

9613

architectural forum

edition

March 1952

MINNEAPOLIS COLLEGE OF ART
& DESIGN LIBRARY

Shockproof office building

To withstand Japanese earthquakes, a flexible structure made in USA (below and p. 99)

Corbusier's apartment

How successful is Europe's most controversial building? (p. 142)

Three small hospitals

Construction economies can offset the high cost of special equipment (p. 112)

No more riveting

Will bolting and welding take its place? (p. 120)

Remodeling

The fifth streamlining of a Rockefeller Center bank (p. 130)

Space-saving schools

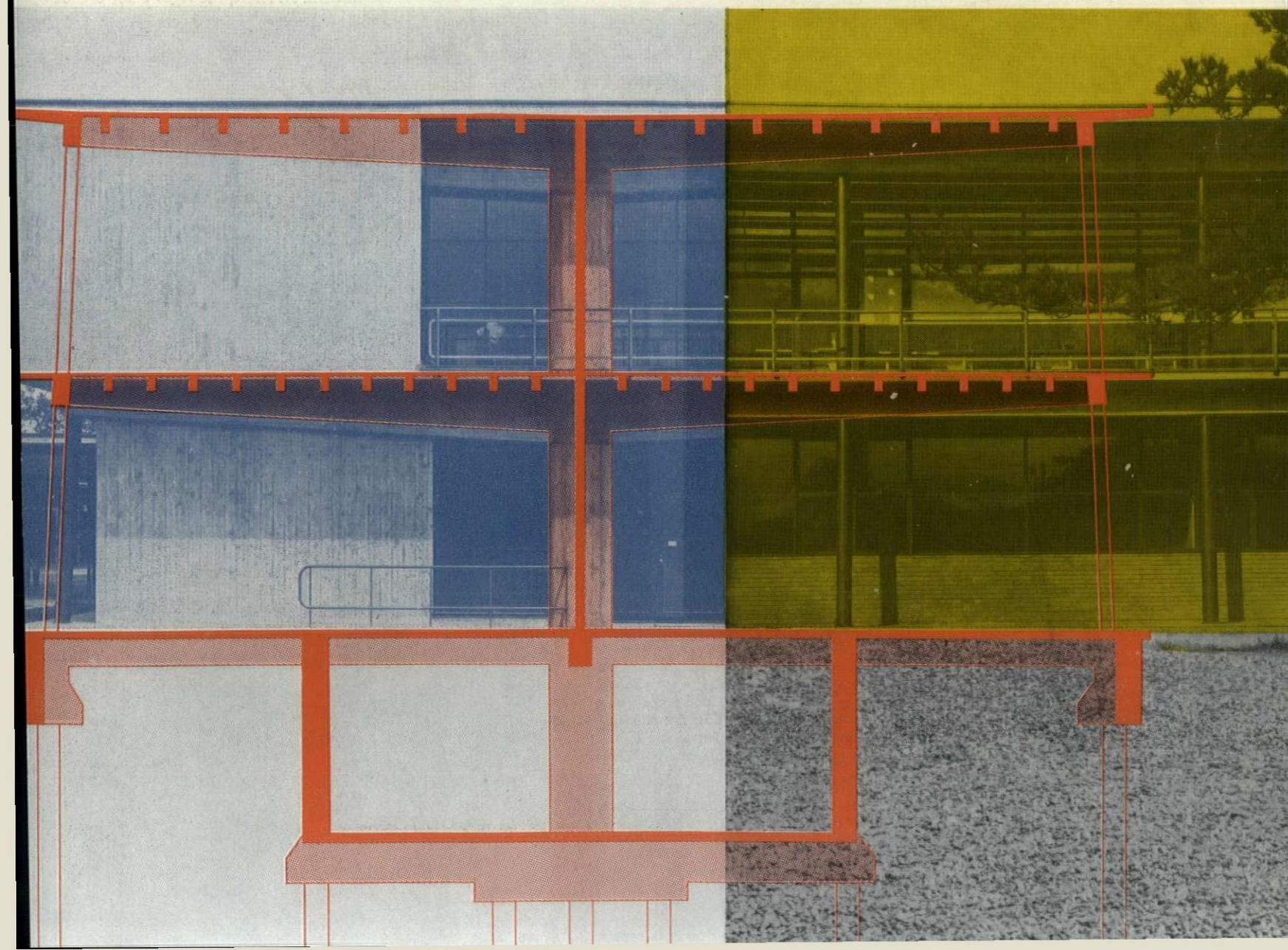
Rectangular plan keeps costs below \$9 a sq. ft. (p. 136)

Parking garage

Hinged ramps increase car capacity 12% (p. 146)

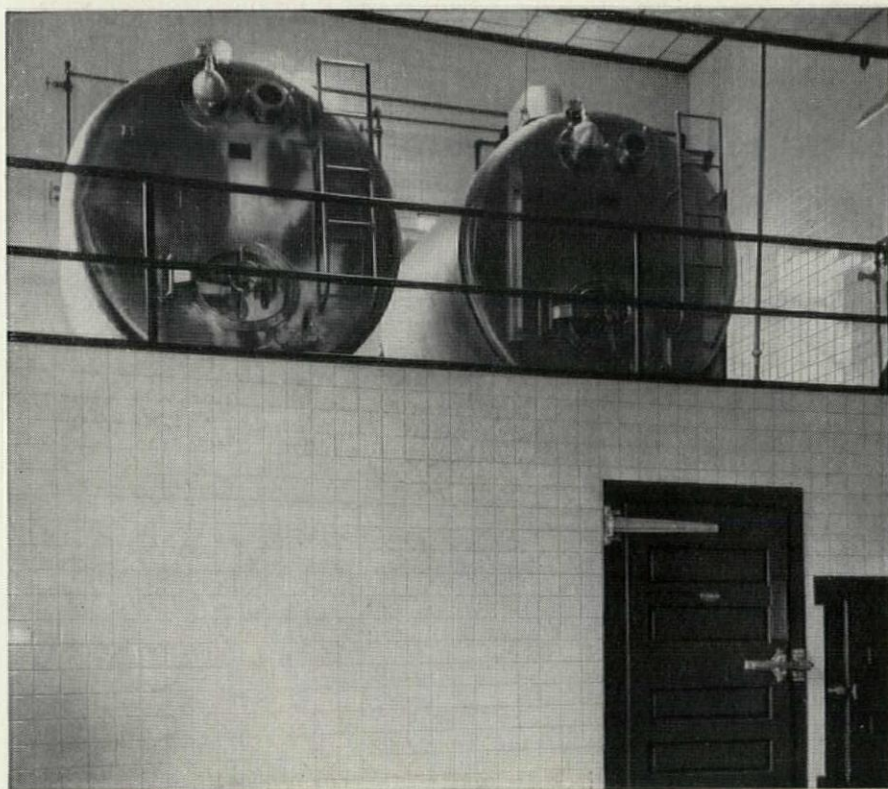
Industrial building

The impact of a 143-wing Air Force on factory and hangar design (p. 149)



New Colors... soft-toned and function fitting now yours in real clay *Suntile*

WHAT THESE COLORS MEAN TO INDUSTRIAL PRODUCTION



Buff Hauteville 724



Suntile

BUFF HAUTEVILLE 724

A practical color of widespread use

Buff always has been a favorite ceramic tile color. Suntile now has added an attractive subdued mottle and extremely hard surface which give Buff added advantages. Buff Hauteville is one of the best colors

where light may be on the dim side or where bright, clean environment is needed. It probably should not be used where critical seeing tasks are performed. However, in large wall areas, corridors, stairwells, locker rooms, boiler rooms, lavatories and gymnasiums and in manufacturing areas of foundries, machine shops, food and chemical plants, Buff Hauteville is ideal. The mottled finish resists soiling and does not require "mirror-clean" maintenance. This is but one of the new Suntile line of functional colors developed by Faber Birren, outstanding color authority, and The Cambridge Tile Mfg. Co.

Production has increased both in quantity and in quality!

This is the usual report you'd get if you visited an industrial plant where functionally correct colors have been selected for walls and floors.

Color fitted to the function of industrial interiors helps reduce accidents, aids lighting and saves eye-strain, increases employee morale and efficiency, decreases absenteeism. In short, the *right* color can be a valuable aid to any production process.

Now, with Suntile, you have colors that have been scientifically developed to aid the design and purpose of building interiors...of manufacturing and processing plants, of schools, hospitals, and other institutions, of offices and commercial buildings.

You get more than functionally correct colors with real clay Suntile, however. You also get low maintenance and upkeep, permanence, resistance to fire, economy and ease of cleaning.

Our new color booklet, "Suntile Functional Color Recommendations," describes the Suntile functional color line, tells you how to use color to greatest advantage. See your local Authorized Suntile Dealer, or write our Dept. AF-3 for a copy. The Cambridge Tile Mfg. Co., P.O. Box 71, Cincinnati 15, Ohio.

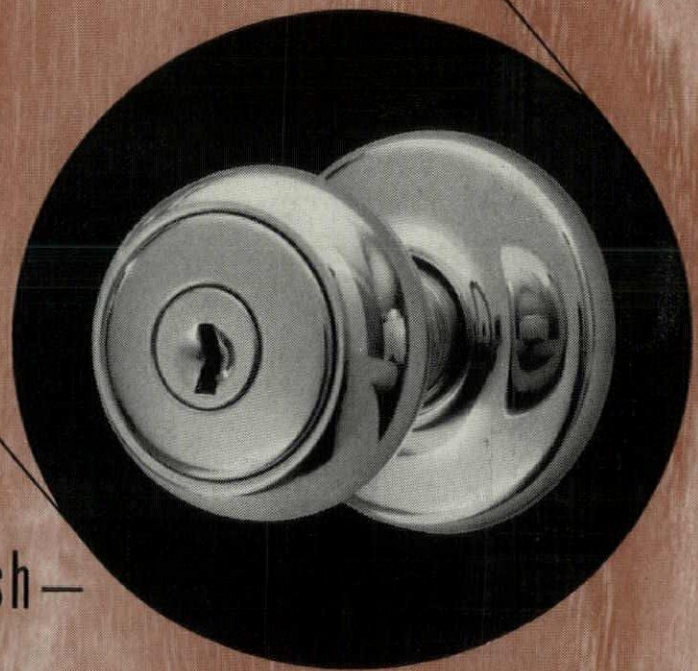
WEST COAST OFFICES

The Cambridge Tile Mfg. Co.
470 Alabama Street
San Francisco 10, California

The Cambridge Tile Mfg. Co.
1335 S. La Brea
Los Angeles 19, California

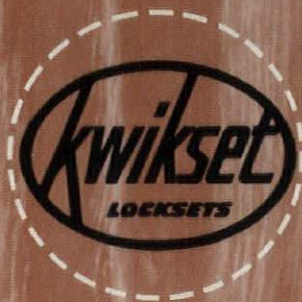


SUNTILE OFFERS YOU BOTH • BETTER TILE • BETTER INSTALLATION



beneath the glistening finish—

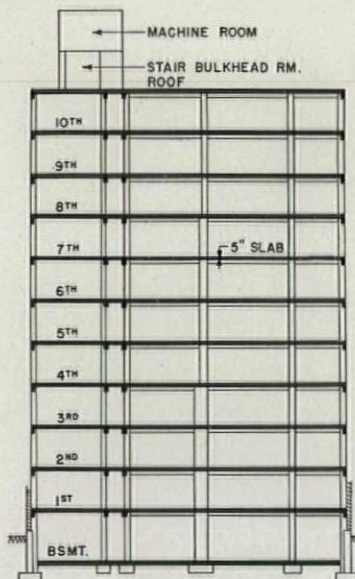
precision manufactured security



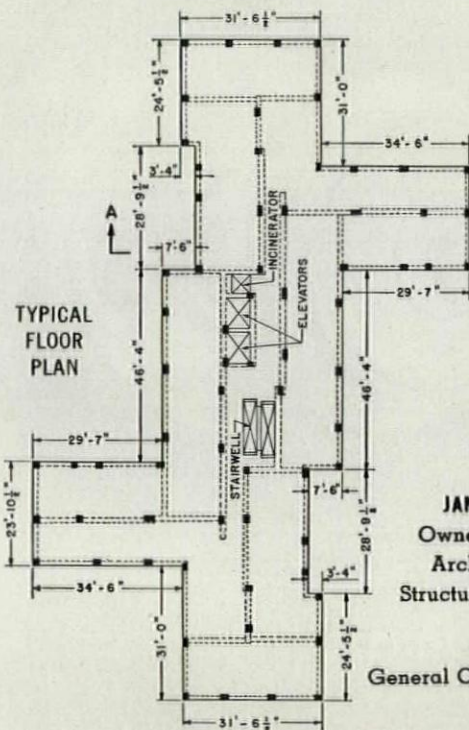
kwikset sales and service co.
anaheim, california

5 Key Advantages

EXPLAIN SWING TO REINFORCED-CONCRETE FRAME CONSTRUCTION



SECTION A-A



JOB DATA

Average Typical Floor

Superficial floor area7,100 sq. ft.
Contact form area11,000 sq. ft. (1.55 sq. ft. per sq. ft. area)
Reinforcing steel34,600 lb. (4.9 lb. per sq. ft.)
Concrete160 cu. yd. (averaging 7.3 in. thickness per sq. ft.)
Rub and patch area6,900 sq. ft.



James A. Bland Houses—Concreted with 'Incor' 24-Hour Cement —Another Example of Progress in Design and Concreting Methods

● This New York City Housing Authority project in Flushing, N.Y., again demonstrates that multi-story concrete frames, with their inherent fire-safety, are being erected at less cost than traditional types, at equal or greater speed—with these results:

1. Typical column, beam and slab arrangement, with all beams over partitions, columns generally of same dimensions from floor to roof—saves on form-work and in placing reinforcing steel;
2. No beams in rooms—reduced story height without reducing cubage;
3. Reduced height of partitions and overall exterior masonry walls—shorter vertical utility runs;
4. Columns placed off line in either direction—greater freedom for architect;
5. Forming floor slabs with plywood—eliminates need for plastered ceilings.

An Assist from 'Incor' 24-Hour Cement

Designed for concrete, the Contractor lays out the job for assembly-line speed, making fullest use of dependable 'Incor' high early strength: Minimum heat protection in cold and cool weather; stripping schedules quickly regained after rain or other delay—maximum erection speed with minimum form investment. On James A. Bland Houses, CORBETTA CONSTRUCTION CO., INC., concreted 55 floors in 100 working days, with five form-sets—one set for each 10-story building.

Plan apartments, schools, hospitals, hotels, industrial buildings with 'Incor'* concrete frames, for fire-safety and stability, lower first-cost, less maintenance. *Reg. U. S. Pat. Off.

JAMES A. BLAND HOUSES, Flushing, N. Y.
Owner: NEW YORK CITY HOUSING AUTHORITY
Architects: CHAPMAN, EVANS & DELEHANTY
Structural Engineers: SEELYE, STEVENSON & VALUE
Ready-Mix 'Incor' Concrete:
COLONIAL SAND & STONE CO., INC.
General Contractor: CORBETTA CONSTRUCTION CO. INC.
all of New York City

LONE STAR CEMENT CORPORATION



LONE STAR CEMENTS COVER
THE ENTIRE CONSTRUCTION FIELD

Offices: ABILENE, TEX. • ALBANY, N. Y. • BETHLEHEM, PA. • BIRMINGHAM
BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS
KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK
PHILADELPHIA • RICHMOND • ST. LOUIS • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 17 MODERN MILLS, 125,600,000 SACKS ANNUAL CAPACITY

MARCH 1952

Published by TIME Incorporated

EDITOR-IN-CHIEF Henry R. Luce
PRESIDENT Roy E. Larsen
EDITORIAL DIRECTOR John Shaw Billings

THE MAGAZINE OF BUILDING

ARCHITECTURAL FORUM Edition

and

THE MAGAZINE OF BUILDING

HOUSE & HOME Edition

EDITOR AND PUBLISHER
P. I. Prentice

EDITORIAL CHAIRMAN
Douglas Haskell, AIA

EXECUTIVE EDITORS
Joseph C. Hazen, Jr.
Suzanne Cleaves

ART DIRECTOR
Paul Grotz

ASSOCIATES: W. C. Bixby, Peter Blake, Gurney Breckenfeld, Louise Cooper, Virginia Forsythe, Mary Jane Lightbown, Walter McQuade, Carl Norcross, Boyce P. Price, Vernon Read, Richard Saunders (Washington), Ogden Tanner, Warren Unna. (In military service: Wilson Dizard; Harry J. Middleton.)

ASSISTANTS: Rosalind Klein Berlin, Marilyn Grayboff, Henry T. Martin, Alice O'Connor.

ART STAFF: Associate Directors, Amnon Rubinstein, Madelaine Thatcher. Assistants: Martha Blake, Linn Ericson, Jan V. White, Hannelore Teddie Wolff.

MARKET RESEARCH DIRECTOR: Arthur S. Goldman.

CONSULTANTS: Miles L. Colean, Ruth Goodhue.

CIRCULATION MANAGER: Walter F. Grueninger.

PRODUCTION MANAGER: Lawrence W. Mester.

GENERAL MANAGER
Robert W. Chastaney, Jr.

ADVERTISING DIRECTOR
George P. Shutt

ADVERTISING MANAGER
Richard N. Jones

THE MAGAZINE OF BUILDING, ARCHITECTURAL FORUM Edition, is published monthly by TIME Inc., Time & Life Building, 9 Rockefeller Plaza, New York 20, N. Y. Yearly subscription payable in advance. To individuals or firms (and their employees) engaged in building—design, construction, finance, realty; material distribution, production or manufacture; government agencies and supervisory employees; commercial and industrial organizations with a building program and their executives; teachers and students of architecture and engineering; libraries, professional clubs, societies and trade associations connected with the building industry; advertisers and publishers: USA, Possessions and Canada, \$5.50; Pan American Union and the Philippines, \$9.00; elsewhere \$12.00. To those not connected with the building industry: USA, Possessions and Canada, \$9.00; elsewhere, \$17.50. Single copies, if available, \$2. All copies mailed flat. Copyright under International Copyright Convention. All rights reserved under the Pan American Copyright Convention. Reentered as second class matter Jan. 31, 1952 at the Post Office at New York, N. Y., under the act of March 3, 1879. Copyright 1952 by TIME Inc.

TIME Inc. also publishes TIME, LIFE and FORTUNE. Chairman, Maurice T. Moore; President, Roy E. Larsen; Executive Vice President and Treasurer, Charles L. Stillman; Executive Vice President for Publishing, Howard Black; Vice Presidents, Allen Grover, Andrew Heiskell, C. D. Jackson, J. A. Linen, P. I. Prentice; Vice President and Secretary, D. W. Brumbaugh; Comptroller and Assistant Secretary, A. W. Carlson; Manager, MARCH OF TIME Division, A. R. Murphy.



VOLUME 96, NUMBER 3

NEWS 49

LETTERS 82

SHOCKPROOF OFFICE BUILDING 99

Reader's Digest Building in Tokyo is designed to withstand Japanese earthquakes. Architects: Raymond & Rado.

JAPANESE GARDENS 108

An ancient oriental art with a growing influence on contemporary U.S. landscape architecture.

THREE SMALL HOSPITALS 112

1. Desert hospital in Palm Springs, Calif. by Williams, Clark & Frey, architects.
2. Prairie hospital in Wheaton, Minn. by Thorshov & Cerny, architects.
3. Hillside hospital in Pelican Rapids, Minn. by Thorshov & Cerny, architects.

BUILDING REPORTER 120

Roundup of new engineering developments: the economies of bolting may hasten the end of riveting; welding cuts framing costs 28%, saves 21% in steel; coffered panels and photo reflective analysis simplify lift-slab construction; ribless concrete vaults develop low-cost industrial buildings; a new way to build big domes exploits segmental formwork; quick drying process produces heavy-duty concrete flooring.

PARK BUILDING 126

Modular flexibility highlights a fresh approach to public building design for the Seattle Park Department. Architects: Young & Richardson.

REMODELED BANK 130

The fifth streamlining in 20 years of the Chase National Bank in Rockefeller Center—by architects Carson & Lundin.

NEIGHBORHOOD CHURCH 133

Contemporary treatment of traditional forms distinguishes the Oneonta Congregational Church in South Pasadena, Calif. Architects: Marsh, Smith & Powell.

TWO SPACE-SAVING SCHOOLS 136

The economies of a rectangular plan help architect William W. Caudill keep costs below \$9 a sq. ft. in the Fairview and Washington schools at Elk City and Clinton, Okla.

CORBUSIER'S APARTMENT 142

A group of experts appraise the success of Europe's most controversial building—a radical departure from accepted apartment house design in Marseilles, France.

PARKING GARAGE 146

Tilttable ramps and other new devices increase the capacity and lower the costs of a pace-setting garage in Berkeley Hills, Calif. Architects: Pereira & Luckman.

INDUSTRIAL BUILDING BY ALBERT KAHN ASSOCIATES—Part II 149

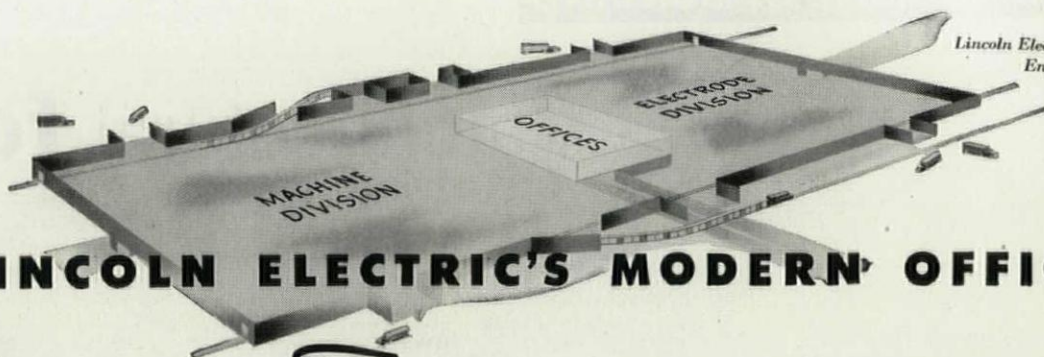
New design requirements for today's aircraft plants and hangars: long term use and easy maintenance.

REVIEWS 164

Sculpture in architecture . . . prestressed concrete . . . church maintenance . . . good lighting.

PRODUCT NEWS 206

TECHNICAL PUBLICATIONS 226



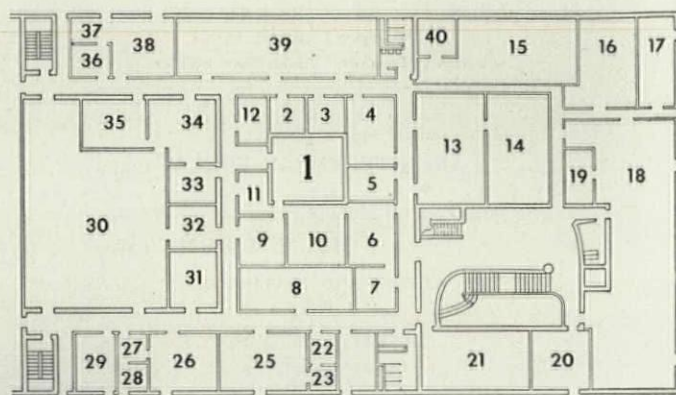
Lincoln Electric Company, Cleveland, Ohio
Engineers and Builders:
The Austin Company.

IN LINCOLN ELECTRIC'S MODERN OFFICES

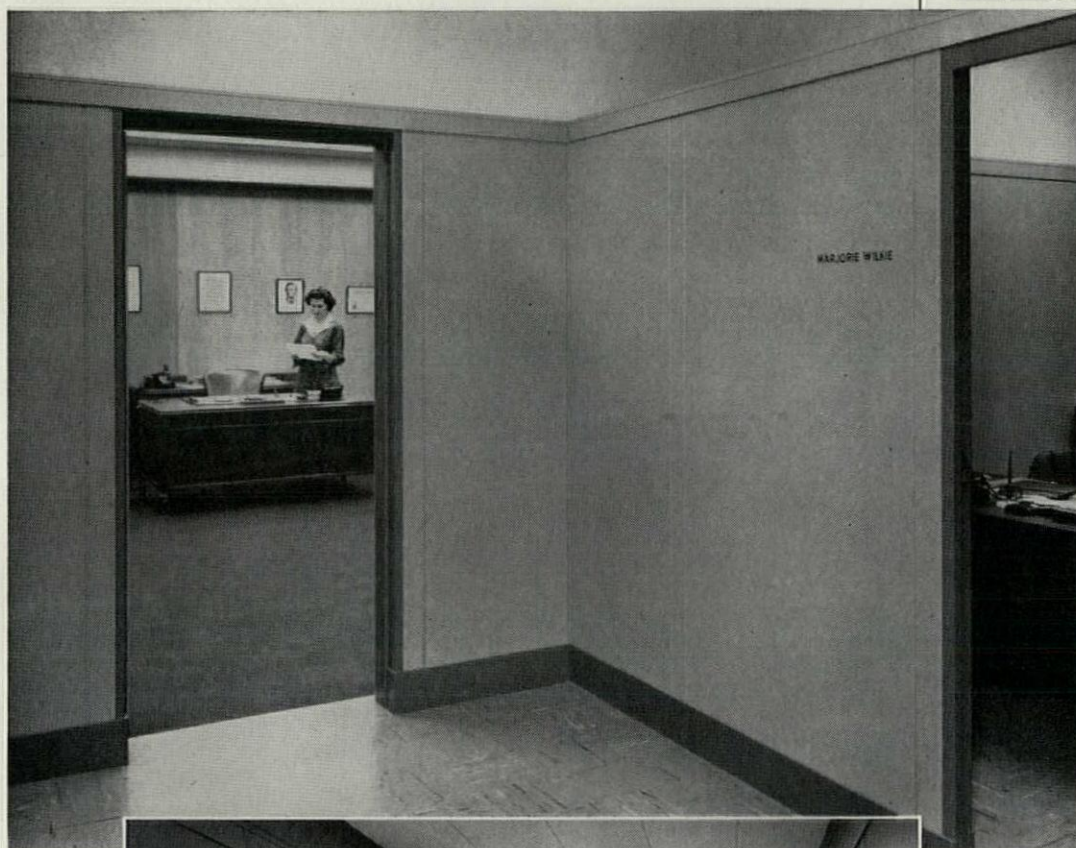
Efficiency First

has been made lasting with

MILLS *Movable* WALLS



Office Layout



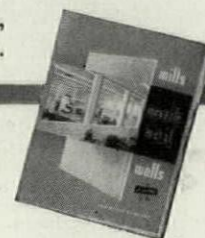
Lincoln Electric Company's new 20-acre plant is designed for maximum efficiency in every area, for office as well as production operations. All offices are located in the center of the factory building, with the president's office, No. 1 in floor plan and pictured at left, in the exact center of everything, surrounded by key personnel.

Future efficiency is assured by subdividing all office space with Mills Movable Metal Walls. As progress creates changes in space requirements Mills Walls can be moved to fit new layouts—in a matter of hours, with minimum labor, at very low cost and without interrupting normal routine.

