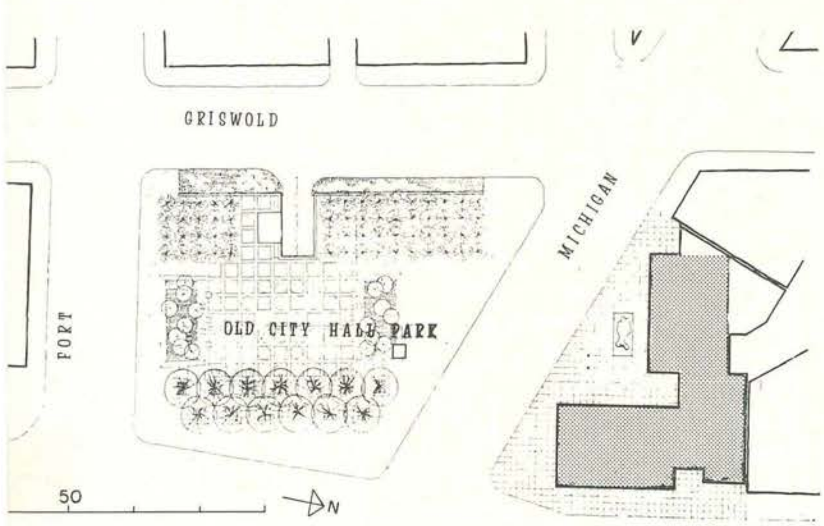
All vertical elements such as elevators and stairs are located in the north tower leaving the two rental towers completely free of interior columns or obstructions for maximum flexibility.

A dark, polished granite was chosen to give per-


BOND

manence to the facing material, and the cost of this selection was kept in line by taking advantage of precast panel technology. A dark shade was chosen for low maintenance in Detroit's atmosphere and for contrast with other buildings at the city's hub. Its polished surface will reflect light in an ever changing expression.

The building will be 23 stories high, plus a basement, for a gross area of 380,000 square feet. Framing will be welded steel. Main columns will be in caissons into bed rock. Secondary columns will be on concrete mat. Floors will be reinforced concrete. Floors in machine accounting space will be elevated with removable vinyl-surfaced panels in a metal framing system having adjustable steel posts bearing on the floor slab. Links between towers will be faced with aluminum and glass. Glass in all of the windows above the first story will be gold-solar plate glass. Exterior pavements will be provided with pipes for snow melting.



Architectural Engineering

Support for Basic Engineering Research

Research in the broad range of engineering as well as in the engineering sciences at educational institutions is now being encouraged by the National Science Foundation. The areas eligible for financial support include: (1) development of principles and techniques in systems engineering; (2) development of principles and a philosophy for creative engineering; (3) interdisciplinary research related to biomedical engineering, transportation, fire prevention and urban planning; (4) development of principles of generation and control of energy systems and information systems; (5) analysis and synthesis of processes and systems which contribute to mastery of the physical environment.

New Method for Measuring Sound

A new "American Standard Method for the Physical Measurement of Sound" has just been issued by the American Standards Association for prescribing the way in which to measure sound, whether it comes from a jet aircraft or from the high school orchestra. ASA S1.2-1962 specifies the tools to be used and measurement procedures.

Conference on Electronic Computation

The Third Conference on Electronic Computation sponsored by the Structural Division of the American Society of Civil Engineers is now scheduled for June 19-21 at the University of Colorado in Boulder. The preliminary program calls for sessions on: (1) state of the art; (2) new developments in structural analysis; (3) research in automated structural design; (4) new computer applications to structural engineering. General inquiries regarding the conference may be addressed to Jackson L. Durkee, Secretary Committee on Electronic Computation, Bethlehem Steel Co., Fabricated Steel Construction, Bethlehem, Pennsylvania.

More on Condensation Within Walls

A knowledge of temperature gradients through building envelopes can help tell the architect such points of information as whether or not there may be a tendency for a solid wall to bow in and out due to a huge temperature difference between exterior and interior surfaces, and whether or not there may be condensation within a wall or roof structure which can result in deterioration of materials and negation of insulating value. A recent issue of the Canadian Building Digest, (CBD 36) a publication of the Division of Building Research, National Research Council, Ottawa, shows how these thermal gradients are determined.

In a research study on insulation of cavity walls for housing, sponsored by the Division of Housing and Community Renewal of the State of New York, as reported on this page in the January issue, it was found that condensation occurred within the inner wythe of a cavity wall because the temperature of the material was at the dew point of the air migrating through it. The wall cited consisted of brick, air space, polystyrene insulation on the cavity side of cement-wood fiber slabs. Subsequently, a new wall was tested comprised of brick outer wythe, air space, cinder block, polystyrene insulation and plaster. It was incorrectly stated in this item that the polystyrene insulation was moved to the room face of the inner wythe on the new construction because of the earlier findings. Joshua D. Lowenfish, chief, Architectural Research for the Division of Housing and Community Renewal points out that the polystyrene could be used either on the cavity or room side of the inner wythe of the new wall with equal effectiveness. Application on the room side was considered more easily controllable for construction.

This Month's AE Section

HOW STRUCTURAL MODELS ARE USED IN PRACTICE

Leading consultant describes a number of pioneering applications

By Jack R. Janney *Wiss, Janney and Associates, Consulting Engineers*

Freedom and precision in the design of building structures, particularly indeterminate ones such as shells and space frames, have been handicapped in the past by the available analytical tools. First, it is difficult to visualize and predict the behavior of these structures, and to develop the mathematics that correspond to the presumed behavior. Even then, exact solutions are frequently tedious and time-consuming, so simplifying assumptions are incorporated to make analysis practical; and, naturally, these assumptions tend to be in a conservative direction for safety's sake.

The testing of structural models not only demonstrates structural behavior under load, but, more importantly, provides strain and stress data and deflections for structural design. The classical methods of analysis, adjusted by experience factors (i.e., engineers' intuition and codes) are, nonetheless, requisite so that there is a sound basis for design of the models themselves, and their shape will be headed in the right direction for efficient flow of forces. But because the mathematical analysis only approximates actual behavior, model data will frequently indicate desirable modifications to improve structural efficiency, in addition to providing structural design data that otherwise would be extremely difficult, if not impossible, to determine.

The basic function of structure is to oppose gravity forces. The final criterion which serves engineers in determining the structural adequacy of any configuration is the magnitude of stresses produced by gravity. (Of course wind forces must be considered for tall buildings and seismic forces in earthquake areas.)

How does one establish the magnitude of these all-important stresses? The normal approach involves the use of a drawing which depicts the structure or, most commonly, a part of it. With the aid of mathematics this picture is used to evaluate stresses produced by gravity and in some cases wind or seismic forces. The picture is usually restricted to a two dimensional configuration for the sake of simplicity.

This method of solving structural problems is sometimes referred to as the "mathematical model." The mathematical model may range in complexity from the solution of stresses produced in a simple beam, to the solution of a highly indeterminate structure such as a complicated shell or space frame.

The Limits of Mathematics

Usefulness of the mathematical model is determined by the following:

1. The ability to express the problem in mathematical terms for which a solution exists or can be obtained.
2. The time, and consequently expense, required to solve the problem after it has been expressed mathematically. The practical limits of mathematics have been extended considerably with the development of electronic computers.
3. The validity of boundary condition assumptions (i.e., where structure is restrained, as by edge beams) which must be made before a solution is feasible.
4. The extreme difficulty encountered in thinking of structural interaction in three dimensions.

In spite of these restrictions many notable structural advancements have taken place in recent years. However, structural designers of buildings do not have to perform their function with the degree of exactitude demanded of aircraft designers.

Such inexactness would be very unsatisfactory in the efforts of space engineers to place a vehicle on the moon. It would also have retarded the development of aircraft technology. In the first place, aircraft engineers have not been constricted by small engineering budgets as have structural engineers. Also because of the limitations of the mathematics, aircraft designers have made extensive use of "physical" models. Use of physical models to assist in the design of structures is not a new concept in the building field. The idea of employing such a design tool has simply lay more or less dormant for many years in the United States. Structural models have been an important and well accepted part of the design process for complicated structures in Europe. This is especially true in the design of dams.

Some of the early work done by Beggs, Eney and others in the United States is well known to many engineers. Most of their effort as well as most of the work done in photoelastic studies of structures has been confined to investigations of two-dimensional models. The United States Bureau of Reclamation and the University of California have accomplished a great deal in the study of dam structures with small scale models. M.I.T. currently is studying models not only for elastic behavior, but for ultimate strength as well.

Interest has been revitalized in the past three years as a result of: (1) improved technological methods for performing structural model analysis, and (2) increased architectural interest in unconventional structures.

The writer has been involved in about 20 studies which have made use of small scale models during this period. These models have been made of acrylic plastic, and consequently the investigations have been limited to elastic behavior.

Data Provided by Models

Two basic types of measurements are taken on models made of plastic: strains and deflections.

Since models are exact scaled-down versions of actual structures, strain gages can be attached to opposite sides of any surface, and in this way not only can tensions and compressions on the surfaces be determined, but also moments, shears, torsions and reactions at supports.

The strain gages are attached to the models in a rosette pattern, in pairs, or singly depending on the type of structure and information wanted. When stresses occur in several directions, as in thin shells, then

David Yates

Figure 1

The complete experimental setup for measuring strains (and thus stresses) for a thin shell under uniform loading is shown in Figure 1 (*left*). Strains are measured by means of very small diameter wire gages fastened to the model. Each patch on the model has three gages in a rosette pattern, since the stresses are multi-directional. The model is loaded by evacuating the air from under it with a vacuum pump (note hose lower right). The amount of vacuum is registered on the manometer (upper right). Movement of the shell makes the wires lengthen (tension) or shorten (compression). Lengthening or shortening of the wires changes their resistance which is registered on the electronic meter in the foreground.

This model is of a shell for a physical education building containing field house and swimming pool for Munster, Indiana. The architect is Bachman & Bertram & Associates, and the structural engineer is Kolbjorn Saether & Associates. This "free-form" shaped shell is comprised of a circular dome connected to an elliptical conoid by means of hyperbolic paraboloids. The dome and conoid are prestressed across arcs of their perimeters; prestressing tendons also cross the h.p.'s

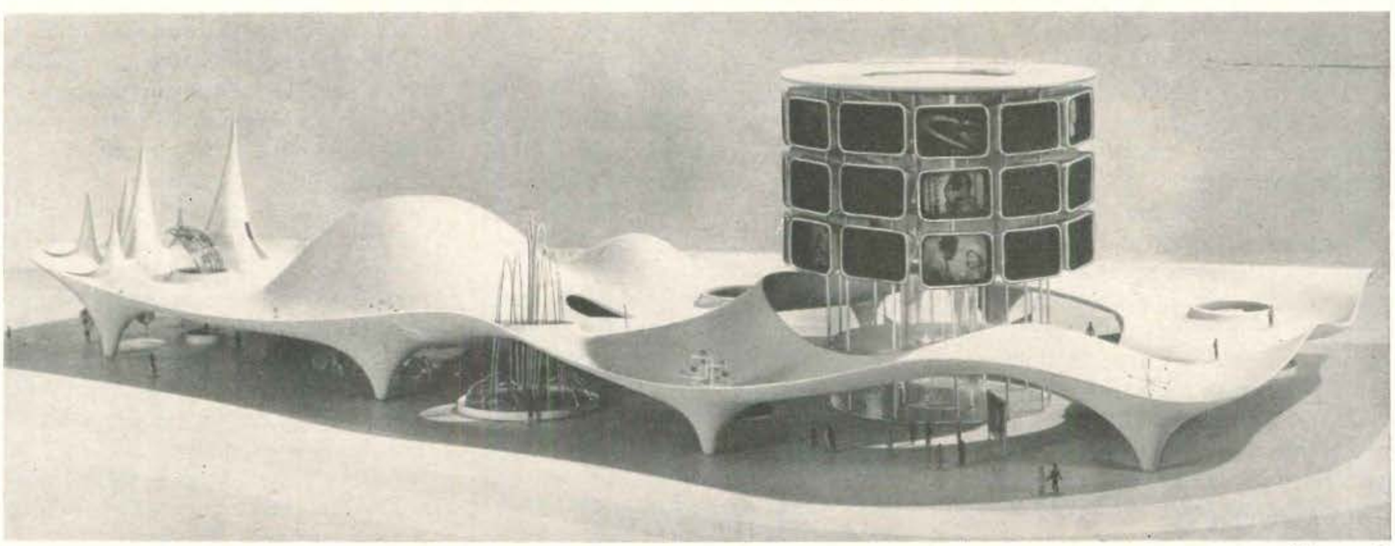


Figure 2

Figure 3

David Yates

Display model of the Eastman Kodak pavilion for the 1964 New York World's Fair is shown in Figure 2 (*above*). It literally is a free-form shape, made up of many shell shapes, few of which could be expressed accurately by mathematics. The structural model in Figure 3 (*left*) was used to provide stress patterns and column reactions. Designers, Will Burtin, Inc.; architects, Kahn & Jacobs; structural engineers, Lev Zetlin & Associates three-gage rosettes are installed.

To convert stresses determined from models to stress values for actual structures, they are multiplied by similitude factors (i.e., relationships of moduli of elasticity, sizes and magnitudes of loads for model and actual structure).

A thin shell model is loaded by evacuating the air under it with a vacuum pump. Structures such as beams, frames and arches are loaded by positioning of weights.

Deflections are measured by using dial deflection gages, linear differential transformers or precision levels. A reference grid is used to determine differences between original elevations and elevations under load.

The structural models which we have tested and analyzed as design aids for specific projects have ranged in purpose from providing nearly the complete source of design information to performing simply a check on some structural feature open to question.

Examples of Models

Some example projects are discussed below with respect to purpose and accomplishment, from design as well as economic standpoints.

The model shown in Figure 1 is of a "free-form" thin shell for a high school. The model analysis is being conducted under conditions most effective with respect to the architect-engineer relationship: the two began collaboration at the outset of the preliminary architectural studies. Thus, the architect gained the greatest freedom from structural restriction, and this freedom was further expanded because the structural engineer was fully aware of the value of a structural model analysis. In this case the structural model and a mathematical model are being utilized simultaneously. This gives a check so that the deficiencies of each is being overcome.

The structural model of the complicated thin shell for the Eastman Kodak Pavilion at the New York World's Fair, 1964, is shown in Figures 2 and 3. This model served as a primary source of design data in the structural design process. It also served to establish the space coordinates on which the construction drawings were based.

The interaction of the many shell shapes, few of which could be expressed mathematically, along with the compound system of supporting elements, made it very difficult to develop an accurate mathematical method. Therefore, the structural model was used to provide stress patterns and column reactions. This building is now under construction.

The structural model shown in Figure 4 is of a 29-story apartment using a reinforced concrete flat-plate construction.

A simultaneous study of a mathematical model was made. As a result of comparison between the two methods, the slab steel indicated from the mathematical model was reduced 15 per cent. The shear wall size and disposition was based on the findings of the structural model analysis. The cost of the model was about 15 per cent of the amount of the savings.

The structural model shown in Figure 5 was built and tested as part of a comprehensive development program which was undertaken by Material Service Corporation of Chicago before manufacturing and marketing a precast, prestressed hollow-core floor unit. In addition to tests on a model, a number of load tests were performed on prototype units built under pilot conditions to full scale. The purpose of the model was to learn something about the rather complicated secondary stresses which occur as a result of the Vierendeel-like action in the lateral direction at the end bearing. Also the buckling characteristics of the very thin elements of the concrete cross-section were evaluated.

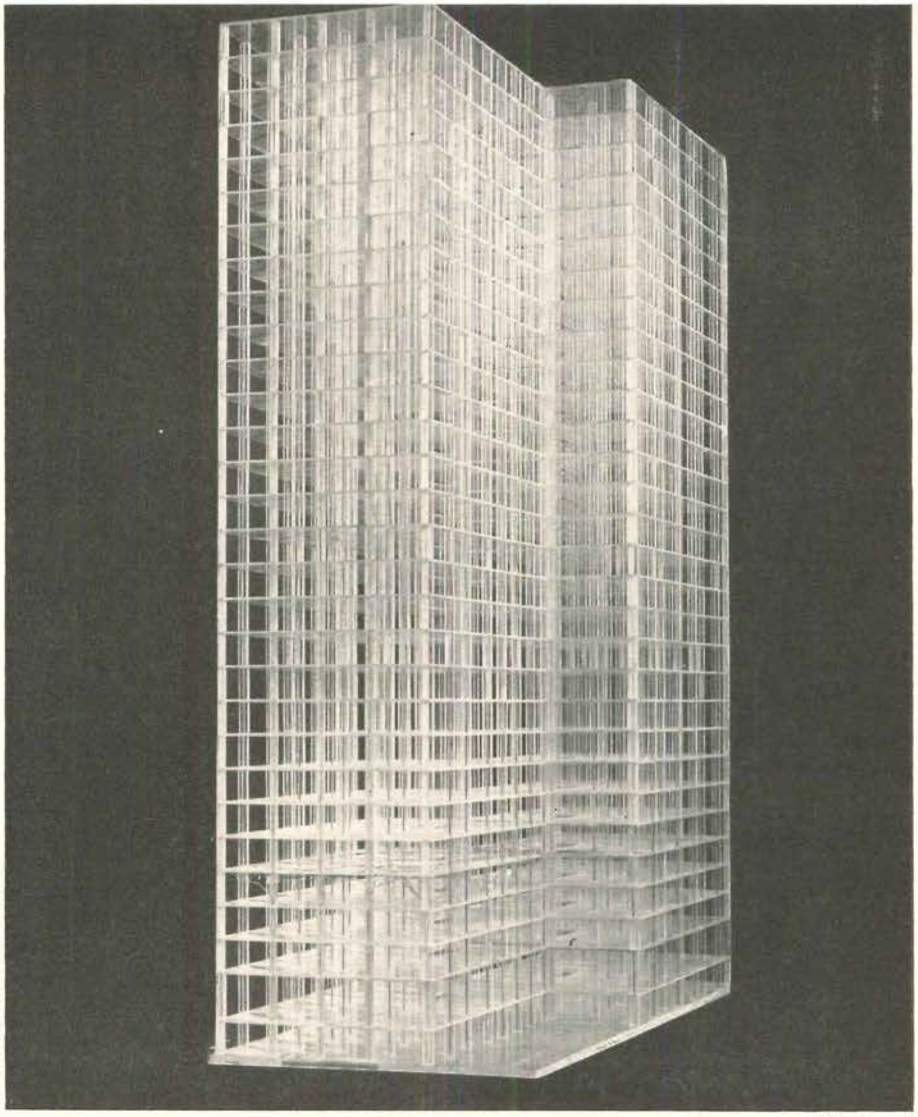
Obviously, it was much less expensive to perform tests on the small scale model than on full-sized members. However, some testing was done especially to observe behavior throughout all ranges of loading to failure, and enough checking was done during these full scale tests to substantiate the model findings.

The purpose of the model of "wishbone" supports for an access roadway at O'Hare Airport shown in Figure 6 was one of redesign. The original design incorporated large hinges in the supports which were employed to assist in design by mathematics. The structural engineer, in his effort to conserve construction cost, decided to use a structural model analysis and thereby eliminate the costly hinges. Also, his decision was influenced by his knowledge of the probability of other savings through the design refinement resulting from a structural model analysis. The savings resulting from the redesign were about 200 times the cost of the model analysis.

The structure shown in Figure 7 is an open-spandrel arch bridge of five spans which was redesigned before construction in the interest of economy. The original design was based on a conventional mathematical model which presumes the arch to act alone in carrying the loads of the spandrel walls, bridge deck and live load. When bids were received for the structure based on the original design, engineers felt that the cost was too high. A redesign appeared to offer the best remedy for the situation, if advantage could be taken of the strengthening effect of permitting the arch rib, spandrel walls and bridge deck to act together to resist the loads. Such an assumption produces a highly indeterminate structure. Partially in the interest of time, but also in the interest of cost, a structural model was used for the redesign. The redesign was accomplished in a period of a few weeks and resulted in a considerable reduction in cost. It also produced a much more graceful structure. The arch rib was reduced in thickness from 18 in. to 14 in. at the crown, and from 36 in. to 18 in. at the springline. The cost of the model analysis was less than 1 per cent of the savings.

Only those engineers who have firm confidence in their own ability will seriously consider the use of structural models. They are not afraid to ask the architect to approach the owner, who is certainly the principal beneficiary of design refinements, and request special appropriations for the model analysis. This is usually necessary because the fee structure of both architects and engineers seldom contains budget provisions for such effort.

Many engineers are reticent to pose the problem to the architect for fear that it will be construed as an admission of inability. The architect is often hesitant to approach the owner for the same reason. As a consequence, in those areas of doubt, very conservative assumptions are made with the result that the structure is built at greater costs than would otherwise be necessary. In the other extreme the assumptions may be incorrect, with resulting inadequate factors of safety or undesirable behavior.



Portland Cement Association

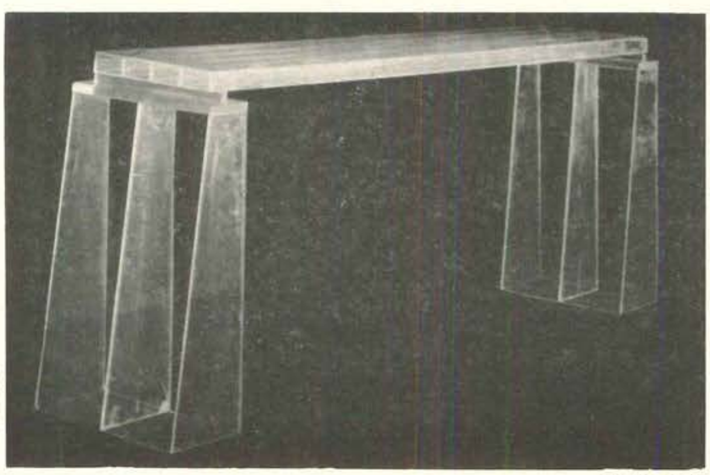
Figure 4

Tests on the model of a 29-story flat plate structure for Carl Sandburg Housing in Chicago (Figure 4, *left*) indicated that 15 per cent less slab reinforcement was necessary than mathematical analysis showed. Also shear wall size and location was based on the structural model analysis. Cost of the model analysis was about 15 per cent of the savings it made possible.

Although the floor plan has an irregular column spacing, the structure itself contains nothing new. But taking into account the conservatism of conventional design procedures, the engineer turned to structural model analysis to determine slab moments caused by vertical loads and lateral wind forces. Architects, Solomon, Cordwell & Associates; structural engineer, Alfred Benesch.

Hollow-core prestressed floor units manufactured by Material Service Corp. of Chicago (Figure 5, *below, left*) were tested in model form to determine secondary stresses at the bearing point and also buckling characteristics of the thin units.

"Wishbone" supports for access roadway at O'Hare Airport were designed without hinges through model analysis (Figure 6, *below*). Architects, C. F. Murphy Associates; structural engineer, Alfred Benesch



David Yates

Figure 5

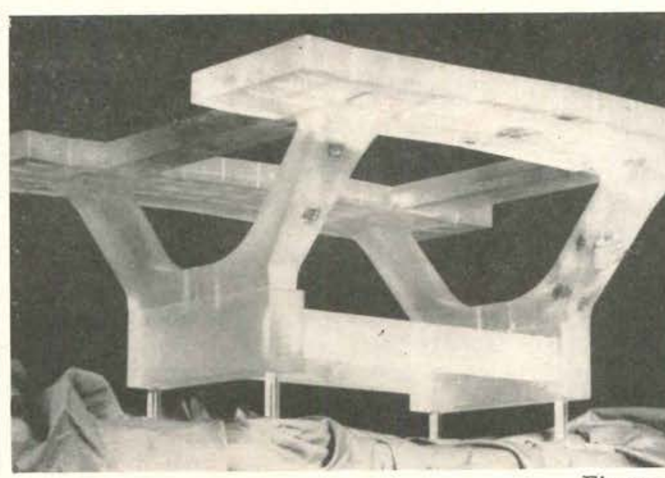
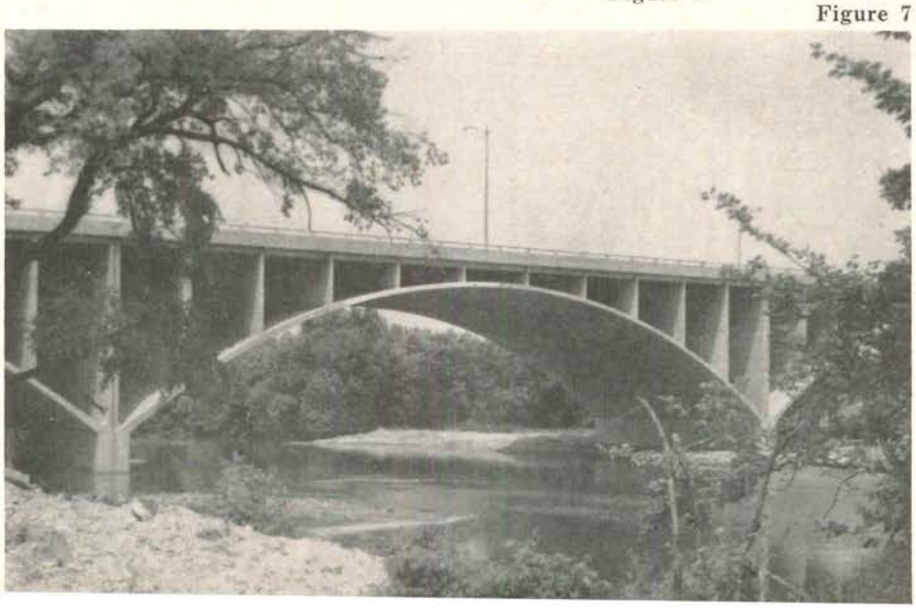


Figure 6

Figure 7



Structural model analysis of this open-spandrel arch bridge for the Illinois Tollway indicated that the arch rib could be reduced considerably in thickness from that indicated by mathematical analysis, cutting cost and producing a more graceful structure (Figure 7). The mathematical analysis presumed the arch to act alone in carrying loads of spandrel wall, bridge deck and live load. In actuality, the elements all work together, and this behavior could easily be determined by testing a model. Structural engineers, Vogt, Ivers & Associates; managing engineers, Knoerle, Bender, Stone Inc.

CUTTING IMPACT NOISE IN APARTMENT BUILDINGS

New FHA Guide developed by Bolt, Beranek and Newman shows how to limit impact noise through floors due to footfalls, dropped objects and vibrating appliances

The first impact noise level criterion for multifamily dwellings to be presented in this country has just been issued by the Federal Housing Administration. Developed under the Technical Studies Program of FHA by consultants Bolt, Beranek and Newman, Inc., the criterion is given in "A Guide to Impact Noise Control in Multifamily Dwellings" which includes as well a compilation of noise isolation performance data on 47 different apartment house floor-ceiling constructions (12 shown in this article) and information on proper architectural detailing.

Impact Noise Defined

The FHA publication is a concise and readily usable guide to the control of impact noise. It does not either amend or supplant the Minimum Property Standards, and thus constitutes an FHA recommendation to designers and owners, not a requirement.

Impact noise is caused by an object striking or sliding on a wall or floor structure, such as footsteps, dropped objects, movement of furniture or door-slamming. Also it may be caused by a vibrating appliance such as a dishwasher, toilet or food-disposal apparatus. The floor (or wall) is set into vibration by direct impact or mechanical contact, and sound is radiated from *both* sides of the floor. For this type of noise, the surface of the floor is very critical as regards the *amount* of noise generated.

The more familiar *airborne noise* is produced by a sound source such as a human voice, a musical instrument, a TV or radio set. Airborne sound waves radiate outward from the source through the air until they strike a wall, floor or ceiling which is set into vibration. Because the room structure vibrates, it radiates sound to the other side. Airborne transmission is usually minimized by making the party wall massive or of a complicated structure.

Impact noise is minimized by two principal techniques: (1) resiliently connecting the component parts of the floor-ceiling construction, and (2) "floating" the upper part of the floor on a relatively soft material or carpeting the floor.

While control of airborne sound is very important, techniques for its control are much better known in this country than for impact noise. Some of the measures recommended to reduce impact noise, however, will also help to control the transmission of airborne noise through the floor-ceiling construction.

The United States is one of the few highly developed countries which does not have some kind of requirement for control of noise in its building codes. In contrast since 1938 many foreign countries have instituted control measures, based on the results of careful and extensive programs of study. Measurements of the existing impact noise isolation in actual dwellings have been compared with the results of detailed interviews with the tenants in literally thousands of cases—in England, Sweden and the Netherlands in particular.

Lacking data on impact noise in the United States, the FHA sponsored a careful examination of foreign codes (especially the German, British and Swedish codes) and studies, and has adapted the results to the needs of the American people,

Figure 1: FHA's curve asks for greater isolation than many foreign codes. The noise transmission is given in decibels

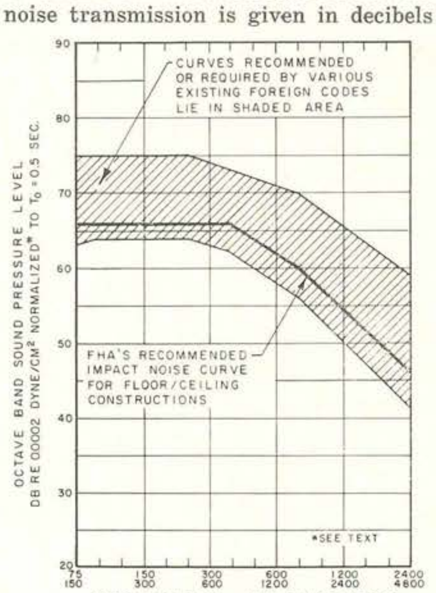


Figure 2: Solid line is noise through wood joist floor (FHA curve dashed). Impact noise rating (INR) is −17

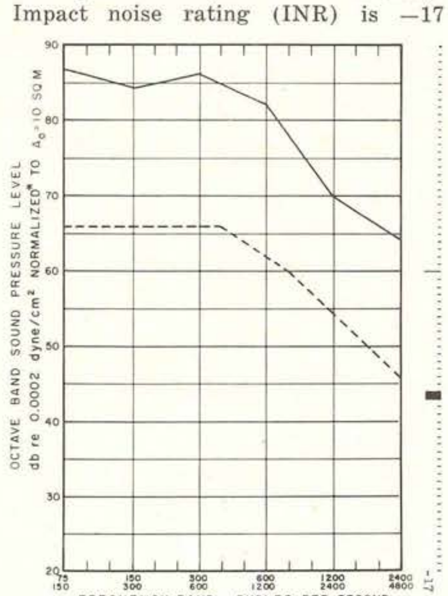
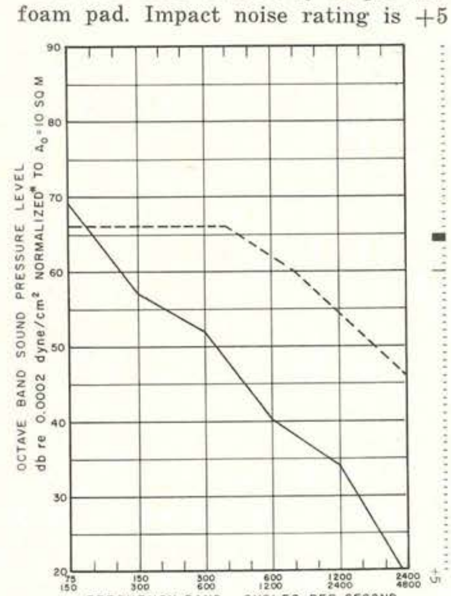
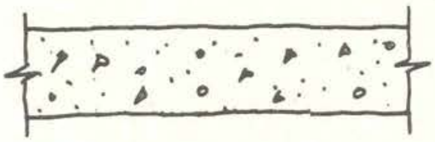
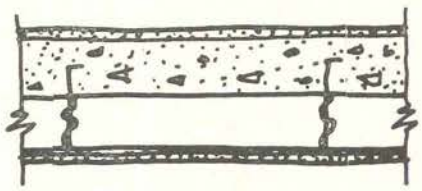


Figure 3: Solid line is noise through wood joist floor covered by carpet and foam pad. Impact noise rating is +5

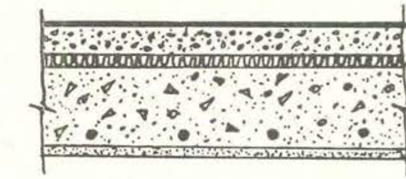




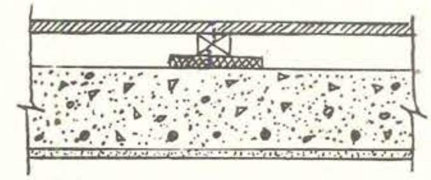
1. Ordinary slab



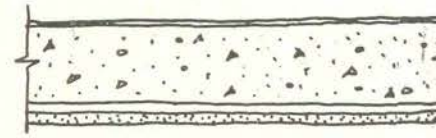
2. Slab with suspended ceiling



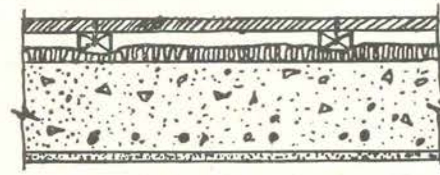
3. Slab with floated floor



4. Slab with floated wood raft



5. Cork tile on slab—furred ceiling



6. Slab with floated wood raft

IMPACT NOISE RATINGS (INR) FOR CONCRETE SLABS

1. Flat Concrete Slab: **INR = −17**
Total Thickness: 6½ in. to 9½ in.
Total Weight: 70-100 lb/sq ft
Basic Construction: Reinforced concrete slab.
Floor Finish: Either ⅝-in. pitch mastic, ⅝-in. composition or none.
Ceiling: Either ½-in. plaster or none.
Remarks: There is wide variability in impact isolation due to random factors rather than showing correlation with thickness, weight, floor finish or ceiling finish within the ranges mentioned above.

2. Flat Concrete Slab; Suspended Ceiling: **INR = −4**
Total Thickness: 9 in.
Total Weight: 62 lb/sq ft
Basic Construction: 4½-in. reinforced concrete slab.
Floor Finish: ¾-in. finish cement.
Ceiling: Gypsum lath and plaster (1 in.) suspended on 4-in. wire hangers.

3. Flat Concrete Slab; Floated Concrete Floor: **INR = +1**
Total Thickness: 9 in.
Total Weight: 95 lb/sq ft
Basic Construction: 5-in. reinforced concrete slab.
Floor Finish: 2 in. reinforced concrete screed, on 1-in. glass fiber blanket; ⅛-in. linoleum cemented to screed.
Ceiling: ½-in. plaster.
Remarks: Without the linoleum, this floor would not pass FHA recommendations.

4. Flat Concrete Slab; Floated Wood Raft: **INR = +3**
Total Thickness: 9½ in.
Total Weight: 80 lb/sq ft
Basic Construction: 6 in. reinforced concrete slab.
Floor Finish: ¾-in. T & G floor boards on 1½- by 2-in. battens, resting on ½-in. pads of soft fiberboard, asbestos or cork.
Ceiling: Two-coat plaster.

5. Flat Concrete Slab-Cork Tile; Furred Ceiling: **INR = +4**
Total Thickness: 6¾ in.
Total Weight: 65 lb/sq ft
Basic Construction: 6½-in. reinforced slab.
Floor Finish: ¼-in. cork tile, cemented to slab.
Ceiling: ½-in. plasterboard on metal clips on furring strips.

6. Flat Concrete Slab; Floated Wood Raft: **INR = +7**
Total Thickness: 9½ in.
Total Weight: 83 lb/sq ft
Basic Construction: 6-in. reinforced concrete slab.
Floor Finish: Floor of ¾ in. T & G boards on 1½ by 2-in. battens, on 1-in. glass fiber blanket.
Ceiling: Two-coat plaster.

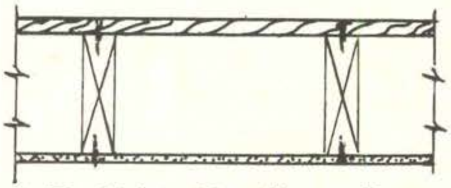
considering the significant differences in population density, living habits, noise environment, tolerance for noise, construction costs, etc.

It is important to note that a neutral background noise from flowing traffic or air-conditioning equipment is exceedingly important in all noise control situations because it helps to mask the sporadic intruding sounds. An intruding noise which would be intolerable in a quiet town might go completely unnoticed in an apartment on a busy street where the continuous hum of traffic masks noises from next door without itself seeming unpleasant. It is a major failure of all existing codes that this fact is not considered. The recommendations given by FHA apply to dwellings in which the ambient noise is typical of apartments in moderately quiet neighborhoods. For quieter areas, floor construction should be better than what the FHA data indicates as just acceptable constructions. In noisy urban areas poorer construction may be tolerated.

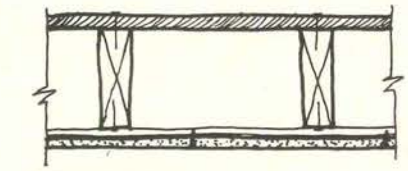
As a result of years of building construction without requirements or guidance from building codes for noise control, it is not surprising that many "typical" floor-ceiling constructions are inadequate as regards impact noise. Improvements will entail some increase in cost, but this increase will be small if noise control is considered early in the planning of buildings; in fact, it can be surprisingly inexpensive, and can be designed to yield ancillary benefits such as thermal insulation.

FHA Design Tools

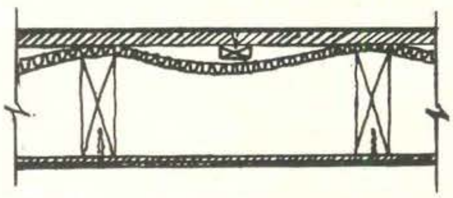
In the FHA Guide, three practical and essential tools are presented for use in the control of impact noise:
1. A curve of recommended sound pressure levels in decibels that should exist in a room below a particular floor-ceiling construction. This curve is shown in Figure 1; see also discussion below.
2. A collection of impact performance curves characteristic of typical U.S. floor-ceiling constructions. Some of these are more common in Europe, but yet resemble fairly closely U.S. constructions. Each curve is presented so that it can be compared directly with the maximum curve mentioned above. These constructions are all classified as to whether or not they provide the recommended isolation. (See Figures 2 and 3.)
3. A check list of precautions and suggestions, supplemented by rough sketches of architectural details (see Time-Saver Standards following this



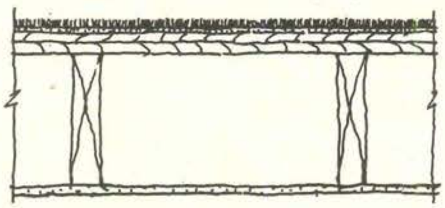
1. Wood joist—thin ceiling, walls



3. Wood joist—resilient hung clg.



2. Wood joist with floated wood raft



4. Wood joist—carpet on foam pad

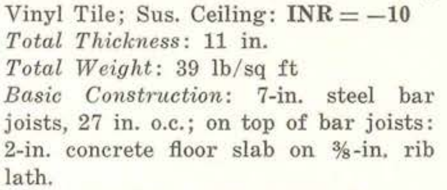
IMPACT NOISE RATINGS (INR) FOR WOOD JOIST FLOORS

1. Wood Joist; "Thin" Ceiling and "Thin" Walls: **INR = −18**
Total Thickness: 8½ in.
Total Weight: 7 lb/sq ft
Basic Construction: 2- by 8-in. wood joists with ⅞-in. T & G floor boards nailed to joists.
Floor Finish: None.
Ceiling: ⅜-in. plasterboard nailed to joists, joints sealed.
Remarks: Two of the supporting walls were 4½ in. thick, the other two were 9 in. thick or less.

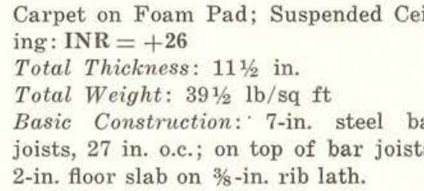
2. Wood Joist; Floated Wood Raft: **INR = −8**
Total Thickness: 9 in.
Total Weight: 8 lb/sq ft
Basic Construction: 2- by 7-in. wood joists, 16 in. o.c.
Floor Finish: ⅞-in. square-edge floor boards nailed on 2- by 2-in. battens; the whole raft floating on 1-in. glass fiber blanket.
Ceiling: ⅜-in. gypsum board, finished with plaster skim coat.
Remarks: The INR could be improved to −4 if a heavy plaster ceiling were used. The performance of this structure tends to deteriorate with time.

3. Wood Joist; Resilient Suspended Ceiling: **INR = −5**
Total Thickness: 9 in.
Total Weight: 10 lb/sq ft
Basic Construction: 2- by 8-in. wood joists, 16 in. o.c. with ¾-in. T & G fir flooring, nailed.
Floor Finish: None
Ceiling: ⅝-in. gypsum board screwed to resilient metal runners, nailed to and bridged across joists, 12 in. o.c. Joints taped and finished.

4. Wood Joist; Carpet on Foam Pad: **INR = +5**
Total Thickness: 11 in.
Total Weight: Unknown.
Basic Construction: 2- by 10-in. wood joists, 16 in. o.c.; ⅝ in. fir plywood subfloor nailed 8 in. o.c. to joists; ½-in. fir plywood covering subfloor (joints staggered) and nailed through to joists.
Floor Finish: ⅜-in. nylon carpet (¼-in. pile) on ¼-in. foam rubber pad.
Ceiling: ½-in. gypsum board nailed 12 in. o.c. to joists; joints taped and sealed.



1. Concrete slab—suspended ceiling



2. Concrete slab—carpet; sus. ceiling

IMPACT NOISE RATINGS (INR) FOR SLABS OVER STEEL JOISTS

1. Concrete Slab on Steel Bar Joists; Vinyl Tile; Sus. Ceiling: **INR = −10**
Total Thickness: 11 in.
Total Weight: 39 lb/sq ft
Basic Construction: 7-in. steel bar joists, 27 in. o.c.; on top of bar joists: 2-in. concrete floor slab on ⅜-in. rib lath.
Floor Finish: ⅛-in. vinyl asbestos tile cemented to concrete.
Ceiling: ¾-in. furring channels, 16-in. o.c. wire tied to bottom of joists; ⅜-in. gypsum lath attached to furring channels by clips; 7/16-in. sanded plaster and 1/16-in. coat of lime putty finish.

2. Concrete Slab on Steel Bar Joists; Carpet on Foam Pad; Suspended Ceiling: **INR = +26**
Total Thickness: 11½ in.
Total Weight: 39½ lb/sq ft
Basic Construction: 7-in. steel bar joists, 27 in. o.c.; on top of bar joists: 2-in. floor slab on ⅜-in. rib lath.
Floor Finish: ⅜-in. nylon carpet (¼ in. pile) on ¼-in. foam rubber pad.
Ceiling: ¾-in. furring channels, 16-in. o.c. wire tied to bottom of joists; ⅜-in. gypsum lath attached to furring channels by clips; 7/16-in. sanded plaster and 1/16-in. coat of lime putty finish.

article) which show how a basically good floor construction often is spoiled by oversight in matters of detail.

Figure 1 is FHA's recommended curve which shows for each frequency the maximum acceptable Impact Sound Pressure Level (ISPL) due to thumping a floor overhead with a standard tapping machine. The measurements are to be made in the field and adjusted to a receiving room assumed to have a reverberation time (T_o) of 0.5 seconds. The shaded area represents the range covered by various European codes. A floor-ceiling construction which provides enough isolation to fall on or under the FHA curve meets the FHA recommendation *absolutely*. To take into account the possibility of slight errors in field measurements, a floor construction can exceed the FHA curve a mean amount of not over 2 decibels (averaged between 100 and 3,200 cps). At no point, however, may a floor construction exceed the FHA curve by 8 decibels.

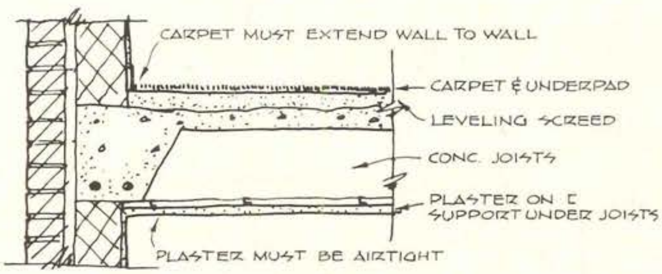
Frequently it is useful to know more than whether a construction meets the FHA recommendations or not. Therefore, a single number rating scheme was devised to show whether a floor barely achieves the requisite isolation, or by how much it is over or under the recommendation. Typical floor constructions illustrated in the Guide have thus been assigned an Impact Noise Rating (INR). What this value essentially indicates is how many decibels a curve needs to be shifted down or up to meet the FHA curve. If the floor curve has to be moved down the Impact Noise Rating will be negative; if it can be moved up, the INR will be positive. The INR thus provides a means of rank-ordering a large number of different constructions: the higher the INR, the better the impact isolation provided. Negative INR values fail to meet the FHA recommendation; positive values exceed it.

Impact noise transmission through a typical wood joist floor covered by tile is shown in Figure 2. The Impact Noise Rating (INR) for this construction is −17; this is indicated by the small black rectangle along the right margin of the graph. The INR value for the FHA recommended curve is zero. When carpet and a foam pad are substituted for the floor tile the INR is raised to a value of +5.

IMPACT NOISE CONTROL DETAILS FOR DWELLINGS: 1

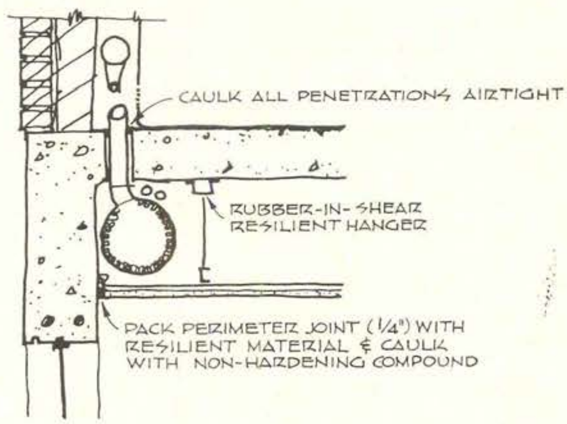
Prepared for FHA by Bolt, Beranek and Newman, Inc.

CONCRETE FLOOR STRUCTURE
Floor carpeted; plaster ceiling

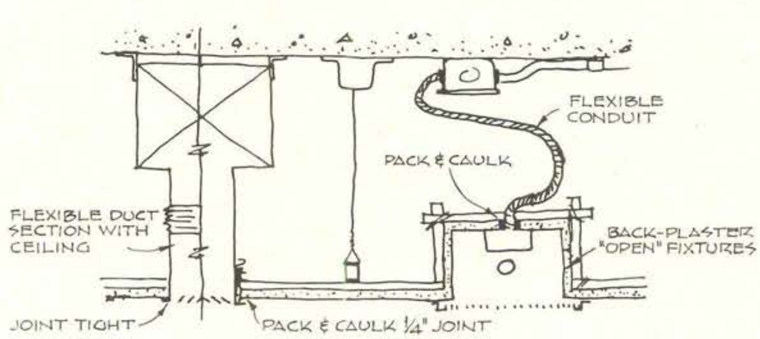


Plaster must be airtight to get most loss of energy through the structure and to prevent transmission of airborne noise

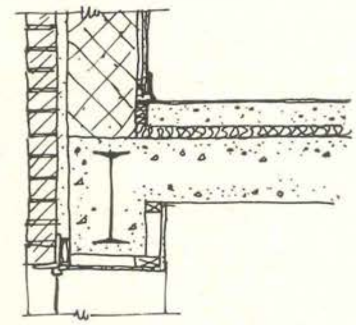
RESILIENTLY SUSPENDED PLASTER CEILING

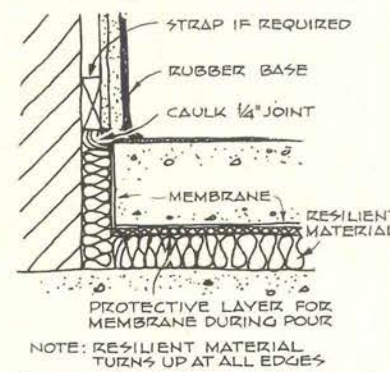


All penetrations must be caulked to prevent transmission of impact sound through piping, ductwork; also to stop airborne sound *(above)*. Conduit and duct connections must be flexible to maintain impact noise reduction of floor (*below*)



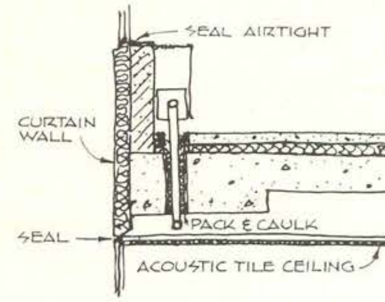
EXTERIOR OR INTERIOR
WALL-FLOOR INTERSECTION

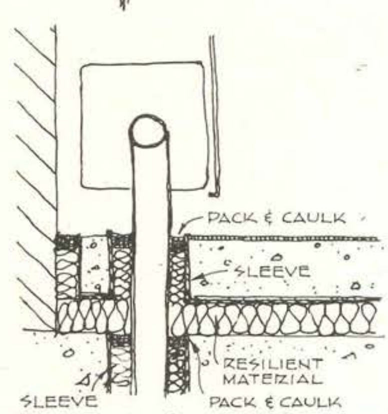




Bottom sketch shows techniques for isolating concrete topping from the structural slab. Full detail is above

SERVICE PENETRATION AT
EDGE OF FLOATING FLOOR



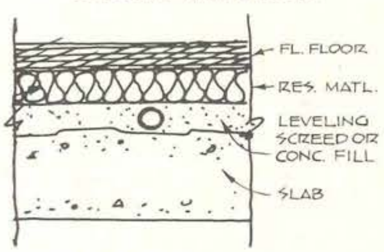


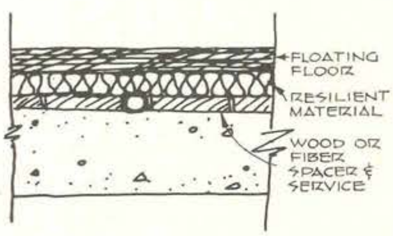
Pipe penetrations are sleeved and packed to prevent the impact noise from being carried through the pipe

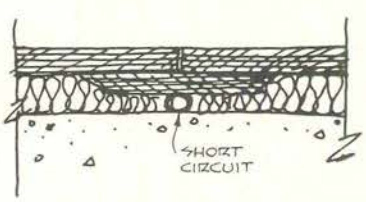
IMPACT NOISE CONTROL DETAILS FOR DWELLINGS: 2

Prepared for FHA by Bolt, Beranek and Newman, Inc.

SHORT-CIRCUITING OF FLOATING RAFT FLOORS

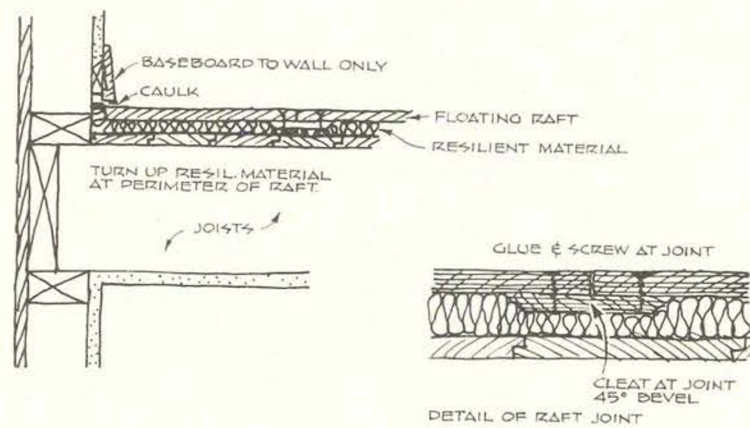




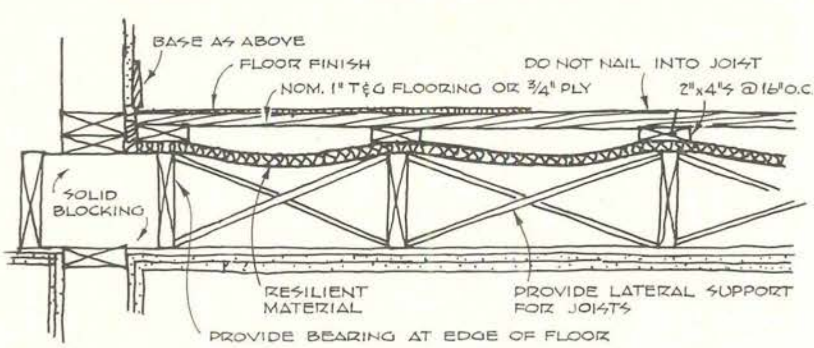


Top two sketches show proper location of services under a floating floor. In bottom sketch, service "shorts out" resilient layer, since it is directly under floor

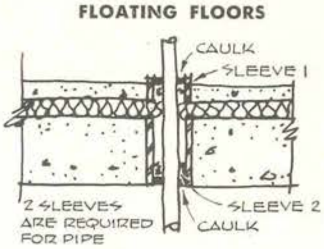
DETAILS OF WOOD FLOATING RAFT FLOOR

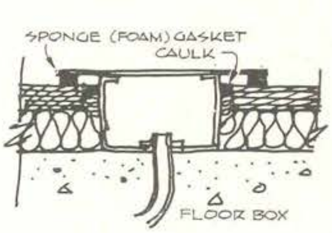


CONSTRUCTION OF A TYPICAL FLOATING RAFT FLOOR



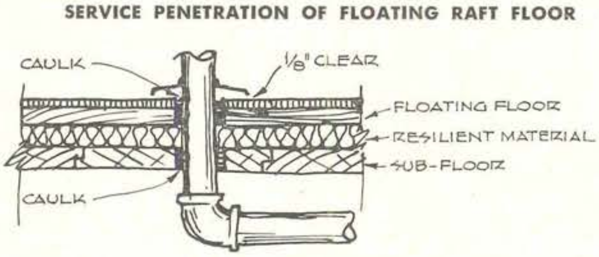
PENETRATION OF CONCRETE FLOATING FLOORS





Piping through floors should be sleeved and caulked so that floating floor will not be short-circuited. Electrical boxes should be isolated from the finish floor by a gasket

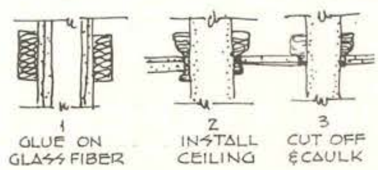
SERVICE PENETRATION OF FLOATING RAFT FLOOR



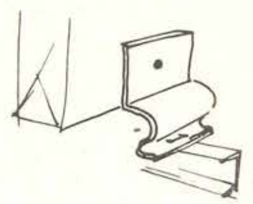
IMPACT NOISE CONTROL DETAILS FOR DWELLINGS: 3

Prepared for FHA by Bolt, Beranek and Newman, Inc.

