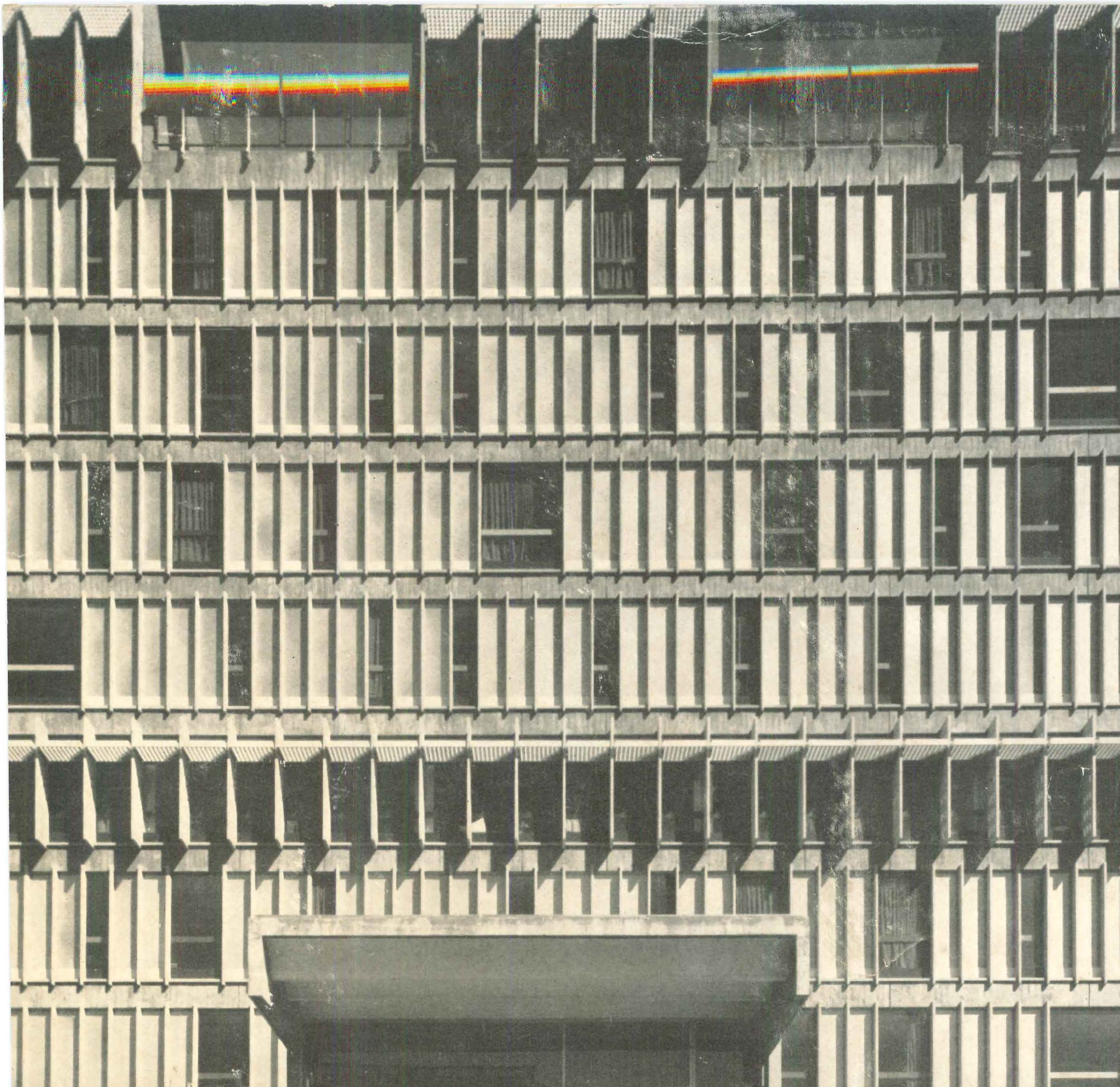

# ARCHITECTURAL RECORD

5 MAY 1962

BUILDING TYPES STUDY: OFFICE BUILDINGS

NEW WORK OF SERT, JACKSON AND GOURLEY

CRITERIA FOR URBAN RENEWAL BY CHARLES ABRAMS

FULL CONTENTS ON PAGES 4 & 5


Lobby, Great Valley Laboratories, Wyeth, Inc. Tile Contractor: Italian Marble Mosaic Co. Plate 461.

# *The lobby no one forgets*

This dramatic lobby mural is executed in American Olean ceramic mosaic tile with sparkling highlights of glazed Accent* colors. American Olean's design staff can assist you in creating outstanding ceramic murals in keeping with the architect's design concepts. • For distinctive lobbies and corridors—for walls as well as floors—select from the wide range of pure, clear colors in the new Precedent line of ceramic mosaics. Send for full-color Booklet 561, showing new Precedent ceramic mosaics, the many handsome patterns available and striking illustrations of how effectively they can be used.

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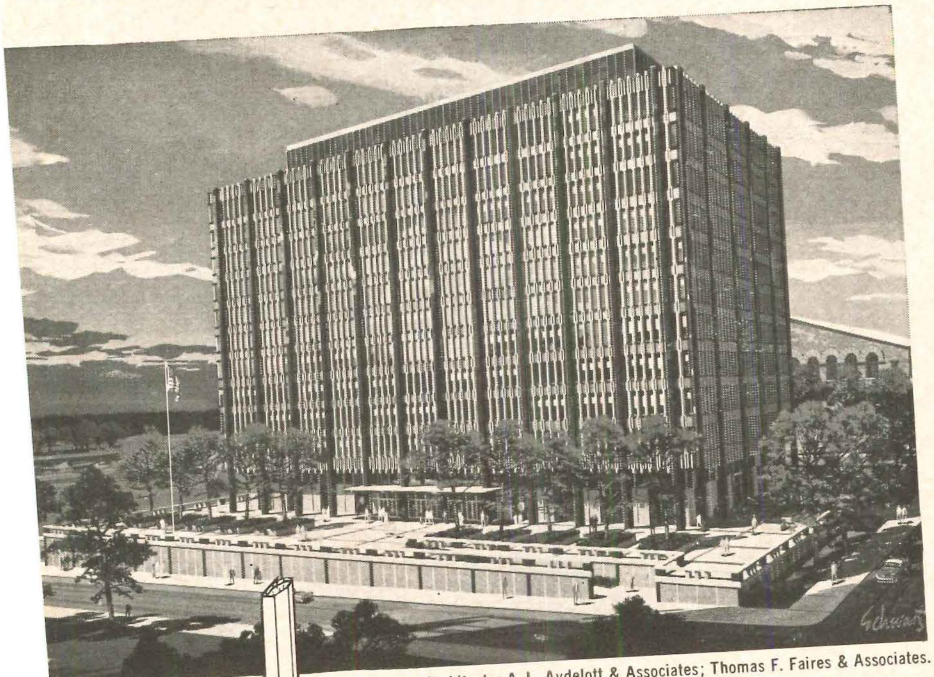
**American Olean**

*Trademark

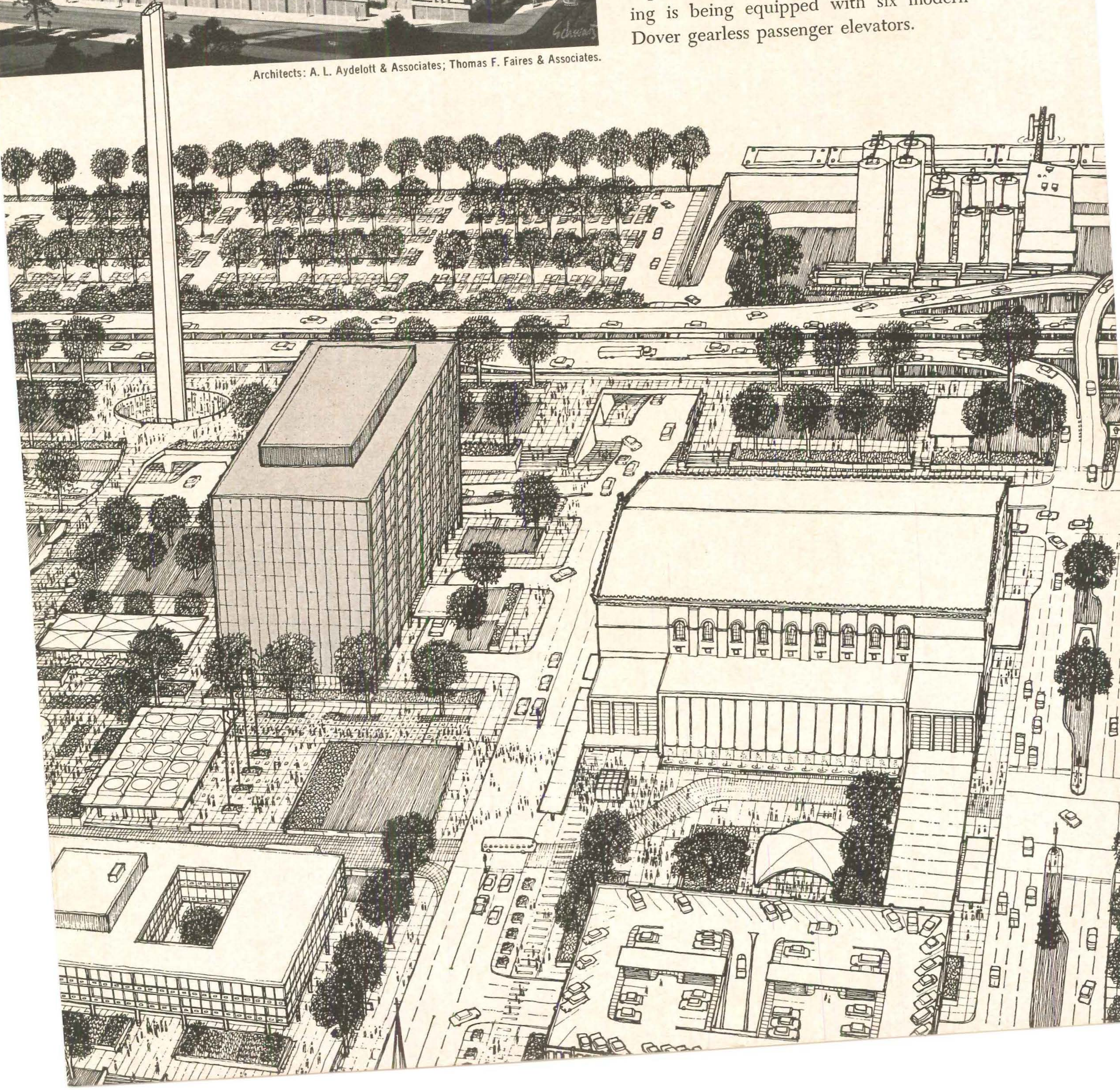
AMERICAN OLEAN TILE COMPANY, 1671 CANNON AVE., LANSDALE, PA. • A SUBSIDIARY OF NATIONAL GYPSUM COMPANY



Architects: A. L. Aydelott & Associates; Thomas F. Faires & Associates.

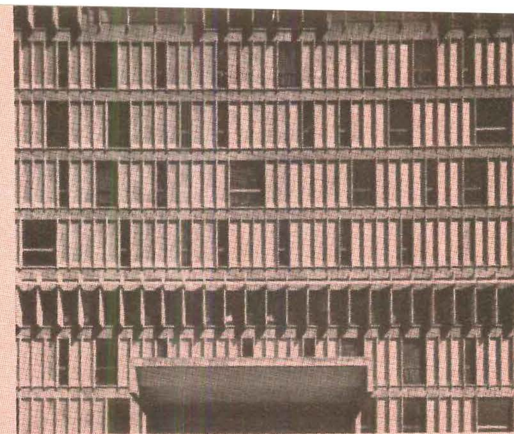
## MEMPHIS CIVIC CENTER

A master plan for the Memphis Civic Center, designed by the League of Memphis Architects, Inc., is shown below. Proposed as an eight-year program, it is now underway with construction of a new Federal Office and Courts Building (pictured at left), major structure in a dramatic superblock, well along. This 13-story building is being equipped with six modern Dover gearless passenger elevators.



# Architectural Engineering





*Cover:*
Holyoke Center at Harvard University, Cambridge, Mass. Architects: Sert, Jackson and Gourley. Photo by Louis Reens




ARCHITECTURAL RECORD May 1962 Vol. 131, No. 5. Published monthly, except May 1962, when semi-monthly, by F. W. Dodge Corporation, a McGraw-Hill Company.

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(National Edition)


# ARCHITECTURAL

# Record Reports



## Architects and Buildings



## Authors and Articles

# Features




RECORD CONTENTS *May 1962*


# Building Types Study 306: Office Buildings

# Coming in the Record

ARCHITECTURAL REVIEW OF CHURCH DESIGN

*Continuing its series of critical reviews of architecture around the world, the* RECORD *presents next month a new group of German churches photographed for the* RECORD *by G. E. Kidder-Smith. Readers will remember an earlier (June 1957) report on the remarkable postwar renascence of German church architecture; these newest examples further illuminate what that first critique described as "The Rebirth of a Tradition."*

SEATTLE'S CENTURY 21: AN EXPOSITION THAT USES DESIGN

*After five years of planning, Seattle's Century 21 Exposition was to open at the end of last month to the prospect of quite spectacular success, if advance indications as to attendance are borne out. Architecture will have played a key role, for "Primary Architect" Paul Thiry has been entrusted from the beginning with over-all responsibility for design control. Next month's article will provide an architectural visit to Century 21, with Mr. Thiry as guide and photographs and commentary supplied by him.*

HOW TO HAVE A SUCCESSFUL SHOPPING CENTER

*Architects will not be surprised to learn that the answer, the real theme of next month's Building Types Study on Shopping Centers, is design—illustrated with examples of widely varying kinds of centers, from the large regional center which has everything, mostly in the medium price range, to the small, "exclusive" suburban center. An article by Edward Larrabee Barnes on design control of shopping center graphics (most especially signs) will lead off the study.*



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.

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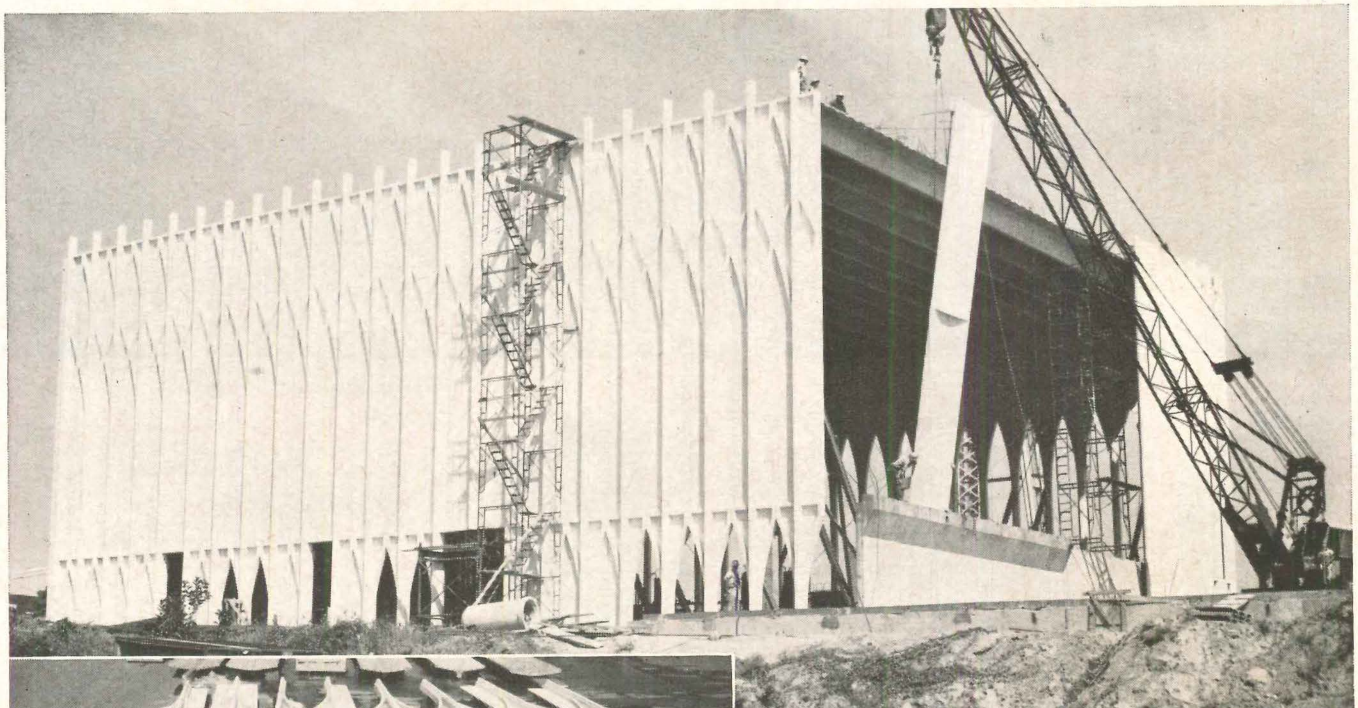
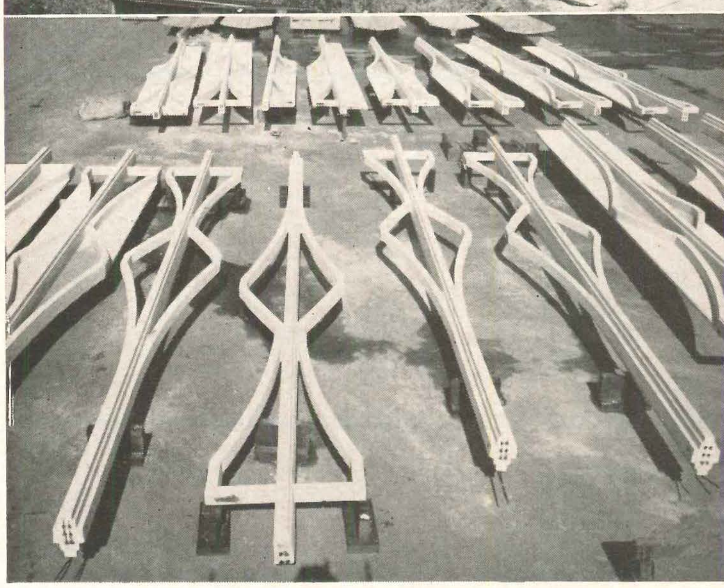
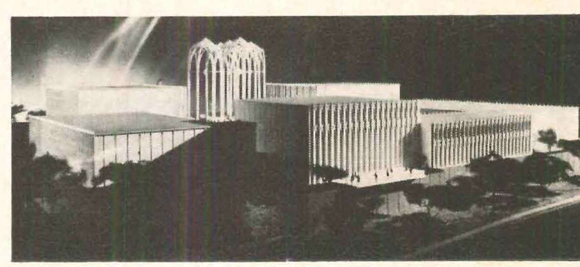




**ABOVE:** Swinging the panels into place
**LEFT:** The prestressed components
**BELOW:** Model of Science complex when finished

*Architects:* Minoru Yamasaki & Associates, Detroit
Naramore, Bain, Brady & Johanson, Seattle
*Precast Concrete Units:* Associated Sand & Gravel, Inc., Everett, Washington
*Engineers:* Worthington, Skilling, Helle & Jackson, Seattle



# ...wherever concrete must be beautiful

The United States Science Pavillion is one of two principal theme buildings of the Seattle World's Fair. After the Fair it becomes the city's cultural center.

The load-bearing S-type stud wall panels are 32 and 52 feet long. They are faced with Trinity White portland cement and white quartzite aggregate. They are prestressed. The high strength of Trinity White and the high-early-strength gray cement back-up permitted the forms to be stripped in 12 to 14 hours with steam curing. Panels are secured in place by either welding or bolting.

Problems of repeated turning, handling and transporting these massive members were neatly and ingeniously solved with specially outfitted lift trucks.

## —use Trinity White

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# Central Problem of Architecture

With no intention of reporting at any length on the conference, I must put down a couple of notes from the Urban Design Conference, lately concluded at Harvard. Maybe my essential timidity is coming to the fore, but I confess to thinking of the frightening aspects of the two items.

The first is a little report on the replanning of Boston, now under way. We understand that renewal programs to be completed within the next ten years embrace a third of the area of Boston and will affect at least one half of its population.

As I say, my own reaction on hearing this bit of news was a quick: "It's frightening." Perhaps this might be a lonely position. Certainly the source of the news—one of the official planners—did not show any signs of fright. More than likely many architects, possibly most architects, would merely think it wonderful to have such a replanning opportunity, and would proceed happily to start drawing. But—no aspersions at any one person—I should still worry about the prospects of a completely happy result for Boston.

The other note I mentioned bears on that concern. It was some introductory remarks by the famous Ed Bacon as he began a paper. He recounted a meeting last fall in Chicago when a group of hot-design architects were discussing "Modern Architecture and the Rebuilding of Cities."

"One of the participants," said Bacon, "sought refuge from city chaos in the creation of little miracle islands of perfect design; one asserted that city building would bore creative men; one plaintively asked that the architect be restored to the preeminent position without making it clear who was to restore him or why he didn't restore himself."

Modern architecture, he continued, shattered the Beaux Arts grand plan, but no such thing as a Modern City has yet arisen, only modern buildings separated by space.

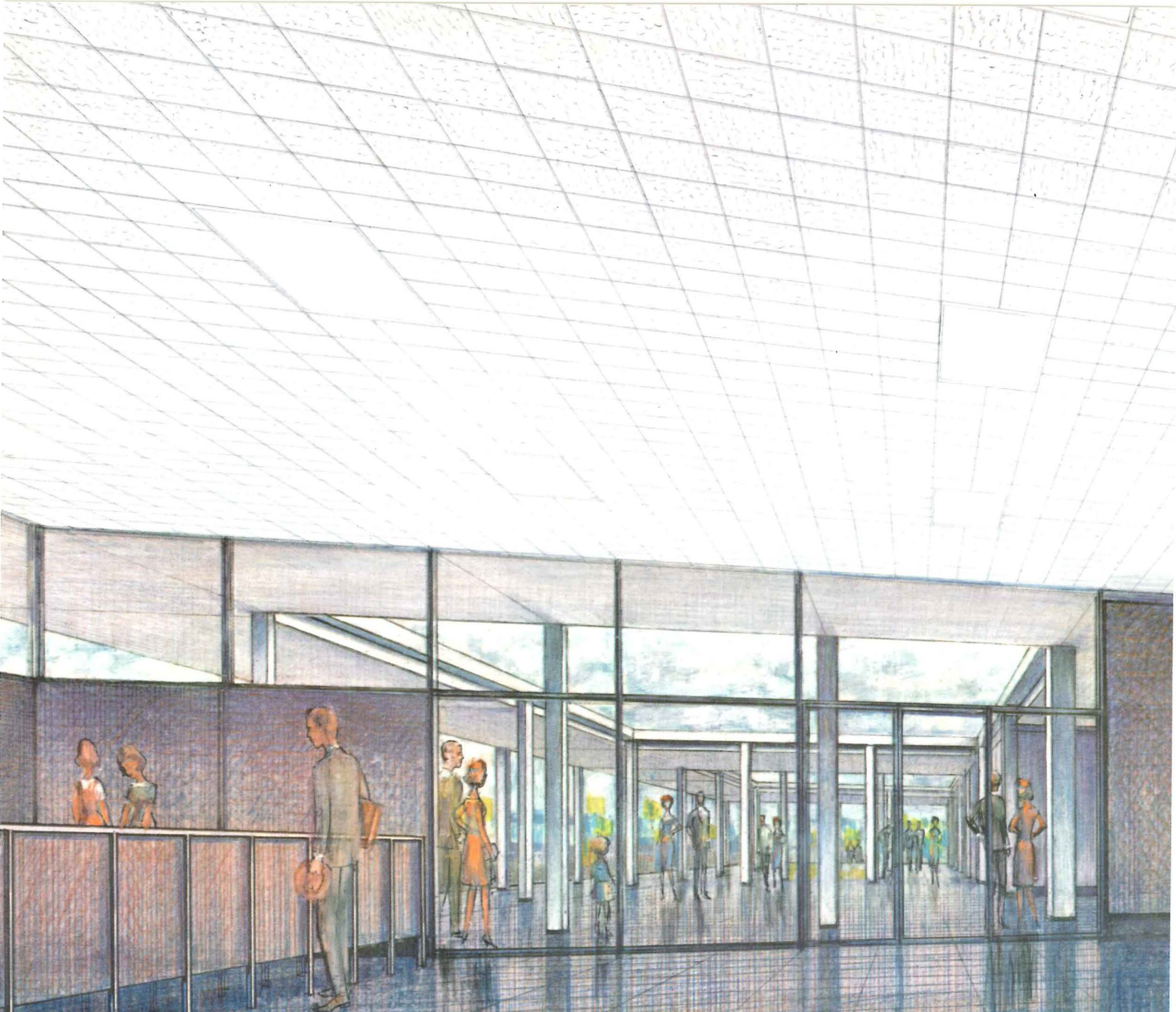
Let me hasten to add that, in my case at least, any doubts about the replanning efforts of architects are not limited to architects. These doubts are all-embracive: I just don't believe that we—any of us—know very much about the complexities of urban replanning. We don't even have much of an idea about the strictly architectural objectives and procedures involved, much less about the staggeringly complicated social objectives and necessities.

As the famous housing consultant, Charles Abrams, says in this issue ("Criteria for Urban Renewal," page 155); "What we need before we invest any more billions in the city is a determination of the goals toward which we are headed in the city's future development."

Now of course these tasks are before us. Our cities are wasting away; we are conscious of that erosion, and impatient to be doing something about it. The factor of time is the dominant one in present thinking. We must do something about our cities, and we cannot wait for the perfect solution. The federal government is heavily involved; the money is available. We have the pressure of the population explosion, and that pressure will be hovering over everything we do. We are going ahead, and if that means "barging ahead," well, there is no escape—we shall go barging ahead.

The obligation is to move as thoughtfully as possible, to think broadly and earnestly. Now of course I'm not alone in being concerned about the onslaught of urban renewal, but I could wish that everybody would share my fright. And I could wish that many of those architects of Bacon's little story would get themselves involved in planning, and then get concerned and frightened. For, as he said, ". . . the city will continue to exist, it will continue to be the center of our culture, and it will continue to be the central problem of architecture whether the profession of architecture recognizes it or not."

—*Emerson Goble*

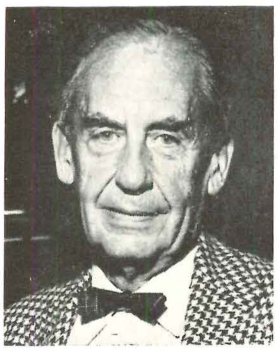


# THESE NEW ARMSTRONG VENTILATING CEILINGS BRING TUCSON CITY HALL UNIFORM AIR DIFFUSION AND RATED FIRE PROTECTION

RENDERING BY ARA DERDERIAN

# RECORD NAMES FIVE ARCHITECTS TO NEW PANEL OF EDITORIAL CONSULTANTS

*Wunmer*



Walter Gropius, F.A.I.A.

Edward Larrabee Barnes, A.I.A.

Paul Rudolph, A.I.A.

*Wesley Swadley*

Robert Anshen, F.A.I.A.

*Lens-Art*

Robert F. Hastings, F.A.I.A.

Five distinguished architects have been named to a new panel of editorial consultants to Architectural Record, Editor Emerson Goble has announced.

The five, who will serve for a year, are Walter Gropius, Edward Larrabee Barnes, Paul Rudolph, Robert Anshen and Robert F. Hastings. They succeed John Ely Burchard, dean of the School of Humanities and Social Studies at the Massachusetts Institute of Technology, who was a consulting editor to the Record for three years.

Addition of a panel of architect consultants to the Record's staff of editors and consultants is intended, Mr. Goble said, as a new aid in the perpetual effort to maintain clear and close communication with readers on their developing interests and concerns. It is hoped the panel will serve as a special kind of "voice from the audience" to provide continuing criticism and comment as well as consultation from time to time on specific editorial projects, thus usefully supplementing the Record's constant ordinary contacts with its readers through day-to-day conversations and correspondence as well as continuing research as to reader needs and preferences.

**Walter Gropius,** 79 this year, seems if possible to be increasingly active as the years go on. The work of his 16-year-old Cambridge, Mass., firm, The Architects Collaborative, extends almost literally around the world, and Gropius himself is almost as likely to be met in London, Berlin, Baghdad or Athens as in Cambridge, Boston or New York. His practice is now giving him his most significant opportunities to teach by example as well as precept. In such projects as the new university for Baghdad and his new town for GEHAG in West Berlin, he is giving their fullest architectural expression to the convictions that shaped the education of the first modern architects and their successors to this day.

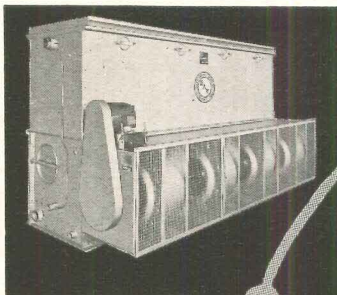
**Edward Larrabee Barnes,** 47, has had his own practice in New York for 14 years following education at Harvard, travel in Europe, Navy service and a year's association with Henry Dreyfuss. His honors include the Yale Medal for Distinction in the Arts and the Architecture Gold Medal, Arnold W. Brunner Prize, of the American Academy of Arts and Letters and the National Institute of Arts and Letters.

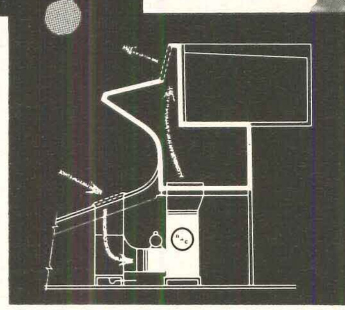
**Paul Rudolph,** 43, has been combining education and practice since he went to Yale in 1958 as chairman of its Department of Architecture. He was educated at Alabama Polytechnic Institute and Harvard, served in the Navy during the war and travelled in Europe before beginning practice as a partner in the Sarasota, Fla., firm of Twitchell and Rudolph (1947-51). Since 1952 he has had his own firm in Sarasota and (since 1958) in New Haven. His recent honors include the Architecture Gold Medal, Arnold W. Brunner Prize of the American Academy of Arts and Letters and the National Institute of Arts and Letters.

**Robert Anshen,** 48, has been practicing since 1940 in partnership with William Stephen Allen (also F.A.I.A.). In its first 15 years of practice, the San Francisco firm of Anshen & Allen, architects, received more than thirty awards for design excellence, and at the same time the firm was blazing important trails toward new fields of service for architects; development housing, prefabricated building components, and even ships have been part of their work, along with more conventional commissions for office, college, research and hospital buildings. Anshen is a University of Pennsylvania graduate.

**Robert F. Hastings,** 47, is the one representative on the Record's panel of a large architectural and engineering firm. As president of Smith, Hinchman & Grylls Associated, Inc., of Detroit, he is responsible for one of the largest, and his experience there since 1937 has led him to the most active interest in the education, training and practice problems that confront the architectural profession today. He is perhaps particularly concerned with the need for improving collaboration between architects and engineers. Hastings is a member both of the American Institute of Architects' Committee on the Profession and of its three-man Commission on Education.

# '100 Ton' B.A.C. Cooling Tower installed in spectacular Space Needle





For a project so imaginative as Seattle's spectacular Space Needle, it is not surprising that provisions for its cooling tower also took imagination. The very nature of the Space Needle's design presented numerous restrictions in which the cooling tower would have to operate. In modern building design, it is not unusual to find rigid tower location requirements, but it is seldom that so many apply to a single structure.

A Baltimore Aircoil cooling tower was selected for the Space Needle because its characteristics met these exacting requirements:

**A compact tower to handle 100 tons of heat rejection in limited floor space.** (Actual installed load is 50 tons of absorption refrigeration.) The BAC tower has the size to fit the space and the capacity to do the job.

**A tower that can be architecturally hidden.** Its centrifugal fans are very suitable for an inside installation where ductwork is involved.

**A tower with low operating weight.** Although BAC towers are ruggedly built of heavy-gauge steel, their operating weights are amazingly low—ideal for the Space Needle.

**A completely fireproof tower.** BAC towers can't burn. Even the "fill" is made of hot-dip galvanized steel.

**A tower that operates quietly.** The tower location directly above the observation level demands low sound levels. BAC centrifugal fan towers are inherently quiet in operation—with complete sound ratings available!

If you are designing or engineering a structure where any or all of these factors are involved, Baltimore Aircoil is building your cooling tower now. Let's talk about it.

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General Contractors: Howard S. Wright Constructors, Inc.
Mechanical Contractors: University Plumbing & Heating Co.

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# U.S. PICKS ARCHITECT BY COMPETITION

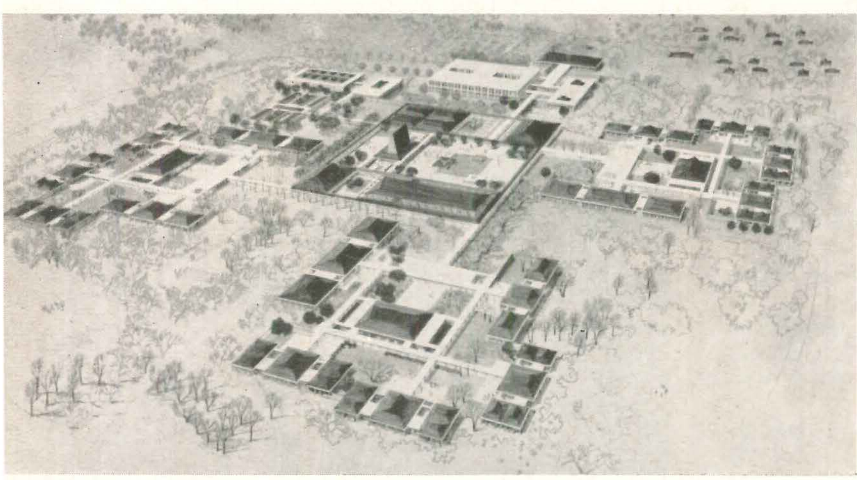
In a move which could be an indication of a new and enlightened approach to the design of Federal buildings, the General Services Administration and U.S. Bureau of Prisons have sponsored a competition for the design of a multi-million dollar psychiatric hospital complex for Federal prisoners.

Winner of the competition and a $7000 cash award was A. L. Aydelott & Associates, Memphis, Tenn. A rendering of the winning design and plans are shown on these pages. Placing second was A. G. Odell Jr. and Associates, Charlotte, N.C.; and third, Smith, Hinchman and Grylls Inc., Detroit, Mich.

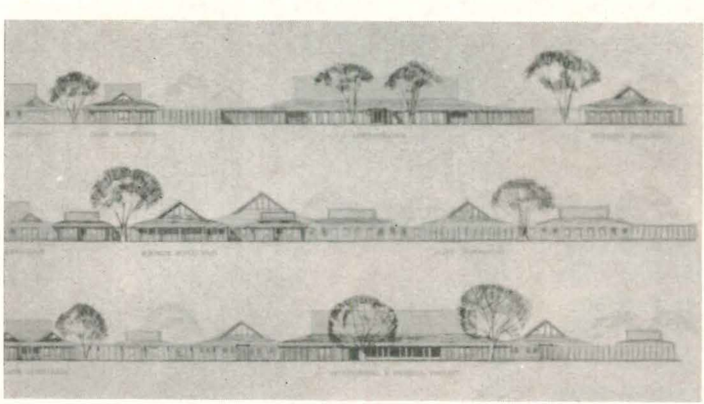
Chairman of the jury was Pietro Belluschi, F.A.I.A. Members were: Welton Becket, F.A.I.A.; Arthur H. Keyes Jr., A.I.A.; John Carl Warnecke, F.A.I.A.; James V. Bennett, director, Bureau of Prisons; Dr. Jack Masur, president, American Hospital Association; and artist William Walton. Professional adviser was L. L. Hunter, assistant commissioner for Design and Construction, Public Buildings Service.

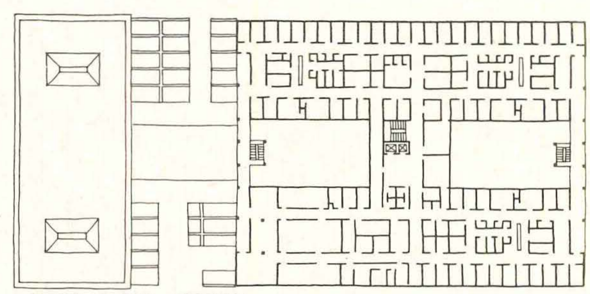
Unique problems were involved in the design. What was wanted was a combination hospital and prison, providing maximum opportunity for treatment and research in a setting affording an adequate degree of custodial security. Patients were to be housed and treated in small groups. This type of institution had never before been designed; hence the competition to which eight architectural firms were chosen to enter. In addition to the winners they were: Curtis and Davis, New Orleans; Hellmuth, Obata & Kassabaum Inc., St. Louis; Kelly and Gruzen, New York; Kemp, Bunch and Jackson, Jacksonville, Fla.; and Robert and Company, Atlanta, Ga.

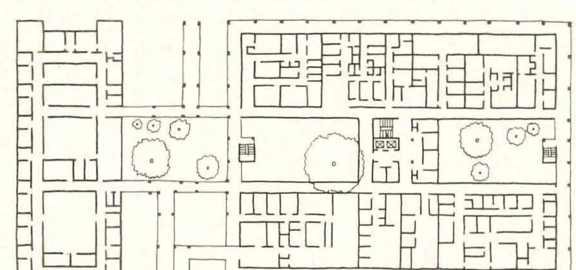
The jury report saw basic design philosophy as "buildings can help the psychiatrists cure the patients." Its comments: the architect kept "the center from looking like a hospital or prison . . . developed residential character by using pitched roofs, living yards . . . considered economy through simple, one-story buildings . . . introduced the small neighborhood concept by breaking housing into three units around a 'civic center'."

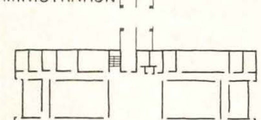


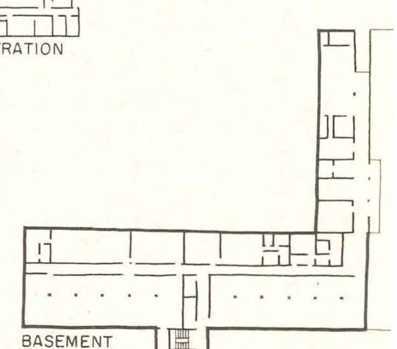
Rendering of the winning design for the psychiatric hospital complex for Federal prisoners

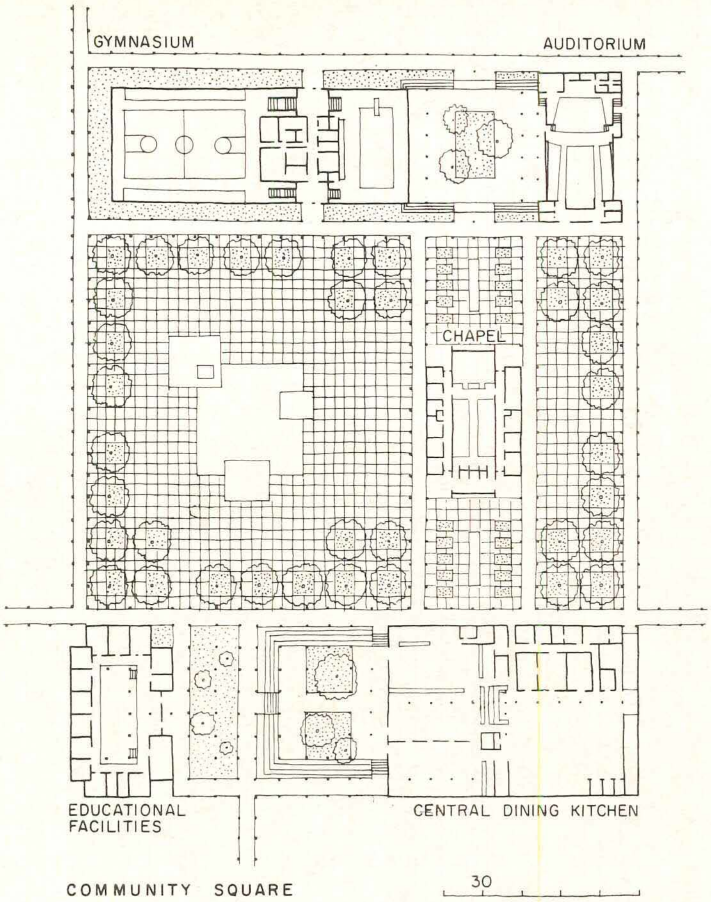




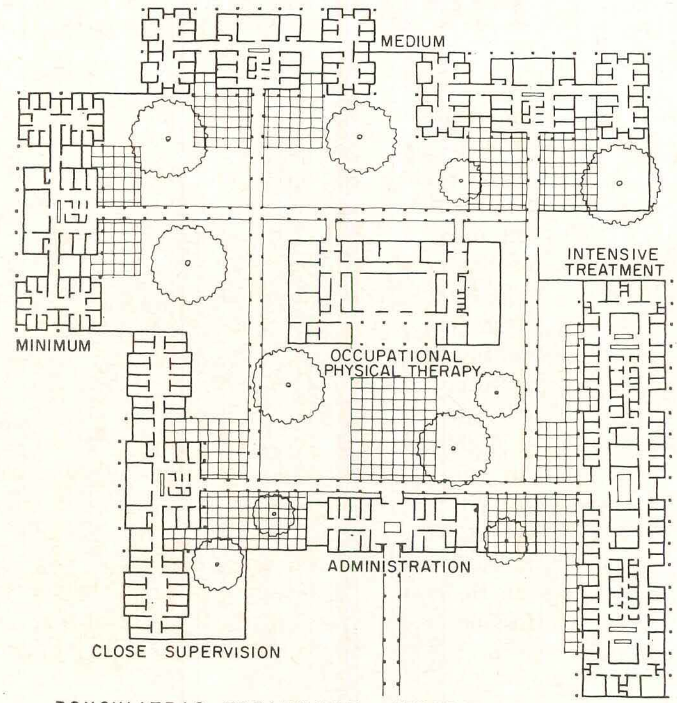



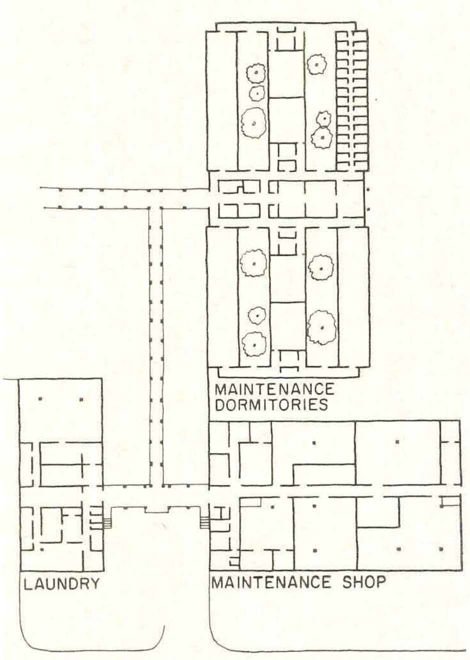



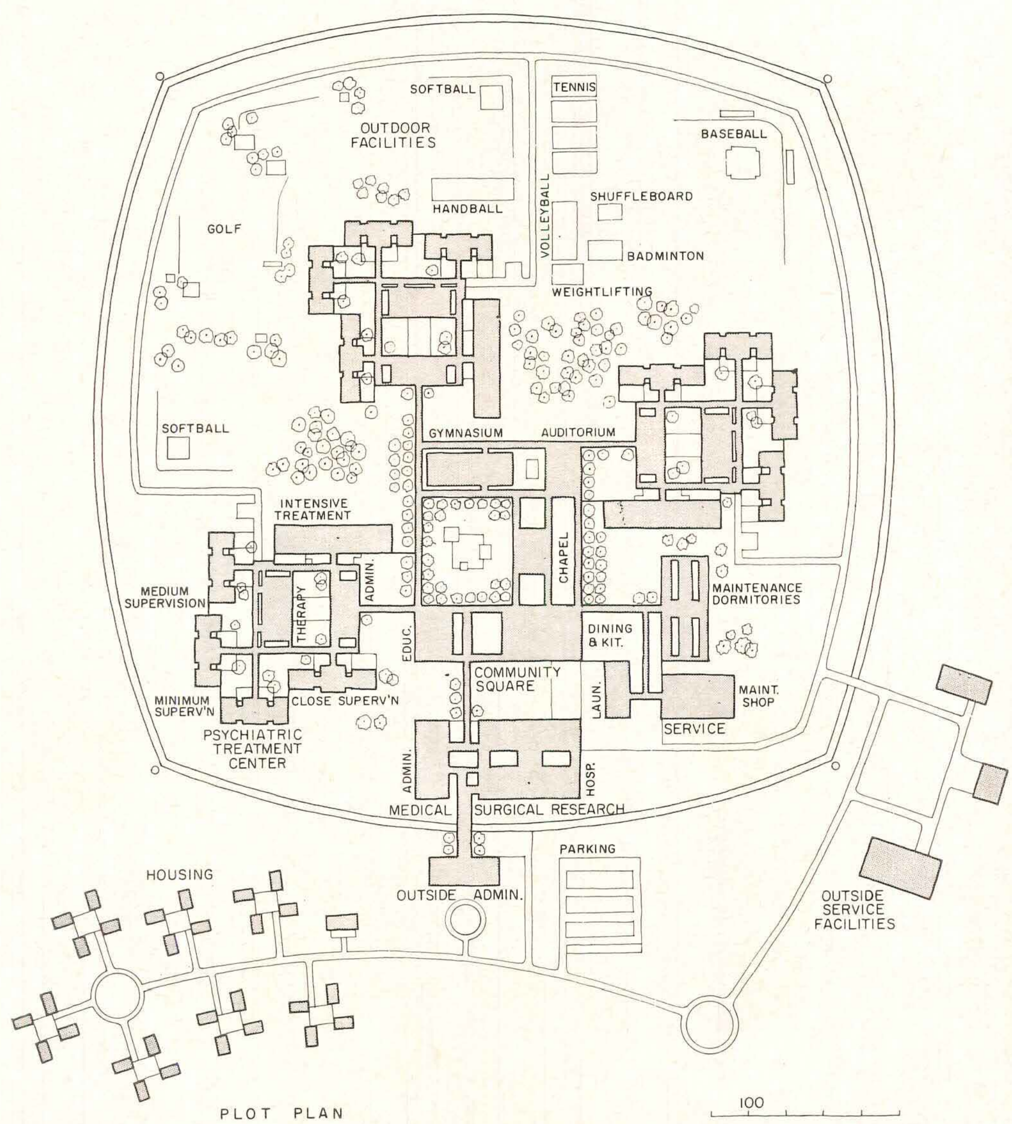



COMMUNITY SQUARE

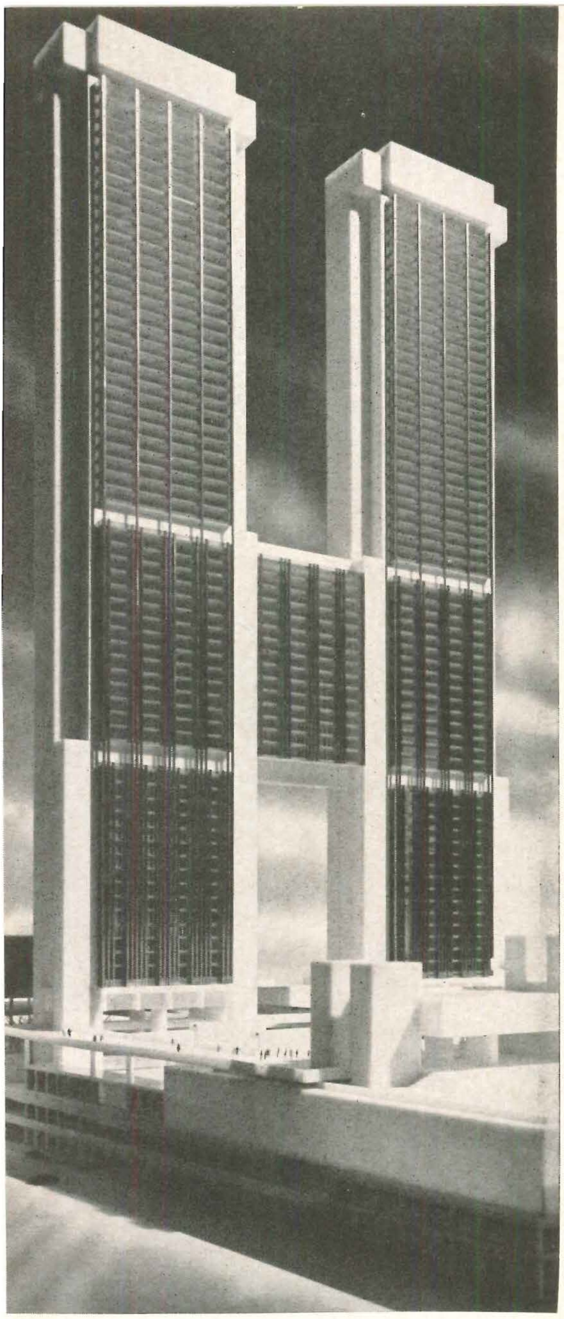



PSYCHIATRIC TREATMENT CENTER




PLOT PLAN



© Ezra Stoller Associates

Existing street or third level is for use of cars, taxis. Two pedestrian levels above are commercial areas around central square. Above is sixth level for recreation

# COLUMBIA STUDENTS PLAN DALLAS CORE FOR CLIENT

At the request of a group of businessmen from Dallas, Texas, in the fall of 1960, the School of Architecture of Columbia University, New York, began developing a plan for the revitalization of the older section of that city, which has now been completed and turned over to the group. Welton Becket, F.A.I.A., Los Angeles, has been commissioned for future building projects.

The businessmen lent their financial support for increasing faculty salaries, sponsoring student scholarships and directly contributing to the cost of work on the project.

Making an academic problem out of an existing one, the Columbia School of Architecture used a program it contemplates in its current reorganization—"the fullest possible coordination between the disciplines of architecture and city planning." As an educational vehicle, the project combined the efforts of architects, city planners and economists and contributed to the solution of a real architectural problem.

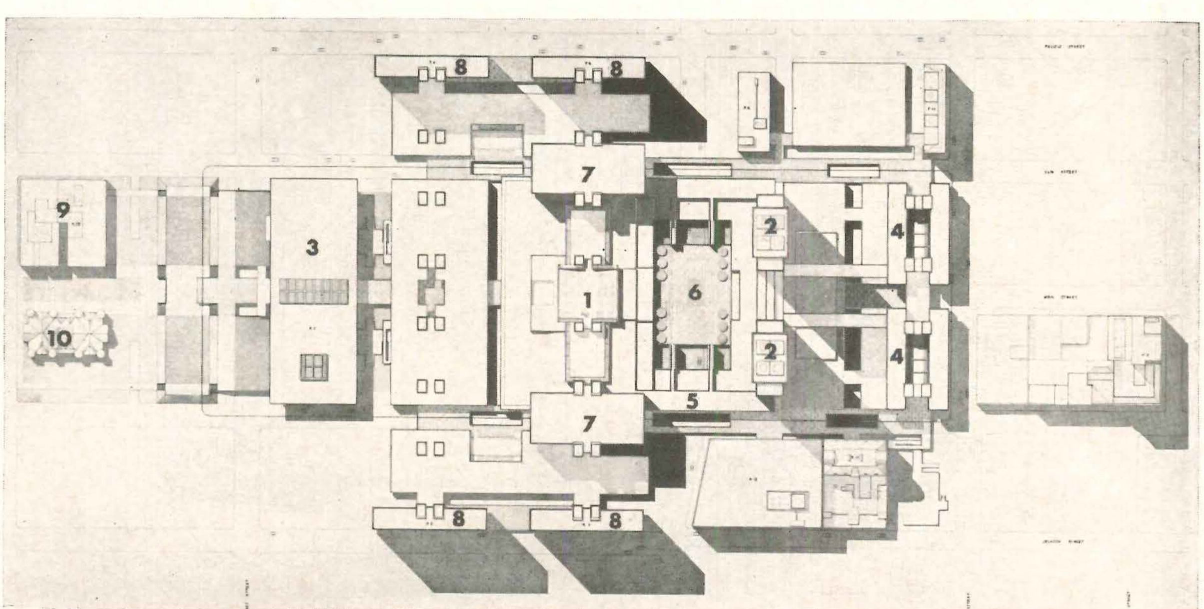
The project, known as Main Place, encompasses 36 blocks and consists of six levels. The first is for service vehicles; the next for long-term parking (about 1000 cars); the third, for cars, shuttle buses. The next two levels, exclusively pedestrian, are commercial areas around a central square. Recreational facilities are located on the top level.

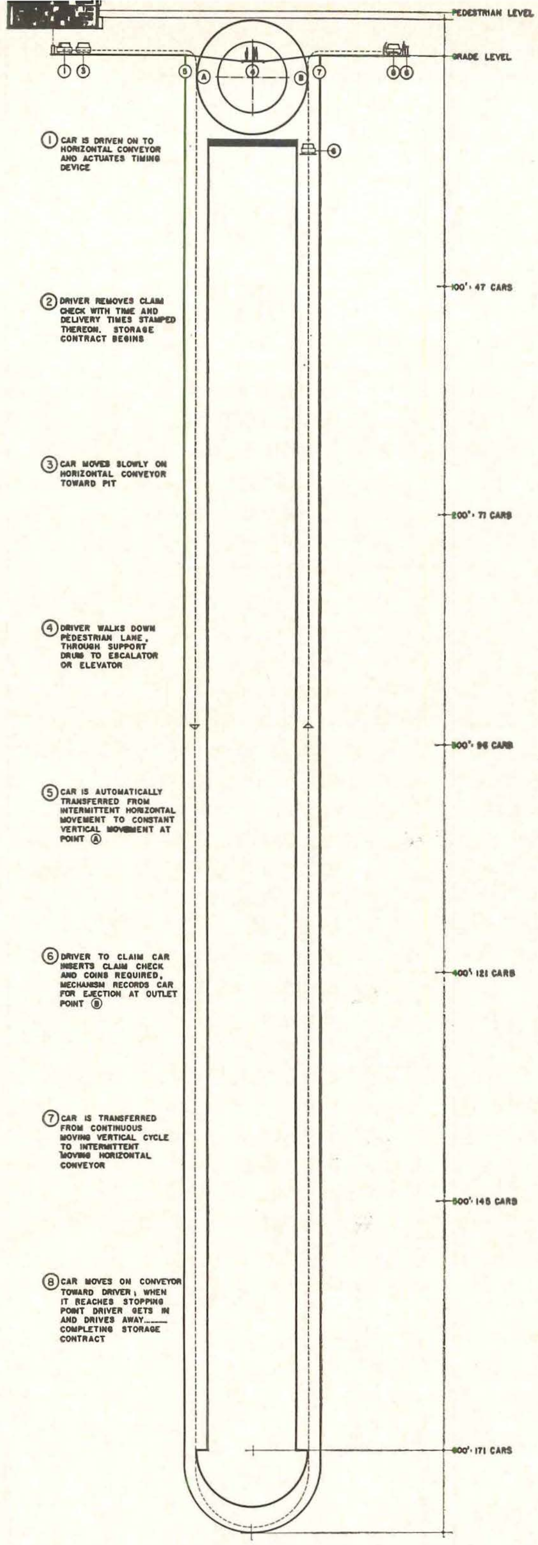
Above the multi-level base are three main building elements—the motor hotel, office tower, museum. Around the edges of the core, about which expansion will continue, are a performing arts center and several existing buildings newly linked to the project.

Participating members of the faculty and student body at Columbia's School of Architecture were—*faculty*: Charles R. Colbert, architect-planner; Ernest M. Fisher, economist; Stephen Carroll, urban planner; Key Kolb, designer-critic; *students of architecture*: Aaron Daniel, John D. Davison, Orhan Erdil, Gerald Exline, Friedrich St. Florian, James Patterson, Howard C. Pederson, Robert G. Price, Robert J. Reilly, Jack Solka, William Todd Springer, Carlisle Towery; *students of planning*: Noor Ahmed, Neil Robert Berzak, Stanley Ronald Friedman, Peter Garrison.

**ROOF PLAN LEGEND**

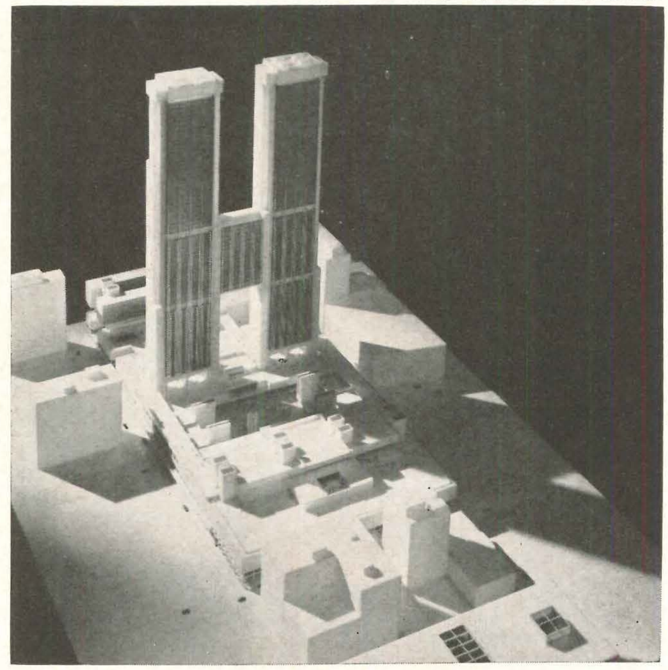
1. Amphitheater above museum
2. Office tower
3. Performing arts center
4. Motor hotel
5. Walkway
6. Dallas Square
7. Office building
8. Apartment tower
9. County buildings
10. Museum



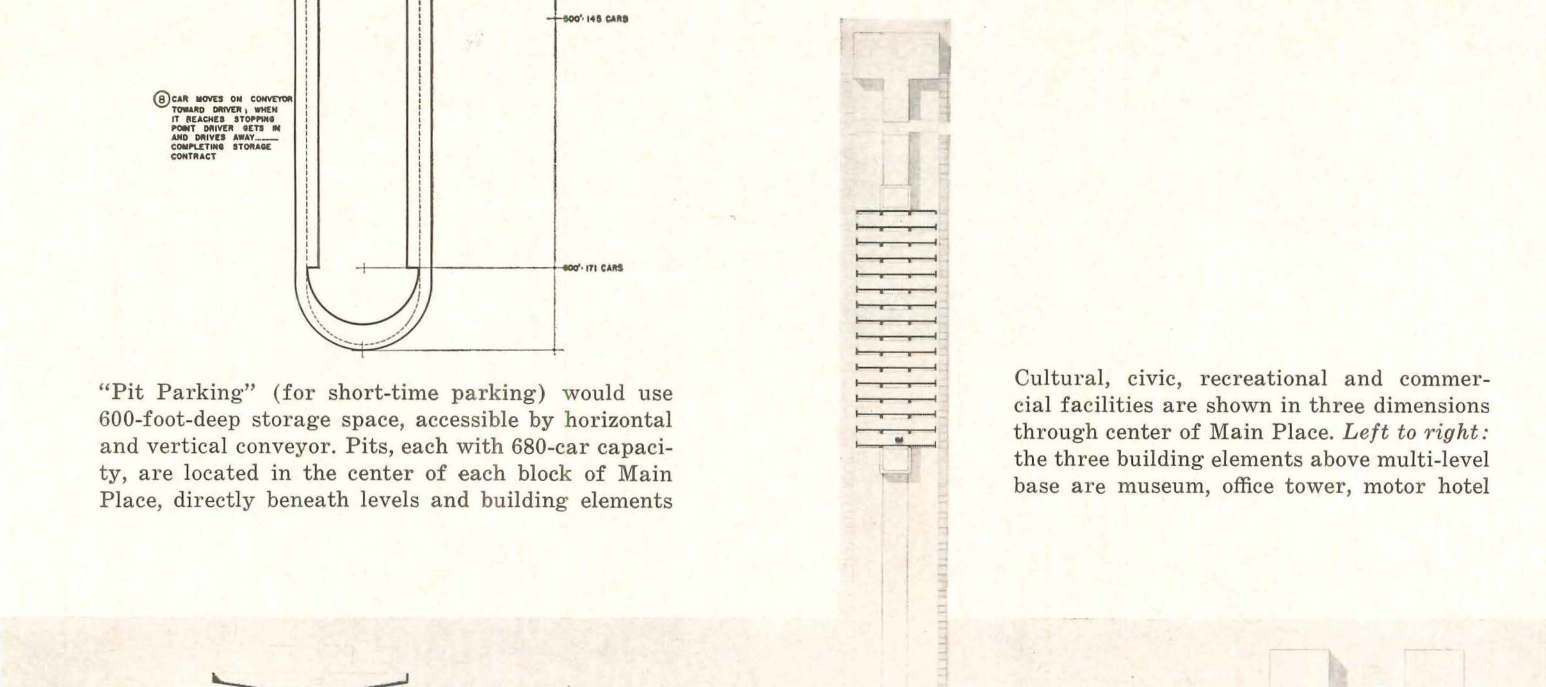



"Pit Parking" (for short-time parking) would use 600-foot-deep storage space, accessible by horizontal and vertical conveyor. Pits, each with 680-car capacity, are located in the center of each block of Main Place, directly beneath levels and building elements

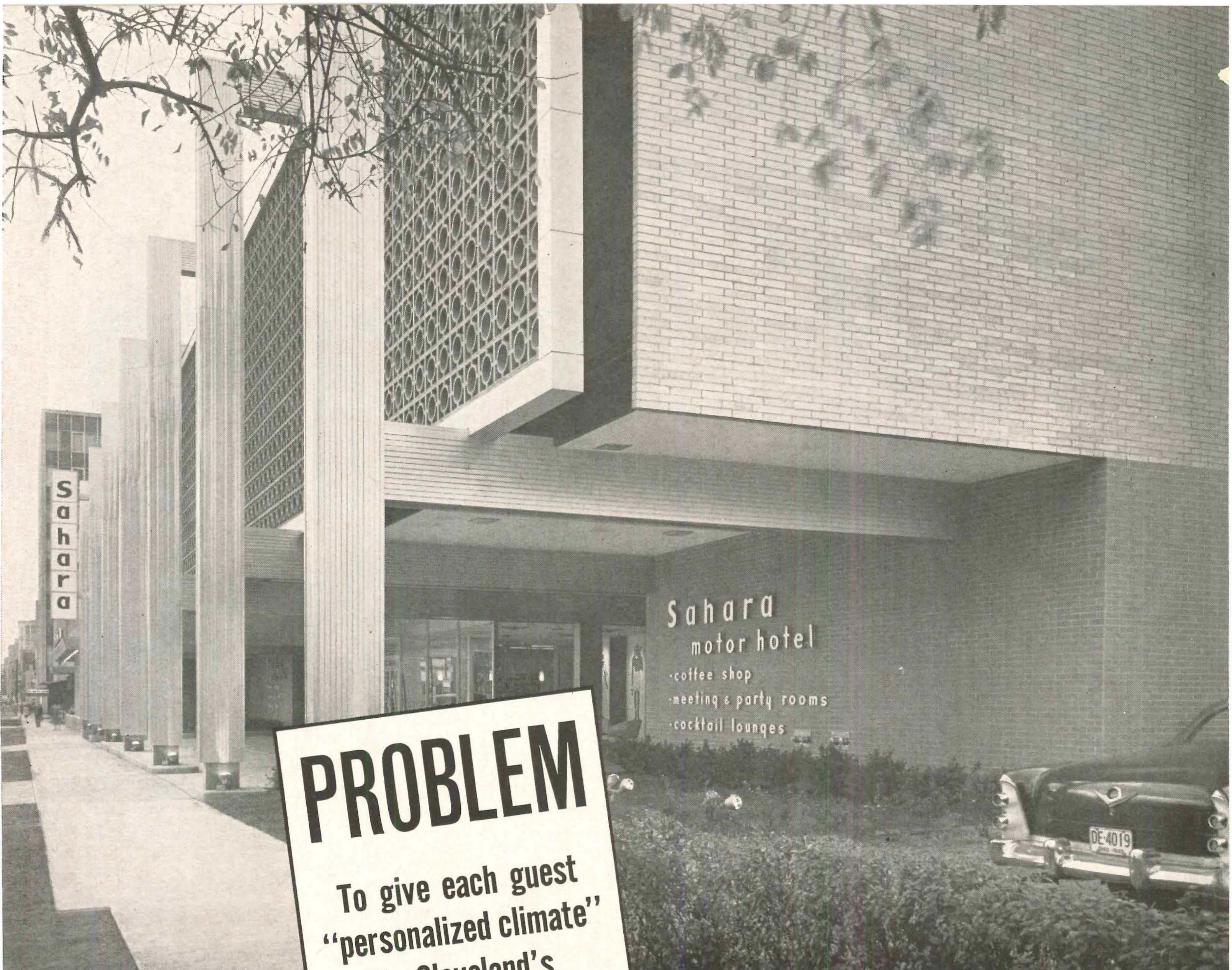
© *Ezra Stoller Associates*



Model of Main Place, core of the Dallas development plan



Cultural, civic, recreational and commercial facilities are shown in three dimensions through center of Main Place. *Left to right:* the three building elements above multi-level base are museum, office tower, motor hotel




Designer and Architect, Norman Giller and Associates, Miami Beach, Florida

# PROBLEM

To give each guest "personalized climate" in Cleveland's SAHARA MOTOR HOTEL

# SOLUTION

# YORKAIRE THREE PIPE heat some rooms,

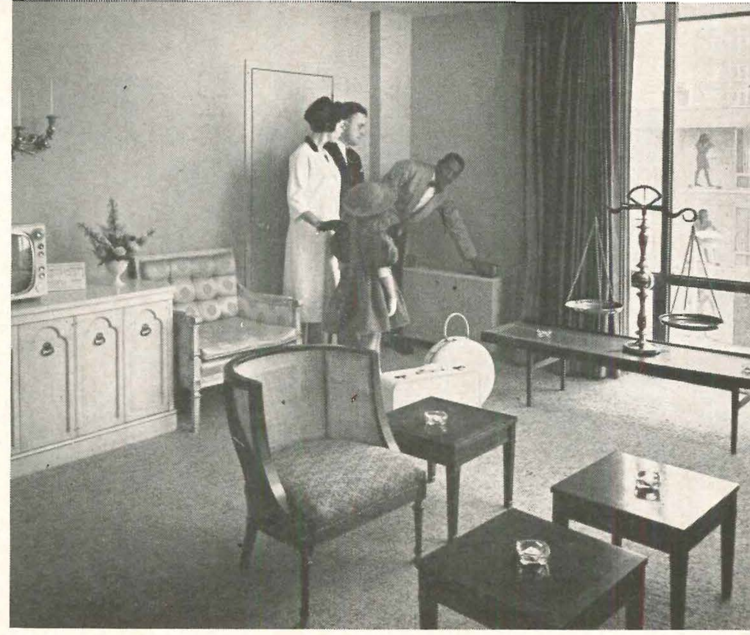
## Now! York makes it possible for you to provide custom comfort for any building—without costly zoning or extra ductwork!

**Here's the modern way to air condition** a motel, hotel, apartment or office building . . . any multi-room building! It's the YORKAIRE Three Pipe Air Conditioning System that meets varying occupancy and solar factors, when some rooms require heating, others cooling—at the same time.

**Pioneered by York,** the YORKAIRE Three Pipe System uses one pipe for chilled water supply, one for hot water supply, one for return. A special valve admits just the right amount of chilled or hot water—from full flow to trickle to no flow—to each room terminal. There is no mixing of the hot and cold water supply, no bucking heating with cooling. The results are improved comfort conditions for occupants, lower heating and cooling costs for building owners.

**Completely flexible,** the YORKAIRE Three Pipe System may be applied in fan-coil or induction systems. For induction systems, less primary air fan

Each guest chooses the climate he wants!



Shaded rooms may be heated, while sunny rooms are being cooled!

# AIR CONDITIONING...that can cool others, at the same time!

capacity is required and no return ducts are needed . . . so there is considerable space-saving as well as reduced installation and fan power costs.

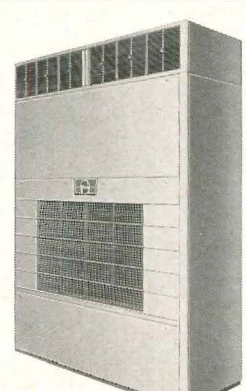
**Plan ahead with York** when you plan air conditioning for any type of building. For over 75 years, York has pioneered major advances in conditioning air for comfort and process. For complete facts on the YORKAIRE Three Pipe System—and a list of the major buildings where it has been installed—see your York Representative; or write York Corporation, York, Pa.

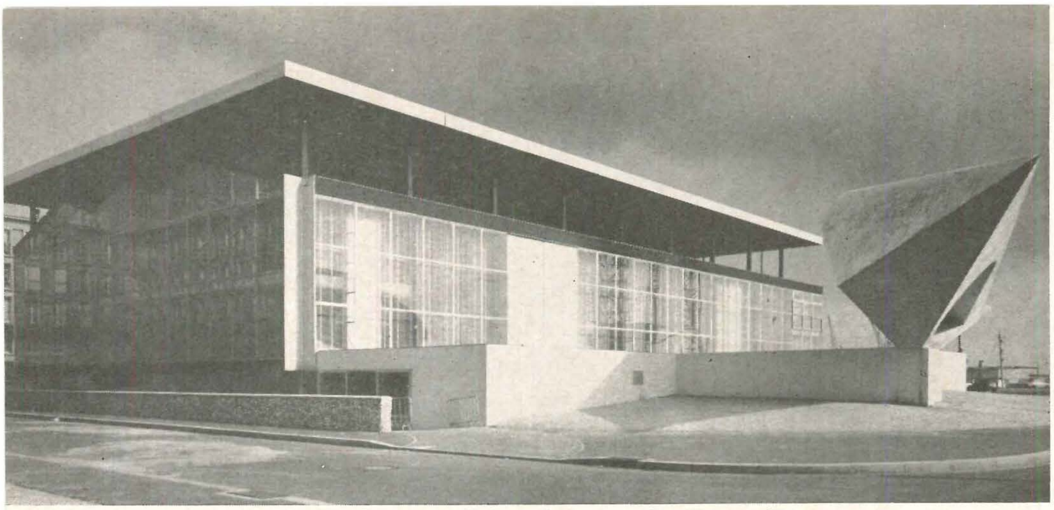
**YORK**® CORPORATION
Subsidiary of Borg-Warner Corp.
YORK, PENNSYLVANIA ®

THE QUALITY NAME IN AIR CONDITIONING AND REFRIGERATION

**ANOTHER YORK SOLUTION!**

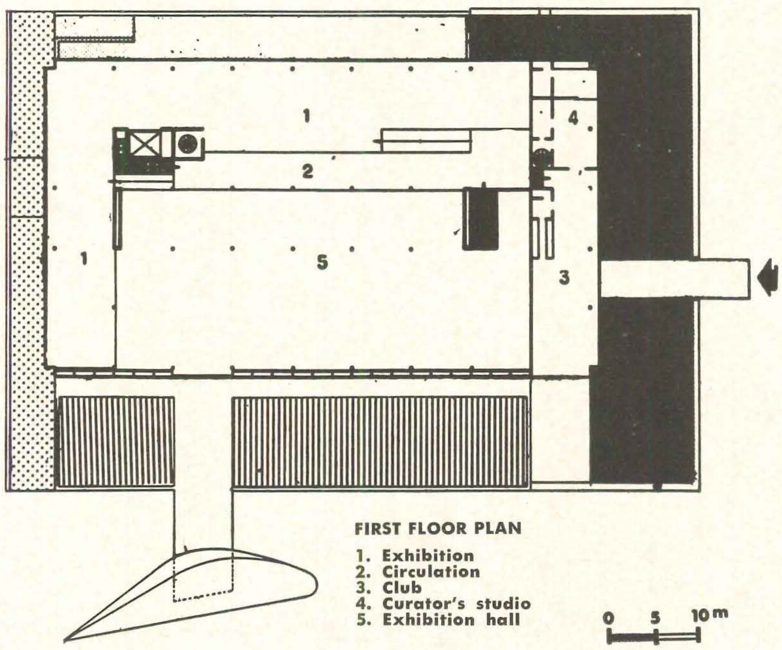
Cool a smaller building, or part of a multi-story building, with a YORK EMBASSY AIR CONDITIONER. May be installed with or without ductwork.

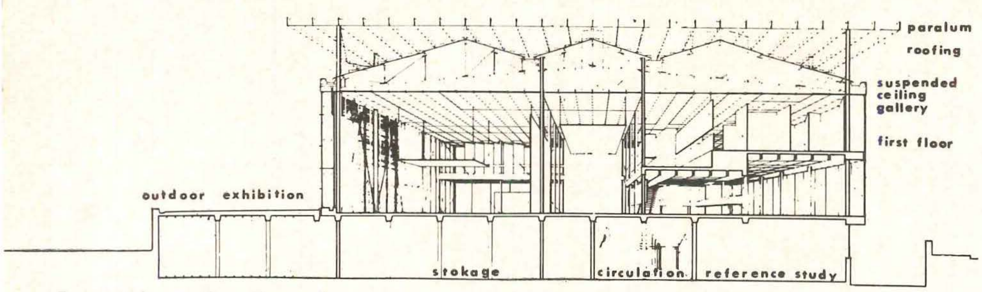




Fernez

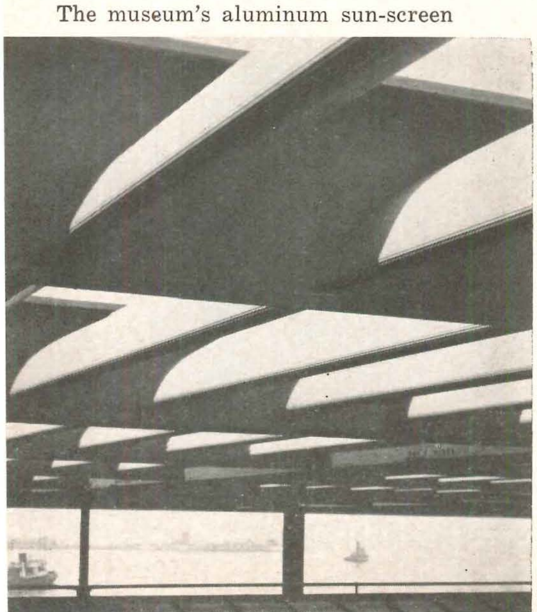
Northwest elevation of the Museum Cultural Center, Le Havre, France



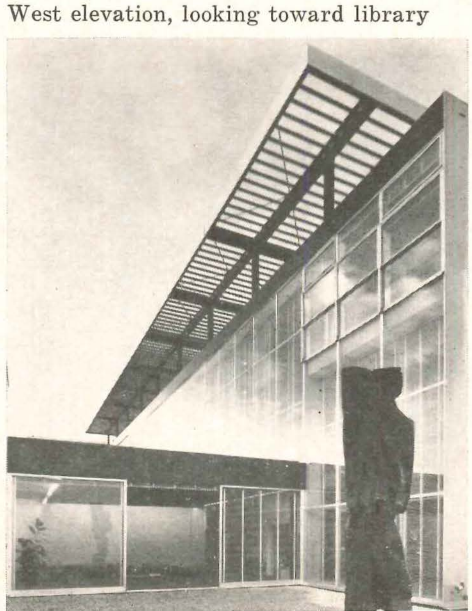

Isometric section through museum

The museum's aluminum sun-screen



*Pierre Joly-Vera Cardot*

West elevation, looking toward library



*Pierre Berdoy*

# FRENCH DESIGNERS WIN 1962 REYNOLDS AWARD

Guy Lagneau, Michel Weill and Jean Dimitrijevic, principals in a Paris architectural firm bearing their names, and collaborating architect Raymond Audigier, Le Havre, have won the 1962 $25,000 R. S. Reynolds Memorial Award for the design of the Museum Cultural Center in Le Havre, France. Jean Prouve was advisory engineer; Lafaille & Sarger, structural consultant; Gagneraud & Camus, general contractor.

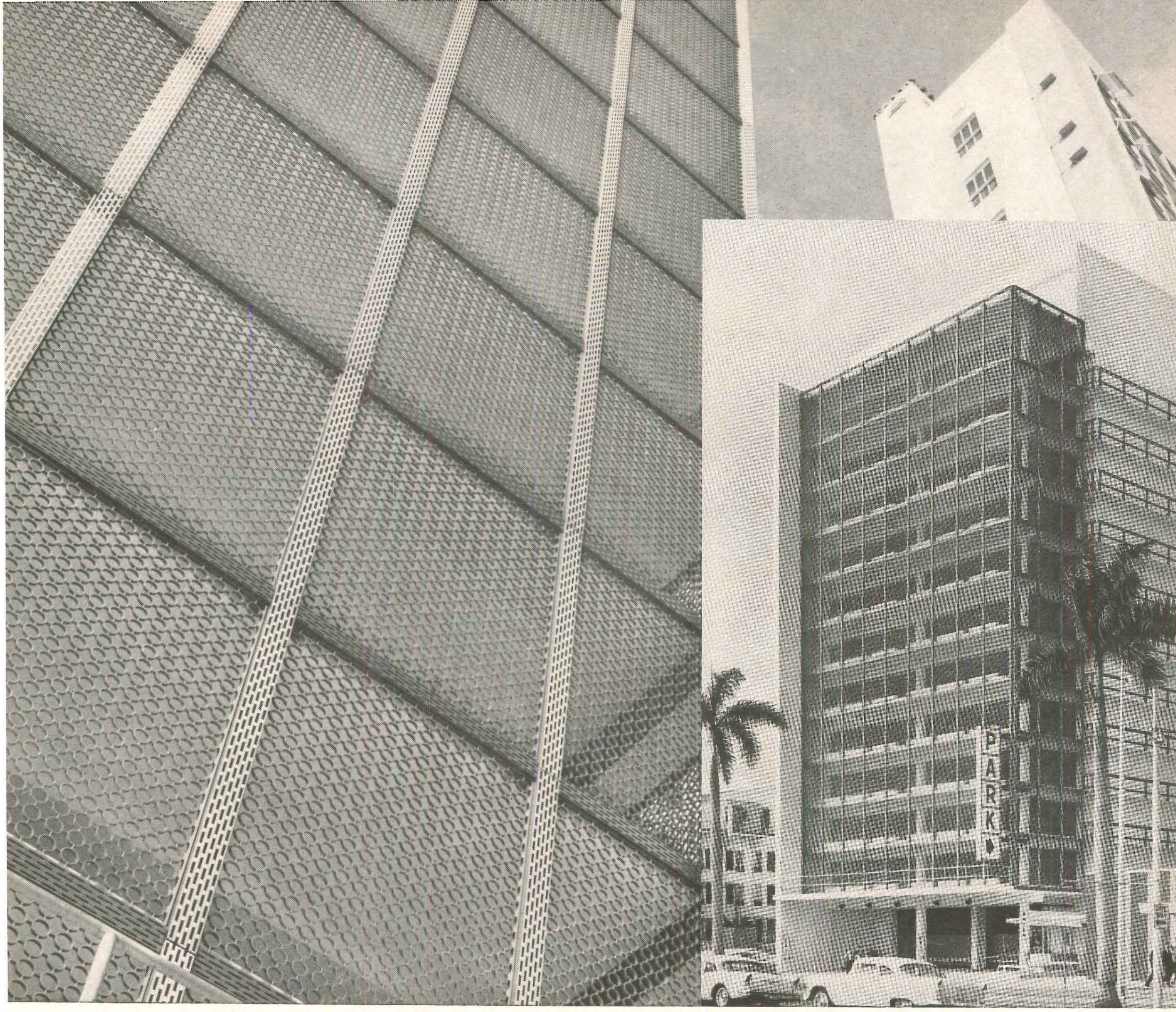
John Carl Warnecke, F.A.I.A., San Francisco, was chairman of the jury of award, whose members were: Pietro Belluschi, F.A.I.A.; Lawrence Perkins, F.A.I.A., Chicago; Gyo Obata, A.I.A., St. Louis; Santiago Agurto Calvo, Honorary FA.I.A., Lima, Peru.

The Museum Cultural Center, completed in June, 1961, houses permanent and temporary exhibitions, a library, art school and an 800-seat auditorium.

The jury's three major criteria were: (1) architectural concept and solution; (2) degree of success in controlling natural light; and (3) use of aluminum in contributing to the design's success.

The jury considered the museum, whose roof and walls are sheathed in glass, as "honest, clean, well designed." Key feature cited was its effective control of natural light, achieved largely through a unique floating aluminum sunscreen over the entire skylight-glass roof, termed by the jury a "daring and unusual approach."

Aluminum—37 tons in all—was used, according to the architects, because of its lightness, quality of light diffusion, finely finished surfaces and resistance to corrosion in Le Havre's oceanside environment. Besides the sunscreen, aluminum was used for structural frame sheathing, wall and door panels, fittings and a door 23-ft high and 10-ft wide.




# 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.

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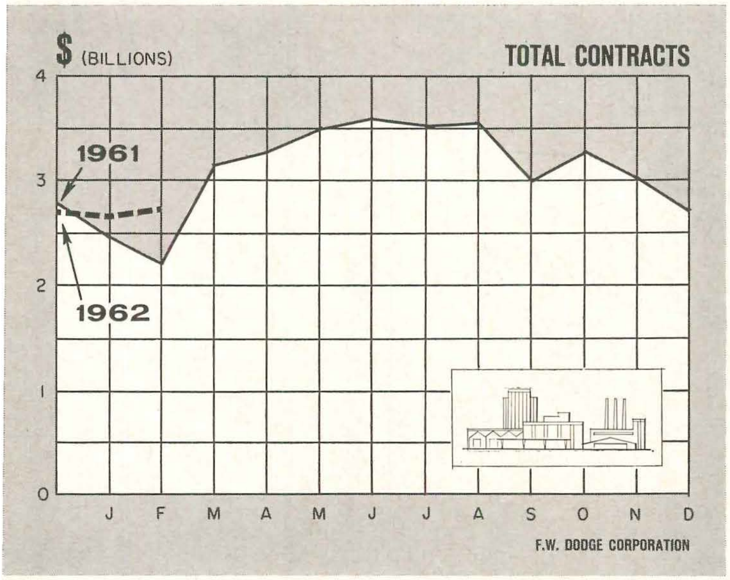
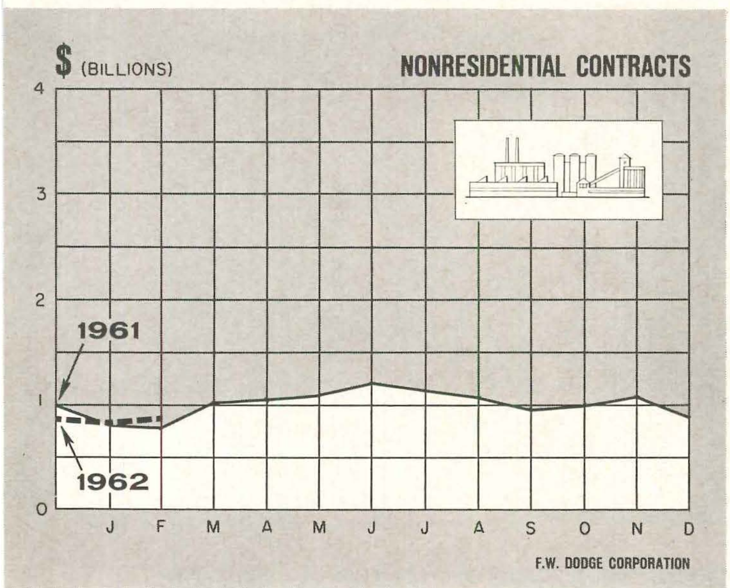
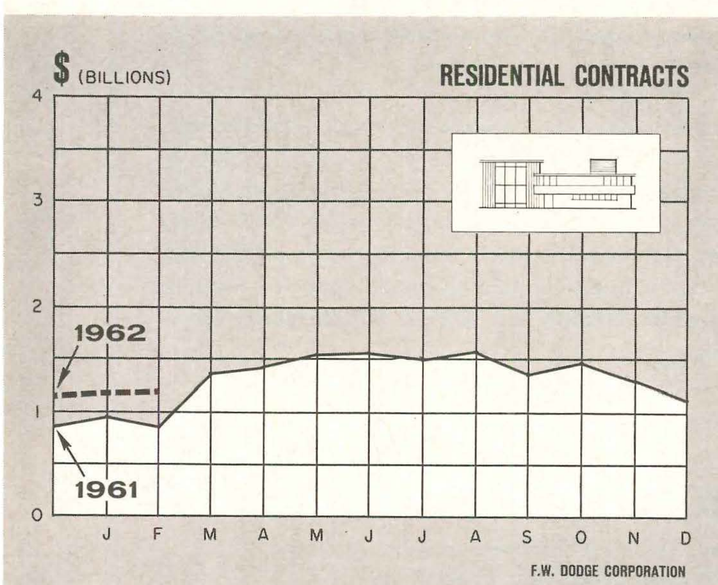
**PLANTS AT: LEEDS, ALABAMA; UNION, NEW JERSEY; CONROE, TEXAS**




*Total contracts include residential, nonresidential, heavy engineering contracts*




# OFFICE BUILDING CONTINUES STRONG UPWARD TREND

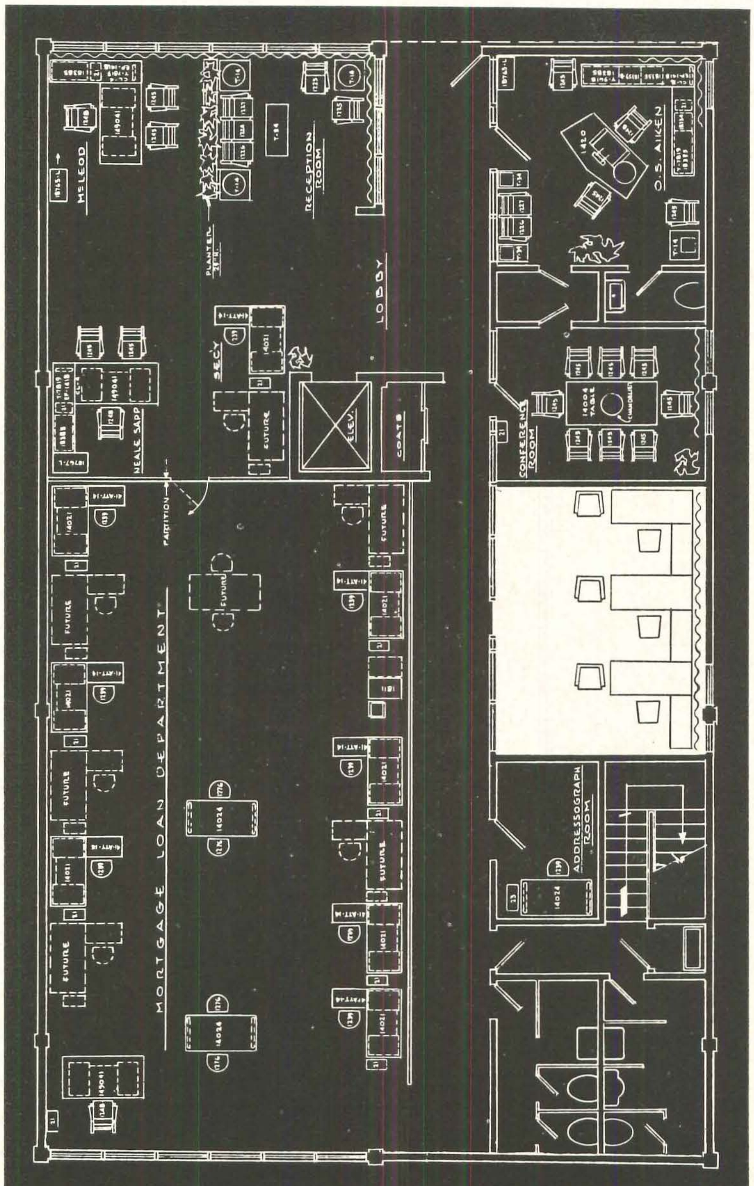
AFTER A MILD SETBACK in 1961, office building appears to have resumed the strong upward trend which has characterized this type of construction throughout most of the postwar period. Contract awards in the first quarter of 1962 rose a solid 19 per cent over their year-earlier level, easily setting a record high for the period.

One of the interesting facets of present-day office construction is its geographical dispersion. New skyscrapers, though still concentrated in New York and Chicago, are sprouting in other parts of the country, particularly Texas and California. The middle-size cities and metropolitan areas have been getting into the act too. Rochester, New York, for example, recently celebrated the completion of the first large privately-owned office building in its downtown area in over 30 years. According to last year's Dodge figures, the Middle Atlantic region, including the metropolitan areas of New York, Philadelphia, and Washington, D.C., accounted for about 27 per cent of total dollar volume of office building contracts. But a good part of this was very high-priced construction. In terms of square footage, the middle Atlantic states were responsible for only 21 per cent, while the 11 Western states took first place among the eight Dodge regions with 25 per cent of total physical volume.

BASIC DEMAND FACTORS behind the postwar boom in office construction are still operative and support a hopeful outlook for the future. Despite the addition of about *450 million sq ft* of new office space in the last six years, vacancy rates across the country have shown only a modest rise. Office building cannot help but benefit from the increasing proportion of trade, financial, and service activity in the economy and the growth of "white-collar" work relative to farm and manufacturing employment. Projections of the U.S. Bureau of Labor Statistics indicate that jobs in the "white-collar" trades will rise from 43 per cent of total civilian employment in 1960 to 47 per cent by 1975. Over the same period, the number of such workers is expected to expand by 13 million.

There are, of course, a few clouds on the office building horizon. One of them is the possibility of tax revision which would make commercial projects somewhat less attractive to investors. In such case, out-and-out speculative building in some areas would be curtailed. However, the speculative element here is probably less than popularly conceived. Plans for most new office buildings are not completed until the owners have located at least their major tenants, and the generally conservative judgment of the lending institutions acts as a check on commercial building operations. Despite the threat of more burdensome taxation, the office building boom is likely to continue throughout the Sixties.

EDWARD A. SPRAGUE, *Economist*
*F. W. Dodge Corporation*
*A McGraw-Hill Company*




# New office planning service for architects and designers

*You're invited to use our new service to help ease deadline pressure and staff load.*

Efficient floor layout and work-flow planning in major office projects are time-consuming chores that may frequently over-burden your professional staff. Now Steelcase offers you a new Office Planning Service to give you the extra help you need. Backed up by Steelcase's own planning and engineering departments, it is available through many leading Steelcase dealers in your area. Please contact Steelcase for the name of the participating dealer in your city.

Also, we think you'll find our office furniture folder for architects extremely helpful to your staff in planning smaller offices. It contains a layout template and product illustrations you can use for client presentations; finish and fabric sample cards and installation photographs accompanied by detail drawings. Steelcase Inc., Grand Rapids, Michigan; Canadian Steelcase Co., Ltd., Don Mills, Ontario.

For more information about the new Steelcase Office Planning Service and the name of the participating dealer nearest you, or for your copy of our office furniture folder, just drop us a line on your business letterhead. Address Dept. R.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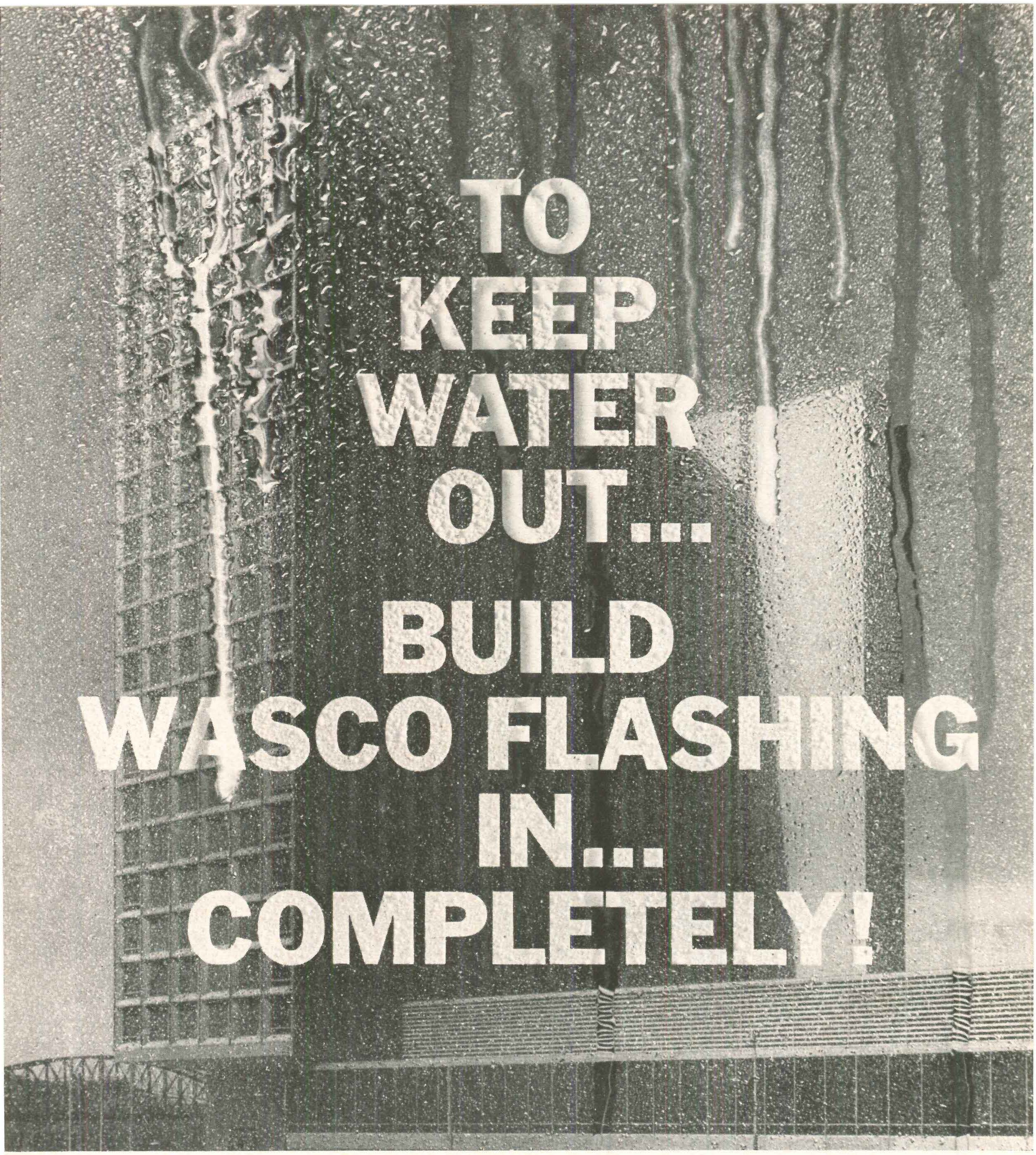
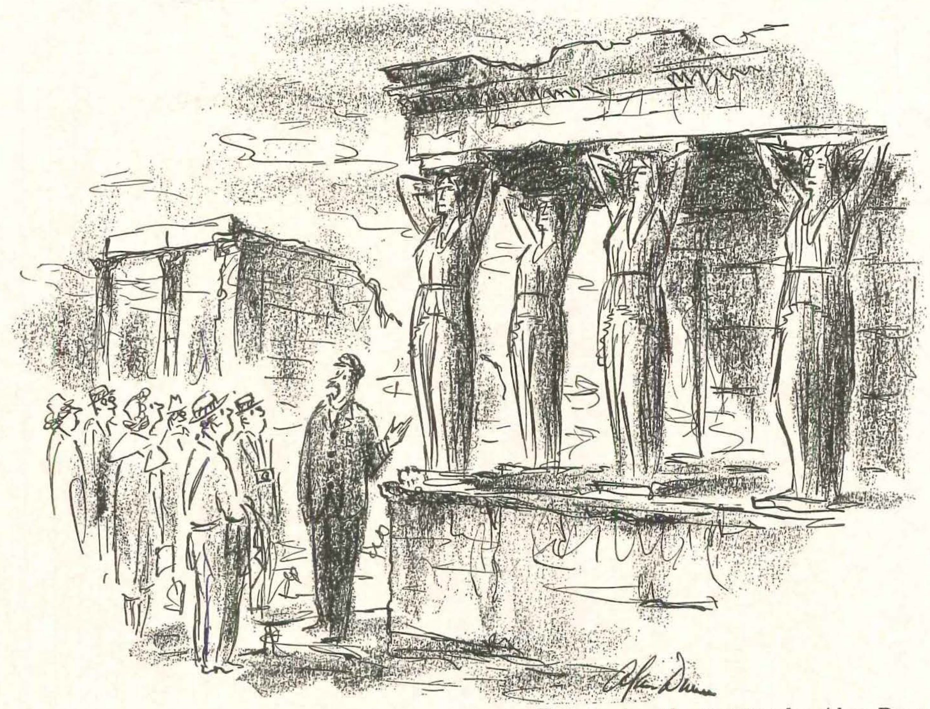

TO
KEEP
WATER
OUT...
BUILD
WASCO FLASHING
IN...
COMPLETELY!



—Drawn for the RECORD by Alan Dunn

"And here we have one of the earliest known forms of lift-slab construction—"

# ARCHITECTS CHALLENGED TO LEAD PUBLIC ATTITUDE AND PUBLIC POLICY TO NEW DEMAND FOR BEAUTY

Never an architect was among the speakers at the First Conference on Esthetic Responsibility sponsored by the New York Chapter of the American Institute of Architects; but the 21 speakers from the arts and letters, business, labor and government kept reminding architects that theirs are the crucial voices in the great and small debates that collectively determine the visual quality of the human environment.

An unheralded young speaker from Washington, Daniel P. Moynihan Jr., Special Assistant to the Secretary of Labor, unexpectedly turned out to make the important speech of the day, giving the first public description of a developing new Federal policy on architecture (key excerpts, page 28) which would deliberately seek to embody in public buildings the finest efforts of the best contemporary architects.

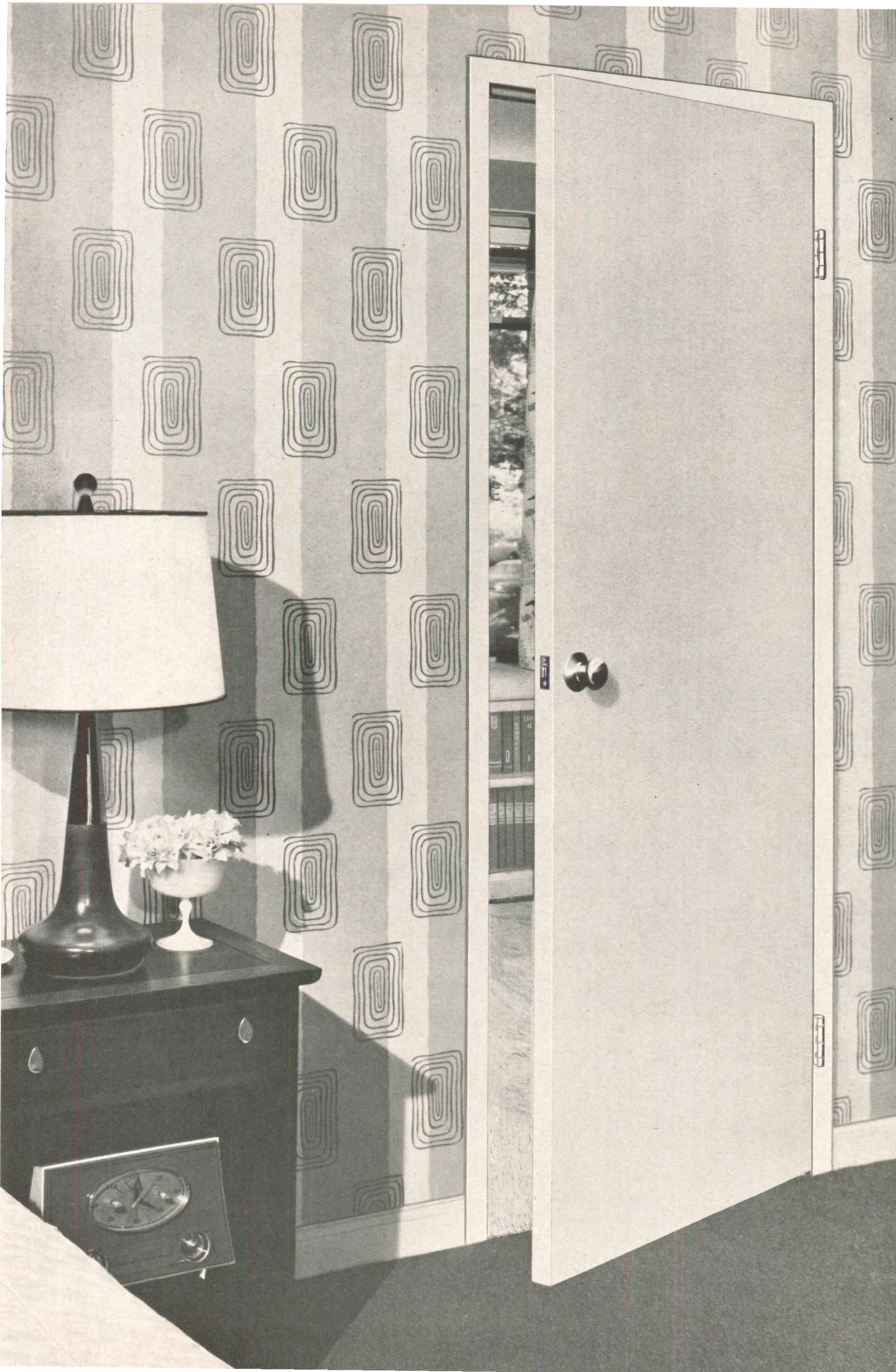
Mr. Moynihan, who also explicitly advised architects to become as effective a lobby for architecture as doctors are for medicine or lawyers for law, has been assisting Secretary Arthur J. Goldberg in the work of a Cabinet-level committee named last summer by the President to look into building space requirements of the Federal Government. Under Secretary Goldberg's chairmanship, the committee broadened the scope of the assignment to encompass all Federal building policy, and an official statement is expected to be issued shortly.

The conference was organized as the inaugural effort of the New York Chapter's Design Committee, pilot unit for such committees to be set up by A.I.A. chapters throughout the country, following the direction of last year's A.I.A. convention resolution. Purpose, as stated at the conference by Committee Chairman Richard W. Snibbe: to inspire "community activity to fight our country's ugliness."

Nearly 500 people, only a quarter of them architects, paid $35 each to attend the day-long conference, held April 3 at New York's Hotel Plaza. There were almost one hundred representatives of the arts, 27 of business firms, ten from government and 31 from institutions; also 72 from the press, including reporters from St. Louis and Washington, D.C. newspapers as well as New York newspapers and magazines. Architects came from as far away as Florida, Texas and Oklahoma.

No proposals were sought from the conference, but Mr. Snibbe at the end of the day presented a "plan for action in the fight against ugliness" which appealed for the establishment this summer of Design Committees in every chapter of the A.I.A. to lead in the formation of broad citizens' Committees on Esthetic Responsibility throughout the nation. The citizens' committees would serve to arouse public awareness of esthetics and of the possibilities open to the public of influencing the quality of its environment.

*continued on page 28*



Furniture, courtesy, RWAY Furniture Company

# Visual drama in glass

THE SCENE: Four Gateway Center Building, Pittsburgh, Pa.
ARCHITECTS: Harrison and Abramovitz, New York, N. Y.
GENERAL CONTRACTOR: George A. Fuller Co., New York, N. Y.
CURTAIN-WALL GLASS: PPG SOLEX® Heat-absorbing Glass • PPG SPANDRELITE® Glass

# Curtain-wall elegance in GLASS

## ...with PPG SOLEX® and SPANDRELITE®

When the Equitable Life Assurance Society asked their architects to design an office building that would be handsome, pleasant to work in and economical to maintain, *glass* was the material they chose. Clean-lined and colorful, the glass-clad Gateway Four Building is an impressive example of combined beauty and utility that architectural imagination is achieving with glass—the building material of limitless design possibilities and unsurpassed durability.

Gateway Four is a fine example, too, of close cooperation between architects and PPG. Notice the color harmony between the opaque spandrel areas and window areas. To achieve this esthetic effect, PPG supplied a special green shade of SPANDRELITE®—heat-strengthened glass with ceramic color fused to the back—to blend with the soft green of the glare-reducing, heat-absorbing PPG SOLEX® Glass in the window areas.

### PPG PRODUCTS USED:

### SPANDRELITE® GLASS

The colorful SPANDRELITE glass panels in Four Gateway Center will *stay* good looking. The ceramic color endures because it is fused to the back of the glass. Available in 18 standard colors, it can also be ordered in the color of your choice for custom designs. Heat-strengthened SPANDRELITE comes in Polished or Twill finishes. It withstands severe impact—does not warp, pit or corrode.

### SOLEX® HEAT-ABSORBING GLASS

This green-tinted plate glass used in the window areas helps reduce air-conditioning costs—it absorbs about 50% of direct solar radiation. SOLEX also lets in an abundance of light, while filtering out the harsh rays of the sun. Makes work a pleasure at Four Gateway Center.

### WEST DOORS

34 PPG West Tension Doors are installed in this modern building. These rugged glass doors, framed with stainless steel provide clean lines of design. They are also available in aluminum or bronze frames. Sturdy construction and precise sections provide a solid unit that won't sag. The ½-in. thick glass is held under compression within the metal frame.

### HERCULITE® DOORS

HERCULITE Tempered Plate Glass is four times stronger than ordinary glass of the same thickness. This specially tempered glass is used in all PPG HERCULITE Doors to withstand abuse of daily traffic. HERCULITE Doors are available in a wide variety of standard sizes and styles that will adapt to any structural requirement.

*Pittsburgh Glass*

*. . . a basic architectural material*

# *Construction Cost Indexes*

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

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

| | NEW YORK | | | | | ATLANTA | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | RESIDENTIAL | | APTS., HOTELS, OFFICE BLDGS. | COMMERCIAL AND FACTORY BLDGS. | | RESIDENTIAL | | APTS., HOTELS OFFICE BLDGS. | COMMERCIAL AND FACTORY BLDGS. | |
| PERIOD | Brick | Frame | Brick and Concrete | Brick and Concrete | Brick and Steel | Brick | Frame | Brick and Concrete | Brick and Concrete | Brick and Steel |
| 1935 | 93.8 | 91.3 | 104.7 | 108.5 | 105.5 | 72.3 | 67.9 | 84.0 | 87.1 | 85.1 |
| 1939 | 123.5 | 122.4 | 130.7 | 133.4 | 130.1 | 86.3 | 83.1 | 95.1 | 97.4 | 94.7 |
| 1949 | 243.7 | 240.8 | 242.8 | 246.6 | 240.0 | 189.3 | 189.9 | 180.6 | 180.8 | 177.5 |
| 1950 | 256.2 | 254.5 | 249.5 | 251.5 | 248.0 | 194.3 | 196.2 | 185.4 | 183.7 | 185.0 |
| 1951 | 273.2 | 271.3 | 263.7 | 274.9 | 271.8 | 212.8 | 214.6 | 204.2 | 202.8 | 205.0 |
| 1952 | 278.2 | 274.8 | 271.9 | 265.2 | 262.2 | 218.8 | 221.0 | 212.8 | 210.1 | 214.3 |
| 1953 | 281.3 | 277.2 | 281.0 | 286.0 | 282.0 | 223.0 | 224.6 | 221.3 | 221.8 | 223.0 |
| 1954 | 285.0 | 278.2 | 293.0 | 300.6 | 295.4 | 219.6 | 219.1 | 233.5 | 225.2 | 225.4 |
| 1955 | 293.1 | 286.0 | 300.0 | 308.3 | 302.4 | 225.3 | 225.1 | 229.0 | 231.5 | 231.8 |
| 1956 | 310.8 | 302.2 | 320.1 | 328.6 | 324.5 | 237.2 | 235.7 | 241.7 | 244.4 | 246.4 |
| 1957 | 318.5 | 308.3 | 333.1 | 345.2 | 339.8 | 241.2 | 239.0 | 248.7 | 252.1 | 254.7 |
| 1958 | 328.0 | 315.1 | 348.6 | 365.4 | 357.3 | 243.9 | 239.8 | 255.7 | 261.9 | 262.0 |
| 1959 | 342.7 | 329.0 | 367.7 | 386.8 | 374.1 | 252.2 | 247.7 | 266.1 | 272.7 | 273.1 |
| 1960 | 351.6 | 337.2 | 377.7 | 395.8 | 380.6 | 259.2 | 253.3 | 274.7 | 282.5 | 278.8 |
| 1961 | 362.5 | 343.0 | 398.2 | 422.4 | 397.0 | 256.7 | 249.7 | 275.8 | 284.5 | 275.8 |
| December 1961 | 364.1 | 342.2 | 405.3 | 431.4 | 403.4 | 257.3 | 250.8 | 276.0 | 284.4 | 274.3 |
| January 1962 | 365.1 | 343.5 | 407.1 | 432.5 | 405.7 | 260.0 | 253.0 | 279.8 | 288.9 | 278.0 |
| February 1962 | 367.1 | 344.6 | 410.2 | 436.9 | 409.2 | 259.9 | 252.9 | 279.7 | 288.9 | 278.0 |
| | % increase over 1939 | | | | | % increase over 1939 | | | | |
| February 1962 | 197.2 | 181.5 | 213.8 | 227.5 | 214.5 | 201.1 | 204.3 | 194.1 | 196.6 | 193.5 |

| | ST. LOUIS | | | | | SAN FRANCISCO | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1935 | 95.1 | 90.1 | 104.1 | 108.3 | 105.4 | 89.5 | 84.5 | 96.4 | 103.7 | 99.7 |
| 1939 | 110.2 | 107.0 | 118.7 | 119.8 | 119.0 | 105.6 | 99.3 | 117.4 | 121.9 | 116.5 |
| 1949 | 221.4 | 220.7 | 212.8 | 215.7 | 213.6 | 213.0 | 207.1 | 214.0 | 219.8 | 216.1 |
| 1950 | 232.8 | 230.7 | 221.9 | 225.3 | 222.8 | 227.0 | 223.1 | 222.4 | 224.5 | 222.6 |
| 1951 | 252.0 | 248.3 | 238.5 | 240.9 | 239.0 | 245.2 | 240.4 | 239.6 | 243.1 | 243.1 |
| 1952 | 259.1 | 253.2 | 249.7 | 255.0 | 249.6 | 250.2 | 245.0 | 245.6 | 248.7 | 249.6 |
| 1953 | 263.4 | 256.4 | 259.0 | 267.0 | 259.2 | 255.2 | 257.2 | 256.6 | 261.0 | 259.7 |
| 1954 | 266.6 | 260.2 | 263.7 | 273.3 | 266.2 | 257.4 | 249.2 | 264.1 | 272.5 | 267.2 |
| 1955 | 273.3 | 266.5 | 272.2 | 281.3 | 276.5 | 268.0 | 259.0 | 275.0 | 284.4 | 279.6 |
| 1956 | 288.7 | 280.3 | 287.9 | 299.2 | 293.3 | 279.0 | 270.0 | 288.9 | 298.6 | 295.8 |
| 1957 | 292.0 | 283.4 | 295.2 | 307.1 | 302.9 | 286.3 | 274.4 | 302.9 | 315.2 | 310.7 |
| 1958 | 297.0 | 278.9 | 304.9 | 318.4 | 313.8 | 289.8 | 274.9 | 311.5 | 326.7 | 320.8 |
| 1959 | 305.4 | 296.4 | 315.0 | 329.8 | 323.9 | 299.2 | 284.4 | 322.7 | 338.1 | 330.1 |
| 1960 | 311.4 | 301.0 | 322.2 | 337.2 | 329.2 | 305.5 | 288.9 | 335.3 | 352.2 | 342.3 |
| 1961 | 315.1 | 302.0 | 329.0 | 346.8 | 332.2 | 308.7 | 290.2 | 345.1 | 362.9 | 350.2 |
| December 1961 | 317.8 | 304.1 | 334.8 | 352.7 | 336.4 | 310.8 | 291.4 | 350.4 | 368.2 | 354.0 |
| January 1962 | 319.2 | 304.9 | 336.6 | 355.5 | 337.7 | 310.8 | 291.4 | 350.4 | 368.2 | 354.0 |
| February 1962 | 319.6 | 305.1 | 337.2 | 356.5 | 338.3 | 310.8 | 291.4 | 350.4 | 368.2 | 354.0 |
| | % increase over 1939 | | | | | % increase over 1939 | | | | |
| February 1962 | 190.0 | 185.1 | 184.1 | 197.6 | 184.3 | 194.3 | 193.4 | 198.5 | 202.0 | 203.9 |

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

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

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

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

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

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

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

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

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

As shown in ground-down tile at left, the random mottle of new Kentile Architectural Marbles goes all the way through. Tiles are truly random in appearance, with no two alike.
Specifications: 9″ x 9″ tiles; $\frac{3}{32}$″ and $\frac{1}{8}$″ gauges.

# New! Kentile Architectural Marbles—the vinyl asbestos tile with through-and-through mottle . . . at no extra cost! Perfect for heavy traffic areas. 8 muted colors fit any and all commercial décors.

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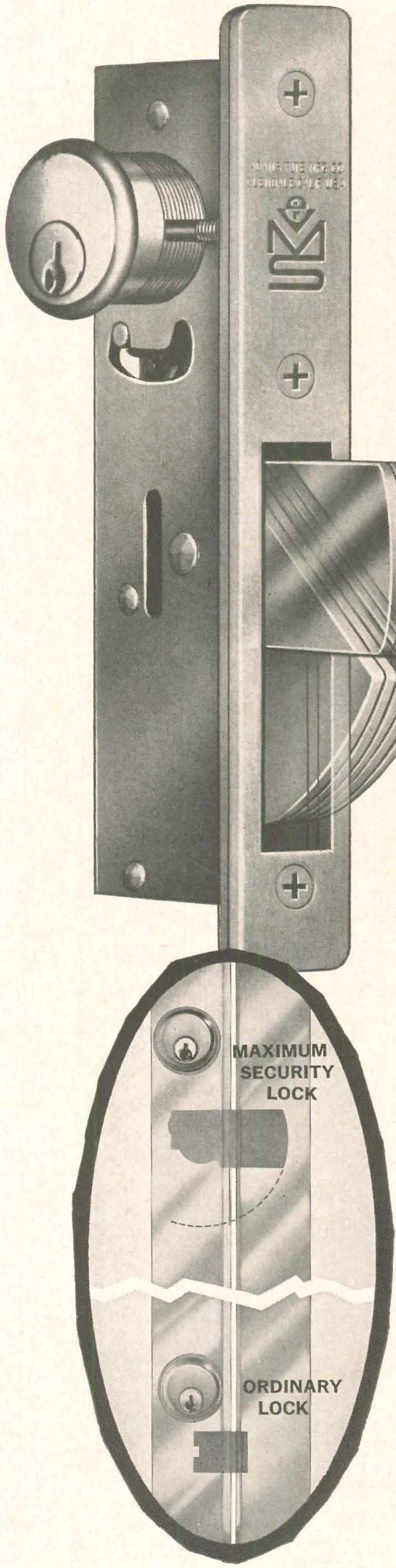
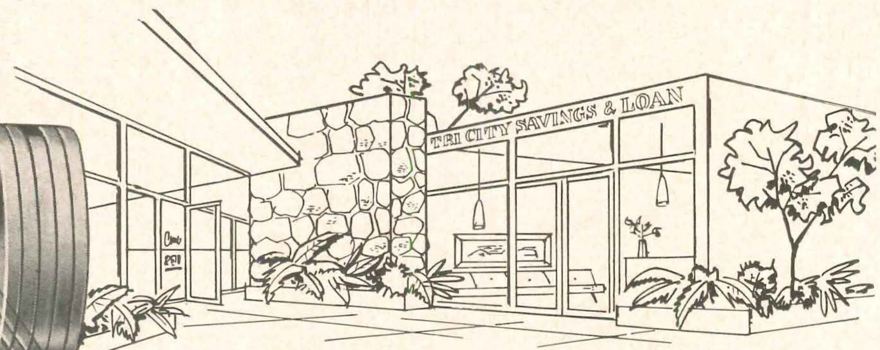



only this lock can provide

# MAXIMUM SECURITY

## FOR NARROW-STILE GLASS DOORS




**CHECK YOUR SPECIFICATIONS NOW. SEE IF YOU HAVE PROVIDED ADEQUATE BUILDING SECURITY.**

AN ORDINARY LOCK, when adapted to a modern glass door, has a very short bolt. Since the conventional sliding bolt is thrown and retracted horizontally, it cannot be longer than the width of the narrow stile. By slightly prying the door away from its jamb, enterprising burglars can slip this short bolt out of its strike and the door will spring open.

THE ADAMS RITE MAXIMUM SECURITY lock, however, is designed specifically for narrow-stile doors. It uses an exclusive, patented, swinging action that permits a much longer bolt than the ordinary lock. The bolt is housed vertically in its retracted position and swings upward into its horizontal MAXIMUM SECURITY position. The MS bolt is actually a bar of laminated steel, three inches long. As much of this huge bolt is retained within the stile as is projected into the jamb, making forced entry impossible without complete destruction of the door channel.

SPECIFY THE ADAMS RITE MS LOCK for all narrow-stile, swinging glass doors. Whether it's a single door or a pair of doors, ADAMS RITE has an MS lock designed especially to provide MAXIMUM SECURITY and long range, trouble-free operation.

WRITE TODAY for an illustrated brochure that explains the need for MAXIMUM SECURITY

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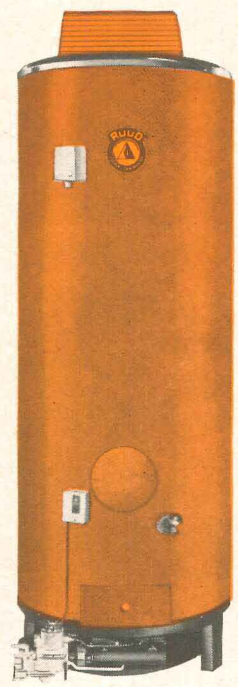
MAXIMUM SECURITY ®

**ADAMS RITE**
**MANUFACTURING COMPANY**
**540 West Chevy Chase Drive, Glendale 4, California**

# "So I said to Caesar... Copper is the answer to rust!"



CARRIES INDUSTRY SEALS

Yes, even mighty Caesar was threatened with the dangers of rust corrosion. Roman citizens complained loudly of rusty water and rusting pipes in the public baths and water systems.

But, wise Caesar knew what to do. He sent his legions to the island of Cyprus for the wonder-working metal known to the Romans as "als cyprium." We call it COPPER—the greatest rust inhibitor of them all.

**Today, Ruud Copper Sanimaster gas water heaters work new wonders.** Solid copper storage tanks—reinforced with steel—answer every demand of commercial needs for both high volume and high temperature water. Copper allows the Sanimaster to store water constantly at 180°. This high temperature would corrode and break down ordinary ferrous metal tanks. The Duo-Temp mixing valve (standard equipment) permits mixing 180° water with cold for general purpose temperatures. This feature increases the effective tank capacity up to 30%.

**The Ruud Copper Sanimaster is available in nine models with recovery rates up to 300 gallons per hour at 100° rise.** Each is a completely self-contained, underfired, automatic storage water heater. In addition, expandability of the system is simple and economical with the Ruud Equa-Flow Manifold system.

This quality commercial water heater fully meets the challenge of costly corrosion and provides a dependable hot water supply. Specify the Ruud Copper Sanimaster, even in the most demanding applications. Mail coupon below for informative brochure.

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## COMMERCIAL GAS WATER HEATERS

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**CAESAR COULDN'T SEND FOR THIS FREE BROCHURE. YOU CAN!**

Please send me a free, fact-filled brochure on the Ruud Copper Sanimaster Commercial Gas Water Heater.

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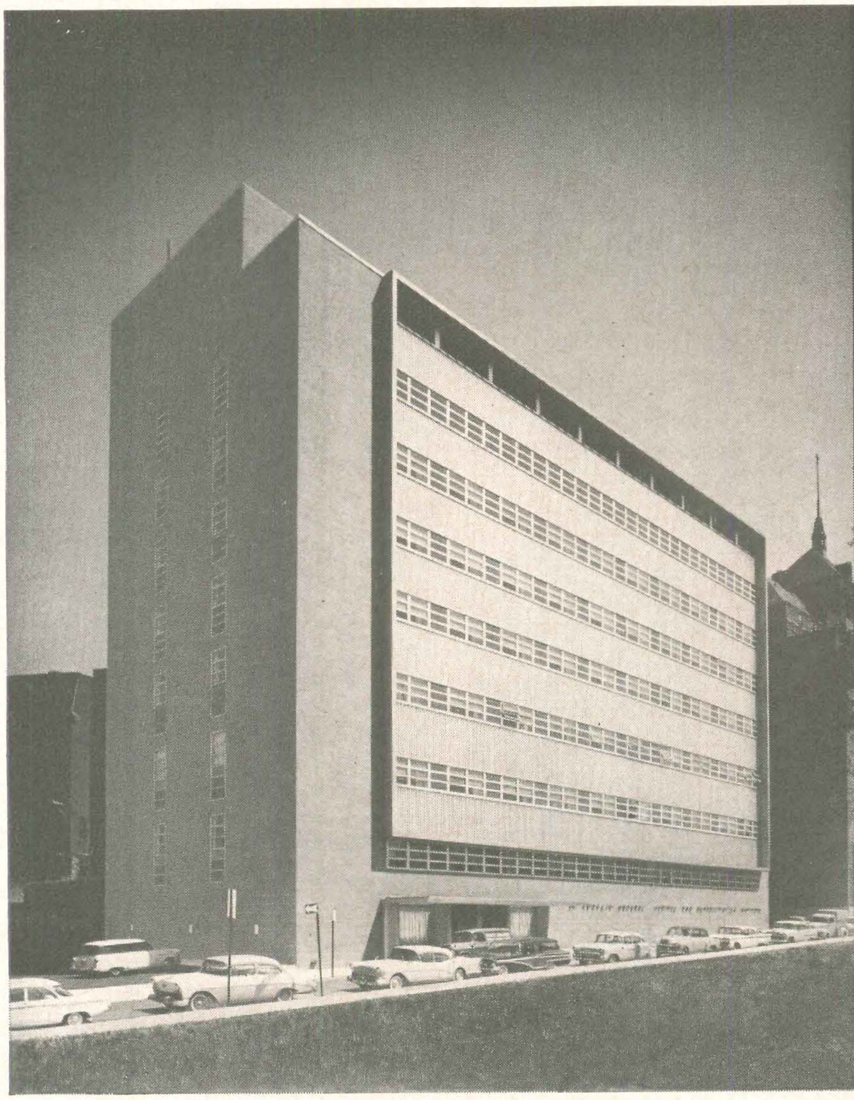

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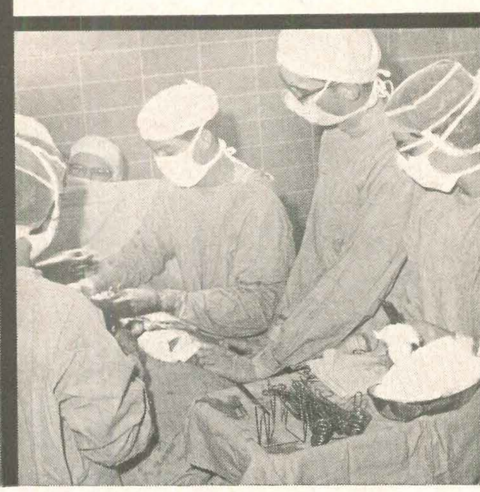

# Linen Supply Service solved a $300,000 problem for St. Francis General Hospital

Spend $300,000 for a new laundry, when the *real need* was expanded and improved facilities for patient care? This was the problem facing Pittsburgh's St. Francis Hospital in enlarging its capacity to 740 beds. The solution was found in linen supply service. Thus, the funds otherwise required for a new laundry were utilized to expand and improve direct patient care.

Now, St. Francis Hospital leases some 80 different linens, garments and other cotton goods. These items range from bedsheets to surgeons' masks. In a typical month, St. Francis General uses some 300,000 of these articles—all on a rental basis.

Check your local linen supplier to find out how much better hospitals and other institutions you design can operate with linen supply, and how much more planning freedom such service gives *you*. You'll find the name of your linen supplier listed in the Yellow Pages under "Linen Supply" or "Towel Supply."

**ARCHITECTS**

**FREE BOOKLET.** Case histories and suggestions for designing the most efficient linen supply services into schools, hospitals, restaurants and motels are available. Mention booklet(s) wanted.

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OR WRITE FOR COPY

**Linen Supply** Association of America
and National Cotton Council · 22 West Monroe Street, Chicago 3

# ARCHITECTS IN THE NEWS: ELDER NAMED AT B. C.; KAHN, STONE, SAARINEN HONORED

**Henry Elder**, director of graduate studies in architecture at Cornell University, has been appointed director of the School of Architecture at the University of British Columbia, Vancouver, B.C.

He succeeds Professor Frederic Lasserre, who was director of U.B.C.'s School of Architecture from 1946 until his death last April in a climbing accident in the English lake district.

Professor Elder, who was to assume his new post April 1, was born in England and educated at Manchester University, Manchester College of Technology and the Royal Technical College, Salford, England. For 22 years until he came to the U.S. in 1955 as a visiting critic at Cornell, Professor Elder combined teaching and practice, after 1950 as senior partner in the London firm of Elder and De Pierro and head of the fourth and fifth year program at London's Architectural Association (1950-1952) and (from 1954) vice principal of the Hammersmith School of Building Arts and Crafts.

**Louis Kahn** has received the highest honor of the Philadelphia Art Alliance, its Medal of Achievement. Mr. Kahn, who has been consultant architect to the United States Housing Authority, the Philadelphia Housing Authority, Philadelphia Redevelopment Authority and City Planning Commission, was presented the medal and a lapel pin replica by Lawrence H. Eldredge, Art Alliance president, at the organization's 47th annual meeting in March.

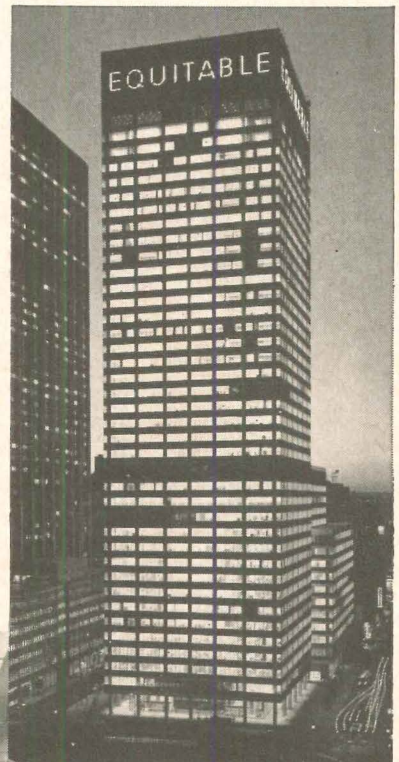
The award is given annually to a person or persons "identified with Philadelphia or its environs for the advancement of, or outstanding achievement in, the arts."

Mr. Kahn, before the presentation, had just returned to Philadelphia from Europe where he gave the annual discourse to members of the Royal Institute of British Architects in London.

**Edward Durell Stone** of New York has received the Gold Medal of the National Institute of Social Sciences "for his distinguished services to humanity." Mr. Stone was the first architect to receive the medal.

*continued on page 66*

# AETNAWALL®

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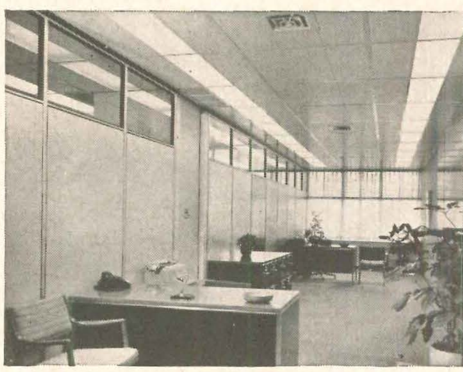

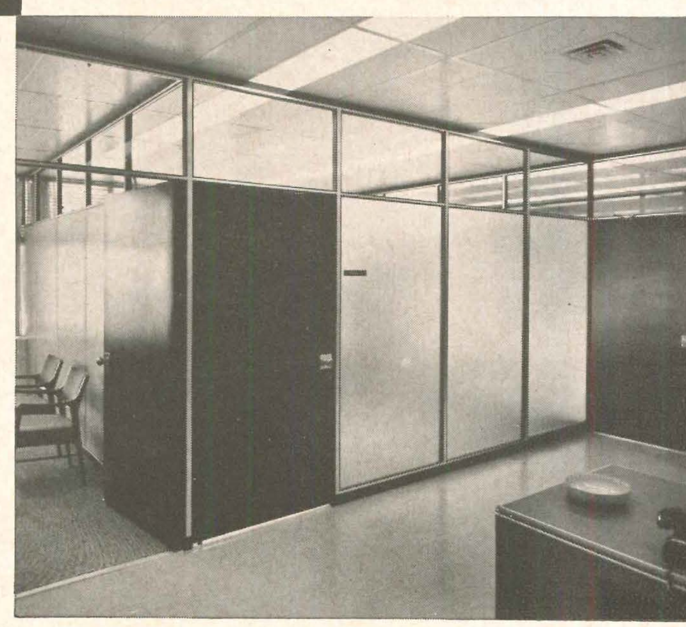

**THIS IS THE LARGEST SINGLE-TENANT, OWNER-OCCUPIED OFFICE BUILDING IN THE WORLD AND IT HAS 6.6 MILES OF AETNAWALL PARTITIONING IN IT.**

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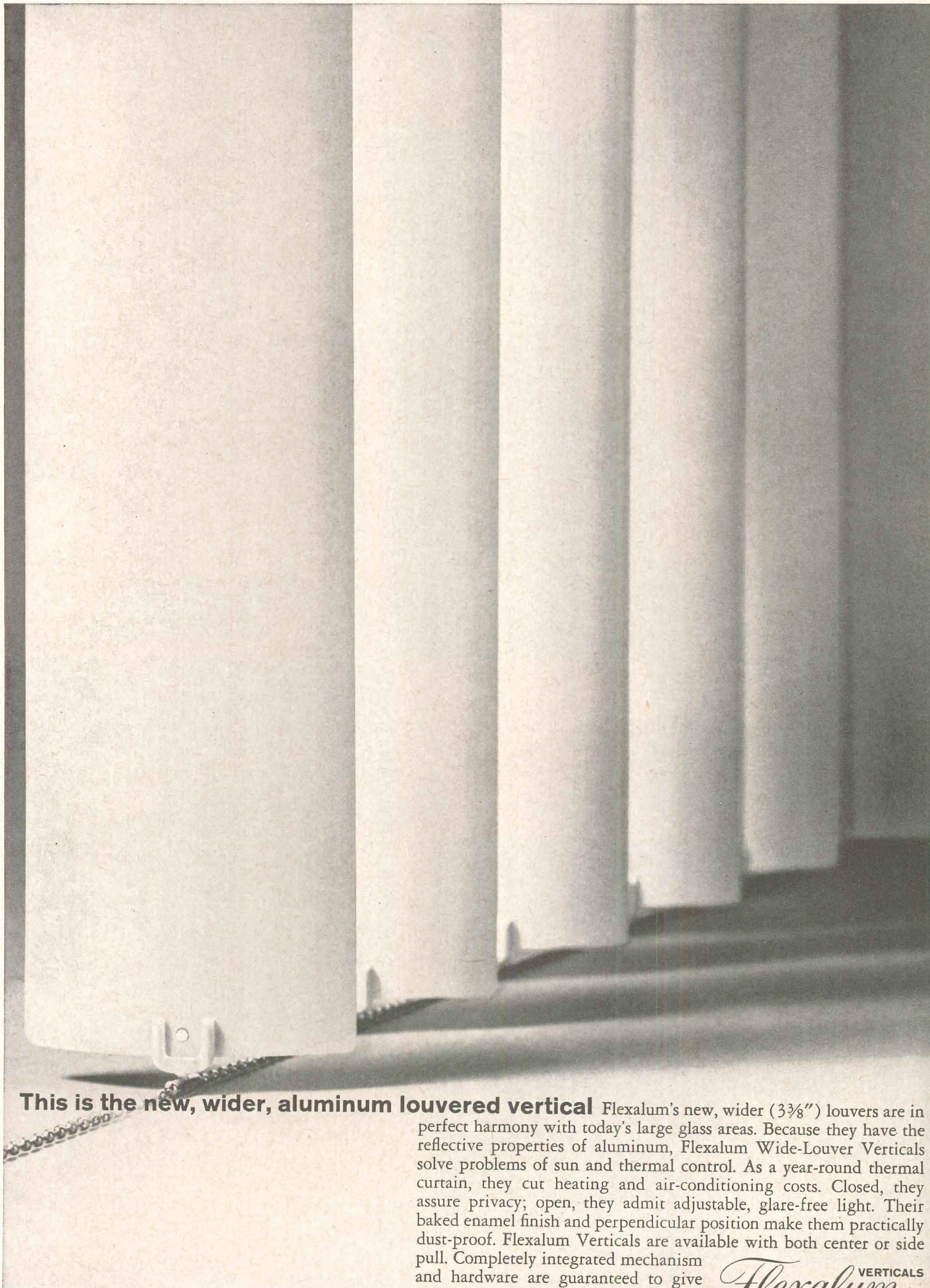
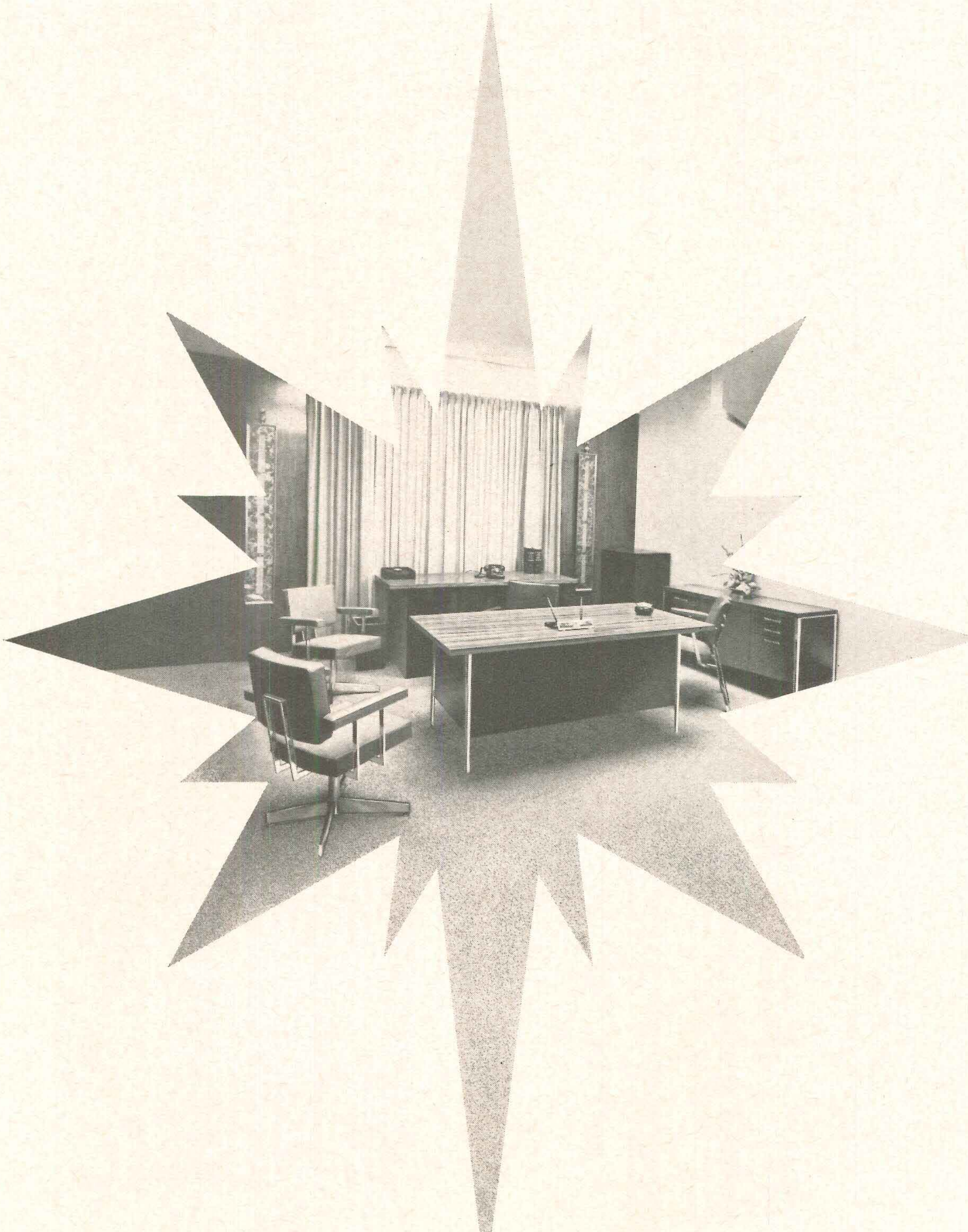



Write to Bridgeport Brass Company, Hunter Douglas Division, 30 Grand Street, Bridgeport 2, Conn. for descriptive literature and specifications, engineering assistance or cost estimates. See our insert in Sweet's Architectural File.