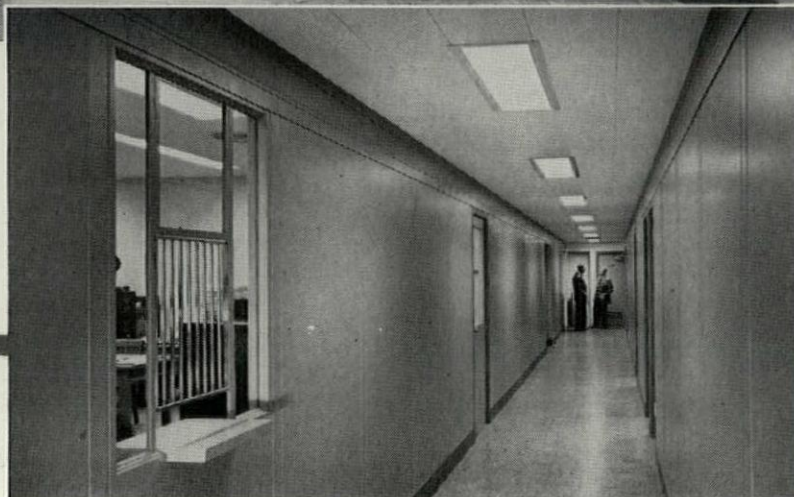
Mills Walls combine mobility with distinctively modern and attractive appearance. Insulated and sound-proofed, they require no maintenance but occasional washing to keep them looking fresh and bright.

★ ★ ★

Your office space can be made more efficient by mobilizing it, through flexible interiors formed by Mills Movable Metal Walls. For complete information on this modern, efficient way to subdivide interior space write for this easy-to-read, 48-page booklet, Mills Catalog No. 52.



THE MILLS COMPANY
977 Wayside Road • Cleveland 10, Ohio





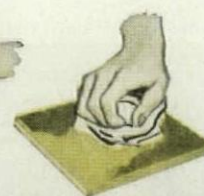
**TILE IS
STAINPROOF**



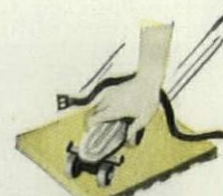
**TILE IS
WATERPROOF**



**TILE IS
FIREPROOF**



**TILE CLEANS
LIKE CHINA**



**TILE DEFIES
SCRATCHING**

TILE LASTS A LIFETIME



ONLY



DEFIES ALL SIX!

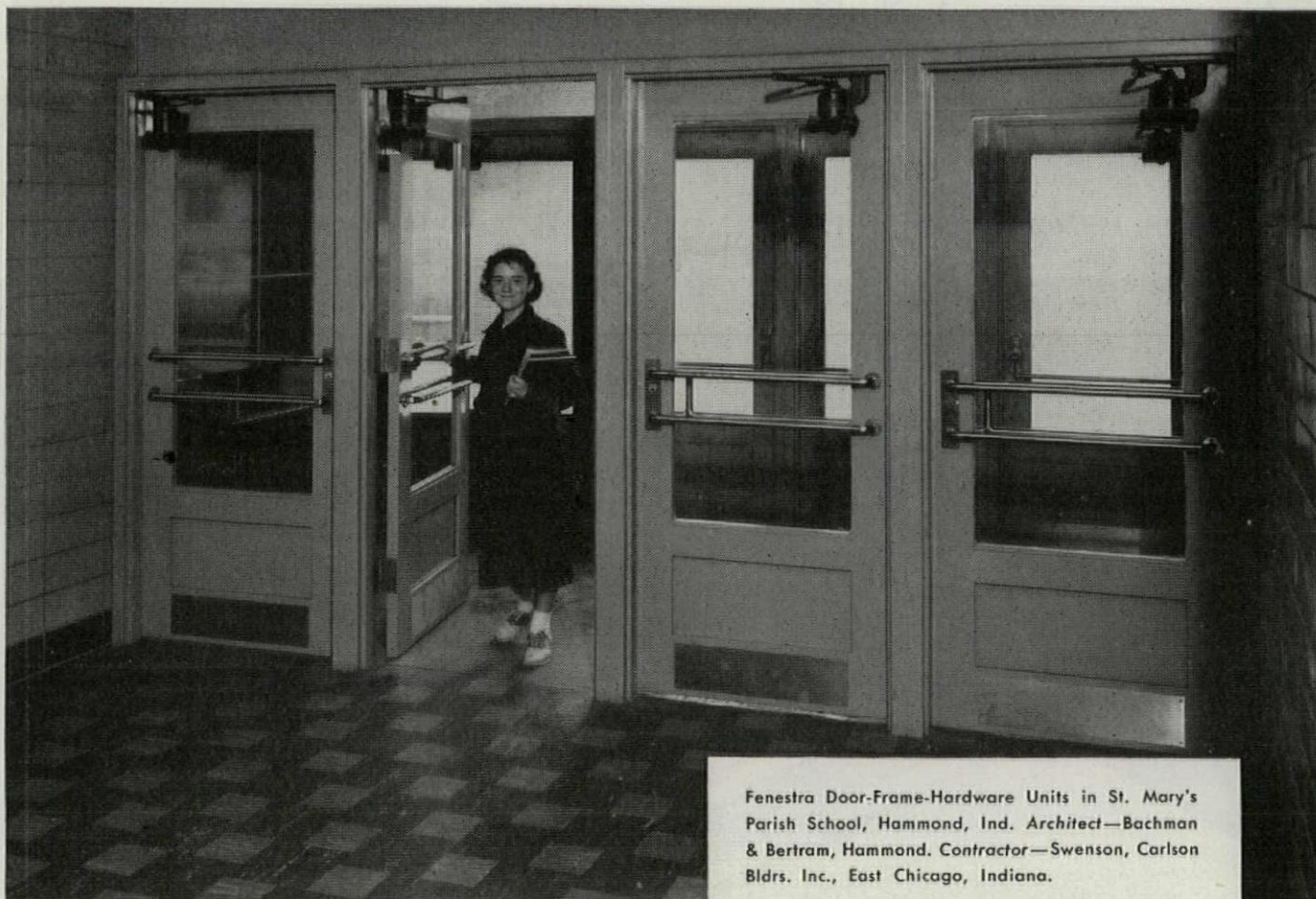
When you specify Genuine Clay Tile in any installation, you immediately gain two things: (a) a permanent answer to your wall and floor surfacing problems, and (b) substantial long-range economies in maintenance. Consider, too, clay tile's known ability to resist heat, moisture, scratching, fading and staining. Genuine Clay Tile cleans as easily as a china dish and commands respect wherever it is used. Have you considered the use of clay tile lately in the kitchen, utility room, foyer, powder room or recreation room? It is worth a fresh appraisal every time you build or design any type of building. And remember, whether it is for modern or traditional styling, clay tile is one of the most flexible materials you can use in achieving distinctive patterns and color schemes.

Tile Council of America, Room 3401, 10 East 40th St., New York 16, N.Y. or Room 433, 727 W. Seventh St., Los Angeles, Calif.

PARTICIPATING COMPANIES:

American Encaustic Tiling Co.
Architectural Tiling Company, Inc.
Atlantic Tile Manufacturing Co.
B. Mifflin Hood Co.
Cambridge Tile Manufacturing Co.
Carlyle Tile Company
General Tile Corporation
Gladding, McBean & Co.
Mosaic Tile Company
Murray Tile Company, Inc.
National Tile & Manufacturing Co.
Olean Tile Company
Pacific Clay Products
Pacific Tile and Porcelain Co.
Pomona Tile Manufacturing Co.
Robertson Manufacturing Co.
Summitville Tiles, Inc.
United States Quarry Tile Co.
Winburn Tile Manufacturing Co.

THE MODERN STYLE IS CLAY TILE



Fenestra Door-Frame-Hardware Units in St. Mary's Parish School, Hammond, Ind. Architect—Bachman & Bertram, Hammond. Contractor—Swenson, Carlson Bldrs. Inc., East Chicago, Indiana.

Look how you save with these Door-Frame-Hardware Units

These doors have clean, modern lines and velvety finish. They're steel so they will never shrink or warp or swell or splinter. They come complete with pre-fitted frames and beautiful hardware. They are *insulated* for quiet performance. They even come individually wrapped as a final quality measure.

Only long years of metal fabricating experience . . . the help of master craftsmen . . . tremendous plant facilities and unique manufacturing methods . . . could give you such Door-Frame-Hardware Units at such savings . . . only Fenestra* is equipped to do it:

1. First cost is low because Fenestra's standardized types and sizes permit economical volume production.

2. Installation cost is low because the door is complete with pre-fitted frame and hardware ready to fill the opening—no cutting or fitting or mortising or prime-painting!

3. Maintenance cost is low because of the door's welded, reinforced construction.

Compare it, point for point, with *any* door on the market! You can get Fenestra Door-Frame-Hardware Units in a wide variety of sizes . . . in three types ingeniously designed for versatile use. Each door may be hinged right or left, swing-in or swing-out.

Get full details and prices. Call your Fenestra Representative—or write to Detroit Steel Products Company, Dept. MB-3, 2251 East Grand Boulevard, Detroit 11, Michigan. *®

Fenestra HOLLOW METAL DOOR • FRAME • HARDWARE UNITS
save building time, labor, materials and money

PROVIDE "THE SAFE WAY OUT!"

SPECIFY

Von Duprin

FIRE AND PANIC EXIT DEVICES

X-bar Reinforced.

Mortise Lock Devices
Also Available.

FOR ACCIDENT HAZARD



VONNEGUT HARDWARE CO.
VON DUPRIN DIVISION, INDIANAPOLIS 9, IND.

● When you specify Von Duprin exit devices, you can rest assured that the "once in a lifetime" emergency escape will open as readily as the door used thousands of times daily.

You will be recommending a precision-made and foolproof mechanism. Any kind of pressure anywhere along the crossbar of a Von Duprin device instantly releases the latch and opens the door.

Von Duprin devices are easy to install . . . require virtually no maintenance . . . are quality constructed to last a lifetime . . . and approved by the Underwriters' Laboratories, Inc. for accident hazard.

Remember: when you specify Von Duprin exit devices, you can be sure you have provided . . . "the safe way out!"

CHECK THESE FEATURES OF THE VON DUPRIN B² DEVICE PICTURED ABOVE

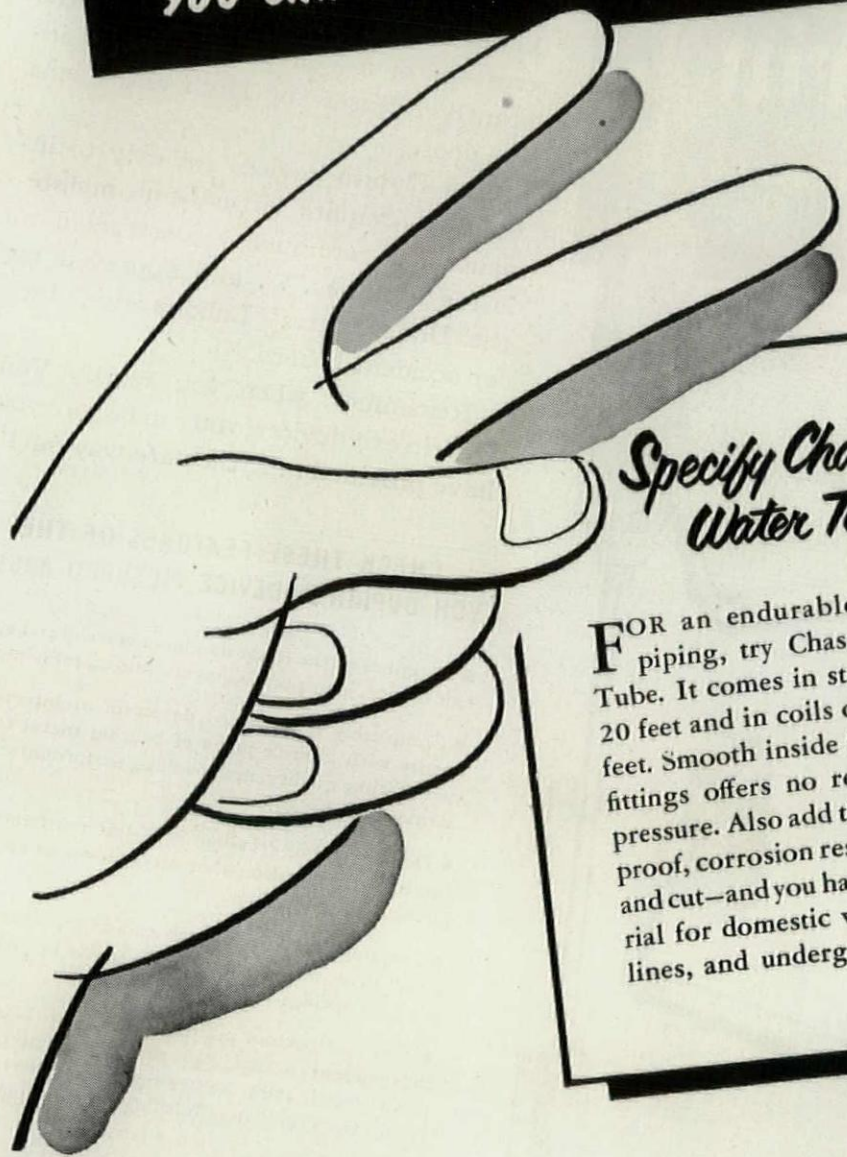
- Accepted as the finest available vertical rod type exit device, incorporating every known refinement.
- Completely drop-forged device of architectural bronze with interior parts of bearing metal to assure lifetime quality, never-failing performance and harmonious design.
- Double acting crossbar is X-bar reinforced its full length. Pressure either up or down will release latches and open door.
- Dogging features at each end of crossbar have direct drive into lever arms. Phosphor bronze compression springs used throughout.
- Top and bottom pullman type latch bolts with independent action, $\frac{3}{4}$ " throw bolt pivoted on monel metal axles, ball compensating vertical rod connections, and steel bushings on cam pins.



Attention
Plumbers, Architects, Builders...
TWO PLACES
YOU CAN USE COPPER TODAY

1. For domestic hot and cold water lines, and process lines, government regulations still permit the use of Chase Copper Water Tube. Made in hard and soft temper, straight lengths and long coils, for solder-joint and flared fittings. Excellent for new installations or replacement work.

2. For underground installations exposed to corrosion and frost, use Chase Copper Water Tube, Type K. Soft temper copper tube can be bent around obstructions in the trench, each bend saves cost of fitting. 100 ft. lengths in coils are convenient to handle, require fewer fittings.



*Specify Chase Copper
Water Tube!*

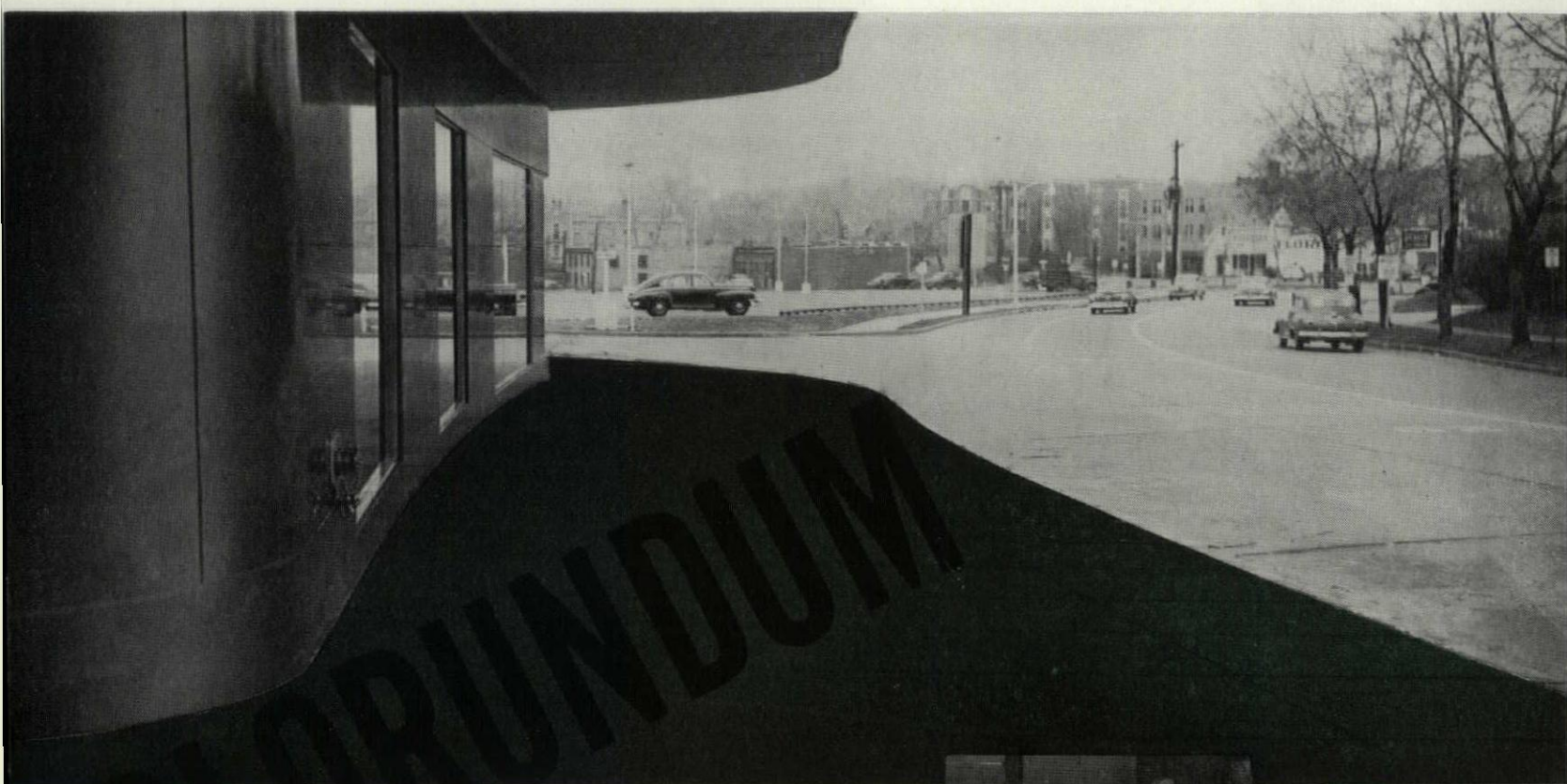
FOR an enduring and versatile piping, try Chase Copper Water Tube. It comes in straight lengths of 20 feet and in coils of 40, 60 and 100 feet. Smooth inside finish of tube and fittings offers no resistance to water pressure. Also add these features: rust-proof, corrosion resistant, readily bent and cut—and you have the perfect material for domestic water lines, process lines, and underground applications.

Chase  **BRASS & COPPER**

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

• The Nation's Headquarters for Brass & Copper

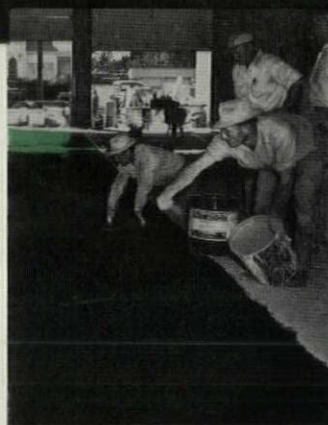
Albany†	Cleveland	Kansas City, Mo.	New York	San Francisco
Atlanta	Dallas	Los Angeles	Philadelphia	Seattle
Baltimore	Denver†	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	(† sales office only)
Chicago	Houston†	Newark	Rochester†	
Cincinnati	Indianapolis	New Orleans	St. Louis	



COLORUNDUM

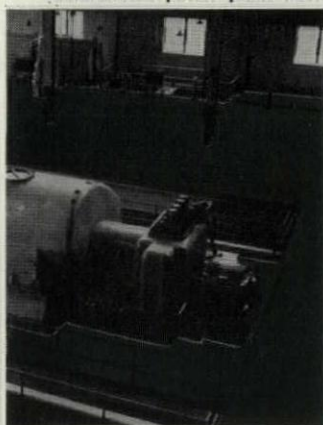
for colored
concrete floors and sidewalks
use **COLORUNDUM** trowelled into the fresh
concrete topping

All over the nation modern building design now includes the use of Colorundum in colored concrete floors, sidewalks, roof decks, industrial and other walkways and driveways. Colorundum is used widely in exteriors or interiors... as a wear-resistant and colorful concrete topping of long life... at practically the average cost of ordinary concrete. Decorative color combinations are often employed of red, maroon, brown, green, dark green, french grey, black. Colorundum is a dry powder ready for use, composed of coloring mediums, fused aggregates, water-repellent and hardening elements. Colorundum is dusted on and floated and trowelled into the fresh concrete topping. The non-slip, non-metallic surface makes it an ideal flooring on new concrete or when replacing old concrete floors or sidewalks.

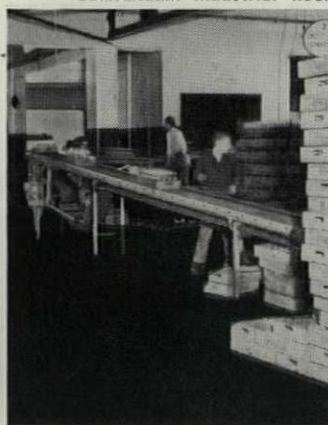


Colorundum
central fire station floor

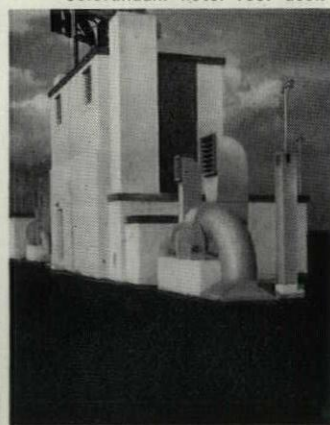
Colorundum power plant floor



Colorundum industrial floor



Colorundum hotel roof deck



HORN

A. C. HORN COMPANY, Inc. est. 1897

Manufacturers of materials for building maintenance and construction
LONG ISLAND CITY 1, N. Y. • Los Angeles • San Francisco • Houston
Chicago • Toronto **SUBSIDIARY OF SUN CHEMICAL CORP.**



A. C. HORN COMPANY, Inc., Long Island City 1, N. Y. AF-2

Please send me ☐ complete data on COLORUNDUM



☐ free copy of your 96-page
Construction Data Handbook

NAME _____ TITLE _____

FIRM NAME _____

ADDRESS _____

CITY _____ STATE _____

A Statement by Anaconda on the Copper Situation

MANY users of copper have vital decisions to make . . . usually in connection with the present defense-induced shortages of copper and aluminum. This statement is an effort to remove the smoke screen surrounding the copper picture . . . to wipe away the confusion caused by too much talk supported by too few facts.

Substitution poses problems — Industry has been urged to substitute aluminum and other materials for copper. In some instances this may be logical and practicable. In many others it is difficult, if not impossible. But — before making *any* long-term decisions that may cost a great deal of money in engineering, new plant facilities or rescheduling of production operations — one should know the facts about the future of copper.

New Anaconda projects — The first major increase in copper production will come from Anaconda when the Greater Butte Project and the new Sulphide Plant at Chuquicamata, Chile, begin operations this spring. By 1953, these two projects should raise present levels of copper production by about 95,000 tons yearly.

Toward the close of 1953, Anaconda's new

Yerington project in Nevada is expected to start producing at an annual rate of 30,000 tons. By then, Anaconda will be adding to the present yearly copper supply at the rate of about 125,000 tons.

Other new projects — During 1954-55 still other new projects in the U. S. and friendly foreign countries will further augment the increasing copper supply. All told, it is estimated that by 1955, not less than 450,000 tons of copper could be produced annually — over and above present production levels.

Accordingly, in 1955-56, domestic production plus imports could bring the U. S. copper supply to 1,800,000 tons yearly. This would represent an increase of about 20% over present levels. Based on historical comparisons, and barring a large-scale shooting war, this amount of copper could support a Federal Reserve Board Index of Industrial Production of 270, an increase of 24% over the present, and 45% above the first half of 1950.

• • •

These are the 'things to come' in copper. On the basis of the facts there is no necessity for considering long-range substitution of other materials for the red metal.

52320A

ANACONDA

COPPER MINING COMPANY

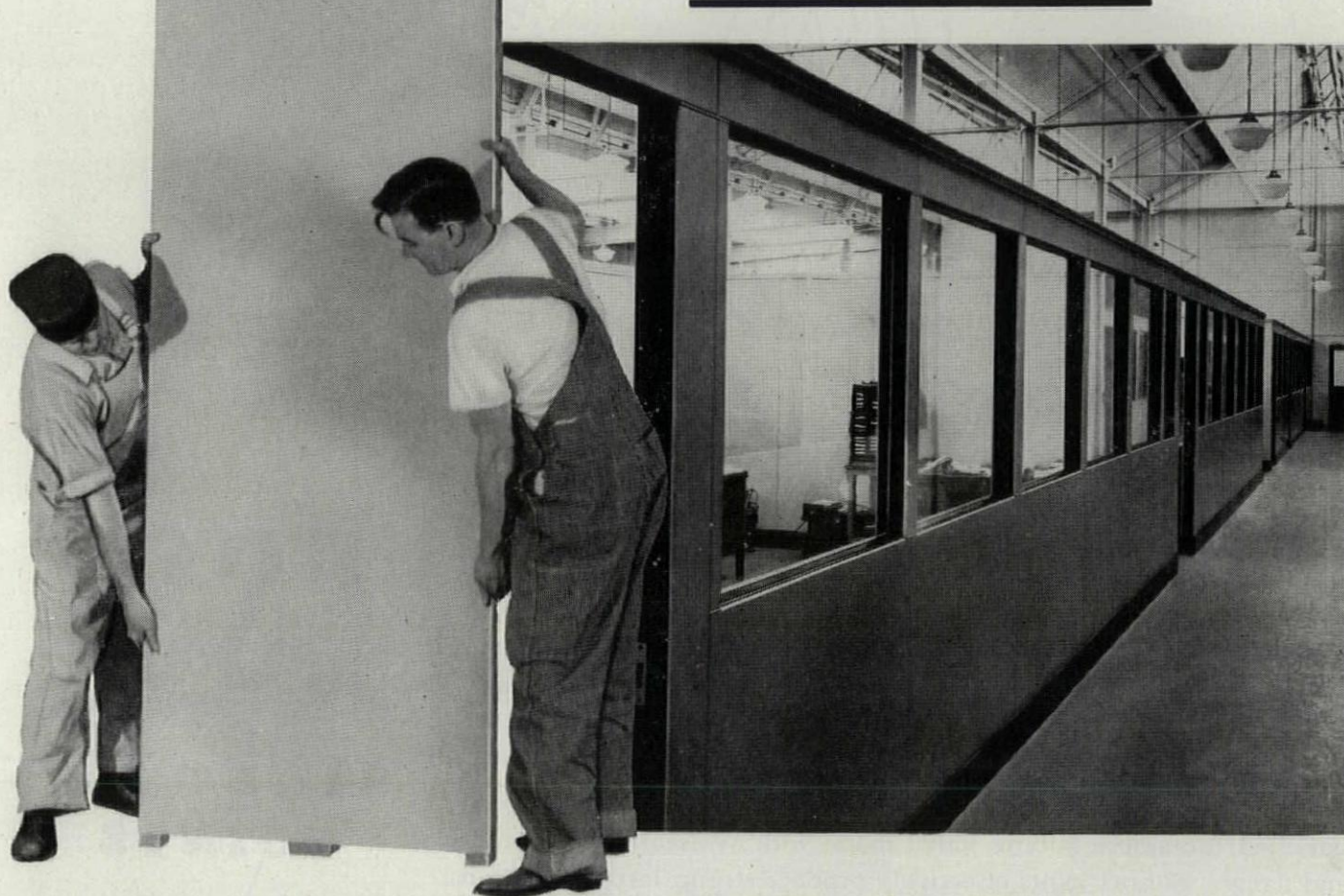
The American Brass Company
Anaconda Wire & Cable Company
International Smelting and Refining Company

Andes Copper Mining Company
Chile Copper Company
Greene Cananea Copper Company

PRODUCERS OF: Copper, Zinc, Lead, Silver, Gold, Cadmium, Vanadium, Superphosphate, Manganese Ore, Ferromanganese.