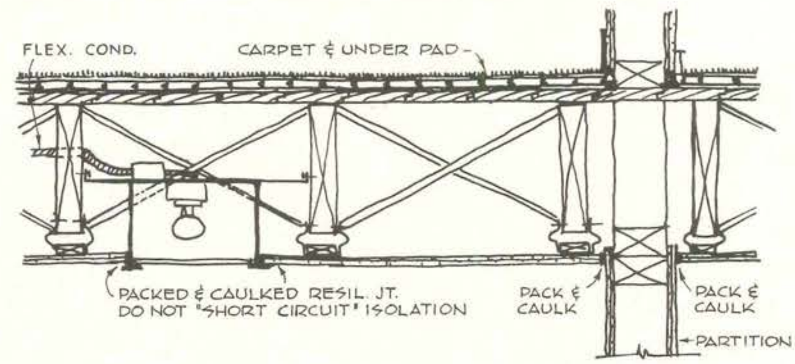
PLASTER CEILING ON RESILIENT CLIPS ATTACHED TO WOOD JOISTS



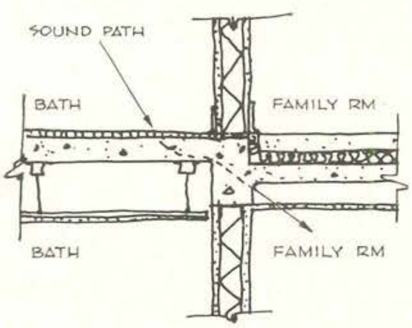
Packing partition penetration



Typical resilient clip

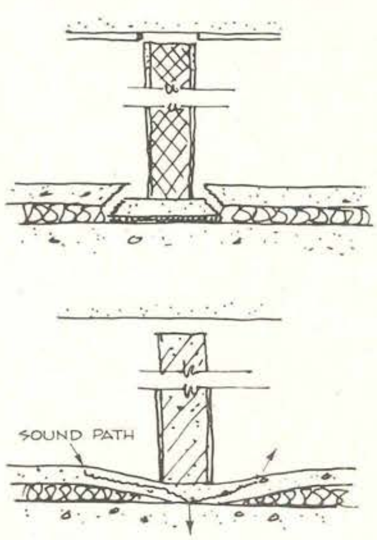


"MIXED" CONSTRUCTIONS



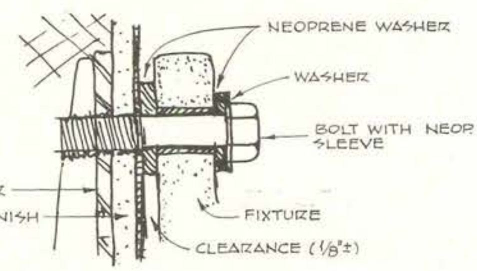
If different construction types are flanked, impact noise from the "poorer" construction will travel through structural slab on the floating floor side

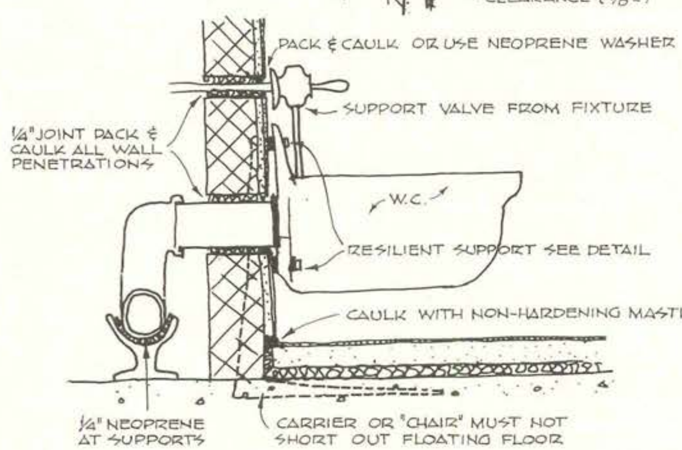
IMPROPER PARTITION SUPPORT

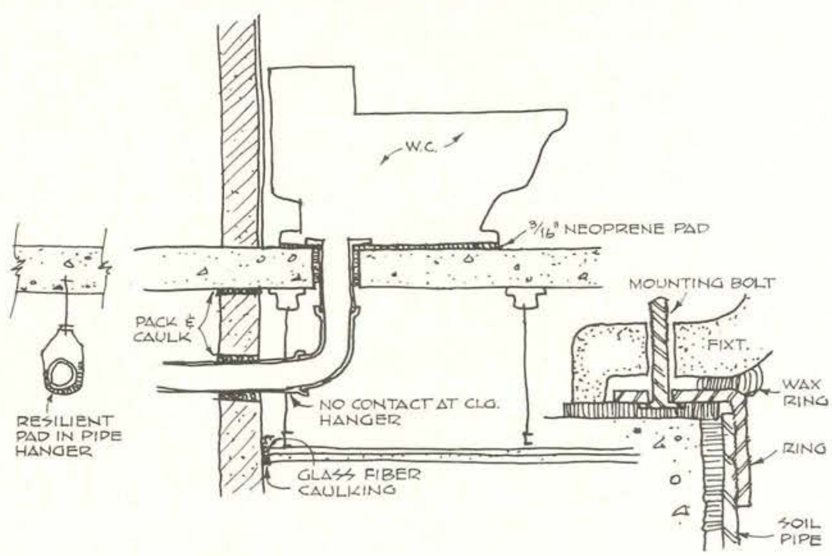


If partitions are set atop floating floor, either the topping will shear, or compressed topping and pad will offer direct sound path

CONNECTION DETAILS FOR W.C.



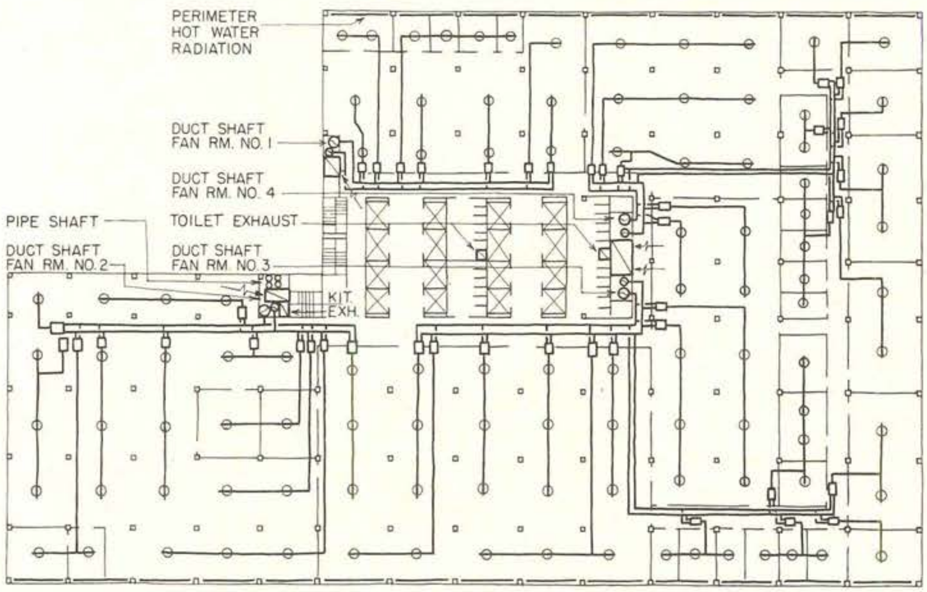




A DUAL-DUCT APPROACH FOR OFFICE BUILDINGS

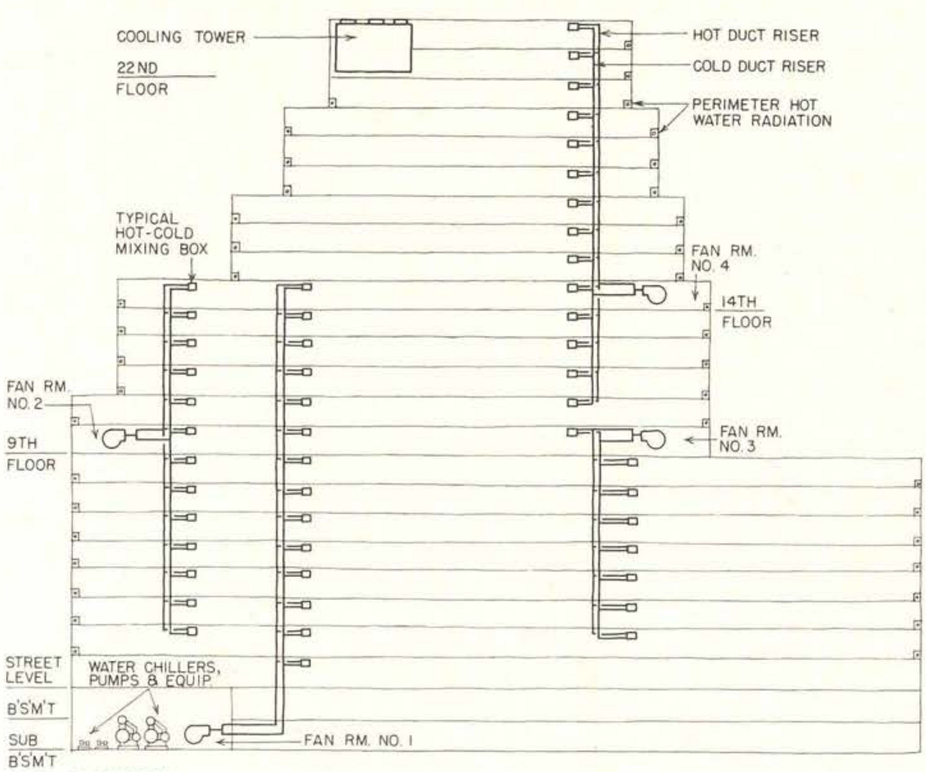
The heating, ventilating and air-conditioning systems of many new urban, multi-tenanted office buildings are laid out to accommodate the "average" tenant. Unfortunately, in many instances, there is no "average," and much of the ductwork and associated equipment must be relocated or replaced, at an additional cost to owner, tenant or both.

The consulting engineering firm of Sidney W. Barbanel made a thorough study of such tenant changes in dozens of buildings designed by their firm and others, to find a methof of eliminating such extras. They developed a design approach which combines a "new look" at over-all design and distribution to avoid the relocation problem coupled with an unusual but dependable and economical bidding system for the mechanical contractor.



TYPICAL FLOOR

Composite air-conditioning layout for a multi-tenant type of office building



ELEVATION

Simplified riser diagram shows that multiple fan rooms eliminate duct offsets

The heart of their approach involves the use of a dual-duct system for both interior and exterior locations plus an under-window perimeter radiation system.

For design of the air supply system, the building is divided into conveniently sized and located zones for shortest possible horizontal runs and minimum offsets of vertical runs. Very often the floors are divided into quadrant zones rather than an interior and an exterior zone.

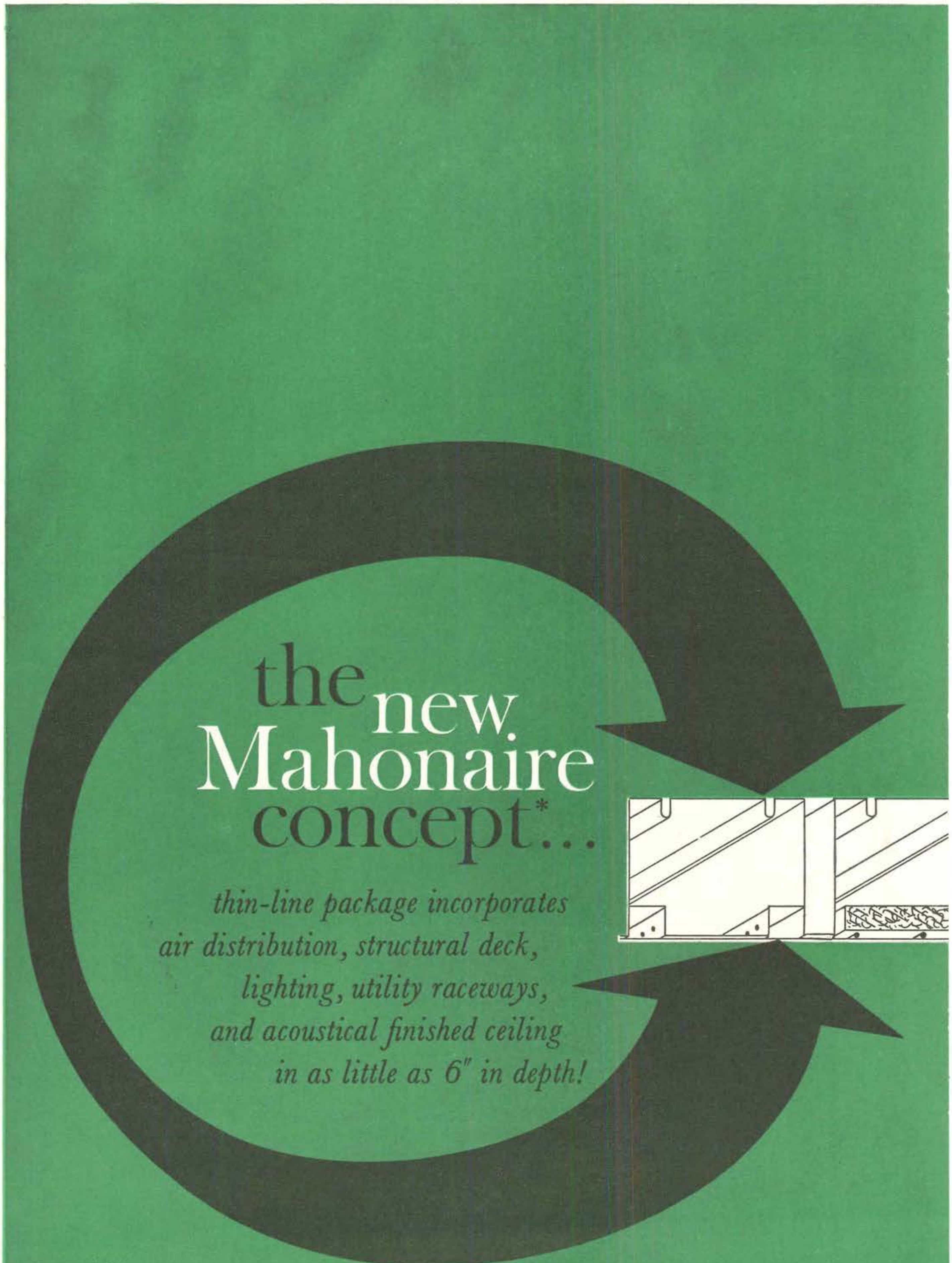
Then a dual-duct distribution system is laid out for the horizontal runs of a typical floor, providing a large number of individually controlled zones in the interior as well as exterior. The dual-duct system permits maximum control flexibility for either interior or exterior areas.

Instead of asking the mechanical contractor for a lump sum for the entire building, with individual tenant changes to be negotiated later, the engineers ask for a price per pound of net installed weight of sheet metal, with a given factor for different gages, this to be multiplied by the "net surface" of metal installed.

Similarly, unit prices are obtained for typical air mixing boxes of various sizes, complete and connected; net price for diffusers and return registers; price per lineal foot of finned-tube radiation, etc.

With the manner of take-off thus specified, it is easier for the mechanical contractor to estimate the job. Not only is less estimating time required for contractors, but also there are no unforseen items to crop up later, and the result is that bids have come in 40 per cent less than might be expected under normal bidding practice.

If a tenant wants more flexibility than provided in the original design, then the owner must pay for the extras incurred by the contractor and charge this against the tenant. If the contractor installs less than indicated originally for the typical floors, then he must pay the owner a rebate.


the new Mahonaire concept*...
thin-line package incorporates
air distribution, structural deck,
lighting, utility raceways,
and acoustical finished ceiling
in as little as 6" in depth!
*Pats. applied for

Heating and cooling have always before been handled as accessories which must be added to the fundamental building at the cost of extra space. The MAHONAIRE air ceiling concept now incorporates this into the basic structure itself in little or no additional space and at substantial savings over conventional ductwork systems. Costing little more than the basic structural elements themselves, MAHONAIRE can be installed for heating when the building is erected and can then be utilized at any later time for air-conditioning.

In addition to the cost savings in air distribution system materials, the savings resulting from building height reduction are substantial.

AIR DISTRIBUTION Mahonaire ceilings eliminate conventional ceiling diffusers and costly distribution ductwork. High aspiration of diffused air avoids cascading of delivered cold air or stratification of delivered hot air. Downward air directional control reduces dust or smudge streaking of the ceiling.

STRUCTURAL SUPPORT High strength-weight ratio of Mahonaire deck allows economical design. Long spanability eliminates intermediate supports and provides excellent surface for either support and bond of insulation and roofing or as a concrete form for roof construction.

RECESSED LIGHTING Standard lighting fixtures can be installed continuously or intermittently between the beam webs. Versatility of the Mahonaire concept provides a ready solution of specific lighting and modular layout requirements.

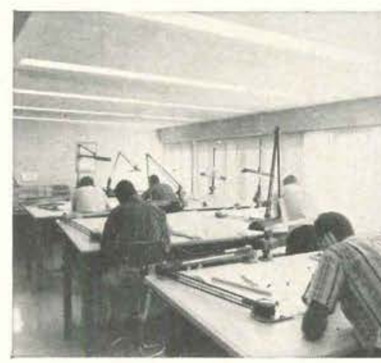
UTILITY RACEWAYS Cells can be used to carry signal lines, sprinkler systems and similar utilities.

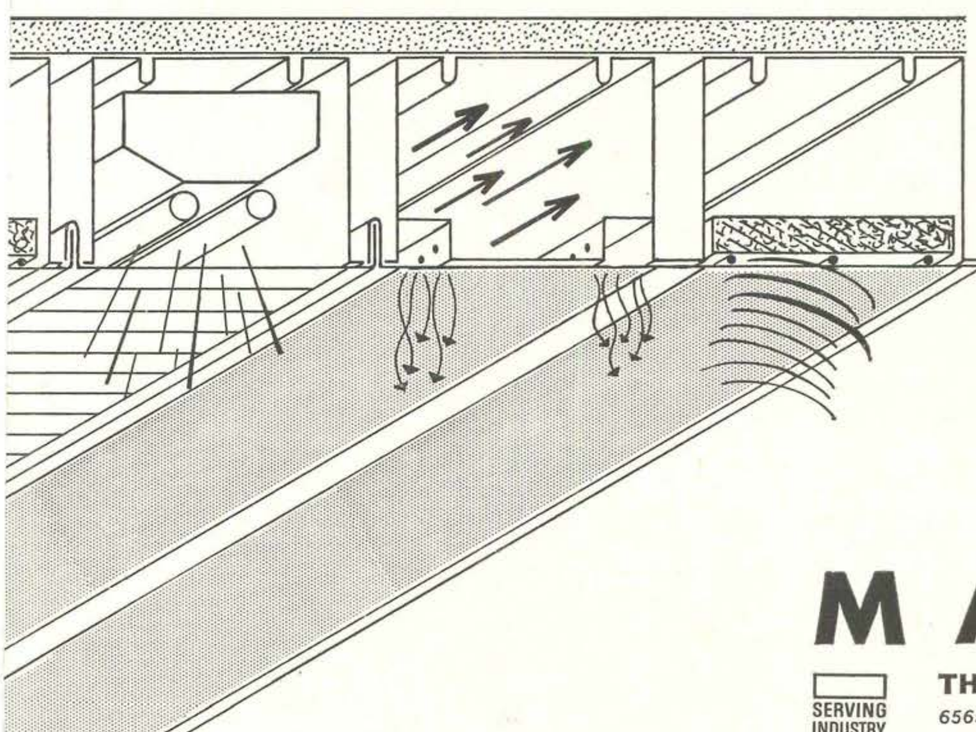
SOUND CONTROL Economical sound absorbtion is achieved by inserting sound-absorbing material in the cells of the perforated Cel-Beam members.

FINISHED CEILING Flush surfaces or exposed beam effect can be used. The metal surfaces are virtually indestructible and require no maintenance other than normal periodic painting.

For more information write for new catalog AC-63.

MAHONAIRE & Cel-Beam are trademarks ofTheR. C. Mahon Co.





This office building incorporates the MAHONAIRE concept. Within the 7½″ cells used for structural support were incorporated air distribution, troffer lighting, sprinkler system and acoustical treatment.

A one-story school building in Southern Texas provides year-round conditioned air using the MAHONAIRE ceiling concept. Cost savings over a conventional system were substantial.

ARCHITECT: WYATT C. HEDRICK, HOUSTON, TEXAS

The MAHONAIRE concept in this engineering company office furnishes draft-free heated or cooled air and ventilation and provides recessed lighting in the attractive flush ceiling.

MAHON

THE R. C. MAHON COMPANY

6565 E. EIGHT MILE ROAD, DETROIT 34, MICHIGAN

SERVING INDUSTRY SINCE 1912

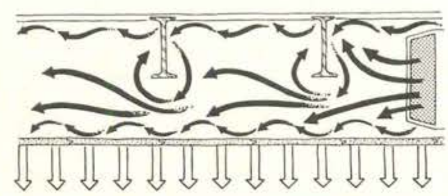
Manufacturing Plants—Detroit, Michigan and Torrance, California.

Sales-Engineering Offices—Detroit, New York, E. Orange, N. J., Cleveland Hts., Ohio, Chicago, Torrance, San Francisco and Seattle.

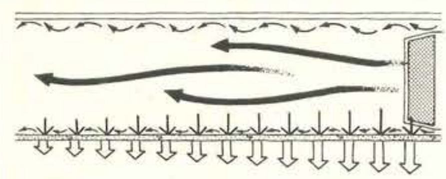
For more data, circle 75 on Inquiry Card

DESIGN OF VENTILATING CEILINGS

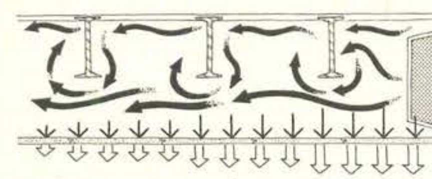
Correct engineering assures even flow of air through perforated ceilings regardless of obstructions in the plenum



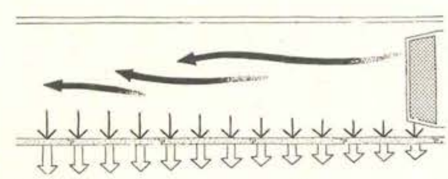
Even plenum pressure assures uniform flow through a perforated ceiling



Friction loss due to air flowing past plenum boundaries can reduce air flow



Turbulence due to obstructions may reduce pressure, gradually cutting flow



Phenomenon known as "static regain" actually causes increase in air flow

A ventilating ceiling is a type of air-inlet system. It is a system with an extensive array of numerous small openings through which air is pushed at low pressure from an overhead plenum. The plenum is usually served by a single, elementary supply duct opening or duct stub. Whereas a conventional system has a few diffusers, each carrying a large volume flow of air, a ventilating ceiling has many small openings, each carrying a very small volume flow. There may be several hundred small openings per sq ft.

The ventilating ceiling and its associated plenum serve the same purpose in the complete air distribution system as do the diffusers and the associated local ductwork in the conventional system.

The return air systems and the main supply ducts are essentially the same for the conventional system and the ventilating ceiling, although there is some difference in local supply detail.

To help insure proper engineering design of ventilating ceilings employing perforated acoustical tiles or panels, the Armstrong Cork Company recently developed a complete design procedure. The salient factors involved are discussed here.

Advantages of a Ventilating Ceiling

1. Since the whole ceiling is used to deliver air, adequate air may be supplied directly to all parts of a room without drafts or stagnant spots.
2. Freedom from drafts is maintained even with very low ceilings and high air flow rates.
3. When the ventilating openings are close together, the flow of air repels dust-laden room air and virtually eliminates soiling by impingement and breathing.
4. A single duct stub can supply air for a very large area. This reduces the cost of supply ducts and eliminates diffusers.
5. The ventilating openings may be provided in a finish which absorbs sound.
6. A ventilating ceiling often permits use of a shallower floor-ceiling structure than does a conventional system.

Requirements for Proper Air Flow

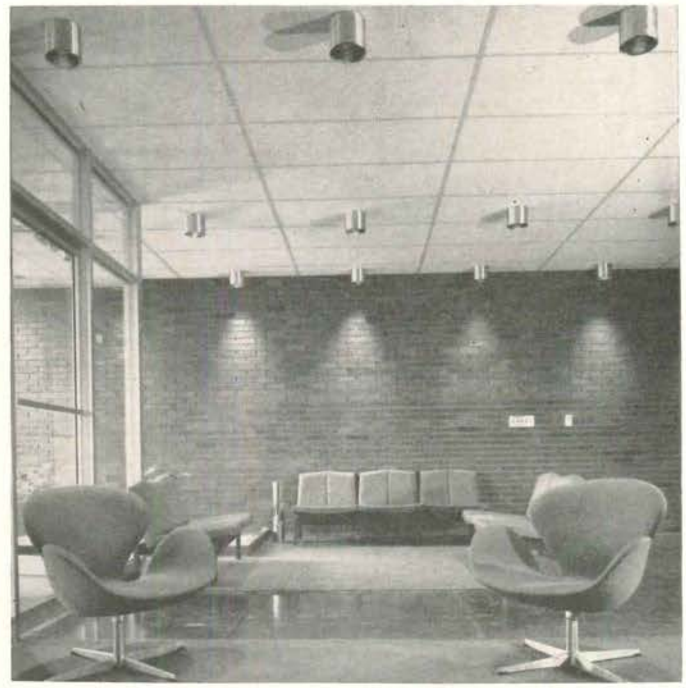
In the case of a conventional system the diffusers and the local ductwork have to satisfy a number of requirements in order to deliver the proposed amount of air and distribute it according to a particular plan. Naturally, a ventilating ceiling and its associated plenum must also satisfy a number of basic requirements. The five basic requirements of a ventilating ceiling, so far as air distribution is concerned, are:

1. The ventilating ceiling must deliver to the space below it an actual total flow of air equal to the design total flow—the amount planned for that space by the mechanical engineer.
2. The ventilating ceiling must deliver the design total flow at a plenum pressure which does not exceed the safe load limit of the ceiling material.
3. The plenum pressure must be generally uniform throughout the plenum serving a zone.* This is necessary in order to produce a uniform air supply for the whole floor area of the zone when a uniform ceiling is used. It is also necessary so that intentional nonuniformity of air supply from place to place may be preplanned through intentional variations in the arrangement of ventilating and nonventilating tiles.
4. Although local pressure variations of limited extent and magnitude may occur in the vicinity of the inlet duct opening and in the vicinity of large obstructions in the air flow path (such as I-beams), these pressure variations must be kept under control by proper engineering. Negative plenum pressures must not occur—that is, pressure differences through the ceiling which will cause air to flow from the room, up through the ceiling, and into the plenum. Otherwise, local soiling of the ceiling

This article is drawn from technical information developed by engineers and physicists of the Armstrong Cork Company for use by architects and consulting mechanical engineers

* A zone is an area of a building for which the plenum above does not connect with any other space except through the ventilating ceiling and the supply ducts

Fissured acoustical tiles for the ceiling in the Endicott Trust Building have a series of tiny holes for air supply



Random perforated acoustical lay-in board serves for distribution of air in the lobby of Allied Research Building

will occur due to the reverse air flow.
5. The ventilating ceiling must not introduce any new air flow noise.

Technical Factors

Effect of Plenum Pressure. With rare exceptions, the ventilating ceiling will deliver an actual total flow equal to the design total flow so long as the supply ductwork has been designed and adjusted to bring up to the plenum an air supply equal to the design total flow. In effect, the ventilating ceiling is a low-resistance element in series with the rest of the air supply system leading up to the zone served by the ceiling. In rare cases it may be necessary to consider the small pressure drop through the ceiling, that is the plenum pressure, in designing the supply ductwork and in balancing the system.

The value of the plenum pressure must be known, not only to establish the fact that it is small enough to ignore in this regard, but also because it has an important bearing on other technical factors. Recommended load limits for acoustical ventilating tiles are based either on tolerable noise due to flow of air through the ventilating holes, or on tolerable bending of tiles from the point of view of appearance. They do not represent rupture loads.

Design for Even Plenum Pressure

There are three things which may cause general changes of plenum pressure within a zone unless they are kept under control by proper engineering.

First, there are simple frictional losses due to the presence of the upper and lower boundaries of the plenum. These losses are similar to the well-known frictional losses in ducts, and they cause a progressive decrease of plenum pressure as the air moves across the plenum from the inlet duct opening.

Second, there are pressure losses due to turbulence around obstructions which impede the flow of air across the plenum (I-beams, recessed light housings, suspension channels, etc.). These losses are similar to the turbulent losses around dampers in ducts. Successive losses of this type cause a stepwise decrease of plenum pressure as the air moves across the plenum from the inlet end.

Third, there is a phenomenon, known as static pressure regain,† which causes a progressive increase of plenum pressure as the air moves across the plenum. In general, this phenomenon is more important than the frictional losses due to the upper and lower boundaries of the plenum, but not necessarily more important than the turbulent losses.

In practice, all three requirements are considered for a preliminary arrangement of inlet duct openings (that is for a definite air projection distance); and each of the requirements then defines a tentative value of minimum plenum height. An actual plenum height must be chosen at least as large as the largest of the three tentative values. If this final plenum height is architecturally too large, either the ducts must be relocated to give smaller air projection distances, or another ceiling layout must be used to give higher plenum pressure. Either type of change will permit the use of a shallower plenum.

Turbulent Loss

There are always suspension channels or tops of T's, H's or Z's protruding into the plenum of a suspended ceiling. Usually there are other obstructions such as I-beams, concrete beams, recessed light housings, or other objects which impede the flow of air across the plenum. These obstructions lead to a progressive decrease of plenum pressure as the air flows across the plenum, because energy is lost in turbulence.

The largest pressure loss due to turbulence around an obstruction of

continued on page 292

† Static pressure regain arises in this way: as air is pushed out of the plenum through a ventilating tile at a particular location, the remaining air expands to fill the cross sectional area of the plenum. The velocity of the remaining air is thus reduced, causing a reduction of the velocity pressure. The principle of conservation of energy demands that the reduction of velocity pressure be accompanied by an increase of static pressure, that is the plenum pressure

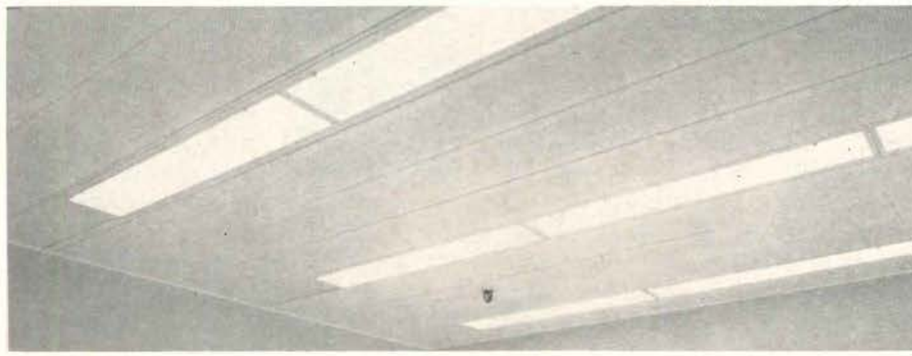
For more information circle selected item numbers on Reader Service Inquiry Card, pages 277–278

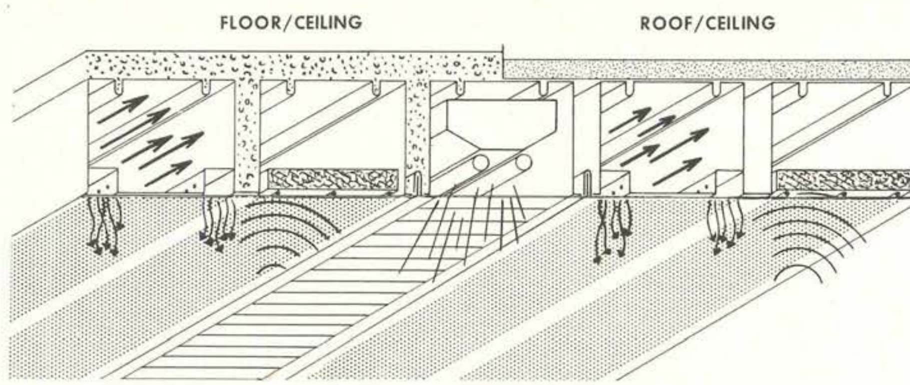
STEEL DECKING DOUBLES AS TROFFER AND AIR SYSTEMS

Mahonaire ceiling system uses structural steel cellular deck cells as combined air runs and ceiling diffusers for conditioned air. Since the cells are an integral part of the floor-ceiling structure, space is saved as well as some of the cost of auxiliary ductwork and diffusers.

As shown in cross section, alternating cells are used for air diffusion, acoustical control and recessed lighting. Inside the air diffusion cells are metering plates which control amount and velocity of air admitted to the perforated diffuser plates at the bottom. These plates serve as the finished ceiling and are identical in appearance to the acoustically-perforated plates. Noise generated by the system is said to be low because of the many low-velocity air distribution outlets. *The R. C. Mahon Co., 6565 E. Eight Mile Rd., Detroit 34, Mich.*

CIRCLE 300 ON INQUIRY CARD



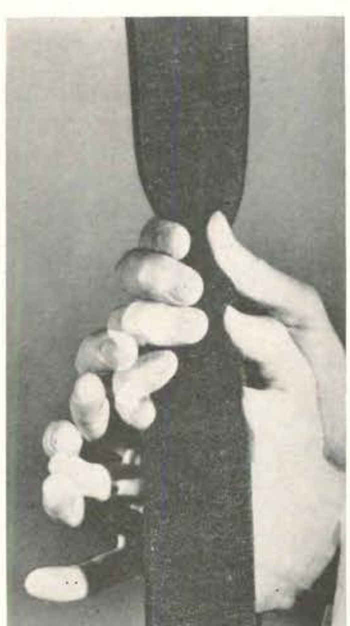


URETHANE-ASPHALT SEALANT HAS HIGH RESILIENCY

Polyurethane foam is impregnated with asphalt to produce a sealing and caulking compound which has a high degree of bond strength, moisture-tightness, and chemical and abrasion resistance. When *Compriband* is compressed to 25 per cent or less of its original dimension, it becomes an impenetrable mass which forms a strong bond to joint interfaces. Expansion force against joint surfaces maintains a constant bond through wide ranges of joint movement, without fatigue or loosening. It can be used to seal joints between almost any combination of similar or dissimilar materials. It acts as a vibration and sound isolator and does not support combustion. Uses include curtain wall and window installation, concrete expansion joints, etc. *Pacific Sealants, 12530 Yukon Ave., Hawthorne, Calif.*

CIRCLE 301 ON INQUIRY CARD

more products on page 228



Office Literature

For more information circle selected item numbers on Reader Service Inquiry Card, pages 277-278

SENSIBLE HEAT CONTROL

To aid architects in making certain basic design decisions which influence the performance and cost of air conditioning, *Owens-Corning Fiberglas* has prepared a series of 60 color slides and commentary including the following topics: (1) fundamentals of heat flow relating to design of building shells, (2) analysis of heat gain and heat loss problems, and (3) systematic evaluation of these factors as they apply to initial and operating costs of air-conditioning systems. The slide illustrations and commentaries have been printed in a 65-page booklet, "Economics of Sensible Heat Control," which is available to architects and engineers writing on their letterhead. *Owens-Corning Fiberglas Corp., Industrial and Commercial Div., Dept. MC, 717 5th Ave., New York 22, N.Y.*

AIR CONDITIONING CONTROLS

Solid state controls, actuators and auxiliary devices form the *Cybertronic* system of air-conditioning controls described in a six-page folder. *Fischbach and Moore, Inc., 9005 Sovereign Row, Dallas 7, Tex.*

CIRCLE 400 ON INQUIRY CARD

PREFAB STEEL STAIRS

(A.I.A. 14-D) Folder gives details on *Pico Pre-Erected Safe Stairs* which are hoisted into position before stairwells are built. The steel stairs are built to meet specifications of floor levels and walls. *Potomac Iron Works, Inc., 4711 Rhode Island Ave., Hyattsville, Md.*

CIRCLE 401 ON INQUIRY CARD

FLOODLIGHTING BUILDINGS

"Building Floodlighting" gives details on the best ways to accent the architectural features of buildings at night. The 20-page booklet (TP-115) lists characteristics of incandescent, fluorescent and mercury lamps. *Inquiry Bureau, General Electric Co., Nela Park, Cleveland 12, Ohio*

CIRCLE 402 ON INQUIRY CARD

CHURCH FURNISHINGS

Church furnishings and accessories are illustrated and described in two catalogs, "Pews and Accessories" and "Educational and Church Furnishings." *L. L. Sams and Sons, River at LaSalle, Waco, Tex.*

CIRCLE 403 ON INQUIRY CARD

SUN CONTROLS

Vertical and horizontal sun controls, fixed horizontal fins, canopies and solar grill screens are described in a 16-page color booklet. Specifications and operating details are included. *Brown Mfg. Co., P. O. Box 8488, Oklahoma City, Okla.**

CIRCLE 404 ON INQUIRY CARD

MOVABLE PARTITIONS

(A.I.A. 35-H-6) A 16-page booklet describes Hauserman *Operable Wall*, a sliding wall for adapting space in commercial and institutional buildings. A 36-page catalog gives details on *Signature* movable wall system for office and factory buildings. *The E. F. Hauserman Co., 5711 Grant Ave., Cleveland 5, Ohio*

CIRCLE 405 ON INQUIRY CARD

CERAMIC TILE

Full-color photographs of installations illustrate a 36-page catalog on ceramic tile with descriptive and technical information for each kind of tile. A section on color harmony suggests color combinations using different types of tile. *American Olean Tile Co., 1000 Cannon Ave., Lansdale, Pa.**

CIRCLE 406 ON INQUIRY CARD

STAINLESS STEEL

The stainless steel, truss-wall sheathing of the I.B.M. Building in Pittsburgh and the custom windows of the Michigan Consolidated Gas Company Building in Detroit are described in detail in an eight-page booklet. *Committee of Stainless Steel Producers, American Iron and Steel Institute, 633 Third Ave., New York 17, N.Y.*

CIRCLE 407 ON INQUIRY CARD

LAB SPEC GUIDE

(A.I.A. 35-E) A laboratory fixtures specification guide has detailed reference data on how to select the best fixtures for particular functions. *T & S Brass and Bronze Works, Inc., 128 Magnolia Ave., Westbury, L.I., N.Y.*

CIRCLE 408 ON INQUIRY CARD

UNIT VENTILATORS

Unit ventilators designed for horizontal mounting at ceiling levels are described in Catalog 1085. All models have a *Roll-a-Change* filter which holds a three-year supply of fiber filter media. *Schemenauer Mfg. Co., Holland, Ohio*

CIRCLE 409 ON INQUIRY CARD

CURTAIN WALLS, WINDOWS

(A.I.A. 16-E) *Alwintite* aluminum windows, curtain walls, slide doors and terrace doors for high-rise apartments, commercial buildings, schools and hospitals are illustrated in catalog. *Alwintite Div., General Bronze Corp., 711 Stewart Ave., Garden City, L.I., N.Y.**

CIRCLE 410 ON INQUIRY CARD

RECESSED LIGHTING

Recessed and surface incandescent lighting are illustrated in 40-page Catalog 2000. Footcandle tables, coefficient tables, candle power distribution charts, dimension drawings and product specifications are included. *Moe Light Div., Thomas Industries, Inc., 207 E. Broadway, Louisville 2, Ky.**

CIRCLE 411 ON INQUIRY CARD

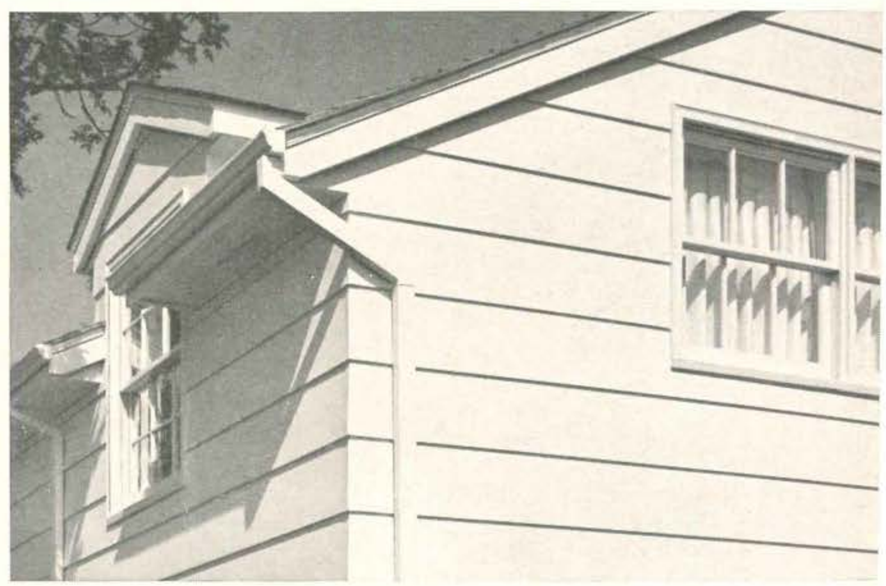
PEDESTAL FURNITURE

Pedestal tables and upholstered and fiber-glass chairs for various residential and commercial uses are illustrated in full-color catalog. *Burke, Inc., 5140 N. Westmoreland Rd., Dallas 7, Tex.*

CIRCLE 412 ON INQUIRY CARD

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

more literature on page 272



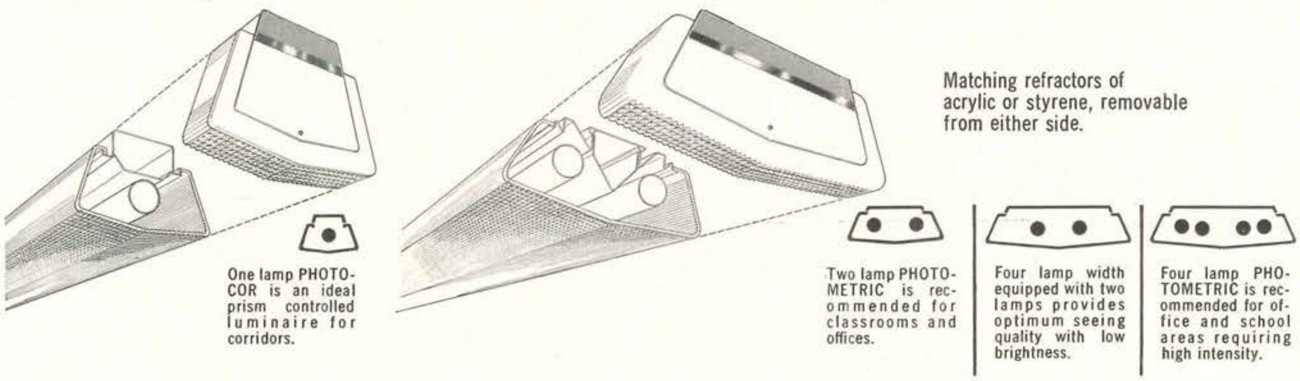
HOLLADAY HOMES BY ALLEN C. EDWARDS

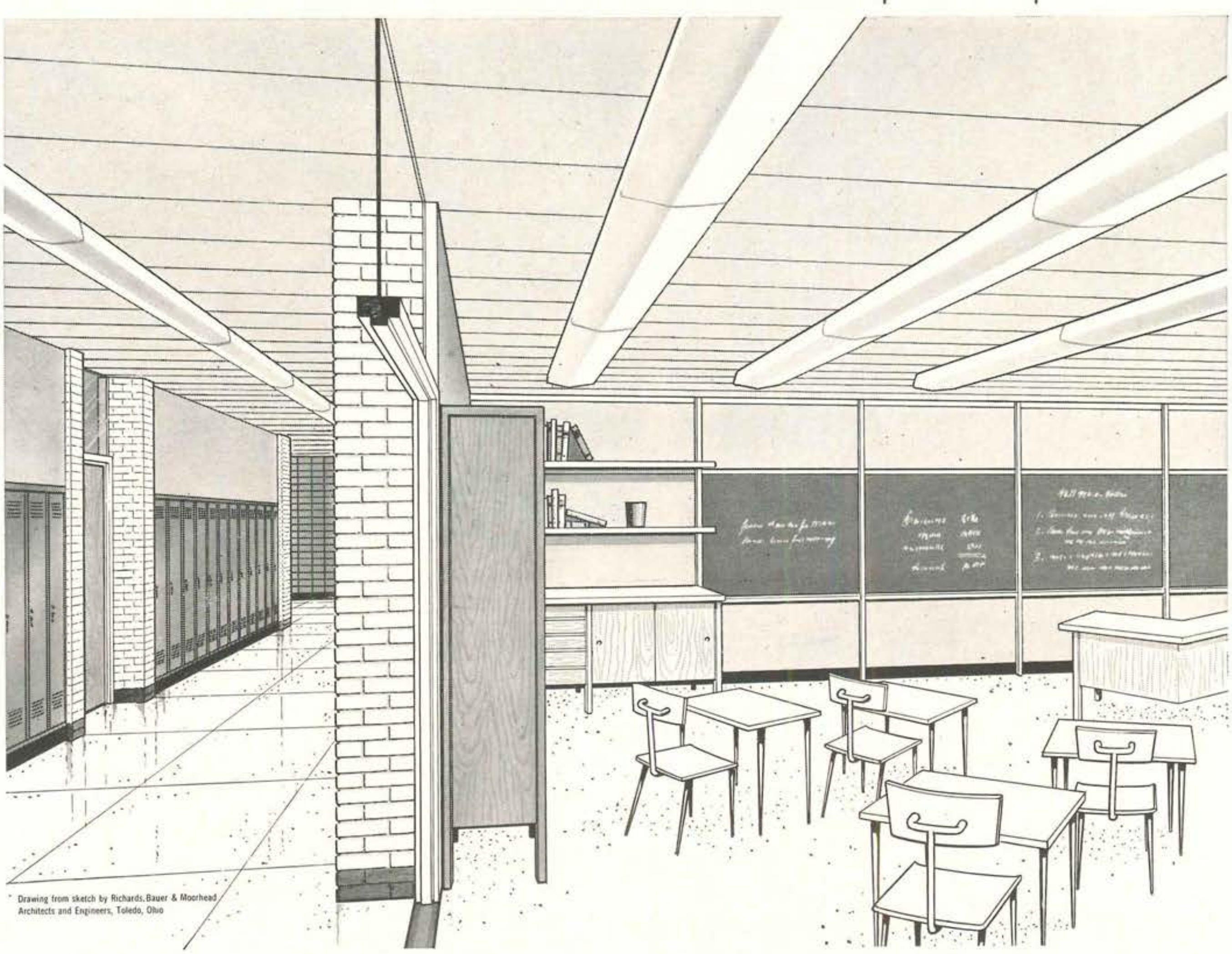
Light Your Corridors And Classrooms With Matching

PHOTOMETRIC PRISM CONTROLLED LUMINAIRES

TRADE MARK

Meet the newest member of the Wakefield family of Photometric prism controlled luminaires—the Photocor one lamp unit for corridors. This, together with the two and four lamp Photometrics, gives you a complete series of matching luminaires for classrooms and corridors. Available in 4 ft. and 8 ft. lengths, Photometrics when mounted in rows provide a continuous shaft of light since they have no metal end plates to create distracting shadows. Write for literature describing these efficient prism controlled luminaires.





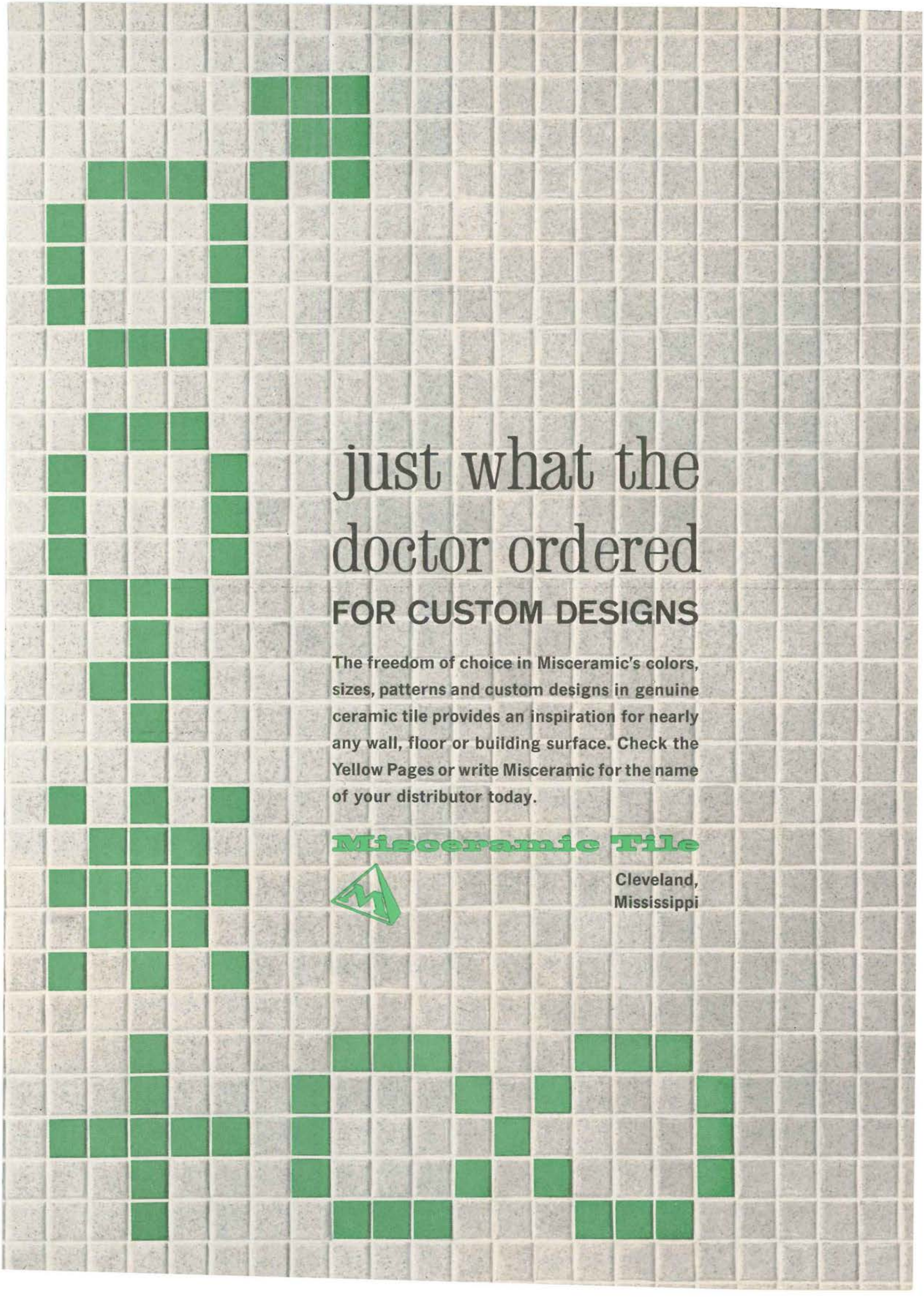
WAKEFIELD Lighting Division

WAKEFIELD CORPORATION Vermilion, Ohio

In Canada, Wakefield Lighting Limited, London, Ontario

For more data, circle 78 on Inquiry Card

For more data, circle 79 on Inquiry Card →

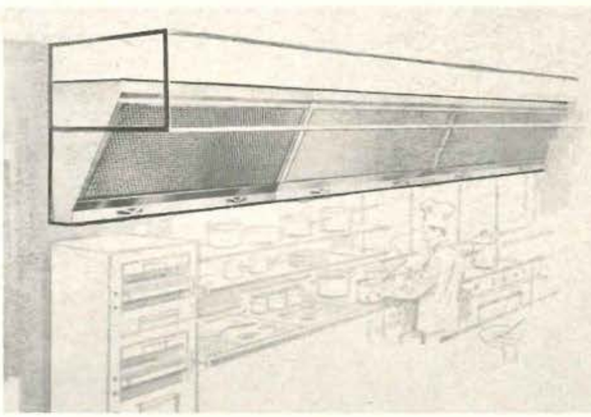

just what the
doctor ordered
FOR CUSTOM DESIGNS
The freedom of choice in Misceramic's colors, sizes, patterns and custom designs in genuine ceramic tile provides an inspiration for nearly any wall, floor or building surface. Check the Yellow Pages or write Misceramic for the name of your distributor today.
Misceramic Tile
Cleveland,
Mississippi

Product Reports

continued from page 223

INSTITUTIONAL KITCHEN VENTILATION

Institutional kitchen ventilating system fights grease fires with *AIRSAN AG* grease filter that arrests flames, absorbs heat and reduces exposed flames to temperatures below the fire point. A thermal-link that melts in case of fire releases a weighted damper



to prevent fire from spreading into plenum area. Manual or automatic carbon dioxide control is available. *Air Filter Corp., 4540 W. Woolworth Ave., Milwaukee 18, Wis.*

CIRCLE 302 ON INQUIRY CARD

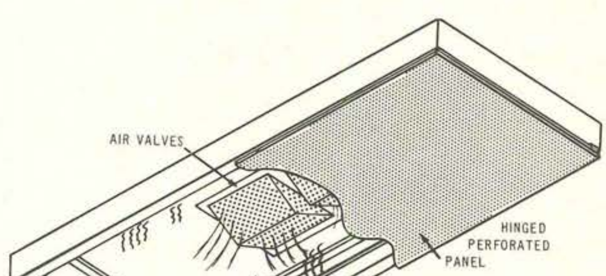
VINYL COATING FOR METALS

Colovin vinyl film for outdoor use can be bonded to almost any substrate. It is said to be colorfast and abrasion and impact resistant. *Clad-Rex, Delta-Chicago, Inc., 11500 W. King St., Franklin Park, Ill.*

CIRCLE 303 ON INQUIRY CARD

BACTERIA-CONTROLLING AIR DISTRIBUTION PANELS

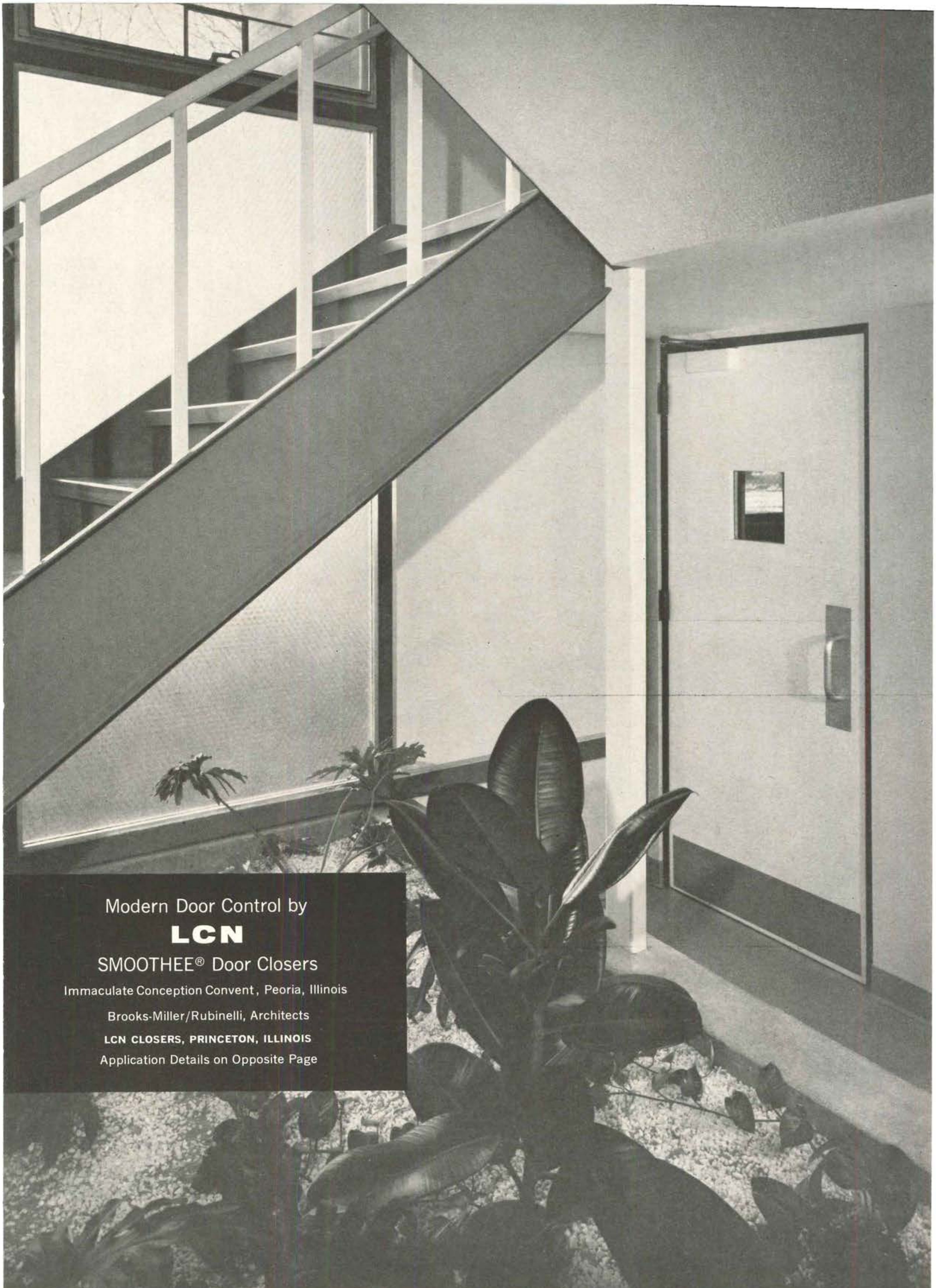
A combination air-diffuser and germicidal-lamp panel assembly makes possible distribution of air that is relatively bacteria-free. Air entering panel

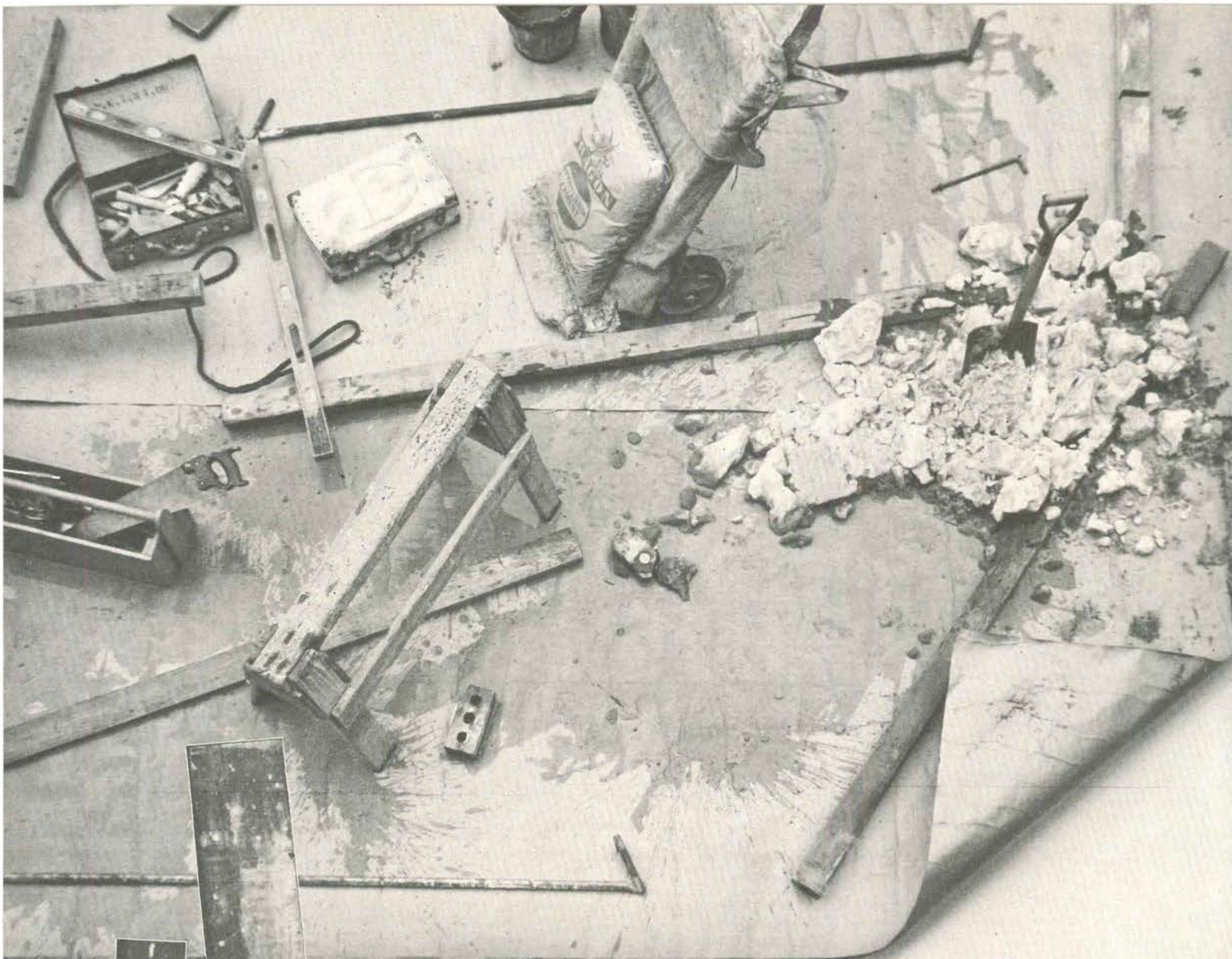


chamber is completely exposed to high-intensity rays emitted from the germicidal lamp and then evenly distributed into the room through perforated metal panels. *The Pyle-National Co., 1334 N. Kostner Ave., Chicago 51, Ill.*

CIRCLE 304 ON INQUIRY CARD

more products on page 232


Modern Door Control by
LCN
SMOOTHEE® Door Closers
Immaculate Conception Convent, Peoria, Illinois
Brooks-Miller/Rubinelli, Architects
LCN CLOSERS, PRINCETON, ILLINOIS
Application Details on Opposite Page



SISALKRAFT® PAPERS PROTECT CONCRETE FLOORS BETTER THAN ANY OTHER CURING METHOD!