## Why is Royalmetal's star on the rise with architects?

Architects for the First National Bank in Harlingen, Texas (shown above) specified Royalchrome contemporary office desks and chairs for restrained elegance and functional efficiency. The Eastern Airlines passenger terminal at Idlewild, the Sears Roebuck Headquarters dining room and Mt. Sinai Hospital in Chicago are three more installations where architects have found Royalmetal's design, diversity and uniformly high quality the ideal choice for specification. And just as you provide complete architectural service for your clients, Royalmetal provides complete service for you through dealers in every city. For full facts, write: Royalmetal Corporation, Dept. 10E, One Park Avenue, New York 16, New York.

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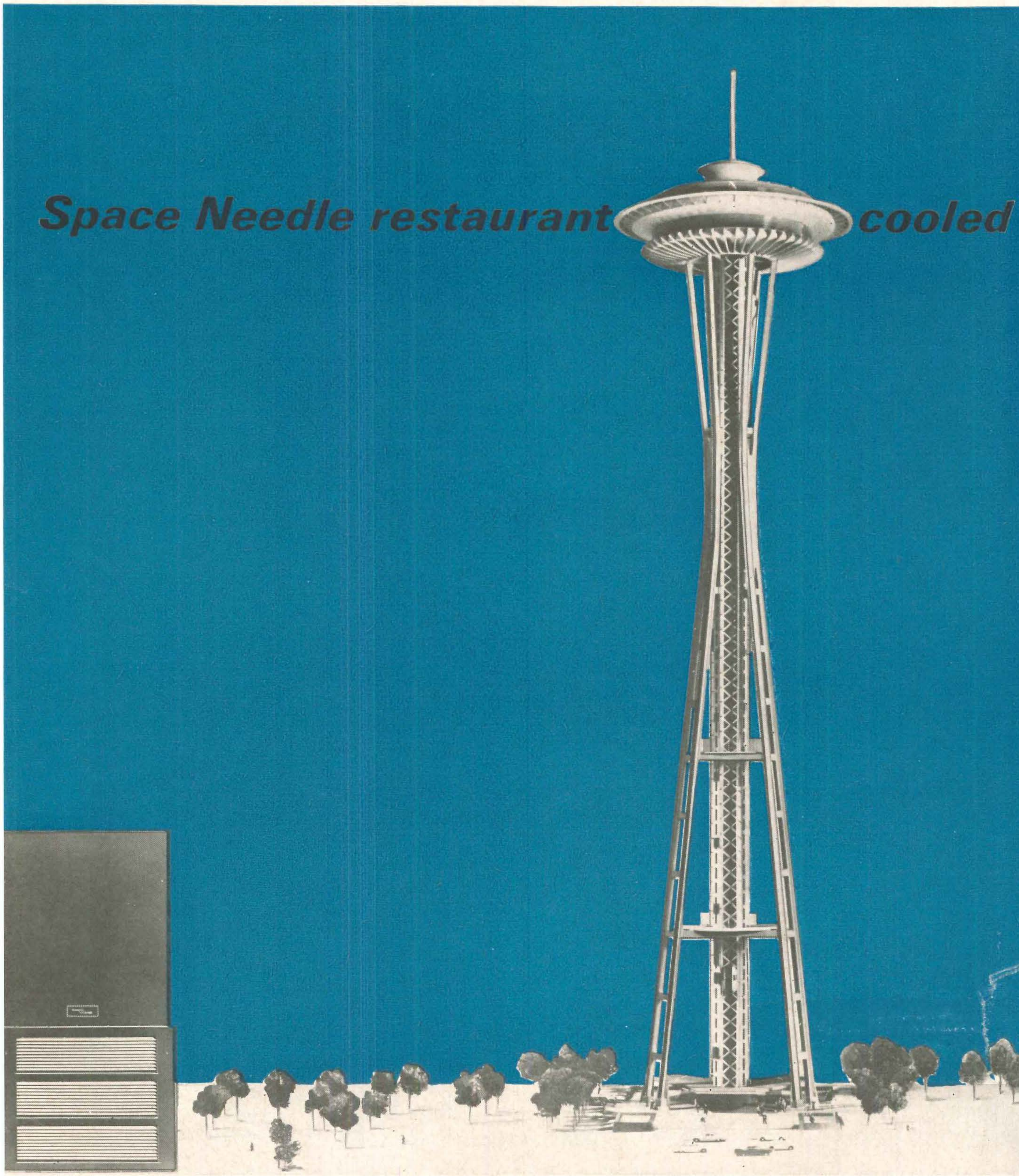
John Graham and Company, Architects and Engineers VISIT THE ARKLA GAS AIR-CONDITIONED SPACE NEEDLE AT THE CENTURY 21 SEATTLE WORLD'S FAIR.

***by the same revolutionary Arkla Gas Unit***


Space Needle restaurant cooled

## News of Architects

*continued from page 58*

**Eero Saarinen,** who will be the posthumous recipient of the 1962 Gold Medal of the American Institute of Architects at the A.I.A.'s Dallas convention in May, has been honored twice more. The New York Chapter of the A.I.A. gave him its 1962 Gold Medal and the twelfth annual Trail Blazer Award of the New York Chapter of the National Home Fashions League was presented in commemoration of his work. Mrs. Saarinen accepted both awards.

**Morris Ketchum Jr.,** of New York has succeeded Harmon H. Goldstone as president of New York's Municipal Arts Society. Mr. Ketchum, A.I.A. regional director for New York, was recipient in February of the President's Award of Columbia University's Architectural Alumni Association, given for "outstanding accomplishment in the field of design."

**Charles William Eliot 2nd,** professor of city and regional planning in the Harvard Graduate School of Design, has been awarded the Distinguished Service Award of the American Institute of Planners. He was cited as "public official, practicing city and regional planner, landscape architect and teacher, for his distinguished service to the Nation, the Federal City, and communities in Massachusetts, Virginia and California."

**Lawrence Wolfe** of the Pittsburgh Chapter of the American Institute of Architects has been selected as one of 15 outstanding citizens of western Pennsylvania to be honored by the Methodist Church Union. He was honored for his "constant influence of Christian principles in community and church life."

**Victor Gruen,** New York, has been elected a Fellow of the International Institute of Arts and Letters, an honor recognizing "notable achievements" in arts, letters or sciences.


# New Electric Walks

**Electric Walks move people indoors and out, up slopes and down, along the horizontal...wherever traffic is heavy, comfort and safety important. The Walk starts level, finishes level, follows any contour up to 15 degrees. Specially grooved metal treads provide secure footing, form a continuous smooth path.**


# by Westinghouse

**How long is it? As long or short as you need. Ask us about the new Electric Walk...from the company with continuous research and development in mass transport systems. Westinghouse Electric Corporation, Elevator Division, 150 Pacific Avenue, Jersey City, N.J. You can be sure...if it's Westinghouse**

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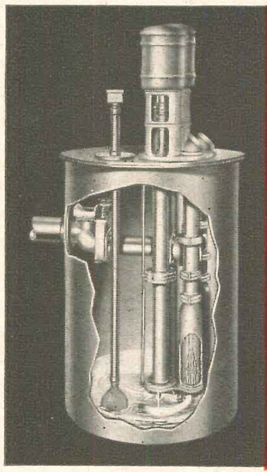
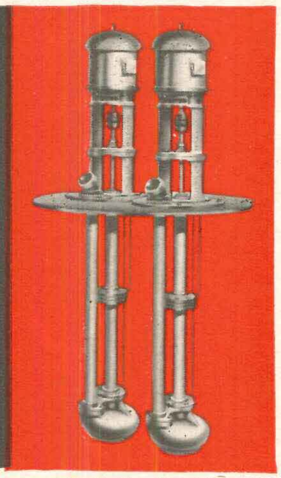
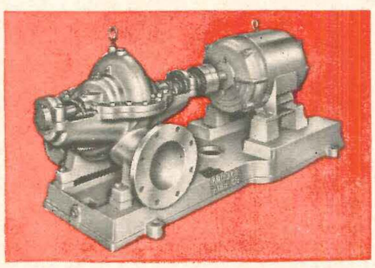


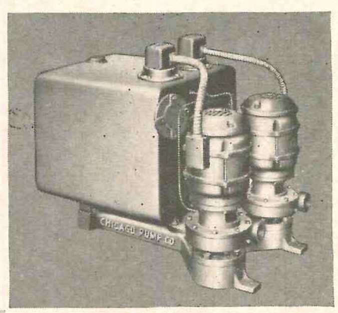
Flush Kleen Clog-Proof Sewage System. Capacities to 1000 GPM, Heads to 105 Ft. Bulletin 122D



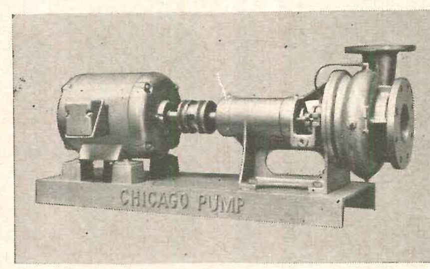
VCS Non-Clog Sewage Pumps. Cap. to 5000 GPM. Heads to 105 Feet Bulletin 124G



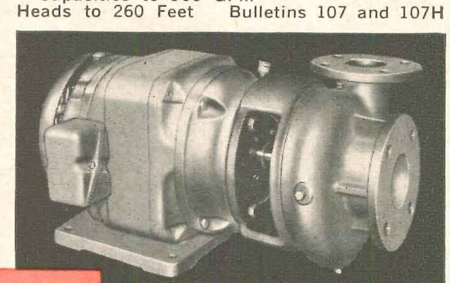
DS-DSA-DPA Double Suction Pumps Capacities to 3750 GPM.—Heads to 375 Feet Bulletin 102A



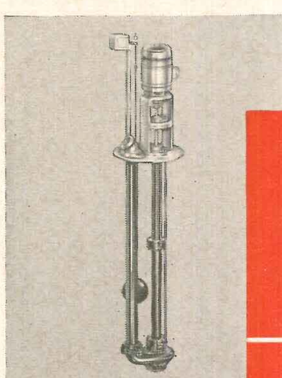
SURE RETURN—Capacities to 75,000 EDR—Discharge Pressure to 80 PSI Bulletin 250F



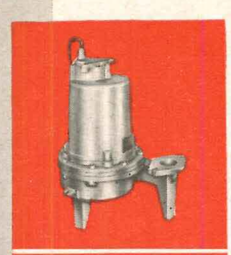

FLEXIBLE COUPLED END SUCTION PUMPS—Capacities to 900 GPM. Heads to 260 Feet Bulletins 107 and 107H



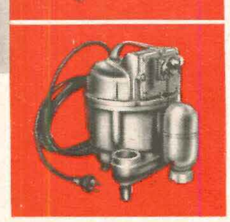
CLOSE COUPLED PUMPS Capacities to 550 GPM—Heads to 260 Feet Bulletins 108 and 108H



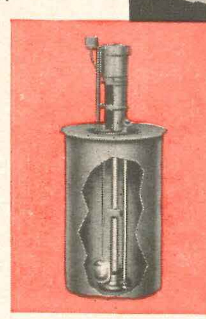
Type L Sump Pumps Capacities to 350 GPM—Heads to 50 Feet Bulletin 170



UW Sewage Pumps Cap. to 750 GPM—Heads to 115 Feet Bulletin 97



IMMERSIjunior Capacities to 72 GPM—Heads to 29 Feet Bulletins 115 and 116



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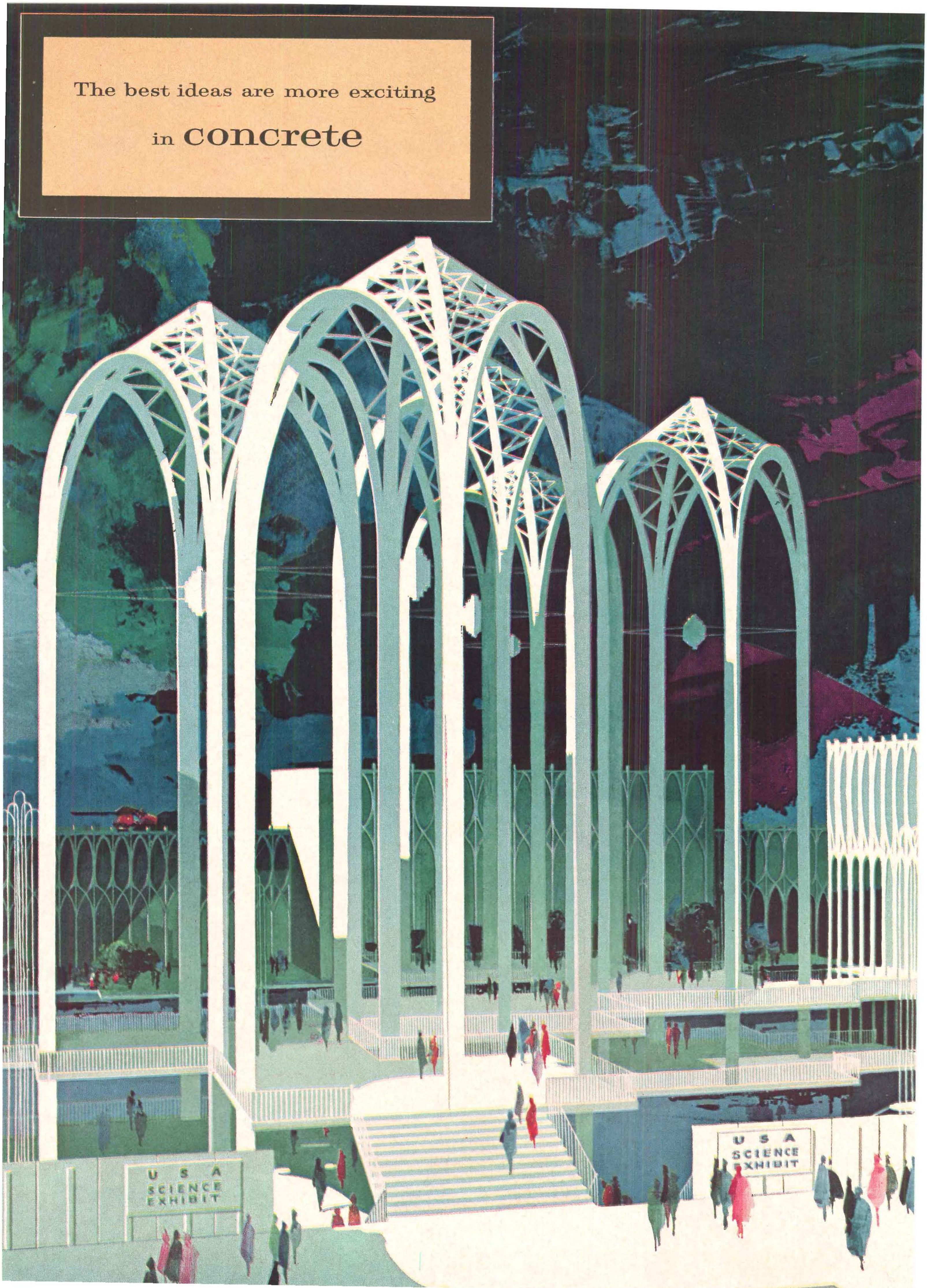
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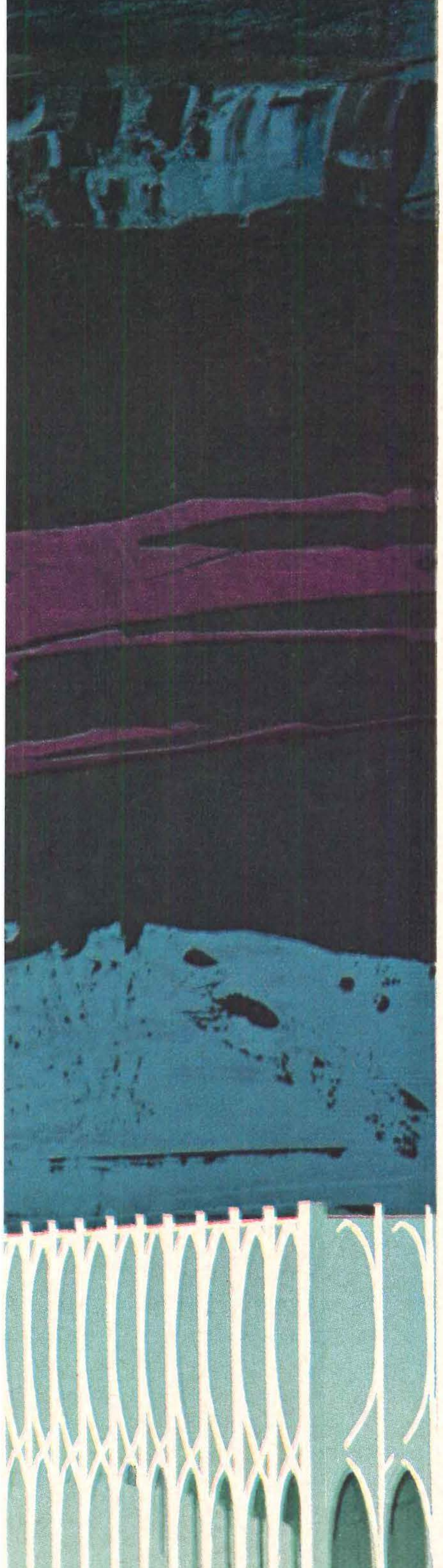


*At Seattle's Century 21 World's Fair*

# Space Age meets neo-Gothic in a pavilion of prestressed concrete!

Soaring 100 feet above Seattle's 1962 space age world's fair, 5 modern Gothic arches of concrete give visual focus to the buildings of the United States Science Pavilion.

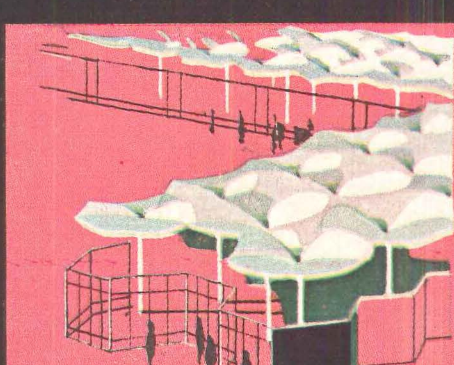
Here again, concrete effects striking beauty, as well as an advanced building technique. All the major components of the buildings are of concrete that has been precast and prestressed.

The T-unit roof beams reach spans of up to 112 feet. And exposed aggregate concrete wall panels rise as high as 52 feet. On two sides of the buildings, repeating the Gothic motif, they serve as load bearing stud walls. With their facing of white cement and quartzite, the panels give the entire complex a look of gleaming freshness.

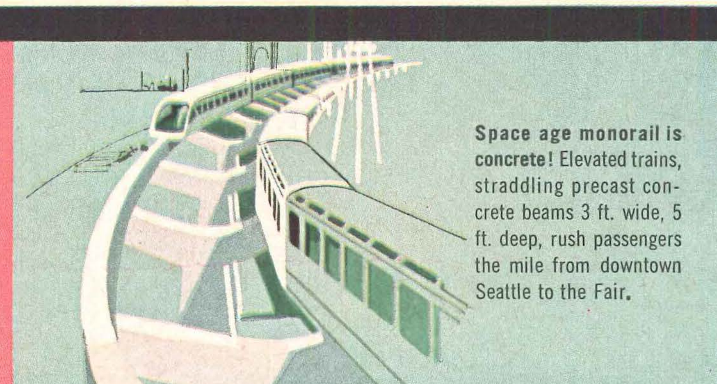
Concrete was chosen for most of the Exposition's permanent buildings . . . added recognition of its practicality and design versatility.

## PORTLAND CEMENT ASSOCIATION

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



**The newest forms of concrete everywhere** mark the Exposition. Typical are the petunia-petaled roofs of shell concrete for the International Exhibits buildings.



**Space age monorail is concrete!** Elevated trains, straddling precast concrete beams 3 ft. wide, 5 ft. deep, rush passengers the mile from downtown Seattle to the Fair.

*U.S. Science Pavilion comprises 6 buildings. Architects: Minoru Yamasaki & Associates, Detroit, Mich., with Naramore, Bain, Brady & Johanson, Seattle, Wash. Engineers: Worthington, Skilling, Helle & Jackson, Seattle, Wash. Precast and prestressed concrete: Associated Sand & Gravel Co., Inc., Everett, Wash. General contractor: Purvis Construction Co., Spokane, Wash.*

## ENGINEERING NEWS: A.S.C.E. AWARD; NEW C.E.C. OFFICE; SHELTER STUDY; E.J.C. ELECTIONS

**Missile Program Honored**

America's great Intercontinental Ballistic Missile program, located in 14 states, has been selected by the American Society of Civil Engineers to receive its 1962 award as the "Outstanding Civil Engineering Achievement of the Year."

A jury of engineering magazine editors selected this year's award from the nominations of the 19 directors of A.S.C.E. The award, previously won by the St. Lawrence Power and Seaway Project and the New York International Airport, is made annually to "an engineering project that demonstrates the greatest engineering skills, and represents the greatest contribution to engineering progress and mankind."

Editors comprising this year's jury were Robert E. Fischer, ARCHITECTURAL RECORD; Hal W. Hunt, *Civil Engineering;* Robert G. Zilly, *Consulting Engineer;* and Waldo Bowman, *Engineering News-Record;* Harold J. McKeever, *Roads and Streets;* John M. Server Jr., *Southwestern Builder & Contractor;* Ralph E. Fuhrman, *Water Pollution Federation Journal;* and Robert L. Byrne, *Western Construction.*



**New Office for C.E.C.**

Establishment of a headquarters office in Washington, D.C., effective March 1, marked another milestone in the growth of the Consulting Engineers Council.

The new office address is: Suite 801, World Center Building, 16th and K Streets, N.W., Washington.

**ASHRAE Studies Shelters**

Environmental and mechanical aspects of "defense shelters and similar protective structures" will be the concern of a new Task Group on Survival Shelters organized by the Research and Technical Committee of the American Society of Heating, Refrigerating and Air Conditioning Engineers.

Walter F. Speigel, chief engineer of Everett, Alvare, Harkins & Gilboy, architectural, engineering and planning firm of Norristown, Pa., heads the Task Group, which will report to the ASHRAE convention at Miami Beach June 25-27.

**E.J.C. Picks Officers**

The 1962 president of Engineers Joint Council is Dr. Eric A. Walker, president of Pennsylvania State University. Louis R. Howson of Alvord, Burdick, and Howson, Chicago, was elected vice president.

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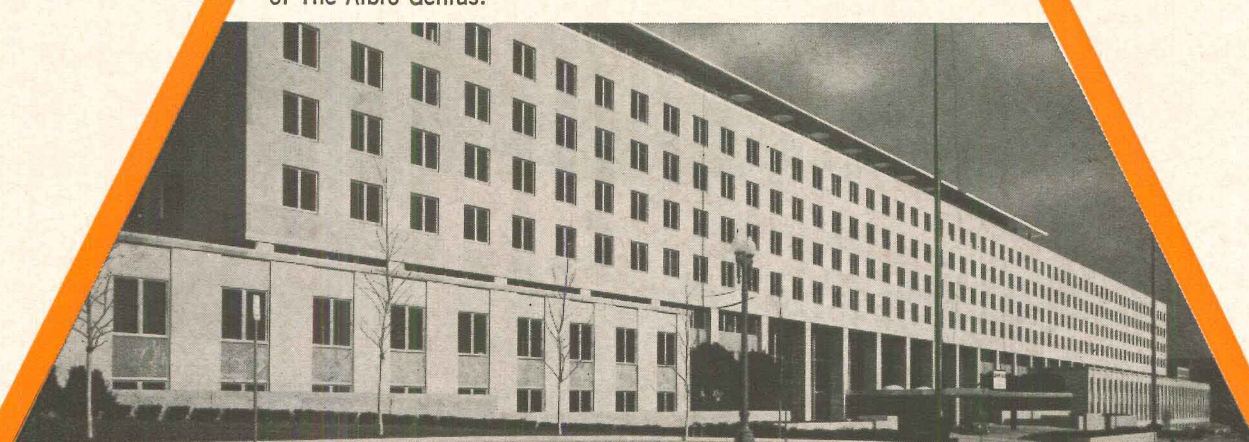

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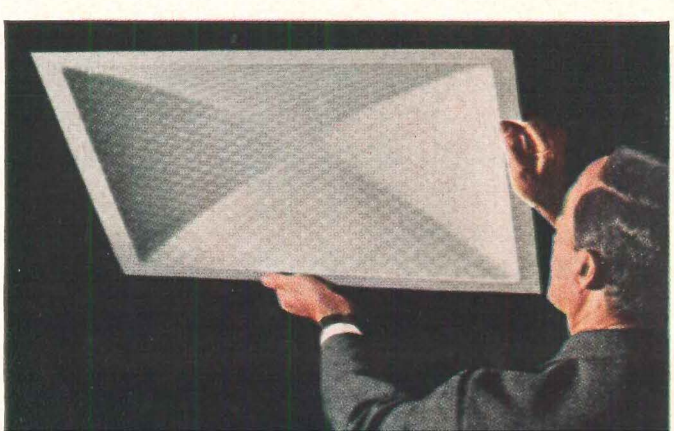
# ACOUSTI-SHELL - new J-M acoustical product-



Acoustical ceilings can now be more than just a plane surface! New J-M Acousti-Shell is a molded unit that rises gently to a 2″ vaulted center.

This third dimensional effect adds both height and interest to virtually any ceiling, as the above photograph demonstrates. The panels also offer excellent sound absorption across the entire audible range.

And because each Acousti-Shell unit is made entirely of fiber glass, it has a flame-spread rating of zero. The base material is sound-absorbing glass fibers . . . the sur-


# brings a true 3rd dimension to sound control!

facing material is a woven fiber glass fabric. These are molded into units 24" x 24" x 2" high, which are of a shell-like thickness about one-third that of flat sound-control panels. Yet they are strong, rigid and easily installed in a simple suspended grid system.

Standard Acousti-Shell fabric colors are white, blue and green. On special order, however, the surface fabric may be dyed in a wide variety of colors or can be printed with custom designs.

The new Acousti-Shell line also includes flat panels for borders, for areas around columns and beams, for spotlight cut-outs and similar uses.

For more information and a look at this unique new ceiling panel, call your J-M Representative. Or write Johns-Manville, Dept. AR 3, Box 158, New York 16, N. Y. In Canada: Port Credit, Ont. Cable: Johnmanvil.

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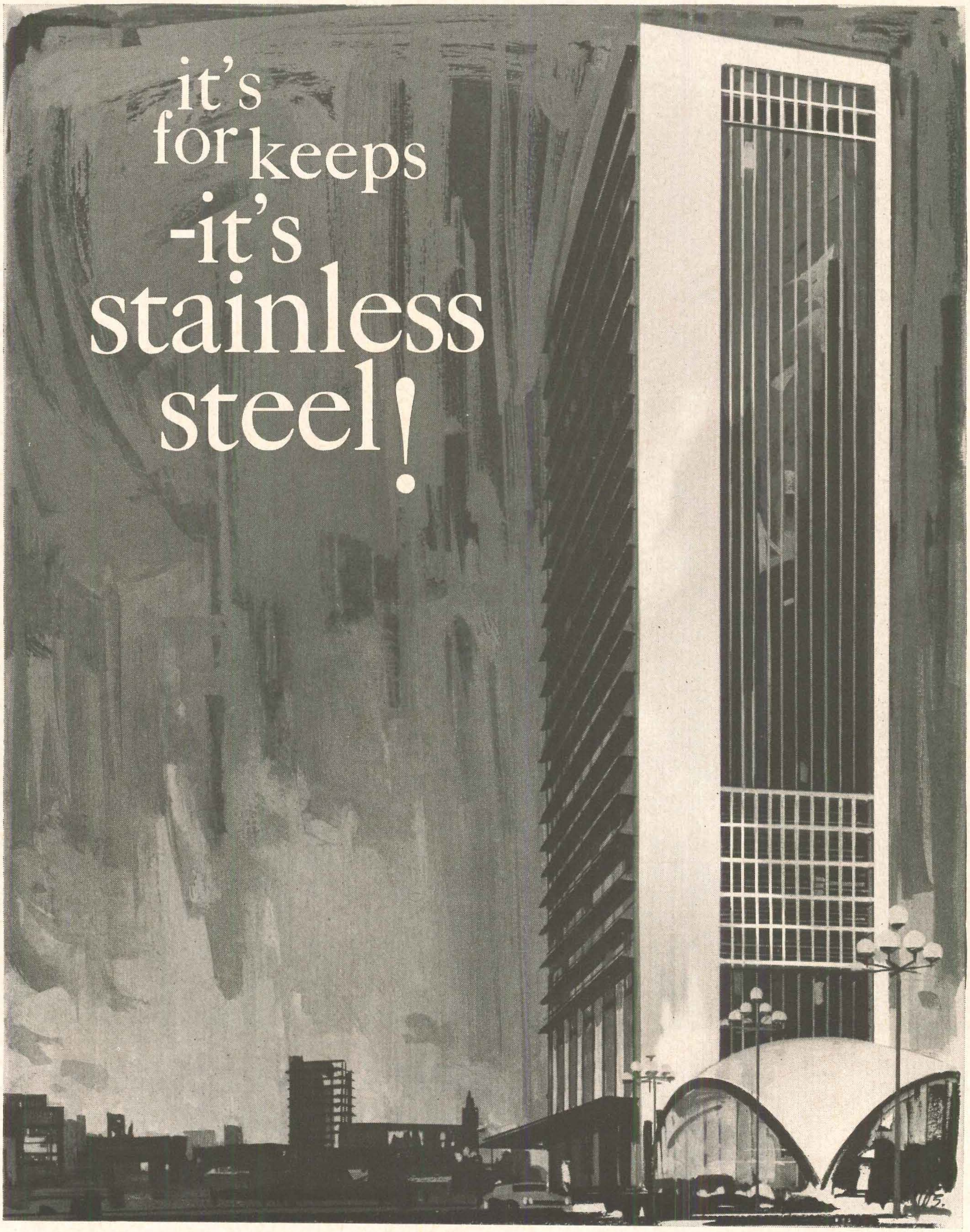
JOHNS-MANVILLE JM PRODUCTS




Stainless—the building metal of permanence, economy and beauty.

McLouth Steel Corporation, Detroit 17, Michigan

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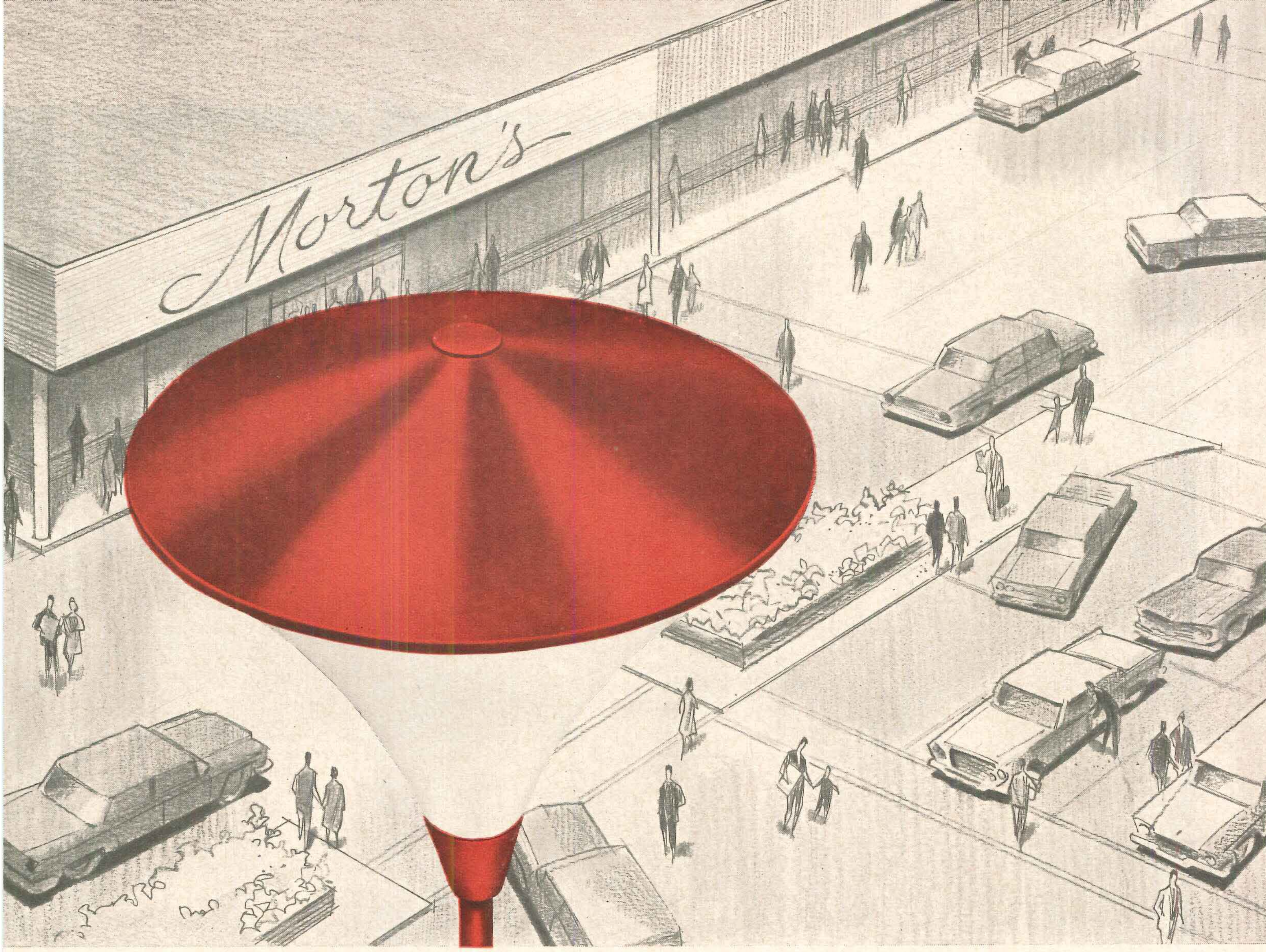
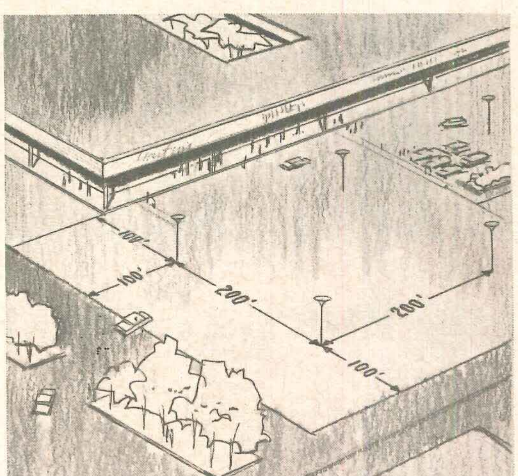
Stainless Steel

**McLOUTH STAINLESS STEEL**




# Spectacular new Powerglow luminaire spreads light evenly over a full acre




**MORE LIGHT WITH FEWER POLES** is yours from the G-E Powerglow unit. 200-foot spacing and 35-foot mounting height put 2½ footcandles on the ground. A specially engineered reflector assures uniform distribution. The large acrylic globe diffuses light to reduce glare. Powerpack design includes ballasts in a completely unitized luminaire.

Now—in line with today's move to new higher lighting levels for shopping center lots—General Electric presents the spectacular Powerglow mercury luminaire and job-matched poles.

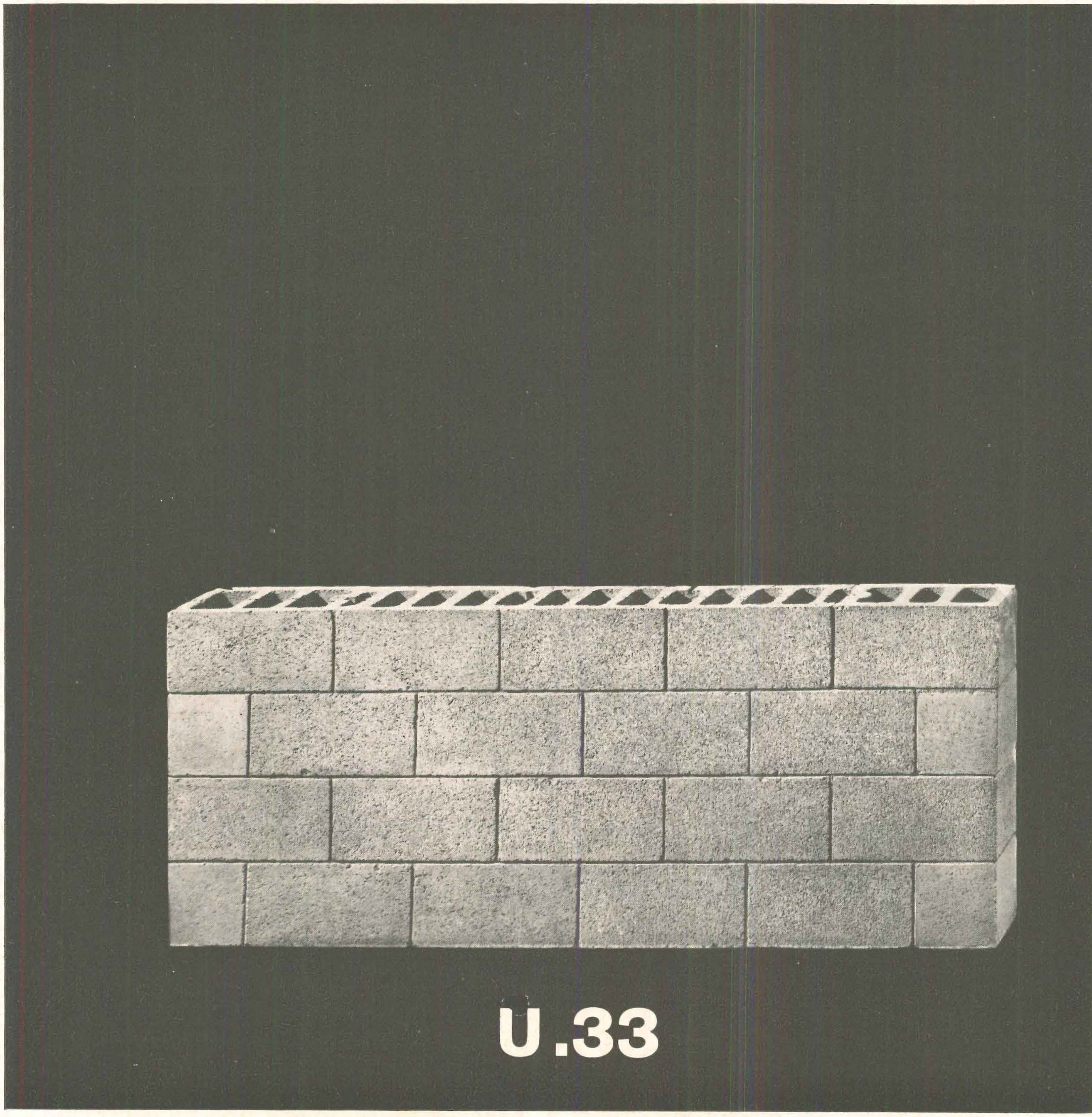
This new high-intensity unit delivers *4000 watts* of mercury light . . . spreads an average of 2½ footcandles uniformly over a *full acre*. Six feet in diameter—and available in five striking decorator colors—the Powerglow unit is a real eyecatcher . . . both day and night. It not only attracts customers . . . it helps put them in a buying mood!

For the most spectacular lighting we've ever seen—plus greater efficiency in lighting large areas—get acquainted today with the General Electric Powerglow mercury luminaire. Your local G-E Area Lighting Agent has full information on it, and the *full line* of G-E outdoor fixtures. Or, write for your copy of our new Shopping Center Lighting "Ideabook" to Section 460-18, General Electric Company, Schenectady 5, New York.

*Outdoor Lighting Department, Hendersonville, North Carolina*

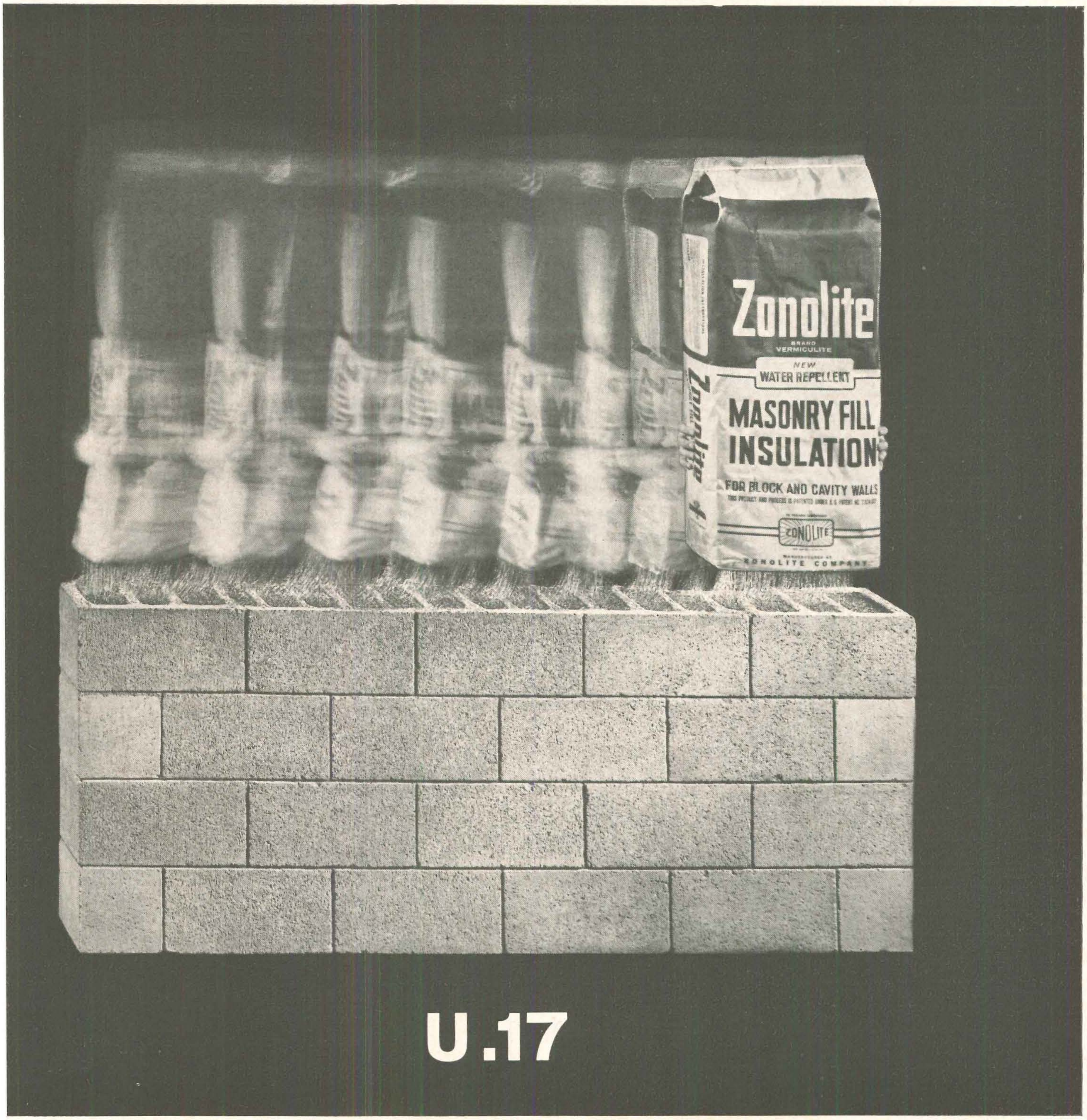
*Progress Is Our Most Important Product*

**GENERAL ELECTRIC**




## Need any more reasons...

*Illustrated are comparative U values for 8" lightweight concrete block.*
*U values of other types and sizes of masonry walls are cut from ⅓ to over ½ when insulated with Zonolite Masonry Fill Insulation.*




# for insulating masonry walls?

We need a minimum of encouragement to tell you about them. Zonolite Masonry Fill Insulation often pays for itself before the building is begun, because it reduces thermal transmission so effectively that smaller heating and air conditioning units can be used. Of course, future fuel bills will be much lower. And the occupants much more comfortable. Loudness of sound through Zonolite Masonry Fill insulated walls is reduced by 20% to 31%.

The installed cost is low; from approximately 10¢ to 21¢ per sq. ft. (For example, 8″ block can be insulated with Zonolite Masonry Fill Insulation for about 13¢ per sq. ft.) The reason: low material cost and fast installation. Zonolite just pours into the block cores. For complete information, write for Technical Bulletin MF-56, to:

**ZONOLITE**

ZONOLITE COMPANY
135 SOUTH LA SALLE STREET
CHICAGO 3, ILLINOIS

## M.I.T. PLANS SUMMER COURSES ON INDUSTRY AND CONTROLS IN CONSTRUCTION

Two special programs will be held this summer at the Massachusetts Institute of Technology, Cambridge.

One—July 9-13—is a seminar on "Planning Industrial Expansion." Sponsored by the department of architecture and directed by Albert Bush-Brown, the seminar is for architects, city planners, teachers at schools of architecture and planning and business, officers and owners of businesses, bankers and industrial consultants and commerce promoters. It will study problems rising out of industrial expansion—management, finance, politics, construction, transportation and architecture—and broadcast information obtained from Boston's long experience in the regional dispersal of industries.

Speakers will include guests from the fields of economics, planning, investment, industrial development and staff members: Albert Bush-Brown, executive officer, architecture; Albert G. H. Dietz, civil engineering; Imre Halasz, architecture; Richard B. Maffei, industrial management; Robert O. Simha, planning officer; James M. Symons, civil engineering; Martin Wohl, civil engineering; and Robert C. Wood, economics.

"Modern Methods in Construction Control" is the subject of the second program—June 18-22. This session has been planned in answer to demands from the construction industry for a working knowledge of new techniques for planning, scheduling and controlling complex engineering subjects. The critical path method will be covered, also program evaluation and review technique and linear programming.

The program will be under the joint direction of Albert G. H. Dietz, head, Building Engineering Division, Civil Engineering Department and J. Lloyd Cutcliffe.

All inquiries about these two programs should be addressed to the Summer School Office, M.I.T., Cambridge, Mass.

# ANNOUNCING GRANDVIEW DA

## GRANDVIEW II

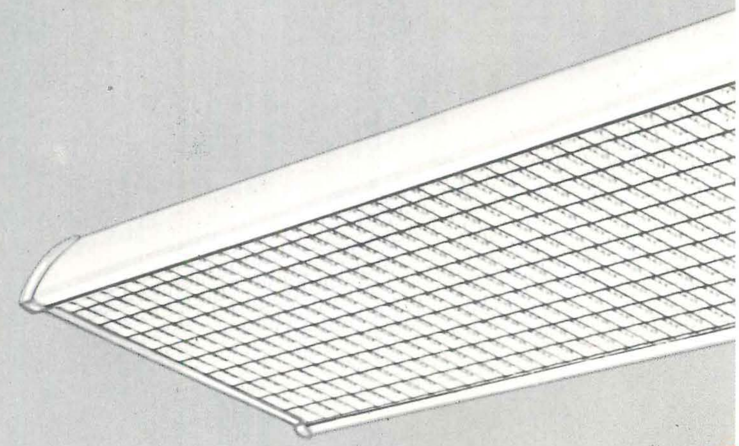
### FOR ALL COMBUSTIBLE CEILINGS

**GRANDVIEW II can be surface mounted on ANY ceiling . . . EVEN COMBUSTIBLE*. . . Two-lamp, 10" wide, 430-MA RAPID-START MODELS ONLY.**

A shallow modern fixture design capable of providing proper illumination and enhancing Office, School and Store interiors.

Underwriters' Laboratories have listed these Rapid-Start models as fully acceptable for surface mounting on all combustible*, low density cellulose fiberboard ceilings. This enables you to combine the most economical method of mounting fixtures with the most economical type of acoustical ceilings, resulting in LOWER OVER-ALL COSTS!

*As defined by the National Electrical Code, Article 410-T4 (b).

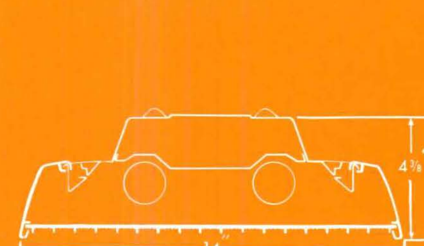


Day-Brite also announces the GRANDVIEW IV.

GRANDVIEW IV provides the flexibility needed for today's critical lighting requirements and the maximum in lighting comfort.

GRANDVIEW IV is 14" wide and only 4⅜" deep. Available in 2, 3 and 4-lamp models, giving you a wide choice of illumination levels with uniform appearance to fit practically any application.

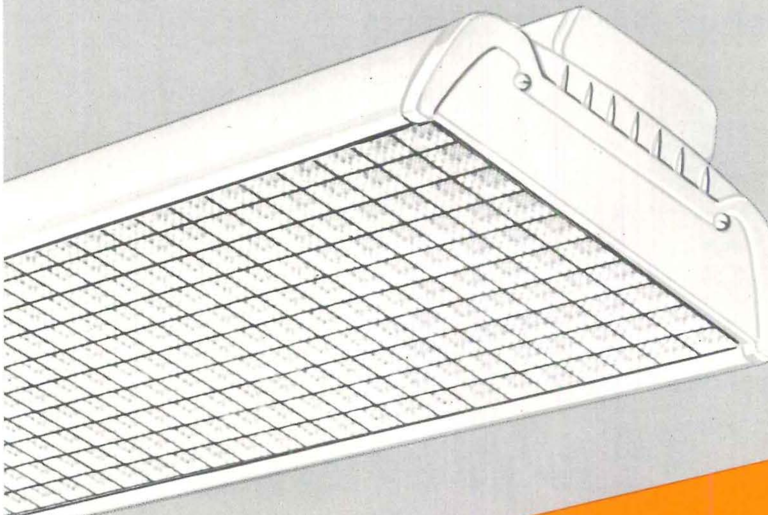
ALL GRANDVIEW models have the DAY-BRITE exclusive WAFFLETEX® bottom panels featuring smart contemporary styling and prismatic control of reflected glare. No dark contrasts . . . Diffuse side panels allow soft even illumination on the ceiling . . . resulting in more visual comfort.

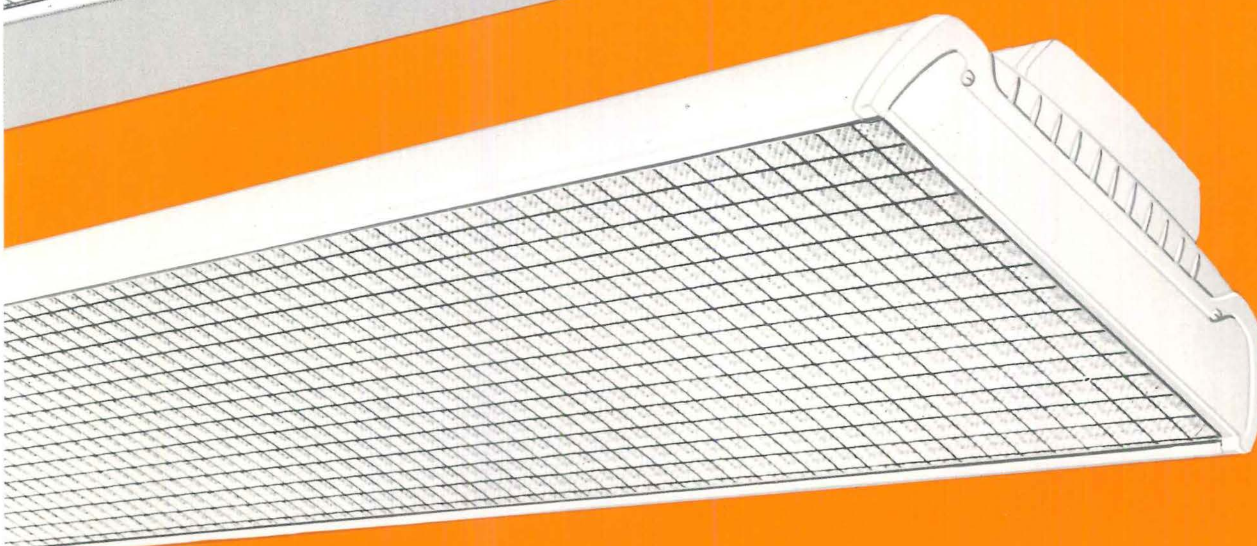


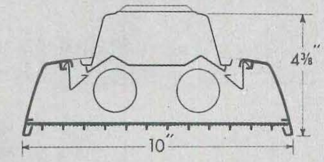

For more information on all models of the GRANDVIEW, contact your DAY-BRITE representative or write . . .

**DAY-BRITE LIGHTING, INC., 6260 North Broadway, St. Louis 15, Misso**

# RITE'S LATEST LIGHTING ACHIEVEMENT

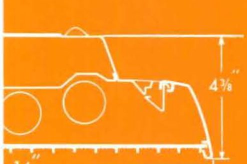


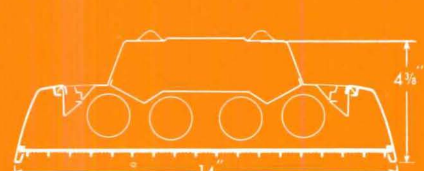





## GRANDVIEW IV

**ADDED VALUE**
**BY**
**DAY-BRITE**
AN EMERSON ELECTRIC COMPANY



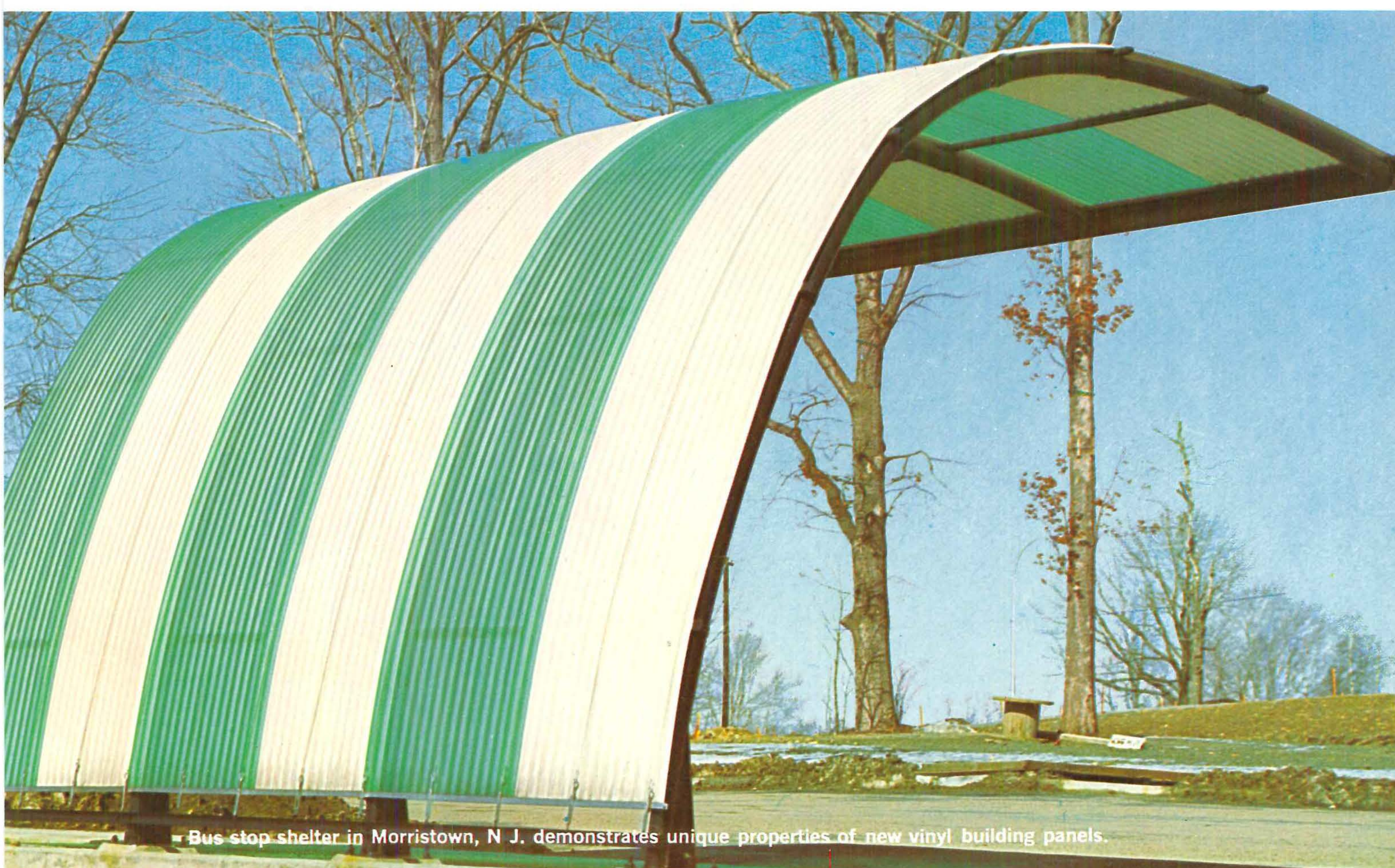

pelo, Miss., Santa Clara, Calif., Amalgamated Electric Corp., Ltd., Toronto, Canada

# BARRETT BUILDING MATERIALS

Allied Chemical

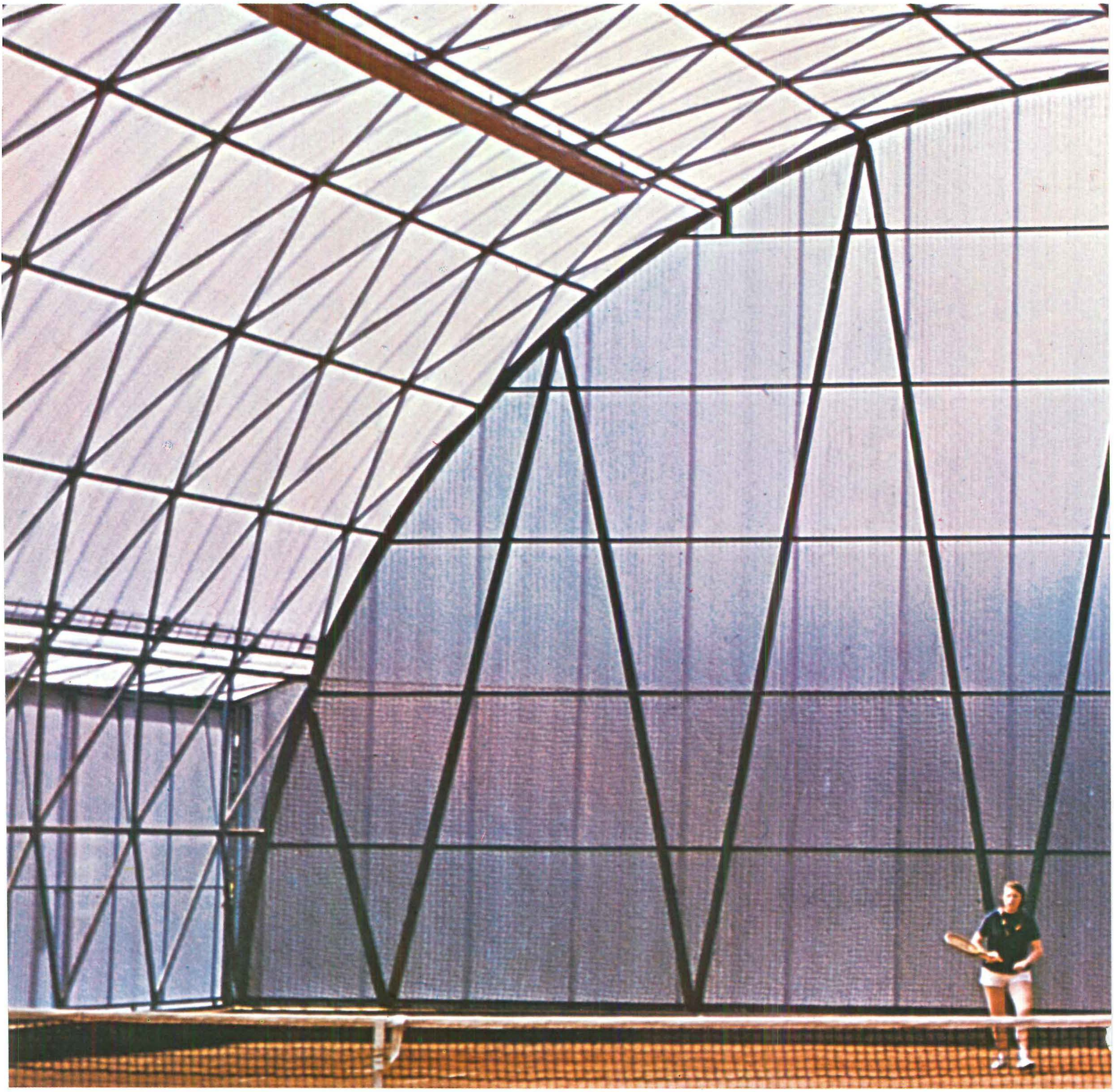
# NEWS FOR ARCHITECTS!

## BARRETT OFFERS YOU TWO EXCITING NEW MATERIALS AND DRAMATIC NEW DESIGN IDEAS!



Bus stop shelter in Morristown, N J. demonstrates unique properties of new vinyl building panels.

# NEW BARRETT VINYL BUILDING PANELS GIVE YOU NEW SHAPES



Complete buildings of vinyl panels — such as this unusual tennis court — provide free light and design opportunities.

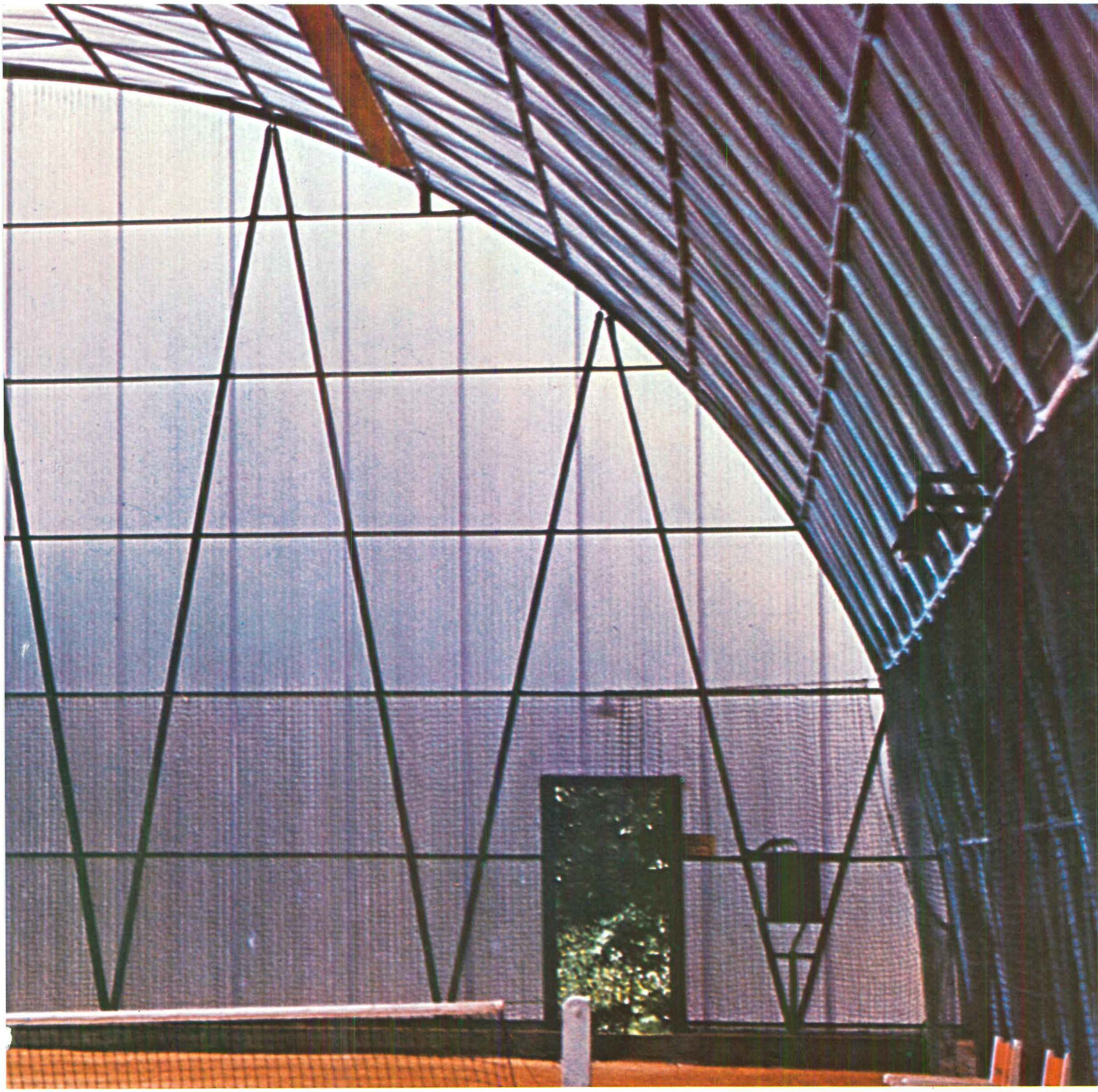
These building panels offer you exciting new design possibilities! **New shapes** and forms of building are now within reach—for example: arched roofs spanned with the exceptionally flexible panels an secured only with simple cables. Even more dramatic applications depend upon your imagination.

**New longer lengths**... longer than any other panels on the market, challenge your ingenuity. We no have 12, 16, even 20 foot sizes, and longer lengths are coming soon. The only limitation is movin them from our factory to your building site.

**New colors and lighting** are possible with one or a combination of ten unique colors—five opaqu and five translucent—which allow softer, more evenly distributed light to flood an interior. And, i addition to the 2½″ corrugation, Barrett vinyl building panels in the unique Greca rib give greate strength with a more modern appearance.

# NEWS ABOUT A SECOND ADVANCED

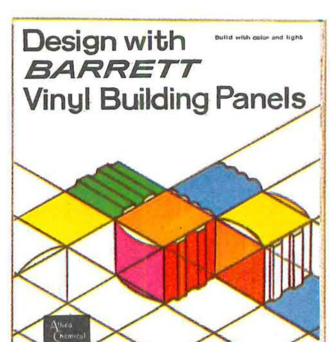
# NEW COLORS AND LIGHTING • NEW LONGER LENGTHS!



**Other advantages:**
Non-flammable—immune to most industrial fumes and solvents—resist ultraviolet sun rays and salt air—will not absorb moisture—weigh only 7½ ounces per square foot and can be handled easily on the job. These panels are now made in this country by Allied Chemical's Barrett Division.

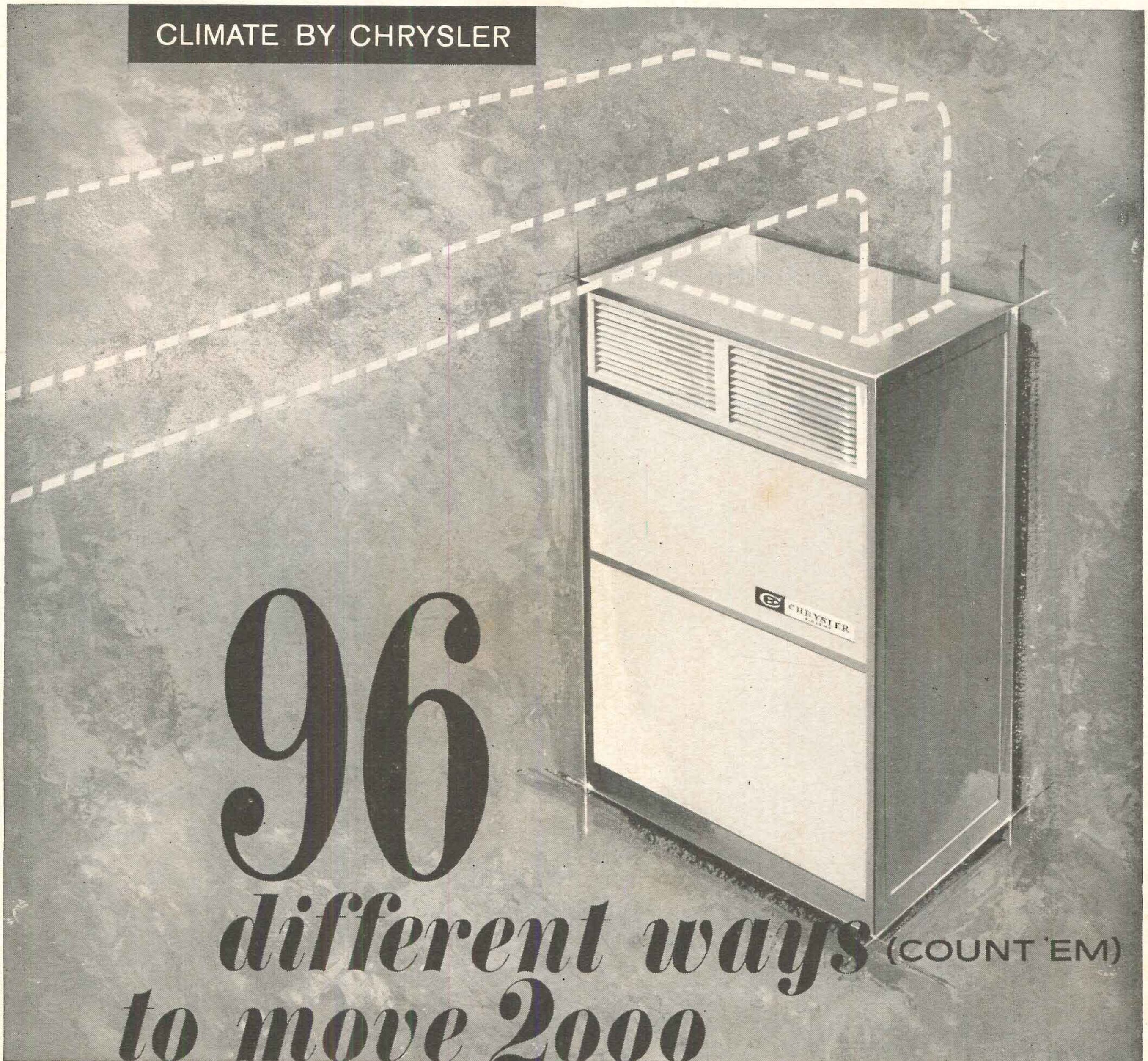
For full information that will spark your imagination and fill your drawing board with practical and dramatic plans, write for this new architect's design idea book . . . "DESIGN WITH BARRETT VINYL BUILDING PANELS."

Write to: Barrett Division, Allied Chemical Corporation, 40 Rector Street, New York 6, N. Y.




# MATERIAL FROM ALLIED CHEMICAL!

TURN PAGE




C★F★M★

You've never seen anything like this new Chrysler 1456 air handling unit before. It's truly the most versatile commercial or residential unit ever designed. It can be installed in any position, including upside-down and horizontally (and it's so thin you can even slip it into a 36-inch closet, sideways). Discharge and return can be at the front or ends . . . in any combination. You can use it with or without ducts.

It's a free-standing unit. Or, if you want to save floor space, hang it on the wall, or suspend it from the ceiling. And if you want supplementary heating, simply add electric resistance units, or a steam coil . . . or use it as the indoor section of a heat pump. In all combinations, you've got 96 different ways to move 2000 C.F.M.

Perhaps you're thinking that any unit used so many ways will be complicated to install. Nothing could be further from the truth. The new Chrysler 1456 is completely factory-assembled. You don't waste time or money putting it together on the site. And once it's going, you have to strain to hear it. The blower is that quiet. If your curiosity is whetted, send for folder LL-513.

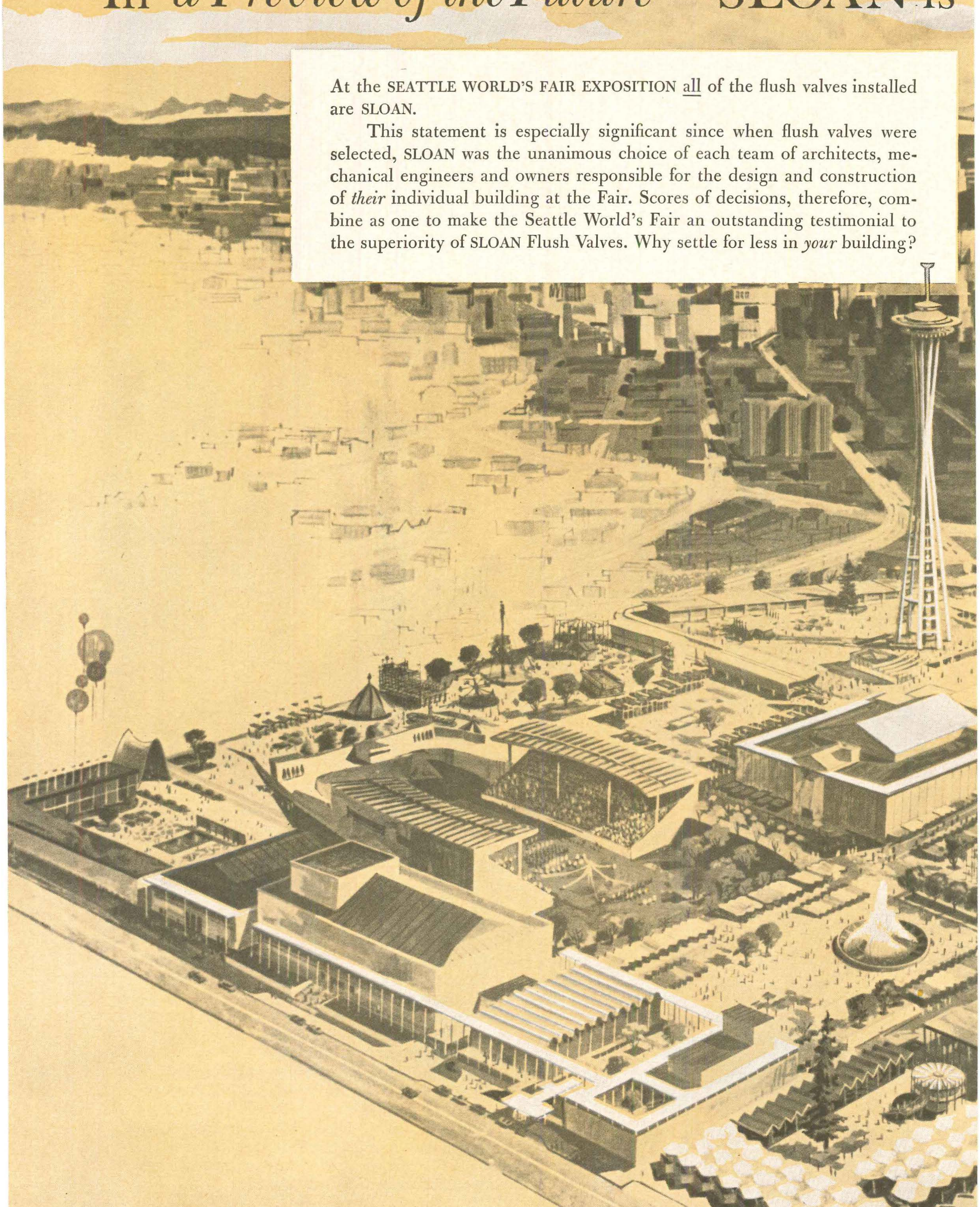
CHRYSLER
AIRTEMP

A Division of Chrysler Corporation
Dept. S-52, Dayton 4, Ohio

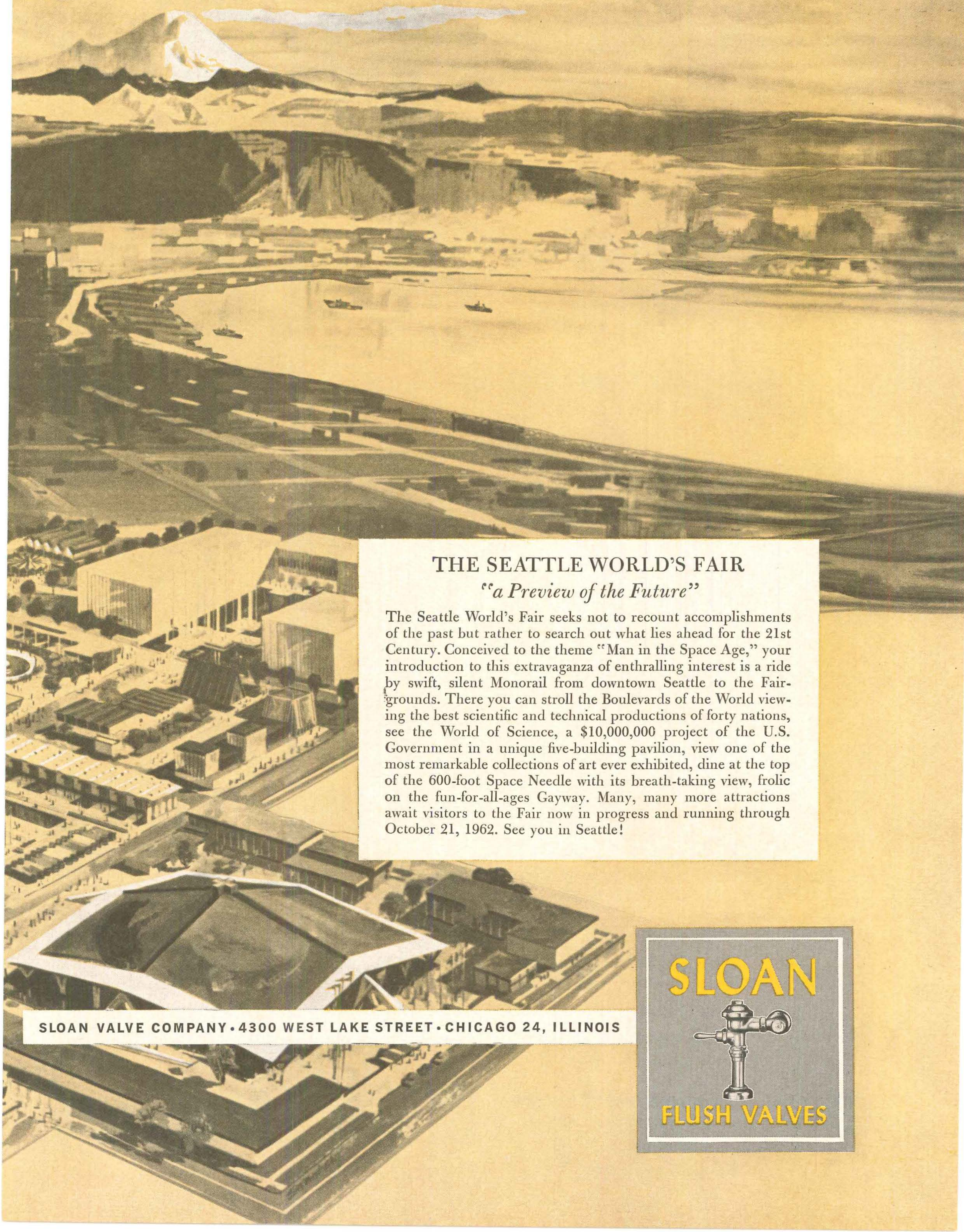
# In "*a Preview of the Future*"– SLOAN is

At the SEATTLE WORLD'S FAIR EXPOSITION all of the flush valves installed are SLOAN.

This statement is especially significant since when flush valves were selected, SLOAN was the unanimous choice of each team of architects, mechanical engineers and owners responsible for the design and construction of *their* individual building at the Fair. Scores of decisions, therefore, combine as one to make the Seattle World's Fair an outstanding testimonial to the superiority of SLOAN Flush Valves. Why settle for less in *your* building?



# the flush valve of unanimous choice



## THE SEATTLE WORLD'S FAIR

*"a Preview of the Future"*

The Seattle World's Fair seeks not to recount accomplishments of the past but rather to search out what lies ahead for the 21st Century. Conceived to the theme "Man in the Space Age," your introduction to this extravaganza of enthralling interest is a ride by swift, silent Monorail from downtown Seattle to the Fair-grounds. There you can stroll the Boulevards of the World viewing the best scientific and technical productions of forty nations, see the World of Science, a $10,000,000 project of the U.S. Government in a unique five-building pavilion, view one of the most remarkable collections of art ever exhibited, dine at the top of the 600-foot Space Needle with its breath-taking view, frolic on the fun-for-all-ages Gayway. Many, many more attractions await visitors to the Fair now in progress and running through October 21, 1962. See you in Seattle!

SLOAN VALVE COMPANY • 4300 WEST LAKE STREET • CHICAGO 24, ILLINOIS

SLOAN

FLUSH VALVES

*when there's a hardware selection to be made...*

# this man relies on past *experience*

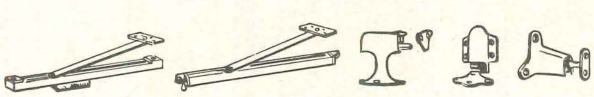
"Look-alikes" may puzzle the novice; but the man of experience doesn't just look at hardware. He looks beyond and sees – the *tangibles* and *intangibles* of his specification.

He knows the practical value of having his order analyzed as a double-check against errors, and the reassurance of custom-engineering assistance when it's needed.

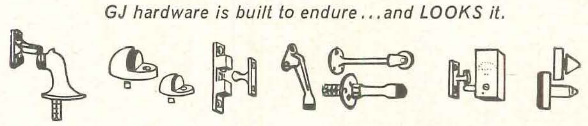
He knows that the guarantee of durability and smooth function is in the original design, basic metal, precise machining and the expert finishing of an item.

He knows the time and money that are saved when the correct hardware reaches the building site on time.

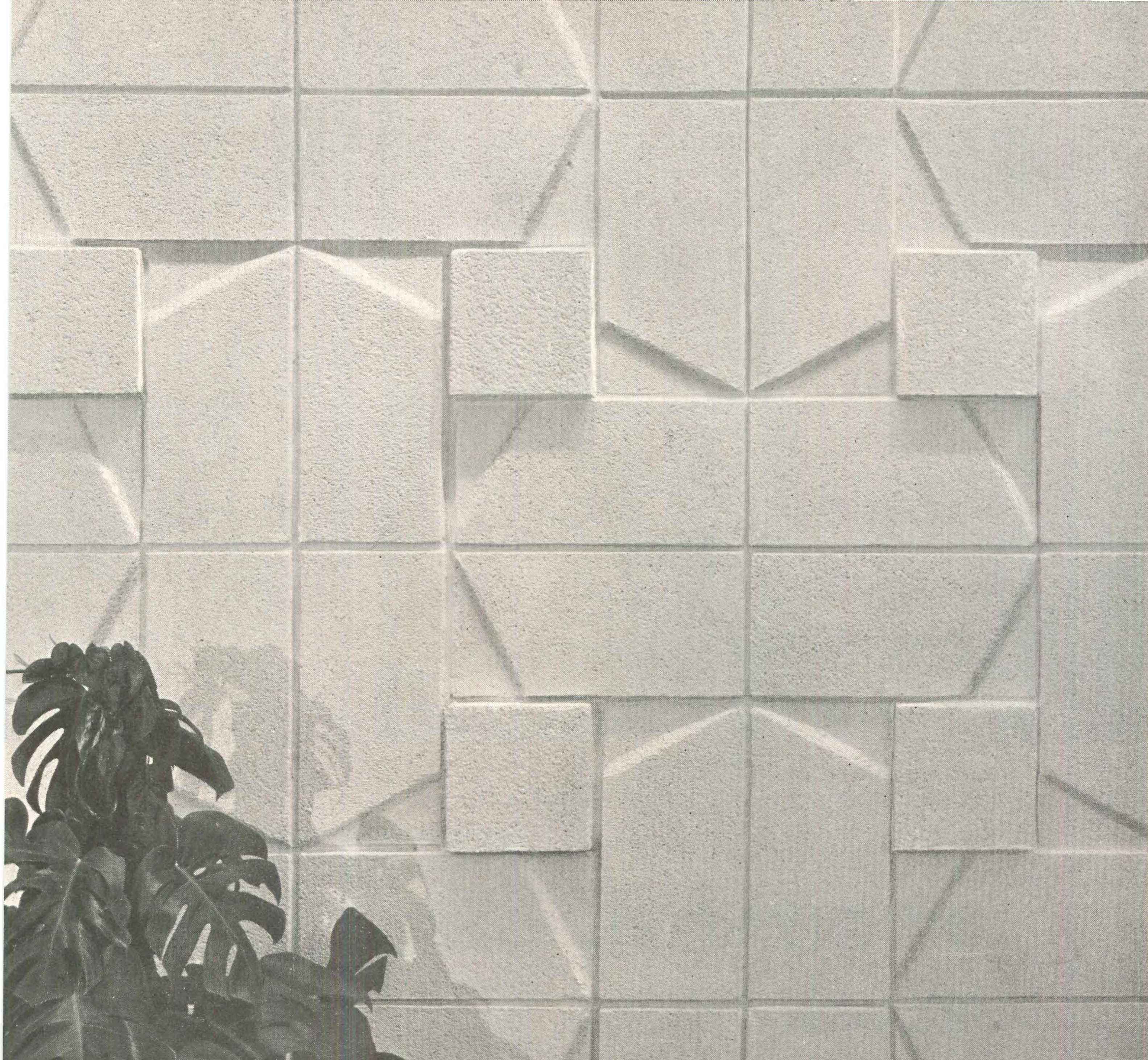
Because this man knows GJ ... he specifies GJ ... for the *quality that he demands*, the *service-extras he has a right to expect*, and the *scheduled delivery that he needs.*



*GJ hardware is built to endure...and LOOKS it.*



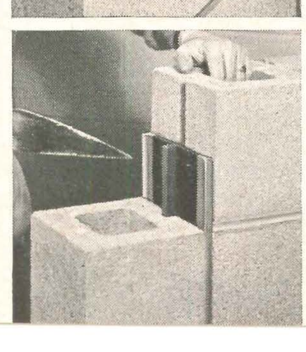
**GLYNN • JOHNSON CORPORATION**
4422 n. ravenswood ave. • chicago 40, illinois



# BUILD WITH BLOCK

## *and build for keeps*

Modern concrete masonry gives full value for the building dollar with a superb combination of visual dynamics and functional stability. The beauty lasts—especially when reinforced with Dur-o-wal, the truss-designed steel rod assembly that can more than double flexural strength, outfunctions brick-header construction. For technical evidence, attach this ad to your letterhead, send to any Dur-o-wal address below.



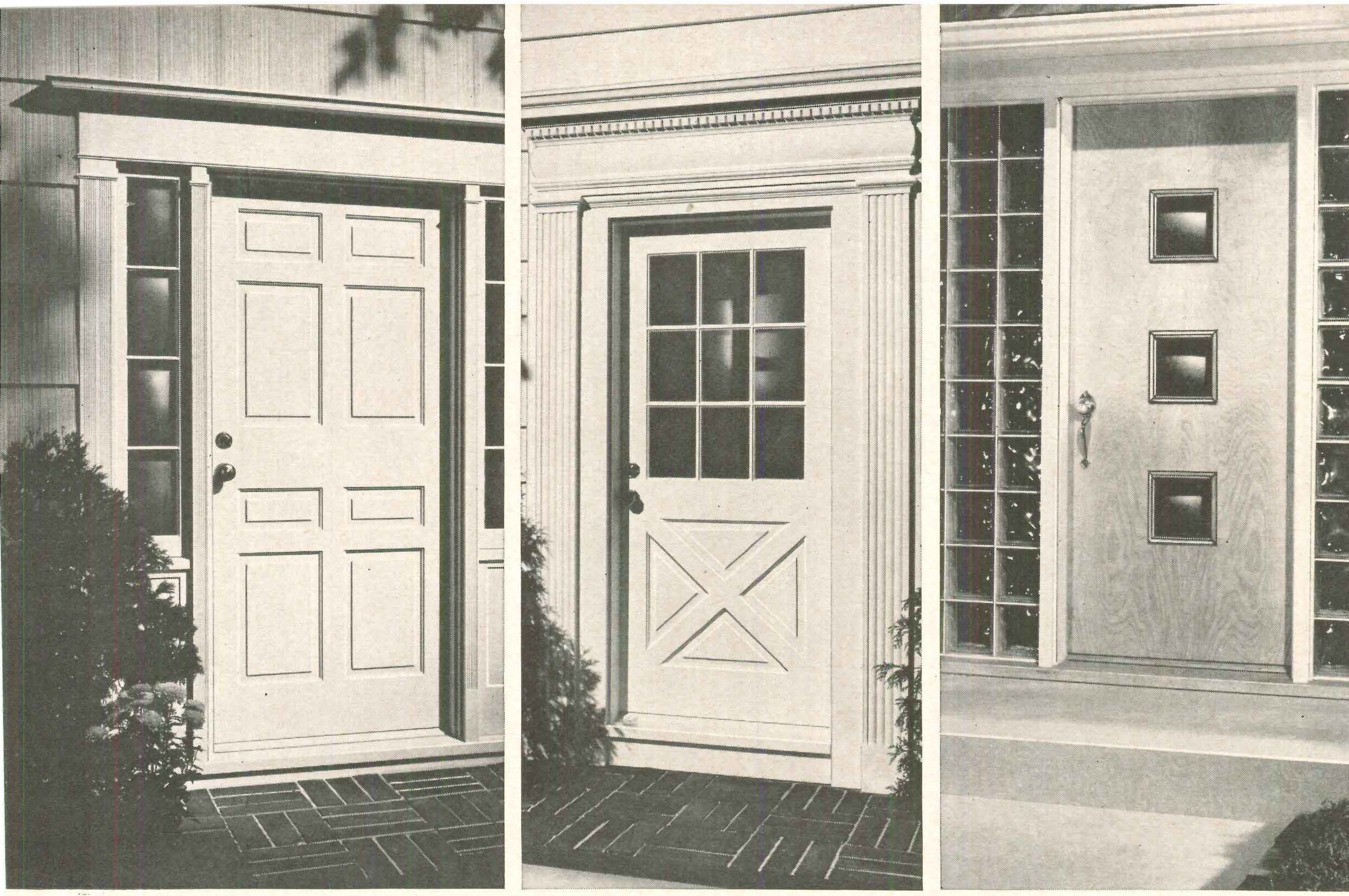
*Strength with flexibility—the two basic factors for a repair-free masonry wall are assured by these engineered companion products. Dur-o-wal reinforcement, top left, increases flexural strength 71 to 261 per cent, depending on weight Dur-o-wal, number of courses, type of mortar. The ready-made Rapid Control Joint, beneath with its neoprene compound flange flexes with the wall, keeps itself sealed tight.*

**DUR-O-WAL®**

**Masonry Wall Reinforcement and Rapid Control Joint**

DUR-O-WAL MANUFACTURING PLANTS

- Dur-O-waL Div., Cedar Rapids Block Co., **CEDAR RAPIDS, IA.**
- Dur-O-waL of Ill., 260 S. Highland Ave., **AURORA, ILL.**
- Dur-O-waL Prod., Inc., Box 628, **SYRACUSE, N. Y.**
- Dur-O-waL Prod. of Ala., Inc., Box 5446, **BIRMINGHAM, ALA.**
- Dur-O-waL Div., Frontier Mfg. Co., Box 49, **PHOENIX, ARIZ.**
- Dur-O-waL of Colorado, 29th and Court St., **PUEBLO, COLO.**
- Dur-O-waL Prod., Inc., 4500 E. Lombard St., **BALTIMORE, MD.**
- Dur-O-waL Northwest Co., 3310 Wallingford Ave., **SEATTLE, WASH.**
- Dur-O-waL Inc., 1678 Norwood Ave., **TOLEDO, OHIO**
- Dur-O-waL of Minn., 2653-37th Ave., So., **MINNEAPOLIS, MINN.**
- Dur-O-waL Ltd., 789 Woodward Avenue, **HAMILTON, ONTARIO, CANADA**

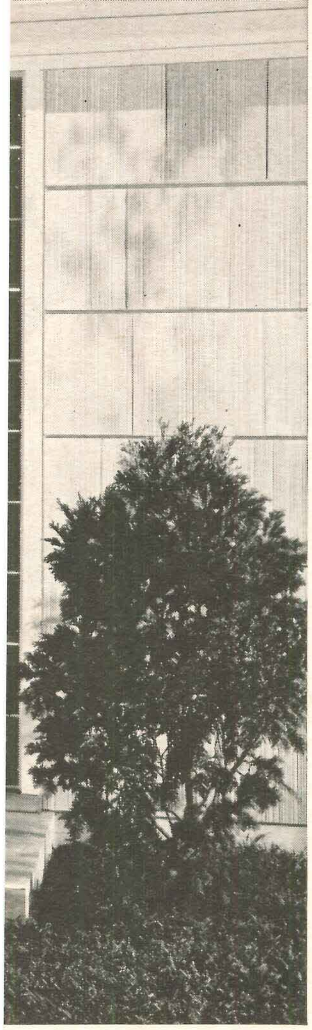


Entrance doors to inspire new home designs. Here are only a few Curtis entrance doors that set the pace for smart styling and distinction in home exteriors. Curtis has the right entrance for any home—contemporary, classic, Georgian and other variations. All feature Curtis Individuality and Quality—for beauty and durability.

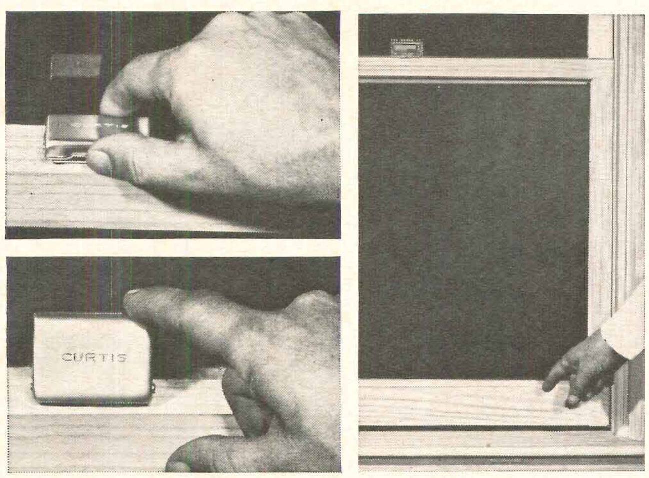
# WOODWORK NEWS FROM CURTIS®

New products—new ideas—new, vigorous programs to assist architects and builders—new sales campaigns and promotions. That's the picture today at Curtis Companies Incorporated. On this page are some of the evidences of that Curtis progress. Look for the complete Curtis presentation in SWEET'S FILE, or write for literature.

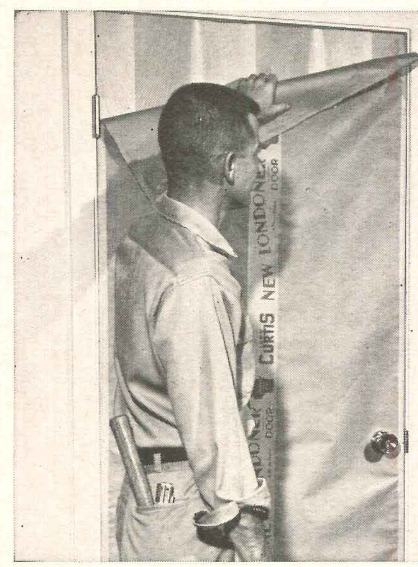
**New Curtis casement.** Proud Curtis employee shows the new Curtis casement window (shown at right)—available in several different styles to accommodate different architectural designs. Engineered to increase weather-tight protection and ease of operation.

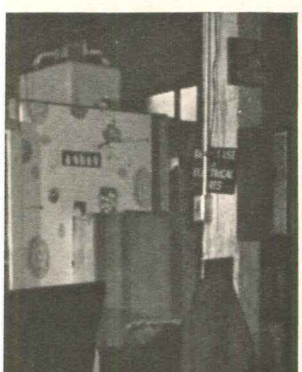


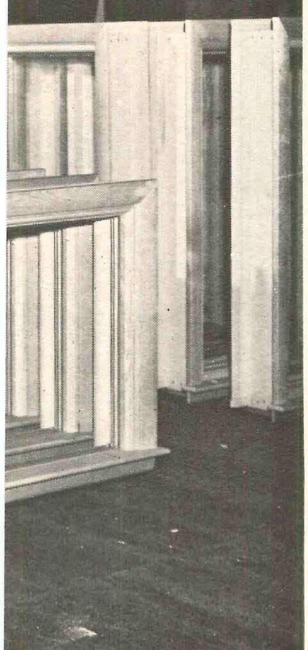
**A New Note in Cabinets**—here's new beauty and famous Curtis quality in the Curtis Cabinet line—at unusually appealing prices! Features include smart modern styling, with popular flush or Provincial designs, contoured edges on tops and bottoms of doors and drawers for easy finger grip—eliminates need for handles. Two beautiful finishes—white mist or burnished gold—highlight grain of northern birch.



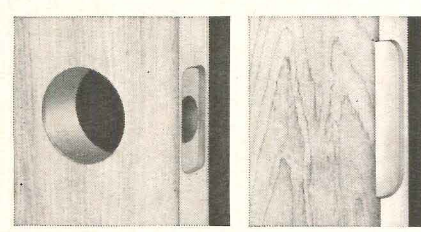

**New low-silhouette window lock.** A new modern concept by Curtis, to replace old-fashioned, unsightly locks. Lock snaps shut at a touch, flicks open easily. Window also may be locked in partly open position.





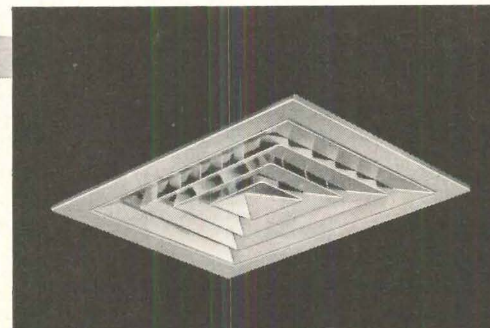

**New styling (and savings)** for Harding High School, Fairport, Ohio—remodeled with attractive Curtis Convertible wood windows. Weather-tightness adds to comfort and fuel economy.



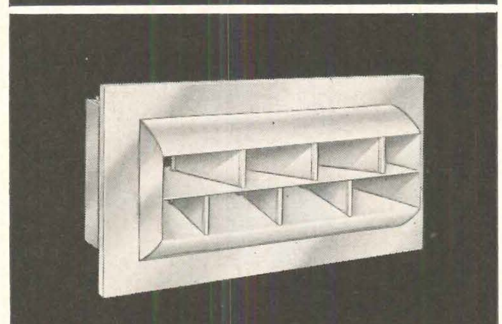
**New Prefinished Doors.** Curtis now offers its famous New Londoner® and Plyoneer® flush doors machined for locks and hinges, and prefinished. Delivered ready to hang. Fine finish of doors are protected by wrapping until construction is complete.

CURTIS COMPANIES INCORPORATED / CLINTON, IOWA

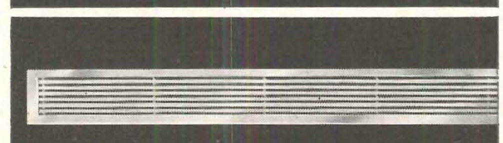
Individuality and Quality
in windows, doors, cabinets and fixtures



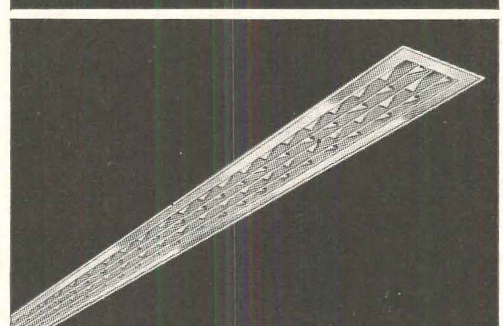




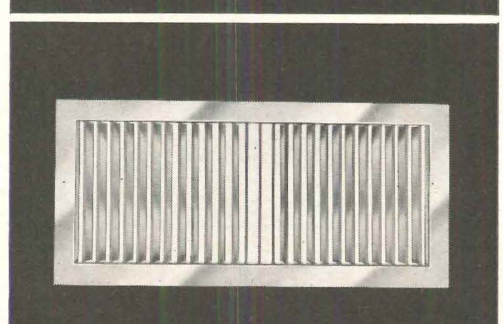


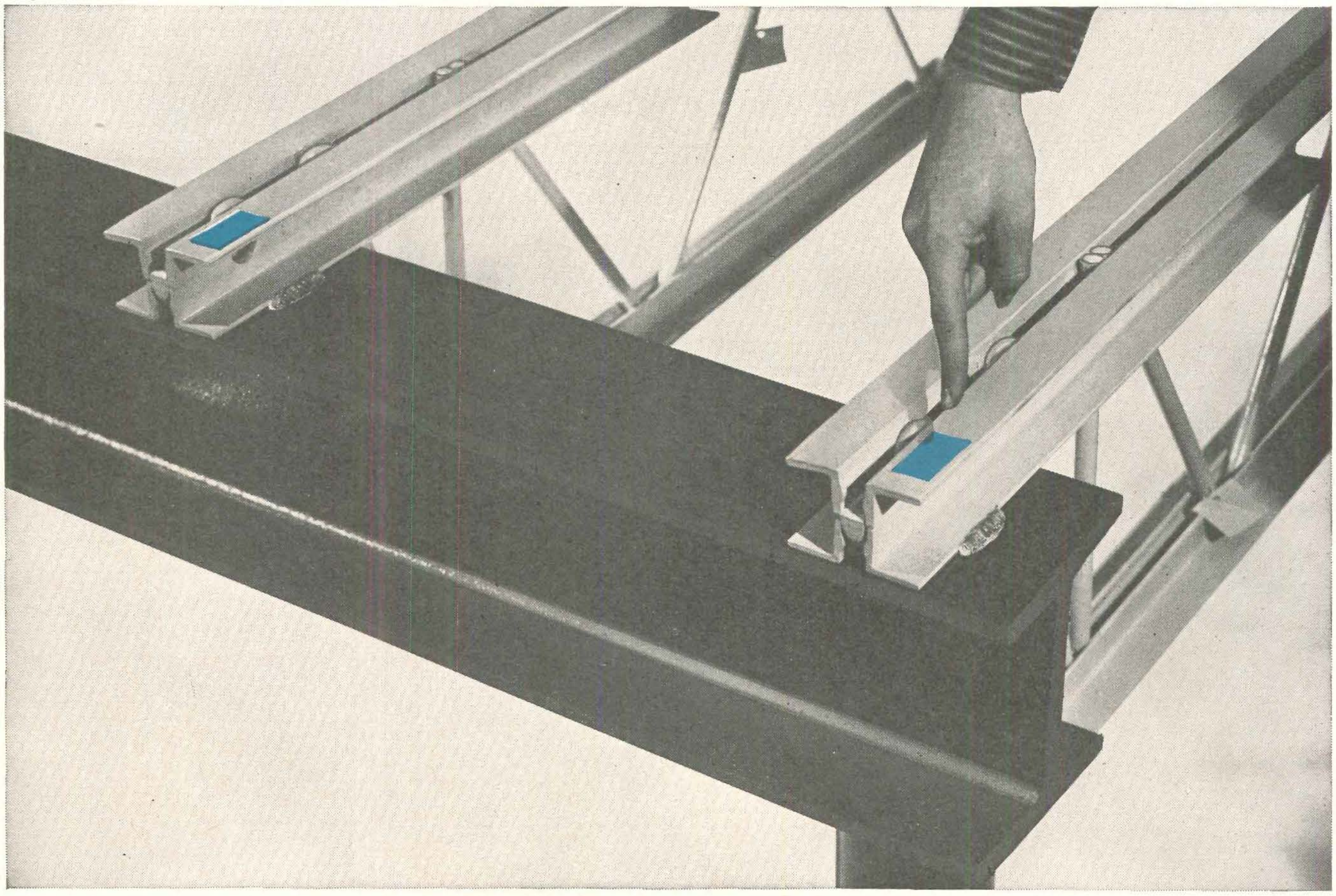








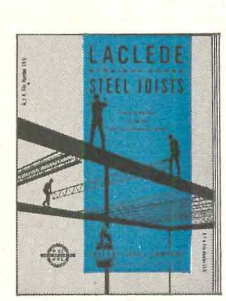




*How do you know you have high strength joists?*

# YOU CAN BE SURE ... with the new LACLEDE BLUE MARKING SYSTEM!

To speed on-the-job identification – new Laclede H-Series joists are marked with a blue rectangle painted on the end of each joist. Based on a minimum yield strength of 50,000 psi, these new series of high strength open web steel joists are approved and produced to the new standards and specifications of the Steel Joist Institute.




*Write for your copy of our new 64-page joist catalog (covers load and spacing tables for J-Series and H-Series Joists).*

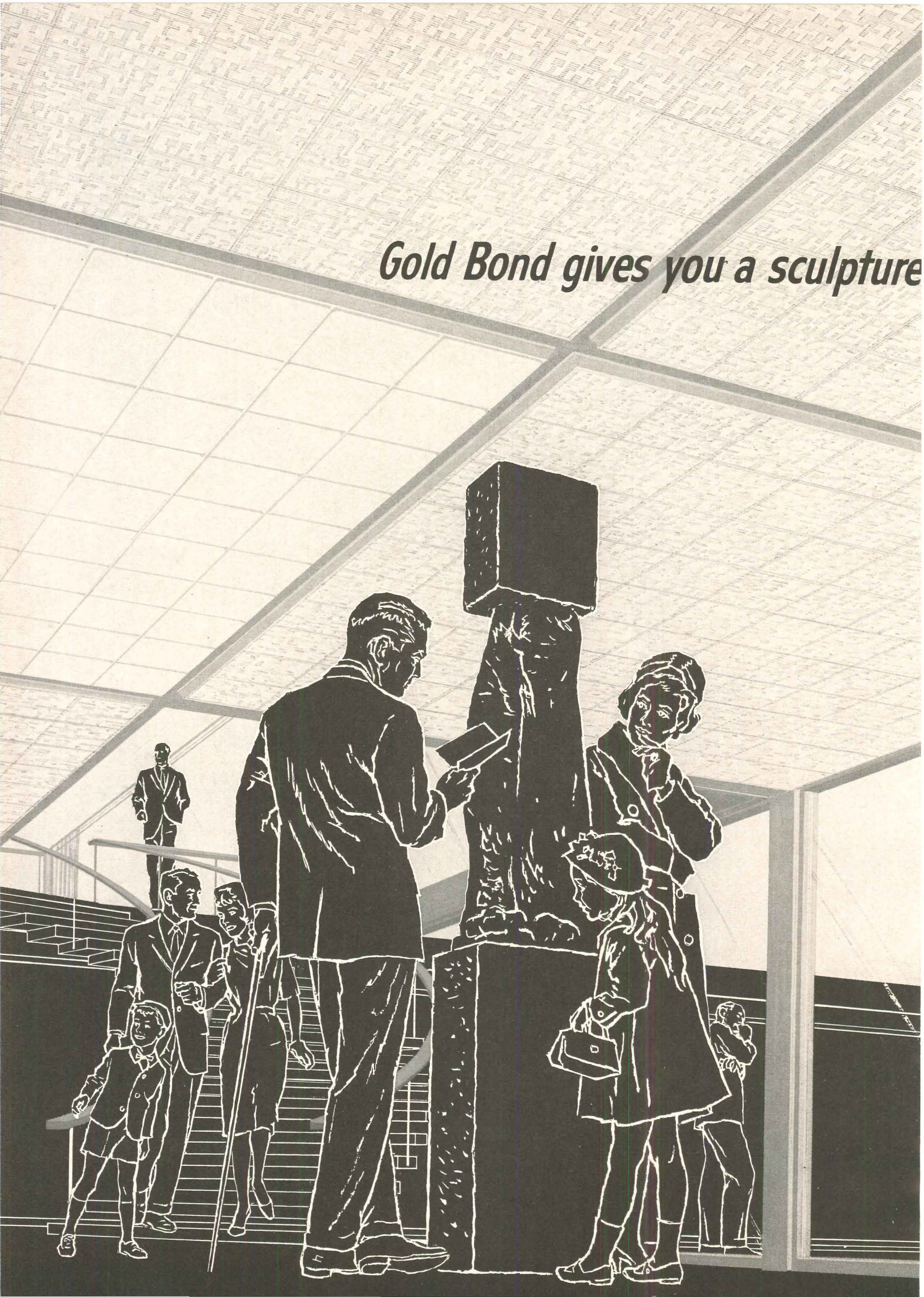
Steel

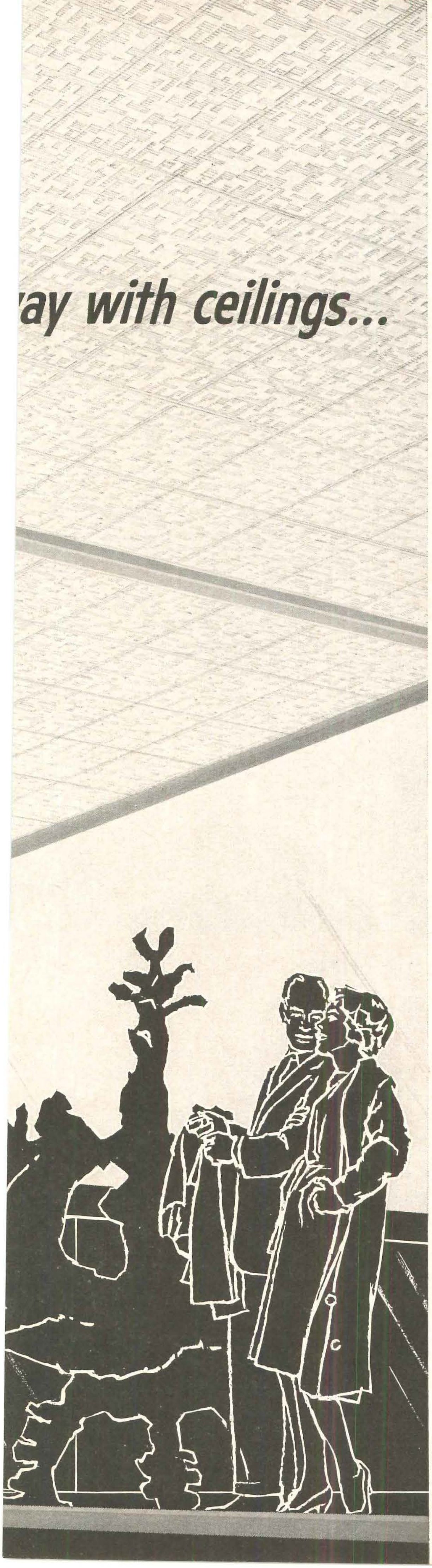
**LACLEDE STEEL COMPANY**

SAINT LOUIS 1, MISSOURI

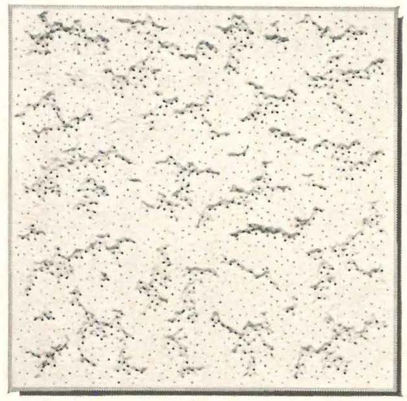
*Producers of Quality Steel for Industry and Construction.*

6221

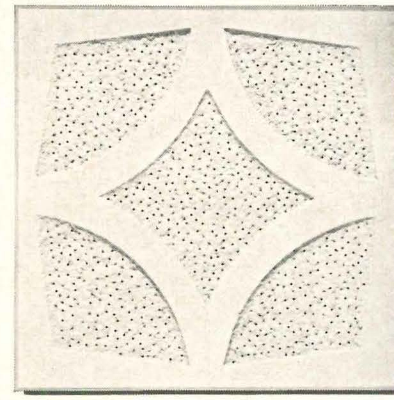

Gold Bond gives you a sculpture

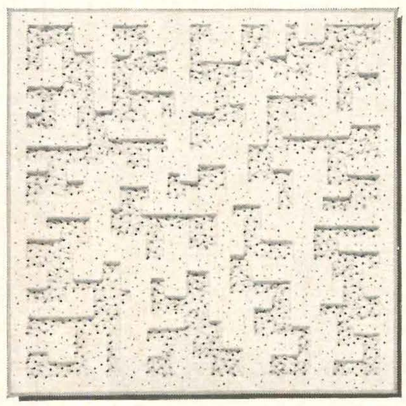



*Coral Lace*

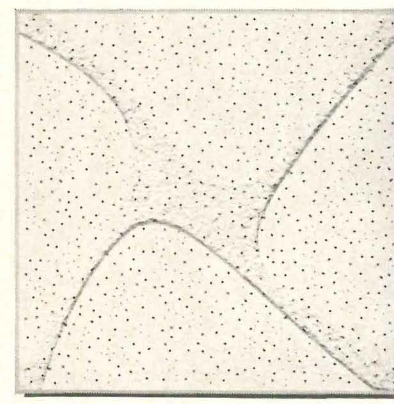


*Bruxelles*





*Labyrinth*



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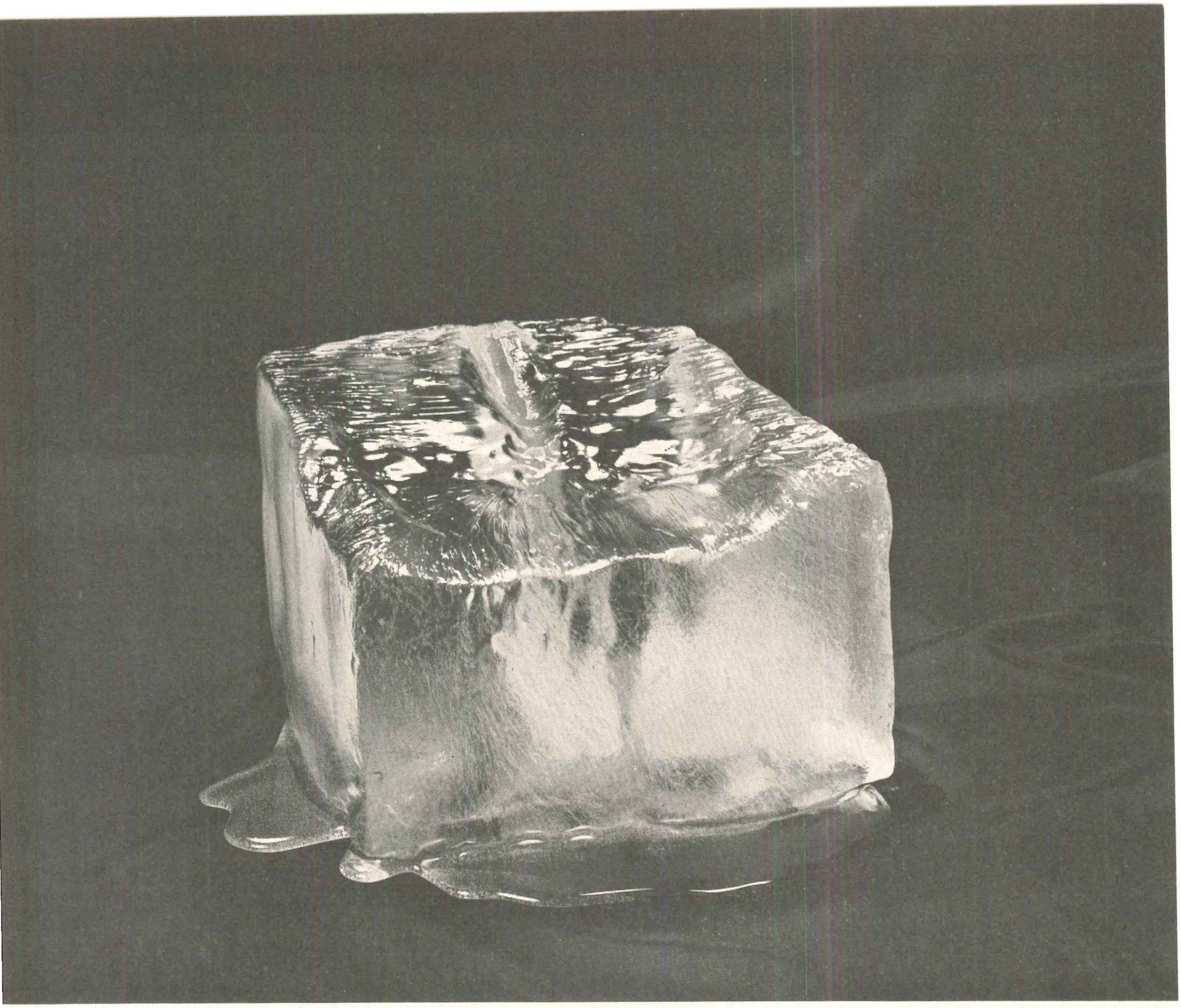

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These impressive figures are possible primarily because of basic engine construction features. All Caterpillar Natural Gas Engines are built on a diesel engine block, so they can operate continuously at full horsepower *without derating*. Only pistons and fuel systems are changed for operation with natural gas.

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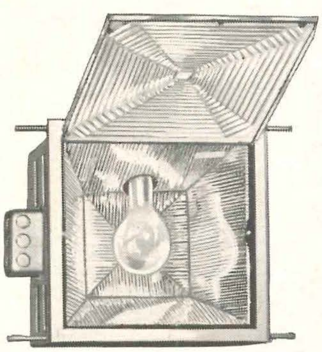

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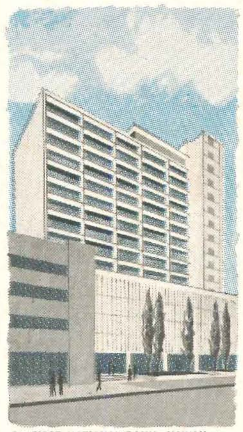

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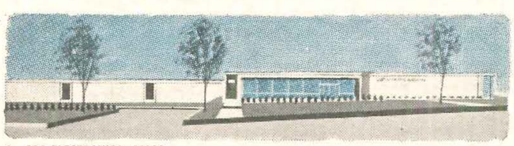

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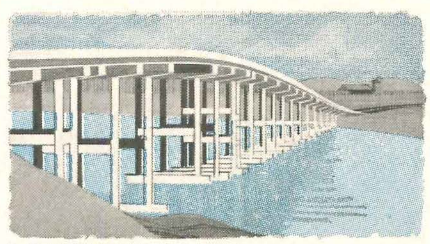

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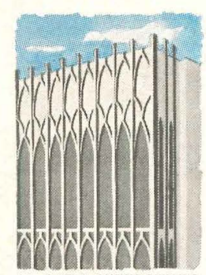

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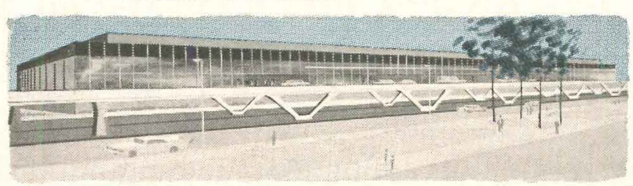

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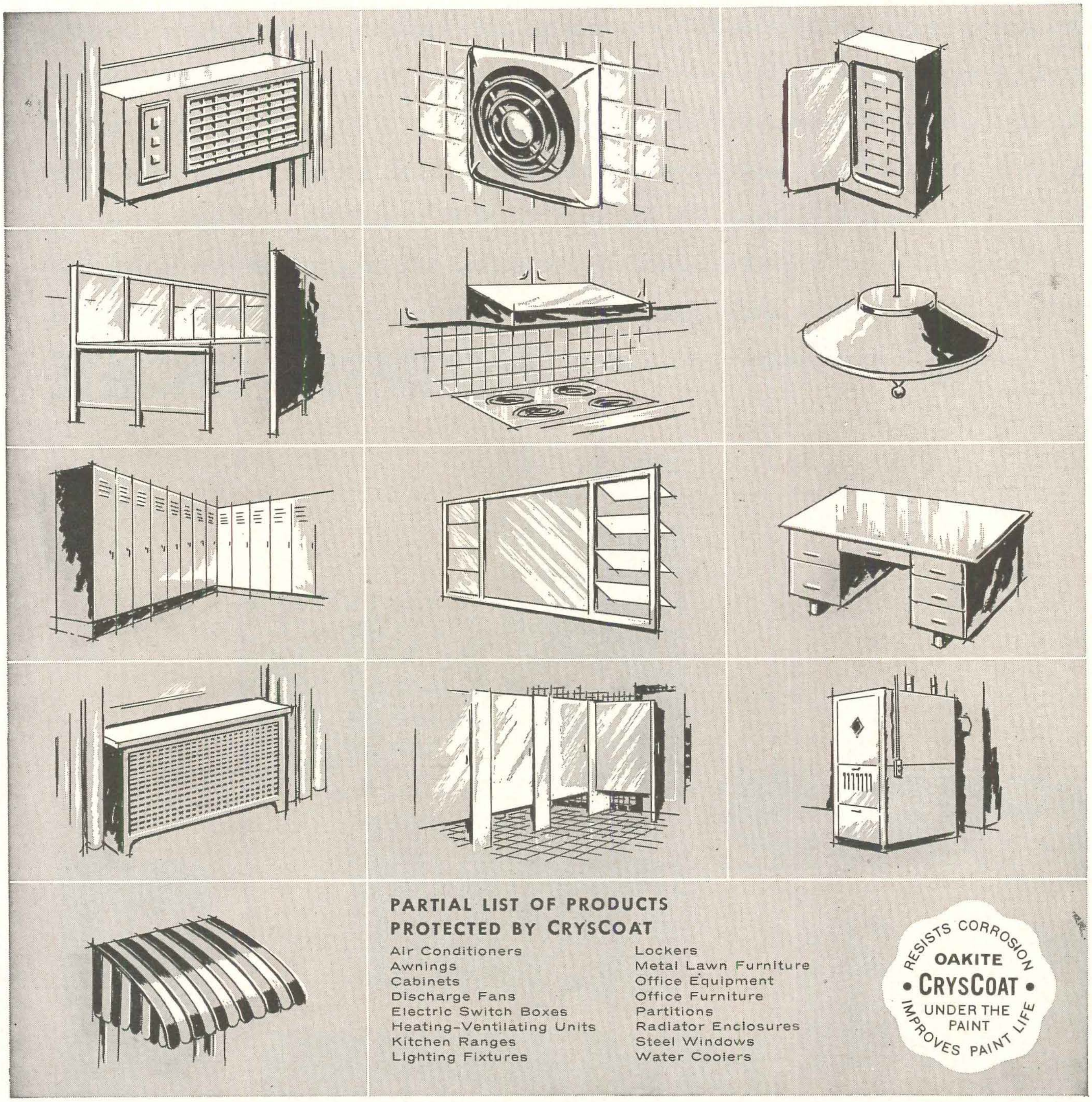


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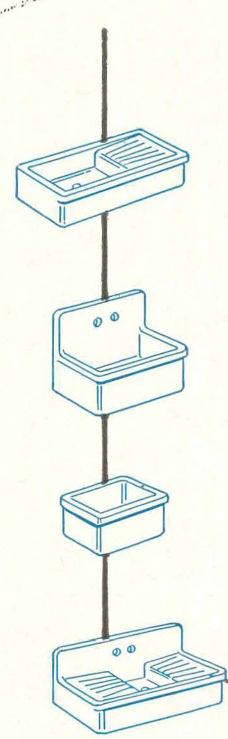

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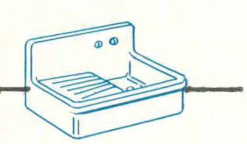
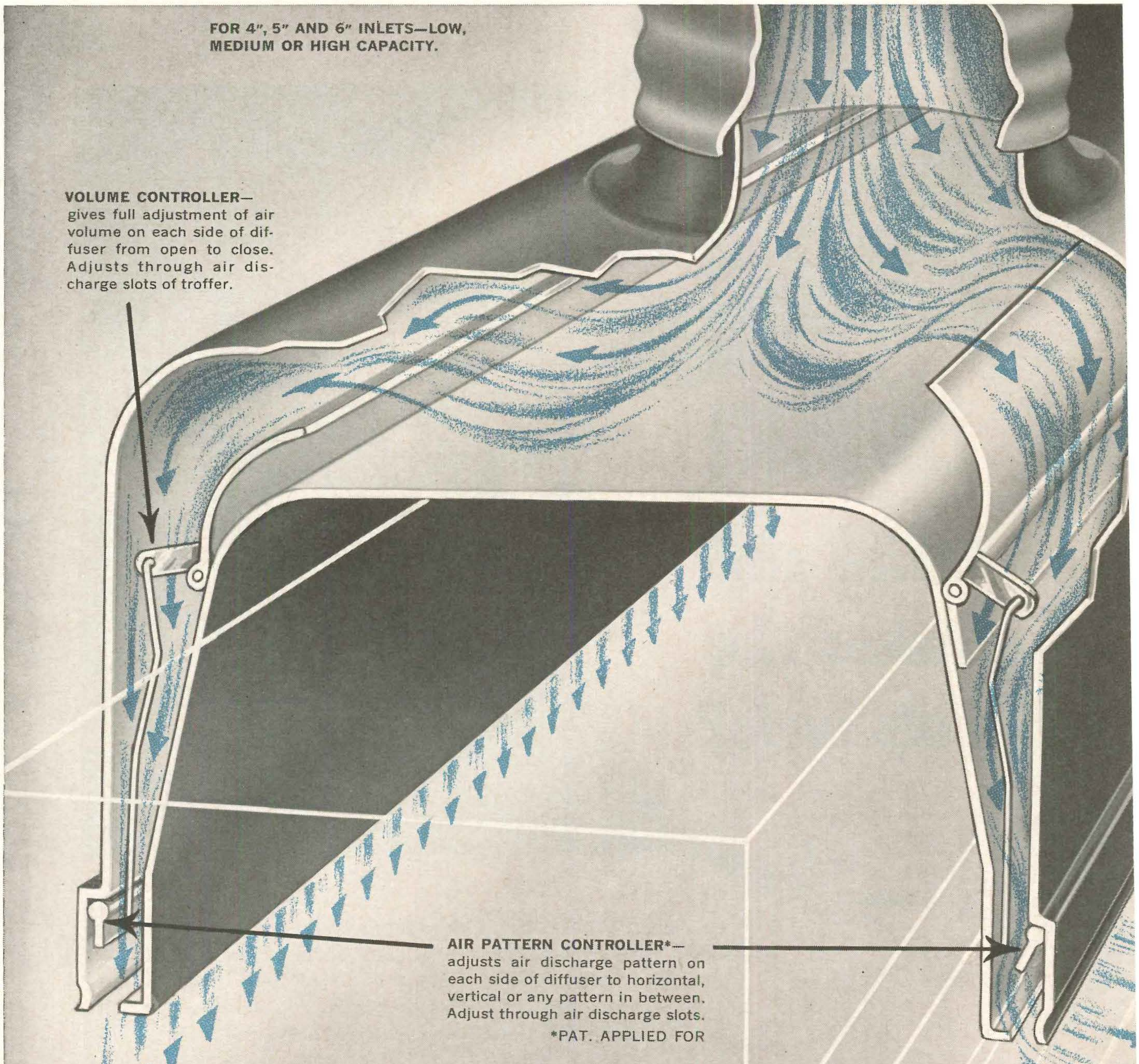


98-G


FOR 4", 5" AND 6" INLETS—LOW, MEDIUM OR HIGH CAPACITY.
VOLUME CONTROLLER—
gives full adjustment of air volume on each side of diffuser from open to close. Adjusts through air discharge slots of troffer.
AIR PATTERN CONTROLLER*—
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# CEILING DIFFUSERS

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LOOK AT THESE BENEFITS YOU GET ONLY WITH THE NEW TITUS AIR DIFFUSING UNITS:

**1. Completely adjustable air pattern.** The air pattern on each side of each Titus unit can be quickly, easily adjusted to a horizontal discharge, a vertical discharge, or to any pattern in between, to exactly suit the space requirements. Simply adjust pattern controller through troffer air discharge slot for pattern desired.

**2. Complete air volume control . . .** from open to closed position. Adjusts through air discharge slot of troffer. Both air pattern controller and volume controller can be adjusted anytime before, during, or after diffuser installation.

**3. Diffusers are of one-piece, air-tight construction.** This means faster, easier, lower-cost installation—*maximum isolation of air diffuser from light troffer*. Because diffuser is independent of troffer, heat from troffer is dissipated uniformly to ceiling space—no supply or return air can enter troffer. This assures maximum light output and color stabilization.

**4. Today's only complete line.** One-piece models to fit every need. Furnished in units that feed air from top, or in single and double units that feed air from side. Models to fit 1 x 4 and 2 x 4 light troffers.