MANUFACTURERS OF: Electrical Wires and Cables, Copper, Brass, Bronze and other Copper Alloys in such forms as Sheet, Plate, Tube, Pipe, Rod, Wire, Forgings, Stampings, Extrusions, Flexible Metal Hose and Tubing.

Make major space changes
a minor problem!



**When you use Johns-Manville Asbestos Universal Movable Walls,
expansion and conversion is quickly and easily accomplished
with minimum interference to regular routine**

• Reallocation of existing space and partitioning of new space can be done easily and quickly with Johns-Manville Universal Movable Walls. Made of asbestos, these walls are ideally designed to help business and industry meet the space problems involved in the defense effort.

The flush panels have a clean, smooth surface that's hard to mar, easy to maintain, and will withstand shock and abuse. They're light, easy to erect and to relocate. The "dry wall" method of erection assures little or no interruption to regular routine.

Johns-Manville Movable Walls may be used as ceiling-high or free-standing partitions. The complete

wall, including doors, glazing and hardware, is installed by Johns-Manville's own construction crews and under the supervision of trained J-M engineers.

TRANSITONE Movable Walls—A recent and unique development of the Johns-Manville laboratories is the Transitone Movable Wall, with asbestos panels integrally colored. Non-fading pigments are blended into the asbestos fibres, thus eliminate the cost of periodic decorative treatment. The color goes all the way through each panel.

For details about J-M Movable Walls, consult your Sweet's Architectural File, or write Johns-Manville, Box 158, Dept. MB, New York 16, N. Y. In Canada, write 199 Bay Street, Toronto 1, Ontario.



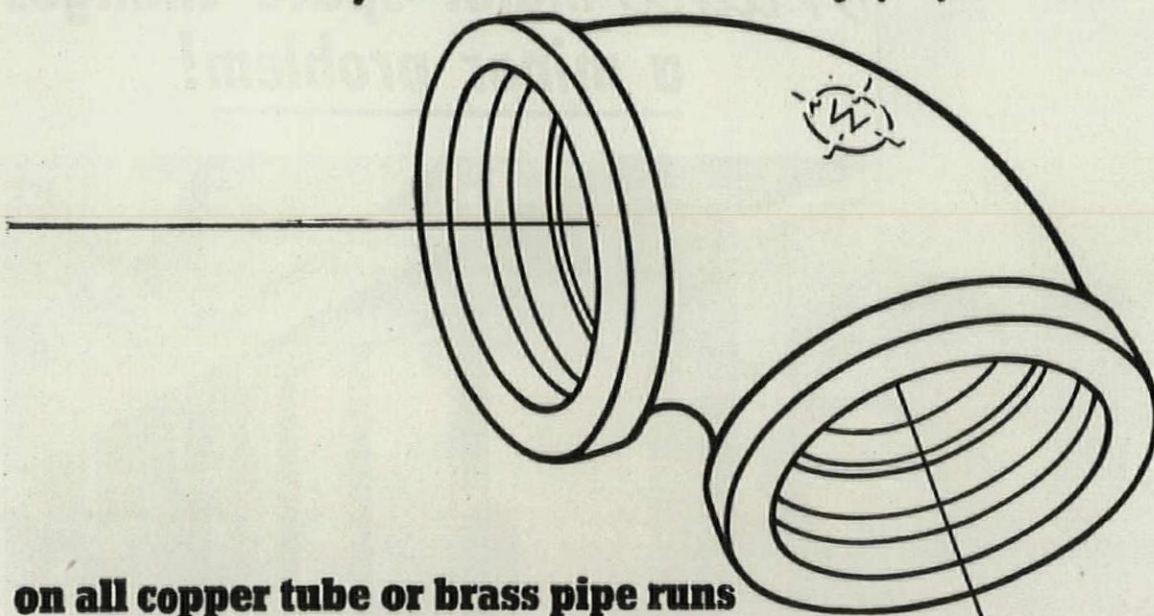
Johns-Manville

ASBESTOS

Movable Walls

INSTALLED NATIONALLY BY JOHNS-MANVILLE

The sure way to cut the cost of pipe maintenance



on all copper tube or brass pipe runs

...SPECIFY **THREADLESS**

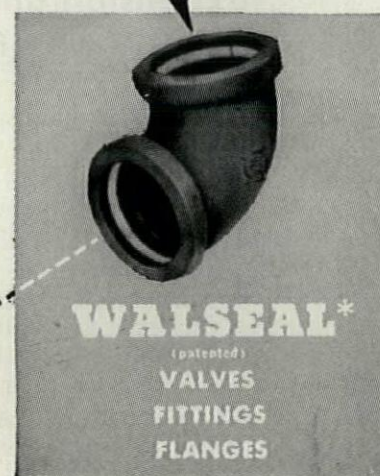
Whenever your plans call for copper tube (iron pipe size) or brass pipe — especially in public, industrial or commercial buildings — specify patented threadless Silbraz joints made with Walseal valves, fittings and flanges. Silbraz joints effectively produce strong, lasting pipe runs.

These modern joints provide positive protection against leaks by actually becoming a part of the pipe itself. They make a "one-piece" pipe line that will not creep or pull apart under any pressure, shock or vibration that the pipe itself can withstand.

Easily installed by oxyacetylene torch brazing, Silbraz joints are the sure answer to low-cost assemblies that will require neither maintenance nor repair in the years to come. Ask your nearest Walworth distributor, or write for copy of Circular 84 giving complete data on Walseal Silbraz joints.

*Patented — Reg. U.S. Patent Office

SILBRAZ*
JOINTS



Make it a "one-piece pipe line" with WALSEAL

WALWORTH
valves and fittings

60 EAST 42nd STREET, NEW YORK 17, N. Y.

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

REDUCE
FIRE HAZARDS
SPECIFY
STRAN-STEEL® FRAMING



For | **Roof Systems**
Floor Joists
Quickly Erected Partitions—
or Complete Structures

In addition to the many time-saving, money-saving, and structural advantages of Stran-Steel nailable framing, architects and their clients will appreciate the permanent protection offered by this non-combustible framing material. Specifying Stran-Steel roof systems and floor joists can mean the difference between a costly fire and one that is easily localized and controlled. Also, architects can point to lower insurance costs possible with Stran-Steel framing.

The versatility and strength of Stran-Steel framing make it easily adaptable to the latest trends in design. And the speed with which the precision pre-cut members can be assembled brings a worthwhile reduction of in-place building costs. Close-in time is shortened, and interior work can

Fire hazards will be minimized in the Robstown, Texas, Elementary School, because of the use of Stran-Steel framing. Wall finish on the interior will be gypsum plaster on rib lath. On the exterior, brick veneer over Steeltex wall lath with 3/4" mortar bond. Benjamin K. Wyatt, San Antonio, is the architect.

proceed before exterior completion. The nailability of Stran-Steel framing means additional economy, too, in the application of collateral materials.

If you are planning new industrial or commercial construction, or schools, hospitals and similar structures, it will pay you to investigate Stran-Steel framing. Complete literature available on request, or see Sweet's catalog service, architectural and builders' files.

GREAT LAKES STEEL CORPORATION

Stran-Steel Division

Ecorse, Detroit 29, Mich.

NATIONAL STEEL



CORPORATION





Famous Labels suggest the choice



Many of the big textile mills . . . names your wife will recognize . . . "air-control" many of their manufacturing operations with Worthington air conditioning and refrigeration.

And many of the famous shops where the mills' products are sold . . . Saks Fifth Avenue, The Higbee Company, J. L. Brandeis, Lane Bry-

ant, many Sears Roebuck Stores . . . are air-conditioned by Worthington.

No other manufacturer makes so complete a line. A Worthington system is all Worthington-made—not just Worthington-assembled—assuring you of perfectly balanced operation and unit responsibility.

Worthington Pump and Machinery Corporation, Air Conditioning and Refrigeration Division, Harrison, New Jersey.

America's Leaders...in Many Businesses...Select

WORTHINGTON



A.2.9

AIR CONDITIONING AND REFRIGERATION

The Most Complete Line...Always the Correct Recommendation

Now-FINISHED DESIGNS

of REINFORCED
CONCRETE MEMBERS

all worked out!



*No Formulas!
No Calculating!*

You start with load and
span data . . . read size of
member and steel data
directly from
the tables.

412 Pages 6" x 9"
\$5.00

This unique new book is a "must" for every engineer and designer working with reinforced concrete. It is not a "theoretical text," but a practical working tool that took six years of preparation.

"CRSI Design Handbook" reduces complex problems of stress and load to simple table references. With this book, designers can now obtain predesigned reinforced concrete members without time-consuming calculations. Given load and

span data, the engineer can quickly get the size of a concrete member and complete reinforcing bar data, by just reading the answers directly. No more wading through a mass of complicated and confusing formulas! Covers floor systems, columns, footings, retaining walls, and a wealth of miscellaneous information. Latest building codes are followed throughout. Attractive, sturdy, flexible cover.

Prepared under the direction of the Committee on Engineering Practice.

CONCRETE REINFORCING STEEL INSTITUTE

SEND FOR YOUR COPY...TODAY

**CONCRETE REINFORCING
STEEL INSTITUTE**

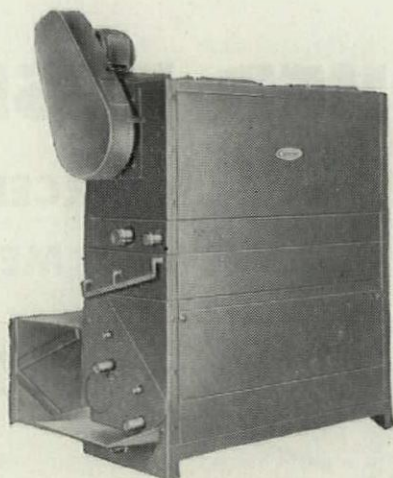
38 S. Dearborn Street, Chicago 3, Ill.

I am enclosing \$5.00. Please send me a copy of "CRSI Design Handbook." If not completely satisfied, I will return the book within ten days for a full refund. (No C.O.D. orders accepted.)

NAME _____

ADDRESS _____

CITY _____ STATE _____



The Carrier System Weathermaker, a compact fan-coil air conditioner for central system applications, is available in vertical and horizontal models.

What goes into good air conditioning?

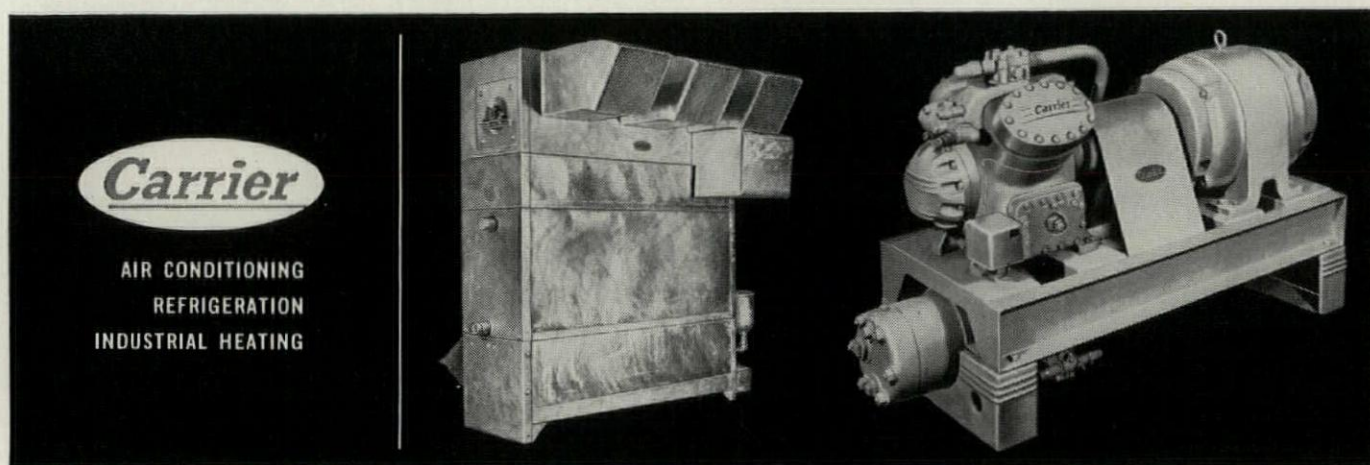
Good equipment, naturally. But we think that's only half the story. The other half is good dealer engineering.

For example, take our System Weathermaker. Its unique sectionalized construction permits a wide variety of unit combinations to meet individual job space requirements.

Good? There's nothing else like it for compact, central system air conditioning using ducts for air distribution.

And here's where the Carrier dealer comes into the picture. He *knows* air conditioning. He knows how to utilize this sectionalized construction in terms of your needs. His experience plus our product produces the kind of air conditioning that's easily installed, technically suited to the job, and completely dependable.

Remember that Carrier offers a full line of products, all matched in size, performance and quality to work together. So whatever your air conditioning or refrigeration needs, your Carrier dealer is the man to see. He's listed in your Classified Telephone Directory. Or write Carrier Corporation, Syracuse 1, New York.



Carrier

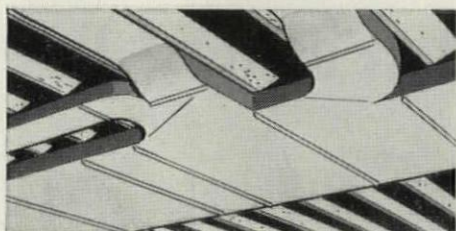
AIR CONDITIONING
REFRIGERATION
INDUSTRIAL HEATING

The Carrier Evaporative Condenser, an economical accessory where water is costly or limited. Indoor or outdoor installation.

The compact Carrier Refrigerating Compressor, for all types of air conditioning and commercial refrigeration applications.

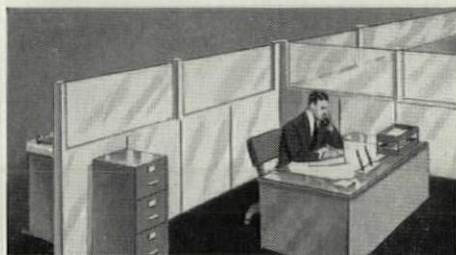
Architectural Service

Better Ductwork



Progressive heating and ventilating engineers recognize the many advantages of aluminum ducts. Lightweight aluminum reduces structural loads and will not rust from condensation in cooling systems. Both are important factors in modernizing existing buildings. Non-sparking aluminum is better suited to the removal of inflammable and explosive dust and fumes. And with *all* these advantages, aluminum installation usually costs less, particularly for handling larger sections.

Partitions



No other material has the design flexibility of aluminum for office partitioning. Rectangular aluminum tube framing minimizes floor load—also serves as wiring conduit. Reynolds embossed or plain aluminum paneling can be perforated for acoustical benefits, and painted to harmonize with color scheme. A natural aluminum finish is recommended for extruded trim elements.

Drop-Panel Ceilings



This new type ceiling is the lightweight companion to curtain walls... the answer to low cost modernization. Suspension is from roof structurals or floor above. Aluminum panels (or with other panel materials for variety) are simply laid in place. They are easily lifted for access to concealed utilities and ductwork. Perforations provide uniform air distribution and pass sound to be absorbed by insulating material above. Write to Reynolds for details on these and any other architectural aluminum applications.

(Advertisement)

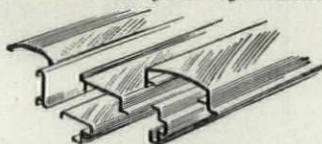
Naturally... it's ALUMINUM

for **UTILITY**
APPEARANCE
INVESTMENT VALUE

You can get these advantages plus specialized help from the Reynolds Architectural Service

When planning your next design, stop and ask yourself what other metal offers the advantages that you find in aluminum. Unlimited design flexibility... widest range of finishes... light weight... great strength... rust and corrosion resistance... low cost. All these factors mean aluminum is the ideal material for *your* specifications.

Even though the supply of aluminum is limited now, the assistance of Reynolds Architectural Service is still yours for the asking. This service is an efficient and economical solution to your design problems. For complete information, call the Reynolds office listed under "Aluminum" in your classified telephone directory or write direct.



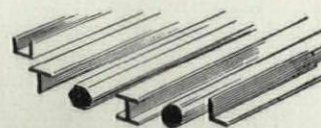
EXTRUDED SHAPES



SHEET



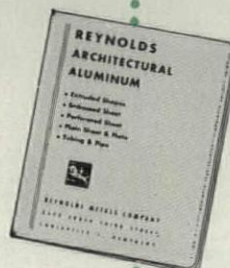
TUBULAR PRODUCTS



STRUCTURALS

FREE BOOKLET!

Send for your copy of Reynolds Architectural Folio today! A complete, up-to-date kit on architectural aluminum. In loose leaf form with drawings for direct tracing. Free when requested on business letterhead. Write to **Reynolds Metals Company, 2572 So. Third St., Louisville 1, Ky.**



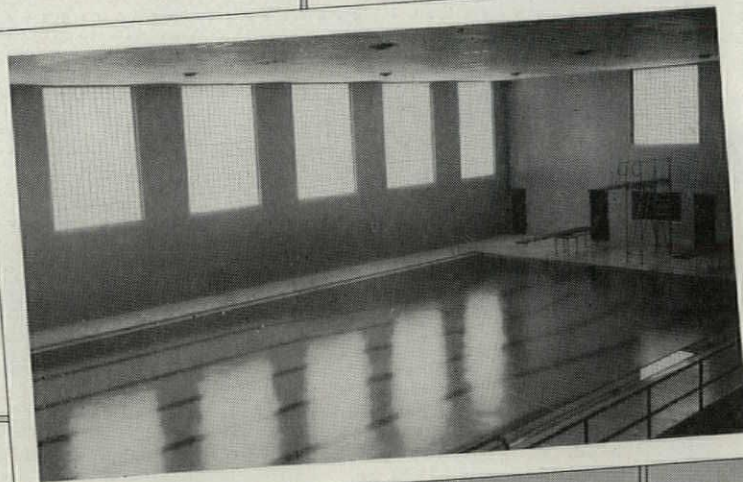
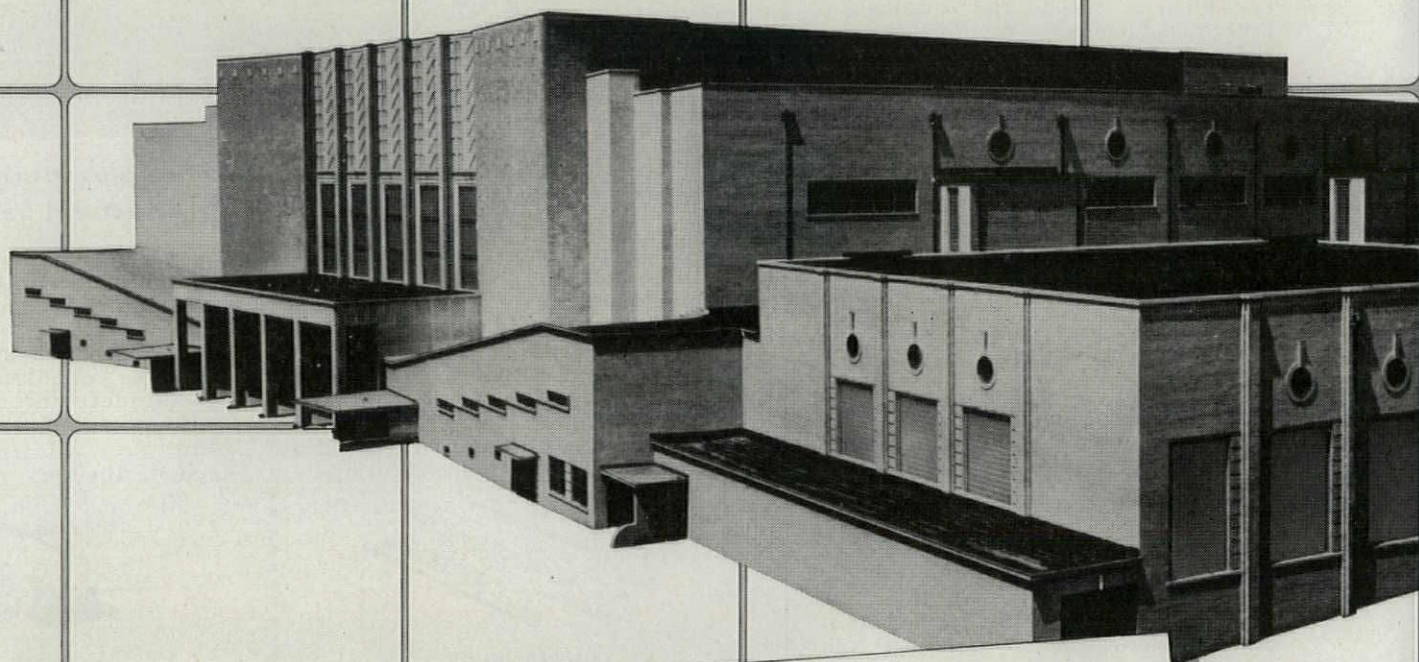
ORNAMENTAL CASTINGS
produced to your specifications by independent foundries from Reynolds Aluminum ingot.



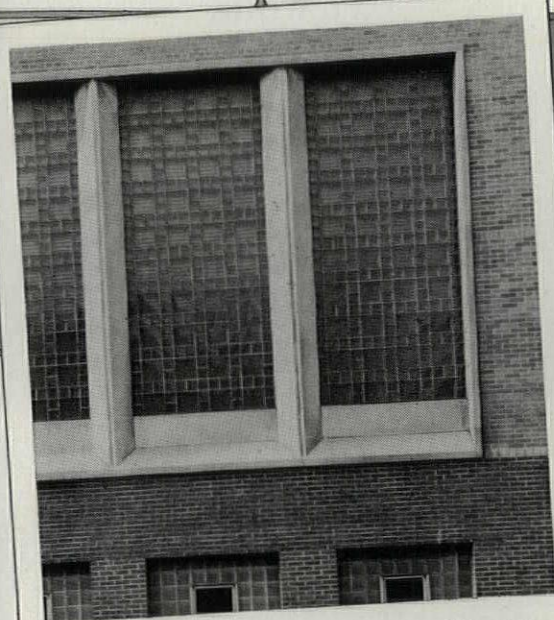
REYNOLDS ALUMINUM

MODERN DESIGN HAS ALUMINUM IN MIND

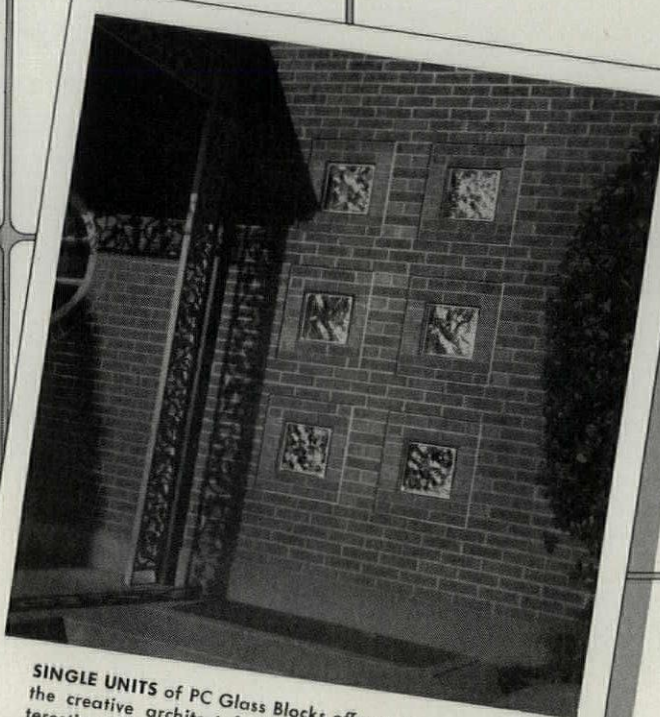
How Pittsburgh Corning Glass Blocks fulfill *current architectural needs*



IN THE NEW field house, Memorial Coliseum, University of Kentucky, at Lexington, PC Functional Glass Blocks highlight the architectural beauty of the 4½ million dollar structure. The swimming pool wing has abundant daylighting with complete privacy, because of the choice of PC Glass Block panels. This type of fenestration is unaffected by high humidity . . . assures minimum maintenance costs. Architect: John T. Gillig, Lexington, Ky.



LARGE SCALE panels in the auditorium of the new Elm Street School at Youngstown, Ohio, show how combined sizes of PC Glass Blocks create an effective architectural detail. Architect: Arsene A. Rousseau, Youngstown, Ohio.

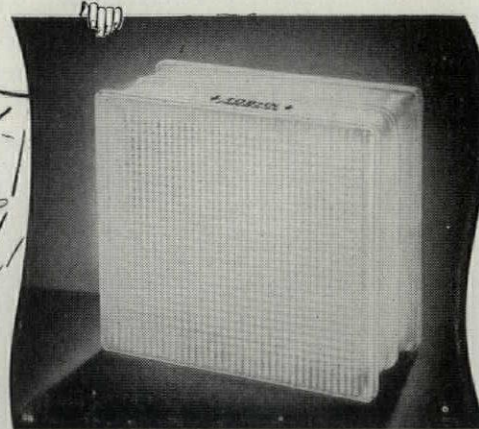


SINGLE UNITS of PC Glass Blocks offer unlimited scope to the creative architect for original design. Note the interesting contrast in texture afforded by the glass and masonry of this entrance treatment.

PC Glass Blocks are immediately available... no construction delays!

... And this includes PC *Functional* Glass Blocks, especially designed for precision work. These glass blocks—in 8" and 12" square sizes—contain such features as light-directing prisms on the interior faces of certain patterns, light-spreading corrugations on outside faces, a fibrous glass insert to diffuse still further the light transmitted by the block itself, and the PC Soft-Lite® Edge Treatment, which creates a better, more comfortable "eye-ease" panel appearance. The new "Clean-Easy Face Finish" prevents mortar and installation scum from adhering to the panels during construction, thereby reducing costs by cutting in half the time required for on-the-job cleaning.

*T.M. Reg. applied for.



PITTSBURGH CORNING CORPORATION
PITTSBURGH 22, PA.



GLASS BLOCKS

The mark of a modern building

Distributed by Pittsburgh Plate Glass Company; W. P. Fuller & Co. on the Pacific Coast; Hobbs Glass Ltd. in Canada; and by leading distributors of building materials everywhere.

Pittsburgh Corning Corporation
Dept. BD-32, 307 Fourth Avenue
Pittsburgh 22, Pa.

Without obligation, please send me your
FREE booklet on the use of PC Glass Blocks in
industrial, commercial and public structures.