Permits fast, minimum-cost clean-up, too.

☐ Durable, reinforced, waterproof Sisalkraft papers can take abuse . . . and then some! ☐ Keeps slabs protected during the curing period. ☐ Helps deliver dense, dust-free, clean concrete floors. ☐ Provides frost protection during cold weather pouring. Available in widths up to 8′ and special "blankets" up to 26½′ wide. ☐ You can do your clients a service by specifying **Sisalkraft.** ☐ We have a booklet titled: "Curing and Protection for Better Concrete." Write for your copy, today. American Sisalkraft Company, Division of St. Regis Paper Company, Attleboro, Mass. Branches: Cary, Illinois, and Tracy, California.

SISALKRAFT REINFORCED CURING PAPER

← For more data, circle 81 on Inquiry Card

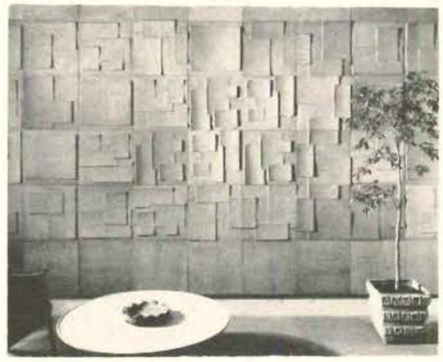
For more data, circle 82 on Inquiry Card

Product Reports

continued from page 228

CERAMIC WALL TILES

Sculptured ceramic wall tiles, 18 by 18 in. and 9 by 18 in., are available in a variety of patterns with a choice



of colors and finishes. Custom designs can be made from the standard tiles. *Design-Technics, 7 E. 53d St., New York 22, N.Y.*

CIRCLE 305 ON INQUIRY CARD

FLOOR FOR COMPUTERS

Elevated *Free-Access* floor for electronic data processing rooms allows space underneath for machine cables and air-conditioning plenum, if desired. The 2-ft-square steel-clad panels lock into a structural aluminum grid supported by adjustable steel pedestals. The strong, fire-resistant panels are finished with vinyl tile. *White Partitions Co., 56 Glenwood Ave., Hyde Park, Boston 36, Mass.*

CIRCLE 306 ON INQUIRY CARD

REINFORCED VINYL SHEET

Kayrex steel reinforced rigid vinyl sheet, made in a continuous lamination process, is lightweight with a high, load-bearing strength. Corrugated rolls and flat sheets are available in white and green transparent colors. *Kaykor Products Corp., Yardville, N.J.*

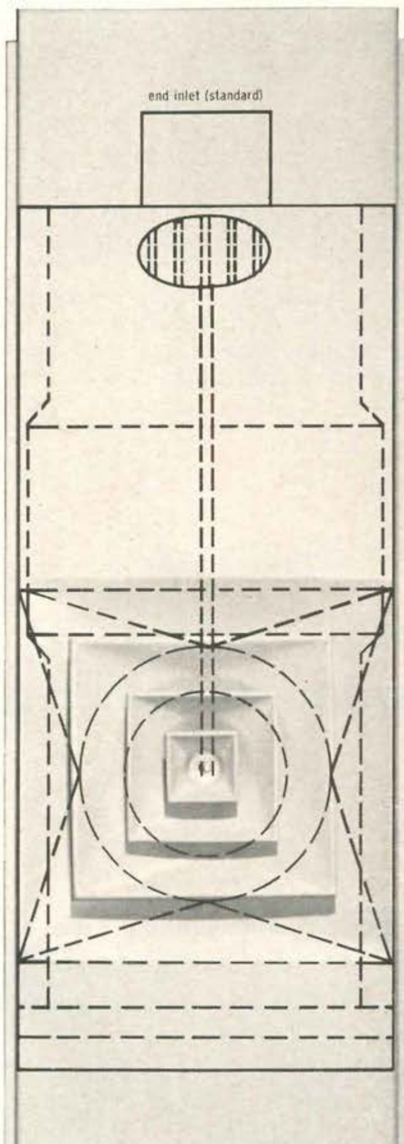
CIRCLE 307 ON INQUIRY CARD

ELEVATOR CAR LIGHTING

Side panels of fiber-glass reinforced polyester are lighted from behind by fluorescent tubes to provide illumination in elevator cars. Back wall, doors and ceiling are laminated plastic. *Otis Elevator Co., 260 11th Ave., New York 1, N.Y.*

CIRCLE 308 ON INQUIRY CARD

more products on page 233

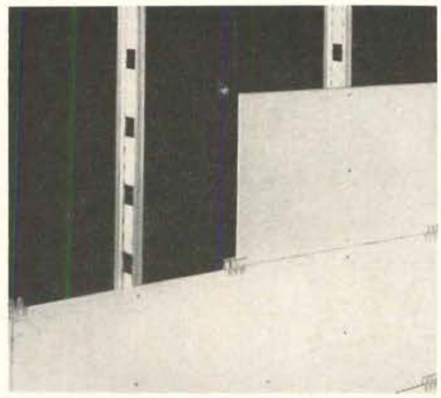


Product Reports

continued from page 232

GYPSUM PARTITIONS

Two cost-saving lath and plaster steel stud systems for nonbearing partitions (one for screw and one for nail or staple application) use one-third fewer studs than other systems,



with studs spaced 24 in. on center. Sound transmission loss rating is given as 45 decibels. *National Gypsum Co., Buffalo 2, N.Y.*

CIRCLE 309 ON INQUIRY CARD

SOUND-ISOLATING GLASS

Acousta-Pane sound-isolating glass is made with 2, 3 or 4 plys laminated together with viscoelastic adhesive layers. The construction gives the glass extra strength, rigidity and shatter-resistance as well as sound-isolating properties. It is available also with a gray tint. *Amerada Glass Corp., 3301 S. Prairie Ave., Chicago, Ill.*

CIRCLE 310 ON INQUIRY CARD

OFFICE PRINTER

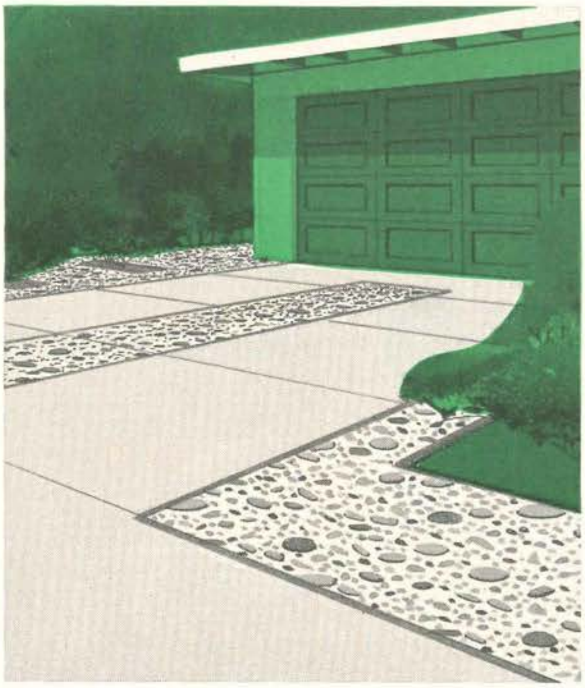
Varigraph Headwriter, a non-photographic model for setting reproduction-quality headlines can be used on

any stock, including paper offset plates. It uses India ink. *Varigraph Inc., Madison 1, Wis.*

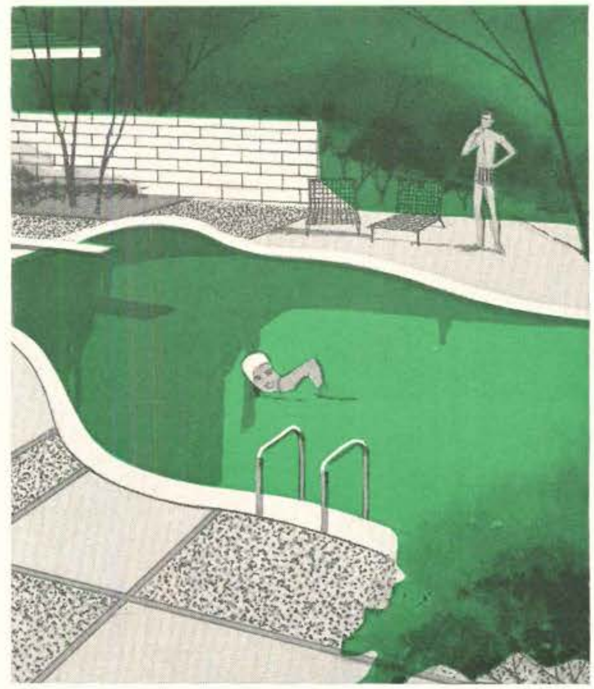
CIRCLE 311 ON INQUIRY CARD

more products on page 238

end inlet (standard)



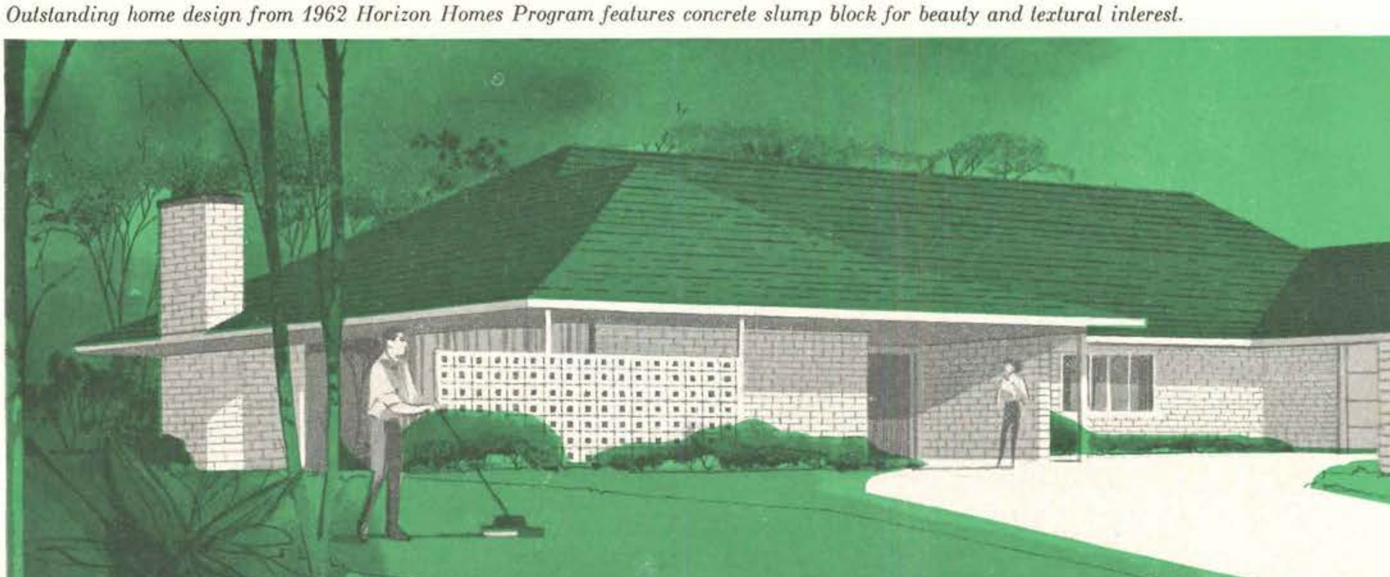
HANDSOME APPROACH TO A MODERN HOME *is this distinctive concrete driveway. Concrete offers custom-designed smartness, opportunity for imaginative color and design treatments. Concrete is durable; the beauty lasts.*

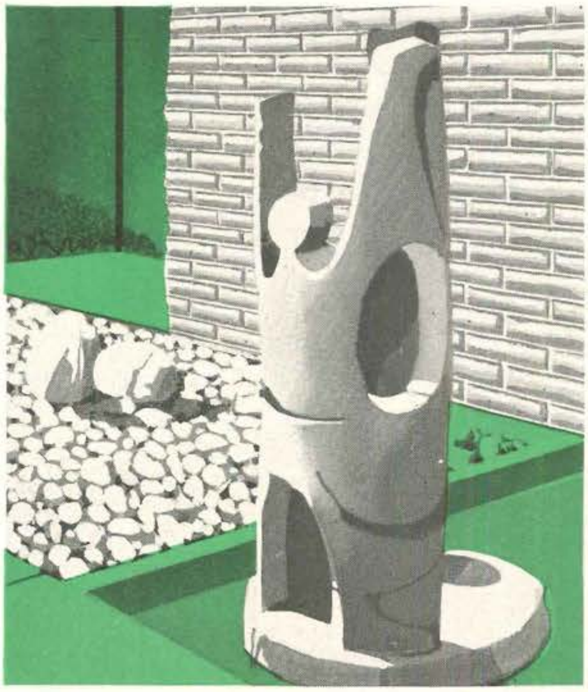


NEW PATTERNS IN OUTDOOR LIVING — *casual or formal—are easily achieved with concrete. The pool serves as the focal point of activity, complementing a warm spectrum of colors and textures in the patio and garden.*

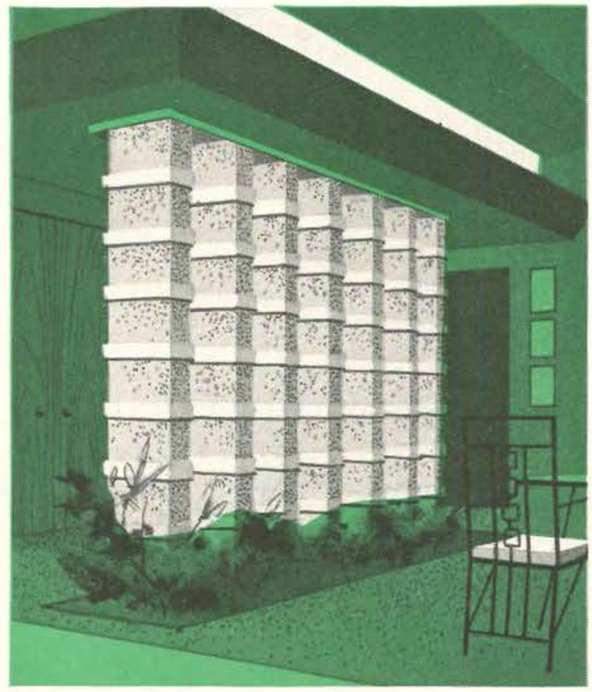
Out of the Horizon Homes Program... distinctive design ideas with ***modern concrete***

Outstanding home design from 1962 Horizon Homes Program features concrete slump block for beauty and textural interest.





MODERN CONCRETE SCULPTURE *by Charles Clement sets the theme for this smartly contemporary western garden. Precast or cast in place, concrete gives landscape architects unusual opportunity for patio and garden design.*



CONCRETE MASONRY DIVIDER *is laid in a dramatic pattern and painted in two tones, providing a tropical motif for this house designed in the style of South Seas architecture. Here is a gracious, easy-to-care-for interior.*

Beautiful things are being done, today, with concrete. Typical are the outstanding home designs created by leading architects for the annual Horizon Homes Program, sponsored by the nation's concrete industries.

Modern concrete opens the way to fresh ideas. Architects are turning to concrete more and more for vital structural elements, as well as for intriguing decorative effects. No other basic material is so versatile or offers the home designer such freedom for innovation. Concrete offers a virtually unlimited range of colors, textures, patterns and shapes.

Architects are finding that concrete readily accommodates the newest concepts in modern living and provides opportunity for distinctive home design. Major design awards are offered in the 1963 Horizon Homes Program. Plan to enter.

Portland Cement Association

A national organization to improve and extend the uses of portland cement and concrete

Better living begins when you own a new home

SPONSOR

HORIZON
HOMES OF
MODERN
CONCRETE

For more data, circle 84 on Inquiry Card


UUR 990

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

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

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

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

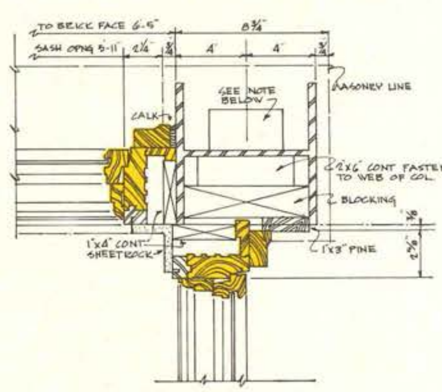
For the owner, these extra-weathertight windows (more than 3 times industry standards) will mean significant savings in heating and cooling costs . . . and lasting tenant satisfaction. And occupants will like the way Andersen wood windows provide weathertight comfort the year around. (The entire project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

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

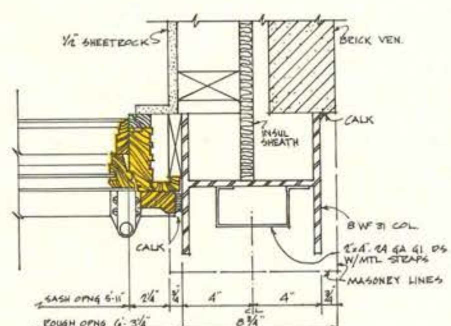
Check Sweet's File or write for Detail catalog and Tracing detail files. Andersen Windows are available from lumber and millwork dealers throughout the United States and Canada.

Andersen Windowalls
TRADEMARK OF ANDERSEN CORPORATION

ANDERSEN CORPORATION
BAYPORT, MINNESOTA



TYPICAL JAMB-COL 3



TYPICAL JAMB-COL 16

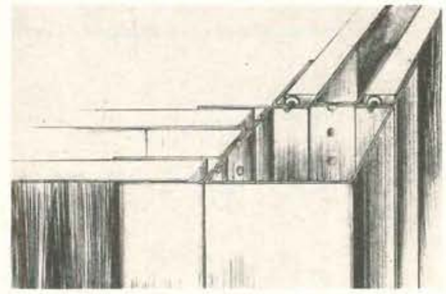
For more data, circle 85 on Inquiry Card

Product Reports

continued from page 233

MOVABLE PARTITIONS

The Kent line of movable partitions has steel sections at floor and ceiling which hold two sheets of gypsum board. These are separated to give an air space which reduces sound and heat transmission and allows room



for wiring. Steel hardware connects partitions and is used for doorways and corners. Since no taping or filling of joints is involved, partitions are easy to relocate. *Architectural Systems, Inc., 4300-36th St., S.E., Grand Rapids 7, Mich.*

CIRCLE 312 ON INQUIRY CARD

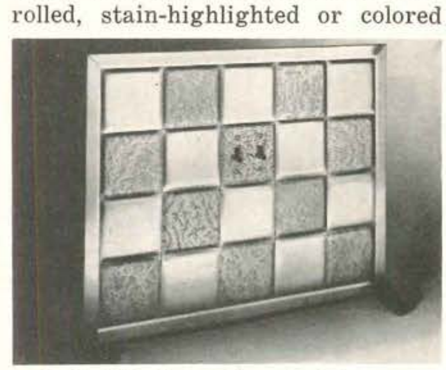
ABRASIVE TREAD PLATE

A fine-grained aluminum abrasive tread plate is suited for patio decks, where people walk in bare feet, and for applications where ease of cleaning is important. *Aluminum Co. of America, 768 Alcoa Bldg., Pittsburgh 19, Pa.*

CIRCLE 313 ON INQUIRY CARD

TEXTURED STAINLESS STEEL

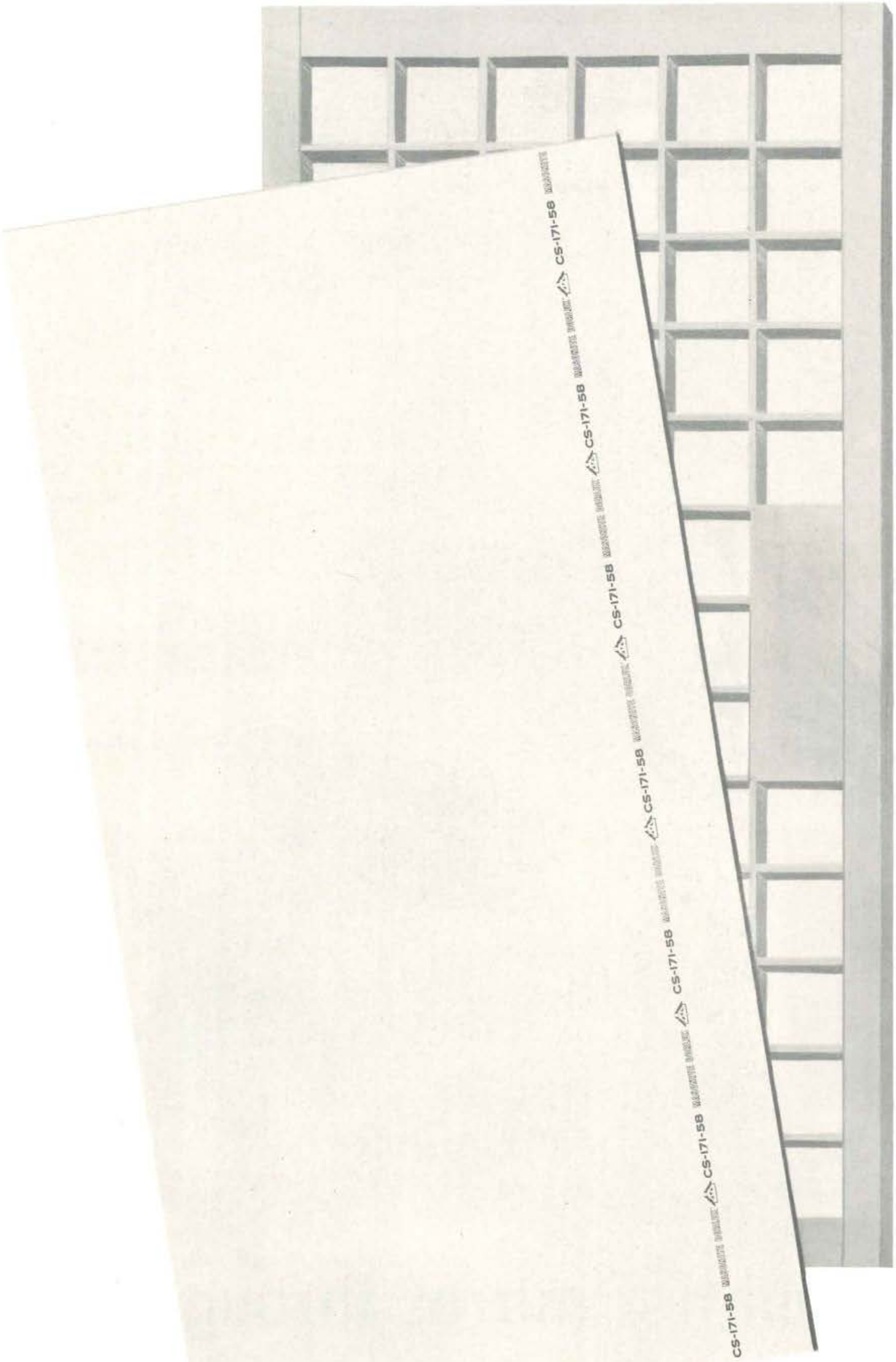
Texture•Stainless is a specially finished stainless steel with a slightly depressed pattern dispered over the entire surface. It is available stain-rolled, stain-highlighted or colored



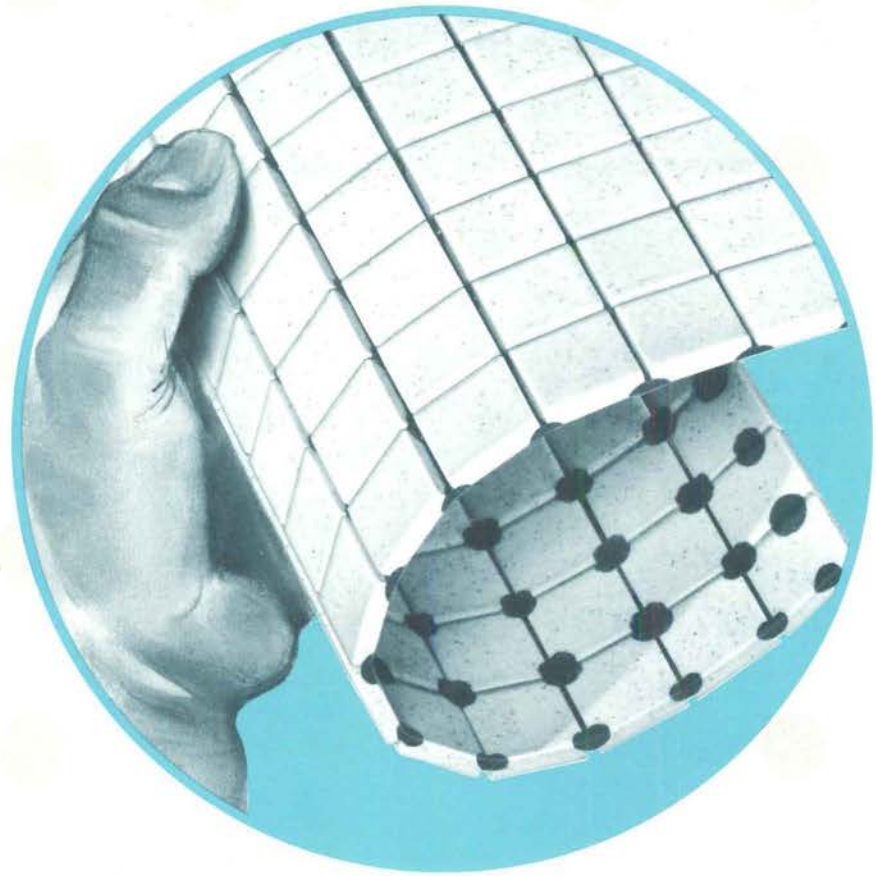
and highlighted. The steel is recommended for interior use only and is available in Types 304 and 430. *Republic Steel Corp., 1441 Republic Bldg., Cleveland 1, Ohio*

CIRCLE 314 ON INQUIRY CARD

more products on page 260



When you specify flush doors with factory-primed MASONITE DORLUX...



Ceramic Mosaics

THE EASIEST TO APPLY, FASTEST FROM CARTON TO

"DOT"® TILE* BY MOSAIC® is possibly the most meaningful development in the history of modern ceramics. The tile is the same but the precision-applied permanent "DOT" edge-mounting gives both architect and tilesetter new command of the material and new installation time savings. The "beam-like" effect of "DOT" interlaced edge-mounting preserves strength and uniformity in all three dimensions. Yet, the "DOT'S" are so flexible that sheets can be rolled up without loosening the tiles. Sheets will not stretch, shrink or sag. (Rolls of ceramic mosaics up to 2′-0″ x 6′-0″ and longer available on special order in some areas.) "DOT" Tile can be applied with adhesives or thin-set or conventional mortar bed. "DOT" ceramic mosaics give a truer level surface on adhesives or thin-set mortar because the sheets are made flush on the surface. The all-resin "DOT" is impervious to moisture (unaffected by soaking, even in boiling water) and remains flexible down to -10°F. with no loss of strength. Yet, sheets are easily cut and they shear clean and straight. We share enthusiasm for our "DOT" Tile product with the

**Patent No. 3,041,785 Also patented in Canada 1962.*
Mosaic and "DOT" are trademarks of The Mosaic Tile Company.

For more data, circle 91 on Inquiry Card →

Tuf-flex doors in Bullock's, Santa Ana, Calif., feature specially designed push-pull bars.

Beautiful ways to handle the Open World of L·O·F Glass

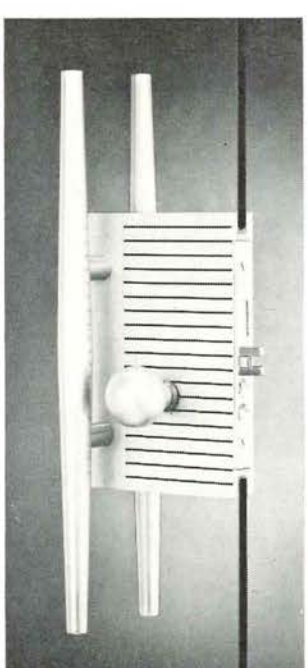
L·O·F gives you *Tuf-flex*® doors to "open" buildings. And new "Custom 300" hardware to open the doors. It's a combination that makes any entrance more tempting to customers. The distinctive new "Custom 300" line harmonizes with modern building decor. Four of the many attractive styles are shown below. Available now in aluminum, bronze or stainless steel. You save time when you choose from this line, but if you wish you may design your own special hardware.

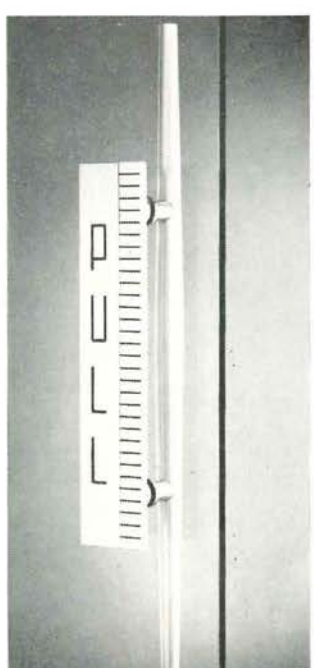
That applies to doors, too. L·O·F makes frame-free *Tuf-flex* tempered plate glass doors in two thicknesses (½" and ¾") and in representative standard sizes and styles. In clear, in ½" rough plate, and *now* in ½" *Parallel-O-Grey*® plate glass.

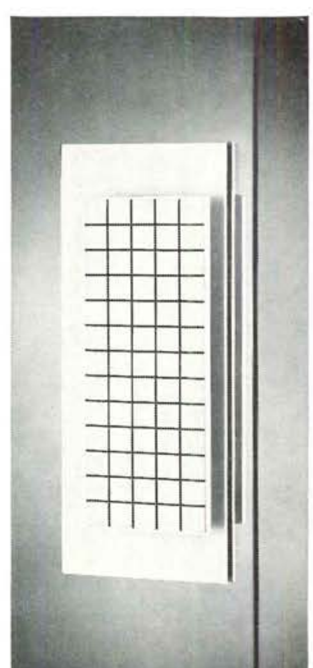
To get your copy of our booklet, "Custom 300 Push-Pull Bars", call your Libbey·Owens·Ford Glass Distributor (listed under "Glass" in the Yellow Pages of your phone book). Or write L·O·F, 243 Libbey·Owens·Ford Building, Toledo 2, Ohio.

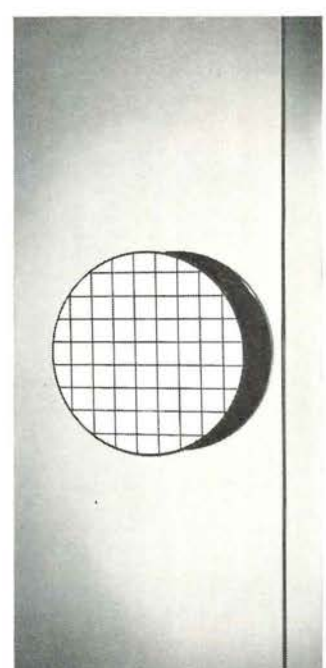
MADE IN U.S.A.

Libbey·Owens·Ford
Toledo 2, Ohio



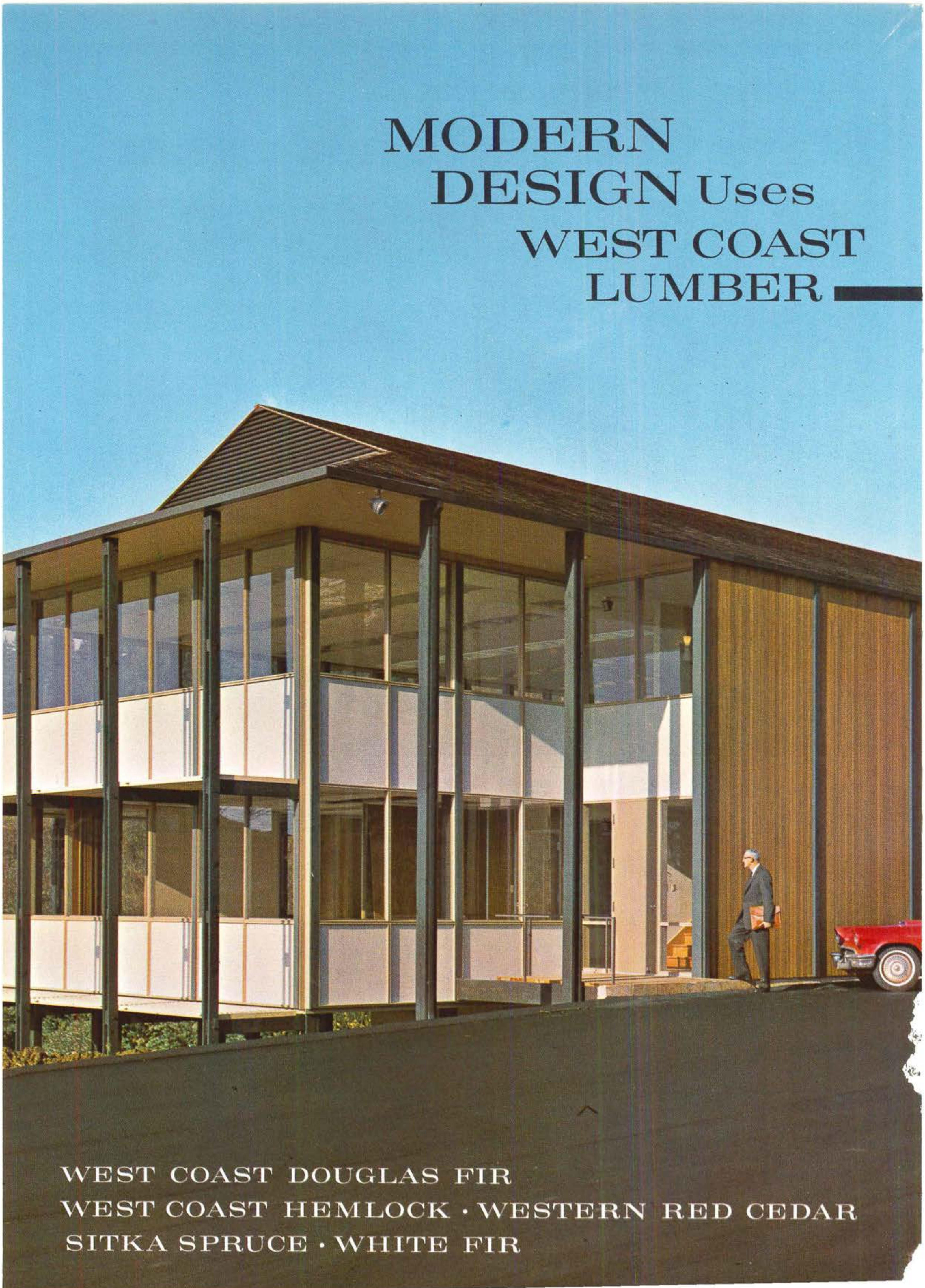






For more data, circle 90 on Inquiry Card

MODERN DESIGN Uses WEST COAST LUMBER



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

For OFFICE BUILDINGS

This suburban, two-story 9528 sq. ft. building is located a few minutes from the heart of Portland, Oregon. Only standard sizes and grades of West Coast Lumber were used in its construction.

Meeting zoning and building code requirements, the design eliminates interior bearing partitions for flexibility in office space organization. The four walls carry the entire second floor and roof load.

The hillside location resulted in an unusual engineering design feature that places the basement and its foundations as an anchor for the structure. Because wind loads are transmitted through the floors to the central core, exterior columns are load bearing only. Vertical laminated beams extend from the footings to the eaves and are joined at the first and second floor levels by heavier glued laminated beams that span 32 feet.

The framework of the building is composed of 12 frames capped with trusses. The frames are joined at the first floor with 3″ x 6″ decking; the second floor and roof deck are 2″ x 6″ heavy flooring.

Rising from below the sunshade at the first floor level to the eaves are support columns of 2″ x 6″ spaced with a 4″ x 4″ block. The sunshade built of 2 x 3s provides a walkway for window maintenance in addition to its primary purpose.

Available from local retail lumber dealers are the standard sizes and grades of coast region West Coast Lumber . . . an economical first step in creating modern buildings for business.

Following are applications of the standard sizes and grades of West Coast Lumber used in constructing the office building illustrated on these pages:

MILL 10 WCLB STAND — **West Coast Douglas Fir** 2″ x 4″ **studs** for interior stair well, 2″ x 6″ for exterior walls and sunshade support and ceiling joists; 4″ x 4″ posts.

MILL 10 WCLB 1500-f DOUG FIR — **West Coast Douglas Fir** 2″ x 6″ and 2″ x 8″ for roof trusses spanning 32′.

MILL 10 WCLB STD-FLG 126b — **West Coast Hemlock** 2″ x 6″ tongue and groove heavy flooring used for **second floor** and **roof deck.**

MILL 10 WCLB SEL DEX PAT. 405 W. C. H. — **West Coast Hemlock** 3″ x 6″ double tongue and groove for first floor, spanning 8″ between glued laminated frames.

MILL 725 WCLB C&BTR — **Western Red Cedar** 1″ x 4″ tongue and groove siding with sawn surface applied to weather.

ARCHITECT: Lewis Crutcher, A.I.A.
Charles E. Johnson, A.I.A., Associate
STRUCTURAL ENGINEER: James G. Pierson

New! "The Bright New World of West Coast Hemlock," eight full color pages of application ideas. FREE . . . for your personal copy, write:

WEST COAST LUMBERMEN'S ASSOCIATION

1410 S. W. MORRISON STREET PORTLAND 5, OREGON

THIS ACOUSTICAL CEILING HEATS AND COOLS

Burgess-Manning/Inland radiant-acoustic ceilings **help to control comfort three ways in Scott Paper Company's new Executive Offices and Research and Engineering Center, a multi-million dollar complex located adjacent to Philadelphia International Airport. Ceiling panels provide trouble-free radiant heating, radiant cooling and sound control. ■ The architects specified radiant panel heating and cooling for offices and laboratories because of: (1) its high level of year 'round comfort, (2) its room-wide uniformity of temperature and freedom from drafts, and (3) its flexibility in layout and adaptation to lighting. ■ For a description of radiant heating and cooling principles, along with performance curves, design procedure and other data, see Sweet's, Architectural File, section 11a/In, or write for Catalog 250.**

member of the INLAND steel family

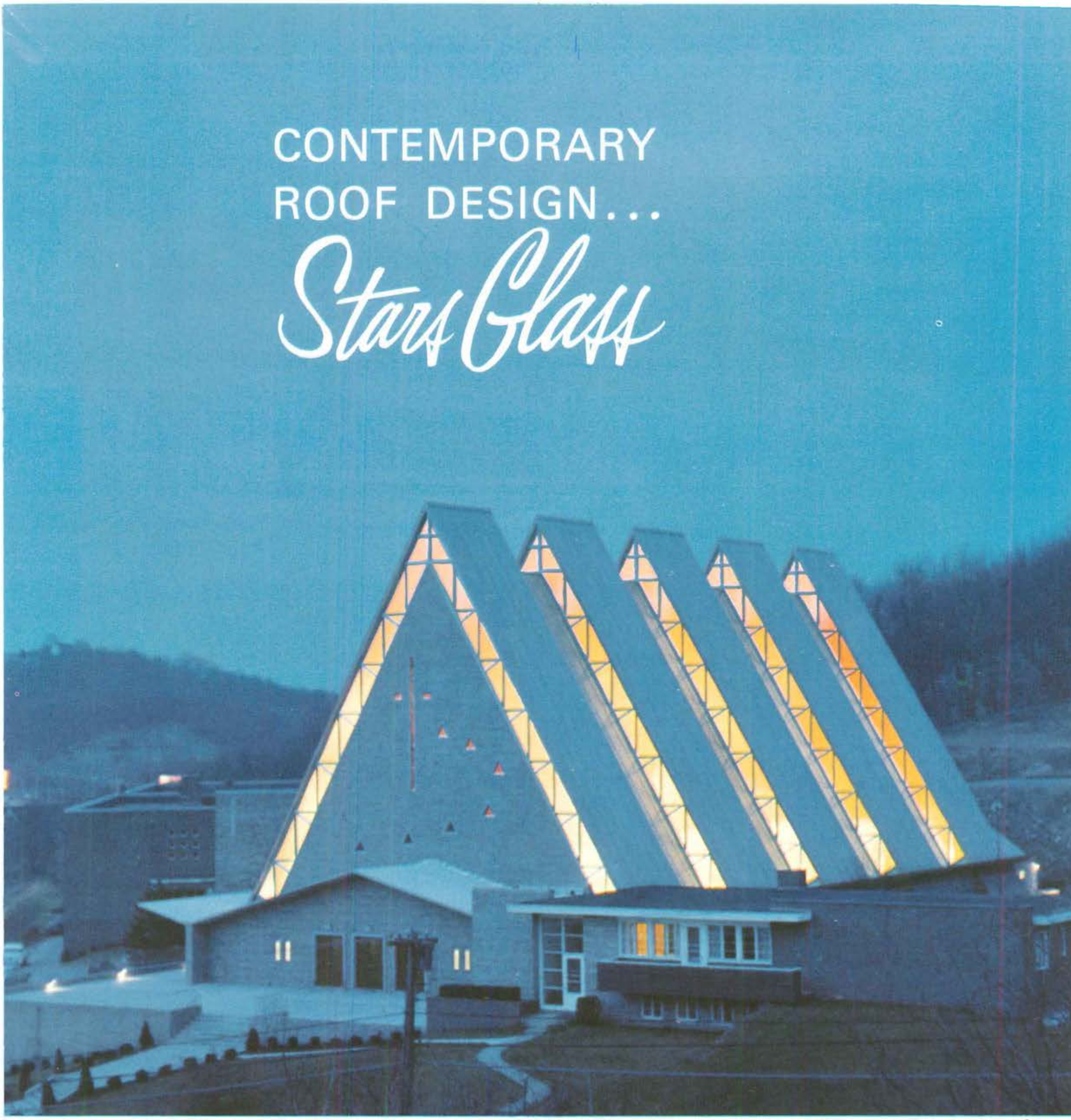
Inland Steel Products Company *Engineered Products Division*

4111 W. BURNHAM STREET, MILWAUKEE 1, WISCONSIN

ALBANY, ATLANTA, BALTIMORE, BOSTON, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, COLUMBUS, DALLAS, DENVER, DETROIT, FREMONT, CALIF., HOUSTON, INDIANAPOLIS, KANSAS CITY, MO., LOS ANGELES, NEW ORLEANS, NEW YORK, OMAHA, PHILADELPHIA, PITTSBURGH, SALT LAKE CITY, SAN FRANCISCO, SEATTLE, ST. LOUIS, ST. PAUL, TULSA

EP-31

For more data, circle 97 on Inquiry Card →



St. Sebastian's Catholic Church, North Hills, Pittsburgh, photographed for Aluminum Company of America by Leonard Schugar.

Mississippi Wire Glass Combines Beauty and Utility

Outstanding construction feature of this newly built church results from the perfect wedding of metal and glass. Contributing to its modern appearance, translucent Hammered Misco blends harmoniously with the peaked aluminum roof . . . offers maximum beauty and the proven protection of wire glass while it contributes light, drama, distinction. Achieve the safety and unparalleled beauty of modern design with Misco*. Available in types for clear vision or diffusion wherever quality glass is sold.

* Mississippi's designation for its diamond-shaped welded wire netting.

MISSISSIPPI GLASS COMPANY

88 Angelica Street, St. Louis 7, Missouri

NEW YORK • CHICAGO • FULLERTON, CALIFORNIA

WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

¼" Hammered Misco glass glazed in roof of St. Sebastian's Catholic Church. *Architects:* Gerard & McDonald—M. W. Stuhldreher Assoc., Pittsburgh. *Glazing Contractor:* Golomb Paint and Glass Company, Pittsburgh. Photos of St. Sebastian's Catholic Church courtesy of Aluminum Company of America.

MISSISSIPPI GLASS... New Look for a New Era

Typifying clean, functional, modern design, distinctive Mississippi figured patterns blend subtly with any interior or exterior. The versatility of Mississippi glass provides architects, engineers and contractors with a practical and economical solution to virtually every daylighting problem including diffusion, decoration, protection and heat absorption. And remember...

New horizons for glass... promise of the future... will come from the facilities of Mississippi Glass Company.

Coolite, heat absorbing glass controls light and temperatures in Parkway Consolidated School, St. Louis, Missouri.
Architect: Schwarz & Van Hoefen, St. Louis. *General Contractor:* Swan Construction Company.

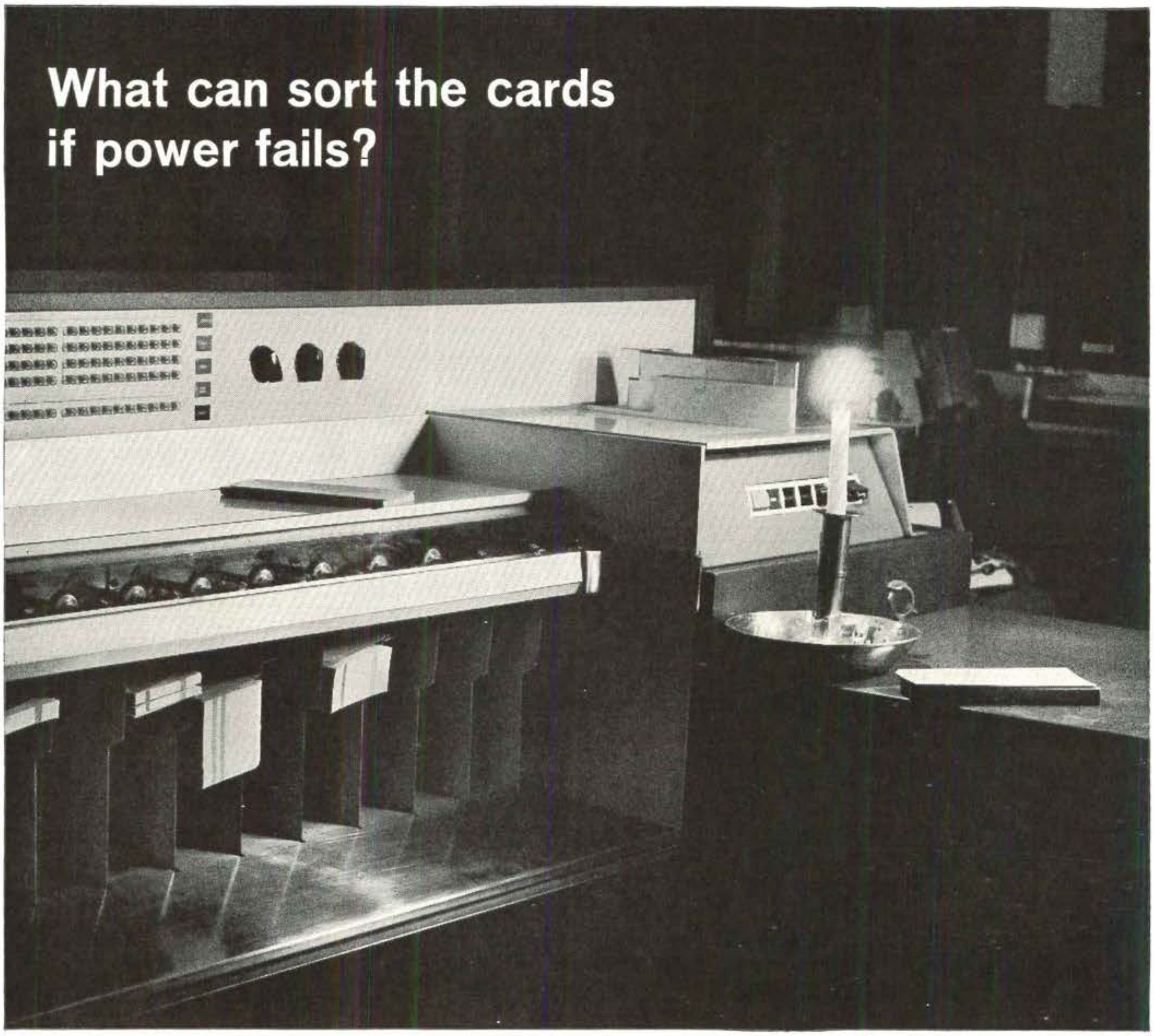
NEW CATALOG
Contains pattern descriptions, light distribution charts and transmission data. Send for your free copy today.