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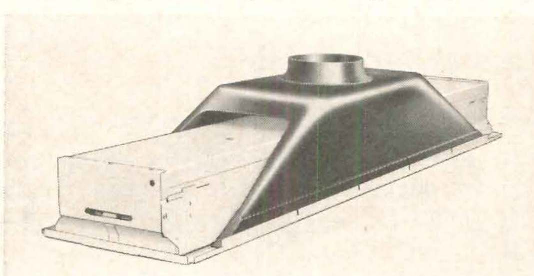
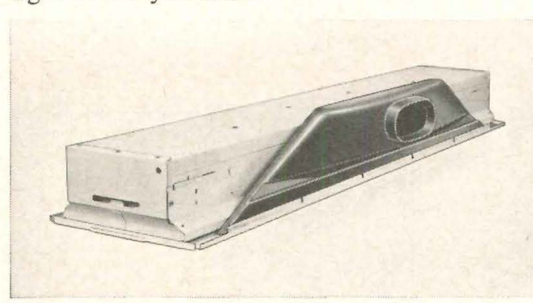


• **MODELS LT-14 and LT-24.** For 1 x 4 and 2 x 4 troffers. Feed from top. 4″, 5″ or 6″ inlet . . . low, medium or high capacity. Each side has individual, fully adjustable air pattern and air volume control. Use as supply or return units.



• **MODEL LT-10.** For use as single unit or double side unit. Individual feed, individual air pattern and volume control. Can be used with both sides supply or return . . . or with one side supply and other return. Snaps into troffer.

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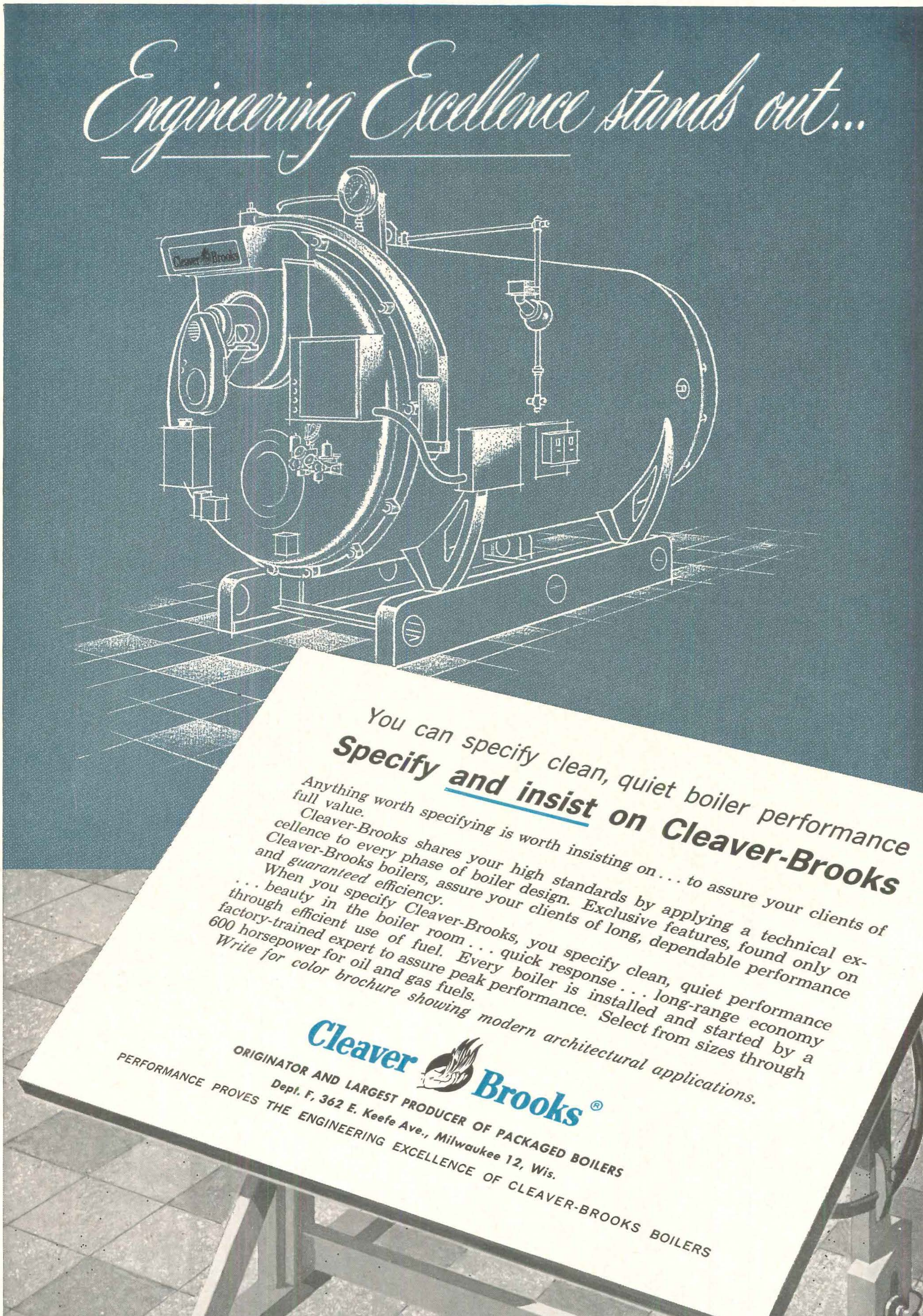
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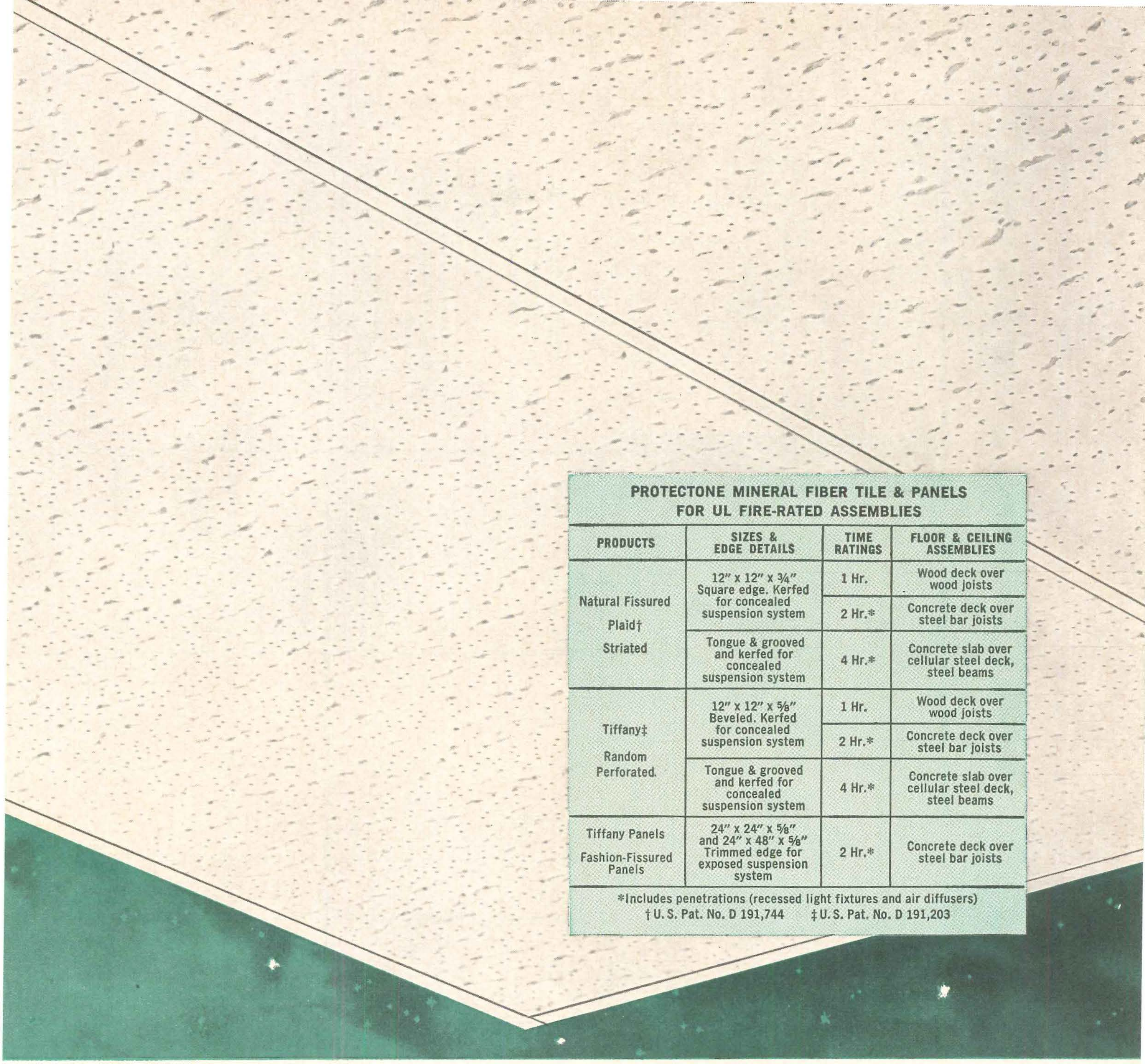

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|---|---|---|---|
| Natural Fissured<br>Plaid†<br>Striated | 12" x 12" x ¾" Square edge. Kerfed for concealed suspension system | 1 Hr. | Wood deck over wood joists |
| | | 2 Hr.* | Concrete deck over steel bar joists |
| | Tongue & grooved and kerfed for concealed suspension system | 4 Hr.* | Concrete slab over cellular steel deck, steel beams |
| Tiffany‡<br>Random Perforated | 12" x 12" x ⅝" Beveled. Kerfed for concealed suspension system | 1 Hr. | Wood deck over wood joists |
| | | 2 Hr.* | Concrete deck over steel bar joists |
| | Tongue & grooved and kerfed for concealed suspension system | 4 Hr.* | Concrete slab over cellular steel deck, steel beams |
| Tiffany Panels<br>Fashion-Fissured Panels | 24" x 24" x ⅝" and 24" x 48" x ⅝" Trimmed edge for exposed suspension system | 2 Hr.* | Concrete deck over steel bar joists |

*Includes penetrations (recessed light fixtures and air diffusers)
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# NO. 2 concrete slab design

a.i.a. file: 4-a

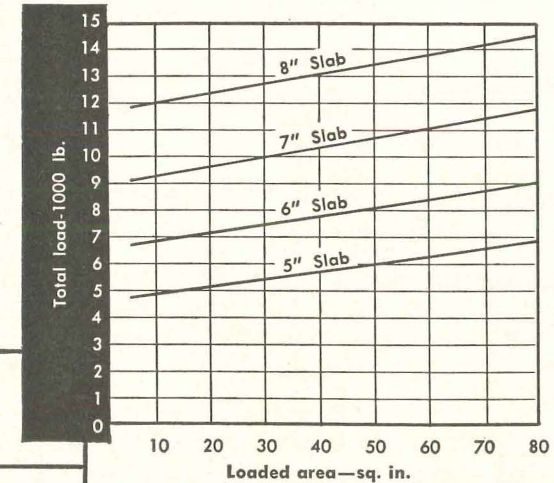
**Prepared as a service to architects by Portland Cement Association**

*Clip along dotted line*

**Concrete slab design for long-service floors.** Example: assume that a slab is to be designed of 5,000 psi concrete for an industrial plant floor. There will be considerable traffic with trucks having loads of 10,000 lb. per wheel. Each wheel has a contact area of about 30 sq. in. Assume that operating conditions are such that impact will be equivalent to about 25 per cent of the load. The equivalent static load will then be 12,500 lb. An approximate formula for the allowable flexural tensile stress of concrete is $4.6\sqrt{f'_c}$ (in which $f'_c$ = 28-day cylinder strength). For 5,000 psi concrete, the allowable strength is then:

$$4.6\sqrt{5{,}000} = 325 \text{ psi.}$$

The allowable loads in chart at right are based on a stress of 300 psi, so the design load must be corrected by $300 \div 325$ which gives 11,500 lb. From chart a load of 11,500 lb. on an area of 30 sq. in. requires a slab about 7½ in. thick.




### Maximum Wheel Loads for Industrial Floors

The chart above is based on flexural tensile stress of 300 psi. For other stresses multiply loads by ratio of 300 to stress used. For an allowable tensile stress of 300 psi, compressive strength of about 4,300 psi is generally required.

**For additional literature** on design of concrete slab floors, or other concrete construction, just send a request on your letterhead. (U.S. and Canada only.)

## requirements for floors on ground

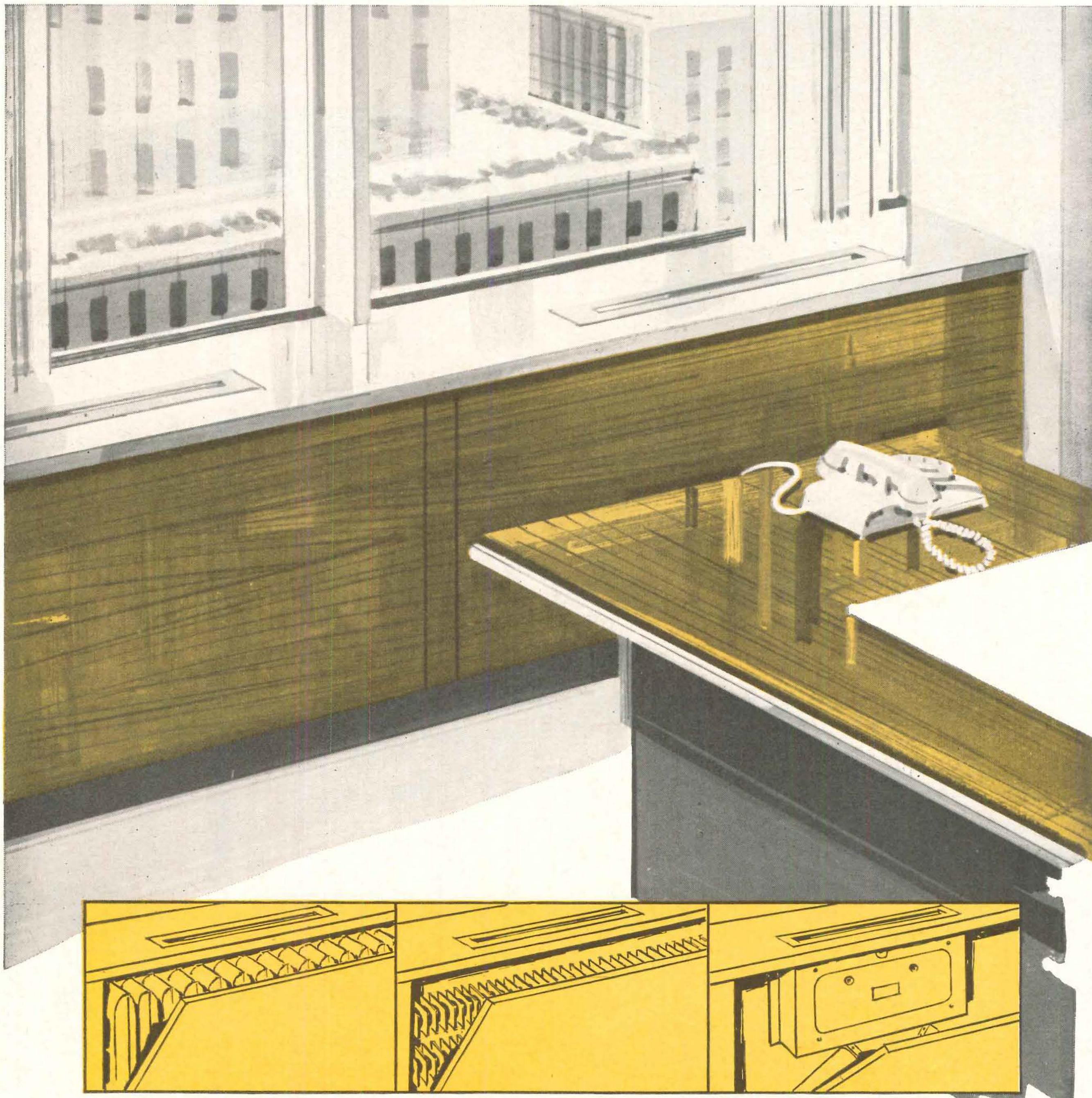
| | Building Type | Traffic | | W/C in gal. per bag | 28 day cylinder strength (psi) | Slump (in.) | Air content (%)* | Min. cement content in bags per cu. yd. | Concrete Finish |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **MIX DESIGN DATA FOR ORDERING CONCRETE** | | | | | |
| SINGLE COURSE | Offices, schools, churches, hospitals, commercial bldgs.: where floor will be covered with tile, linoleum, etc. | Predominantly foot traffic. | | 5½-6½ | 3500-4500 | 2-4 | 5±1 or 6±1 | 5½ | Steel trowel |
| SINGLE COURSE | Same as above except concrete is wearing surface. Also for service in light industrial buildings. | Foot traffic and pneumatic tired vehicles. | | 4-5½ | 4500-7000 | 1-3 | 5±1 or 6±1 | 6 | Hard steel trowel by power and hand equipment. |
| SINGLE COURSE | Industrial or commercial buildings subject to heavy or abrasive use. | Foot traffic and pneumatic tired vehicles. | | 4-5½ | 4500-7000 | 1-3 | 5±1 or 6±1 | 6 | Dry shake of extra hard aggregate added to surface immediately before power floating begins. |
| TWO COURSE HEAVY DUTY | Heavy industry such as foundries, steel mills, heavy manufacturing, also any industrial or commercial building with highly abrasive conditions. | Steel wheeled vehicles. Heavy abrasive use. | BASE COURSE | 5½-6½ | 3500-4500 | 2-3 | 5±1 or 6±1 | 5½ | Surface leveled by floating, but textured to insure bond to topping. |
| TWO COURSE HEAVY DUTY | | | TOPPING** | 3½-4 | 8000-12000 | Zero | Not required | 7½ | Special power floats, repeated hand troweling for smooth, dense abrasive resistant surface. Special extra hard aggregates are used. |

*For concrete with 1½ in. max. aggregate use 5±1% air content; for ¾ in. max. aggregate use 6±1%.
**Topping mix must be mixed in paddle type mixer—generally not available from ready-mix plants.

**PORTLAND CEMENT ASSOCIATION**

**Dept. 5-8, 33 West Grand Ave., Chicago 10, Illinois**

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



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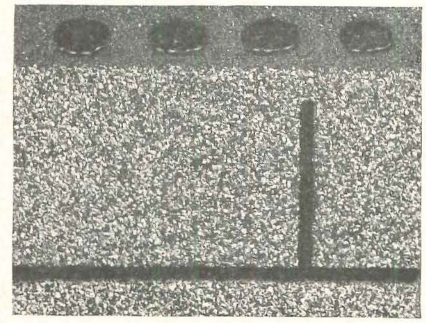
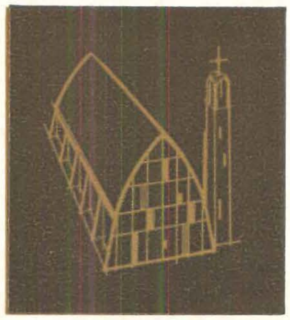
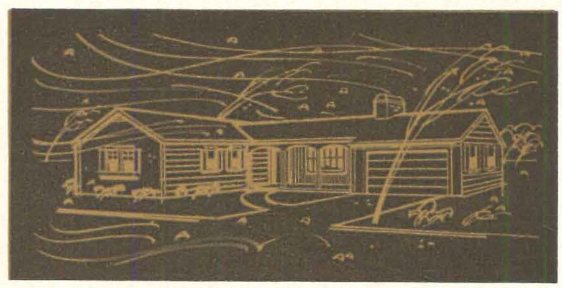
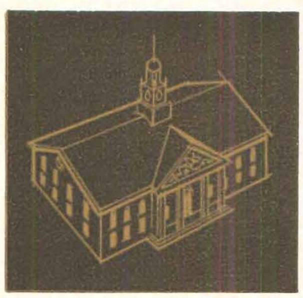
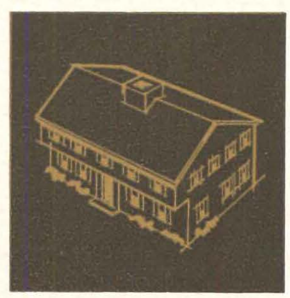
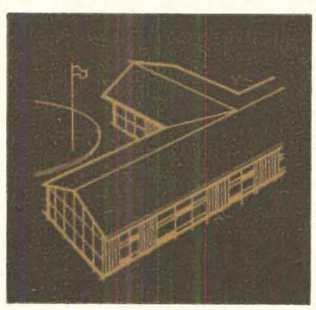


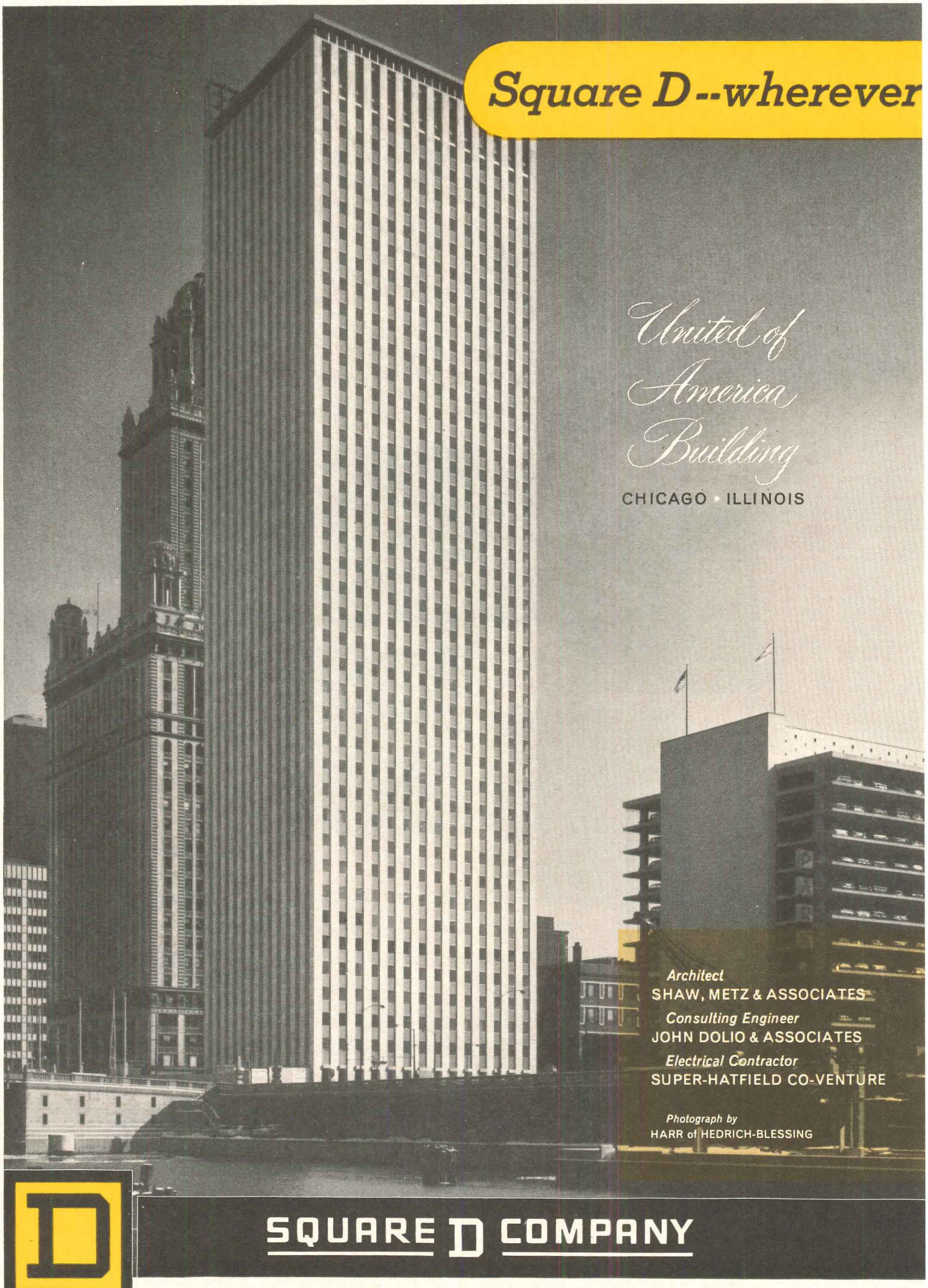










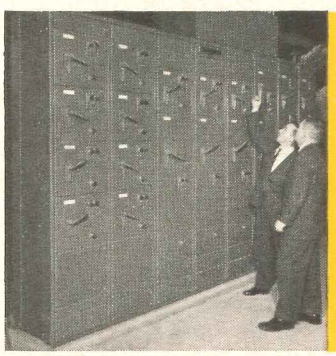

Square D--wherever
United of America Building
CHICAGO • ILLINOIS
Architect
SHAW, METZ & ASSOCIATES
Consulting Engineer
JOHN DOLIO & ASSOCIATES
Electrical Contractor
SUPER-HATFIELD CO-VENTURE
Photograph by
HARR of HEDRICH-BLESSING
SQUARE D COMPANY

## *electricity is distributed and controlled*

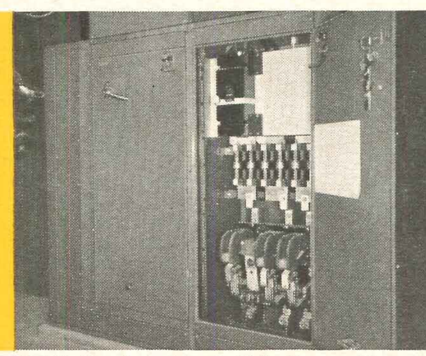
# WORLD'S TALLEST MARBLE SKYSCRAPER

• Towering 41 stories over the Loop, this newest addition to the Chicago skyline is the highest marble office building ever built. 16 high-speed, self-operated elevators; high-intensity lighting; year 'round air conditioning—these are among the modern features that make the UNITED OF AMERICA BUILDING a model of comfort and convenience for tenants. Its location at State Street and Wacker Drive gives easy access to subways, elevateds and buses, and makes this impressive structure a focal point of Chicago's central business district.

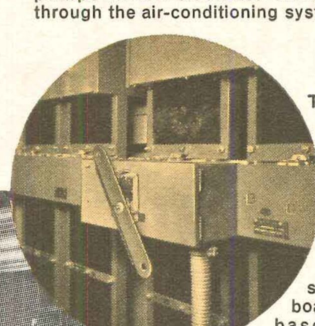
***Square D electrical distribution and control equipment is on duty throughout this new building.***



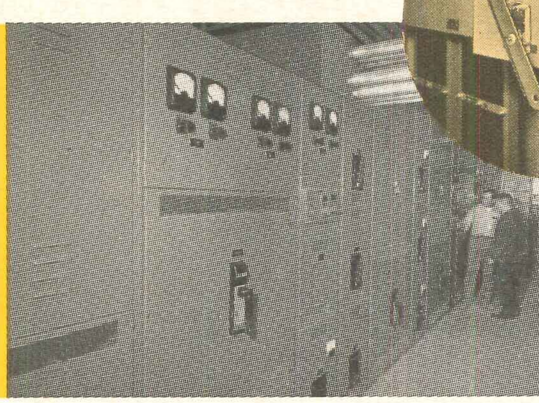
This motor control center, one of many supplied by Square D, contains Size 1 through Size 5 combination starters for control of exhaust fans, boiler feed pumps and condenser pumps. Ronald Martinec, Estimating Engineer for the electrical contractor, inspects this installation with Bob Kunz, Square D Field Engineer.



NEMA Size 6 starters, built by Square D's EC&M Division, control the motors and pumps which circulate chilled water through the air-conditioning system.



Two runs of 4,000-ampere Square D feeder duct carry power from the main switchboard in the basement to the 39th floor. Tap-offs on each floor feed Square D panelboards for lighting and other needs.



George Allroth, Job Superintendent, and Square D Field Engineer Bob Kunz inspect the main switchboard which distributes the 20,000-ampere service throughout the building.

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### A *Complete* LINE OF ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT

ADJUSTABLE SPEED DRIVES
BUSWAYS & WIREWAYS
CIRCUIT BREAKERS
CONTROL CENTERS
CRANE & HOIST CONTROL
DISTRIBUTION SWITCHBOARDS
ELECTRIC TRUCK CONTROL
HIGH VOLTAGE CONTROL
LAUNDRY CONTROL
LIFTING MAGNETS
LIGHTING AND POWER PANELBOARDS
LIMIT AND FOOT SWITCHES
MACHINE TOOL CONTROL
MAGNETIC BRAKES
METER MOUNTINGS
MOTOR STARTERS
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PRESSURE, FLOAT. & VACUUM SWITCHES
PUSHBUTTONS
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RESISTORS
SAFETY SWITCHES
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STAGE DIMMERBOARDS
STATIC CONTROL
STEEL MILL CONTROL
SWITCHGEAR & UNIT SUBSTATIONS
SYNCHRONOUS MOTOR CONTROL
TERMINAL BLOCKS
TEXTILE MACHINE CONTROL
TIMERS
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**Vinyl Asbestos Floor Tile**

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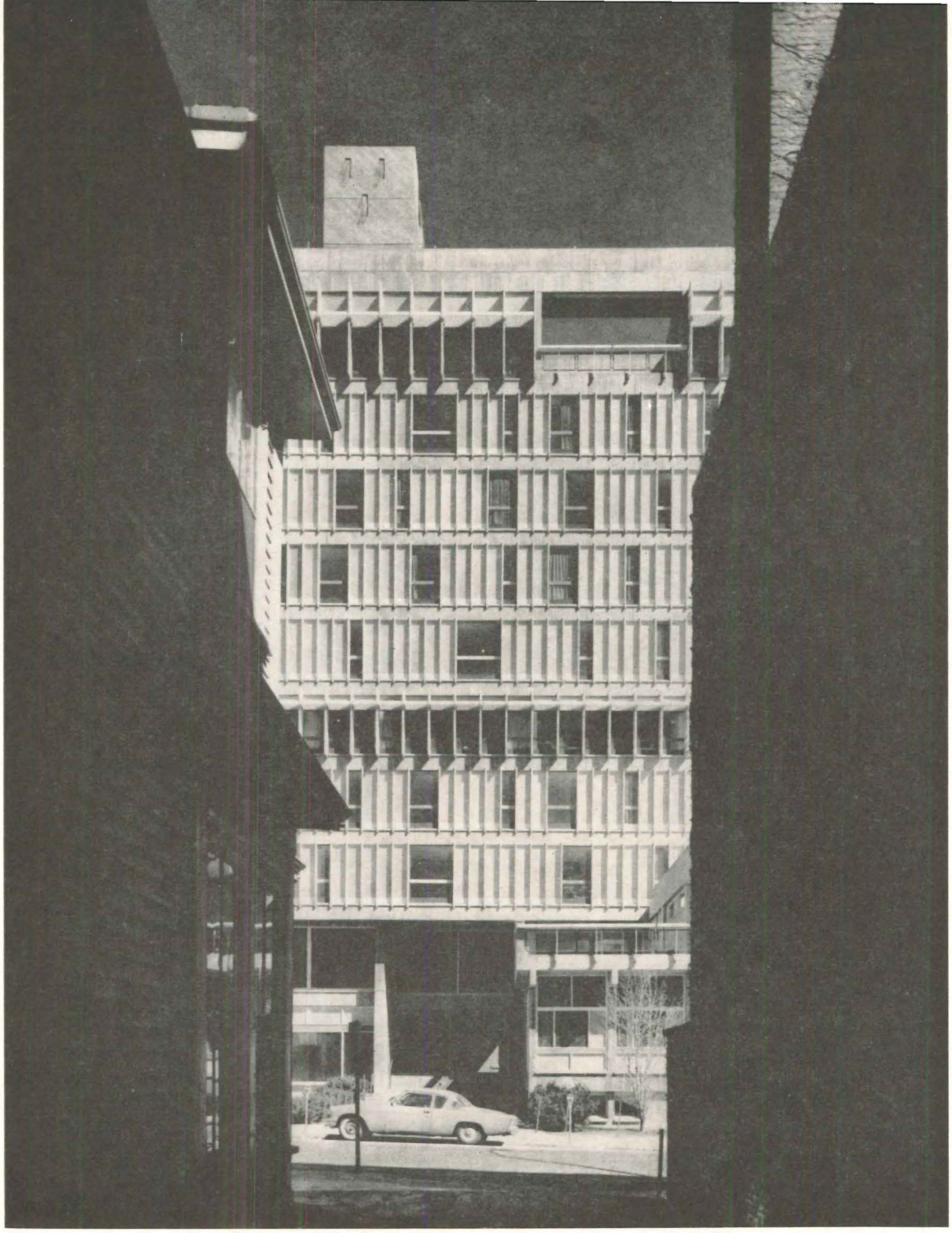


*All photographs of each Sert, Jackson and Gourley building, except where noted, are by Louis Reens*

*1. Holyoke Center at Harvard University*

# NEW WORK OF SERT, JACKSON AND GOURLEY

Two buildings at Harvard, and the United States Embassy in Baghdad, are a major fulfillment of this firm's strong design ideas

# Windows and Walls: An Approach to Design

*by José Luis Sert*

"As more elements of fenestration develop . . . the architect may be able to play, if not always a better tune, at least a more animated one."

When looking at the clusters of buildings in our cities, the patterns of windows and walls that constitute the fronts of these buildings, or their façades, are what we see most. Roof lines are high up, and structure is very often hidden, but walls, curtain or otherwise, stare us in the eye.

Masonry, beautiful and textured, is rare today: it is inflexible, heavy, labor consuming and expensive. In other times plain masonry walls with well proportioned windows could be dignified and beautiful. The traditional bearing walls limited the size and positioning of windows. The Renaissance added useless, though sometimes sculpturally beautiful, appendices, in columns, pilasters and moldings of all sorts. Unrelated to materials or the nature and setting of the building, the same forms were made of stucco, stone, brick, for all climates, all countries. The Renaissance invented the masks hiding the real faces of the buildings and the expression of their interior life.

By contrast, it is interesting to observe the freedom in fenestration in the farms and villages, where no architect was at hand and human needs dictated the positioning and sizes of openings in walls. There is in these buildings a relation between such openings and the best views, the sun, the prevailing winds, and the nature and use of rooms. Their shapes and proportions are generally determined by the human figure, standing or seated and looking out. They open to the beauties of the landscape, to life and pedestrian movements in the streets, to the quiet of the cloister or the garden, to the distant horizon and the setting sun. They are the eyes of the buildings. Life comes to the interiors through them with daylight, sun or moonlight, breezes and noises and the smell of things alive.

For thousands of years, from the doors of the caves up to relatively recently, all windows, with the exception of the stained glass in cathedrals and other exotic types, served *the triple function of providing light, ventilation, and view.* It was only with the lightening of structures, with the introduction of steel and concrete skeletons that transformed the nature of walls from bearing walls to non-bearing partitions, curtain or screen walls, that the window could be radically transformed and its triple function re-examined.

Glass and light panels of varied kinds had, in the meantime, become available. Large sheets of glass gave birth to the "picture" window. Wide views, incorporating the outside into the inside, became a "selling feature" even in homes where there was no view. Only small portions of these large windows needed to be opened for ventilation. This established a partial separation of the functions of view and light from that of ventilation.

In office buildings, glass, with its wonderful qualities of lightness and easy maintenance, soon took over completely, and the all-glass front came into being. Only light metal frames were needed to hold glass together and to provide bracing effects against winds, and anchors for interior partitioning. The curtain walls of metal and glass have made the rounds of the world by now. They are visual evidence of U. S. influence in the remotest cities, like "Coke" ads and blue-jeans. Curtain walls for office buildings, with modules that repeat from bottom to skyline (even masking mechanical equipment on roofs), have wide acceptance. They are the façades of anonymity. They serve the average bureaucrat, whatever his work is, whatever his likes or dislikes for privacy, view, or sunlight. They are grouped in continuous lines or checkerboard patterns. The architect selects one window type and repeats it in all directions. The resulting music has the limitatons of that which could be played on a guitar with one string.

We still need walls and windows of some kind, square miles of them, in our growing cities. Can we not find a more varied architectural vocabulary that will permit greater variety? We should at least try.

Le Corbusier made a great contribution in 1933 with the invention of the *brise-soleil.* The varieties in his designs are a consequence of the orientation of the buildings and changes in the path of the sun. A lively plastic expression can result from these sunbreakers in changing light and shadow, as they are not superimposed as meaningless decoration, but become an integral part of the biological structure of the building.

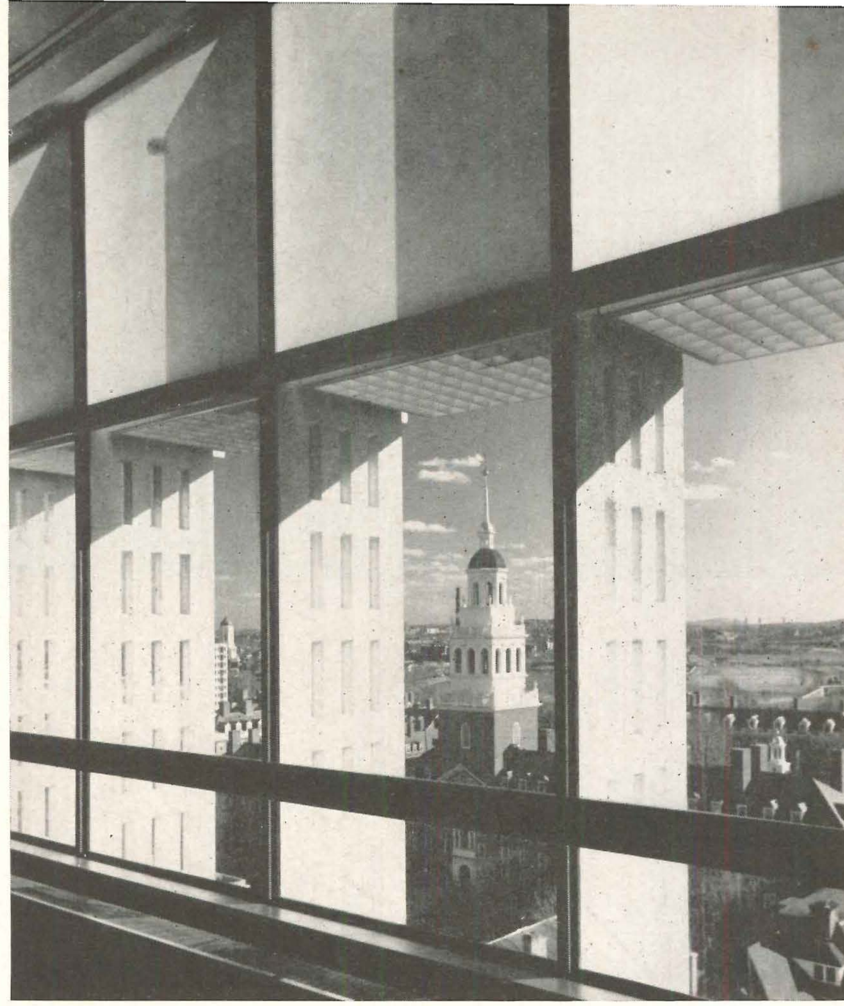
Air conditioned buildings do not require opening ventilation elements. Whenever these are necessary, they need not be treated as part of the windows and can be built in opaque materials such as wood or metal. Their positioning and shape need be adequate for their ventilating function only, separating this function from that of lighting or view. Such ventilator panels can provide a new accent of color and another element to compose with.

The screen wall serves more for lighting than viewing purposes, but if it is not broken by viewing elements of a size related to human measure it becomes an abstract scaleless pattern that masks the real face of the building. The question still remains of how much view we want, how much of the outside it is interesting to bring inside. Beautiful views are rare. Nature is often hostile to man in winter and summer. The urban landscape is often unsightly and uninteresting. There is also the question of privacy and how much we want to be seen. Many people like to live in disorder. How much do we want to see of that disorder from the street? Do light and view have to be taken together? Good, even natural, lighting in rooms is necessary and agreeable, but large glass areas give excess lighting near windows and, by contrast, the opposite walls appear black. Masonry and glass, like the black and white in a picture, represent the extremes. There can be a wide range of grays in between.

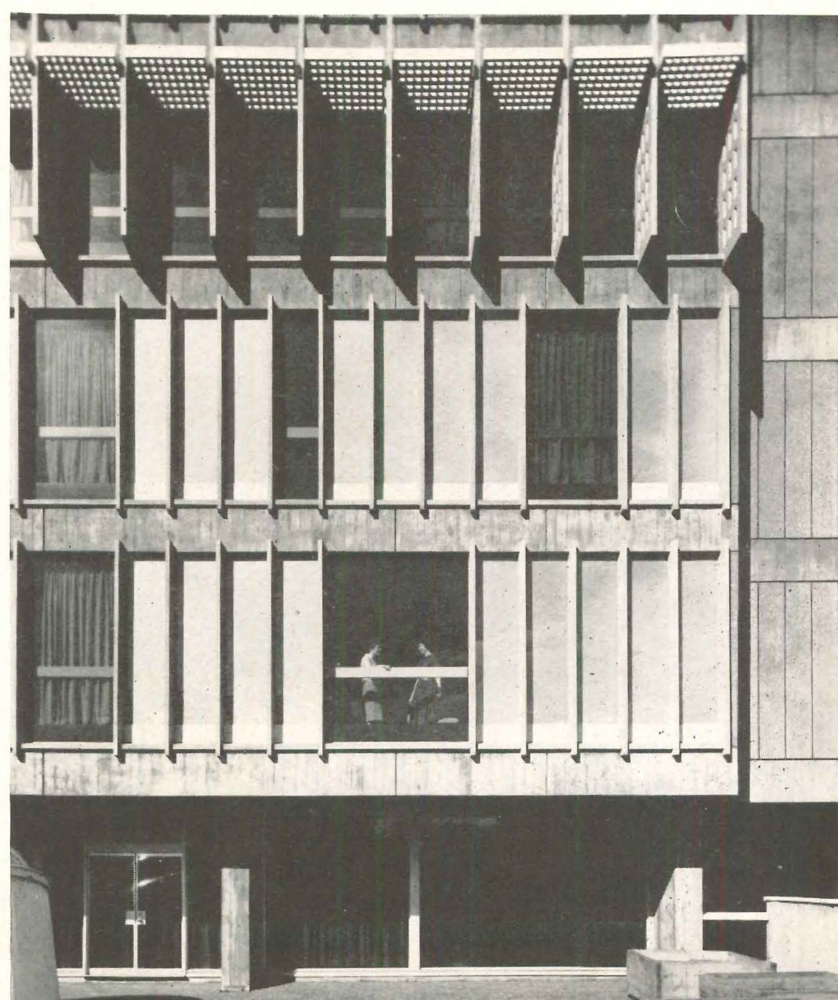
Usually screening is obtained by use of movable blinds or draperies, but these are made of perishable materials and are costly to maintain. Tinted glass has been used as a filter, but it alters the natural colors of things and, like tinted eye-glasses, it is disturbing if it is not removable. The white light that contains all colors is irreplaceable. The Japanese found in their white paper screen walls light filters and diffusers that have a definite function. We can find a less perishable equivalent in our modern buildings in diffuser or light filter walls made of other materials. Walls can be translucent without being transparent, and translucent walls can be designed for varied intensities of light. They can provide filtered, diffused light which can be measured in intensity. They can cut down heat penetration and heat losses, and consequently, air conditioning and cleaning costs. Besides, they provide a new element in our façade vocabulary, a bridge between solid opaque materials, masonry or others, and transparent glass—a series of grays between black and white.

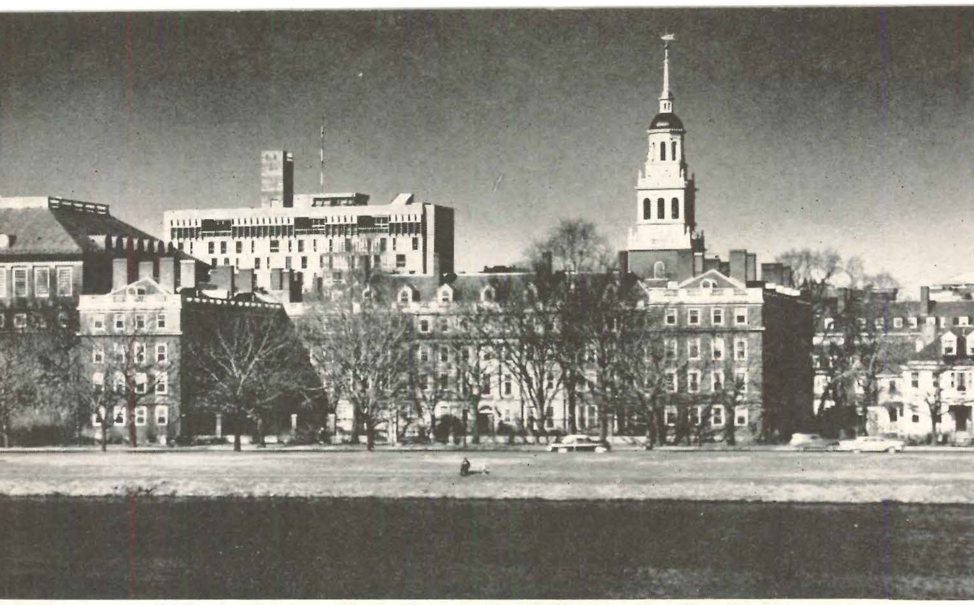
Transparent areas can then become viewers only. Their scale, the human scale, can be re-established in the varying sizes of windows with no additional dead weight and no reduction in good lighting. The functions of seeing and lighting are thus separated. Shadow patterns moving through these filter walls provide animation. The Japanese were well aware of these possibilities and made good use of them in their paper screen walls. The translucent wall has not been explored as it should, and it offers a vast field for research and application of modern materials and techniques.

The growth and rebuilding of cities demands a more complete and varied vocabulary. The younger generation of architects is well aware of this, and painful efforts are being made to do more with very little. The poor results are only too evident. As more elements of fenestration develop, however, the architect may be able to play, if not always a better tune, at least a more animated one. Our urban landscapes will become less dull, life behind walls more pleasant. Abstract patterns may be replaced by others where the human scale that was present in the traditional windows may reappear.

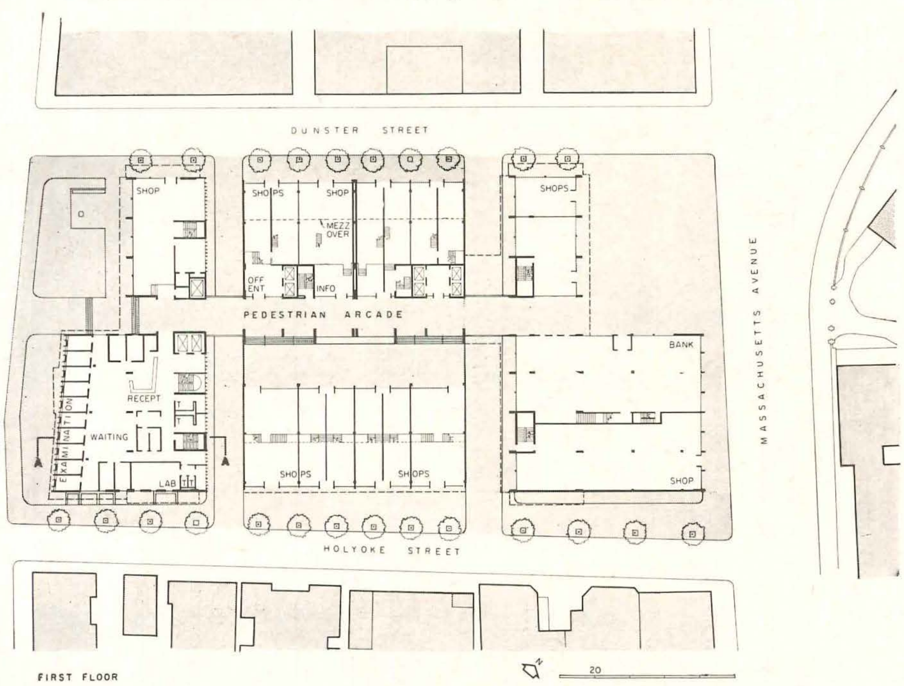


"Walls can be translucent without being transparent . . . transparent areas can then become viewers only. The human scale can be re-established in the varying sizes of windows. . . . Shadow patterns moving through these filter walls provide animation." *Above*: fenestration on tenth floor, Holyoke Center. *Below*: module permits flexible use of translucent and transparent glass

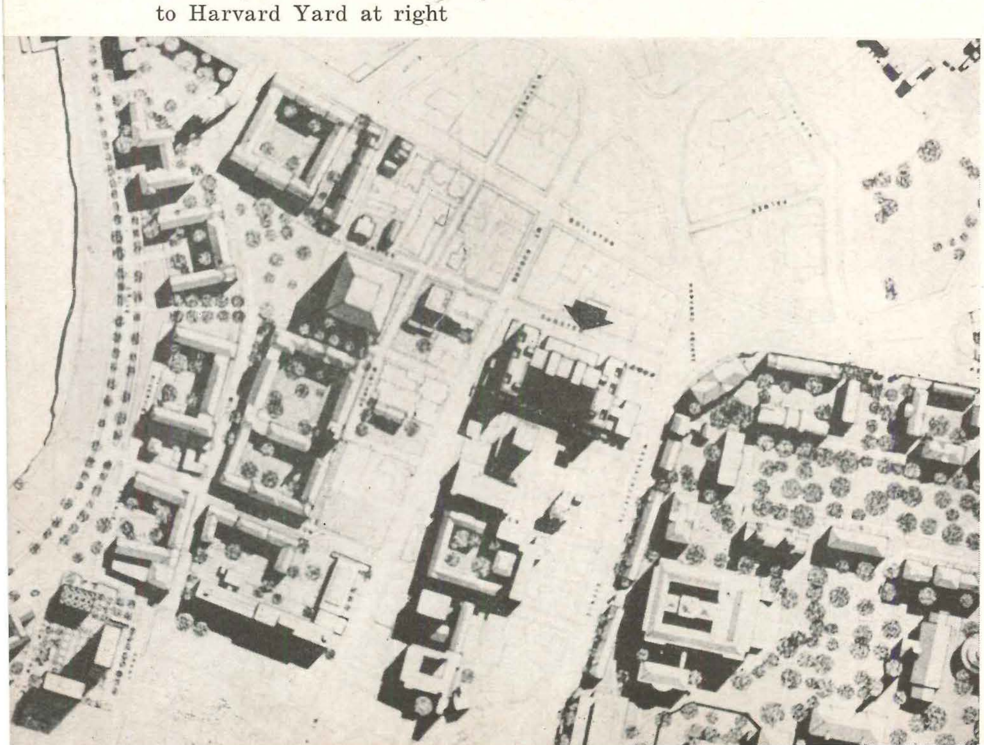




Holyoke Center alters Harvard's skyline on the Charles River




*Above*: pedestrian arcade and open spaces are paved in red brick, and are of a scale carefully related to the spaces formed by the older campus structures. Only the portion to the left of the center line has been completed so far. The shopping element to the south has not been constructed
*Below*: plan of Harvard campus. Holyoke Center is adjacent to Harvard Yard at right



## *Holyoke Center: Design in Relation to Site*

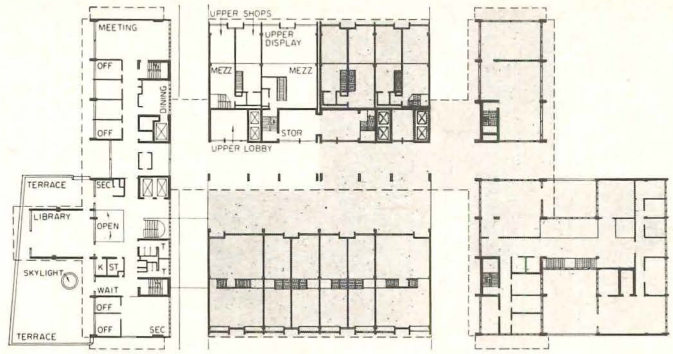
Harvard University's Holyoke Center was conceived as a development of the only block between Massachusetts Avenue and Mount Auburn Street that is entirely owned by the University. The project has taken into consideration the total utilization of the block, opening up its center for pedestrian circulation, and providing a series of open spaces that link to those of the quadrangles beyond Massachusetts Avenue and Mount Auburn Street. The dimensioning and landscaping of these open spaces and the prevailing brick textured sidewalks establish a visual continuity between the old and the new.

The plan of the Office and Health Center block is H-shaped. A covered arcade runs through the block under the cross-bar of the H. The portion now built, approximately half of the total project, includes also only half of the planned arcade. This arcade will be the most animated area of the block. The main entrances to the office floors and the Health Center open on the arcade, as do several shops. A portion of the arcade is a bridge over the ramp feeding the emergency entrance of the Health Center. When the other half of the building is completed, the arcade will bridge over a ramp leading to the front entrance of the underground two-story garage.

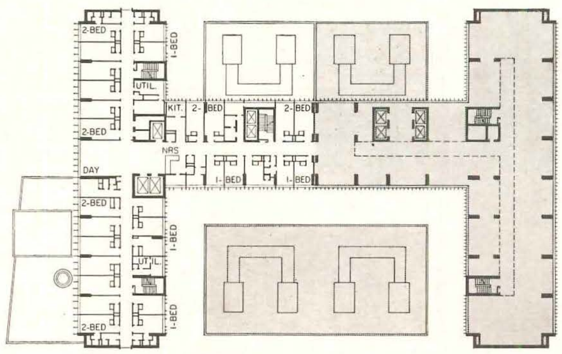
The light conditions on the neighboring streets have been carefully considered, and the higher parts of the building are set back from both Mount Auburn Street and Massachusetts Avenue. The link between them is placed towards the center of the block to provide better lighting conditions on Dunster and Holyoke Streets.

In as much as the project was conceived as a totality, the proportions of the building will appear quite different when the other half is built; until then many of the existing elements cannot be properly appreciated or used. The Holyoke Center, once finished, will be directly accessible and plainly visible from the Harvard Square area. The arcade in the center will be directly linked to the University, and the subway and bus facilities.

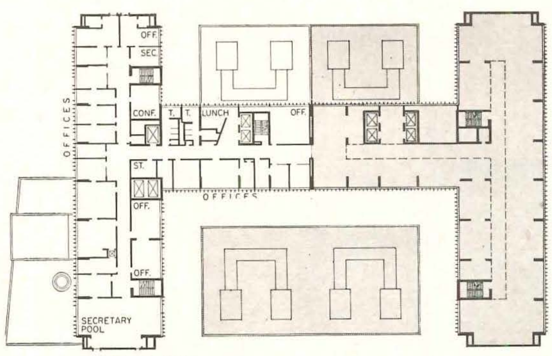
The section of Holyoke Center now built comprises the health services for the Harvard and Radcliffe faculties and students, and above them, four floors of offices mainly occupied by Harvard College, and one penthouse floor of meeting rooms with dining facilities served from a central basement kitchen. The portion of the structure to be built in the second phase will be used for offices and meeting rooms, shops, and the Cambridge Trust Company's offices.



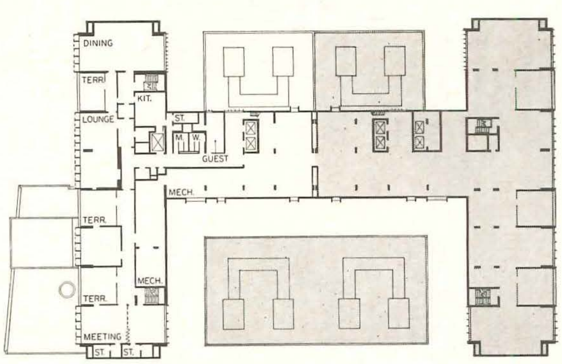

SECOND FLOOR



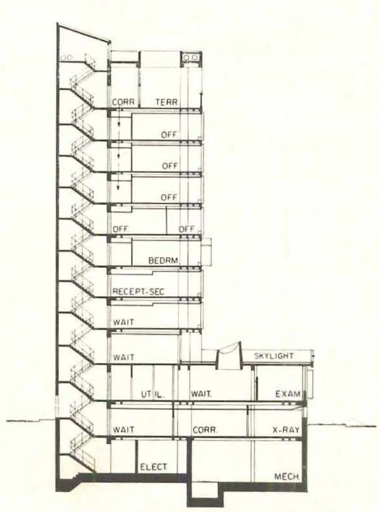

FIFTH FLOOR (HOSPITAL)




TYPICAL FLOOR

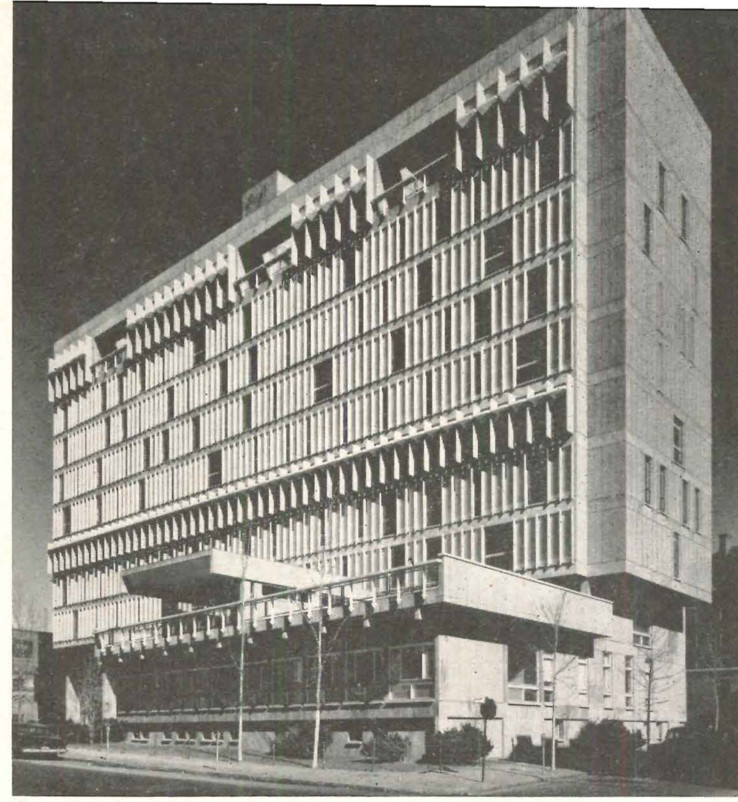



TENTH FLOOR




SECTION A-A

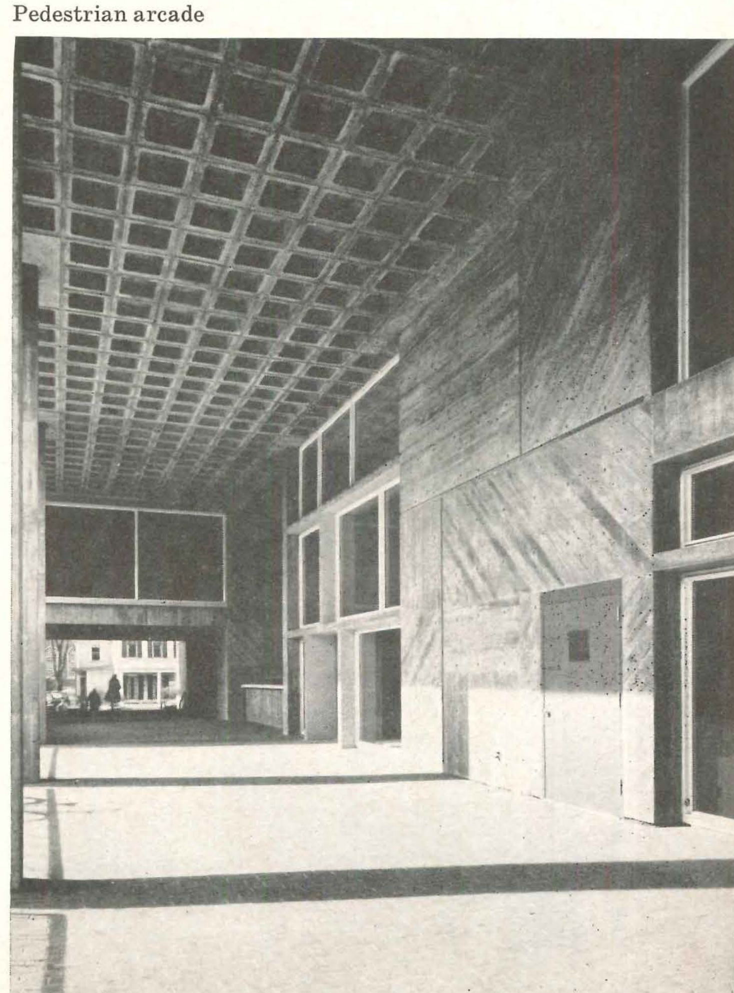
Portion of building indicated in grey to be constructed

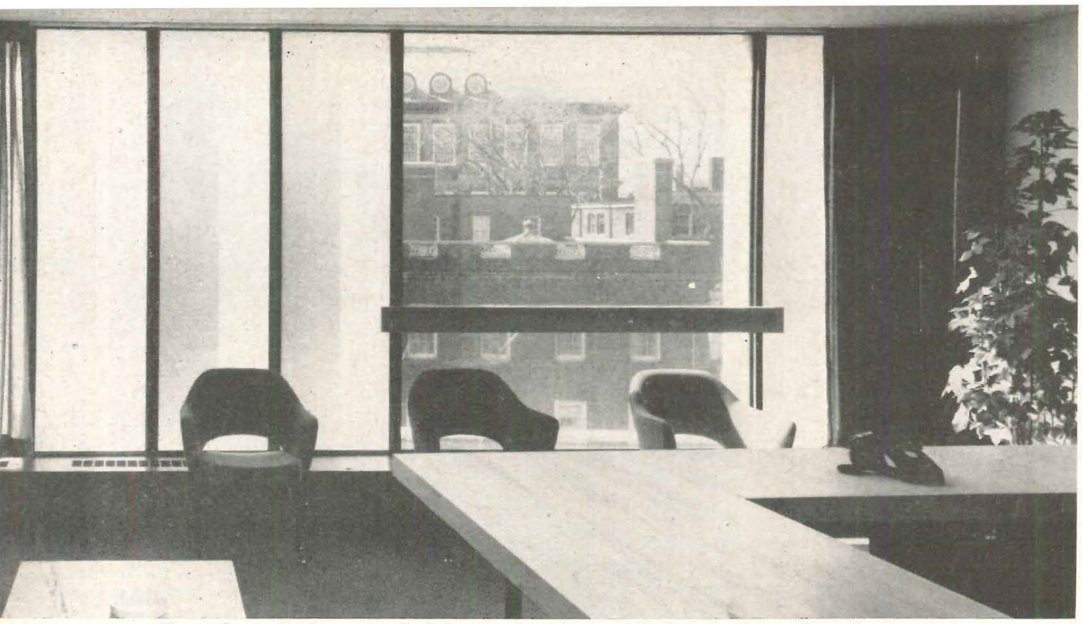


Completed wing

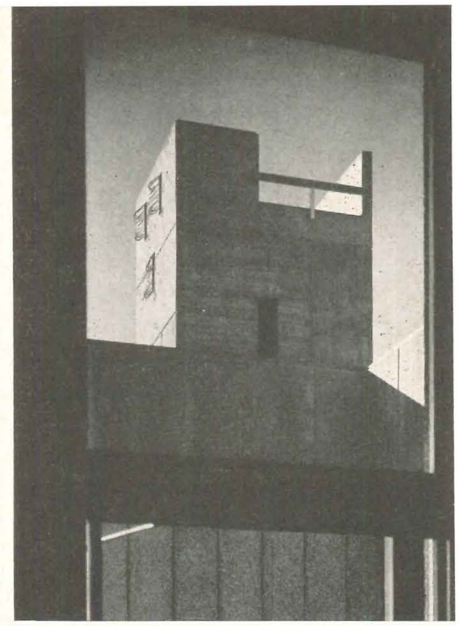
*Holyoke Center*
*Harvard University, Cambridge, Massachusetts*
ARCHITECTS: *Sert, Jackson and Gourley,*
*Joseph Zalewski and John E. Nickols, associates*
CONSULTING ENGINEERS: *Cleverdon, Varney and Pike*
ACOUSTIC ENGINEERS: *Bolt, Beranek and Newman, Inc.*
LANDSCAPE ARCHITECTS: *Sasaki, Walker and Associates*
SOIL MECHANICS CONSULTANT: *Arthur Casagrande*
SPECIFICATIONS: *Simpson, Gumpertz and Heger, Inc.*
GENERAL CONTRACTOR: *George A. Fuller Co.*

Pedestrian arcade





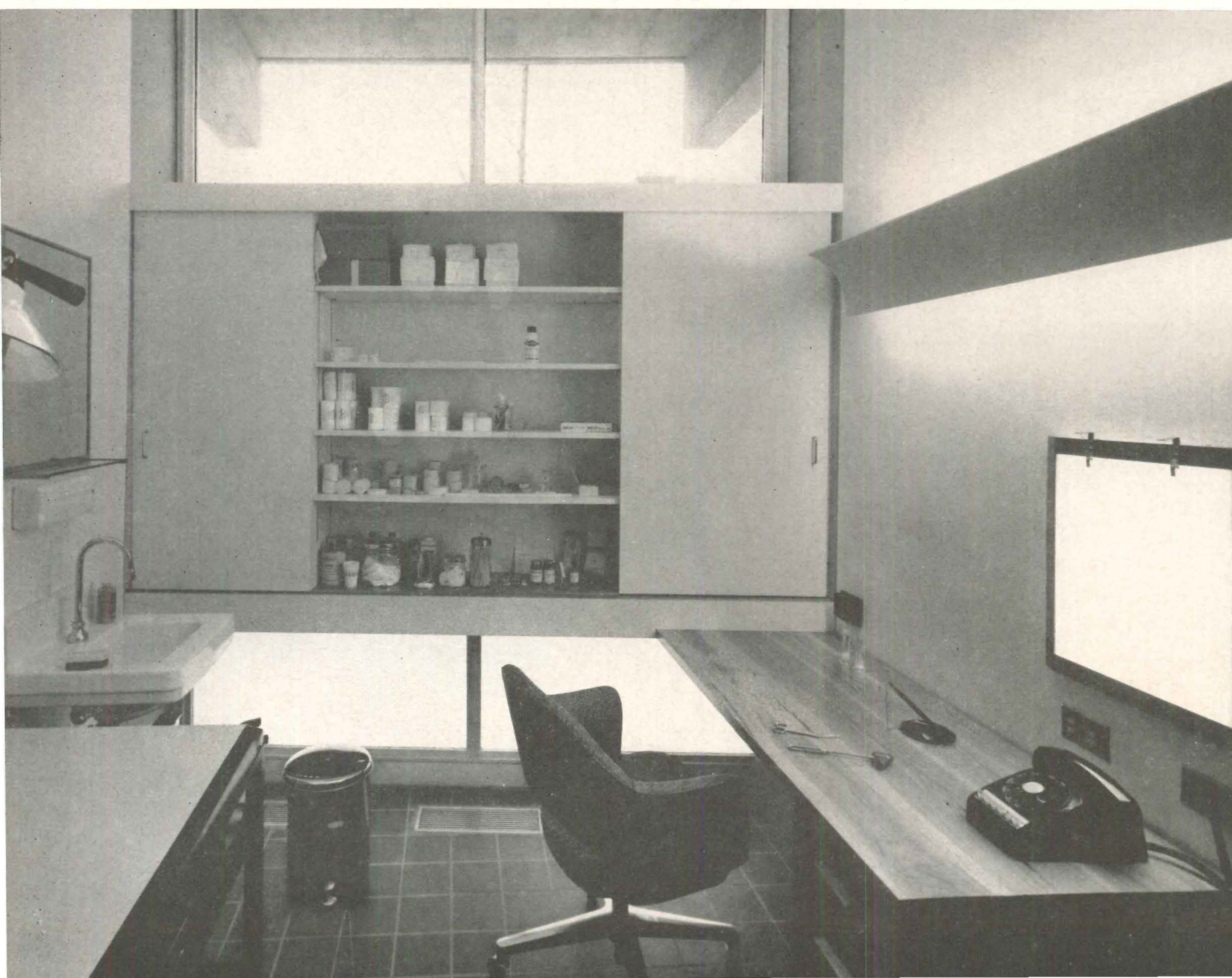
Translucent glass sandwich panels admit soft light, clear glass is used where needed

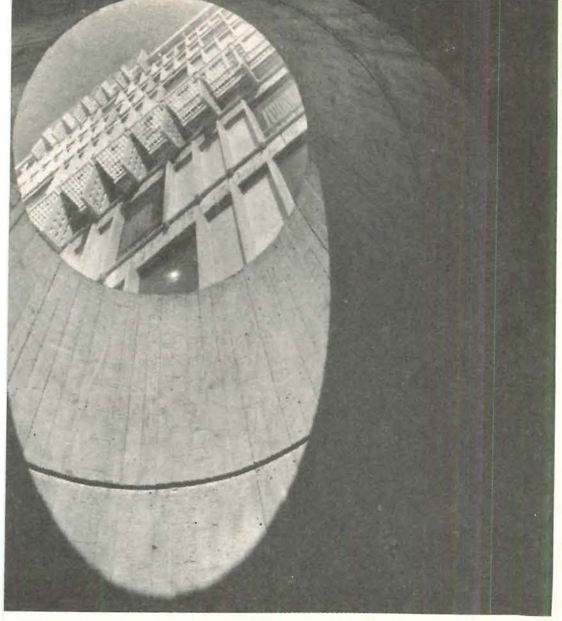


Elevator penthouse

*Sert, Jackson and Gourley: Holyoke Center*

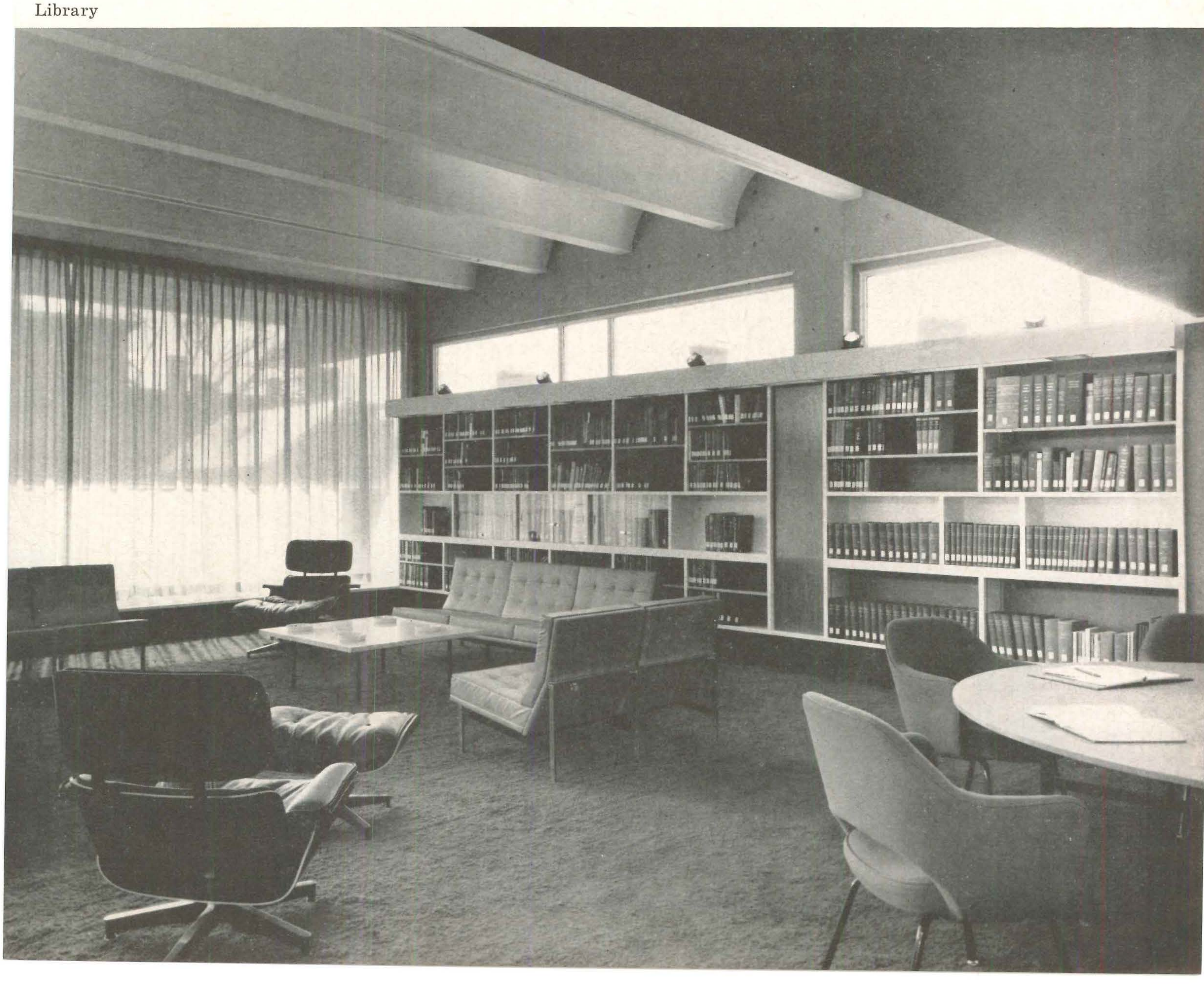
Examination room. Doors of cabinet close to admit more light through a pair of translucent panels on opposite sides

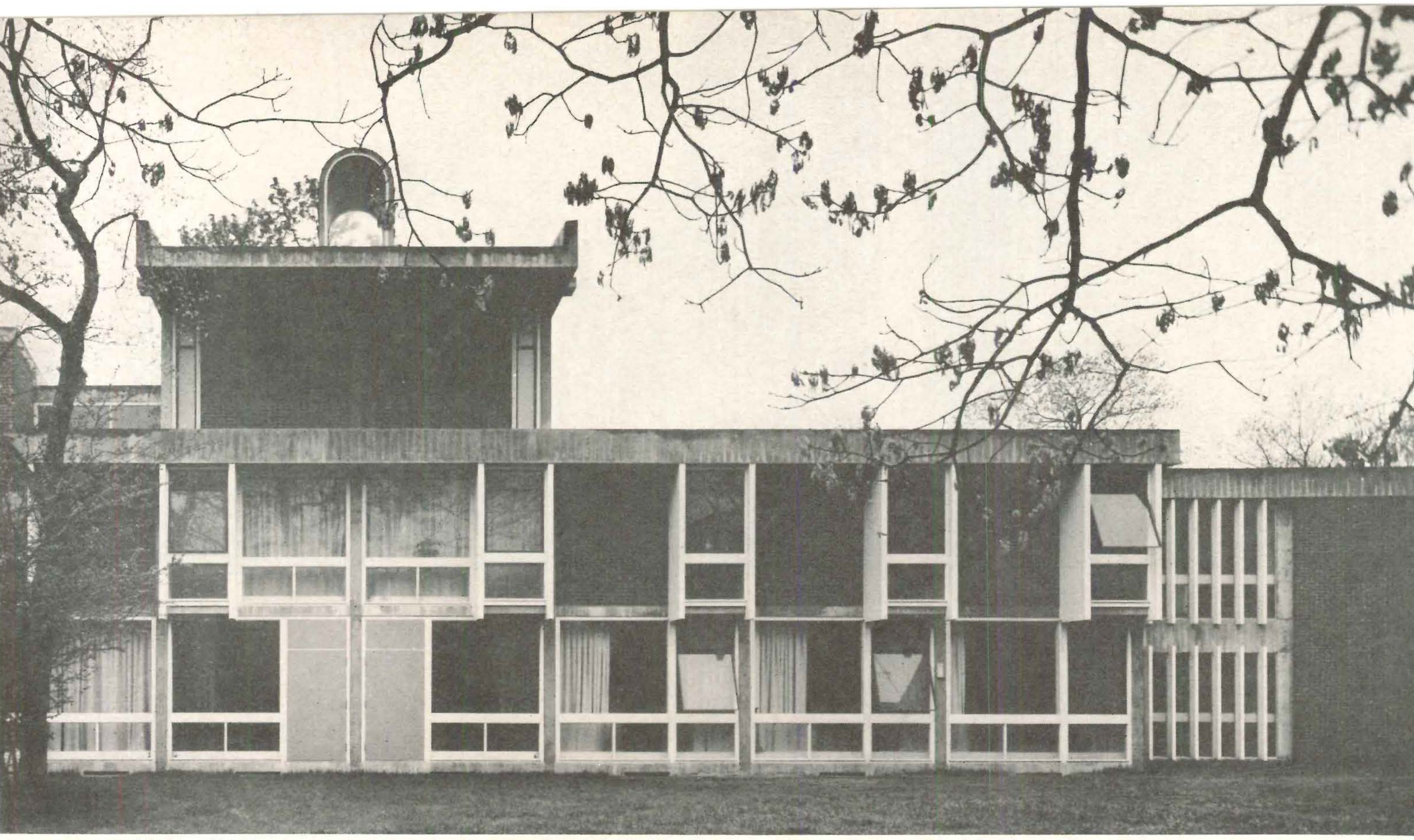




Dome over Health Center waiting area affords a dramatic upward view and brightens space with daylight

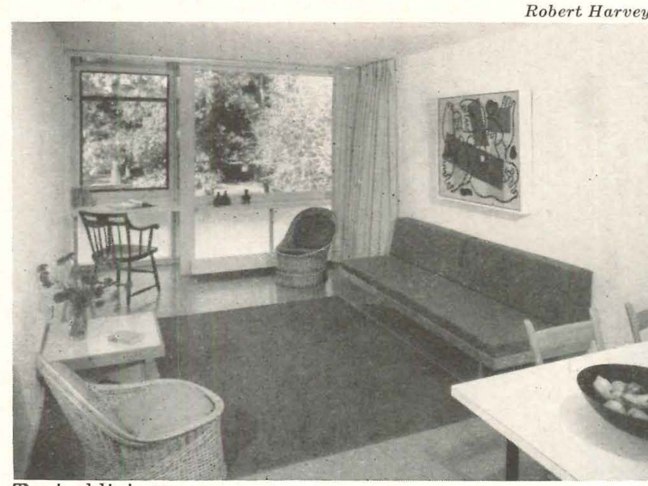
Library





The meditation room stands alone on the third floor. Projections at second story level hold small desks

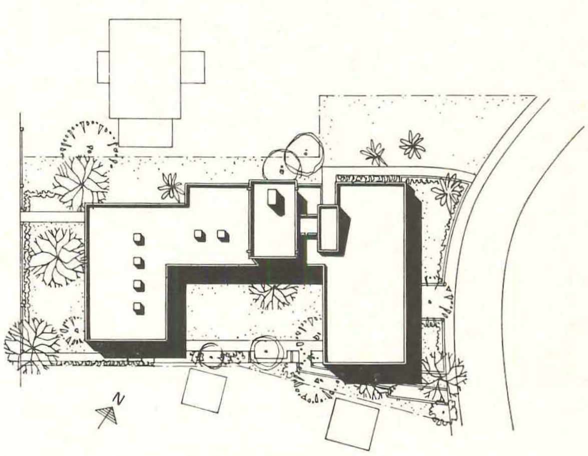
*Robert Harvey*



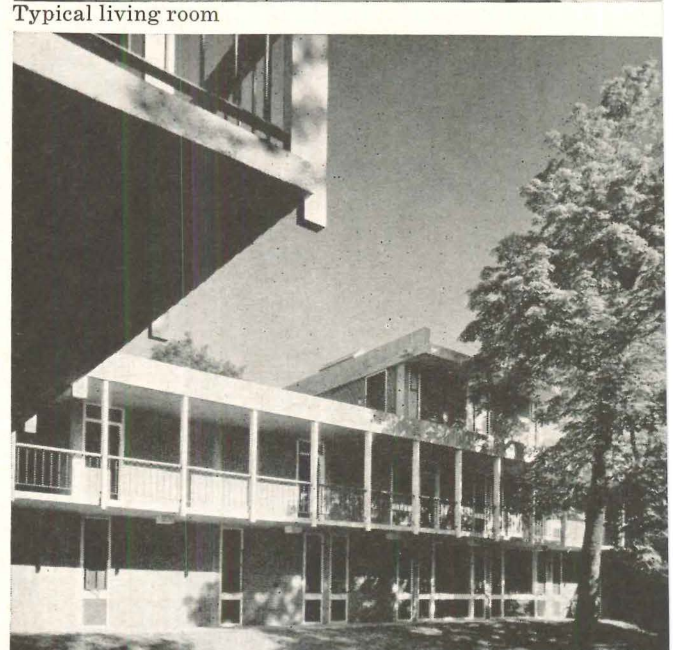
Typical living room

# 2. World Religions Center, Harvard University

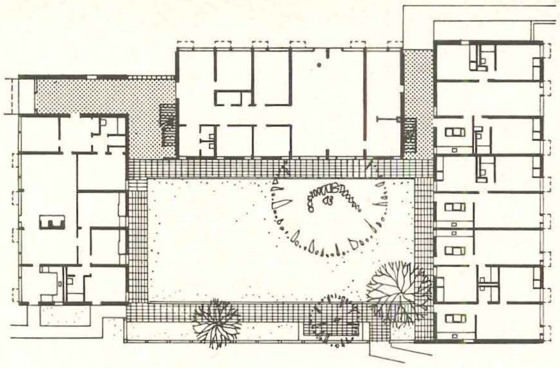
*Center for the Study of World Religions*
*Harvard University Divinity School*
*Cambridge, Massachusetts*
ARCHITECTS: *Sert, Jackson and Gourley,*
*Joseph Zalewski and John E. Nickols, associates*
STRUCTURAL ENGINEERS: *Goldberg, LeMessurier and Associates*
ACOUSTIC ENGINEERS: *Bolt, Beranek and Newman, Inc.*
LANDSCAPE ARCHITECTS: *Sasaki, Walker and Associates, Inc.*
ELECTRICAL ENGINEERS: *Thompson Engineering Co.*
HEATING AND VENTILATING ENGINEERS: *Reardon and Turner*
SPECIFICATIONS: *Simpson, Gumpertz and Heger, Inc.*
GENERAL CONTRACTOR: *John F. Griffin Co.*



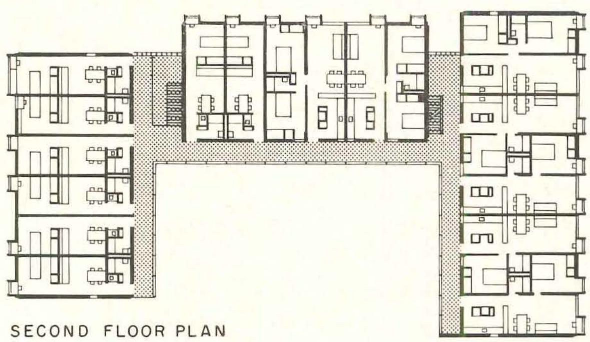

PLOT PLAN



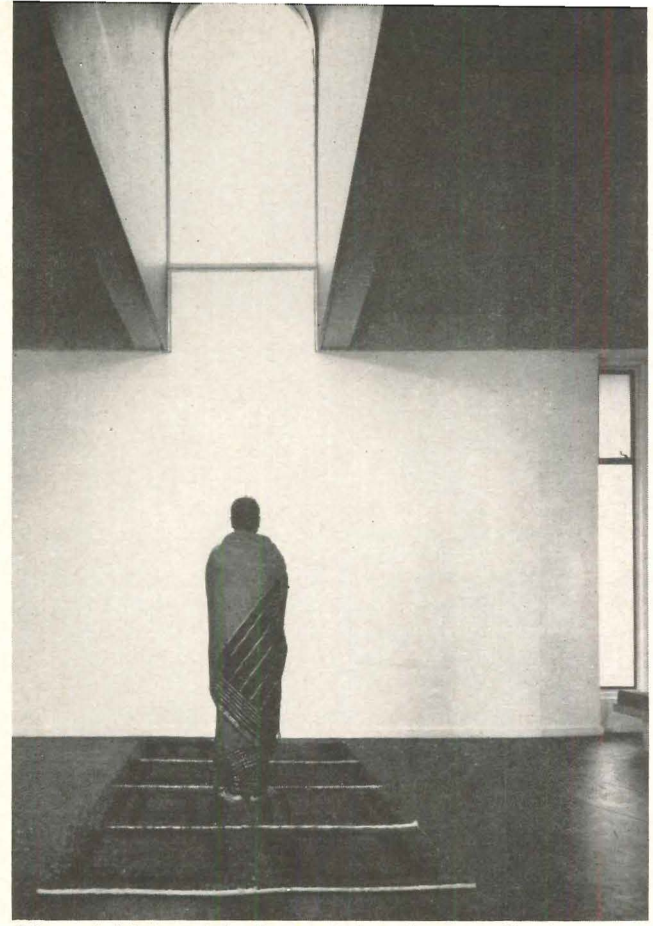
Interior courtyard and garden



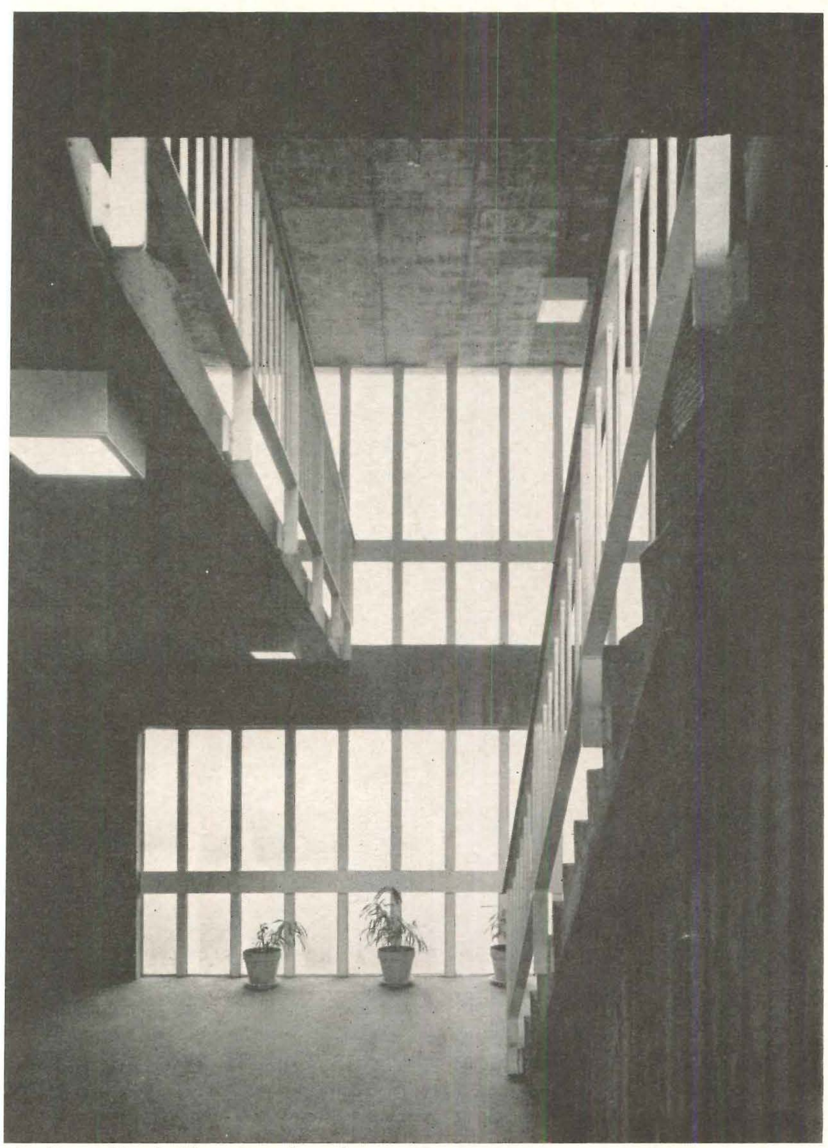

GROUND FLOOR PLAN



SECOND FLOOR PLAN



Of special interest is the roof chapel, or meditation room, which is bare of ornament and concentrates on the one universal symbol—light. It is so designed that particular groups may introduce the symbols appropriate to their own religious observances

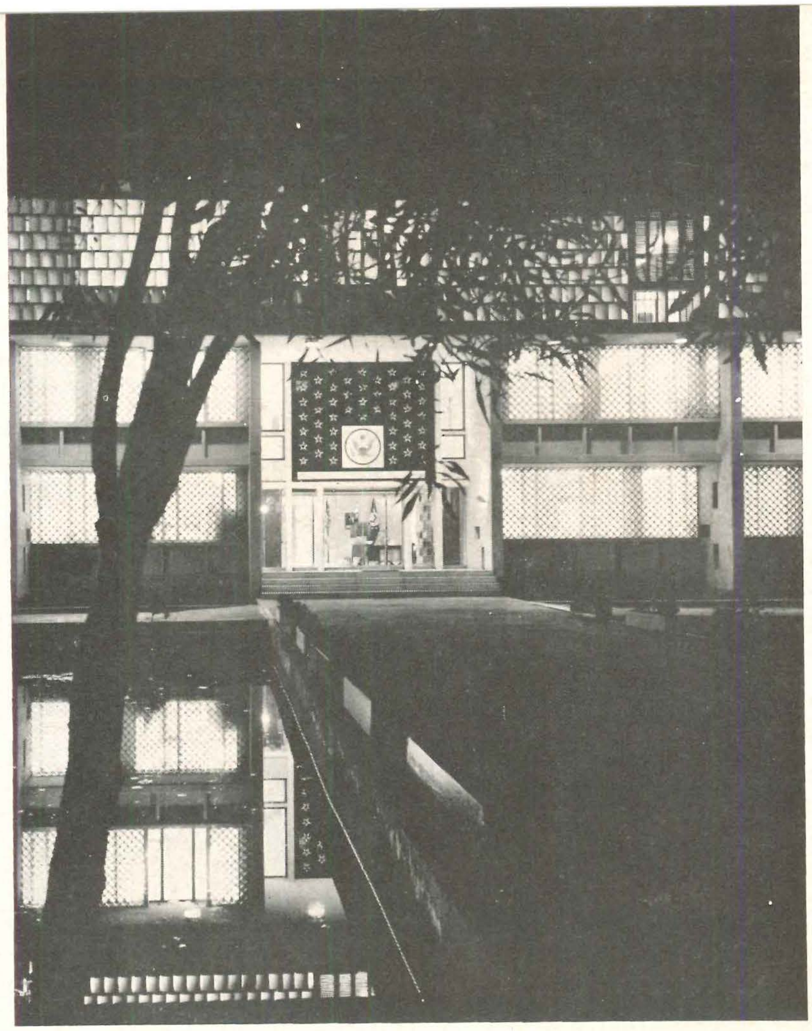


Reception hall near main entrance

Two years ago a new program was established at Harvard University for the study of world religions. The Center, which was completed in September 1961, is associated with this program. In particular, it offers students of different faiths the opportunity of supplementing classroom studies by living together and thus becoming acquainted with various aspects of Christian life and thought. In addition students in related fields have been welcomed to a residence in the belief that there may be fruitful discussion between students of different faiths and those interested in different aspects of the study of religion. Students in residence during this first year represent countries such as India, Pakistan, Burma, Japan, Taiwan and the United Arab Republic, as well as the United States.

The three wings of the building are gathered around an interior cloistered garden which may remind many students of similar buildings in their homeland. The students and their families occupy self-contained apartments, each with its own kitchen, thus making it possible for the observance of special dietary regulations.

The building is constructed of reinforced concrete, with brick and wood used as non-bearing walls, effecting a blending into the local New England scene, a predominantly residential neighborhood of detached one family houses. Particular care was taken to preserve the existing trees and shrubs.



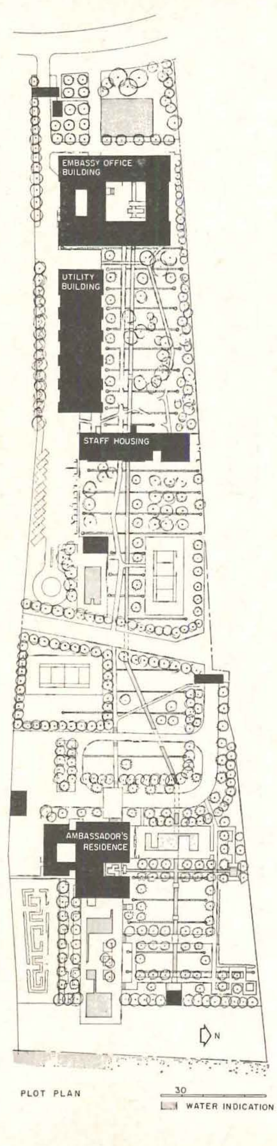
Office building. Entrance detail

# 3. United States Embassy, Baghdad

OWNER: *Department of State, U.S. Government*
ARCHITECTS: *Sert, Jackson and Gourley, Joseph Zalewski and John E. Nickols, associates*
SUPERVISING ARCHITECTS: *P. E. D. Hirst, R. W. Harrington, J. Brian Cooper, F.R.I.B.A.*
STRUCTURAL ENGINEER: *Paul Weidlinger*
MECHANICAL ENGINEERS: *General Engineering Associates*
LANDSCAPE ARCHITECTS: *Sasaki and Novak*
SPECIFICATIONS CONSULTANT: *Werner H. Gumpertz*
GENERAL CONTRACTOR: *Shahin and Janabi, General Construction Co., Ltd.*

## *New Work of Sert, Jackson and Gourley*

The long narrow site became a series of court-like spaces, separated and partially enclosed by the surrounding buildings. These buildings define the functional role of each open space. The siting of the office building creates the formal entrance required for official purposes. The long court behind it provides a vista and forms a spatial contrast with the enclosed smaller interior court. The walks and canal lead under the staff housing to a recreational court which is framed by the staff housing and the dike. This court contains a swimming pool and tennis court. The dike serves as a natural division between the various parts of the compound and the residence of the ambassador. The trees, both on this site and on the neighboring estates, provide necessary shade and help define outdoor spaces. The planting was largely determined by utilizing the existing clumps of trees and planting new specimens to shape space

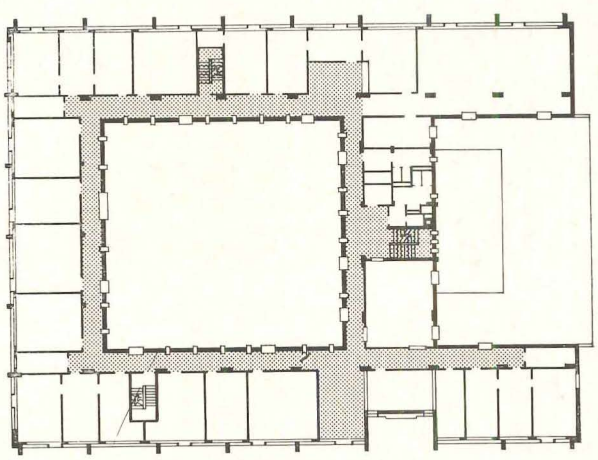



PLOT PLAN

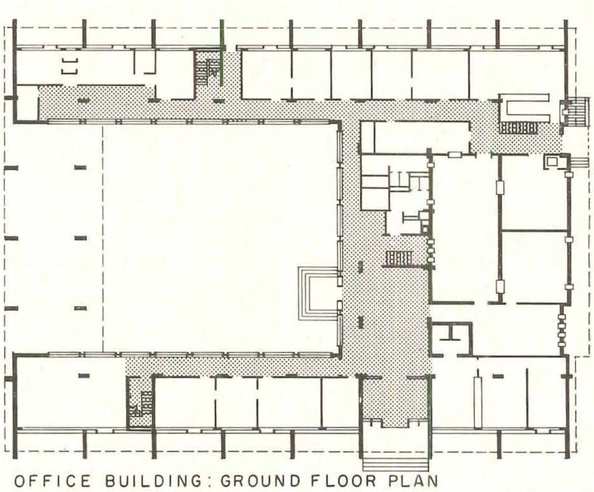
Design of the new U.S. Embassy in Baghdad was shaped by the site, the sun, the river, and the trees. The Tigris River is the focus of the design as well as the means of irrigation. The ambassador's area in the office building, the terraces of the staff housing, and the principal rooms of the residence are oriented toward the river and the view of the Old City beyond. The irrigation canal runs as a backbone down the length of the site, feeding the various pools and gardens and providing a strong unifying feature for the landscape design. The architects use of pools, canals, and gardens was influenced by the long, local tradition in warm climate building.

The local principle of double roofs was improved upon by the techniques of modern construction. These double roofs are very effective in preventing the excessive accumulation of heat in the buildings. Each building has its own special roof shield. The office building, for an example, has a flat tile roof over the accordion roof which permits air to flow through the troughs. (See photographs, next page). Each floor in turn is sheltered from the direct rays of the sun by a projecting floor or roof above it. The use of shuttered windows, screens, and deeply recessed openings in each of the Baghdad Embassy buildings is in character with traditional Middle Eastern methods of sun protection.

Office building. Main entrance façade

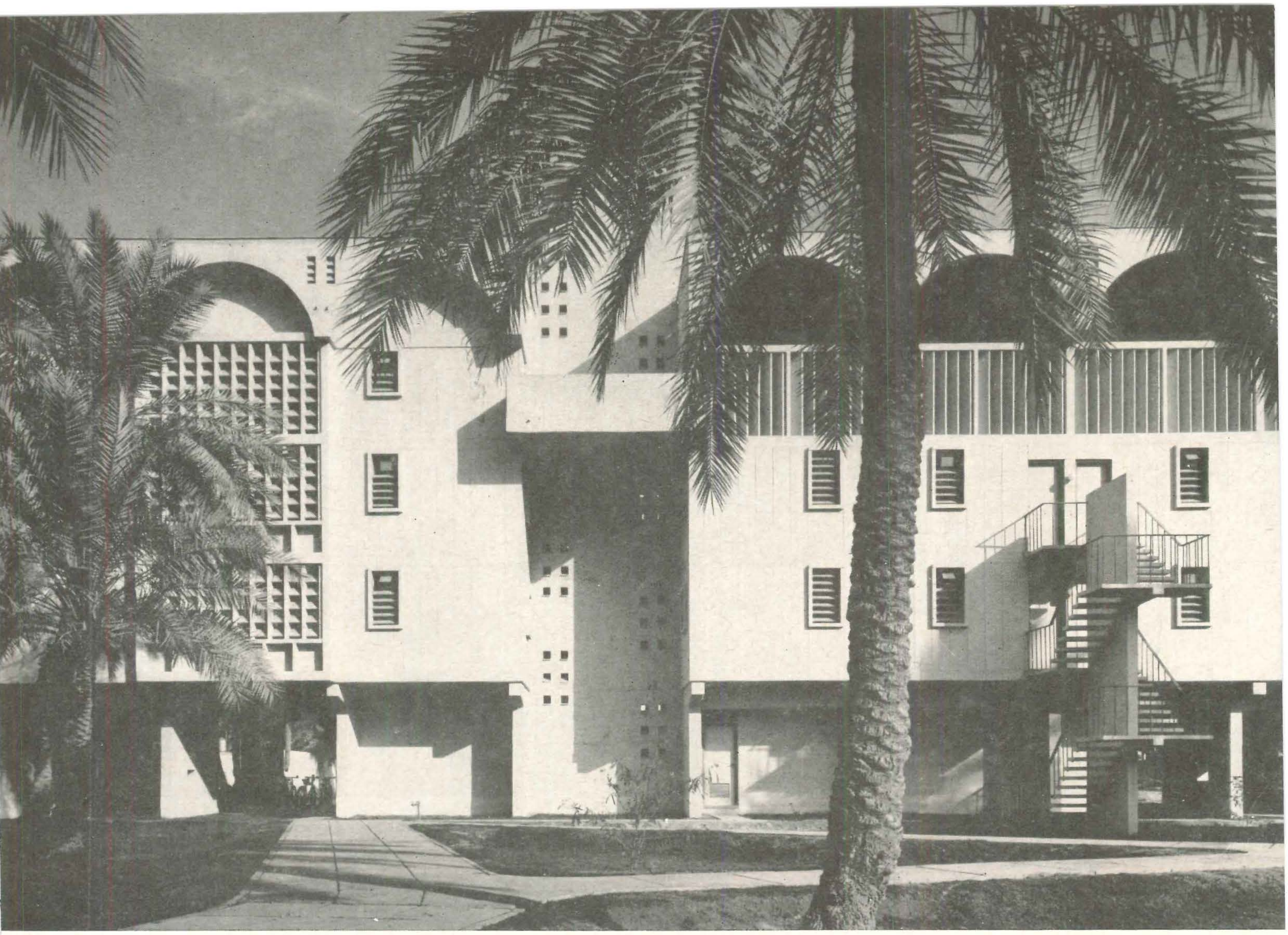


OFFICE BUILDING: SECOND FLOOR PLAN



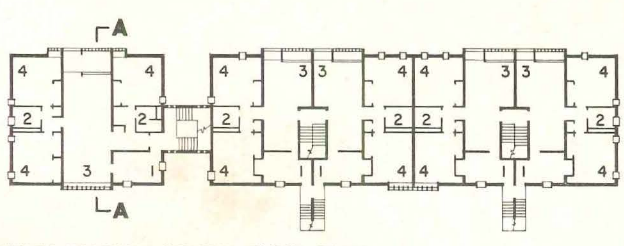
OFFICE BUILDING: GROUND FLOOR PLAN

Office building. End view, two wings define court



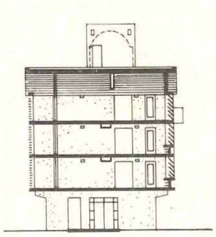
Staff housing. Double roof for protection against heat is formed by a series of high vaults under a flat tile roof. Air passes between the two roofs by means of louvers between each pair of vaults

*Sert, Jackson and Gourley: United States Embassy, Baghdad*

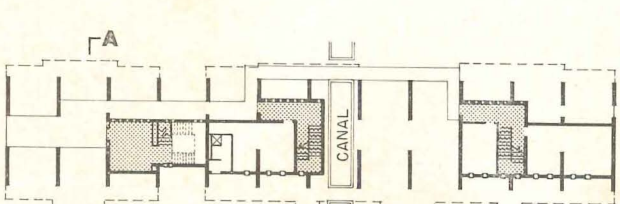


STAFF HOUSING: SECOND FLOOR PLAN

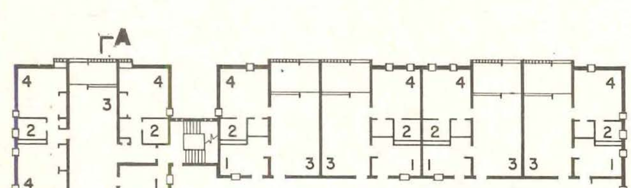
1. Kitchen
2. Bath
3. Living-Dining Room
4. Bedroom



STAFF HOUSING: SECTION **A-A**



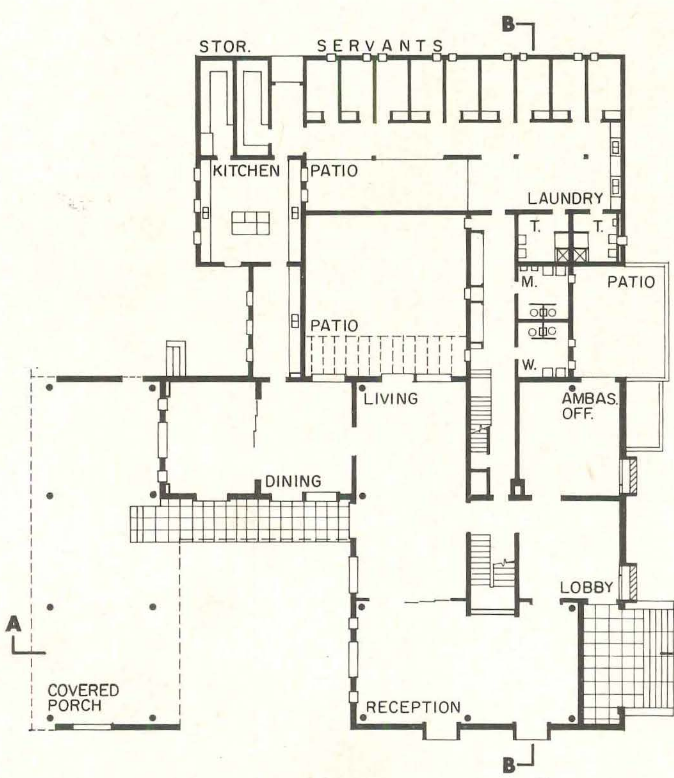

STAFF HOUSING: GROUND FLOOR PLAN



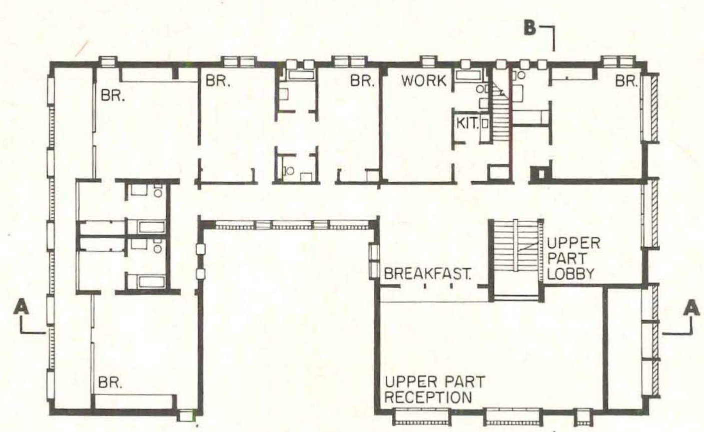
STAFF HOUSING: FOURTH FLOOR PLAN

Canal extends under staff housing to a recreational court

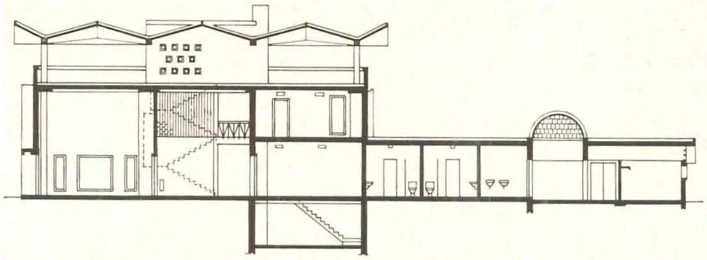
Ambassador's residence. It is protected from the sun by a hyperbolic paraboloidal parasol, which forms a reflecting sun shade and allows free air circulation below. Servants wing to right of photograph



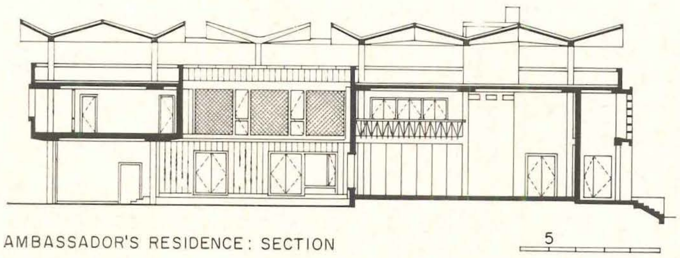

AMBASSADOR'S RESIDENCE: GROUND FLOOR PLAN




AMBASSADOR'S RESIDENCE: SECOND FLOOR PLAN



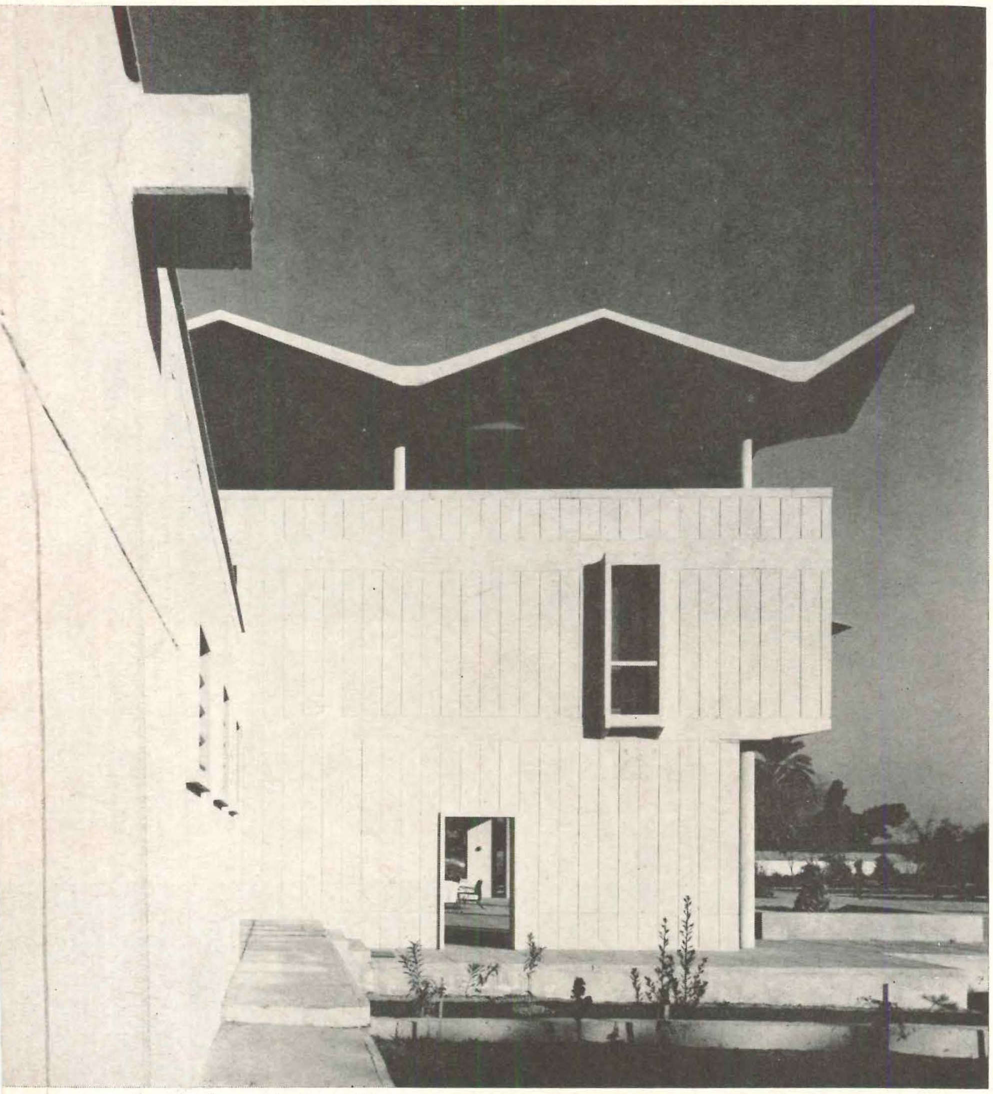
AMBASSADOR'S RESIDENCE: SECTION



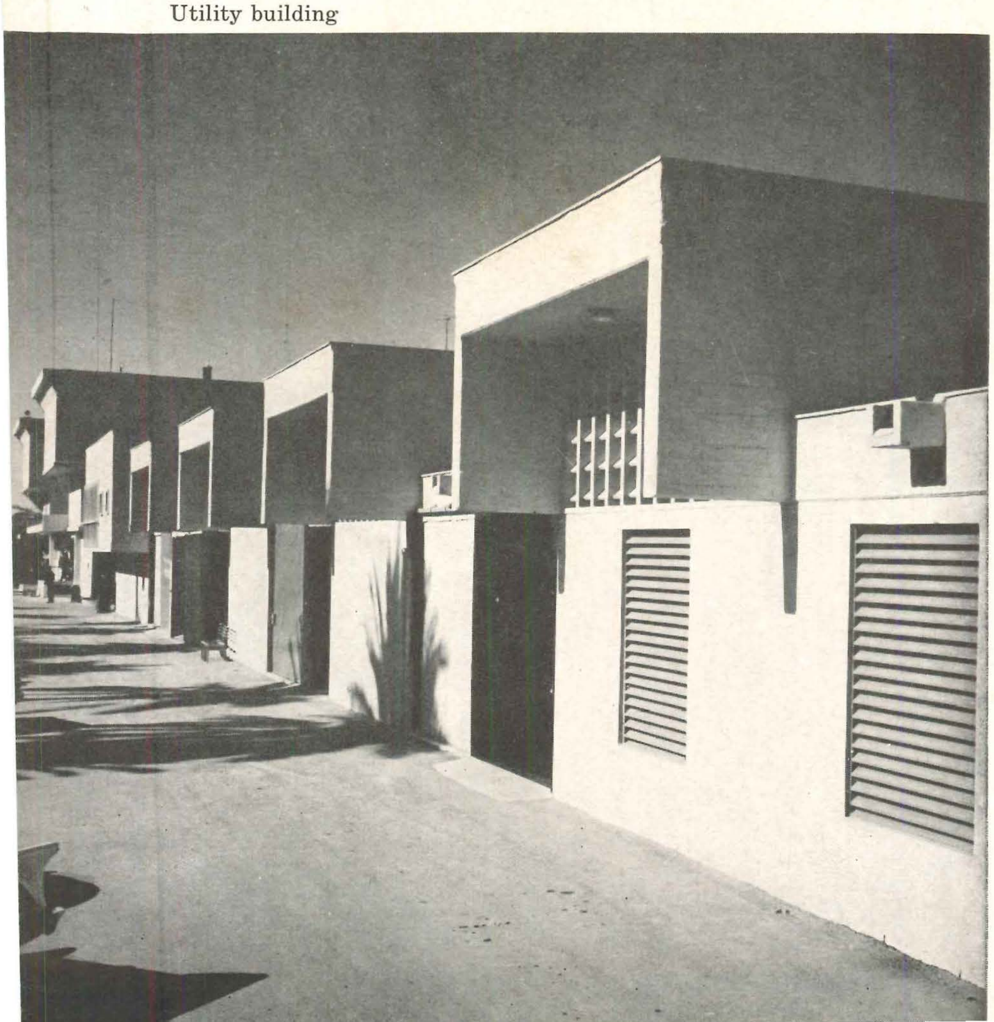

AMBASSADOR'S RESIDENCE: SECTION

Entrance façade

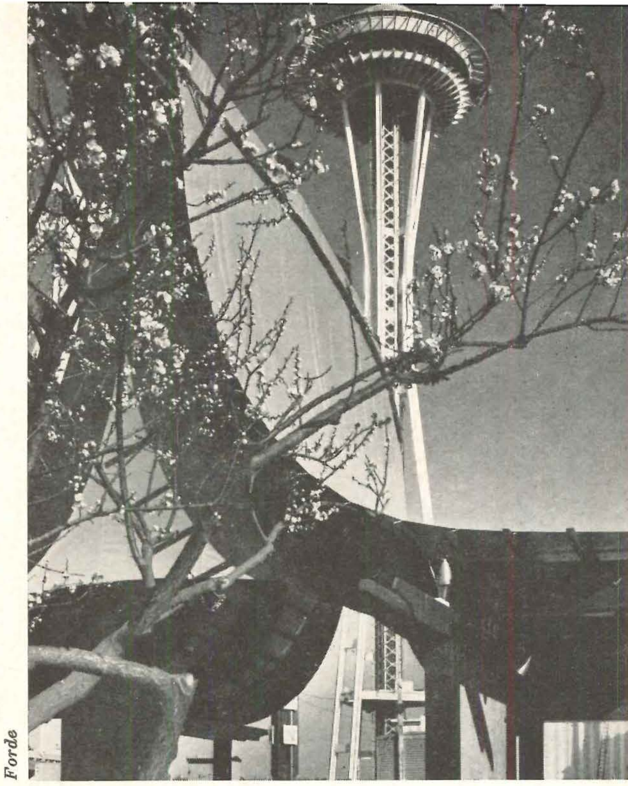
Ambassador's residence. Broad terrace and generous windows afford view of the Tigris



Ambassador's residence
Utility building



# Five Small Buildings With a High Quota of Architectural Delight



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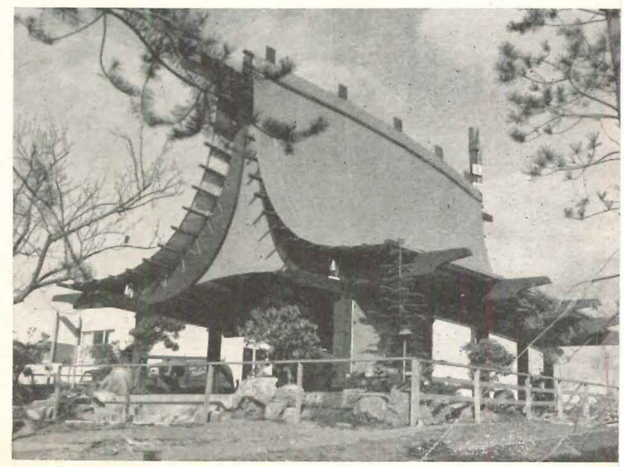
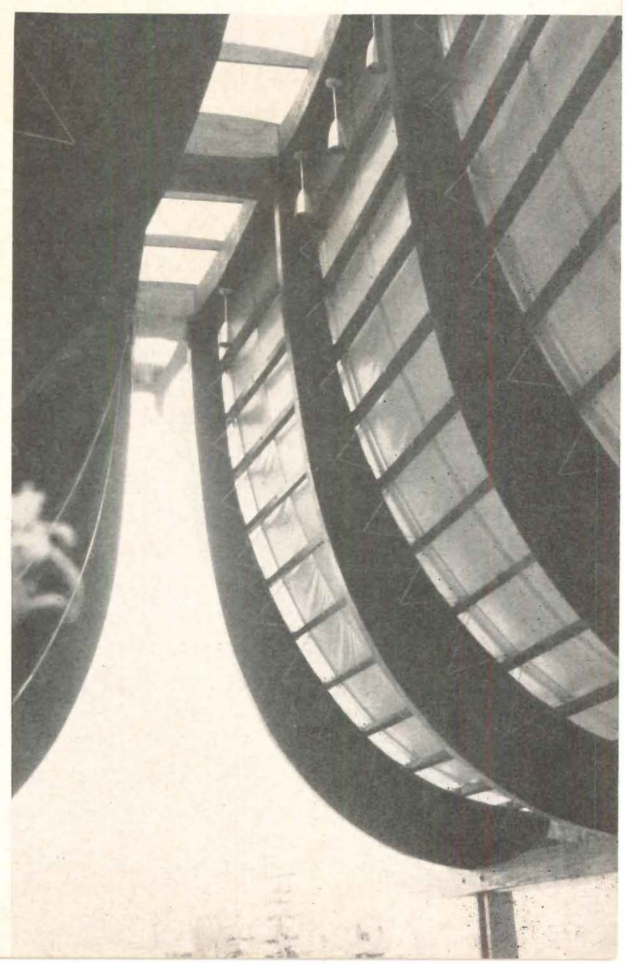
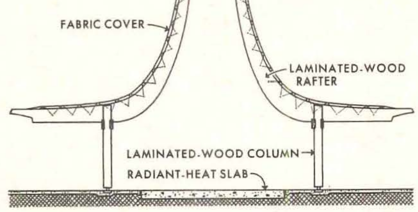




## AN OPEN PAVILION FOR INFORMATION ON A FAIR

*Seattle World's Fair*
OWNER: *General Insurance Company of America*
ARCHITECTS: *Austin Associates*
*Charles B. Whitmore, project architect*
*Robert Barger, project designer*
CONTRACTOR: *McCann Construction Company*

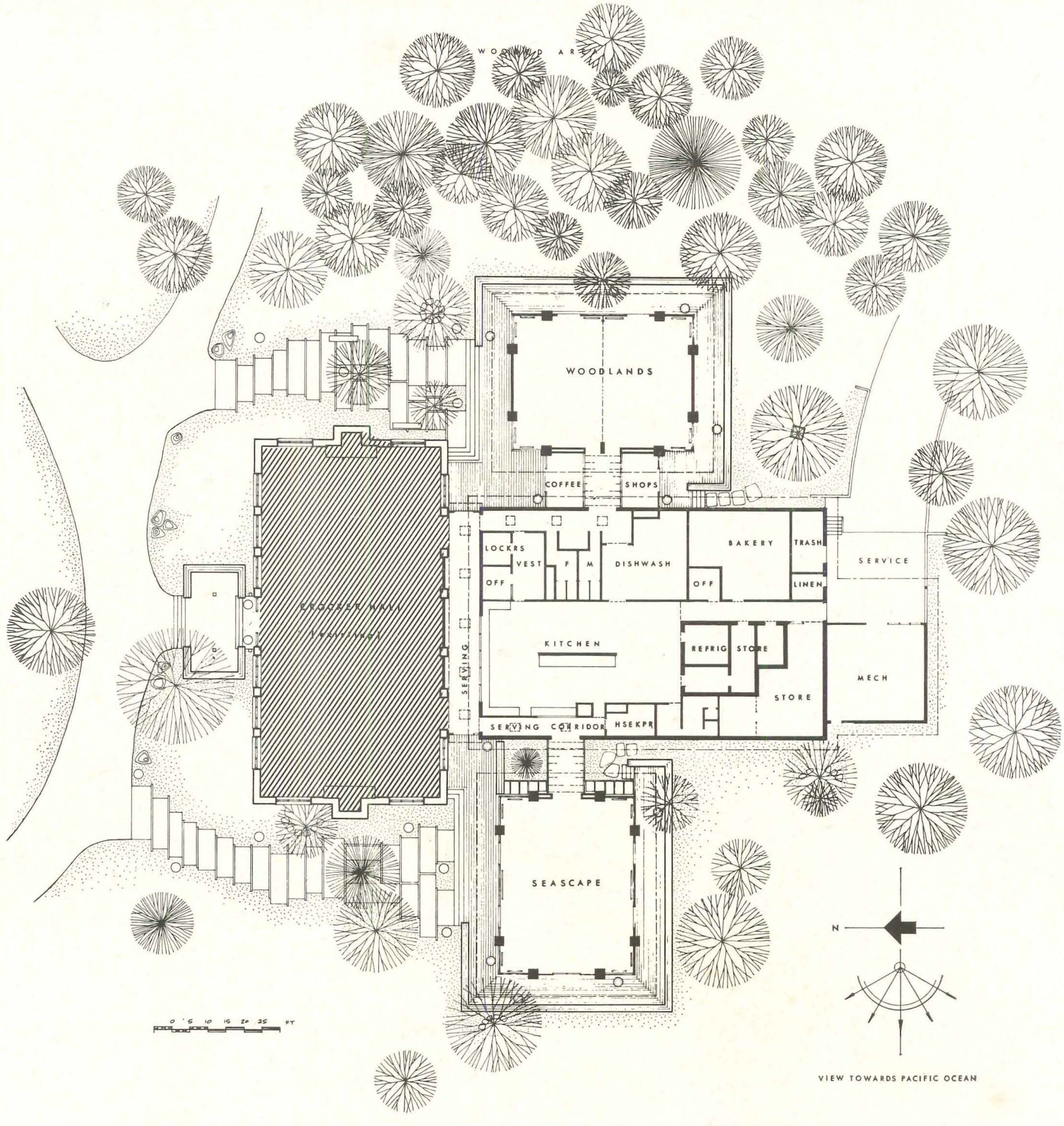
Completely open on four sides to a height of eight ft so as to permit—and invite—free circulation through it, this pavilion is the information center for the Seattle World's Fair, which opened last month. Ten curved laminated wood beams, supported on columns and attached to a ridge member which incorporates a plastic skylight, form the pavilion's structure; coral-colored synthetic fabric, vinyl coated, is spread over the beams to act as roofing. Heating for cool days and evenings is from an electric radiant heating panel in the center of the concrete floor slab.



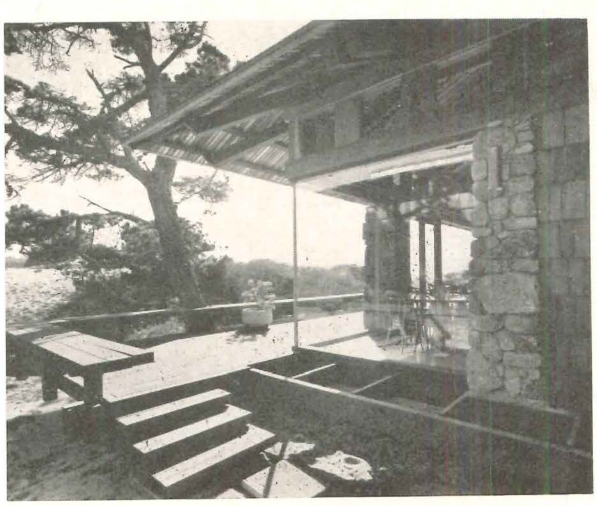
# NEW DINING AREAS COMPLEMENT OLD BUILDINGS

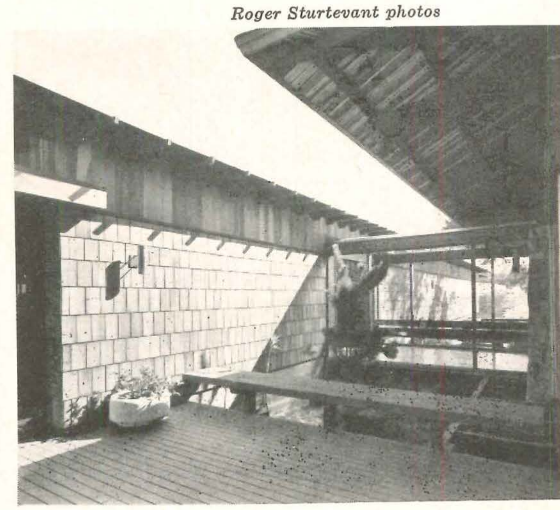
The new buildings at Asilomar have undeniable advantages in their beautiful site with its windswept trees, white sand dunes and clear view of the ocean and, since they are additions to existing buildings, in the architectural precedent which they complement. Like Julia Morgan's 40-year-old buildings on the conference grounds (still used for this purpose, now as part of the California Beaches and Parks program), the recent additions use local stone, redwood and shingles to achieve a strong affinity with the site. The first new units were sleeping rooms (see ARCHITECTURAL RECORD, March 1960). The latest are additions to Crocker Hall, the original 600-seat dining hall. With the addition of two pavilion-like dining areas—Woodland, facing a cypress and pine forest, and Seascape, on the dunes under pine trees—the seating capacity has been increased to 830. The old kitchen has been replaced with a completely new structure. Old and new elements of the dining group relate to each other with facile grace.

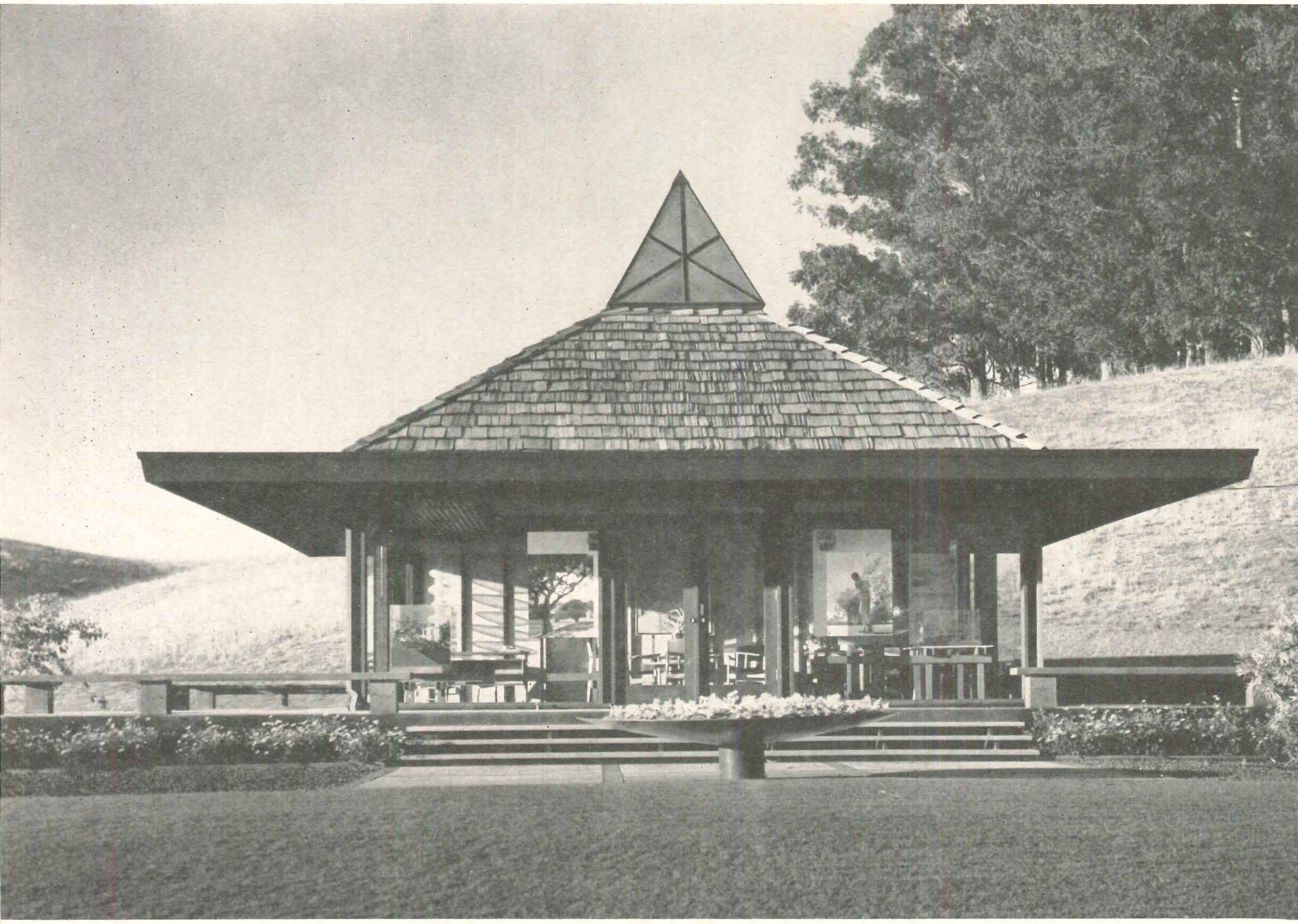
*Asilomar Beach State Park, Pacific Grove, Calif.*
OWNER: *The Pacific Grove-Asilomar Operating Corp.*
ARCHITECTS: *John Carl Warnecke and Associates*
LANDSCAPE ARCHITECT: *Mike Painter*
STRUCTURAL ENGINEER: *Stefan Medwadowski*
MECHANICAL ENGINEER: *Kasin, Guttman & Assoc.*
ELECTRICAL ENGINEER: *A. S. Malayan*
SOILS ENGINEER: *Cooper & Clark*
KITCHEN CONSULTANT: *Fred Schmidt Associates*
GENERAL CONTRACTOR: *Harold C. Geyer*




*Roger Sturtevant photos*



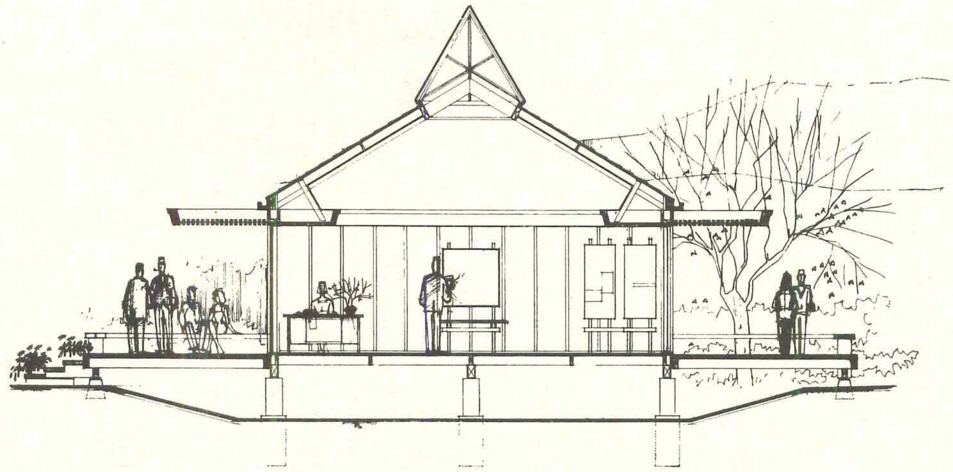


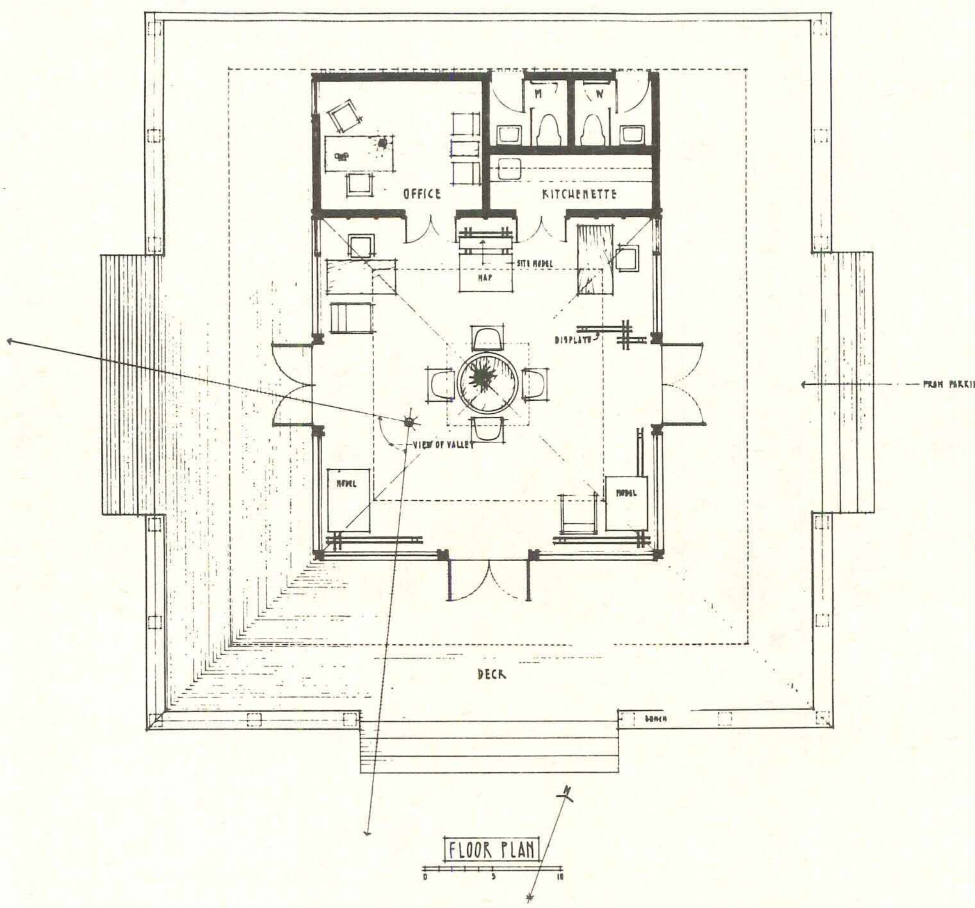


# DISPLAY PAVILION FOR NEW LAND DEVELOPMENT

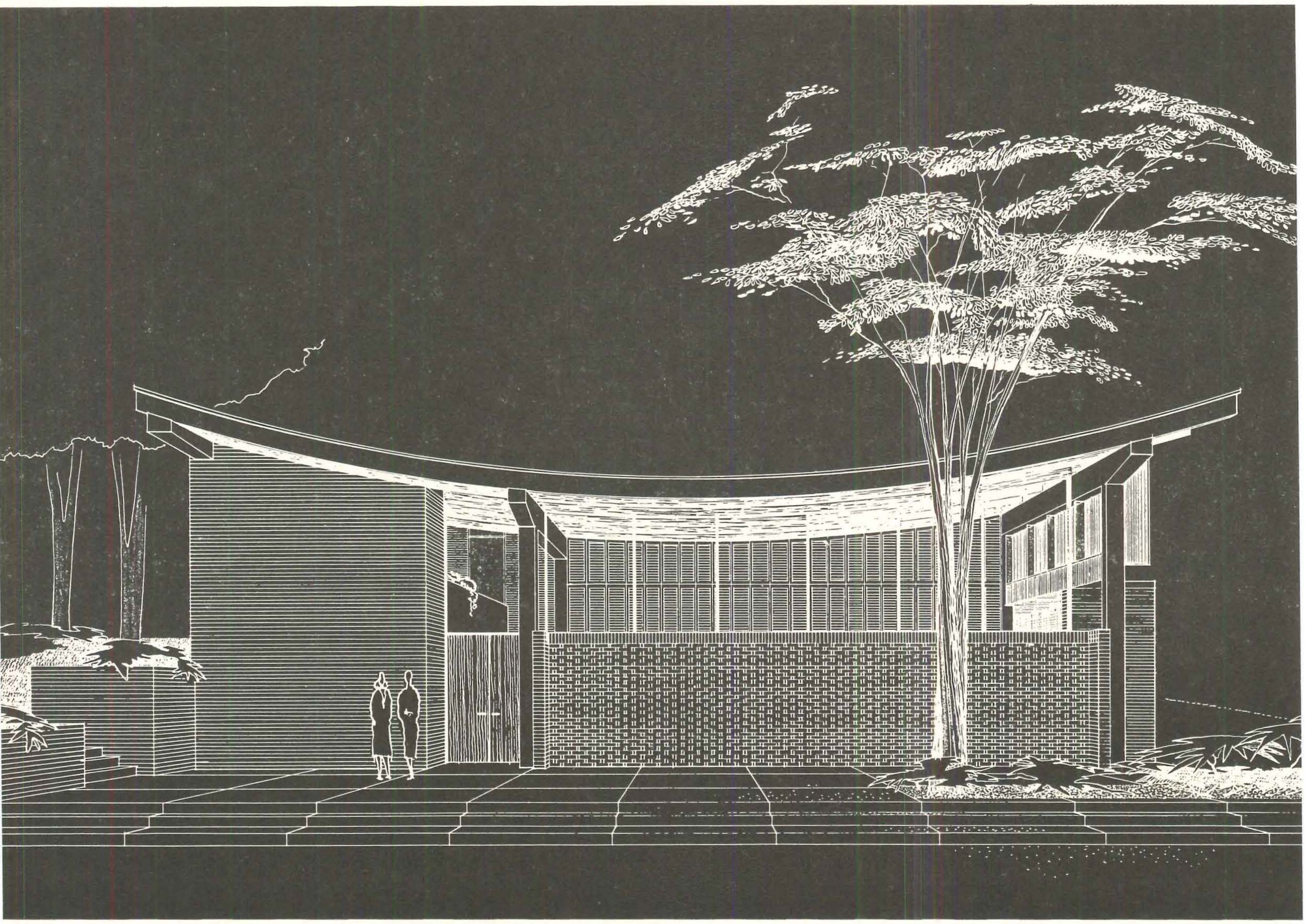
This delightful pavilion is the visitor's introduction to a 2200-acre residential development on the rolling hills of a peninsula 21 miles north of San Francisco. The pavilion functions as an informal reception center for information and maps of the development, and the displays in its glass-walled lounge are an invitation to enter. Wide overhangs shield from sun and glare, but the interior is well lighted from the centrally-placed bronze lantern at the apex of the hipped roof. A broad deck of wood planks and simple landscaping make an easy transition between the sophisticated pavilion and its natural setting.