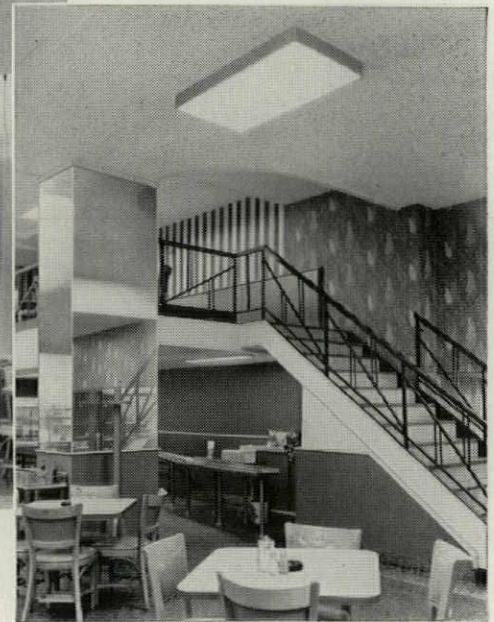
Name.....

Address.....

City..... State.....



ACOUSTICAL MATERIALS AT WORK



THE PRESIDENT CAFETERIA, New York City

Architect:

Louis Allen Abramson

General Contractor:

M. Gerber Construction Co.

Acoustical Contractor:

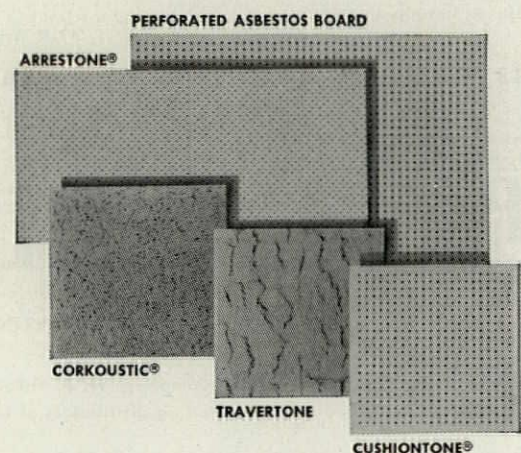
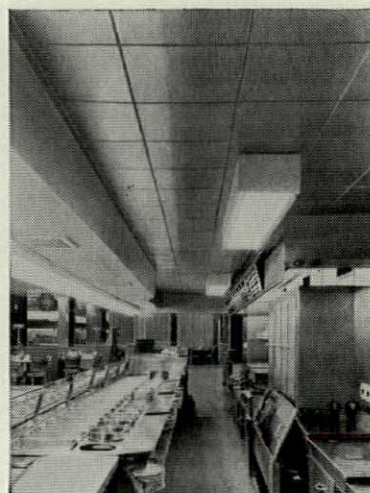
William J. Scully Acoustics Corp.

The architect's selection of an acoustical ceiling for the President Cafeteria was decided by three requirements: beauty, incombustibility, and, of course, acoustical efficiency. Armstrong's Travertone not only met these demands but offered good light reflection value and ease of maintenance. Also, it could be easily installed with recessed lighting and ventilating equipment.

Travertone's distinctively fissured surface is well suited to the modern decor of the main dining area. Its unusually efficient absorption of high frequency noises adds extra insurance against the harsh clangor of trays and utensils common in cafeterias. Travertone's mineral wool composition meets the fire-safety requirements of New York's building code.

Armstrong's complete line of acoustical materials offers you a wide range of special features. Your Armstrong Contractor will give you expert advice without obligation. For free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 5403 Stevens St., Lancaster, Pa.

Perforated "metal-pan" units of Armstrong's Arrestone were used in the serving area. This material is unusually high in sound absorption, easy to clean, and incombustible. To harmonize with the exposed metal work in this area, the architect specified Arrestone pans of aluminum with a bare mill finish, rather than the usual steel units with enameled finish.

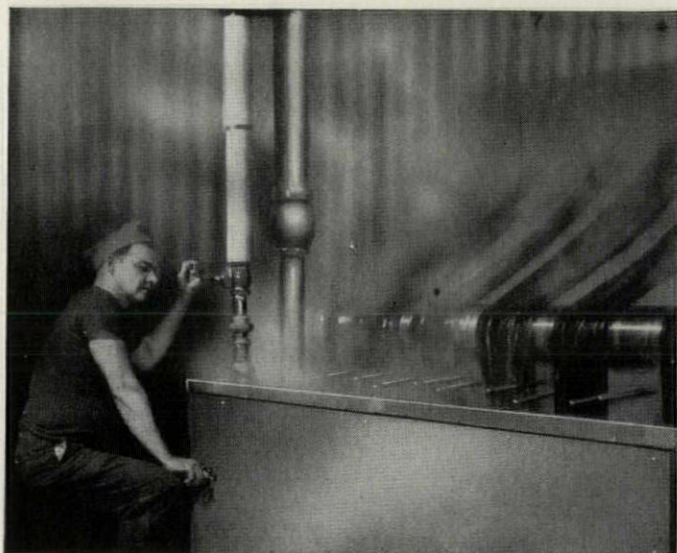


ARMSTRONG'S ACOUSTICAL MATERIALS

Do You Have These Roofing and Siding Problems on that Industrial Job?



1 Are climate and surroundings unfavorable? If plant is located in area of dampness, salt air, or smoke and corrosive gases or near fire hazards—specify ASBESTONE CORRUGATED asbestos-cement Roofing and Siding. It will last as long as the building.



2 Will the building be exposed to open flame or chemicals? Neither flame nor corrosive conditions harm rugged ASBESTONE. It will give a lifetime of maintenance-free service—at a low-cost-per-year.



3 Is economy a big factor? Only a single ASBESTONE covering is required for complete interior and exterior protection on steel or wood framed buildings. ASBESTONE is uniformly dense throughout, a good insulator.

ASBESTONE-CORRUGATED

Asbestos-Cement Roofing and Siding

Asbestone Standard "400"

for heavy-duty service.

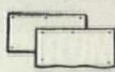
Asbestone Economy "250"

(lighter weight) for wood or light steel framing.

Fastener assemblies available for all types of framing



OTHER LIFETIME PRODUCTS MADE BY ASBESTONE



**Asbestone
Siding
Shingles**

Attractive designs
and colors



**Asbestone
Roofing
Shingles**

Styled in the modern
manner



**Asbestone
Wallboard**

—Utility and
Flexible grades—for
interior and exterior use

See Asbestone Corrugated Section in Sweets Architectural File

Asbestone Corporation
5387 Tchoupitoulas St., New Orleans, La.
Please send us free specification catalog
and literature on Corrugated Asbestone.

Name
Street
City State

Specialists in Asbestos Cement Building Products for 30 Years

ASBESTONE
CORPORATION

the

PEELLE

MOTORSTAIR

Port of New York Authority Bus Terminal,
New York, N. Y.—Archts.—Port of New
York Authority Engineers



In Transportation Terminals—

the Peelle Motorstair extends transportation to the inside of the building and moves vast crowds to waiting buses, trains and other conveyances with dispatch and without confusion.

Statler Center, Los Angeles, Calif.—
Archts.—Holabird, Root & Burgee, Chi-
cago, Ill.



In Hotels and Banks—

the Peelle Motorstair frees valuable ground floor property for high rental by making it easy and convenient for the public to reach business places located on upper levels.

This bank of five Peelle Motorstairs is an essential part of the great vertical transportation system in the New York Port Authority Bus Terminal. Thirty-one Peelle Motorstairs, a basic functional design feature of this outstanding building, move vast crowds every day of the year. Their performance proves that the advanced engineering of the Peelle Motorstair has greatly contributed to the smooth, trouble-free movement of passengers between floors. And so it is in a variety of prominent buildings all over the North American Continent where the Peelle Motorstair is establishing low maintenance records and assuring longer life as the result of simpler construction and the more even distribution of loading on all moving parts.

In the new, wider C-48 Peelle Motorstair, the same advanced concepts are incorporated and it delivers the same smooth, economical performance. This new model is 48 inches wide and each step allows ample room for two adults to stand side by side in comfort. It can move up to eight thousand persons per hour. The C-48 is now being installed in some of the most famous stores in the country. For more complete information and technical details on Peelle Motorstairs write for folder PM-505.



PEELLE MOTORSTAIRS

PARTIAL LIST OF PELLE MOTORSTAIR INSTALLATIONS

● inspires new concepts in building

● increases functional values

● releases street floors for high rent yields

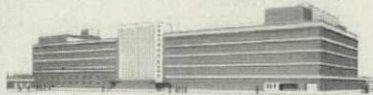
Hecht Shopping Center, Arlington, Va.—
Archts.—Abbott, Merkt & Company,
New York, N. Y.



In Stores—

the Pelle Motorstair has proved to be a powerful merchandising force in many cities by "moving people to buy" on upper sales floors in comfort and without delay or crowding.

Abbott Laboratories, North Chicago, Ill.
—Archts.—Naess & Murphy, Chicago, Ill.



In Industrial Plants—

the Pelle Motorstair promotes better labor relations, expedites the movement of employees from floor to floor and eliminates delay at hours when there is peak traffic.

Pentagon Building, Arlington, Va.—
Archts.—U. S. Government—General
Service Administration



In Many Other Buildings

The Pelle Motorstair helps theatres fill balconies, makes roof and sub-basement parking areas more convenient, moves crowds at stadiums and race tracks and performs many other valuable functions.

"it's
PEELLE
engineered"

BETTER-ENGINEERED PRODUCTS FOR MORE THAN 45 YEARS



THE PELLE COMPANY
PEELLE MOTORSTAIR DIVISION

47 STEWART AVENUE, BROOKLYN 37, N. Y.

Offices in principal cities

FREIGHT ELEVATOR DOORS • DUMBWAITER DOORS • INDUSTRIAL DOORS

DEPARTMENT STORES

McCRORY STORES, Lexington, Ky.
Archts.—Holabird, Root & Burgee, Chicago, Ill.
L. BAMBERGER & CO. (R. H. MACY), Princeton, N. J.
Archts.—Ketchum, Gina & Sharp, New York, N. Y.
EVERGREEN PARK SHOPPING CENTER, Evergreen Park, Chicago, Ill.
Archts.—Holabird, Root & Burgee, Chicago, Ill.
HUTZLER BROTHERS, Towson, Maryland
Archts.—James R. Edmunds Jr. and Ketchum, Gina & Sharp, New York, N. Y.
MERK DEPARTMENT STORE, Longview, Wash.
Archts.—John Graham Company, Seattle, Wash.
B. GERTZ, INC., Flushing, N. Y.
Archts.—Abbott, Merkt & Company, New York, N. Y.
WHITNEY STORE, San Diego, Calif.
Archts.—G. R. Saunders
C. R. ANTHONY COMPANY
Beaumont, Texas
Borger, Texas
McAllen, Texas
Midland, Texas
Temple, Texas
Norman, Oklahoma
Texarkana, Arkansas
Archts.—Fred H. Zahn, Oklahoma City, Okla.
J. C. PENNEY COMPANY
Louisville, Kentucky
Archts.—J. C. Penney Company, New York, N. Y.
Lansing, Michigan
Archts.—Gillette & Bell, New York, N. Y.
Lincoln, Nebraska
Archts.—Davis & Wilson, Lincoln, Neb.
Omaha, Nebraska
Archts.—J. C. Penney Company, New York, N. Y.
SEARS, ROEBUCK & COMPANY
Erie, Pennsylvania
Archts.—The Ballinger Co., Philadelphia, Pa.
Hamilton, Ohio
Archts.—Mueller, Hair & Hetherich, Hamilton, Ohio
GEORGE B. PECK, INC., Kansas City, Mo.
Archts.—Kivett & Myers, Kansas City, Mo.
McALLISTER-SCHOEN COMPANY, LaGrange, Ill.
Archts.—Abell-Howe Company, LaGrange, Ill.
HECHT COMPANY, Arlington, Va.
Archts.—Abbott, Merkt & Company, New York, N. Y.
POMEROY'S, Reading, Pa.
Archts.—Muhlenberg, Yerkes & Muhlenberg, Reading, Pa.
YOUNKER'S OF IOWA, Iowa City, Iowa
Archts.—Younker's, Des Moines, Iowa
FISHER'S STORE, Tacoma, Wash.
Archts.—John Graham, Seattle, Wash.
MULLER COMPANY, LTD., Lake Charles, La.
Archts.—Bartlett Cocke, San Antonio, Texas
GATELY'S PEOPLES STORE, Chicago, Ill.
Archts.—Nordlee & Company, Chicago, Ill.
T. EATON COMPANY
Vancouver, B. C.
New Westminster, B. C.
Archts.—Dominion Construction Co., Vancouver
WM. LAUBACH & SONS, Easton, Pa.
Archts.—Thalheimer & Weitz, Philadelphia, Pa.
WALKER'S DEPT. STORE, Long Beach, Calif.
Archts.—Charles P. Morgan Associates, Long Beach, Calif.

CLUBS, THEATRES & HOTELS

HAROLD'S CLUB, Reno, Nevada
Archts.—Perry Means, Reno, Nevada
STATLER CENTER, Los Angeles, Calif.
Archts.—Holabird, Root & Burgee, Chicago, Ill.
CARIB THEATRE, Miami Beach, Florida
Archts.—Michael J. DeAngelis, Rochester, N. Y.
MAYFLOWER HOTEL CORP., Washington, D. C.
Archts.—Robert F. Beresford, Washington, D. C.
LOS ANGELES TURF CLUB, Arcadia, Calif.
Archts.—Robert E. Choate, Pasadena, Calif.

OFFICES

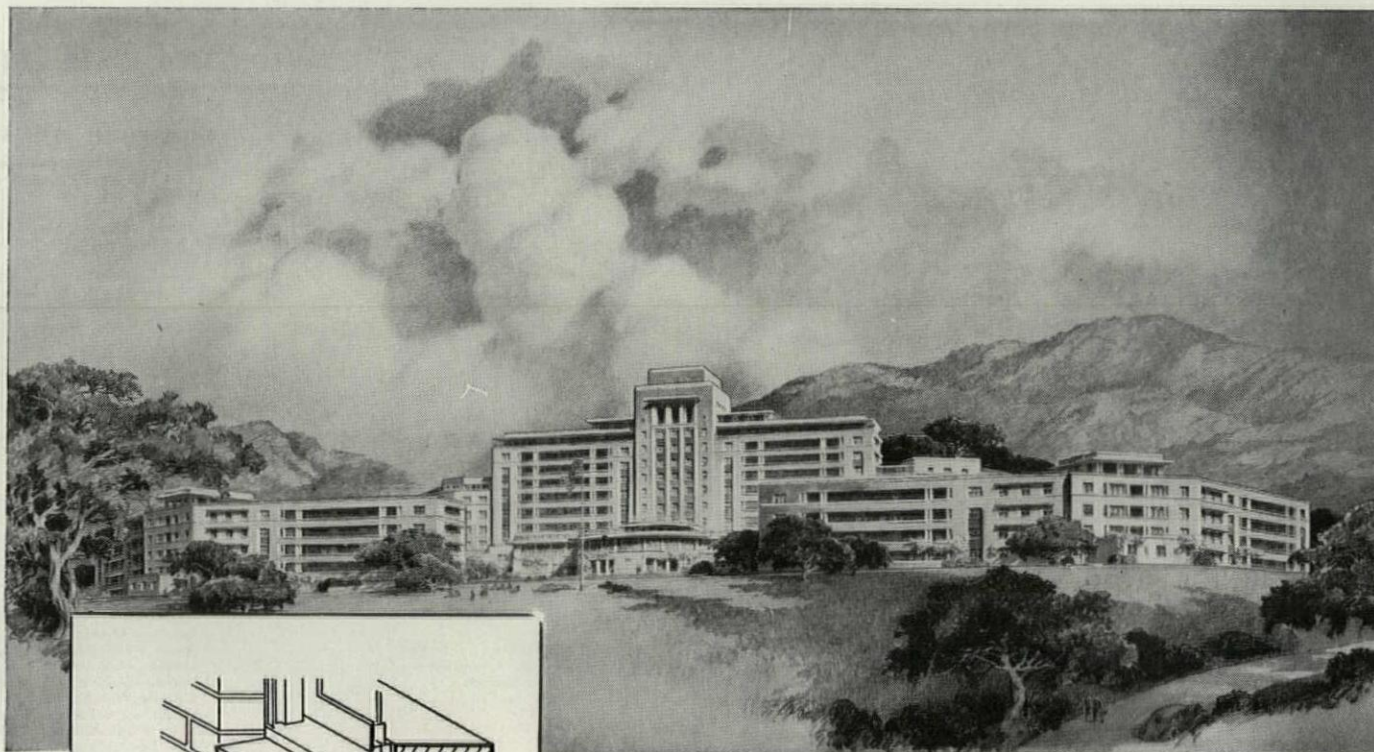
PENTAGON BUILDING, Arlington, Va.
Archts.—U. S. Government—General Service Administration
CAPITAL ANNEX BUILDING, Frankford, Ky.
Archts.—Meriwether, Marye & Associates, Lexington, Ky.

TRANSPORTATION

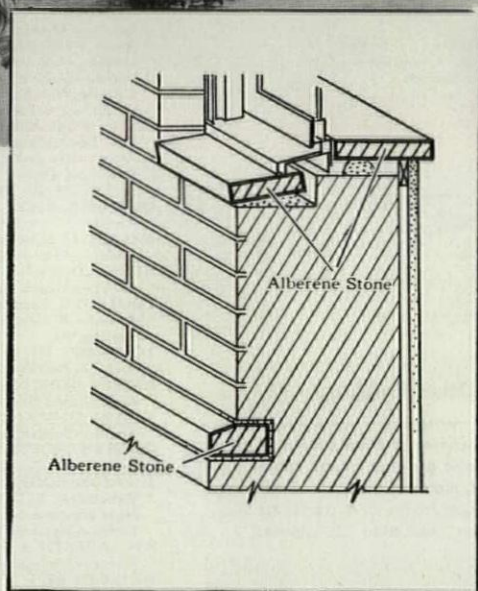
PENNSYLVANIA RAILROAD, Journal Square, Jersey City, N. J.
Archts.—Morris L. Tepman, Jersey City, N. J.
HUDSON & MANHATTAN RAILROAD, Grove Street, Jersey City, N. J.
Archts.—Hudson & Manhattan R.R. Company (Station by Dreyfuss)
MUNICIPAL PARKING & BUS TERMINAL, Bridgeport, Conn.
Archts.—Harry G. Lindsay, Bridgeport, Conn.
TORONTO TRANSPORTATION COMMISSION, Toronto, Canada
Archts.—DeLeuw, Cather & Company, Chicago, Ill.
PORT OF NEW YORK AUTHORITY BUS TERMINAL, New York, N. Y.
Archts.—Port of New York Authority Engineers

INDUSTRIAL

FORD MOTOR CO., Livonia, Mich.
Archts.—Albert Kahn Associated Architects & Engineers, Inc., Detroit, Mich.
ABBOTT LABORATORIES, North Chicago, Ill.
Archts.—Naess & Murphy, Chicago, Ill.



*Tripler General Hospital, U. S. Army Medical Dept., Hawaii
— Architects: York and Sawyer, New York City. 1½" Alberene slip sills.*



Detail showing 1½" thick slip sill with 1¼" stool and 2¼" belt course.

sills, stools, and trim of **ALBERENE** stone are **DURABLE and ECONOMICAL**

Regular Grade Alberene Stone is an ideal material for exterior trim because it can be cut into thin sections, permitting substantial economies. It offers freedom to the designer—by making possible greater reveal, to give just one example.

The stone has no cleavage planes, is dense, non-absorbent, and chemically-resistant. It is free of maintenance cost. Its color—silver gray in rubbed finish and a pleasing blue gray when honed—harmonizes well with almost any color scheme.

Where a darker color is desired, we suggest

Alberene Serpentine. It is a darker gray in rubbed finish, blue-black when honed, and blue-black or black when polished.

The high chemical resistance of both stones, which has made them favorites for use in laboratory equipment, also makes them ideal for window stools in laboratory buildings.

Since there is a decided difference in price between Alberene *Regular Grade* and *Serpentine*, architects' specifications should be carefully worded so as to clearly call for the type desired. Ample supplies of both materials are available.

ALBERENE STONE CORPORATION

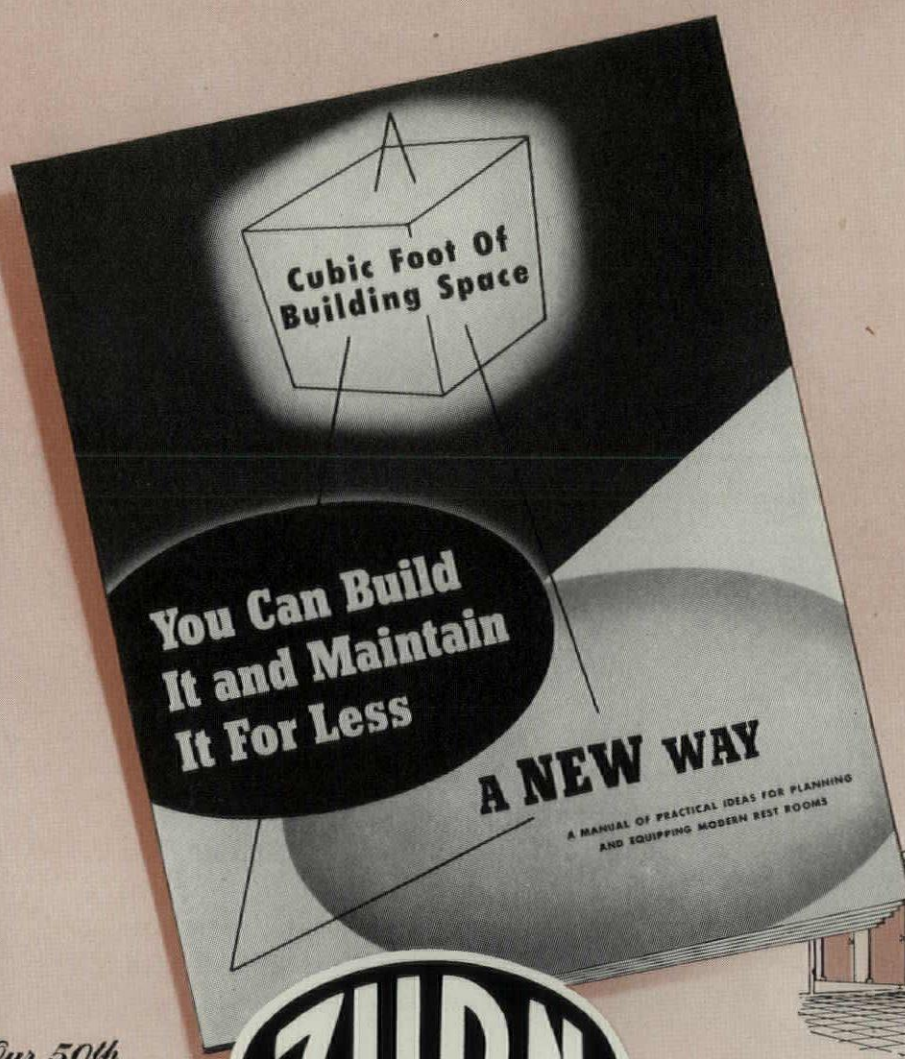
419 Fourth Avenue, New York 16, N. Y.

Branches in Principal Cities

Your decision on rest rooms

can have an influence far reaching in its

effect on the TOTAL COST OF A BUILDING



*Our 50th
Anniversary*



J. A. ZURN MFG. CO. PLUMBING DIVISION • ERIE, PA., U. S. A.

Sales Offices in All Principal Cities

Pre-eminent Manufacturer of Sanitary Products for the Protection of Human Health and Modern Structures

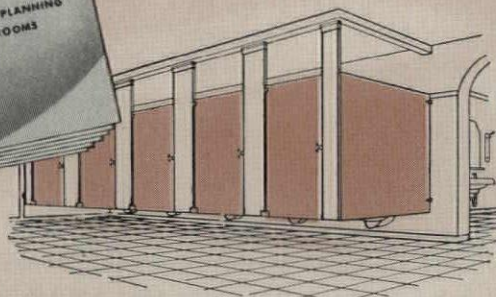
In Canada: Canadian Zurn Engineering Ltd., Montreal, P. Q.

Copyright 1952



This booklet just off the press, is about rest rooms and the sanitary equipment that is installed in them. It shows how different types of plumbing fixtures affect the over-all cost of a building, and the day-to-day cost of maintenance of sanitary facilities. It contains numerous illustrations and details of construction of rest room facilities. The ideas presented in this 32 page booklet are the result of experiences of engineers, architects, general contractors and plumbing and heating contractors. Many of these ideas are presented in this booklet for the first time.

These ideas lead to a reduction in the use of building materials—eliminate the need of suspended ceiling construction—save time and labor and protect rest rooms from premature obsolescence. Write today for your copy of this booklet.



- type rest rooms have fixture-bare floors!

J. A. ZURN MFG. CO. • Plumbing Division • Erie, Pa., U. S. A.

I want to know more about the influence rest rooms have on the total cost of a building. Please send booklet entitled, "You Can Build It (Cubic Foot of Building Space) For Less A New Way."

Name and Title

Company

Street

City and State

Please attach coupon to your business letterhead. Dept. A. F.

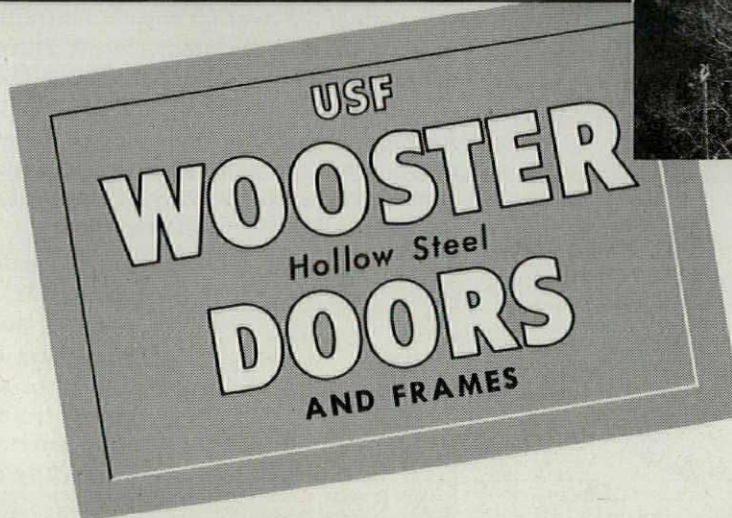


*Featured in America's
Finest
Multiple Dwellings*

KENILWORTH APTS., PITTSBURGH, PA.
10 STORIES—136 UNITS



Constructed and Managed by—BEHRMAN & PASSELL
Architect—TENNYSON & VAN WART



A growing feature of modern residential building is the specification of USF "Wooster" Hollow Steel Doors and frames throughout. This typical installation, The Kennilworth in Pittsburgh, reflects the trend by featuring Wooster Doors and Frames at all corridor entrances, all interior doors, and also in sliding closet doors.