See our catalog in Sweet's. S

MISSISSIPPI GLASS COMPANY
88 Angelica Street • St. Louis 7, Missouri
Distributors in Principal Cities of the United States and Canada

KEEP AMERICAN WORKERS BUSY
BUY...
UNITED STATES GOODS

H-#3-62

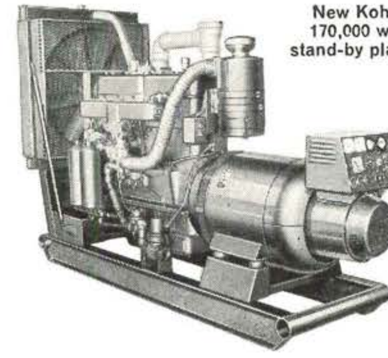


A KOHLER STAND-BY ELECTRIC PLANT!

Power failure can be costly. It can handcuff the business that depends on automated card punchers, tabulators, sorters, computers. It can be ruinous...reasons enough to include Kohler stand-by electric plants in your power planning.

Kohler plants are equipped with electric cranking through exciter. Roughly translated, this means the fastest possible restoration of power in emergencies. The Kohler claim of exceptional durability and dependability is not a hollow one and it is backed up by an extensive network of factory trained service specialists.

Kohler plants are available from 500 to 170,000 watts, with equipment for completely automatic, unattended takeover in case of power failure. See a Kohler dealer, or write to Dept. EP3-504 Kohler Co., Kohler, Wisconsin.



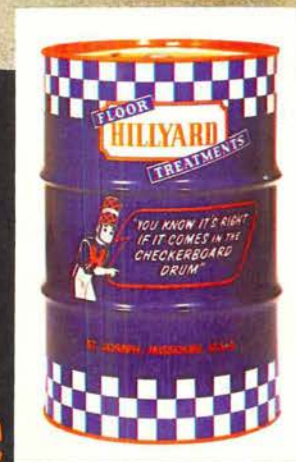
New Kohler 170,000 watt stand-by plant

KOHLER OF KOHLER

Kohler Co., Established 1873, Kohler, Wis.

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

For more data, circle 98 on Inquiry Card



The Distinguishing Difference *In Beautiful Floors* The World Over

PROPRIETARY CHEMISTS
SINCE 1907

Around the World With

HILLYARD "MAINTAINEERS"

A silver jet swoops down into the humid tropic atmosphere of a Guam air strip. Among the passengers is a Hillyard "Maintaineer," . . . an expert on the curing and treating of concrete, arriving to confer with officials on moisture problems affecting floor and surface treatments.

In Marseilles, France, a young "Maintaineer" explains carefully, to custodians, how best to preserve their parquet floor three hundred years old, and enhance the beauty of its superb craftsmanship. It is a work of art, entrusted to a Hillyard "Maintaineer" . . . an expert on floor care.

In a West German factory, maintenance engineers, an architect, and a plant manager show scientific interest as a Hillyard "Maintaineer" explains the treatment needed to keep a research laboratory static free . . . and sterile to meet exacting standards.

And half a world away, a group of serious men in Japan listen intently as a Hillyard "Maintaineer" demonstrates approved techniques for avoiding static build-up in a modern Japanese operating room.

Overseas, Hillyard "Maintaineers" like 181 others throughout the United States are schooled in the scientific techniques of floor treatments . . . each has been certified as a Hillyard floor "maintenance engineer" after receiving formal instruction in Hillyard's St. Joseph, Missouri "Maintaineer" Training School.

These are the men who can be invaluable to you in planning labor saving, economical floor treatment and maintenance programs. They will help you put them into action, too, by training custodial personnel or by on-the-job supervision during construction.

You can put a Hillyard Maintaineer on your staff without added expense. You'll find his knowledge and advice a sure way to savings. Call the "Maintaineer" near you, soon.

Hillyard Maintaineers and Products Perform in World Markets!

Quality speaks for itself in any language

From Germany to Japan, Guam to Switzerland, wherever you go, the Hillyard "Maintaineers" are on the wing and Hillyard products are on the floors. Fact: quality and performance speak a world language — and most pursuasively.

Another fact: Hillyard treated floors know no barriers when it comes to climate — temperature, humidity, or unusual traffic conditions. Hillyard products, backed by Hillyard "Maintaineers," can solve any floor care problem in the world. Let us prove it!

Why not put this world-wide experience to work for you? A letter puts a Hillyard Maintaineer on your staff — without obligation. He *saves* you money and the service is free!

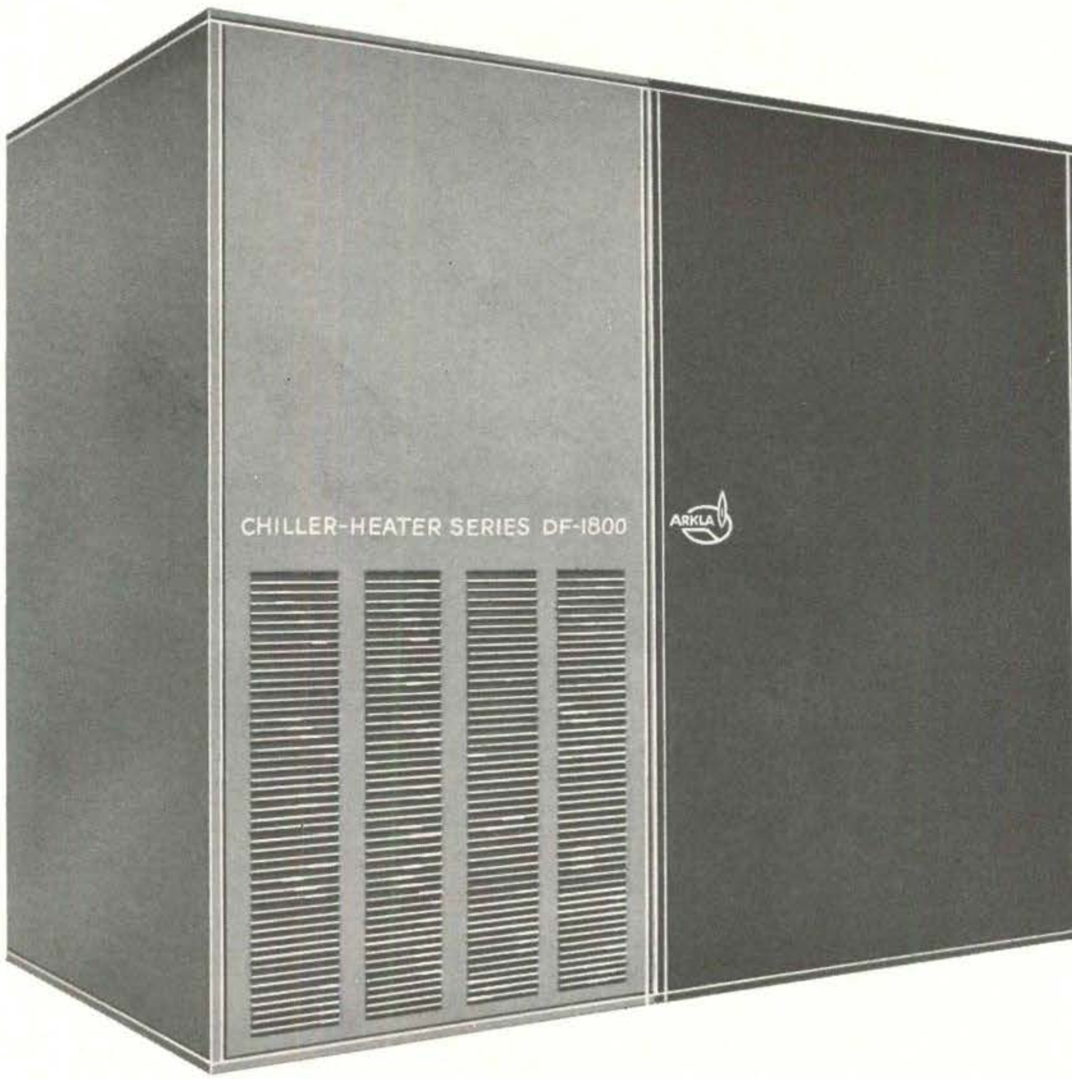
HILLYARD FLOOR TREATMENTS
St. Joseph, Missouri, U.S.A.
Passaic, New Jersey
San Jose, California

"On your staff, not your payroll"

PROPRIETARY CHEMISTS SINCE 1907

For more data, circle 99 on Inquiry Card

History-making advance! New Gas unit is designed to outlast the building it cools and heats



IT'S ARKLA'S NEW 15-TON GAS UNIT

Reasons for its phenomenal promise of performance. No moving parts to wear out or break down! The DF-1800—Arkla's new 15-ton Gas absorption unit cools and heats automatically—without a boiler or compressor. It never needs lubrication or refrigerant added. Operates at peak capacity throughout its long life. What's more, it is exclusively powered by Gas—the most efficient, dependable source of energy for air conditioning. For all the facts about this supreme achievement in year-round gas comfort cooling and heating, contact your local Gas Company. Or write Arkla Air Conditioning Co., 812 Main Street, Little Rock, Arkansas. □ FOR COOLING & HEATING . . . GAS IS GOOD BUSINESS.

AMERICAN GAS ASSOCIATION, INC.

For more data, circle 100 on Inquiry Card

Product Reports

continued from page 238

ACOUSTICAL COVERINGS OF URETHANE FOAM

Acous-Decor acoustical wall and ceiling covering, made of Reeves Brothers' *Curon* urethane foam, is available in two sculptured patterns as well as a plain surface. The foam is available in both tiles and rolls. Nonstatic surface does not attract dust. *Hicks and Otis Prints, Inc., 49 W. 33d St., New York 1, N.Y.*

CIRCLE 315 ON INQUIRY CARD

WALL SYSTEM

Wall system uses ¼-in.-thick panels with melamine laminated *Parkwood* finish on both sides. Exposed decorative moldings are anodized aluminum, either black or natural finish.

Laminates are available in a variety of veneer reproductions, printed patterns and solid colors. *Parkwood Laminates, Inc., 134 Water St., Wakefield, Mass.*

CIRCLE 316 ON INQUIRY CARD

COLORED PLASTIC IMITATES STAINED GLASS

Plexiglas is used for making stained "glass" windows, with the leading effect placed so it will not interrupt the design. Individual sections can be as large as 10 by 12 ft without need for steel reinforcing or supporting bars. *Grant Smith and Assoc., 147 E. 50th St., New York 22, N.Y.*

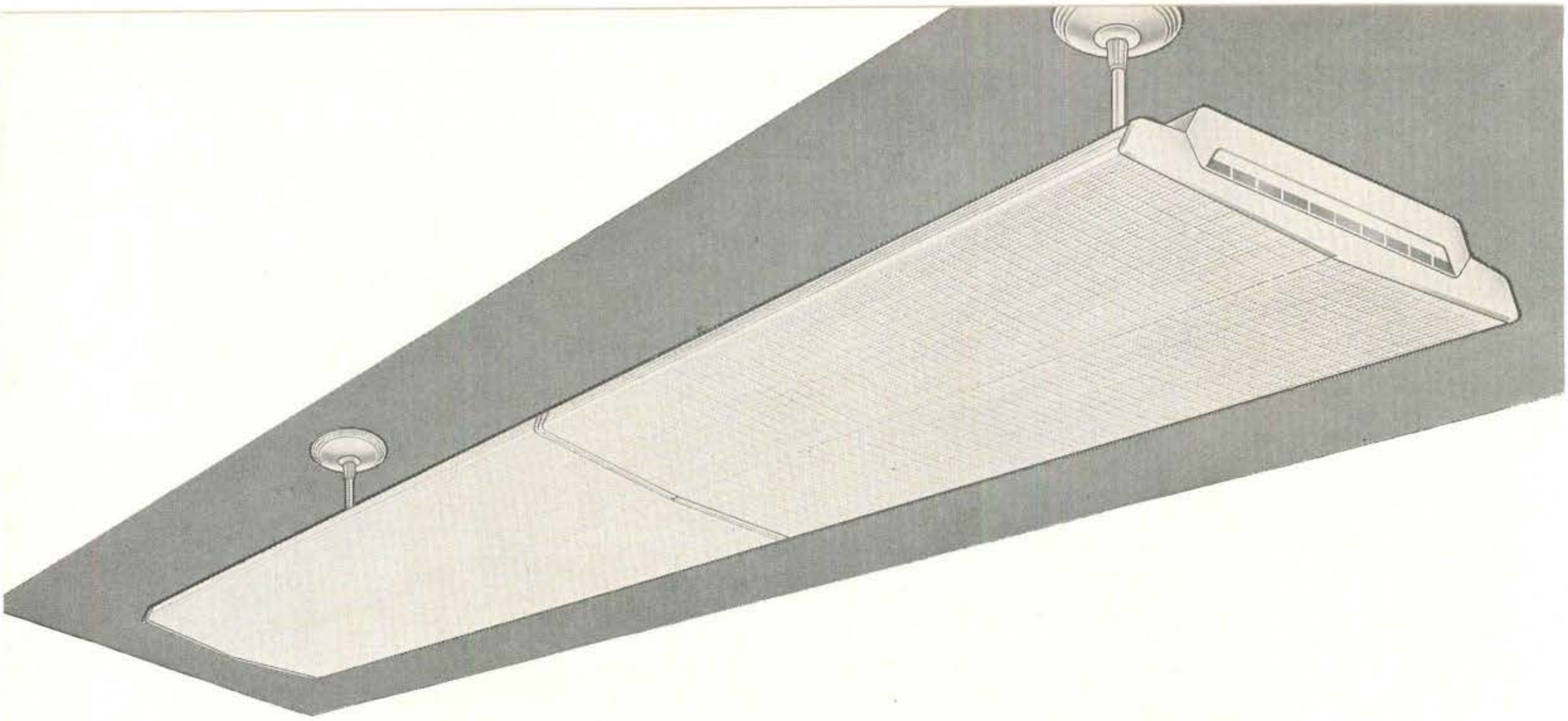
CIRCLE 317 ON INQUIRY CARD

TILE-LIKE COATING

Tile/Gard, an epoxy-based coating for use on all interior building surfaces, has a high-glaze, ceramic-like finish with a high resistance to impact damage, cracking and chipping. *Detroit Graphite Co., Valspar Corp., 7701 W. 47th St., Lyons, Ill.*

CIRCLE 318 ON INQUIRY CARD

more products on page 264



New Day-Brite MARKSMAN®

...superb choice for schools and offices

On target for low-brightness comfort, sleek appearance, easy servicing

A direct-indirect unit with approximately 50% uplighting, the Marksman incorporates semi-encased lamp design for cooler operation, greater efficiency and low brightness.

In keeping with its modern lines (less than 3 inches thin overall), the Marksman is suspended with new slimmer design adjustable hangers that go up incredibly fast.

To speed maintenance the enclosure opens easily with a trigger latch and service chain at each end.

Available now in 2- or 4-lamp units, 4 or 8 feet long (8 feet in 2-lamp only). For information, call your Day-Brite representative or distributor, or write Day-Brite.

DAY-BRITE®

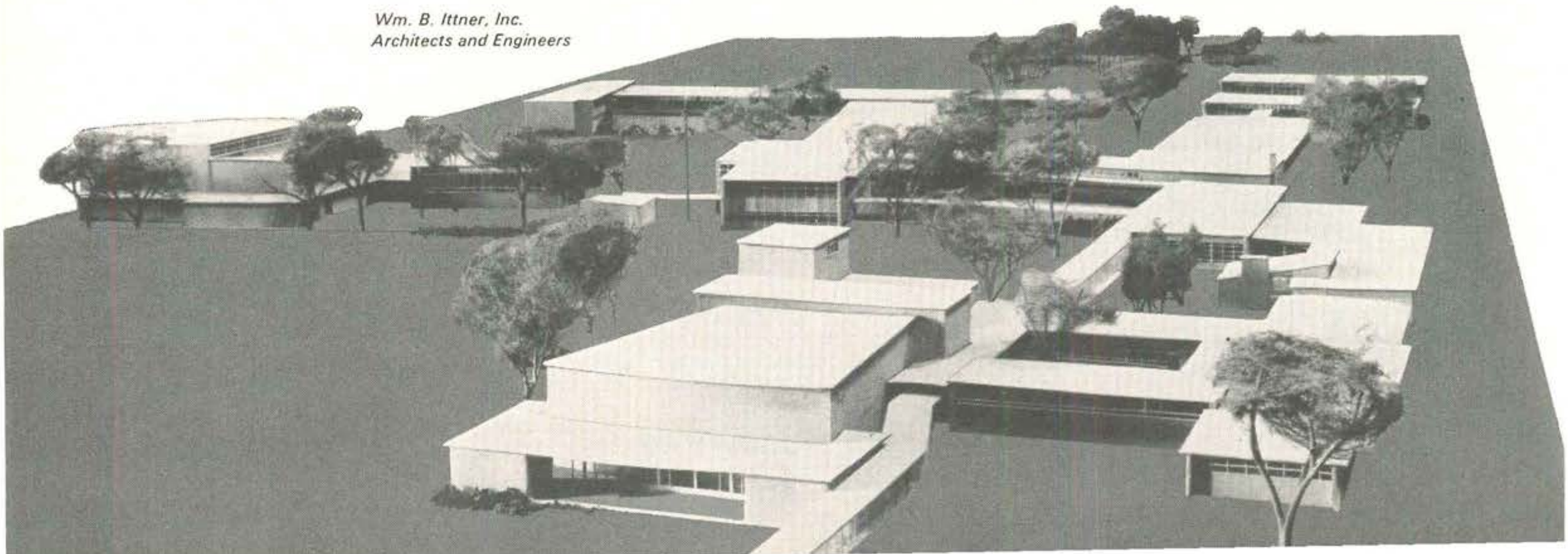
A DIVISION OF EMERSON ELECTRIC

DAY-BRITE LIGHTING, ST. LOUIS, MO., TUPELO, MISS., SUNNYVALE, CALIF.

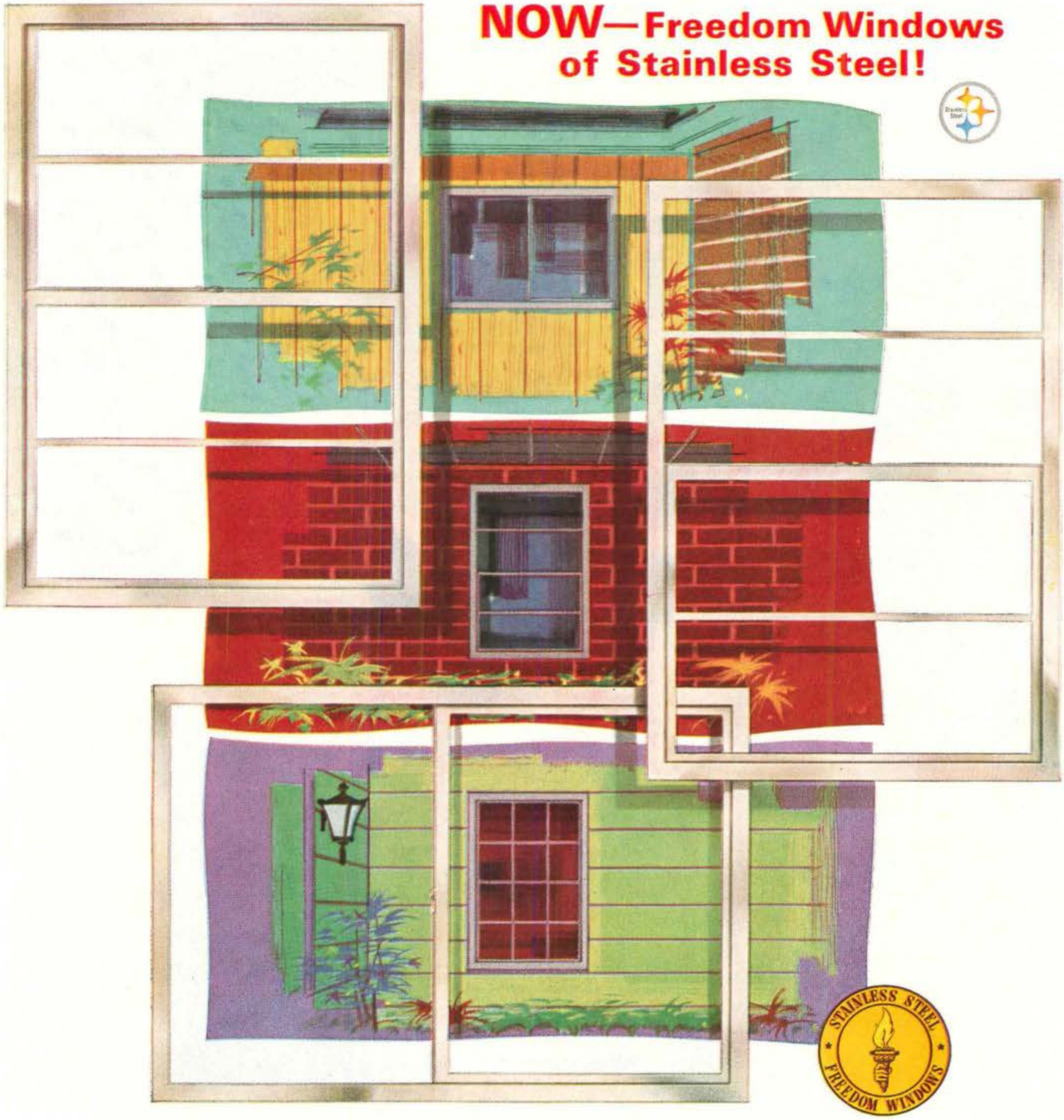
NATION'S LARGEST MANUFACTURER OF COMMERCIAL AND INDUSTRIAL LIGHTING EQUIPMENT

E-308

Wm. B. Ittner, Inc.
Architects and Engineers



NOW—Freedom Windows of Stainless Steel!



PRICED FOR EVERY HOME AND APARTMENT!

Slim, satin finished, forever beautiful windows of stainless steel—the material that behaves most like glass! Timeless resistance to dirt, acids, alkali. **FREEDOM** from pitting, corrosion, discoloration, cracking, chipping, flaking—for life. **FREEDOM** from painting, peeling, ever, and cleanable by washing. **FREEDOM** from warping, swelling, shrinking, sticking; with rugged reinforcement, machine mitered corners, built-in permanent waterproofing. **FREEDOM** from heat loss, cold transmission—trapped-air framing plus double glazing eliminates need for storm windows. **FREEDOM** to blend with colonial, contemporary, or modern architecture—any material or color. Double-hung, single-hung, horizontal slider types. Unique, integral folding fins snap in place for nailing—removable for anchored or mullion type installation.

For freedom from window worries like you've never known before—for freedom from window care for your clients—make yours **FREEDOM WINDOW,** all the way! Write for literature, or ask your Republic representative, today!

REPUBLIC STEEL
CORPORATION
MANUFACTURING DIVISION
Dept. AR-6238 • YOUNGSTOWN 5, OHIO

REPUBLIC STEEL

≮ For more data, circle 103 on Inquiry card

For more data, circle 104 on Inquiry Card

Product Reports

continued from page 260

PRODUCT BRIEFS

Non-skid plywood decking has overlay of phenol-formaldehyde thermosetting plastic with a small waffle pattern. *Simpson Timber Co., 2043 Washington Bldg., Seattle 1, Wash.*
CIRCLE 319 ON INQUIRY CARD

Steam-electric hot water heater, *P-K 500 Control-Flo,* has anticipator system and a small storage tank for use where hot water needs are both heavy and irregular. *Patterson-Kelley Co., Inc., East Stroudsburg, Pa.*
CIRCLE 320 ON INQUIRY CARD

Synthetic marble sill is made of a dense thermosetting resin fused to face and edges of exterior grade plywood. *Chemtronics, Inc., 2040 S. Hamilton Rd., Columbus 27, Ohio*
CIRCLE 321 ON INQUIRY CARD

A line of structural carbon plate steels with high strength can save 15 per cent in material costs. *Lukens Steel Co., Coatesville, Pa.*
CIRCLE 322 ON INQUIRY CARD

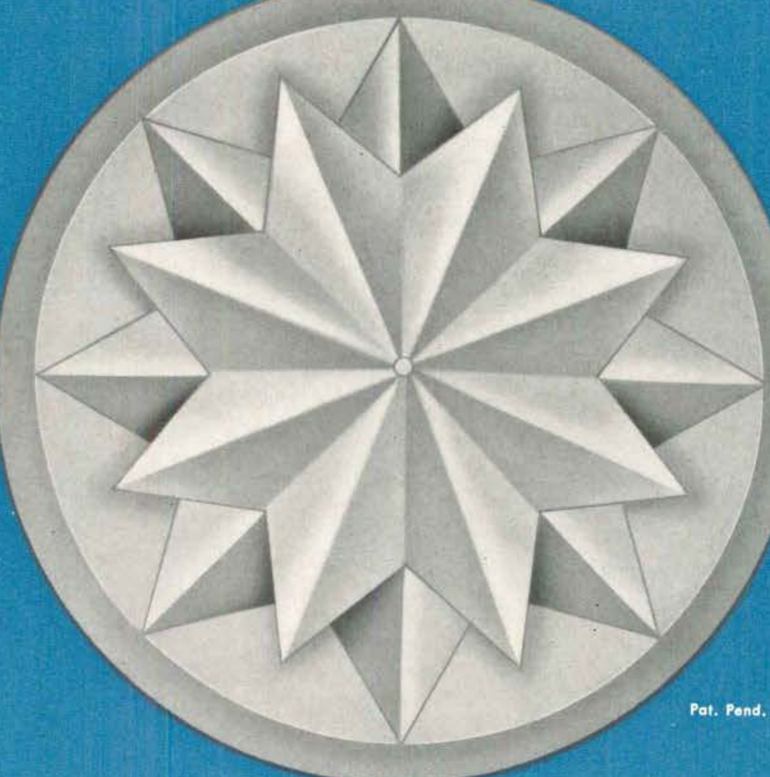
Two-hour fire rating applies to roof construction using steel deck on steel joists with suspended metal lath and vermiculite plaster ceiling and insulation board with built-up roofing over the steel deck. *Republic Steel Corp., 1441 Republic Bldg., Cleveland 1, Ohio*
CIRCLE 323 ON INQUIRY CARD

Heavy-duty industrial flooring is a monolithic surface installed ½-in. thick; it has high resistance to many chemicals, permanent color and a balance of elasticity, flexibility and tensile strength. *Shell Oil Co., 50 W. 50th St., New York 20, N.Y.*
CIRCLE 324 ON INQUIRY CARD

Porcelain enameled steel door and frame and **stainless steel door** and frame have been added to the standard steel door line. *The Steelcraft Mfg. Co., 9017 Blue Ash Rd., Cincinnati 42, Ohio*
CIRCLE 325 ON INQUIRY CARD

Patterned acoustical tiles have designs that are carried from tile to tile without apparent interruption by joints. *Elof Hansson, Inc., Acoustical Div., 711 Third Ave., New York 17, N.Y.*
CIRCLE 326 ON INQUIRY CARD

Presenting...
ASTRO-AIR* diffusers



*another AGITAIR® first

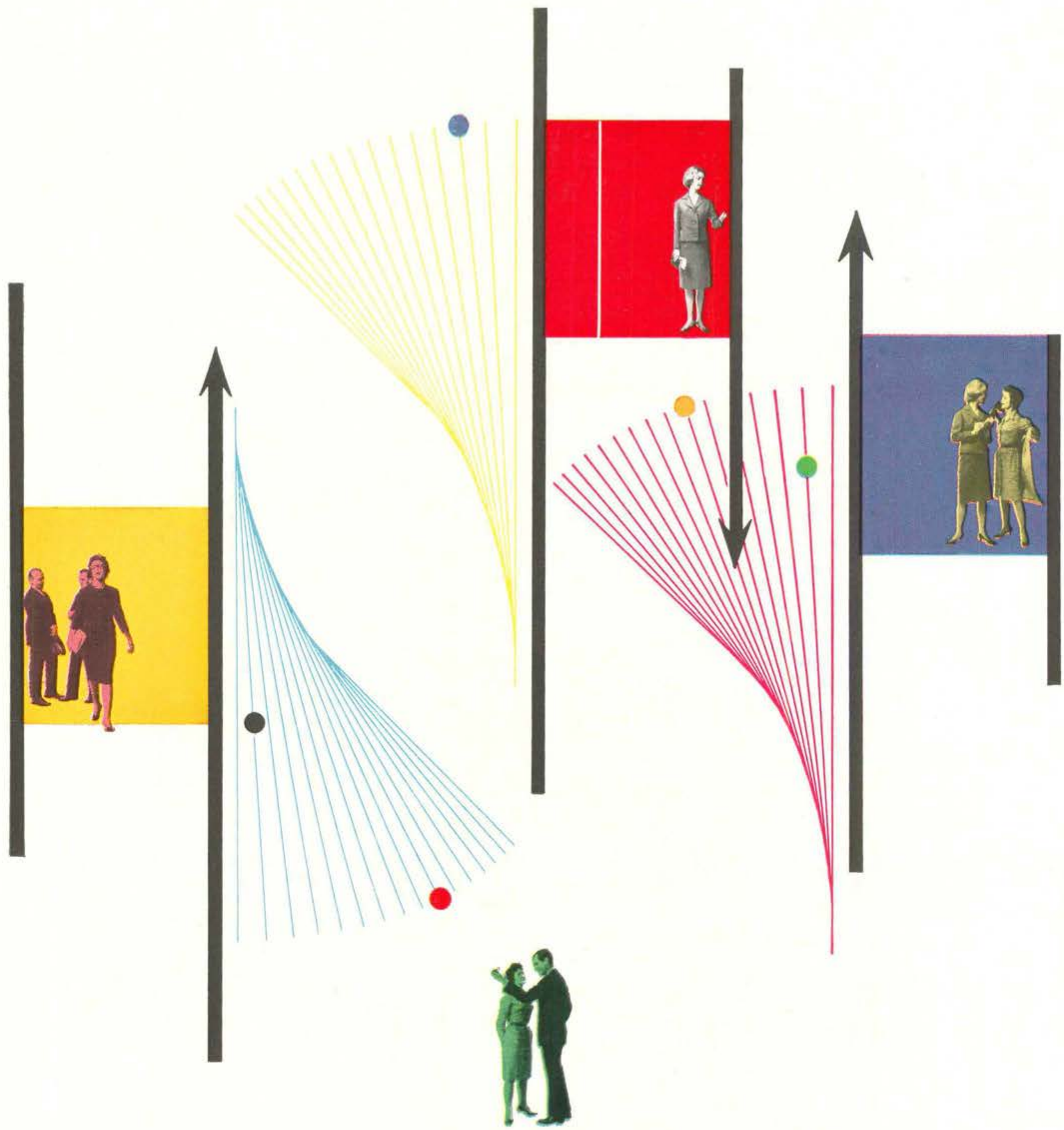
☆ distinctive ☆ decorative ☆ practical

ASTRO-AIR diffusers present a distinctively different concept in air diffuser design created for the discriminating architect and interior designer. The aesthetic starlike design with etched aluminum finish (or any color desired) will enhance the most attractive interior without calling attention to the mechanical installation. Built-in anti-smudge mounting pan minimizes any possible ceiling dirt streaking. The unusual pattern of ASTRO-AIR Diffusers provides high induction air streams and distributes blended air without drafts in the area served.

Ask for catalog. **AIR DEVICES INC.** 185 MADISON AVENUE, NEW YORK 16, N. Y.

BETTER PRODUCTS FOR... AIR DISTRIBUTION • AIR CLEANING • AIR EXHAUST

For more data, circle 106 on Inquiry Card



Office Literature

continued from page 224

DECORATIVE LUMINAIRES

Decorative aluminum fixtures for use in high ceiling applications, such as lobbies, schools, churches and auditoriums, are described in folder. The unit can be used with incandescent and mercury lighting. *The Jones Metal Products Co., Abolite Lighting Div., West Lafayette, Ohio*

CIRCLE 413 ON INQUIRY CARD

SOLID VINYL TILE

(A.I.A. 23-G) Eight page booklet illustrates and describes 89 color combinations available in solid vinyl tile. Reference chart show gages, sizes and suggested uses for each pattern. *Vinyl Plastics, Inc., 1825 Erie Ave., Sheboygan, Wis.**

CIRCLE 414 ON INQUIRY CARD

MOTEL DESIGN

How six architects designed six different Holiday Inn motels using precast concrete *Flexicore* floor and roof slabs is described in 16-page booklet, with illustrations and detailed drawings. *The Flexicore Co., Inc., 1932 E. Monument Ave., Dayton 2, Ohio**

CIRCLE 415 ON INQUIRY CARD

MAKE-UP AIR HEATERS

A new line of direct-fired make-up air heaters in capacities from 6,000 to 300,000 cfm is described in Bulletin MU. *Campbell Heating Co., 3143 Dean Ave., Des Moines, Iowa**

CIRCLE 416 ON INQUIRY CARD

DIMMER CONTROLS

Brochure gives details on electronic dimming controls available for incandescent and fluorescent lights. *Hunt Electronics Co., 2617 Andjon Drive, Dallas 20, Tex.**

CIRCLE 417 ON INQUIRY CARD

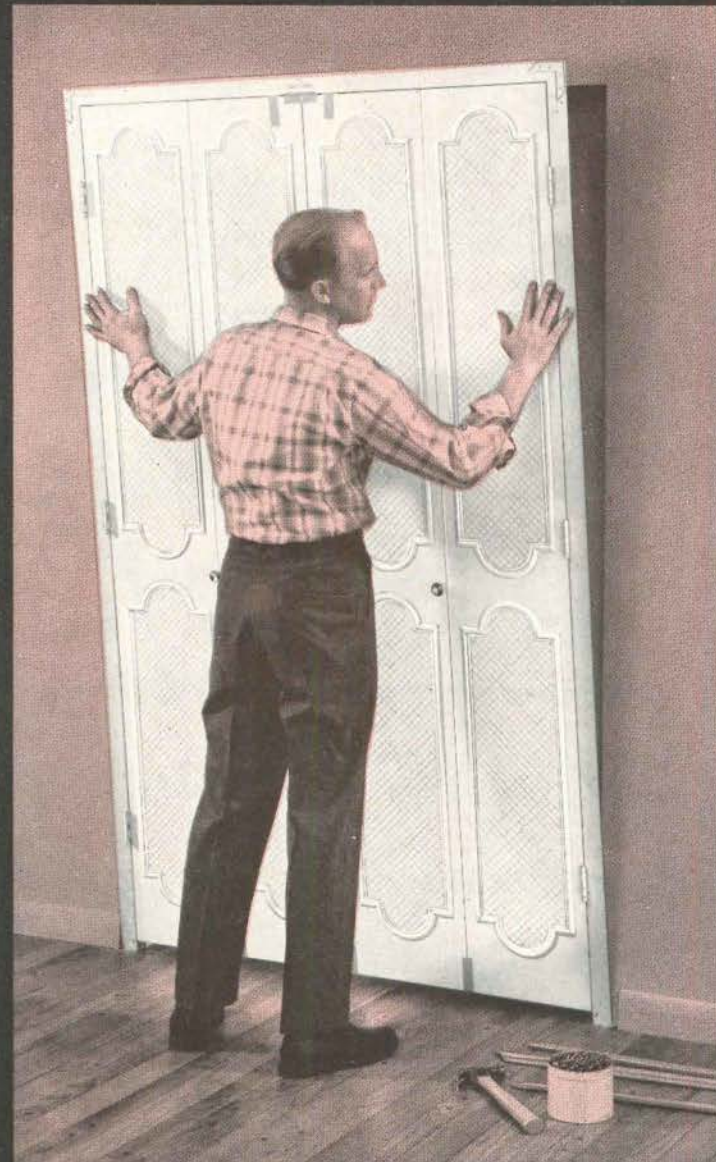
PREFAB BUILDINGS

Uniframe prefabricated buildings are illustrated in 12-page booklet. Steel framework components are welded together. *Varco Steel, Inc., P.O. Box 781, Pine Bluff, Ark.*

CIRCLE 418 ON INQUIRY CARD

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

more literature on page 272



3/4 TO 2 HOURS

Completely Installed By Qualified Carpenter

LESS THAN 10 MINUTES

Completely Installed By Anyone!

new Homeshield PRE-HUNG FOLDING DOORS

eliminate costly installation labor of on site assembly and painting

Yes, these new folding doors can be installed in less than 10 minutes. They are pre-hung in a pre-finished aluminum frame. All hardware is installed. Door panels are finished in Oyster white, no need to paint. Doors are packaged as one integral unit ready for immediate installation! Even trim is included!

The beauty of the doors speaks for itself. Now you can select from 4 decorative patterns, any of which will add a new, distinct and decorative focal point to any room, whether modern, contemporary or traditional. Ideal for homes, offices, motels, apartments.

Operative features include new patented spring hardware that permits full access to closet opening. This feature also assures quiet operation, prevents sagging and holds doors positively in open or closed position. Doors have been fully tested and proved to withstand abuse, humidity and temperature extremes.

The cost? *COMPETITIVELY PRICED!*

The installation savings and customer satisfaction? *PRICELESS!*

For more information and full specifications write today.

AMERICAN SCREEN PRODUCTS COMPANY
Chatsworth, Illinois • Dept. AR-4

25
ANNIVERSARY
HOMESHIELD
for HOME and YARD

Homeshield pre-hung folding doors are another new product for the home from American Screen Products Company, now celebrating its 25th anniversary.

For more data, circle 109 on Inquiry Card

Office Literature

continued from page 268

FOLDING DOORS

(A.I.A. 16-M) Sound control ratings in various settings and installation examples of folding doors and room dividers are given in 12-page catalog. *Clopay Corp., 1400 Academy, Detroit 20, Mich.**

CIRCLE 419 ON INQUIRY CARD

GAS-FIRED HEATERS

Gas-fired unit heaters and duct furnaces are described in eight-page catalog. *Westinghouse Sturtevant Div., Hyde Park, Boston, Mass.*

CIRCLE 420 ON INQUIRY CARD

CONCRETE CONSTRUCTION

Articles on new concrete buildings, cold and hot weather concreting on dam construction and the importance of aggregates in floor construction are in a 32-page outsize booklet, C-62-2. *The Master Builders Co., Martin-Marietta Corp., Cleveland 18, Ohio**

CIRCLE 421 ON INQUIRY CARD

DESIGNING WITH GLASS

"Creative Ideas in Glass" illustrates recent buildings using glass to achieve a sense of spaciousness. *American-Saint Gobain Corp., Box 929, Kingsport, Tenn.**

CIRCLE 422 ON INQUIRY CARD

SUN SCREENS

Octalinear grills for solar screens, decorative grills and building refacings are illustrated in six-page booklet. A wide assortment of grill components can be used to make a unique design. *Construction Specialties, Inc., 55 Winans Ave., Cranford, N.J.**

CIRCLE 423 ON INQUIRY CARD

FREE FORM ROOFING

Data file gives information on *Ply-O-Glas* glass fiber coatings and roofing systems which use chopped glass fiber sprayed on substrates in combination with synthetic rubbers or a solvent asphalt mastic. *Ply-O-Glas Co. of America, 50 Cutter Mill Rd., Great Neck, N.Y.*

CIRCLE 424 ON INQUIRY CARD

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

more literature on page 284

BARRETT®
BUILDING MATERIALS

Allied Chemical

NEWS FOR ARCHITECTS!

BARRETT OFFERS YOU VINYL BUILDING PANELS FOR NEW SHAPES, NEW COLORS, NEW DESIGNS

This all-weather pool enclosure in New Jersey can be quickly disassembled for summer.

BARRETT® BUILDING MATERIALS

Allied Chemical

Arched bus stop shelter demonstrates panel flexibility.

Long Island shopping center canopy provides all-weather protection.

Achieve unique designs like this unusual tennis court.

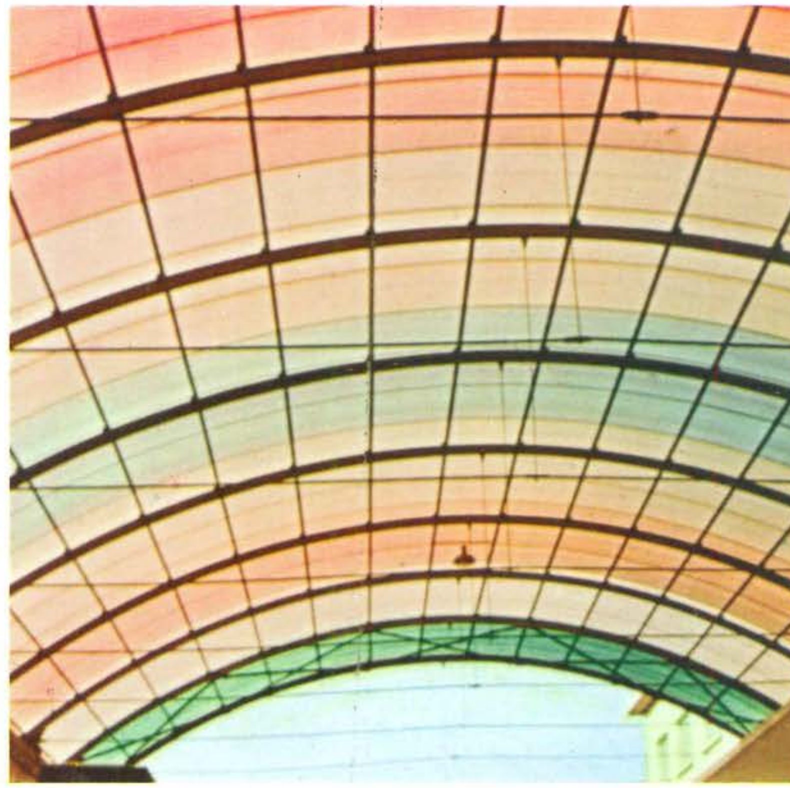
Decorative vinyl panels also resist weather, salt air, moisture.

Samples from a line of 15 standard colors.

PUT MORE LIGHT IN YOUR DESIGNS WITH

What you see above are a number of unique structures, incorporating the first plastic structural building material ever to achieve an Underwriters' Laboratories flame-spread rating of 25! The material?... Barrett vinyl building panels. These panels have virtually unlimited uses in commercial and industrial applications. Look again! See how natural light, combined with eye-catching color, has been integrated as a functional part of each design. The new, longer lengths and

Panels resist fumes in Baton Rouge chemical plant.



Longer length panels can be arched for unusual shapes.

Vinyl panels provide free light in plant storage areas.

Arched panels are easily secured by cable tie-down method.

BARRETT NON-COMBUSTIBLE VINYL BUILDING PANELS

increased flexibility of colorful Barrett vinyl building panels provided these results. These panels are currently available from building products and plastics distributors in 22 states, including the Pacific coast for the first time. They have been approved by approximately 130 key cities in 38 states. The cities include many operating under major regional building codes such as BOCA, Uniform Code, National Building Code and Southern Building Code.

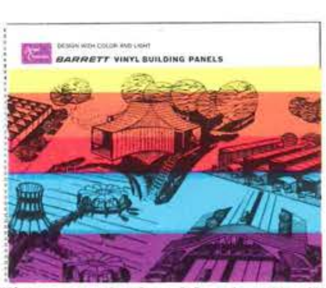
Allied Chemical

TURN PAGE

BARRETT®
BUILDING MATERIALS

Allied Chemical

FREE FOR ARCHITECTS...AN EXCITING NEW BOOK ON STRUCTURAL DESIGN WITH COLOR AND LIGHT



New Barrett vinyl building panels now make practical highly imaginative concepts which would have seemed fantastic only a few years ago. What direction some of these applications may take is indicated in a new design-idea book for architects created for Barrett by architect William B. Gleckman. This new design-idea book will show you imaginative and advanced structures...complete detailed information and performance data that take full advantage of Barrett vinyl building panels. And now with the Underwriters' Laboratories flame-spread rating of 25, these buildings can meet code specifications.

Combine your creative talents with Barrett vinyl building panels and discover the profitable advances in design and construction you can achieve. To get an idea of the almost limitless architectural possibilities Barrett vinyl panels offer, send today for your copy of this valuable design-idea book ... "Design with Light and Color."

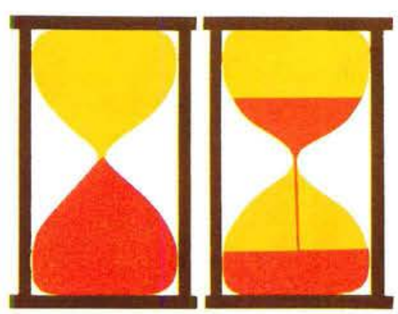
The book is designed specifically for architects; please write on your firm's letterhead. Write to Allied Chemical Corporation, Barrett Division, Dept. AR5, 40 Rector Street, New York 6, N. Y.

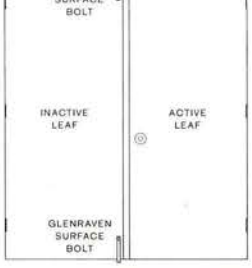
Get the news from your man from Barrett! He has been especially selected and trained to help you. He is qualified to discuss technical problems and application procedures, and will keep you ahead on the latest chemical and plastic building materials.

See our catalog on vinyl products in Sweet's.

Allied Chemical

Now a 1½-hour-rated fire barrier can be beautiful, too





New Weldwood Fire Doors hung in pairs, Class "C" label, ¾-hour. Maximum size opening 6′ x 7′. Astragals and Glenraven surface bolts supplied with doors, but not attached.

You can now use decorative doors throughout an office building, hospital, school, hotel, or any structure requiring special provisions to meet fire hazards. Weldwood® Fire Doors are available for Class "B" openings requiring a fire barrier rated for 1½ hours. As with other Weldwood Fire Doors, you can specify the face and finish you want, to integrate all doors with your over-all design.

These new 1½-hour-rated Fire Doors retain the incombustible Weldrok® core used in other Weldwood Doors. The cross banding under the face is an inorganic material instead of hardwood. And the rating on the label is different. Otherwise, they offer the same appearance and dependable performance you expect from Weldwood Doors. And, of course, they have an extremely low rate of heat transmission. This provides a substantial margin of safety in the reduction of fire spread.

Furthermore, the new 1½-hour-rated Fire Doors may be included in a complete schedule of Weldwood Doors, supplied machined and finished to your specifications.

For technical data on the new fire doors and complete information on all Weldwood doors, send in coupon on the opposite side of this page.

WELDWOOD®

FIRE DOORS

Products of United States Plywood

This executive office at La Merick Beauty Products, Inc., Charlotte, N. Carolina, is paneled in Weldwood® Architectural-Grade Algoma-Made prefinished pecan, balanced and sequence matched. The floor-to-ceiling doors are faced with sequence matched pecan to blend with the wall panels. For the president's office, Architect Jean Surratt of Charlotte used a Weldwood Architectural-Grade Sequence Matched Paneling, Permagard® surfaced ribbon-striped African mahogany.

Let your imagination go—to one of our more unusual woods

(For example: our pecan architectural paneling)

It doesn't come from the small orchard tree. The veneers on the paneling above are cut from the pecan which is a big forest tree, related to the hickory. This golden brown wood has a variety of interesting figures to make a distinctive paneling.

Then, there's pale brown butternut—a satiny wood with a figure that resembles the grain of American walnut. And English brown oak, ranging from nut brown to deep brown. Or Paldao with its variable light brown background and black to brown streaks.

The more familiar native woods also yield outstanding architectural-grade veneers in lighter colors—white birch, some American cherry, curly maple, white maple, white oak, and rift white oak.

It's easy to get what you are looking for in Weldwood Architectural Paneling. All you have to do is decide the color and the general character of the wood you want. A United States Plywood Architects' Service Representative will assemble samples of veneer flitches having the length and quantity required. Just call your United States Plywood office.

For complete information about Weldwood Architectural Grade Paneling send in the coupon at the left.

United States Plywood, Dept. AR 4-63
55 West 44th Street, New York 36, N. Y.

Please send me the following publications:

- ☐ Weldwood Architectural-Grade Paneling, 28 pages
- ☐ Technical data sheet on 1½-hour-rated Weldwood Fire Doors
- ☐ Weldwood Door Catalog

Name..

Firm..

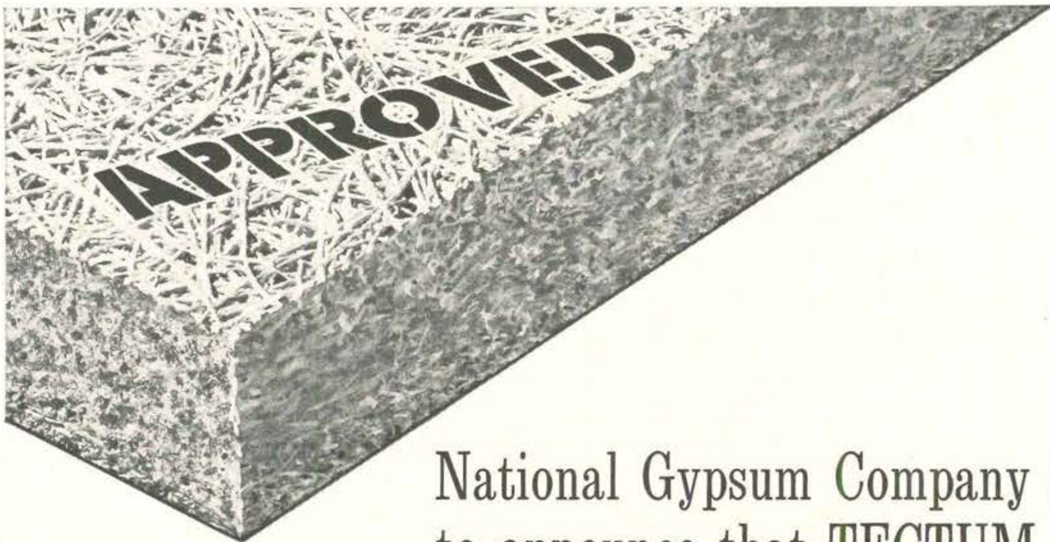
Address..

City....................**Zone**.....**State**........

WELDWOOD®

ARCHITECTURAL PANELING

Product of United States Plywood



National Gypsum Company is pleased to announce that TECTUM now carries the Gold Bond Label

(more than 100 research scientists voted their approval)

Tectum has enjoyed phenomenal acceptance. More than *500 million* board feet have been used to date. It was Tectum that pioneered the principle of open roof deck construction. In the past decade, Tectum has provided appreciable economies in the construction of sorely needed educational, commercial, industrial and religious buildings.

Recently, over one hundred Gold Bond research scientists had a part in thoroughly testing Tectum . . . in evaluating its past performance, in projecting its future. When their work was complete they voted unanimously for its inclusion in the Gold Bond family of building products.

We at National Gypsum Company are immensely proud of this latest addition to our growing family of building materials. Tectum wood fiber products add depth to the Gold Bond line, broaden our representation in the market, and amplify our services to you as an architect.

The thousands of architects, engineers and designers who already know Tectum first-hand can now specify it with even greater confidence. This is because today's Tectum wears the Gold Bond label. And it's backed by Gold Bond research. National Gypsum Company, Buffalo 25, New York.

Gold Bond®
BUILDING PRODUCTS

The lights burn late at the Gold Bond Research Center, Tonawanda, N.Y.

GOLD BOND MATERIALS AND METHODS MAKE THE DIFFERENCE IN MODERN BUILDING

For more data, circle 117 on Inquiry Card

Building: Humble Oil & Refining Co., Houston *Architect:* Welton Becket & Associates, Los Angeles and Houston *Fixtures:* Columbia Lighting, Dallas

Because it must last, the lighting is glass

Nothing lasts like glass.

That's why the lighting panels in this new corporate headquarters office won't crack, warp, sag, buckle, or discolor—ever. This is the permanence of glass that holds maintenance to a minimum—forever.

The glass is our Pattern #70 because it provides high lighting efficiency *and* brightness control. Its prismatic design gives both—ample work-surface illumination without the glare that tires eyes.

Specify permanent good light and permanent good looks in your next building with Pattern #70. Be sure to ask your fixture manufacturer about the significant new *economy* of Pattern #70. Building Products Dept., Corning Glass Works, Corning, N. Y.