*Marin Bay, near San Rafael, Calif.*
OWNER: *Latipac-Perini Company*
ARCHITECTS: *Bay Group Associates*
*Daniel H. Bushnell, architect*
*Lun Chan*
*Ichiro Sasaki, architect*
*Camiel Van der Weghe, architect*
LANDSCAPE ARCHITECTS: *Eckbo, Dean & Williams*
STRUCTURAL ENGINEERS: *Chin & Hensolt*
CONTRACTOR: *Latipac-Perini Company*






*Dandelet photos*



# PRIVATE CLUB DESIGNED FOR VARIED ACTIVITY

Laminated wood beams formed on a catenary curve and carried on a reinforced concrete frame give this small private club in Denver, Colo., a distinctive silhouette and provide column-free interior space for the assembly room and stage which are the building's principal area. Since the club's program varies from banquets and staged productions to small group classes, the space was designed for flexible use. Lounge and assembly are separated only by folding shutter panels, painted white. Although excellent for accessibility and identification, the corner site posed problems of privacy and lighting. The masonry walls along the street side of the building are solid up to 10 ft; clerestory windows above that point bring natural light into the assembly room. Along the building's front, where floor-to-ceiling glass is used to admit daylight to the lounge, a narrow planting strip and a brick grill serve to add apparent width to the lounge and to shield the club interior from passers-by.

*The Woman's Club of Denver*

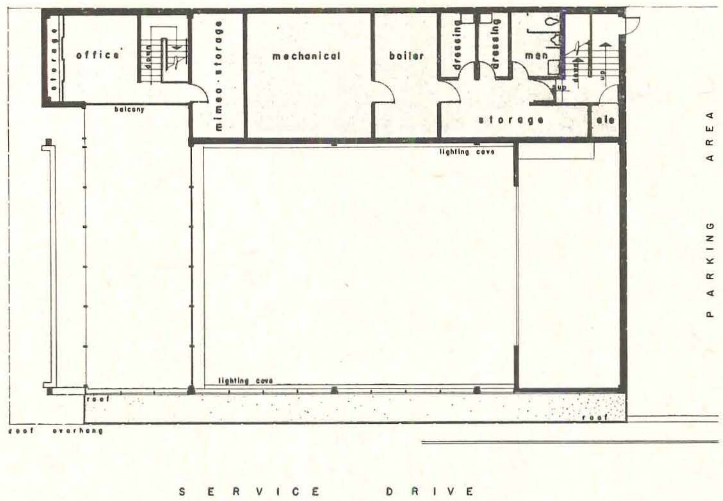
ARCHITECTS: *W. C. Muchow Associates*

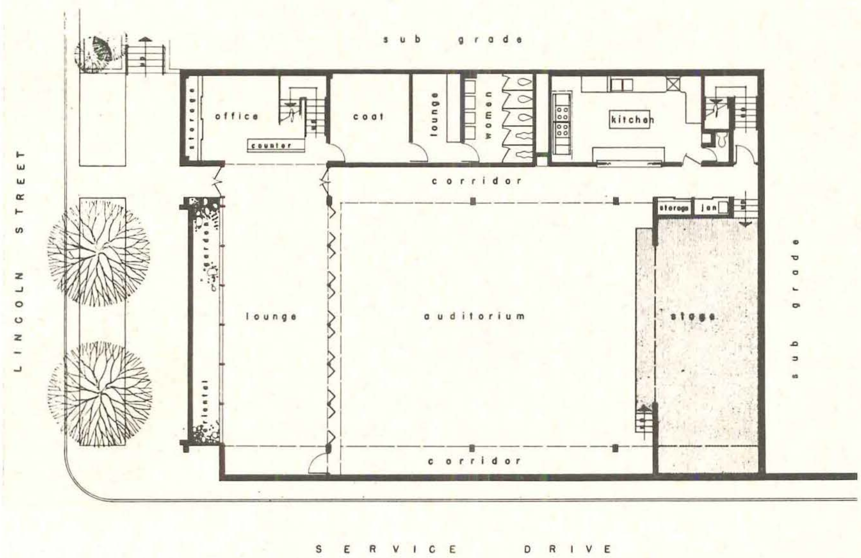
STRUCTURAL ENGINEERS: *Ketchum and Konkel*

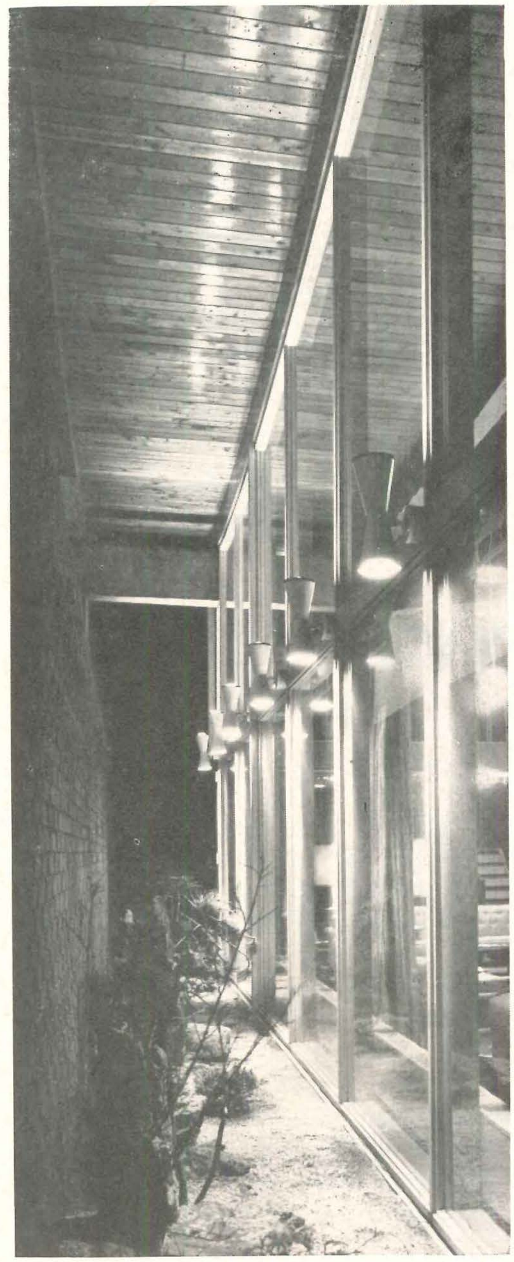
ELECTRICAL ENGINEER: *Swanson, Rink & Associates*

MECHANICAL ENGINEER: *M. S. Wilson*

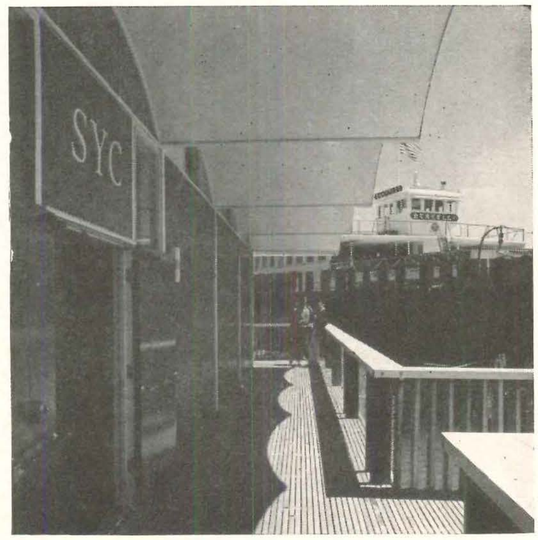
CONTRACTOR: *Dow-Ammon Builders*



*Bill Boggs photos*

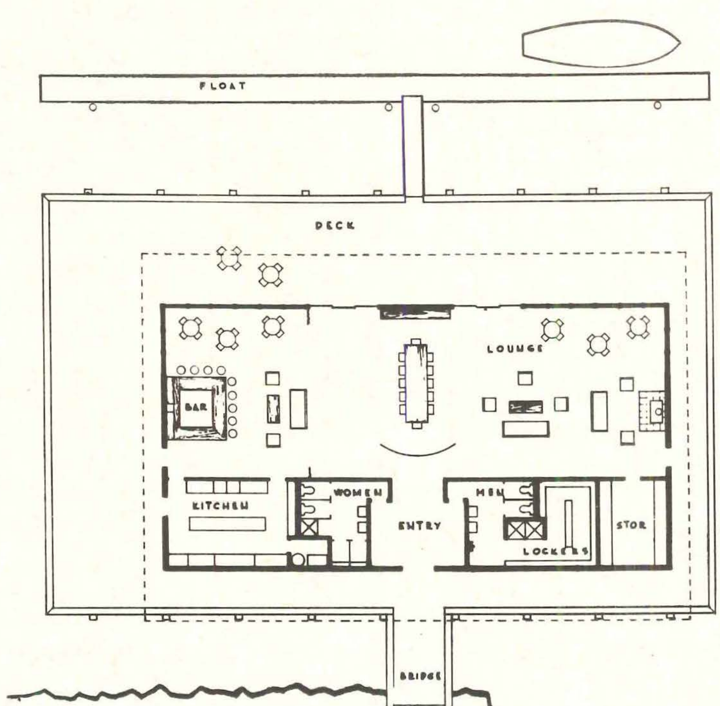


Rondal Partridge photos

# YACHT CLUB BUILT OVER SAN FRANCISCO BAY

The exhilarating look of this club building for the Sausalito Yacht Club is due partly to its vaulted roof, partly to its perch on pilings in San Francisco Bay. Approach to the clubhouse is by bridge from land and by stairway from the boat float on the water side. Because this was a budget job—$35,000 for the building proper, $12,000 additional for utilities, for ramp and moorings—simplicity of construction and flexibility of use were important factors in design. The 56-ft long barrel vaults of ¾-in. plywood, spaced 11 ft o.c., act as both beams and roof; their curved surfaces minimize direct reflection of sunlight and offer an interesting view for hill residents. Exterior walls are plywood painted blue and white. The large club room can be partitioned or can be used entire for dances and dinners.

*Sausalito Yacht Club*
*Sausalito, Calif.*
ARCHITECT: *Theodore T. Boutmy*
*George Kosmak, consultant*
STRUCTURAL ENGINEER: *John E. Brown*
CONTRACTOR: *H. D. Grae*



# CRITERIA FOR URBAN RENEWAL

A famous authority in city planning and housing says we should be more careful what we tear down, more careful what we build, and asks for a new determination of our goals for the city

*by Charles Abrams, Housing Consultant*

The urban planning process is relatively young, the disciplines are in the process of formation, the experts few, all of them still groping for solutions. These "solutions" have burst forth upon the urban scene, have been urged as panaceas and have as quickly faded or been subordinated. They have included such things as master planning, the self-contained neighborhood, slum clearance, industrial dispersion, new towns, restrictive legislation such as zoning and rent control, and, more recently, urban renewal. Each concept seems to have been borrowed from one country or another. But as yet few countries have envisioned the urban problem in all of its ramifications.

It is less than a quarter of a century since the U. S. advanced from the general orientation of building on 20- to 100-ft urban lots to acquiring land for large-scale projects by compulsory purchase. The fragmented lots and individual ownership which had plagued Europe as well as America gave way to the assemblage and construction of larger units, intended to create their own environments. Simultaneously the builder who in 1940 had built an average of only four houses a year now began to build developments running as high as one thousand houses as part of a single development. With FHA public housing and urban renewal, we have begun to build new larger projects with which we have had virtually no experience, and such experience has been lacking particularly in the case of city projects. In the wake of these developments, slums, described as cancerous growths, are being cut away in large swaths from coast to coast; some of these growths benign, some of them malignant, some of them just a few black spots, some of them just gas. The techniques of urban surgery are new, with the surgeons a first-generation knife-happy group of politicians and professionals either in the public service or selling their talents for a fee (for which they cannot be blamed).

Surgery has put cities on the critical list, for unlike prior eras, when buildings were no more than four or six stories in height, and when the product could be demolished without too great a loss, we are today building irrevocably. Frank Lloyd Wright said a surgeon could bury his mistakes but an architect could only cover his with ivy. The new projects being built can't even take ivy. Stuyvesant Town, the public housing projects, the widened streets, the parks or the lack of them, the blocking up of our rivers, are long-lasting commitments that can no longer be easily corrected. They will be dominant and continuing and will lastingly condition the developments built around them in the future.

Simultaneously, unlike the situation 150 years ago, when New York City was planned exclusively by and for private enterprise, cities are posed for the first time to condition and manipulate their new environments. So that the power to do lasting good or harm has come to us before we have really determined with a finality what is best for cities. The costly and permanent projects erected today and in the future will remain as monuments either to urban health or to urban paralysis. The task to which we must dedicate ourselves at this time, therefore, is to define the criteria which should govern these critical developments.

This requires, first of all, an understanding of what a city is. Up to now, planning philosophy has been dominated by a group of planning philosophers who have maintained that cities are dead or dying and that the only salvation for people is to create new towns outside while allowing the old ones to rot. A city, however, is more than a set of arteries; it has a soul in its body politic. To create an environment on vacant land in Brasilia, Chandigarh, Radburn or Levittown is one thing; to destroy or create something in the heart of a city is another. A city is still the pulsating product of man, reflecting his history, his struggle for freedom, his genius, his selfishness and his errors. When we remake or destroy existing cities, we tamper with a palimpsest on which man's story is written. Unless there are criteria upon which to judge what is being added to the city, we have no right to judge it at all. It has values as well as slums, a voice as well as a rumble of cars, a voice that speaks the hope and frustrations of its people, of those who built a picture window, planted a tree, fought a pitched battle for a play street, created a coffee house that after a dozen failures caught on; it is a composite of trials and defeats, of settlement houses and institutions, of aspirations and memories, all of which constitute its serried composite.

The criteria for design are more than building a public housing or an urban renewal project here and there. At least the following criteria should rule.

FIRST, WE MUST BE CAREFUL WHAT WE DESTROY. The demolition of a functioning neighborhood is the demolition of houses people live in, of all the associations that are part of it; it means the forced withdrawal of children from a school, the dispersion of those who attend its churches, settlements and synagogues; the removal of its stores, which is often the removal of part of its life. We cannot always replace all this by a project. When we destroy and rebuild, therefore, it is better to graft on to what is valid. First Houses, the first public housing project in America, was not the work of an architectural genius, but is far better than Fort Greene. It was set within the neighborhood, not superimposed upon it. With more than $1.5 billion of housing, we have not yet learned the lesson of our first project. I was gratified by what Commissioner Felt told the City Council to the effect that the city would no longer use the bulldozer approach against neighborhoods. But what a toll has been taken in the last twenty years! And is the future secure, unless a firm commitment is made?

SECOND, WE MUST BE MORE SCRUPULOUS ABOUT WHAT WE BUILD. Many old houses in New York are better in standard than the new multiple dwellings that are being built. This is as true of most of the private projects as of those built under the new urban renewal law, and even of some public housing projects. Private projects crowd the land in order to produce the maximum number of dwellings with the minimum outlay. The fact that some of the six-story buildings being put up in New York are far worse than those that are being torn down has led to a responsible public reaction against such new dwellings which should not be ignored.

As for urban renewal projects, the write-down on land cost should normally facilitate the best product an architect can devise. At a write-down of land to $5 a square foot, we could build a varied community composed of very low terraced housing, a few higher multiple dwellings, some stores and institutions, all of which could compose an interesting village within the city. I would even favor writing down the land cost to zero to gain such neighborhoods. But the trouble is that no matter how far the land is written down, the developer will still go as high as he possibly can to work up the maximum rent roll and the maximum profit.

The city could restrain him, but cities in the United States are party to his motives. They are trying to produce this very maximum rent roll in order to boost taxes, and all the urban renewal reports I have read in the United States boast that existing projects are paying five to ten times what was received in taxes on the old site. One result of this is that neighborhoods like Greenwich Village and the upper East Side vigorously oppose private new buildings of any kind and favor keeping those built one hundred years ago.

As for public housing, the aim laid down by Federal law seems to be that for the poor, minimum new accommodations must be the rule; minimum amenities, minimum room sizes, maximum heights and minimum cost. This has been a mistake, because while these buildings will continue forever, they will not necessarily be rented to the lowest income group forever, nor should they be. Families whose incomes rise in Federal projects should simply pay increased rents and pending Federal legislation, thanks to Housing and Home Finance Agency Administrator Robert Weaver, aims to rectify this error.

THIRD, ANY PROJECT, PRIVATE, PUBLICLY ASSISTED OR PUBLIC, MUST LEAVE ROOM FOR THE OCCUPANTS TO ADD SOMETHING OF THEIR OWN TO IT. Many current projects because of their sheer size impose a neighborhood strait jacket upon the people without giving them a chance to improve their neighborhoods and create something that reflects their own contribution, efforts and personalities.

FOURTH, A PROJECT MUST NOT BE SIMILAR TO OTHER PROJECTS BUT MUST CONTRIBUTE TO THE CITY'S DIVERSITY. What is happening in New York City is the superimposition of multiple dwellings of the same type; as the projects grow larger the patterns are simply repeated, while existing foci of interest are destroyed. In a big city, there must be escape hatches within it, with variations that provide as many options as possible for novelty and variations. In this sense, the removal of the Aquarium from Battery Park was a mistake.

FIFTH, ANY NEW BUILDING MUST GIVE ITS OCCUPANTS A FEELING OF BELONGING: i.e., its belonging to them or their belonging to it. There are some old neighborhoods in New York where this is true and it is these neighborhoods where the opposition to destruction is most vocal.

SIXTH, NEW BUILDING MUST HARMONIZE WITH THE VOICE OF THE CITY. This means that it must look and feel as if it were part of the city, and not be so overpowering in its dimension that we avoid it.

SEVENTH, IT MUST LEAVE ROOM FOR SOMETHING TO GROW AROUND IT, so that what is around it can become better. This has not been the case in public housing projects nor even in places like Stuyvesant Town, which are insulated from the neighborhoods by wide streets and have done very little to spark adjoining improvements.

EIGHTH, NEW BUILDING MUST BE ATTRACTIVE TO PEOPLE. Most definitions of architecture associate buildings with beauty, but as any man knows, beauty is too often overrated. The beauty contest winner is not always the most functional after marriage, nor the most attractive against the erosion of years. The museum or the library that exacts the climbing of a flight of stairs to reach the Greek pillars is beautiful but not attractive; Times Square may not be beautiful but *is* attractive.

NINTH, IT MUST ENHANCE WALKABILITY. The city's effort to maintain its dignity against the inroads of the wheel goes back to Caesar, who forbade vehicles to enter Rome's streets except at night. The city's problems are no easier today when carriages are bulkier, faster, more numerous, and more dangerous.

Though we now take the automobile for granted, there is still something arrogant about a chap of only one hundred and fifty pounds and three cubic feet propelling a contrivance fifteen times his weight and ten times his size, past other human beings, at a speed a dozen times their capacity to dodge it. It is a thousand times as arrogant when a thousand such contrivances whiz in and out of our main streets, forcing other chaps to take cover and taking the life of one American every fourteen minutes. Fear of accidents has motivated families with children to head for the suburbs, and they won't come back until their kids are grown. Venice (Italy), Dubrovnik (Yugoslavia), and Fire Island (New York) all have demonstrated that the automobile is not indispensable for the interesting life, and I have never seen people more human and friendly than when a great snow storm has immobilized all automobiles, or when the Easter crowds on New York's Fifth Avenue force the cops to divert all traffic. The popularity of the Western on TV is at least partly due to our nostalgia for the horse. The automobile is here to stay but as long as man is a two-footed mammal and not a bird, his legs must be restored to their rightful place in the body politic; a better formula must be found for apportioning space between the automobile body and the human body. A pedestrian revolt is long overdue.

Walking is one of the main problems our cities have to wrestle with. But the very word pedestrian has become an ugly appellative for being slow, dull, commonplace, and unimaginative. The pedestrian and the foot-soldier have been the fall guys in history. Literally, a pedestrian is a street-walker, but even this term has been appropriated by a less honorable exercise.

I have heard a great deal of opposition to the Pan American building over Grand Central Terminal, designed by Belluschi and others. Some planners have said that it is too high and should be spread out. The fact, however, is that height in office buildings around Grand Central concentrates people within walking distance from station to workplace, whereas horizontal spread of office buildings increases the number of cars and taxis which must carry the people to buildings and mass transport. High density office areas hold automobile transportation to a minimum. Low, spread-out buildings increase the burden of traffic. Wall Street, for example, is the densest area in the world, but has no major traffic problem. Mercer Street has, not because of height, but because of the type of business. What are needed are more and better subways and mass transportation and less dependency upon the single car to get from one place to another. Space in Manhattan is limited but it is the metropolis downtown and should be carefully planned within those limits. To improve walkability, New York City should appoint a Commissioner of Pedestrians who might change a few downtown streets into no-way streets, create some interesting pedestrian islands, install a few bicycle paths and generally protect the non-professional streetwalker. Japan's Ginza districts, which are nothing more than old alleys roofed over with awnings and barred to traffic, emphasize how popular shopping centers can be if autos are banned.

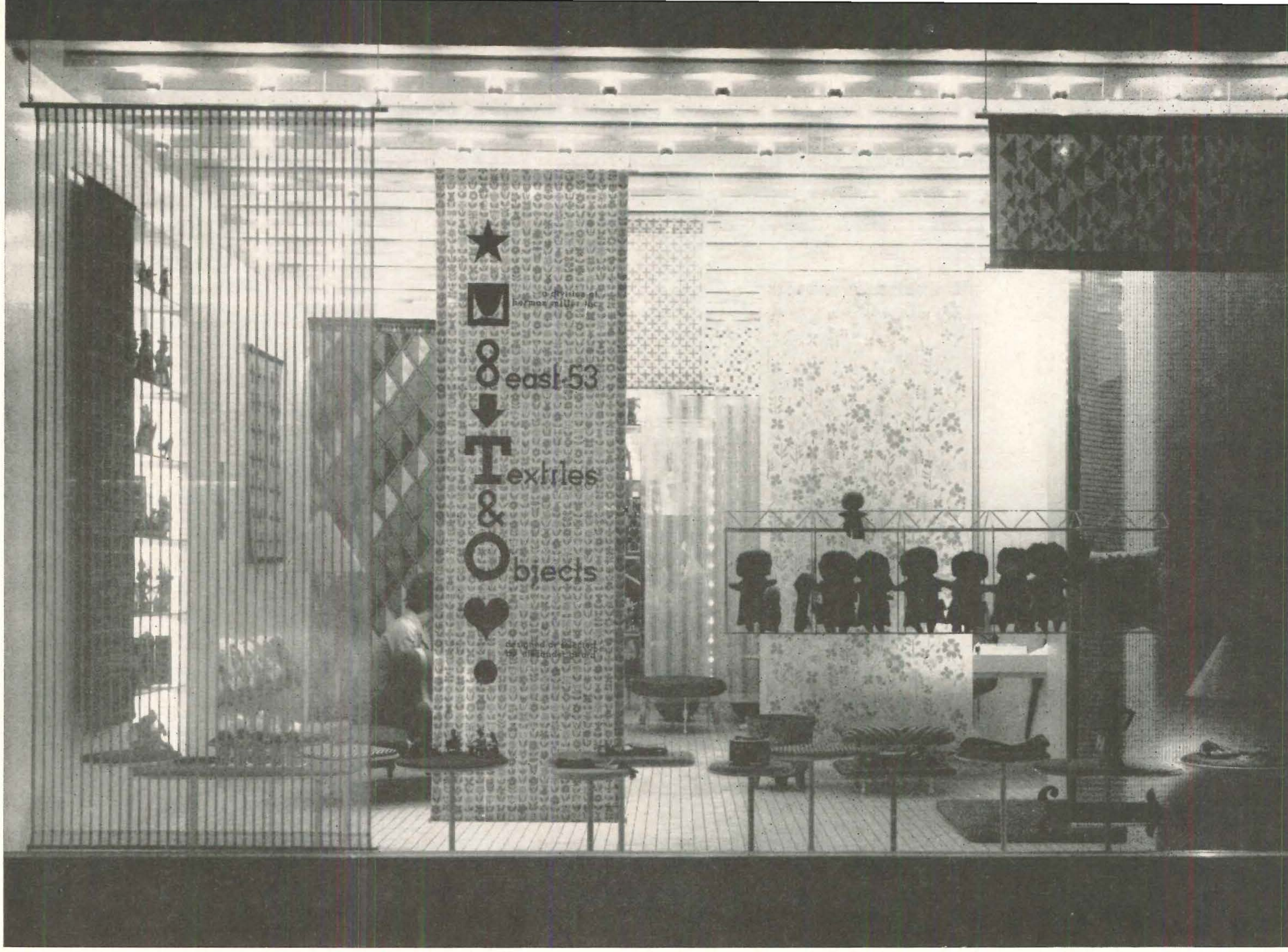
TENTH, NEW BUILDINGS MUST CONTRIBUTE TO ENDING RENT CONTROL. This doesn't mean I favor ending rent controls now or in the immediate future; but rent control was never a social reform but a hold-the-line operation, which depended upon housing to create the vacancies to free the city from its restrictions. But for more than 25 years we have been tearing down so many buildings that the shortage has been perpetuated, while people under rent control are deprived of freedom of movement, deprived of the freedom to choose an apartment of their own, and operate in a constant jungle contest with their landlords. What the average mortal wants is not rent control but a freer choice of apartments at a decent rental. This means that all demolition should be curtailed until the shortage is eased and a minimum three per cent vacancy rate is created in all rental categories, so that people can have that freedom of choice. This means more building in Queens, more building on single blocks where demolition will involve displacement of only a few families and less mass demolition such as the West Side project.

In the next 15 years, 500,000 households will be displaced, according to the Rent Commission, under pending housing, public works and renewal programs. If this goes on we are intensifying the shortage and perpetuating controls instead of giving people a greater mobility and freedom of choice in their dwellings. If rent controls were consolidated with the state housing division, perhaps the State Housing Commissioner might emphasize increasing the housing supply rather than diminishing it or keeping it constant for the lower and middle income group who need housing most.

The West Side project which will displace 8000 people to make way for a higher income group is crowded, but demolition will not decrease the crowding. It will intensify it. Nor is there a guarantee that what is produced there will be better than what might have happened in the area if the Puerto Ricans who live there were left alone to develop their own institutions and culture. While they are experiencing the same problems as other immigrant groups, the history of New York City has demonstrated that in a generation, cultural groupings do solidify and contribute an additional asset to the city. Chinatown, Yorkville, the Lower East Side, the Polish, Ukranian, Greek and other sections confirm this. The strongest fortification of Greenwich Village is the Italian section; yet the Italians, less than a half century ago, were the most inveighed-against as neighbors.

ELEVENTH, MORE SMALL PARKS SHOULD BE CREATED WITHIN THE CITIES. Too many housing projects, public and private, are being built without proper attention to recreation and neighborhood amenities. The rivers which should have been another recreation center have been blocked irretrievably by huge projects. New York City has one big Central Park, another big Bronx Park, and another big Prospect Park. What it needs are a few more small squares, squares like those at Washington Square and Tompkins Square. The recent commotion in Washington Square Park reflects the paucity of such parks and the over concentration of too many uses, including its use as an areaway for apartment houses, a bus station, a campus for N.Y.U., a chess club, a singing center, playgrounds for children, as well as its purpose as a neighborhood park. House-building and park and recreational creation must be part of a single planning process.

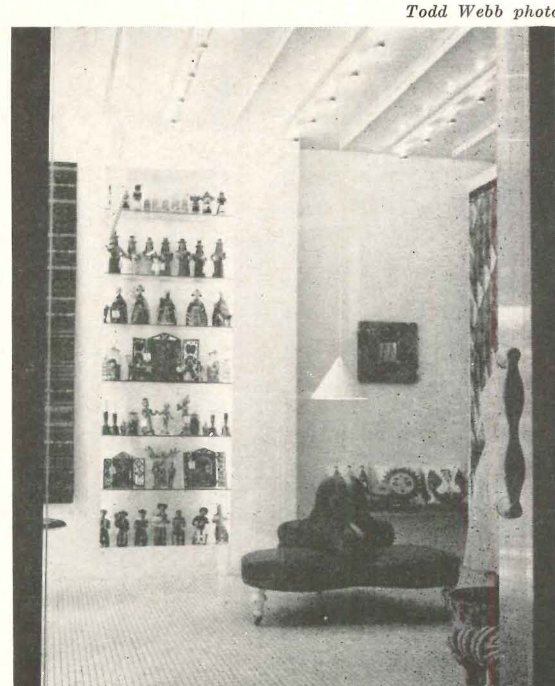
In sum, what we need before we invest any more billions in the city is a determination of the goals toward which we are headed in the city's future development.



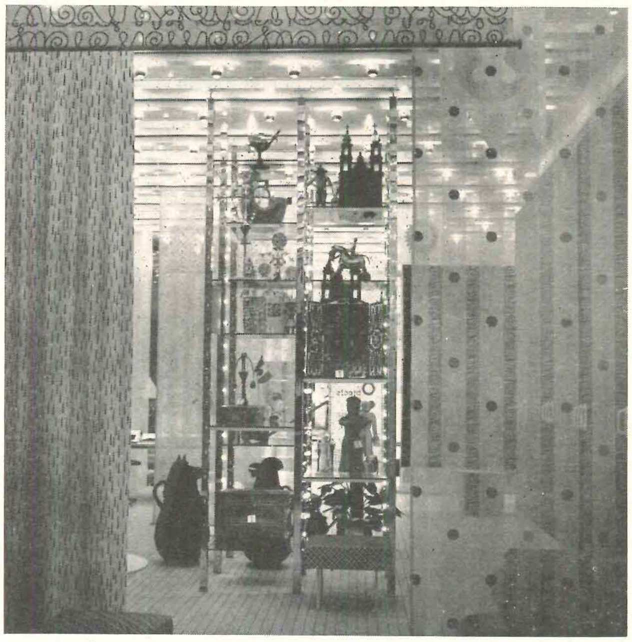

# SHOP DESIGNED LIKE A DISPLAY CASE

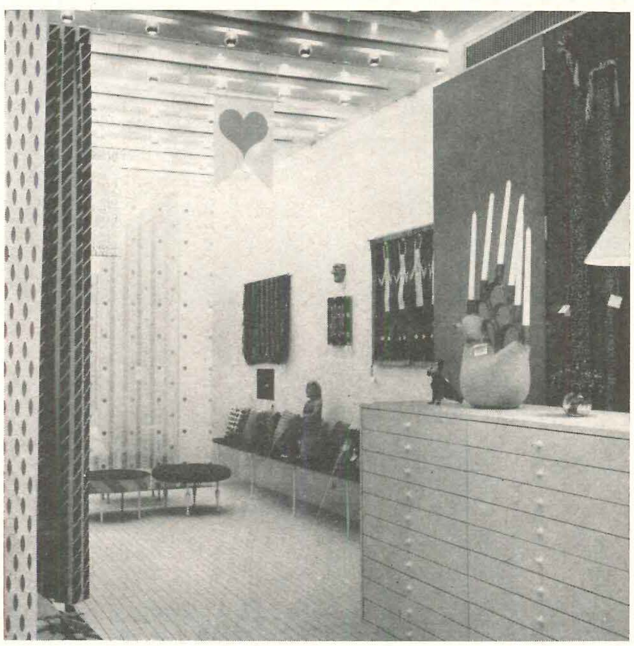
*Textiles & Objects Shop*
*A Division of Herman Miller, Inc.*
*New York, N. Y.*
ARCHITECT: *Alexander Girard*

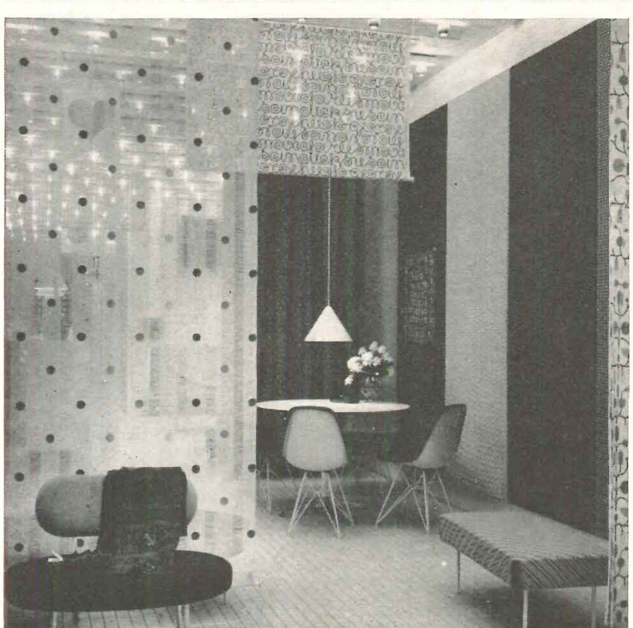
*Todd Webb photos*

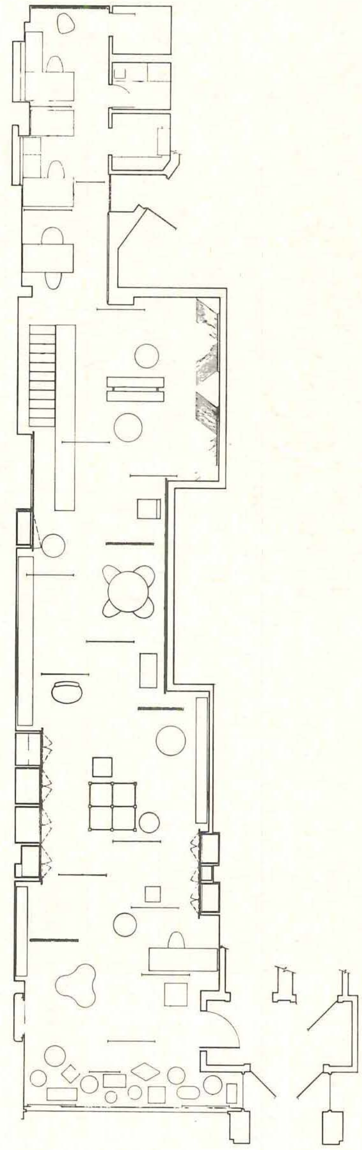


The primary effect of this shop is that of a life-size showcase, through which the customer may pass to view the fabrics designed by Alexander Girard and the folk art selected by him. For both the retail and wholesale trade, the showcase presents its wares in an atmosphere of gayety and liveliness. The interior is revealed to passers-by on the street through the store-wide, ceiling-high glass front. The narrow, deep interior space—20 by 100 ft—is modulated by hanging fabric display panels that form overlapping vertical planes, which partially reveal, partially conceal the displays. The background, against which the colorful textiles and folk art objects are shown—the walls, floors, and ceilings—is white and strictly neutral. The ceiling sparkles with 350 silvered, reflector light bulbs set in strips parallel to the street and 36 in. on centers. Flexible display fixtures include a special picture molding and ceiling strips for hanging fabrics and display towers that support shelves and contain lighting.









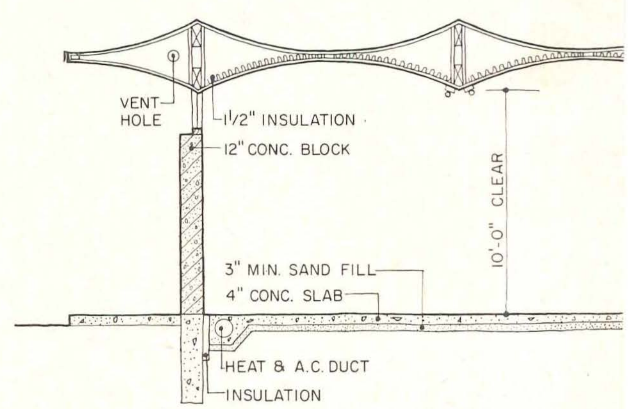
As indicated in the plan, the interior space of this shop is narrow and quite deep. The architect subdivided and defined this long space by hanging fabrics from the ceiling, at the same time achieving proper display for the fabrics themselves. The furniture, all manufactured by the shop owner, is used sparingly to create a homelike atmosphere and, at the same time, provide a method for display of some of the folk art objects. Other objects are placed on display towers shown in the illustration at top of page


*Baltazar Korab*

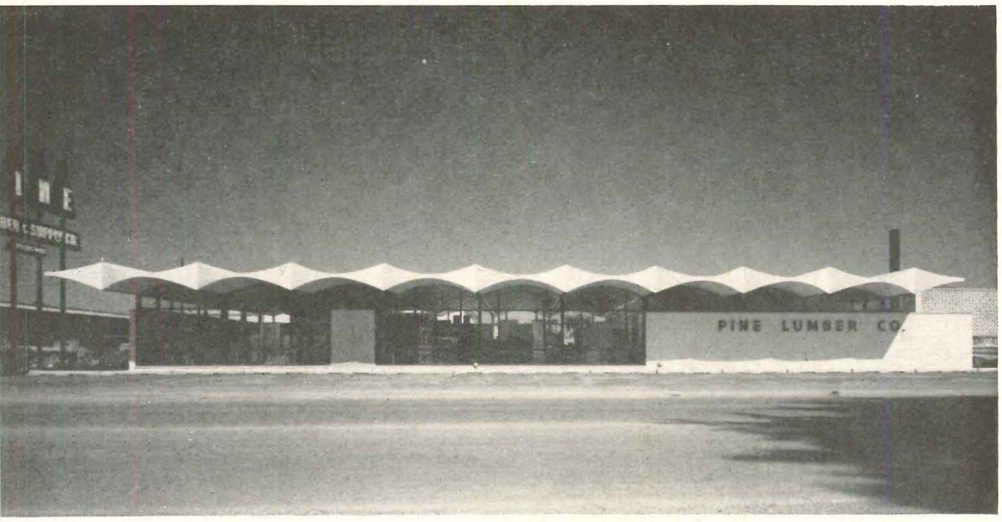
# UNDULATING PLYWOOD ATTRACTS CUSTOMERS

*Pine Lumber Company Showroom*
*Detroit, Michigan*
ARCHITECTS: *Hawthorne & Schmiedeke*

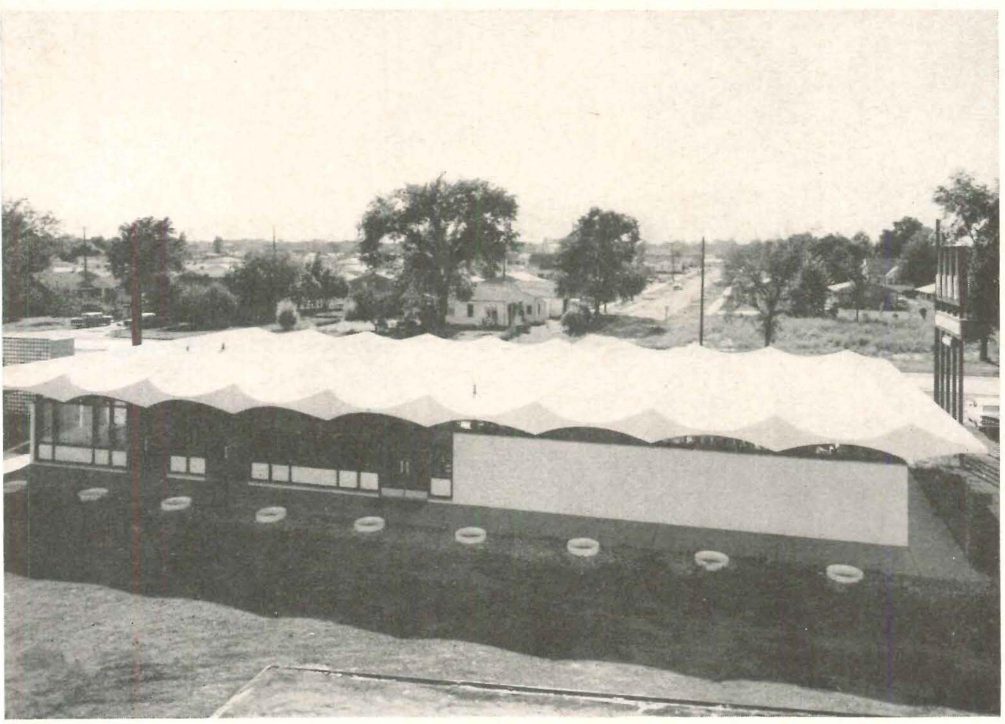
By using plywood, one of the materials sold in this building, in an exciting and imaginative manner, the architects of this showroom have caused the building itself to act as a most effective advertisement for the products displayed within. The unusual, undulating roof, which seems to float airily over the structure, is constructed of 3-ft 3-in. deep plywood girders, on 11-ft 8-in. centers, with top and bottom skins each fabricated from two layers of quarter inch fir plywood. Girders have four by ten top and bottom chords. Plywood skins are stapled and glued together and similarly fastened to girders and to two by fours laid flat at center points between girders. Four by eight columns are framed into the roof system at ends of girders. The interior of the roof system is painted; its joints are covered by redwood battens and continuous fluorescent light fixtures. Roofing is built-up composition with marble chips; fascias are scored sheet metal.




SECTION

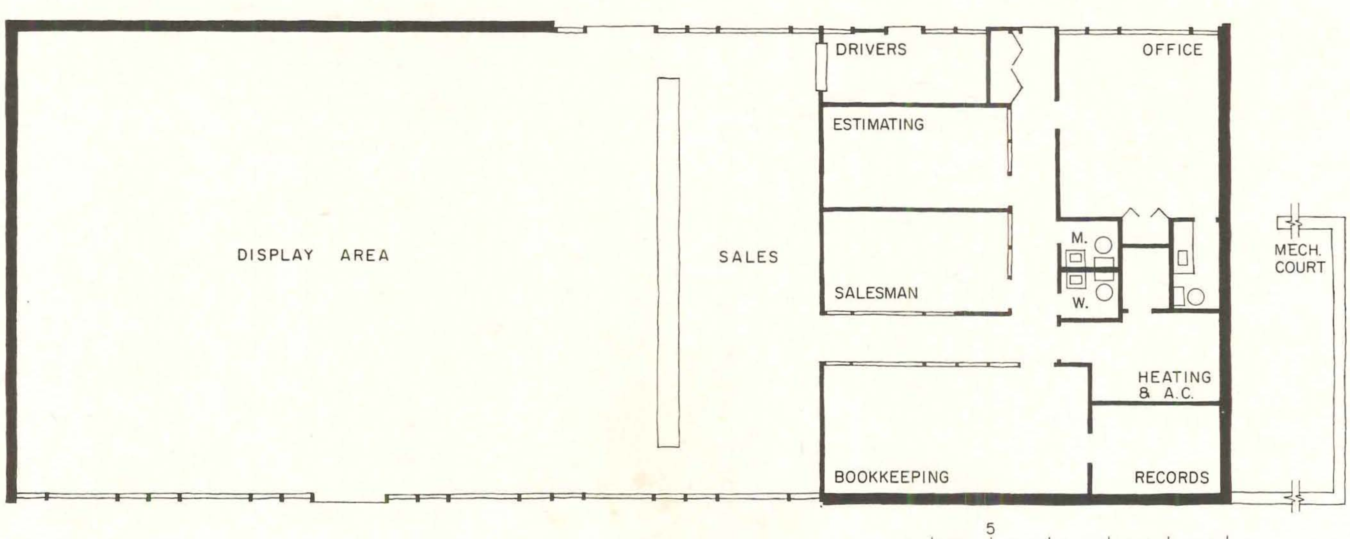



*Baltazar Korab*



The large—56 by 117 ft—plywood roof protects the interior which primarily consists of about two-thirds display area and sales counter space and one-third office area. In addition to its obvious value as an attention-getter, the roof frees the floor area for more flexible use for display of the company's products, which are stored in the lumber yard behind the building.

Other than the roof, the building is constructed of conventional materials. The flooring is terrazzo over a concrete slab. Walls are patterned concrete block and glass. Windows are redwood, with painted solid panels under fixed glass



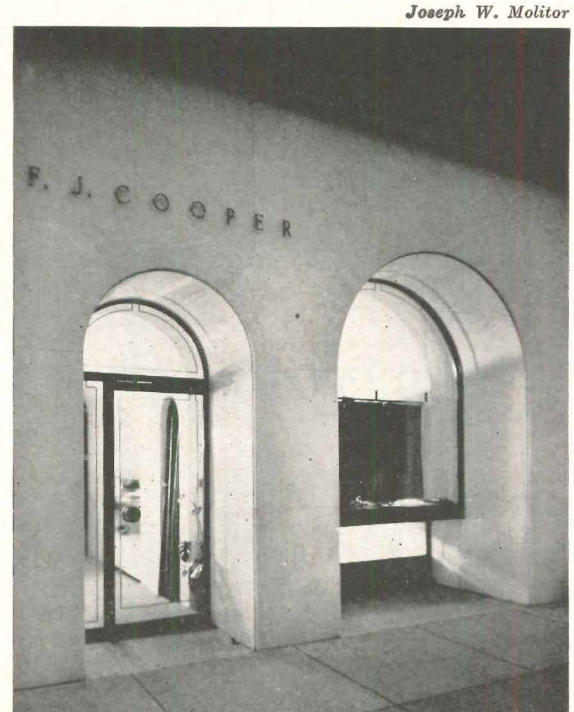
Condax-Corman

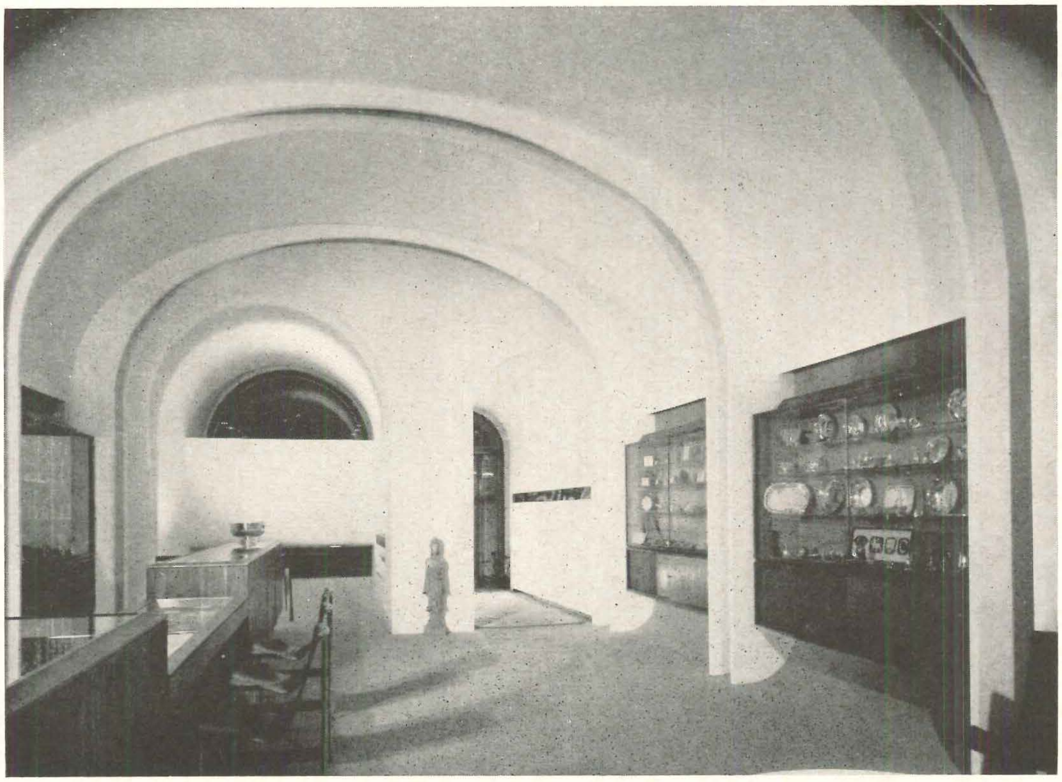
# TO MAKE A SMALL STORE LOOK LARGER

*F. J. Cooper Store, Philadelphia*
ARCHITECTS: *Geddes-Brecher-Qualls & Cunningham*
STRUCTURAL ENGINEER: *David Bloom*
MECHANICAL ENGINEERS: *Cronheim & Weger*
CONTRACTOR: *John P. Hallahan*

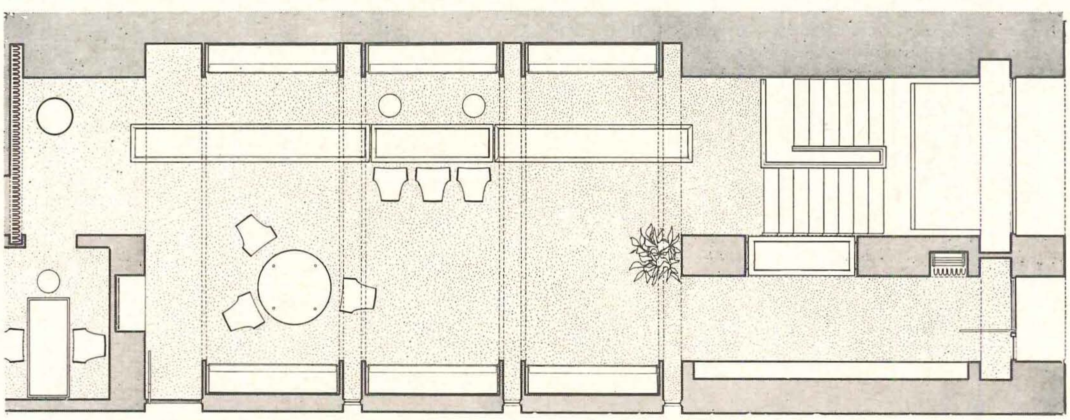
Regarding the design of this elegant little jewelry shop in downtown Philadelphia, architect George W. Qualls says, "Many shops of small area have a cluttered look about them that reduces their effectiveness as a display vehicle. For this store, most design decisions were determined by the need to produce a sense of spaciousness and the desire to make the objects on display the main focal points of the interior. The plaster vaulting, calculated to make walls and ceiling flow together, was used to bring the eye down to the wall cases. Similarly, the gray carpeting was carried up the wall behind the cases in order to destroy the junctures of wall with floor and provide a neutral backdrop for the wall displays. Because of the flowing linear quality of these elements, the space manages to achieve an air of expansiveness it might have lost if the scheme were entirely rectilinear. The exterior arches are a direct expression of the two interior vaults immediately inside; one arch is the entrance, the other a recessed window display."

Joseph W. Molitor

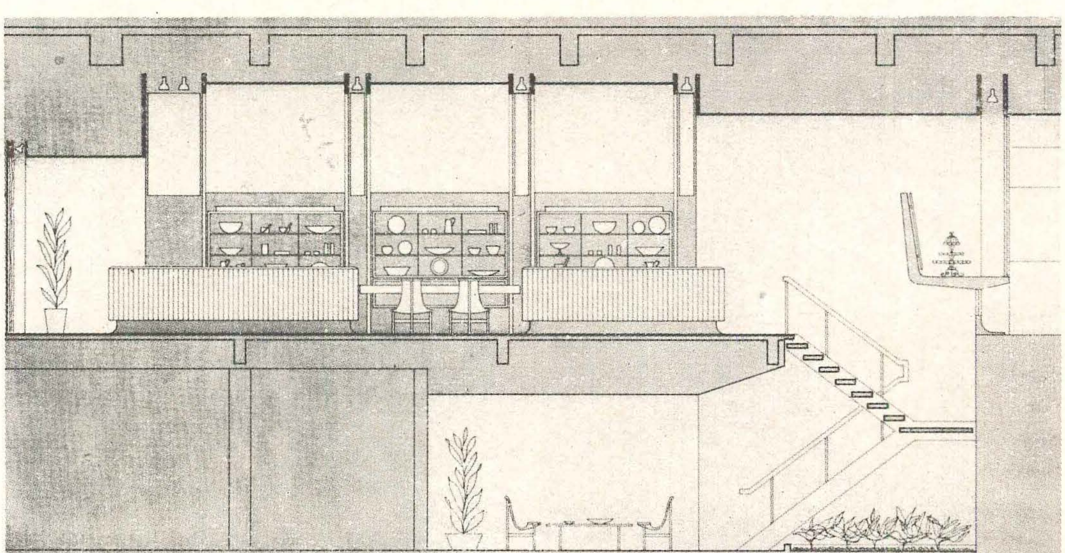





Interior



Plan



Section

The variety of the materials used in the store was consciously held to a minimum. Basically, there are white plaster ribs and vaults—constructed with furring channels and metal lath—walnut casework, and gray carpeting. Bronze sash and trim, plus yellow and gray curtains for contrast

# POLICE FACILITIES DESIGNED FOR SUN CONTROL

*Police Facilities Building*
*Santa Ana, Calif.*

ARCHITECTS:
*Richard J. Neutra and*
*Robert E. Alexander*

ASSOCIATE ARCHITECT:
*Dion Neutra*

STRUCTURAL ENGINEERS:
*Parker, Zehnder & Associates*

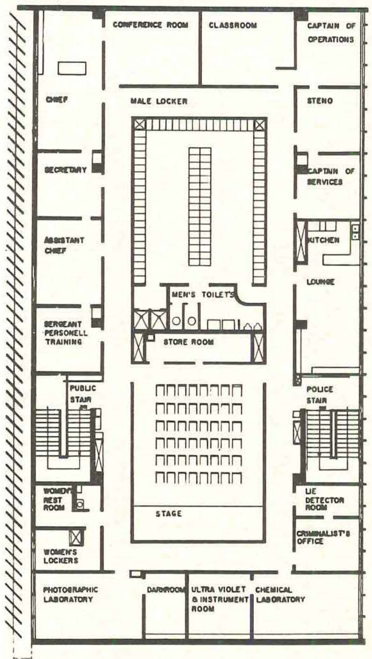
MECHANICAL ENGINEER:
*Boris Lemos*

ELECTRICAL ENGINEERS:
*Frumhoff & Cohen*

GENERAL CONTRACTOR:
*Gallegos Corporation*

Provisions for controlling the hot, Southern California sun played a large part in the design of this neatly tailored police headquarters building in Santa Ana. The north and south end walls of the rectangular structure are blank, in contrast to the longer east and west walls, which feature two types of sun control. On the east, shown below—the elevation facing the police car and prisoner entrance—the upper façade consists of a prefabricated modular enclosure of aluminum and precast concrete interrupted by a strip of horizontal aluminum sun blinds. To the west—the elevation facing the public entrance—the major portion of the façade (see next spread) consists of vertical louvers of gold-anodized aluminum. These louvers are electronically controlled, gradually changing position with the sun.

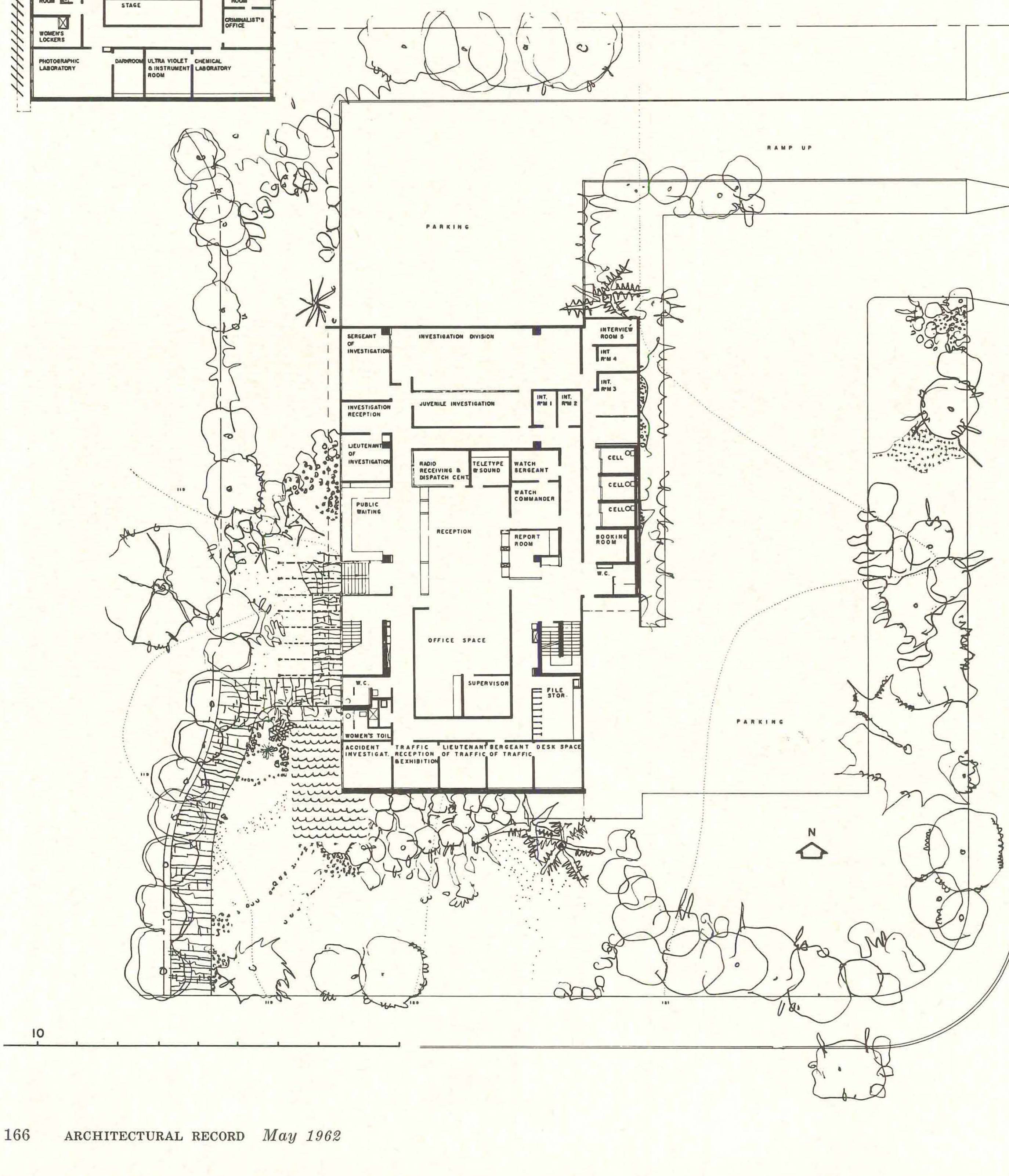
The ground floor serves for public visitors, radio center, traffic section, detective section, and a special area for booking, detention, and interviews. The second floor is devoted to administration, personnel and training, laboratories, line-up room, police lounge and lockers. The architects designed and supervised landscaping for the project.

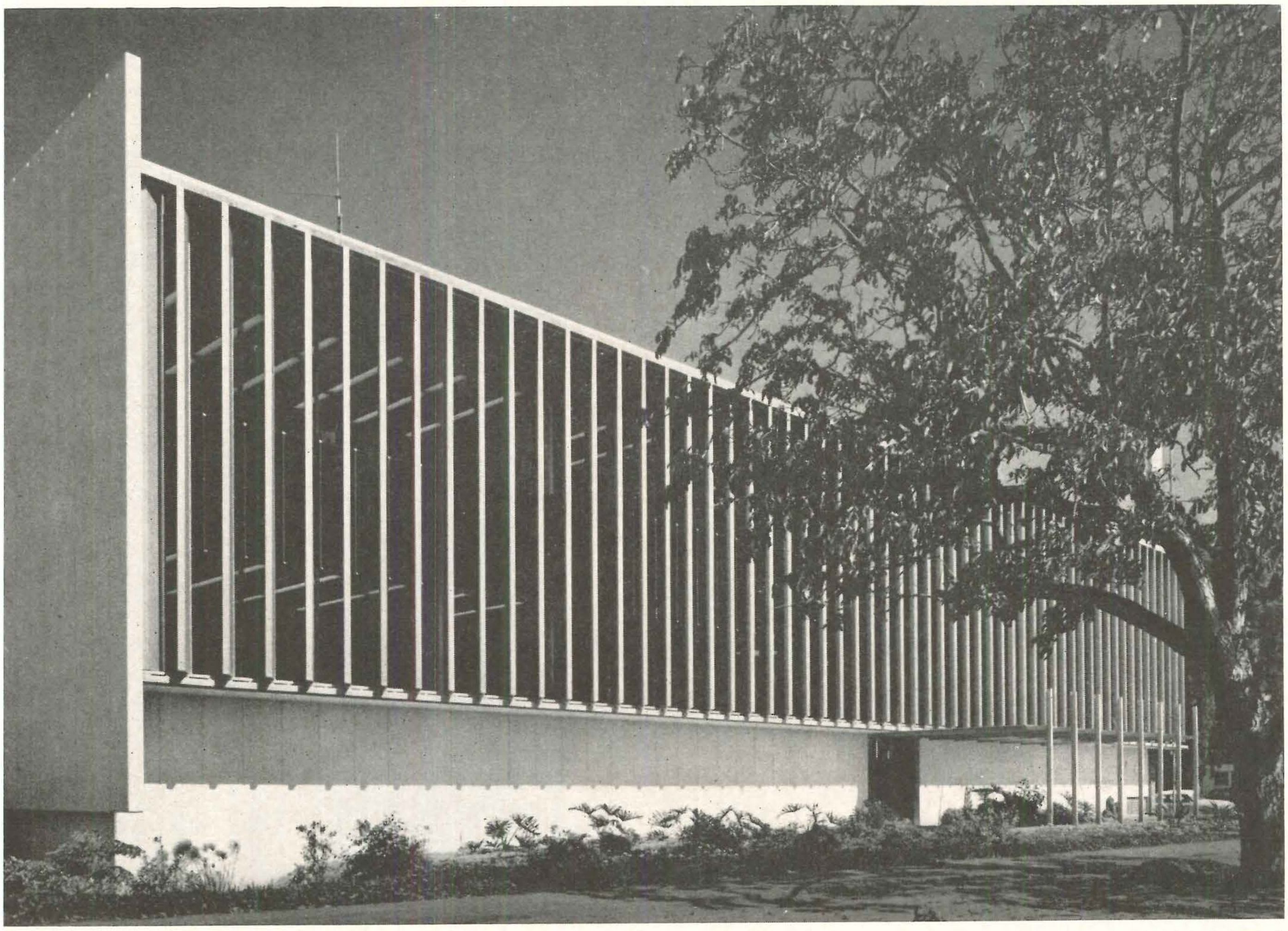


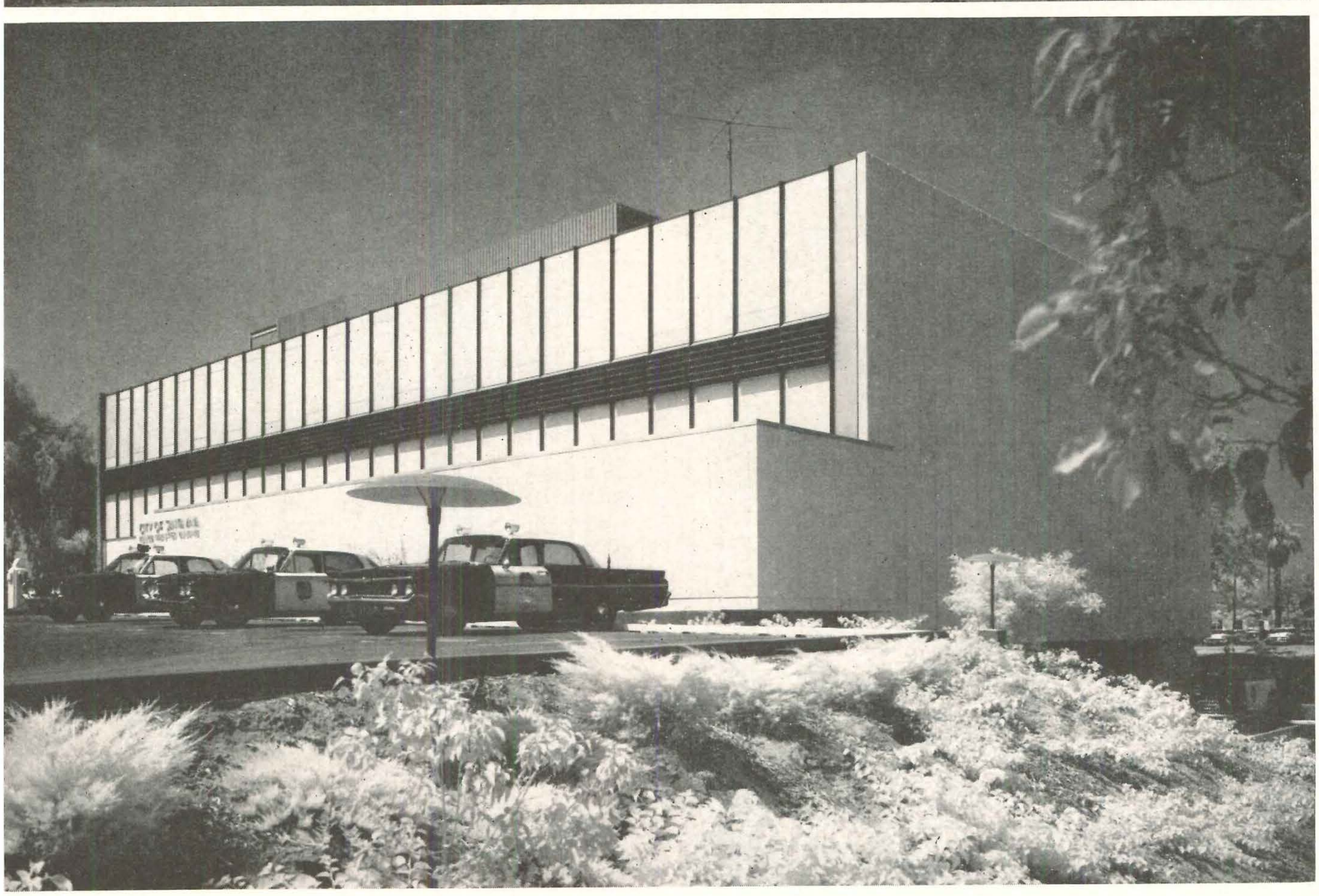

# Santa Ana Police Headquarters

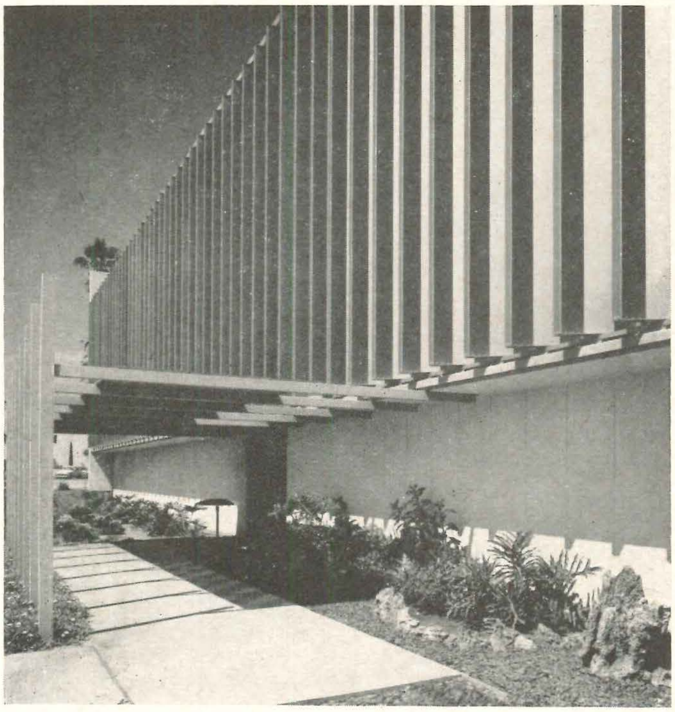
The different methods of handling sun control for the west (top photo) and east (bottom photo) façades are shown on the right; the disposition of spaces at ground and second floor level at left and below.

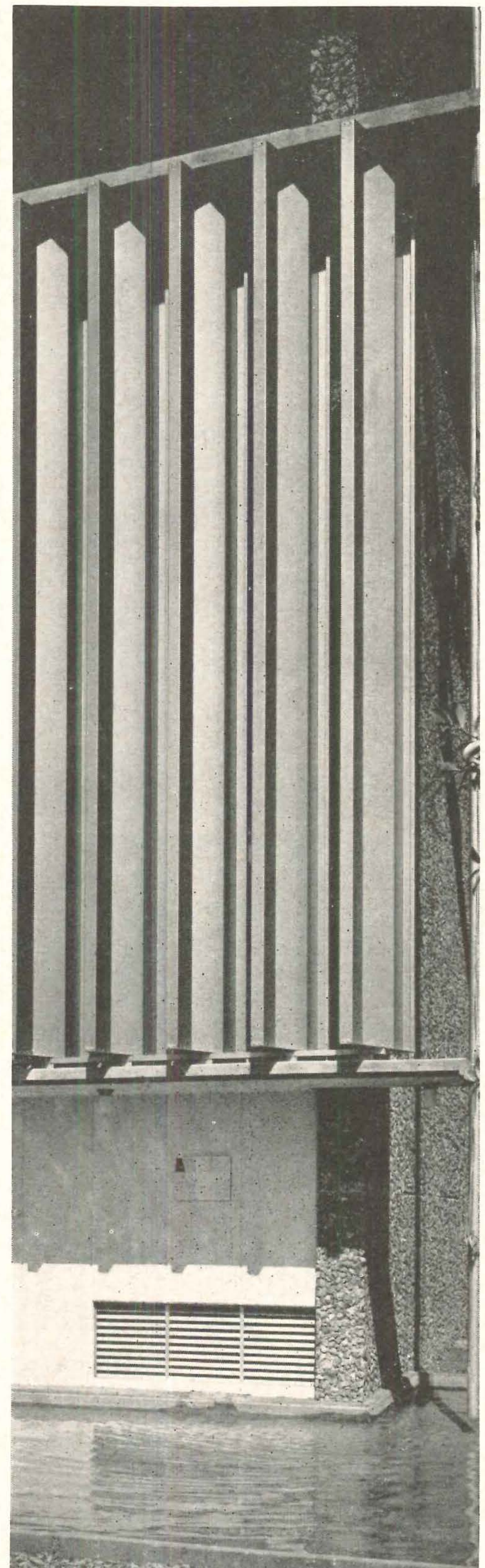
The structure is of reinforced concrete, poured in place; the exterior finish is variously of precast concrete, *in situ* concrete, or sprayed stucco with integral color; steel stud partitions and interior walls are plastered, finished either by painting or vinyl wall covering; floors are of vinyl-asbestos tile in offices and rubber tile in corridors; ceilings are integrated units for acoustical control, lighting, and air conditioning; exterior finish metal and sash are anodized aluminum; glazing is ¼ in. plate; the building is completely air conditioned





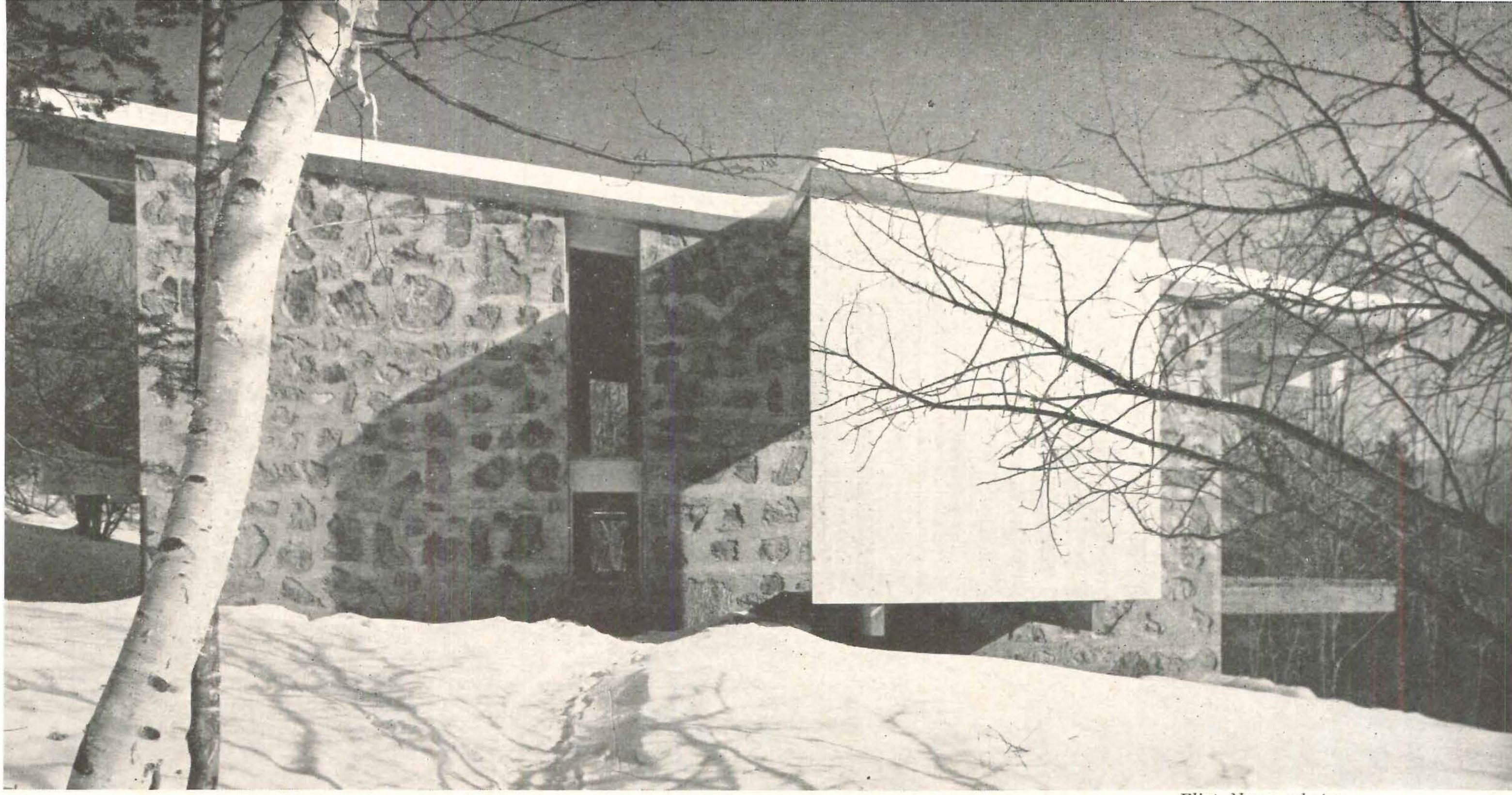






## Santa Ana Police Headquarters

The photos on this page show both exterior and interior details of the two-story-high vertical louvers designed to break down the sun striking the western façade. The louvers are of aluminum, anodized a metallic gold, and are pivoted top and bottom. As the sun changes direction, the angle of the louvers is changed by an electric motor activated by electronic control

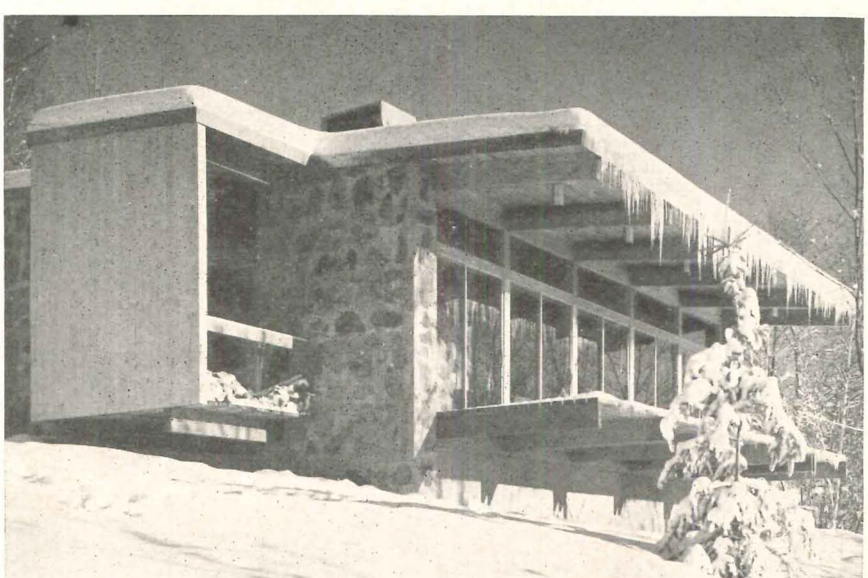


Eliot Noyes photos

# SLIP-FORM WALLS PRODUCE A TRIMLY HANDSOME SKI HOUSE

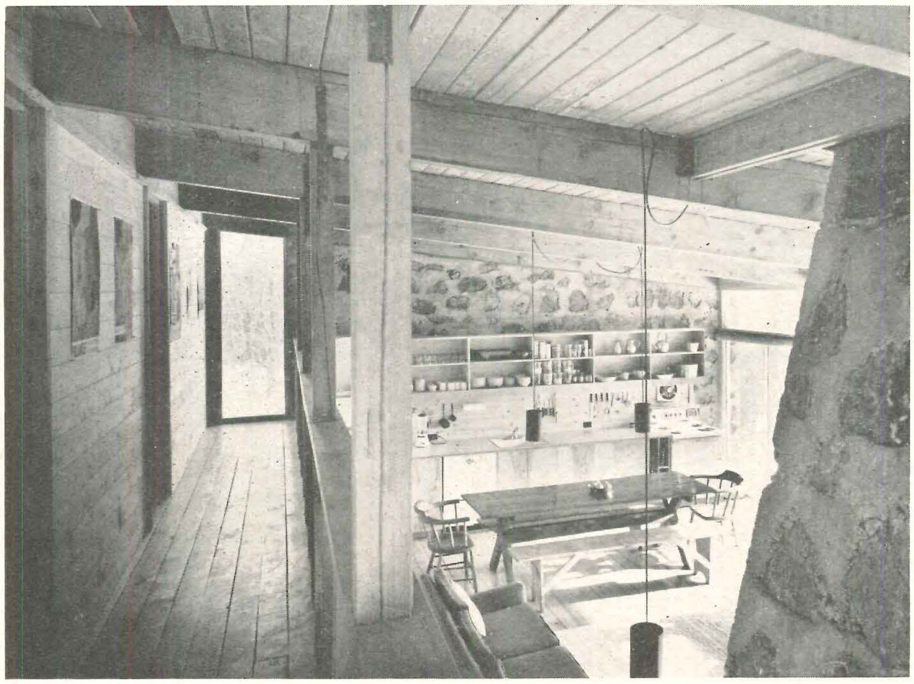
Eliot Noyes has used local stone, concrete and 30-in. slip-forms with great effect to create a sturdy and snug retreat

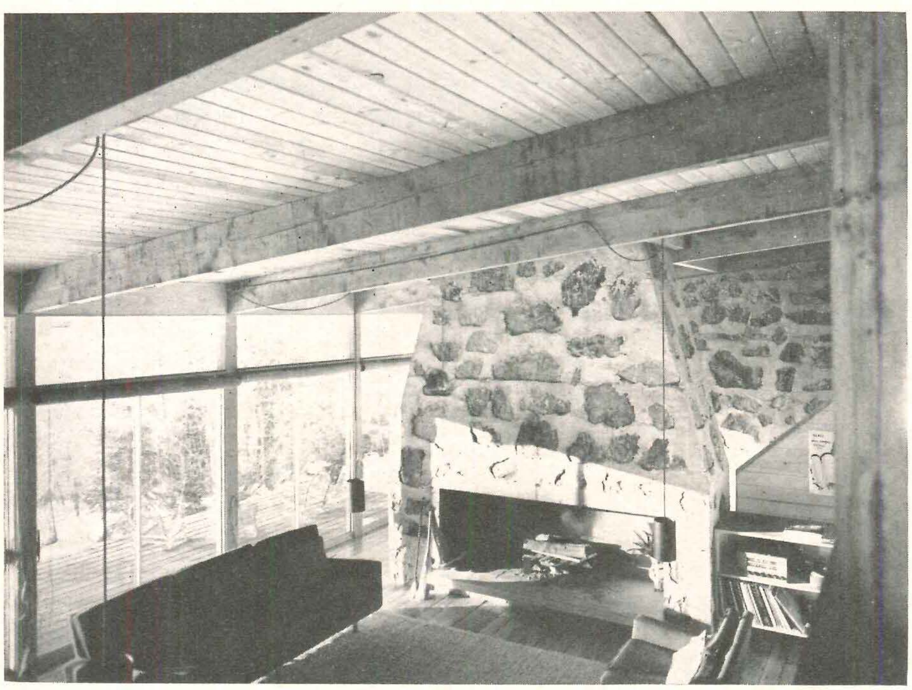
ARCHITECT AND OWNER: *Eliot Noyes*
LOCATION: *Sherburne Center, Vermont*
ENGINEERS: *Werner-Jensen and Korst*
CONTRACTOR: *John Russell Corp.*

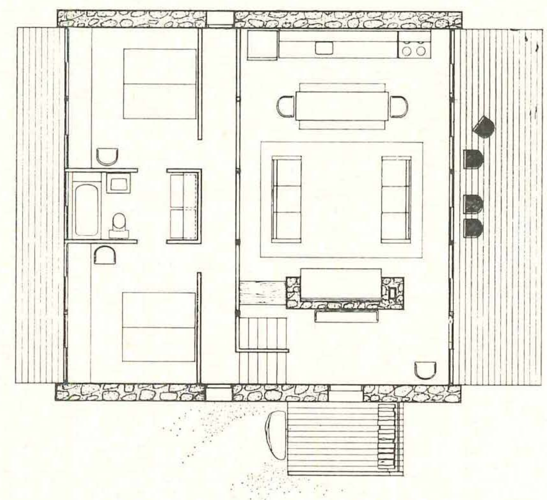


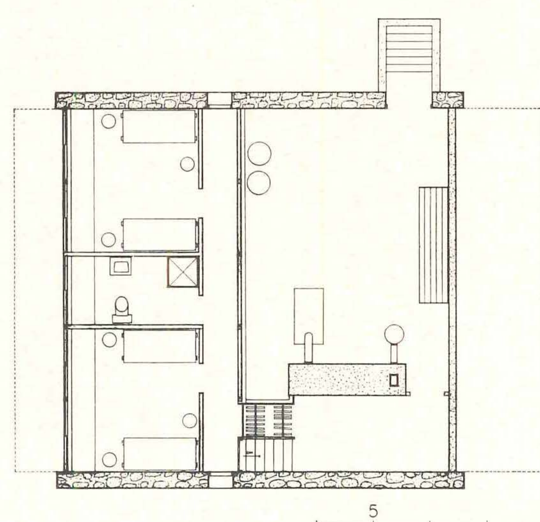
The program for a small ski house adds to the usual needs for family living, the problems of ski boot traffic through the house, and sound separation and privacy for sleeping quarters while after-skiing festivities are taking place in the living areas. A four-level scheme in this house (with all levels linked by half flights of stairs) solves the program very well. The entrance porch opens into a foyer, which alternately gives access to the open living-dining-cooking space, or to upper and lower passages leading to bedrooms. Sturdy surfaces and short stair runs ease the heavy-shod traffic. Interiors are at the same time warm, efficient and pleasantly spacious. There is a large cellar at the lowest level for ski shop, wood storage, and warm air heating plant.

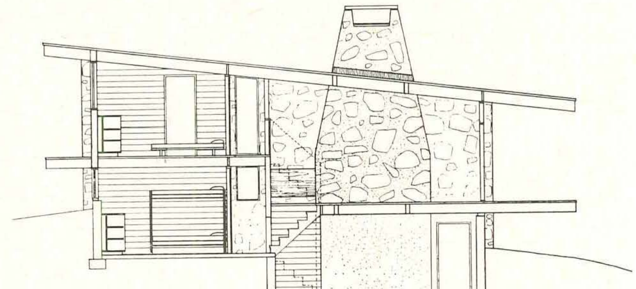
The principal decorative element in the house is the masonry, described by the architect as "much like FLLW's 'desert concrete' plus horizontal banding which results from the slip form treatment." Local stones were used to face 30-in. high forms filled with concrete. When dry, the process was repeated.









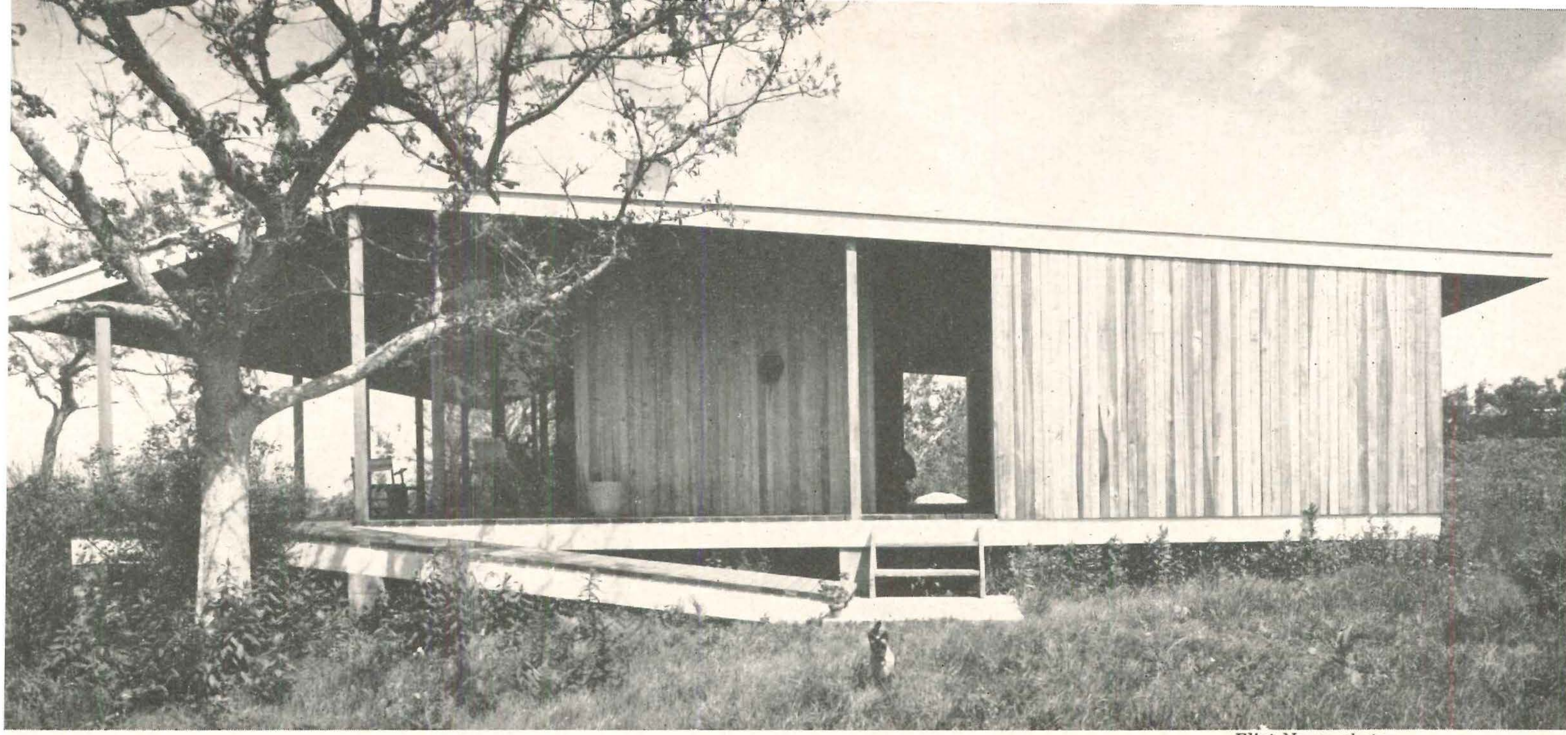



## A Compact Plan Gives a Lot of Space

The multi-level scheme affords an unexpected amount of living space within a very compact square structure, as can be noted on the plan at right. The house is constructed on concrete foundations, with a fir frame, and interiors and exterior walls of masonry or spruce. Floors above grade are fir, those below are concrete. The roof is built-up tar and gravel. The big window areas use sliding sash, and are fitted with roll-up bamboo blinds.

The neat cabinets of the "kitchen wall" are fitted with all the usual appliances, plus a dishwasher and a garbage disposer. The house is also equipped with a refuse burner to simplify chores on snowy days.

The site is a slope facing south and overlooking fields, forests and mountains in deep snow country

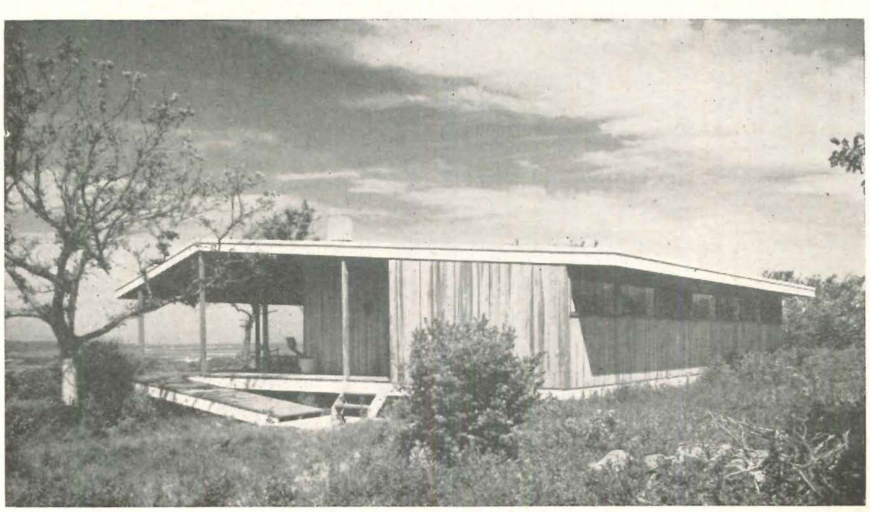


Eliot Noyes photos

# A DOG-TROT PLAN FOR A NEW ENGLAND BEACH HOUSE

A Southern scheme with open hall and porches adapts well to a Northern coast site for summer recreation

ARCHITECT: *Eliot Noyes and Associates*
OWNER: *Mr. and Mrs. Erik Simonsen*
LOCATION: *Menemsha, Massachusetts*
ENGINEERS: *Werner-Jensen and Korst*
CONTRACTOR: *Herbert Hancock*



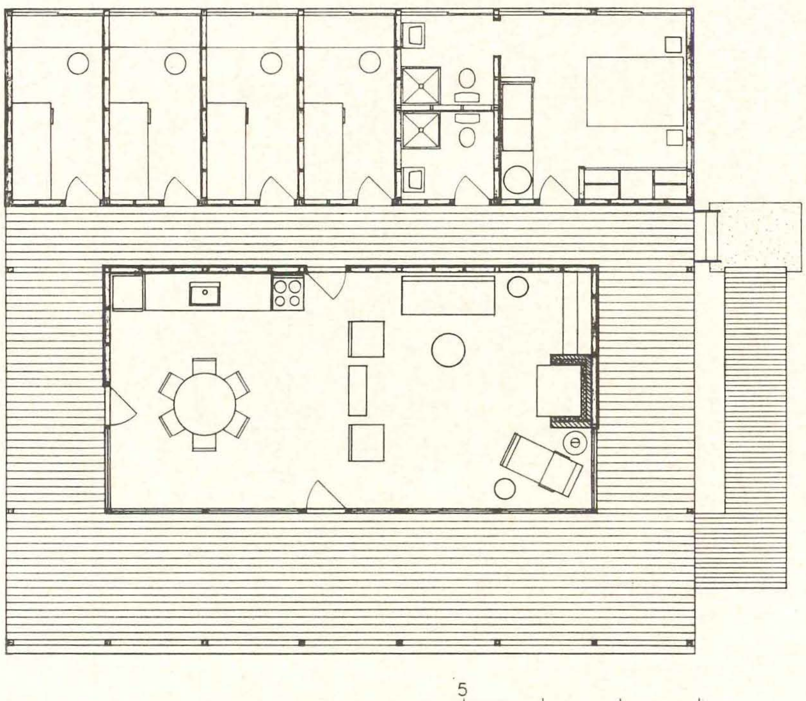
This neat scheme for summer holidays uses the old device of open air corridors to satisfy some very current needs:

(1) a living room without excessive doors and through traffic;
(2) avoidance of wet and sandy feet in living areas;
(3) quiet for sleeping quarters;
(4) through ventilation in all bedrooms;
(5) good space and sense of shelter;
(6) good western view, yet protected from the sun.

The living areas and the bedrooms actually form two separate pavilions, connected by the broad roof and porches. Sitting, dining and cooking spaces are all within the big living area.

The structure is fir plank and beam, with cypress walls throughout. Studs are exposed on the interiors. All floors and ceilings are tongue-and-groove fir boards. The roof is surfaced with mineralized rool roofing. Doors and windows are fitted with copper screens.

The only heating provided for summer use of the house is a fireplace in the living area, with a common brick facing and raised concrete hearth. Lighting includes light strips over kitchen counter and bathroom medicine cabinets, and portable lamps in other living areas.

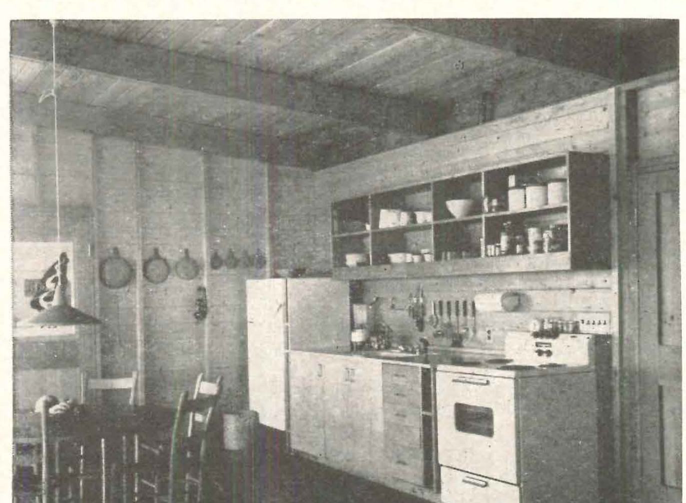


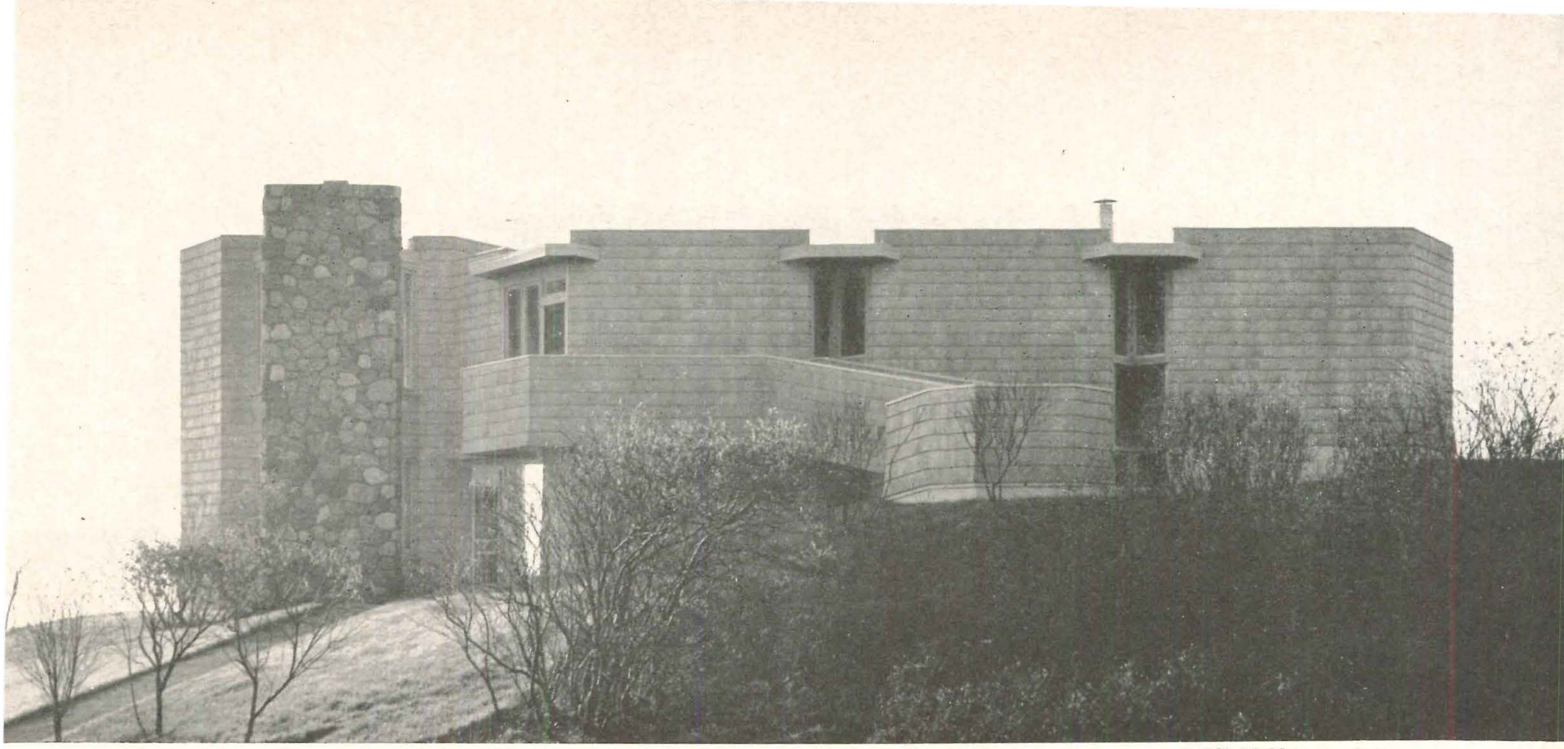

## Exposed Structure and Natural Finishes Echo Informality of the Plan

The small plan packs in four 6- by 12-ft bunk rooms and a 12- by 12-ft master bedroom. All sleeping areas have built-in shelf cabinets. The electric water heater, washer and dryer are placed in a utility closet off the master bedroom. The enclosed area of the living room (16 by 32 ft) is augmented by the large porches surrounding it on all sides. Windows are fitted with fixed ¼-in. plate glass and frameless sliding glass units.

Kitchen cabinets were made on the job and have plastic counter surfaces. The house has a submersible pump for water supply, and its own septic tank and leaching pool.

The site affords a broad sweep of view of Menemsha pond and the Vineyard sound





Ulf Wahlstrom photos

# CASTELLATIONS AND RAMPS ADD FUN TO A NEW SHINGLE STYLE

Nelson & Chadwick revive the use of shingle siding in this romantic, hexagonal-towered seaside house

ARCHITECT: *George Nelson & Gordon Chadwick*
OWNER: *Mr. O. R. Johnson*
LOCATION: *Montauk, Long Island*
STRUCTURAL ENGINEER: *A. D. Ateshoglou*
HEATING ENGINEER: *Leslie Sterling*
LIGHTING CONSULTANT: *Martin Garon*
CONTRACTOR: *Frank Johnson & Son*
INTERIOR DESIGNER: *George Nelson & Co.*

The age-old seaside tradition of shingles and towers has been revived with considerable vigor in this contemporary house. The site is a very dramatic one between a highway and the ocean at the far tip of Long Island. There is a 50-ft drop between the house and the beach, with a small ravine leading down to the beach from the building site. The architects felt that the romantic character of the site, combined with the preferences of the owners, suggested a romantic house. As there was no particular view on the highway side, the house was given a relatively solid façade on this approach, and opened with large glass areas on the opposite side facing the water. As the most interesting view on the water side was east along the beach, it was decided to angle windows in all major rooms. This, in turn, helped lead to a hexagonal-shaped room as a major planning device.

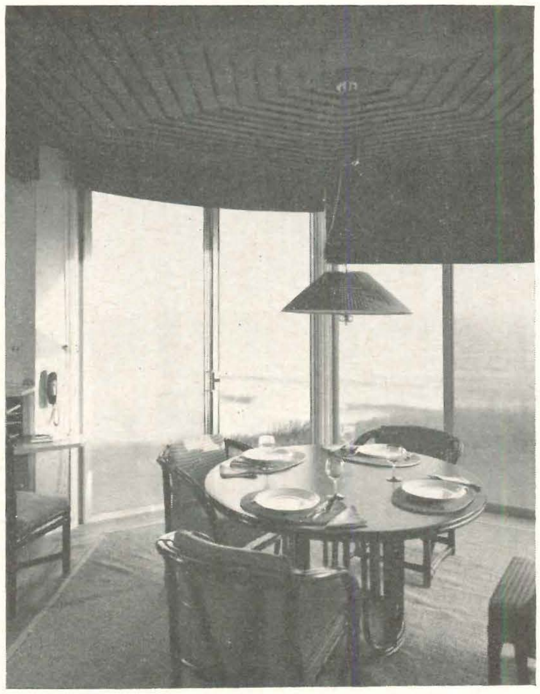
Unusual program requirements included:

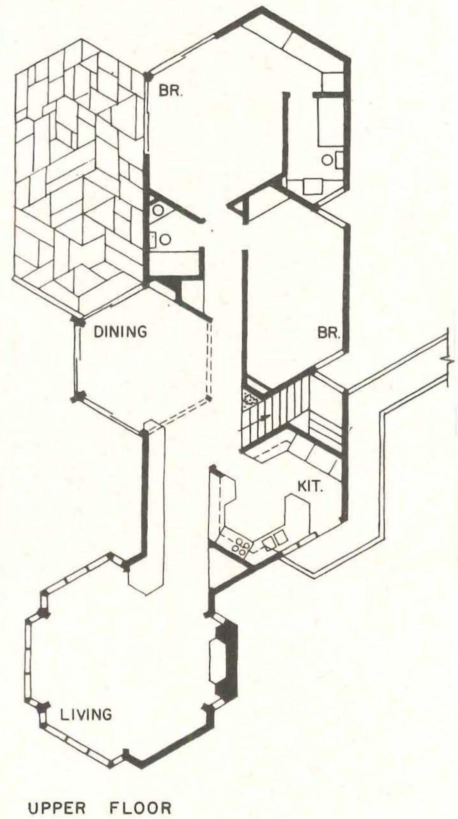
(1) separate studio quarters for a son, with facilities for entertaining; a small kitchen unit; and a folding bed in a closet;

(2) shower for bathers before entering the house;

(3) a dining room which could be opened into a porch;

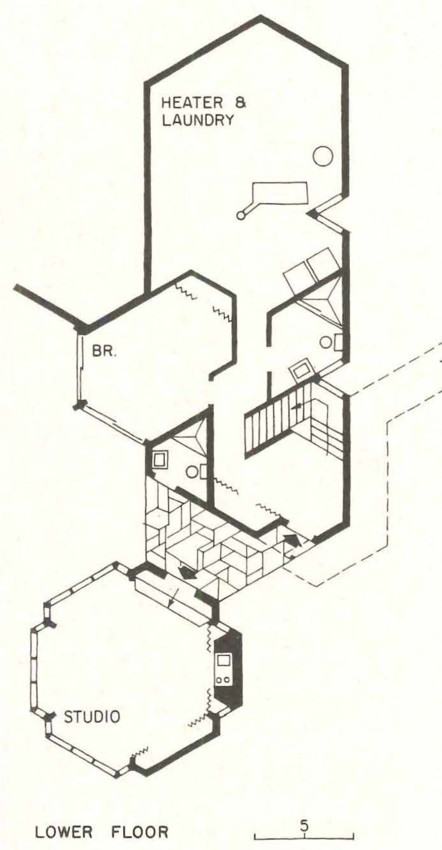
(4) a ramp to the kitchen for a grocery cart.






## Shingled Interiors Emphasize Room Shapes

Ceilings of the major rooms have shingle ceilings patterned to accent the hexagonal shapes of the major rooms. To gain a sense of greater space, many of the furnishings are built in. Especially notable are the seating arrangements in the living room around the periphery, which makes possible one large conversation grouping; a built-in sideboard in the hall containing bar, telephone desk, storage for extra tableware and hi-fi; the pass-through to the kitchen, with cabinets opening on both sides. The structure is wood frame; interiors are plaster and cedar board. Heating is by a warm air system

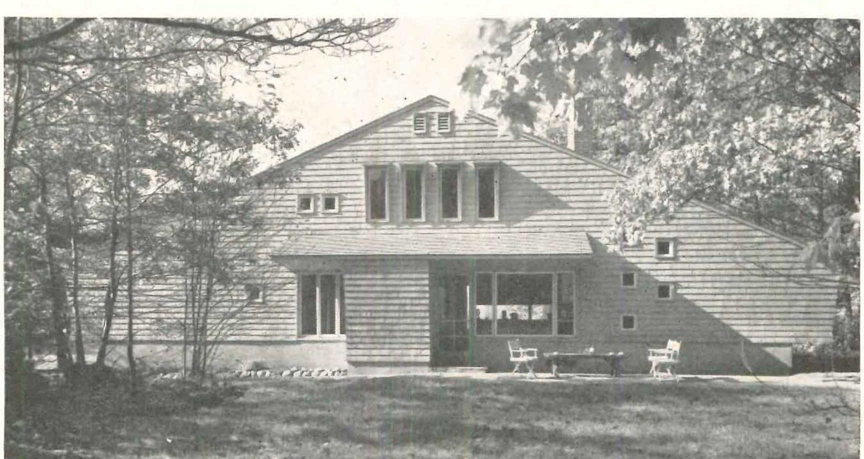


Ulf Wahlstrom photos

# THE SHINGLED COTTAGE GETS A SPIRITED NEW COUNTERPART

Sprightly and unconventional fenestration marks this new version of a shingled country cottage

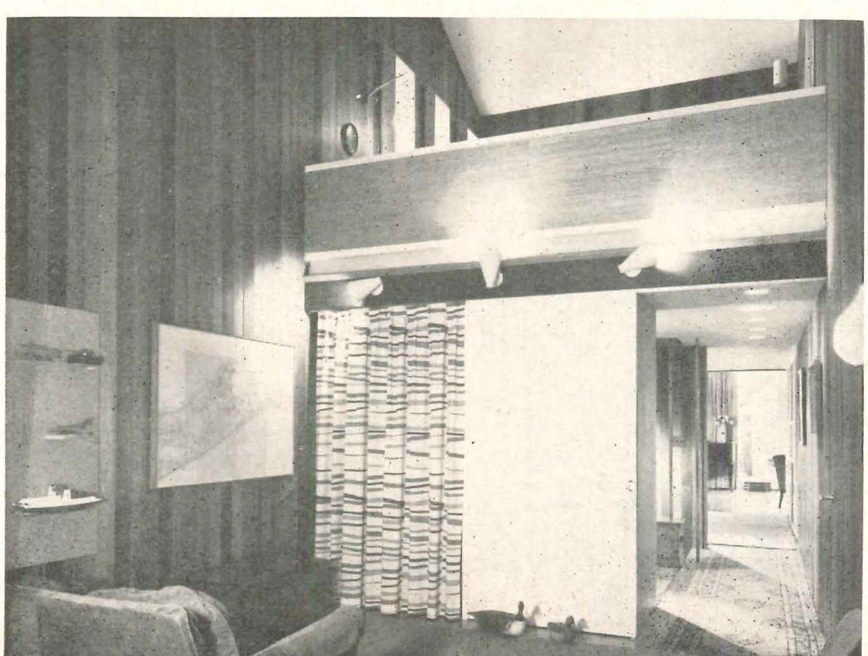
ARCHITECT: *Gordon Chadwick*
OWNER: *Henry Gardiner*
LOCATION: *Alpine, New Jersey*
HEATING ENGINEER: *Leslie Sterling*
LIGHTING CONSULTANT: *Martin Garon*
CONTRACTOR: *Joseph Lochte*
LANDSCAPE ARCHITECT: *Karl Linn*

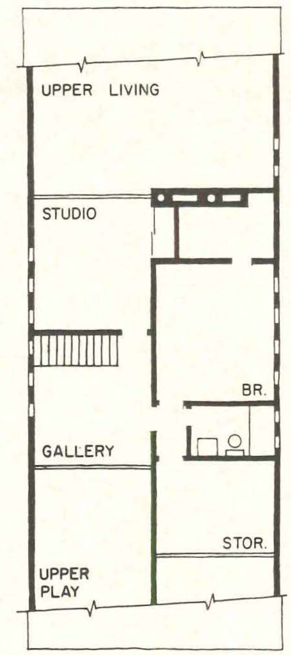


A great sense of variety was added to the otherwise simple design of this house by its unusual arrangements of windows. The site has a dense double row of trees dividing the lot. In a cleared area in the midst of them, the house was placed to divide the space into four outdoor areas of different character. Each side of the house was planned with a special group of windows to present a different view, and to afford a pleasant abstraction in their own arrangement.

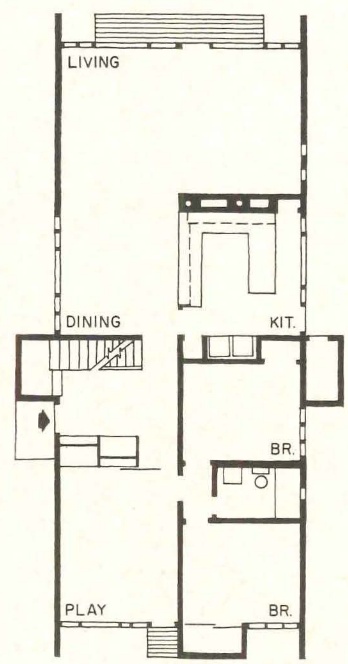
Interior ceilings follow the roof line, and the shape of the house is used to give vertical space to the two-story living and play rooms. Balcony rooms open onto these two-story areas, and add to the sense of spaciousness while providing relative privacy for work areas for the parents—a studio for the husband, and a study for the wife. These areas could be further enclosed if required.

The children's bedrooms and the playroom are at one end of the ground floor with a separate entrance. The lower floor can be opened to join the play and living areas together for large scale entertaining.






SECOND FLOOR




FIRST FLOOR

Interiors of the wood framed house are plaster and cedar boards. Exterior walls and roof are shingle. Floors are oak in major rooms, vinyl in the kitchen and tile in the baths. The solid wall in the living area has built-in strips to provide for movable shelves. A U-shaped kitchen has a combined work surface and eating counter for the children. A pass through with glass sliding doors opens the kitchen to the dining area (see photo at top)

BUILDING TYPES STUDY 306

®

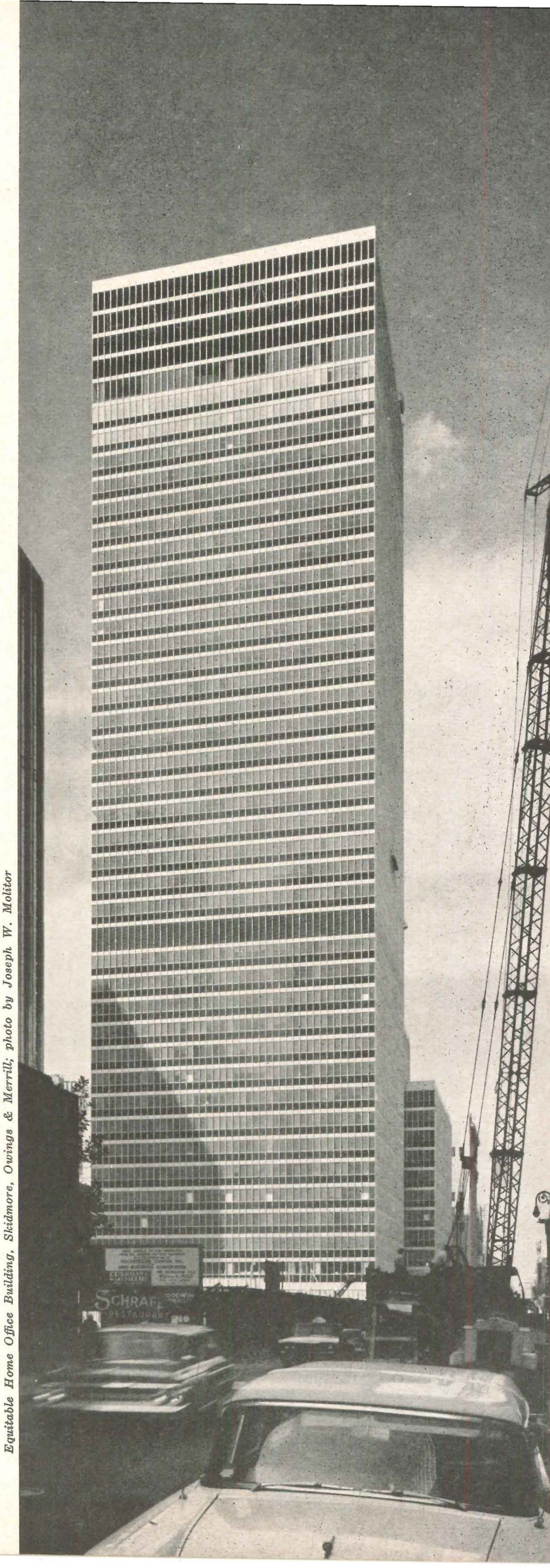
# OFFICE BUILDINGS

1. Home Office Building for Equitable Life
   —Analysis Establishes Owner Requirements
   —Planning Leads to Flexibility, Economy
2. Automatic Louvers Help Control Climate in Honolulu Offices
3. High-Rise Montreal Financial Center by Nervi, Moretti
4. Architects Steer Owner-Contractor-Leasing Agent Group
5. Pan Am Makes a Point—The Vertical City as a Planning Principle

Old controversies about the city and its place in human life—particularly old controversies about the city's tall buildings and their place in the functioning and esthetics of the city—like old soldiers seem never to die. Unlike the old soldiers, who may have a better sense of timing, these controversies never seem to fade away.

Meanwhile, owners continue putting their money into the construction of tall buildings. Owners and tenants alike continue moving their personnel and office machines into them as soon as the paint is dry. And architects, of course, continue to design tall office buildings for the city and get them built.

In the pages following is a quick survey of what architects are doing in office buildings these days. In it some indication of trends in design may be detected. For example, in spread-out, automobile-oriented cities such as Los Angeles, office buildings tend to be medium-rise and tied to parking garages. In denser cities such as New York, and now Montreal, the buildings go up higher and are oriented to mass transportation and the pedestrian. Also included is a fresh word on what may be the hottest current controversy of them all, the impact of the Pan Am Building on New York's Grand Central area.



*Equitable Home Office Building, Skidmore, Owings & Merrill; photo by Joseph W. Molitor*

TENTATIVE HOME OFFICE SPACE STANDARDS FOR DETERMINATION OF TOTAL DEPARTMENTAL SPACE REQUIREMENTS ONLY

| | Net Usable Square Feet * | | |
|---|---|---|---|
| | Office | Access ** | Total |
| A. Private Offices | | | |
| 1. Chairman, Vice Chairman & President | 400 | 175 | 575 *** |
| 2. Senior Vice President | 280 | 135 | 415 *** |
| 3. Vice President, 2nd Vice President & Other Officers | 280 | 135 | 415 |
| 4. Grades 16 to 18 | 280 | 135 | 415 |
| 5. Grades 12 to 15 | 210 | 100 | 310 |
| 6. Grades 7 to 11 | 140 | - | 140 |
| B. Open Areas (desk position) | | | |
| 1. Grades 1 to 6 | | | 85 |
| 2. Classifications E to F3 | | | 66 |
| 3. Classifications C4 to D4 | | | 54 |
| 4. Classifications A1 to C3 | | | 42 |
| C. Other | | | |
| 1. File Equipment | Width multiplied by 6 feet. | | |
| 2. IBM Equipment | IBM standards. | | |
| 3. Storage | As required. | | |
| 4. Conference Rooms | 25 sq.ft. per person for conference table arrangement; 8 sq.ft. per person for lecture room pattern. | | |
| 5. Reception | After need is established, size will depend upon requirements. | | |
| 6. Miscellaneous | As individual circumstances require. | | |

* actual floor space required for desk position, private office or other purpose.
** includes allowance for first clerical position.
*** plus private conference room.

Figure 1

# ANALYSIS ESTABLISHES OWNER REQUIREMENTS

## Home Office Building For Equitable Life*

*Prepared by the Real Estate Department of The Equitable Life Assurance Society of the United States*

Before the design of a large office building such as the new Equitable Home Office can proceed, a considerable amount of research and analysis of the needs of the company that will occupy it is needed. This is particularly true when the building is to be occupied solely by its owners, as in this case. Methods for gathering the necessary data, and the subsequent analysis of that data may vary widely between projects. However, the methods used for this building might well be applied—at least in part—to others.

As in many other businesses, the period following World War II has seen rapid expansion among insurance companies. Equitable has been no exception. During the post-war years, a great number of personnel have been added to the company home office staff. Space in the building occupied by the company was at a premium. The expansion necessitated moving a number of departments out of the building. During the three years or so prior to the beginning of construction of the new building, extensive reorganization of the space in the old building was required. Nearly every individual in the building was relocated at least once. This continuing relocation caused annoyance and inconvenience.

As it turned out, the relocation experiences were turned to advantage by a new company department, the Home Office Building Department, established to handle the development of a new building. The extensive remodeling of the old offices gave this department a chance to try out some of the standards eventually adopted for planning and construction of the new offices.

### SPACE STANDARDS

In order to establish standards for space to be allotted in the new building for various purposes, a thorough study was made of the company's existing offices. Data was gathered on office buildings recently erected by other insurance companies and of new construction in the New York area. The experience gained in remodeling of the old office building was used to advantage. Standards developed by other companies were studied. All of this information was tabulated and analyzed in the light of the particular needs of Equitable. Finally, tentative standards, as shown in Figure 1, were established. Further studies were made of requirements for data processing areas, file rooms, and other specialized spaces. Figure 2 shows the results of one such study.

All of the space standards were then submitted to the officers of the company, and after approval, were adopted as basic criteria for planning.

In all of these studies and those following, the Home Office Building Department acted as a service department. Its function was to receive information and instructions from the using departments, analyze this information and relate it to information from other departments regarding amounts, uses, and allocation of space.

### ESTIMATING TOTAL SPACE REQUIREMENTS

After approval of the space standards (Figures 1 and 2), the building department distributed a space estimation

*Joseph W. Molitor photos*

Open clerical area with conveyor

*For architectural, engineering and other credits see page 182

TENTATIVE HOME OFFICE SPACE STANDARDS FOR DETERMINATION OF TOTAL DEPARTMENTAL SPACE REQUIREMENTS ONLY

Item C.2

IBM Rooms

| Equipment | Net Usable Square Feet |
|---|---|
| facsimile posting, key punches, verifiers | 42 |
| sorters, collators, reproducers, summary punches, interpreters and statistical machines | 50 |
| form handling equipment (bursters, form decollators, etc.) | 50 |
| accounting machines | 100 |
| 604 & 607 computers | 120 |
| 650 & 705 equipment | as required |

Area allowances should also be made for the following, if required, in the IBM Rooms:

1. desk positions - in accordance with standards
2. file equipment - in accordance with standards
3. shelving - width multiplied by 4½ feet.
4. work benches and special cabinets - width multiplied by 6 feet.

Requirements for IBM installations, including all of the above, should be tabulated in detail and forwarded with "Estimated Home Office Space Requirements" form in support of space requirements under item C.2.

Item C.6

Provision should be made under "Miscellaneous" (item C.6) for coat rooms on the basis of 1½ square feet per person.

Figure 2

ESTIMATED HOME OFFICE SPACE REQUIREMENTS

(areas expressed in net usable square feet)

Department________ Div. or Bureau ________ Date ________

| Unit* - Sq.Ft. | Jan. 1, 1957 | | Jan. 1, 1960 | | Jan. 1, 1965 | | Jan. 1, 1970 | |
|---|---|---|---|---|---|---|---|---|
| | No. | Sq.Ft. | No. | Sq.Ft. | No. | Sq.Ft. | No. | Sq.Ft. |
| A. 1 575 | | | | | | | | |
| A. 2 415 | | | | | | | | |
| A. 3 415 | | | | | | | | |
| A. 4 415 | | | | | | | | |
| A. 5 310 | | | | | | | | |
| A. 6 140 | | | | | | | | |
| Total A1-A6 | | | | | | | | |
| B. 1 85 | | | | | | | | |
| B. 2 66 | | | | | | | | |
| B. 3 54 | | | | | | | | |
| B. 4 | xxx | | xxx | | xxx | | xxx | |
| | | | | | | | | |
| - | | | | | | | | |
| C. 6** - | xxx | | xxx | | xxx | | xxx | |
| Total C1-C6 | xxx | | xxx | | xxx | | xxx | |
| TOTAL DEPARTMENTAL REQUIREMENTS | xxx | | xxx | | xxx | | xxx | |

* as per "Tentative Home Office Space Standards for Determination of Total Departmental Space Requirements Only"
** plus private conference room

Approved

Figure 3

form, shown in Figure 3, to all departments and divisions. Along with this went a copy of the space standards. Senior officers of departments and divisions then studied their own projections for growth and reported back their estimates of personnel and space requirements. Estimates for four periods of time were reported:

1. Time of questionnaire (1957)
2. Approximate time of completion of new building
3. Five years after occupancy of new building
4. Ten years after occupancy of new building

In practice, the numbers of personnel were estimated, then multiplied by the space allocation standards for the types of personnel. When all of this information was in, line graphs were drawn and studied to determine whether or not the information from particular departments was in line with general tendencies indicated. Variations from the norm were analyzed and adjusted to conform.

About this time, two parcels of property were found to be available. Information on their sizes together with space requirements and zoning ordinance information would permit approximation of the size of the building necessary for the company's initial occupancy and for expansion.

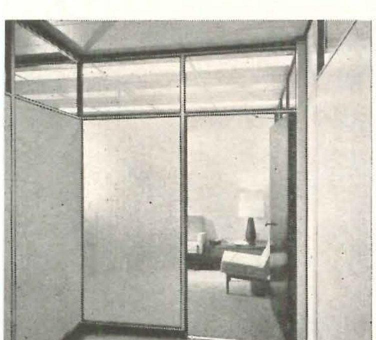
## NET USABLE AREA

In all of the studies made up to this point, net usable area had been the working measure. By this was meant floor area clear of all obstructions such as columns, air conditioning distribution units, partitions, or corridors; in other words, space which could actually be used by personnel and their office equipment. All space standards were established on the basis of net usable area.

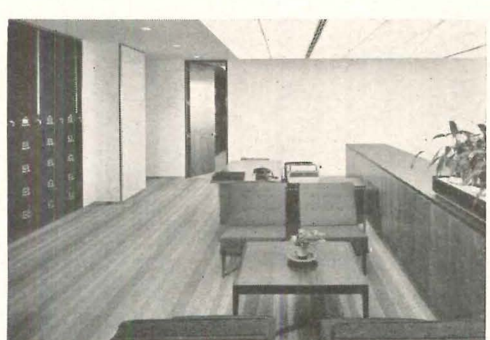
At a later time, further analysis would be required of the gross area, or area enclosed from out to out of the building. From gross area, some indications of actual building size and costs could be determined. Also, analysis of rental areas would be needed as an aid in determining the relationships between rental costs to the company in its own building and costs of leasing space in other buildings.

Before proceeding with these analyses, it was decided that information on functional requirements and specific needs of various departments was needed. Another questionnaire (Figure 4) was prepared and circulated to departmental and division heads. This was an effort to determine:

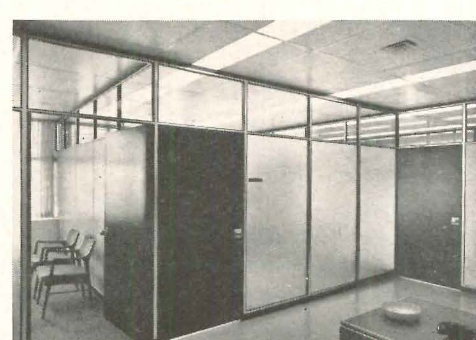
1. Nature of the work of departments and divisions
2. Preferred location of each, in relation to other



Office entrance from corridor



Executive floor reception area



View toward private offices

To: Home Office Building Department

From: ______ Division ______

Estimated Space Requirements - Survey November 1956:

1957 ______ sq. ft. 1960 ______ sq.ft. 1965 ______ sq.ft. 1970 ______ sq.ft.

I. This Division is generally responsible for:

II. (a) For functional facility, this Division should be located adjacent to:

Department ______ Division ______
Department ______ Division ______
Department ______ Division ______

(b) With adequate transportation and communication facilities, a location on the floor above or below (would be) (would not be) acceptable.

III. (a) In sending work to other Divisions the following mechanical equipment would be best suited for this Division's needs:

Pneumatic Tube ______ Conveyor - Vertical ______
Conveyor - Horizontal ______ Other (describe) ______

(b) This means was selected because:

IV. This Division requires the following special construction to provide for its operation.

(a) Additional power supply for electrical equipment ______
(b) Plumbing for ______
(c) Air Conditioning or exhaust system for ______
(d) Floor loading capacity for ______
(e) Soundproofing (other than acoustical ceiling) for ______
(f) Other requirements not normally incorporated in general office space for ______

V. This Division regularly (works) (does not work) on an overtime schedule.

VI. The following additional factors should be considered in determining the space allocation for this Division.

Prepared by: ______

Date ______

(Return completed forms in triplicate to Home Office Building Dept.)

Figure 4

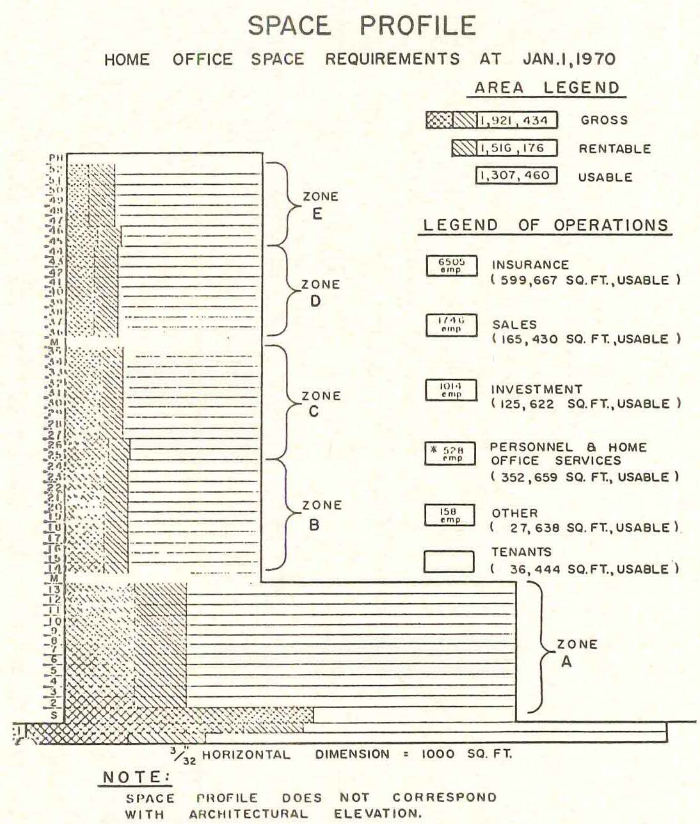



Figure 5

departments and divisions, for efficient operations

3. Methods required for transporting paperwork to and from departments
4. Special requirements for electrical power, air conditioning, plumbing, floor loading, etc.
5. Extent of overtime work (affected air conditioning requirements and flexibility)
6. Additional factors or suggestions

## SPACE PROFILE

After the second questionnaire had been completed and analyzed, and based on this and the other information available at this point, it became possible to draw space profiles of the projected building. As shown in Figure 5, these are profiles of the space requirements at a given point in time, drawn to scale. While a space profile does not represent the final form of the building, it does contain considerable information of value in planning. Drawn to a scale of 3/32 in. horizontal dimension equals 1000 sq ft of floor area, the space profiles for this building were drawn to include gross area, and cross hatched to indicate the relative amounts of rentable and net usable floor areas.

By using cut strips of paper of various colors in conjunction with space profile drawings, it was possible to study alternate locations for each division and each department. Relative positions between departments and divisions were studied, as were needs for expansion space.

During the time the space profiles were being studied and revised, the architects were proceeding with other analyses and preliminary drawings and specifications. In the meantime, work had begun on the development of typical office layouts and their relationships with such things as corridors, aisles, and floor dimensions.