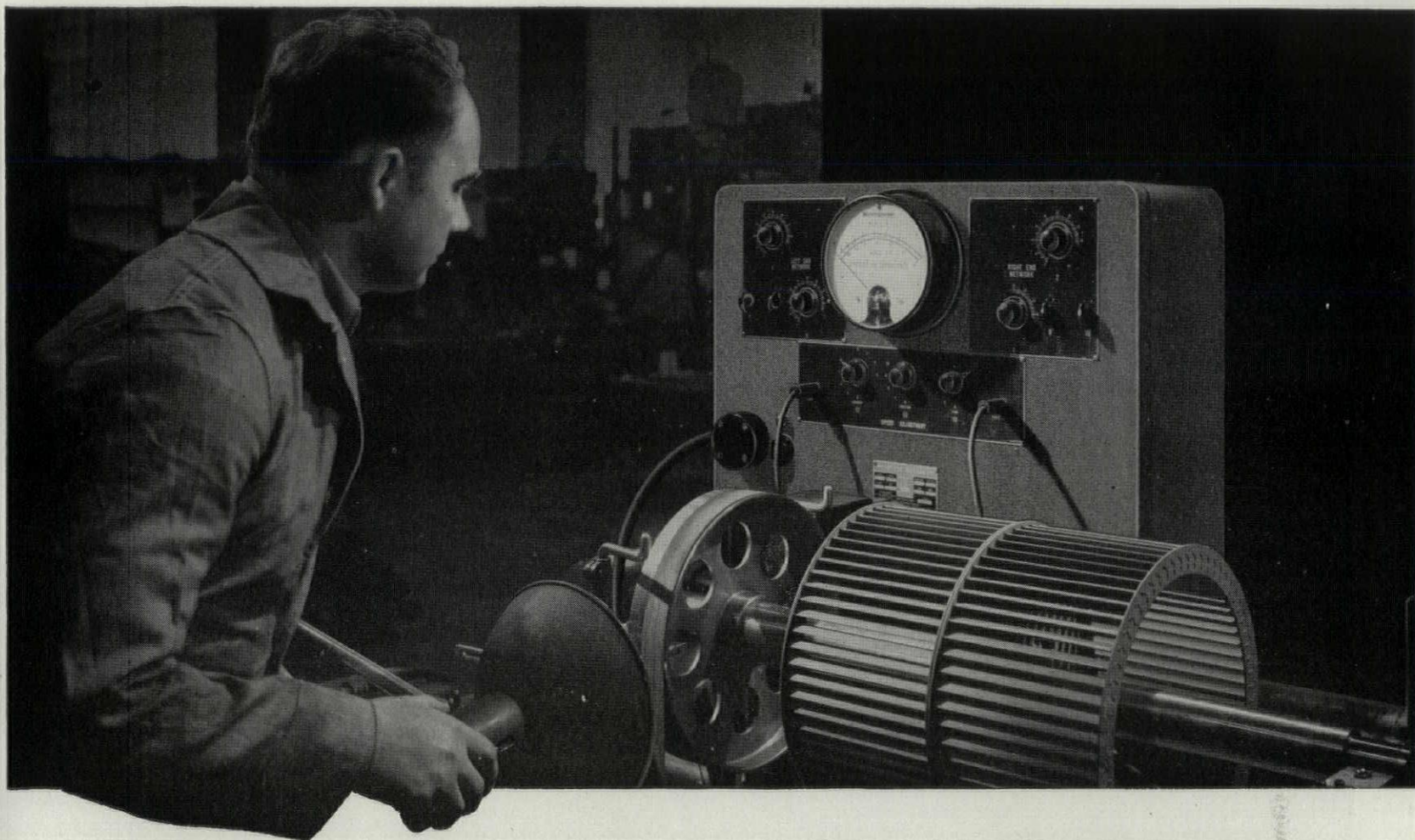
- FIRST to obtain the UL Class B Label on 1 $\frac{3}{8}$ " doors
- FIRST to meet A.S.T.M.—1 $\frac{1}{2}$ hour fire test on 1 $\frac{3}{8}$ " doors

United Steel Fabricators INC.

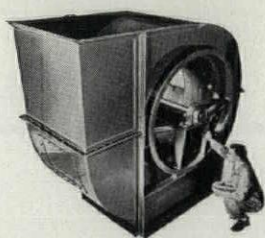
WOOSTER, OHIO

Manufacturers of: Hollow Metal Doors and Frames • Prefabricated Metal Buildings • Corrugated Metal Window Wells • Highway Guard Rail • Structural Plate Bridge Flooring • Corrugated Metal Pipe





Here's how hairline balance cuts vibration in **TRANE** fans



When TRANE engineers set out to balance TRANE Fans, they insisted on such precision that two more major advantages were created. Ultra-modern electronic machinery, for dynamic and static balancing was tailor-made to TRANE requirements. Procedures were worked out so carefully that the tolerance

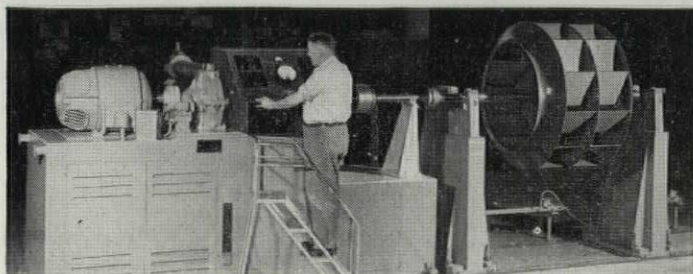
permitted between wheel centerline and the center of gravity of the wheel is equal or less than the infinitely small space needed to slip the hub over the shaft. Thus TRANE Fan balance is as accurate as the fit of the hub to the shaft.

This hairline balance cuts vibration of TRANE Fans to an irre-

ducible minimum. That's advantage Number One. As a result, fan bearings, the only point of friction in a fan, last much longer. And TRANE Fans, large as well as small, can be installed anywhere in the building without danger of damage due to vibration. Advantage Number Two is less noise. As vibration is eliminated, noise, too, is reduced.

Besides less vibration and lower noise levels, other TRANE Fan features include rugged construction for long life—streamlined air inlet that moves more air with less power—more accurate fit and tolerance for consistent performance—chlorinated rubber base paint finish to prevent corrosion.

TRANE Fans are available in Class 1 and 2 construction for many applications. They are particularly valuable when combined with TRANE Cooling and Heating Coils for a complete central air conditioning system. In TRANE Coils, the streamlined fin-and-tube and the smooth TRANE Fin offer minimum resistance to air flow. This low air friction and higher efficiency of TRANE Fans produce better performance with lower horsepower consumption. For more details concerning TRANE products, contact the TRANE sales office nearest you.

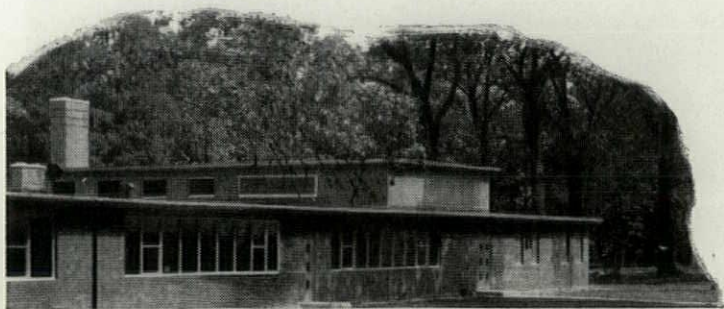


Left: Special machines, built for TRANE, balance large fans both statically and dynamically. A 60" BI fan wheel is being processed.

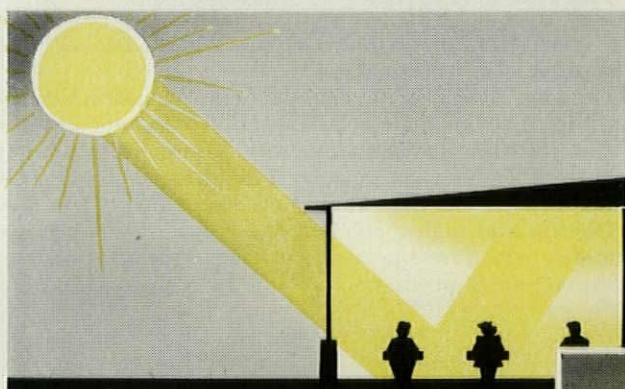
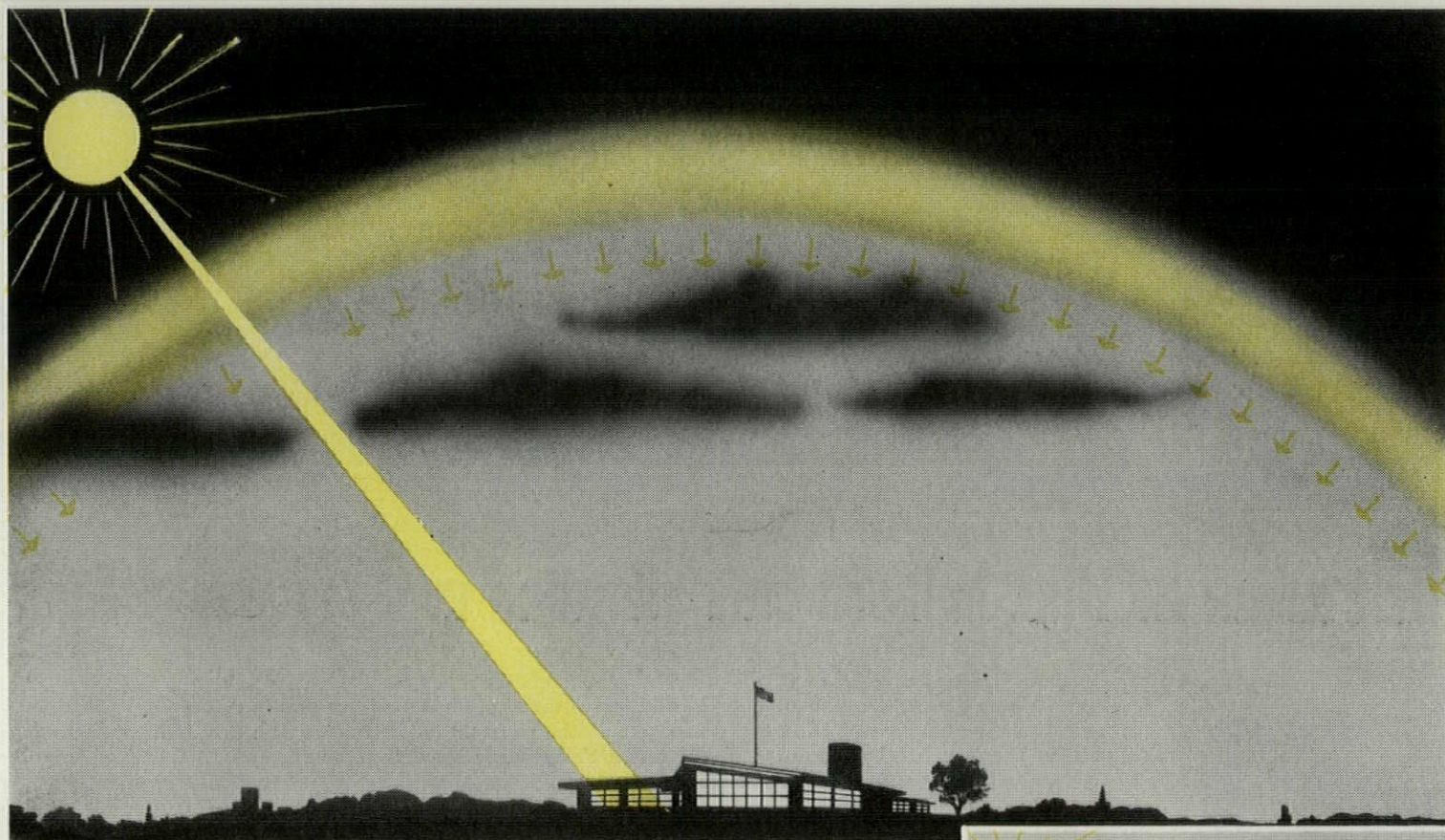
MANUFACTURING ENGINEERS OF HEATING, VENTILATING AND
AIR CONDITIONING EQUIPMENT

TRANE

THE TRANE COMPANY, LA CROSSE, WIS.
Eastern Mfg. Division, Scranton, Pa.
Trane Company of Canada, Ltd., Toronto
Offices in 80 U. S. and 14 Canadian Cities



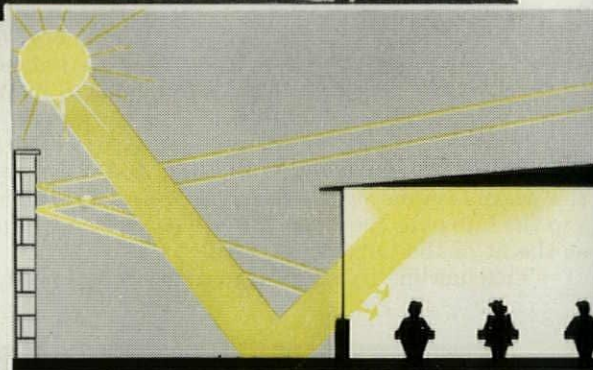
Remind



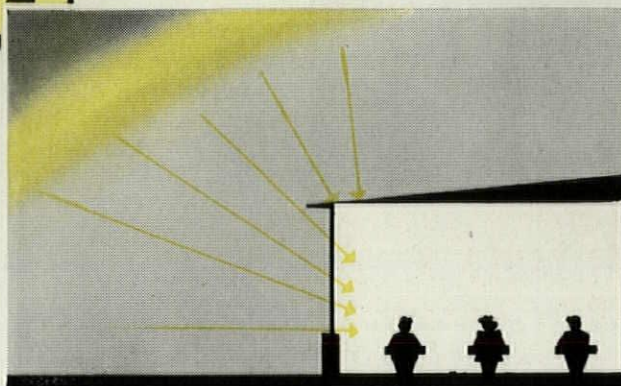
Direct beams of sunlight are rare in most parts of the U.S. during most of the year. Virtually none on the north anywhere; only half day on east and west on clear days.

Most light is skybrightness, naturally diffused light approaching the window from every angle.

Light forms a dome around the earth. It all comes from the sun originally but only a part of it comes from the sun directly. Much light is diffused by the atmosphere and reaches the earth from a wide arc in the form of skybrightness. Both skybrightness and direct sunlight are redirected from the ground and objects, reaching the school as reflected light.



Much light comes by reflection from the ground and nearby structures. Some schools receive up to 30% of their reflected light from the ground.



RIGHT: Custer Consolidated School; Monroe, Michigan.
Architect, Walter T. Anicka, Ann Arbor

yourself

...HOW DAYLIGHT ENTERS

DAYLIGHT REACHES a window from three sources—as a direct beam from the sun, as diffused brightness from the sky and as reflected light from the ground or other nearby surfaces.

Window design that assumes only *one* source, direct sunlight, is not thoughtfully conceived. For one thing, it overlooks the absence of direct sunlight during at least part of the day on all but the south elevation. It also overlooks the lack of sunlight on cloudy days, so common in most localities and prevalent in many during much of the year.

Most of the time, most of the daylight entering a room is sky-brightness. Sky-brightness is naturally diffused light. Moreover, recent studies show that schoolrooms frequently receive 30% or more of their light reflected from the ground.

Window areas should be designed to take maximum advantage of *all three* sources of light. That's what Daylight Walls do. They are made of clear, flat glass because it transmits more light from *every* source than does glass in any other form; actually 40% more than some forms of translucent, but not transparent, glass. The clear glass extends from wall to wall and, if possible, from sill to ceiling. Muntins, mullions or other opaque structural elements that cut off light are held to a minimum, as recommended in "American Standard Practice for School Lighting".

When you start out with this maximum amount of transmitted light, proper illumination without glare can easily be assured with adjustable shading controls and by correct room decoration. The shading devices are used to screen out direct, intense sunlight and direct it to the ceiling. The room decoration should employ light, high-reflective colors

in accordance with the reflectances recommended by the Illuminating Engineering Society.

Glare, which is simply too great a contrast in the light reflected from neighboring surfaces, is thus avoided. And the very fact that Daylight Walls admit maximum light means a higher level of illumination throughout the room, which further helps to reduce brightness contrasts, where interior colors are highly reflective as recommended.

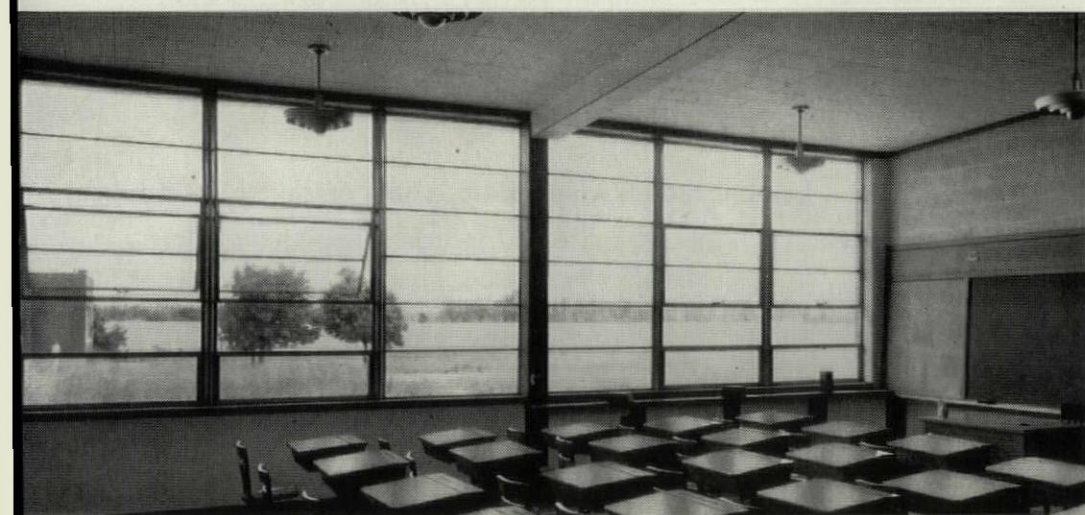
OTHER ADVANTAGES OF A DAYLIGHT WALL

A sense of spaciousness is achieved by the use of clear glass all the way to the ceiling. Any non-transparent material between the clear glass and the ceiling creates a psychological barrier. Clear glass, because it does not obscure vision, promotes a feeling of unity between the inside and outdoors. Daylight Walls make any room seem larger, less confining.

Natural ventilation is easy with Daylight Walls because operating units can be installed wherever they will induce good ventilation. Often, they are especially needed near the ceiling.

Maintenance economy is on the side of Daylight Walls because clear, flat glass is easy to clean. And structural economy favors Daylight Walls, too, because of the low original cost of flat glass, the low installation cost and the relatively simple, lightweight construction.

Daylight Walls can be made of single glass, or special glass such as Heat Absorbing Plate Glass or *Thermopane** insulating glass.



DAYLIGHT WALLS

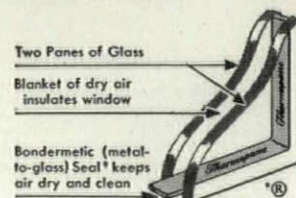
THAT DON'T OBSCURE VISION

THERMOPANE • PLATE GLASS • WINDOW GLASS

Other L-O-F Glass Products: Vitrolite® Safety Glass E-Z-Eye Safety Plate Tuf-flex® Plate & Doors Fiber-Glass

FOR WINDOW INSULATION

*Thermopane** insulating glass is widely and successfully used. *Thermopane* with 1/2" of dry air hermetically sealed between two panes has twice the insulating value of single glass. This minimizes chilliness, drafts and heat loss at windows. *Thermopane* cuts air conditioning during summer. Write for *Thermopane* literature. Libbey-Owens-Ford Glass Company, 4232 Nicholas Building, Toledo 3, Ohio.





HOME OFFICE BUILDING, DUN & BRADSTREET, INC., NEW YORK CITY
 REINHARD, HOFMEISTER & WALQUIST, Architects, New York City
 GEORGE A. FULLER CO., Builders, New York City
 J. I. HASS CO., Painting Contractor, Jersey City, N. J.

Recognition of Quality....

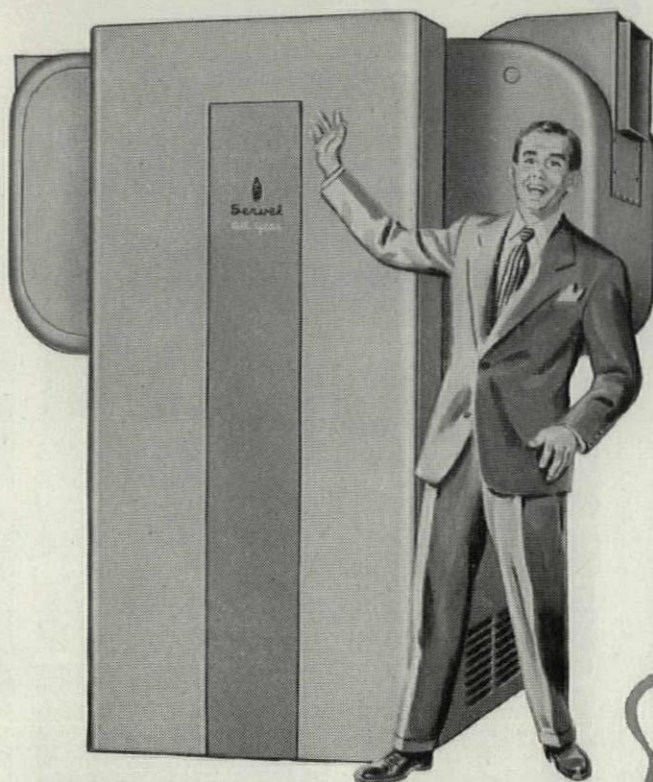
This new home of Dun & Bradstreet, Inc., at 99 Church Street, Manhattan, is just one of thousands of large structures from coast to coast — schools, hospitals, office and industrial buildings, hotels and apartments — where the quality of Pratt & Lambert products is recognized. These fine paints and varnishes are noted for their decorative beauty, long-life durability and economical maintenance through the years. And whenever you have occasion to call upon your nearest P&L Architectural Service Department, you will always find it ready to assist in the specification of interior and exterior surface finishes and color planning.



PRATT & LAMBERT-INC.
Paint and Varnish Makers

NEW YORK • BUFFALO • CHICAGO • FORT ERIE, ONTARIO

SERVEL Air Conditioning



offers an
amazing new kind
of dependability and
operating economy!

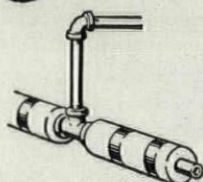
Don't be satisfied with *less* than the *best* when you specify air conditioning equipment! Choose Servel and get proven dependability . . . dependability that is backed by a *written warranty five times as long* as any comparable sized unit on the market today! Get exclusive flexibility of operation that lets you choose the *most economical power source* for every locality, every installation! Get the smooth, vibrationless "no moving parts" operation of Servel's famous absorption cooling unit . . . the unit that delivers peak performance year after year with an absolute minimum of maintenance!

You get *more* every way when you specify *Servel*—quality line of air conditioning equipment!

Specify Servel—and give your clients these **four exclusive advantages!**



1 Servel uses present steam sources!



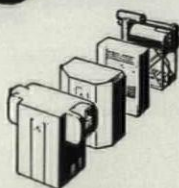
Connect Servel units to present steam source . . . use gas, oil, LP gas, waste heat or steam at any pressure. With Servel *you* pick the most economical energy source, keep operating costs low!

2 "No moving parts" design cuts maintenance!



Because there is nothing in the Servel absorption principle refrigerating unit to wear . . . it delivers silent, continuous operation, top performance with a bare minimum of maintenance.

3 Custom fitted to do each job best!



Want to air condition a store, office or factory? Need chilled water for processing? Want cooling only . . . or year 'round air conditioning? Servel has the unit or combination to do it best.



SPECIFY SERVEL . . . the air conditioning that offers low operating cost, guaranteed dependability in residential, commercial or industrial installations.

4 Servels are guaranteed five times as long!



Each Servel refrigeration unit is warranted for five full years! That is five times as long as all other comparable units. What greater assurance of long life and dependability can you get?

Get the facts and you'll choose Servel!
Write for complete information today.

Servel, Inc., Dept. MBH-3, Evansville 20, Indiana
Gentlemen:

I'm interested in the dependability and low operating cost of Servel Air Conditioning. Send me full details on () Industrial () Commercial Units.

NAME _____

FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____



Servel

AIR CONDITIONING

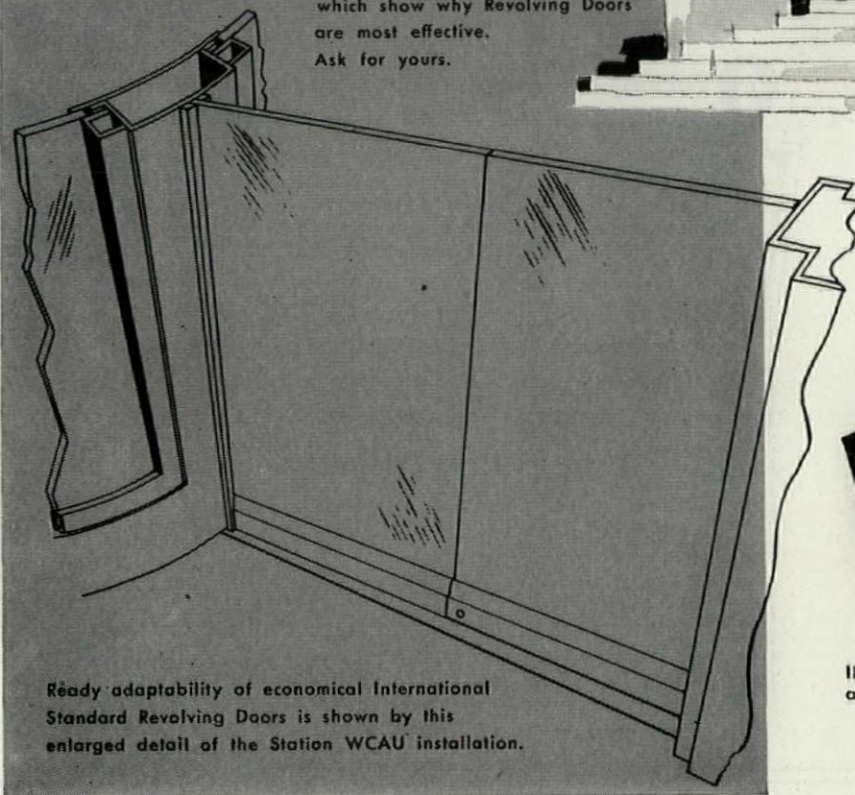
Made by the makers of the famous Servel Refrigerator
SERVEL, INC. Evansville 20, Indiana

designed for *Money-Saving Entrances...*

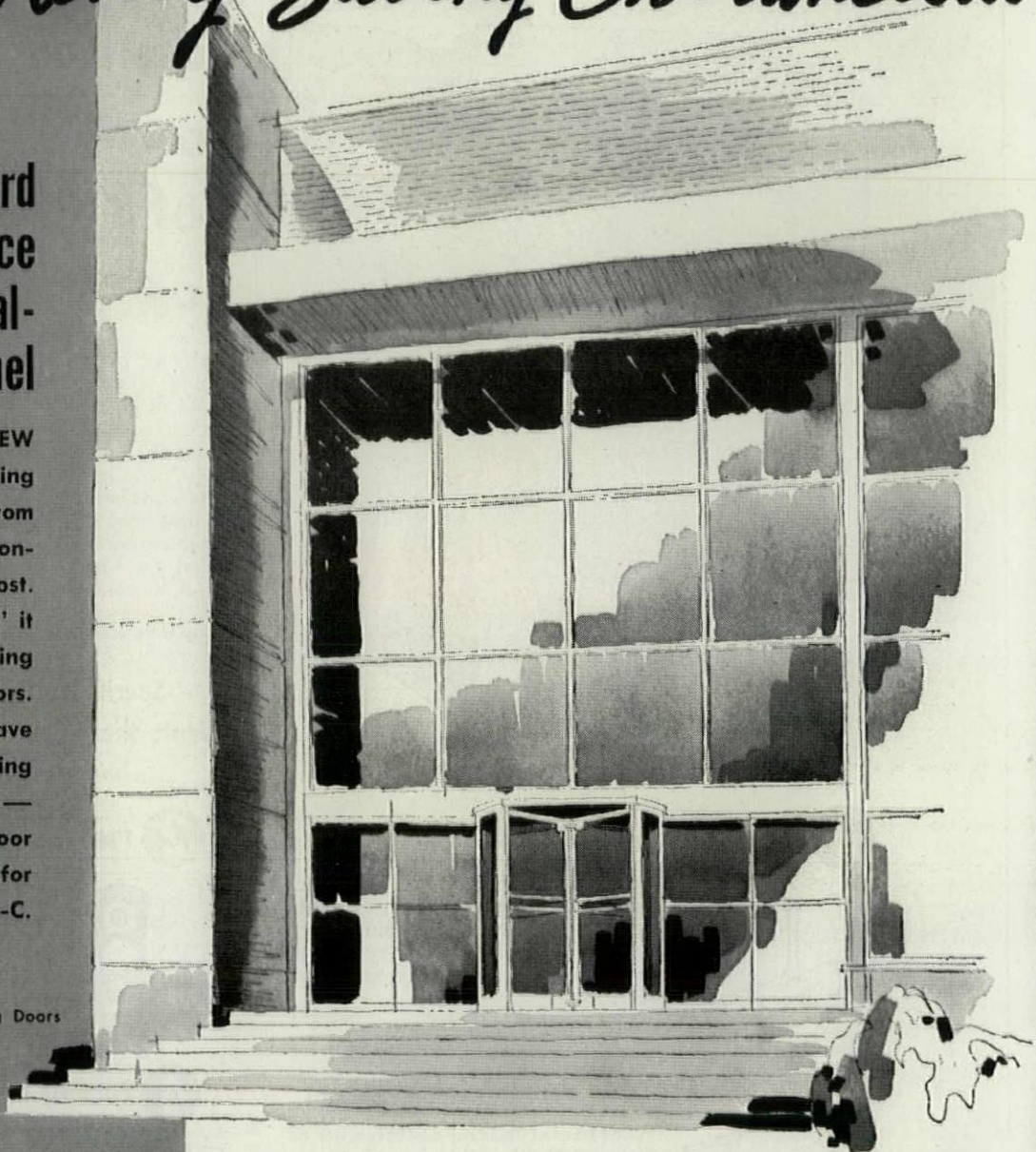
The NEW Standard Revolving Door Entrance by International-Van Kannel

Economy is the keynote of the NEW International Standard Revolving Door. Outstanding for its custom features — this newest production-built model is lower in initial cost. "Always open — always closed," it provides all the many cost-saving advantages exclusive to revolving doors. No essential features or fixtures have been sacrificed. A brochure detailing the new — universally adaptable — International Standard Revolving Door will be sent on request. Write for Catalog File No. 1952-C.