CORNING

CORNING GLASS WORKS

For more data, circle 118 on Inquiry Card

Office Literature

continued from page 272

FLOODLIGHT
(A.I.A. 31-F-22) A floodlight with rectangular beam, with sharp cut-off at all edges, is described in bulletin. Location of the center of intensity is adjustable. *Infranor of North America, Inc., 742 Worthington Ridge, Berlin, Conn.**
CIRCLE 425 ON INQUIRY CARD

METAL LETTERS, FIGURES

Eight type faces for letters and nine for figures are illustrated in eight-page booklet. Five finishes in bronze and aluminum are available. *H. W. Knight & Son, Inc., 8 Lane St., Seneca Falls, N.Y.**
CIRCLE 426 ON INQUIRY CARD

DESIGNING WITH FOAM
Six structures using rigid urethane foam as a structural material are shown in 18-page booklet. *Mobay Chemical Co., Penn Lincoln Parkway West, Pittsburgh 5, Pa.*
CIRCLE 427 ON INQUIRY CARD

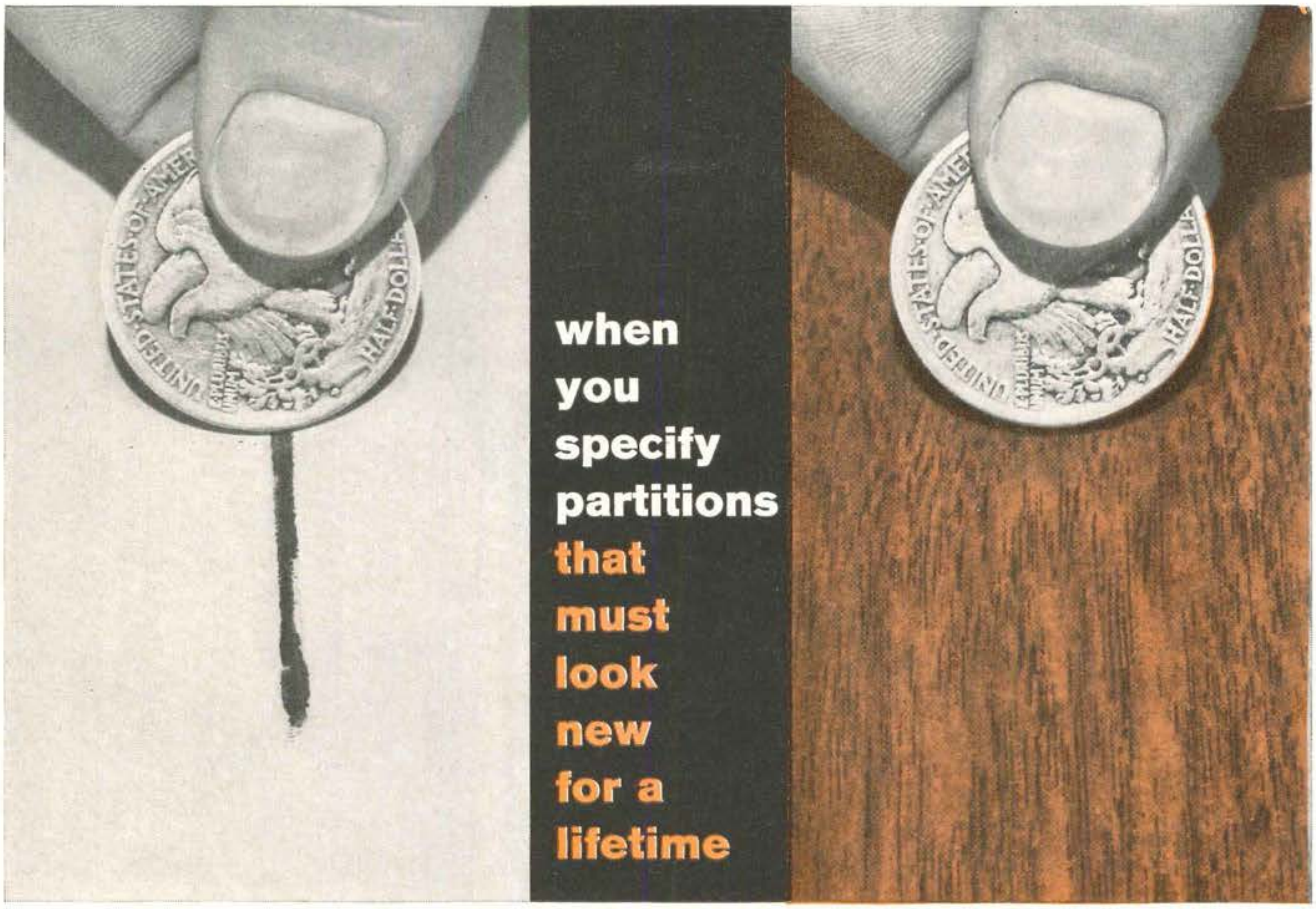
AIR CONDITIONERS
Mechanical and engineering specifications and capacity and system data for self-contained, factory-wired packaged air conditioners of 20- to 60-ton capacity are given in 28-page manual, No. 96-570C. *Acme Industries, Inc., 600 N. Mechanic St., Jackson, Mich.*
CIRCLE 428 ON INQUIRY CARD

CERAMIC TILE APPLICATION
Specifications for the application of ceramic tile to metal lath and plaster surfaces are given in folder. *Metal Lath Association, Engineers Bldg., Cleveland 14, Ohio*
CIRCLE 429 ON INQUIRY CARD

VERMICULITE PLASTER
(A.I.A. 21-A-5, 39-B-C) Four vermiculite plaster systems are discussed in eight-page booklet PA-60. *Zonolite Co., 135 S. LaSalle St., Chicago 3, Ill.**
CIRCLE 430 ON INQUIRY CARD

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

more literature on page 288



steel is good...but Micarta's better

To simulate the digs and scrapes partitions get in use, make the coin test. On almost any painted partition surface, the edge of the coin will cut through the finish. Try it on MICARTA plastic laminate and bear down hard. You'll find it difficult to leave any mark at all.

A good baked enamel finish on steel will take its share of hard use before repainting is necessary. But MICARTA takes years of scratches, scuffs and mars and stays looking new without major maintenance . . . of any kind.

(asi) partition systems offer you significant advantages, among them complete visual design freedom and a wide range of core and facing materials . . . including Westinghouse MICARTA. By comparing MICARTA with steel, longtime standard among partition materials, Architectural Systems, Inc. points up these immediate and long-range benefits:

Vastly superior resistance to scratches, scuffs, and stains. Not only does MICARTA withstand digs, scrapes and mars, it laughs at detergents and alkalis . . . at greases and stains of almost any kind. Partition surfaces stay looking fresh and new, year after year, with an absolute minimum of maintenance.

Greater flexibility for fresh new effects in interior design. In addition to a galaxy of modern, decorator colors, MICARTA gives you a wide range of authentic wood grains and textures. Best of all, you can have bright or pastel colors on one side of an ASI partition, a distinctive wood grain on the other. Colors, wood grains and glass can be mixed with a creative freedom no steel partition (and few other kinds) can provide.

Installed costs no more, and often less, than steel . . . the happiest circumstance of all. We'd welcome an opportunity to relate specific figures to your current project.

All but one of ASI's several basic partition systems are a slim 1¾" thick. Fire resistance and sound attenuation can be tailored to meet your most demanding requirements. For details, write or call us at 4300 36th Street, S.E., Grand Rapids 8, Michigan, phone 949-1050, area code 616.

ASI Product Selection Work Sheets, new and important tools for comparing competitive partition systems, are now available. Just mention them when you call or write.

ARCHITECTURAL SYSTEMS, INC.
a division of Westinghouse Electric Corporation

We never forget how much you rely on Westinghouse

For more data, circle 120 on Inquiry Card

ARE STRINGS ATTACHED TO YOUR DESIGNS?

Look closely. There just might be.

This string might well be the laundry facilities that you've included in your plans. And a mighty expensive piece of string it is . . . one that will keep your client snarled with needless overhead costs.

Why get him all entangled with personnel problems and costs? with expensive-to-buy, expensive-to-maintain equipment? with costs of electricity, water, supplies and linens?

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

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

**See the Yellow Pages under "Linen Supply" or "Towel Supply".*

FREE DESIGN GUIDES!
They give case histories and suggestions for providing more efficient linen supply service in motels, hotels, schools, restaurants and hospitals, as well as for commercial firms, professional offices and various institutions. Write today.

LINEN SUPPLY ASSOCIATION OF AMERICA • 975 Arthur Godfrey Road, Miami Beach 40, Florida

For more data, circle 121 on Inquiry Card

Office Literature

continued from page 284

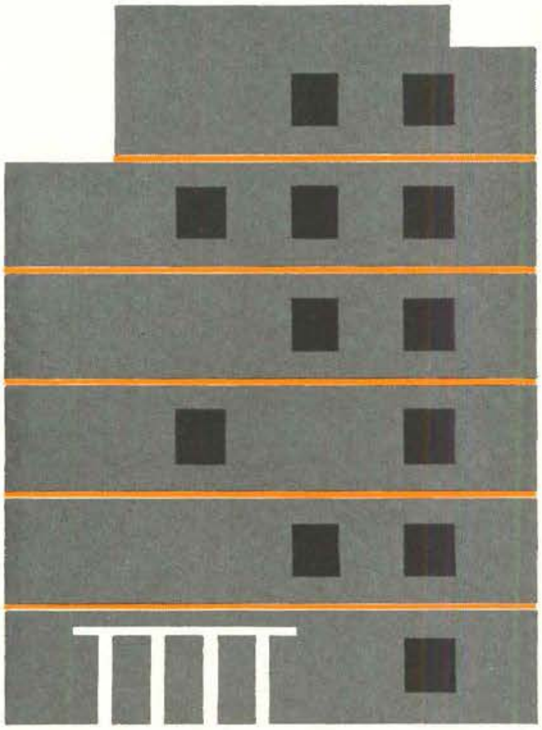
COLD-APPLIED ROOFING
(A.I.A. 12-A) Folders describe *Kolorprene* liquid synthetic rubber roofing. No perimeter flashing is needed for the lightweight, flexible material. *Miracle Adhesives Corp., 250 Pettit Ave., Bellmore, L.I., N.Y.*
CIRCLE 431 ON INQUIRY CARD

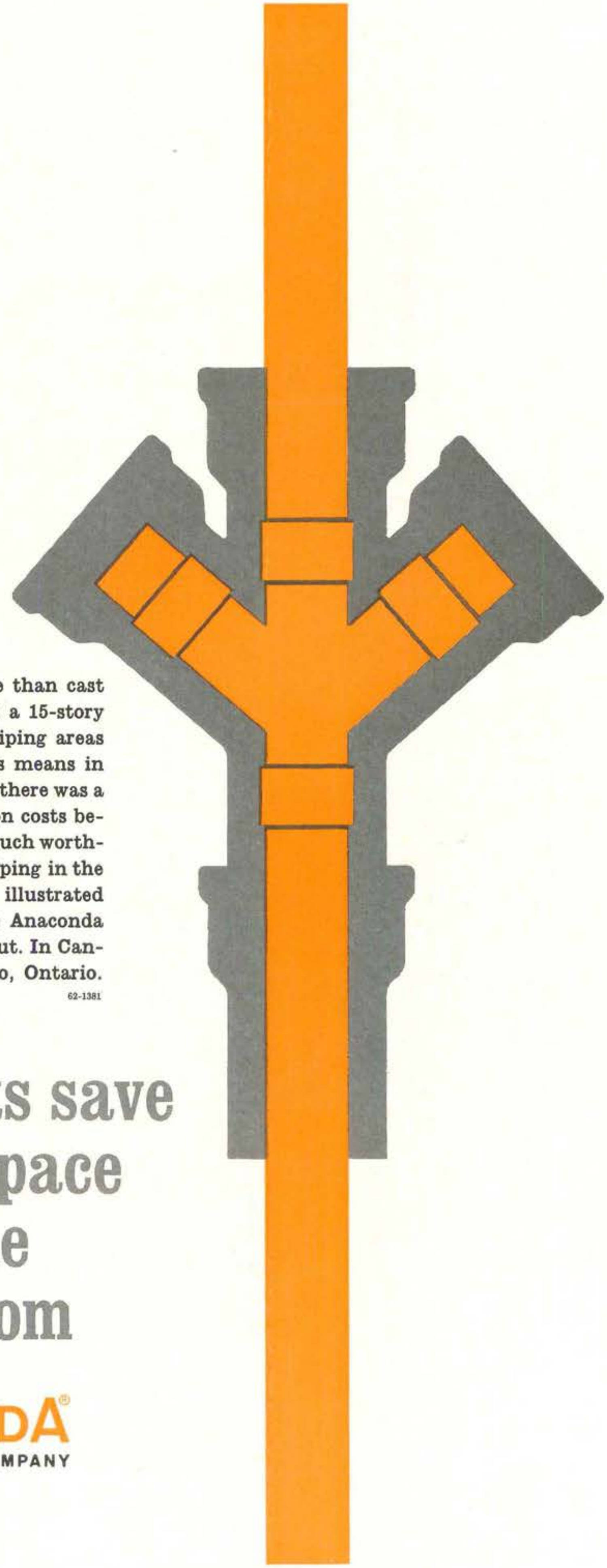
OFFICE LIGHTING
The relationship of lighting to the total office environment, how to assure good lighting, and lighting cost perspectives are given in 24-page technical booklet, TP-114. *Inquiry Bureau, General Electric Co., Nela Park, Cleveland 12, Ohio*
CIRCLE 432 ON INQUIRY CARD

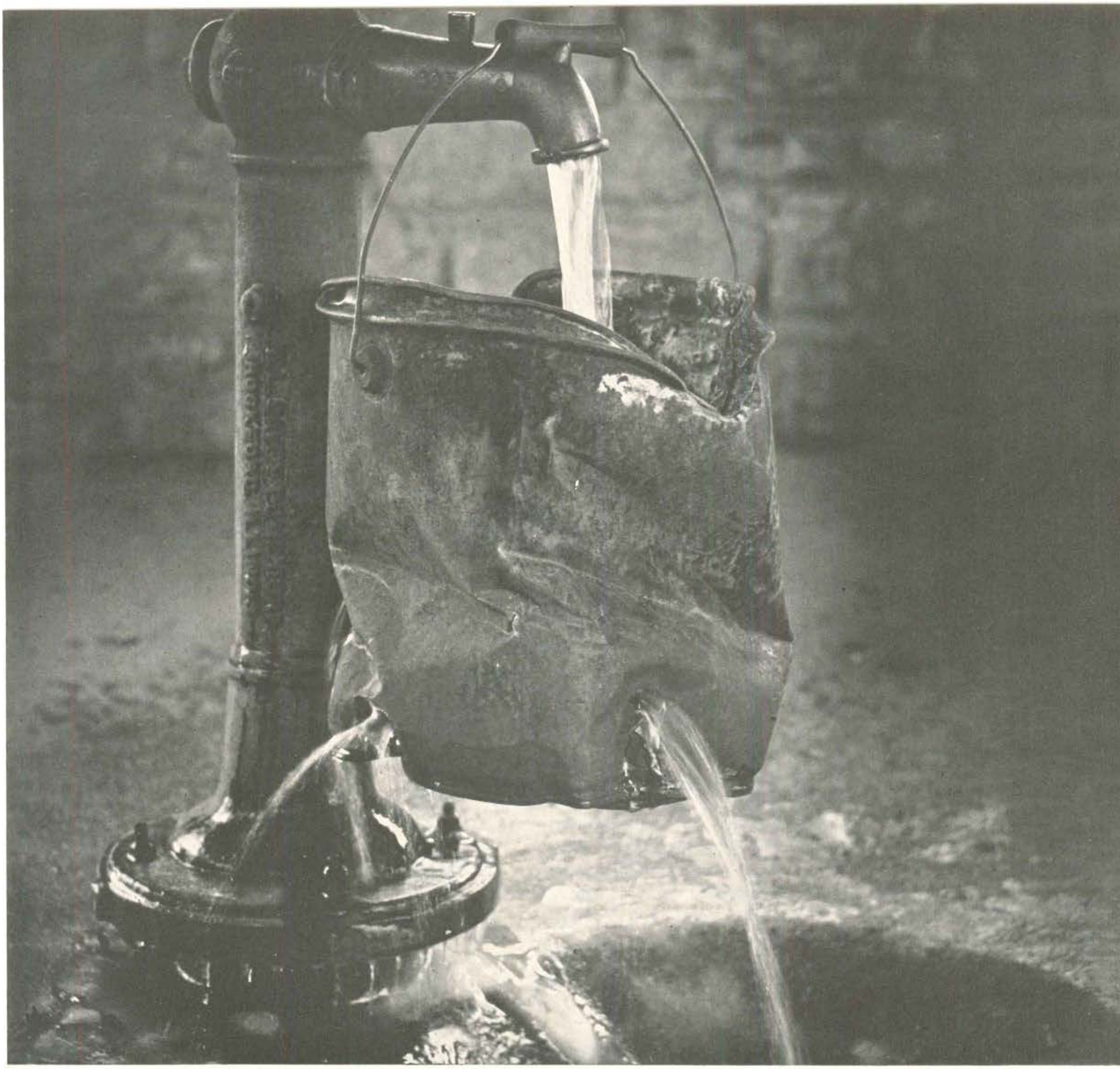
PLYWOOD PROPERTIES
A college-level textbook, "Plywood: Properties, Design and Construction," is intended to serve as a basic reference for anyone designing or building with plywood. Such topics as general use recommendations, fastenings, design principles and procedures, basic structural requirements, folded plate methods and space planes are included in the 132-page book. Hardcover copies are \$3.00; paperbacks are \$2.00. *Douglas Fir Plywood Assoc., 1119 A St., Tacoma 2, Wash.*

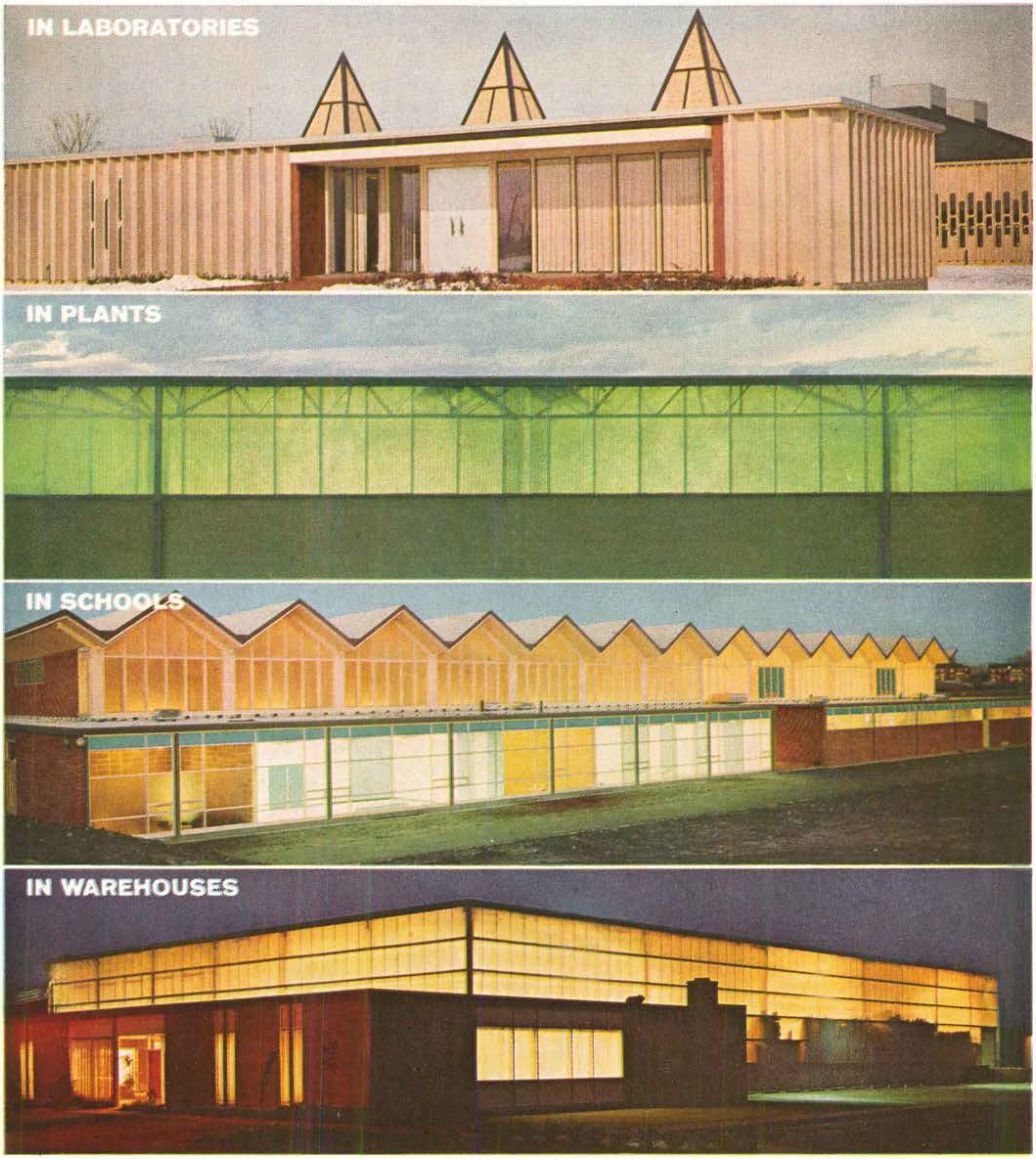
ALUMINUM STANDARDS
The fifth edition of "Standards for Wrought Aluminum Mill Products" is a 112-page manual which lists properties and dimensional tolerances of aluminum and aluminum alloy mill products. Tables now list strengths in kips (kilopounds) per sq in. instead of pounds per sq in. Single copies available by letterhead request. *The Aluminum Assoc., 420 Lexington Ave., New York 17, N.Y.*

CHURCH SPIRES
"The Spire" is a 42-page booklet which traces the design of spires from earliest known antecedents, through Gothic, Restoration and Early American periods, to contemporary design. Spires fabricated and erected by Overly are shown in 64 pictures. Included is a check list for determining spire requirements. Available to architects free on letterhead request. *Overly Mfg. Co., 574 W. Otterman St., Greensburg, Pa.*









Flat, corrugated or sandwich-type reinforced panels made with 100% LUCITE® ACRYLIC SIRUP are practical, functional, attractive

Transparent, translucent and opaque panels made with 100% LUCITE acrylic sirup are the most weather-resistant reinforced plastic panels available. Their resistance to sunlight and moisture is unsurpassed! Based upon the continuous exposure of sheet made from LUCITE for 20 years in outdoor installations, these panels will retain their color, gloss and light-transmission qualities far longer than any other reinforced plastic panels. ■ Panels made with 100% LUCITE are now available in a variety of patterns and colors. They make effective use of natural and fluorescent lighting to illuminate the interiors of factories, commercial buildings, schools, motels and churches. Their installed cost is less than glass and sash, and they also reduce daytime illumination costs. ■ For information about manufacturers of reinforced panels made with 100% LUCITE acrylic sirup, write E. I. du Pont de Nemours & Co. (Inc.), Department AR-4, 63-LS, Room 2420, Nemours Building, Wilmington 98, Delaware.

PLASTICS DEPARTMENT

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

For more data, circle 126 on Inquiry Card

Ventilating Ceilings

continued from page 222

a given type will occur for that obstruction which is nearest the inlet duct opening. However, if there are a number of obstructions between the one causing the most turbulence and the plenum boundary, their aggregate losses may total more than that of the individual obstruction nearest the inlet duct.

The procedures Armstrong developed take into account as a group all of the obstructions of a given type, so as to keep within specified limits the total decrease of plenum pressure due to turbulence around these obstructions as the air moves across the plenum away from the inlet duct opening.

Control of Local Pressure Variations

Local Obstructions and Inlet Duct. For physical reasons similar to those mentioned in connection with static pressure regain, any regions of the plenum carrying exceptionally high air velocities will also be regions where the static pressure, that is the plenum pressure, is lower than the nominal value.

Regions of high air velocity occur where the local obstructions reduce the cross sectional area of the plenum available for air flow. A region of high velocity air occurs also where the air enters the plenum at the inlet duct opening. These regions of high velocity and low pressure are such a small fraction of the total ceiling area that they have negligible influence on the nominal value of plenum pressure for a given total flow to a zone; but care must be taken that the local reductions of pressure do not reach such a magnitude as to cause local negative pressure differences through the ceiling. If negative pressure differences do occur, air will flow upward from the room, through the ceiling, and into the plenum and cause soiling.

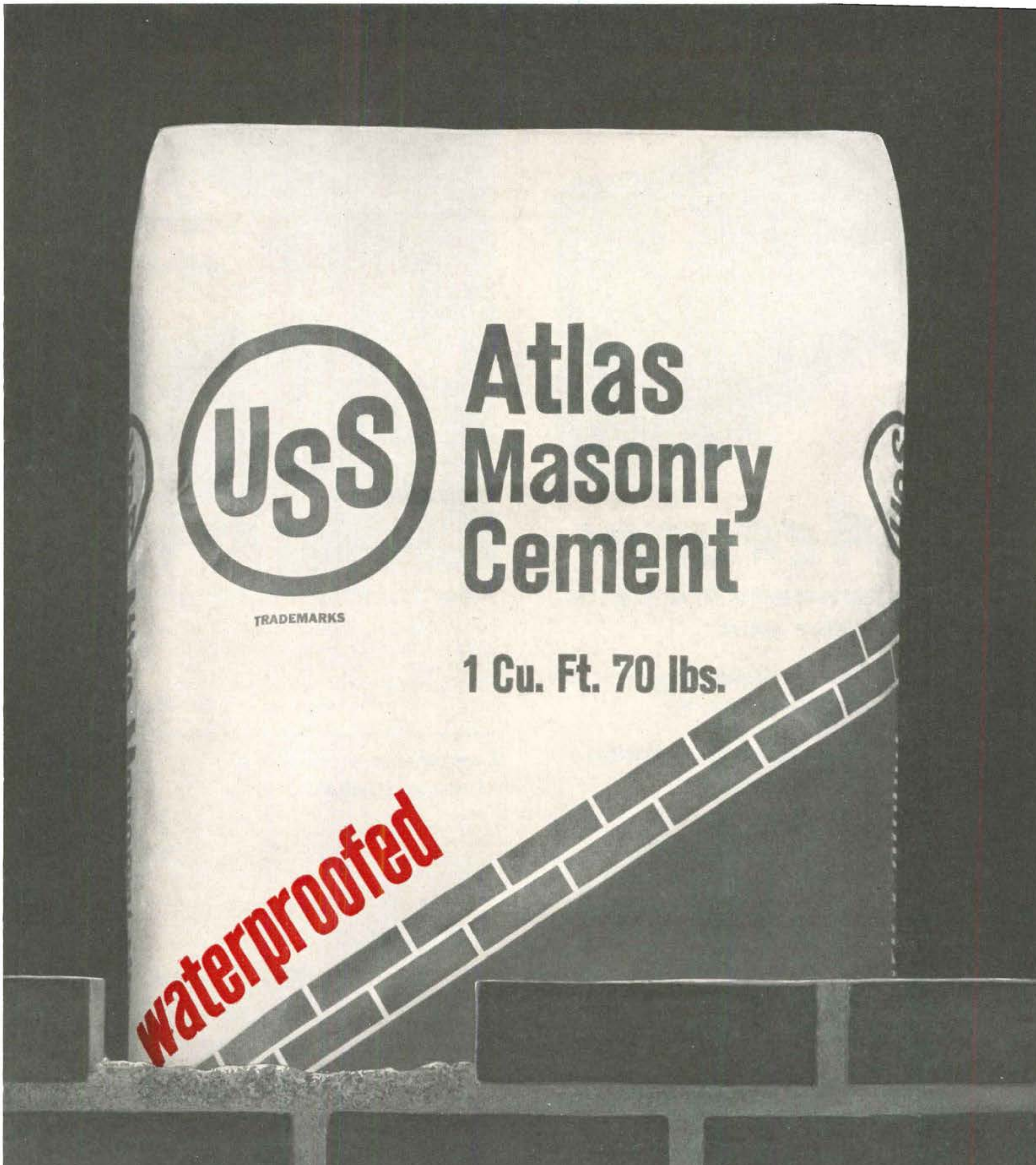
Prevention of negative pressure near the inlet duct opening places a restriction on the maximum air inlet velocity, that is the velocity of the air as it leaves the inlet duct opening. For a given total flow of air it is clear that limiting the maximum air inlet velocity is the same as limiting the minimum area of inlet duct opening.

Noise

In the case of a ventilating ceiling any noises conducted through supply ducts are attenuated by the suspended ceiling before entering the room. Also, the terminal noise from diffusers is absent when a ventilating ceiling is used. Finally, there are three new potential sources to noise to condier in the case of the ventilating ceiling; turbulence at the inlet duct, turbulence around obstructions in the plenum, and flow of air out of the ventilating openings.

So far as turbulence around obstructions is concerned, there is no noise problem. The design limitations imposed by demand for uniformity of plenum pressure restrict plenum velocities to such values that detectable noise should not occur.

Noise due to air flowing out of the ventilating openings themselves will not be noticeable so long as plenum pressure does not exceed prescribed limits.

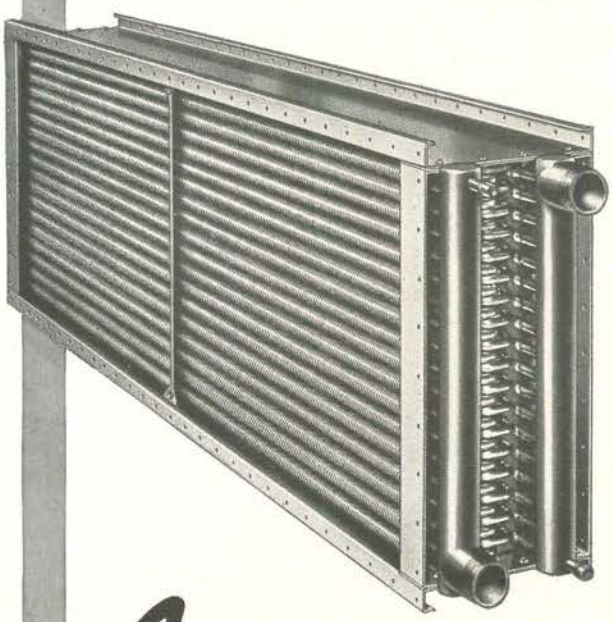


Now watertight walls come easier. A special water-repellent additive is now interground with ATLAS MASONRY CEMENT during manufacture. This new feature results in mortar joints with less water absorption . . . facilitates the building of watertight masonry walls. ■ Masons know that Atlas Masonry Cement assures mortar uniformity . . . in workability, color, strength and yield, batch after batch. Everything except sand and water is delivered in one bag. Proportioning errors are minimized. Complies with current ASTM and Federal Specifications. Specify it for your next job. A product of Universal Atlas Cement, 100 Park Ave., New York 17, N.Y.

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

"USS" and "Atlas" are registered trademarks M-91

For more data, circle 128 on Inquiry Card



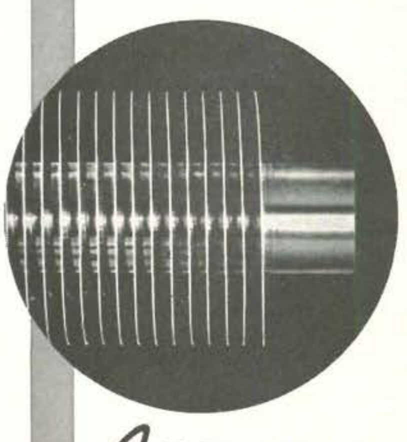
AEROFIN

Smooth-Fin Coils offer you:

Greater Heat Transfer
per sq. ft. of face area

Lower Airway Resistance
—less power per c. f. m.

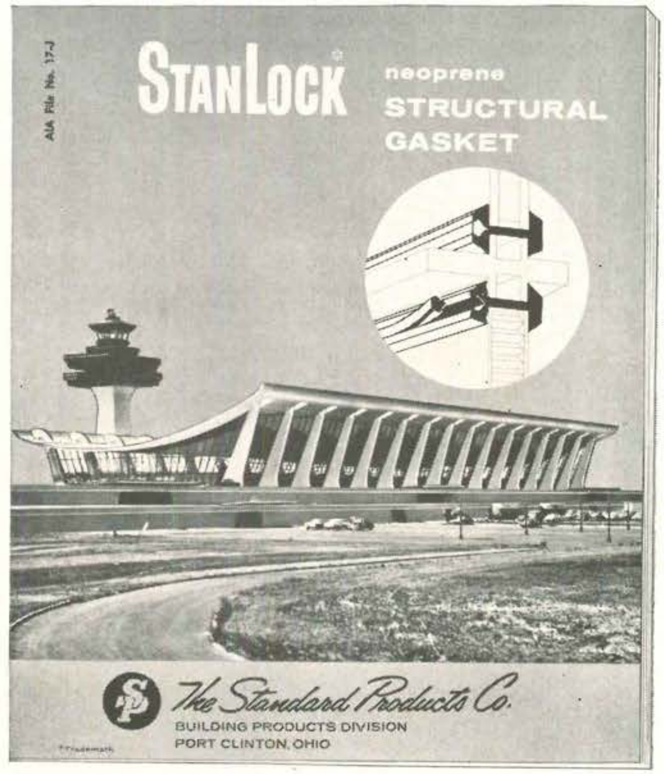
Aerofin smooth fins can be spaced as closely as 14 per inch with low air friction. Consequently, the heat-exchange capacity per square foot of face area is extremely high, and the use of high air velocities entirely practical. Tapered fin construction provides ample tube-contact surface so that the entire fin becomes effective transfer surface. Standardized encased units arranged for simple, quick, economical installation.



Aerofin is sold only by manufacturers of fan system apparatus. List on request.

AEROFIN CORPORATION
101 Greenway Ave., Syracuse 3, N. Y.
ENGINEERING OFFICES IN PRINCIPAL CITIES

For more data, circle 129 on Inquiry Card



New booklet for the Architect

This is a 20-page engineering report on the most effective structural gasket ever developed for curtainwall construction. For your copy, simply send letter or post card to The Standard Products Company at the address shown above.

For more data, circle 138 on Inquiry Card

A comprehensive source of design information on multiple dwellings

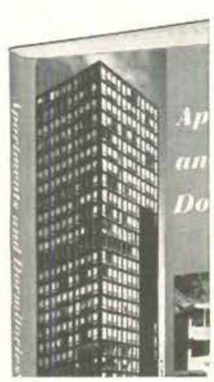
Here is a magnificently illustrated survey of some of the best recent work in multiple dwellings. More than 50 varied projects by leading architects — ranging from two, three, and four-family buildings up through giant apartment-cities housing thousands of families — are graphically shown in more than 275 photographs and over 200 floor plans and drawings.

The expertly written book gives practical information on important social and design considerations. You find a wealth of up-to-date design information, plus the stimulation of seeing the best efforts of some of today's finest architects.

APARTMENTS AND DORMITORIES

By the Editors of *Architectural Record*

238 pages, 8¾ × 11⅝,
over 475 illustrations, $9.75



10 DAYS' FREE EXAMINATION
DIRECT FROM PUBLISHER

McGraw-Hill Book Co. Dept. FARR-4
327 W. 41 St., N.Y.C. 36

Send me Architectural Record APARTMENTS AND DORMITORIES for 10 days' examination on approval. In 10 days I will remit $9.75, plus few cents delivery costs, or return book postpaid. (We pay delivery costs if you remit with orders; same examination and return privilege.)

Print name ....

Address ....

City .... Zone ..... State ....

Company .... Position ....

For price and terms outside U.S.A. write McGraw-Hill Int'l., N.Y.C. FARR-4

For more data, circle 139 on Inquiry Card

Versatility Unlimited

with SPA Southern Pine

Architects are applying bold imagination to the design of strikingly beautiful buildings with wood. And no wood gives the architect greater freedom of form and expression than *SPA Southern Pine. Whether it is specified for complex laminated members or conventional framing . . . exquisite paneling or rough sawn siding . . . elegant finish or multi-purpose roof decking . . . this versatile wood assures superior performance.

Here are some outstanding features that lend scope and inspiration to modern design:

- Dimensional Stability Through Proper Seasoning
- Exceptional Strength; Pre-determined Stress Values
- Handsome Texture Interest
- Design Economy
- Flexibility of Tone and Finish
- High Standards of Manufacture and Grading

SPA technical consultants are available to discuss specifications and uses. For their services write: Southern Pine Association, P. O. Box 52468, New Orleans 50, Louisiana

*Trade-Marked and Offically Grade-Marked

SPA

SOUTHERN PINE

Seasoned... Pre-Shrunk... For Extra Strength

FROM THE MILLS OF THE SOUTHERN PINE ASSOCIATION

For more data, circle 130 on Inquiry Card

OHIO PROJECT WINS A.S.C.E. AWARD

The Ohio River Basin Clean Streams Program, a complex of facilities for pollution control involving eight states, has won the "Outstanding Civil Engineering Achievement of the Year," the fourth such annual award sponsored by the American Society of Civil Engineers.

The Society's Board of Direction approved the selection of the Ohio River project made by a jury which consisted of the following: Hal W. Hunt, editor, Civil Engineering, New York, chairman; J. Ronald Carr, editor, Engineering News Record, Chicago; Robert E. Fischer, editor, ARCHITECTURAL RECORD, New York; Robert G. Zilly, editor, Building Construction, Chicago; John N. Server Jr., editor in chief, Southwest Builder and Contractor, Los Angeles; Ralph E. Fuhrman, editor, Journal of Water Pollution Control Federation, Washington, D.C.; James I. Ballard, executive editor, Western Construction, San Francisco; William S. Foster, editor, American City Magazine, New York.

Given Honorable Mention awards were George Washington Bridge Expansion, Lower Level and Associated Projects, New York, New Jersey; and Whittier Narrows Water Reclamation Plant, Los Angeles County, California.

AWARDS MADE BY OHIO CONCRETE

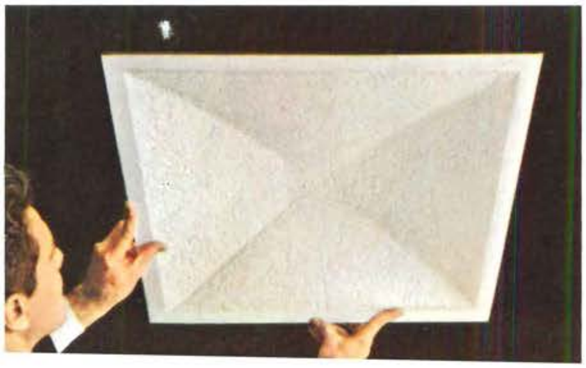
The Ohio Prestressed Concrete Association has announced award winners for 1962, the outstanding structures built of prestressed concrete. They are: in building design, the new plant of Rubbermaid, Inc., Wooster, designed by Dalton-Dalton Associates, Cleveland; and in bridge design, the new bridge over North Fork of Licking River, Newark, designed by Arthur T. Handel & Associates, Newark engineers.

Judges were Frank Wilson, professor of architecture, Ohio State University; Carl E. Bentz, state architect; and D. Henry Overman, chief engineer of bridges, Ohio Department of Highways.

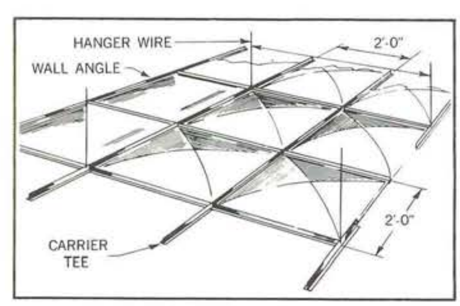
FLOOR AND PEDESTAL ARE J-M COLORCHIP; WALLS ARE J-M GLASAL; BOTH ARE JOHNS-MANVILLE ASBESTOS-CEMENT MATERIALS

New textured surface...with vaulted contour...at modest prices!

A singularly effective way to add dramatic value to virtually any ceiling . . . and at the same time achieve high acoustical efficiency! Textured Vault Panels are moulded entirely of fiber glass with an NRC of .75. They are 24" x 24", rising gently to create a 2" vault. As you see above, the surface is made more visually interesting by a low-relief, rippled texture. White-painted at the factory for easy repainting if desired, Textured Vault Panels offer an opportunity to create a sense of height and elegance, as in the gallery above, and in larger institutional or commercial building areas.

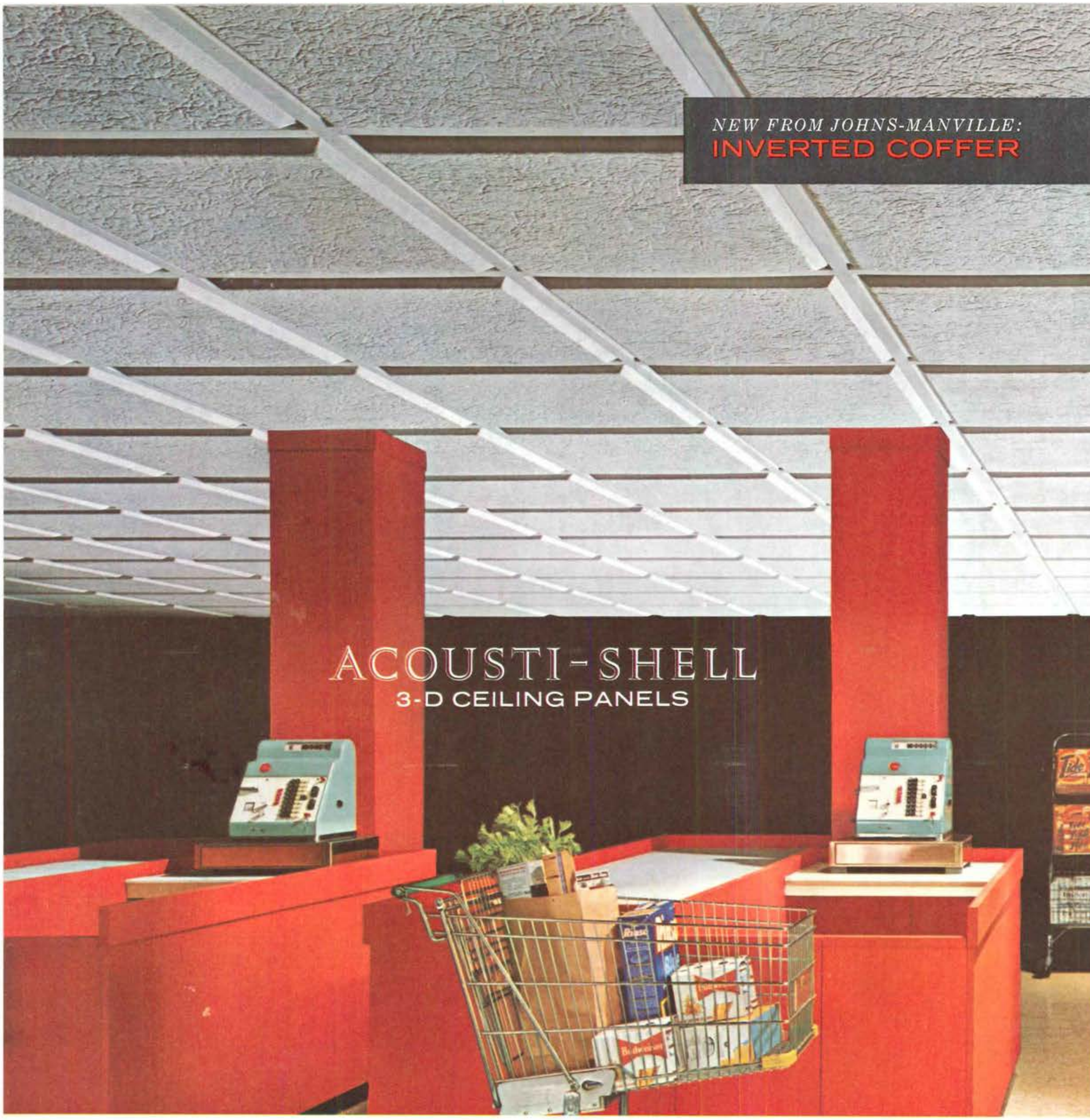


Send for more information on the complete line of Johns-Manville acoustical products. Ask for our new booklet, "Sound Control Ceilings". Address Johns-Manville, Dept. AB, Box 158, New York 16, N. Y. In Canada: Port Credit, Ont. Cable: Johnmanvil.



Installation of lay-in Textured Vault Panels is fast and simple in an exposed grid-type suspension system.

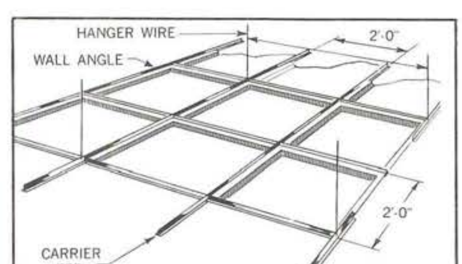
JOHNS-MANVILLE



FLOOR IS J-M TERRAFLEX VINYL-ASBESTOS TILE; WALLS AND COUNTERS ARE FACED WITH J-M GLASAL ASBESTOS-CEMENT PANELS

New dimensional square...New textured surface...New low price!

This new Johns-Manville all-fiber-glass ceiling panel offers a combination of practicality and style . . . at moderate cost. Square lay-in panels are moulded in inverted coffer shape, projecting 2″ downward into the room. As shown above, the visible surface has an attractive, low-relief, rippled texture. Panels are factory-painted white, but can, of course, be repainted to suit any decorative scheme. Measuring 24″ x 24″ x 2″ deep and acoustically effective (NRC of .75) . . . Inverted Coffer Panels suggest interesting applications in supermarkets and other broad-expanse areas.



Lay-in Inverted Coffer Panels are quickly installed in an exposed grid-type suspension system.

JOHNS-MANVILLE

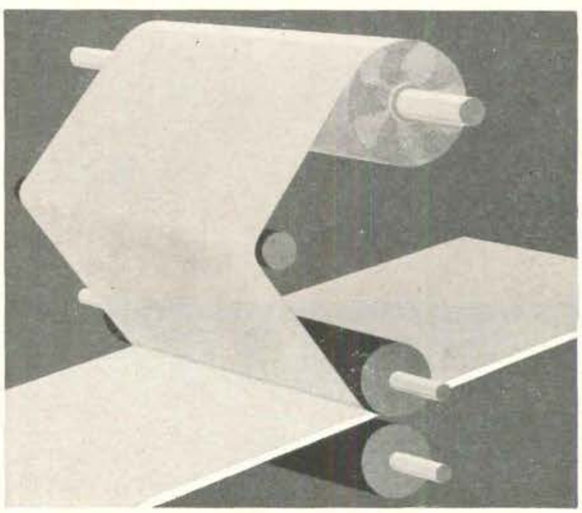
SEE
NEXT
PAGE

ANSWERS TO ARCHITECTS' QUESTIONS ABOUT TEDLAR®

DU PONT'S NEW LONG-LIFE, WEATHERABLE FINISH

What's different about TEDLAR?

TEDLAR* PVF film is a completely new kind of exterior surface. It's not a liquid or a spray; it's a tough fluoride film engineered and manufactured under careful controls by Du Pont.



Who applies TEDLAR?

The manufacturer of a building product. We (Du Pont) make the film and sell it to the manufacturer (of siding, for example), who bonds it to his products in his factory. He uses special Du Pont adhesives, which make TEDLAR part of the material it protects.

How long will TEDLAR last?

Frankly, we don't know. We haven't been able to wear it out under normal weather conditions. We predict, however, that when properly bonded to a stable material, TEDLAR should be serviceable for 25 years or more without refinishing. It may fade slightly, but chances are you won't notice it.

Has TEDLAR been proven?

In the nearly 20 years of testing behind TEDLAR, we've exposed it to every sort of attack it's likely to get. We know that it resists attack from extremes of climate, ultraviolet light, common acids, alkalis, tars, industrial smog, rust and harsh solvents. It is very hard to stain and easy to clean.

What products are available with TEDLAR?

Manufacturers are now laminating TEDLAR PVF film in a variety of colors to produce built-up roofing systems, residential siding of aluminum and plywood; industrial curtain-wall panels, insulation jacketing; gutters, doors, downspouts, sheet and coil stock.

How much does TEDLAR cost?

Because TEDLAR is only the finish of a building product, its cost is determined by the manufacturer, not Du Pont. In general, TEDLAR costs slightly more than liquid finishes, but much less than porcelain enamel. Per year of life expectancy, TEDLAR is probably the most economical finish you can buy.

How can I find out more about TEDLAR?

Write the Du Pont Company. We'll send you more information, a list of manufacturers and bonded samples of TEDLAR. The Du Pont Co., Film Dept., Building Materials Sales Division, Box 50, Wilmington 98, Delaware.

*Du Pont registered trademark

DU PONT
REG. U. S. PAT. OFF.

Better Things for Better Living
. . . through Chemistry

FREE KIT OF TOOLS WITH IN-SINK-ERATOR GARBAGE DISPOSER MAINTENANCE PROGRAM

Now you can be assured that the kitchen's most popular appliance will be maintained by the building's own trained man. This means savings for building owners—and happy tenants, too!

At no charge, In-Sink-Erator will train the building maintenance man, furnish him with a service manual, equip him with the necessary disposer parts . . . so that he can give tenants on-the-spot service. He will receive free tools to make minor repairs. Any major repairs should be referred to our factory authorized service agency.

The In-Sink-Erator APT model was especially designed for the hard usage it will be given by tenants. It is a great convenience for them too. Now, they can wash food waste down the drain. No handling . . . no carrying to chute or can. No flies and odors in their kitchens.

For complete information, write

25th ANNIVERSARY **In•Sink•Erator** ISE ®

The originator and perfecter of garbage disposers

In-Sink-Erator Manufacturing Co. • 1225 14th St. • Racine, Wis.

Maintenance Program Includes:

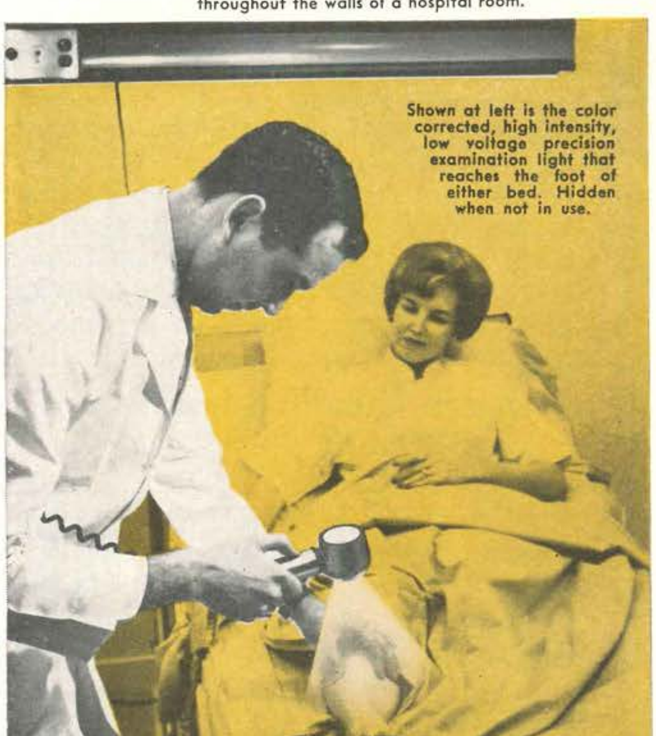
- Free Training of the Maintenance Man by In-Sink-Erator
- Necessary Free Parts for On-The-Spot Service
- Self-Service Wrench with Every APT. Model
- Maintenance Program on APT. Model Backed by 1 Year Warranty and Additional 2 Year Parts Protection

For more data, circle 142 on Inquiry Card

CONSOLIGHT ®

PAT. PEND

Combines within a single wall unit all patient room illumination needs as well as all controls and outlets usually found in various locations throughout the walls of a hospital room.



Shown at left is the color corrected, high intensity, low voltage precision examination light that reaches the foot of either bed. Hidden when not in use.

PALCO PACIFIC-ASSOCIATED LIGHTING INC.
837-847 Folsom St., San Francisco, Calif.

For more data, circle 143 on Inquiry Card

"ACCENT ON COMFORT"

OWNER: DAVID H. FAILE • LOCATION: WESTPORT, CONN. • ARCHITECT: GEORGE LEWIS, 200 E. 50TH ST., NEW YORK, N.Y. • CONTRACTOR: THOMAS J. RIORDAN CO. INC., NORWALK, CONN. • PHOTO: EZRA STOLLER

These comfort features found in Miller sliding glass doors —

- **POSITIVE WEATHER PROTECTION**
- **LOW HEATING AND AIR CONDITIONING COSTS**
- **LONG LIFE**
- **FREEDOM FROM NOISE**
- **EASY OPERATION**

Remember that your reputation is involved in what you design and build. The lowest possible price might well be the poorest possible economy. Give them the best. Give them a MILLER DOOR—

"Built to Last a House-Time."

14 YEARS IN SLIDING DOOR FABRICATION

Miller SLIDING GLASS DOOR CO.
3216 Valhalla Drive, Burbank, Calif. • P.O. Box 189 • VI 9-1357
Member of Architectural Aluminum Manufacturers Association
Member of Building Contractors Association

For more data, circle 144 on Inquiry Card

For more data, circle 145 on Inquiry Card →

NEW PRODUCT BULLETIN

CARNES CORPORATION

CARNES

VERONA, WISCONSIN

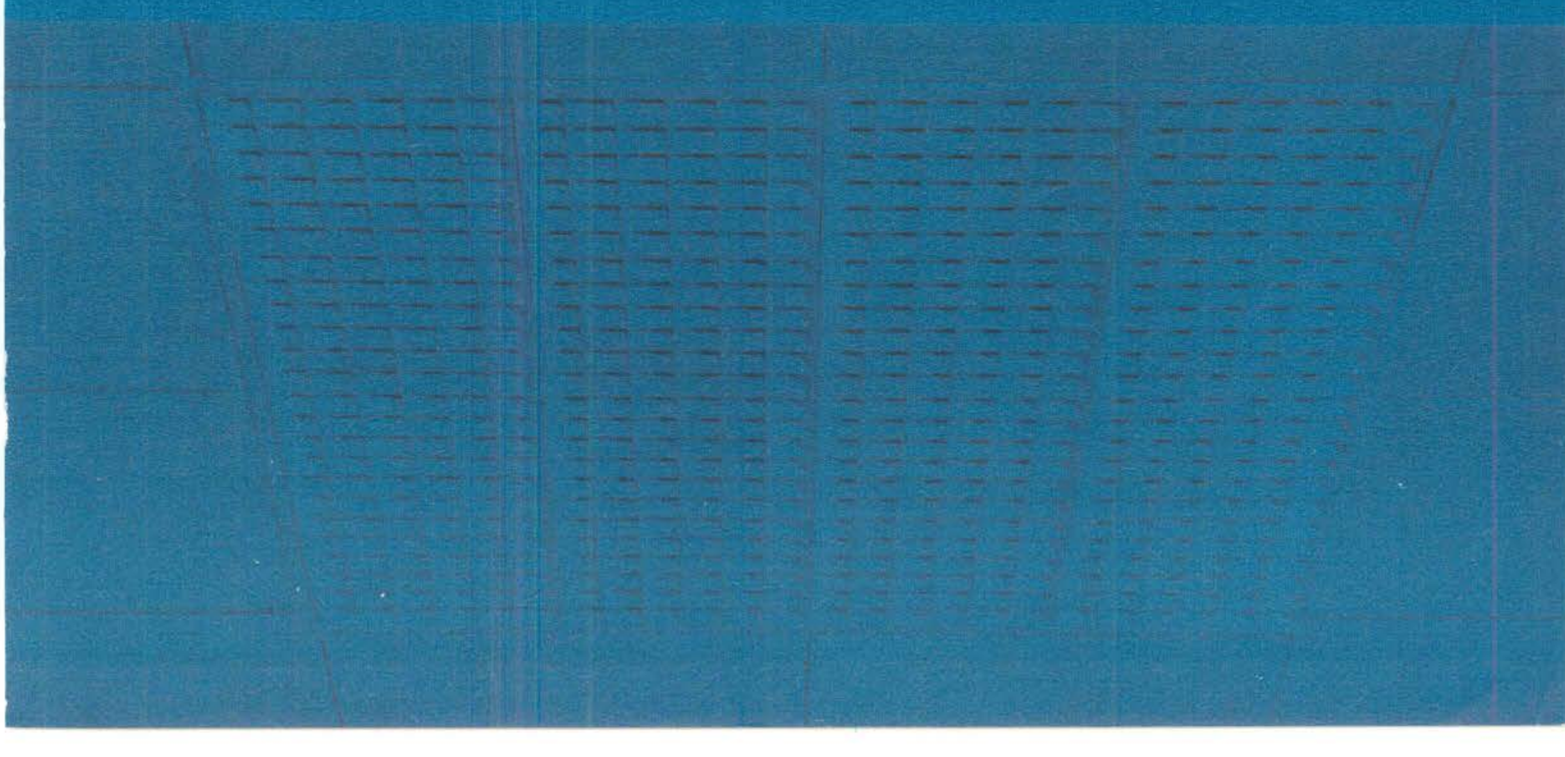
IN CANADA: VAPOR CARNES, LTD., 3955 COURTRAI AVE., MONTREAL 26, QUEBEC.

Take a close look at the New Carnes Modular Diffusers! They fit flush with the ceiling. Their texture and whiteness blend inconspicuously with any material. That's why you can barely see them, especially when you specify the new slim line or concealed frames.