## FLEXIBILITY AND THE MODULE

At first, a study module of 4 ft 8 in. was used. As shown in Figure 1, on page 178, early studies and surveys led to private offices of three sizes; 140, 210, and 280 sq ft (except for three top executives offices). Other approximate working areas were established. With this and related information, it was possible to lay out tentative office plans, as shown in Figures 6 and 7.

Thorough studies by the architects, taking into consideration spacing of structural steel, elevators, stairs, and so on, led to the adoption for the actual building of a 3-ft 5-in. module. As a result, actual office usable areas

File area with private office

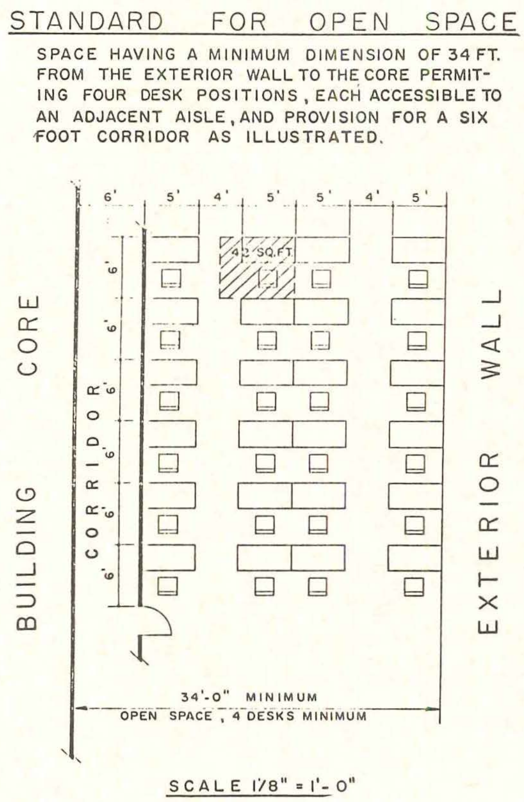



Figure 6

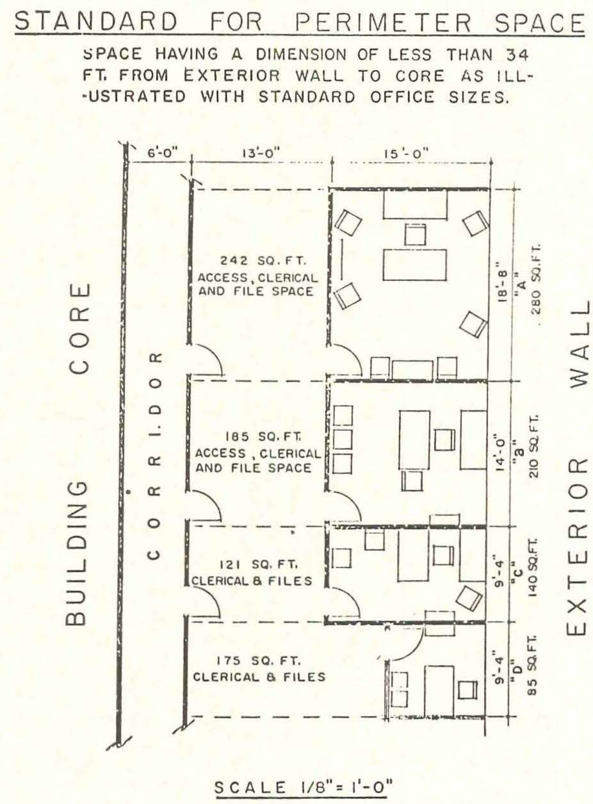



Figure 7

became 159, 212, and 265 sq ft.

The module was strictly adhered to in exterior walls, movable interior partitions, ceilings, lighting fixtures. As may be seen in the illustrations of building interiors, these elements are standard throughout the building, except for the top three executive floors. Accordingly, the spaces in the building are extremely flexible, lending themselves to rearrangement with a minimum of disruption and loss of time.

## SPACE FOR EXPANSION

As has been shown, the company space requirements for the time of initial occupancy, and for five years and ten years later, had been determined. One means of providing for expansion would have been the construction, originally, of a building large enough to meet future needs. Then all expansion spaces could have been located on certain floors, and short-term leases negotiated on these spaces. Such a move might have brought additional income into the company. This plan was decided against primarily because studies indicated that the return on the investment would have been insufficient to pay for short-term tenant changes and the actual costs of company moves into expansion spaces when required. Also, expansion spaces would not have been located correctly in relation to the expanding departments.

Instead, it was decided that expansion would be provided for in two ways, by provision of space near each department expected to expand and by planning for construction of additional space at a later date. Accordingly, expansion space for approximately five years was built into the present building. Further expansion will take place in new construction on land held by the company to the west of the present structure.

Corner suite-reception

Corner suite-private office

Corner suite-conference room

*Joseph W. Molitor photos*

# PLANNING LEADS TO FLEXIBILITY, ECONOMY

## Home Office Building for Equitable Life

*Home Office Building*
*The Equitable Life Assurance Society of the United States*
*New York, N. Y.*

ARCHITECTS: *Skidmore, Owings & Merrill*

PARTNER-IN-CHARGE: *Robert W. Cutler*

PARTNER-IN-CHARGE OF DESIGN: *Roy O. Allen Jr.*

PROJECT MANAGER: *Albert Kennerly*

DESIGN ASSISTANT: *Patricia W. Swan*

STRUCTURAL ENGINEERS: *Weiskopf & Pickworth*

MECHANICAL & ELECTRICAL ENGINEERS: *Meyer, Strong & Jones*

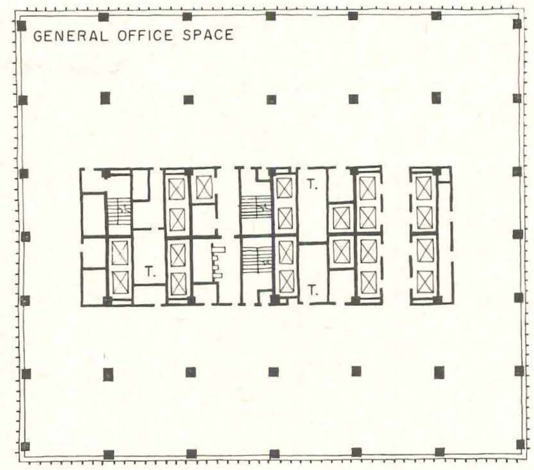
CONTRACTOR: *Turner Construction Company*

A number of things are notable about this building. It is one of the largest (1.5 million sq ft) office buildings occupied solely by its owners. Its program, design, planning, and detailing were meticulously and thoroughly analyzed. The result is a highly flexible, efficient workshop for the company that occupies it. Perhaps best of all, the base building cost closely parallels the cost of purely speculative office buildings in the New York area. Yet none of the speculative offices approaches the functional success of this building.

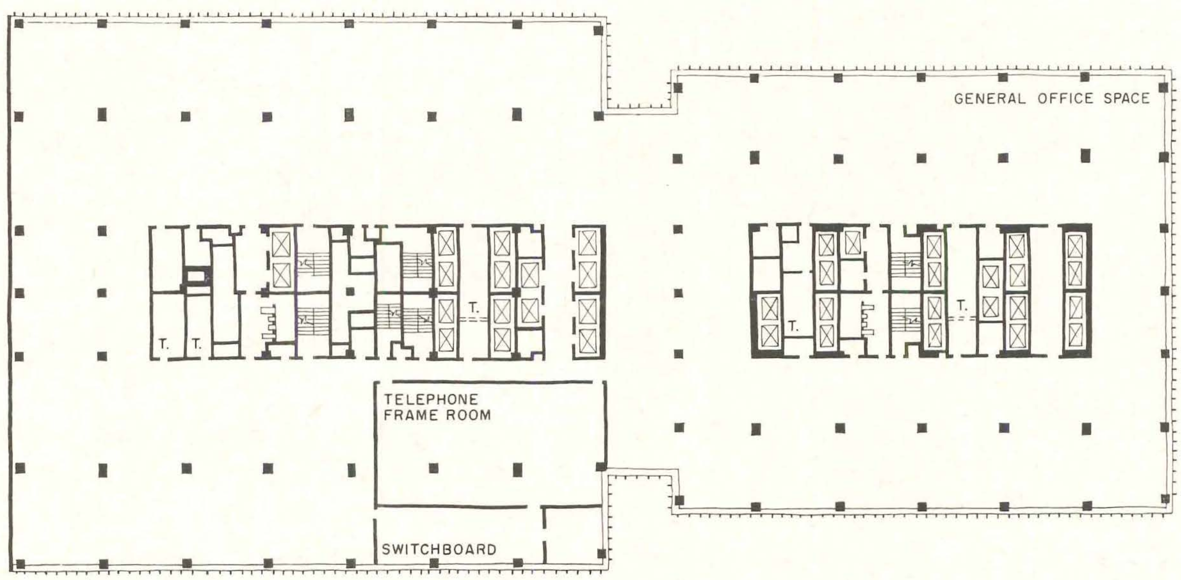
Possibly the most important factor in the success of this building is that all of the components have been combined into a workable system. Movable partitions, acoustical ceilings, light fixtures, work together visually and functionally. And all of these relate in a systematic manner to exterior curtain walls, corridors, and the building core.

A 3-ft 5-in. module is used in partitions, curtain walls. Doors fit into this module without side panels. Exterior columns, with their chases and fireproofing, are one module wide. Partitions have glass transoms over solid panels, which are a single color throughout the building; all center on mullions not on columns. All are uniform in height. Ceiling panels and light fixtures are also modular. The result is simple, clean design that is almost infinitely flexible.

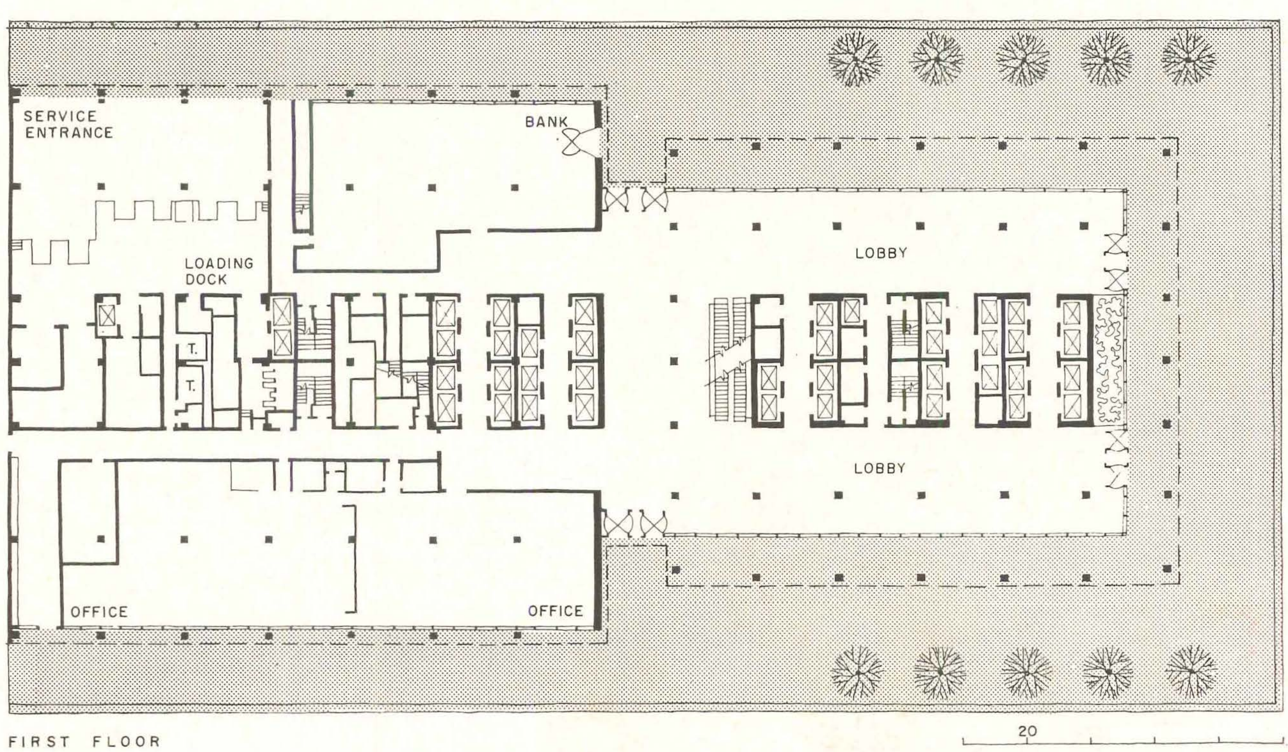
The Equitable Building has 42 stories plus a basement and sub-basement. As shown in the plans, it consists of a wide base, 16 stories in height, with a 26-story tower above the front portion of the base. The company owns additional property behind the building. This will eventually be used for expansion. The main floor contains the lobby and public rooms; the second is mainly devoted to employe dining and training rooms. The basement and sub-basement contain storage areas and shops. Except for the other mechanical floors (15M, and 40 through 41), all other floors contain offices of the company. The three top office floors contain executive offices, the board room, executive dining, and committee rooms. To increase the flexibility of space use, ordinary office floors were designed for loadings of 100 psf




17TH - 23RD FLOORS




4TH - 6TH FLOORS

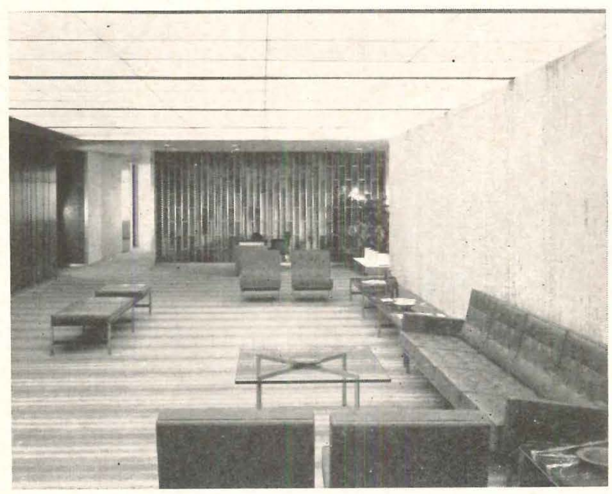



FIRST FLOOR

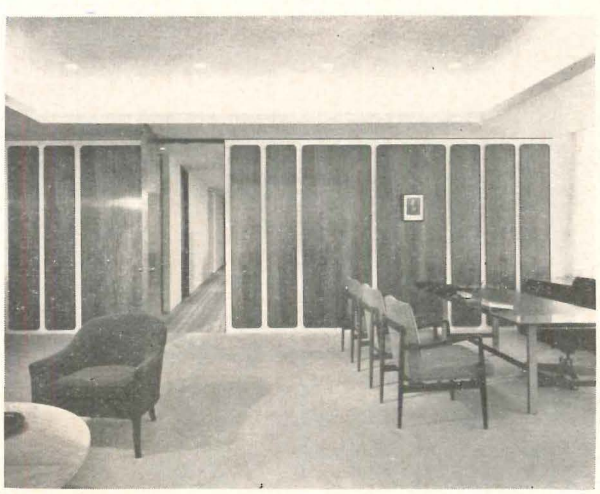
Information desk and escalators

Executive dining room

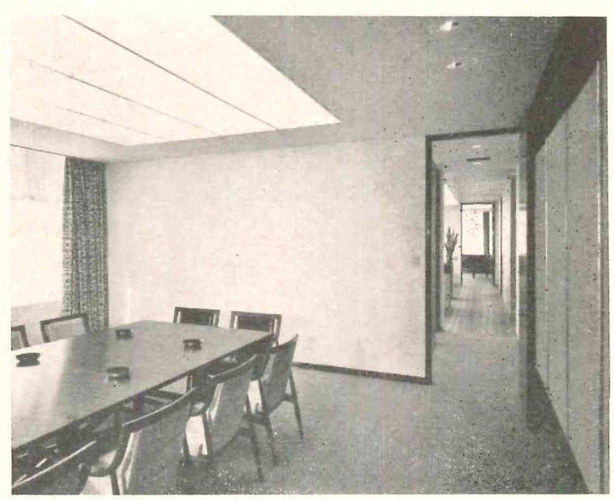
Reception area, 38th floor



Waiting lounge—executive area 36th floor



Executive office



Executive conference room 37th floor

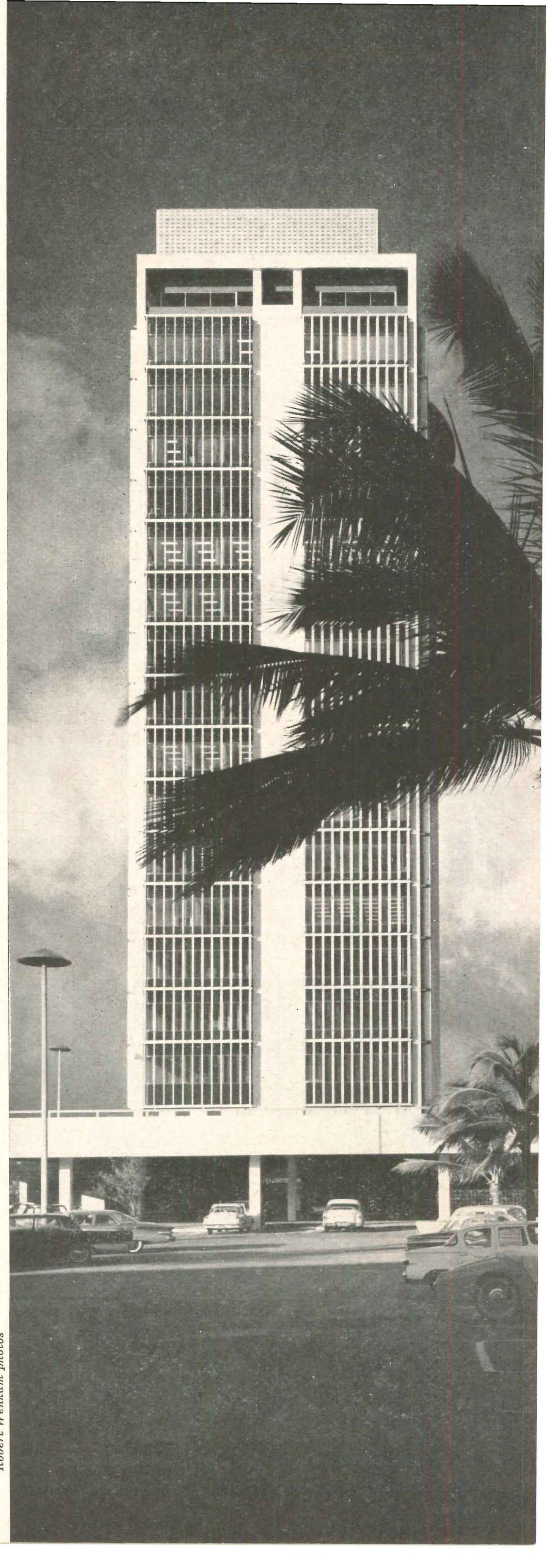
The architects designed the interiors for the lobby, employe dining areas, and the 38th floor shown in the illustrations. Maria Bergson Associates handled the interiors on the 36th and 37th floors and the officers' corner suites throughout the building. Non-standard partitions, acoustical ceilings, and light fixtures were used in these areas. The building structure is steel frame with an aluminum and glass curtain wall. Standard flooring throughout the building is vinyl asbestos, with quarry tile, ceramic tile, terrazzo, and carpeting in specialized areas. Heating and cooling are accomplished with steam and steam-driven refrigeration units with window units and conventional registers

# AUTOMATIC LOUVERS HELP CONTROL CLIMATE IN HONOLULU OFFICES

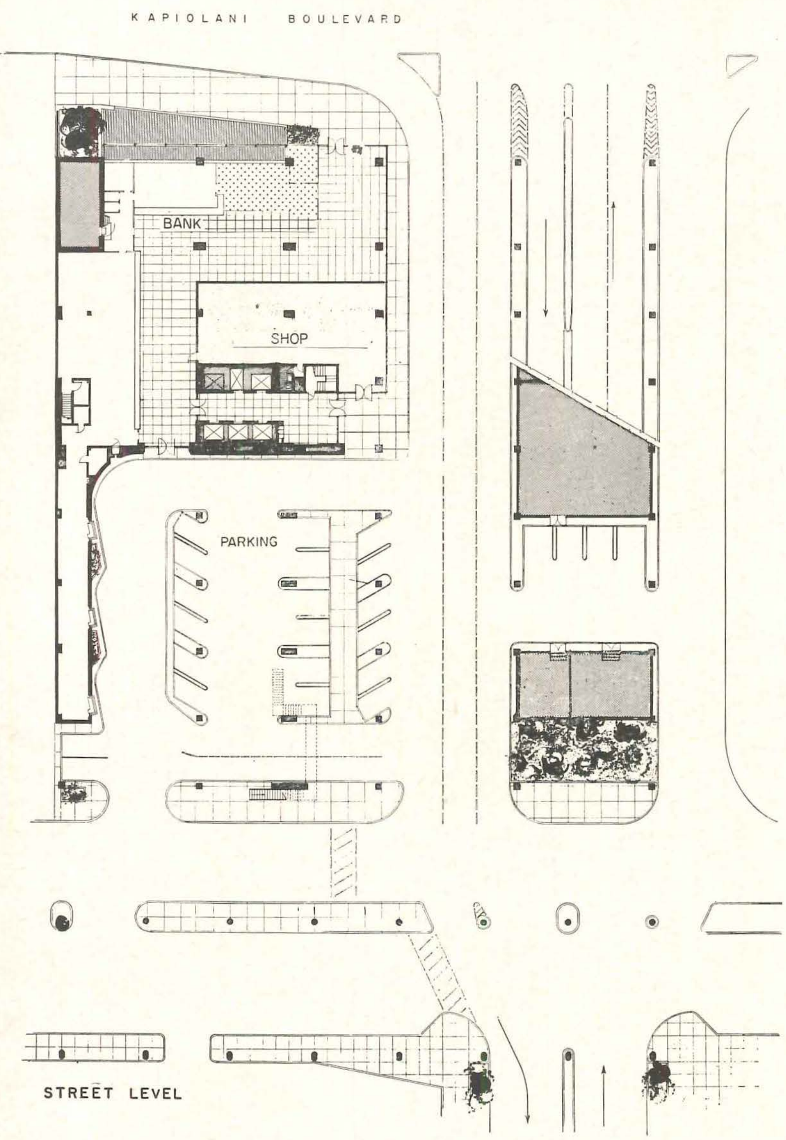
*Ala Moana Building*
*Hawaiian Land Company, Ltd.*
*Honolulu, Hawaii*
ARCHITECTS & ENGINEERS: *John Graham and Company*
CONTRACTOR: *Owners*

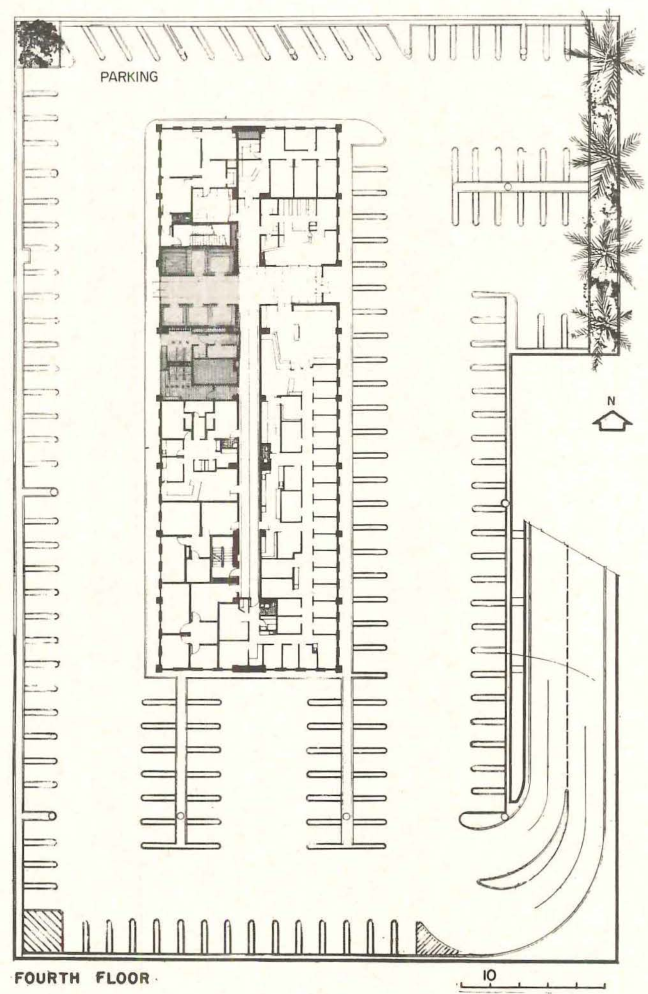
This building is completely air conditioned and wrapped in movable sun shields that automatically open and close as the sun moves around the building. From cost studies made by the architects, it would appear that the sun shields take the place of about 170 tons of air conditioning, a saving of approximately 25 per cent. The moderate Honolulu winter climate makes heating unnecessary and none is provided.

The building is an integral extension of an adjacent shopping center. It is 22 stories high and has a revolving restaurant on top. Circulation of pedestrians flows freely between the office building and the shopping center, but each unit has its own parking facilities for automobiles. Preliminary studies indicated that reinforced concrete would have a cost advantage over steel, partially because of local labor rates and freight costs. The owners had constructed the shopping center of prestressed concrete. The prestressing plant used for this work was available. Accordingly, after studies showed prestressing would be feasible, the building was designed and constructed with prestressed concrete girders and beams, combined with poured-in-place concrete columns.

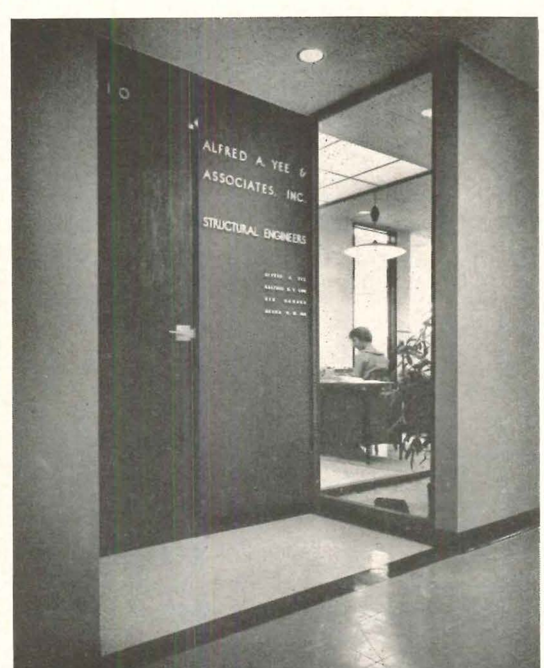


*Robert Wenkam photos*

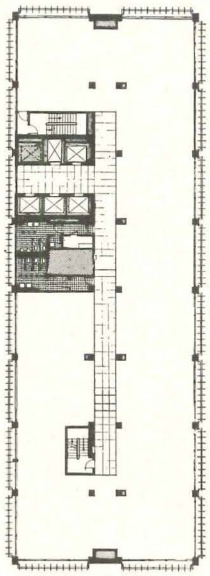


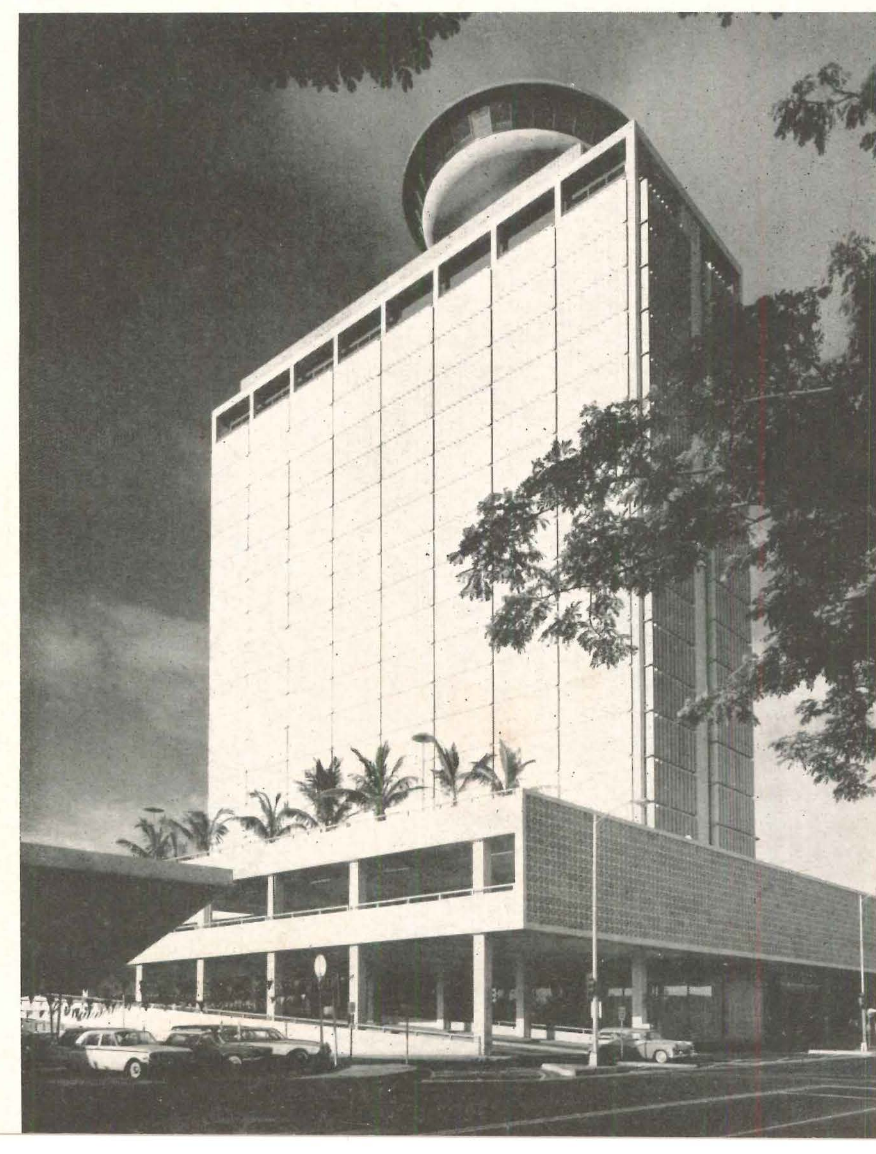

Vance Fawcett Assoc. offices, M. Tatom, architect




Alfred Yee Assoc. office, George Doddy, architect

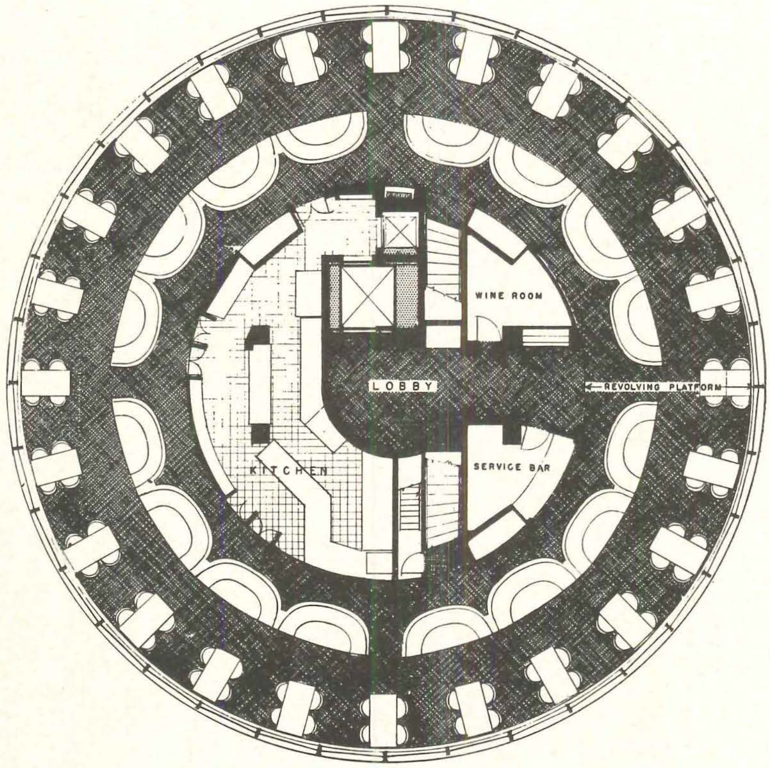


TYPICAL FLOOR

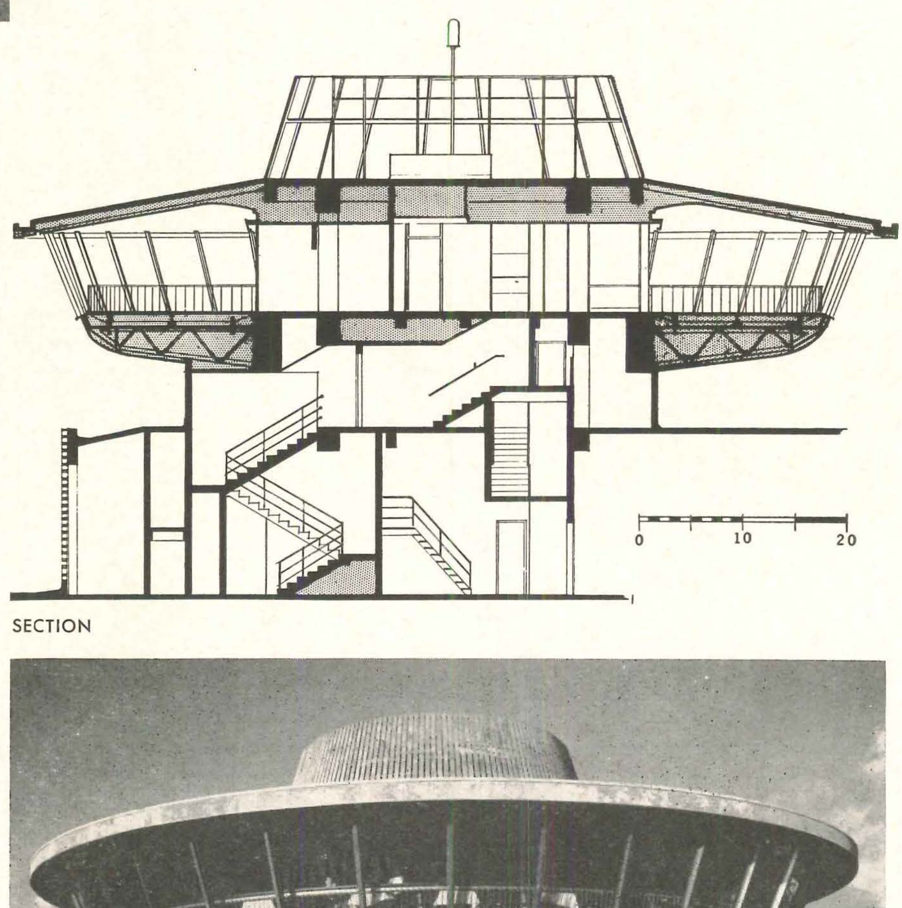


The office building and the adjacent shopping center work together to form an integral unit containing a variety of stores, parking, medical facilities, offices, and a bank. The shopping center has its own parking. The office building has one parking space per 1000 sq ft. located on the third and fourth floors, with ramps for access. The ground floor bank is provided with a number of parking spaces on its own level. The third floor of the building is on a level with the mall of the shopping center and is connected with it by a continuous deck. This floor is occupied by service offices such as insurance and advertising agencies and a coffee shop. The fourth through seventh floors are reserved for medical offices; the remaining floors are leased as general offices with the top four office floors reserved for the owners and the 21st floor for mechanical equipment.

The illustrations at the right show how the movable, automatic sun shield louvers operate on this building. In the upper photograph, the sun is just beginning to touch the top portion of the building and the louvers are standing full open. As the sun moves around the building, the louvers gradually close to block sun rays from the exterior wall, until louvers are fully closed as shown in lower photograph




PLAN



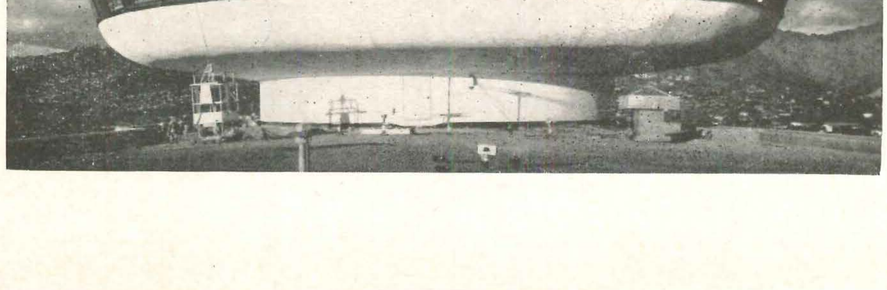

SECTION

## La Ronde Restaurant

To take advantage of the panoramic 360-degree view of Honolulu, Diamond Head, Waikiki, and points in between, the architects of the Ala Moana Building placed a round restaurant on top. The restaurant was designed so that its outer ring, where the diners sit, revolves. At a rate of one revolution per hour, patrons are thus able to take in the entire scope of the scenery that surrounds them.

Restaurant window-glazing is tilted outward from its base to help eliminate glare. Tables and booths are oriented toward the view outside.

Structurally the outer, revolving, ring of the restaurant is cantilevered from a 38-ft fixed concrete central core. All plumbing, stair wells, elevators, kitchen and other facilities are contained in the non-revolving core. The revolving portion is mounted on 48 plastic wheels of 12-in. diameter and is driven by a three-horsepower, high torque motor. Two other motors act as standbys in case of failure. Operation is smooth, quiet, and free from vibration



# HIGH-RISE MONTREAL FINANCIAL CENTER BY NERVI, MORETTI

*Place Victoria Towers*

*Place Victoria-St. Jacques Co., Inc.*

*Montreal, Quebec*

ARCHITECTS & ENGINEERS:

*Pier Luigi Nervi and Luigi Moretti*

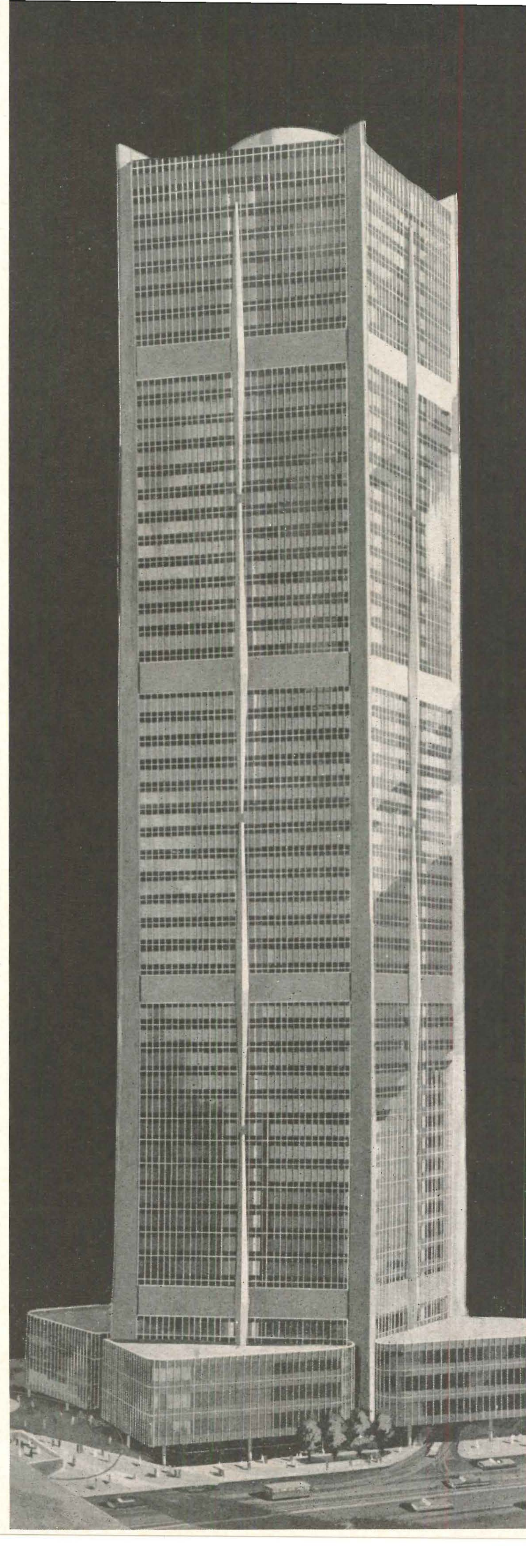
ASSOCIATE ARCHITECTS: *Jacques Morin and Greenspoon, Freedlander & Dunne*

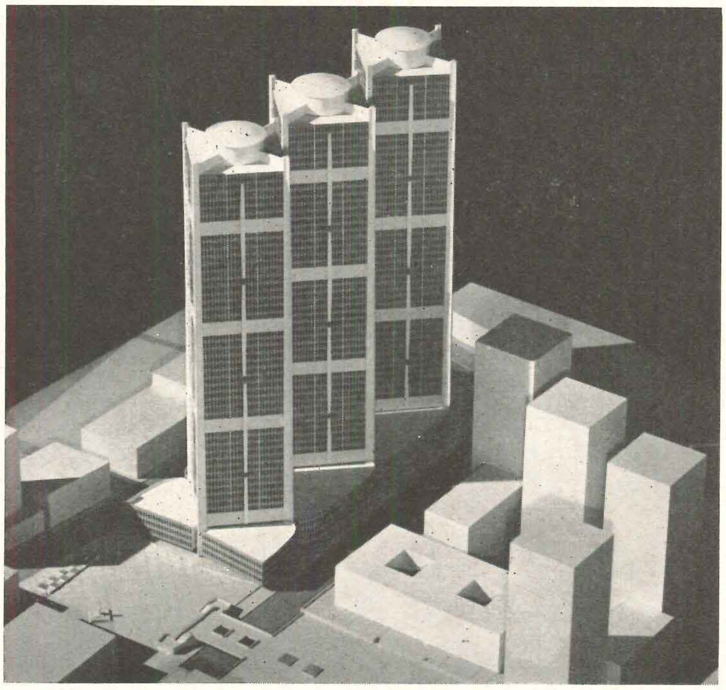
CONSULTING ENGINEERS: *J. B. Carswell, d'Allemagne & Barbacki, Letendre Monti & Assoc., Guy B. Panero, Inc., Mario Salvadori and Paul Weidlinger, Wiggs, Walford, Frost & Lindsay*

PROJECT MANAGERS: *Panero-Weidlinger-Salvadori, Ltd.*

In Place Victoria Towers, the combination of interest factors is almost unbeatable—design by Pier Luigi Nervi and Luigi Moretti, the use of high-rise towers to unify the financial district of a great city and the three identical 50-story towers of reinforced concrete. In addition, the structural design holds considerable interest. Loads are mainly carried by four exposed columns at the corners of each tower, and four core columns. The core columns are connected together into concrete X-frames that run the height of the buildings and act as shear walls. There are eight intermediate columns placed in pairs between the corner columns.

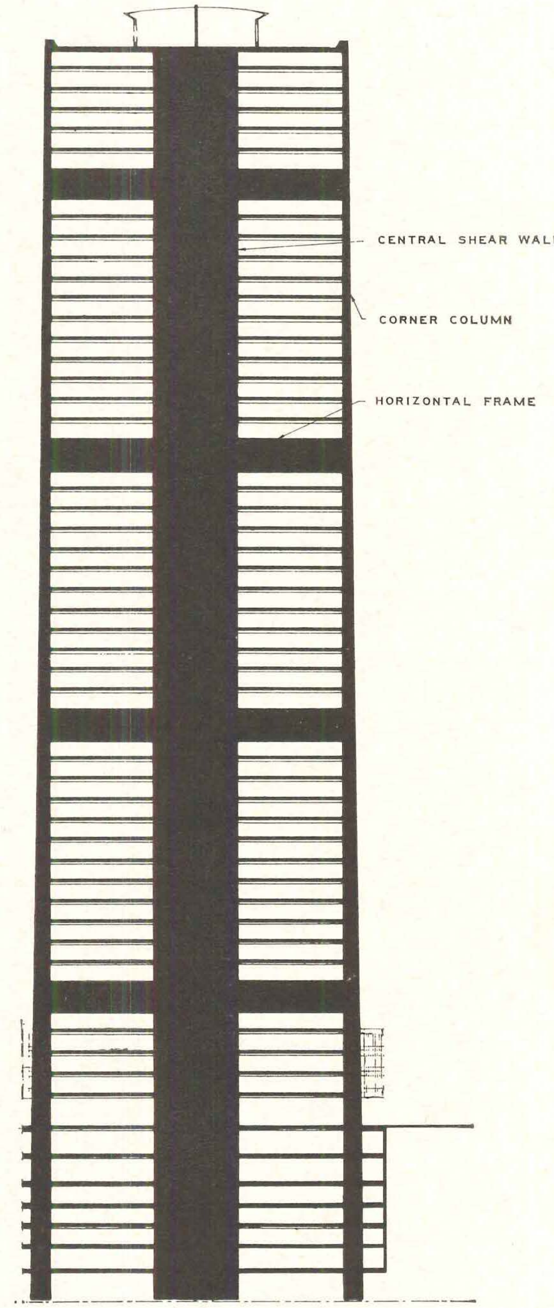
Corner columns are 9 by 9 ft at their bases and taper to approximately 4 by 4 ft at the top floor. They are connected into the X-frame shear walls of the building by rigid horizontal walls at each of the mechanical floors (6th, 19th, 32nd, and 45th). The columns are exposed to outside temperatures that range from about 95 degrees F down to minus 25 degrees F. Consequently, they required insulation to guard against movement which might have been as much as four inches and which would have placed excessive forces on the horizontal shear frames.



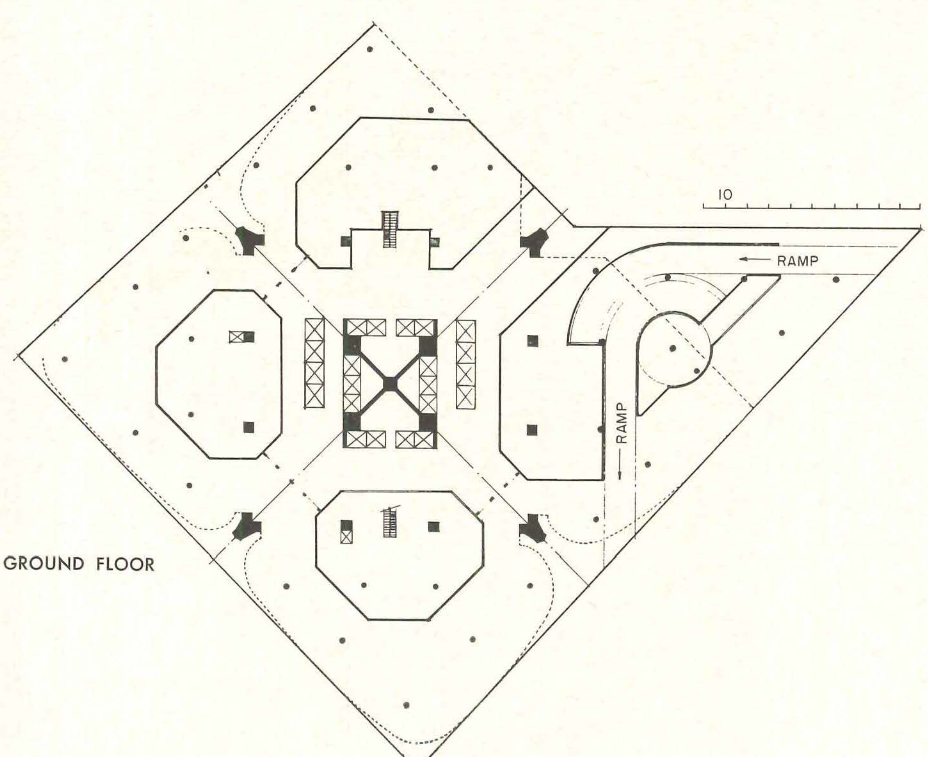


The first tower of Place Victoria is now under construction, and is expected to be complete in 1964. The other two towers will follow shortly after that time. Eventually, it is expected that the full facilities of Montreal's financial district will be housed in the towers. This would mean both the Montreal and Canadian Stock Exchanges, the Mercantile Bank of Canada, the Mercantile Trust Company, plus broker's offices and other facilities related to the financial life of Canada. Finally, the complex will have several restaurants and cafeterias, clubs, auditorium, and other facilities needed to round out the center.

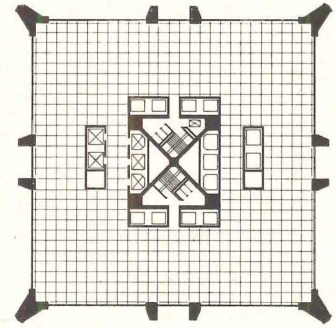
The appearance of the buildings will derive mostly from the large, tapering concrete corner columns and the curtain wall of glass and aluminum. Concrete facing on the mechanical floors will show as horizontal bands between the expanses of curtain walls. Vertical air conditioning ducts will be exposed at mid-points between the corner columns




SECTION




GROUND FLOOR



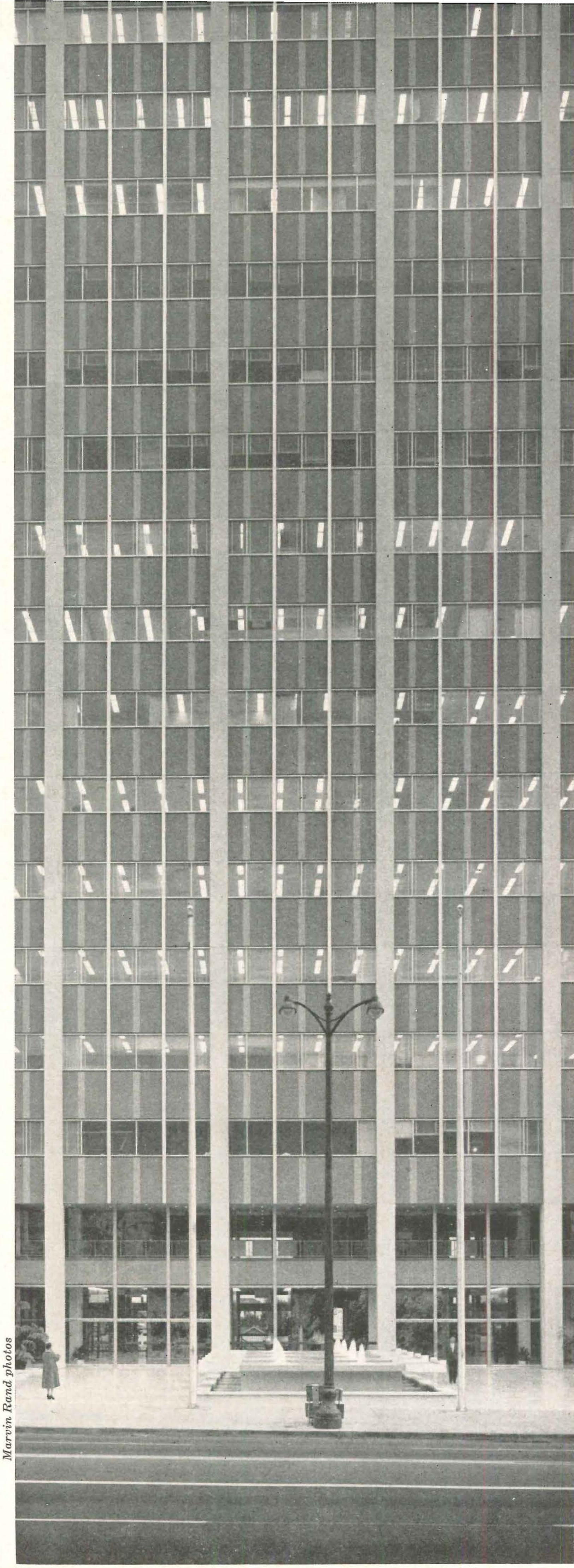
TYPICAL TOWER PLAN

# ARCHITECTS STEER OWNER-CONTRACTOR-LEASING AGENT GROUP

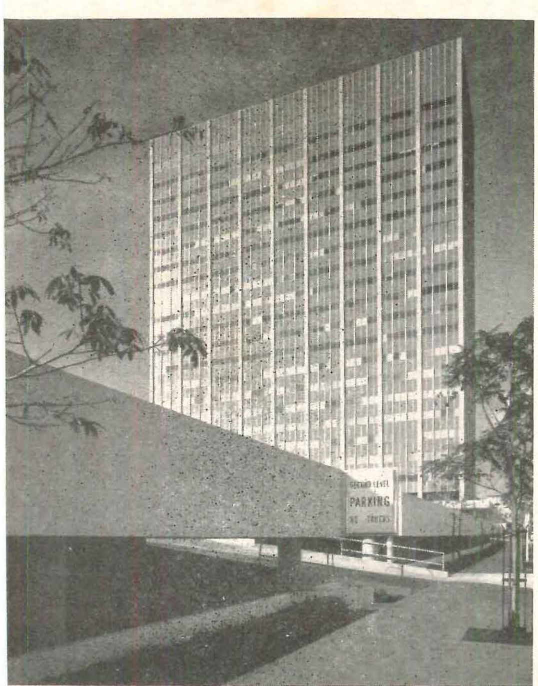
*Travelers Building*
*The Travelers Insurance Company*
*Los Angeles, California*
ARCHITECTS-ENGINEERS: *Welton Becket and Associates*
STRUCTURAL ENGINEERS: *Stacy & Skinner*
LANDSCAPE ARCHITECT: *Robert Herrick Carter*
CONTRACTOR: *George A. Fuller Company*

This office building is the result of a kind of architect-steered cooperation between owners, contractor, and leasing agent that seems to be something of a growing trend, particularly among such experienced clients as Travelers. The procedure followed here started with the simultaneous selection of the architectural firm, the contractor, and the leasing agent, all as the result of negotiation. Then when the architects were working on the programming and design of the building, they had ample opportunity for consultation with the other members of the project group. Roger Wilkins, vice-president of Travelers represented the owners throughout. The architects found him to be "extremely knowledgeable in office building techniques and procedures and instantly available to designers and project people when client decisions were necessary. This close cooperation with owners, contractor, and leasing agents resulted in a building that came in under the budget and answers the needs of the client very well indeed."

The finished building now holds the height record, of 22 stories, for Los Angeles. By the standards of many other large cities, this is not particularly high, but Los Angeles is an automobile-oriented city. The relative height, as well as the ever-present parking facilities, reflects the impact of the automobile on its buildings.

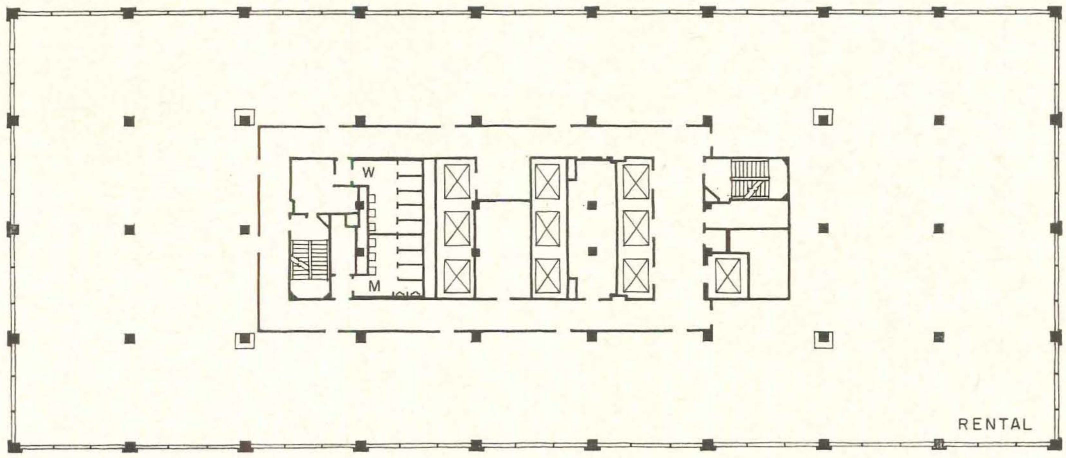


*Marvin Rand photos*

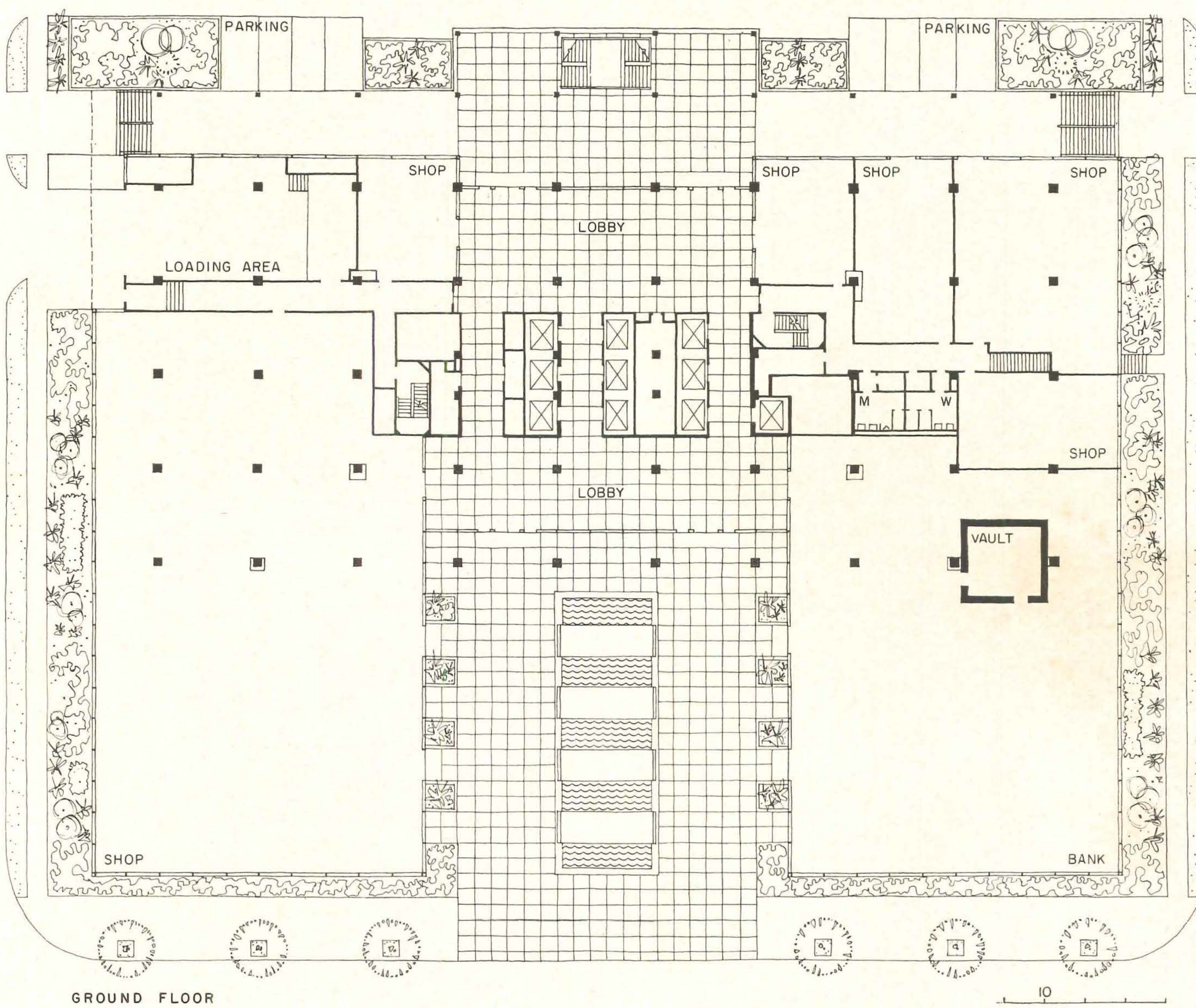



Five and a half floors of the Travelers Building are occupied by the company's regional offices. The others are leased to other companies. The ground floor contains a bank, a stock broker's office, and several small shops. Just off the entrance from the plaza, in front of the building, is a restaurant and cocktail lounge. At the rear of the building is a parking garage for 820 automobiles.

The architect was selected and contracts negotiated simultaneously with the contractor and leasing agent. When program materials and schematics had been completed, the architects had them reviewed by each of the others and by the owners for suggestions relating to their particular interests. The leasing agent furnished data showing that most tenants in the Los Angeles area need small amounts of space; the contractor offered advice on the structure and construction methods. This sort of cooperation continued until preliminaries were complete. Then the contractor developed prices and the architects a preliminary estimate. After a few modifications, the contractor agreed to construct the building within the estimates. Construction excavation began almost at once, and was followed by foundation work while working drawings were being prepared. During this time the contractor took sub-bids. The final result was fast construction at a cost well within the budget estimates




TYPICAL FLOOR




GROUND FLOOR

Plaza in front of building

Gyorgy Kepes Venetian glass mural in lobby

Main banking area

The area in front of the building is opened up toward Wilshire Boulevard with a plaza. On either side of the plaza, one-story wings extend from the main building to the sidewalks. By recessing the second floor 8 ft from the front of the building, the architects created an entrance wall of glass, 25-ft high. Through it may be seen the mural of Venetian glass mosaic, called "The Life Cycle," done by Gyorgy Kepes for the interior walls opposite the glass. The mural is divided into four panels representing childhood, youth, maturity, and old age. Building structure is steel frame. Exteriors are aluminum and glass curtain walls with spandrels of blue Venetian glass mosaic tile. Columns are finished with exposed quartz aggregate

*In Defense of the Pan Am Building*

# PAN AM MAKES A POINT

*by Emerson Goble*

A plea for the vertical city as a planning principle, a three-dimensional city planned for pedestrians instead of automobiles

Many architects with whom I have talked have expressed some measure of disapproval of the now-building Pan American Building over Grand Central. The huge tower seems to do violence generally to the habits of thought of architects who feel it's too big.

But I don't think that our normal intuition is an entirely reliable guide to the judgment of this particular situation. I feel that the Pan Am Building does represent the necessities of its time and its site —and I don't mean just the financial necessities— and I have the feeling that it is important for architects to examine the development of a vertical city like New York, and to realize the forces that form the business community. The Pan Am Building is big, but its bigness contains positive values.

Indeed its bigness might be considered an asset. An asset not as a visual focus, though that has been argued about, but as a contribution to the working of the city life. I should make it clear that I am not concerned here with its architectural merits or demerits, or with its appearance in relation to its neighbors, both of which considerations might produce debate; I merely want to make a point about city planning.

The point can be simply stated: the business community works best in a vertical city, a three-dimensional city. Would you rather conduct business affairs in New York City or in Los Angeles? The vertical versus the horizontal city. In the Grand Central district you frequently—usually—make business calls on foot. In Los Angeles you get your car out of the parking lot and drive. The essential difference is that Los Angeles is a city of automobiles; New York is a city of pedestrians.

Either you plan for pedestrians or you plan for automobiles. If you get business people close enough for business intercourse to be done largely on foot, you can keep most of the autos out and have a pedestrian community.

In its big office districts—Wall Street and Grand Central—New York is developing as a pedestrian city, and the Pan Am Building, being so large, aids in that direction rather than hinders.

If the skyscraper is America's distinctive contribution to the world's architecture, it is also America's contribution to the functioning of the large city, or even the not-so-large city. It takes advantage of the third dimension of the business center. It makes full use of the invention of the elevator to enable people to concentrate or congregate in a three-dimensional manner.

Congregation is, after all, the principal function of the city. It is the purpose, the positive value of the city. In order to conduct business—or to do almost anything else—people must congregate. In city planning circles there has been an almost automatic assumption that concentrations of people are objectionable. There are different words for it: congregation, concentration, congestion. And the city planner seems always to use the word congestion, with its negative implications. But whatever the word, the city has its functions, its positive values. And the skyscraper makes a contribution to the congregation of people for business purposes.

The familiar argument against the Pan Am Building is wrapped up in the word "congestion." The building will cause congestion, or increase congestion, and so it will be a frightful monster added to an already congested city. So goes the argument.

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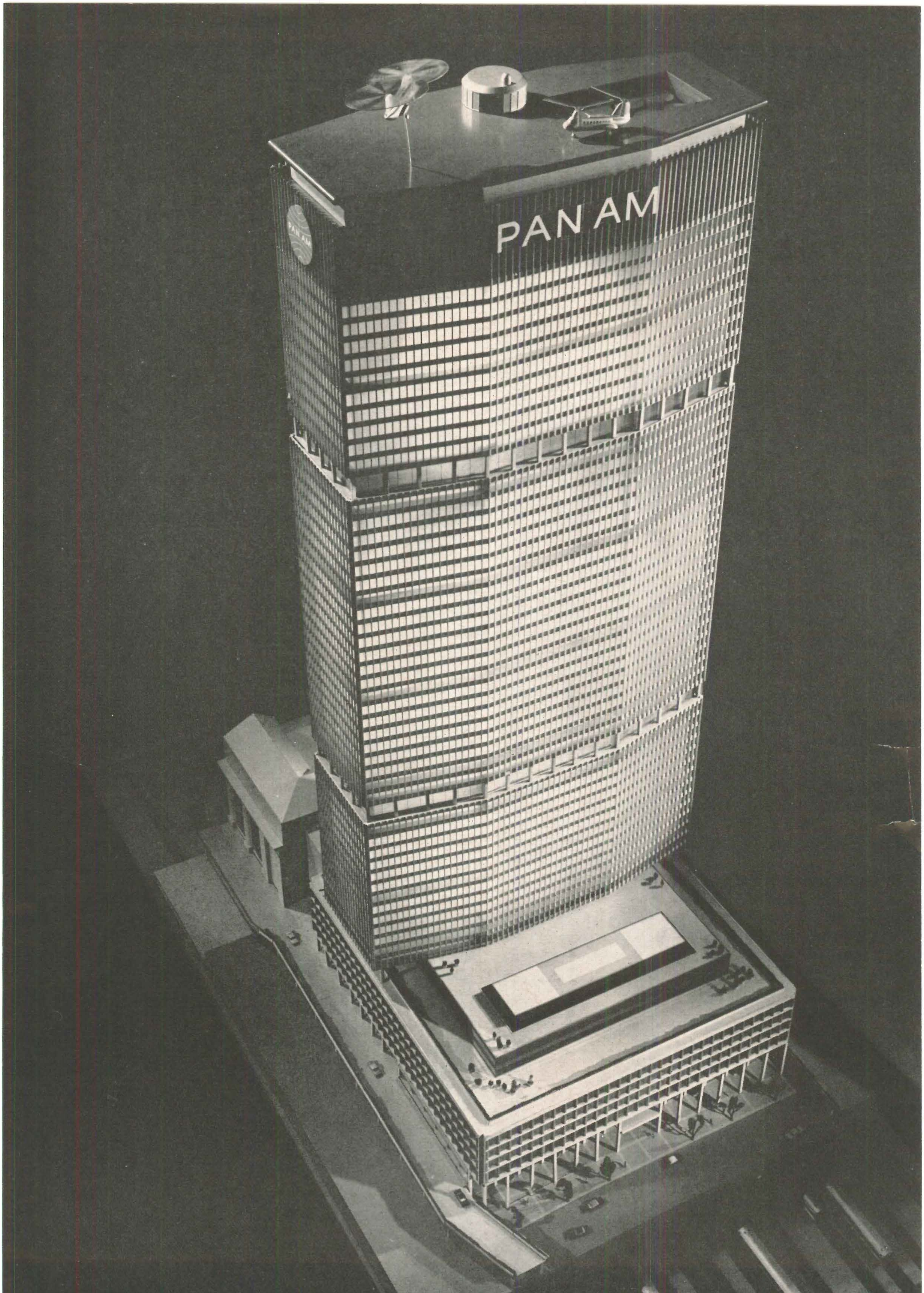
OWNERS: *Grand Central Building, Inc.*
*Erwin S. Wolfson, president, Jack Cotton, chairman*
ARCHITECTS: *Emery Roth & Sons*
DESIGN CONSULTANTS: *Walter Gropius*
*(The Architects Collaborative)*
*and Pietro Belluschi*
STRUCTURAL ENGINEER: *James Ruderman*
MECHANICAL AND ELECTRICAL ENGINEERS:
*Jaros, Baum & Bolles*
LIGHTING CONSULTANTS: *Lighting by Feder*
CONTRACTOR: *Diesel Construction Company, Inc.*


PAN AM

It will bring thirty thousand people (24,000 more than the old building contained), it will crowd the subway and Grand Central Terminal by this much more, and cities shouldn't be that crowded. The architects and builders are guilty of going against principle. The site should be left vacant. There ought to be a law. Private enterprise has gone too far. It is easy to become quite emotional, when this line of thought gets started, when it seems that the building violates laws of human welfare. It is natural to become defenders of the little man.

Well, a calm look is indicated. I doubt if the little man is going to need any champions in this particular instance; I doubt if the building violates any laws of human welfare. It is true, of course, that the tall building brings more people to the same spot, the same city block, but that is its function. Examination of the plans of Pan Am shows that business people on the streets—pedestrians—will find circulation aided by the construction of the building, because it is planned to open up Grand Central toward the north where it was formerly blocked by the old office building. Pan Am will have a huge pedestrian concourse leading directly from the heart of the station, through the building to 45th Street and to upper Park Avenue. Moving stairs will lead from the main concourse of Grand Central Terminal directly to the ground floor level of the Pan Am Building, and a 40-ft promenade will go through the building, opening both to the north and to the west at 44th and 45th Streets. The Pan Am Building is planned for pedestrians.

### PAN AM BUILDING DEFENDED

*by Charles Abrams*

I have heard a great deal of opposition to the Pan American Building over Grand Central Terminal; some planners have said that it is too high and should be spread out. The fact, however, is that height in office buildings around Grand Central concentrates people within walking distance from station to workplace, whereas horizontal spread of office buildings increases the number of cars and taxis which must carry the people to buildings and mass transport. High density office areas hold automobile transportation to a minimum. Low, spread-out buildings increase the burden of traffic. Wall Street, for example, is the densest area in the world, but has no major traffic problem. Mercer Street has, not because of height, but because of the type of business. What are needed are more and better subways and mass transportation and less dependency upon the single car to get from one place to another. Space in Manhattan is limited but it is the metropolis downtown and should be carefully planned within those limits. To improve walkability, New York City should appoint a Commissioner of Pedestrians who might change a few downtown streets into no-way streets, create some interesting pedestrian islands, install a few bicycle paths and generally protect the nonprofessional streetwalker. Japan's Ginza districts, which are nothing more than old alleys roofed over with awnings and barred to traffic, emphasize how popular shopping centers can be if autos are banned.—*Excerpt from article on urban planning; see page 155.*

### VERTICAL CITY, OR HORIZONTAL?

The point of it all is verticality versus horizontality. The importance of the Pan Am Building, planningwise, is its verticality. Or more specifically, its verticality in its exact location. It will concentrate 30,000 people in just the most convenient location; convenient that is, not only to transportation, but also to other office buildings in the ever-growing Grand Central area. It will move a lot of people up and down instead of horizontally. And keep them within walking distance (or perhaps even elevator distance) of a great many business contacts. Thus does the vertical city operate.

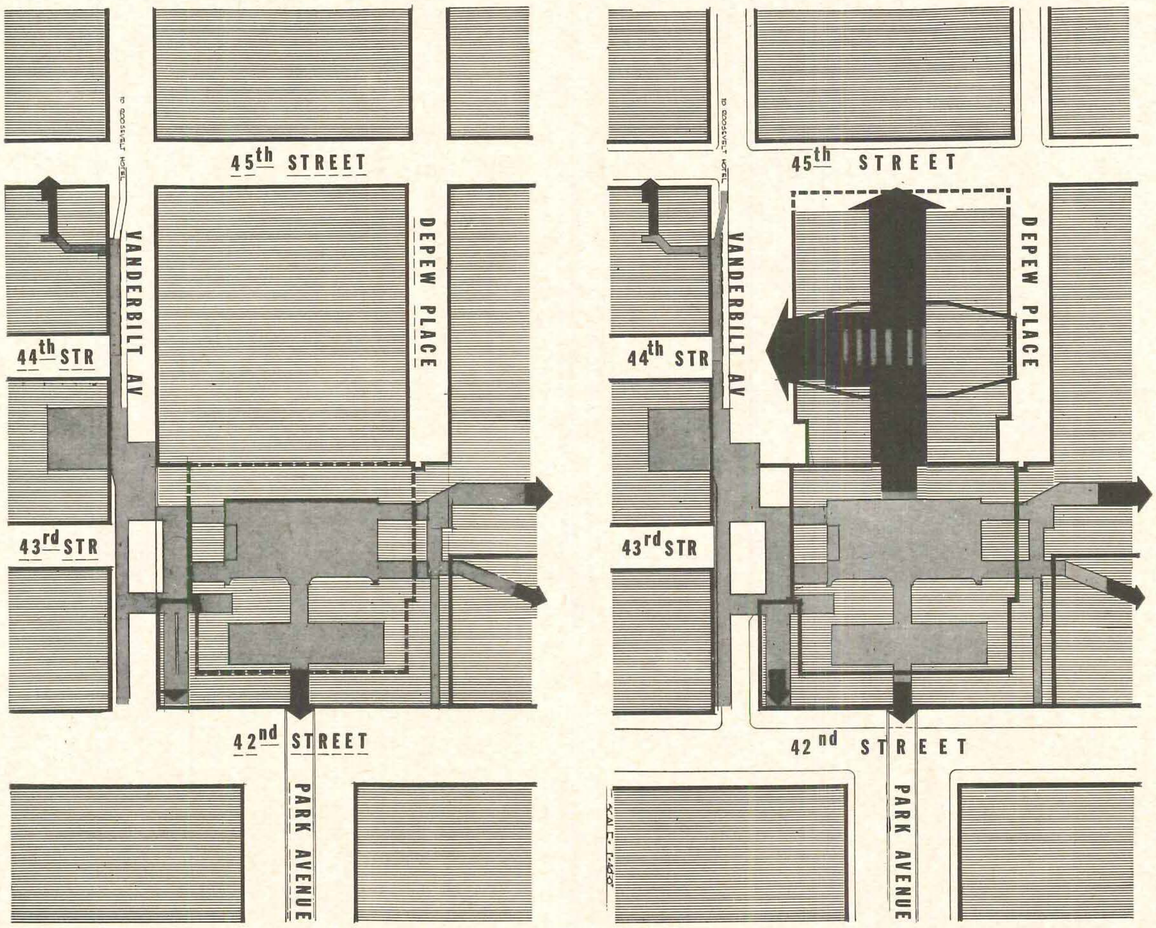
Thus does the Wall Street district operate. In Wall Street you see thousands and thousands of people on the streets, but almost never a private automobile; even the taxi traffic is minimal. Indeed some of the downtown streets are off limits for all automobiles. Nobody would think of driving from here to there in the Wall Street area. So the famous deep canyons function well for the workers in the beehive. Personal contact is quick and easy; everybody is close together; everybody is therefore a pedestrian.

Parenthetically, we don't need to feel sorry for the poor shut-in worker; the district is closely confined. There are two rivers close by, a harbor and Battery Park. The worker is in the canyon only for a working day, and this is a business togetherness, not a dwelling concentration. The vertical theory of convenience would soon be dissipated if the district were too large, so large that automobile traffic became a necessity.

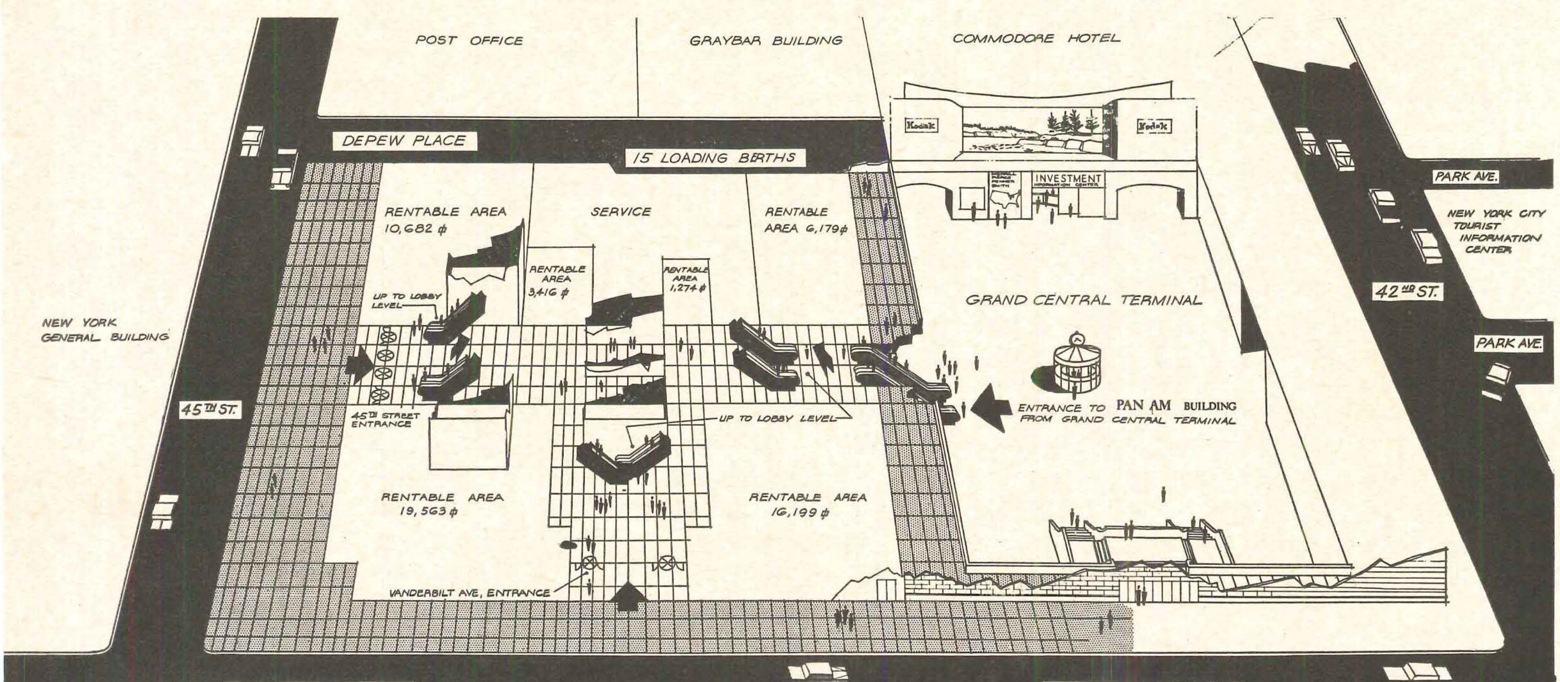
It is difficult to imagine Wall Street as anything but a vertical community. If all of the brokerage houses and banks and lawyers and other businesses had to visit each other or send paper work over long distances, the streets would soon become impossible.

Grand Central is neither so well defined nor so homogeneous as Wall Street, but there are great numbers of office buildings within walking distance of each other. They cluster around Grand Central Terminal, whence cometh all workers, either by train or by subway. Many of them are connected underground through the terminal or the subway tunnels, so that the walk from one building to another doesn't even risk bad weather.

The upper Park Avenue development is attached to the north end of the Grand Central business community. The Pan Am Building and the new Union




*Before and after:* Access routes to Grand Central Terminal's main concourse before and after construction of the Pan Am Building. The pedestrian's life will be eased by a wide promenade leading directly from concourse to 44th Street and Vanderbilt Avenue and to 45th Street and thence to upper Park Avenue



Carbide Building would certainly be included in "Grand Central," but Seagram's and Lever House are a longish walk from most of the cluster.

But the location of the Pan Am is right smack in the center of it all. Thus its vertical disposition of offices and workers is operating the theory of verticality about as well as possible. The development of Park Avenue as a location for business headquarters offices will probably stretch the Grand Central district far enough so that walking may get a bit long, and taxi and bus traffic may tend to get heavy. As far as the Pan Am is concerned, however, it should be clear that it will be doing all that's possible to cut down on taxi traffic, just exactly because it puts so many offices in the heart of the district.

**HOW ABOUT A PARK?**

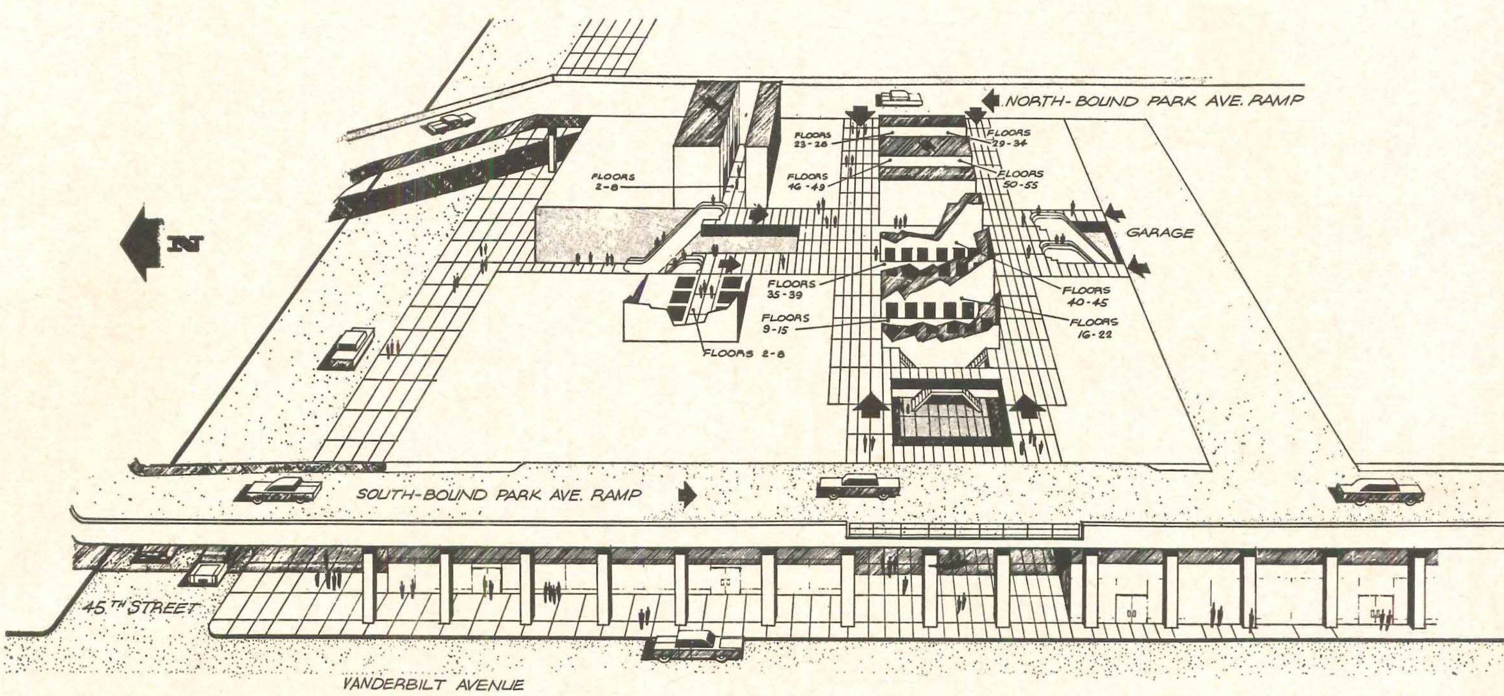
One of the architects with whom I discussed this building held out for the thought that the Pan Am site was an ideal spot for a little park. When I protested that the exact center of a business center didn't seem a logical spot for a park, he charged me with condoning all sorts of business greed, and had me saying that Bryant Park (behind the Library) should be stuffed full of large office buildings. But if this theory of business togetherness has any validity, there is a big difference between the Bryant Park location and that of the Pan Am Building. The park is at the edge of the Grand Central district, really between Grand Central and Times Square, an ideal location for a park. While people do walk between Grand Central and Times Square, the two are really separate, and the proper place for a park is between such concentrations of use. A park on the Pam Am site might be pleasant and pretty, but one has to believe that if we were to undertake to force the opening of the city for parks we should choose some site other than the best possible location for an office building.

Sentimental considerations do enter into these matters. It is easy to say, to believe, that we should open up our cities with parks and plazas, that we should limit the height of buildings, break up congested areas, and disperse office and business concentrations, to limit crowds. It is easy to believe that these are good ideas, and it is easy to point to cities, Paris for example, where concentrations are restricted. Great names in architecture and planning have been telling us these things for decades—names like Howard and Wright and Le Corbusier and Stein and Mumford.

But I think it is easy also to become confused by what is after all some nice but wishful thinking.

The first source of confusion lies in the difference between working and living. Congestion that might make living difficult might make business more pleasant. (One could get involved in a nice argument about the relative desirability or undesirability of density in living arrangements, but I shall simply walk around this one at the moment.) I am dealing here merely with working together in the city.

And I believe that concentration is desirable in working arrangements. It is the reason for the city, the attraction of the city, and it is a powerful attrac-




*Above:* Upper (Park Avenue Ramp) level

*Left:* Lower (Vanderbilt Avenue) level

tion for business offices. A few years ago several large corporations were planning to move headquarters offices to Westchester, where everybody could work happily in the countryside. Only a few actually did it. Others began to face the reality of moving families from the city to the country, of trying to hire secretaries in the country (young ladies like to commute to the city, or indeed to live there), or the difficulties of parking or traffic when everybody has to drive to work. The move to the country just did not pan out.

So the city means concentration. And maybe we should accept that idea and start planning to do it the right way. It doesn't seem too horrible a thought that business concentration is desirable, just in the way it has developed in the Wall Street area. It doesn't seem inhuman to put people reasonably close together, so long as we are not cramping the space in which they work. If we are just putting their offices in vertical buildings which are close enough together for walking between, aren't we after all just adding to the convenience and efficiency of our day's work? People don't seem to resent this kind of planning.

One supposes, of course, that there are limits. Riders on the Lexington Avenue subway, or the shuttle to Times Square, might offer the thought that there the limit of worker congestion had been reached. And I should be happy to agree. Parenthetically, however, this observer can testify to the fact that the subway congestion on these two worst lines has changed very little in thirty-five years (the transit authority experts agree). In that time three elevated lines have been torn down, and only one of them was replaced by a subway. Traffic experts don't like to make flat statements about subway congestion, though they do point out that if the discomfort of congestion became too great there are other lines that could be used which are not used to capacity. In any case, one would have to believe that the theory of planning would suggest an approach to an ideal business community, with public transportation equal to the job to be done.

Confusion about congestion also comes from not sorting out pedestrians from automobiles. Streets that are really impossible for cars and trucks (as in New York's garment center), can still offer plenty of room for pedestrians. The aim of planning, it would seem, would be to provide for a congestion, or congregation, of people, without their automobiles. The Pan Am Building just happens to be in the exact location which offers the least temptation for driving, or, the other way 'round, the maximum of convenience of public transportation. It is true, and this is a source of regret, that Pan Am will contain a garage for 300 cars, which will offer that much temptation to automobile traffic. This was planned because it was said that top executives must have some possibility of driving to their offices and parking cars on the site. But, of course, any temptation to drive to the building negates by that much the theory of this observer that this is essentially planning for pedestrians.

A third source of confusion is simply wishful thinking about the containment of a city like New York. I read a long article recently about the growth of the business community in London and the reasons why it should be forbidden. But who is to forbid it? And how is it to be done? And if it could be done, how is business to be accommodated? I am unable to picture New York City refusing to grow. I have the feeling that if you force relocation or dispersion you add to communication and transportation difficulties. And thus your very efforts to avoid congestion become self-defeating. Why not plan a people-to-people organization of the business community, and do the utmost to obviate an automobile-to-automobile system? In this organization you would use the elevator to the fullest to substitute for horizontal transportation. You would use the three-dimensional means of keeping people within walking distance of one another.

It would appear certain the population explosion will cause a similar explosion in business populations, and that we must plan for it, not simply try to wish it away.

### THE WALKING LIMITS

Now it is apparent that this vertical community cannot extend forever. Maybe there is danger in the general area surrounding Grand Central that the business community will grow too large. Too extensive, I mean. Perhaps it already has. The whole theory breaks down at the point where distances become too great for the pedestrian system I have been expounding. Then the convenience ends and surface transportation becomes increasingly necessary. Then you do have "congestion," congestion of the worst kind.

Perhaps the theory would suggest a series of business centers—Wall Street is the perfect example—groups of tall buildings close together. Close together, but confined in spread. Such communities could then be separated by parks or open plazas or centers for different use. Perhaps even residential communities. Perhaps shopping facilities. Perhaps in a perfect world, recreational centers.

Perhaps it is not possible in our existing world to arrange matters thus neatly. But I should like to believe that we had some reasonable plan in mind when we started to scream for more planning power than we now enjoy. I think the time has passed when we can simply hold out for the height-limit type of zoning and planning which brings us the horizontal city. Thus do I defend Pan Am. It is a great big proponent of the vertical city. And I believe that the vertical city, in reasonable chunks, is what the necessities of the times would indicate.

# Architectural Engineering

## Electric Heating Boosted for Houses

Electric heating is becoming a significant factor in houses when you consider the prediction that in another five years there will be several million installations. Electrically heated houses have caught on in a number of geographical areas. Primary reasons for this seem to be that heating bills are less than might have been expected, and that utilities are finding this a favorable kind of load to promote since it evens out the hills and valleys caused by other loads, and helps keep the power capacity busy in winter that is now needed for summer air conditioning.

Utilities discovered when they checked the power being consumed by houses for electric heating that the kwhr often were much less than estimated by traditional calculating methods. Most of these houses had full-thickness insulation—6 in. over the ceiling and 4 in. in walls—but, nonetheless, heating bills often were shown to be 25 per cent less than estimated. This has been taken account of in calculation procedures recommended by FHA and the National Electrical Manufacturers' Association, and is borne out by a study just published by the University of Illinois Small Homes Council—Building Research Council, "Case Studies in Electric Heating," ($1.50) by Donald E. Brotherson, Research Assistant Professor of Architecture. This study which involved 10 houses, with either baseboard heating or ceiling cable, in the Commonwealth Edison system points out that since each room of these houses has individual thermostatic control, rooms receiving extraneous gains from solar radiation, occupants or other electrical apparatus need not be heated as much or as often as other rooms not receiving these gains. Results are more even temperatures and less tendency to overheat or underheat areas of the house; consequently more economy. The study also proposes that typically 25 per cent less kwhr will be needed for houses with individually controlled rooms, than would be indicated by the conventional degree-day formula.

## The Word is Flammable

It's now official (almost), the word is *flammable*, not *inflammable*, according to Committee E-5 of the American Society for Testing and Materials. Flammable means "subject to easy ignition and rapid flaming combustion." The antonym is non-flammable. Committee E-5 has developed definitions for afterglow, fireproof ("an absolute condition not attainable in practice; use of this term should be avoided"), fire resistive, fire retardant, flame spread, flame spread index and superimposed load. These terms await approval by Committee letter ballot.

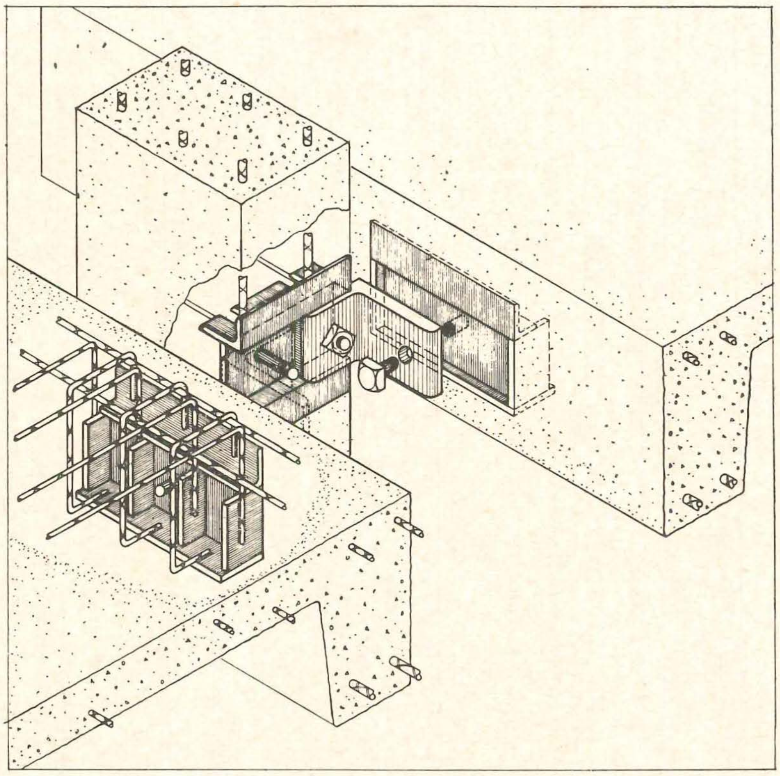
## The On-Site Energy Package

Gas turbines are currently in the news as possible individual power plants for shopping centers, large schools, remotely located commercial and industrial buildings and the like. J. B. Caldwell, project engineer for the AiResearch Manufacturing Division of The Garrett Corporation, who prefers to call this system the "on-site energy package," suggests that the building designer will have to consider the nature of this power supply and accommodate for the differences in design. These differences will consist, he says, of programming required to fit the building loads to the load-carrying capacity of the system, and to accommodate the system to the automatic controls that will be required. An interesting point is that with high-frequency generators (420 cycles) the efficiency of fluorescent lighting is increased anywhere from 3 to 10 per cent, AiResearch reports.

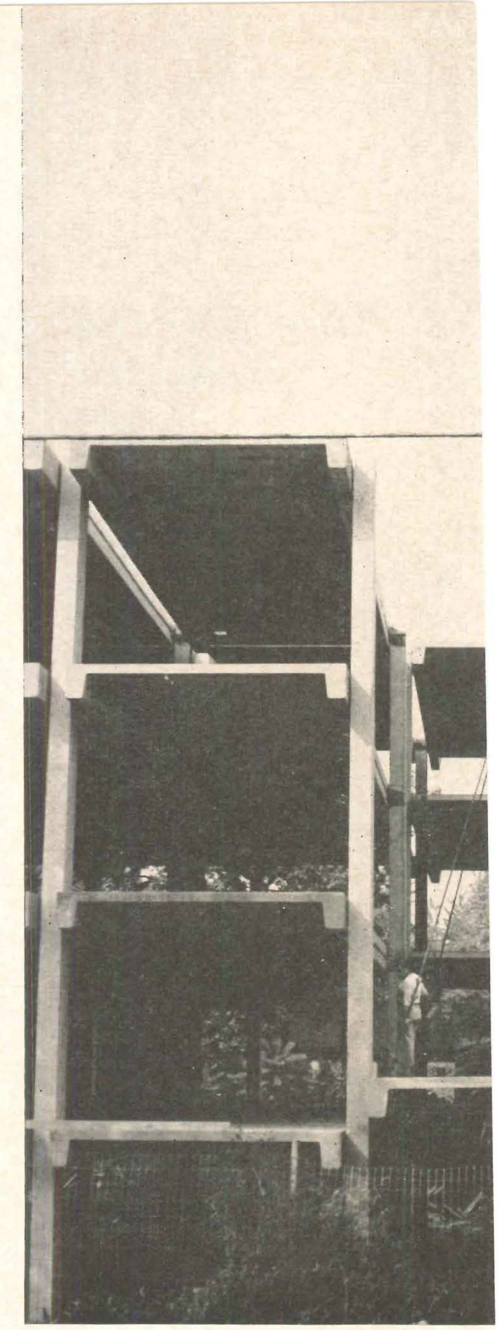
## No Bridges to Cross

Bridging for wood joist floor construction has been found neither to strengthen floors nor to reduce vibration substantially, according to a 124-page report by the Research Institute Laboratory of the National Association of Home Builders. On the basis of this investigation and research by others, the report concludes that bridging is unnecessary when floors are designed according to good engineering practice, making possible savings of from $30 to $50 per 1000 sq ft.

## This Month's AE Section



*R. M. Gensert Associates*



# PRECAST APARTMENT STRUCTURE SAVES COST, SHOWS ITS DESIGN

## Assembly of four-story columns and channel slabs is speeded by a special connection detail

How to join precast elements efficiently is a difficult problem for the engineer. How to join them in a way that makes sense spatially and visually is a difficult problem for the architect. Here is how architect Tasso Katselas and engineer R. M. Gensert view their participation in design of this Pittsburgh apartment building:

**ARCHITECT'S REMARKS:**
In speculative housing, the strongest design drive is economy of construction. This calls for a straight forward approach to get as much space and thermal comfort as the budget will allow.

The structural frame of this building, ready to receive exterior facing and mechanicals, cost well below $3.00 per sq ft. Without this economy the project couldn't have been built.

Next came the problem of how to express this method architecturally. Since the floor slabs could be run past the columns, it was possible to make this read on the exterior by extending the slabs as hooded covers for each apartment unit.

Since rooms are oriented in this direction, the canopy cover gives a sense of privacy and enclosure to apartment occupants.

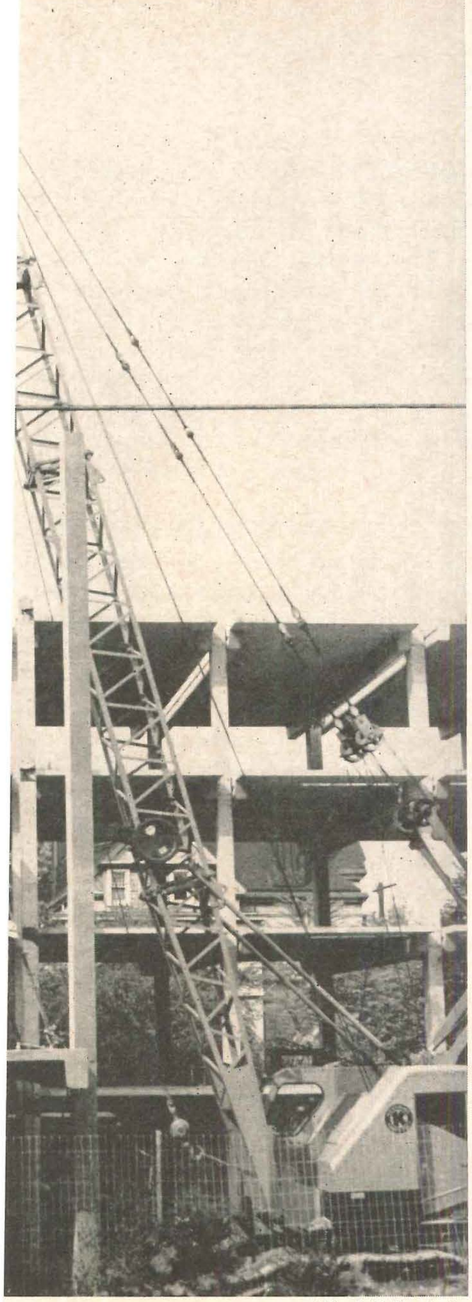
Beams become strong directional members from the inside, defining each space.

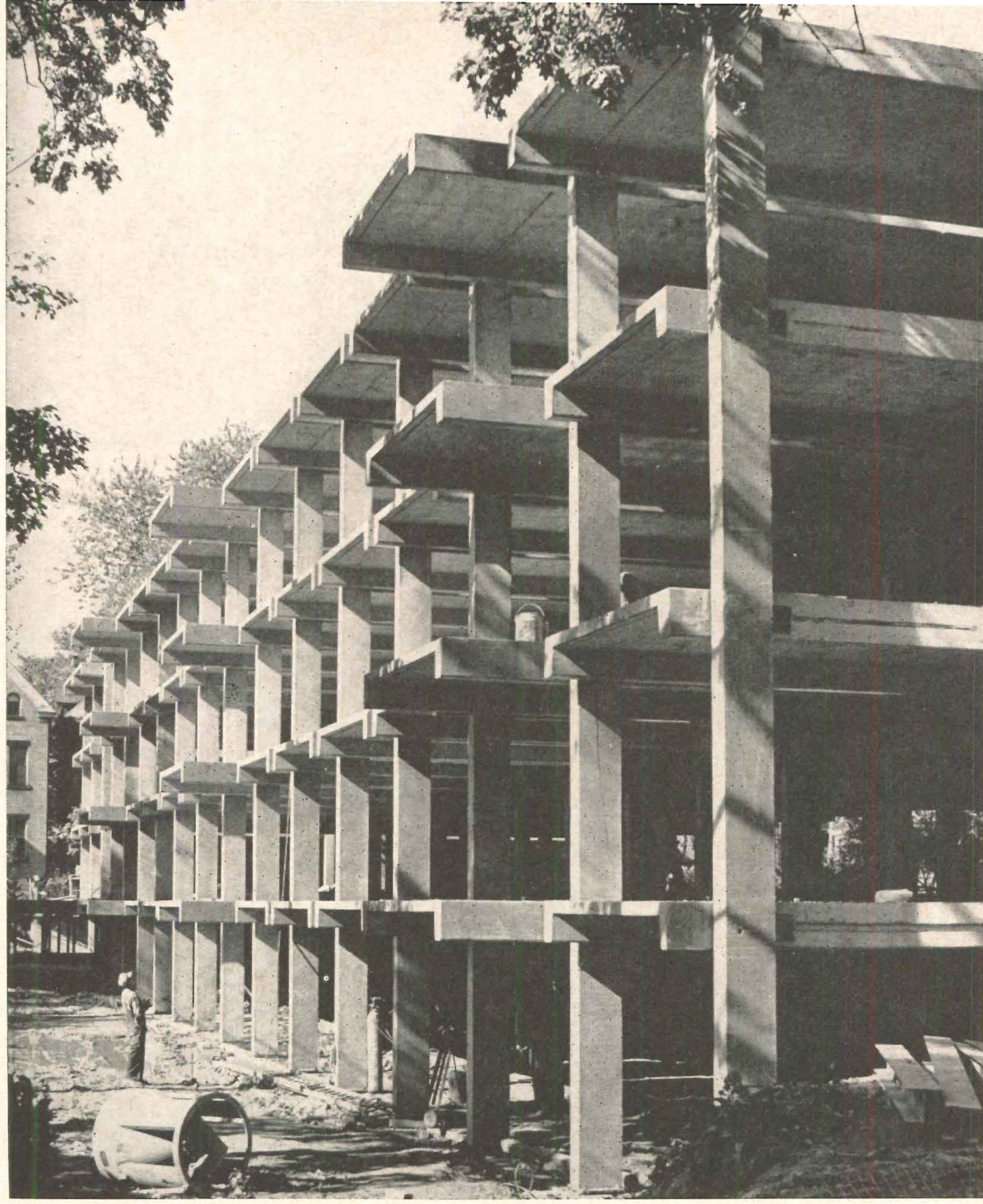
At the roof level, a stronger expression is gained by making the canopy overhang even larger. This serves the same function as a period at the end of a sentence: it terminates the simple geometric pattern which otherwise might seem endless.

The same structural system is used also to frame the canopy and bridge members that lead into the building, as well as the enclosed individual garages at the lower level.

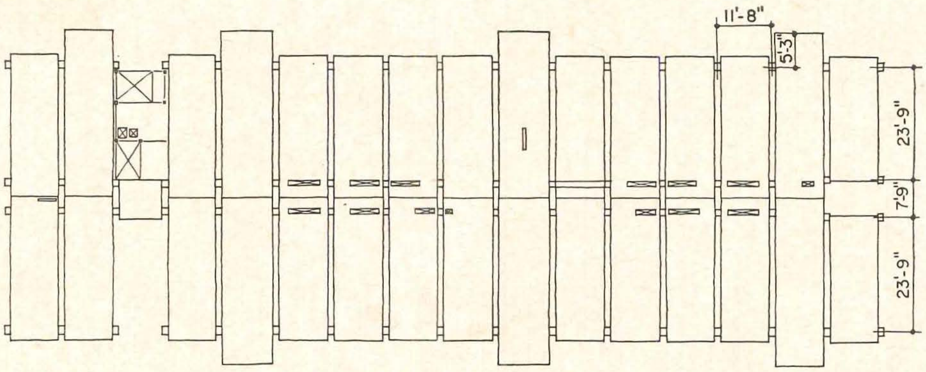
With garages on the lower level, it was possible to separate pedestrian and vehicular traffic. The building is on a corner lot, so it made sense to use one street for approach by auto, and the other more residential street for approach directly by foot from shopping areas.

Architecturally, one of the big problems with any precast system is how joining of the diverse parts takes place. In this case, the voids

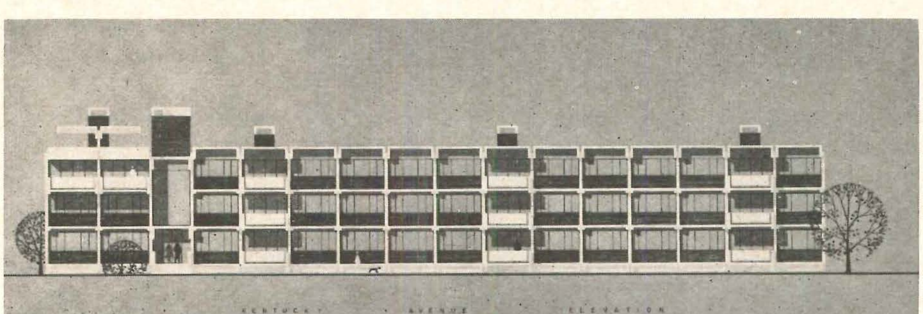




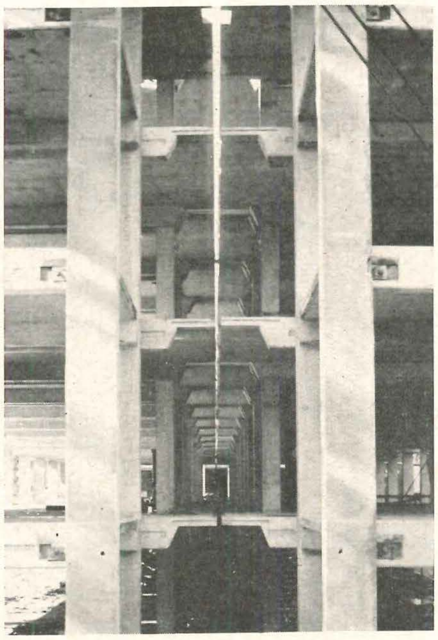
*Alfred Belle photos*



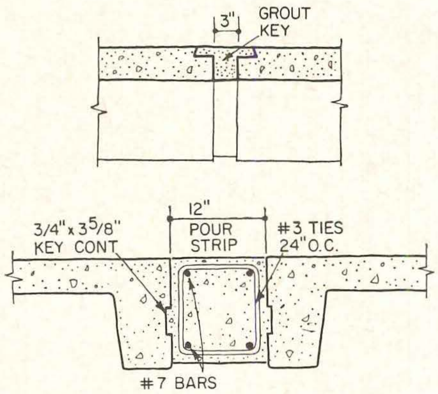

*Mildred Schmertz*



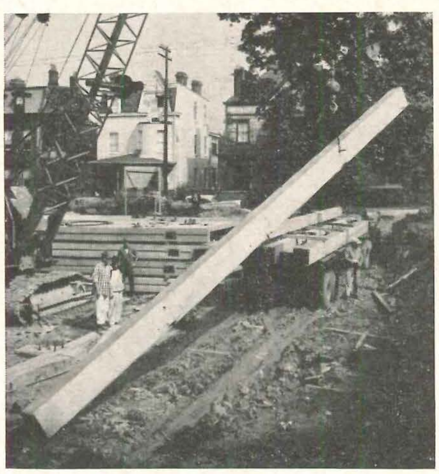
Building consists of three apartment floors and a basement garage. Only two basic structural components, columns and channel slabs, are used throughout. Slabs provide canopies for windows and are cantilevered to make balconies at three points on the elevation. Framing plan is of the third floor. Open space on plan is above lobby, which has elevator in center and stairs at back

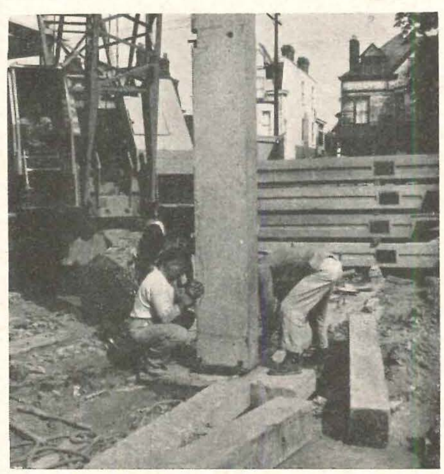


*Kentucky Negley Apartments, Pittsburgh, Pennsylvania*
ARCHITECT: *Tasso Katselas*
STRUCTURAL ENGINEER: *R. M. Gensert, Associates*
GENERAL CONTRACTOR: *John R. Hess*




Spaces between channel slabs in the longitudinal direction are filled in by pour strips which are reinforced and tied to interior columns to form portal frames. Spaces between slabs in corridor (see photo) have a grout key. No topping is necessary





Precast columns are precision plumbed by bolting to steel plates set in the pile caps. Columns and ordinary reinforced slabs are precast on a vacant lot near the site

between slabs were simply filled in for required wind bracing after the mechanicals were installed.

The design for this apartment building proves that a simple direct approach to precasting is possible in speculative housing. Here is one solution to economical fire-resistive construction with endless possibilities for expression.

—*Tasso Katselas*

**ENGINEER'S REMARKS:**

We feel that this is an interesting application of precast concrete from both architectural and structural viewpoints.

As an architectural concept, it expresses the simple relationship of horizontal and vertical elements without interruptions in either one.

The structural concept is one of maximum continuity of columns for stability, and minimum number of floor elements for ease and economy in erection. The single type of floor element with joints occurring only at column lines made it possible to eliminate concrete topping.

The beams or stems of the channels are designed as L-shaped members; the slabs are considered for continuity with these integral supporting beams.

The construction method was oriented toward site precasting, which was performed by Hufschmidt Engineering Company of Menomonee Falls, Wisconsin. Precasting was done on a vacant plot of land across the street from the building site. A rapid schedule required stripping of forms within 24 hours.

Connections are always a problem in precast concrete, and they were the most difficult design problem on this project. Columns were one piece and connected to pile caps with four anchor bolts and eight nuts. Double nuts per bolt permitted precision plumbing of columns.

Columns and slabs contained welded steel boxes that were cast within the concrete. Large steel angles were used to transfer the load from slab box to column box. Purpose of these boxes was to accommodate high shear and bearing stresses within the concrete.

The cast-in-place strips between the slabs were reinforced and attached to the interior columns via reinforcement to resist wind moments.

—*R. M. Gensert*

# WHAT FIRE TESTS MEAN

## How they relate to actual building conditions

*by Robert S. Moulton, Consulting Fire Protection Engineer*

Building codes contain many requirements on fire testing. They specify that fire doors shall be of a certain rating, that flame spread be limited to a certain figure, and so on. There are a number of these tests which, if not fully understood, may be quite confusing so this article is an attempt to explore and explain them.

First of all beware of *test fires* because they may be built to demonstrate the fire resistance of almost anything. The blow torch is a good example. There are all sorts of materials which can be subjected to the flame of a blow torch, carefully applied in the center and not on the edge of the sample and not for too long a time, to show that almost any material is immune to fire danger. This, however, does not represent actual fire conditions where the flame envelopes the material, attacks the edges and lasts for a long enough time to dry everything out and result in propagating flame.

### The Standard Fire Test

Fire tests are designed to provide standard conditions for comparative testing of different materials—tests which can be reproduced in different laboratories so that any given material will have the same fire rating, irrespective of where it is tested. The oldest and perhaps best known of these tests is the standard fire test which was developed in the early 1900's and is used quite generally throughout the world. There are some variations in other countries, but essentially the test is the same. This is based upon application of a sample to a standard fire. This is shown graphically on next page where the temperature increases gradually with time. The test is a National Fire Protection Association Standard, No. 251, Standard Methods of Fire Tests of Building Construction and Materials. It is also adopted by the American Society for Testing and Materials, A.S.T.M. E-19, and by Underwriters' Laboratories, Inc., U.L. 263.

This test *represents* a hot fire in which wood is the fuel. (In actuality the test is conducted using a gas furnace.) It has the advantage of providing reproducible and realistic conditions, but it should not be construed as representing every fire. The reason is that fires vary all the way from an explosion, where maximum heat is reached almost instantaneously, to the slow, smoldering fire where heat develops very gradually, and flame does not break out until after a considerable period of time. Thus ratings in hours represent only exposure to the standard fire test which is a convenient measure of fire resistance. They do not necessarily relate to actual fire exposure conditions which may be somewhat shorter or a lot longer in developing heat to the point where it reaches the figure given on the standard fire test curve.

Many fire tests measure only fire resistance: the total length of time it will take for a fire to burn through the sample of material, or become sufficiently hot to ignite combustible material on the unexposed side. This does not mean that the sample has to be noncombustible in order to pass the test. Actually a solid wood partition, if of sufficient thickness, can withstand any specified fire test, even though the side exposed to the fire may be burning furiously.

For load bearing walls, beams, columns and floors, the test must take into consideration the effect of the load, and if the structure collapses before the expiration of the rated fire endurance period, it simply fails the test.

### Heat Expansion

It is a well known fact that most materials expand under the influence of heat, and fire test procedures constitute no exception. Thus there is a relationship between the size of the sample and the results. Fire doors, for example, are rated with a given degree of fire resistance for certain sizes and when they exceed those sizes they are not so rated simply because no one knows just how much they may expand due to fire.

### Fire Door Tests

For fire doors there are other factors to be considered, particularly the fact that fire doors cannot fit the openings tightly; there must be sufficient clearance for them to open and close. This is a matter which is carefully specified in the standard of the National Fire Protection Association on this subject, N.F.P.A. No. 252, Fire Tests of Door Assemblies, American Society for Testing and Materials, A.S.T.M. E 152, Underwriters' Laboratories, Inc. U.L. 10G. It is recognized that a certain amount of heat will pass around the doors. However, if the doors are placed in a normal manner, protecting openings through the wall, it may be assumed that on both sides there will be a passageway for convenience in travel, and that combustible materials will not be piled directly against the door. Thus a certain amount of heat can pass around the edges and be dissipated in the large area on the other side without vitiating the value of the door.

With doors protecting vaults, there is no large area on the reverse side, and it is customary to have the doors fit really tightly with step-type interlocking joint gasketing so that there will be no passage of heat and flame around the edge of the door. By design, this type of door has a much higher fire resistance, and is rated in units of 2, 4 and 6 hours on the standard time tem-

ROBERT MOULTON is a charter member of the Society of Fire Protection Engineers and a registered professional engineer. For many years he was technical secretary of the National Fire Prevention Association, and still serves as consultant

perature curve. Vault doors are not practical for ordinary installation in building openings.

Vault doors are subjected to the standard fire test with a tight enclosure behind them, representing a vault, and the temperature in the enclosure is measured to be sure that the ignition temperature of paper is not reached within the specified time of the test.

**Flame Spread**

Flame spread ratings constitute an entirely different subject. Here the question is how much the interior finish of the building will contribute to fire in case it is ignited in any way. In the Hartford Hospital fire, interior finish was ignited by flames coming from a rubbish chute, but ignition might have come from any one of a number of different sources. If the flame spread rating is too high, flame will travel along the interior finish as it did in Hartford.

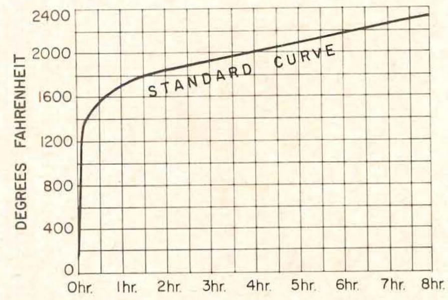
What is the test here? There is a well established flame spread test which also measures the amount of smoke generated and, incidentally, the amount of fuel contributed by the material. This test is based upon a scale where asbestos cement board is rated zero and red oak lumber at 100. This test is designated as National Fire Protection Association No. 255, Method of Test of Surface Burning Characteristics of Building Materials; A.S.T.M. No. E84; U.L. No. 723.

This test uses a "tunnel" 2-ft wide and about 25-ft long where a gas flame of specified intensity is placed at one end; the time is measured for the flame to travel down the tunnel to the far end. If the flame travel is the same as red oak, the rating is 100; if it is faster the rating is higher; and if it is slower the rating is lower. There is a tremendous variation in commonly used materials. Most species of wood will rate at well under 200, so wherever codes permit a flame spread of 200, ordinary wood paneling is acceptable. However, this means wood of nominal 1-in. thickness; not plywood, unless specifically designed to have a low flame spread. Paneling in the Hotel LaSalle fire in Chicago was tested and found to have a flame spread of over 500. This was due to the fact that it was glued with an adhesive which softened quickly under the influence of heat and permitted the delamination of the thin outer ply. In the Cocoanut Grove night club fire in Boston, the ceiling had a flame spread rating of 2500. Actual flame spreads range all the way down to zero which is the accepted rating for ordinary gypsum plaster without any surface coating. All these flame spread ratings are well known, or should be, and Underwriters' Laboratories, Inc. and Underwriters' Laboratories of Canada print lists classifying various acoustical tiles and other common materials. If you want to get any specified flame spread rating, it is very desirable to purchase only materials labeled by Underwriters' Laboratories.

Another factor that affects flame spread is the adhesive with which the acoustical material or other material is affixed to the wall or ceiling. Some of these adhesives have very poor qualities when exposed to fire. If the acoustical material has a flame-retardant treatment only on the exposed face and the back of the material is untreated, it is possible that under the influence of fire the adhesive will soften, releasing the tile; thus a serious fire can result, even though the exposed face has a relatively high flame spread rating. Avoid the use of an adhesive of unknown fire properties to hold a tile in place which has been tested only with positive metal fastenings. Of course, with the tile made from noncombustible materials, this problem does not arise. Neither does it arise in case of a material which is integrally treated with flameproofing materials.

**Roofing Tests**

Roofing materials are tested not only for susceptibility to ignition, but in properties of giving off flying brands when exposed to fire, brands which may be wafted by the wind to start other fires a long distance away. This was a major factor in the recent Los Angeles brush fires last fall which received so much publicity. Here we have different classes designated as A, B, C, etc., in which A is represented by solid tile and similar materials of sufficient thickness to provide some insulating effect to a wooden roof deck beneath; Class B, materials of intermediate resistance; Class C as characterized by asphalt impregnated felt shingles; and Class D by wooden shingles. This is all



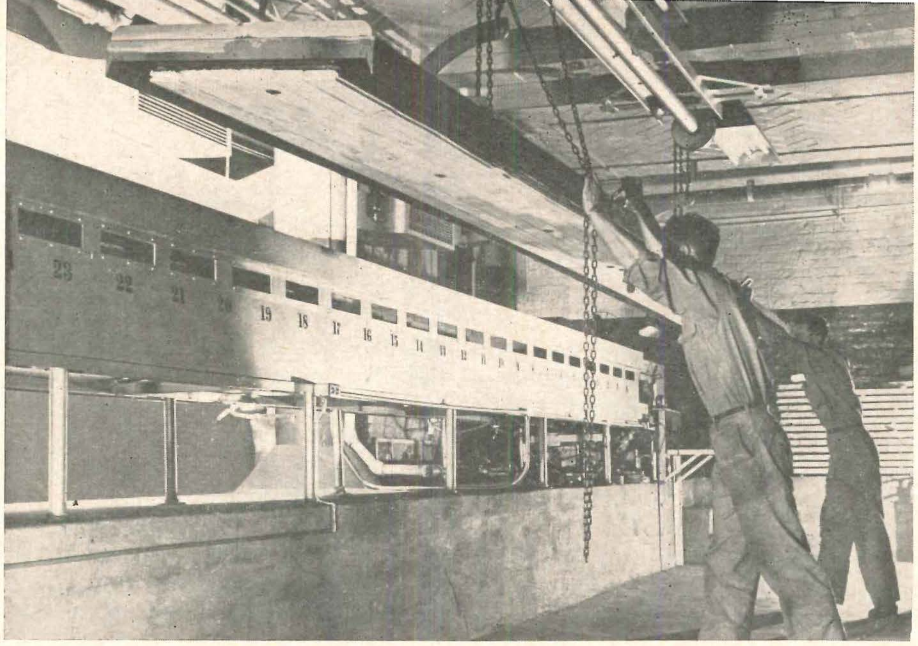

STANDARD TIME-TEMPERATURE CURVE represents a hot fire in which wood is the fuel. Note the high temperature rise during the first ten-minutes time

based upon a definite fire test procedure which is quite different from that used for walls, partitions and interior finish, but is nonetheless important. It is designated as N.F.P.A. No. 256, Methods of Fire Tests of Roof Coverings.

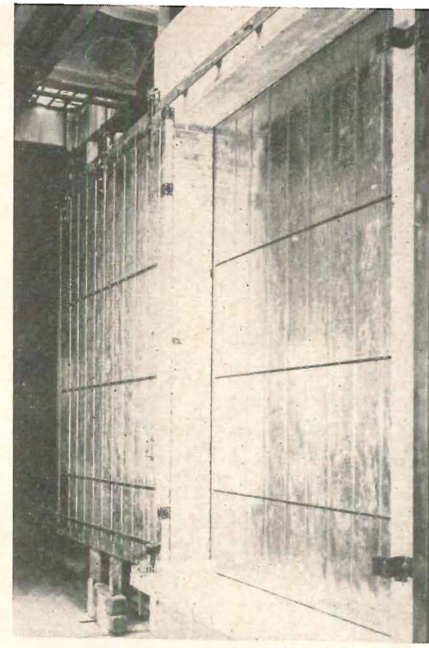
**Fire Door Classifications**

It is important to note that it is not necessary to have a 2-hr fire door to protect an opening in a 2-hr partition. A fire door of 1½- or 1-hr rating is generally sufficient, according to the provisions of most building codes. This is confusing because one would think that in order to secure the desired fire resistance rating it would be necessary to have a fire door with a rating the same as that of the wall. Other factors, however, come into this picture—questions of structural stability and particularly heat expansion—so that actually a 1-hr fire door in a 2-hr wall is generally considered acceptable. A fire door of 1½-hr rating is specified in some places, but in my opinion is seldom actually needed since such doors are commonly used to protect stairway enclosures; and in order for the stairway enclosure to fail, it is necessary for a fire to get into the enclosure on a lower floor and out again on an upper floor. As far as life safety is concerned, this very seldom happens because, well within the specified fire resistance period, everyone normally will have had time to get out of the building or will have been burned to death. Fire doors are tested under the provisions of N.F.P.A. No. 252, Fire Tests of Door Assemblies, using the same time-temperature curve as for tests of walls.

Fire wall doors are in a somewhat different category. Here the building code rules mostly follow the provisions of the N.F.P.A. Standards on



FLAME SPREAD TESTS are conducted in a 25-ft long "tunnel" furnace at Underwriters' Laboratories in Chicago. Gas flames are projected against the far end of sample. Flame spread, temperature and smoke readings plus combustion samples are taken



FIRE DOORS, one on each side of a 12-in. fire wall, are given operating test preceding the test for fire exposure

Fire Doors and Windows (N.F.P.A. No. 80) and require doors on both sides of the wall—the theory being that if one door fails to close automatically through the malfunction of its closing mechanism, the other may be expected to have a better chance of being closed. Two 3-hr doors on opposite sides of a fire wall probably produce an adequate resistance to stop the spread of almost any fire.

One important feature of fire doors is their hardware. It is essential that fire doors, in order to provide their desired fire resistance rating, be left securely closed, and in the case of large doors more than one latch is needed. For this reason it is customary to provide the door frame as well as the doors in one unit, all of which is labeled by Underwriters' Laboratories, Inc. The best fire door in the world improperly installed will not produce its desired fire resistance rating.

Another point of considerable confusion is the sizes of wired glass panels that are permitted in elevator doors, stair doors and other doors to avoid accidents. The standards do specify a small vision panel for Class B fire doors which are those designed for use on stairway enclosures and elevator shafts; these have a rating of 1 hr or 1½ hr. It should be noted that the standards permit corridor and room partition doors which normally have a fire resistance rating of ¾ hr to have larger wired glass panels. In order to provide the desired fire resistance, the panels must be wired glass, and this glass must be set securely in place so that it will not fall out under fire exposure conditions.

**Getting the Specified Material**

How can you be sure that a partition, a column, a door, or any other component has a specified fire resistance or flame spread rating? Actually, the answer to this is quite easy if you will just use Underwriters' Laboratories' List of Inspected Building Materials. All sorts of building components have been tested, and the listing indicates not only compliance with original test specifications, but a follow-up factory inspection which is designated to assure that subsequent production will be the same as the original sample tested. This is very important because there are many features where small variations in construction will make a major difference in test results. Consider, for example, the fire resistance of gypsum board nailed to wood studs. Underwriters' Laboratories' list says that in order to secure the desired fire resistance the gypsum boards must be nailed in a specified manner, such as with 4d cement coated common nails, spaced 7 in. on centers. They don't say if you use 6d nails, not coated, spaced some different distance on centers, you may not get the same fire test result at all. My advice is to use Underwriters' Laboratories' list and when you want something that is not covered in the listing, make careful inquiries to be sure that you are getting the desired fire resistance.

One may wonder why building codes and standards specify a 2-hr or other stated fire resistance in situations where there is very little to burn, and where it is difficult to imagine a fire of the specified intensity. This is largely to give a factor of safety in order to take care of variations in materials and workmanship which do not affect the appearance or the functioning of the finished job, but which may have an important effect on fire resistance. Also, there may be some thought of providing construction of sufficient strength and rigidity to stay in place, which may not be the case with construction of lower fire test ratings.

**Plastics**

One area of great confusion is in respect to plastics. It may be claimed that certain materials cannot be tested by the standard fire test methods; and that these materials are "slow burning" or "self-extinguishing" when tested by some other test procedure. If you will actually look at the test procedure, you will see that what is done is to test a small sample, say ½-in. wide and 5-in. long. This is a good development test and indicates certain properties of the material. It does not, however, necessarily indicate at all what will happen when you have the entire surface of a room covered with the same material. Actually, some of the worst fires can occur in "slow burning" and "self-extinguishing" plastics, which when burning on a large scale have very different characteristics from that of the small scale test. The same thing is more or less true of many other materials. Just be sure that the test that you specify is realistic and actually representative of the conditions of use of the product which you wish to employ.

**Folding Partitions**

Folding doors ordinarily do not take up enough of the wall space of a room to cause much concern. Ten per cent of the wall and ceiling area, according to N.F.P.A. Standards, may have a higher flame spread rating ("Tunnel Test," N.F.P.A. No. 255) than permitted for the room generally. However, when folding partitions are used, as in a church basement which does double duty as an assembly room for church suppers and for small church school rooms, the folding partitions may take up three-quarters of the wall area, and then flame spread properties are important.

These folding partitions are of two types, the solid type which can be tested by the "tunnel test," and the type which consists of fabric on a folding frame, which calls for a different test: N.F.P.A. No. 701, the test developed for flameproofed fabrics, but which is applicable to any fabric. If your folding partition fabric passes this large scale test it is acceptable, but similar, small-scale tests are not suitable for fabrics in folds and won't show the burning qualities of a large area of material.

**Use of Tested Materials**

Selecting proper materials and devices which have been subjected to proper fire tests to provide some specified fire test rating is actually only a part of the picture, and, in my opinion, a less important part than the way in which the materials are used. Consider, for example, fire doors.

Fire doors of proper construction and properly installed do a wonderful job in stopping the spread of fire. But, did you ever look at what happens to fire doors after they are installed? A great many of them will be found held open with convenient wooden wedges stuck under the door. You might just as well save the money and not put in such a door at all because so long as it is open, it just cannot do its job. I have found many fire doors in the field which have been wedged open so long and painted over so many times, including the hinges, that they just can't be shut.

**Fusible Links**

Next to the wooden wedge under the bottom of the door as a bugaboo, which probably won't burn through until long after everyone in the building is dead, we have the improperly installed fusible link, designed to hold the door open but release it in case of fire. When fusible links are placed at door knob height, they certainly won't operate soon enough to do much good.

The proper place for a fusible link is near the ceiling. Hot air rises, and a fusible link at the ceiling will operate far sooner than one lower down. Approved fusible links (note that these too are listed by Underwriters' Laboratories) will ordinarily do a good job in releasing the door if they are properly arranged and if the fire spreads normally. Note, however, that a rating on the fusible link of 165 F does not mean that the metal will melt and release the door at an air temperature of 165 F. These links are tested in an oven where the temperature is increased very gradually, and while they will operate at 165 when exposed for a long period of time to this particular temperature, it should be noted that this is not representative of fire conditions where the temperature rises fairly quickly. It may be necessary to reach a temperature of 200 F or 300 F, or higher, in order to transmit enough heat to the link to cause it to melt. The same thing is true with other fusible link devices such as automatic sprinklers, and while great stress is ordinarily placed on a sprinkler of a low rated melting temperature, with an actual fire it does not make much difference in time of response whether the sprinkler is rated at 165 F or at 212 F.

**Stopping Spread of Smoke**

While the fusible link does a good job in closing the door, under fire conditions it does not stop smoke. It is a well known fact that most fire deaths are due to asphyxiation rather than actual heat and burns. It has been shown by test that lethal smoke is not necessarily hot, or at least not hot enough to operate fusible link devices. This was demonstrated conclusively by the Los Angeles Fire Department in a long series of tests on schools where fires were built in various parts of school buildings under a wide variety of situations and smoke conditions observed by experienced firemen stationed throughout the building. Contrary to the expectations of many fire authorities, the temperatures were not sufficient to operate links and close fire doors. This means that if doors are installed primarily for the safeguarding of human life, they just must be kept closed, or, if open, be controlled by something other than heat-sensitive devices.

This concept of the low temperature of lethal smoke is still fairly new, and man's ingenuity has not as yet had time to work out all the details of proper controls. There are some devices on the market now, and more will be available soon, to provide for the quick closing of doors whenever there is a fire anywhere in the building. This means either automatic smoke detection control or connection to an automatic fire detection or automatic sprinkler system. All these systems, by the way, are also subject to tests and if you specify any such arrangement you should make sure that the component parts are tested and that the installation is correct.

**Location of Doors**

Another important point is the location of the door. I recently inspected a building that had many excellent fire doors, all installed following the Chicago school fire in which 93 lives were lost, and which demonstrated conclusively the fact that doors are needed on stair enclosures to prevent the upward spread of lethal smoke. The doors on the building that I inspected were excellent doors and expensive. However, in addition to being held open by wedges or fusible links at waist level, they were located entirely wrong; about 90 per cent of the expense of their installation was wasted.

Literal compliance with building code requirements without an understanding of their purpose can produce not only abortions in fire safety, but also can cost a lot of unnecessary money. My advice to designers is that they should become thoroughly familiar with fire safety requirements, understanding their purpose, so that they can work out the details in the most economical manner and with the maximum safety. Or, if they are not in a position to do this themselves, they should retain qualified fire protection engineers to advise them.

# SELECTION GUIDE TO GENERAL OFFICE LIGHTING

## A simplified procedure for selecting lamps and luminaires to control direct glare from illumination in general office space

*by John J. Neidhart,* IES Committee on Office Lighting*

Factors to be considered in selection of lamps and lighting equipment for offices include the illumination level to be maintained, size and surface finishes of rooms, available mounting height, degree of brightness control required, and esthetic considerations. Selection procedure will be approached here by first considering continuous row spacings for a maintained illumination level of 100 footcandles (fc) using several types of equipment with different lampings and lamp loadings. This basic situation then can be converted to other practical ranges in illumination level. It seems logical to assume the use of continuous rows for this demonstration since they are so widely used and have the advantages of acceptable appearance and minimum wiring and installation expense.

A key factor in luminaire selection is comparison of the average brightness distribution of proposed luminaires against the Scissors Curve (dark lines in Fig. 1) introduced by IES as a guide for selecting luminaires without fear of creating a direct-glare problem. (See the 1960 revision of "Recommended Practice for Office Lighting.") To use the scissors curve, one needs merely to plot the crosswise and lengthwise average brightnesses of the luminaire using manufacturers' data in footlamberts at 45, 55, 65, 75, and 85 degrees from the vertical (nadir). (These averages are here again averaged to make a single curve for simpler demonstration. In practice, they would be plotted separately.) If the curves so plotted lie entirely below any straight line drawn through the scissors curve fulcrum and between the heavy lines shown on Fig. 1, the luminaires can be used for 30- to 100-fc installations in any size office without creating a direct-glare problem. Although there are insufficient data to assure accurate extension of the range of the scissors curve beyond a 100-fc level, in the absence of any alternative it seems reasonable to use it as a guide throughout the 50- to 200-fc range.

* Member since 1949; chairman 1951 to 1956. Mr. Neidhart is manager, Application Engineering, The Miller Co., Meriden, Conn.