Limited supply of Action Demonstrators available, which show why Revolving Doors are most effective. Ask for yours.



Ready adaptability of economical International Standard Revolving Doors is shown by this enlarged detail of the Station WCAU installation.



Here is illustrated the new International Standard Revolving Door entrance for Radio Station WCAU, Philadelphia, Pa. Consulting Architects: George Howe and Robert Montgomery Brown.

REVOLVING
INTERNATIONAL-VAN KANNEL
DOORS
1909 EDGAR STREET EVANSVILLE 7, IND.

IN CANADA — International-Van Kannel revolving doors are available through Eastern Steel Products, Ltd., in Toronto and Montreal.

DOOR DIVISION

REVOLVING



Dispensary in The American Brake Shoe Company, Rochester, New York

FREE . . . New Booklet! Shows How To RAISE *Morale* and LOWER *Maintenance*

Here are the answers to clients' questions on how to put rest areas to work building workers' morale—how to slash wall and floor maintenance—how to reduce janitor service and still retain high cleanliness standards.

American-Olean's new booklet gives you the facts you need. Shows page after page of industrial installations in full color photographs . . . Provides accurate color plates for making selections . . . Has time-saving, ready-to-use specifications for wall and floor tile.

There's never been anything like this complete, concise booklet in convenient file size. It's packed with facts . . . filled with wholly usable information. It's yours without obligation. Send for your copy today.



AMERICAN-OLEAN TILE COMPANY
910 Kenilworth Avenue, Lansdale, Pa.

Gentlemen:

Please send me my free copy of Booklet 300, Modern Industrial Washrooms.

Name _____

Firm Name _____ Title _____

Street _____

City _____

State _____

AMERICAN-OLEAN TILE COMPANY

Executive Offices, 910 Kenilworth Ave., Lansdale, Pennsylvania

Sanymetal...
* Trade Mark Registered

...uses the ageless and fadeless material

Vitreous Porcelain

on steel for toilet compartments

Name a material that can equal it!

Sanymetal "Porcena" (Vitreous Porcelain on Steel) is a *material*, not merely a finish, and is incomparable with any other material commonly used for toilet compartments. Vitreous Porcelain on Steel is in every respect *unlike* painted enamel or lacquer finished steel because it is fused to steel at a temperature of 1350°-1550°F. This impregnates the steel with vitreous porcelain to the extent that it cannot be hammered out.

Vitreous Porcelain on Steel presents these exclusive features:

It is a non-porous material with the hardness of glass and the strength of steel.

It greatly exceeds the strength and durability of other materials; often acclaimed as a "life-time" material because it does not fade, stain, rust or discolor.

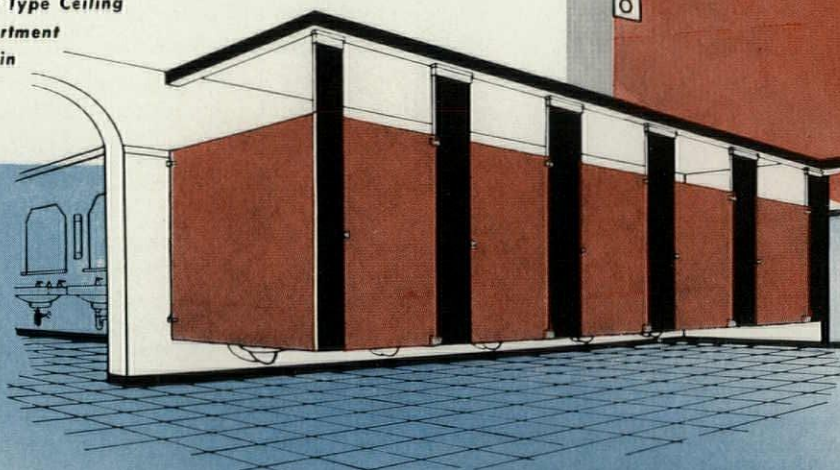
It reduces the cost of maintenance to all-time low; impervious to moisture, odors, ordinary acids, oils and grease, and is *scratch resistant*.

Its flint-hard, glass smooth surface can be kept as immaculately clean as a china plate. No pores to collect dirt, harbor germs or absorb odors and moisture.

Its gleaming, colorful beauty does not depreciate; vitreous porcelain on steel is the ageless finish of fadeless colors and will not tarnish or peel.

It is available in a wide range of colors (refer to Sanymetal Catalog 89 for complete range of exact colors).

Sanymetal Century Type Ceiling
Hung Toilet Compartment
of Vitreous Porcelain
Enamel on Steel.



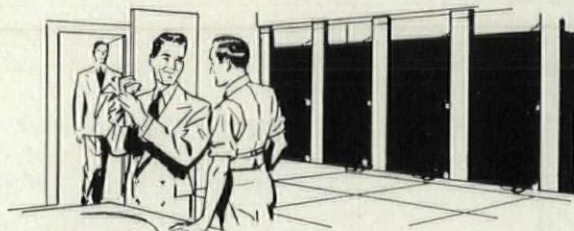
It pays . . .



One way to win and retain the favor of people, whether they be employees, tenants, students or customers is to provide strictly modern toilet rooms—modern in every aspect. A toilet room environment impresses more people, either favorably or adversely, than any other single environment of a building where people gather to live, learn, work, shop, or play. A toilet room environment that arouses a sense of well-being induces thoughtful appreciation of such facilities. A toilet compartment installation may enhance or mar a toilet room environment.



The sure way to have a clean, inviting, colorful, sanitary and strictly modern rest room is to install Sanymetal Vitreous Porcelain on Steel Toilet Compartments. There is nothing better—nothing so enduringly modern. Designed and fabricated of the ageless and fadeless material Vitreous Porcelain on Steel, Sanymetal "Porcena" Toilet Compartments achieve heretofore unapproached, standards of sanitation and an elegance that is appropriate to toilet rooms. They are suitable and practical for all types of buildings, even for toilet rooms in industrial plants.



people . . .

Sanymetal "Porcena" (Vitreous Porcelain on Steel) Toilet Compartments are available in several different styles and a wide range of fadeless colors. Their modernity and durability provides the utmost protection against obsolescence over long years to come. Sanymetal *exclusively offers* "Porcena" (Vitreous Porcelain on Steel) Toilet Compartments. They embody the results of specialized skill and experience in fabricating over 200,000 toilet compartments. Ask the Sanymetal Representative in your vicinity to demonstrate the exclusive features of Sanymetal Vitreous Porcelain on Steel Toilet Compartments.

**A few buildings, selected from hundreds,
in which Sanymetal Porcena Toilet Compartments have been installed:**

Norfolk & Western Railroad Co. • Atchison, Topeka & Santa Fe Railroad Co. • Bethlehem Steel Company, Sparrows Point, Md. • Lever Bros., Los Angeles • Stone Cutter Mills Corp., Spindale, N. C. • National Institute of Health, Bethesda, Md. • The Glenn L. Martin Co., Middle River, Md. • So. California Edison Co. • C & P Telephone Co., Washington, D. C. • Oklahoma Gas & Electric Co., Oklahoma City • Fairfield County Court House, Bridgeport, Conn. • Huntington County Court House, Hammond, Indiana • University of Michigan, Ann Arbor • University of Kentucky, Lexington • Mansfield State Training School, Mansfield, Connecticut • St. Louis Star Times, St. Louis

THE SANYMETAL PRODUCTS COMPANY, INC.

1687 Urbana Road, Cleveland 12, Ohio

Sanymetal *

* Trade Mark Registered

Toilet Compartments, Shower Stalls and Dressing Rooms



*Above: Crowell-Collier Building, New York City. Architects: Leonard Schultze and Associates.
Elevator corridor walls in Coral Kalistron, Blue Kalistron covers corridor chairs.*

UNBELIEVABLE DURABILITY

on our walls and furniture...

That's the comment frequently heard about *Kalistron* installations. When walls, doors, columns or furniture are covered with *Kalistron*, they literally defy the wear and tear of "heavy duty" service. Years after installation, the *Kalistron* is still in excellent condition . . . unmarred, unscratched, with practically no sign of wear.

Kalistron is different because its color is fused to underside of clear sheet of wear-resistant Vinylite. Since nothing can touch this under-surface, *Kalistron's* beauty stays fresh and new-looking.

Kalistron cannot chip, crack or peel; minimizes maintenance costs. Cleans easily with a damp cloth. In 28 standard colors: special colors matched.

SEND COUPON BELOW for sample of *Kalistron* and nail-file. Test *Kalistron* yourself . . . prove its unbelievable durability.

Kalistron [†]
— COLOR FUSED TO UNDERSIDE
 PLASTIC COVERING MATERIAL

U. S. Plywood Corp., Dept. F-88
 55 West 44th St., New York 18

Please send me FREE Nail-File Test (swatch of *Kalistron* plus actual nail-file) and folder "Facts About *Kalistron*."

NAME _____

ADDRESS _____

Distributed by: UNITED STATES PLYWOOD CORP., N. Y. C.
 and by: DECO SALES, 408 Freylinghuysen Ave., Newark, N. J.
 In Canada: PAUL COLLET & CO., LTD., MONTREAL

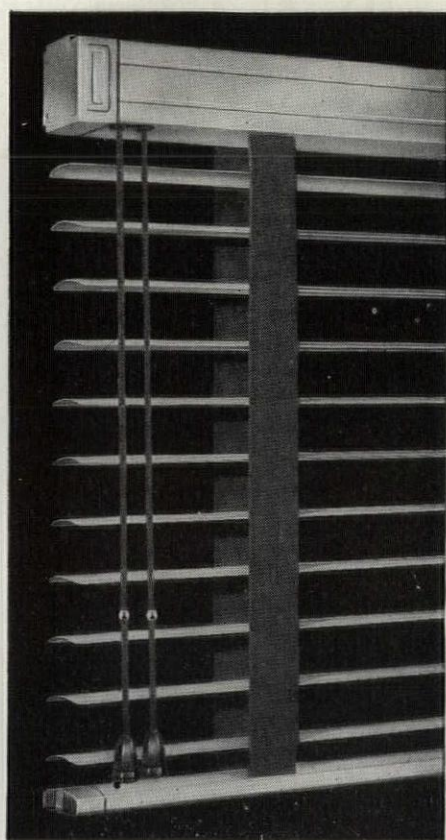
[†]TRADEMARK

Color fused to
 underside of
 transparent vinyl
 sheet . . . backed
 by flocking

Venetians made with LEVOLOR Orange Line (De Luxe) metal heads and bottom bars were installed throughout the modern Sterling-Winthrop Research Institute, Rensselaer, N. Y. W. Stewart Thompson, Architect; Grove, Shepherd, Wilson & Kruege, Inc., General Contractors.



Research experts know what they want ... and they want LEVOLOR-equipped Venetians



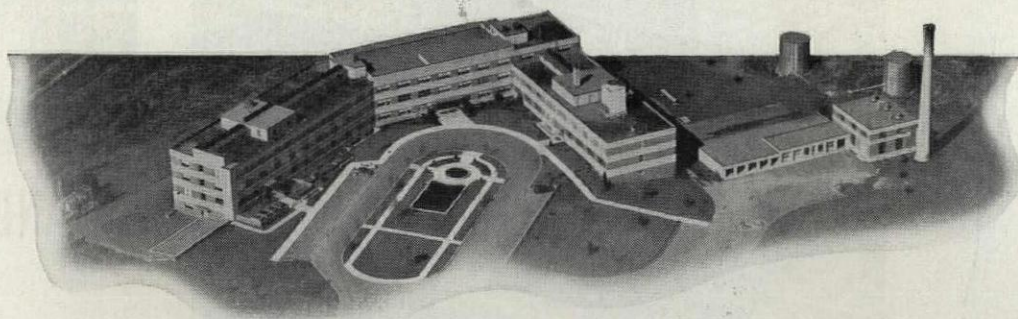
Here are features that set LEVOLOR-built Venetians apart: smart, enclosed head that houses finest precision-built hardware; durable, springy plastic-coated metal slats; tape ends disappear in the sleek bottom bar. All are chip-, mar- and stain-resistant. And one gentle pull makes tilt-cords even, thanks to the LEVOLOR patented tilter mechanism.

See our catalog in Sweet's Architectural File, 19D-3A, and Sweet's File for Builders, 3E-5.

Approximately five hundred windows in the new, modern Sterling-Winthrop Research Institute, Rensselaer, N. Y., are fitted with Venetians made from parts supplied by LEVOLOR. And since most of the blinds are twelve feet wide, covering three windows, sound planning called for the *best* in hardware, all LEVOLOR-made,

enclosed in streamlined LEVOLOR heads. The exclusive LEVOLOR bottom bar which conceals tape ends, plus the patented LEVOLOR tilter mechanism, were also included in specifications for this modern structure.

You, too, will be wise to specify LEVOLOR when you want the best.

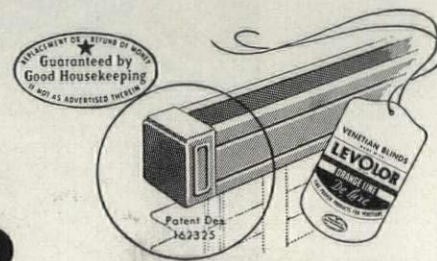


Send for your free copy of the LEVOLOR Architects Manual for Venetian Blinds (AIA 35-P-3) ... 16 pages giving you all the factual and visual assistance you need for any installation.

Levolor Lorentzen, Inc., 391 West Broadway, N. Y. 12

Specify **LEVOLOR**
Trade Mark

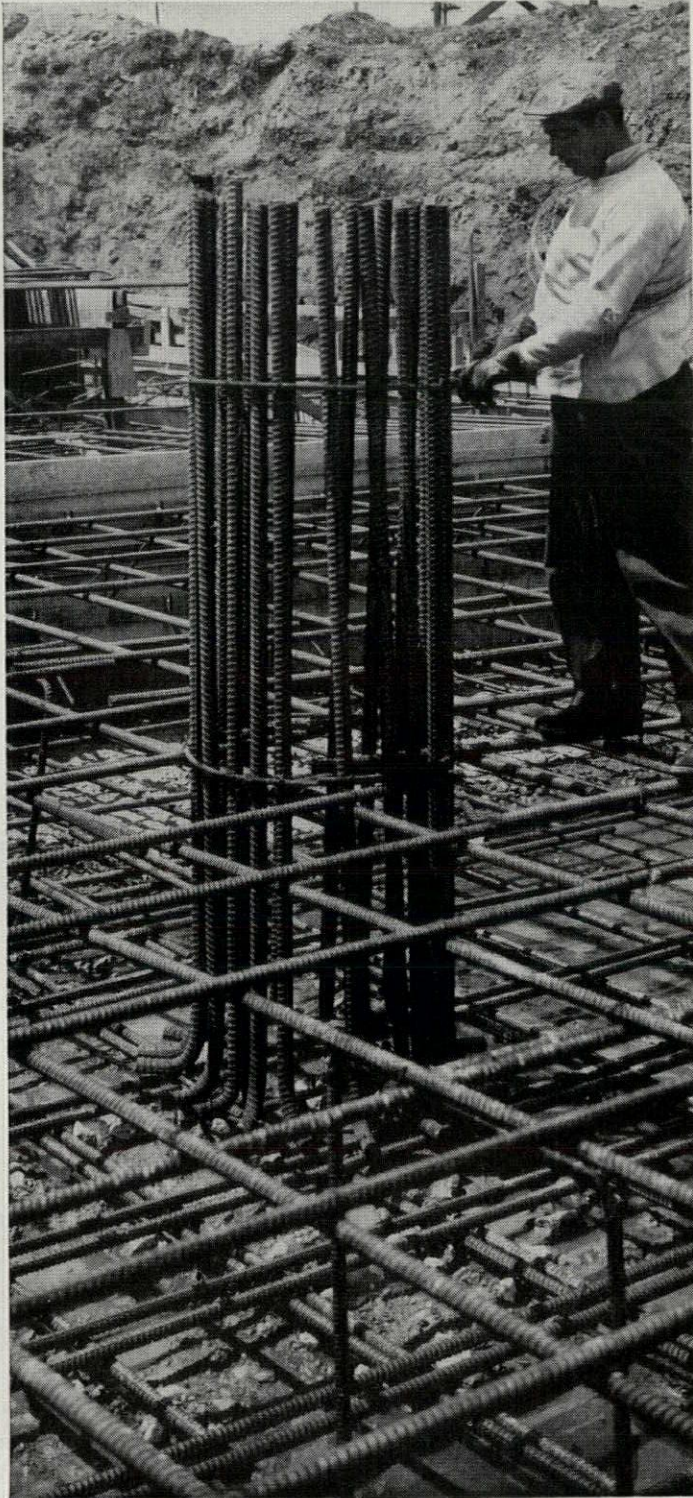
Time-proven Products for Venetians



LEVOLOR-built Venetians are identified by this head design and this tag.

COPYRIGHT 1952 LEVOLOR LORENTZEN, INC., New York 12, N.Y.

CONSTRUCTIVE



INLAND HI-BOND

The deep, reversed, double-helical ribs of Hi-Bond reinforcing bars provide a mechanical grip which gives maximum bond in concrete, thus permitting greater use of steel's potential strength in concrete construction. It also improves transfer of stresses, crack control and resistance to slip . . . advantages that will make possible higher design stresses and thereby lower construction costs. Hi-Bond meets standards set up by ASTM A 305.

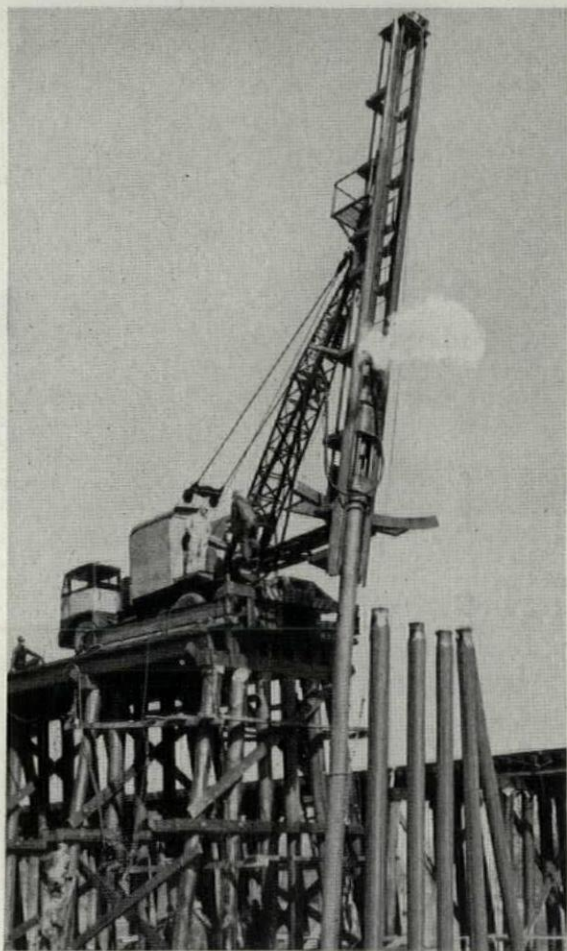


INLAND STRUCTURAL SHAPES AND PLATES

Inland's service on structurals and plates meets the most exacting requirements of today's construction and heavy equipment industries . . . in dependability of product and engineering cooperation with users. I-Beams, Angles, Channels and other standard structural sections, in a wide range of sizes, are rolled to all the standard specifications . . . also in Inland Copper-Alloy for increased resistance to atmosphere corrosion.



IDEAS



INLAND CREOSOTE OIL

For better, longer-lasting preservation of timbers and wood piling. Inland-owned-and-operated coal mines, coke ovens and tar distillation equipment assure quality control at every step in production of Inland Creosote Oil. Its low benzol insoluble content of about 0.1% (American Wood Preservers Association specifications permit 0.5%) gives clean, deep-penetrating, longer lasting preservation.

INLAND STEEL COMPANY

38 S. Dearborn Street, Chicago 3, Illinois



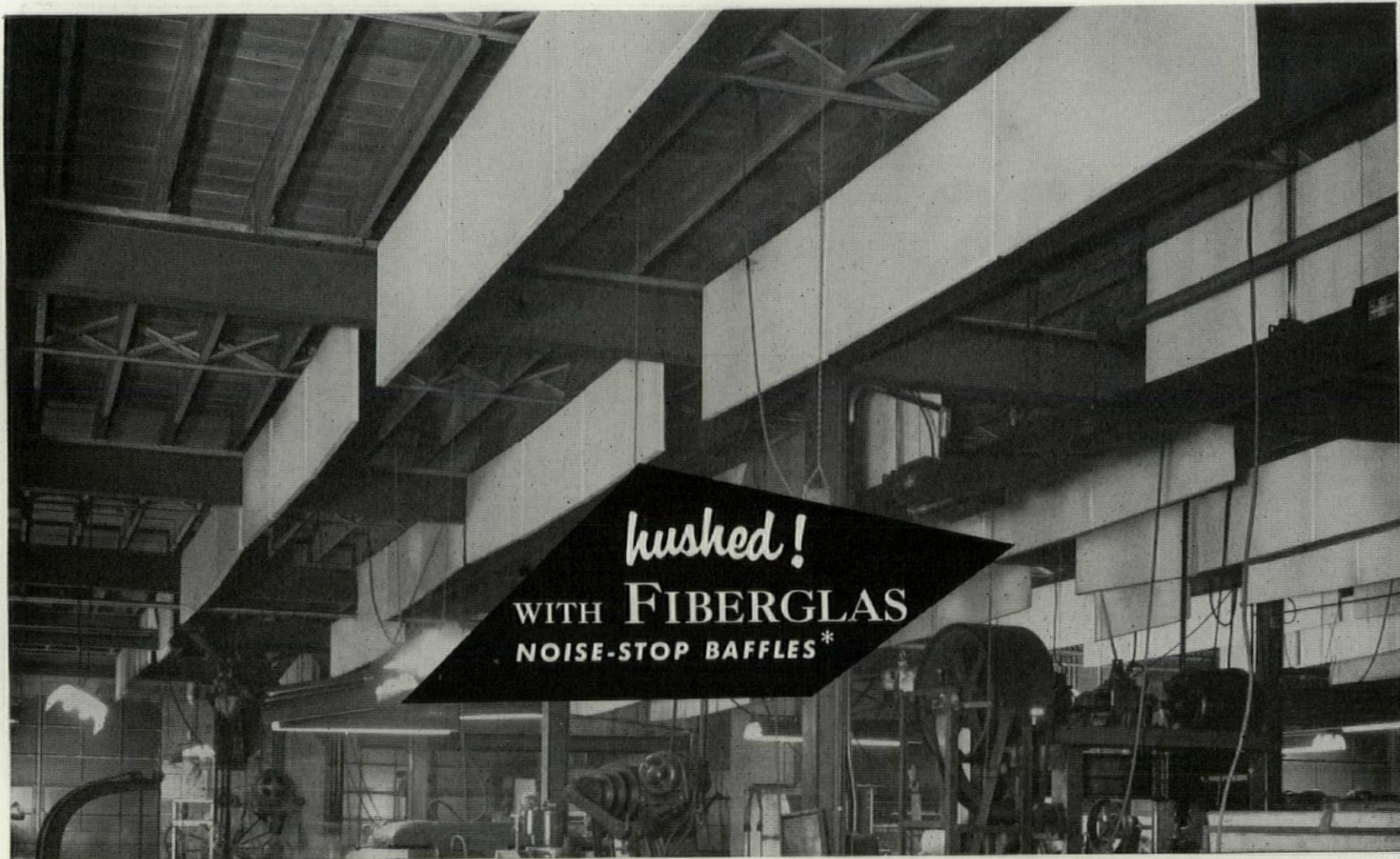
INLAND 4-WAY SAFETY PLATE

On scores of products, on new bridges, in new buildings—and for replacement, maintenance and repair—this scientifically designed steel floor plate, with its exclusive raised lug pattern, provides positive traction in every direction. Tough, durable, strong, it stands up under heavy loads and hard wear. It can be readily sheared, welded, punched, flame cut, and shaped. It has no pores, no cracks, absorbs no liquids and is easy to sweep. Comes in a wide variety of patterns and sizes. Write for Bulletin FI.