Carnes Modules are only 6" x 6" in size. They fit practically anywhere – butted to light troffers, between lights, alternating lines with lights, continuous strips around ceilings and columns, along windows, on side walls as returns. Combine these modules into any width or length. How's that for design freedom? Modules come in three different air throws or patterns: one way throw, two way throw or corner throw. In combination, you can direct air in 1, 2, 3 or 4 directions to cover any air handling problem.

Modules are high impact Lexan.* Fire-resistant. Excellent color and dimensional stability. Modules snap in and out of their metal frames (no tools) for changes in air flow, for checking or remodeling. Carnes new slim line frames are only 3/8" to 3/4" wide. Concealed frames for metal-pan ceilings are also available. Start enjoying this new design freedom. Write for Catalog M21K.

HERE'S AN AIR DIFFUSER THAT REALLY GIVES YOU DESIGN FREEDOM



ARCHITECTS AND ENGINEERS IN THE NEWS

John Ormsbee Simonds, Pittsburgh, Pa. landscape architect and author, has been elected president of the American Society of Landscape Architects. He will assume duties at the close of A.S.L.A.'s 64th annual meeting in Pittsburgh on June 26. Other new officers are: **George A. Yarwood**, Simsbury, Conn., first vice president; **Eugene R. Martini**, Atlanta, second vice president; **Theodore Osmundson Jr.**, San Francisco, third vice president; and **Walter L. Chambers**, Ann Arbor, Mich., secretary-treasurer.

New president of the national Consulting Engineers Council is **Sanford K. Fosholt**, Muscatine, Iowa. He is to take office next month and serve until May, 1964. Elected with him to serve as national officers are: **William W. Moore**, San Francisco, first vice president; **Henry A. Naylor Jr.**, Baltimore, Md., second vice-president; **Samuel A. Bogen**, New York, secretary; **Harry Czyzewski**, Portland, Ore., treasurer.

Sacramento architect **Albert M. Dreyfuss** has been elected president of the California Council, American Institute of Architects. He succeeds **Wm. Stephen Allen**, F.A.I.A., of San Francisco. Other officers elected are: **Ulysses Floyd Rible**, F.A.I.A., Los Angeles, vice president; **Donald L. Hardison**, Richmond, secretary; **David Potter**, Palo Alto, treasurer; and **Donald E. Neptune**, Pasadena, delegate-at-large.

Roger H. Corbetta, board chairman of the Corbetta Construction Co., Inc., New York, has been elected 1963-64 president of the American Concrete Institute. **A. Allan Bates**, chief of the Building Research Division, National Bureau of Standards, Washington, D.C. is new vice president. Members elected to the A.C.I. Board of Direction are **Delmar L. Bloem**, **Samuel Hobbs**, **Clyde E. Kesler** and **George H. Nelson.**

Orville H. Bauer, partner in the Toledo architectural and engineering firm of Richards, Bauer & Moorhead, has been elected president of the Ohio Architects Society.

Edmund Friedman, consulting engineer with Maurice H. Connell & Associates, Inc., Miami, has been elected president of the 49,000-membership American Society of Civil Engineers for 1963. Vice presidents for two-year terms elected were: **Daniel B. Ventres**, Washington, D.C. and **Thomas M. Niles**, Chicago, Ill. Elected directors for three-year terms were the following: **Richard H. Tatlow III**, New York; **Samuel I. Zack**, Harrisburg, Pa.; **Ralph B. Peck**, Urbana, Ill.; **George E. Brandow**, Los Angeles; **Eugene F. Bespalow**, Memphis; **Frank H. Newnam**, Houston.

Accent on VALUE

DIMMING
DIMMING
DIMMING
DIMMING

Fluorescent DIMMING Comes of Age!

A compact, reliable system

Now, there is a fluorescent dimming system that is simple and compact . . . requires very little installation beyond normal mounting of lighting fixtures . . . and has demonstrated its reliability and highly satisfactory performance in installations from coast-to-coast.

It's General Electric's DS-5000 fluorescent dimming system, specifically designed and engineered for commercial and institutional applications: conference rooms, offices, auditoriums, restaurants, churches, schools . . . anywhere there is a need or desire to vary light intensity.

(We also make the DS-3000, a high-performance fluorescent dimming system for residential applications. If your interest lies in this area, be sure to check GEA-7351 on the return coupon.)

Controls up to 600 lamps

General Electric's DS-5000 system controls up to 600 F-40 rapid-start lamps over a wide dimming range—from full brightness down to 0.3% of maximum light intensity. Lamps operate at full 90-percent light output at maximum intensity setting.

Smooth performance

All lamps in the system start quickly at any intensity setting . . . dim and brighten smoothly in complete unison, without steps or flicker . . . and operate with stability even at lowest settings.

Responsibility for control components

All control components of the DS-5000 system are designed, manufactured and warranted by General Electric. They include (see photo): (A) a dimming ballast for each lamp; (B) a dimming auxiliary for every six dimming ballasts; (C) an intensity selector which controls up to 100 auxiliaries and 600 lamps.

(Incidentally, this is the first time a single manufacturer has assumed warranty responsibility for all control components in a commercial fluorescent dimming system.)

Easy installation

Simply install the fixtures, which include the dimming auxiliaries and ballasts. Mount the intensity selector in a standard, three-gang wall box, and connect to the dimming auxiliaries. It's that easy!

Multi-point control

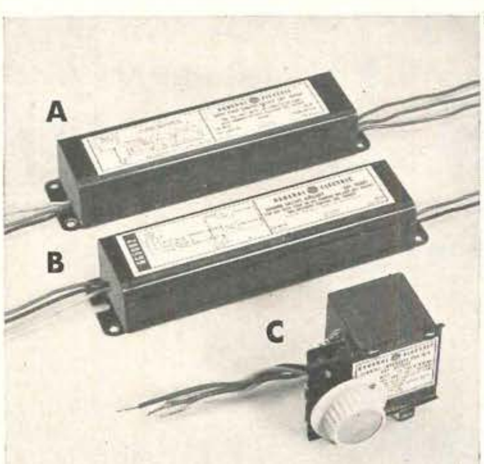
If desired, relays permit operation from more than one location. Additional relays allow lamp load to be split and sections to be controlled independently —especially desirable in rooms with folding partitions.

Availability

General Electric's DS-5000 fluorescent dimming system is included in the product lines of many leading fixture manufacturers. (Names upon request.)

For those who wish to convert existing lighting installations to dimming, components are available from General Electric Ballast Service Centers.

For further information and application assistance, contact your General Electric Components Sales Engineer. Or write today for our free dimming bulletins.



Section B403-06
Ballast Department
General Electric Company
1430 East Fairchild Street
Danville, Illinois

Please send me:

☐ GEA-7355, DS-5000 Fluorescent Dimming System for Commercial and Institutional Applications

☐ GEA-7351, DS-3000 Fluorescent Dimming System for Residential Applications

Name__________

Firm__________

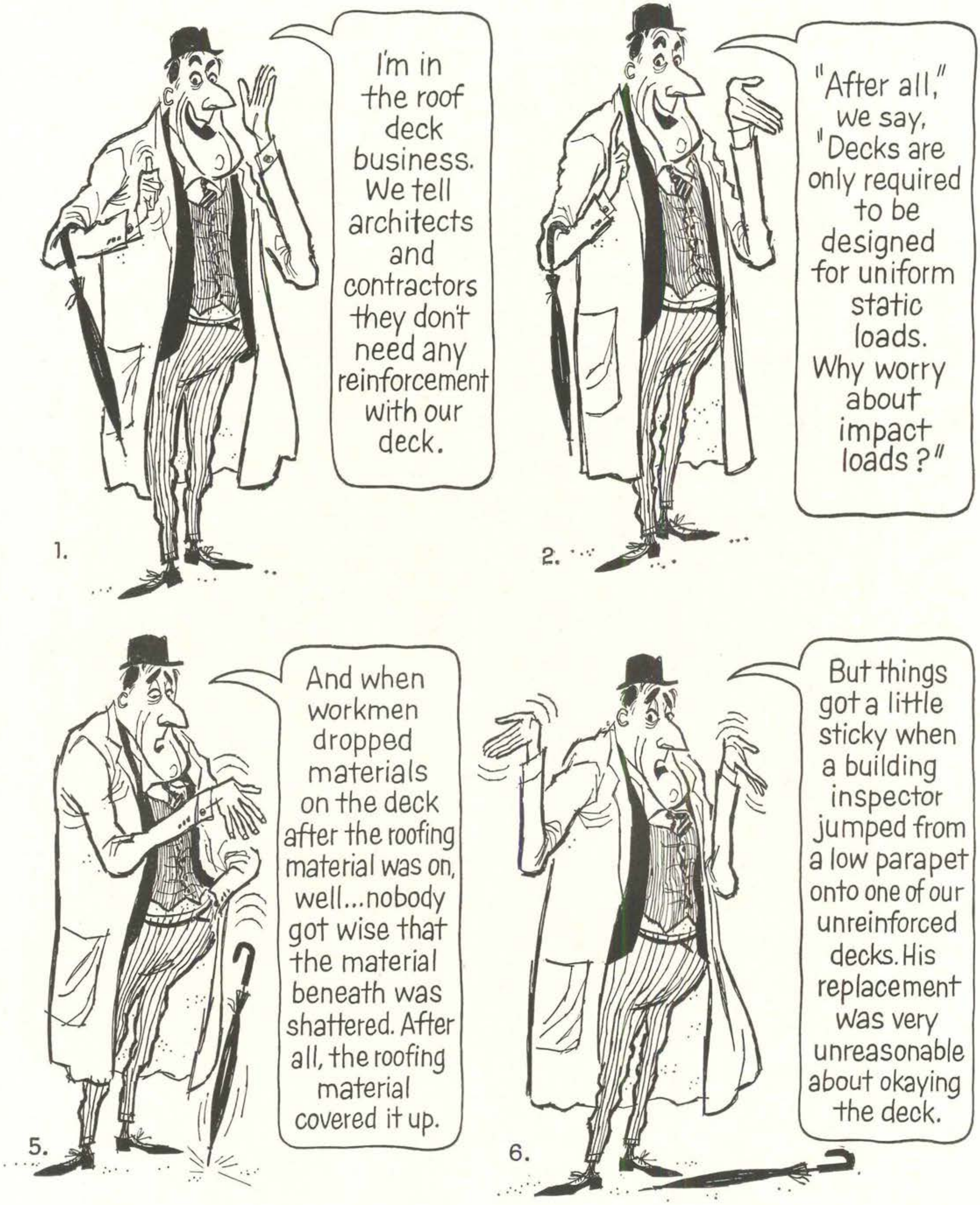
Address__________

City__________ Zone______ State______

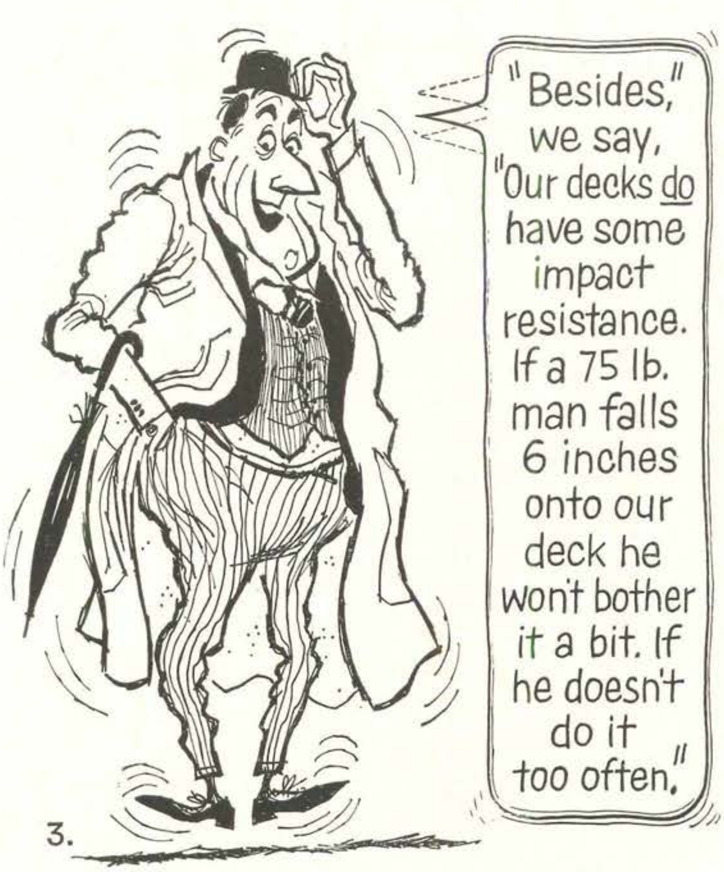
Progress Is Our Most Important Product

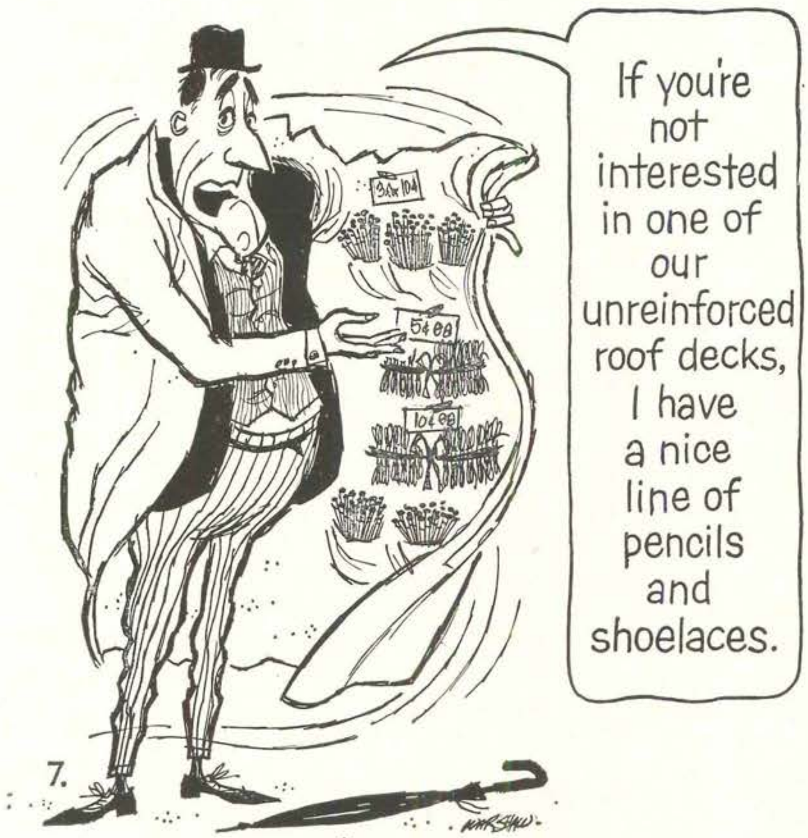
GENERAL ELECTRIC

For more data, circle 147 on Inquiry Card



KEYSTONE STEEL & WIRE COMPANY Peoria, Illinois





This advertisement published by the makers of **KEYDECK** *that remarkably good roof deck reinforcement*

• MAKERS OF KEYCORNER • KEYSTRIP • KEYWALL • KEYMESH® AND KEYMESH PAPERBACKED LATH • WELDED WIRE FABRIC • NAILS.

For more data, circle 164 on Inquiry Card

EDUCATION NEWS: SERT ON LEAVE; SYRACUSE SAVES ARCHITECTURE

Jose Lois Sert, dean of the Faculty of Design, Harvard University, is on leave of absence until September. He will lecture at the Royal Institute of British Architects in London, complete work on museum buildings in St. Paul de Vence, France, and visit architectural works and schools in Egypt, Iran, India and Japan. Serving as acting dean for the spring semester is **Professor Martin Meyerson. Professor Walter Bogner** is acting chairman of the Department of Architecture during this semester.

The College of Architecture and Urban Planning, University of Washington, Seattle, has established two departments—a move, according to Dean Robert Dietz, to improve teaching and research opportunities. Appointed chairman of the new Department of Urban Planning is **Professor Meyer Wolfe,** faculty member since 1949 and in charge of the graduate program in Urban Planning for seven years. **Professor Steinbrueck,** on the faculty since 1946, author of two books, and designer of the Faculty Club, in partnership with Paul Kirk and Associates, declined the permanent appointment, but was appointed acting chairman of the Department of Architecture.

Syracuse University's School of Architecture is currently involved in a one-year pilot program aimed at preserving important architectural monuments. **Harley J. McKee,** professor of architectural history, heads a three-man project staff for the search and selection of major architectural items in Syracuse and the surrounding Onondaga County.

University officials and members of the State of New York Council on the Arts feel that since Syracuse is undergoing considerable urban renewal, the project is of particular importance to the area. "We must get ahead of the builders and bulldozers," says William Hull, arts council assistant director. "This is a pilot project for the whole state. If it is successful, we want to do similar surveys on a county-by-county basis across New York."

Joseph R. Passoneau, St. Louis architect and dean of the School of Architecture, Washington University since 1957, will join the faculty of Harvard University in the academic year 1963-64 as professor of architecture, as chairman of the Department of Architecture.

Professor Passonneau, in association with the firm of Fitch and Nicholas, designed Washington University's new engineering building, and he designed the structural system for the new Art and Archaeology Building.

ARCHITECTURAL

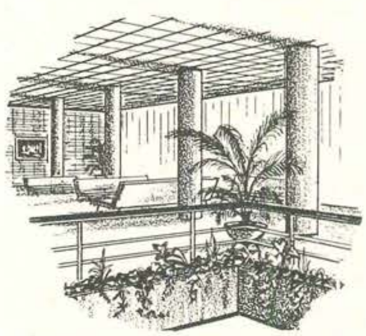
IDEAS

by **SONOCO**

Timeless "Beauty in the Round"

formed with

SONOCO
Sonotube®
FIBRE FORMS



Used in, or adjacent to glass walls, round columns offer minimum obstruction to light and occupy minimum space for a brighter interior.

The graceful beauty of round concrete columns enhances overall building design for columns contribute to the design while performing an important support function.

For economical forming, specify SONOTUBE Fibre Forms. This low-cost, lightweight form is easy to place, brace, pour, strip, and finish . . . thus saving contractors time, labor, and money.

Available in standard 17' lengths or as required, in sizes 6" to 48" I. D. Can be sawed.

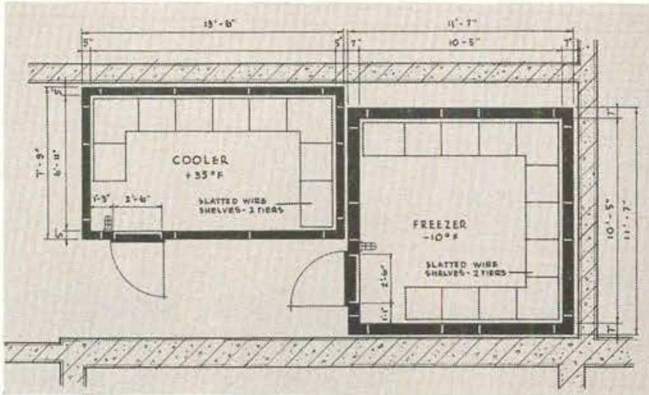
In any structure where round concrete columns are planned, SONOTUBE Fibre Forms will usually cut costs. In your next design, specify SONOTUBE Fibre Forms — fastest, most economical method of forming all types of round concrete columns.

See our catalog in Sweet's
For full information and prices, write

SONOCO
Construction Products 7395

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

For more data, circle 151 on Inquiry Card



Plan view of two Walk-Ins, one a normal temperature and the other a low temperature, installed at **Dobyns-Bennett High School,** Kingsport, Tennessee.

Specifications prepared by **Mr. Larry J. Poole, Architect,** 214 Commerce Street, Kingsport, Tennessee.

Bally pre-fab walk-ins

all-metal coolers and freezers

World's most advanced design. New materials and construction techniques offer architects an opportunity to provide tremendous refrigeration advantages to their clients.

Urethane 4" thick (foamed-in-place) has insulating value equal to 8½" fibreglass. Standard models can be used as freezers with temperatures as low as minus 40° F. Urethane has 97% closed cells . . . cannot absorb moisture . . . ideal for outdoor use.

Speed-Lok Fastener designed and patented by Bally for exclusive use on Bally Walk-Ins. Makes assembly accurate and fast . . . easy to add sections any time to increase size . . . equally easy to disassemble for relocation.

New foamed door, so light in weight it ends forever the "hard pull" . . . the "big push". Door is equipped with new type hand lock (with inside safety release) and convenient foot treadle for easy opening. Also has special hinges that close door automatically. Magnetic gasket guarantees tight seal.

Self-contained refrigeration systems combine balanced capacity condensing units and refrigeration coils. Mounted and hermetically sealed with necessary controls on small wall panel. Simplifies installation. Four-hour factory test assures quiet, efficient, trouble-free operation.

Write for Free Architect's Fact File which includes 12-page brochure . . . Specification Guide . . . and sample of urethane wall construction.

See Sweet's File, Section 25a/Ba

Bally

Bally Case and Cooler, Inc.
Bally, Pennsylvania

For more data, circle 152 on Inquiry Card

89 NEW IDEAS

FOR DECORATING AND SHADING WITH COLORFUL

CANVAS

Free 24-page booklet shows how to use colorful canvas in sparkling design ideas for homes and commercial buildings. A first-class reference for architects, builders and decorators. Order your copy today.

CANVAS AWNING INSTITUTE, INC.
NATIONAL COTTON COUNCIL
P. O. Box 9907-AA, Memphis 12, Tennessee

Please send free copy of canvas awning idea booklet.

Name__________

Firm Name__________

Address__________

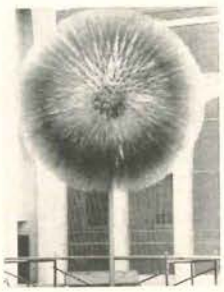
City__________ Zone_____ State_____

For more data, circle 153 on Inquiry Card

ART AND ARCHITECTURE: A DANDELION AND A TREE

The largest dandelion in the world, 10 feet in diameter and 20 feet high, rises from the middle of a lighted lagoon on the front plaza of the new headquarters building of Perpetual Savings and Loan Association, Beverly Hills, Calif. Sculptor Harry Bertoia fashioned it from stainless steel and 24-karat gold. In all, it has 84,000 parts.

Edward Durell Stone, architect for the eight-story Perpetual Savings Building, asked the Italian-born artist to create a sculpture for the fountain. The dandelion was selected from 10 different suggested designs.



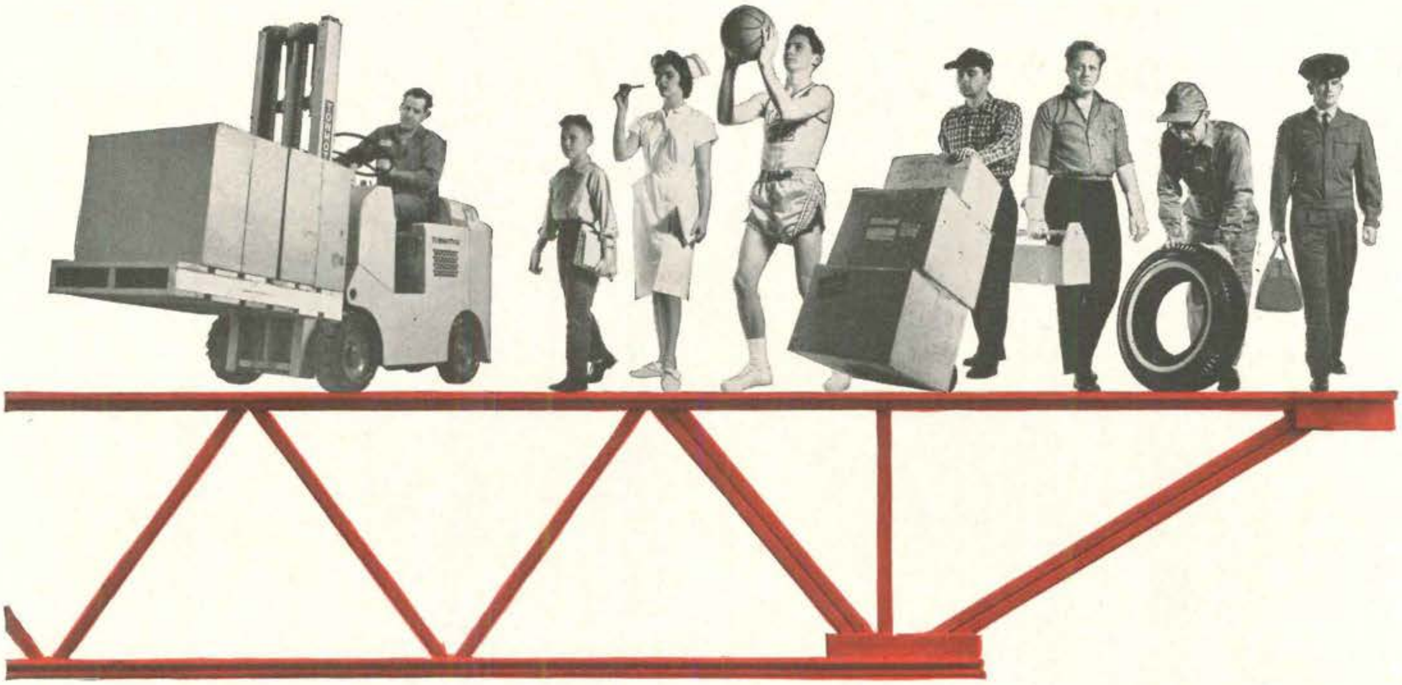
A noted designer of furniture, particularly sculptured metal chairs, Mr. Bertoia counts among his other important works, the massive 4-ton bronze panel at Washington, D.C.'s Dulles Airport and a sculpture in the M.I.T. Chapel done for Eero Saarinen.

An unusual new fountain, shaped like an exotic tree, adorns the Garden of the Provinces in Ottawa, Canada.

Designed by architect Norman Slater for the Canadian capital's National Capital Commission, the 25-foot-high stainless steel fountain has a central trunk from which 100 curved branches project, each bearing a curved rectangular leaf. Jets of water spray from most of these branches and splash downward from leaf to leaf.

Structural engineer was Felix Kraus; Canadair Ltd., fabricator.

ALLSPANS®...GIVE YOU STRONGER SUPPORT UP TO 152 FEET



Warehouses, schools, hospitals, shopping centers, factories, supermarkets . . . these and many other types of buildings can be designed for *more open floor* space with Macomber ALLSPANS. □ ALLSPANS are available up to 152 feet in length in roof construction, giving you greater design flexibility and a more functional interior. ALLSPANS are nailable (patented V-Section) for fast decking. □ The result, in addition to a less cluttered design, is a considerable reduction in building costs. □ For details on our standardized pre-engineered products for the construction industry, write to us. We will mail you our design manuals on ALLSPANS and other Macomber products.

MACOMBER INCORPORATED

CANTON 1, OHIO

SUBSIDIARY OF SHARON STEEL CORPORATION

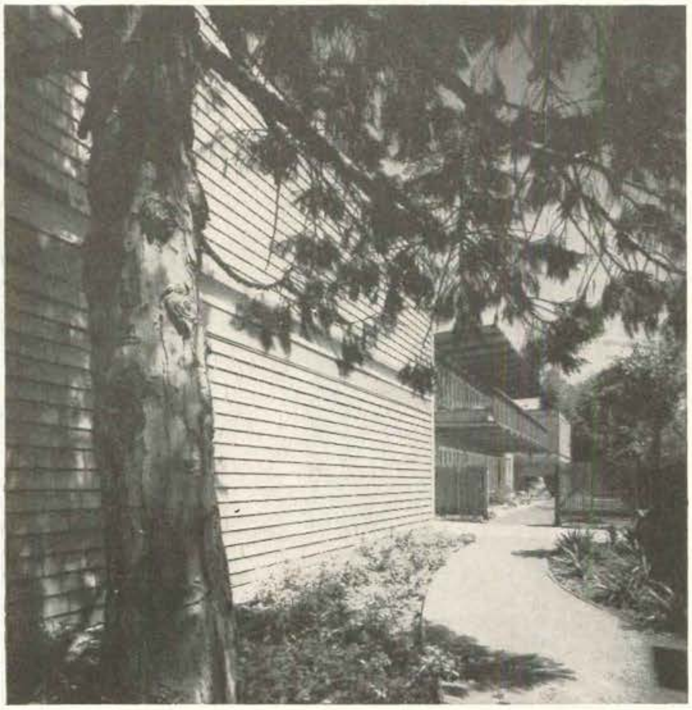
Steel

For more data, circle 155 on Inquiry Card

Low-riser, wide-tread stairways make going from one level to another easier at the Peninsula Volunteers' Retirement Apartments. Together with the overhanging roof, they also demonstrate some of wood's self-supporting capabilities.

For retirement apartments people long to live in

use WOOD . . . and your imagination



Partially tree-shaded shingled siding, balcony, roof overhang, and fence show wood's natural ability to belong in the 30-unit Peninsula Volunteers' Retirement Apartments. Architect: Skidmore, Owings & Merrill.

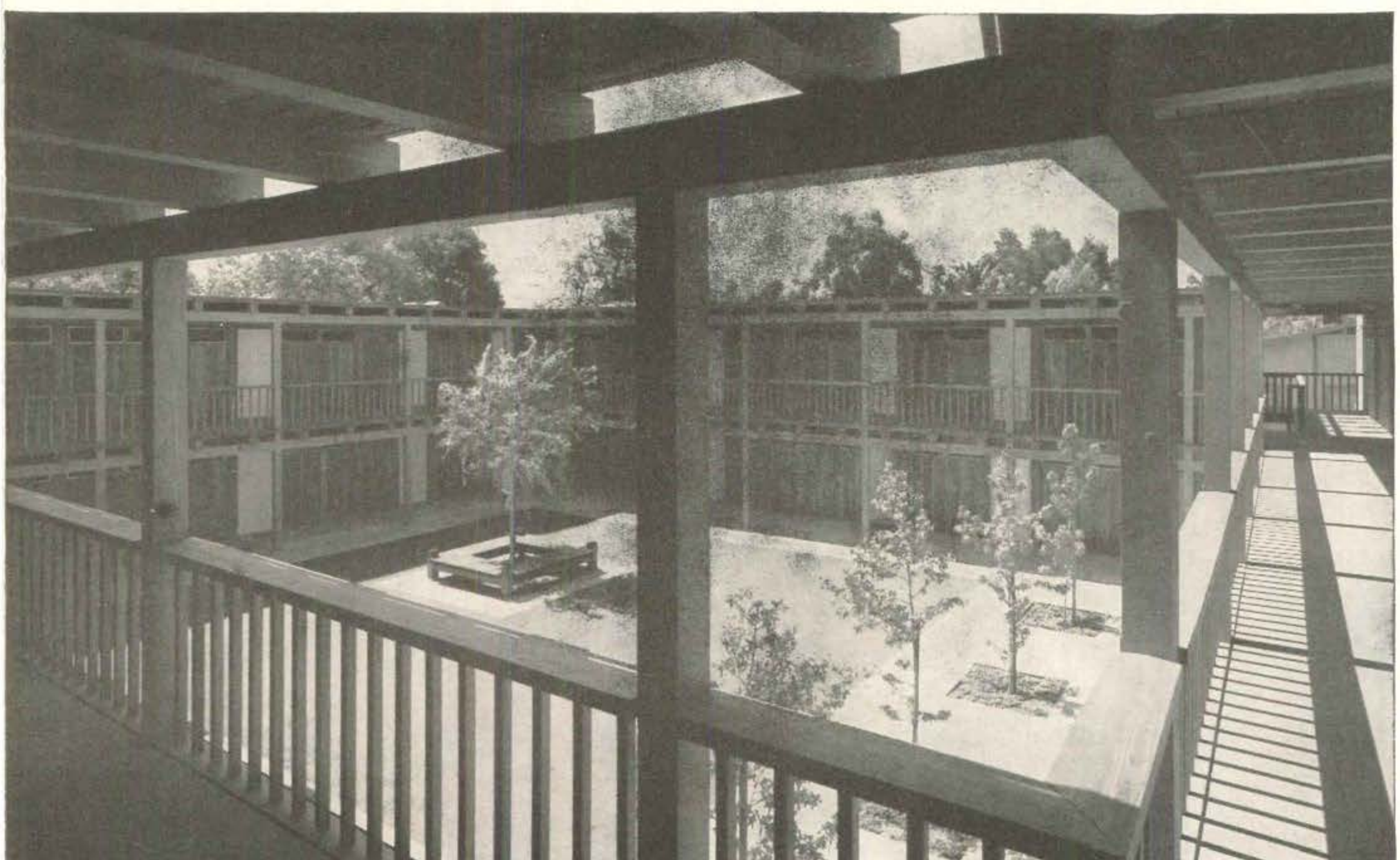
Wood makes retiring comfortable in a multiple dwelling . . . just by being all around in siding, stairways, and on balconies overhead. Its freedom of design permits economies in both individual interiors and large, friendly exteriors. Wood's inherent durability provides years of use with little wear . . . its compatibility with other materials promises decades of beauty.

Wood insulates, too, through hot and cold seasons. Its sound qualities help maintain privacy from one apartment or room to the next. Its multitude of grains, tones, and textures offer a welcome warmth, generate an environment enviably livable. For more information on designing with wood, write:

NATIONAL LUMBER MANUFACTURERS ASSOCIATION
Wood Information Center, 1619 Massachusetts Ave., N. W., Washington 6, D. C.

nlma

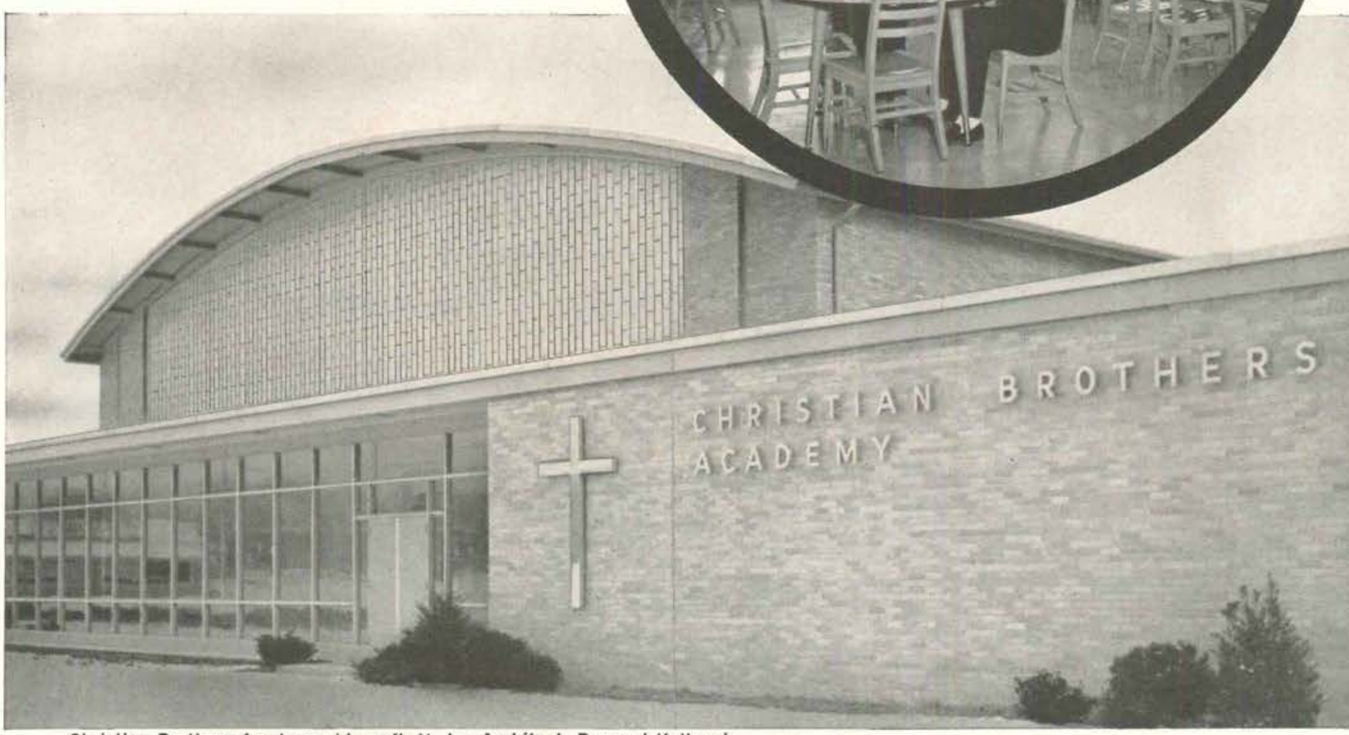
find the better way with **wood**



A continuous balcony and patio below use exposed wood framing to surround an open-air quadrangle, and add to the outdoor serenity of the Peninsula Volunteers' Retirement Apartments in Menlo Park, California.

For more data, circle 156 on Inquiry Card

A STUDY IN DIFFUSED LIGHT...



Christian Brothers Academy, Lincroft, N. J. • **Architect:** Bernard Kellenyi

SANPAN PANELS AT CHRISTIAN BROTHERS ACADEMY!

A Library with glare-free diffused light . . . a Chapel with a reverent stained-glass effect both night and day . . . a Gym with no eye-straining "sun-spots", despite Eastern and Western exposures. These are the pleasing results of SANPAN Translucent Panels effectively **controlling light transmission** at Christian Brothers Academy. Made of finest quality fiberglass skins, SANPAN Panels . . . with all **Concealed Fasteners** . . . are strong, lightweight and boast high insulating qualities. **Welded Grids** . . . an Exclusive SANPAN Feature . . . result in greatest panel strength. **Fully assembled** and pre-finished before delivery, SANPAN Panels cost less for installation . . . for performance . . . for durability . . . for years to come. Available in a wide range of colors and patterns . . . in panel sizes up to 4′ x 20′ with thicknesses of 1½″ and 3″. Before specifying your next "light wall". . . investigate SANPAN Translucent Wall Panels.

For information on Colorscreen Translucent Partitions, Screens and Facades . . . and further specifications on SANPAN Wall Panels complete with dramatic Technical Test Report, write:

PANEL STRUCTURES INC.
45 Greenwood Ave., East Orange, New Jersey

For more data, circle 157 on Inquiry Card

COMPETITIONS INVITE ENTRANTS

The Committee of Stainless Steel Producers in cooperation with the National Institute for Architectural Education is sponsoring a competition for the design of a public transportation shelter. Eligible to enter the national competition are intermediate and advanced design students and draftsmen under 30 years of age.

A jury of architects assembled by Caleb Hornbostel, A.I.A., chairman of N.I.A.E.'s committee on architecture and scholarships, will award prizes of $800, $300 and $200 for the three best solutions to the design problem before May 15. A $500 prize will be sent to the school of the first prize winner for the purpose of furthering architectural education.

The program is available from N.I.A.E. for a registration fee of $2.50. For further information, write N.I.A.E. Headquarters, 115 East 40th St., New York 16, N.Y.

The 25th in the annual series of Student Competitions in Interior Design and Decoration sponsored by the American Institute of Interior Designers is open to students in colleges and schools in the U.S. and Canada offering degrees in this subject, except for first-year students. Scholarship fund awards are $250, $200, $150, and five honorary mentions of $50.

Subject of this year's program is a "Cruising Houseboat," the problem being interior design for two adults and three children. Area is to include a salon, galley, dining area, sleeping space, storage space and sanitary facilities.

Jury of Award is composed of Inez Croom, F.A.I.D., chairman; Mrs. Frances Taylor Heard, home furnishings editor, House Beautiful; yachtswoman Mrs. James M. Mertz; H. Clifford Burroughes, F.A.I.D., marine designer; Richard Manning, editor, publisher, Popular Boating; Critchell Rimington, editor, publisher, Yachting; and sportsman George M. Moffett Jr.

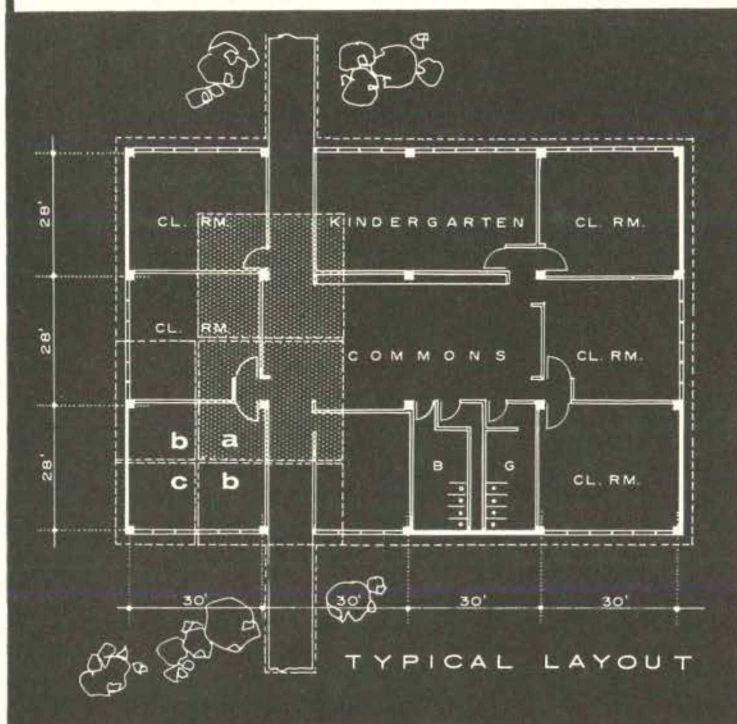
For entry forms, write A.I.D. Headquarters, 673 Fifth Ave., New York 22, N.Y. Entries must reach headquarters not later than April 26 for judging on May 14, 1963.

NO. 9 | inverted umbrellas

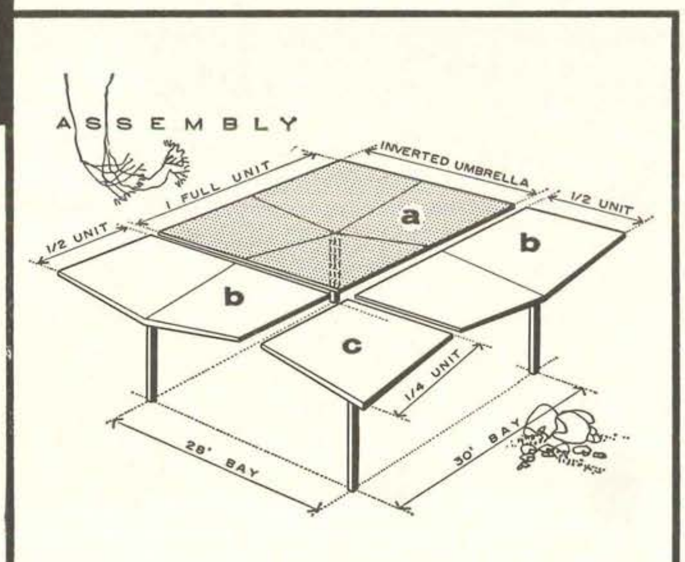
a.i.a. file: 4-a

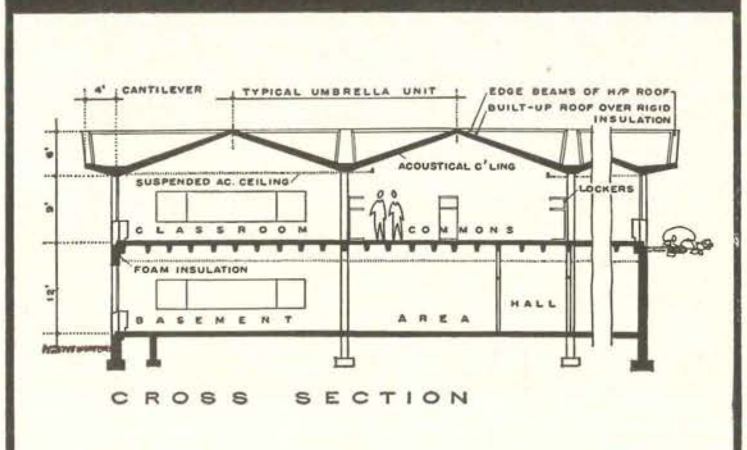
Prepared as a service to architects by Portland Cement Association

Clip along dotted line



Arbor Heights Junior High and Elementary School, Omaha, Nebraska. Architects and Engineers: Leo A. Daly Company, Omaha, Nebraska.





Concrete shell roofs in the form of inverted umbrellas provide for great versatility of interior space arrangement. The hyperbolic paraboloid shells are supported by single columns. Walls are not load bearing. Thus, they can be located as desired—and relocated with minimum expense.

The structure illustrated here shows how this concept meets the changing needs of a school in a growing suburban area. It is readily adaptable to increased pupil population or new educational philosophies.

The economy of the repeating H/P's was well demonstrated in the bids and actual construction.

In this design, the conventional straight line fascia arrangement was avoided by exposing half a unit on the outside. This decorative, gabled treatment complements the suburban neighborhood of well-kept homes.

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

Pella®

WOOD FOLDING PARTITIONS

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

Provide flexibility of space with fold-back walls of wood

Panel dimensions of $10\frac{3}{8}$" x $1\frac{1}{16}$" provide the massive appearance compatible with schools, churches, restaurants, clubs and offices. You can specify PELLA WOOD FOLDING PARTITIONS from these 6 genuine wood veneers: OAK, PINE, BIRCH, WHITE ASH, PHILIPPINE MAHOGANY or AMERICAN WALNUT. Ask us to do the finishing at the factory or have it done on the job. Patented "live-action" steel spring hinging assures years of smooth, easy operation. Stable wood core panel construction prevents warping. Available for all widths and in heights up to 20'1". Full specifications in SWEET's or call your PELLA distributor listed in the Yellow Pages.

ROLSCREEN COMPANY • PELLA, IOWA

For more data, circle 160 on Inquiry Card

NEWTON GRIFFITH RESIDENCE, MINNEAPOLIS • ARCHITECTS: PETERSON, CLARK AND GRIFFITH, INC.

Pella®

WOOD SLIDING GLASS DOORS

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

Wood's warmth at work

The WOOD FRAMES of these PELLA Sliding Glass Doors serve two ways. Their pleasing proportions are in keeping with other design elements. And, because WOOD is an efficient insulator around glass, condensation is eliminated. With PELLA-designed stainless steel and wool pile weather stripping, PELLA Sliding Glass Doors are exceptionally weathertight. Paint or finish these frames to match any decorating scheme. *Screens close automatically*. Removable muntin bars in regular or diamond shapes are available to add a traditional touch. Specify O, OX, XO, OXO, or OXXO in 33", 45" and 57" widths. Also custom sizes. Then, top them off with PELLA transom units to match. Full information and specifications in SWEET'S or call your PELLA distributor listed in the Yellow Pages.

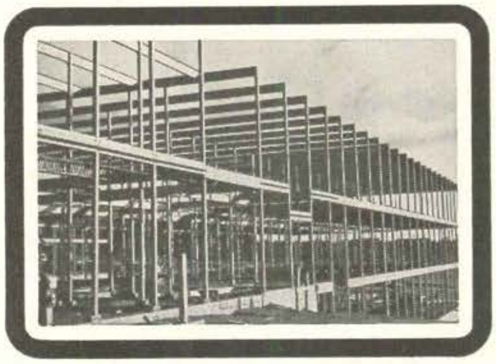
ROLSCREEN COMPANY • PELLA, IOWA

For more data, circle 163 on Inquiry Card

Progress Report: USS National Hollow Structural Tubing

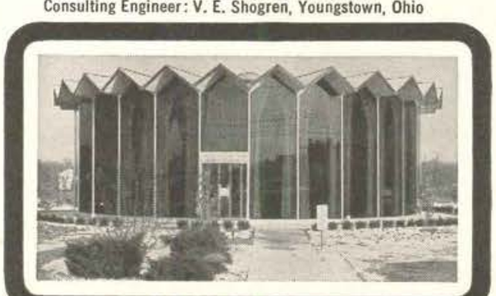
This mark tells you a product is made of modern, dependable Steel.

Favor Road High School, Cobb County, Georgia
Architect: Bothwell & Nash, Marietta, Georgia
Fabricator: Steel, Inc., Scottdale, Georgia



Rand Development Center, Mt. Prospect, Illinois
Architect: Leichenko & Associates, Inc., Chicago, Illinois
Fabricator: Lally Column Company, Chicago, Illinois

Union National Bank, Youngstown, Ohio
Architect: P. Arthur D'Orazio, A.I.A., Youngstown, Ohio
Fabricator: Allied Metals Company, Niles, Ohio
Consulting Engineer: V. E. Shogren, Youngstown, Ohio



Here are just a few of the buildings where architects and engineers have specified USS National Hollow Structural Tubing. It was specified for its attractive appearance, compactness and workability. It has reduced the weight of the structural frames because of its excellent strength-to-weight ratio, and contributed to better appearance because it can be left exposed and painted.

USS National Hollow Structural Tubing can be used as columns or beams. It can be used to form a complete structure, and it can be used in combination with other structural shapes. It meets the physical and chemical requirements of ASTM specifications: Grade 1 meets specifications for A7, Grade 2 meets specifications for A36. Hollow Structural Tubing is highly efficient in compression, or where there is bending stress in more than one direction. It can be joined by all the usual fabricating methods. Tensile strength: up to 80,000 psi; minimum yield strength: 33,000 or 36,000 psi.

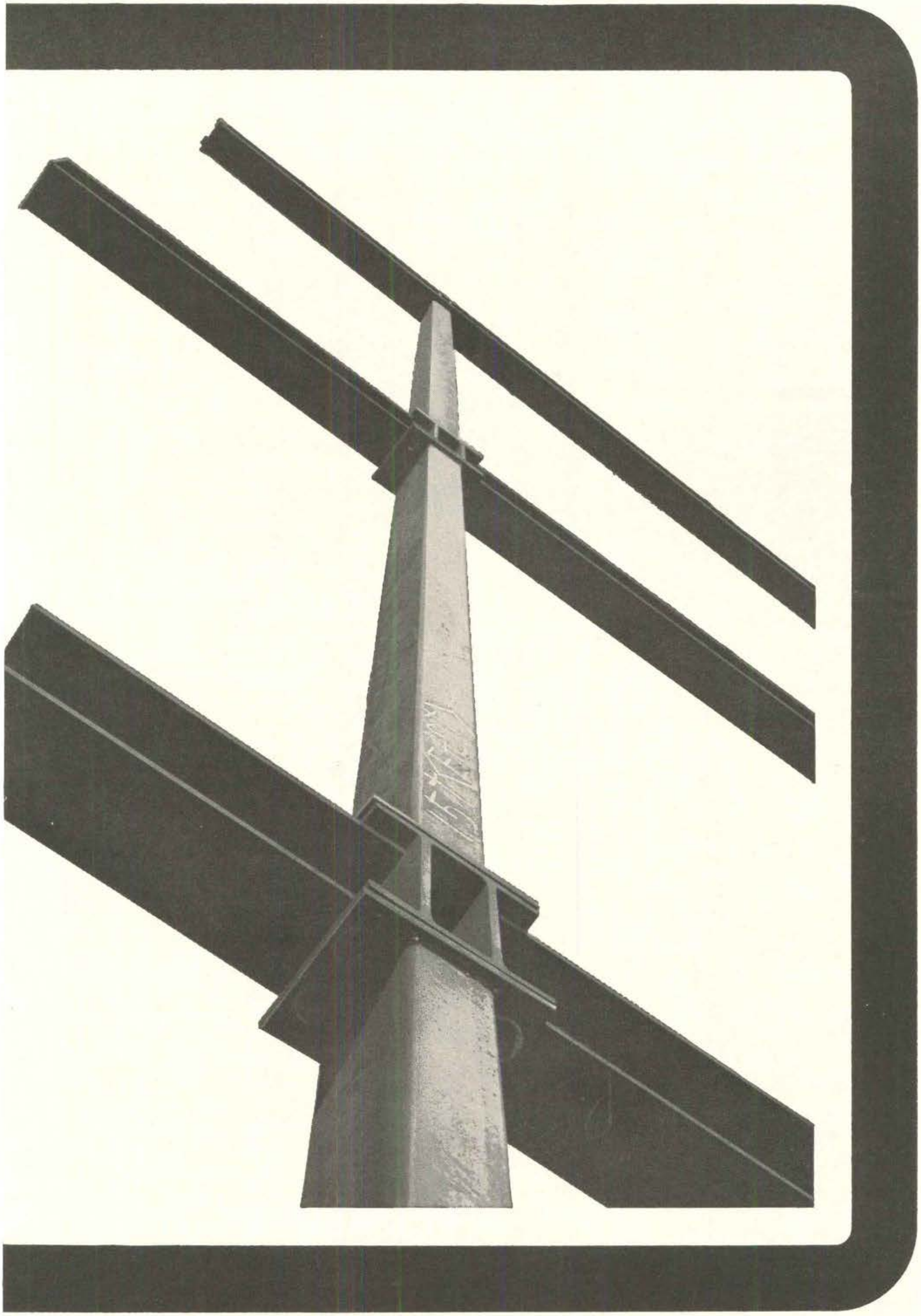
USS National Hollow Structural Tubing is available in squares up to 40″ perimeters; rectangular tubing is available up to 32″ in perimeter. Wall thickness to ½ inch. All tubing is available in random lengths, 36′ to 42′, and in cut lengths. For more information, see your National Tube Distributor, or write National Tube Division, 525 William Penn Place, Pittsburgh 30, Pennsylvania. USS and National are registered trademarks.

National Tube Division of United States Steel

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

Palm Springs Spa Hotel, Palm Springs, California. Architect: William F. Cody, A.I.A., Palm Springs, California. Associate Architect: Philip Koenig, A.I.A. Fabricator: Riverside Steel Construction, South Gate, California

For more data, circle 148 on Inquiry Card



On the Calendar

April

23-25 Building Research Institute Spring Conferences—Shoreham Hotel, Washington, D.C.
23-25 44th annual meeting and exposition, American Welding Society—Sheraton Hotel and Trade and Convention Center, Philadelphia
25-26 15th Annual National Engineering Conference, American Institute of Steel Construction—Mayo Hotel, Tulsa, Okla.

May

6-9 95th annual convention, American Institute of Architects; theme, "The Quest for Quality in Architecture"—Americana Hotel, Miami Beach
8-10 National convention, Consulting Engineers Council—Cherry Hill Inn, Cherry Hill, N.J.
26 32nd annual conference, American Institute of Decorators—Barclay Hotel, Philadelphia
29ff 14th Congress of the International Real Estate Federation; through June 2—Chicago

June

3-14 Institute of Church Design (lectures, seminar courses, workshops), sponsored by Carnegie Institute of Technology, Department of Architecture, and the Pittsburgh Theological Seminary—Pittsburgh
9-19 Eighth annual A.I.A.-Association of Collegiate Schools of Architecture Teachers Seminar—Cranbrook Academy of Art, Bloomfield Hills, Mich.
13-15 1963 convention, New Jersey Chapter, American Institute of Architects; theme, "Office Practice for the Architect"—Essex and Sussex Hotel, Spring Lake, N.J.