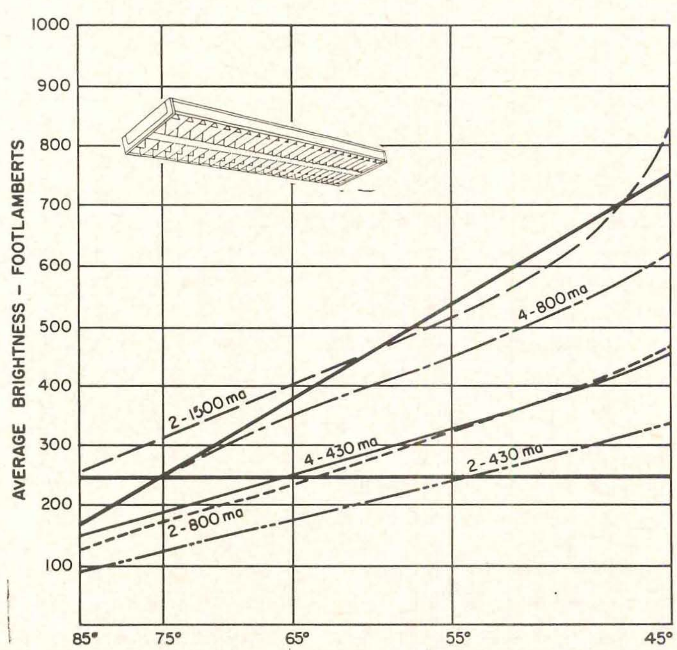



Fig. 1. IES Scissors Curve brightness comparison for direct-indirect luminaire with 45- by 45-deg louver (35 by 45 deg with 1500-ma lamps)

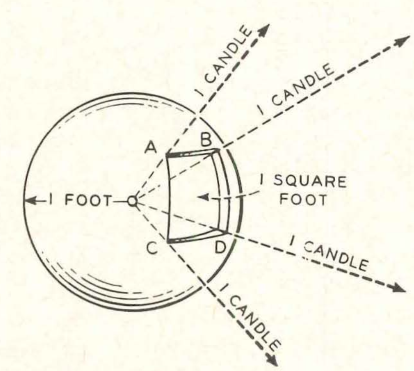
Summary of practical, maintained illumination ranges:

| LAMPING | BRIGHTNESS RATING | ILLUMINATION RANGE, Fc* SMALL ROOMS (Ratio = 0.8) | MEDIUM ROOMS (Ratio = 1.5) | LARGE ROOMS (Ratio = 3.0) |
|---|---|---|---|---|
| 2- 430 ma | Excellent | 30- 50 | 40- 75 | 50-100 |
| 4- 430 ma | Excellent | 50- 90 | 75-150 | 100-200 |
| 2- 800 ma | Excellent | 35- 75 | 50-100 | 75-130 |
| 4- 800 ma | Good | 70-150 | 100-200 | 150-200+ |
| 2-1500 ma | Fair | 70-125 | 90-175 | 120-200+ |

*Assuming continuous rows 5½ to 11 ft on centers, 10-ft mounting height

### TERMINOLOGY

The diagram below, from "IES Lighting Handbook," clarifies some of the terms used in this article




One *candlepower* point source at the center of a sphere of 1-ft radius provides *illumination* at any point on the sphere of one *footcandle* by emitting one *lumen* per unit area subtended on the surface by the square of the radius. If the sphere were perfectly diffusing and no light loss occurred, it would have a *brightness*, to an observer on the outside, of one *footlambert*. Note that illumination is light received at a surface, while brightness is light emitted.

The abbreviation *ma* is *milliamperes* of current.

*Room ratio* is a function of width, length and height which affects utilization of light in a space. For direct, semi-direct and general diffuse lighting (where $H$ is mounting height above work):

$$Rr = WL/H(W+L)$$

In this article, all mounting height references have been converted to height above the floor.

TABLE 1. SUSPENDED DIRECT-INDIRECT UNITS WITH 45- by 45-deg LOUVER

(Continuous row spacings for 100 fc)

| Room Ratio | Number and Loading of Lamps | | |
|---|---|---|---|
| | 4-430 ma | 2-800 ma | 2-1500 ma |
| | Space Between Rows, ft | | |
| 0.8 | 5 | 4 | 7 |
| 1.5 | 9 | 6 | 10 |
| 3.0 | 12 | 8 | 13 |

Maximum spacing; 1.1 x mounting height
Reflectances: ceiling, 80%; walls, 30-50%; floor, 10%. These apply to Tables 1 through 5

TABLE 2. SURFACE UNIT WITH PLASTIC LOUVER USING 430 ma LAMPS

(Continuous row spacings for 100 fc)

| Room Ratio | No. of Lamps & Sizes of Luminaire | | |
|---|---|---|---|
| | 2-1p, 1'x4' | 2-1p, 2'x4' | 4-1p, 2'x4' |
| | Space Between Rows, ft | | |
| 0.8 | 3 | 3½ | 7 |
| 1.5 | 4 | 5 | 9½ |
| 3.0 | 5 | 6 | 11½ |

Maximum spacing: 0.8 x mounting height

The first type of luminaire to be considered (Fig. 1) is a widely-used, suspended, direct-indirect unit with 45- by 45-degree louver. In Table 1, the continuous row spacings that will maintain an average level of 100 fc at desk height with three possible lampings of the luminaire are tabulated for three different room sizes. The spacings given in Table 1 can be converted easily to other lampings or to 50- or 200-fc levels by simple multiplication and division. For example, rows of fixtures with 2-430 ma lamps could be 6 ft apart for 100 fc or 12 ft for 50 fc in a room with ratio 3.0.

Maximum permissible spacings are noted in these tables for uniform illumination. Minimum spacing is largely a matter of esthetics, but indirect light from the ceiling would be more or less trapped if there were insufficient open space between rows. A spacing of 5½ to 6 ft would be a practical minimum for the unit in Fig. 1 and Table 1.

Average brightness distributions for this direct-indirect luminaire with different lampings are shown in Fig. 1. All lampings plotted, except for 2-1500 ma lamps, fall below the scissors curve limits. Fig. 1 also includes a summary with the table of row spacings converted into illumination ranges that could be maintained by practical installations for an assumed set of conditions.

**Surface-Mounted Luminaires**

Lower ceiling heights often preclude the use of suspended luminaires. Furthermore, surface-mounted or recessed units are frequently preferred for esthetic reasons. Although the direct-indirect luminaires discussed above can be surface-mounted, their distribution will change to direct or semi-direct and their brightnesses will be increased since much of the

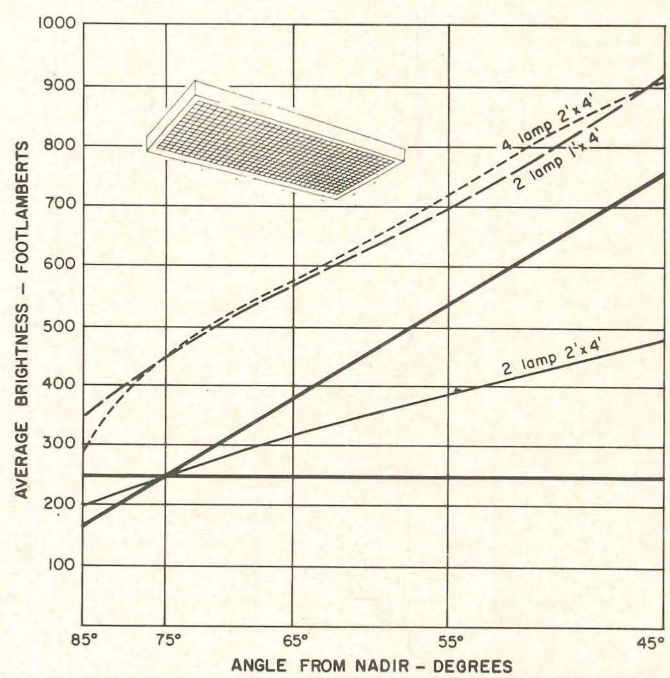



Fig. 2. Brightness comparison for surface mounted units using 4-ft, 430 ma lamps (higher lamp loadings lose efficiency through high temperature operation in these units)

Summary of practical, maintained illumination ranges:

| LAMPING AND SIZE | BRIGHTNESS RATING | ILLUMINATION RANGE, Fc* | | |
|---|---|---|---|---|
| | | SMALL ROOMS | MEDIUM ROOMS | LARGE ROOMS |
| 2 Lamp 1'x4' | Fair | 40- 75 | 50-100 | 60-125 |
| 2 Lamp 2'x4' | Excellent | 45- 90 | 65-125 | 75-150 |
| 4 Lamp 2'x4' | Fair | 90-175 | 120-225 | 150-250 |

*Assuming continuous rows spaced 4 ft to 8 ft on centers with luminaires at 10-ft mounting height

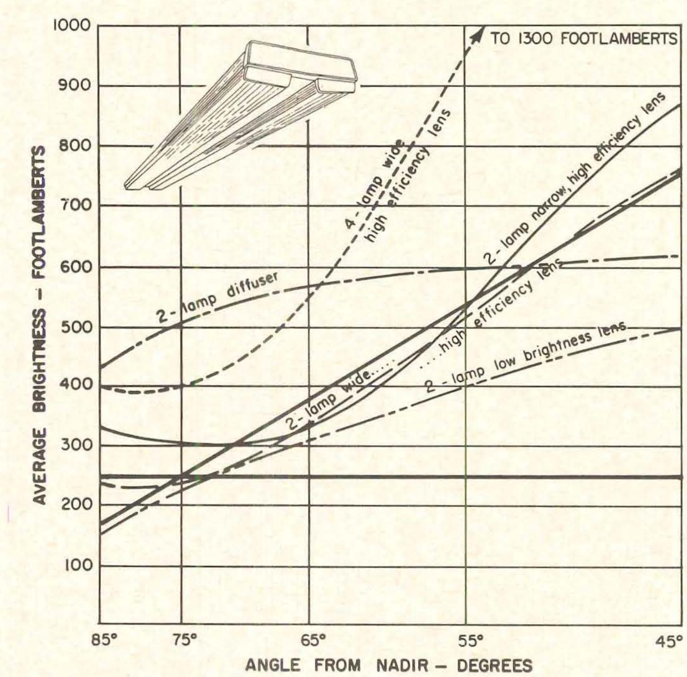



Fig. 3. Brightness comparison for plastic wrap-around surface mounted units with 430 ma lamps (various types shown in Table 3)

Summary of practical, maintained illumination ranges:

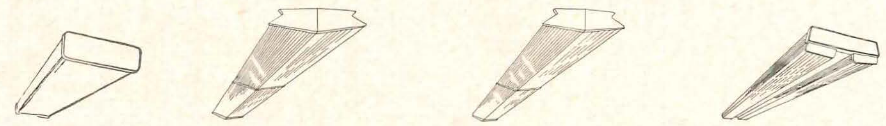
| CLOSURE | NUMBER LAMPS | BRIGHTNESS RATING | ILLUMINATION RANGE, Fc* | | |
|---|---|---|---|---|---|
| | | | SMALL ROOMS | MEDIUM ROOMS | LARGE ROOMS |
| Diffuser | 2 | Fair | 30- 60 | 35- 85 | 50-100 |
| Narrow, High Eff. Lens | 2 | Good | 45-100 | 60-140 | 75-170 |
| Wide, High Efficiency Lens | 2 | Very Good | 45-100 | 60-140 | 75-170 |
| | 3 | Good | 65-150 | 100-200 | 115-250 |
| | 4 | High | 85-180 | 120-270 | 140-300+ |
| Low Br. Lens | 2 | Excellent | 35- 75 | 50-100 | 55-125 |

*Assuming continuous rows 4 ft to 10 ft (Diffuser) or 9 ft (Lens) on centers with luminaires at 10-ft mounting height normal upward component will be redirected through the luminaire. Where surface-mounting is required, it is generally preferable to use luminaires specifically designed for the purpose. Fig. 2 illustrates such a luminaire and the scissors curve plot for three lampings and sizes which are typical for this unit.

Row spacings to provide 100 fc are given in Table 2. Close row spacings of this type of equipment can have a good appearance while minimizing shadows and reflected glare. Hence a spacing of 4 ft between row centers would be desirable, and the maximum spacing for uniform illumination would be 8 ft if the mounting height were 10 ft. This range was used for the summary in Fig. 2. Slightly wider spacings can be used with 2-lamp, 2-ft-wide units than with 2-lamp, 1-ft-wide units because lamps operate at lower temperature and there is less trapped light.

TABLE 3. PLASTIC WRAP-AROUND SURFACE UNITS USING 430 ma LAMPS

(Continuous row spacings for 100 fc)



| Room Ratio | Diffuser 2-lamp | High Efficiency Lens Narrow—2-lamp | High Efficiency Lens-Wide 2-lp. | High Efficiency Lens-Wide 3-lp. | High Efficiency Lens-Wide 4-lp. | Low Brightness Lens, 2-lamp |
|---|---|---|---|---|---|---|
| | Space Between Rows, ft | | | | | |
| 0.8 | 2½ | 4 | 4 | 6 | 7½ | 3 |
| 1.5 | 3½ | 5½ | 6 | 9 | 11 | 4 |
| 3.0 | 4½ | 7 | 7 | 10½ | 13 | 5 |

Maximum spacing: diffuser 1.0, lens 0.9 x mounting height

Another significant advantage of the 2-lamp, 2-ft-wide luminaire is that it is the only unit having a brightness distribution within the scissors curve limits. These units, therefore, would be first choice in this group, although practical illumination levels are somewhat limited.

A somewhat different form of equipment designed for surface mounting is the plastic wrap-around. Initially, such luminaires had a simple, diffusing closure or wrap. In more recent years, advancement in technology of plastics has made possible the accurate formation of re-

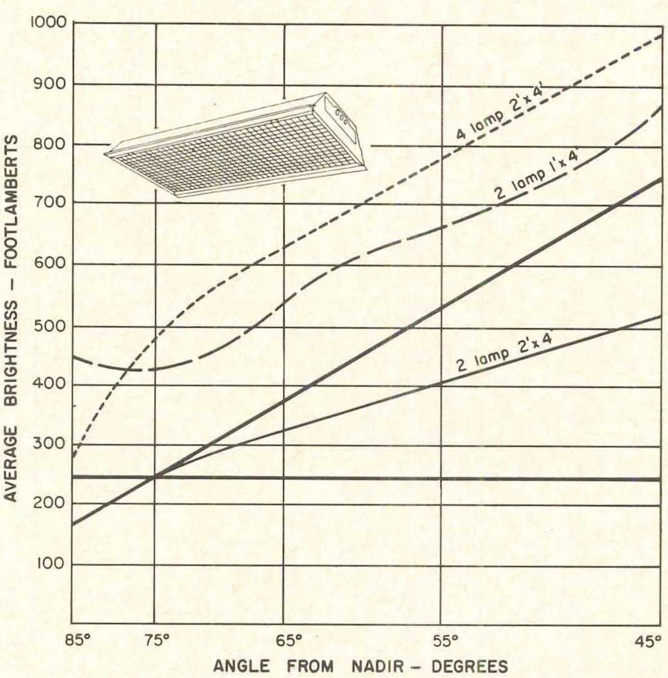



Fig. 4. Brightness comparison for white enameled troffer with 45-degree plastic louver and 430 ma lamps

Summary of practical, maintained illumination ranges:

| LAMPING AND SIZE | BRIGHTNESS RATING | ILLUMINATION RANGE, Fc* SMALL ROOMS | MEDIUM ROOMS | LARGE ROOMS |
|---|---|---|---|---|
| 2 Lamp 1'x4' | Fair | 40- 75 | 50-100 | 65-130 |
| 2 Lamp 2'x4' | Excellent | 45- 90 | 65-130 | 80-160 |
| 4 Lamp 2'x4' | Fair | 100-190 | 125-250 | 150-300 |

*Assuming continuous rows spaced 4 ft to 8 ft on centers with luminaires at 10-ft mounting height

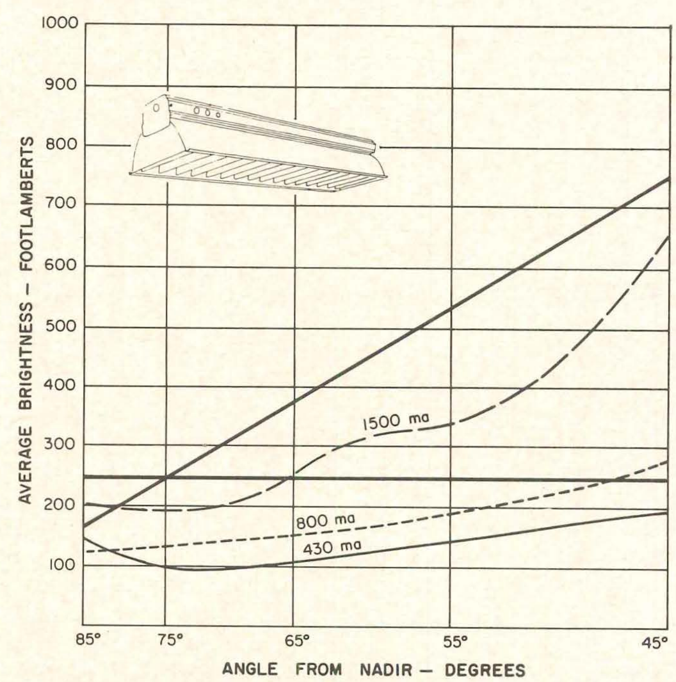



Fig. 5. Brightness comparison for aluminum troffer with 45- by 45-degree louver

Summary of practical, maintained illumination ranges:

| LAMPING | TROFFER | BRIGHTNESS RATING | ILLUMINATION RANGE, Fc* SMALL ROOM | MEDIUM ROOM | LARGE ROOM |
|---|---|---|---|---|---|
| 430 ma | Single | Excellent | 30- 50 | 30- 65 | 30- 80 |
| | Twin | Excellent | 40-100 | 50-130 | 60-160 |
| 800 ma | Single | Excellent | 30- 65 | 30- 85 | 35-100 |
| | Twin | Excellent | 50-130 | 60-170 | 70-200 |
| 1500 ma | Single | Very Good | 45-115 | 60-150 | 65-170 |
| | Twin | Very Good | 90-130 | 120-300 | 130-340 |

*Assuming continuous rows spaced on 3- to 8-ft centers with luminaires at 10-ft mounting height fracting prisms in clear plastic extrusions with a much higher degree of light control, improved utilization, and lower brightness in the direct-glare zone. The improvement in utilization can be noted in Table 3 where it is apparent that 2-lamp units with a diffusing wrap are not practical for 100 fc installations but a well-designed prismatic closure does permit practical spacings for 100 fc. It can also be seen that even higher levels can be obtained practically with 3-lamp or 4-lamp prismatic units.

The brightness control advantages of properly-designed refracting closures are shown in Fig. 3. It can be seen that the uncontrolled diffusing closure has the highest brightness of any of the 2-lamp units. The 2-lamp, high-efficiency, prismatic, wrap-around unit has somewhat better brightness control despite its higher efficiency, because the light is directed down to the work plane and away from the direct-glare zone. Only the low-brightness prismatic unit, however, has a brightness distribution entirely below the scissors curve limiting line.

### Recessed Troffers

Recessed lighting installations are becoming increasingly popular, and white-enameled troffers similar to the one illustrated in Fig. 4 are often used. The performance of such units is similar to that of the surface unit illustrated in Fig. 2 although there are small differences in the data as shown by Table 4 and Fig. 4. The installation shown in Fig. 6 is typical of results that can be obtained with this type of lighting.

The more highly loaded lamps have been applied thus far in this discussion only in the direct-indirect luminaires. The scissors curve brightness comparisons have also indicated that

TABLE 4. WHITE ENAMELED TROFFER WITH PLASTIC LOUVER USING 430 ma LAMPS

(Continuous row spacings for 100 fc)

| Room Ratio | 2-lamp 1'x4' | 2-lamp 2'x4' | 4-lamp 2'x4' |
|---|---|---|---|
| | Space Between Rows, ft. | | |
| 0.8 | 3+ | 4— | 7+ |
| 1.5 | 4+ | 5+ | 10 |
| 3.0 | 5+ | 6+ | 12 |

Maximum spacing: 0.8 x mounting height

even if it were possible to use 800 ma or 1500 ma lamps in the surface or recessed units discussed, they would not be at all satisfactory from the brightness standpoint. It is known, however, that considerably better brightness control is possible in troffers having properly-contoured aluminum reflectors for each individual lamp. Furthermore, the size of such units and the fact that they require only one lamp per foot of width results in a much cooler operation of the luminaire.

Continuous-row spacings of such a luminaire with 430 ma, 800 ma, and 1500 ma lamps are shown in Table 5. The high degree of brightness control afforded by such a unit is shown in Fig. 5, and it is evident that comfortable installations can be provided even with the 1500 ma lamp. In fact, it is only with the more highly loaded lamps that this unit is practical, since the row spacings with 430 ma lamps are absurdly

TABLE 5. SINGLE LAMP ALUMINUM TROFFER WITH 45-deg LOUVER

(Continuous row spacings for 100 fc)

| Room Ratio | 430 ma | 800 ma | 1500 ma |
|---|---|---|---|
| | Space Between Rows, ft. | | |
| 0.8 | 1½ | 2 | 3½ |
| 1.5 | 2 | 2½ | 4½ |
| 3.0 | 2½ | 3 | 5 |

Maximum spacing: 0.8 x mounting height

close except at relatively low illumination levels. Since a wide range of illumination levels can be satisfactorily provided by the 800 ma and 1500 ma units and since adequate brightness control is provided with these lamps, there is no reason for using 430 ma lamps in this unit. Because the low brightness of this unit makes it tend to blend into the ceiling, it is believed that a somewhat closer row spacing of 3 ft between centers can be used, and this was used in developing the summary of results for Fig. 5. It should also be noted that either single or twin versions of this unit may be used, with the twin unit consisting of two of the 1-ft-wide reflectors banked together in a structural assembly.

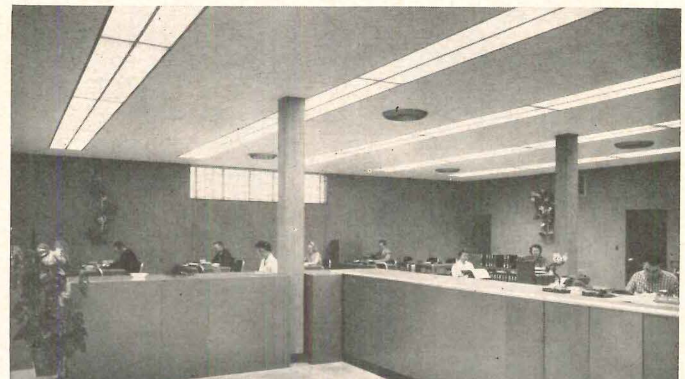
Since the ballasts for the more highly loaded lamps are somewhat noisier, some concern has been expressed regarding the use of these ballasts in office applications. It should be recognized, however, that the overall noise level of a lighting installation is the cumulative effect from all of the ballasts in the area. It can be shown by sound-rating calculations that in offices with good acoustical ceilings the total noise level of an installation of 2-lamp ballasts for 8-ft 1500 ma lamps will be below the normal 40-45 db ambient noise level of an office. In fact, it can be shown that the ballast noise level for such an installation will be only slightly higher than that of an installation of 2-lamp 430-ma units because there would then be four times as many 430-ma ballasts.

Figure 7 shows a 125 fc installation of twin aluminum troffers with 8-ft, 1500 ma lamps which proved highly satisfactory.

The approach to selection described here can be applied to any other luminaires desired.

Fig. 6. Office lighted with recessed, white enamel, 2- by 4-ft troffers using 430-ma lamps

Fig. 7. Office lighted with twin aluminum troffers using 8-ft, 1500 ma lamps to provide 125 fc



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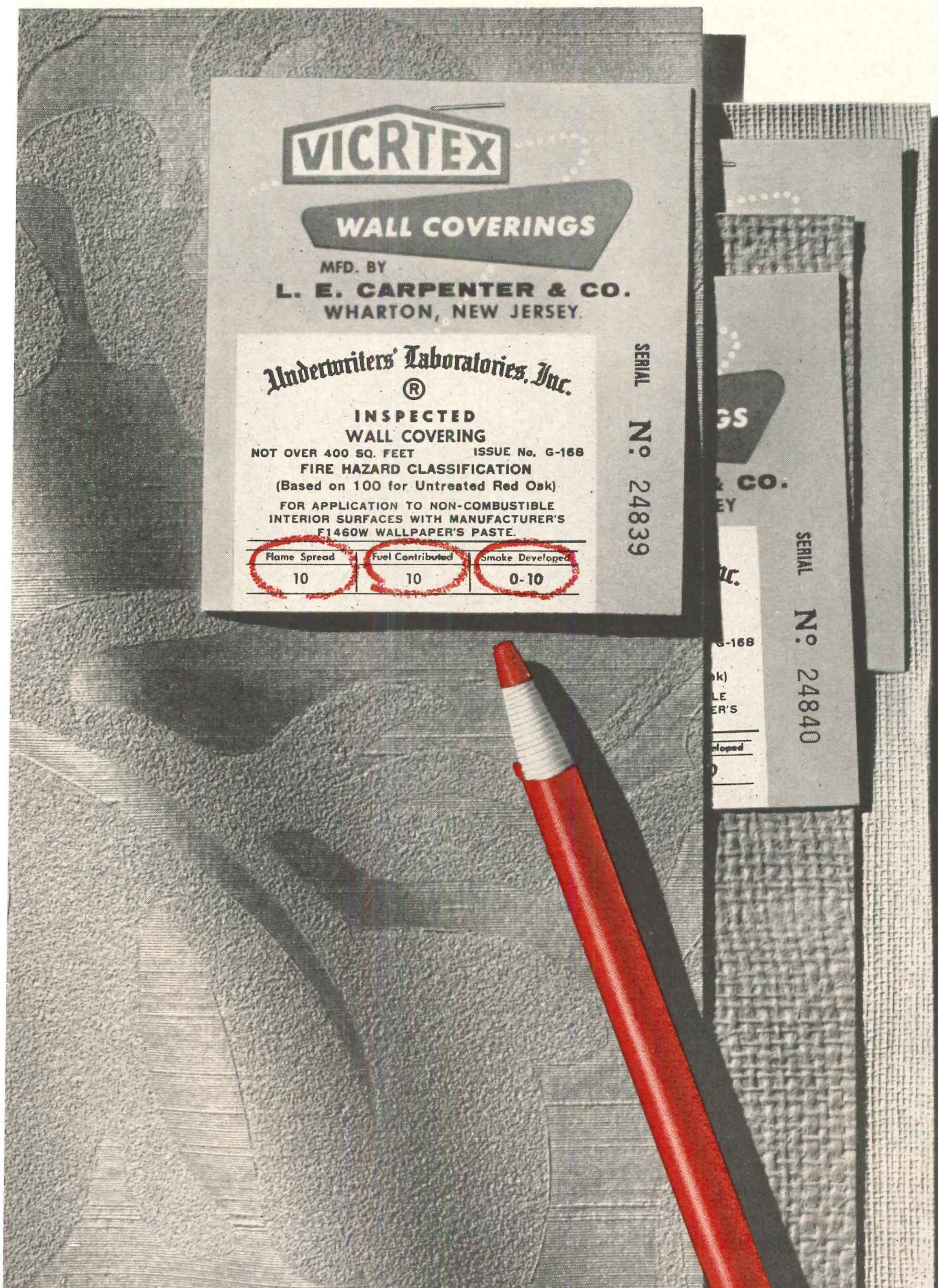


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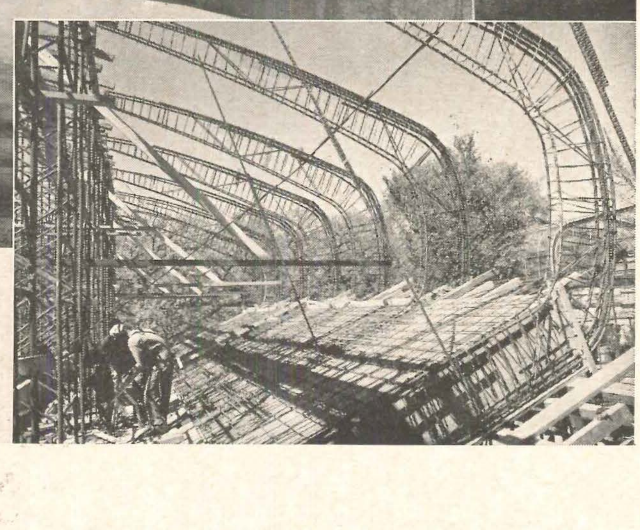

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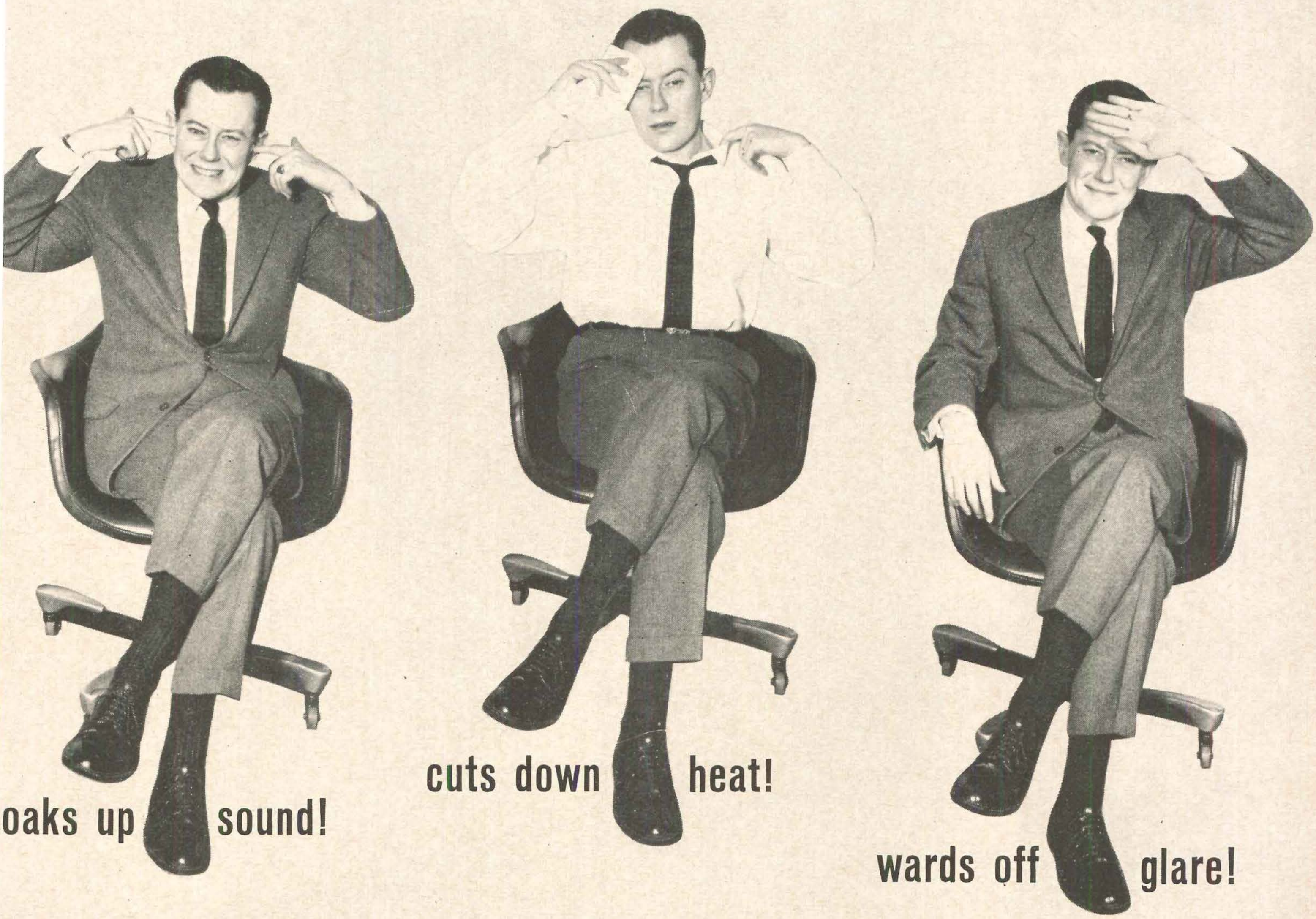


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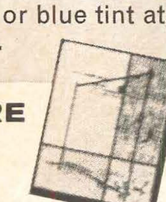

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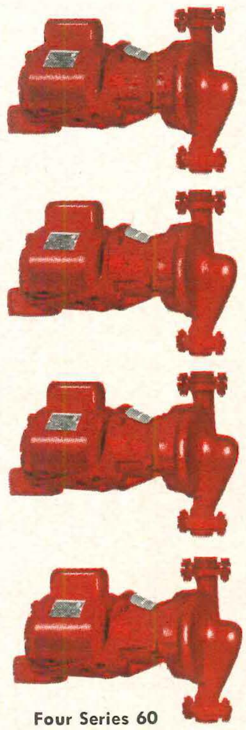

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# HOW TO PREVENT JOINT SEALANT FAILURES

*by Julian R. Panek*

*This article is taken from a paper presented at the Building Research Institute 1962 Spring Conferences, April 24-25. It was part of a program on "New Joint Sealants: Criteria, Design and Materials"*

Sealants are said to fail whenever they lose adhesion or split apart. Although the causes of failure are varied, experience has shown that it can be prevented, in nearly all cases, by reasonable attention to selection, specification and application. This review is offered in the hope that closer examination of the causes of sealant failure may help to reduce its occurrence. Let us first list the causes that we will consider specifically in this review:

1. Improper Choice of Sealants
2. Improper Sealant Formulation
3. Improper Sealant Dimensions
4. Excessive Joint Movement
5. Insufficient Experience with Uncommon Metallic Surfaces
6. Surface Contamination
7. Inconsistent Concrete and Masonry Surfaces
8. Improper Specification
9. Improper Substitution of Sealant

**1. Improper Choice of Sealant**

In selecting a sealant for moving joints, there is always some question as to whether a sealant should be permanently soft, like chewing gum—or should exhibit rubbery properties with recovery. The rapidity of joint movement determines the type of sealant to be used. This movement can be caused by solar heating, by vibration, or by wind buffeting. A soft, nonsetting and deformable sealant should only be used where there is no anticipated movement or where the sealant is completely confined and cannot flow. A rubbery sealant with recovery should be used whenever there is movement.

The need for recovery has been established from many studies in oscillating joint movement where the rubbery sealants outlasted the nonsetting sealants by an enormous margin. When slow or rapid movement occurred, nonsetting sealants soon flowed or split apart. On buildings, these nonsetting sealants have been observed to sag since they are also subject to thermoplastic flow.

The Canadian specification for elastomeric sealants includes a test that calls for 600,000 oscillations in a joint assembly to establish the recoverability of a sealant. Therefore it is quite apparent that serious consideration be given to the type of sealant to be used.

**2. Improper Sealant Formulation**

In its simplest form, a sealant is a system consisting of a binder with various fillers, plasticizers, and additives, which converts to a rubbery state either upon the addition of a curing catalyst or upon exposure to the air. In every case, there has to be a satisfactory relationship between the volume of binder to the complete sealant. It is quite apparent that the excessive use of fillers and of plasticizers will reduce the binder component and the system will have shortcomings.

On the other hand, the mere fact that many sealants have the same backbone binder does not imply that these sealants will perform equally well. There is a vast difference in the behavior and performance of such sealants. Because sealant formulations are usually closely guarded secrets, the specifier may feel that he is being hoodwinked when the suppliers will not tell their formulations, so that they may be included in the specification. This might be an easy matter, if the specifier were to assume all the responsibility for the performance of sealants. This is sheer folly—when we recognize that there are thousands of sealant formulations, with their many binder components and fillers, and a whole host of other problems relating to performance. It is obvious that the specifier cannot draw up a material specification all on his own.

The alternative is that the specifier demand performance and leave the formulating up to the processor. There are many devices that the specifier can use to get better sealant performance. He can measure quality by comparing prices and look with suspicion on very low cost sealants. He can demand proof of performance and look to past history of performance. He can work with reputable processors and applicators. He can require guarantees and he can use performance specifications in specifying his sealant. He might even supplement existing performance specifications to take care of unusual conditions on the building site.

**3. Improper Sealant Dimensions**

Even though sealants may be properly formulated, they may fail dismally if the sealant dimensions are not proper in the joint.

The subject breaks down in its simplest form to a relationship of joint width to sealant depth. The configuration giving the lowest internal strain is a ribbon. But, adhering a narrow ribbon to the edge of the joint is difficult. Moreover, the ribbon can carry no load. Thus, to improve adhesion and load-bearing characteristics, we must of necessity increase the sealant depth.

At the other extreme, maximum adhesion to the side of the joint would be obtained with an infinite depth which is also undesirable since the sealant could not flex with joint movements. Thus, there is no ideal configuration, since many of the requirements are conflicting.

General rules have been established for sealant dimensions in joints which if followed more often, would eliminate many failures. Three rules would cover most sealant dimensions:

a. No contacting surface shall be less than ¼ in.

b. The depth of the sealant and the width of the sealant shall be of equal dimension up to ½ in.

c. At widths from ½ to 1 in., the depth shall remain at ½ in.

JULIAN R. PANEK is manager, Technical Department, Chemical Operations, Thiokol Chemical Corporation. He also is the secretary of A.S.T.M.'s Committee C-24 on Joint Sealants

**4. Excessive Joint Movement**
Many sealant failures occur because of excessive joint movement. We have seen ¼-in. wide joints open up to 1 in. and completely close on the other extreme. Only a sealant that performed like an ideal gas could perform under these conditions, and there is no ideal gas! Most sealant manufacturers have stated that a sealant in a joint should be capable of being extended or compressed to a value of 50 per cent of its original dimension. To include a factor of safety these sealant manufacturers have worked together to develop a specification which calls for 100 per cent extensibility beyond the original dimension in many test assemblies. Because of physical limitations in space geometry of the sealant, values above 50 per cent are not realistic and for this reason architects should design joints around the practical limitations of sealants, rather than leave the joints to be sealed by an "infinitely extensible, compressible, and frictionless sealant."

In order to minimize internal strain within a sealant, the sealant should never adhere to the back of the joint. We have seen instances where a back-up plate was welded to one side of a joint assembly. When this joint opened up, it created an unusual strain on the sealant in the corner that was opened up. The sealant had to tear apart at this point of stress. Furthermore, if this joint will close beyond the original width of the sealant, then the back-up joint filler must be either air or a compressible material, such as a closed-cell butyl extrusion, a urethane foam, or a neoprene tube.

Some very sad experiences have been observed where sealants have been applied over a pourable grade of asphalt or asphalt-impregnated expansion strips used as a void filler. When these joints closed beyond the original dimensions of the sealant, the asphalt acted like a hydraulic pump and physically displaced the sealant. Various nebulous expressions were coined, such as "incompatibility," and "limited compatibility," to blame sealant failure in these situations. The actual cause of failure was the use of an incompressible joint filler in a narrowing joint. The use of a porous, compressible back-up filler gives the sealant some breathing space when the joint closes beyond its original dimension. Also, the use of the filler provides a good way to control the depth of the sealant in the joint for optimum performance.

**5. Insufficient Experience with Uncommon Metallic Surfaces**
Studies of the more common building surfaces have shown that good sealant adhesion can be expected with various steels and stainless steels, glass, and the various alloys of aluminum. On the other hand, individual sealants may not have been tested against surfaces based on lead, zinc, copper and tin, and various alloys of these metals. There is no reason to assume that all metallic surfaces are identical when discussing sealant adhesion. We have seen too many cases where generalization has resulted in poor performance. Our recommendation is that all uncommon metallic surfaces should be given extra attention. There is no reason why the architect cannot demand performance against any specific surface. Many sealant manufacturers are willing to test their various sealants in new designs in order to prove feasibility. An uncommon metallic surface should offer no problem if performance against this surface is specified and laboratory testing shows the sealant will perform.

**6. Surface Contamination**
There is no sealant on the market today that will absorb all surface contamination, penetrate through oil films, paint films, dirt and dust in order to get at the virgin surface, and give 20 years of satisfactory adhesion and performance. Since the architect cannot supervise every inch of installation, he should require a guarantee on the part of the applicator. If he selects a reputable applicator, he can be reasonably certain that the sealant has been applied in a clean joint. The architect might anticipate surface contamination and require protection of surfaces by the use of masking tape. This protective tape would be removed just prior to the application of the sealant. It may be argued that this practice would increase cost, but this cost could be less than the cost of labor required to clean the joint prior to application of the sealant.

**7. Inconsistent Concrete and Masonry Surfaces**
Natural stone and concrete vary considerably in hardness and texture and the surfaces of these materials are very often soft and friable. Too often, we have observed sealant failure where the sealant surface was completely covered with delaminated stone and concrete particles. This is actually a proof not of sealant failure, but of surface disintegration of the stone or concrete. There are two ways to prevent this condition. One is by using a penetrating primer to reinforce the surface. The second is to use a lower modulus sealant. Primers are used extensively at the present time on all stone and concrete surfaces. These primers, in addition to reinforcing the surface, keep water away from the interface, and cause better and more lasting adhesion. I mentioned that lowering the modulus of the sealant would be desirable in preventing delamination of stone or concrete. We know that the tensile strength of concrete is approximately 400 psi. We also know that some sealants have ultimate tensile strengths of 600 psi, if they contain excess filler, and cure to a tough rubber. Such a combination—in addition to excessive joint movements—will always lead to a failure whether in adhesion or surface delamination. It would be desirable if a list of tensile values for the various natural stones and concrete could be made available so that these values could be used to establish some maximum modulus values for sealants. This is fertile ground for future specification writers.

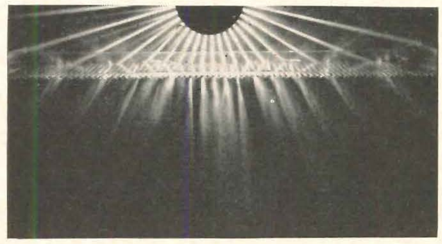
In addition to the variable composition and strength of concrete affecting adhesion, the problem has been further aggravated by the use of form oils, anti-freeze additives, fast setting additives, surface coatings to prevent evaporation, and surface coatings for water-proofing and decoration. In addition to these variables, the dimensions of expansion joints in concrete are not consistent with the recommendations for joint and sealant dimensions noted in Part 4 on *Excessive Joint Movement.* For these reasons, many sealant manufacturers today do not attempt to sell materials for this type of application; others make a critical study of all conditions before selling sealants.

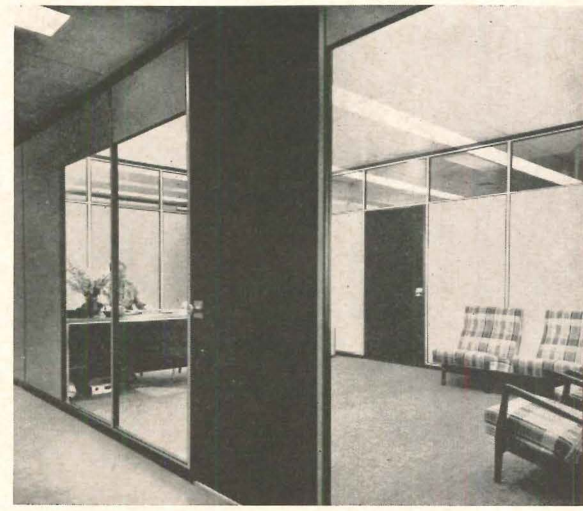
Quarry tile and brick offer a different type of surface. Here the surface is hard like glass and yet may

*Continued on page 224*

## PRISMATIC LENSES GIVE LOW-BRIGHTNESS LIGHTING

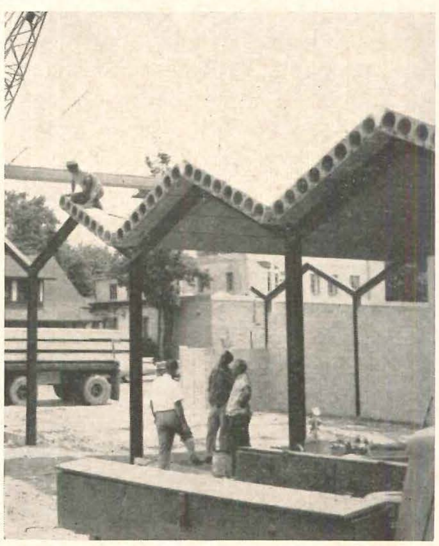
Frameless prismatic lenses of molded acrylic plastic were used in the Equitable Building in New York to provide low brightness lighting. Each lens has integral stiffening flanges on all four sides forming a self-contained fixture closure without metal frames.





Prismatic lenses avoid excessive brightness by controlling the direction of light-ray travel. Light is bent downward into the work area at angles which prevent it from shining directly into people's eyes. Since glare-producing brightness is the luminous intensity projected from a source to the eyes of a viewer, by directing the light downward away from the line of sight, objectionable glare is avoided. Troffers at Equitable have reflectors above lamps so that lens-prisms receive and re-direct all light available. *Holophane Co., Inc., 342 Madison Ave., New York 17, N.Y.*

## PRESTRESSING AVAILABLE IN PRECAST CONCRETE SLABS



Flexicore precast concrete floor and roof slabs are now available as prestressed units which give longer clear spans and greater load carrying capacities than the company's standard units. High-tensile wire strands are tensioned before the concrete is cast in steel forms.

Erected units form a rigid deck with hollow cells for utility ducts or raceways. The new units are made in 8- by 16-in. sections, in lengths to 32 ft for roof spans and 26 ft for floor spans. *The Flexicore Company, Inc., 1932 East Monument Ave., Dayton 1, Ohio*

## HIGHER, THINNER BRICK WALLS A POSSIBILITY WITH NEW MORTAR

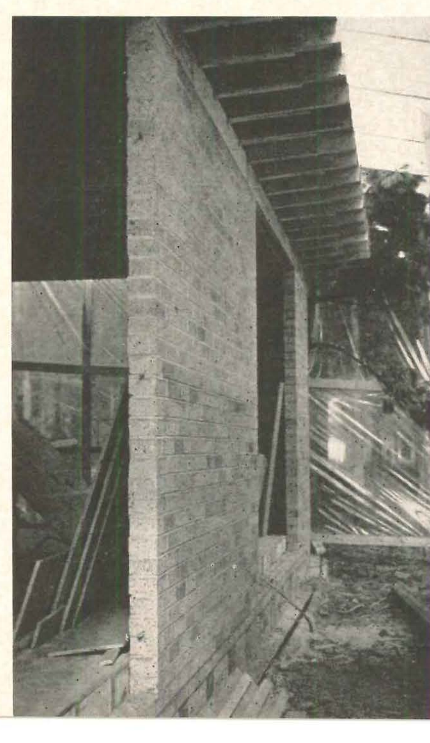
A still experimental mortar may permit structural walls only 4-in. thick with compressive and shear strength equivalent to conventional walls of double wythe 4-in. brick or 8-in. concrete block. Six-inch brick with *Sarabond* could replace a 12-in. composite wall of brick and concrete block.

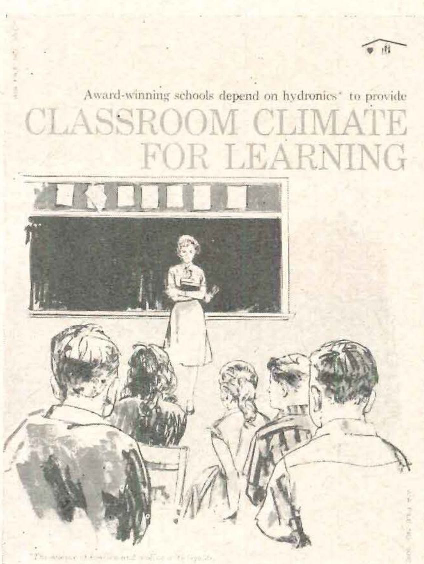
The mortar was used in building 18 free standing walls of 4-in. brick at the Gas Industry Pavilion at the Seattle World's Fair. Original specifications called for 8-in. masonry reinforced with steel.

Although the price of *Sarabond* is substantially higher than that of regular mortar, the savings in amount of brick used and added usable space is expected to offset this higher cost.

Much of the testing, done in cooperation with the Structural Clay Products Institute, is already completed. More tests are being conducted to get additional information from actual construction and to determine proper control methods. *Dow Chemical Co., Midland, Mich.*

*more products on page 250*



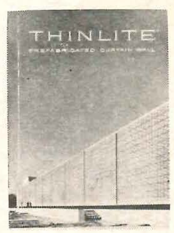



**School Hydronic Heating**
(A.I.A. 30-C) A non-technical booklet about hydronic heating and cooling systems for schools is designed for use by architects and engineers in helping clients better understand modern school heating and cooling systems. *Better Heating-Cooling Council, 250 Park Ave., New York 17, N.Y.*

**Fireplace, Chimney Construction**
Recommendations for safe fireplace and chimney construction, with drawings and ASTM specifications, are in a six-page illustrated bulletin. *Clay Flue Lining Institute, 161 Ash St., Akron 8, Ohio*

**Built-Up Roofs**
(A.I.A. 12-B) A roof selector guide is included in a 28-page catalog which lists specifications and application data for built-up roofs. *The Philip Carey Mfg. Co., 320 S. Wayne Ave., Cincinnati 15, Ohio**

**Glass Tile Curtain Wall**




(A.I.A. 17-A) New designs now available with *Thinlite* glass tile panels in 4- by 2-ft or 5- by 2-ft modules are described in an eight-page booklet. The panels are made of 2-in thick hollow glass tiles and in three general grid patterns. *Owens-Illinois Glass Co., Toledo 1, Ohio**

**School Lighting**
(A.I.A. 31-F-2) A 16-page booklet gives detailed information on important factors in lighting schools, including recommended levels of illumination and ways to control glare. *Art Metal Lighting Div., Wakefield Corp., Vermillion, Ohio*

**Metal Building Components**
Four catalogs from Mahon illustrate their product lines with pictures of installations. Engineering data and suggested specifications are included in each 16-page booklet. *Catalog M-62* (A.I.A. 17-A) covers steel-cellular floor sections. *Catalog G-62* (A.I.A. 16-D) illustrates the complete line of rolling steel doors. *Catalog D-62* (A.I.A. 12-C) covers steel deck roofs. *Catalog W-62* (A.I.A. 17-A) describes insulated curtain walls and single-sheet siding for walls and interior partitions. *The R. C. Mahon Co., Detroit 34, Mich.**

**Anodic Coating Standard**
Available on letterhead request is a 12-page booklet covering quality requirements and conformance tests for anodically coated aluminum alloys used in architectural applications. *The Aluminum Assoc., 420 Lexington Ave., New York 17, N.Y.*

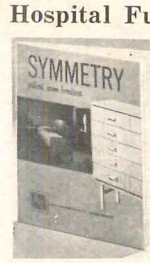
**Working with Aluminum**


(A.I.A. 15-J) Design considerations and engineering data about how to work with aluminum for structural and decorative uses are contained in "Architectural Aluminum," a 24-page booklet. *Metals Div., Olin Mathieson Chemical Corp., 400 Park Ave., New York 22, N.Y.**

**Elevators and Escalators**
Vertical transportation for all purposes is described in a 24-page catalog, which includes a selector chart showing types of equipment available to meet service requirements. *Otis Elevator Co., 260 11th Ave., N.Y. 1, N.Y.**

**Gypsum Roof Decks**
(A.I.A. 4-L) "Design Data for Poured Gypsum Roof Decks" is a 14-page booklet with complete property tables, including cross section details on curbs, skylights, etc. *Gypsum Roof Deck Foundation, 1201 Waukegan Rd., Glenview, Ill.*

**Hospital Furniture**




Illustrations of an expanded line of patient room furniture are included in a 20-page catalog. Two models of high-low hospital beds are included. Interior and exterior surfaces are laminated plastic. *National Hospital Furniture, Odenton, Md.*

**Panel Enclosure System**
(A.I.A. 35-H-6) Specifications and installation data are included in a 6-page folder describing dual-panel system of underwindow enclosures. *Buensod-Stacey Corp., 45 W. 18th St., N.Y. 11, N.Y.*

**Costs of Curtain Walls**
(A.I.A. U-6) "Ultimate Cost of Building Walls" is a 36-page booklet which analyzes three types of exterior curtain walls. Initial and anticipated costs are given in detailed tables and charts. *Structural Clay Products Institute, 1520 18th St., N.W., Washington 6, D.C.**

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

*more literature on page 278*

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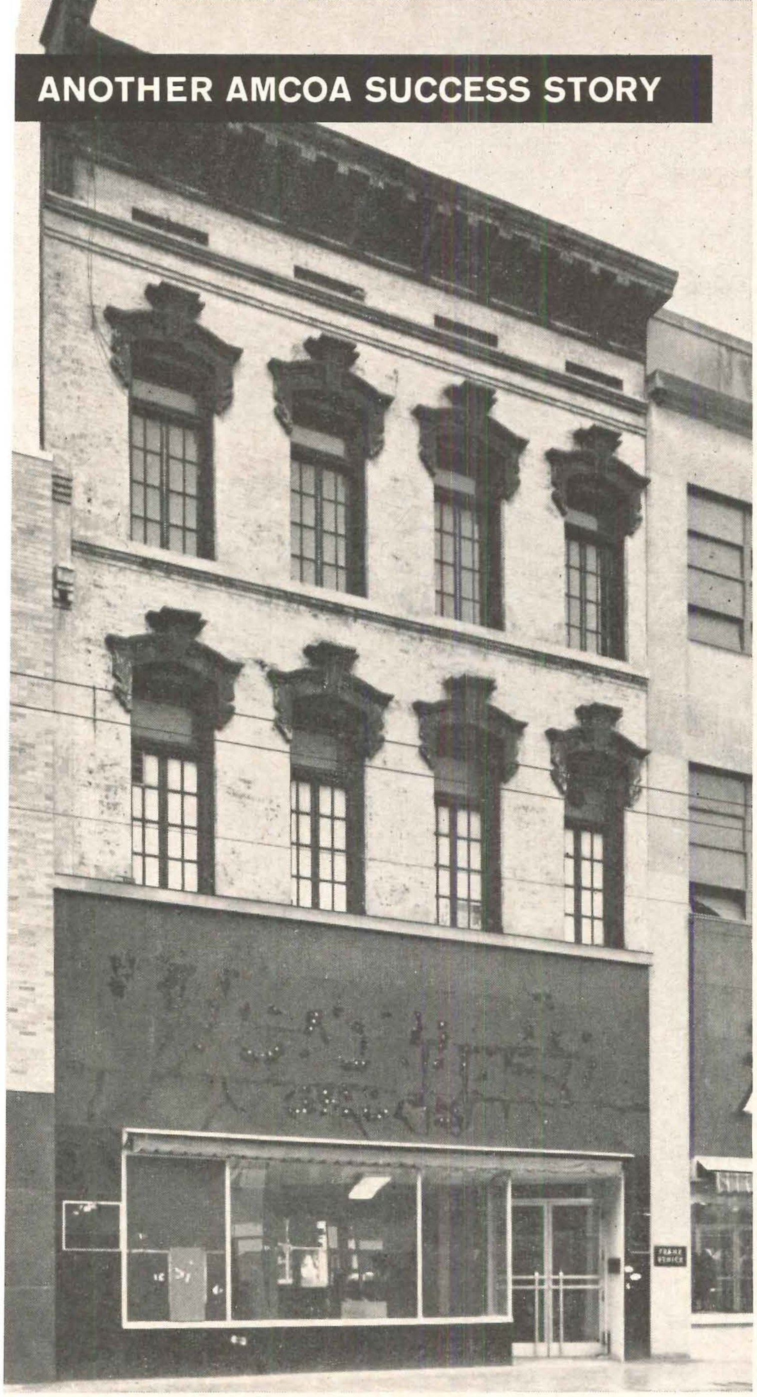

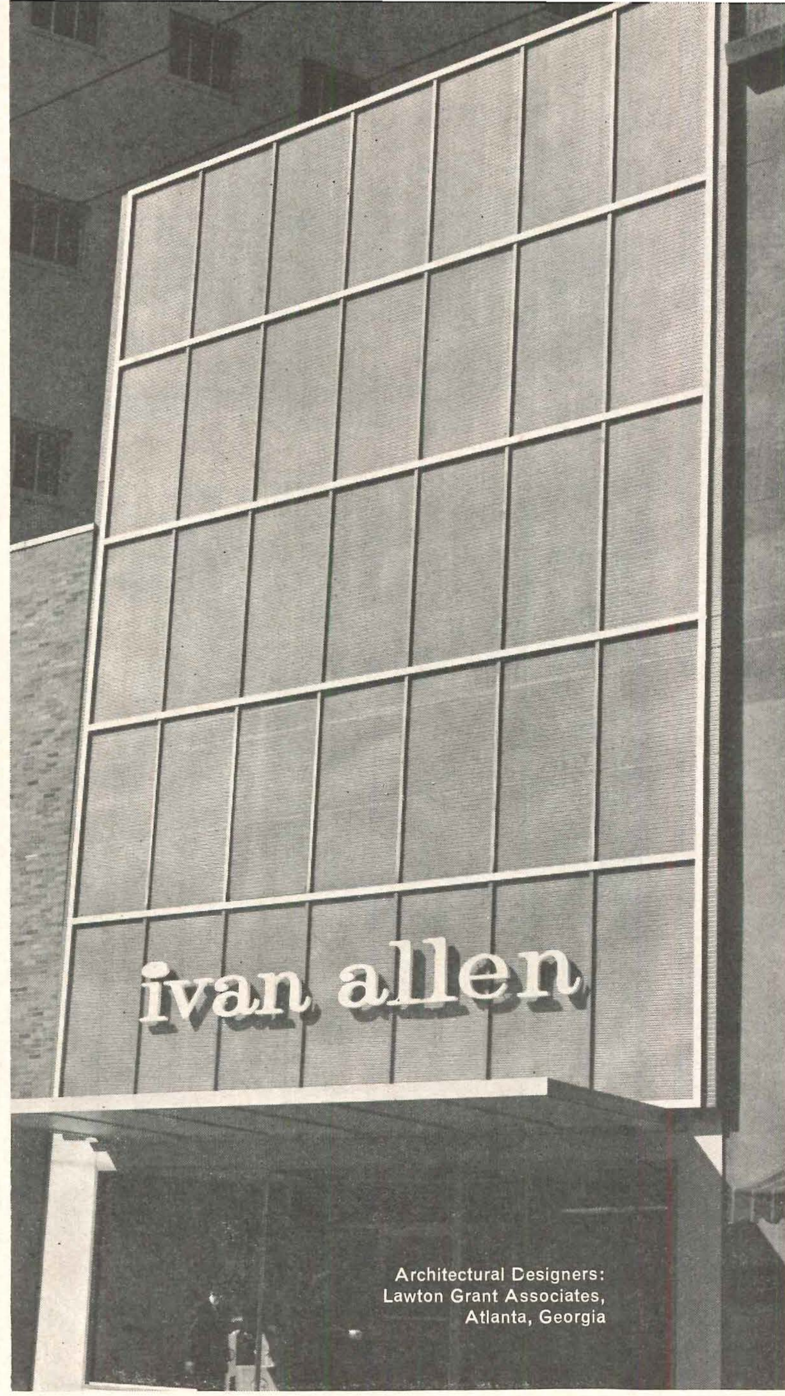


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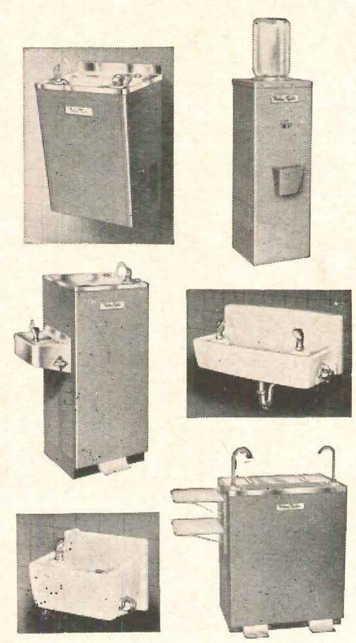

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# *Joint Sealants*

*continued from page 218*

have some porosity. We are aware that exposed surfaces of some quarry tiles are treated with paraffin; many building bricks are treated with a silicone material. Because the degree of surface contamination varies from batch-to-batch, no prediction can be made regarding sealant adhesion and performance. On the other hand, laboratory tests on materials collected at the job site will quickly establish reliable data for proper selection of sealant and primer. We have been directly involved in testing sealant adhesion to a silicone treated brick and found that the surface contamination was very low. This condition in combination with the very rough, but strong surface of the brick, and the use of appropriate primer gave consistently good performance. We recommended a job-site test with available sealants, and recommended that the architect use a high standard specification for the sealant.

Many types of adhesion failure can occur on quarry-tile installations on roof decks. In addition to the slightly porous, but hard glassy surface that may be contaminated with paraffin, quarry-tile roofs are often laid on asphalt-covered concrete decks. Such a condition may result in a hydraulic effect from solar heating and may cause surface contamination from asphalt. The tiles can also drift where the deck is slightly pitched to handle surface drainage. The accumulated drift may close up some joints and open others. Many adhesion studies were run on quarry tile to evaluate the use of primers. Sand blasting of the edges in combination with certain primers gave good adhesion. Exceptionally good adhesion was obtained to freshly broken tile edges. We recommend that the tile manufacturers manufacture double tiles which could be broken along a dividing marker to expose fresh surface for use in critical joint areas.

**8. Improper Specifications**
Many sealant failures have resulted from the use of improper specifications. Some specifications have consisted of one word, in the expectation that the use of the word automatically implied immunity from sealant failures. Nothing could be further from the truth.

**9. Improper Substitution of Sealant**
We have all seen the expression "Brand X or equivalent" used in specifying a sealant. Each sealant has its own distinctive set of properties and has no equivalent in performance. In many instances, where substitutions have been made, the responsibility for the performance of the new equivalent was never settled. Even more frightening than this is the question of responsibility for remedial work in case the substitute sealant fails. If an architect wants to specify a proprietary product but has to leave the door open, then he should state, "Brand X or a sealant meeting Specification Y with the following additional requirements"—and list these requirements. There will then be no question that the substitute sealant will meet minimum performance requirements.


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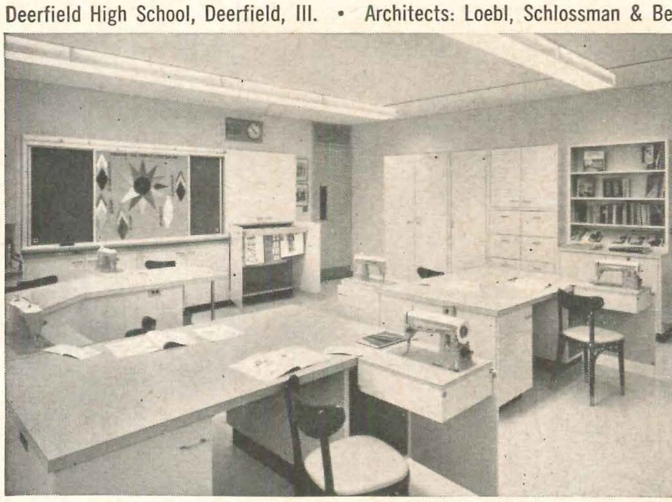

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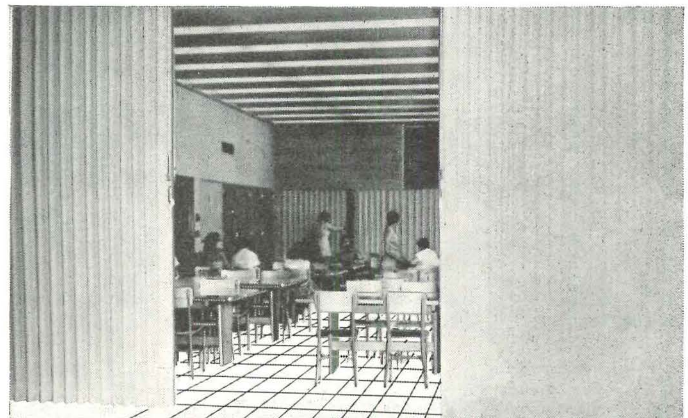

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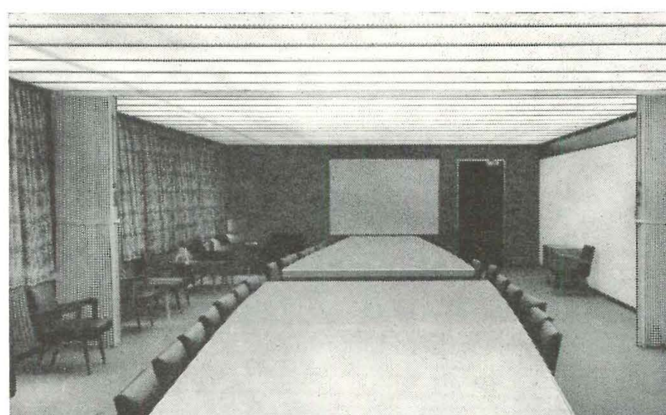

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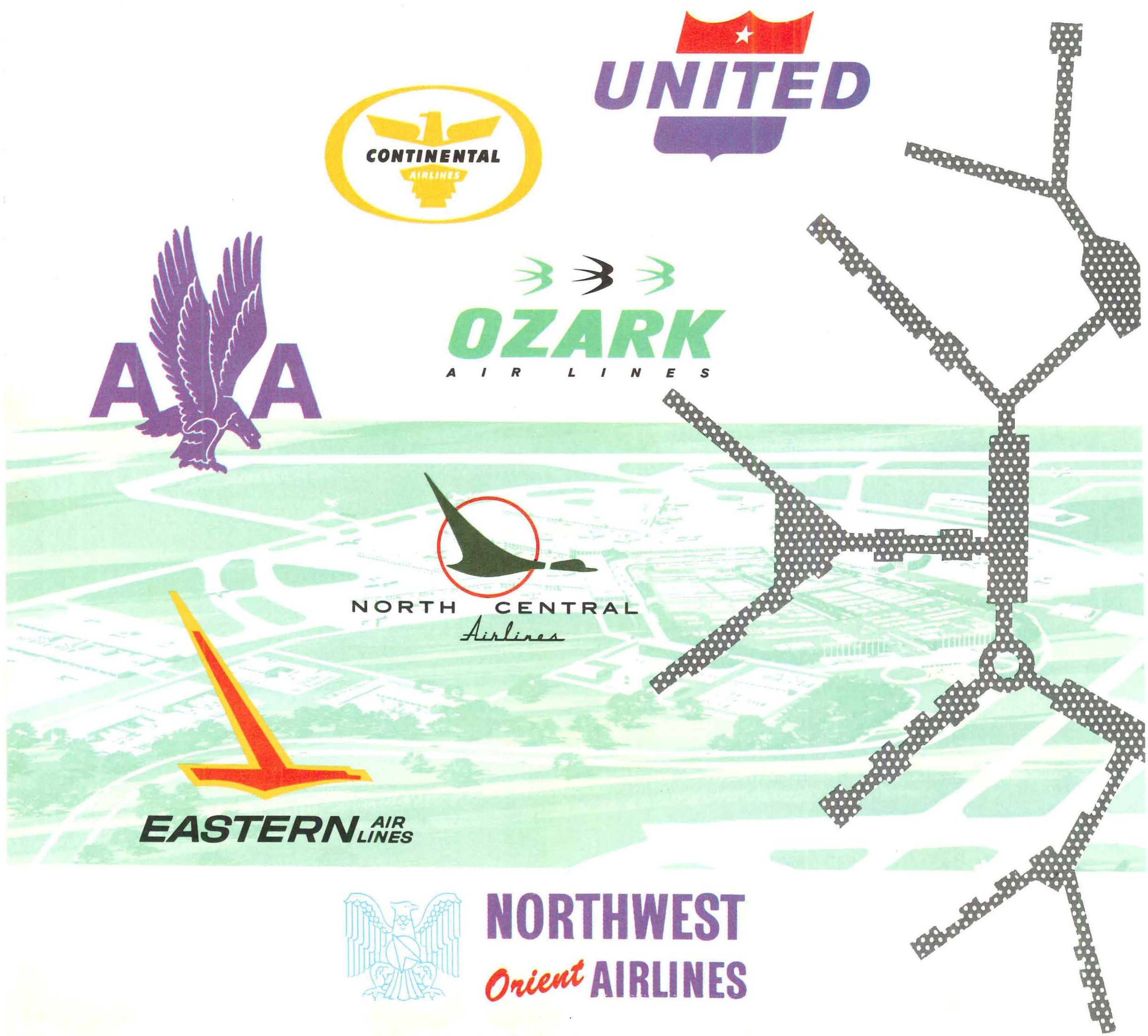

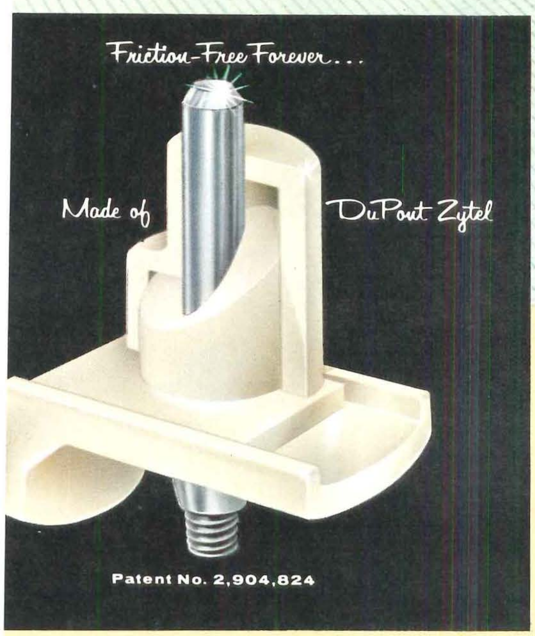


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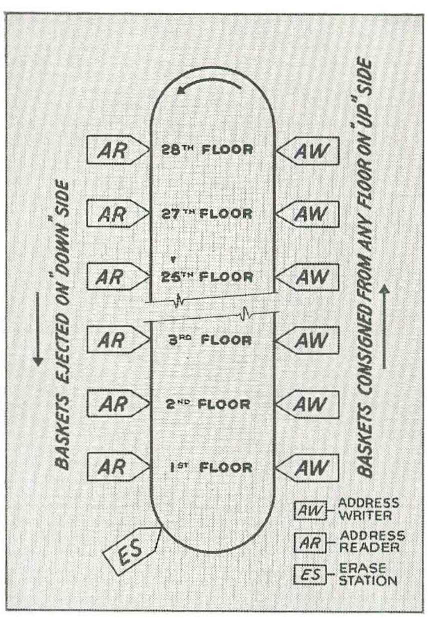
**STANDARD CONVEYOR** Recordlift distributes a daily volume of mail equal to a 1st class postoffice throughout the 28 stories of the Kaiser Center office building. The operator merely pushes a button to send the mail basket to the proper floor . . . button determines a magnetic code for address tabs on the conveyor carriage.

*KAISER CENTER, Oakland, California. ARCHITECTS: Welton Becket & Associates. GENERAL CONTRACTOR: Robert E. McKee General Contractors, Inc.*

# High speed mail distribution streamlines the paper flow in new Kaiser Center




**"Magnetic memory"** control system has no moving parts, no levers, no between-station wiring . . . nothing to wear out. Diagram shows how address "writers" and "readers" are located between the building's 28 floors. If you are planning a multi-story building where mail distribution can be a problem, get the full details now on fast and efficient Recordlift!

At Kaiser Center's towering new 28-floor office building, mail is distributed every half hour. Yet it's all done without the usual cost and confusion of interfloor mailboy traffic.

Instead, a modern and efficient STANDARD CONVEYOR *Recordlift* whisks the mail, interoffice correspondence and other vital business records to central dispatching mailrooms . . . rapidly, economically, automatically.

Dispatching is simple, speedy, selective. The operator merely puts the material in the container, pushes the button for the proper floor and *Recordlift* delivers it in minutes. Mailboy hours are saved . . . speed and efficiency are gained.

If you have a multi-story building project pending, remember *Recordlift*, the modern mail system. It saves your client the cost and clutter of interfloor mailboys . . . with push-button speed, economy and efficiency!

*Write today for illustrated data file . . . or simply clip this ad to your letterhead and mail it.*

## *Check into these typical Standard Recordlift Installations*

- Atlantic Coast Line Railroad Company, Jacksonville, Florida
- State of Minnesota Department of Highways, St. Paul, Minnesota
- Ohio Oil Company, Findlay, Ohio
- Ontario Hospital Services Commission, Toronto, Ontario, Canada
- Bank of America Service Center Building, San Francisco, California
- Bankers Life Company, Des Moines, Iowa
- State of California Compensation Insurance Fund Building, San Francisco, California
- State of Minnesota State Office Building, St. Paul, Minnesota
- State of Oregon, Salem, Oregon
- Western Electric Company, New York, N.Y.
- First National Bank, Minneapolis, Minnesota
- Lincoln National Life Insurance Company, Fort Wayne, Indiana
- City of Minneapolis, Public Library Division, Minneapolis, Minnesota
- Great West Life Assurance Company, St. Boniface, Manitoba, Canada
- Mutual Service Insurance Company, St. Paul, Minnesota
- State of Texas Employment Commission, Austin, Texas
- David Wohl Memorial Hospital, Washington University Clinic, St. Louis, Missouri
- State of California, California State Teachers Association, Burlingame, California
- Ohio National Life Insurance Company, Cincinnati, Ohio
- Research Hospital, Kansas City, Missouri

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**Standard Conveyor**
**COMPANY**
312-E Second St., North St. Paul 9, Minnesota

*Automatic Pneumatic Tube Systems • Recordlift Systems • Mechanized Dish Handling Systems • Escaveyor Continuous Vertical Conveyors • Custom Engineered Conveyor Systems • Sorting Systems, Automatic and Semi-Automatic • Heavy-Duty Conveyors for Industrial Plants, Factories, Special Applications • Pre-Engineered Handi-drive Conveyors and Components • Pallet Stackers and Dispensers • Case Unstackers • Spiral Chutes*

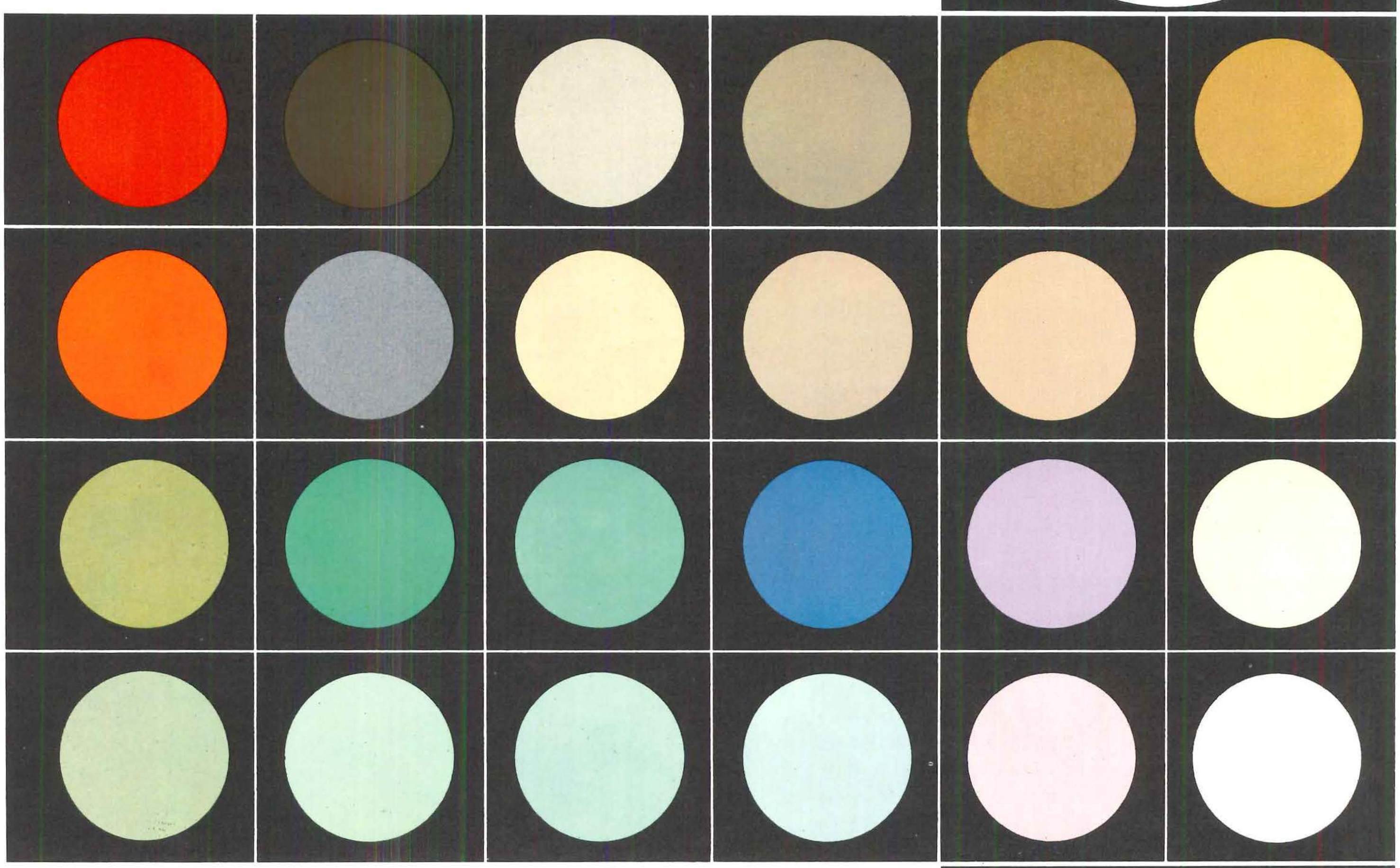
**Textolite**® LAMINATED PLASTIC

# NEW EXCITEMENT IN SOLID COLORS!

General Electric puts new life, new excitement into solid-color, high-pressure plastic laminates with an expanded line of 25 Textolite Solids. Note the collection of delicate pastels, plus bold new accent colors. Here is real design latitude. Write now for color samples.

*Progress Is Our Most Important Product*

**GENERAL ELECTRIC**



| | | | | | |
|---|---|---|---|---|---|
| circus red | oxford gray | gray | suede | cocoa | honey gold |
| pumpkin | stone gray | champagne | putty | beige | pale yellow |
| olive | jade green | turquois | copen blue | lavender | antique white |
| cactus green | ice green | pale aqua | polar blue | pale pink | white |

*All colors but black also available in glare-reducing textured finish*

SEND FOR FREE SAMPLES OF TEXTOLITE SOLID COLORS:
GENERAL ELECTRIC CO., COSHOCTON, O., DEPT. AR-52

NAME

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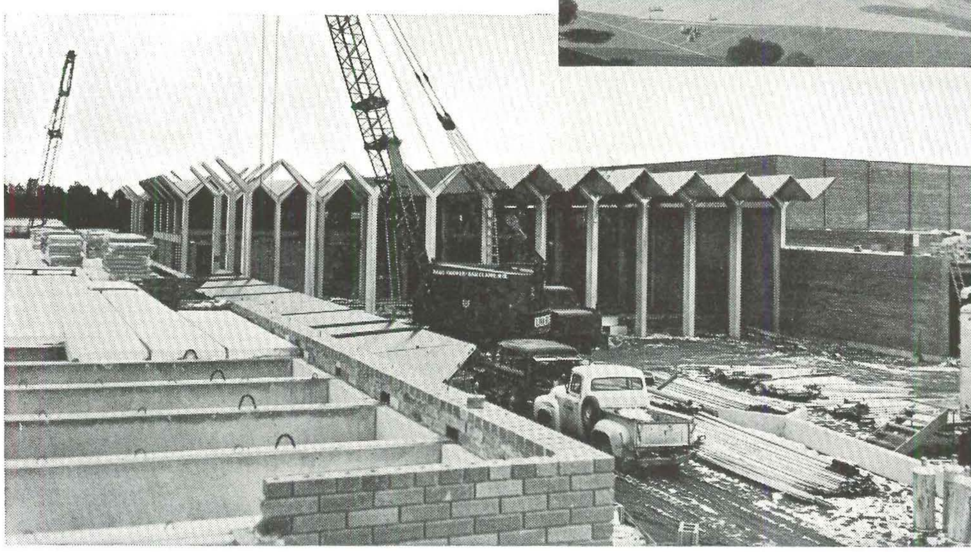
# Variety of precast, prestressed concrete members

## FOR BIG, NEW WISCONSIN SCHOOL

Architect's rendering of the school as it will appear when completed. The classroom complex on the right and the gym-auditorium-shop area on the left are joined in the center by the cafeteria.



Folded concrete plates supported by 25′ high Y columns form the cafeteria roof. At lower left are 2′ x 4′ lightweight roof slabs on prestressed joists. The roof slabs provide insulation and an attractive acoustical ceiling. All concrete roofing units are left exposed to inside view.

• Prestressed folded plates resting on "Y" shaped columns roof the cafeteria. Giant single tees up to 107′ long span the auditorium/gymnasium. And the classrooms are topped with lightweight concrete slabs supported by prestressed keystone joists. This variety of roof units, together with concrete masonry walls, make Eau Claire's new junior–senior high school completely fire-resistant, as well as architecturally pleasing inside and out.

### LEHIGH EARLY STRENGTH CEMENT FOR ALL ROOF MEMBERS

In precasting the plates, tees, columns and joists, Eau Claire Stresscrete used Lehigh Early Strength Cement for both quality and maximum production efficiency. Use of this cement with steam curing made it possible to re-use forms on a daily cycle. And for the same reasons, Western Mineral Products uses Lehigh Early Strength Cement in the manufacture of their lightweight "Perl-Tile" slabs.

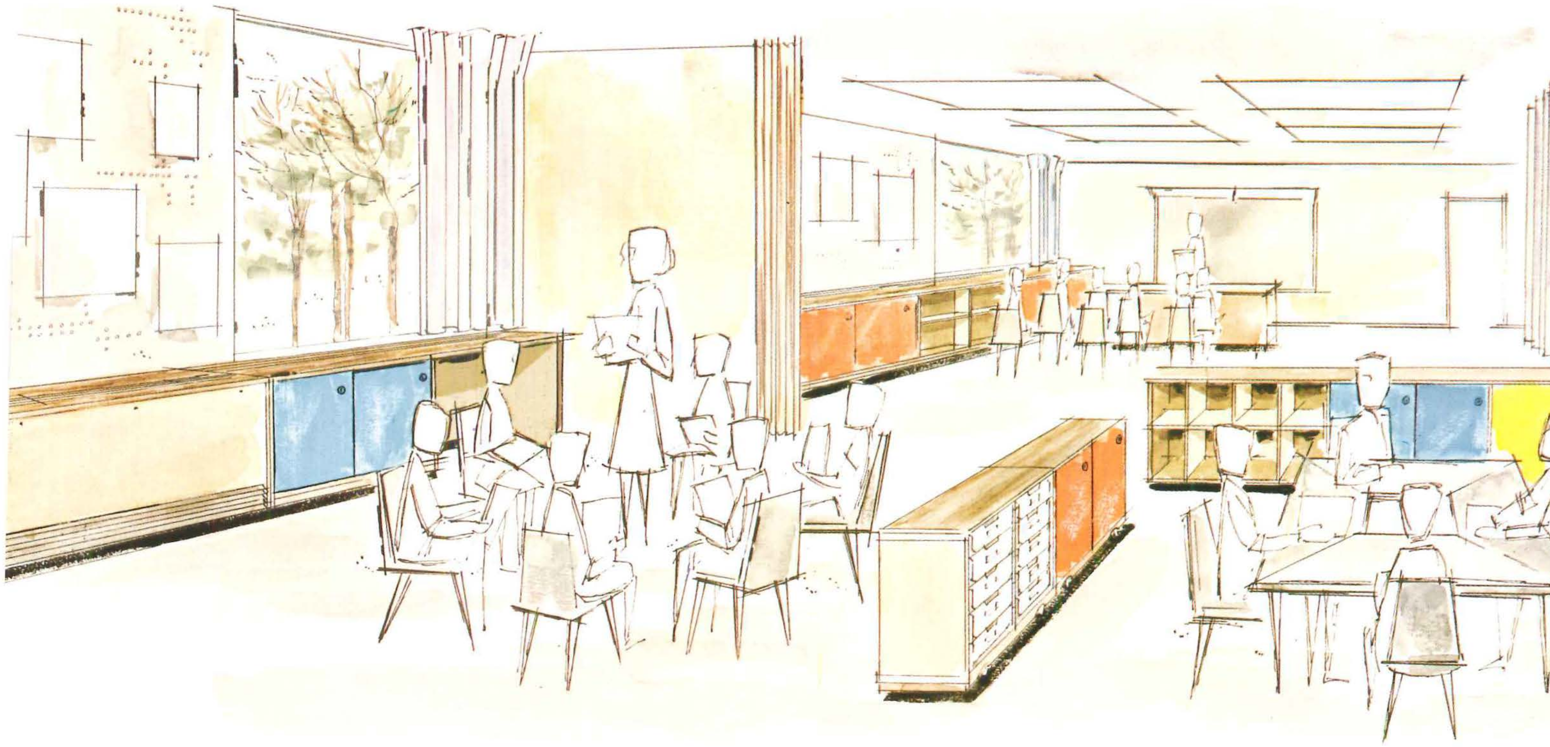
This is another example of the advantages of Lehigh Early Strength Cement in modern concrete construction.

Lehigh Portland Cement Company, Allentown, Pennsylvania.

**LEHIGH CEMENTS**

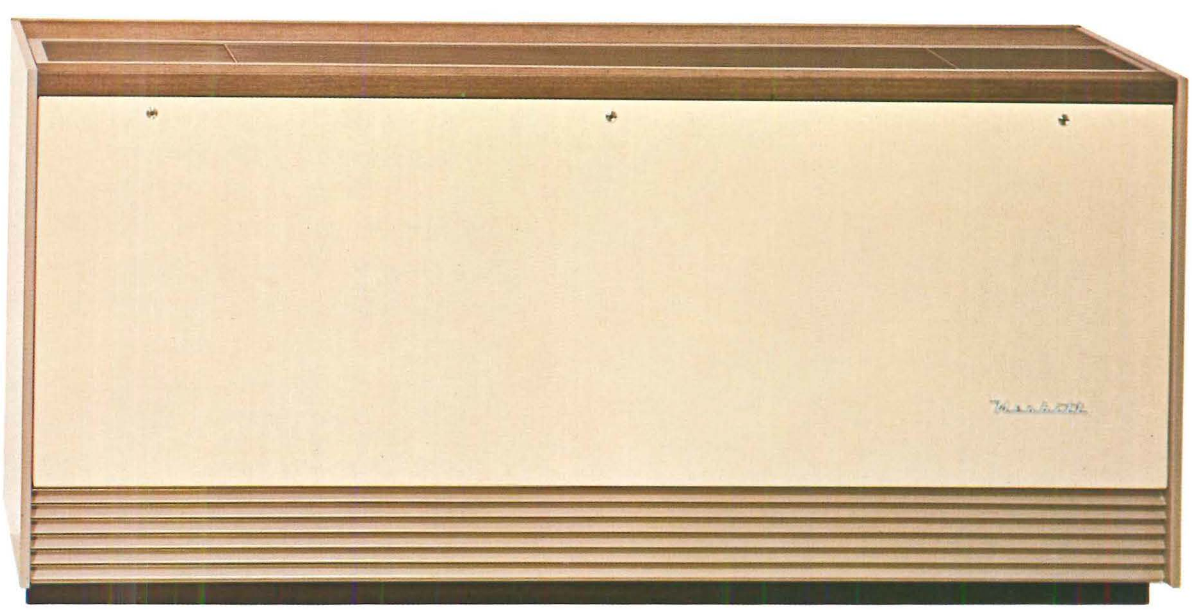
The folded plates for the cafeteria roof are 5′3″ wide, 2½″ thick. Along the length of the building they make three spans of 60, 48 and 60 feet, with an 8′ overhang at each end.

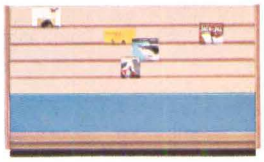
*Architect/Engineer:* Paul, Hallbeck, Anderson, Eau Claire, Wis.
*Contractor:* Bor-Son Construction, Inc., Minneapolis, Minn.
*Mfr. of Concrete Units:* Eau Claire Stresscrete, Eau Claire, Wis.
*Erection of Precast Units:* Paul V. Farmer, Inc., Eau Claire, Wis.
*Mfr. of Concrete Block:* Fehr Concrete Products, Inc., Eau Claire, Wis.
*Mfr. of Precast Perl-Tile Roof Slabs:* Western Mineral Products Co., Minneapolis, Minn.
*Erection of Roof Slabs:* Northern Placing Co., Minneapolis, Minn.



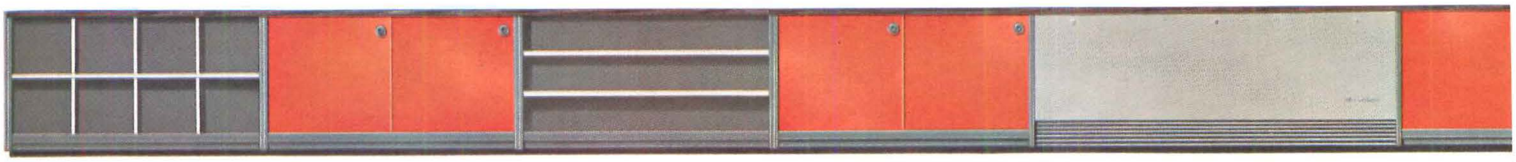
# NOW YOU

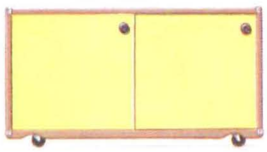
can give new schools the year-round air conditioning needed for active learning at a cost within reach ▸▸▸▸▸▸▸▸

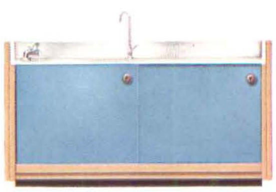




Nesbitt Year-Round Unit Ventilator and versatile Storage Cabinets with the clean, crisp architectural lines and colors by Designer Paul McCobb.







# by designing with this Nesbitt UNIT SYSTEM

**Beauty and utility are important adjuncts of year-round comfort with the Nesbitt 600 Series of Classroom Unit Ventilators and Storage Cabinets**

The comfort conditioning of school and college buildings is, as you know, a singular assignment, with uncommon demands. The buildings may be used part of the day, or day and night; part of the year, or all year round. Some classrooms will be occupied, others not; the number and activities of the occupants will vary greatly. There will be need for heating many days of the year, more in some localities, less in others; but at least for morning warm-up, during recesses, overnight, and week-ends. Rooms with certain exposures or large windows may need independent cold surface and downdraft radiation. At the same time, most occupied classrooms will need cooling; and when the outside temperature is below 60°F this can be had for the low cost of introducing outdoor air. But in the spring and fall—and most certainly in the summer—mechanical cooling and dehumidification will be needed. And always, of course, the control of heating, ventilating and cooling must be on an individual room basis—learning productivity depends on the proper thermal environment.

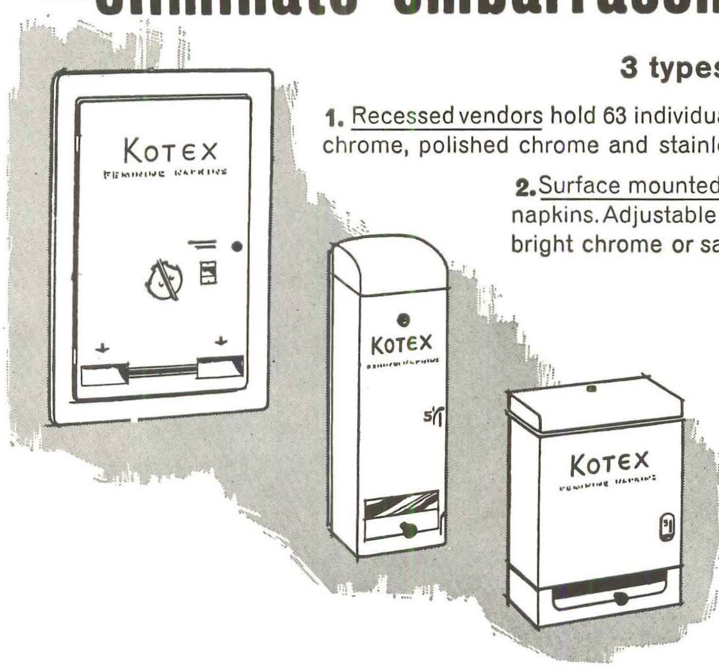
Thus, everything about a school's thermal comfort requirements calls for a unit system. More unit systems are used in schools than all other kinds; and more of the units have been made by Nesbitt than by any other manufacturer.

Plan to use Nesbitt Year-Round Syncretizers in your next school. They will do what you want—winter and summer—and for the life of the building! The Nesbitt record over the last 45 years attests to that. Will you let us prove it?

**SEND FOR PUBLICATION 11-3**


**MADE AND SOLD BY JOHN J. NESBITT, INC., PHILADELPHIA 36, PA.**
Offices in Principal Cities


# Vendors for Kotex napkins lower absenteeism —eliminate embarrassment—raise morale




### 3 types to choose from!

1. Recessed vendors hold 63 individually wrapped napkins. Available in white enamel, satin chrome, polished chrome and stainless steel. Can also be surface-mounted, if desired.

2. Surface mounted vendor for boxed Kotex, holds 15 individually boxed napkins. Adjustable for free, five-cent or ten-cent vending. White enamel, bright chrome or satin chrome finishes.

3. Surface mounted vendor for envelope Kotex, dispenses 22 individually packaged napkins. Sturdy, 20-gauge steel cabinet available in white enamel, satin chrome or bright chrome. Operates as nickel, dime or free vendor.

The great convenience of restroom vendors is appreciated by both tenants and employees. And only Kotex offers three types—making it the most complete personal service available for your building. All are easy to install—all have trouble-free, longer-wearing cold-rolled steel coin mechanism.

Vending machines for Kotex belts augment this needed service.

**More women prefer Kotex feminine napkins than all other brands**

KOTEX is a trademark of KIMBERLY-CLARK CORPORATION

Kimberly-Clark Corporation, Department Number AR-52, Neenah, Wisconsin

Please send complete information on vending machine service for Kotex feminine napkins.

Name ______ Organization ______

Title ______ Address ______

City ______ Zone ______ State ______

# LIGHTING DESIGN NOTES

In lighting you almost always want uniformity across an expanse. In design, however, you usually want a break to avoid monotony.

Carson, Lundin & Shaw achieve both in the Manufacturers Hanover Trust Co. Building by using UNIGLOW lighting panels, by breaking the ceiling up with these white painted wood baffles.

The glass panels do more than provide uniform lighting; the smooth, non-reflecting, white surface gives the ceiling a solid, finished appearance, often lacking in ceilings using long banks of lighting.

The variety of patterns and glasses and finishes you get when you specify Corning lighting panels allows you to integrate lighting equally well into all your rooms.

To get a better idea of what we're talking about, send for a copy of Bulletin L-101, "Engineered Lighting Glassware by Corning." Corning Glass Works, Lighting Dept., Corning, New York.

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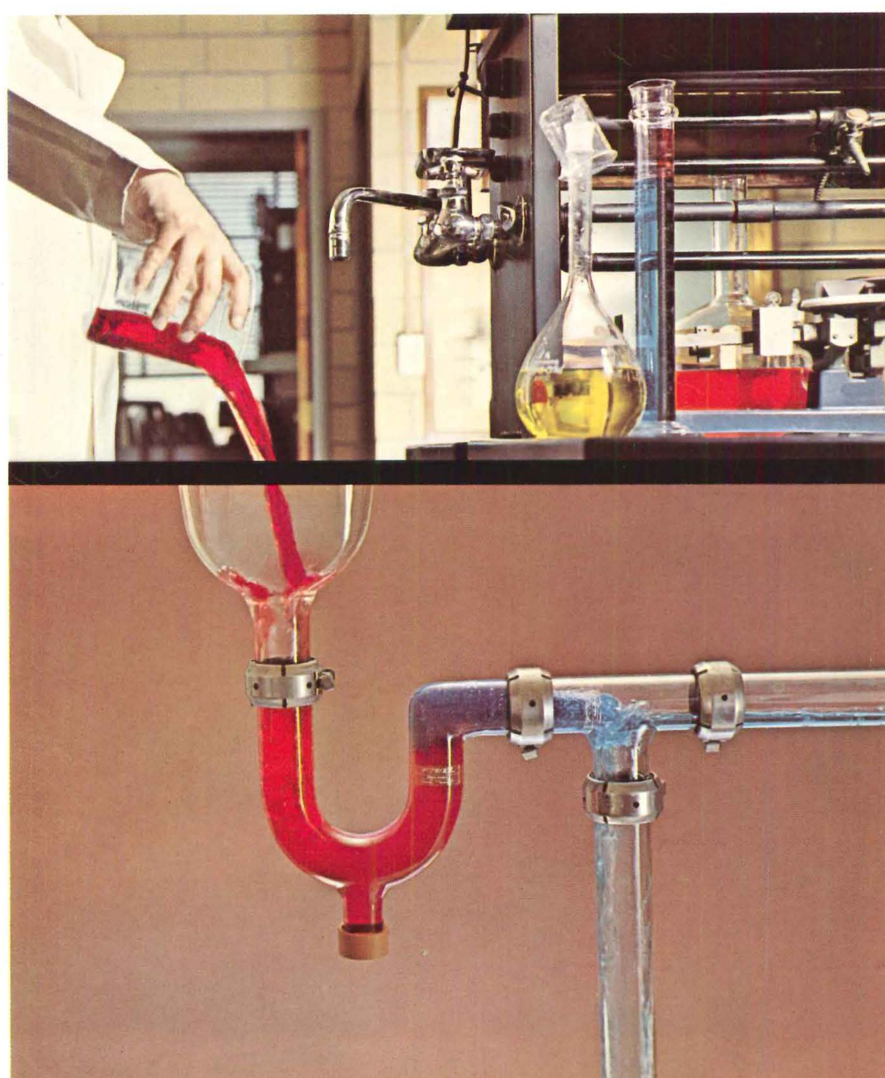
## and facts on drainline

# Does the lab plumbing you specify waste away?



You seldom specify anything that takes more chemical abuse than laboratory plumbing. How often has it come back to haunt you with corrosion and leakage?

Ask the lab chemist and he can give you a sure answer to this problem . . . glass. You can specify for plumbing the same glass he uses in his corrosion-resistant labware by asking for PYREX® drainline.

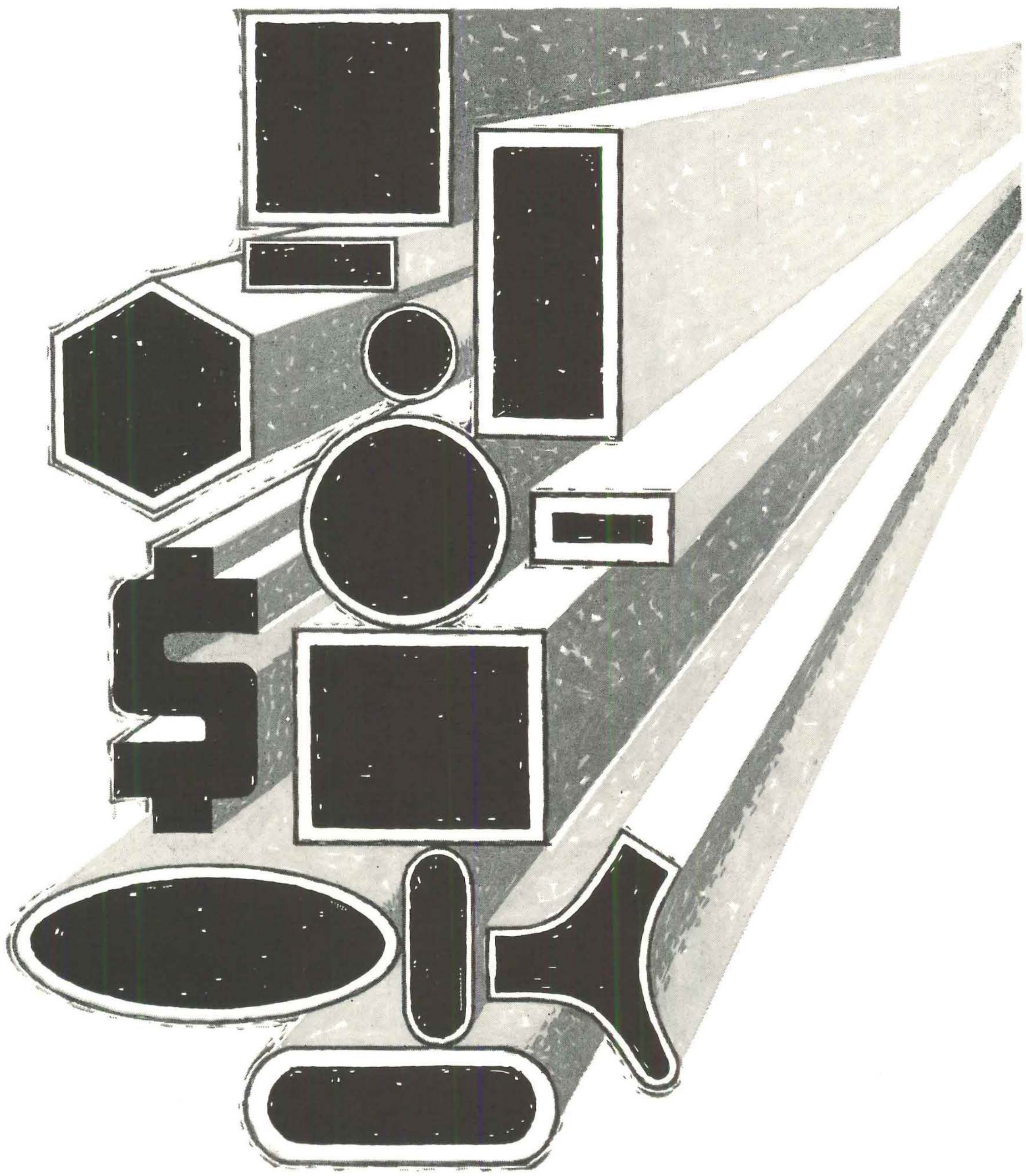
It's a simple fact that PYREX drainline resists corrosion from more acids and acidic materials than any other drainlines. Many of these lines have been in operation for twenty-five years without leakage.

Treat it like any ordinary pipe . . . bury it, raise it ten stories high, run it ten blocks long. All standard fittings and accessories are readily available, with pipe diameters ranging from 1½″ to 6″.

You'll find that most leading plumbing contractors are not only familiar with PYREX drainline . . . they prefer it to other materials, because it goes in fast and cleanly with a simple one-nut joint.

So, if you are working on a lab now or may in the future, write for the facts about PYREX drainline, its installation, and its cost. Corning Glass Works, Plant Equipment Dept., Corning, N. Y.

CORNING



# That $ stands for savings

Armco Steel Corp.
The Babcock & Wilcox Co., Tubular Products Div.
Jones & Laughlin Steel Corp., Electricweld Tube Div.
National Tube Division, United States Steel
Ohio Seamless Tube Div., Copperweld Steel Co.
Republic Steel Corp., Steel and Tubes Div.
Sawhill Tubular Products, Inc.
Southeastern Metals Co.
The Standard Tube Co.
Superior Tube Co.
Trent Tube Co., Subs. Crucible Steel Co. of America
Van Huffel Tube Corp.

PRODUCES WELDED STAINLESS STEEL TUBE
PRODUCES WELDED CARBON STEEL TUBE

Designers know tubing comes in many shapes. Profit-minded businessmen know that one of the most important shapes to keep in mind about welded steel tubing is the dollar it can save. There is no easier, less costly way to get concentricity and uniformity of wall thickness. In rotating parts, this means better, safer, vibration-free operation. In other applications, it means design strength equivalent to bar stock, with much less weight.

The quality producers listed here can help you with all these shapes, and many more, in a wide range of sizes and wall thicknesses in carbon and stainless steels. Write or call them, or write Department AR-2, Welded Steel Tube Institute, Inc., 1604 Hanna Building, Cleveland 15, Ohio, and ask for your copy of Bulletin 8591.

**WELDED STEEL TUBE INSTITUTE, INC.**

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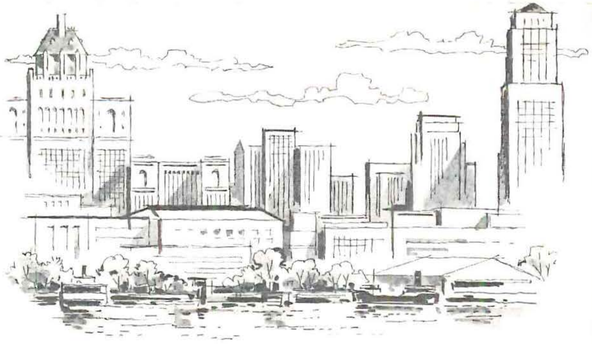
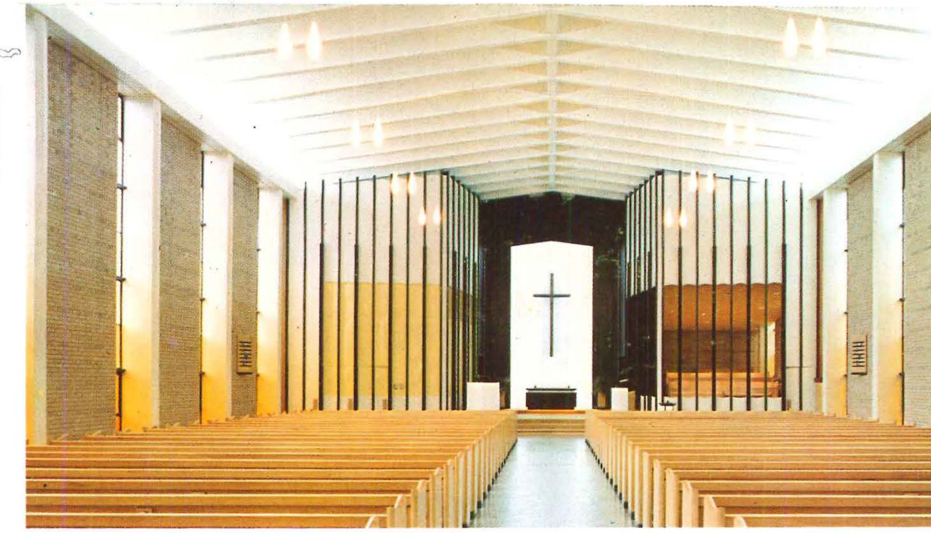


# Pratt & Lambert adds color to TORONTO

There are several good reasons why P&L products were chosen for the color styling of these fine Toronto buildings.

One reason is the Pratt & Lambert reputation for high product quality. Another is the dependable performance of the materials. Two other reasons are the correctness of P & L colors and the helpful, personal service offered by P & L representatives.

*Your* P & L representative is ready to give practical, experienced counsel on finishing problems: surface preparation, color styling, specification writing, to designate the right materials for best protection. Call 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.



ST. LUKE'S UNITED CHURCH. Architect, Shore & Moffat. P & L products used are Primafil, Vapex Wall Primer, Lyt-all Double Duty Primer, Cellu-Tone Satin, Vapex Masonry Paint, Low Luster House Paint, "61" Spar Varnish and Wood Finishes.

EAST YORK PUBLIC LIBRARY. Architect, Parrott Tambling & Witmer. P&L products used are Primafil, ***New*** Lyt-all Flowing Flat, Cellu-Tone Satin, Wood Finishes and Effecto Enamel.

FEDERAL EQUIPMENT COMPANY. Architect, John B. Parkin Associates. P & L products used are Vapex Wall Primer, ***New*** Lyt-all Flowing Flat, Vitralite Enamel Eggshell and Cellu-Tone Satin.

CEDARBRAE SECONDARY SCHOOL. Architects, Allward & Gouinlock. P & L products used are Primafil, Lyt-all, Cellu-Tone Satin and Wood Finishes.

OTHER NEW BUILDINGS IN TORONTO COLOR STYLED WITH PRATT & LAMBERT PAINT AND VARNISH INCLUDE:

ST. LUKE'S LUTHERAN CHURCH. Architects, Weir, Cripps & Associates.
PROVIDENCE VILLA and PROVIDENCE HOSPITAL. Architects, Brennan & Whale.
VICTORIA PARK SECONDARY SCHOOL. Architects, Cox & Moffet.
BRIMLEY ACRES APARTMENTS FOR ELDERLY PERSONS. Architects, Jackson, Ypes & Associates.

CRAFTSMANSHIP IN THE PACKAGE


**PRATT & LAMBERT-INC.** NEW YORK • BUFFALO • CHICAGO • FORT ERIE, ONTARIO

# A Pratt & Lambert finish for every surface . . . as these ten examples show.

**NEW LYT-ALL FLOWING FLAT**
This is a superior alkyd flat coating for walls and ceilings. Possesses excellent hiding and flowing properties which result in perfect uniformity of finish. Easily applied by brush, roller or spray. May be washed repeatedly. Available in White and full range of exclusive Calibrated Colors® and Spectrum Colors.

**LYT-ALL FIRE RETARDANT PAINT**
For an extra margin of safety in public areas where hazard of fire and possible resulting panic caused by smoke and flame could lead to serious injury or loss of life, this special paint is recommended. Applied to interior wall surfaces it retards the spread of flame on those surfaces. It is decorative as well as protective. It is a washable, alkyd-base flat paint which may be applied by brush, roller or spray. Available in White and nine attractive colors. Every can of this product bears the label of the Underwriters' Laboratories, Inc.

**LYT-ALL STIPPLING EGGSHELL**
In a single operation with roller applicator this paint produces a unique, stippled effect of great versatility and exceptional durability. The stipple texture helps to minimize unevenness or blemishes in the surface. It resists soiling and defacement. It can be scrubbed repeatedly. In a well known public building, it has successfully withstood over 45 washings; three times a year for fifteen years! Use it in rooms and corridors where walls are apt to take abuse. Available in White and a wide range of Calibrated Colors®.

**CELLU-TONE SATIN**
Outstanding as a finish for walls, woodwork and furniture especially when desired to finish them in matching effects. This is an alkyd base, smooth finish which has a semi-gloss luster. It is very durable and will withstand repeated scrubbing. Available in White and a wide range of attractive colors.

**VAPEX FLAT WALL FINISH**
This is a modern, practical emulsion type wall coating suitable for use over a wide variety of interior wall surfaces: plaster, drywall, acoustical, etc. It dries rapidly, making it ideal for large areas which thus can be recoated without moving scaffolding. Resistant to abrasion, but if scarred, it can be patched, yet the patched areas will scarcely be detectable. Available in White and a wide range of beautiful colors.

**VITRA-TILE**
This is the latest development in hard, durable, tile-like finishes which closely simulate the appearance and performance of ceramic tile at a small fraction of the cost of tile. With this system, any interior wall area, *even coarse masonry block*, can be finished to look like tile; either low satin sheen or glaze; solid color, two-tone or multi-color effects. Excellent where utmost in serviceability is required.

**PRIMAFIL**
A completely unique combination primer and filler especially for interior walls of coarse masonry block construction. Will fill pores to desired degree; from partial for retention of acoustical properties to nearly flush for smoothest surface. May be finished in choice of effects with any Pratt & Lambert wall coating or enamel.

**VITRALITE** *the long-life enamel*
This is the most highly refined enamel for interior woodwork, trim and wall areas where an enamel finish may be desired in either Gloss or Eggshell luster. Because of its superior performance and durability it will prove to be the most economical as well as most satisfying choice. Available in White and a wide selection of Calibrated Colors® and Spectrum Colors (in Eggshell).

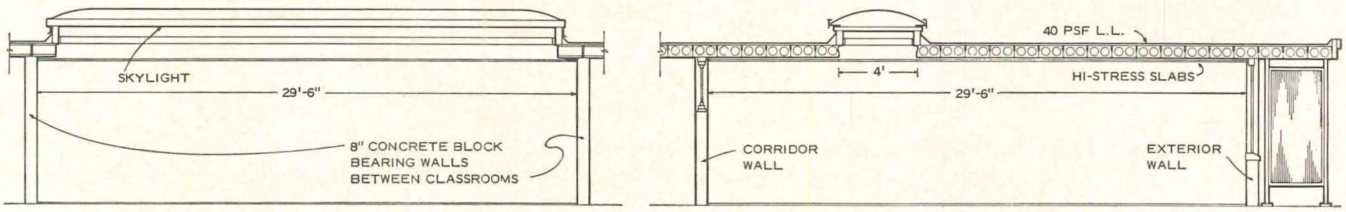
**TONETIC WOOD STAIN**
This is the latest, and exclusive development for the enhancement of interior woodwork, paneling and trim. Available in modern light, traditional medium or rich, deep colors to suit every period and style. May safely be used in areas where large expanses of glass expose woodwork to intense sunlight.

**VARMOR,** *Clear Finish Gloss and Satin*
Varmor is a super durable clear finish for wood. It has remarkable resistance to wear, water, detergents and common liquids which might be spilled on it. It is up to 100% more durable on any wood surface . . . floors, furniture, woodwork, paneling. Can be used indoors or outdoors.

The uses of these and other P & L products are detailed in the Pratt & Lambert Architectural Specification Manual, Ninth Edition. This Edition received a Certificate of Unusual Merit awarded jointly by the Producers' Council and the American Association of Architects. If you don't have your copy plus Addendum Sheets, write on your letterhead to Pratt & Lambert-Inc. at address nearest you as given on preceding page.

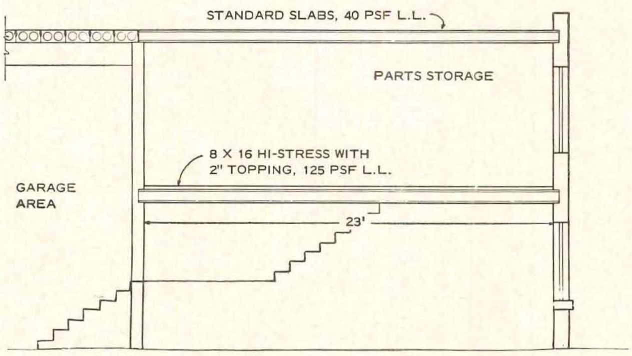
**PRATT & LAMBERT-INC.** NEW YORK • BUFFALO • CHICAGO • FORT ERIE, ONTARIO

*A Dependable Name in Paint Since 1849*

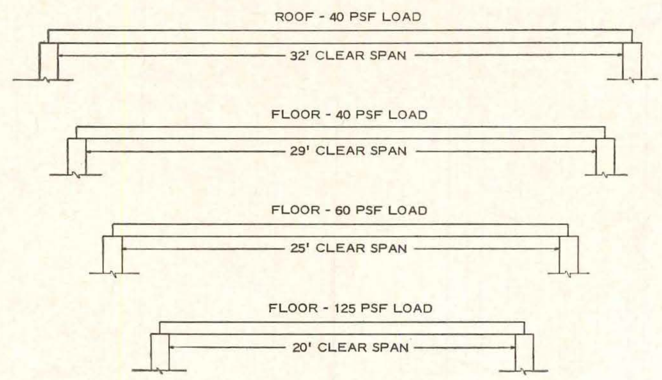



**SCHOOL WITH CLASSROOM SKYLIGHTS.** Flexicore Hi-Stress slabs with two 7/16" stress-relieved strands clear span the 29'-6" width of the rooms, are designed to carry 40 psf roof load. Four slabs, two on each side of skylight, have three 3/8" strands to carry the extra load of the skylight.

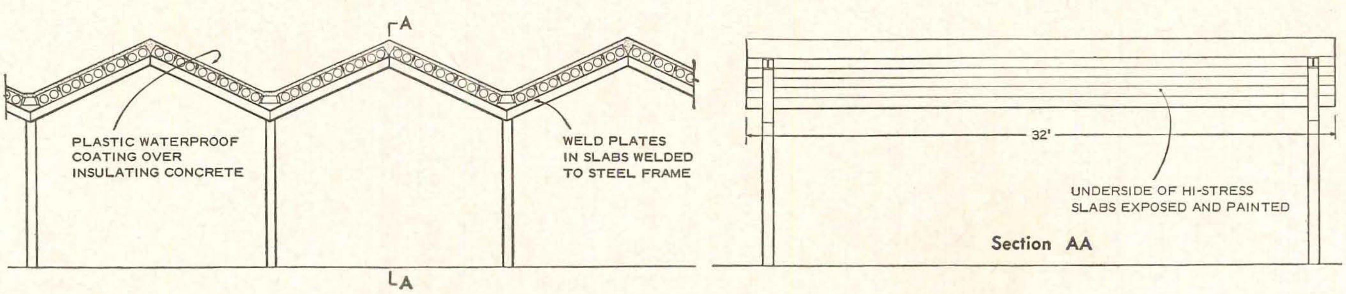
# New Hi-Stress Flexicore Slabs Combine Longer Spans, Greater Loads, Improved Structural Performance




**PARTS DEPARTMENT FLOOR** in garage was designed for 125 psf superimposed load. Two inches of concrete topping on Hi-Stress floor gave a composite design to adequately handle this load on the 23' clear span. Standard Flexicore slabs were used on the roof.

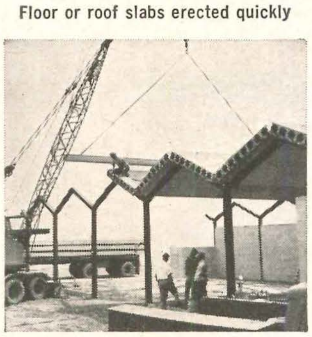



**TYPICAL LOAD AND SPAN** combinations for 8 x 16 Hi-Stress Flexicore slabs. Superimposed loads shown may be increased with composite design.




**ONE-STORY COMMERCIAL BUILDING ROOF DESIGN** requires only a steel frame on each side of the building to carry 8-inch Hi-Stress units on long clear span. Design can be repeated in any direction for larger building. Underside of slabs was exposed for neat, maintenance-free ceiling.

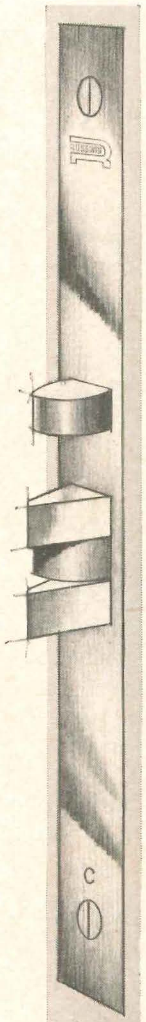
Floor or roof slabs erected quickly

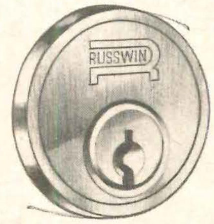


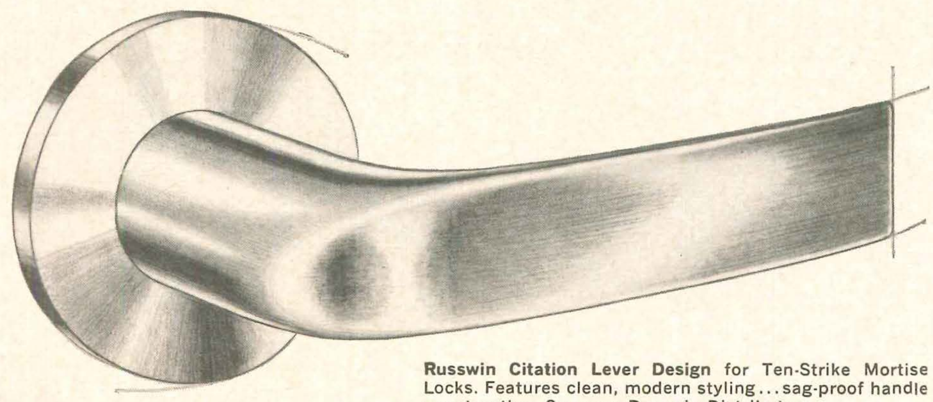
New 8" x 16" Hi-Stress units are fully prestressed slabs ($f_{si}$ 175,000 psi) cast in steel forms, with stress-relieved strands tensioned before concrete is poured. Appearance is similar to standard Flexicore slabs which use pretensioned intermediate grade steel bars.

For more information on these projects, ask for Hi-Stress Flexicore Facts 2, 4 & 5. Write The Flexicore Co., Inc., Dayton, Ohio, the Flexicore Manufacturers Assn., 297 S. High St., Columbus 15, Ohio or look under "Flexicore" in the white pages of your telephone book.

flexicore®
PRECAST CONCRETE DECKS





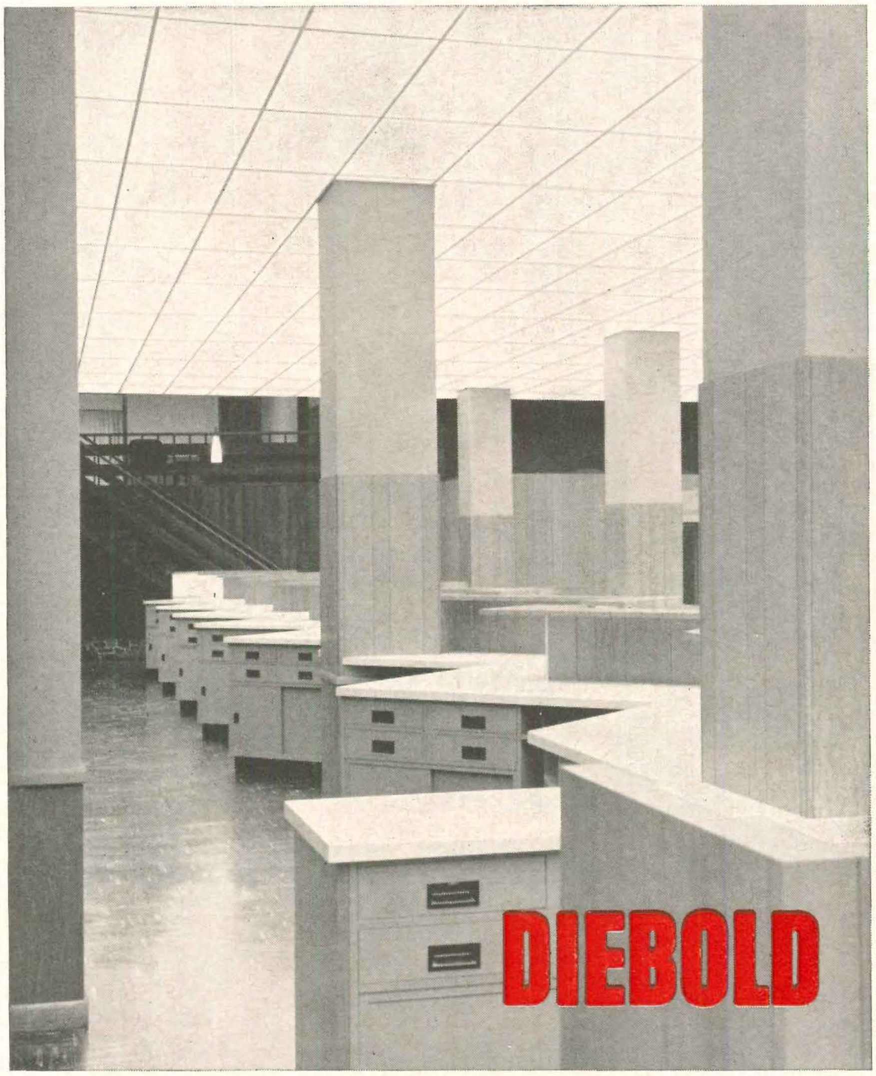



**Russwin Citation Lever Design** for Ten-Strike Mortise Locks. Features clean, modern styling . . . sag-proof handle construction. See your Russwin Distributor.

# To accent your creative design...

RUSSWIN

*. . . the doorware that lives up to your reputation*






## *Product Reports*

*continued from page 219*

### WIRE SAFETY "WALL"

A "wall" of stainless steel wire strung vertically forms a safe but open protective wall around outside galleries and stairways in Cleveland's Wade Apartments. The strands are 4 in. apart. Springs keep the strand under tension, but allow expansion and contraction due to temperature changes. *U.S. Steel Corp., 525 William Penn Place, Pittsburgh 30, Pa.*

### DOCTORS' IN-OUT REGISTRY

An electronic check-in/check-out register for hospital personnel is operated by self-illuminated push-buttons. Upon entering, each doctor presses a button with his pre-assigned number and then presses the "in" button. The light on the button flashes if there are any messages. When leaving, the doctor reverses the process. *Electricon, Inc., 9758 Klingerman Street, El Monte, Calif.*

### LARGE FOLDING PARTITION

The *Woodmaster 1200* is an all wood folding partition with panels 12-in. wide. Designed for use in commercial buildings, the partition is available in widths up to 50 ft and heights up to 16 ft. The door weighs only two lbs per sq ft because of hollow-core construction which uses

three-ply hardwoods faced in a choice of four veneers. *New Castle Products, Inc., New Castle, Ind.*

### FIRE BARRIER DOORS

Hollow metal fire doors equipped with panic hardware withstood Underwriters' Laboratories' three-hour fire test. The 7- by 7-ft doors are said to be the largest to pass the test, and are designed to protect both property and life. *Overly Manufacturing Co., Greensburg, Pa.*

*more products on page 254*

The Connecticut Bank & Trust Company, Hartford, Conn.
Architects: Robert Allan Jacobs–Carson, Lundin & Shaw
General Contractor: F. H. McGraw & Company

General Bronze was awarded single responsibility for engineering, fabricating, glazing and erecting this distinctive curtain wall.

Alumilite-finished natural aluminum is used for mullions, fascia and copings . . . dark gray aluminum for mullion inserts, louvers and most horizontal members. Spandrels are gray porcelainized insulated panels, faced with gray plate glass.

The design and fabrication of the window system were especially critical–because of the weight and wind loading of the large-area glazing . . . the advanced gasketing . . . the inclusion of such features as window cleaning guides . . . and the importance of the mullion detailing to the over-all aesthetic effect.

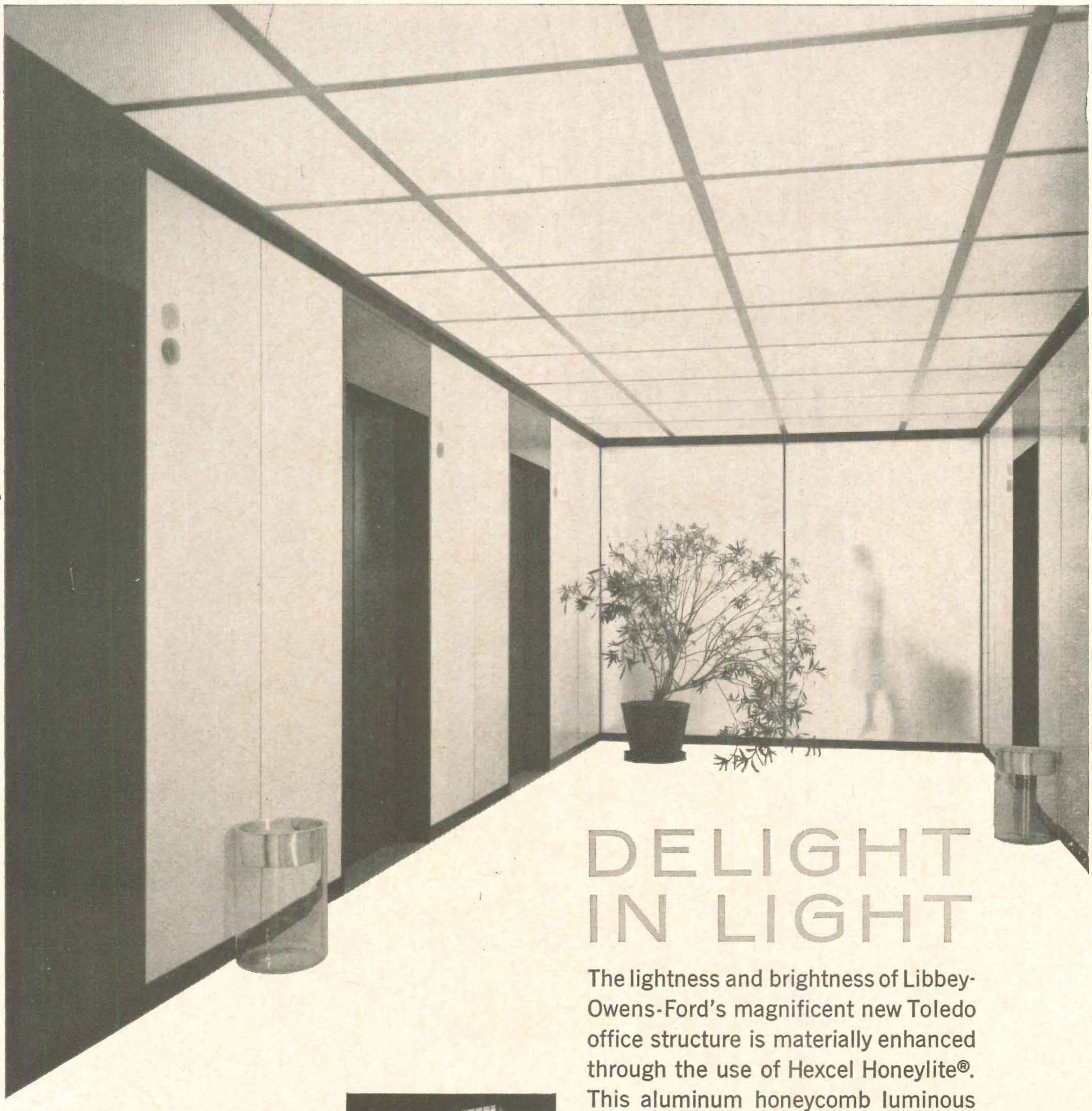
Close coordination between General Bronze and the architects was essential to the success of this installation. Sample sections of the curtain wall, for both the base and tower systems, were subjected by GB to rigorous wind and weather tests.

# Another of today's finest curtain walls—by GENERAL BRONZE

General Bronze offers you today's most advanced engineering services in the design of aluminum, bronze or stainless steel curtain walls. With close to a half-century's experience in architectural metalwork and fenestration, GB is uniquely equipped to help you realize the benefits and avoid the pitfalls of this highly specialized field.

For additional information, consult your Sweet's files . . . call in the General Bronze representative nearest you . . . or write to: General Bronze Corporation, Garden City, N. Y. • Sales Office: 100 Park Avenue, New York, N. Y.

PERMATITE DIVISION—Custom-built Windows, Curtain Walls, Architectural Metal Work and Revolving Doors. ALWINTITE DIVISION—Stock-size Aluminum Windows and Doors. BRACH MFG. CO. DIVISION—Radio, Television and Electronic Equipment. STEEL WELDMENTS, INC. DIVISION—Custom Fabrication in Steel and Iron.



# DELIGHT IN LIGHT

The lightness and brightness of Libbey-Owens-Ford's magnificent new Toledo office structure is materially enhanced through the use of Hexcel Honeylite®. This aluminum honeycomb luminous ceiling system achieves shadow-free, maximum utilization of fluorescent lighting, yet effectively conceals all electrical and mechanical systems. Even air conditioning is installed above the Honeylite panels. All fifteen floors of this installation feature Honeylite ceilings, representing over 120,000 sq. ft. of this totally proven light diffusing system. Owner: Libbey-Owens-Ford, Toledo. Architects: Skidmore, Owings & Merrill. General Contractor: George P. Fuller Company, Electrical Contractor: Rogers Electric, Toledo. For complete Technical Data, send to your nearest Hexcel office.