INLAND SHEET PILING

Taking the punishment of driving and pulling—being driven, pulled and re-driven as many as 15 times—Inland Sheet Piling has been used and depended on by piling contractors for more than 25 years. Made with highly efficient interlocks for water retention, it gives excellent service on single and double wall cofferdams, cellular breakwaters, jetties, docks, bulkheads and retaining walls. Rolled from a special analysis steel, with the strength, toughness and uniformity to withstand extreme and continued stresses. Available with all necessary sheet piling accessories. In Inland Copper-Alloy, at slight additional cost. And Inland sheet piling specialists with broad experience are available to help you on sheet piling problems. Write for Booklet SP2.



hushed!
WITH FIBERGLAS
NOISE-STOP BAFFLES*

NOISE-STOP BAFFLES for industrial areas . . .

latest Fiberglas* acoustical achievement!

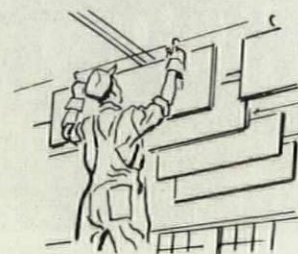
Here's a practical solution to the problem of annoying plant noise—Noise-Stop Baffles, newest addition to the complete Fiberglas line of acoustical products. Installation ranges from $\frac{1}{5}$ to $\frac{1}{3}$ the total cost of a standard acoustical ceiling depending upon plant conditions. Many other applications, such as gymnasiums, laboratories, arenas, are possible.

Noise-Stop Baffles are 2' x 4' units of non-combustible Fiberglas board encased in a dust and lint-repellent plastic film. The baffles are suspended vertically from wires spaced to fit overhead conditions, such as sprinklers, pipes, wires, lighting,

etc. Installation does not interfere with production and can be made easily and quickly.

All recognized and accepted Fiberglas values are incorporated: fire safety, good light reflection, resistance to moisture and humidity, and effective sound conditioning qualities. Easily cleaned, moved and maintained.

For complete technical data and costs call the local Fiberglas acoustical contractor listed in the yellow pages of the phone book, or write to: Owens-Corning Fiberglas Corporation, Dept. 67C-3, Toledo 1, Ohio.

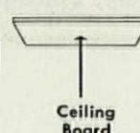
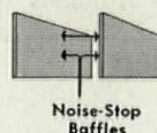


- Make working conditions more comfortable
- Talk instead of shout
- Lower distracting noise in adjacent offices
- Reduce errors and spoilage
- Lessen "time out"
- Avoid misunderstandings of instructions
- Increase over-all efficiency
- Produce more with less fatigue

OWENS-CORNING
FIBERGLAS
TM REG. U.S. PAT. OFF.

SOUND CONTROL PRODUCTS

*Fiberglas (Reg. U.S. Pat. Off.) and Noise-Stop are trade-marks of Owens-Corning Fiberglas Corporation.





Thorsealing can be Beautiful

WHISK
BROOM

STIPPLED
FINISH

HEAVY
BROOM

LINEN
FINISH

THOROSEALING gives to the architect and builder, aside from masonry protection, distinctive textures and the opportunity to present finish coats of QUICKSEAL, in sixteen beautiful tints, without reflection or glare.

ACTUAL PHOTOGRAPHS OF THOROSEAL TEXTURES

With very little effort, many distinctive textures can be produced by the workman with THOROSEAL.



Mercy Hospital, Miami, Florida. Commencing of THOROSEAL applications. Architect—Steward and Skinner, Miami, Florida. Contractor—J. Y. Gooch Co., Miami, Florida.

The finished THOROSEAL job is shown at the top of the page.

Complete Masonry Protection

Can be secured from foundation to roof with THOROSEAL. Beautiful finish coats of QUICKSEAL can be secured without hiding the THOROSEAL texture.

WATERPLUG

To Stop Leaks

THOROSEAL

To Seal Surface

QUICKSEAL

For Beautiful Finish

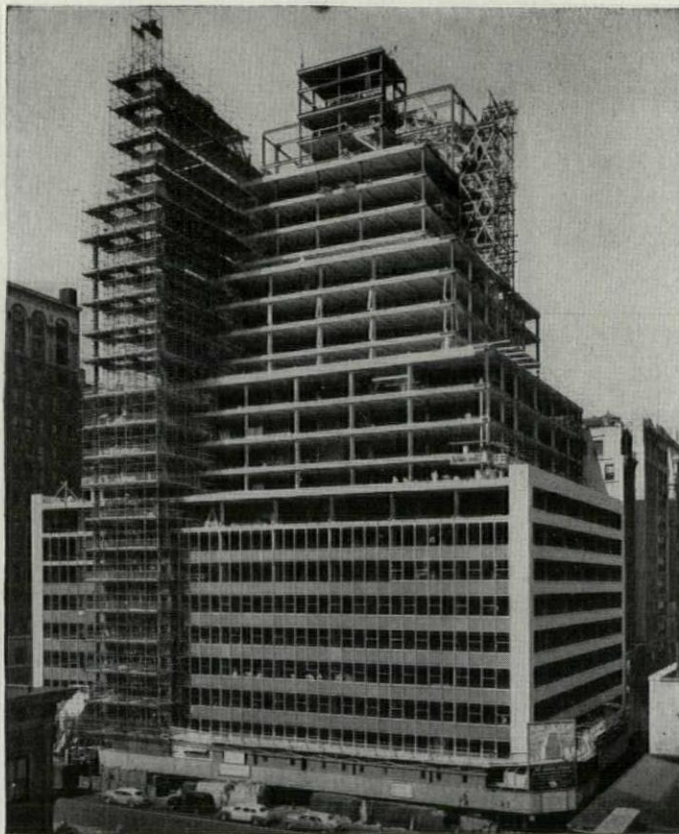
Write today for our new 20 page brochure 17-A and designer's wall chart.



Standard DryWall Products

NEW EAGLE PENNSYLVANIA

they
saved
steel

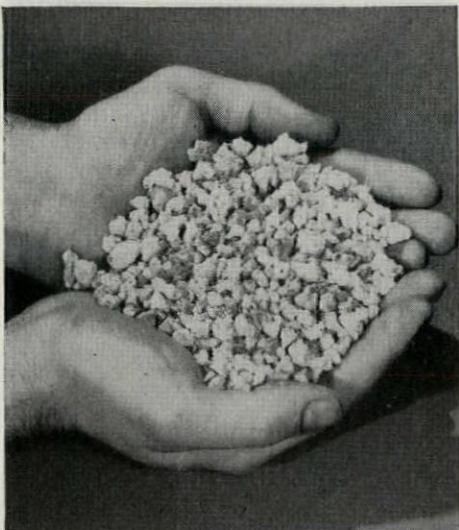


Sylvan Bien
Architect
Weinberger & Weishoff
Structural Engineers
Hegeman-Harris Co., Inc.
General Contractors
260 Madison Avenue Corp.
Owners

WITH FLOORS

AND FLOOR FILL

OF WAYLITE CONCRETE



The use of Waylite aggregate for the 500,000 square feet of floors and another 350,000 square feet of floor fill in 260 Madison Avenue Building, New York saved much dead weight. This in turn permitted economies in steel design.

Other advantages due to Waylite in this new structure that will house "the aristocracy of business" include better ceiling heights; and prevention of the transmission of sound.

In other buildings, exposed Waylite masonry walls are sought because they need no acoustical treatment. Or because Waylite has important thermal insulation values.

Waylite's many advantages and its varied decorative treatments are discussed in an illustrated data book, which appears in Sweet's. Or ask for a copy by addressing The Waylite Co., 105 W. Madison St., Chicago 2, or Box 30, Bethlehem, Pa.

WAYLITE

LIGHTWEIGHT AGGREGATE

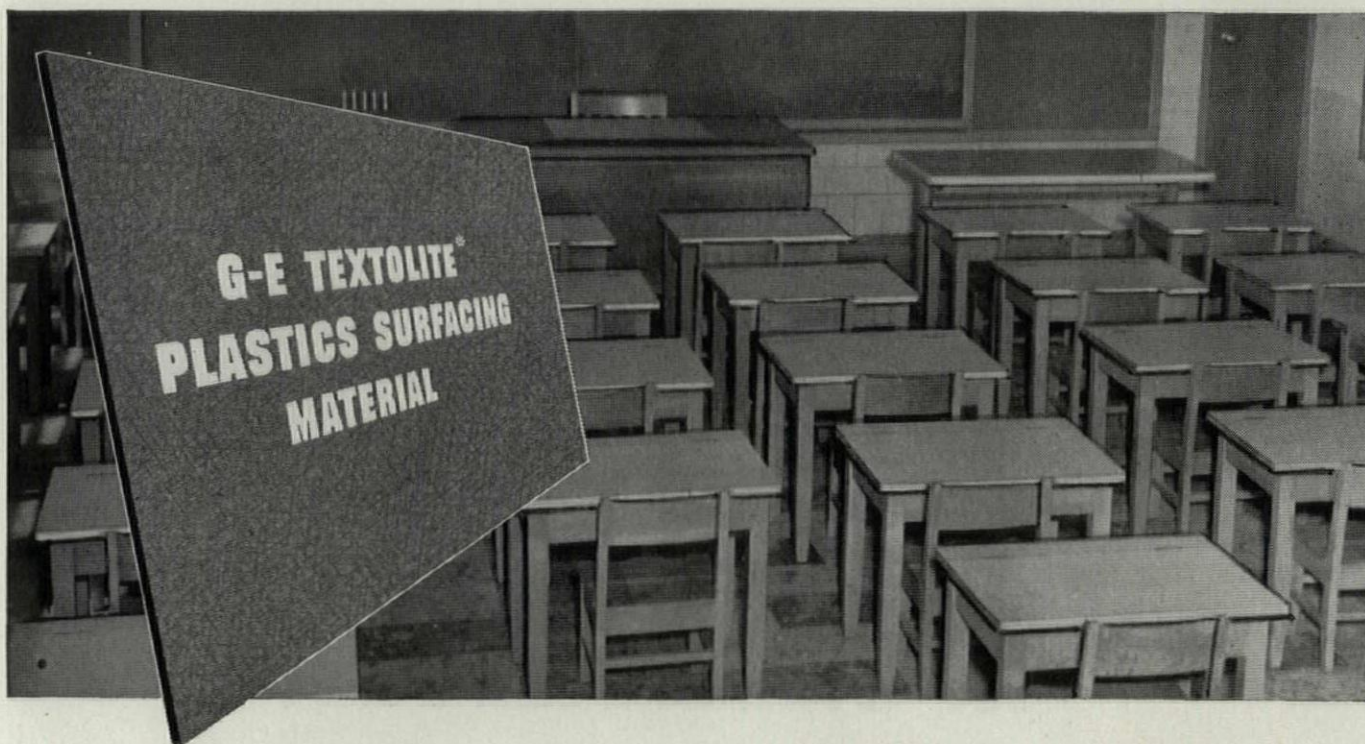


TABLE TOPS



DESK TOPS



CAFETERIA TABLES

Design for Better School Living, Beauty, Better Illumination with G-E Textolite*

G-E Textolite opens the door to brand new opportunities in the field of school design — gives the architect new aid in designing the drabness out of school rooms. It offers new opportunities in color, in cheerfulness — combined with durability unmatched by any other material.

G-E Textolite needs practically no maintenance — no polishing or periodic sanding and finishing—immune to inks, paints, oils, crayons, common acids — cleans

to original brightness easily with a damp cloth.

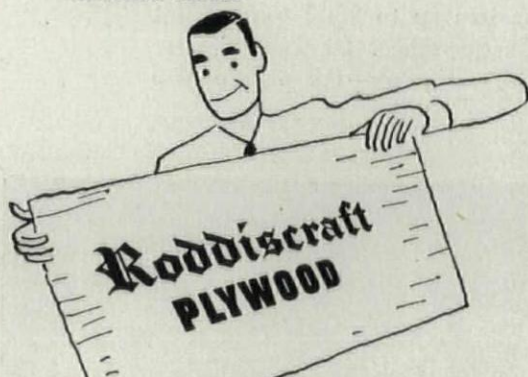
A new Textolite Pattern — Developed Exclusively for School Use. General Electric has developed a new pattern for school use in cooperation with Nela Park Lighting Laboratories. Engineered by lighting experts, it has ideal light reflective properties which improve illumination without glare. Other patterns also meet light reflective specifications.

G-E Textolite is available both in 1/16" thick sheet stock and factory-bonded to Roddiscraft Plywood in accordance with your specifications. Complete information, including free literature, is available from your Roddiscraft warehouse. A Roddiscraft representative will be glad to discuss Textolite applications with you.

Roddiscraft Plywood—The Material of a Thousand Uses

Here is a material that matches its low cost with versatility. Use it for closets, partitions, shelving, built-ins — a host of applications that require lasting service, economy, pleasing appearance. And when you specify Roddiscraft Plywood, you are sure of a product of true craftsmanship quality.

*Reg. U. S. Pat. Off.

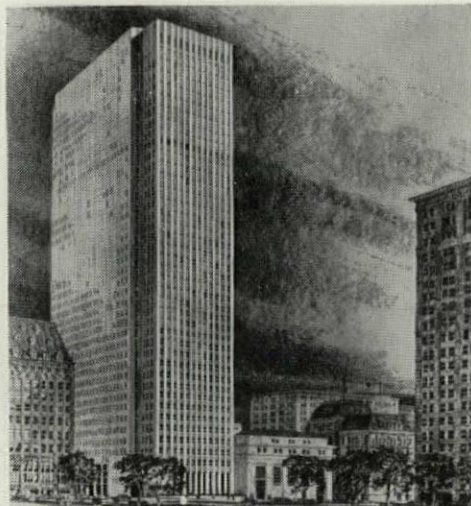


Roddiscraft

RODDIS PLYWOOD CORPORATION
Marshfield, Wisconsin

NATIONWIDE Roddiscraft WAREHOUSE SERVICE

Cambridge 39, Mass. • Charlotte 6, N. C. • Chicago 32, Ill.
Cincinnati 2, Ohio • Detroit 14, Mich. • Kansas City 3, Kan.
Los Angeles 58, Calif. • Louisville 10, Ky. • Marshfield, Wis.
Milwaukee 8, Wis. • New York 55, N. Y. • Port Newark 5, N. J.
Philadelphia 34, Pa. • St. Louis 16, Mo. • San Francisco 24, Cal.
New Hyde Park, L. I., N. Y.



Architects,
Harrison & Abramovitz;
consulting engineers,
Meyer, Strong & Jones;
mechanical contractor,
Dravo Corporation.

Which was best for William Penn Place?

The newest and largest skyscraper in Pittsburgh is 525 William Penn Place. This 40-story office building is occupied by U. S. Steel Corporation and Mellon National Bank and Trust Company.

Four Carrier Centrifugal Refrigerating Machines provide refrigeration for the Conduit Weathermaster* Air Conditioning System.

These machines have no equal in their field. They represent thirty years of experience in manufacture and application.

They have set a record that no other machine can match — two thousand three hundred of them are *on the job!*

They are backed by the largest, most experienced national service organization in the centrifugal field. Carrier experts are stationed in cities across the country . . . always ready to serve . . . seldom called.

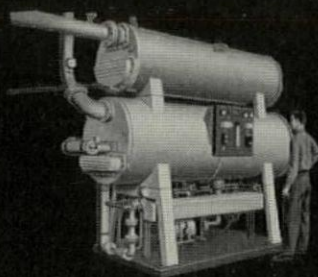
Carrier Centrifugal Refrigerating Machines have the finest shaft seal ever designed. It's the Carrier automatic all-metal, non-friction oil seal. Other advantages include easy installation on simple foundations, the smallest dimensions per ton of capacity.

They're available in a full range of sizes up to 2500 tons. Want complete information? Call the nearest Carrier office. Or write Carrier Corporation, Syracuse 1, New York . . . *for 50 years—the people who know air conditioning best.*

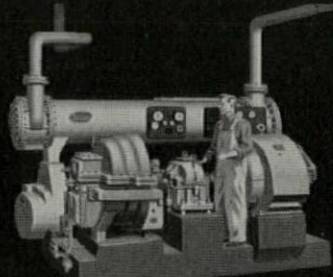
*REG. U. S. PAT. OFF.

Carrier

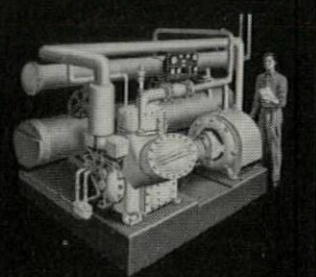
AIR CONDITIONING
REFRIGERATION
INDUSTRIAL HEATING



Your particular needs might best be served by a Carrier Absorption Machine which makes cold from steam.



525 William Penn Place uses four of these Carrier Centrifugal Refrigerating Machines.



In many applications, this Carrier Reciprocating Refrigerating Machine is the most economical choice.

We'll share your responsibility



... in hospitals, you have set routines. And emergencies. Human life is involved. You need always-available, hospital-safe elevator service.

We'll provide this service. We deal in height. Moving people and material vertically. In hospitals, it's patients, visitors, staff, food, linen, sterile supplies and freight.

We can accept this responsibility because Otis is the only elevator manufacturer that designs and builds everything from pit to penthouse. Based on:

Research that advances electronic operation • **Planning** that gives better service with fewer elevators • **Engineering** that turns tested theory into better elevating • **Manufacturing** that concentrates entirely on vertical transportation • **Construction** that brings elevator-trained men to your installation • **Service** that keeps elevators available and hospital-safe.

This background of elevator experience — *unequalled anywhere* — delivers the promise that forms the basis of every Otis contract: The world's finest elevating. Otis Elevator Company, 260 11th Ave., New York 1, N. Y.

Better elevating is the business of



Passenger Elevators • Freight Elevators
Electric Dumbwaiters • Escalators
Maintenance • Modernization





*Drawing photographed by
Veterans' Administration*

Penta protects wood in VA hospital

Over one hundred thousand board feet of lumber for the John B. Cochran Memorial Hospital, being built in St. Louis by the Veterans' Administration, will be protected by penta preservative.

Thirty-five thousand board feet of lumber used as subsills below windows was pressure-treated to retain 6 pounds of penta preservative per cubic foot. Outside doors, sash, frames and 1,350 outside windows were dip-treated with penta. Penta now is named in more than 50 government specifications.

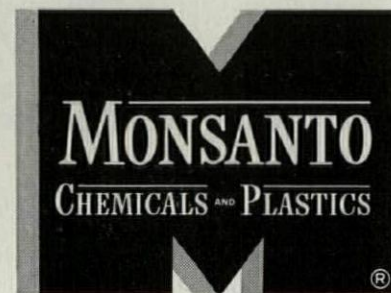
Monsanto Penta (pentachlorophenol, technical) is a stable chemical produced specifically for wood preservation. It protects against termites and other wood-boring insects. It prevents decay due to fungi. Penta does not leach . . . does not wash away in rain or ground water. Treated with properly formulated Monsanto Penta, wood can be painted or varnished.

For information on the use of Monsanto Penta, which gives wood durability sufficient to replace hard-to-get steels in many applications, contact the nearest Monsanto Sales Office or write MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1752-C South Second St., St. Louis 4, Mo.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto Canada Limited, Montreal.

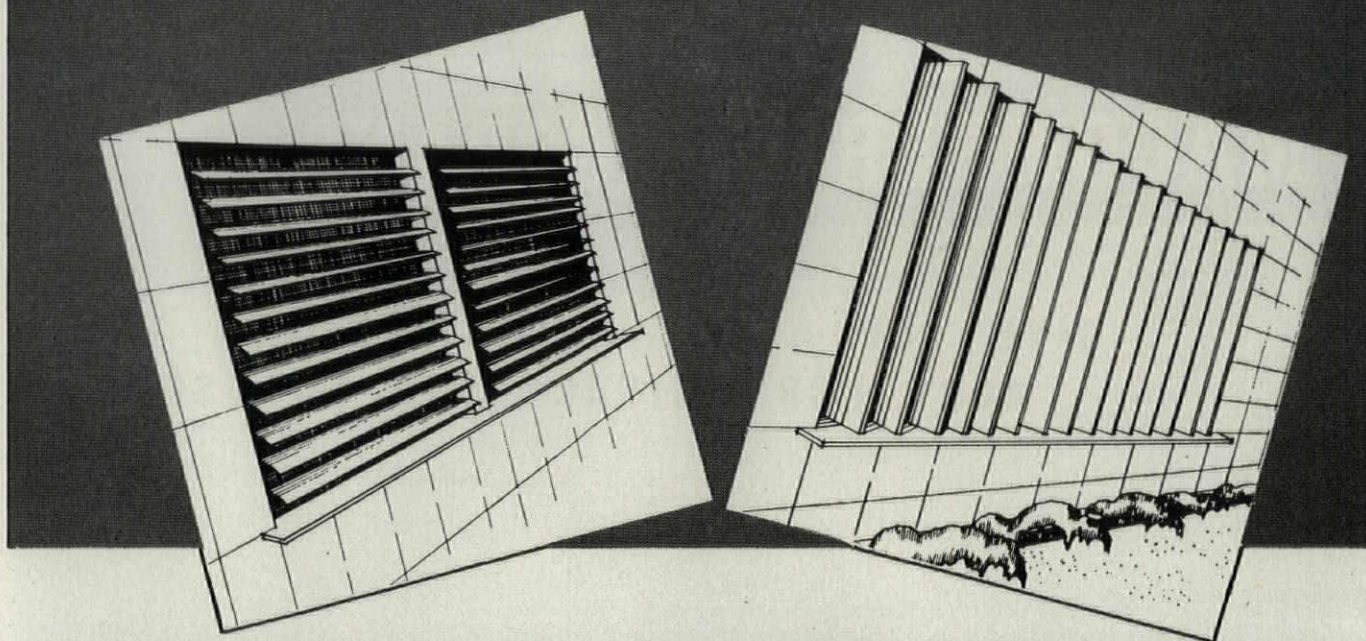
John B. Cochran Memorial Hospital, 500-bed structure being built in St. Louis by the Veterans' Administration. Architect: Technical Service, Veterans' Administration, Washington, D. C. Contractor: Del E. Webb Construction Co., Phoenix, Ariz., and Los Angeles, Calif. Wood Treaters: Associated Wood Preservers and Gravois Planing Mill, both of St. Louis.

PENTA



SERVING INDUSTRY...WHICH SERVES MANKIND

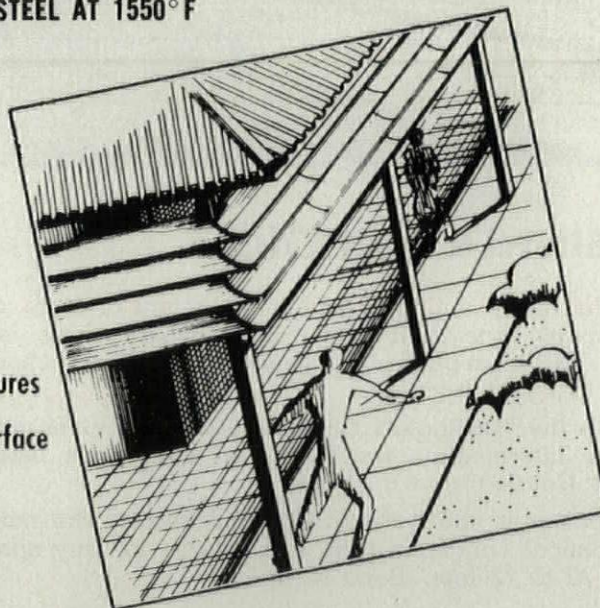
Guaranteed Against Deterioration!



SEAPORCEL **PORCELAIN ENAMEL** LOUVERS

FUSED TO STEEL AT 1550° F

- ★ Strong and rigid without being bulky
- ★ Simple, low cost installation
- ★ No maintenance or re-paint upkeep
- ★ **COMPETITIVE IN INITIAL COST**
- ★ High reflectivity of indirect lighting
- ★ Adaptable to numerous designs and dimensions
- ★ Permanent finish in wide variety of colors and textures
- ★ Guaranteed (10 Years) against deterioration of surface or color (withstands the rigors of all climates)



Send for Detail Specification Sheet



SEAPORCEL METALS, INC.

28-24 Borden Ave., Long Island City 1, N. Y.
Complete A. F. of L. Metal Fabricating & Enameling Shop

ALSO MANUFACTURED ON THE WEST COAST BY

SEAPORCEL PACIFIC, INC.

1461 Canal Ave., Long Beach 13, Calif.

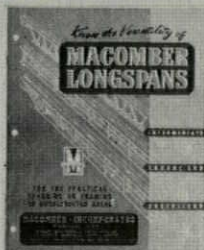
Seaporcel

Architectural Porcelain Enamel

Member: Porcelain Enamel Institute

Complete Engineering and Erection Departments

MACOMBER LONGSPANS



**GIVE YOU AMPLE SELECTION FOR THE
MOST ECONOMICAL UNIT TO USE**

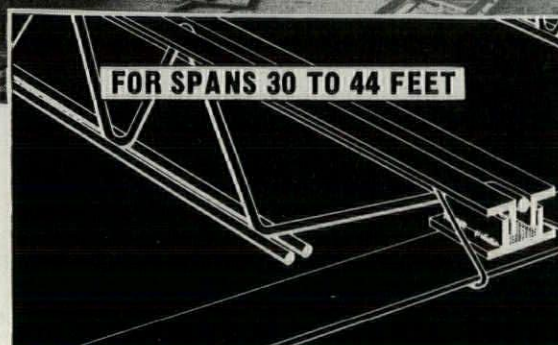


DESIGNER'S CHOICE

For the many buildings within the range of 30 to 44 foot spans, consider the structural economy where you have **THREE** depths of Longspans and **MANY** chord sizes to select from.

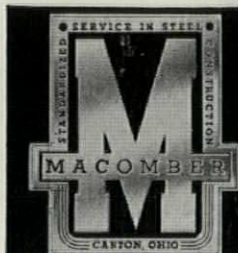
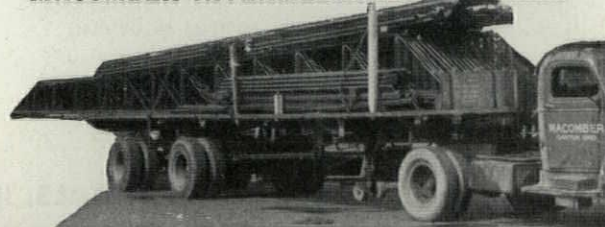
This is the "Designer's Choice" Macomber gives you in the Intermediate and Standard Longspans listed in the Catalog shown above.

The designer can quickly find and specify the most economical Longspan from this catalog for any span from 30 to 72 feet. Send for it.



FOR SPANS 30 TO 44 FEET

MACOMBER INTERMEDIATE LONGSPANS



STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER • INCORPORATED

CANTON, OHIO

V BAR JOISTS • LONGSPANS • BOWSTRING TRUSSES • STEEL DECK

NPA Begins to Ease Controls, May Scrap Most by January

Relaxation of construction controls—a complete flipflop from DPA's January cries of materials' shortages—arrived with a quickening rush this month. In the space of two weeks, the controllers:

► Gave a green light to commence construction, plus advance 3d and 4th quarter material allocations, to 646 religious and community projects throughout the nation (the first since October).

► Did the same for 105 long-stymied commercial projects in seven "distressed areas" (New York, Boston, Washington, San Francisco, Los Angeles, Seattle and Portland, Ore.)

► Gave ALL industrial and commercial construction which was already underway enough steel, copper and aluminum to complete. In a New York talk, Ass't NPA Administrator Frank R. Creedon also urged would-be builders of such structures to speed along their applications, because he expected to approve "a very substantial volume of new starts" at once.



CREEDON

Retreated from plans to tighten up on homebuilding, except for a 25 lb. cut in copper used for water pipe which most homebuilders did not consider serious.