Office Notes

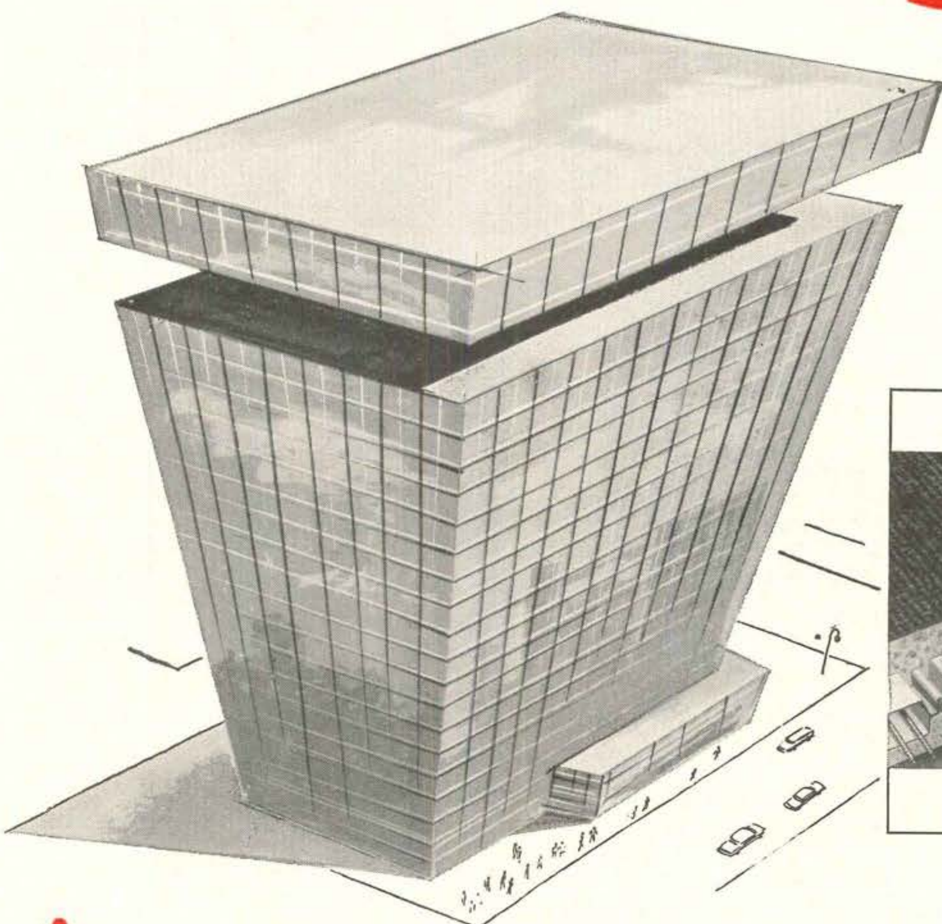
Offices Opened

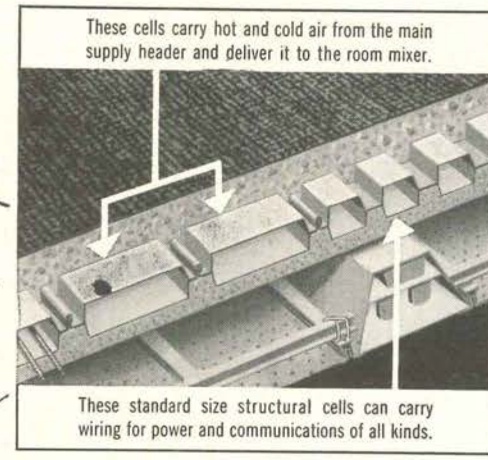
Gertrude Lempp Kerbis, A.I.A., Architect Planner, has opened an office at 155 East Ontario St., Chicago 11, Ill.

Ted Granzow, formerly with Skidmore, Owings & Merrill, Architects, New York, announces the opening of offices under the firm name of **T. Granzow Architect** at 1857 Northwest Blvd., Columbus, Ohio.

continued on page 330

savings*





*Savings . . . one thing you can depend on when designing with Q-Air Floor. These cellular steel units provide the structural floor, branch ducts for the air conditioning system, and raceways for the power and communication wiring. Because these services are all contained within the cellular sub-floor, ceilings can be hung directly below the steel framing. This can reduce the floor to floor height by as much as one foot with the resultant savings in all vertical components of the building. Savings up to 5%—the cost of one entire floor in a 20-story building—money in the bank we say. Write for further information.

ROBERTSON

Q-AIR FLOOR

H. H. ROBERTSON COMPANY

FARMERS BANK BUILDING • PITTSBURGH, PA.

SALES OFFICES in PRINCIPAL CITIES in the UNITED STATES

Plants In: Ambridge, Pa. • Connersville, Ind. • Stockton, Cal.

In England—
Robertson Thain Limited, Ellesmere Port, Cheshire

In Canada—
Robertson-Irwin Limited, Hamilton, Ontario

H. H. Robertson Company
2400 Farmers Bank Bldg., Pittsburgh 22, Pa.

I would like to have more information on Q-Air Floor. Please send me your Q-Air Floor Catalog.

Name ______________________

Title ______________________

Firm ______________________

Address ______________________

City __________ Zone ______ State ______

For more data, circle 167 on Inquiry Card

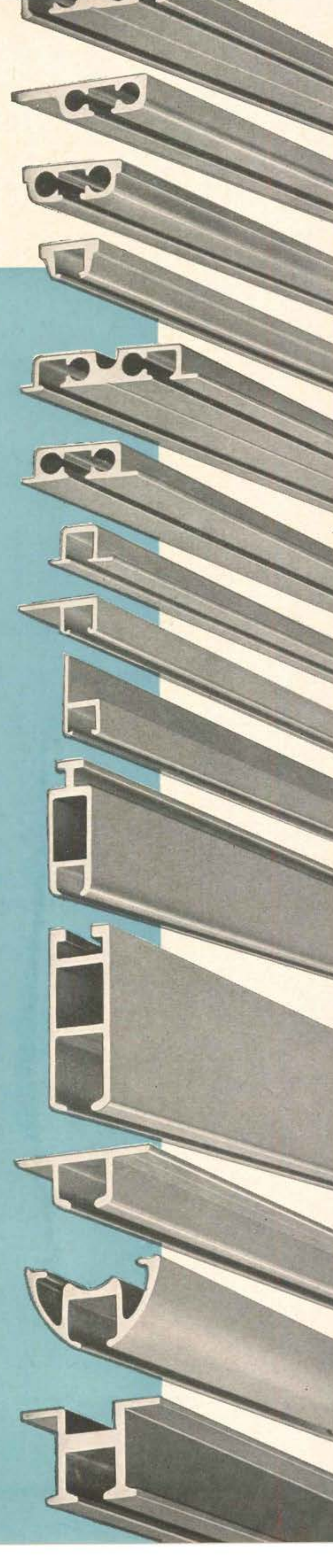

DEPENDABLE Cupples

4 IMPORTANT REASONS

WHY THE
PRESTIGE DRAPERY TRACK

SILENT GLISS
the silent drapery track®

is your
BEST INVESTMENT
for every quality installation



1

SILENT OPERATION

Only Silent Gliss promises smooth, silent operation *without annoying "echo chamber" roller noise.* Solid nylon carriers glide freely, yet super-quietly, in precisely fitted channel.

2

MAXIMUM WEAR, MINIMUM MAINTENANCE

Only Silent Gliss track is so compact, so rigid, amazingly torsion-free. And only Silent Gliss uses all-nylon cord, traveling in patented, *separated* channels; no untangling ever . . . almost never any need for cord replacement!

3

INCOMPARABLE STYLING

Only Silent Gliss is so slim and trim . . . so unmistakably thoroughbred in styling. Whatever the job, you'll find Silent Gliss the smallest, most inconspicuous, *best* track you can use.

4

COMPLETE RANGE OF TRACKS

14 track styles to choose from: cord or hand operated; recessed, surface or bracket mounted; cubicle, extra-duty, specialty tracks too. Some tracks easily curved for specific requirements. A complete range, to meet every installation need.

This complete, illustrated catalog contains full details of the entire Silent Gliss track line . . . also shows just a few of the many prestige installations where Silent Gliss is already in operation. Write for it today. Address Dept. AR-4.

Find out for yourself why Silent Gliss is the prestige track that makes sense . . . why you can buy less expensive tracks, but never make a better track investment. Write for complete details today . . .

Designed in Switzerland; manufactured in U.S.A. exclusively by

SILENT GLISS, INC., FREEPORT, ILLINOIS

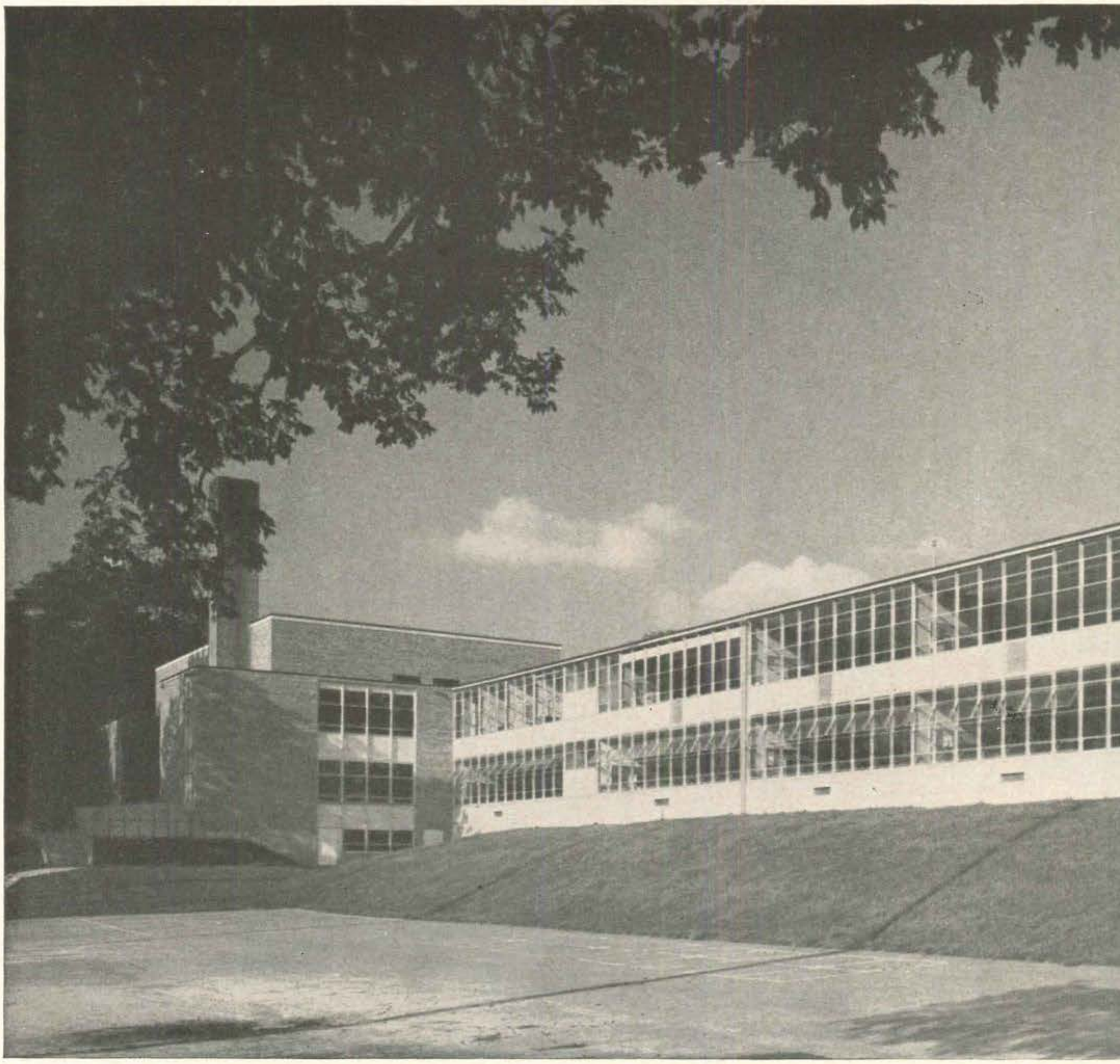
Distributing Companies:

Angevine Co., Crystal Lake, Illinois

Drapery Hardware Mfg. Co., Monrovia, California

THREE OF THE Newell® COMPANIES

Manufacturers of Quality Drapery Hardware Since 1903



Whittier School, Cincinnati, Ohio. Architect & Engineer: James E. Allan, Cincinnati, Ohio. Contractor:

DESIGNED WITH LUPTON CURTAIN WALLS,

THIS SCHOOL WAS COMPLETED FOR JUST 15^{65} PER SQUARE FT.!

The 64,589 sq. ft. Whittier School, Cincinnati, Ohio, is an interesting example of how intelligent planning and good design can keep the modern school well within a practical budget and still provide complete comfort—including abundant sunlight and fresh air.

LUPTON aluminum curtain walls helped keep the cost of the Whittier School at a reasonable level . . . helped, also, to combine eye appeal with functional economy. And they expose, rather than hide, attractive structural features of the building. Like hundreds of schools designed with curtain walls, springing up across the country, Whittier provides a pleasant atmosphere, ideal for students and faculty.

When you plan a new school, consult with qualified building materials manufacturers. They know the practical applications of their products. The LUPTON man,

Office Notes

continued from page 322

Arthur R. Cogswell Jr. has opened an office for the practice of architecture at 105 North Columbia St., Chapel Hill, N.C.

Osborn Engineering Company, a Cleveland consulting engineer firm, has opened a new office in downtown Pittsburgh, Pa.

Mort R. Patton, Architect, has opened an office at 202 North Lawrence St., Montgomery, Ala.

John H. Alschuler, A.I.A., formerly a member of the staff of Friedman, Alschuler & Sincere, has opened his own architectural office specializing in service for business and industry. The address is 160 East Grand Ave., Chicago.

New Firms, Firm Changes ——

Clifford R. Hayes and **Thomas C. Large** have been admitted as partners in the firm of Hunter, Campbell & Rea, Architects, Altoona and Johnstown, Pa.

A new professional firm, **Pacific Architects Collaborative,** has been organized with offices at 25 South Euclid Ave., Pasadena, Calif. The new group, which comprises eight principals and their associated firms, is to provide a pool of architectural and design services in the commercial, industrial, institutional, civic and housing fields. President is Keith P. Marston; vice president, Edward D. Davies. Board includes David Chow, George S. Conner, Robert L. Deines, R. Van Buren Livingston, Theodore L. Pletsch and William Henry Taylor.

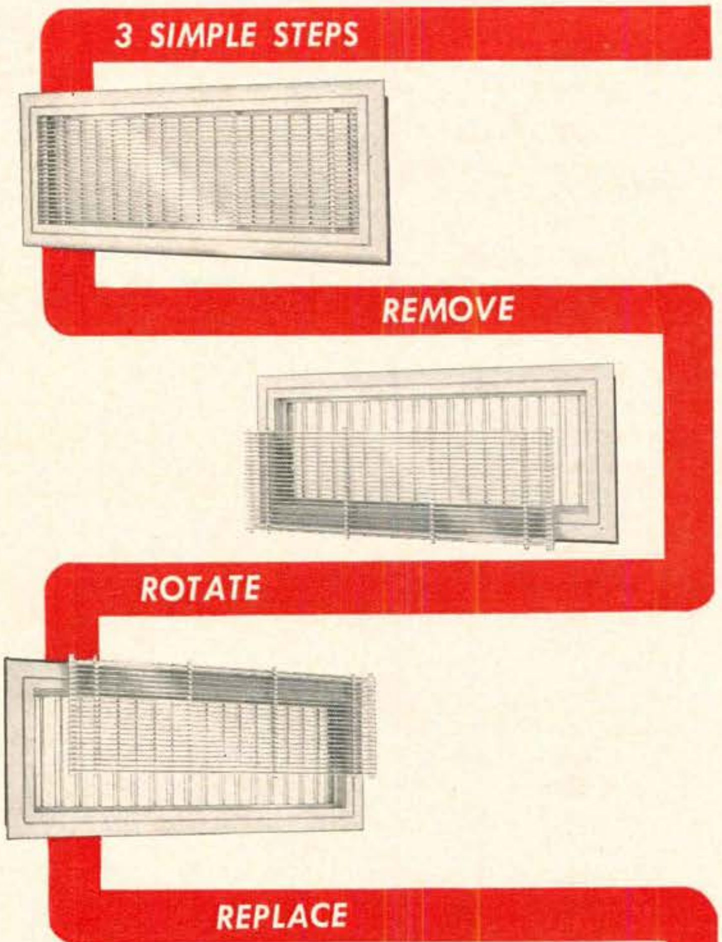
Otto A. Koch has been appointed chief electrical engineer with Valley Engineering Company, consulting engineers, Glenside Ave., Glenside, Pa.

Robert T. Handren, A.I.A., has formed a partnership with J. Stanley Sharp, A.I.A., as **Sharp and Handren, Architects,** New York.

William J. Zalewski has been appointed project architect of H. A. Kuljian & Company, Philadelphia architects and engineers.

Robert E. Earnheart, A.I.A., formerly in private practice in Kansas City, Kans., has joined the firm of Powers and Associates, Planners-Engineers-Architects, Iowa City, Iowa, as a partner in charge of the architectural department.

continued on page 338

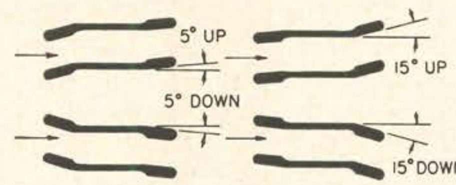


* Rotacore, a unique, eye appealing Supply Grille with close spacing of the horizontal bars which give a uniform straight line appearance and cuts "see through" to a minimum.

* Rotacore is sturdy with a removable core that is pencil proof, ideal for schools and other installations where small objects must be turned aside.

Rotacore of stylish lightweight extruded aluminum has core with snap-out, snap-in attachment feature for quick choice of . . .

4 POSITIVE DEFLECTIONS

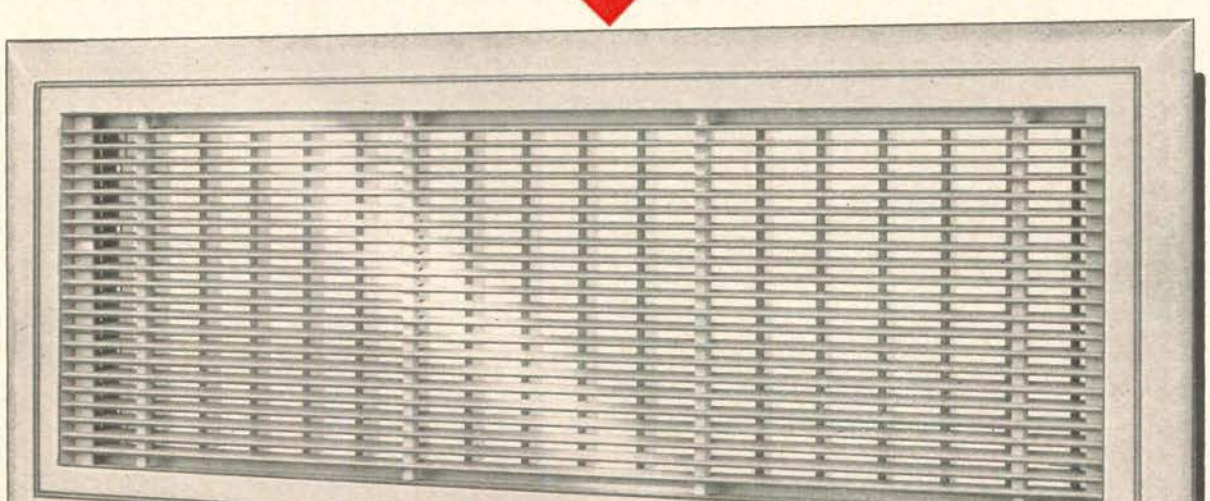


With second set of vertical individually adjustable louvers for spread deflection.

Ask your Representative for complete details on Rotacore, and our complete line of Grilles, Registers, and Diffusers or write Waterloo Register Company, Inc., P.O. Box 147, Waterloo, Iowa

rotacore*

EXTRUDED ALUMINUM SUPPLY GRILLES

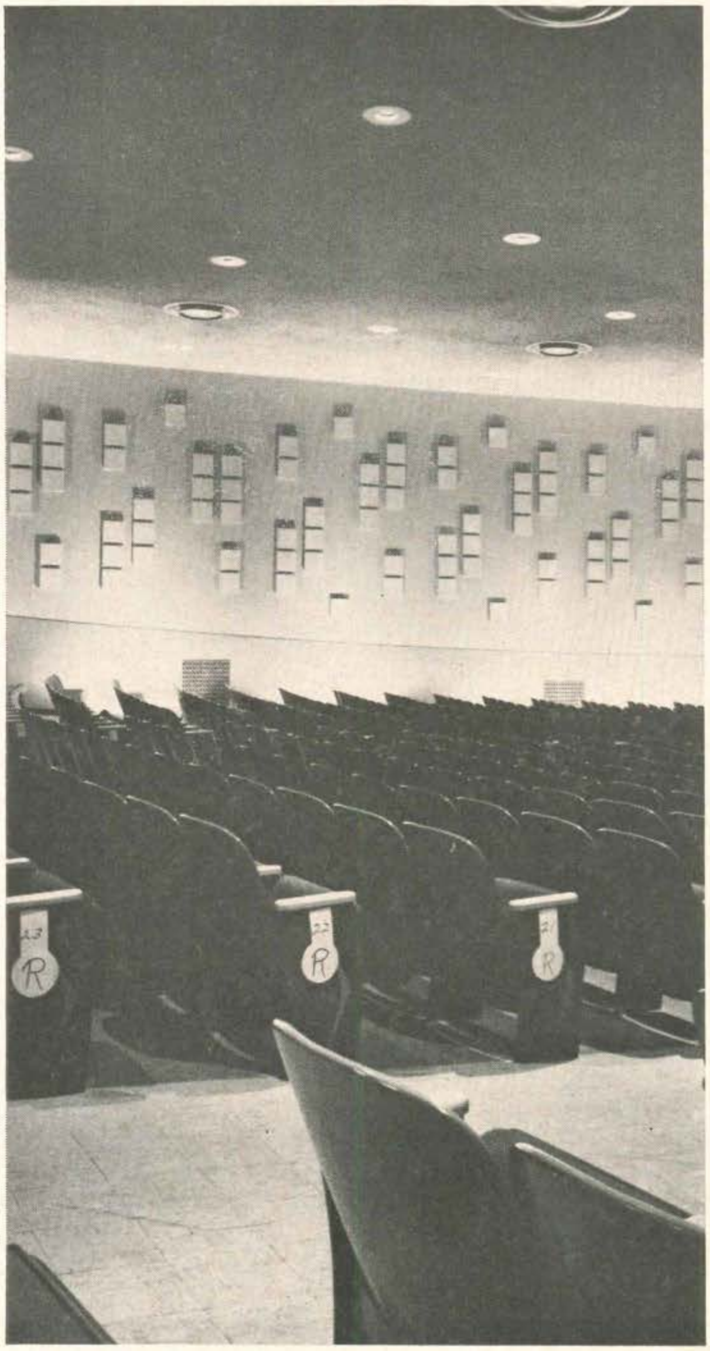


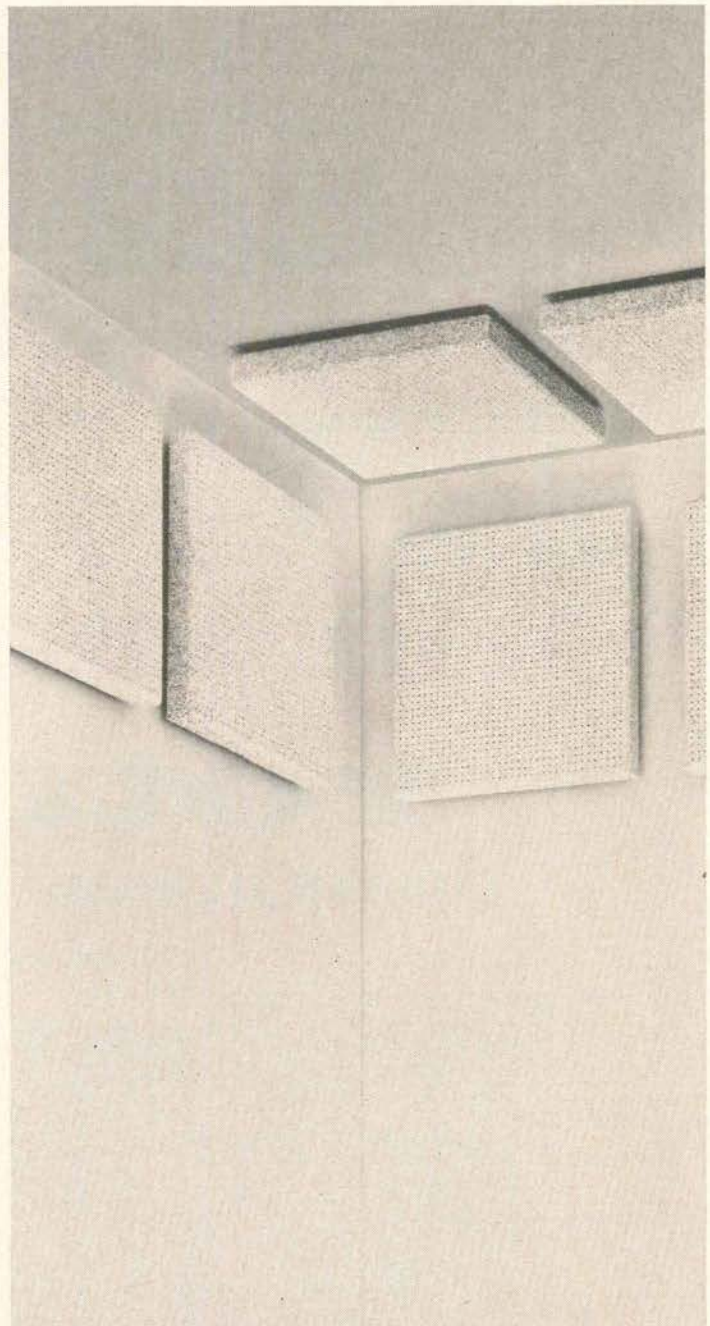
SERIES 225

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

For more data, circle 175 on Inquiry Card

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





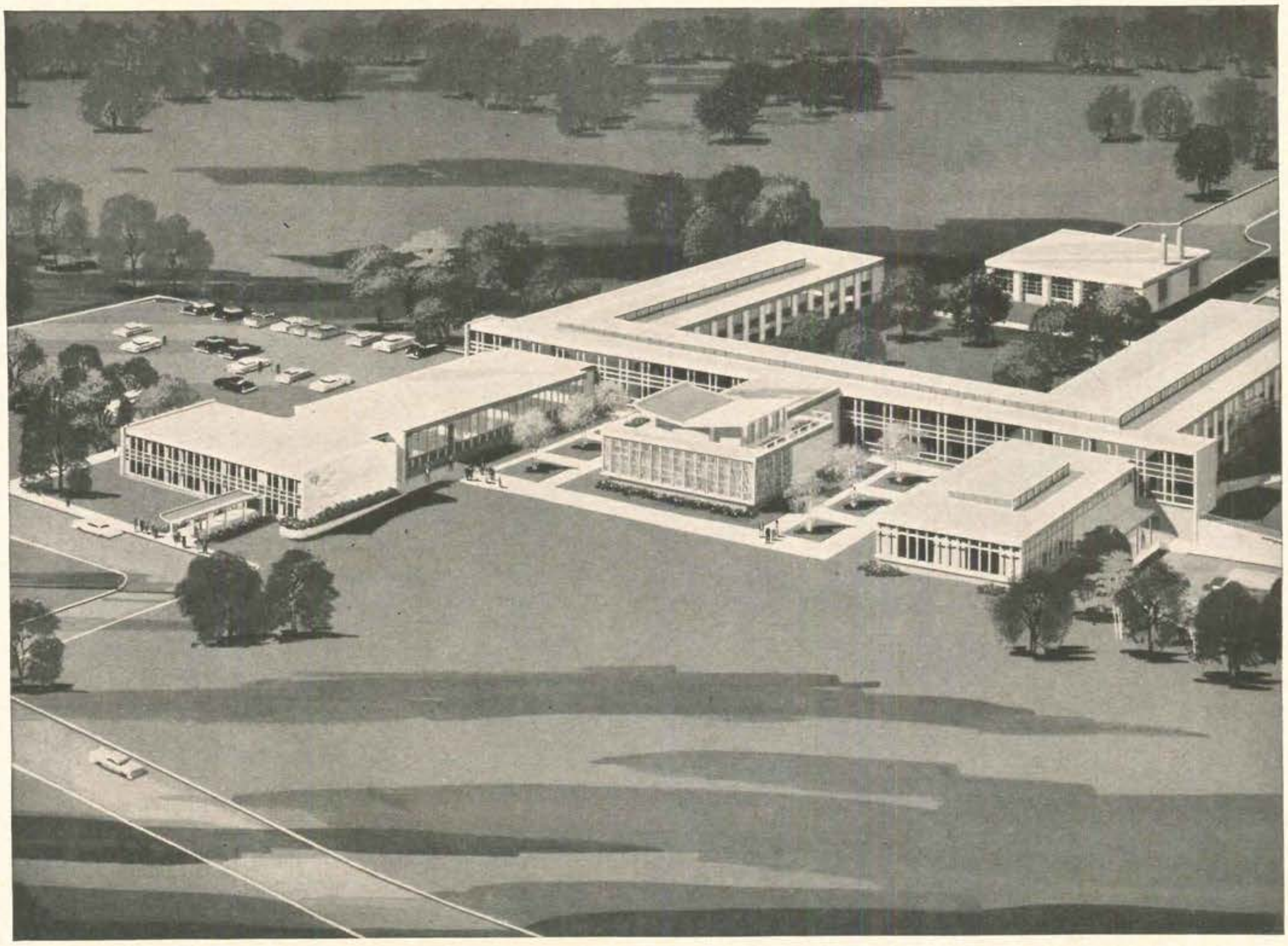
Take the problem of the room where hearing is important —and you want to hear well

Slope the ceilings, zig-zag the walls, cant the floor, slot the masonry, slat the woodwork, patch with pegboard. All this takes time and money. When these are limited, usually they are, you can still do the right acoustical job without structural extravagance.

Pittsburgh Corning has a unique solution: GEOCOUSTIC®

GEOCOUSTIC units can be applied directly to the finished room surfaces without additional preparation—harmoniously, selectively and in exactly the right places acoustically. And GEOCOUSTIC treatments require little time, little money.

How the Dodge Reporter helped erect this handsome new research center



Colgate Palmolive Company's new multi-million dollar research center presented architects Eggers and Higgins with a formidable array of "musts." The building had to be expandable. All 170 laboratory modules had to have daylighting and forced ventilation. The building had to accommodate offices, cafeteria, conference rooms and a 17,000-volume library. Solution: a finger plan. Two lab wings and three wings for administrative, conference and library space project from a central axis corridor that curves gently to fit site contours and to avoid a tunnel-look inside. Mechanical ventilation equipment is in the clearstory. Every lab module has a big plate glass window. The exterior is practically maintenance-free: ceramic, glass, and enamelled aluminum.

"The Dodge Reporter helped us by alerting local contractors and suppliers to our needs," says Partner, David Eggers. "On one of his regular visits we informed him of the project, and during subsequent visits we filled him in on details. This way, suppliers and trades who called on us were already educated to our requirements."

Colgate Palmolive Research Center, New Brunswick, N. J.
Architects: Eggers and Higgins
Contractor: G. C. Turner Construction Co.

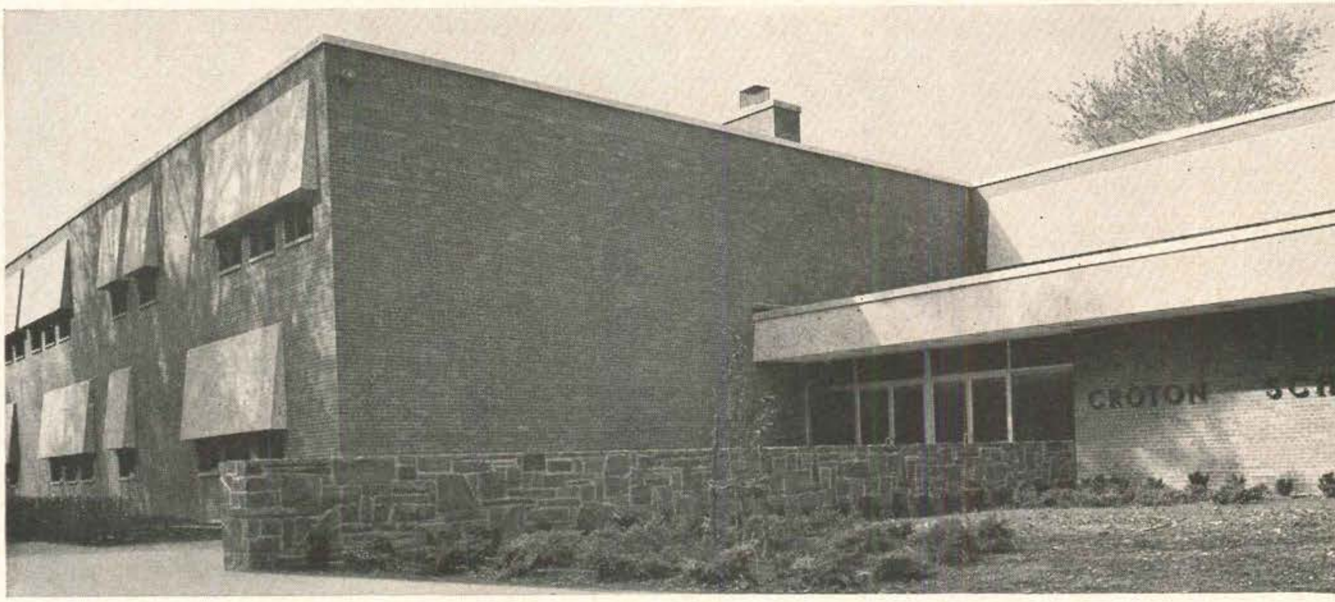
Abundant daylighting for all facilities and opportunity for easy expansion are simultaneously achieved by the finger plan. Laboratories are housed in the two projecting wings in the back of the central axis corridor. In front, the left wing comprises reception and administration rooms. The center wing, with its dramatic roof made (like an airplane wing) of metal ribs covered with aluminum, houses the library, files, reading room and a conference room. At right is the 240-seat cafeteria. All partitions in the laboratory can be easily moved, and each lab module has its own exhaust flue to insure continuous ventilation.

F. W. DODGE CORPORATION

DODGE REPORTS

CONSTRUCTION NEWS SERVICE
119 W. 40th St., New York 18, N. Y.

These two central systems can provide

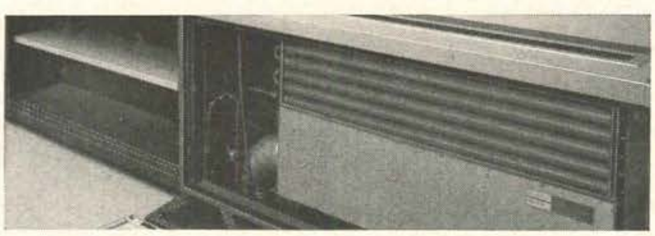


Carrier Classroom Weathermaster System

. . . for use where outside walls and windows must be swept with warm air in winter

Croton Elementary School, Syracuse, New York. Architect: Gordon P. Schopfer. Consulting Engineer: Cedric R. Acheson. Mechanical Contractor: H. H. and F. E. Bean, Inc. General Contractor: D. H. Fellows Construction Corp.

This compact, two-story structure serving 600 pupils occupies half the space required by an equivalent finger-type design. Site acquisition costs were reduced by $200,000. Year-round climate control, which made the compact design possible, is provided by the Carrier Classroom Weathermaster® System. The building contains 22 classrooms, four special purpose rooms, and offices. Cost per square foot with full climate control: $14.92, about average for elementary schools with heating-ventilating only in the Syracuse area.



The single duct induction system using Carrier Classroom Weathermasters gives individual room control without complex zoning. One air treatment station centralizes outside air intake, filtration, cooling, condensate disposal, air movement. Carrier supplies refrigeration, too.

BOTH SYSTEMS OFFER THESE ADVANTAGES

1. Individual classroom temperature control with maintenance-free simplicity.

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

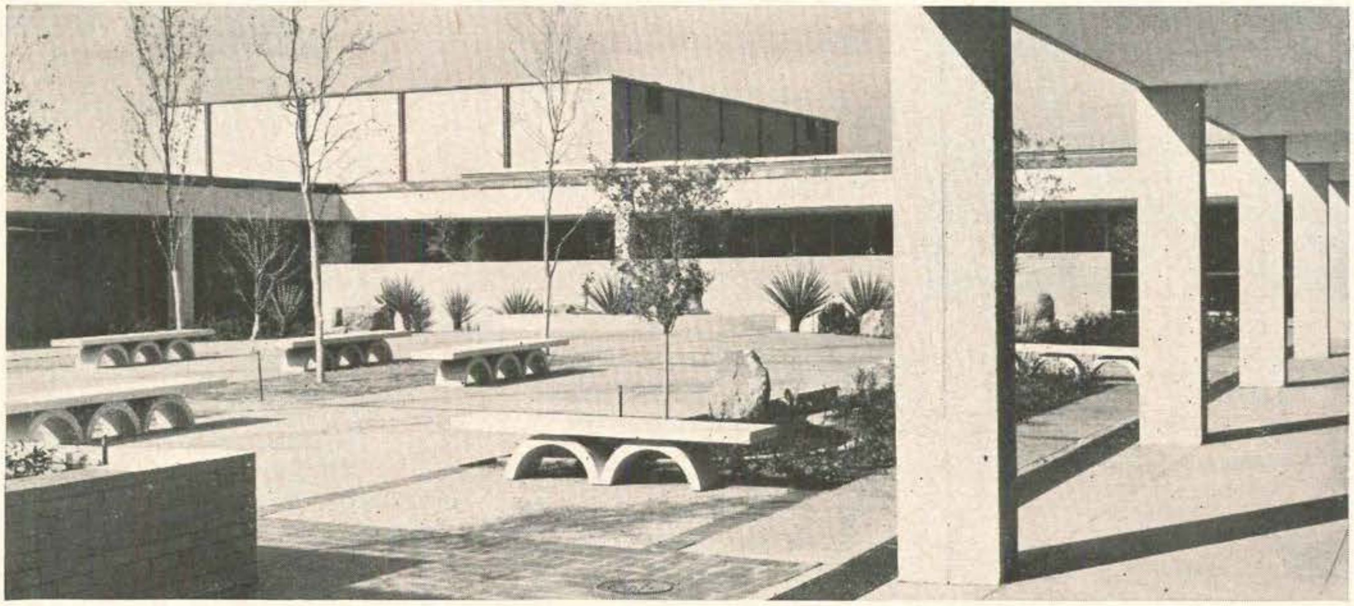
3. Assure uniform sound level of proper quality and intensity to mask noise.

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

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

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

economical climate control for any school

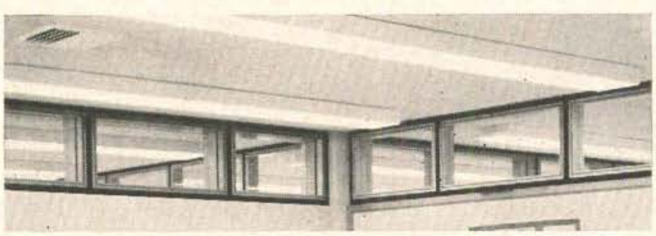


Carrier Multi-Zone Weathermaker System

...for use in interior spaces and compact schools where downdrafts don't form

Robert E. Lee High School, Midland, Texas. Architect: Preston M. Geren. Consulting Engineer: Yandell, Cowan & Love. Mechanical Contractor: Roche Newton Co. General Contractor: A. P. Kasch and Sons.

This 2200-pupil school in hot, dusty West Texas is fully air conditioned, yet cost only $12.10 per square foot. Closely related structures are grouped around a central court. Classroom and laboratory sections are compacted into separate squares, affording flexible partitioning of interior space for classrooms, laboratories, teachers' offices and storage centers. From several small mechanical rooms containing Carrier Multi-Zone Weathermakers®, ducts radiate to each classroom, giving individual room temperature control.



Centrally conditioned air is ducted to ceiling diffusers. High window strips give a feeling of spaciousness and eliminate distractions. Refrigeration is provided by two Carrier Automatic Absorption Machines powered by low-pressure steam which also supplies heating.

CARRIER OFFERS EVERY MAJOR COMPONENT

From the complete line of major Carrier components, the engineer can select the optimum combinations for initial and operating economy and best performance. Carrier also has service to back up the installation. Our company and our dealers maintain the largest and best-trained service organization in the business—over 11,000 men strong. For specific information about Carrier systems—and about our complete line of components—call your Carrier representative. Carrier Air Conditioning Company, Syracuse 1, New York. In Canada: Carrier Air Conditioning Ltd., Toronto 14.

Carrier ***Air Conditioning Company***

For more data, circle 185 on Inquiry Card

Office Notes

continued from page 330

Frederick F. Sadri, A.I.A., is now senior associate in charge of architectural design in the firm of J. N. Pease Associates, Charlotte, N.C.

Hugh Shepley and **Jean Paul Carlhian** have been admitted to partnership in the Boston firm of Shepley Bulfinch Richardson & Abbott.

Douglas William Orr, F.A.I.A., announces that Edwin William de Cossy and Frank Dodd Winder have become his partners, and the firm continues under the name of **Office of Douglas Orr, de Cossy, Winder and Associates, Architects.** Offices are at 111 Whitney Ave., New Haven, Conn.

William Golub has become an associate member of the firm, Lee Schoen, Architect-A.I.A., 19 E. 53rd St., New York 22.

Francis F. Widrig has been promoted to an associate in the structural consulting firm of Clifford Holforty Associates, Birmingham, Mich.

The partnership of Celli-Flynn, Architects-Engineers-Planners, McKeesport, Pa., has expanded to include as associates **Sylvester Damianos,** R.A., and **John T. Fownes,** R.A.

New Addresses

Thomas F. Hargis Jr., Architect, A.I.A., and **C. B. Goldsworthy,** Associate, 216 Miller Bldg., Yakima, Wash.

Hellmuth, Obata & Kassabaum, Inc., Architects, Blue Cross Building, 1430 Olive St., St. Louis 3, Mo.

Ralph Kelman, 11111 North Central Expressway, Dallas 31.

Guy B. Panero Inc., Consulting Engineers, 468 Park Avenue South, New York 16

Singleton & Reidenbaugh, A.I.A., 243 North Duke St., Lancaster, Pa.

Street and Street, Architects, 920—1808 West End Building, Nashville 3, Tenn.

Addendum

The credit for the residence of Robert A. Anderson Jr., February, pages 151-154, should have included Mr. Anderson's firm name, Wilson, Morris, Crain & Anderson.

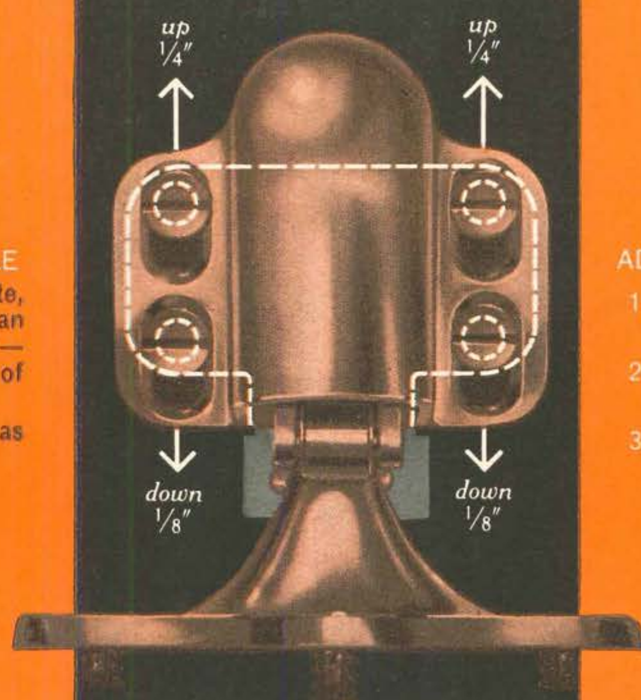
NEW

F40 A*

DOOR PORTION
ADJUSTABLE

AFTER

INSTALLATION



*A AS IN ADJUSTABLE

When installed to template, door portion of holder can be raised as much as $\frac{1}{4}''$— to adjust in the event of door sag.

Can be lowered as much as $\frac{1}{8}''$.

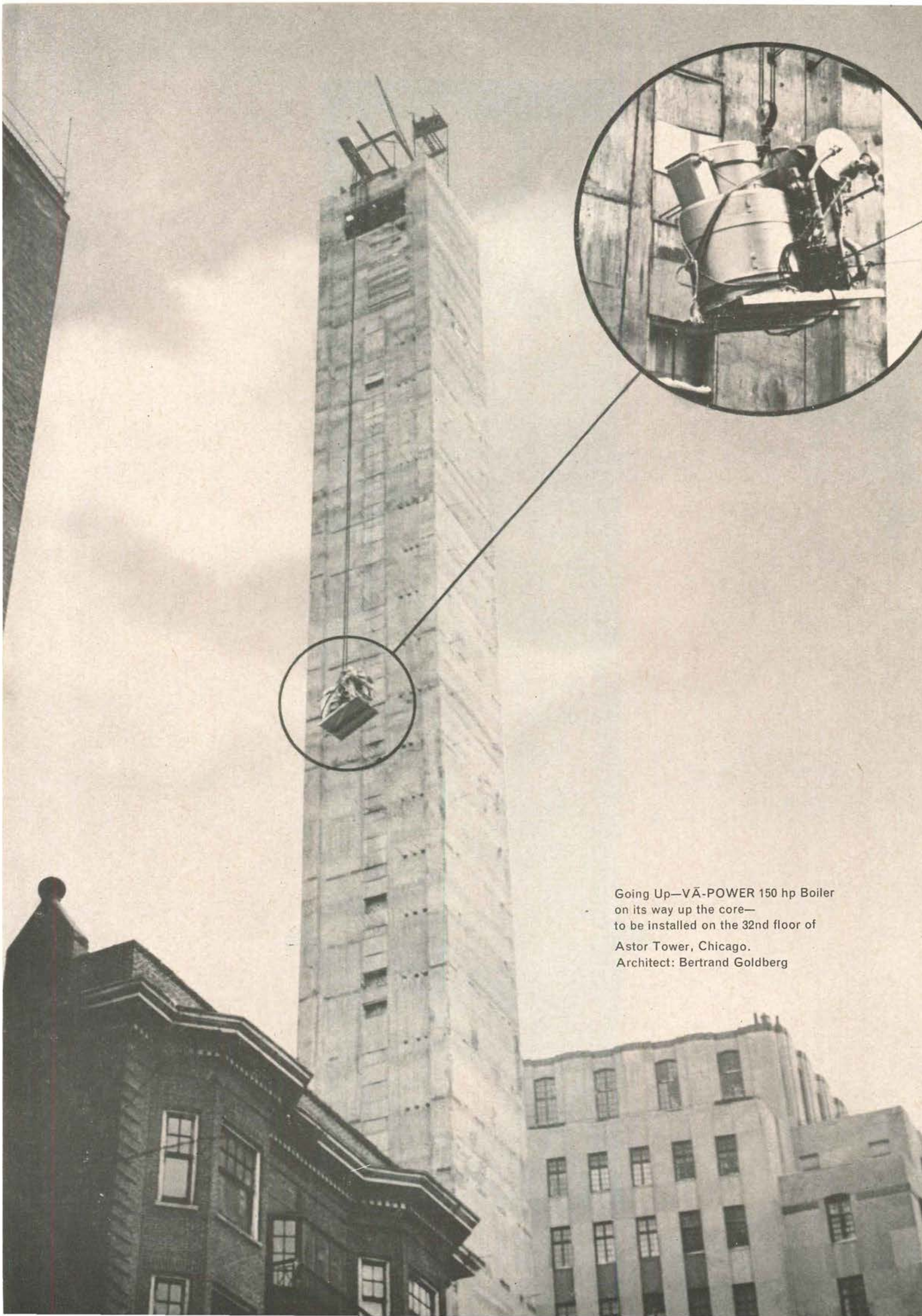
ADJUSTMENT IS SIMPLE

1. Loosen four screws on door portion.
2. Raise or lower in $\frac{1}{16}''$ increments.
3. Tighten screws.

GLYNN-JOHNSON CORPORATION

4422 N. RAVENSWOOD AVENUE
CHICAGO 40, ILLINOIS

For more data, circle 187 on Inquiry Card



Going Up—VĀ-POWER 150 hp Boiler
on its way up the core—
to be installed on the 32nd floor of
Astor Tower, Chicago.
Architect: Bertrand Goldberg

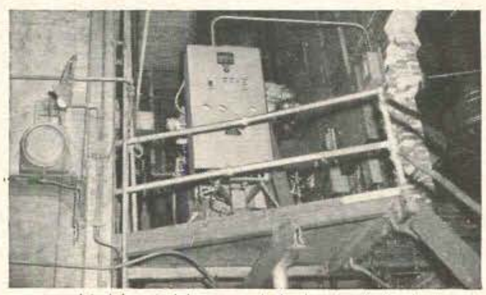
Vā-Power SpecEngineering Conquers Space

In today's world of population concentrations and high industrial property costs, maximum utilization of space is an economic necessity. VĀ-POWER SpecEngineering conquers space by allowing you to put boilers where old-style, bulky boilers simply couldn't fit.

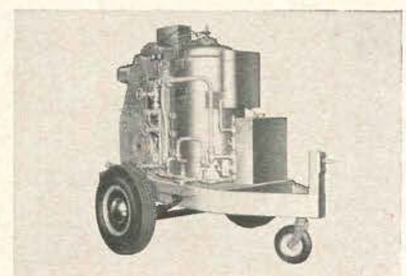
VĀ-POWER Boilers need no expensive enclosure, foundation or stack—any aisle or unused corner, anywhere—basement, balcony, even on the roof is all the space you need. You can get an astounding 150 bhp in only 5′ x 8′ floor space. Equally easy to move—go right through plant-type doorways.

Shipped fully assembled—just connect and fire up. Can't waste fuel or water because steam is made only "on demand" to maintain the pressure you want. Goes from a cold start to operating temperature and pressure in as little as 2 minutes!

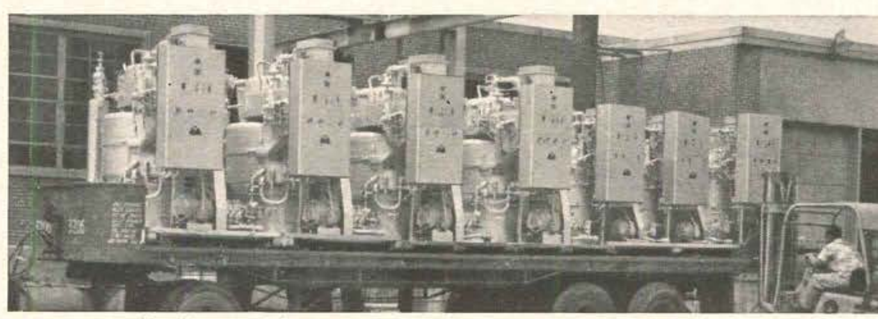
As your main steam source or as an auxiliary source for power, processing, heating or for emergency use . . . specify VĀ-POWER and get the space-saving you need from SpecEngineering.



Lightweight enough to be installed on a catwalk



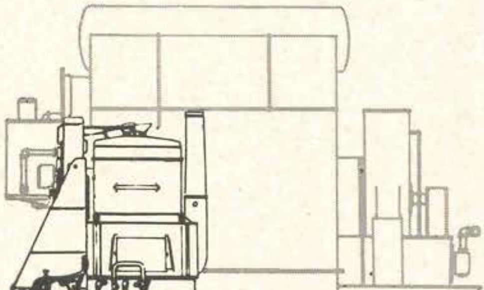
Compact enough to be installed on a mobile trailer



Small enough for seven boilers (total 835 HP) to fit on one truck

more steam generating capacity in less space

Dimensions tell the story. VĀ-POWER Boilers require as little as one-fifth the space of conventional boilers of the same rating, and weigh as little as one-third!



VAPOR®

VĀ-POWER

SpecEngineering

Send free copy of VĀ-POWER SpecEngineering Application Chart containing complete information on the entire VĀ-POWER line of Boilers.

INDUSTRIAL DIVISION
VAPOR CORPORATION

Dept. No. **41-D**
6420 West Howard Street
Chicago, Illinois

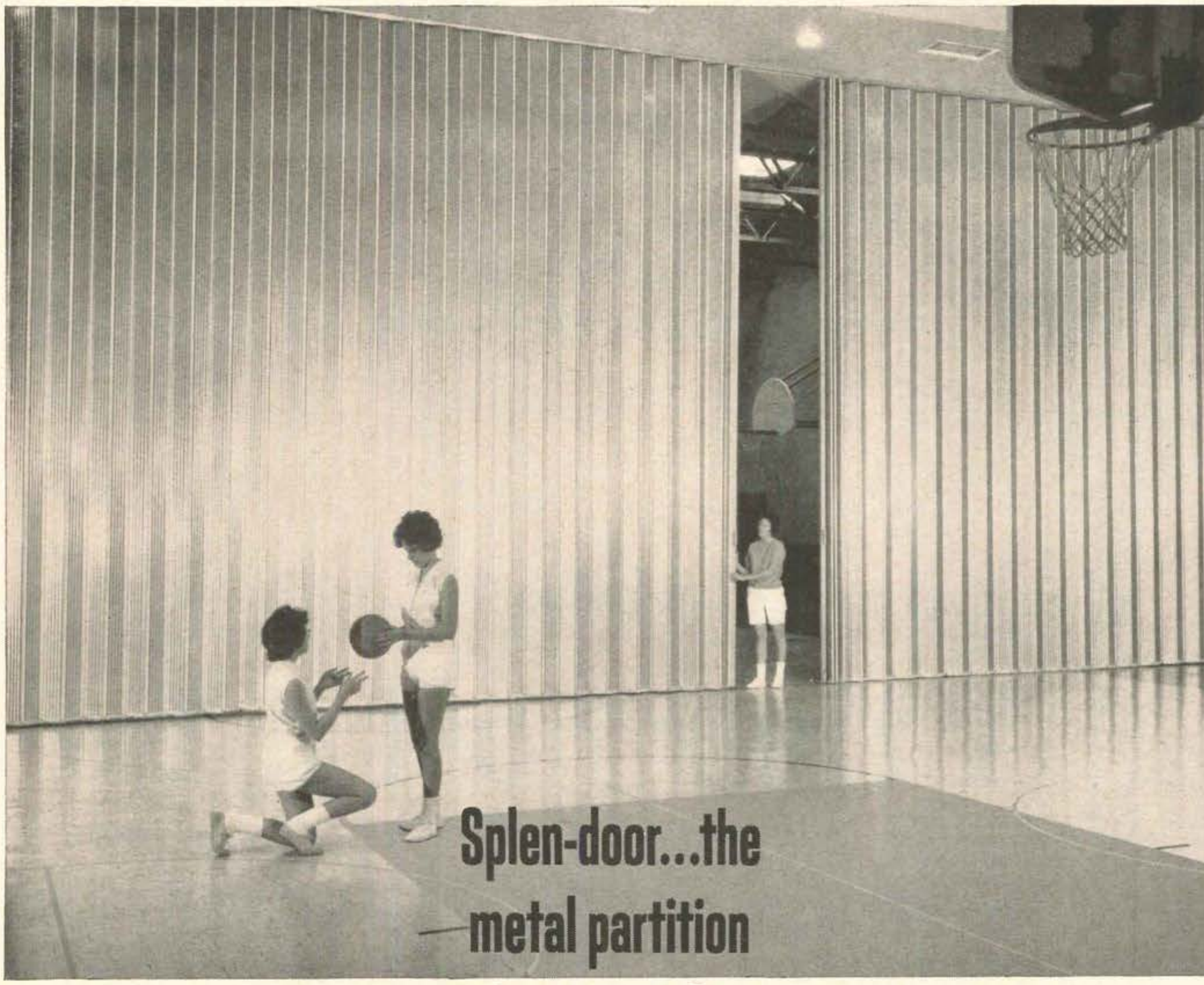
Name__________

Title__________

Company__________

Address__________

For more data, circle 188 on Inquiry Card



Splen-door...the metal partition that's built for abuse and beauty

● Few jobs come too tough for this Splen-door. Even gymnasium punishment isn't too severe for those panels of anodized aluminum and hinges of rugged vinyl. Best of all, the Splen-door 66 you see here can save you about 40 per cent of what you'd have to pay for some conventional gym partitions. Even the stack space is a saving . . . at one inch per foot of opening width. Get the full details now, outlined in a colorful eight-page book. Just fill out the coupon at the right.