**HEXCEL® PRODUCTS INC.**

*Stronger, lightweight materials for industry*

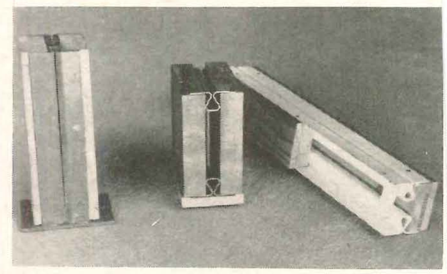
***Executive Offices:*** *Dept. H-12, 2332 Fourth St., Berkeley 10, Calif.*
***Plants:*** *Berkeley, Oakland, El Segundo, Calif.; Havre de Grace, Md.*
***Sales Offices:*** *Inglewood, Calif.; Fort Worth, Texas; Chicago, Ill.; New York, N.Y.; Havre de Grace, Md.*
*Available in Canada through Curtis Lighting, Ltd., Toronto, Ontario*

# *Product Reports*

*continued from page 250*

**STEEL-AND-WOOD BEAM**

A steel core section faced with 2-in. lumber in depths from 4 to 14 in. makes a composite beam which has the appearance of a conventional



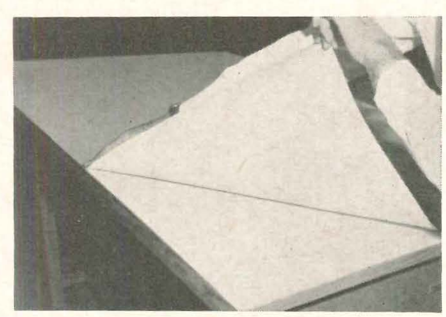
wood beam and added strength. Steel plate is welded between steel chords so full bearing load is on steel members. *The Chase Foundry & Mfg. Co., 2318 Parsons Ave., Columbus 7, Ohio*

**MODULAR CEILING DIFFUSER**

A modular ceiling diffuser is intended for use with exposed grid ceiling suspension systems. *Uni-Flo* air diffusers and modular perforated metal ceiling panels are factory assembled as a unit to simplify installation. The perforated plate is backed by a glass fiber blanket around the diffuser opening. Square and rectangular models are available in five diffuser sizes. *Barber-Colman Co., Rockford, Ill.*

**DRAFTING-BOARD COVER**

A vinyl drafting board cover is said to make drafting easier and less fatiguing because of the cushioning



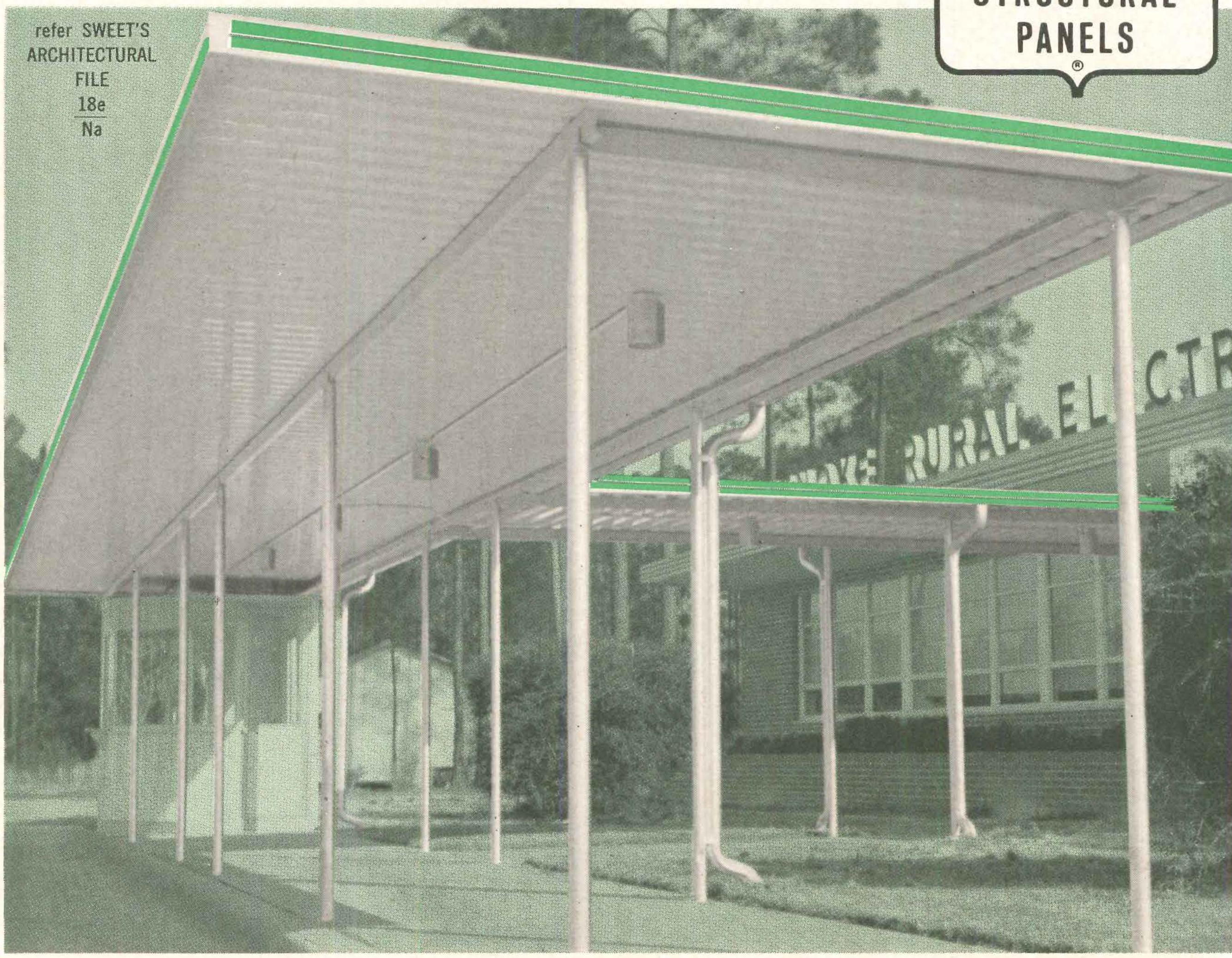
effect of the vinyl padding. Less pressure is needed to draw legible lines. *Keuffel & Esser Co., Third and Adams St., Hoboken, N. J.*

**ALUMINUM WITH VINYL**

Aluminum sheet with textured vinyl finish is available for interior trim in buildings. *Reynolds Metals Co., Richmond 18, Va.*

*more products on page 258*

## more and more architects are specifying NAVACO STRUCTURAL PANELS®




### for WALKWAY COVERS • MARQUEES • SERVICE AREAS • RESIDENTIAL APPLICATIONS

NAVACO STRUCTURAL PANELS afford you the versatility and dependability so long sought in such applications. Fascia is made of heavy anodized extruded aluminum designed with its own built-in concealed drainage. The interlocking roof panels are of roll-formed aluminum with Alodine primer and Hi-bake enamel finish. Wide range of fascia trim colors.

You'll find NAVACO engineers have developed and field-proven a product that meets rigid building code requirements, offers an unusual new beauty, and can be designed to span any width — any length requirements.

**We would like to send you our engineer's manual and other pertinent information. Just fill in the coupon and mail today!**

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601 Hall St., Dallas 26, Texas

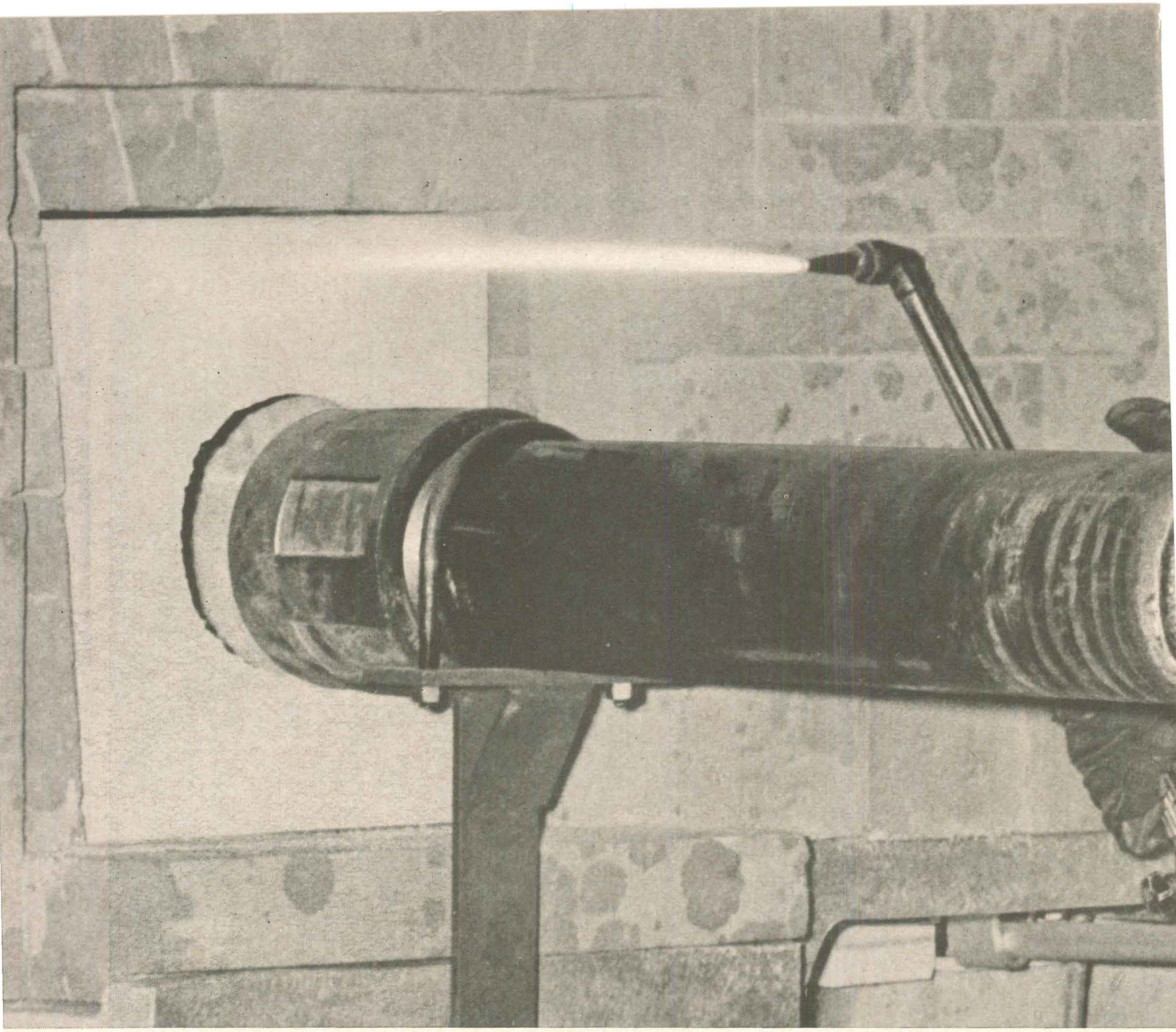
Please send me complete information on your NAVACO STRUCTURAL PANEL program.

Firm Name ______________________

By ______________ Title ______________

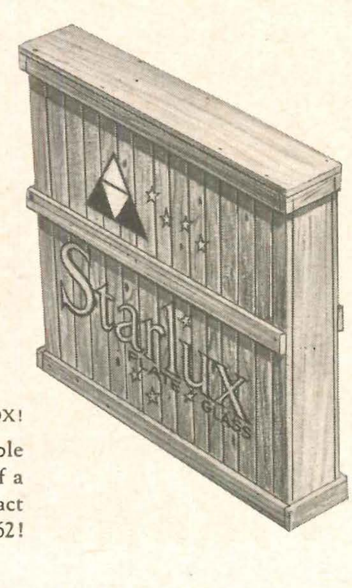
Address ______________________

City ______________ Zone ______ State ______



# The "LIGHT-OFF"

*...and the finest plate glass in the U.S. started on its way to you!*




SKILL AND QUALITY WILL SOON FILL THIS BOX!

The highest quality plate glass available A-SG's "STARLUX" Plate Glass, is a product of a 300-year tradition in glass making. This fact belongs in your planning for 1962!

# came at 12$^{02}$ PM...

## The country's newest plate glass plant, built by American-Saint Gobain at Greenland, Tenn., has started its first campaign. Soon it will be producing A-SG's "STARLUX" Plate Glass.

Here at Greenland—near Kingsport, Tenn.—the first step towards actually producing the highest quality plate glass available in the U. S. took place on April 3. It was then that a technician lighted off the 300-ton tank from which will soon flow an endless ribbon of glass. This modern, multi-million dollar glass plant will give American-Saint Gobain the distinction of being the only domestic manufacturer of all major types of flat glass—plate glass, window and sheet glass, and patterned glass.

Whether you're an architect, a manufacturer or a jobber, Greenland U.S.A. is news, good news! For the latest information on sizes, delivery and prices, call your nearest A-SG office. You'll find the telephone number in your classified telephone directory. American-Saint Gobain Corporation, Kingsport, Tenn.

Starlux®
PLATE GLASS

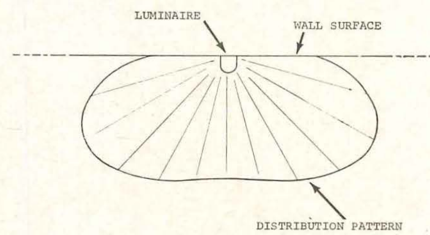
AMERICAN-SAINT GOBAIN . . . *wherever people live and work!*

## *Product Reports*

*continued from page 254*

### ASYMMETRIC LIGHT PATTERN FROM PRISM LENS

A fan-shaped asymmetrical lighting pattern is produced by a prism lens in order to illuminate a greater area



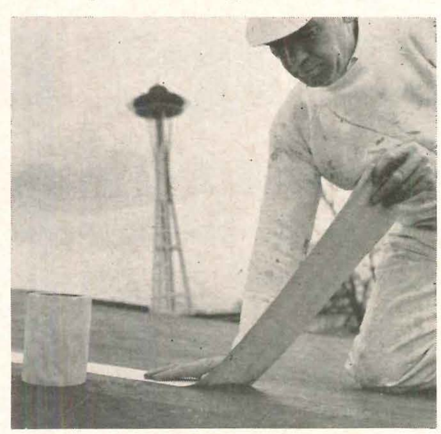

with maximum uniformity and effectiveness. Two groups of prisms direct light downward and outward and reduce the amount of wasted light directed against the wall. Both wall- and surface-mounted units are available. *Art Metal Lighting Div., Wakefield Corp., 1814 E. 40th St., Cleveland 3, Ohio*

### WALL-MOUNTED URNS

Stainless steel tops are features of *Ex-Cell* wall-mounted cigarette receptacles. They are designed to blend in with any decor and are available in a number of finishes. *Ex-Cell Metal Products Inc., 2037 W. Churchill St., Chicago 47, Ill.*

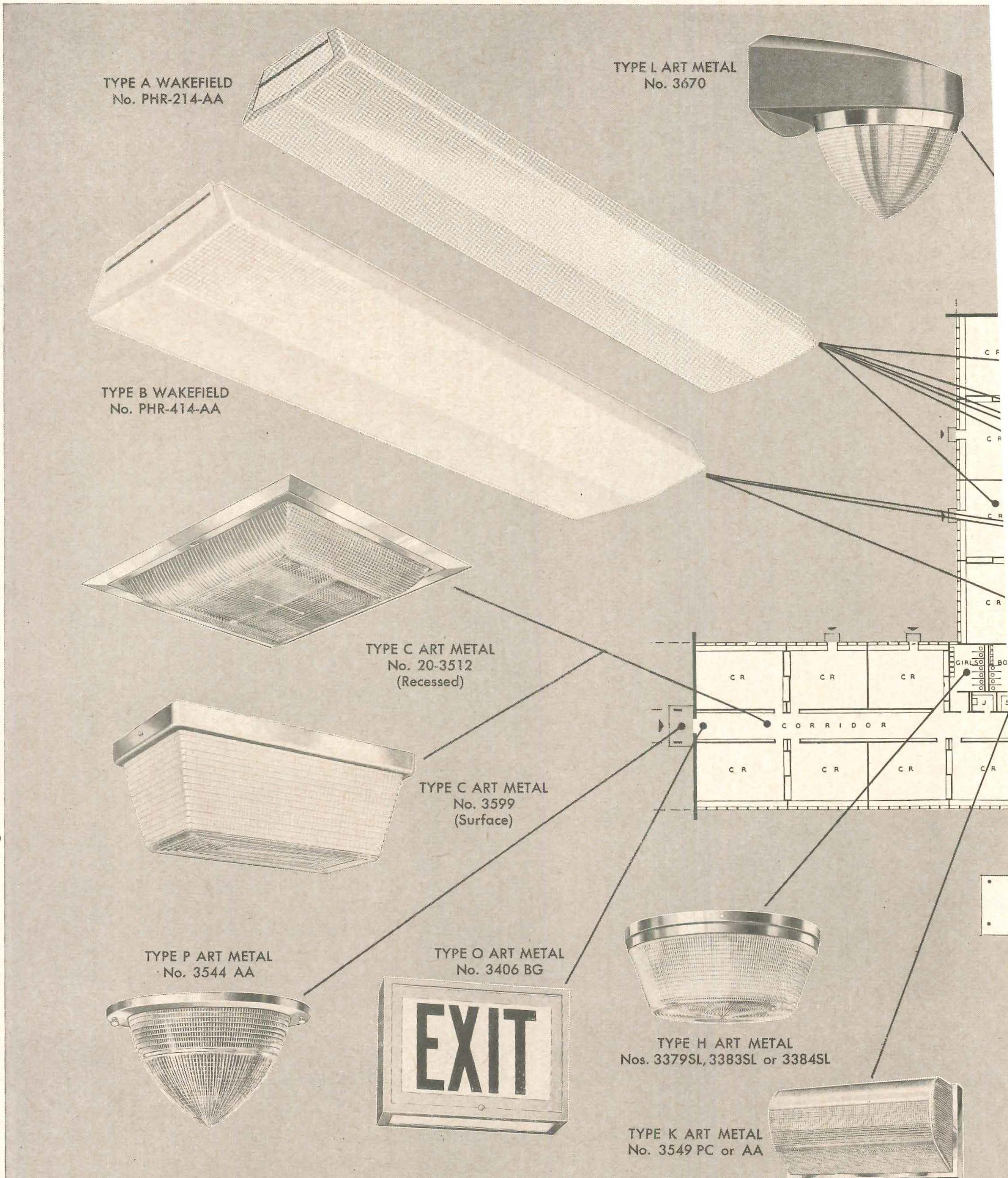
### TAPE SEALS ROOF JOINTS

Sealing of roof joints on the Coliseum at the Seattle World's Fair was done with *Permacel 66*, a heavy duty cloth-backed, pressure-sensitive tape which provides a positive seal and



prevents seepage into joints of the vinyl-coating material used as a base waterproofing material. The tape's high tensile strength and tear resistance permits expansion and contraction due to temperature changes. *Permacel, New Brunswick, N. J.*

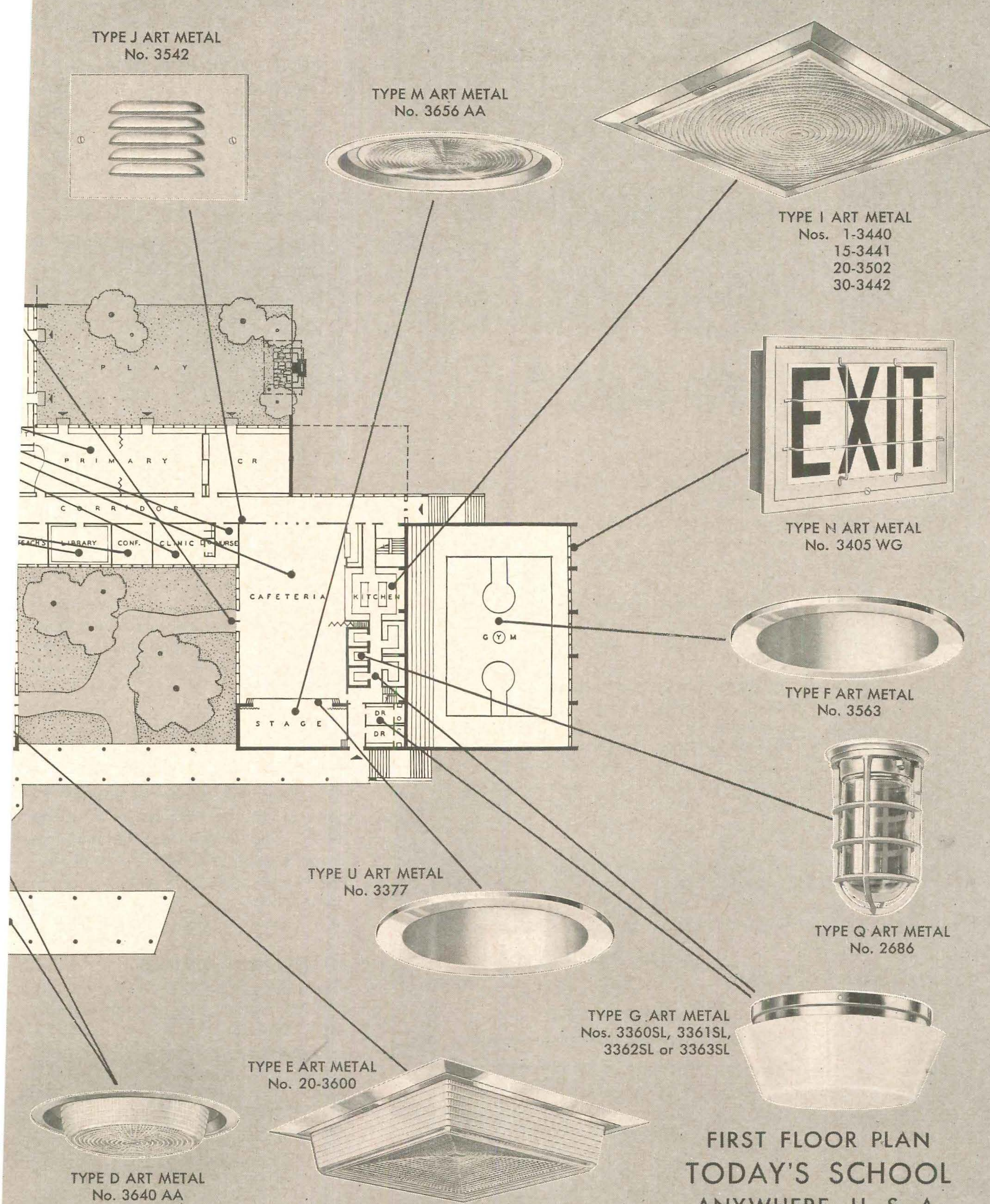
*more products on page 262*




## TYPICAL APPLICATIONS OF

# ONE SOURCE LIGHTING BY WAKEFIELD-ART METAL

- Reputable manufacturer of lighting since 1882.
- One order covers all lighting equipment.
- One manufacturer is responsible.
- Related design and finish characteristics provide an architecturally integrated installation.
- Designs provide for lower installation and maintenance costs.



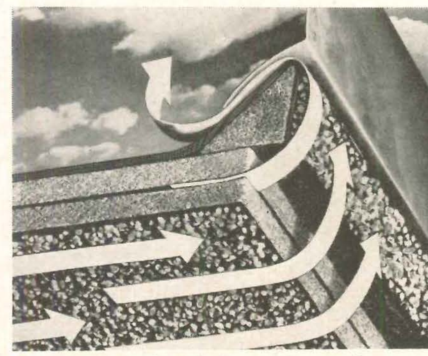

FIRST FLOOR PLAN
TODAY'S SCHOOL
ANYWHERE, U. S. A.

# Product Reports

*continued from page 258*

## VENTILATING BUILT-UP ROOFS

Two products, used alone or together, are designed to provide ventilation of trapped air and moisture from a built-up roof, both during construction and throughout the life of the roof. *Ventsulation Felt* is an asphalt-coated asbestos with large mineral



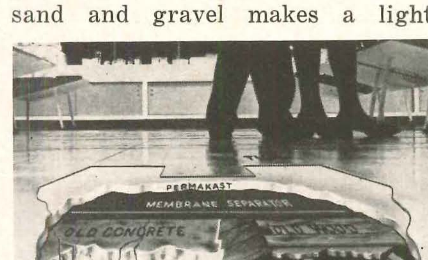
granules embedded on the under surface. The granules separate the felt from the deck and provide tiny passages between deck and roof membrane. *Ventsulation* is a modified version of Johns-Manville insulation and is applied in the same manner as standard roof insulation. *Johns-Manville, 22 E. 40th St., New York 16, N.Y.*

## VERSATILE PLASTER

*Whisper* plaster can be applied in a thin coat for texturing purposes or in a heavy ½-in. coat to produce an acoustic ceiling with an NCR rating of .55. The vermiculite base material may be used on a wide range of surfaces and applied by gun or trowel. *Lahabralite Co., 1631 W. Lincoln Ave., Anaheim, Calif.*

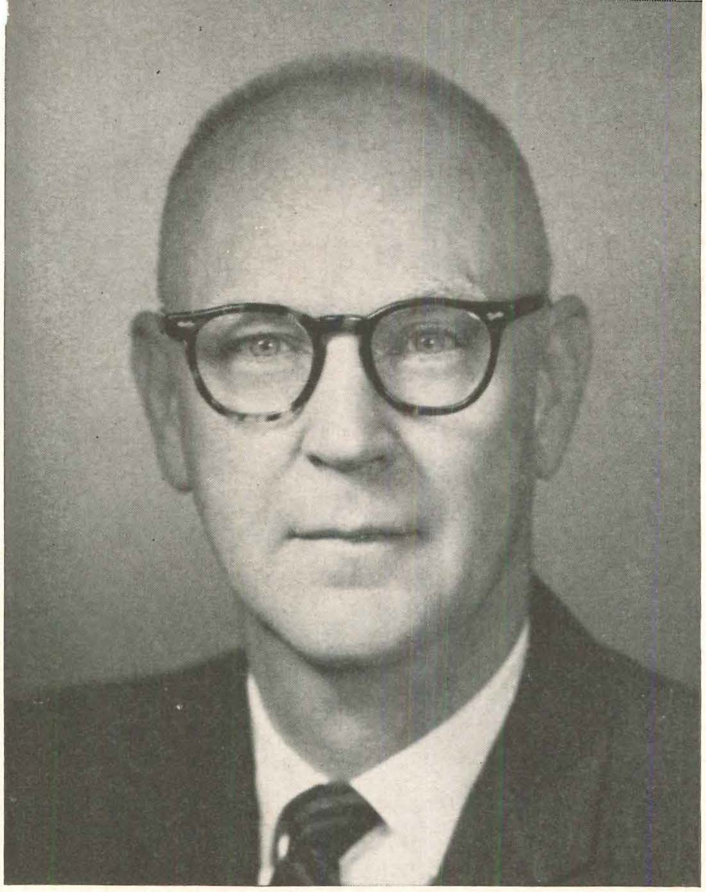
## SYNTHETIC CEMENT

*Permakast* is a synthetic anyhydrite cement which when combined with sand and gravel makes a light-




weight concrete which "floats" without reinforcement on structural subfloors. It can be used in both new construction and remodeling. *Great Lakes Carbon Corp., 18 E. 48th St., New York 17, N.Y.*

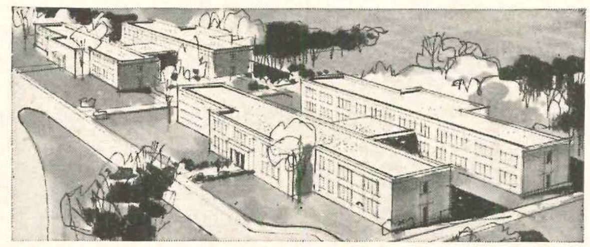
*more products on page 266*



R. L. Hartsell, Devoe Architectural Representative—the "Man from Devoe"—who serves architects in Virginia.

*With the help of the "Man from Devoe"*

# EXCEPTIONAL COLOR STYLING MARKS NEW HOSPITAL UNITS



"Cheerfulness with livability" was the desired effect in the interior decoration of four new Continued Treatment Buildings and a Recovery Building at the Western State Hospital in Staunton, Virginia.

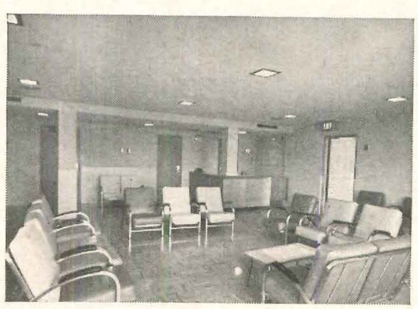
Drawing on the full Devoe Library of Colors® system, with its more than 1000 colors, Devoe's R. L. Hartsell helped achieve a highly interesting variety of color combinations. These color combinations are, at once, visually attractive—yet restfully compatible.

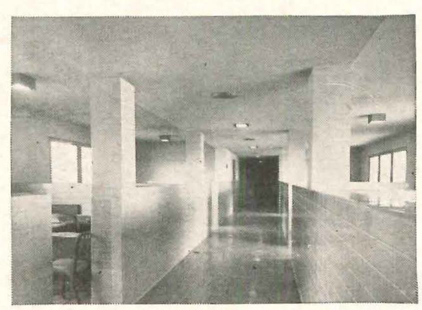
The color selections were made from Devoe's color-true chips and exactly matched, in the actual paint, by Devoe's rigidly controlled mixing procedures and formulas. Paints used included 800 gallons of Wonder-Tones, 125 gallons of enamel undercoat and 200 gallons of Super Eggshell enamel.

Color styling is but one area in which the "Man from Devoe" can assist the architect on paint problems, interior or exterior. His full-time job is to make available to you his broad knowledge of paint technology—including light reflectivity of various colors, ease of maintenance of specific finishes, weathering and other factors. His services involve no cost or obligation. And he can save you a great deal of time and trouble.

Call in the "Man from Devoe" in your area on your next contract. See how much he can help. To reach him, write or call the nearest Devoe office.

Reception area and corridor are typical of the eye-appealing architecture and decor at Western State Hospital.





Architects: Marcellus & Son, Richmond; General Contractor: English Construction Co., Altavista, Va.; Painting Contractor: Brewer Paint & Wallpaper Co., Greensboro, N.C.

**DEVOE**

**DEVOE & RAYNOLDS COMPANY, INC.**

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Please send me the free RAINBOW SELECTION of 300 "thought-starter" colors chosen from the Devoe complete Library of Colors.

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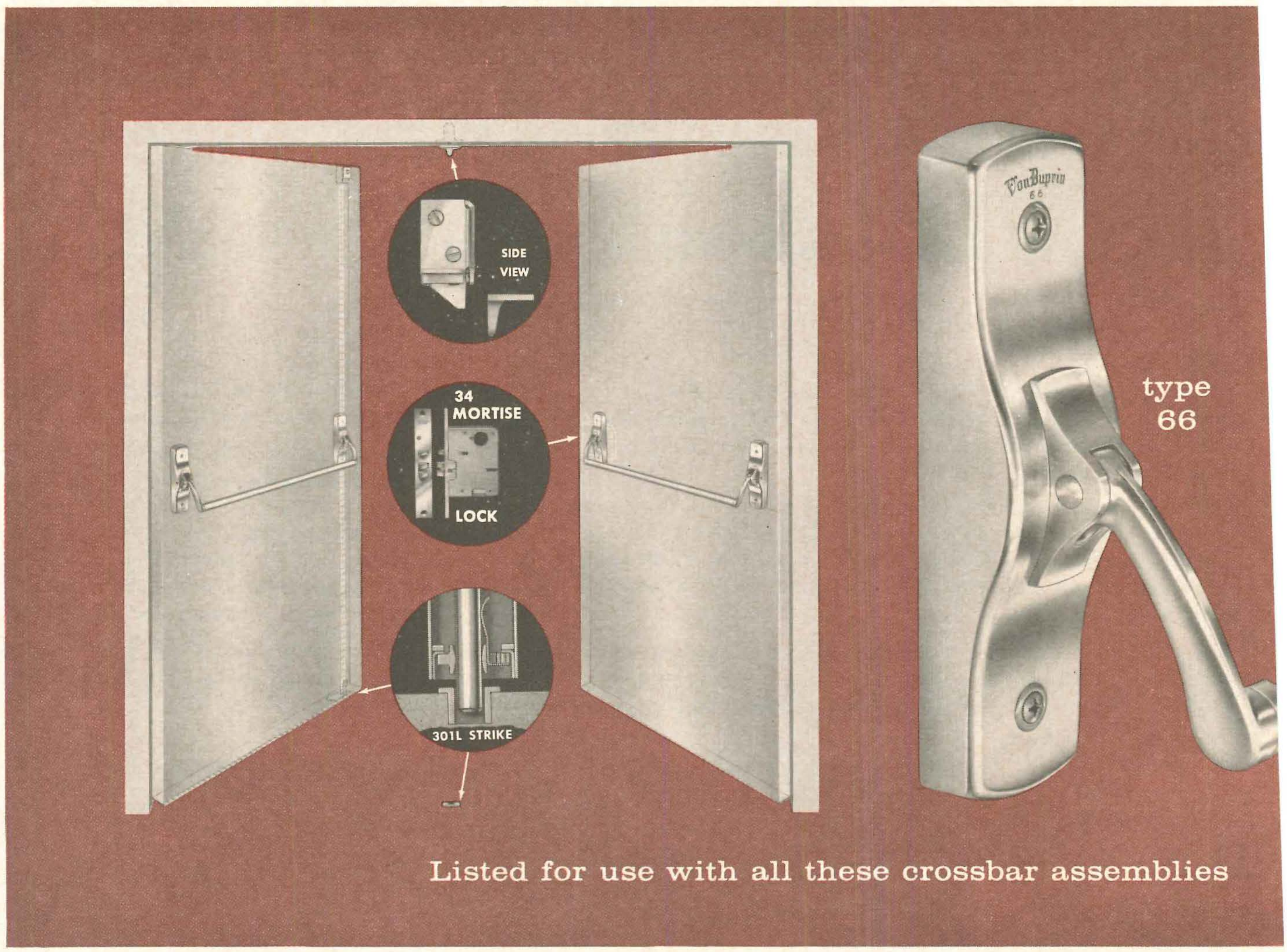
This advertisement is in no way to imply endorsement of the product nor does it imply that the Commonwealth of Virginia, State Hospital Board is a satisfied user of the product


# Von Duprin®

UL tested and listed, with 3-hr. rating for openings up to 7′ x 7′



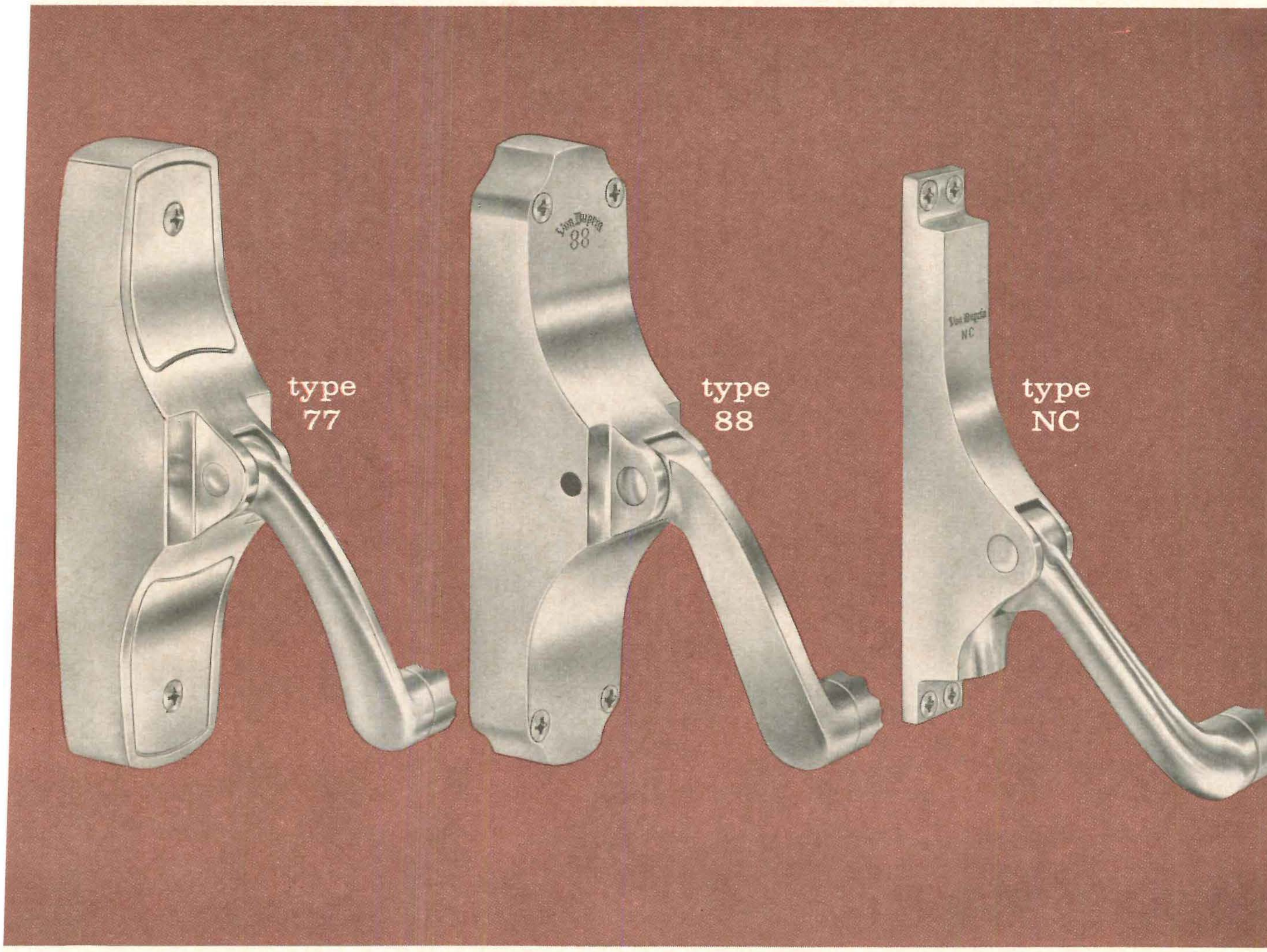

● It's official! An exhaustive series of tests has been completed, and our new line of fire exit hardware is now listed by Underwriters' Laboratories, Inc., for use on labeled doors. Now you can specify four different Von Duprin crossbar assemblies on single door, mortise lock device installations, or with concealed vertical rod and mortise lock devices for double door installations. Study the data in the rating chart at the right . . . then write for your free Bulletin 623, giving you a report on Von Duprin's "ordeal by fire," plus detailed description and operating functions of the full line of Von Duprin fire exit hardware in stainless steel, bronze or aluminum.

the safe way out

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

# fire exit hardware

... as well as a 1 1/2-hr. rating for openings up to 8′ x 7′




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

## *Product Reports*

*continued from page 262*

### DECORATIVE GLASS

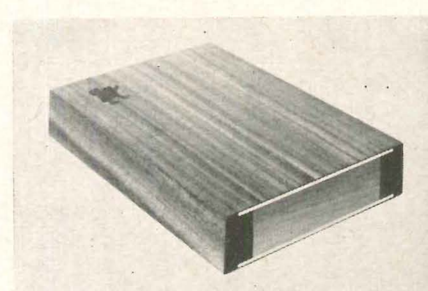
From Italy comes a compound glass unit consisting of two sheets of clear glass with an interlayer of spun glass, hermetically sealed for use outdoors. The glass is available in a variety of colors, in sizes to 40 by 50 in. The white panels provide insulation against sun heat, by reflection and absorption, while diffusing sunlight. The colors make possible murals and other decorative glazing. *Artfiber Corp., 437 Fifth Avenue, New York 10, N.Y.*

### ACOUSTICAL CEILING OF LUMINOUS PANELS

*Hansoglow* panels are triple laminated sheets. Center sheet is high impact perforated vinyl. Outer sheets are sound-absorbing porous acrylic. The 24-in. square panels are available in several designs. They can be combined with the *Hansoflow* vent-grid system for air distribution. *Elof Hansson, Inc., Acoustical Div., 711 Third Ave., New York 17, N.Y.*

### SOLID-CORE DOOR WITH CONCEALED CROSSBANDS

The *Stilemaster* door has five-ply construction for stability, while appearing to be a solid slab of lumber. Crossbands are concealed at the stile



edges, allowing ½ in. for fitting and beveling without exposing the crossbands. *Ipik Door Co., Kenner, La.*

### CONSTRUCTION SYSTEMS

Assistance to architects in design and erection of interior wall and ceiling construction systems is offered by the Systems Engineering Dept. of Bestwall Gypsum. Part of the program is the recommendation of safe fire ratings, adequate sound attenuation and correct acoustical systems. *Bestwall Gypsum Co., 120 E. Lancaster Ave., Ardmore, Pa.*

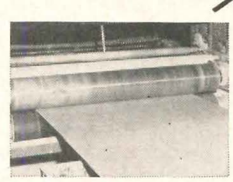
*more products on page 270*

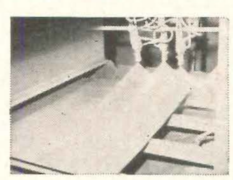
# Evanite™
## OVERLAY PLYWOOD
# SIDINGS



TO ELIMINATE PAINT FAILURE

## EXCLUSIVE 2-COAT PRIME PAINT PROCESS





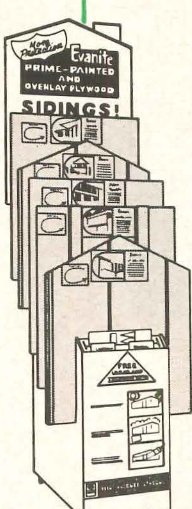
Prime painting protects the panels up to 90 days in the field. *Only Evanite offers you double protection with 2 coats of prime paint.* The first coat is pressure rolled onto the panel to completely cover and seal. Second coat, applied by airless spray, assures even tone and uniform paint coverage. Infra-red heat ovens bake on the prime paint . . . edges and ends are sealed too!

Paint Color: Velvet smooth dove grey. Panel Sizes: 4 ft. wide . . . 8, 9 and 10 ft. lengths.

### Eliminates Hairline Checking

Evanite Overlay Plywood Siding eliminates hairline checking and resists grain raise. Surface is tougher than solid red oak. Evanite prime-painted SIDING finishes beautifully . . . saves half the paint cost by eliminating one round of painting on the job.

- Evanite prime-painted surfaces are **easier** to finish coat!
- The surface is tough and abrasion resistant!
- Ideal for SIDEWALLS, SOFFITS, GABLE ENDS, ACCENTS!




*See these big samples and examine their sturdy construction in the Evanite Siding Sales Center at your dealer.*

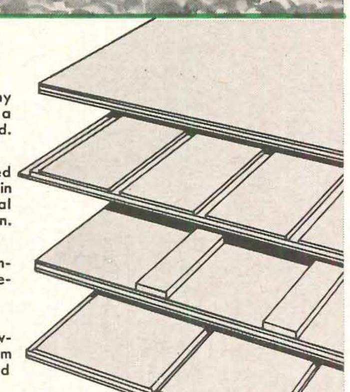
### 4 TEXTURES

**SMOOTH**
For accent areas, soffits . . . or any exterior or interior area where a smooth, tough surface is desired.

**TEXTURE 1-11**
A uniform vertical texture grooved on 4″, 6″ or 8″ centers. Either in overlay or natural plywood. Special end joints for continuous pattern.

**BOARD & BATTEN**
A rugged, exterior wall. Comes complete with matching color prime-painted battens.

**VEE-PLANK**
For that planked effect . . . v-grooved on 6″ or 8″ centers or random pattern. Comes with weather-sealed shiplap edge.



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*Write today for prime-painted sample and free folder . . .*

BUILDING MATERIALS DIVISION

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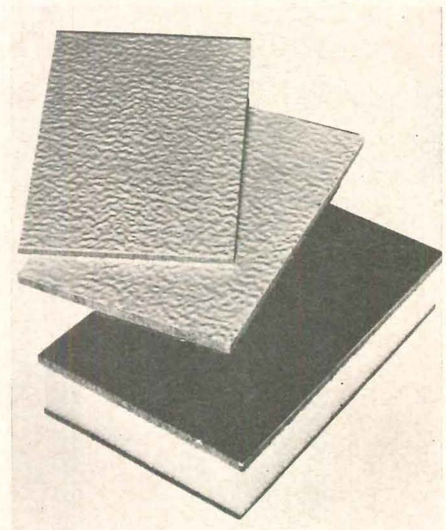
Evanite Building Materials include: SIDINGS • HARBORITE • CreZon • TEXTURE 1-11 • FIR PLYWOODS • HARDBOARD • HARDWOOD PLYWOODS

## Product Reports

*continued from page 266*

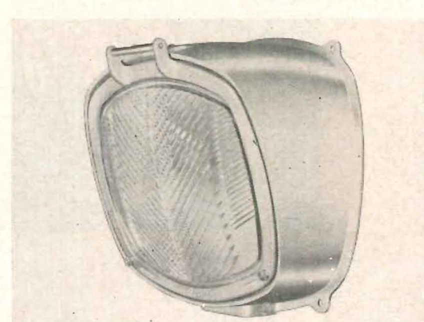
**PORCELAIN ENAMEL ALUMINUM PANELS**
The light weight of aluminum is combined with the color available with porcelain enamel in panels for curtain walls and building refacing.



All panels use stucco-embossed Alcoa aluminum sheet, laminated to tempered hardboard. The insulated sandwich panels use foam plastic as thick as 3 in. *Mapes and Co., Box 2067, Lincoln 1, Neb.*

**VINYL HANDRAIL**
Handrails of solid vinyl can be made in any curve. They are available in seven colors with a matte or polished finish. *Rubber Corp. of America, New South Rd., Hicksville, N.Y.*

**QUARTZ-IODINE LUMINAIRE**
Pole-top and wall-mounted area lights are available for 500-watt quartz-iodine lamps. For pole mounting, two units are mounted back-to-back. The wall-mounted unit has a



flush back. The luminaires give rectangular patterns of light. *Revere Electric Mfg. Co., 7420 Lehigh Ave., Chicago 48, Ill.*

WHEN YOU CONSIDER FLUORESCENT LAMP BALLAST

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*remember...*

AUTOMATIC RE-SETTING

# ADVAN guard®

THERMAL PROTECTION

*saves you money!*

## HERE'S THE PROOF!

| TYPE BALLAST PROTECTION | CONDITION OF BALLAST AFTER OPERATION DUE TO: TEMP. IN EXCESS OF U/L-CBM SPECIFICATIONS | HIGHER THAN NOMINAL LINE VOLTAGE | LAMP RECTIFICATION | LAMP FAILURE | BALLAST COST WITHOUT PROTECTION* | COST OF BALLAST PROTECTION* | BALLAST COST WITH PROTECTION* | COST OF REPLACEMENT BALLAST* | REPLACEMENT LABOR COST | TOTAL COST DUE TO PREMATURE DESTRUCTION |
|---|---|---|---|---|---|---|---|---|---|---|
| ADVAN-guard PROTECTION | OPERATIVE | OPERATIVE | OPERATIVE | OPERATIVE | $8.02 | 76¢ | $8.78 | NO COST — NO REPLACEMENT NECESSARY | | |
| NON-RESETTING THERMAL PROTECTION | REPLACEMENT NECESSARY | REPLACEMENT NECESSARY | REPLACEMENT NECESSARY | REPLACEMENT NECESSARY | $8.45 | 25¢ | $8.70 | $8.70 | $3.50 | $12.20 |
| POLYESTER FILL | REPLACEMENT NECESSARY | REPLACEMENT NECESSARY | REPLACEMENT NECESSARY | REPLACEMENT NECESSARY | $8.02 | 33¢ | $8.35 | $8.35 | $3.50 | $11.85 |

*BASED ON PUBLISHED LIST PRICES FOR 2 LAMP 96" CBM SLIMLINE BALLAST

The superior protection of ADVAN-guard® equipped Fluorescent Lamp Ballasts may cost a little more, but as the chart shows, it is protection that guarantees Fluorescent Lamp Ballast life.

Only ADVAN-guard®, a thermally actuated automatic reclosing protective device, is sealed in the ballast housing and is preset to automatically "trip-out" whenever the Fluorescent Lamp Ballast operates at abnormal temperatures. When heat decreases to normal operating temperatures, ADVAN-guard® resets automatically and the ballast resumes normal operation. If overheating continues, ADVAN-guard® protection continues. Through this continuous protection, the full life of ADVANCE Fluorescent Lamp Ballasts will be realized . . . rated life of ADVANCE Ballasts under normal operating conditions is 10 to 12 years.

End premature destruction and unnecessary ballast labor replacement costs, demand ADVANCE Fluorescent Lamp Ballasts with ADVAN-guard® built-in automatic resetting thermal protection.

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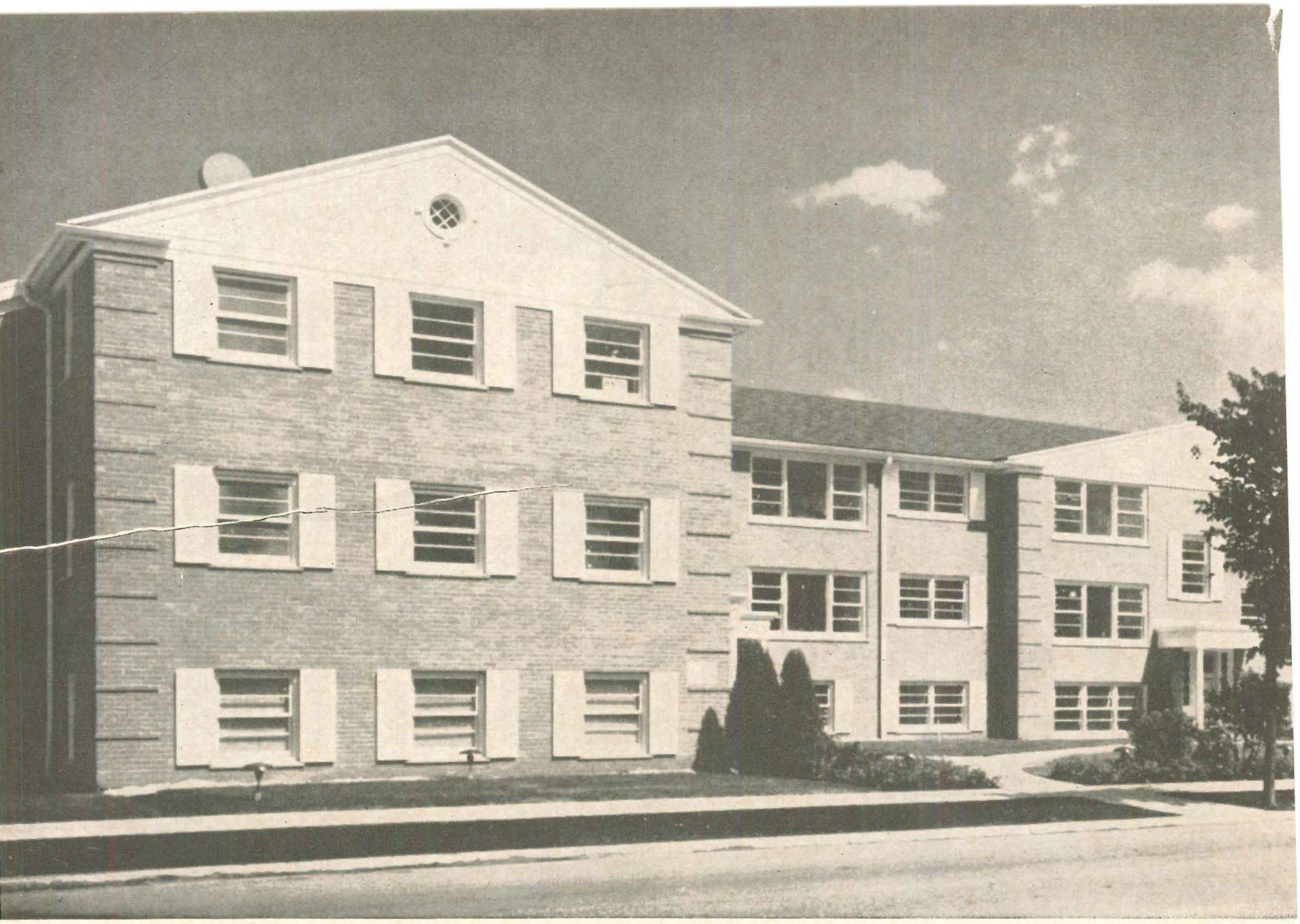
CBM CERTIFIED — WORLD'S LARGEST EXCLUSIVE MANUFACTURER OF FLUORESCENT LAMP BALLASTS

2950 NO. WESTERN AVE. CHICAGO 18, ILL. U.S.A.

In Canada: Advance Transformer Co. Ltd., 5780 Pare St., Montreal, Quebec.

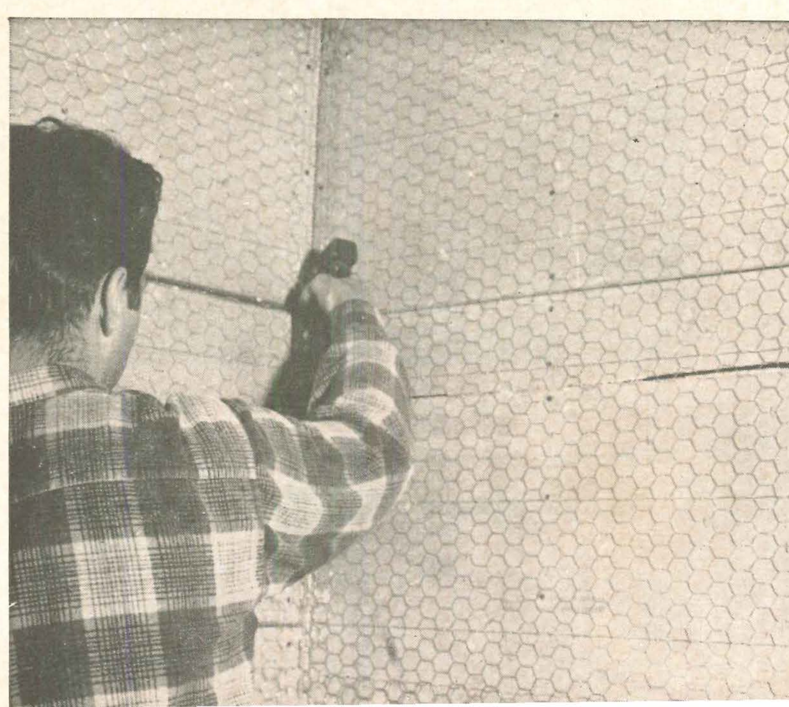


## Chicago builders get greater crack resistance at no extra cost with the

# KEYMESH® · KEYCORNER ·

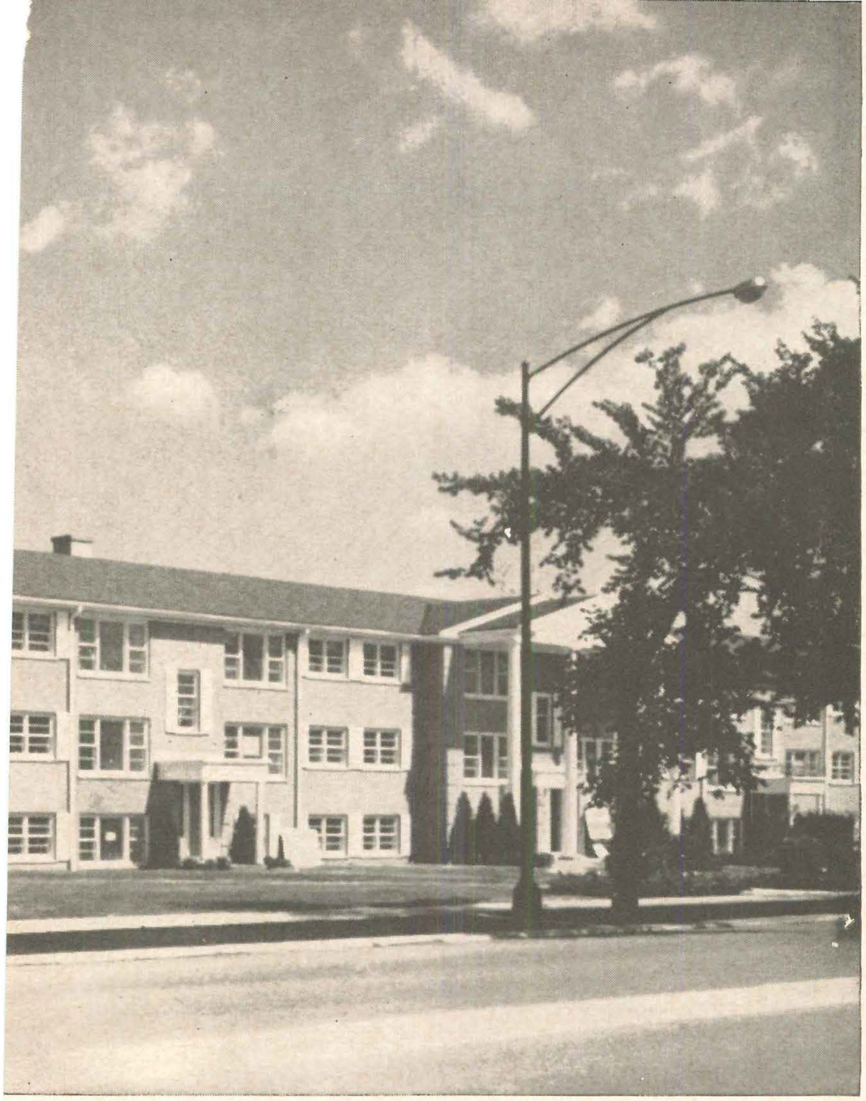
Lasting beauty and low maintenance are built into the new Williamsburg Apartments located in Chicago, Illinois. That's because greater plaster-crack resistance is assured by reinforcing the lath and plaster walls.

Valenti Builders, Inc., Chicago, found it cost no more to get this extra reinforcing quality. By specifying Keymesh, Keycorner and Keystrip galvanized reinforcing lath, the builders got top quality reinforcement with greater resistance to cracks and fire.

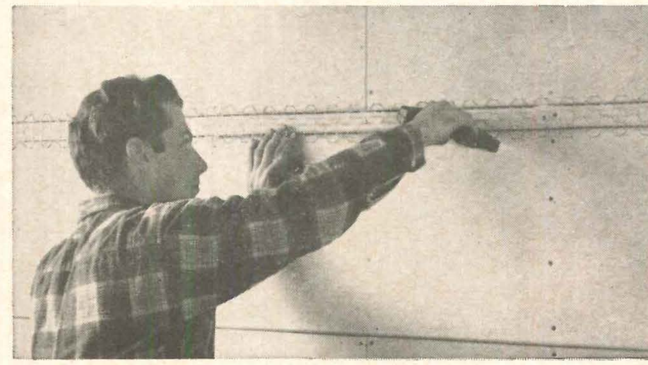


Tiled bathrooms in the Chicago project have lasting beauty with KEYMESH reinforcement. The portland cement plaster reinforced with Keymesh provides a strong, maintenance-free base for the tile. You'll find Keymesh makes any gypsum lath and plaster wall stronger and more crack resistant.

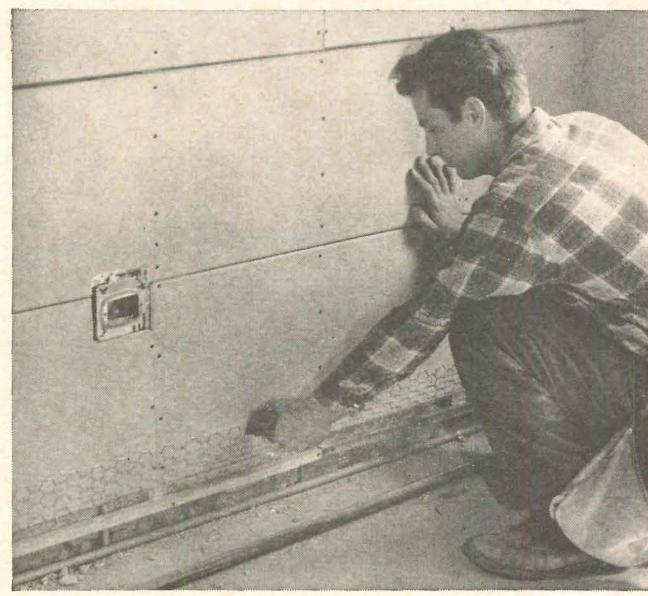
Keymesh rolls out flat and laps without bulging . . . forms easily and cuts quickly. The open mesh permits rapid troweling and assures a full, even thickness of plaster. Keymesh, Keycorner and Keystrip are galvanized against rust.



KEYSTRIP is a new addition to the Keystone line of plaster reinforcement. Here, this flat strip reinforcement is stapled over joints where narrow strips of gypsum lath are used. This use of Keystrip adds strength where needed.



KEYSTRIP can be used as a reinforcement for plaster in a space too narrow for strips of gypsum lath. A full bond of Keystrip to the plaster is assured. Keystrip also adds strength to points of stress above doors and windows.



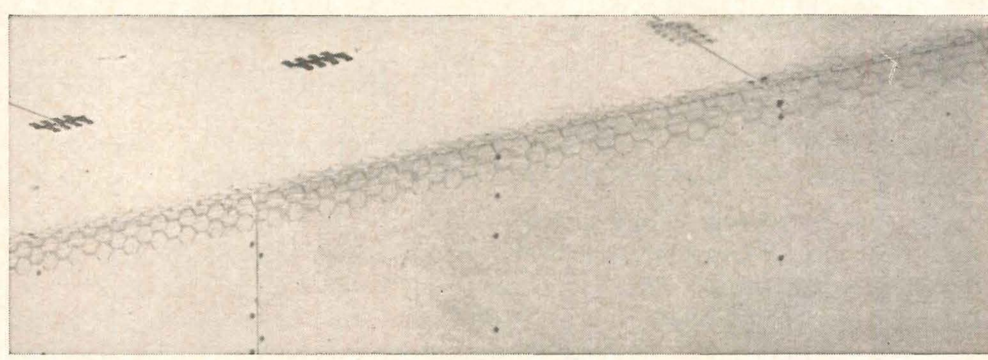
## three keys to stronger plaster

# KEYSTRIP

**GALVANIZED REINFORCING LATH**

Inside plaster corners reinforced with KEYCORNER lath have almost twice as much resistance to cracking as corners reinforced with other materials. Recent tests and actual use confirm this feature.

The men working on the Williamsburg Apartments, as on other jobs, found the preformed, 4-foot lengths of Keycorner easy to handle. Keycorner goes into place quickly and can be nailed or stapled. The open mesh design makes it easy to plaster over and assures a complete bond.



Get quality wall construction with lath and plaster at low cost by specifying the three keys Keymesh, Keycorner and Keystrip. Send for more complete information and results of recent tests conducted by leading laboratories. Write Keystone Steel & Wire Company, Peoria 7, Illinois.

**KEYSTONE STEEL & WIRE COMPANY**

**Peoria 7, Illinois**

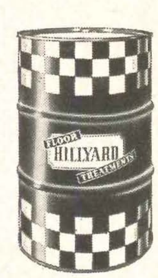
Keycorner • Keymesh • Keystrip • Keywall • Keydeck • Welded Wire Fabric


# Why damage before dedication?

Chances are this floor will receive more abuse during construction than in the next 5 years combined. As the building goes up, we forget to look down...but it's a very critical time for new floors.

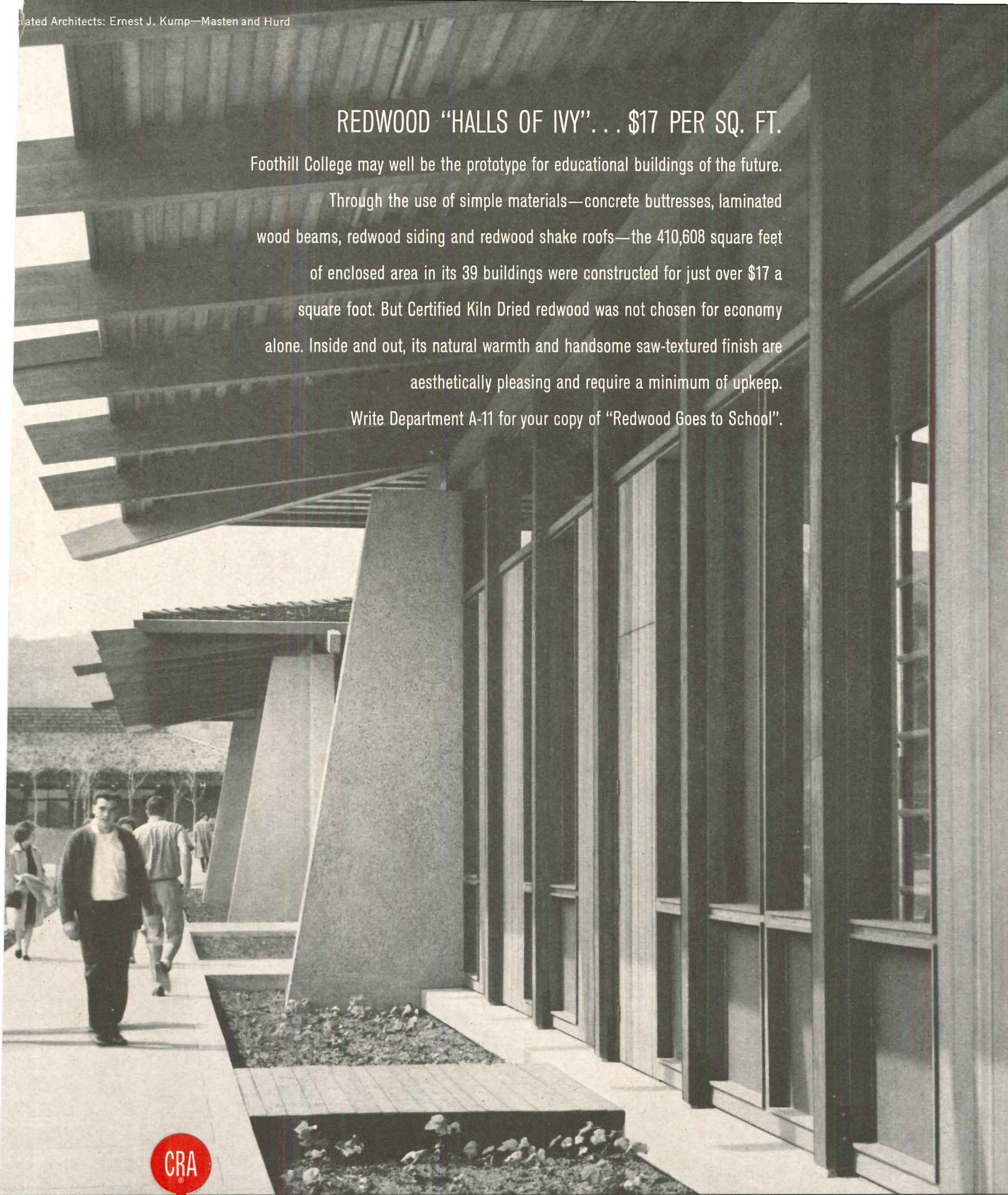
The Hillyard floor treatment program will do the job better than "KEEP OFF" signs...and for a longer time. Your Hillyard Maintaineer will show you how to protect all floors during construction, and he will be pleased to draft a plan that will cut maintenance costs by 50% when the owner takes over. You'll like the way flooring complaints will be eliminated. No matter what type of floor you specify—Hillyard seals and finishes are manufacturer approved.

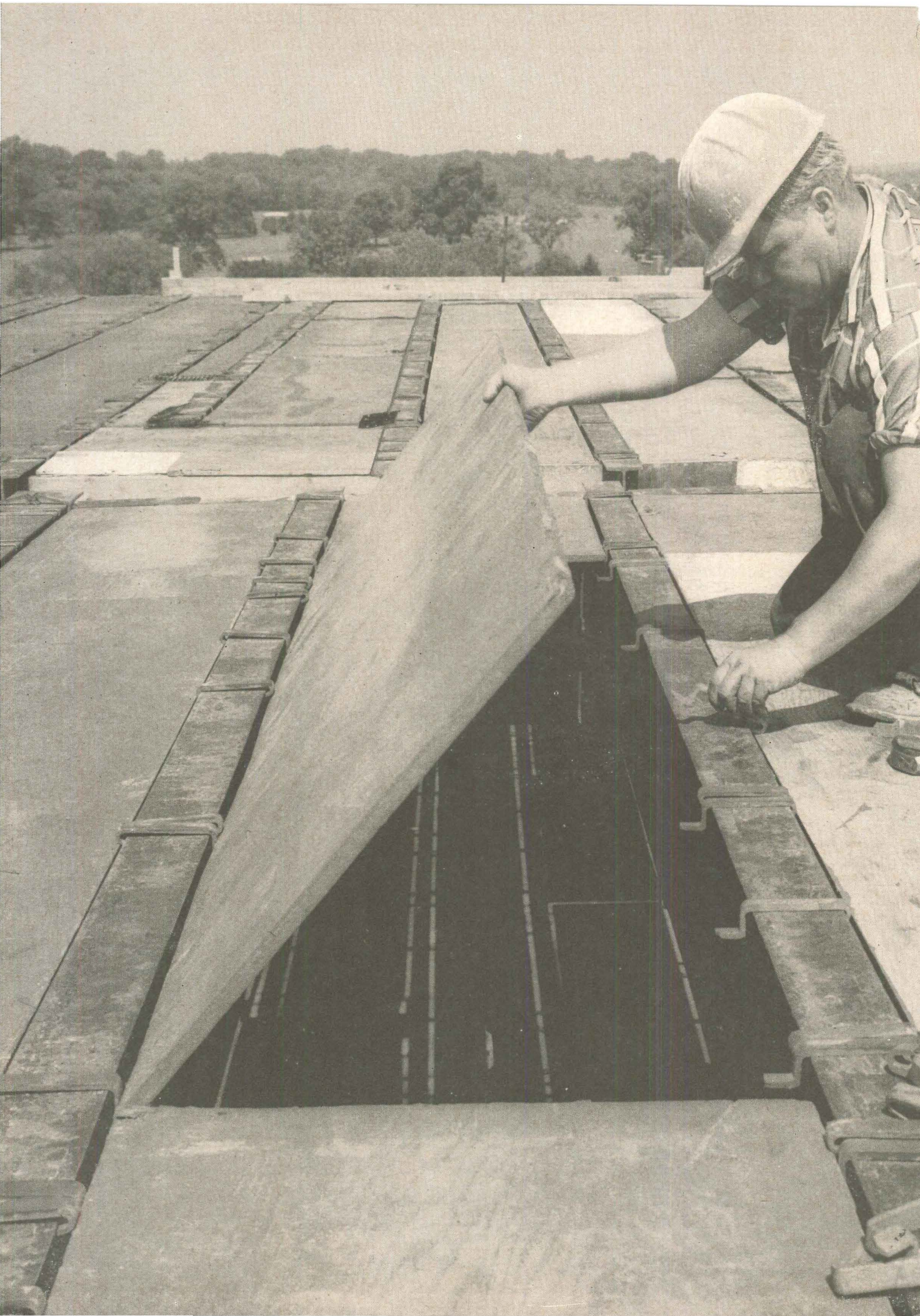
Plan protection for your floors, with your Hillyard Maintaineer...the man who follows through for you. At your request, he will survey your finished floors, and recommend proper maintenance procedures at no cost to you. District offices are listed in Sweet's, or call collect.

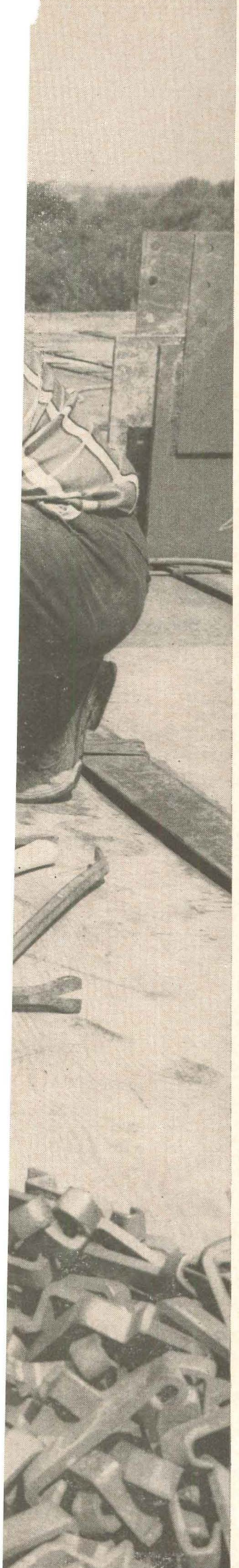



**HILLYARD**
**FLOOR TREATMENTS**
St. Joseph, Missouri, U.S.A.
Passaic, New Jersey
San Jose, California

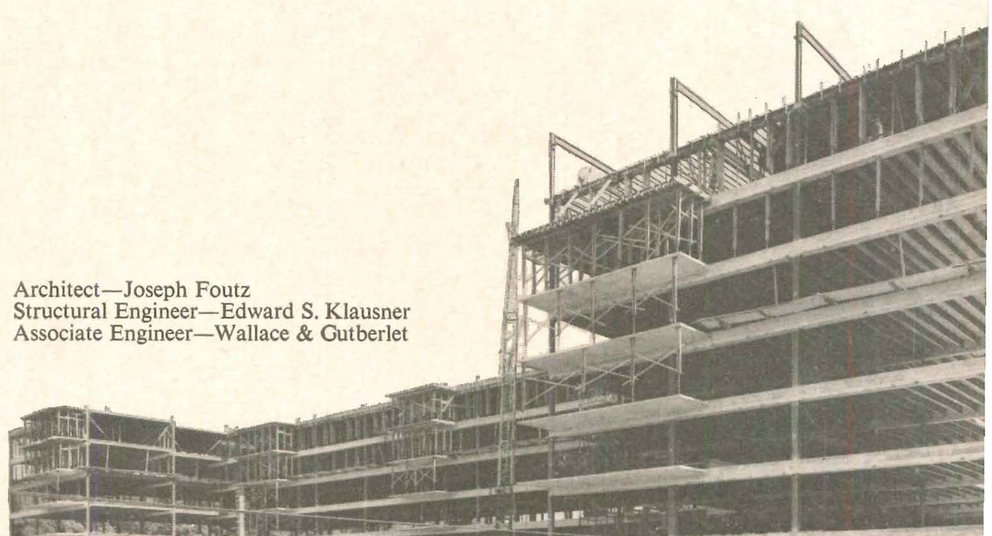
*"On your staff, not your payroll"* / **PROPRIETARY CHEMISTS SINCE 1907**


...iated Architects: Ernest J. Kump—Masten and Hurd
REDWOOD "HALLS OF IVY"... $17 PER SQ. FT.
Foothill College may well be the prototype for educational buildings of the future. Through the use of simple materials—concrete buttresses, laminated wood beams, redwood siding and redwood shake roofs—the 410,608 square feet of enclosed area in its 39 buildings were constructed for just over $17 a square foot. But Certified Kiln Dried redwood was not chosen for economy alone. Inside and out, its natural warmth and handsome saw-textured finish are aesthetically pleasing and require a minimum of upkeep.
Write Department A-11 for your copy of "Redwood Goes to School".
CRA









## *Office Literature*

*continued from page 220*

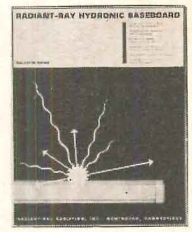
**Stainless Steel Design and Data**


(A.I.A. 15-H-1) "Architectural Quarterly" has eight pages showing use of stainless steel in several recent buildings. Two four-page folders are the first in a series of data sheets. No. 1 treats maintenance economy and No. 2, column covers. *Committee of Stainless Steel Producers, 633 Third Ave., New York 17, N.Y.*

**Display Lighting**

(A.I.A. 31-F-23) An eight-page catalog illustrates the *Magnabeam* line of interior display lights. Heat resistant color filters are available. *Esco Lighting Co., Inc., 28 Railroad Ave., Pearl River, N.Y.*

**Hydronic Baseboad Heating**




Ratings, dimensions, packaging and accessory details on residential hydronic baseboards are presented in a 12-page catalog, which includes instructions on calculating heat loss. *Radiant-Ray Radiation, Inc., 464 Hartford Ave., Newington, Conn.*

**School Science Facilities**

"A Guide for Evaluating Your Science Facilities" is a 16-page brochure published in cooperation with the School Facilities Council, containing mechanical and statistical data pertaining to the planning and construction of science classrooms and laboratory facilities. *Science Guide, Scientific Apparatus Makers Assoc., 20 N. Wacker Drive, Chicago 6, Ill.*

**Flush Wood Doors**

Flush wood doors, both solid and hollow core, are illustrated in a 14-page booklet. Sizes, weights, and grades for exterior and interior doors are included. *Mohawk Flush Doors, Inc., 212 W. Ewing Ave., South Bend 23, Ind.*

**Automatic Control Systems**

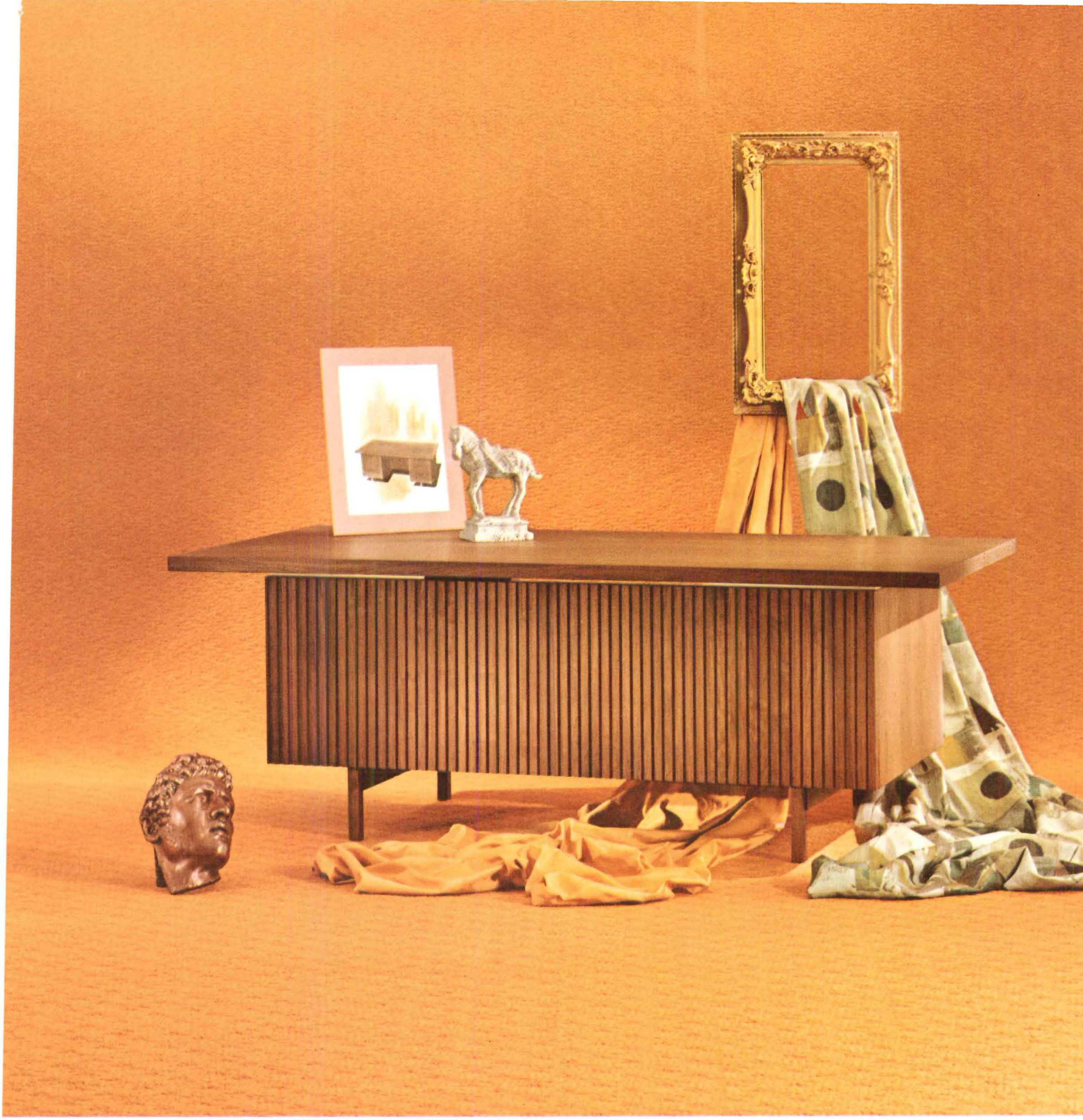
Seven handbooks covering advances in automatic control systems and building automation are available as a set or individually. Subjects covered are automation techniques, clock programming systems, electronic air cleaning, temperature control, automatic fire protection, security and equipment surveillance systems, and preventive maintenance programs. *Minneapolis-Honeywell, Minneapolis 8, Minn.*

**Boxed Beam Door Header**

A 24-page manual covers design, fabrication and installation details for boxed beam garage door headers that can be site-assembled with nails only —no glue required. Single copies are free. *Douglas Fir Plywood Assoc., Tacoma 2, Wash.**

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

*more literature on page 290*



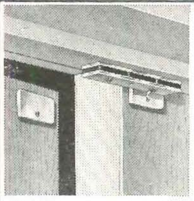
Colonnade

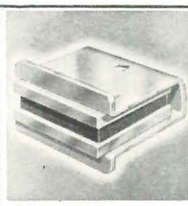
The classic influence of Grecian architecture is reflected in the new Colonnade desk by Leopold. A precisely routed front panel captures beauty embedded in the natural walnut . . . provides an interesting interplay of light and shadow. When a truly distinctive executive office is called for, specify the Colonnade desk and companion pieces from The Template Group. Have brochure? Write The Leopold Company, Burlington, Iowa.

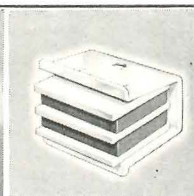
THE LEOPOLD COMPANY

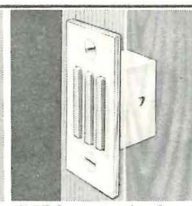
A Deaton Design

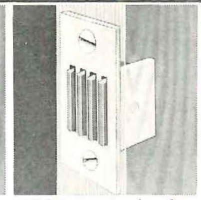
Carpet by C. H. Masland and Sons; fabric by J. H. Thorp and Co., Inc.; accessories, Flairtime by Silvestri

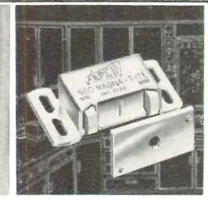

#543 catch for pairs of large doors

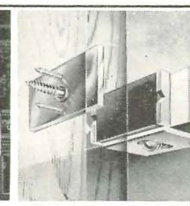

#555 snap-in catch for metal doors

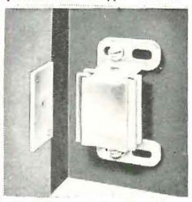

#558 snap-in catch for metal doors

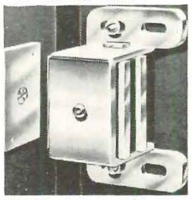

#556 catch for 1 3/8" sliding doors

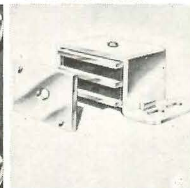

#557 catch for heavier sliding doors

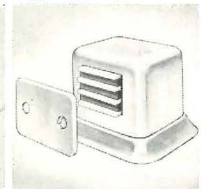

#560 catch for cabinet doors

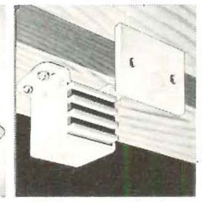

#570 catch for fine furniture

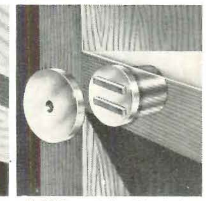

#590 catch for cabinet doors

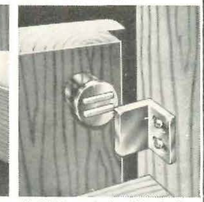

#591 heavy duty catch for cabinets


#592 extra heavy catch for doors


#594 heavy duty magnetic door stop


#595 magnetic door closer assist

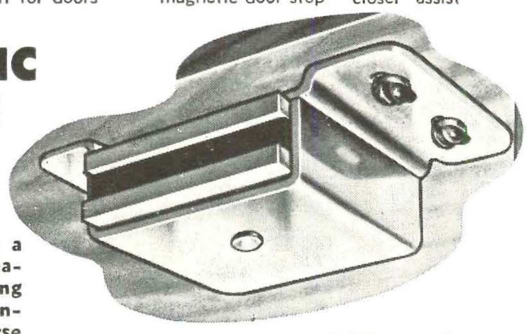

#600 catch fits into 5/8" bore in shelf


#602 catch fits into 7/8" bore in door

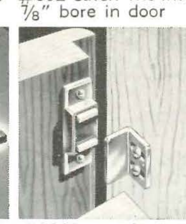
# EPCO® MAGNETIC CATCHES

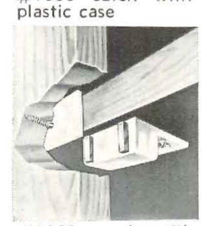
## to meet every need or specification!

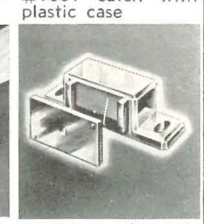
**The EPCO family of catches includes a style for every building need. Each features "touch" closing and secure holding power. Each is self-aligning to an enlarged strike, and to mount in diverse ways simply and quickly. Each is handsomely encased and has lifetime magnets.**


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


#1000 catch with plastic case


#1001 catch with plastic case


#1002 catch with plastic case


#1003 catch with plastic case

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

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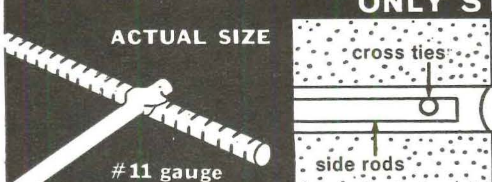
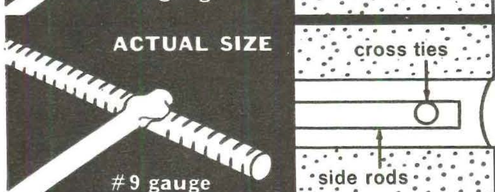
FLUSH WELDED · PROVEN TO BE STRONGER

## ONLY STEEL IN TENSION CONTROLS CRACKS!



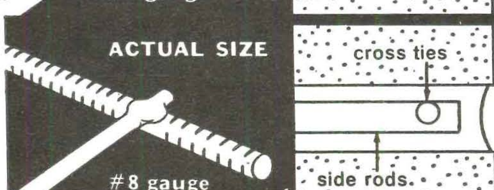

### *THIN JOINT FOR THE 1/4" MORTAR JOINT*

**#11 ga., .120 dia. longitudinal wires; #12 ga., .1055 dia. cross ties.**



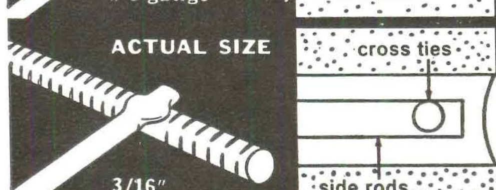

### *STANDARD BLOK-LOK® FOR 3/8" MORTAR JOINT*

**#9 ga., .148 dia. longitudinal wires; #9 ga., .148 dia. cross ties.**




### *F. S. STANDARD BLOK-LOK FOR 3/8" MORTAR JOINT*

**#8 ga., .162 dia. longitudinal wires; #9 ga., .148 dia. cross ties.**

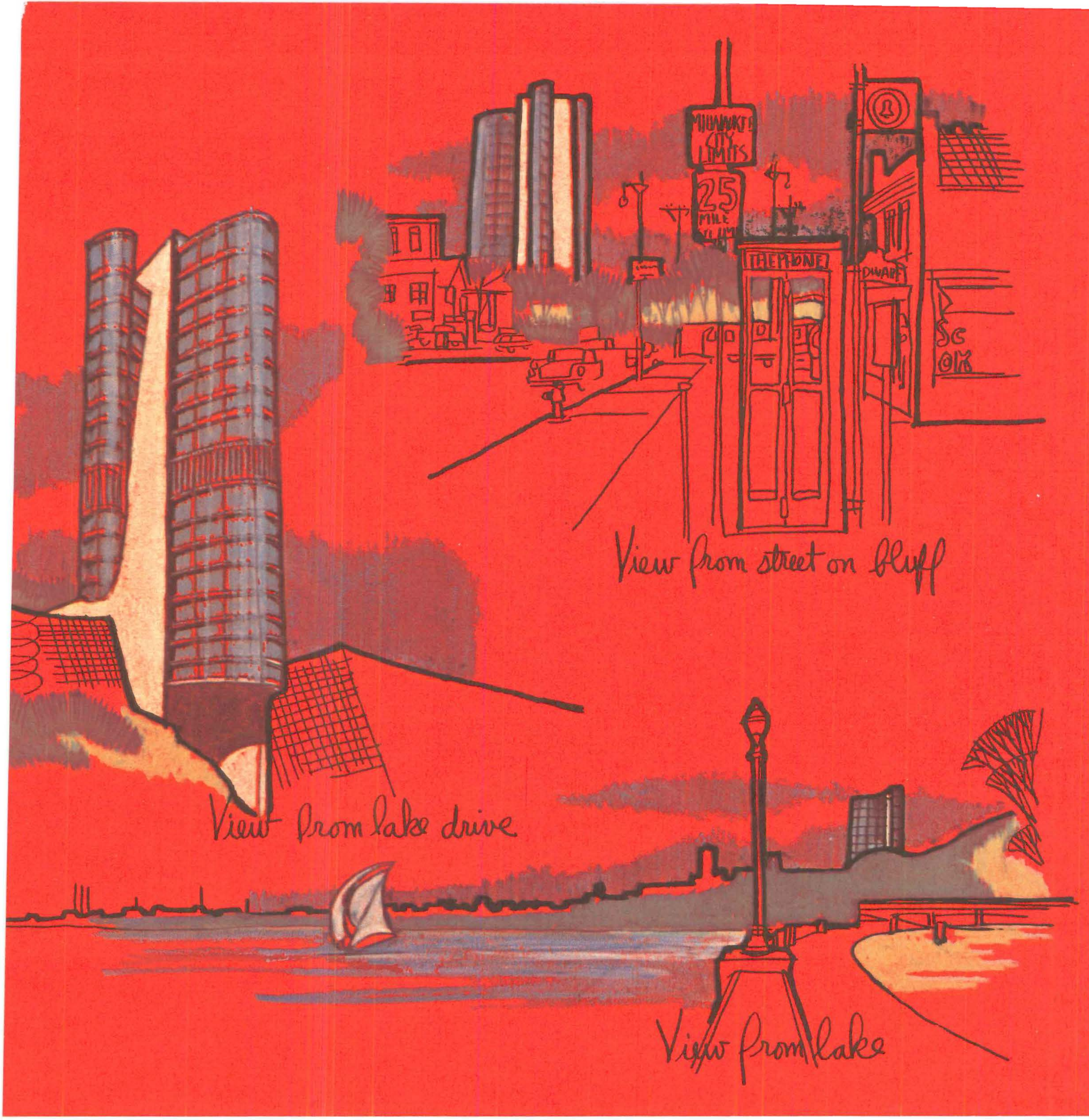



### *HEAVY DUTY BLOK-LOK FOR THICK MORTAR JOINT*

**3/16" longitudinal wires; #9 ga., .148 dia. cross ties.**

**BLOK-LOK plants in Chicago, Ill.; Dallas, Texas and Toronto, Canada**

**AA WIRE PRODUCTS COMPANY** 714 E. 61st Street, Chicago, Illinois PH: MI 3-8203



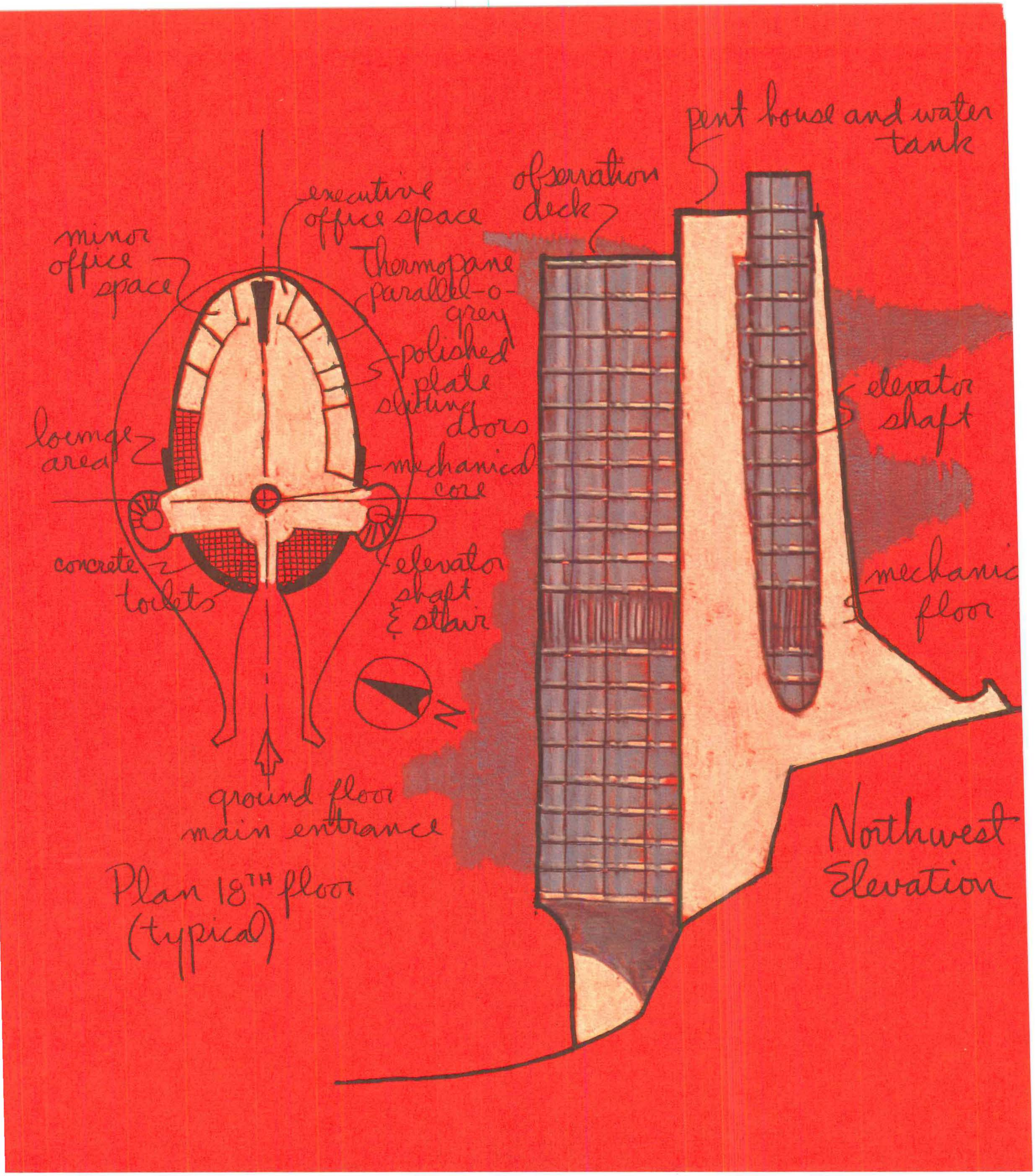

# Richard R. Bergmann designs an Open World office building

Every young architect has a dream project. So has talented Richard R. Bergmann. We commissioned him to put his "dream" down on paper. Dick, a recent graduate of the University of Illinois, is now an architectural designer with Urbahn & Brayton, Architects, New York City.

He envisions a high-rise office building that would enhance and enliven the low sky line of Milwaukee's wooded shore line. This is a semi-commercial area. Perched on the top of a 60-foot bluff, the building would command a towering view of the Bay of Milwaukee and Lake Michigan.

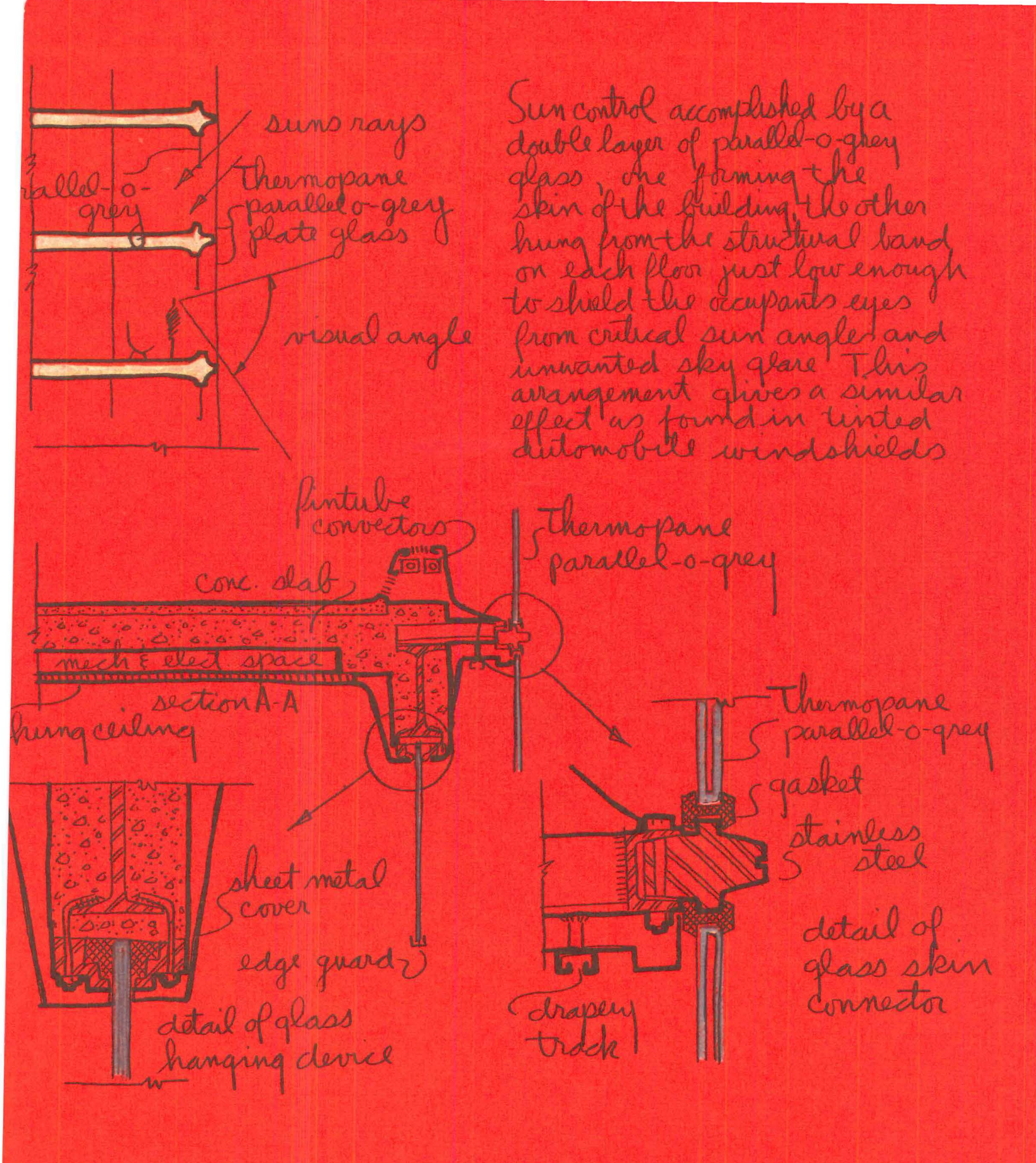
MADE IN U.S.A.

LOF GLASS

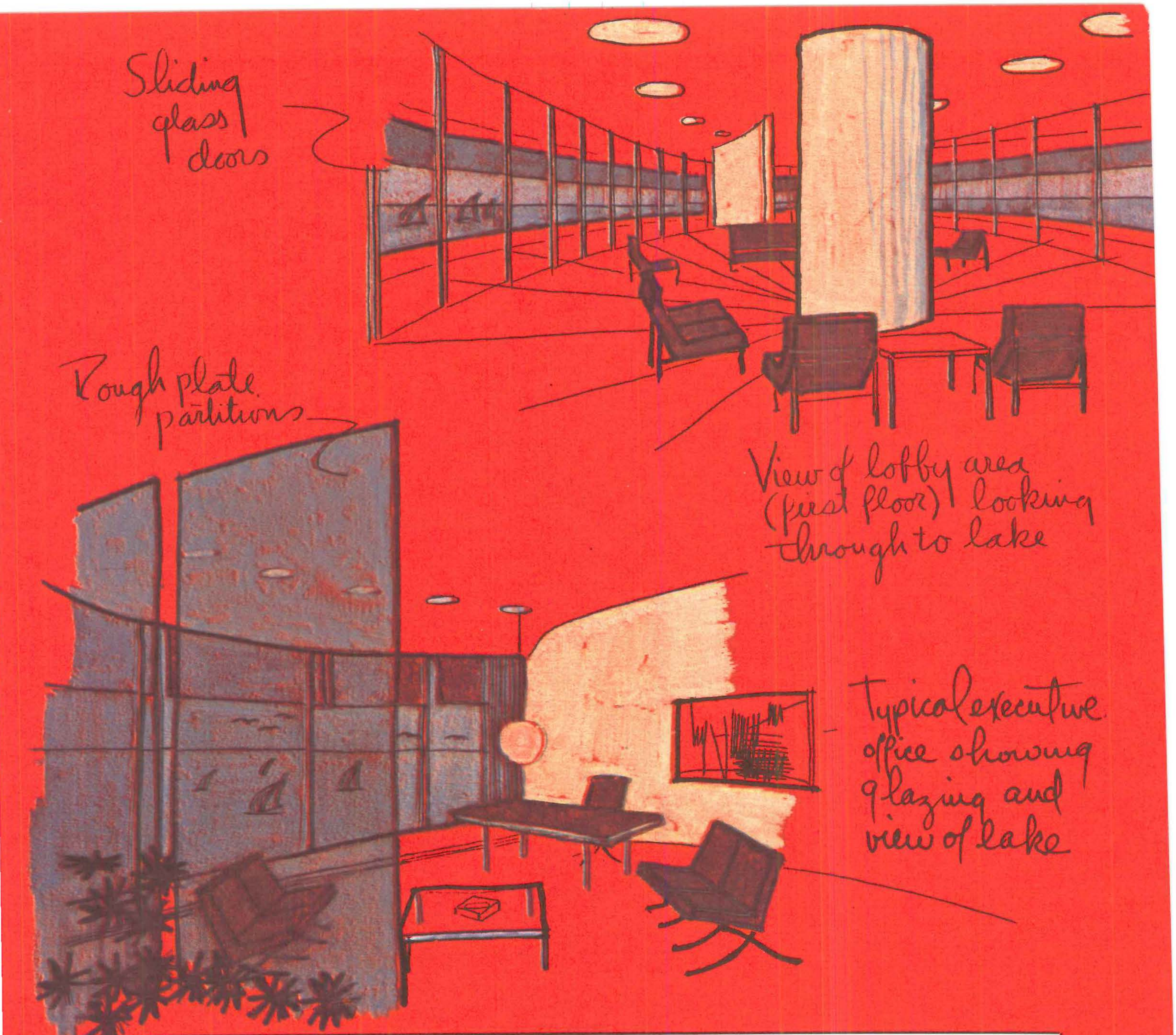



Since "full advantage should be taken of the view", glass is the major element in the building's design. Even the elevator shafts, which are located on each side of the building, would have wired glass walls. And Bergmann also envisions elevator cabs made with laminated *Tuf-flex®* glass so passengers can enjoy the view.

Executive offices would be in the outermost point of the building, which would be glazed with *Thermopane®* insulating glass and look out on the most exciting views. Staff employes would be in the building's core. So that daylight can penetrate deep into this area, the walls of the "buffer" lounge areas would be *Parallel-O-Plate®* Glass.




The problems of sky glare and heat gain have been considered. Liberal areas of concrete would be used in the walls facing southwest and southeast. In other areas, *Thermopane* with ¼″ *Parallel-O-Grey*® Plate Glass as the outer pane would be specified. Colors seen through this tinted glass remain true. But it excludes approximately 40% of the solar energy (heat) to reduce load on air conditioning. It also transmits only about 44% of average daylight to reduce sky glare. As an extra precaution, Dick Bergmann recommends a second sky shade of *Parallel-O-Grey* hung from the ceilings back of the window areas. See details and explanation above.




# L•O•F GLASS FOR OFFICE BUILDINGS

**POLISHED PLATE GLASS**

**1/4" Parallel-O-Plate**
Twin ground for windows and mirrors

**1/4" Parallel-O-Grey**
Twin-ground tinted plate glass

**13/64" Grey Polished Plate**

**1/4" Heat Absorbing Plate**
Blue-green color

**Rough Plate**
Six versatile types

**INSULATING GLASS**

**Thermopane**

**SPANDREL GLASS**

**Vitrolux®**
Vitreous colors fused to back of heat-strengthened glass

**HEAT TEMPERED GLASS**

**Tuf-flex**
Doors and side lights

**WINDOW GLASS**

Uniform quality

Sales agents for

**PATTERN & WIRED GLASS**

Made in Great Britain

**For information** on these L•O•F products, refer to Sweet's Architectural File 26A, or call your L•O•F distributor or dealer, listed under "Glass" in the Yellow Pages. Or write to Libbey•Owens•Ford Glass Co., 811 Madison Ave., Toledo 2, Ohio.

MADE IN U.S.A.

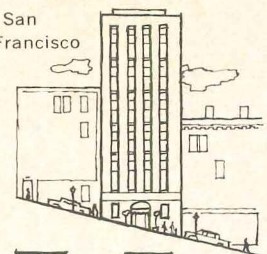
**Libbey • Owens • Ford** Toledo 2, Ohio

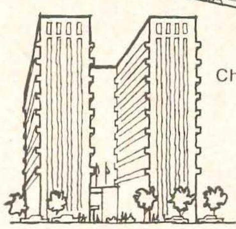
LOWEST MAINTENANCE . . . DURABLE . . . EXCLUSIVE FINISH . . . WIDEST CABINET SELECTION

# Geneva

***NATIONALLY PREFERRED FOR APARTMENT KITCHENS***

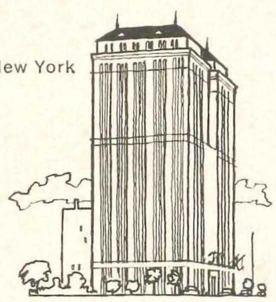
San Francisco



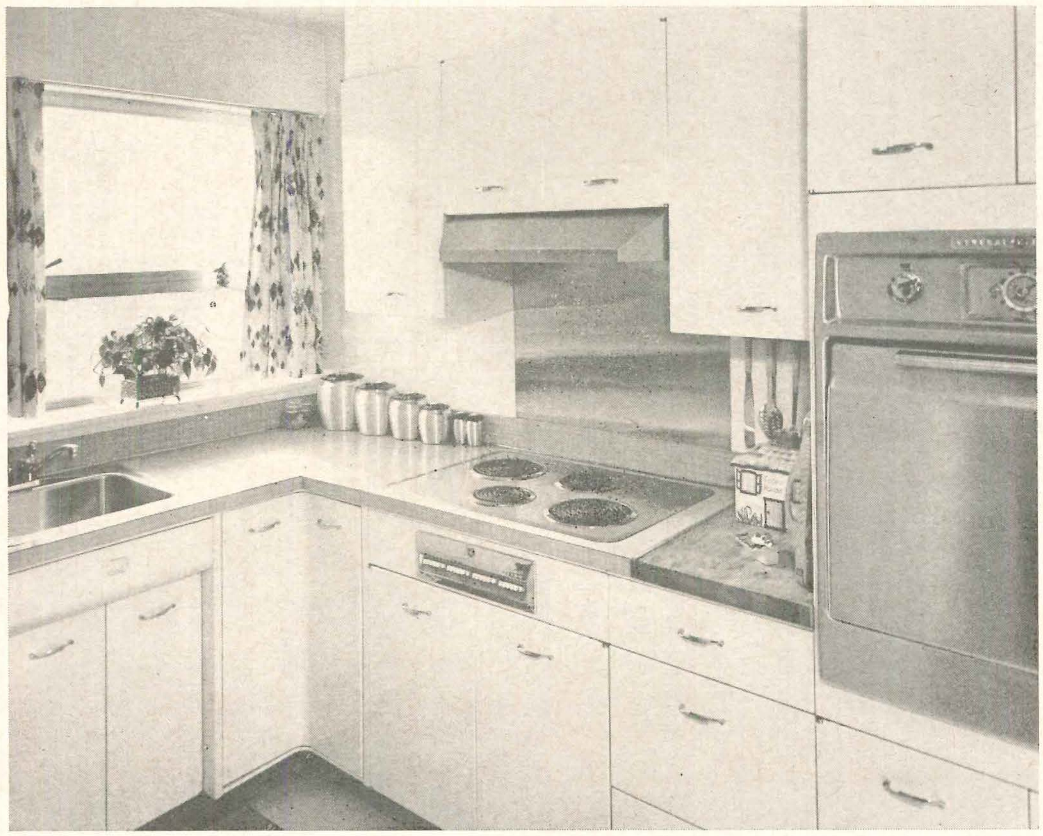


Chicago

New York



El Paso



From coast to coast, border to border GENEVA is the preferred kitchen for apartments — **and with good reason.**

**LOWEST MAINTENANCE**— Cost studies prove Geneva kitchens require far less maintenance than competitive products . . . a consideration extremely important to apartment owners.

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**EXCLUSIVE FINISH . . . CHOICE OF COLORS**— Only Geneva offers IMPASTO, the non-gloss textured finish. Attractive, durable, stain resistant, cleans with a damp cloth. Choice of many fashion colors.

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(1) Lay rigid Tufcor sheets; they're easy to handle and weld quickly in place. 21'6" sheets cover up to 48 square feet. Fewer laps and welds. (2) Insulating concrete can be placed as fast as Tufcor. Provides a firm, hard base for built-up roof and assures consistent insulating properties. (3) Built-up roof goes on fast on smooth concrete base, adheres well, resists indentation. Faster job completion.

The complete deck system functions as a diaphragm; stiffens roof framing. And Tufcor's 80,000 psi minimum yield strength permits higher design stresses with greater factors of safety. Strong, yet lightweight. A Tufcor roof system weighs 4 to 6 psi

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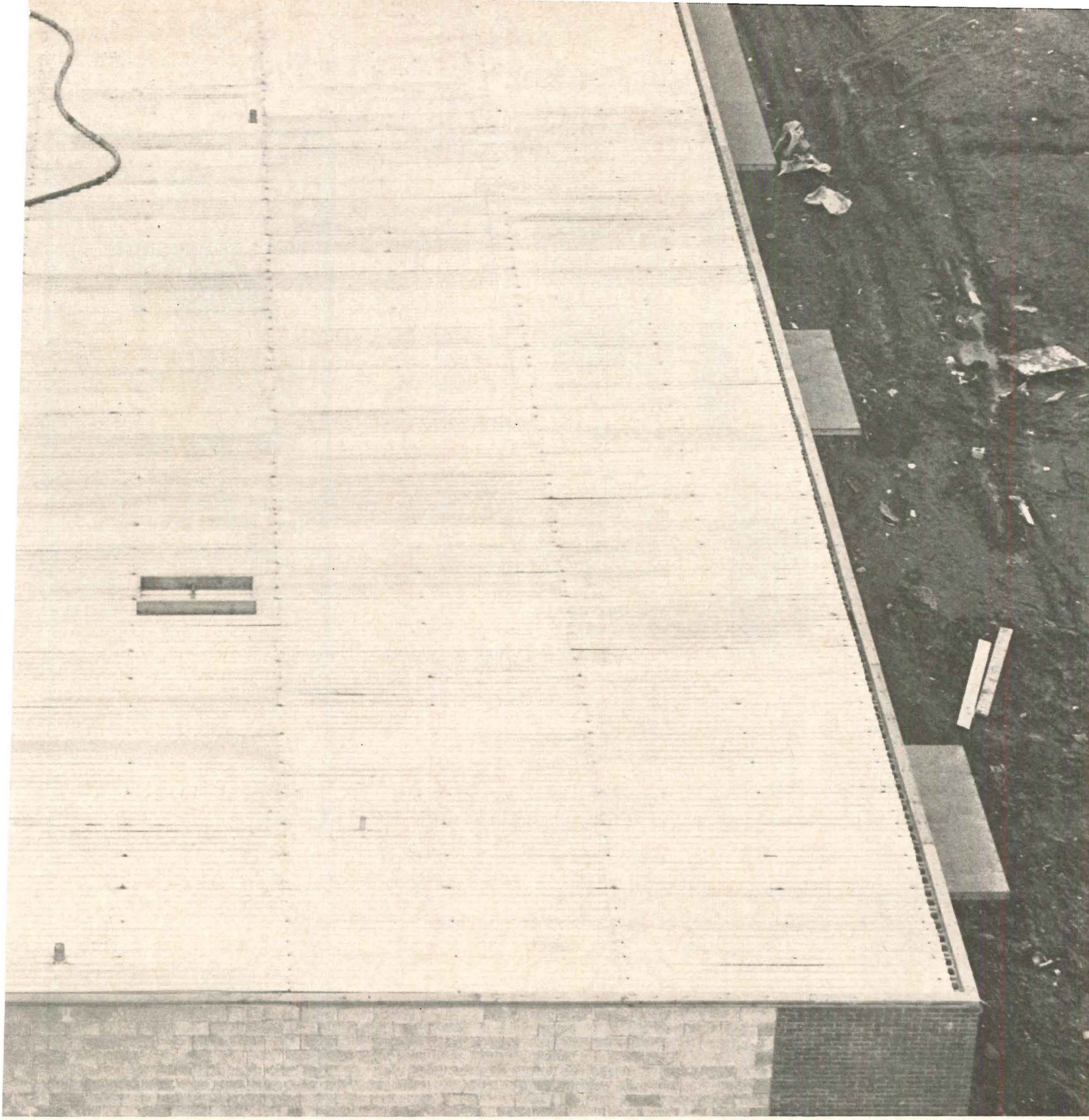

safe, economical roof

:ss than most roof construction. Saves on framing ınd foundation costs. Saves on insurance and prinkler costs, too, because it is a fire-resistant ystem.

Гo get a roof that satisfies all present-day require-nents and still remains competitive, start with Гufcor. And remember, an approved roof deck ıpplicator is best qualified to build all of these penefits into your Tufcor roof system.

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Galvanized Tough-Temper Structural Steel Roof Deck

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GRANCO®

## *Office Literature*

*continued from page 278*

**Lighting for School Stages**


A suggested layout for a modified proscenium stage is included in a 24-page booklet which also analyzes types of stages and lighting equipment. Details of a background projection system are included. *Hub Electric Co., Inc., 2255 W. Grand Ave., Chicago 12, Ill.*

**Wood Doors**

Flush doors, both solid and hollow core, made of ponderosa pine are described in a six-page booklet, which includes pictures of installations. *Anson & Gilkey Co., Merrill, Wis.**

**Movable Partitions**

(A.I.A. 35-H-6) Three lines of movable partitions for commercial buildings are described in a 12-page booklet. A variety of finishes (including *Micarta*) is available. *Architectural Systems, Inc., 4300-36th St., S.E., Grand Rapids 8, Mich.**

**Detection Equipment**

Detection equipment—ranging from adjustable ultrasonic devices, sensitive enough to detect an intruder's slightest movement, to fire detectors which work in either high or low ambient temperatures—is described in a 12-page booklet. *Kidde Ultrasonic & Detection Alarms Div., Walter Kidde & Co., Inc., Belleville, N.J.**

**Hospital, Institutional Furniture**

Cribs, hospital beds, chairs, desks, and dormitory furniture are described in a 64-page catalog which includes color illustrations of room settings, specifications, and warranty details. *Hard Mfg. Co., Box 427, Buffalo 5, N.Y.*

**Calculating Heat Loss**

A simplified, accurate system of calculating heat losses and operating costs for electrically heated houses is given in a 16-page booklet. The wattage of resistance heating equipment required for each room is included. Cost is 25 cents. *National Mineral Wool Insulation Assoc., Rockefeller Center, New York 20, N. Y.**

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

## Castell Tight-Textured Lead Gives Total Coverage

# Castell Locks out Light—Locks in Black

Your eye sees a pencil line as a solid dimension. The relentless eye of the reproduction machine sees it as a chain of graphite particles. The greater the space between the particles, the more light comes through. Only Castell's exclusive microlet milling produces a tight-textured lead that locks out all light, locks in the black. Gives total saturation coverage. Produces highest number of Diazotypes or blueprints, without feathering or "burning out". Perfect for all surfaces, including Cronar*, Mylar*, and Kodagraph* based films. ■ Consistently uniform in 20 degrees, 8B to 10H. Try Castell today and draw your own conclusion.

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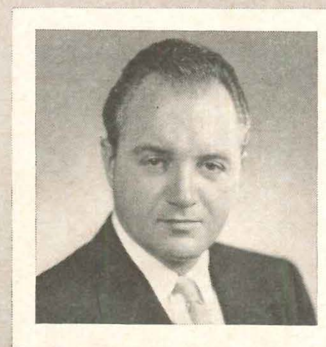
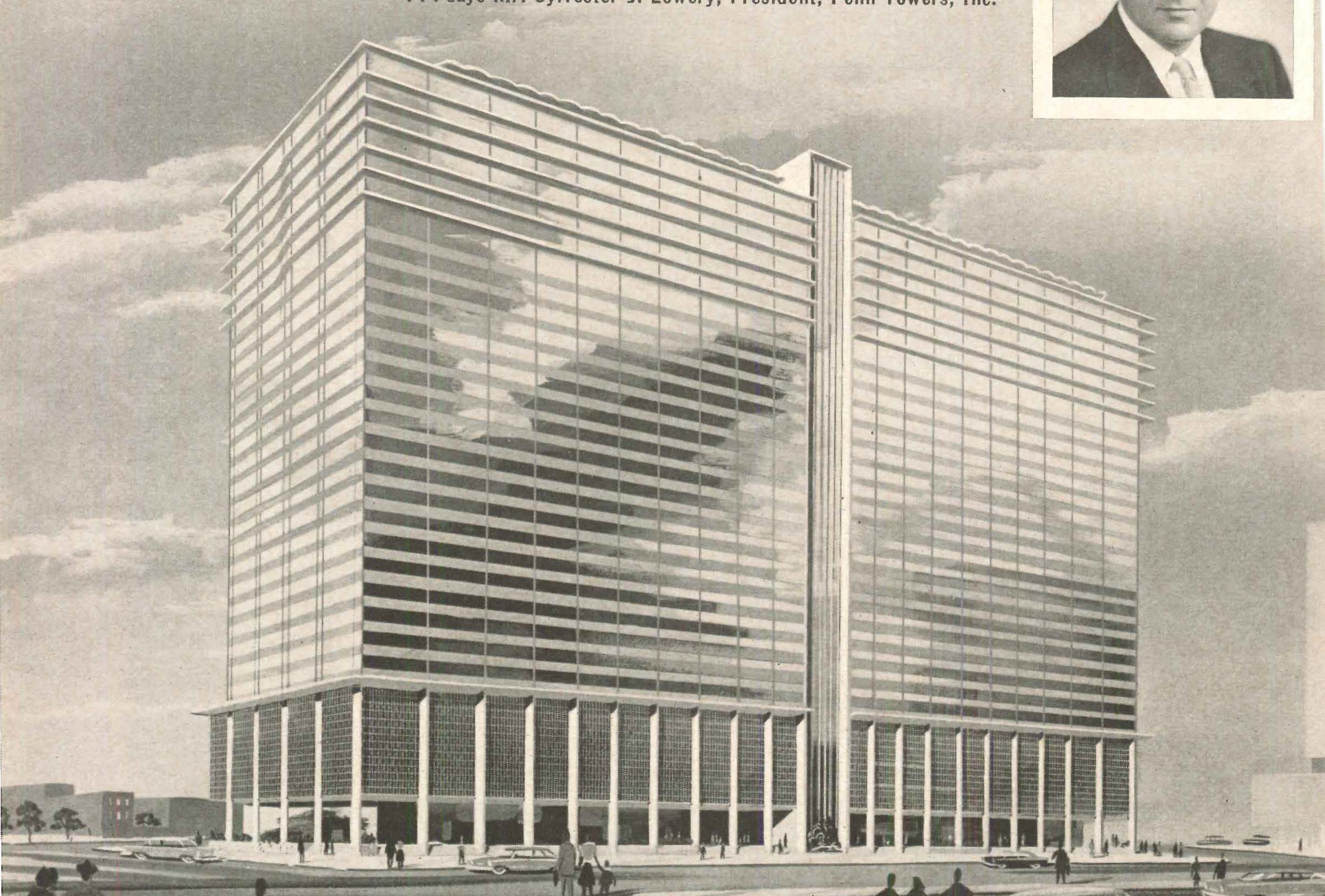
Pencil Company, Inc.
Newark 3, N. J.

*Reg. TM's of DuPont and Eastman

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

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





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

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

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

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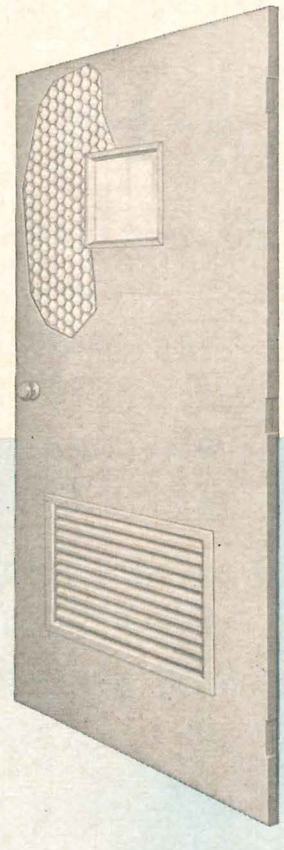

**Honeycomb core**—A Steelcraft development that provides new strength! A honeycomb core is permanently bonded to two layers of steel . . . deadens sound, adds ruggedness.

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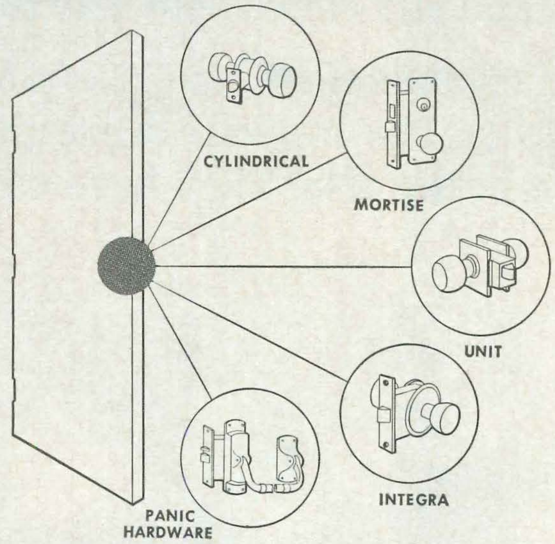


**Another constructive suggestion from the Steelcraft Idea File.**

*Ease of coordinating hardware on Steelcraft products is pointed out to Robert D. Hodgson, architect, and Hal R. Scott, hardware supplier, by John Lynch, salesman for Steelcraft's Salt Lake City distributor, Buehner Block Company.*

Steelcraft doors and frames offer the architect and hardware consultant complete freedom of hardware selection. Standard preparations are available on Steelcraft doors for every major type of lock. All Steelcraft doors can be used interchangeably on any Steelcraft frame. Call your Steelcraft distributor for special assistance in coordinating hardware and approval drawings . . . save delivery time . . . cut construction costs.

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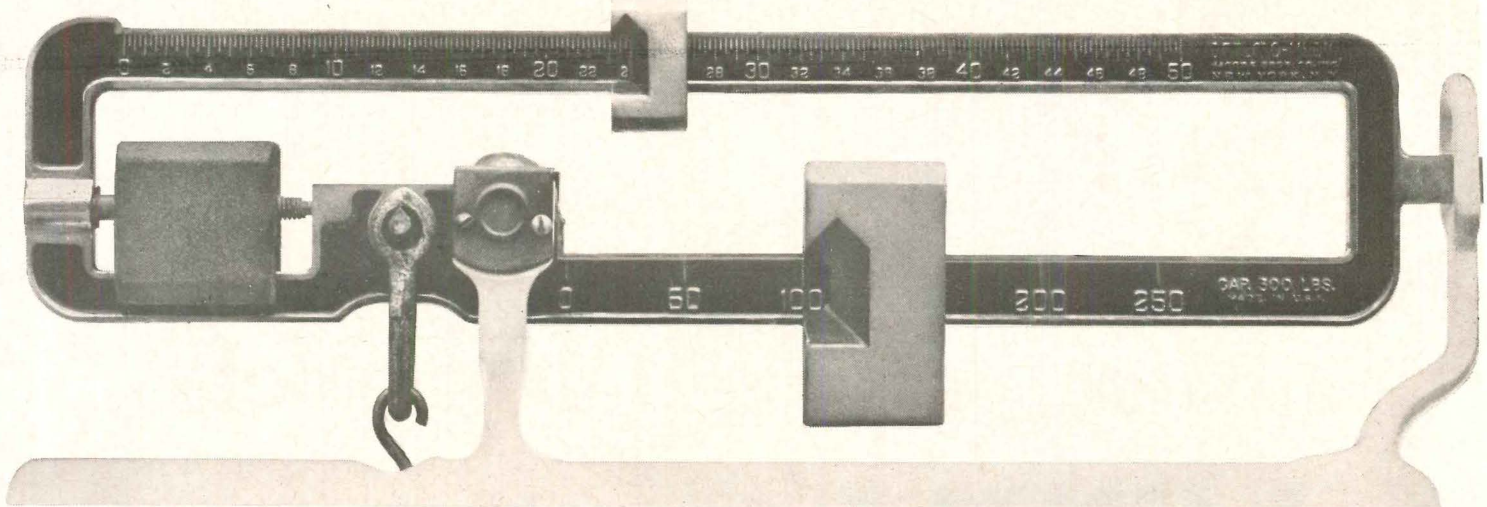
STEEL Craft — METAL DOORS AND FRAMES




# ROBERT ALLAN JACOBS 123-POUND ASSISTANT

*Robert A. Jacobs of Kahn and Jacobs, New York architectural firm, says*
"The most valuable assistant in our office is green and white, six fee long and weighs 123 pounds. I'm referring to our Sweet's File, of course It's an indispensable aid to selecting building materials and equipment It was a fortunate day for all of us when building-products manufacturers adopted this sensible and convenient way to meet our catalog needs.'

The real credit for the completeness and usefulness of the Sweet's Files in your office belongs to the manufacturers who make their catalogs instantly accessible in the File. They have earned your consideration.


SWEET'S CATALOG SERVICE, DIVISION OF F. W. DODGE CORPORATION, 119 WEST 40TH STREET, NEW YORK 18, NEW YORK

# Now one product cures, hardens, seals and dustproofs new concrete floors with a single application

## *West Chemical Concrete Floor Treatment goes right on after troweling... cuts labor costs in half*

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For West Concrete Floor Treatment cures, hardens, seals and dustproofs new concrete with a single, simple, penetrating application. Gives a thorough, deep-cure treatment which also prepares the surface perfectly for the addition of composition tile or other material.

It enables concrete to retain over 95% of its moisture. Permits a gradual and even release of moisture so that the curing, hardening and sealing processes occur simultaneously.

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The man to contact for specifications and additional information is your local West representative, or mail coupon below. West Chemical Products, Inc., 42-16 West Street, Long Island City 1, N. Y. In Canada: West Chemical Products, Ltd., 5621-23 Casgrain Ave., Montreal, P. Q.

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CONCRETE DIVISION

West Chemical Products, Inc.
Concrete Division, Dept. AR-C
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☐ Please send me further information on West Concrete Floor Treatment

☐ Have your representative call

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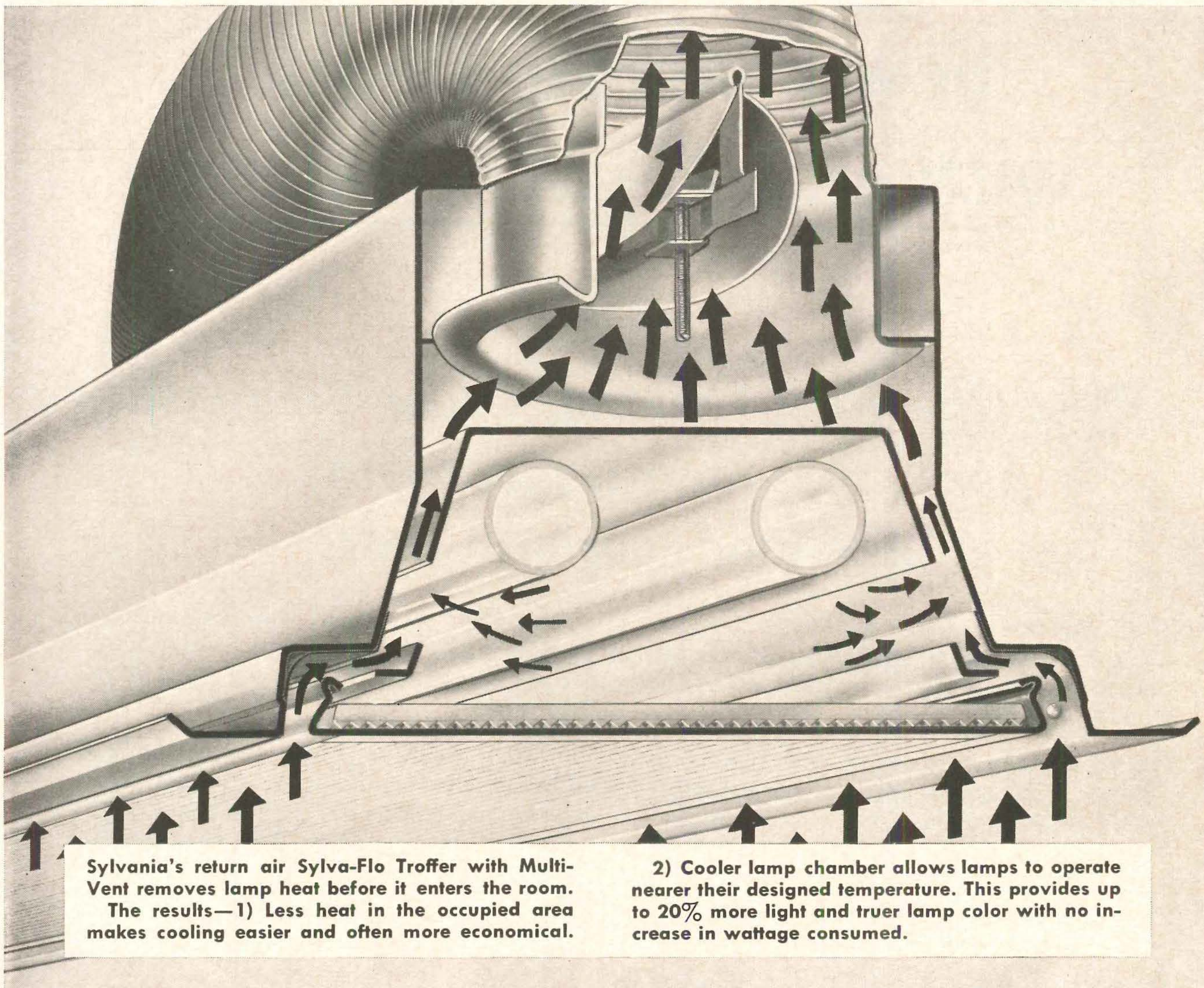
*It's more practical to remove warm air than it is to cool it!*

# EXAMINE THE 'COOL' FACTS WHEN SPECIFYING AIR-HANDLING TROFFERS



Sylvania's return air Sylva-Flo Troffer with Multi-Vent removes lamp heat before it enters the room. The results—1) Less heat in the occupied area makes cooling easier and often more economical.

2) Cooler lamp chamber allows lamps to operate nearer their designed temperature. This provides up to 20% more light and truer lamp color with no increase in wattage consumed.

*Lighting systems contribute a substantial amount of heat that must be removed when areas are air-conditioned. Today's higher lighting levels mean increased wattages . . . and more heat to be removed.*

*Here's how you can reduce this heat load to make cooling easier and to provide better lighting efficiency at the same time.*

You hear and read many claims these days about different types of air-handling troffers. Many of these claims are contradictory. The result is that many potential users of combination lighting and air-handling units are confused.

Here, in simple form, are the technical facts about the design and application of Sylvania's Sylva-Flo Troffers with Multi-Vent.®

The cross-section of Sylvania's Sylva-Flo Troffer with Multi-Vent is shown in detail on these pages. Note particularly that the air flow is controlled along the sides of the lamp chamber without being directed over or onto the lamps.

This design has a decided effect on both the air-handling performance of Sylva-Flo Troffers (with special regard to HEAT) . . . and to the lighting performance as well. Let's look at these separately.

## RETURN AIR SYLVA-FLO MULTI-VENT PERFORMANCE

Consider the basic reason why the air is conditioned . . . to keep the occupants of the area comfortable by cooling in warm weather.

In any installation the lighting system makes up a substantial amount of the heat that must be removed in this cooling cycle.

Sylvania's Sylva-Flo Return Air Troffer is designed to *remove most of this lamp heat before it even enters the occupied space.* This means that in the occupied space there is less warm air that needs cooled.

Other return air-handling troffers, where the lamp chamber is completely isolated from the air flow, remove only a small amount of this lamp heat. A large percentage of the lamp heat enters the room area and adds considerably to the heat load.

From a cost standpoint, removing the hot air before it enters the room means that duct, motor, and fan sizes can be reduced in many cases because the air-handling system does not have as much warm air to cool.

This, in turn, means that initial and operating costs can be lowered with Sylvania's Sylva-Flo Troffers.

## SYLVA-FLO LIGHTING PERFORMANCE

The Sylva-Flo construction allows the continual withdrawal of heat from the lamp chamber—in both the supply and return units . . . *to keep the lamp chamber cool.*

This is extremely important from a lighting standpoint.

Both *lighting efficiency* and '*lamp color*' can be affected by the ambient temperature around the lamp. Let's look at each of these points:

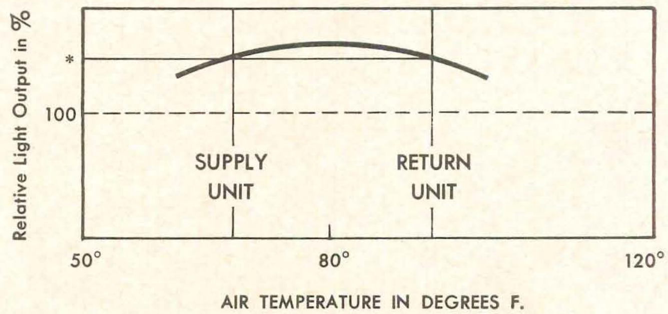
*Lighting Efficiency:* Fluorescent lamps are designed and built to operate most efficiently (i.e. to provide their greatest light output) at approximately 80° F ambient temperature. This is the normal operating temperature of a fluorescent lamp when used in a pendant-mounted, bare-lamp lighting fixture.

In conventional troffers the temperature in the lamp chamber rises as high as 120° to 130° F. As the temperature rises above 80° F, the light output of the lamps drops off. The higher the temperature, the less light is produced, even though the consumed wattage is essentially the same.

In Sylvania's Sylva-Flo Troffer, the continual withdrawal of heat from the lamp chamber during either the cooling or heating cycle permits the lamps to operate nearer the correct temperature. Thus the lamps operate *more efficiently* and produce *more light* than in troffers where the lamp heat is trapped and cannot escape.

This increase in lighting efficiency with Sylvania's Sylva-Flo Troffers *can be as much as 20%!*

TYPICAL LIGHT OUTPUT CURVE FOR SYLVA-FLO TROFFER WITH MULTI-VENT




*Supply and return units have equivalent Output and Color.

*'Lamp Color':* The *color* of a fluorescent lamp, like its efficiency, is also affected by its operating temperature. To obtain the true color of a lamp as designated (cool white, warm white, etc.), it should be operated at an approximate temperature of 80° F.

Two fluorescent lamps of the same color designation operating at different temperatures may appear to be different shades. This is often referred to as 'color shift.'

In conventional troffers and in air-handling troffers where the lamp chamber is isolated from the air flow the operating temperature is higher than 80° F. This can cause color shift . . . even with return air units.

In an installation of Sylvania's Sylva-Flo Troffers where all fixtures handle air (either supply or return units) the lamp color is uniform (refer to light curve) . . . and it is nearer the *true* color of the lamp because of the cooler operating temperature.

Because of the cooling effect of the Multi-Vent principle—where all units handle air—a properly designed Sylva-Flo installation can use cool white or warm white lamps without fear of color distortion.

* * *

The points discussed here are important . . . but they are only a few of the many factors that must be considered when designing for air-handling troffers.

More information on Sylvania's Sylva-Flo Troffers with Multi-Vent can be found in Sweets. And these fixtures are discussed in detail in our 20-page booklet which we will gladly send you on request. Or, if you prefer, we will have our representative call to give you full particulars.

**IMPORTANT INFORMATION**

1. **Sylvania Sylva-Flo Troffers with Multi-Vent meet the specifications of the General Services Administration (GSA) for Air-Handling Troffers.**
2. **All models of Sylvania Sylva-Flo Troffers are listed by U. L. These include:**
   - **a) Return units with plastic shielding.**
   - **b) 3-lamp, 1' wide units for heating or cooling.**

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***LIGHTING FIXTURES BY***

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## *On the Calendar*

**May**

**5-7** Annual convention, Association of Collegiate Schools of Architecture—Sheraton-Dallas Hotel, Dallas

**7-11** National convention of the American Institute of Architects—Dallas

**8-10** Fourth Church Design and Building Conference; featuring a "Hall of Church Designs"—Morrison Hotel, Chicago

**10-12** Annual meeting, Consulting Engineers Council—Royal Orleans Hotel, New Orleans

**11-22** Sixth Annual United States World Trade Fair—New York Coliseum, New York City

**19-25** Annual convention, Royal Australian Institute of Architects—Sydney

**20-24** 55th annual meeting, Air Pollution Control Association—Sheraton-Chicago Hotel, Chicago

**21-25** National Fire Protection Association 66th Annual Meeting—Sheraton Hotel, Philadelphia

**22-24** 13th annual convention, Wisconsin Chapter, American Institute of Architects; theme: "Architects in Action"—Lake LawnLodge, Delavan, Wis.

**24-26** Annual convention, Indiana Society of Architects—Indianapolis

**27-30** Annual meeting, Air-Conditioning and Refrigeration Institute—The Homestead, Hot Springs, Va.

**30ff** 55th annual convention, Royal Architectural Institute of Canada; theme: "Architectural Education"; through June 2—Vancouver

**June**

**4-7** National Nuclear Congress, sponsored by the Engineers Joint Council—Statler-Hilton Hotel, New York City

**10-15** American Society of Mechanical Engineers summer annual meeting—Hotel Frontenac, Quebec

**11-21** "Urban and Environmental Design": R-17 Seminar for Teachers of Architecture, jointly sponsored by the Association of Collegiate Schools of Architecture and the American Institute of Architects—Cranbrook Academy of Art, Bloomfield Hills, Mich.

**13-16** Annual meeting, National Society of Professional Engineers-French Lick-Sheraton Hotel, French Lick, Ind.

**14-16** 1962 Convention, New Jersey

*continued on page 314*


## Saves erection steps — provides anchorage and grounds

You reduce job time and costs on space-saving solid plaster partitions with this new track, because it: **1.** Eliminates ties or other supplemental fastening of channel studs or ⅜" rib metal lath at the floor. **2.** Saves installation of separate plastering grounds by providing strong, straight grounds for both sides of the partition. **3.** Avoids lost time for repairs, since the strength of the inverted channel design protects the grounds against damage by on-site traffic. **4.** Provides quick, accurate 12" or 16" channel stud spacing — without premeasuring — through location of retaining slots 4" o.c. Milcor Solid Partition Track is too new to be in Sweet's. Write for literature.

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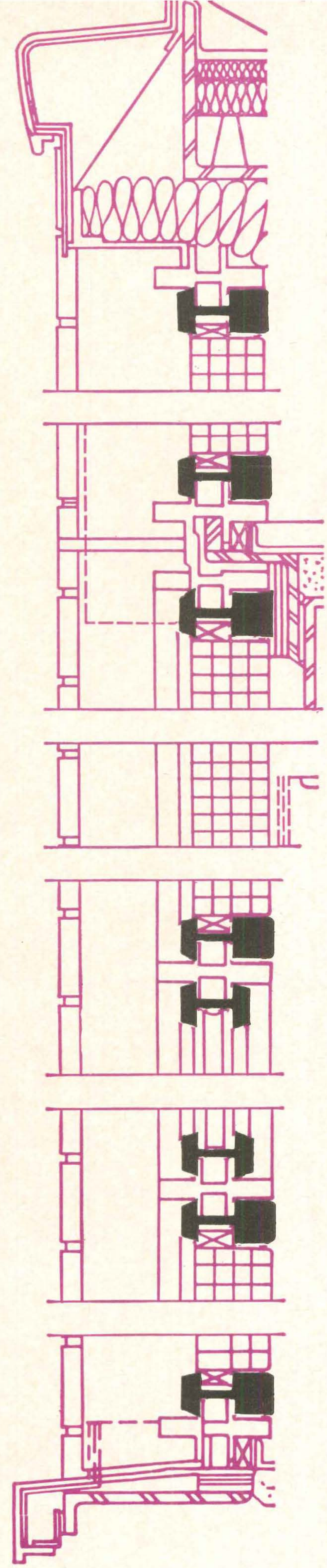
ML-59

# Remember the DIFFERENCE in Neoprene Structural Gaskets



All neoprene gaskets may *look* alike — but the differences in StanLock represent exclusive and important advantages to the architect, builder, glazier and owner. Here are the reasons:

## STANLOCK'S tempered locking strip

. . . is a separate, specially designed locking section made of harder, higher-density neoprene than the body of the gasket. While easily locked into the gasket upon installation, it applies *added pressure* at the sealing surfaces, providing a more positive seal where it is needed to prevent infiltration of water, air and dust.

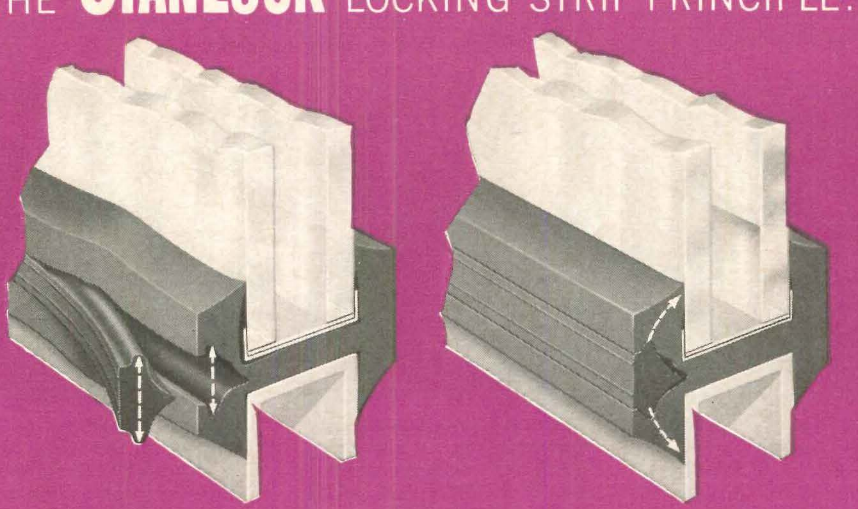
## STANLOCK'S time-proven neoprene compounds

. . . combine needed strength and relative resilience with maximum weathering properties. The right neoprene formulas, plus close control in compounding, give StanLock gaskets exceptionally long life. They meet the 25-year "actual" and the 50-year "desired" life requirements for structural seals. Hurricane wind tests have proved the resilience of StanLock to provide sufficient cushion, under severe wind loads or shock wave, to prevent glass breakage.

## STANLOCK'S versatility permits freedom in design

More than 24 different StanLock gasket sections are available from existing tooling. This great variety permits a wide range of curtainwall designs — in horizontal, vertical or grid applications — using glass or panel materials, in any combination with aluminum, steel, concrete or marble. Special sections are still being designed. The new StanLock catalog contains complete application data. Write for your copy.

### THE STANLOCK* LOCKING STRIP PRINCIPLE:



The tempered, harder, specially designed locking strip is locked into position — providing . . .

. . . more positive pressure of neoprene against glass or panel, and a long-lasting watertight seal.

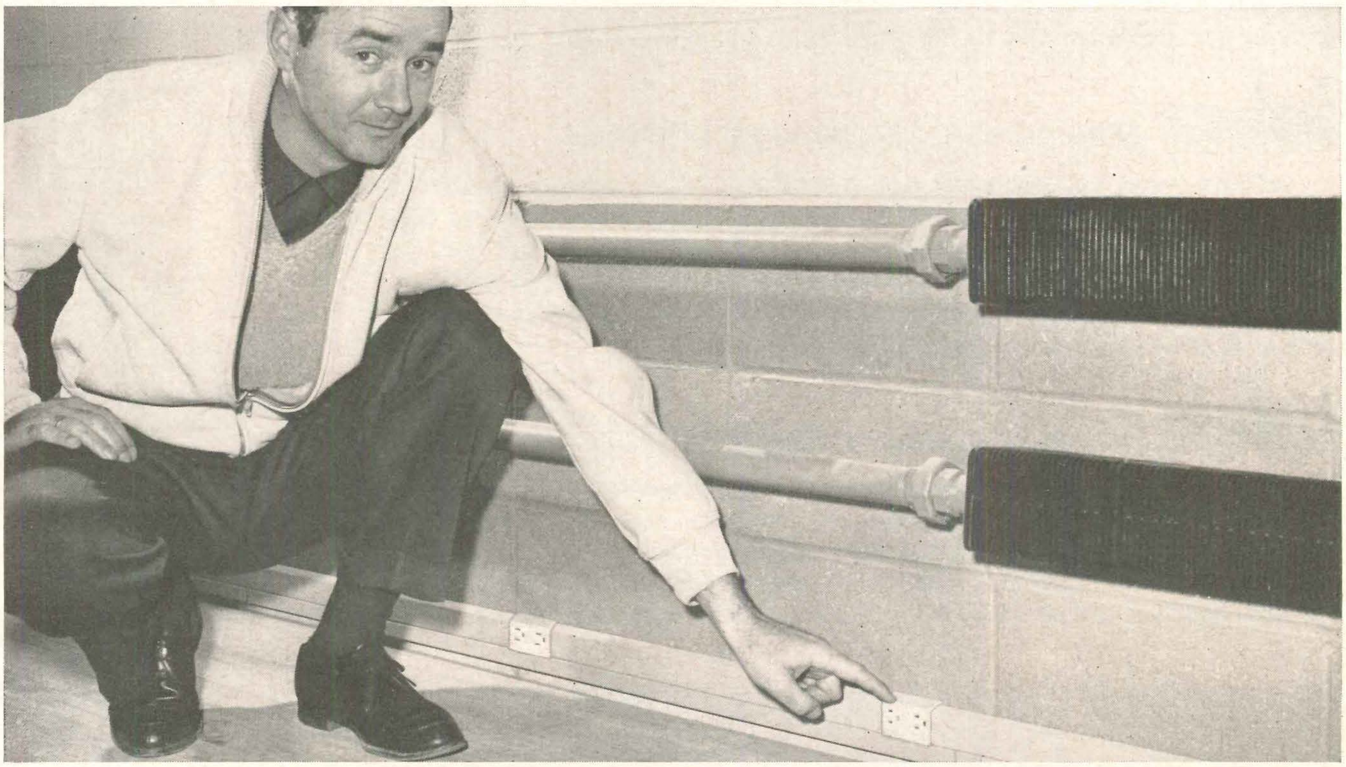
*The Standard Products Co.*

**STRUCTURAL GASKET DIVISION**
**2130 W. 110th Street • Cleveland 2, Ohio**

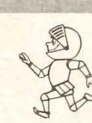
See Sweet's 1962 Architectural File $\frac{3f}{St}$

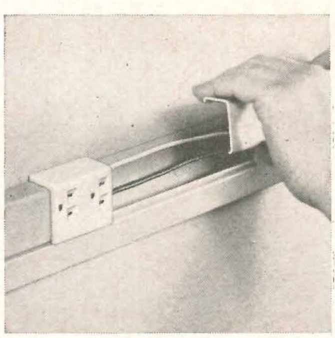
# "You can't beat G-E FLEXWAY* Wiring for a system that meets a building's needs now and later, too"

. . . says Mr. Walter J. Powers, President — Powers Electric Co., Inc., Electrical Contractors — Providence, R. I.

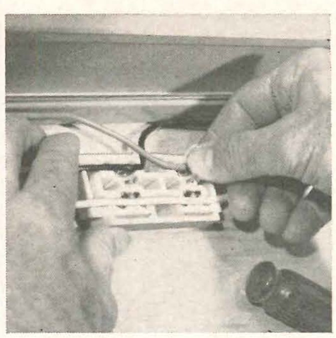


**"We're more than pleased** with General Electric FLEXWAY Wiring," says Mr. Powers, President, Powers Electric Co., Inc., Electrical Contractors, Providence, R. I. "This 700-foot installation we put in a new store, showed that G-E FLEXWAY is economical; besides offering many other advantages over older systems . . ."

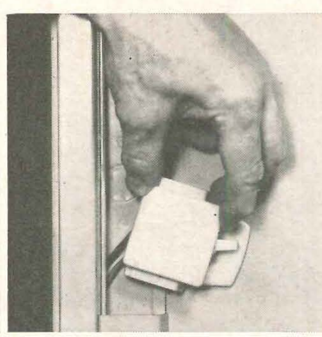




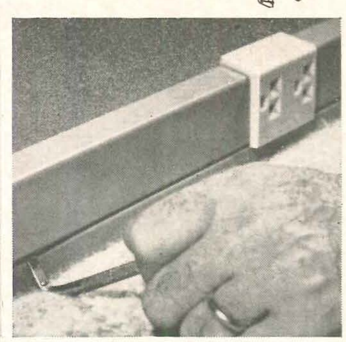
**"Switches and outlets can be located anywhere,** now or later, in the G-E steel raceway, on any type of construction.



**"Outlets can be installed** wherever wanted, without cutting or stripping wires. Insulation-piercing terminals do a good job.



**"Switches go in baseboards, doorway trim** or any place along the raceway. Covers, cut on a handy tool, close in the system, neatly."



**"Changes, additions** or replacements are easy with G-E FLEXWAY Wiring. Wires can be exposed in seconds; covers snapped back on.

New G-E FLEXWAY Wiring is grounded for extra safety, and U.L.-listed. Available with double grounding outlets rated 15A, 125V; 15A, 250V; or 20A, 125V — plus single-pole and 3-way quiet-type switches, 15A, 120-277V AC.

Ask your G-E Wiring Device Distributor for details, or write: General Electric Company, Wiring Device Department, Providence 7, Rhode Island.

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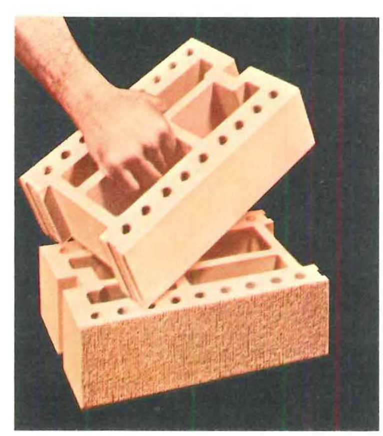
**GENERAL ELECTRIC**

# Double-duty walls constructed in one operation with Natco Uniwall


The American Sugar Company's new Bunker Hill Refinery in Charlestown, Mass., constructed of Natco Uniwall, was chosen as one of the country's "top 10" industrial plants of 1961. Engineer-Contractor: Bechtel Corp.



Two Natco Uniwall units showing the interior ceramic glazed face and the exterior unglazed rugg-tex face.

Natco Uniwall is a single load-bearing, structural clay tile unit with two finished faces. Its *exterior* face has an unglazed rugg-tex finish with the texture and appearance of high-quality face brick. Its *interior* face has a permanent, durable ceramic glazed finish available in a variety of attractive colors.

"Laying up" both inside and outside walls in a single operation with only one building trade involved not only saves time, but also saves on labor costs . . . when compared to other building methods.

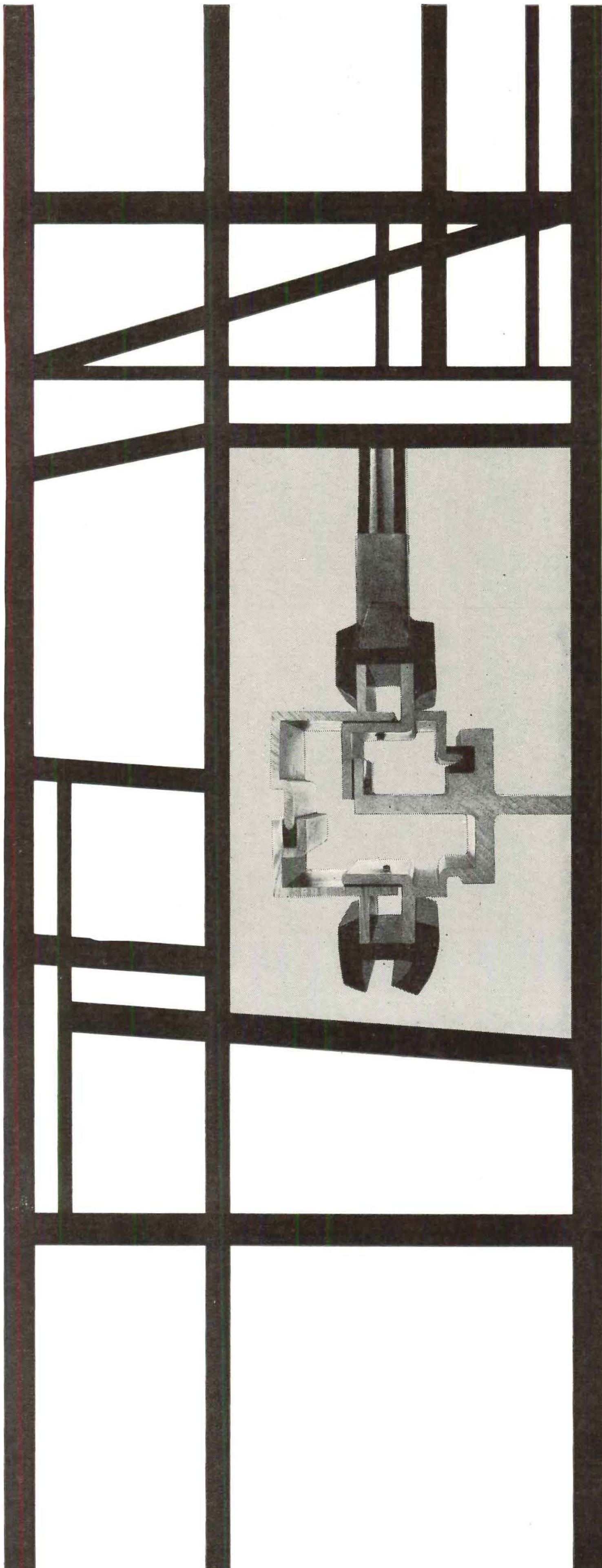
Uniwall is completely fireproof, vermin proof, chemical resistant, and is easily maintained at minimum cost. Consider attractive, functional Natco Uniwall when planning your new building.

Write for technical handbook UW-100-5.

*Today's idea becomes tomorrow's showplace . . . when Natco structural clay products are in the picture*

**natco corporation**

GENERAL OFFICES: 327 Fifth Avenue, Pittsburgh 22, Pennsylvania . . . Branch Offices: Boston • Chicago • Detroit • Houston • New York • Philadelphia • Pittsburgh • Syracuse Birmingham, Ala. • Brazil, Ind. . . . IN CANADA: Natco Clay Products Limited, Toronto



# RELIABLE NEOPRENE GASKETS STAY WEATHERTIGHT IN ANY WEATHER

However new your curtain wall design, Du Pont Neoprene gasketing will add an element of dependability you can get with no other material. A generation of use under the most violent weather conditions has been carefully observed and recorded by Du Pont technical men.

These records prove Neoprene's permanence. A case in point: the six trouble-free winters sealing doors, windows and exterior joints on the world's most windswept permanent weather station atop Mt. Washington in New Hampshire.

Du Pont records over 25 years build an even stronger case for Neoprene. Some outdoor applications of Neoprene have been performing so well so long that we're not even sure what their durability limit is.

What about cost? Preformed Neoprene gasketing is quite competitive in terms of installed costs. Job-site labor is reduced to a minimum. Requires no special skills. For additional information and a list of reliable manufacturers of Neoprene gaskets, write E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Department AR-5-NB, Wilmington 98, Delaware.

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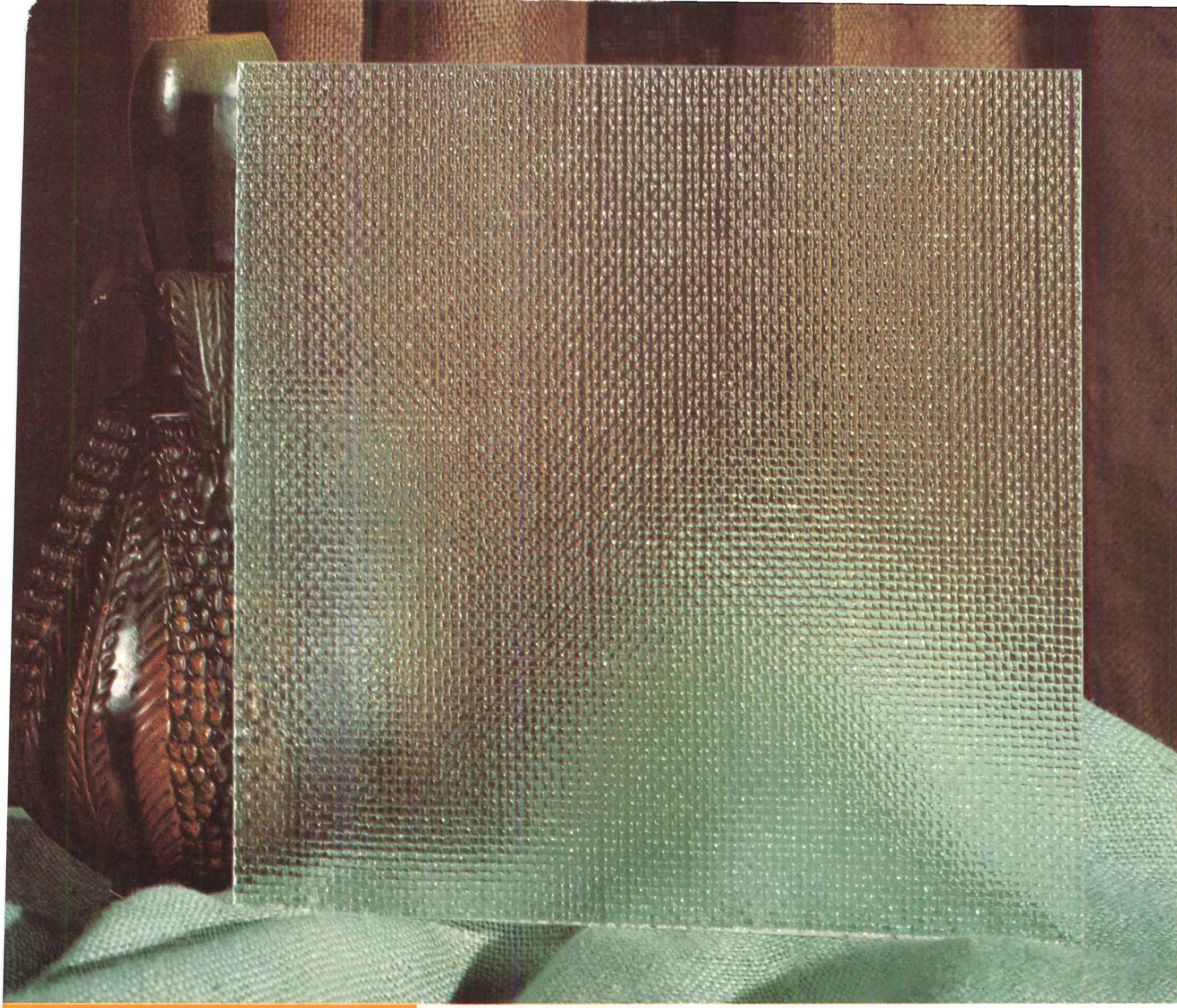

# LOOK WHAT GLASS IS DOING

The dramatic texture of fabric . . . the gleaming beauty of glass have been artfully combined in new BURLAP by Mississippi. Here is a pattern offering another dimension and broader scope for creating interiors high in interest and utility. Exceedingly brilliant and sparkling, highly obscure, it has excellent diffusing properties. Use it lavishly or sparingly, and gain light, drama, distinction. See your nearby glass distributor. Free sample on request.

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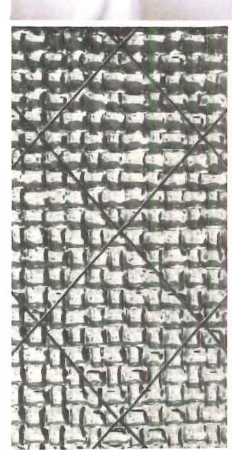
**GLASS COMPANY**
88 Angelica Street • St. Louis 7, Missouri
NEW YORK • CHICAGO • FULLERTON, CALIF.
*World's Largest Manufacturer of Rolled, Figured and Wired Glass*

# Dramatic New Texture in Glass

With the introduction of BURLAP, figured glass takes on exciting texture and brilliance . . . reaches a new peak of practical beauty limited only by the imagination. Recommended for use in partitions as divisions of living areas, commercial installations, in shower doors and stalls and wherever else transmitted light should become a vibrant, interesting part of the decorating scheme. Specify Mississippi glass. Available in a wide variety of patterns —wired and unwired—at leading distributors of quality glass.

| Thickness | Approx. Light Transm'n | Weight Unpacked Lbs. Sq. Ft. | Max. Sizes Untreated | Max. Sizes G. R. 2 sides | Max. Sizes G. R. 1 side |
|---|---|---|---|---|---|
| 1/8″ | 87.5% | 2.0 | 48 x 132 | 48 x 132 | 48 x 132 |
| 7/32″ | 85.9% | 2.8 | 60 x 132 | 60 x 132 | 60 x 132 |
| 1/4″ Misco | 84.8% | 3.3 | 60 x 144 | 60 x 144 | 60 x 144 |



**NEW CATALOG—** contains pattern descriptions, light distribution charts and transmission data. Send for your free copy today.


For fire retardance plus security, specify BURLAP Misco... Mississippi's diamond-shaped welded wire netting.

*See our catalog in Sweet's.* S

H-#2-62

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88 Angelica Street • St. Louis 7, Missouri

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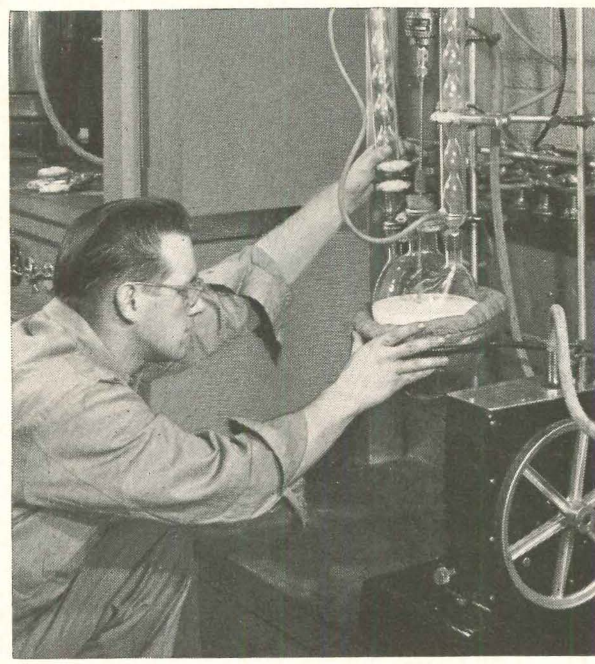
*Where leadership in research leads to a better life for you*

# For high-quality paints at low cost, specify new *SPEEDHIDE*®

## *. . . product of PPG research!*



• **Pittsburgh research** technologists developed the new SPEEDHIDE line to meet every requirement of professional application.

• **You can choose** new SPEEDHIDE Paints with confidence, because they're designed to meet the most exacting needs for professional application at the lowest possible cost.

• **This remarkable new line** includes both interior and exterior finishes that are easy to apply, dry fast, have high hiding qualities, excellent color retention and durability.

• **So remember SPEEDHIDE** when you want a complete line of finishes for professional application that will give the most for the money!

### FREE COLOR PLANS
### for your building designs!

• **Each color plan** you receive will be keyed to the specific requirements of your building design. It will be based on the *proved* principles of COLOR DYNAMICS®, Pittsburgh's scientific system of painting that relates color and color psychology to today's architecture. Just phone us (or mail coupon) and we'll be glad to provide you or your associates with detailed color plans for your current jobs, without cost or obligation on your part.


**NOTE:** Specifications for the new SPEEDHIDE line can be found in Section 15 Pi, Sweet's Architectural File.

• **MAIL THIS COUPON** for FREE booklet with complete details—including color charts—of these remarkable high-quality, low-cost SPEEDHIDE Paints. Also, take advantage of Pittsburgh's free offer of a color survey and painting recommendations for any of your buildings. You won't be obligated in any way.

**Pittsburgh Plate Glass Company, Paint Div., Dept. AR-52**
**Pittsburgh 22, Pa.**

☐ Please send booklet with full information on new Pittsburgh SPEEDHIDE line.

☐ I'd like to discuss a *free* Pittsburgh COLOR DYNAMICS Painting Survey for one of my buildings. Please have your Architectural Representative contact me.

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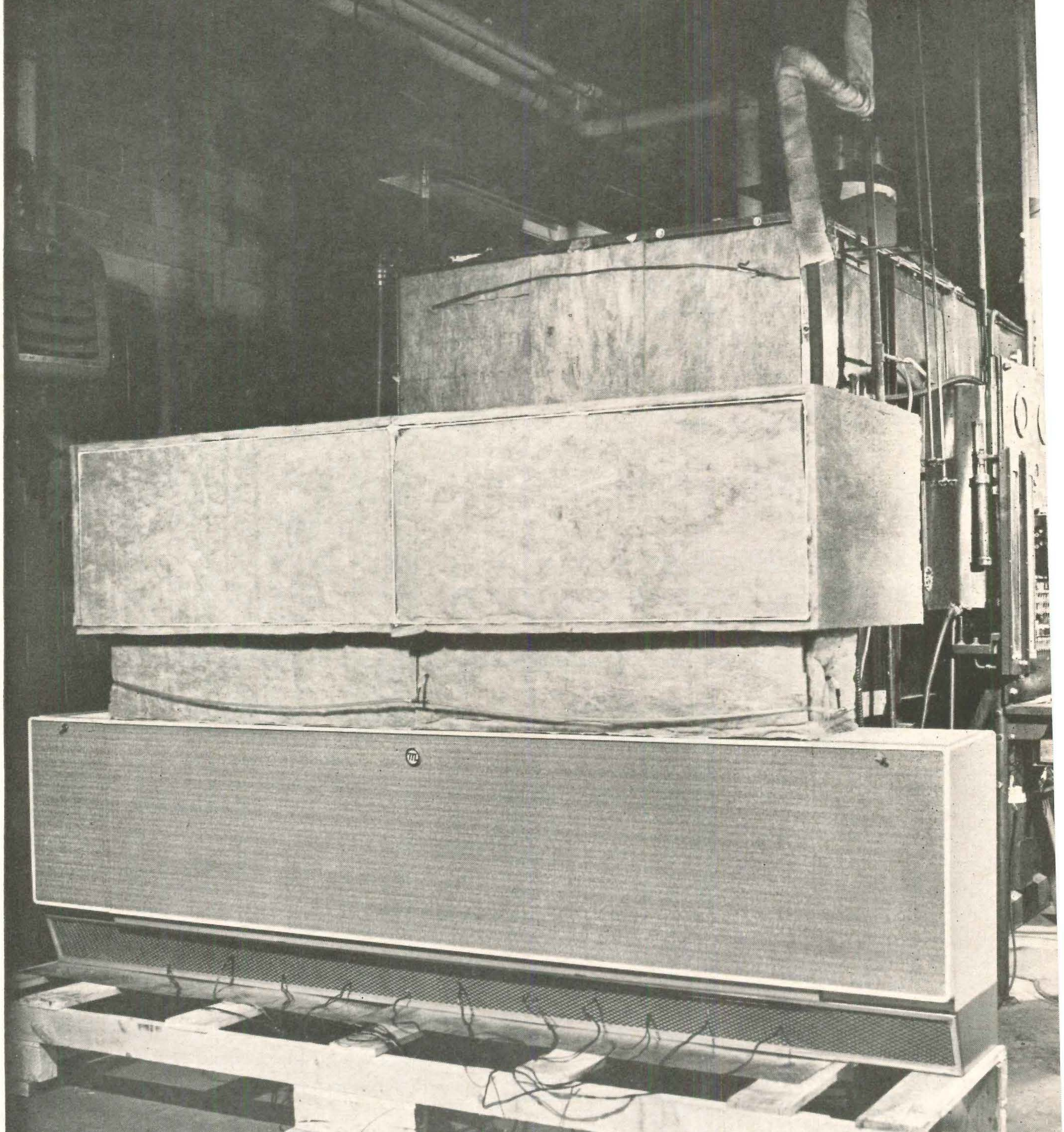
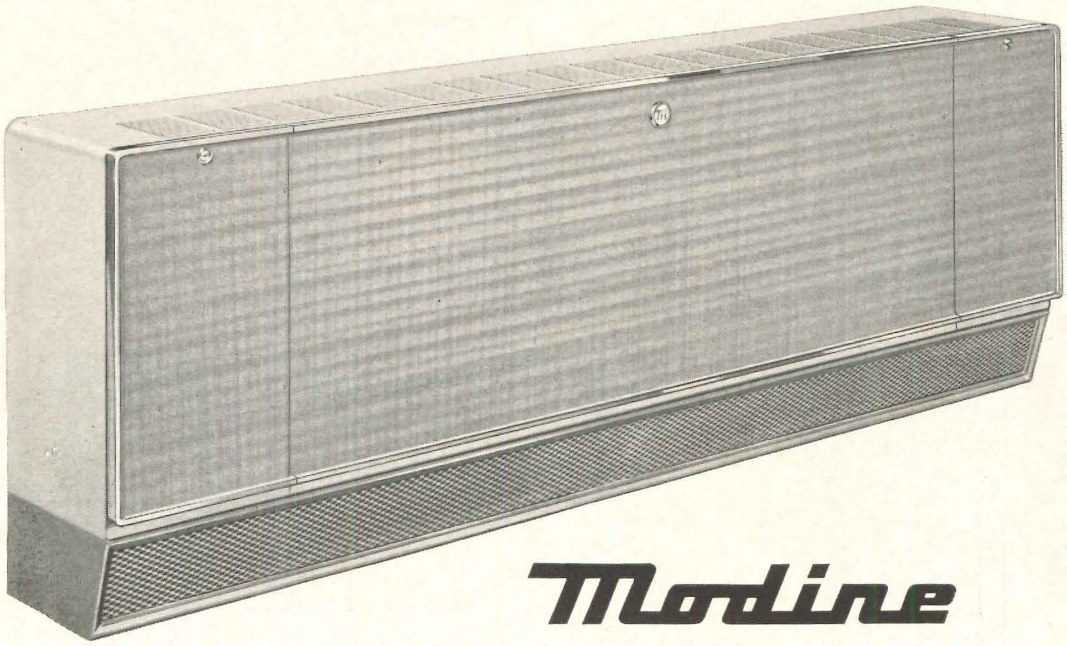


# toward better classroom climate



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## School-Vent® UNIT VENTILATOR

***for heating, cooling and ventilating***

## ALL-SEASON COMFORT! FUNCTIONAL GOOD LOOKS! LOW, SLIM SILHOUETTE! IN SEVEN ATTRACTIVE COLORS!

Introduced just one year ago . . . and already the Modine SCHOOL-VENT has won favor in modern schools coast-to-coast!

Teachers and pupils like the ideal "educational climate" it maintains. Engineers like its unique concept of *air control* . . . employing a simple, *full-damper* system that automatically adjusts to temperature and fresh-air requirements. School officials like its maintenance and operating economies.

And *you'll* like its fresh, attractive styling . . . its design simplicity and flexibility. The SCHOOL-VENT is thinner and lower than most other equipment of this type . . . 13″ x 28″ compared to the normal 18″ x 32″.

Choice of seven handsome colors: light gray, tan beige, light green, coral red, light blue, dark gray and cream yellow. And SCHOOL-VENT beauty is virtually "student-proof." Heavily reinforced, welded steel cabinets defy abuse. Front panels have attractive, scuff-resistant vinyl inserts.

Modine SCHOOL-VENT unit ventilators heat with steam or hot water . . . cool with central-source chilled water. Five sizes: 500 to 1500 cfm. For complete information, write for SCHOOL-VENT Bulletin 1261.

V-1463

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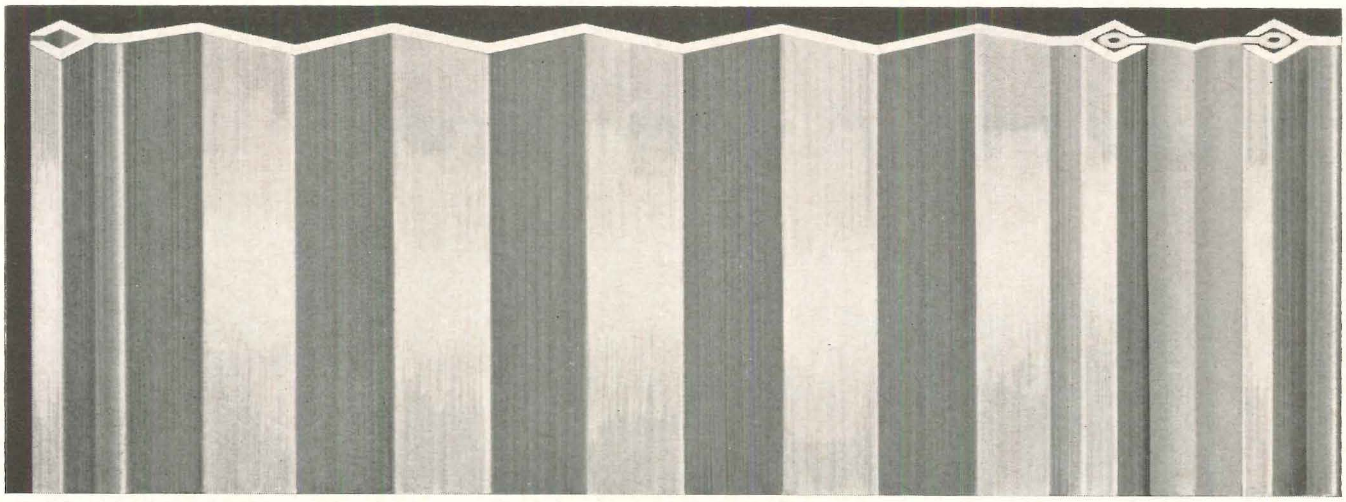

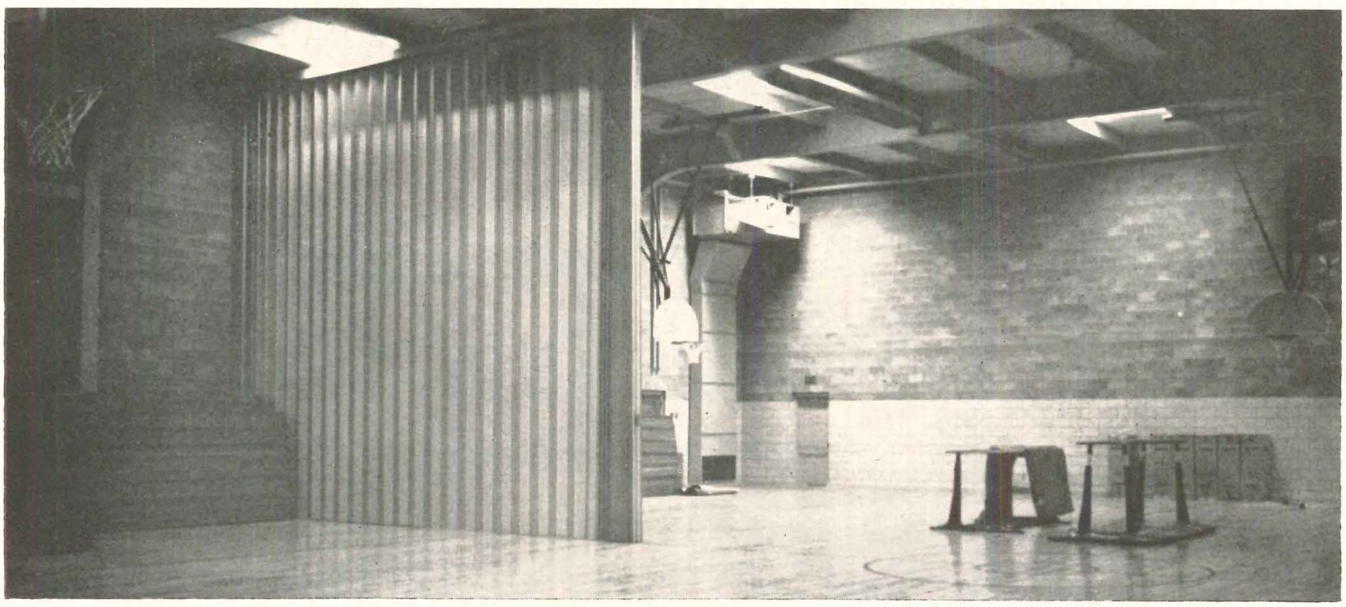

# *Now... a <u>metal</u> Modernfold for rugged use and beauty*

● Few jobs are too rugged for this Splen-door metal partition . . . the newest addition to the Modernfold line. Even gymnasium abuse won't damage the 6½″ anodized aluminum panels you see above. And those silent, pre-stressed vinyl hinges will withstand normal gymnasium punishment.

Yet, despite this strength and sizes up to 30 feet high, the Apex 66 shown here operates easily . . . thanks to ball-bearing trolleys on *each* panel. Best of all, this Splen-door model stacks in only one inch of space per foot of opening width . . . and costs about 40 per cent less than conventional gymnasium partitions.

With the addition of Splen-door, Modernfold now offers complete choice of designs and styles: metal partitions in either roll-formed steel with baked-on enamel finish or extruded aluminum with anodized finish . . . new Modernfold Woodmaster partitions with genuine hardwood panels (two widths to choose from) . . . and the traditional Modernfold models with steel frame and vinyl upholstery, in sound insuated (Soundmaster) and non-sound insulated styles.

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*Gentlemen:* Please send information on ☐ Splen-Door ☐ Woodmaster ☐ Modernfold partitions.

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North Attleboro (Mass.) Jr. High School. Architects: Haldeman & Jacoby, Brockton, Mass.

**...GUARANTEED AIRTIGHT, WATERTIGHT, PERMANENTLY**

Twenty-eight self-flashing Twin Dome® acrylic skylights illuminate this 5,074 square foot gymnasium without risk of heat gain, heat loss, or condensation. This first totally-proven, permanently-sealed dome-within-dome design is guaranteed watertight and airtight. It maintains a constant 0.57 U-factor. In all, 187 low-silhouette Twin Dome units bring evenly-diffused, glare-free daylight into all classrooms and corridors, as well as the gymnasium. ■ A complete range of 19 self-flashing and curb-mounted sizes enables the architect to blend Twin Dome units with any roof or building design. Choice of clear, white-translucent or dense white inner and outer acrylic domes permits control of light levels. Twin Dome units are shatterproof, weather-proof and maintenance-free. The self-flashing model can be installed in 15 minutes. ■ For full details, see Sweet's Architectural File 20a/Wa or write Cyanamid.

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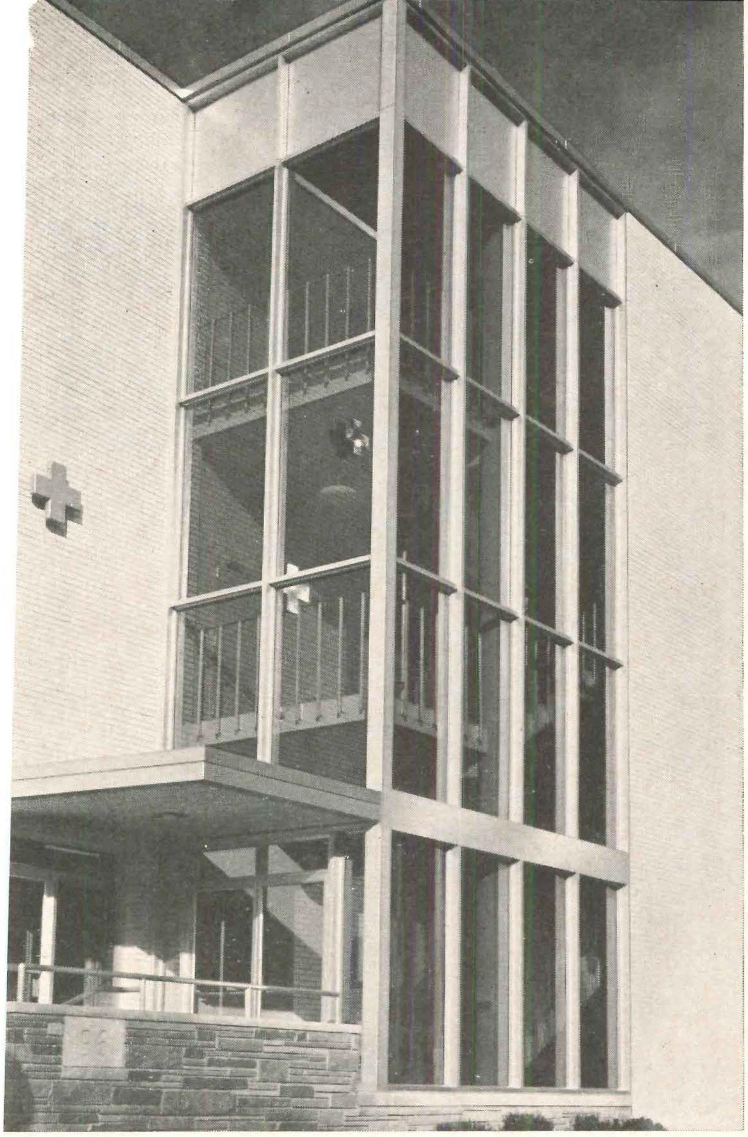
BUILDING PRODUCTS DIVISION CYANAMID 5 BAY STATE ROAD, CAMBRIDGE 39, MASS.



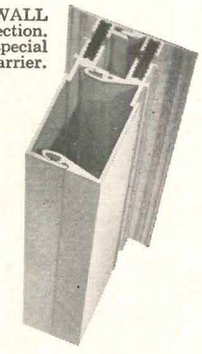
Even on the coldest winter days in Milwaukee, the inner surfaces of the aluminum in this stairwell are condensation free! Despite aluminum's high thermal conduction . . . this is possible because all interior metal is separated from the outer wall metal with a special insulator in the extrusions. The stairwell grid is MARMET's Series 8602 INSU-WALL . . . the only insulated curtain wall with a special insulator integrally fabricated into framing members at the factory . . . requiring no added labor for special assembly on the job site.

New MARMET INSU-WALL retains the beauty and permanence of finish achieved with aluminum curtain wall . . . yet cuts heat losses through the high conduction factor of this metal by as much as 63%.

Still another advantage considered by the architect, was the strength provided by Insu-Wall for maximum glass area with a modern, thinline framing effect.

In the front and rear of the building, with large operating lites fitting five foot openings on centers, the architects chose MARMET's 5142 series with 2 inch tubular sash for maximum strength. A standard series, the 5142 offers such advantages without the high cost of a monumental framing system.

Typical INSU-WALL mullion, cross section. Dark area is special thermal barrier.



# even below ZERO, this stairwell aluminum is condensation free!


## Key advantages in INSU-WALL

- Reduces heat loss through curtain wall metal in severe winter cold. Because the condensation problem does not exist with Insu-Wall, perimeter heating may be replaced with less expensive systems.
- Licks the problem of condensation forming on interior curtain wall metal . . . with attendant possible damage to plaster, wall paneling, carpeting, drapes and furnishings.
- Reduces air conditioning load by preventing heat transfer into building through sun heated curtain wall framing in warm climates or summer temperatures.
- Standard split mull assembly system requires no added installation time or added assembly labor on the site.

For complete information, on how MARMET Curtain Wall systems give you more flexibility in design, better function at budget prices . . . contact your local MARMET representative.

For additional information on the complete line of MARMET products—consult Sweet's Catalog File No. 3A or write to MARMET for catalog. Mar

MARMET CORPORATION

300-C Bellis St., Wausau, Wis.

## *On the Calendar*

*continued from page 298*

Society of Architects and the New Jersey Chapter, American Institute of Architects; theme: "Functions of the Architect"—Essex and Sussex Hotel, Spring Lake, N.J.

16-24 National Shelter & Survival Exposition of 1962—The Coliseum, New York City

17-20 63rd annual meeting and Products Exposition, American Society of Landscape Architects; theme: "Design Creativeness"—Americana Hotel, Miami Beach

18-20 Annual meeting, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.—Deauville Hotel, Miami Beach

18-22 Special summer session on "Modern Methods of Construction Control"—Massachusetts Institute of Technology, Cambridge, Mass.

20-25 National Real Estate Show—The Coliseum, New York City

24-29 Annual Meeting and Apparatus Exhibit, American Society for Testing Materials—Statler Hotel, New York City

25-30 12th International Design Conference—Aspen, Colo.

27-29 53rd annual conference, The Stained Glass Association of America—Shoreham Hotel, Washington, D.C.

## *Offices Notes*

### *Offices Opened*

**Clifford Douglas Stewart** and **Fellowes Davis** have opened architectural offices at 123 Newbury St., Boston, Mass.

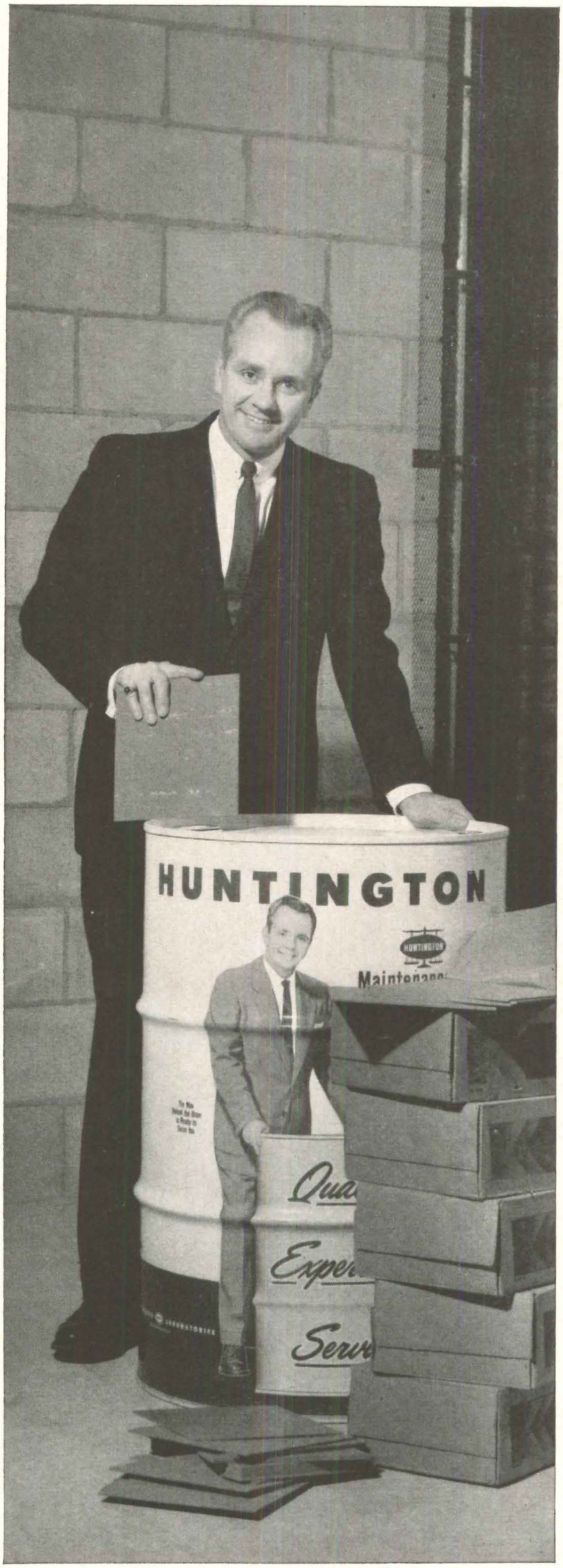
A new firm called **Rowland, Simpson and Ferguson, Incorporated, Architects** has been opened by John J. Rowland, James M. Simpson and Robert H. Ferguson Jr. The address is 811 North Queen St., Kinston, N.C.

**Nathan S. Levenson, A.I.A.** has opened new offices at 211 Oliver Ave. Building, Pittsburgh, Pa.

### *New Firms, Firm Changes*

Charles S. Matlock has opened his own firm, **Matlock Asssociates,** in Austin, Tex. The address is 1605 W. 35th St. The firm is at present doing specialized engineering as consultants in design as well as research and development.

*continued on page 322*




### YOU SPECIFY THE FLOORING!

# He'll make sure it lives up to your reputation

People will be walking on your reputation, beginning the day this building goes into use.

They'll be digging into it with their shoes. Dragging abrasive dirt and dust across it. Tracking moisture. For your reputation will rest on the flooring you specify as well as on the overall architectural design.

Yet, the flooring you specify can be drawing raves years from now with proper care and maintenance. Without any headaches or effort on your part. Just turn its maintenance over to our representative . . . the Man Behind the Huntington Drum.

Flooring care has been his province for an average of 19 years. Give him the green light—and he'll come up with a floor maintenance program covering every area and every flooring material.

Call in the Man Behind the Huntington Drum. Put the burden of floor maintenance on his shoulders right now.

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P. O. Box 710, Huntington, Indiana

**Gentlemen:** I would like a Man Behind the Huntington Drum to call on me to discuss floor maintenance.

(☐ Ask him to leave his drum outside.)

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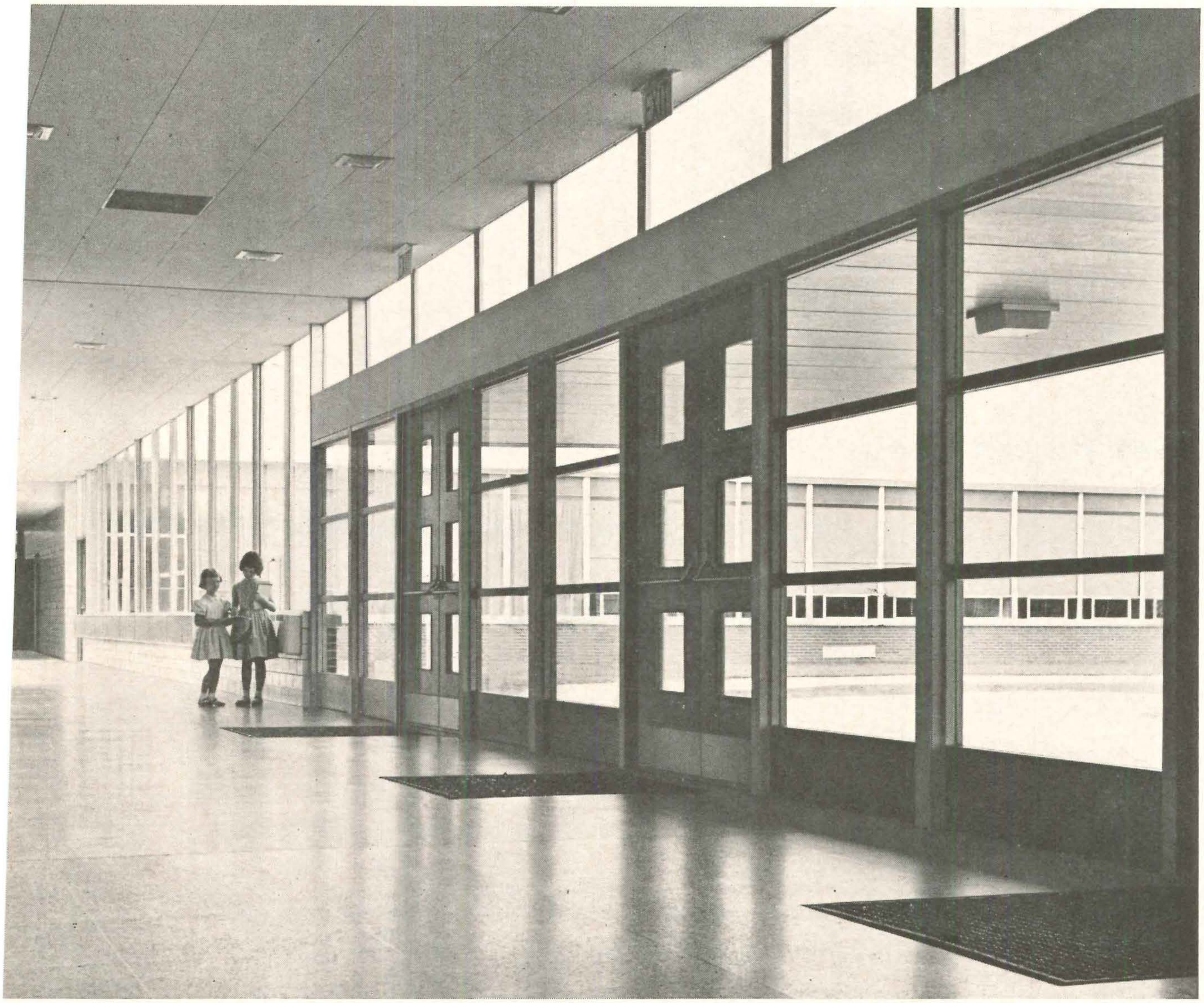
FIRM ________________________________________

ADDRESS ________________________________________

CITY ____________________ ZONE ______ STATE ____________________



Note how the bright expanse of glass and the contrast created by the mullions compliment one another at the entrance area of this school.

These dependable glass products from PPG give you the freedom of expression you seek in designing schools for beauty, function and durability:

SOLEX®: green tint, heat-absorbing, glare-reducing glass

SOLARGRAY®: neutral-gray, heat-absorbing, glare-reducing plate glass

TWINDOW®: world's finest all-weather insulating glass

PENNVERNON® Window Glass: window glass at its best

POLISHED PLATE GLASS: for clear, undistorted vision

HERCULITE®: shock-resisting tempered plate glass

PENNVERNON® GRAYLITE™: neutral-gray, glare-reducing window glass

SPANDRELITE®: heat-strengthened glass with ceramic color fused to the back

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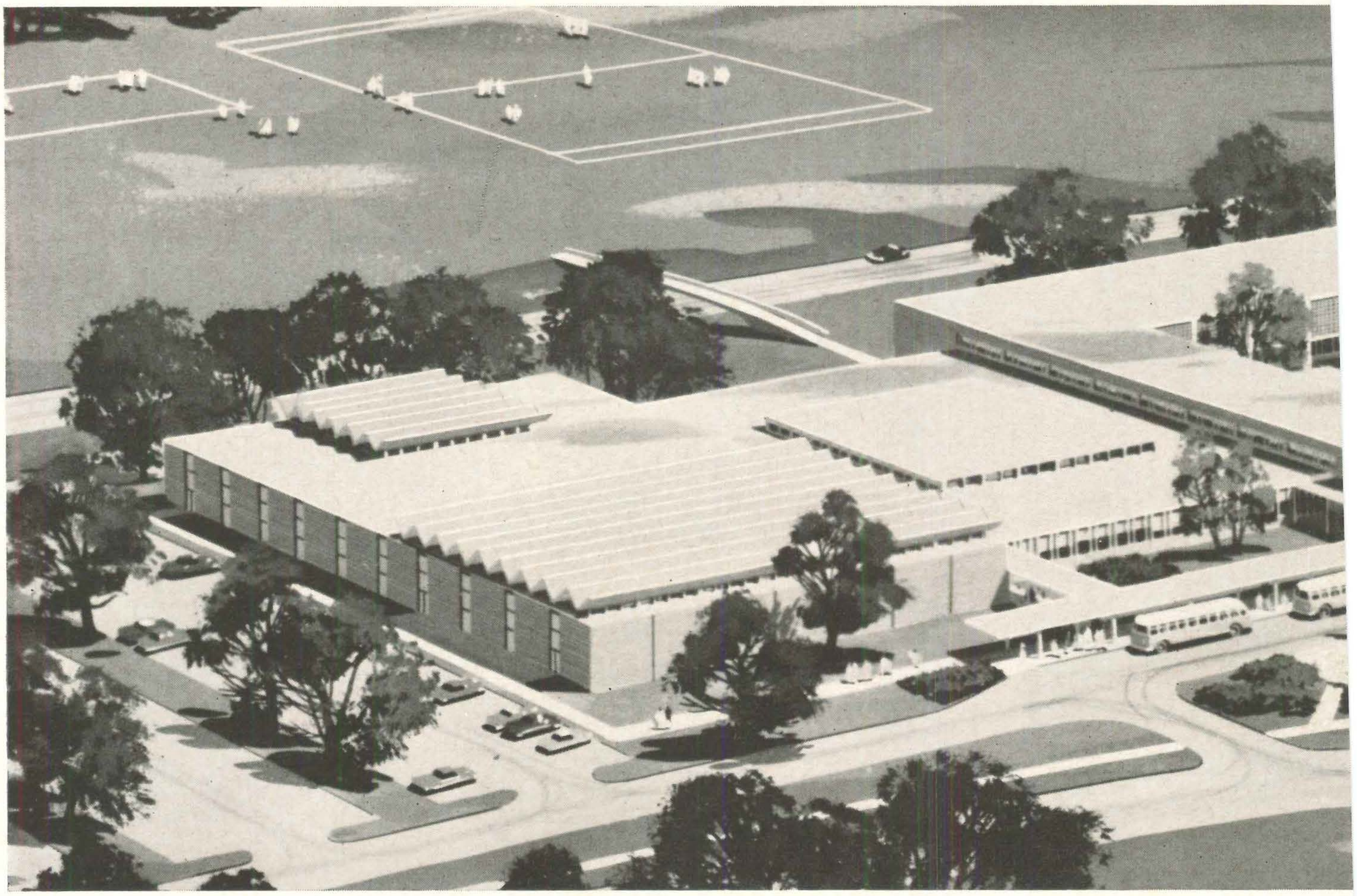


# How much automation is practical for your next building?

## Central control helped this school to air condition with 40% less cooling capacity

**"Centralized controls will make it easy to shift cooling where it's needed, as it's needed—so our high school requires only a 600-ton plant instead of 1,000 tons. We are using Honeywell Controls in our school."**—Dr. Jordan L. Larson, Superintendent of Schools, Mount Vernon, N.Y.

Next time you discuss school air conditioning with a client, it may be useful to know about the experience of Mount Vernon, N.Y., with this problem—and its happy solution.

This fall, Mount Vernon will open a new 320,000 sq. ft. high school, the largest ever built in the U.S. with year-round air conditioning.

Many in Mount Vernon, including Dr. Jordan L. Larson, Superintendent, felt that if air conditioning improves efficiency in industry, it should do so in schools—even in the northern U.S.

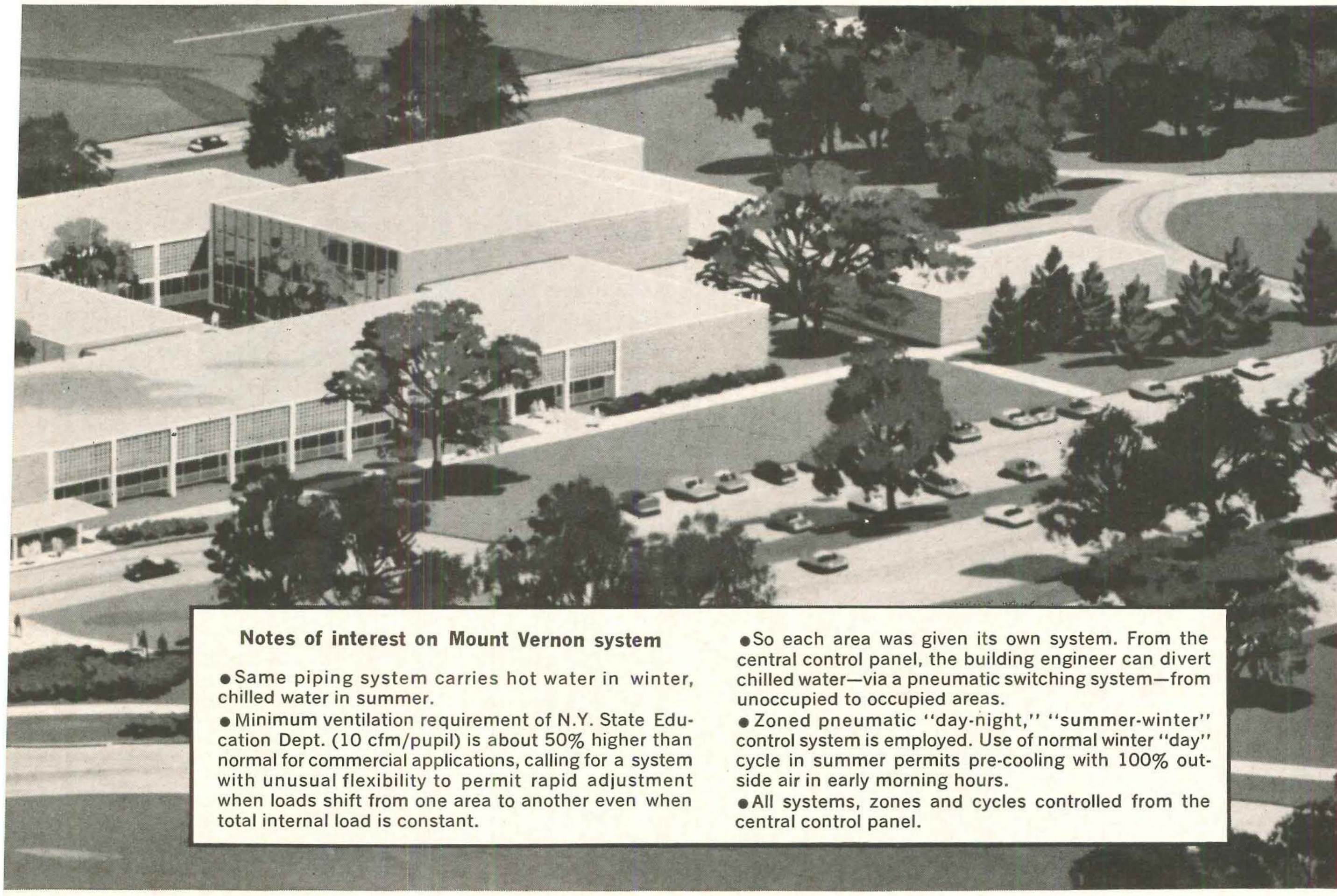
And the architects and engineers developed plans that satisfied even the skeptics that air conditioning the new school would be sound *and economical.*

**Instead of long-perimeter** spread-out construction common to so many non-air-conditioned schools, Architects Sherwood, Mills & Smith, of Stamford, Conn., utilized a compact design that helped to lower building costs and also reduced size of the air conditioning equipment required.

**A Honeywell central control panel** was used by Engineers Abrams & Moses, of New Rochelle, N.Y., to make an asset, instead of a handicap, out of the constantly shifting loads common to high schools.

If all the conditioned space were occupied at one time, it would need about 1,000 tons of refrigeration. But the Honeywell controls are tied to one main panel, making it easy to shift cooling *where* it's needed, *when* it's needed—so the building requires only a 600-ton cooling plant.

So helpful in this instance, central control is a basic step in automating *any* building's mechanical-electrical systems to wring maximum efficiency from equipment, cut a surprising waste in manhours, and plug needless leaks in fuel and power costs.




Today, however, central control is only the *beginning* of automation—ranging up to computer-guided robots that digest scores of variables, then instantly allocate the load to equipment for optimum results at minimum cost.

You'll want to keep abreast of the newest Honeywell developments, many of them offering your clients operational savings through concepts that were unavailable a few years ago.

**Honeywell automation specialists** will gladly discuss them with you, or work with you to make an automation analysis of any building on your boards.

Phone your nearest Honeywell office, check coupon or write W. N. Wray, Honeywell, Dept. AR5-90, Minneapolis 8, Minn. In Canada, write Honeywell Controls Ltd., Toronto 17, Ont.

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## 7 new planning guides for your clients! Mail coupon today

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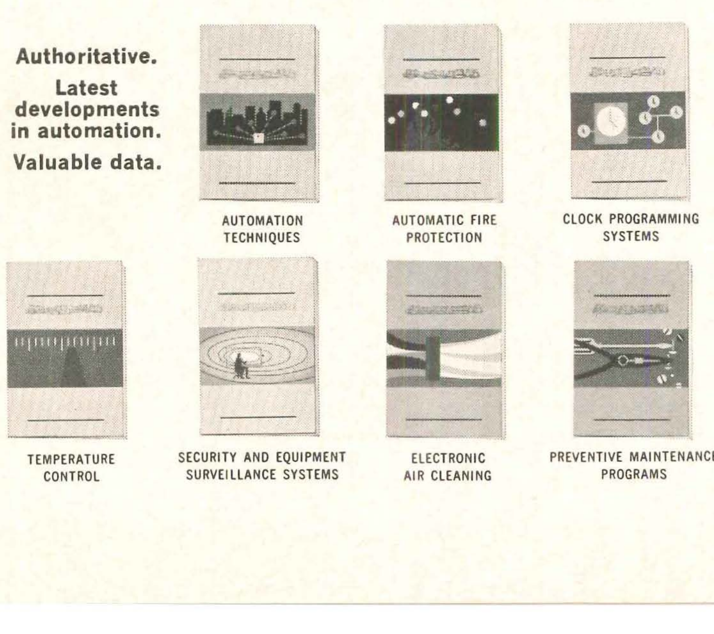
**Latest developments in automation.**

**Valuable data.**




**Honeywell, Dept. AR5-90**
**Minneapolis 8, Minn.**

Without obligation, please send Honeywell Planning Guides checked.

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- ☐ Automatic Fire Protection
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- ☐ Preventive Maintenance Programs
- ☐ I'm interested in an AUTOMATION ANALYSIS of my buildings. Please send preliminary questionnaire.

NAME____________

TITLE, COMPANY____________

ADDRESS____________

CITY, ZONE, STATE____________

## *Office Notes*

*continued from page 314*

A new architectural partnership has been formed by Gordon Severud and C. Frasuer Knight. Known as **Severud and Knight, A.I.A., Architects,** the firm is located at 2971 Coral Way, Miami, Fla.

**Kenneth E. Bates** has joined the Seattle engineering, architectural and planning firm of Harstad Associates as senior architect and a partner of the firm.

A. M. Kinney Associates, Inc., architects and engineers, and the Chicago architectural partnership of Friedman, Omarzu, Zion and Lundgoot have merged under the name of **A. M. Kinney Associates, Inc.** The new firm which is affiliated with A. M. Kinney, Inc., consulting engineers in Cincinnati, Ohio, has offices at Executive Plaza, 225 West Touhy Ave., Park Ridge, Ill.

**Robert T. Dutter** has been appointed an associate with the firm Milton Klein, A.I.A., Union, N. J.

**Paul Bosholm,** formerly associated with the architectural staff of the University of California, has become project architect with Wilsey, Ham & Blair, engineering and planning firm, Millbrae, Calif.

**Philip Wesler,** P.E., has become an associate of the firm of Fraioli-Blum-Yesselman, Consulting Engineers, New York and Norfolk, Va.

**Marc Weissman,** formerly of Victor Gruen Associates, has joined the firm of Lawrence Werfel & Associates, Flushing, N.Y., as senior associate.

## Architect To Conduct Summer Tour of Europe

Architect Jeffrey Ellis Aronin, New York, is conducting, under the sponsorship of one of the American travel agencies, an architectural and art tour of Europe this summer, from June 25 to August 18. The 56-day tour, from Greece to Scandinavia and Britain, is priced at $1678. This price includes all transportation, hotels, all meals except breakfast only, in London, Paris and Rome.

For further information, contact Jeffrey Ellis Aronin, 101 Park Ave., New York 17, N.Y.


Marble makes a building part of nature . . . brings a timeless elegance not obtainable with any other material. Marble perpetuates the architectural greatness of the past . . . provides the medium for preserving the finest architectural achievements of the present . . . constantly challenges today's designer in exciting new forms. Above all, marble promises the satisfaction of creating deep and enduring beauty.
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# Now, make old buildings look new...


:ground pattern here is 1½"
ORWEAVE, featured in remodeling
entucky Lithographing Co. build-
Louisville, Kentucky. Architect:
l & Schickli, AIA, Louisville.

## as you design with
# USG® EXPANDED METALS

WHY was the rugged ARMORWEAVE pattern of USG Expanded Metal selected to modernize the building pictured here? Because it was the *only* material that could economically alter the appearance of the aged building and still admit light and air through its windows. Now this building speaks handsomely—and properly—for the modern organization it houses.

ARMORWEAVE is just one of many patterns available in several sizes (some are shown below). Each pattern opens doors to new possibilities in both *design* and *function*.

Unique directional properties, for example, allow you to conceal or reveal, according to plan, for exterior or interior decoration or space control. Functionally, USG Expanded Metals are more rigid than the solid sheets of metal from which they are made.

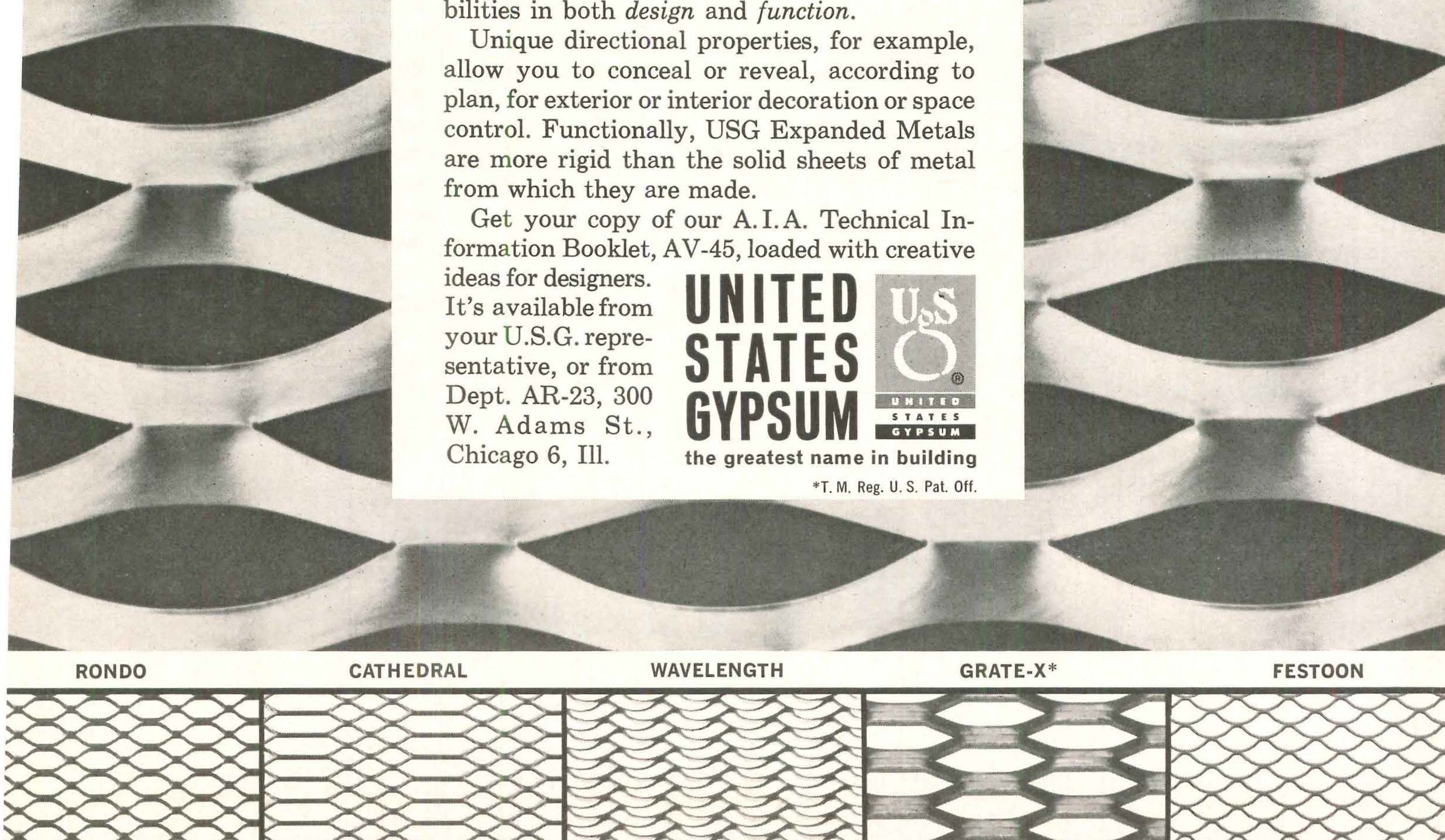
Get your copy of our A.I.A. Technical Information Booklet, AV-45, loaded with creative ideas for designers. It's available from your U.S.G. representative, or from Dept. AR-23, 300 W. Adams St., Chicago 6, Ill.

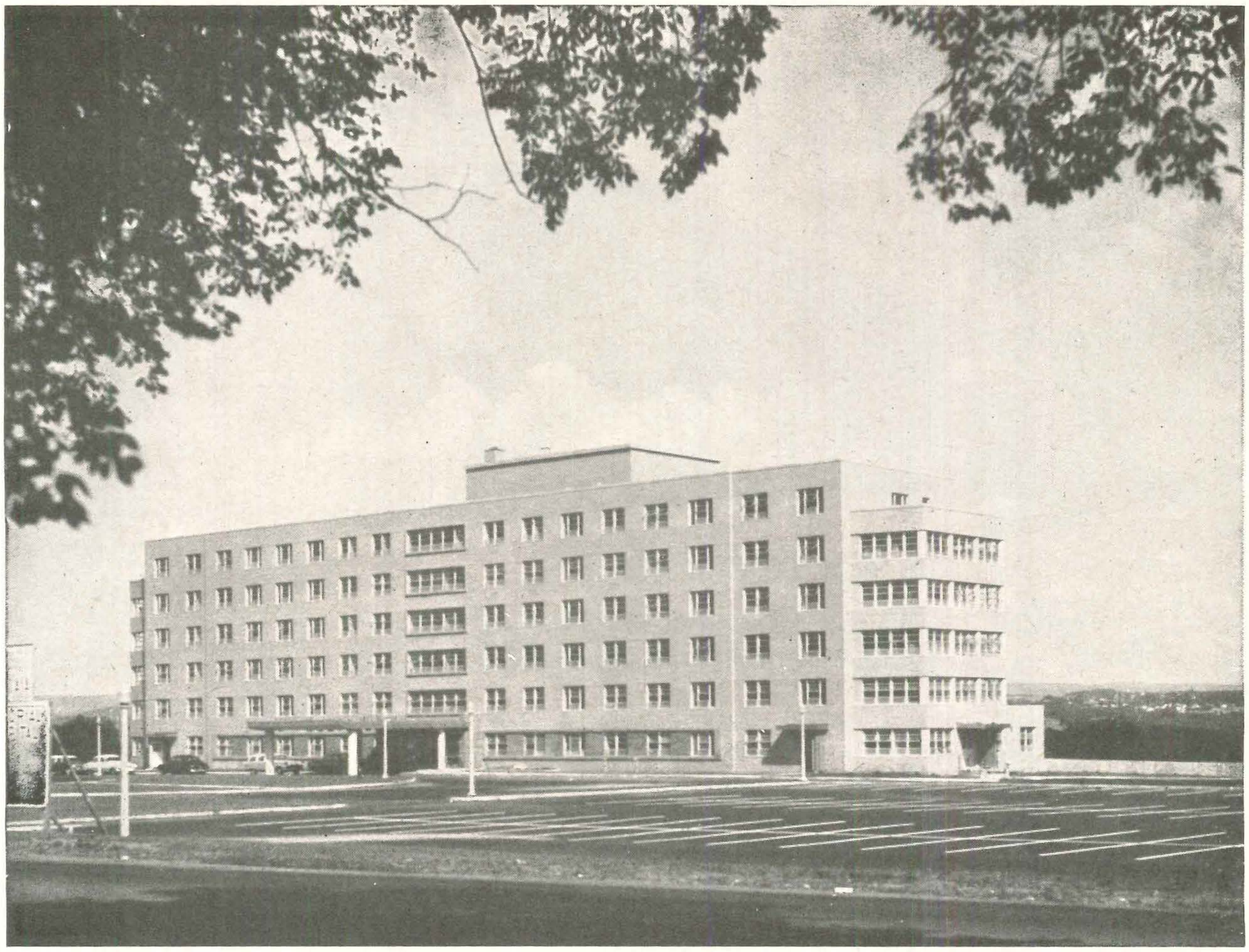
**UNITED STATES GYPSUM**

the greatest name in building

*T. M. Reg. U. S. Pat. Off.

RONDO | CATHEDRAL | WAVELENGTH | GRATE-X* | FESTOON






Over 100 miles of PRC rubber calk was used for glazing 8800 windows in the new 60 story Chase Manhattan bank building
PRC Rubber Calk retains its tight bond and elasticity for years in any climate. It is furnished in consistencies which can be mixed and applied easily with standard equipment. This two-part polysulfide rubber compound cures at normal temperatures to a flexible, firm rubber. Damaged areas can be repaired easily, eliminating costly maintenance. 32 colors available, to blend with all building materials. Write for complete technical data.
Dealer inquiries invited.
Architect: Skidmore, Owings & Merrill
General Contractor: Turner Construction Co.
Sealant Applicator: F. H. Sparks Co., Inc.
Photographer: Erich Locker
PRC
PRODUCTS RESEARCH COMPANY
CORPORATE OFFICES AND WESTERN MANUFACTURING DIVISION
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EASTERN SALES AND MANUFACTURING DIVISION
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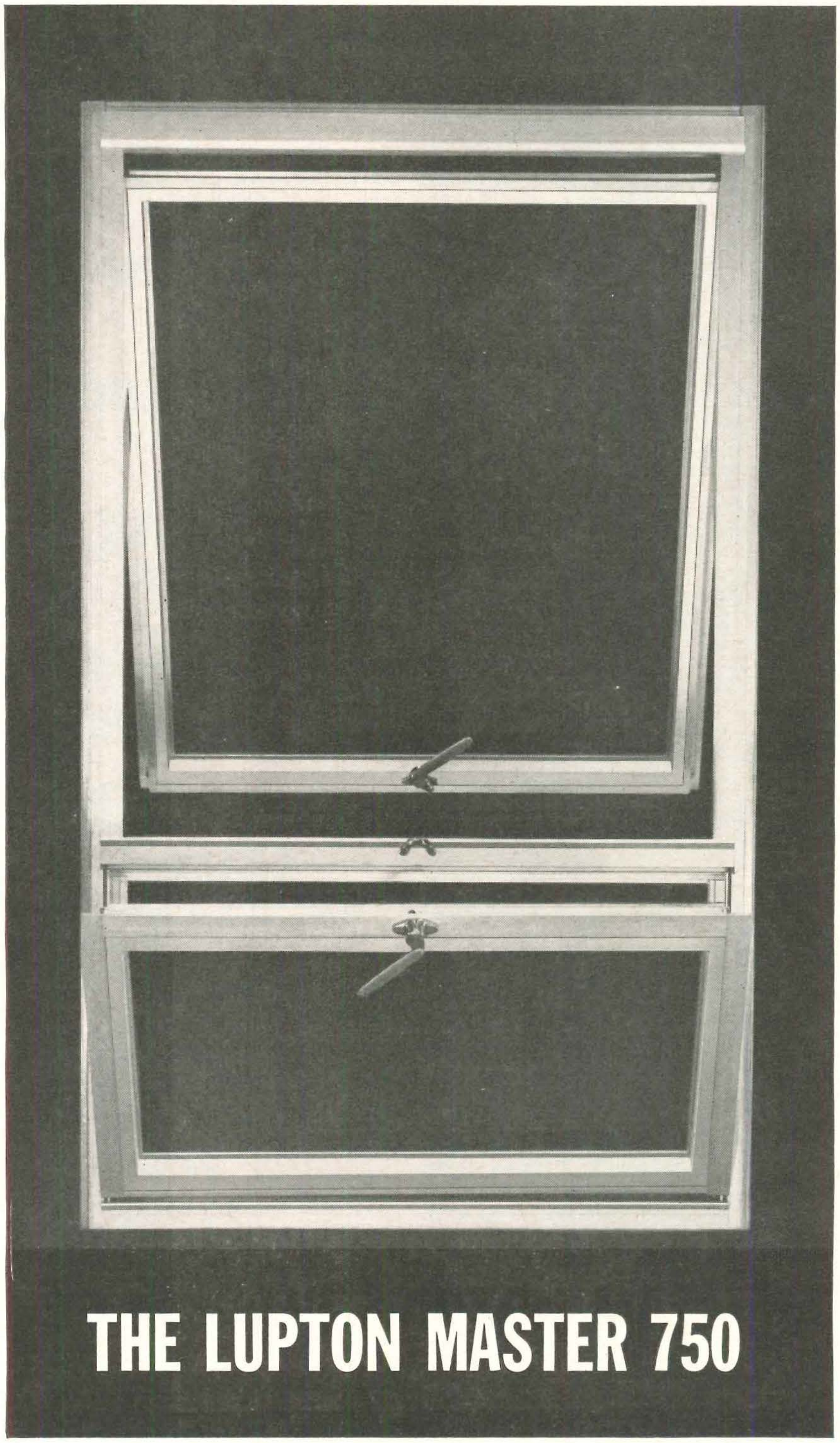
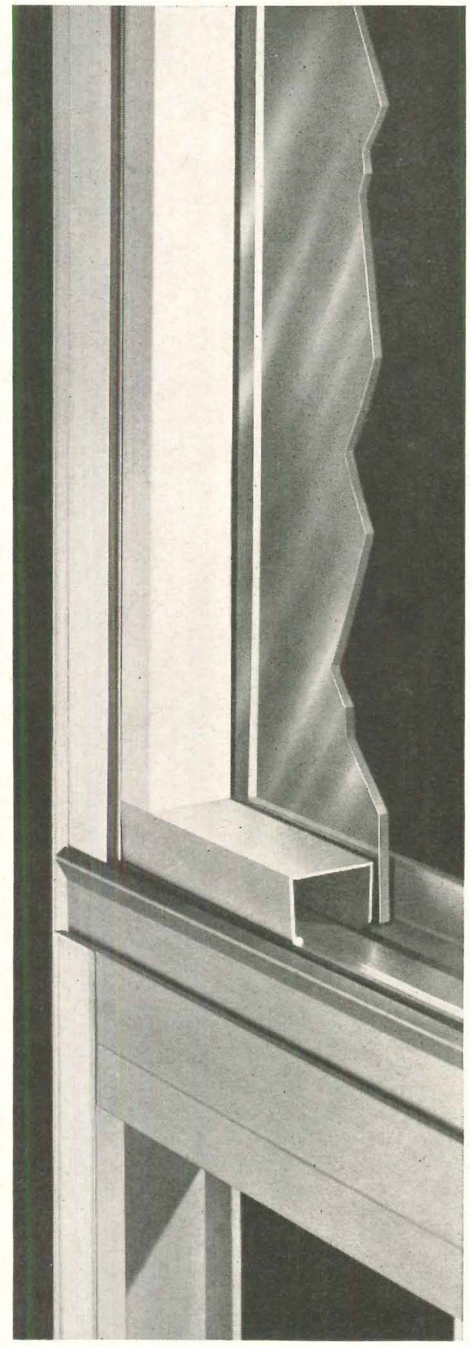


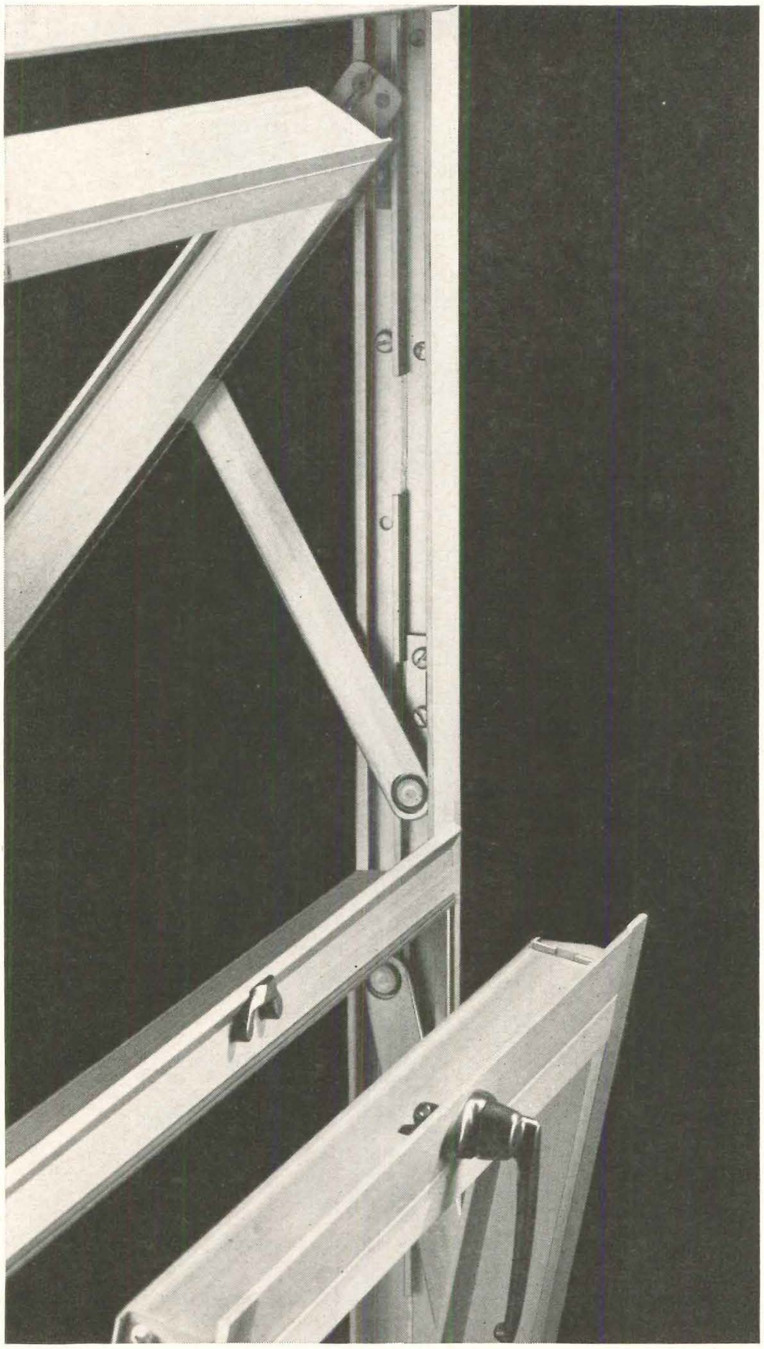
**¾" glazing stop and inside snap-in bead—** The ¾" deep glazing rabbet is a must for today's glazing requirements—assures a watertight installation. Bead snaps in place on inside to present a uniformly superior appearance at virtually no greater cost than that of outside putty glazing.

# A NEW DESIGN BREAKTHROUGH THAT CAN CHANGE

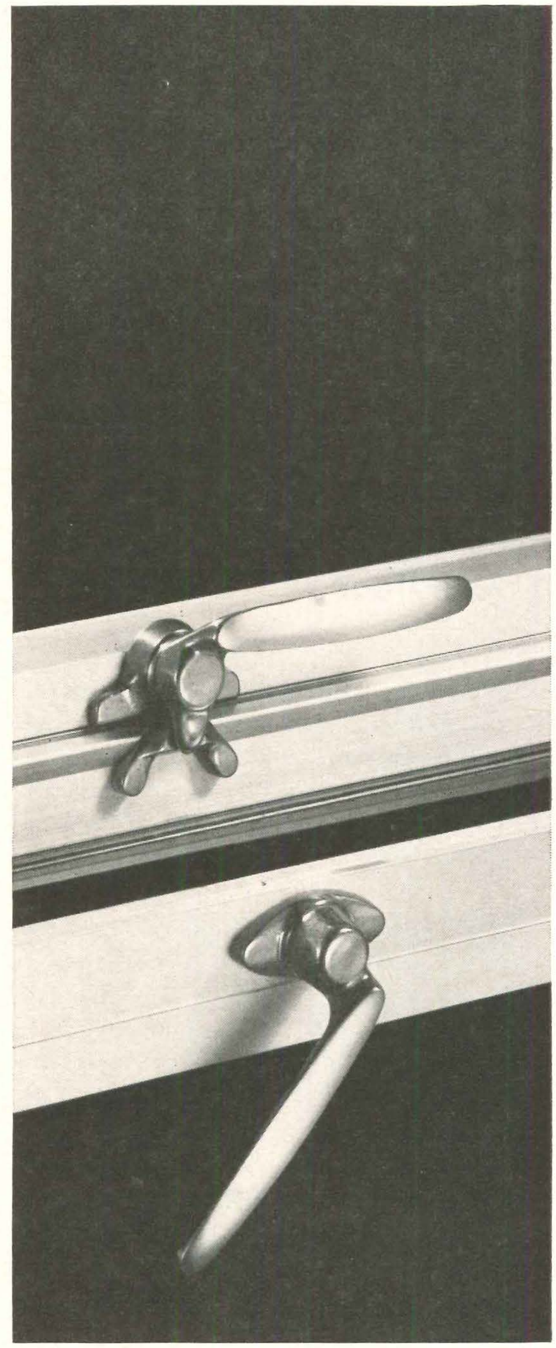
Permanently rigid construction. Smoothly operating, hurricane-tight ventilators. ¾" glazing stop. Inside glazing with snap-in aluminum glazing bead. Unexcelled workmanship. This is the essence of the Master 750, Lupton's new projected aluminum window for schools, offices, hospitals and similar buildings of an institutional or commercial type.

The key to the outstanding rigidity of the Lupton Master 750 window is a thoroughly tested technique of corner construction. This results in strong, uniform mechanical joints without the objectional features of welding. Dimensions are held to closer tolerances. Surfaces are cleaner, neater . . . better suited to modern finishes.

The unique design of the ventilator sections assures a weather-tight seal, too. There is no "reverse bar" construction. Ventilators close tightly along a single plane, making unbroken contact against a weatherstrip of



**Weather tight ventilators operate easily and smoothly**—New type construction with ventilator surface in a single plane eliminates the "reverse bar"—makes possible a continuous, unbroken contact between frame and ventilator. Contact is sealed with elastomeric vinyl at all points. There are absolutely no gaps in the weatherseal. Safe, smooth operation is provided by the nylon friction shoes, safely locked in channels extruded as part of jamb bars. Shoes cannot jump out of track. Note, sturdy supporting arms, and nylon ventilator guides that automatically center ventilators when closed.



**Attractive locking handles**—Simply designed white bronze handles are attached to the window with invisible fasteners . . . there are no screws exposed on the inside. If desired, ventilators may be operated mechanically in groups.

# YOUR THINKING ABOUT ALUMINUM WINDOWS...

elastomeric vinyl around the entire perimeter. Lupton Master 750 Aluminum Windows are available in sizes up to 60″ x 132″ with ventilator sections up to 60″ x 44″. Above are a few of the unique design features that make the Master 750 the new standard for quality and performance in engineered aluminum windows. Please read them. Call your nearest Lupton representative for further information, or write directly to us.

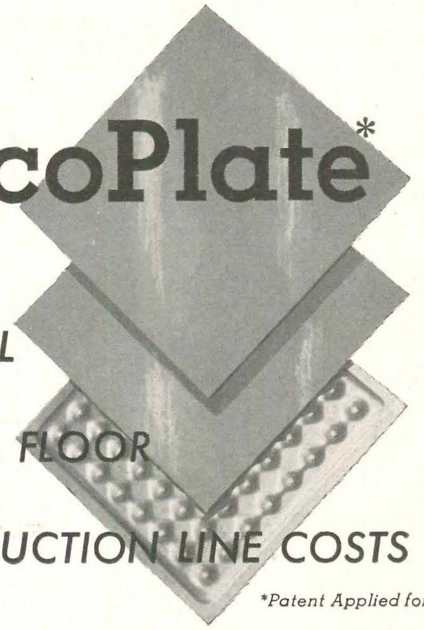
**LUPTON®**

**MICHAEL FLYNN MANUFACTURING COMPANY**

**Main Office and Plant:** 700 East Godfrey Avenue, Philadelphia 24, Pa. West Coast Office and Plant: City of Industry (Los Angeles County), California.

**SALES OFFICES:** Stockton, California; Chicago, Illinois; New York, New York; Cleveland, Ohio; Dallas, Texas. Representatives in other principal cities.

# WacoPlate*



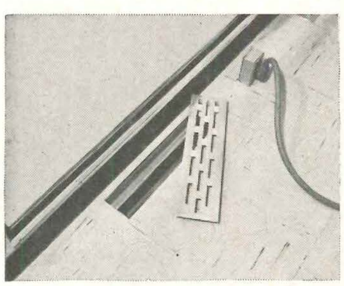
## ALL STEEL

## CUSTOM FLOOR

## AT PRODUCTION LINE COSTS

**Patent Applied for*

Washington Aluminum's uniquely designed welded assembly of formed steel sheets results in the finest flooring system created. Initial low cost installations, easy maintenance and interchangeability, combined with the strength of steel, make WacoPlate your ideal flooring choice in your next installation.



**CUT-OUTS ANYWHERE!** WacoPlate's basic panel provides such inherent rigidity, cutouts can be made as desired . . . now or later! They never affect the load bearing capacity.

**PERFECT LEVELING** WacoPlate's system is guaranteed firm, stable and vibration free; engineered to handle the most sensitive office or electronic equipment.

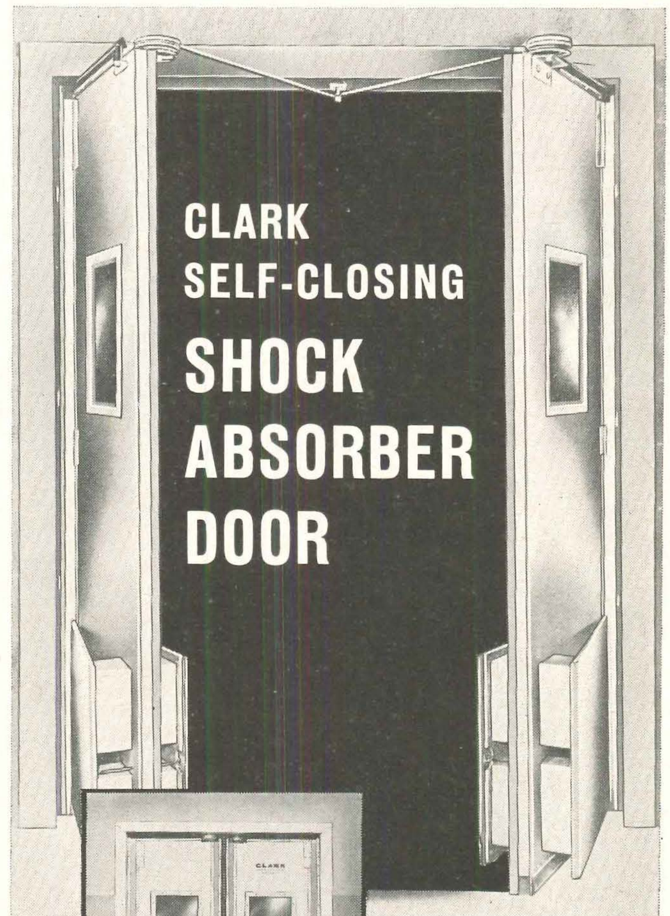
**WACOPLATE FITS ANY DECOR** Any contemporary floor covering matched to the precision of steel creates a magnificent floor that is seamless, crackless and flat.

*Write or call for further information.*

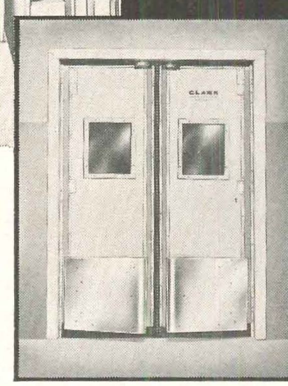
PANEL PRODUCTS DIVISION

Washington Aluminum Co., Inc.
WACO Baltimore 29, Md.
Phone 301 CI2-1000

## VERSATILE • DRAFT-FREE



# CLARK SELF-CLOSING SHOCK ABSORBER DOOR




## Serves foot or truck traffic . . .

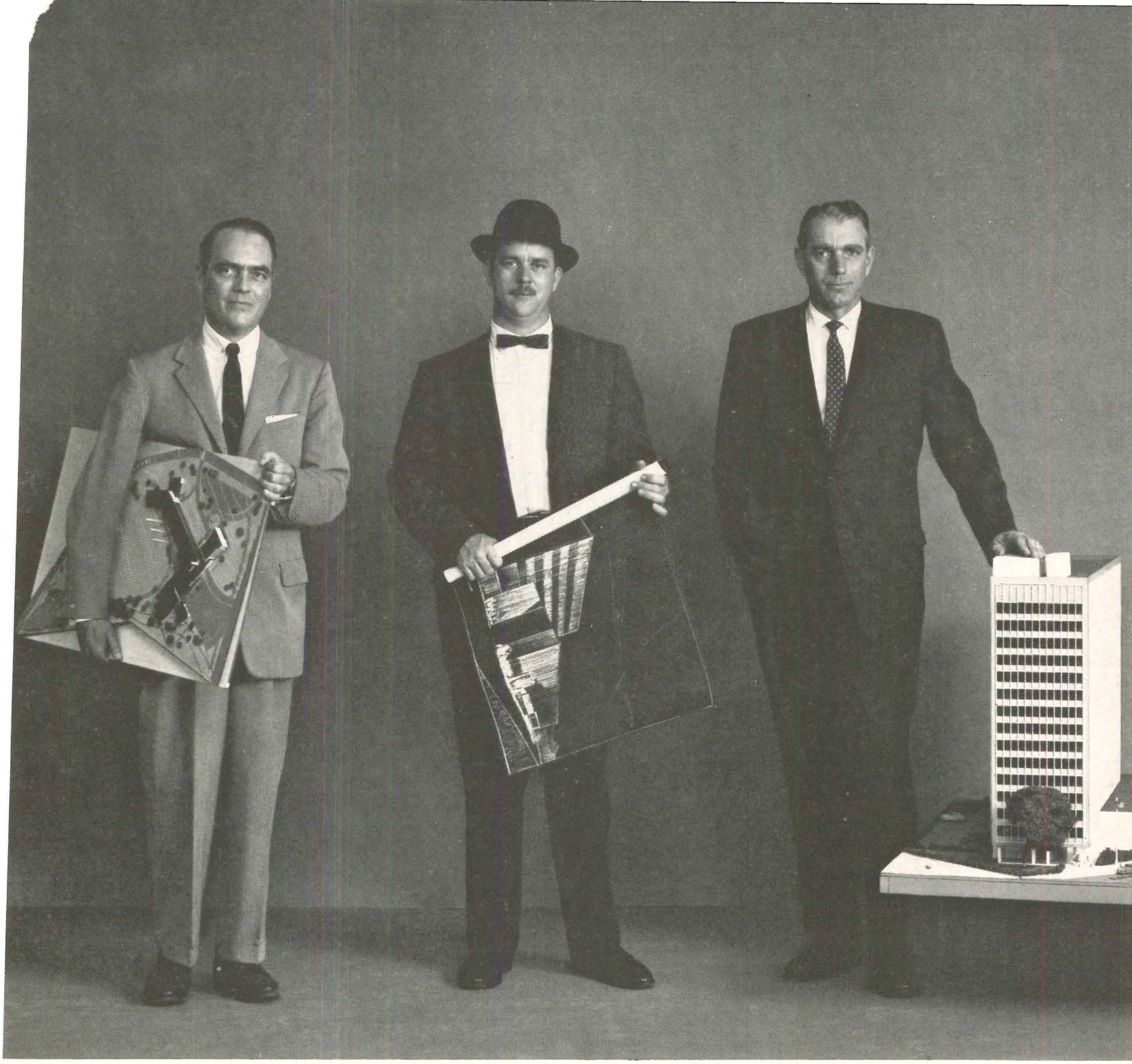
Riding freely on flexibly suspended hinges, the Shock Absorber Door opens at a touch for pedestrians . . . or takes the pounding of fork trucks without a whimper. In either case, it returns to tight closure.

Rapidly gaining popularity in many regions as The Door for Post Office Mailing Vestibules, it also has wide acceptance in Supermarkets, industrial plants, warehouses, etc.

Rigid, yet lightweight, the Shock Absorber Door is aluminum-covered with honeycomb core. Urethane backing of heavy steel bumper plate cushions blows. Neoprene sealing at all edges eliminates drafts. Comes in a single easy-to-apply unit in standard and custom sizes. Write today for Architects' drawings and specifications.

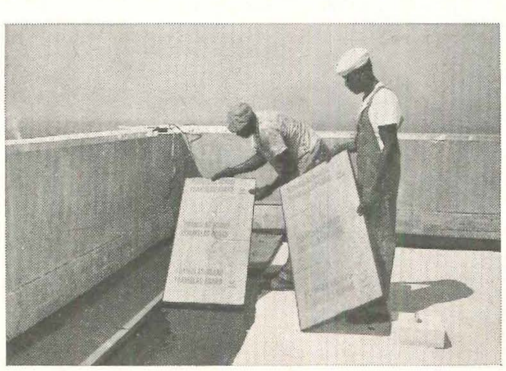
*See our catalog in Sweet's* S

**CLARK DOOR CO., INC., (SINCE 1878)**
*522 Hunterdon St. Newark 8, N. J.*



**Which client can afford FOAMGLAS Roof Insulation today?**

The new thickness and unit size means that quality FOAMGLAS® can be the right insulation specification for most building roofs; an office building, an industrial plant, a hospital, a bank or a research lab.



**Nothing but FOAMGLAS Roof Insulation** gives a building the constant insulating value that results from an inorganic, cellular glass composition. It just can't absorb moisture. And, it's available now in a 1½" thick FOAMGLAS-BOARD unit—a sandwich of FOAMGLAS covered with kraft laminate paper in a 2′ x 4′ size. This new thickness and size means a reduced installed cost. Write for your copy of the FOAMGLAS Building Insulation catalog. It includes application specifications, thicknesses, U-values. Pittsburgh Corning Corporation, Dept. B-52, One Gateway Center, Pittsburgh 22, Pa.

PITTSBURGH CORNING

# Advertisers Judge Architectural

*International Arrival Building, Idlewild Airport. Architects: Skidmore, Owings & Merrill. Photographer: Ezra Stoller.*

# Record Their Best Buy FOR THE FIFTEENTH YEAR!

Again in 1961 Architectural Record was the far-and-away first choice of building product manufacturers and their advertising agencies.

The Record led its field with *most advertisers . . . most exclusive advertisers . . . most advertising dollars . . . most advertising pages.*

In fact, building product advertisers placed 51 per cent more advertising pages in Architectural Record than in the second-place magazine and 74 per cent more than in the third-place magazine!

What's behind this powerful advertiser preference for the Record? Five basic advertising values:

**1.** The largest architect and engineer subscriber audience ever made available to advertisers by an architectural magazine (over 30,000).

**2.** Exclusive *verifiable* coverage of over 88% of all architect-planned building, nonresidential and residential, large and small.

**3.** Preferred readership as revealed by 175 objective studies sponsored by building product manufacturers and their agencies.

**4.** Highest renewal rate in the field by far.

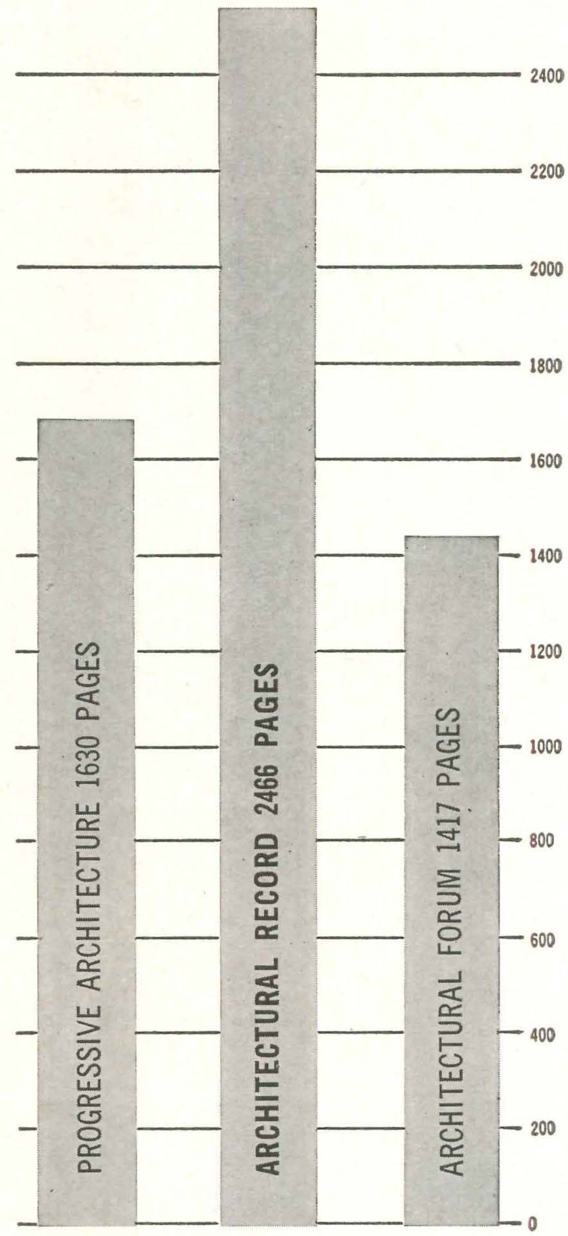
**5.** Stimulating editorial leadership that brings the reader what he needs (with the aid of Dodge Reports and the most intensive editorial readership research in the field) and *brings the reader where he needs to be* to meet tomorrow's opportunities and challenges.

## Architectural Record

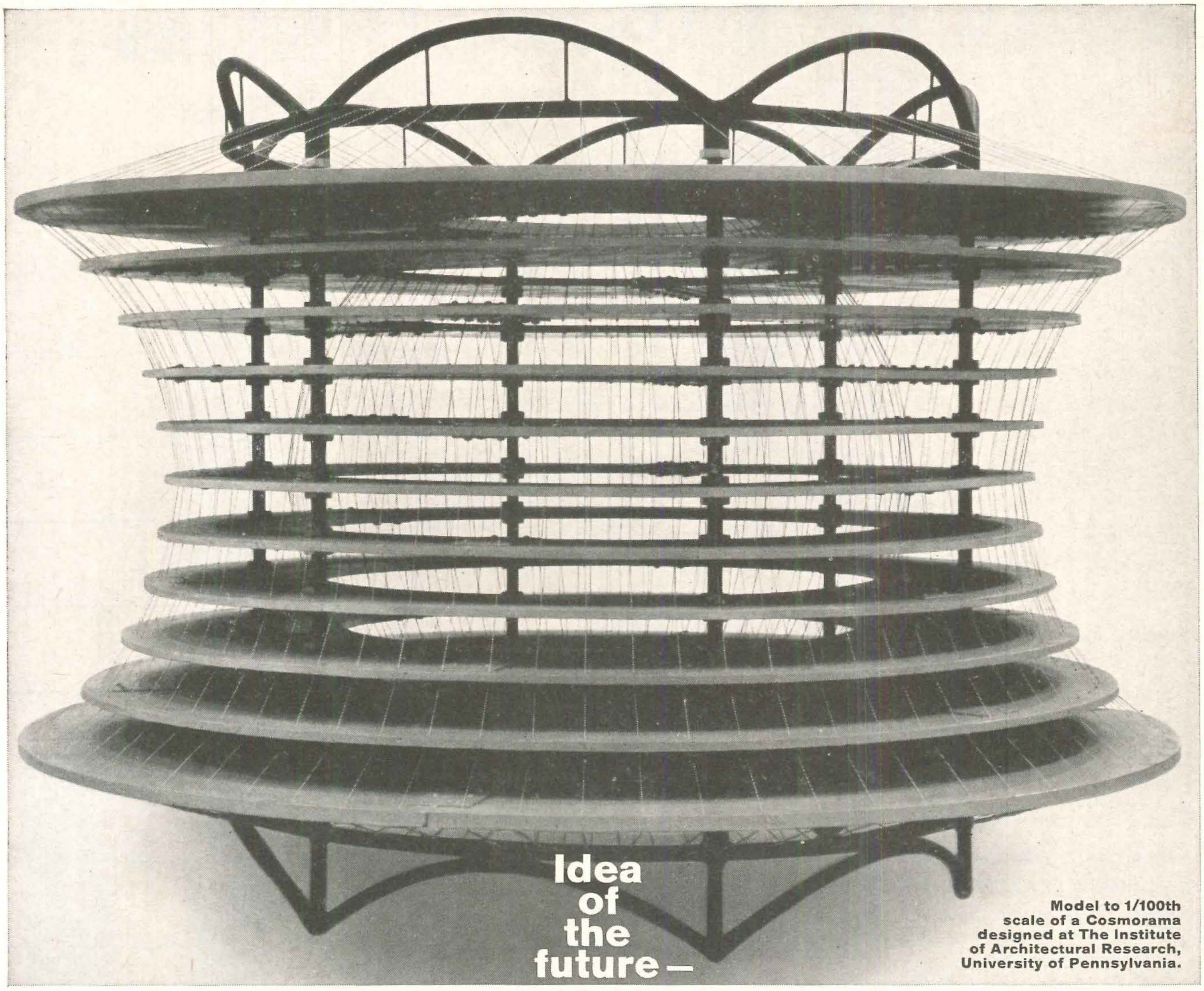
F. W. DODGE CORPORATION
A McGraw-Hill Company

119 WEST 40TH STREET
NEW YORK 18, NEW YORK

"stimulus to creative architectural and engineering design"




**1961 ADVERTISING PAGE VOLUME—THREE LEADING ARCHITECTURAL MAGAZINES**



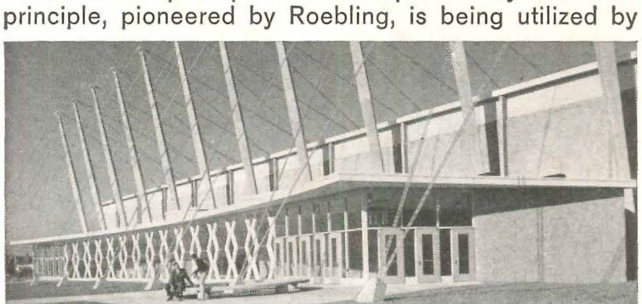
# Idea of the future—for use right now!

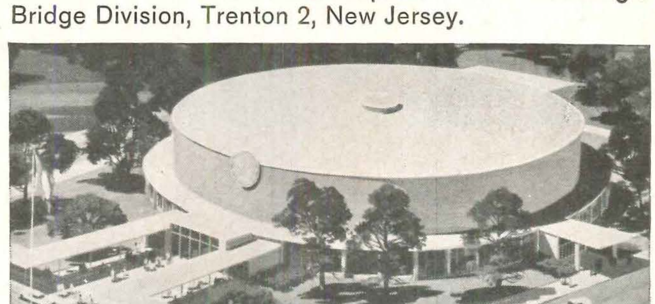
Model to 1/100th scale of a Cosmorama designed at The Institute of Architectural Research, University of Pennsylvania.

Like to take a trip through space without ever leaving Mother Earth? This model of a Cosmorama, which would simulate space travel for 40,000 spectators much as a planetarium simulates views of the heavens, gives an idea of how it might be done in the not-so-distant future. The completed building would be 30 stories high, with the inner hollow sphere 330 ft in diameter.

However imaginative the idea of the Cosmorama may seem, its construction is practical in the extreme. It is based on the principle of the suspension system. This principle, pioneered by Roebling, is being utilized by more and more architects and engineers every day in more and more structures—from auditoriums to sports arenas and warehouses, from airline hangars and terminals to shopping centers . . . to achieve beauty, economy, column-free space, freedom of movement and vision and other advantages.

Roebling, a leading producer of prestretched strand, can give you valuable information and cooperation in applying the principle of suspension systems to any structure you are planning to build. We invite you to ask us for this information and help. Just write Roebling's Bridge Division, Trenton 2, New Jersey.





SUSPENSION ROOFS NOW AT WORK...

**Health and Physical Education Building, Central Washington College of Education, Ellensburg, Wash.** Architect: Ralph Burkhard, A.I.A., Seattle. Structural Engineers: Anderson, Birkeland, Anderson, Tacoma. General Contractor: Earley Construction Company, Tacoma. Prestressed Concrete Fabricator: Concrete Technology Corp., Tacoma. Cables by Roebling.

**Utica Memorial Auditorium, N. Y.** Architects: Gehron & Seltzer, N. Y. City. Associate Architect: Frank C. Delle Cese, Utica. Consulting Engineer: Dr. Lev Zetlin, N. Y. City. Contractor: Sovereign Construction Company, Ltd., Fort Lee, N. J. Roof Supporting Structure, Including Cables, Furnished and Erected by Roebling.

**ROEBLING** CF&I

Branch Offices in Principal Cities ■ John A. Roebling's Sons Division ■ The Colorado Fuel and Iron Corporation

# Index to Advertising

PRE-FILED CATALOGS of the manufacturers listed below are available in the 1962 Sweet's Catalog File as follows: (A) Architectural File (green), IC Industrial Construction File (blue), (LC) Light-Construction File (yellow).

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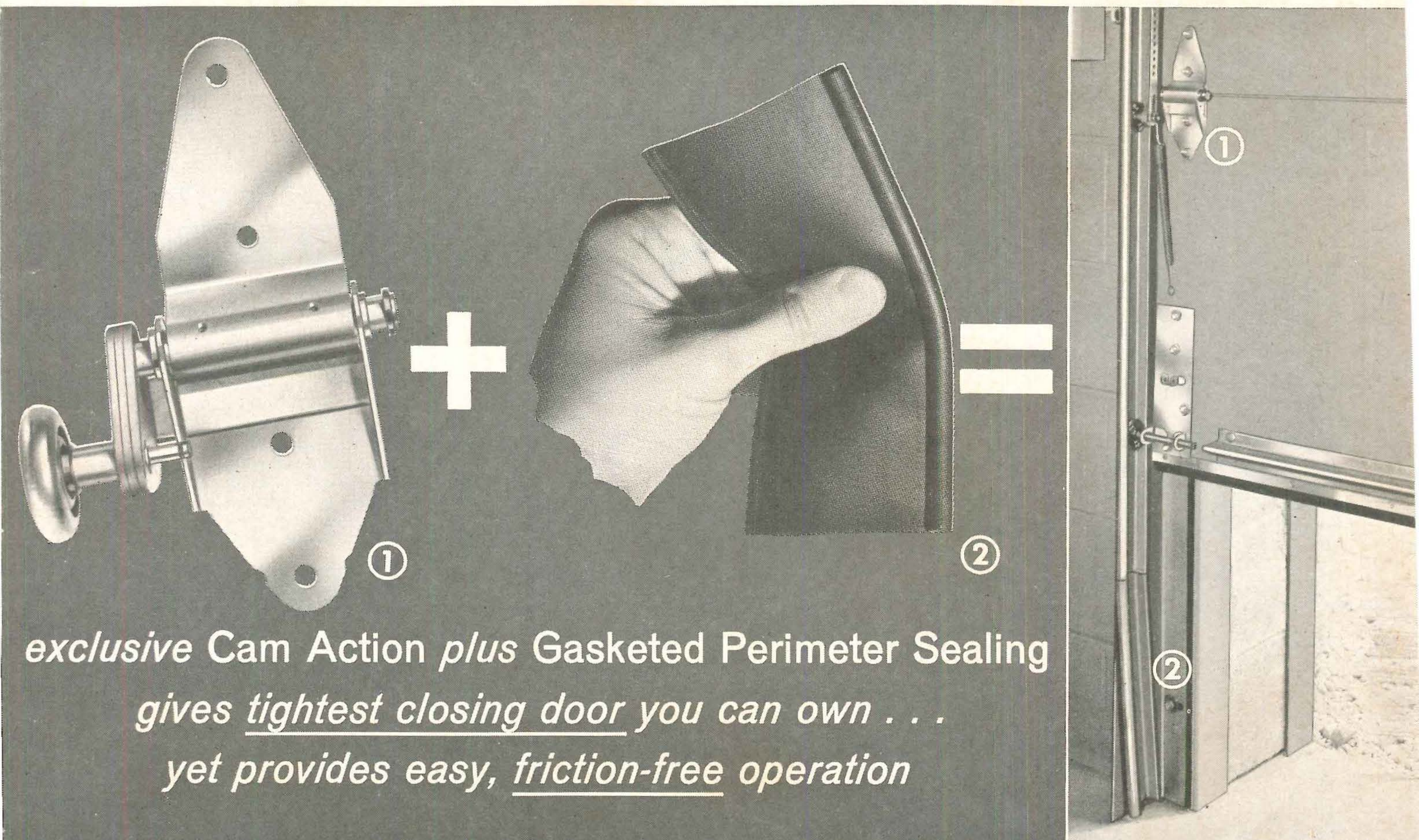
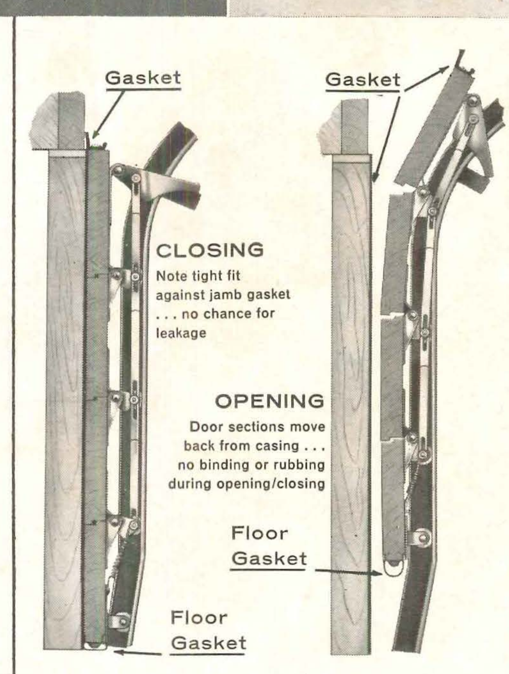
# NEW moneysaving Cam Action OVERdoor stops loss of heated/cooled air




For the first time, neoprene rubber-gasketed perimeter sealing is available with Barber-Colman *Cam Action* OVERdoors. This tight-sealing combination can save tons of refrigeration or hundreds of heating dollars . . . also closes out dust, dirt, water. Retractable Cam Action is performance-proved for over 30 years in thousands of installations requiring special environmental control. Wherever *you* have heated/cooled air loss problems, or other conditions requiring *tight-closing* doors, Barber-Colman can help you with moneysaving answers. Call your Barber-Colman dealer for facts (see yellow or white pages) or write for latest bulletin.



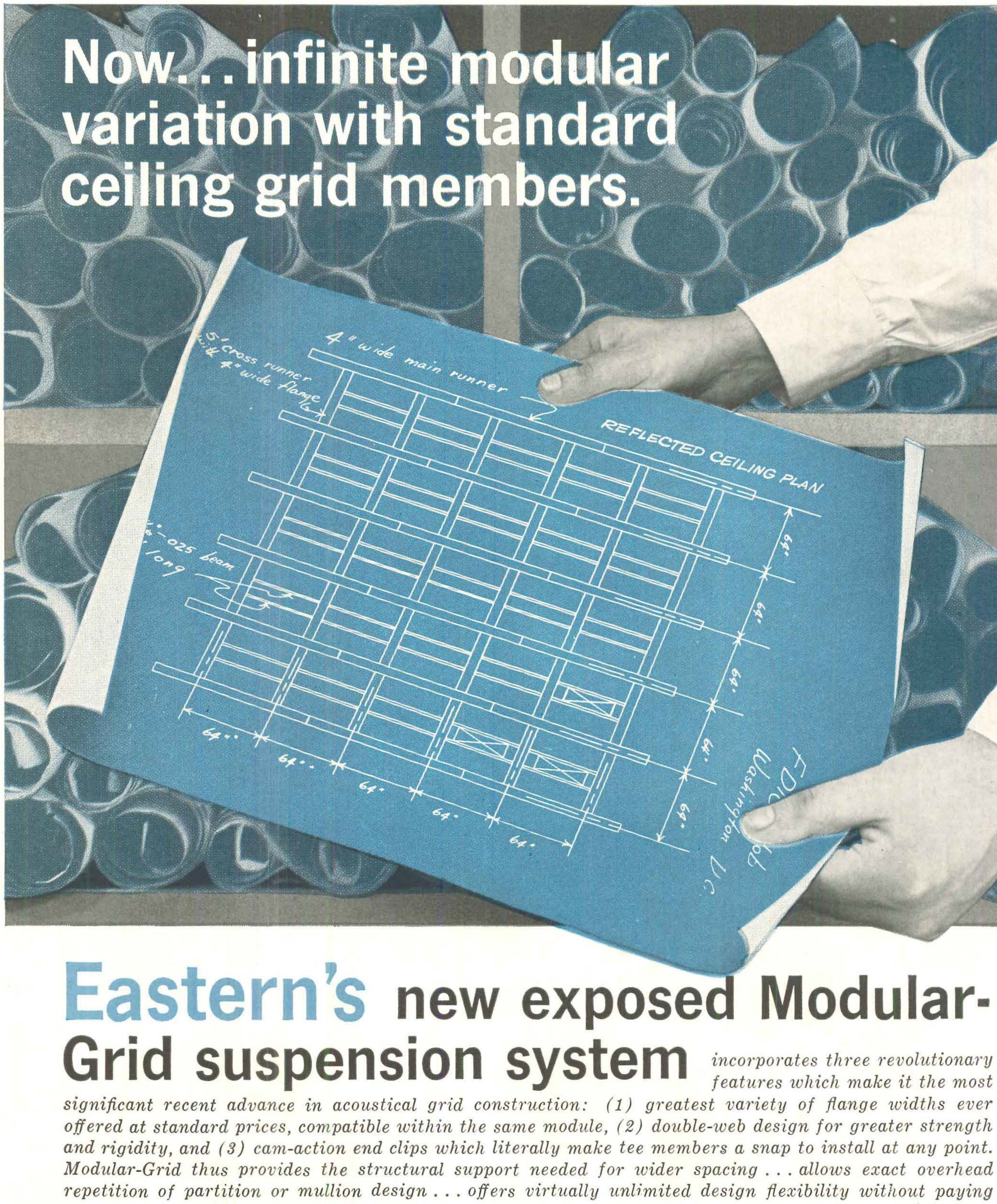

BARBER COLMAN

**BARBER-COLMAN COMPANY**, Dept. P25, Rockford, Ill.

## OVERdoors

*. . . helping industry boost efficiency*

# Now... infinite modular variation with standard ceiling grid members.

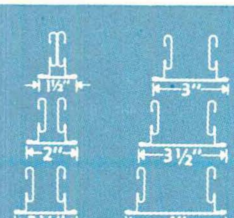



# Eastern's new exposed Modular-Grid suspension system

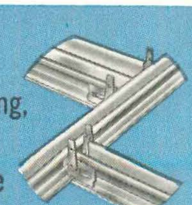
*incorporates three revolutionary features which make it the most significant recent advance in acoustical grid construction: (1) greatest variety of flange widths ever offered at standard prices, compatible within the same module, (2) double-web design for greater strength and rigidity, and (3) cam-action end clips which literally make tee members a snap to install at any point. Modular-Grid thus provides the structural support needed for wider spacing . . . allows exact overhead repetition of partition or mullion design . . . offers virtually unlimited design flexibility without paying premium prices for custom members.* **For complete details write Eastern today. Also see Sweets 11b/Ea.**

Large variety of standard flange widths.

ALL HEIGHTS 1¾"




No pre-routing, attaches anywhere



**Eastern** Products Corporation

Acoustical Division
1601 Wicomico Street, Baltimore 30, Md.

# NOW:

## REINFORCED CONCRETE FLOOR SLABS WITHOUT REBARS, TEMPORARY FORMS, OR SHORING

*Inland Hi-Bond Floor Deck cuts slab cost 10%-20%*

Today, a new system has eclipsed the low cost of traditional reinforcing materials and methods for concrete floor slabs. On a recent typical job, a complete Inland Hi-Bond Floor, including deck and poured slab, cost \$90.00 per square; a comparable traditional concrete slab would have cost \$101.00.

Here's how you save, using Hi-Bond deck: You don't need steel reinforcing bars (except temperature mesh). You don't need temporary forms or shoring; Hi-Bond deck is a permanent form for the wet concrete.

Raised lugs in the webs of Hi-Bond panels provide a positive lateral and vertical mechanical bond between steel and concrete, causing them to act as a composite unit.

Hi-Bond floor deck is available in a number of profiles. Where electrification is desirable, Hi-Bond can be furnished as a cellular floor.

For further information on Hi-Bond — or other Inland floor systems — ask an Inland sales engineer. Write for catalog 270, or see Sweet's, section 2j/In.

**Type B Hi-Bond Floor Deck**
24" wide, 1½" deep.

**Type BR Hi-Bond Floor Deck**
24" wide, 1½" deep.

**Type BF Celluflor**
24" wide, 1½" deep.

**Type BB Celluflor®**
24" wide, 3" deep.

**Type N Hi-Bond Floor Deck**
24" wide, 3" deep.

**Type NF Celluflor**
24" wide, 3" deep.

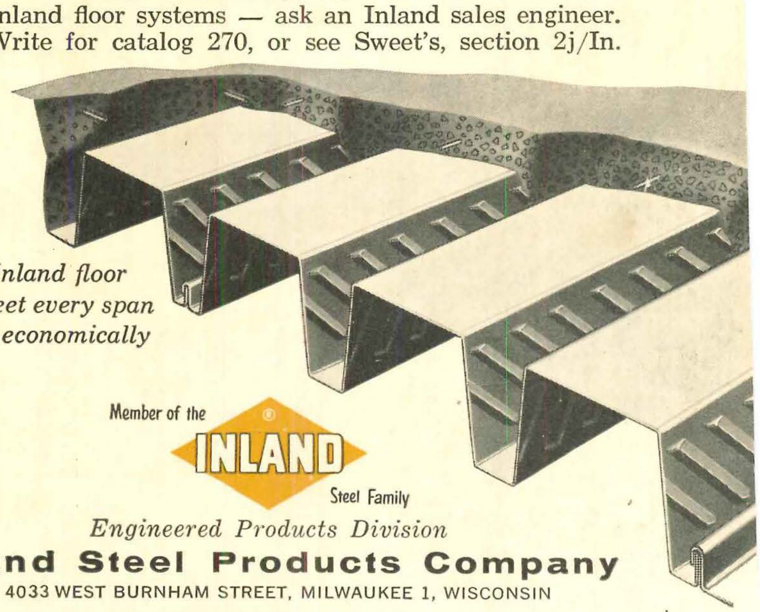
**Type 3HF Celluflor**
12" wide, 4½" deep.

**Type 4.5H Floor Deck**
12" wide, 4½" deep.

**Type 4.5H Celluflor**
12" wide, 4½" deep.

**Ribform®**
Permanent steel centering, 28" coverage.

Steel



*There's an Inland floor system to meet every span requirement economically*

Member of the INLAND Steel Family

*Engineered Products Division*

**Inland Steel Products Company**

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EP-20