NEW CASTLE PRODUCTS, INC. • NEW CASTLE, INDIANA
In Canada: Modernfold of Canada Ltd., St. Lambert, Quebec
"Modernfold" Operable Walls, Partitions and Doors; "Air Doors"; "Modern-Cote" Wall Coverings; "Peabody" School Furniture, "Pyrox" Sheathed Thermocouples.

Gentlemen: Please send your eight-page Splen-door book.
Dept. A243

Name ______________________

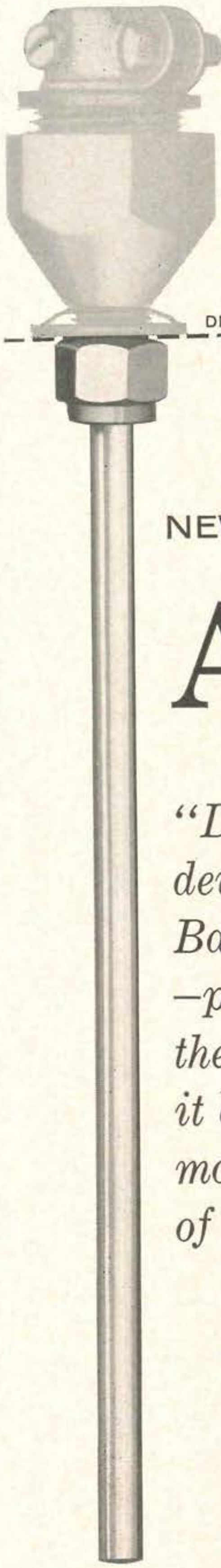
Firm ______________________

Address ______________________

City ______ Co. ______ State ______

modernfold ®

For more data, circle 189 on Inquiry Card



"Electrionic" sensing elements mount in any high aspirating air diffuser system ...respond up to 15 times faster than wall-mounted thermostats.

NEW *from* BARBER-COLMAN

A thermostat for

"Dynamic Sensing"—developed by Barber-Colman —puts the thermostat where it belongs...in a moving stream of air.

It's moving day for thermostats! "Dynamic Sensing" removes thermostats from the large wall mass that prevents rapid response to temperature changes. Barber-Colman "Electrionic" sensing elements mount in ceiling diffusers, air/light diffusers, and all types of perimeter units that surround the thermostat with a stream of constantly moving room air. Room temperature is continuously sampled. Changes are detected instantly. Overheating or overcooling are eliminated assuring accurate, uniform, *and economical* temperature control.

Problems of proper thermostat placement are solved. The pencil-slim stainless steel tube which houses the sensing element is completely hidden in most applications . . . out of sight, out of mind. Adjustments are made electronically from a remote point safe from tampering and accidental damage.

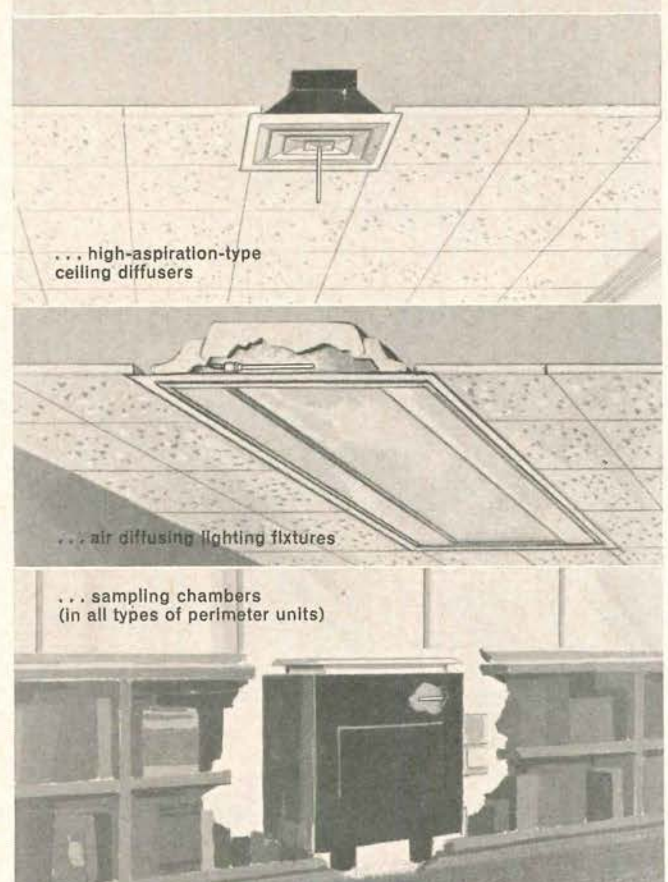
air on the move!

Installation is simplified. Economical, low-voltage wires connect thermostats and controls. Drilling or channeling of runs for electrical conduit or pneumatic tubing is not necessary. Controls can be installed right along with heating and cooling equipment; no more waiting for walls or panels to be erected before comfort apparatus can be used.

Off-the-wall mounting brings new flexibility to room partitioning. Walls and panel dividers can be moved at any time *without* altering the temperature control system.

These advantages of "Dynamic Sensing" provide the imaginative architect and engineer new freedom in temperature control system design. For a copy of the latest progress report on "Dynamic Sensing" call the Barber-Colman Automatic Controls field office nearest you.

NEW THERMOSTAT LOCATIONS POSSIBLE WITH "DYNAMIC SENSING"



BARBER-COLMAN COMPANY

Rockford, Illinois

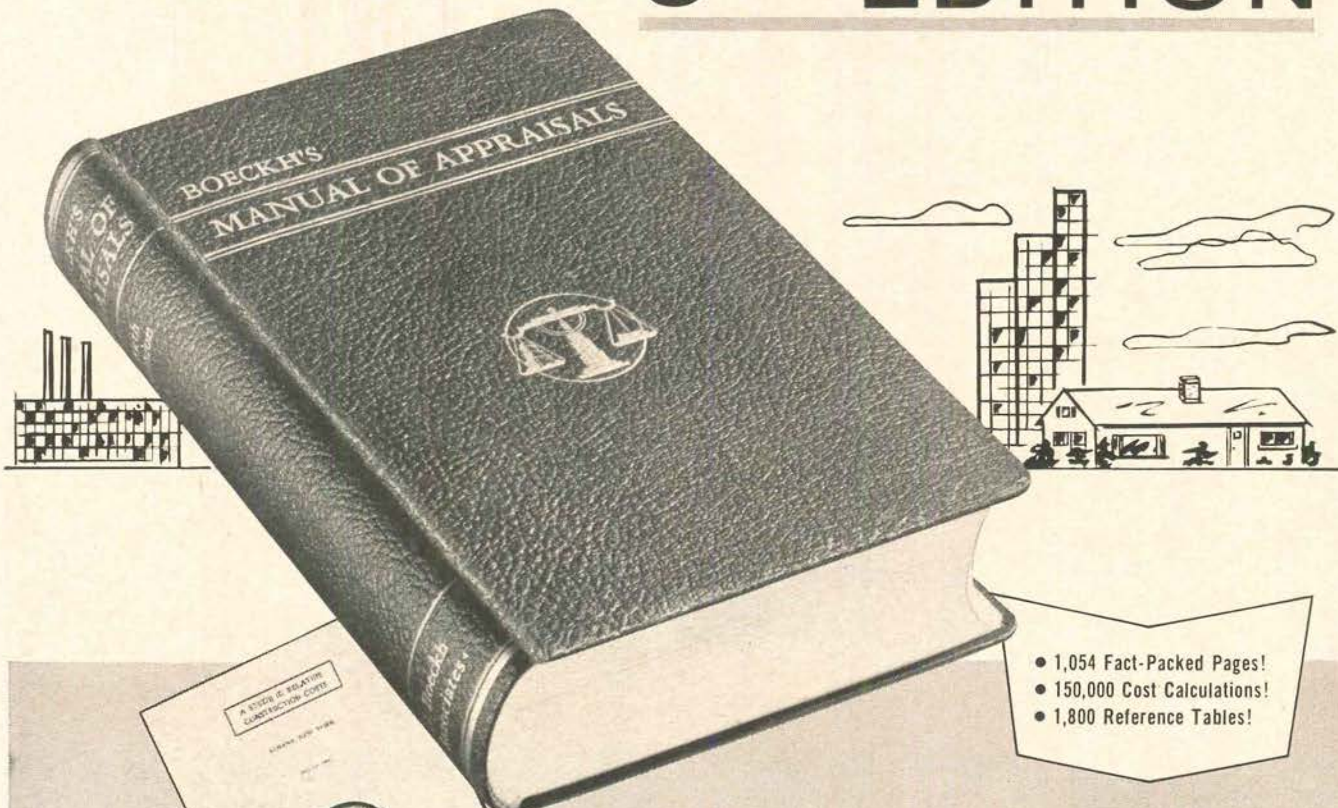
In Canada: BARBER-COLMAN OF CANADA, LTD. Toronto, Ontario

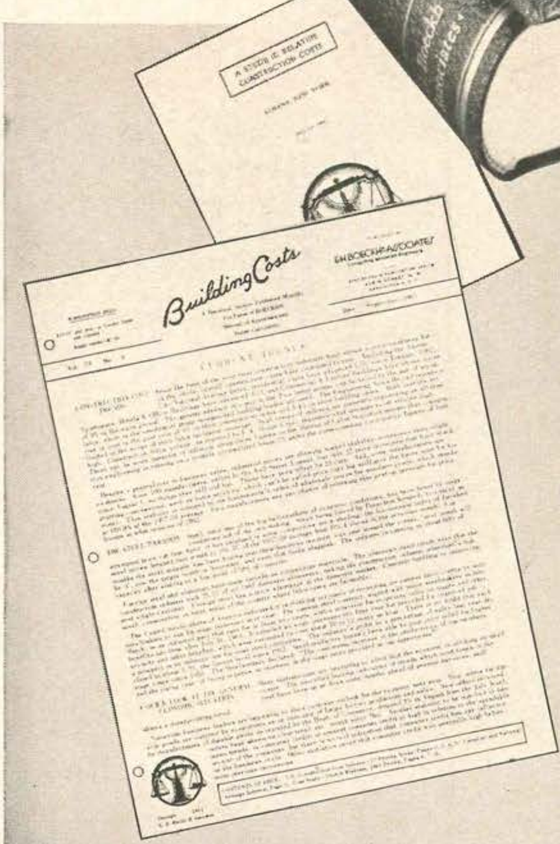
... where originality works for you

For more data, circle 190 on Inquiry Card

JUST OFF THE PRESS!

THE EXPANDED, ALL-INCLUSIVE 6TH EDITION





YOUR KIT OF TOOLS

for quick, sound estimates of:

• REPRODUCTION COSTS • CONSTRUCTION COST PLANNING
• TAX VALUATION • INSURABLE VALUES • REAL ESTATE
• ADJUSTING KNOWN COSTS

In constant use by appraisers, banks, real estate offices, institutions and others, since 1929. Answers EVERY technical question about building costs, valuation approach, clearly, simply, specifically. NOT a textbook, but a practical, in-the-field tool for the working appraiser or estimator. You need no formal experience! Boeckh's simple "4-Step System" does it all for you.

"BUILDING COSTS" is a *monthly supplement to the manual* . . . gives you up-to-date, accurate adjustments to fit your location's current costs . . . anywhere in United States or Canada . . . any time, month by month!

Both published by:

E. H. BOECKH & ASSOCIATES, INC.—Washington 5, D. C.

Consulting Valuation Engineers

Subsidiary of The American Appraisal Company

Clip and Mail This Coupon Now!

E. H. BOECKH & ASSOCIATES, INC.
P. O. Box 12084—Mid City Station
Washington 5, D. C.

☐ Yes, I want the 6th EDITION of Boeckh's Manual of Appraisals and a 12-month subscription to the "Building Costs" supplement. Am enclosing $40.00 in full payment. I understand I may return this material for any reason, within 10 days for FULL refund.

☐ Send me descriptive brochure at once.

Name________ Title________
Firm or Organization________
Address________
City________ Zone____ State________

Architects: Kemp, Bunch & Jackson—Jacksonville, Florida

SETTING: SEATING:

JACKSONVILLE AUDITORIUM | HEYWOOD-WAKEFIELD

In Jacksonville's new Civic Auditorium, comfortably-seated audiences salute the architects for specifying the outstanding performer in the field of auditorium seating—the all-steel ENCORE TC-700 Chair by Heywood-Wakefield.

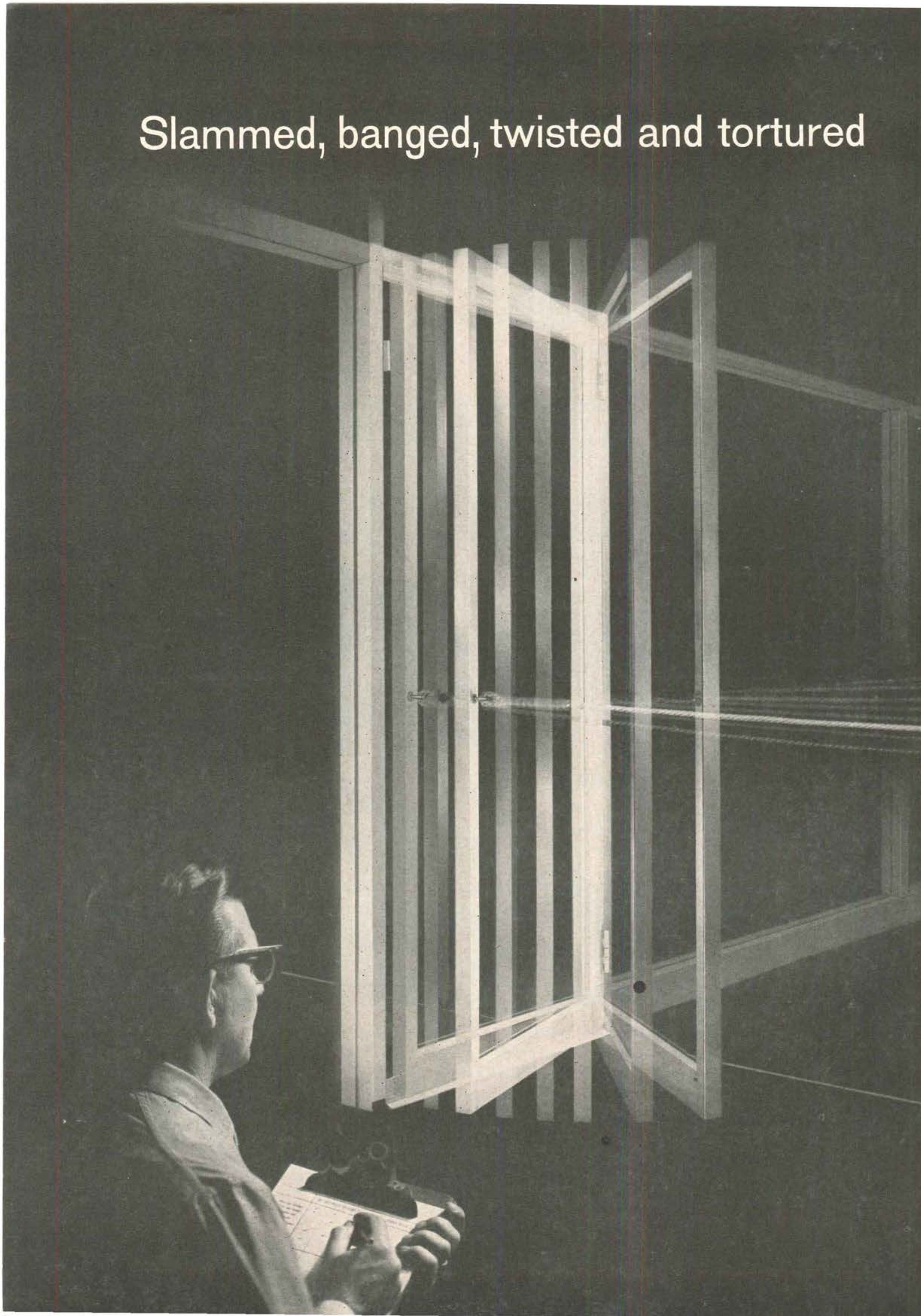
Built to provide maximum comfort for years, the 3,809 ENCORE Chairs offer generously padded backs, coil spring cushions, and self-rising seats. Comfort is further assured by generous back-to-back spacing and a seat-to-back ratio determined by scientific study.

Complete information on the ENCORE TC-700 Chair and other Heywood-Wakefield quality seating is in section $\frac{36d}{He}$ of Sweet's Catalog; or write us now for a complete seating portfolio.

HEYWOOD-WAKEFIELD
HW
EST. 1826

Menominee, Michigan

For more data, circle 191 on Inquiry Card


Slammed, banged, twisted and tortured

...over 1,000,000 times without breaking down!

Rugged Slam Test plus Dual-Moment Test by Independent Labs Prove Kawneer 190 Superior

Using the full spring force of a closer with no hydraulic checking action, a Kawneer 190 door was slammed against a racking block more than a million times! This severest test of a door's strength was conducted by an independent testing laboratory.

Their report states that after testing, there were no cracks, corner damage, loose bolts, broken welds or twisted rails. There was no damage, nor sign of wear to hinges and fastenings. Clearances at head, jamb and sill remained constant. Diagonal dimensions were unchanged—proof the 190 didn't sag. The lock-in glass stops were still tight.

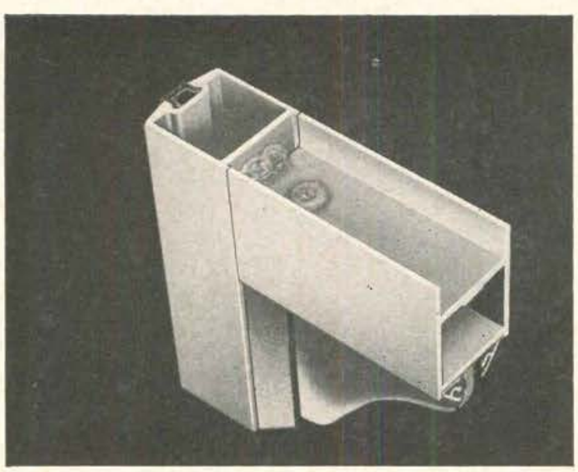
Results of Dual-Moment Testing on Doors by Major Manufacturers. Another Independent Laboratory subjected the Kawneer 190 and eight well-known competitive doors to the tortuous dual-moment lever arm and torque test . . . applying forces of common door failure. The corner of the 190 door held fast against a load of 200 pounds. The average performance of other doors tested was failure at 98.7 pounds load.

Dual-Moment Test—Lbs. Applied Before Failure

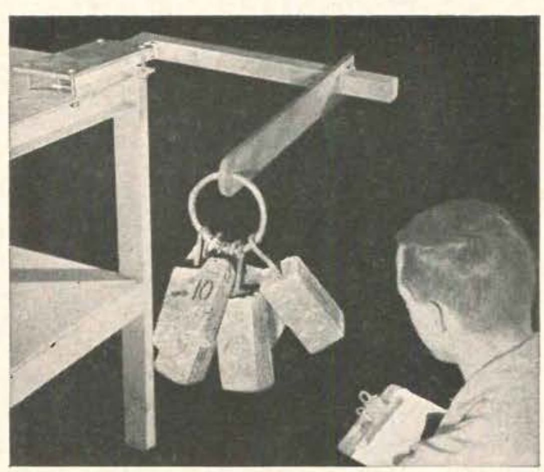
Kawneer 190........205 lbs.	Brand 3..............60 lbs.	Brand 6..............130 lbs.
Brand 1............. 55 lbs.	Brand 4..............55 lbs.	Brand 7.............100 lbs.
Brand 2.............195 lbs.	Brand 5..............85 lbs.	Brand 8.............110 lbs.

Affidavits of Independent Test Reports are available when request is submitted on your letterhead.

The Kawneer 190 door is better, competitively priced and installs faster. And now it is available in *Kalcolor® (black, gold, amber) as well as with Alumilite 204 A1 R1 finish.



Rack-proof . . . The strongest corner construction ever! Kawneer doors are welded four times at each corner with a secured reinforcement.



Dual-Moment Lever Arm and Torque Test . . . Simulates the most common, failure-causing loads submitted on door corners.

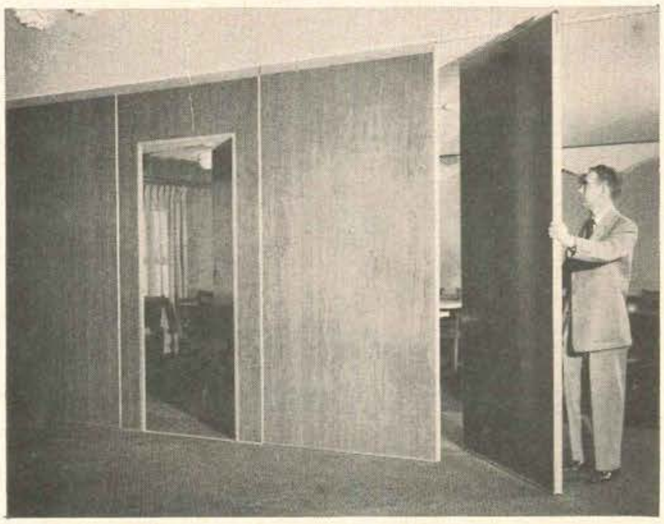
*Licensed trade-mark of Kaiser Aluminum and Chemical Corp.

Kawneer

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

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

For more data, circle 192 on Inquiry Card



A brief run-down on the newest, most versatile wall partition

A portable, self-storing wall, able to be set up or taken down in minutes, KWIK-WALL is a totally new concept in portable partitions. Installed with or without ceiling channel . . . KWIK-WALL panels have the appearance and properties of a permanent wall with complete flexibility of movement.

DIMENSIONS: KWIK-WALL partitions are 48″ wide with special width sections available to fill space that does not work out to an even 48″.
Heights up to 12′ are available, final wall dimensions to be 1¼″ less than opening size.
OPERATION: Partitions shall be sealed by means of a crank operating a mechanical device built into each panel. This device expands the trim cap of all sections and the side member of one end section, providing up to 50 lbs. of pressure to hold sections secure. Both the top cap and side cap have a maximum expansion of 2¼″.
CONSTRUCTION: Available in two thicknesses, 1¾″ and 2¼″. Panels shall be flush with an aluminum frame and two layers of small cell paper honeycomb core with thin sheet of lead between layers. Aluminum frame of tongue-and-groove extrusion with an implanted rubber seal to provide tight fit and sound retarding qualities of a frame wall. The expandable trim cap on all panels and the expandable side member on the end panel are of aluminum with rubber seal implanted to provide even pressure and seal the entire opening, even if the latter is out of square and out of level. Pass doors are available in either right or left hand openings, made to swing either in or out, as ordered. Sizes 2′8″ or 3′ x 6′8″.
FINISHES: KWIK-WALL partitions are available in a wide variety of surfaces, including prefinished natural wood, print grain plywood, hard-surfaced plastic, decorator vinyls, and unfinished plywood suitable for painting or finishing. Custom made in 48″ widths, heights up to 12′.

Write Department AR4 for brochure and complete information

KWIK-WALL

KWIK-WALL CO.
SPRINGFIELD, ILLINOIS
division of Capitol Woodworks

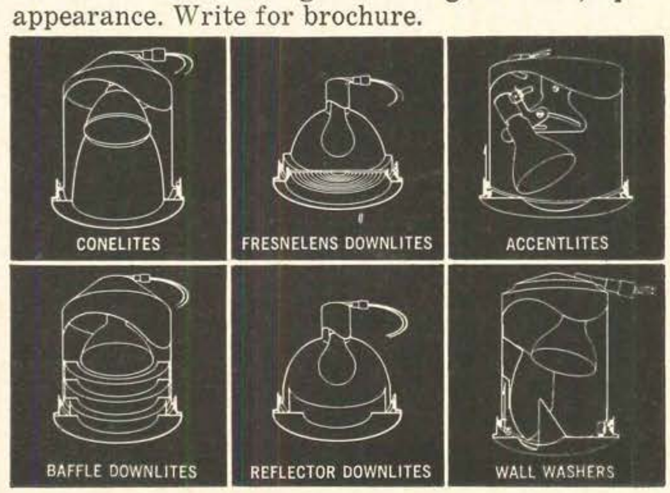
SEE OUR CATALOG S IN SWEET'S

For more data, circle 193 on Inquiry Card

This Instalite mounting ring revolutionized recessed incandescent lighting!

Here's why:

Century's new line of Instalite fixtures enables you to install interchangeably a fresnelens unit, an accentlite, a wall washer, a reflector downlite, or a conelite in the same mounting ring and through the same size ceiling aperture. Installation is fast and easy. The fixture body or reflector snaps into place with the twist of a screwdriver. Instalite fixtures are engineered for precise optical performance. Die cast fixture trim gives ceilings a clean, open appearance. Write for brochure.



CENTURY ARCHITECTURAL LIGHTING

New York: 521 West 43rd St., N.Y. 36
Calif: 1820 Berkeley St., Santa Monica

For more data, circle 169 on Inquiry Card

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 ----------

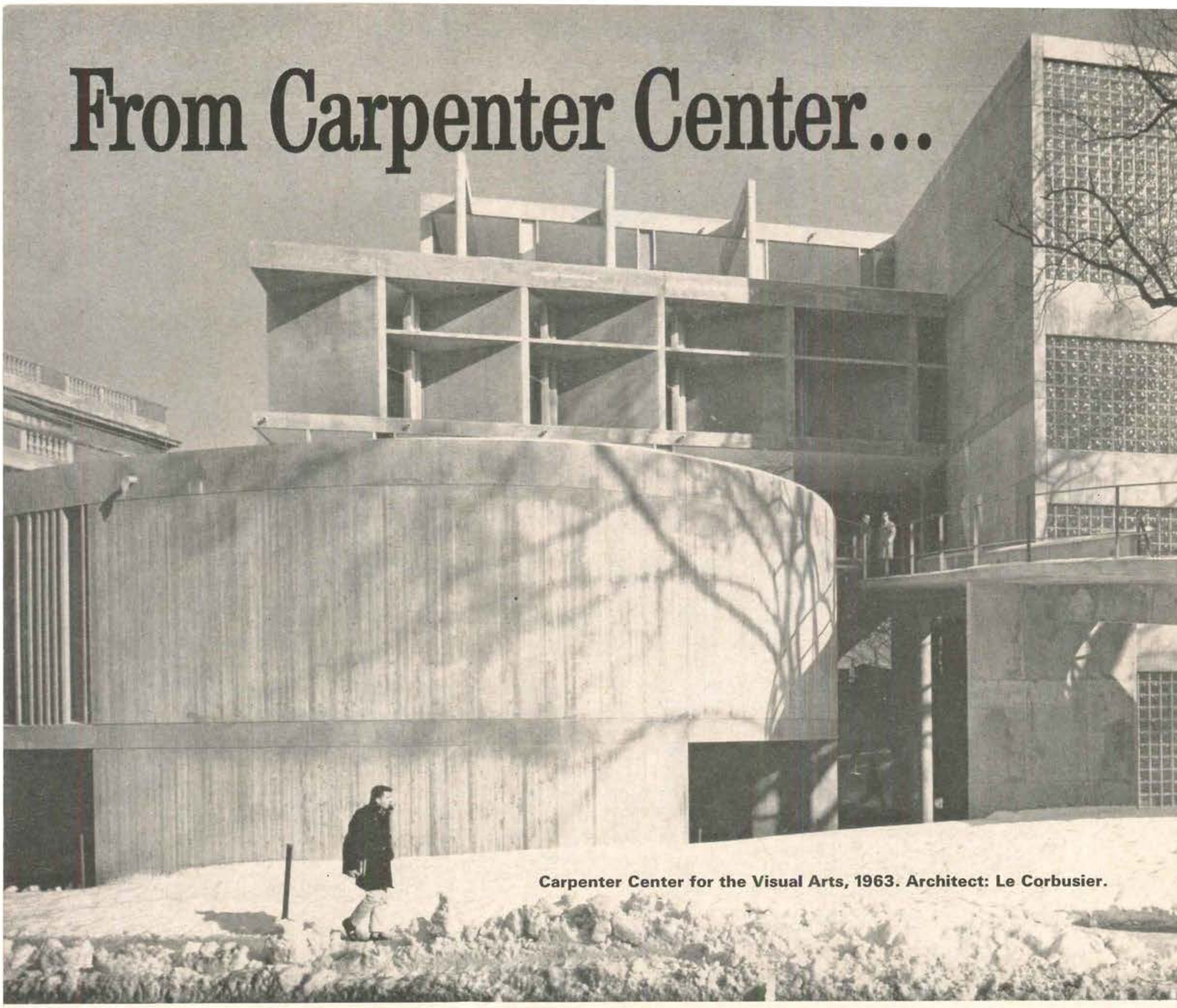
Rust-Oleum Corporation
2503 Oakton Street—Evanston, Illinois

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 194 on Inquiry Card

From Carpenter Center...



Carpenter Center for the Visual Arts, 1963. Architect: Le Corbusier.

Honeywell's at Harvard...controlling temperature

Just two men at two Honeywell Selectographic Control Centers supervise the whole job in Cambridge! One man at each centralized control panel can check and change temperature . . . start, stop and monitor fans, heating and air conditioning equipment. He can even operate steam valves and monitor flood valves . . . all from a console about the size of an ordinary desk.

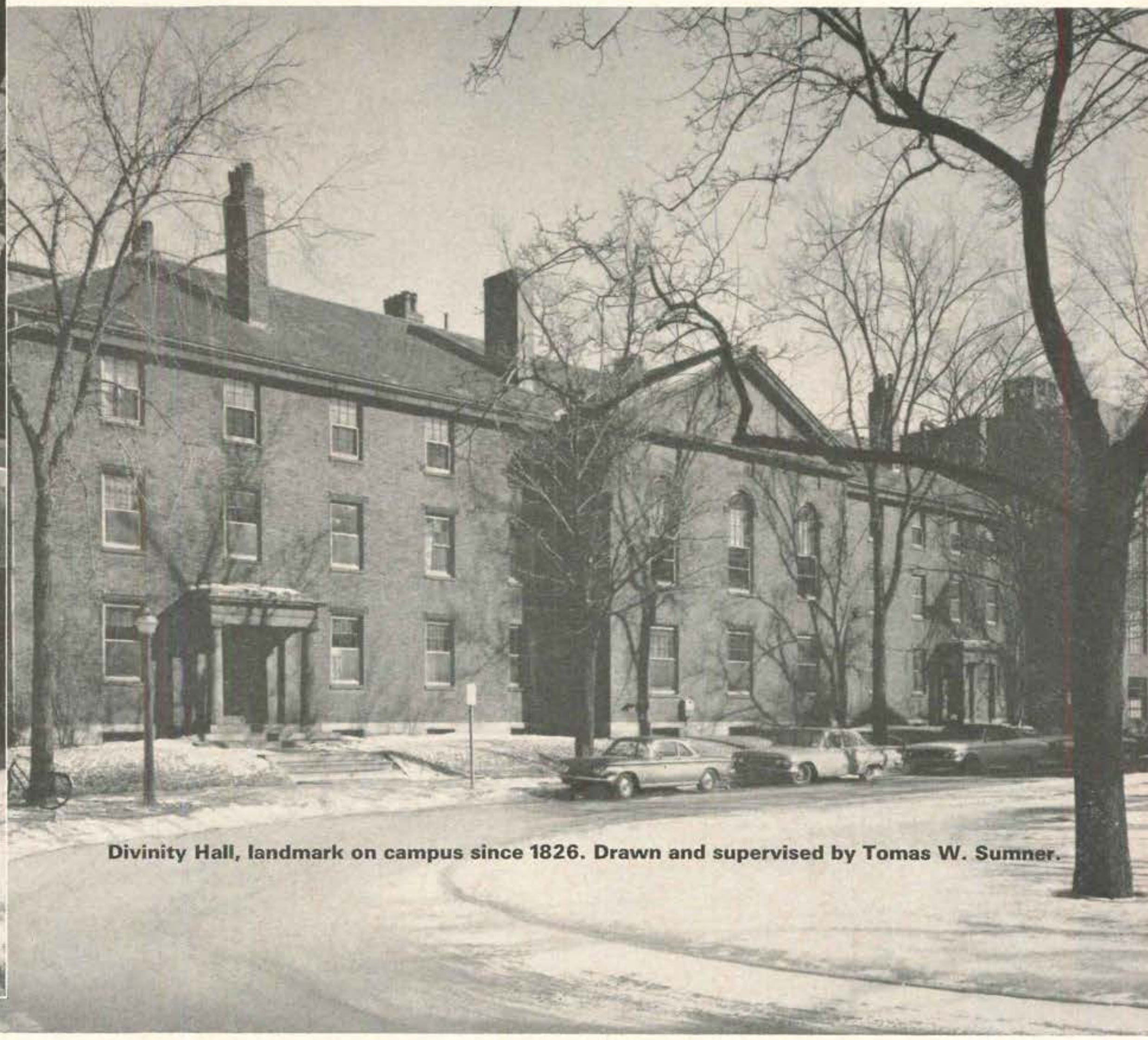
Three years ago, an analysis showed "an inordinate amount of time" needed for operating men to go from building to building to perform routine functions. Harvard was ready for automated control.

The Harvard campus poses some interesting problems for an automated control system. For one thing, it's big . . . both in area and in number of buildings. For another, the buildings themselves differ greatly in age, size, design and requirements. Finally, Harvard is growing fast. They had to have a system that could handle the expansion they plan in the years ahead. Working with Honeywell engineers, they decided the best solution was two centrally-located Honeywell Selectographic Data Centers.

As the map shows, one center controls 67 campus buildings north of the Harvard Yard. Another, in Holyoke Center, will control 40 buildings south of the Yard. As an indication of the capability of these systems, one man at the north Data Center can:

1. view 37 schematic diagrams (projected from slides) representing systems for the 67 buildings.
2. start, stop, or listen to 42 fans up to ½ mile away.
3. operate 32 steam valves.
4. check temperatures at 100 points.
5. get immediate warning of humidity changes in steam tunnels or library

To Divinity Hall



Divinity Hall, landmark on campus since 1826. Drawn and supervised by Tomas W. Sumner.

and equipment in 107 buildings, all sizes, all ages

areas (which include, among other treasures, priceless Oriental manuscripts).

Reports indicate that savings from this automatic control program will amortize the investment in two years, besides improving service. And, Harvard has a modern control system that can accommodate new facilities as they're built.

Automated control is an important part of any modern building program . . . any expansion plan. The booklets offered at right are designed to help you in the planning stages of your newest project. And, whether it involves new or old buildings, one building or hundreds, Honeywell has the systems and the know-how to survey, plan, install and service any job efficiently and economically. 112 offices in the U.S. . . . others in all principal cities of the world.

FIRST IN CONTROL SYSTEMS

Mail coupon for project analysis, planning guides.
Honeywell, Dept. AR4-82, Minneapolis 8, Minn.

Send me the following free planning guides:
- ☐ Security and Surveillance
- ☐ Clock Programming Systems
- ☐ Automatic Fire Protection
- ☐ Temperature Control
- ☐ Automation Techniques
- ☐ Preventive Maintenance Programs

☐ I'd like a free automation analysis for a project.
☐ I would like to see a typical installation in my area.

NAME__________

TITLE__________

COMPANY__________

ADDRESS__________

CITY_____ ZONE____ STATE_____

Honeywell

For more data, circle 195 on Inquiry Card

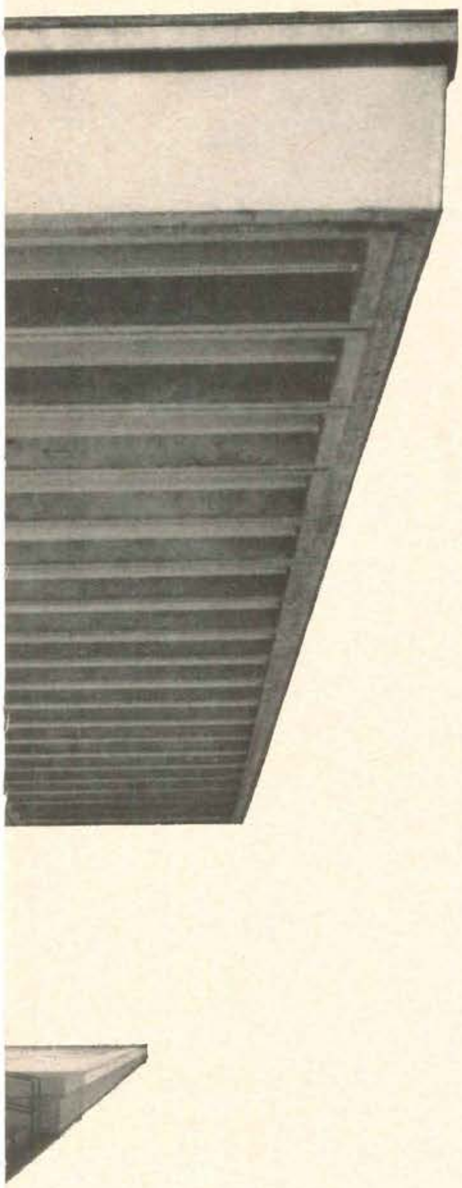
When one top advertising

Bell Telephone Laboratory, Holmdel, N.J.
Architect: Eero Saarinen and Associates; Photo: Joseph W. Molitor

value leads to another... and another...

you've located the leader...

ARCHITECTURAL RECORD



EDITORIAL SUPERIORITY

More editorial pages than any other architectural magazine. Content continuously attuned to the needs and interests of architects and engineers with the aid of *Dodge Reports* and the most intensive editorial research in the field. A *stimulus* to creative architectural and engineering design.

PREFERRED READERSHIP

Voted "preferred" by architects and engineers in 170 out of 187 studies SPONSORED BY BUILDING PRODUCT MANUFACTURERS AND ADVERTISING AGENCIES. And the highest renewal rate in the field by far.

CIRCULATION LEADERSHIP

Offers advertisers—at the lowest cost per page per 1,000—the most architect and engineer subscribers of any architectural magazine in four primary building markets: (1) architectural firms (2) consulting engineer firms (3) commercial, industrial and institutional organizations (4) government.

TOP VERIFIABLE MARKET COVERAGE

Verifiable coverage by paid subscription of over 88 per cent of the total dollar value of all architect-planned building, nonresidential and residential, large and small.

ADVERTISING LEADERSHIP

For sixteen years in a row more building product advertisers and more advertising pages than any other magazine. And the Record has widened its advertising lead in 1963!

Every basic measure of advertising value confirms Architectural Record's ability to serve you best.

ADVERTISING LEADERSHIP ▶ EDITORIAL SUPERIORITY ▶ PREFERRED READERSHIP ▶ CIRCULATION LEADERSHIP ◀ TOP VERIFIABLE MARKET COVERAGE ◀

ARCHITECTURAL RECORD ABC

119 WEST 40TH STREET ABP

NEW YORK 18, NEW YORK

F. W. DODGE CORPORATION
A McGraw-Hill Company

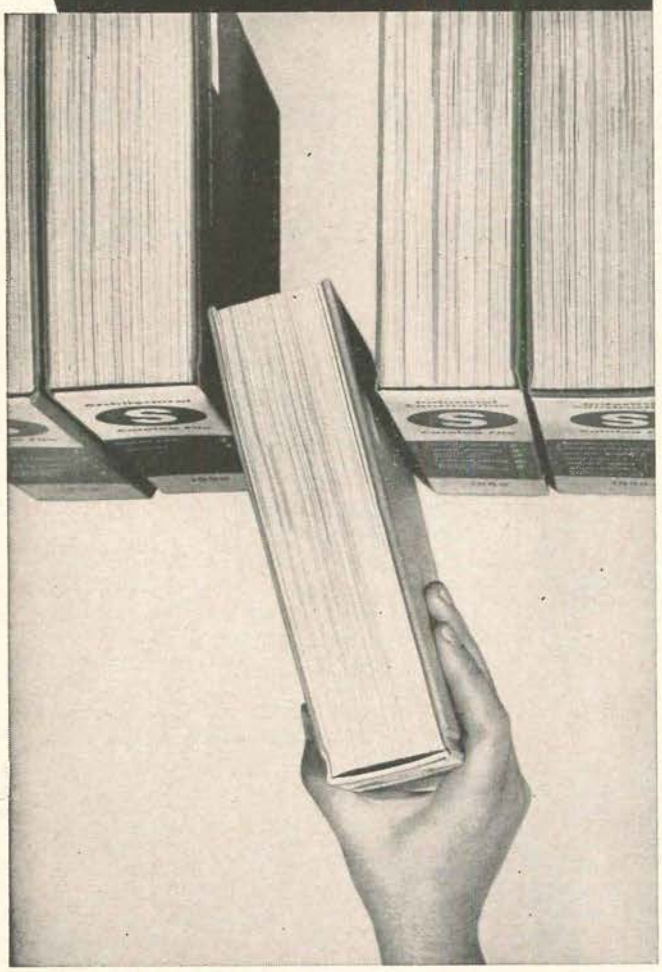
Index to Advertising

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).

NEW YORK—James E. Boddorf, Sales Mgr.; Blake Hughes, Marketing Mgr.; Richard Crabtree, Business Mgr.; Joseph R. Wunk, Advertising Production Mgr., 119 W. 40th St.; NEW YORK SALES OFFICE—Tom Tredwell, Benton B. Orwig, Harry M. Horn, Jr., Michael J. Davin, 500 Fifth Ave.; BOSTON—Harry M. Horn, Jr., 855 Park Square Bldg.; CHICAGO—Robert T. Franden, James A. Anderson, Robert Kliesch, Douglas S. Brodie, 1050 Merchandise Mart; CLEVELAND—John C. Jackson, Louis F. Kutscher, James B. Ryan, 55 Public Square; DETROIT—Louis F. Kutscher, 527 Free Press Bldg.; LOS ANGELES—Robert L. Clark, 1125 West Sixth St.; PHILADELPHIA—Tom Tredwell, Michael J. Davin; Broad & Locust Streets; PITTSBURGH—John C. Jackson, Four Gateway Center; ST. LOUIS—Richard Grater, Robert T. Franden, 7751 Carondelet Ave.; SAN FRANCISCO—John I. Howell, 255 California St.

A-IC-LC*

TELLS YOU WHERE TO REACH FOR BUYING INFORMATION!

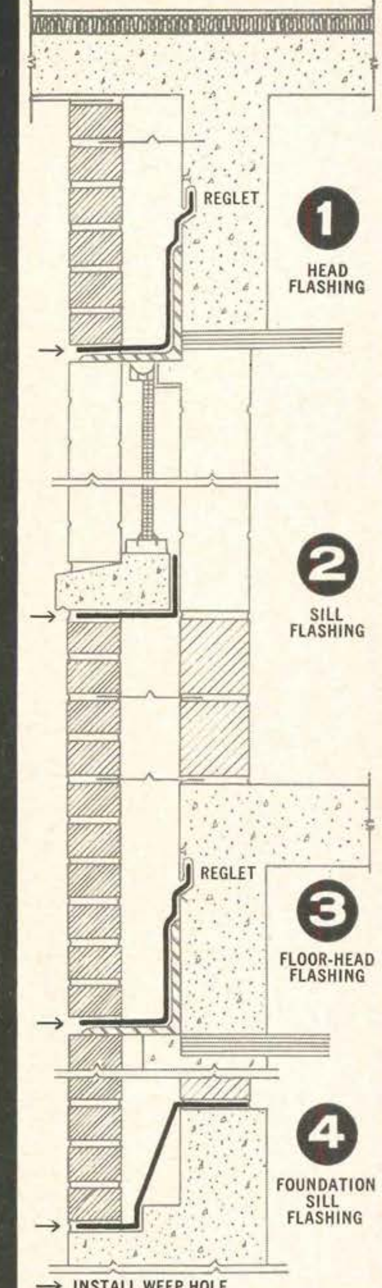


*These symbols are used in the facing index to tell you which advertisers make their catalogs instantly accessible in Sweet's Catalog Files. The letters stand for the Architectural, Industrial Construction and Light Construction Catalog Files.

S

SWEET'S CATALOG SERVICE
Division of F. W. Dodge Corporation
119 West 40th Street, New York 18, N. Y.
A McGraw-Hill Company

DO YOU ALWAYS FLASH CAVITY WALLS AT THESE 4 VITAL POINTS?



In cavity wall buildings, unsightly efflorescence and interior wall damage can result from accumulated water in the cavity. Causes: water penetrates joints in the outer wall; condensation forms on the inner wall.

WASCO® flashing . . . properly installed in conjunction with weep holes . . . can prevent these conditions permanently. Water then is directed to the outside of the building before it can accumulate.

WASCO brand flashing, the nation's leading line, provides this permanent protection in *every* type of building for generally less than 1/20 of 1% of your total construction cost. *On a $1 million building, that's just $500.*

WASCO flashing offers you the only complete line of thru-wall and spandrel flashing...for protection from parapet to foundation. Select from 16 different types of WASCO flashings, including copper-fabric, copper-asphalt, copper-lead, fabric, plastic, and aluminum.

For exceptional flashing problems, consult the Cyanamid Engineering Staff. Full product details in Sweet's Architectural File 8g/Am and Sweet's Industrial File 8c/Am.

TO KEEP WATER OUT... BUILD WASCO FLASHING IN... COMPLETELY. AVAILABLE OVERNIGHT TO ANY JOB SITE... ANYWHERE IN THE COUNTRY.

WASCO® FLASHINGS

BUILDING PRODUCTS DIVISION • AMERICAN CYANAMID COMPANY
5 BAY STATE RD., CAMBRIDGE 38, MASS. CYANAMID

For more data, circle 196 on Inquiry Card

FROM ARMSTRONG . . .
AN ENTIRELY NEW KIND OF FLOOR: VISTELLE CORLON TILE–WITH DU PONT HYPALON

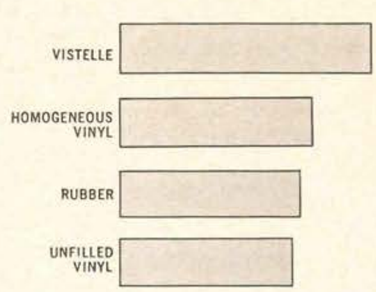
This handsome new floor is probably the most significant development in resilient floors since the introduction of vinyl. It offers the best combination of physical properties and functional advantages ever incorporated into one flooring material.

Here's how Vistelle compares to some other widely used commercial floors:

RESISTANCE TO INDENTATION MARKS

Some flooring materials, such as terrazzo, marble, and the better unfilled vinyl tiles, resist indentation by virtue of their *hardness*. But they offer this benefit at the sacrifice of underfoot comfort. Vistelle's exceptional resistance to permanent indentation is a function of its extreme *resilience*. It gives on impact, but recovers when pressure is released, providing a floor that is free of permanent indentation marks and at the same time, comfortable underfoot. Unlike other resilient floors, the resilience of Vistelle Corlon Tile does not decrease with age.

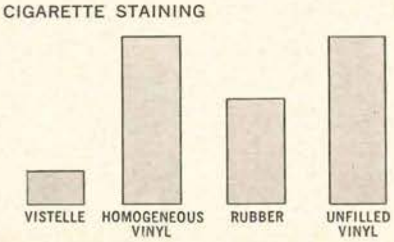
RESILIENCE



RESISTANCE TO CIGARETTE BURNS

Vistelle's superior resistance to cigarette burns is shown in the chart above right. In this test, cigarettes were left to burn out on the tiles. Then the tiles were cleaned with fine steel wool and a commercial floor cleaner and the remaining stain given a severity rating from 0 to 5. Vistelle rates best with only slight staining; so slight in fact, that it was undetectable at arm's length. The vinyl tiles were irreparably scarred, the rubber tile severely stained.

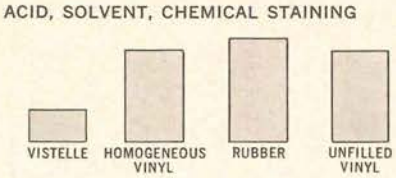
CIGARETTE STAINING



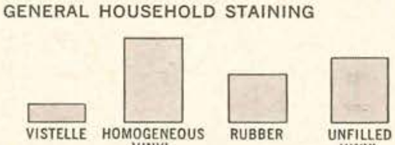
RESISTANCE TO STAINING

Staining tests have also been conducted with more than 100 solvents, acids, and chemicals—and with a like number of common household staining agents such as lipstick, grape juice, crayon, and ink. As shown below, in both sets of tests, Vistelle received a rating of 1 or below indicating very slight or no visible stain. Vistelle is also greaseproof.

ACID, SOLVENT, CHEMICAL STAINING



GENERAL HOUSEHOLD STAINING



DIMENSIONAL STABILITY

Vistelle Corlon Tile has exceptional resistance to shrinkage or expansion, exceeding the requirements of Federal Specification (homogeneous vinyl tile) Interim L-F-00450—(COM-NBS) by a wide margin. Dimensional stability will be guaranteed in writing by Armstrong.

COLOR CLARITY AND FADE RESISTANCE

Compared to other resilient floors, Vistelle's white is whiter, its black deeper, its colors richer. The delineation of design is sharper, too, because colors do not overlap one another. Vistelle is also highly resistant to fading. Test floors exposed to traffic and sunlight for several years have stayed remarkably color constant.

DURABILITY

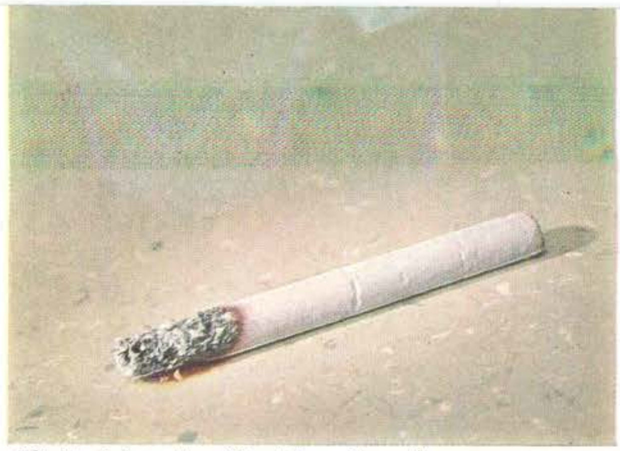
Vistelle gives superior service under heavy traffic. Tested on the entrance ramp at the Monsanto House of Tomorrow in Disneyland, it was exposed to a traffic rate of 6,000 people a day . . . a total of four million during the test period. After two years under these severe conditions, constantly abraded by sand and gravel tracked from paths leading to the house, only 20% of the tiles' thickness had been worn away.

COST

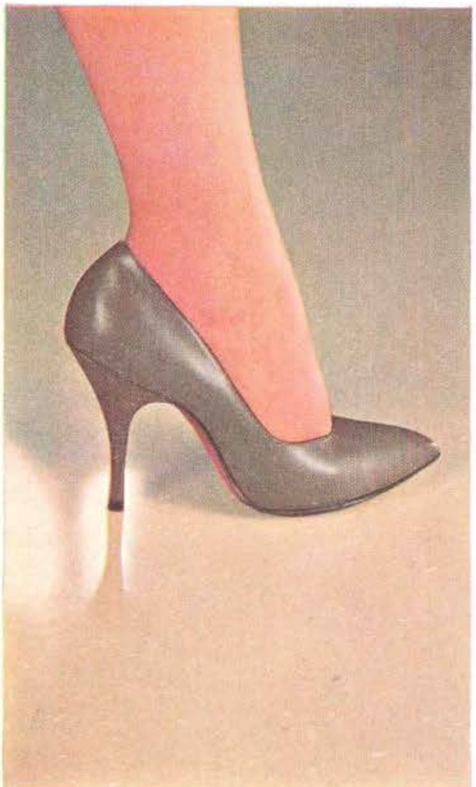
A floor of Vistelle costs $1.50 to $2.00 sq. ft. installed over concrete, depending on the size of the installation. Vistelle can be installed at any grade level over any type of subfloor.

For samples of Vistelle Corlon Tile and technical data, call the Armstrong Architect-Builder Consultant at your Armstrong District Office. Or write to Armstrong, 304 Rock Street, Lancaster, Pennsylvania.

Armstrong FLOORS



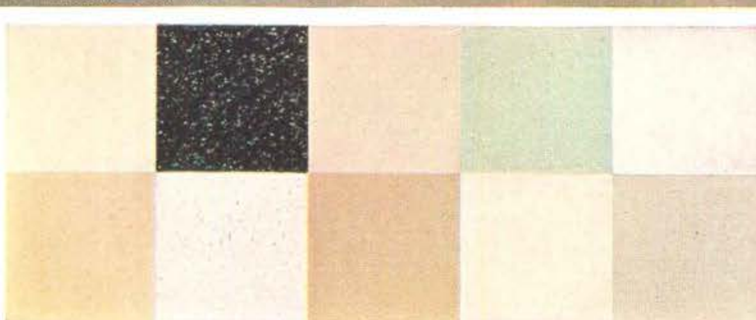
A lighted cigarette will not burn its surface.



Excellent resistance to indentation — comfortable and quiet underfoot.

Dimensional stability guaranteed by Armstrong in writing.

Developed expressly for heavy commercial traffic.



Ten colorings in five color-coordinated pairs.
Subtle, flecked design gives a plain monolithic effect.

Resists more chemicals, solvents, and staining agents than any other resilient floor.