► Issued a new CMP-6 regulation (see table) which eased self-certification and other restrictions on all non-residential building except recreational projects.

Held out hope for bigger allotments of aluminum to building materials' manufacturers during the 3d and 4th quarters. Director John L. Haynes of NPA's building materials division said "there is every indication" supplies will be adequate to boost allotments from 35% of base period in the 2d quarter to at least 50% of the base.

Year-end changes? And DPA Chief Manly Fleischmann, who used to rebut critics of metals allocations by reciting,

for instance, that "stated requirements" for structural steel were 223% of supply, told a House subcommittee he now believes controls on steel "can be substantially relaxed toward the end of this year." Other Washington insiders were betting that January would see an end to nearly all material controls, barring another Communist outbreak.

With the NPA referees changing the rules faster than the building players could learn them, it was no wonder many a contractor was puzzled. "We're not going to war after all?" asked one in South Bend, Ind. Some of the many explanations:

► President Truman had ordered the arms buildup slowed down and stretched out a year longer (the "yawnow"). With military steel, copper and aluminum needs cut accordingly, there was far more for civilian uses.

► Political pressure: nothing much had been done about easing controls in the seven hardship areas

until the AFL Building Trades Department joined the chorus of industry howlers.

► The once-scorned NPA Construction Industry Advisory Committee, which, it appeared, finally persuaded DPA chiefs to take advantage of the know-how of Creedon, onetime construction boss of AEC's Oak Ridge and Hanford bomb plants. Although Creedon has been in NPA almost from the start, until recently it was attorneys who controlled the construction regulations. Since Fleischmann turned NPA over to Attorney Henry Fowler, the lawyers' grip on building controls has been, if not broken, at least drastically whittled down, said insiders.

Best bet: DPA at last had recognized its own or the Pentagon's gigantic miscalculation of military demand for metal. DPA aides confirmed a startling fact: *their long-range projections used to plan impact on the civilian economy of metals allocations were based on a 1953 military budget at the fantastic rate of \$85 billion.* Now that the Pentagon was returning allotments of steel and copper it could not use, DPA at last saw the light, sliced its military budget thinking down to a more realistic \$51 billion. But because it had taken the planners months to recognize the boner, the nation's entire economy was upset, and big segments of construction (the economy's largest component) were derailed.

'Understanding, reasonableness.' Whatever the justification, the building industry

RELAXED CONSTRUCTION RULES: details of new CMP-6

On Mar. 6, the National Production Authority issued its first major revision of CMP Regulation 6. The new compendium eliminated residential construction, was supposed to be rewritten into simple language. But CMP-6 still contains a bewildering 34 sections and five tables. Main points:

For small projects:

SELF-CERTIFICATION (After March 5)

	STEEL	COPPER	ALUMINUM
INDUSTRIAL (per project per quarter)	25 tons (carbon steel, including structural shapes, up to 2½ tons of alloy, but no stainless steel)	2,000 lbs.	1,000 lbs.
ROAD PROJECTS (per project)	25 tons (carbon steel, including up to 2 tons of structural; no alloy or stainless. Total self-certifiable up to now: 2 tons)	200 lbs.	none
NONINDUSTRIAL (other than residential & recreational—per project per quarter)	5 tons (carbon steel, including up to 2 tons of non-wide-flange structural; no alloy or stainless. Total self-certifiable up to now: 2 tons)	200 lbs.	or 100 lbs.

For big projects: projects using more than self-certification limits still must apply to appropriate claimant agency on CMP Form 4-C, await approval before beginning construction.

Steel	Foreign and used steel may be used in unlimited amounts (in addition to regular allotments) providing this means no increased use of copper and aluminum.
Copper	Not to be used for decorative purposes, flooring, cornices, downspouts, facias, gutters, waste nipples, leaders, linoleum and terrazzo stripping, marquees, metal siding, sink moldings, roofing or store fronts.
Aluminum	Self-certifiable for electric wiring if used to replace copper on the basis of 1 lb. of aluminum for each 2 lbs. of copper. Not to be used for decorative purposes.
Recreational projects	Materials are not self-certifiable. Two tons of carbon steel and either 200 lbs. of copper or 100 lbs. of aluminum can be used per project, if already on hand.
Dollar limitations	For industrial DO-rated projects: \$200,000 for production equipment and machinery; \$100,000 for noncontrolled building equipment and materials. For nonindustrial DO-rated projects: \$5,000 for production equipment and machinery; \$15,000 for noncontrolled building equipment and materials.
Adjustment	Applications for adjustment or exception on recreational projects should be filed on Forms NPAF-24A and CMP-4C with the National Production Authority, Washington 25, D.C. Applications concerning adjustment or exception on the use of controlled materials should be filed on Form NPAF-24A with the claimant agency.

IN THE NEWS

Among the next 29 pages are reports on these important developments:

Senate airs Africa air base muddle . . .	p. 50
Structural steel order backlog shrinks . . .	p. 51
Wage board sets 15¢ building pay hike . . .	p. 53
What will Congress do this year? . . .	p. 55
Georgia gets new architect law . . .	p. 55
A library becomes cold war weapon . . .	p. 55
General contractors convention . . .	p. 57

hailed Creedon as hero of the hour. Said President Thomas S. Holden of F. W. Dodge Corp, introducing Creedon's New York talk: "He has had as much to do with the change of attitude of NPA toward the construction industry as anybody . . . he has introduced the spirit of understanding and reasonableness that seemed to be lacking some months ago." Responded Creedon: "The primary reason I remain in Washington is to recommend at the proper time—not too early and not too late—that all construction controls be removed." Although precise, graying Frank Creedon didn't hint at the date, he did promise an easing on wide-flange

structurals by the end of the year and said NPA was studying permitting structurals in housing. Another easing was urged by the Federal Security Agency: self-certification for elementary and secondary schools of up to 50 tons of carbon steel (including 7 tons of structural) 1,000 lbs. of copper and \$15,000 of B-products.

Unless a steel strike cut off production, the peak pinch on metals was over. Despite the extra trouble this might make getting the Defense Production Act renewed by Congress, the military yawncut and increasing soft spots in the business economy seemed to be dictating a belated shot in the arm for building.

Senate Committee Hears Experts Clash On 'Faulty' U.S. Airfields in North Africa

Disturbing rumors and complaints, which have formed a running accompaniment to construction of Air Force bases in North Africa, erupted into open accusations last month before the Senate preparedness subcommittee. To the nation's contractors, worried lest headline-hunting legislators give their industry an undeserved black eye, it was small comfort that the charges generally outran corroborative evidence.

Most sensational charge: runways and parking aprons had collapsed under testing; much of the \$300 million program would have to be dug up and built over again at a loss in salary and materials of \$1 to \$3 million.

Rush jobs. The two bases under scrutiny were Norasseur and Sidi Slimane, both near Casablanca and both part of the emergency air base program rushed through just after the Korean war began. This undertaking encompassed joint planning by the Air Force, the Army Corps of Engineers and, under the working name of the Atlas Construction Company, the services of five private construction outfits (Morrison-Knudsen, Bates & Rogers, Nello Teer, Mills & Blythe and Porter-Urquhart; plus Skidmore, Owings & Merrill, Associated).

"Project Atlas" originally called for five bases to be in operation six months after the arrival of construction equipment in French Morocco (specifically by July 1, 1951). Yet even now, only two have been partially completed. Construction failures have occurred on both and repair work is keeping the bases largely inoperable. Prodded by letters from disgruntled personnel in North Africa and by the Weiner, Beadle, Griffith and Wise reports which labeled construction "far below

standard, mediocre, substandard," Senate investigators asked "why?"

Hard to tell. Answers were involved and conflicting. From the charges and counter charges emerged a picture of a vast project in immense confusion. Difficulties began with standby pay for hundreds of workers who waited in Africa four months while access rights to the land were negotiated with the French; continued with 60, 70, 80 and even 90 hour work weeks as the deadline (reduced to two months by the delay) drew near. In the rush toward completion, specifications were said to be "ignored, modified or overlooked." Internecine quarrels developed between Army and civilian project engineers, requirements were changed by the Air Force, unfortunate difficulties with local materials jammed the works, and American personnel, depressed by the heat, the work pace and the living conditions (tents, six toilets to 300 men, no recreation facilities) were reported drunk and disorderly in native

towns. Even when the pinch of emergency relaxed and the completion deadline was extended, the turmoil continued. But just exactly what construction failures occurred, why and by whose fault, remained difficult to determine. Principal testimony:

▶ Harold Simmons of Porter-Urquhart, who was project engineer at Sidi Slimane, accused the Corps of Engineers of using inferior grading materials from an area he and his men had disapproved, testified that screening of quarried rock for runway base courses had been abandoned, reported errors of three to four meters in runway grading and a 17 ft. dogleg in the center line of the Norasseur runway. So naturally, it collapsed when tested. Said Simmons: "I don't think (the specifications) meant a darned thing to either the Corps of Engineers or Atlas. They did as they darned pleased."

▶ Determinedly, the Corps of Engineers wriggled to get off the hook. Testified Lt. Gen. Lewis A. Pick, chief of the Corps of Engineers: "Ground in this area is a very peculiar formation, they call it tufa, but it is dry and, in place, in its natural state, it is very hard and has a tremendous bearing capacity. When it is wet it absorbs water very rapidly and becomes an entirely different material. Its bearing capacity will drop 25 or 30%—just like that . . . On the apron, when this binder course had been poured and was in place, a terrific rain occurred. After the runway dried out the soft spots could be repaired "like a cavity in a tooth."

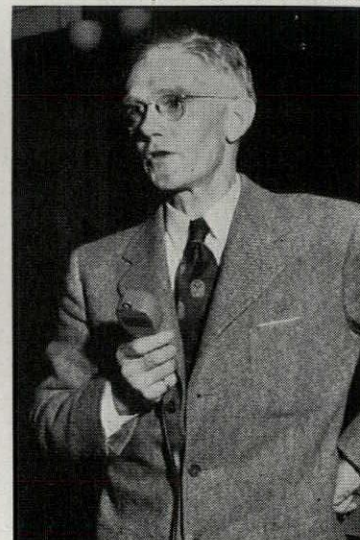
▶ John Perry, retired vice president of Turner Construction Company who was sent to check the project, testified that there was some excuse for modifying specifications because of the pressure under which work was done. But he could not understand why slighting of specifications continued for almost six months after the pressure was off. Said Perry: "The Corps of Engineers through the district engineer apparently ignored the inspection reports and the specifications of their own people."

▶ Gen. Pick remained unshakable: "I believe that it can be corrected and that when it is corrected and the wearing surface put on here a satisfactory job will have been done, and the Air Force can expect to receive good service from the apron area . . . and contrary to what the committee may be told, or what anybody has said, I do not agree that the life of the runway or the apron is limited to two years or two years and a half or three years."

Time photos by Walter Bennett



BRAB-BRI MEETING participants included HHFA Research Director Joseph Orendorff (above left), who urged a new survey of research underway "in the entire building field to show up the deficiencies of research in housing"; W. A. Casler, assistant research director of Armour Research Foundation; C. W. Smith, director of Southwest Research Institute. BRAB Executive Director William H. Scheick (right photo) was named executive secretary of BRI.



From Simmons, Senator Long drew an admission that complaints were overtold. Senator Long: "There is some basis for some of this, but there has been a considerable amount of exaggeration as well?" Simmons: "Yes."

This much remained certain: the Noras-seur parking apron still had holes in it. Repair work was expected to keep the bases out of operation until next summer.

BUILDING RESEARCH institute aims at sounder BRAB financing

A pitifully tiny fraction of what the nation spends for construction goes into research. Virtually nothing at all goes into putting the bits and pieces of research done by scattered firms and laboratories into a sense-making whole.

When the four-year-old Building Research Advisory Board began trying to fill that gap, it ran into a financial road block. BRAB was part of the National Research Council, which does not permit dues-paying members on its advisory boards. They are limited to a handful of technical experts appointed by the Council (BRAB consists of 28). While a few building firms had contributed generously to BRAB (\$36,109 last year), it was a tough job to solicit contributions afresh annually. Last year, BRAB quietly launched its fashioned solution: the Building Research Institute, a sister group with two aims: 1) to provide orderly, long-term money to operate BRAB by signing up dues-paying, professional and industry members, and 2) to create more contact between BRAB and the building materials industry.

This month, Building Research Institute, with 30 members on its books, felt sturdy enough to organize formally. Elected president was lumberman Norman Mason, treasurer of William Proctor Co. of North Chelmsford, Mass., a tireless worker for better industry integration. Vice President R. E. Zimmerman of U. S. Steel Co. was elected BRI vice president. That done, 60-odd BRAB and BRI members spent the rest of the day reviewing their accomplishments and plans. Best completed BRAB work so far, they agreed, was its \$30,000 survey for HHFA (to be published next month) which revealed that at some 200 universities and other groups are or recently were conducting 1089 separate housing research projects. BRAB's catalog of the projects bulks 700 pages, should be invaluable in reducing overlapping and duplication of research. There was talk of fund-raising, too. Mused BRAB Executive Director William H. Scheick: "If NAHB gave \$1 for research on every house built in 1951, this could produce \$500,000."



UNSOLD STRUCTURAL STEEL piles up in the yard of the Bushnell Steel Co. at Miami. Most of the pieces in the foreground are medium and light wide-flange shapes, still labeled "critical."

Miami Herald

Structural Steel Piles Up in Warehouses; Small Fabricators Cry for More Orders

► Contractor Arthur S. Horner waved a 3 column x 14" ad from Jan. 9's *Denver Post* at NPA controllers last month. Midwest Steel & Iron Works Co. was begging for customers for a long list of structural steel and bar shapes.

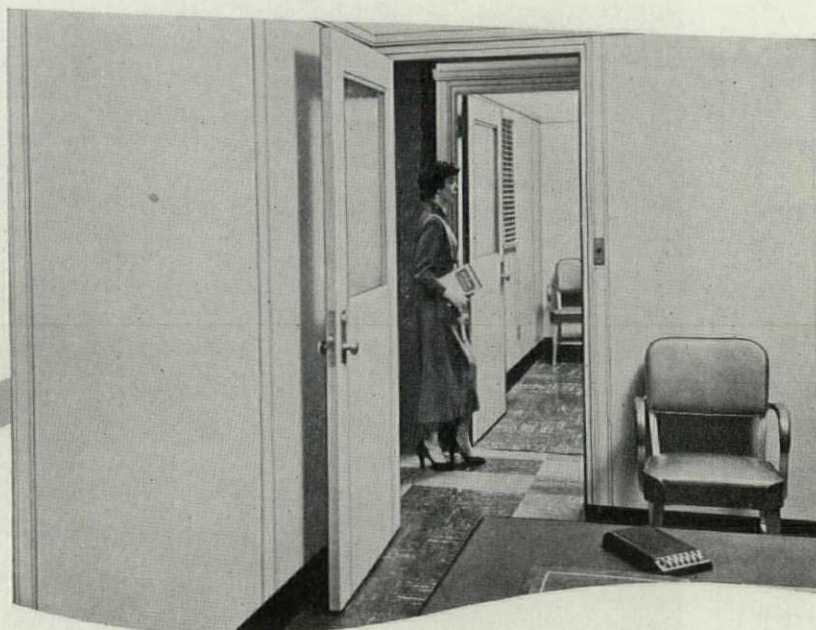
► At Denver's Steel & Ironworks Co., Executive Vice President H. H. Wolleson forecast: "If they don't decontrol some of this stuff, steel companies will be in bad shape within six months."

► In Chicago and Cleveland, some steel warehouses were unloading cold-rolled sheet steel at less than mill prices.

Multiplying evidence like that confronted government controllers last month as they loosened the shackles on building. Since last May, new orders reaching fabricators of structural steel had dropped steadily. This, of course, was a phenomenon to be expected when government seizes control of steel use. The same pattern occurred in World War II. But now, warned the American Institute of Steel Construction, some 500 small fabricators needed more business

just to keep busy during April, May and June. And considering the eight months it can take to translate a CMP ticket into actual fabrication, the crisis was urgent. With government, instead of the industry, carrying the backlog of steel demand, it would take unprecedentedly quick action to keep structural production from slumping in coming months.

Heart of the problem—now that NPA's facilities and construction bureau at last could say it knew exactly how much steel the nation's burgeoning crop of factories would require—lay in the Pentagon's continued inability to define what it needed. Reported an ODM Steel Task Group led by Chairman Hiland G. Batcheller of Allegheny Ludlum Steel Co.: "It has been impossible to uncover any source that could provide a really comprehensive estimate of total (military) steel requirements, broken down into mill products, properly phased by quarters for the next four or five years. (This) makes it impossible to give anything more than approximate answers regarding the adequacy of steel."



This office was planned for livability—not limitation

● Future expansion plans of this small but progressive company call for these executive offices to be a part of the production floor. And when that time arrives—next year or five years from now—these offices *including the walls* will be moved and re-erected in a new location without muss, fuss or even one day of lost time.

With modern Hauserman *Movable*



OFFICES • SCHOOLS • LABORATORIES
HOSPITALS • INDUSTRIAL PLANTS

Korweld®—the non-metallic panel construction which combines the best features of all types of interior partitions—is an exclusive Hauserman development. Ask your Hauserman Representative for facts about this revolutionary new product.
®Trademark

Interiors, thousands of American businesses—commercial, industrial and institutional—are experiencing this same freedom from limitation . . . *permanent livability* despite changing floor space requirements.

Although present demand for Hauserman *Movable* Interiors is the greatest in our almost 40-year history, recent expansion of production facilities makes it possible to meet delivery schedules with earlier *on-time* erection by Hauserman's own nation-wide service organization.

Now, before you remodel or expand, is the time to plan for the many space-saving, time-saving, money-saving advantages of Hauserman *Movable* Interiors. Your nearby Hauserman Representative will gladly furnish you with complete information . . . or write today to The E. F. Hauserman Company, 7118 Grant Avenue, Cleveland 5, Ohio.

WAGE POLICY: WSB ok's 15¢ boost, 7½¢ welfare contribution

The Wage Stabilization Board's 1952 wage formula for construction workers, announced Mar. 13, introduced two changes in policy. In announcing it will approve new pay increases up to 15¢ an hour, the board switched from percentage increases because it "disturbs customary differentials." In deciding (with employer members of the board dissenting) to approve employer welfare fund contributions up to 7½¢ an hour, the board was now concerning itself with contributions to a plan rather than benefits yielded.

The increase brings the average straight-time scale in the construction industry to \$2.61 an hour. Other industries have been granted 4.7% second-round cost-of-living increases (a 10% one was granted in mid-1951) which would have only given construction workers a 12¢ boost. The WSB justified the extra 3¢ by declaring holiday and vacation increases would be chargeable against it.

The Construction Industry Stabilization Commission must now approve all increases in employer contributions to welfare plans. Both sides can select the type of benefits, however, including total medical insurance (instead of just hospitalization).

LEASE-PURCHASE scheme pushed for federal office buildings

In half-a-dozen states where public building has bogged down because legislators shy away from such big appropriations or because of legal debt limits, officials have turned to the lease-purchase system. The state lets a private investor build to government specifications, gives him a lease long enough to return his money plus a profit. After that, the building reverts to the state.

Last month, the lease-purchase deal began making important headway in Congress. A House committee approved a bill which would let the General Services Administration enter into lease-purchase agreements running from eight to 25 years. Annual rents could not exceed 15% of the fair appraised value determined by GSA. According to hypothetical cases calculated for the benefit of Congress, investors would be able to count on a sure-fire return of 4 to 5%. In the Senate, the measure also won committee approval, was headed for an early vote. Betting was that it will pass.

Commissioner W. E. Reynolds of GSA's public buildings service is counting on the plan to help the federal government get at least \$1 billion more worth of buildings in the next five to ten years. GSA argues that lease-purchase not only will help ease the

government's office space pinch, but will also save money. For example, Uncle Sam has leased the Hurley-Wright building in Washington for the last 35 years at \$79,000 a year. Under lease purchase the government might have owned the building ten years ago. GSA ruefully admits Uncle Sam does not make too good a tenant, however. In the capital, leases now cannot run more than a year. In other cities, Congress permits five-year leases.

WHERRY ACT changes proposed in report to Senate committee

When the Wherry Act granting FHA insurance to on-base military housing was originally enacted in 1949 it required every builder submitting a construction bid to base commanders to provide his own set of site plans and blueprints.

A Pentagon housing commission soon complained that this system produced no enthusiasm from prospective bidders because the cost of working up detailed plans was too high for a bid which might never be accepted. Moreover, said the commission, all participants had to incur the planning expense although they knew at the start that only one could win. So in 1950, Congress amended the law. Now, architects picked by commanding officers first draft a single set of plans and then builders are invited to submit bids.

Last month, a staff report to the Senate Banking Committee advocated returning to the original system. For architects, it made unhappy reading. Wrote Researchers Joseph P. McMurray and Raimond Bowles:

"With very few exceptions, it is the opinion of almost everyone we discussed the program with—the military, the FHA, the builder and the mortgage industry, and it is our tentative conclusion that the (present) procedure results in unnecessary

WASHINGTON DIARY

- 2/14 DPA revises tax amortization regulations calling for closer examination before start of construction (effective March 1).
- 2/26 NPA permits immediate construction start on 645 religious, institutional and community buildings (cost: over \$200 million).
- 2/26 NPA allows completion of 186 commercial structures already started (cost: \$126 million).
- 2/28 DPA grants fast tax write-offs to 214 defense facilities, bringing total to 6,522 projects involving proposed investment of \$13.8 billion.
- 2/29 NPA announces all industrial expansion and commercial building projects under way will get sufficient materials for completion due to adjusted structural steel allotments.
- 3/3 New DPA "List of Basic Materials and Alternates" adds cold-drawn and hot-rolled carbon steel bars to "most critical" list, offset by easing in steel plates, hot-rolled alloy bars.
- 3/3 DPA will redistribute 30 million lb. of aluminum and 20-25 million lb. of copper held in reserve for second quarter, 1952.
- 3/3 NPA lifts controls on lead, boosts permitted inventory to 60-day supply.
- 3/6 NPA revises CMP-6 construction order liberalizing materials for nonresidential construction.
- 3/7 NPA announces approval of 105 new commercial building projects (cost: \$54 million) in six hardship areas.

delay (four to nine months) in getting the housing under way and in many instances results in less house for the money. . . . By excluding the builder from the development until plans are completed, the person with the most know-how in cutting costs is left completely out until he gets the finished plans and specifications—too late to do much about it." McMurray and Bowles made two other proposals:

- ▶ Raise the maximum mortgage limit from \$9,000 to \$12,000 for 5% of the program.
- ▶ Permit the Pentagon to award contracts by negotiation, to speed construction.

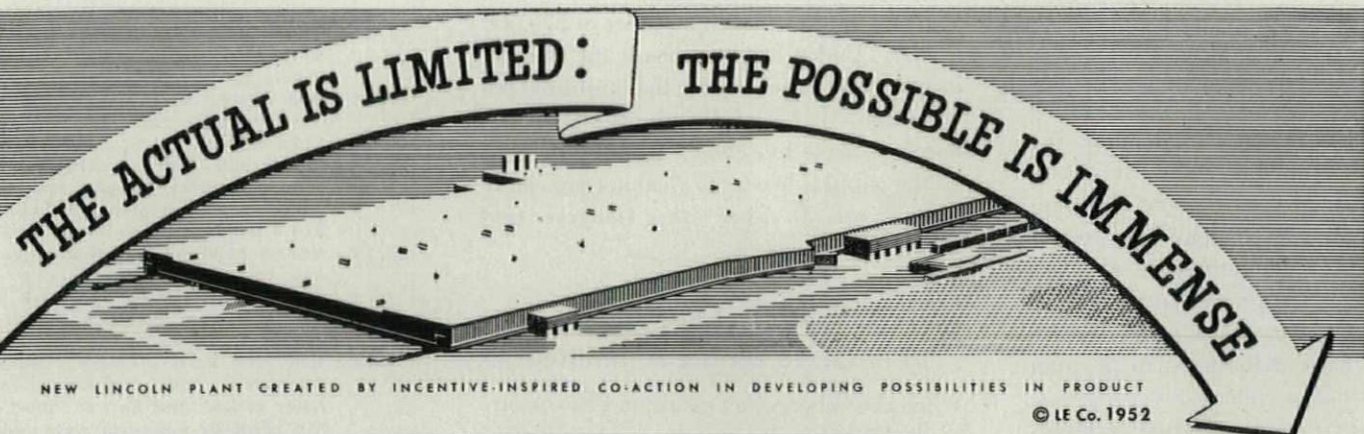
Wherry Act results so far: 20,652 units completed, 14,679 under construction, 5,523 ready to start.



SCHOOL DESIGNS: 24 win in magazine, administrator group contests

Senior High School and Community College of Keokuk, Iowa (above), planned by architects Perkins & Will, was one of 15 "honorable mention" awards and five prize awards for best U. S. schools among 200 submissions to a competition sponsored by the magazine "School Executive." Top prize winners: John Carl Warnecke (for his Mira Vista school, Richmond Heights, Cal.—June issue '51); Reisner & Urbahn (Lido Beach school, Long Island, N. Y.—Dec. issue '51); Edward Fleagle (Rosedale Road school, Yonkers, N. Y.); Eaton Tarbell & Associates (New Bangor elementary school, Maine—details will be published in FORUM); Caudill, Rowlett, Scott and Associ-

ates (Will Rogers school, Stillwater, Okla.—AF, Jan. '52). The Caudill school won another medal at the February convention in St. Louis attended by 8,000 members of the American Association of School Administrators. Other winners: a school at Fresno, Calif. for afflicted children, by David Horn & Marshall Mortland, associated architects for the Fresno school system; Lee elementary school, Manhattan, Kan., by F. O. Wolfenbarger & Associates, architects; Oak Ridge high school, by Skidmore, Owings & Merrill; Clayton high school, Clayton, Mo., by William Ittner, architect. General level of submitted schools was judged best in recent AASA shows.



WELDED FRAME DESIGN CUTS STEEL TONNAGE 15%

THROUGH welded structural design, it has been possible to save 15% on steel in the framework for J. W. Robinson's new department store in Los Angeles. The most recent department store in Southern California, this 1700 ton frame is almost entirely field welded.

The relationship of the columns and girders provides both vertical and horizontal continuity with a minimum of welding. The horizontal continuity reduces the deflection of the 32 ft. beam and girder spans to approximately 25% of what it would have been if they had been simply supported.

All girders are continuous through the column lines—the column rather than the girder being spliced at that point—and extend to a point approximately 6.5 ft. from the columns on both ends. This leaves a space in alternate spans of approximately 19 ft. between girder ends in which a suspended span is carried.

This design idea also allows any variations in gap to be compensated in the splice welds and so further simplify field welding.

Approximately 6" less height per story results from this welded frame design. Distances between ceiling of one floor and the floor level above are also considerably less than with other types of construction.

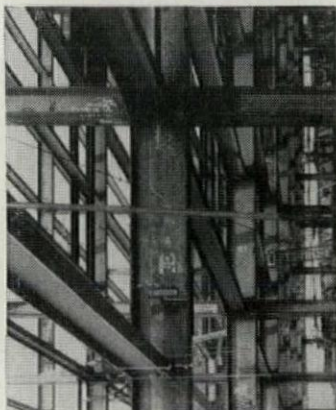


Fig. 4. Continuous Girder passing over column top is spliced at point of minimum stress.

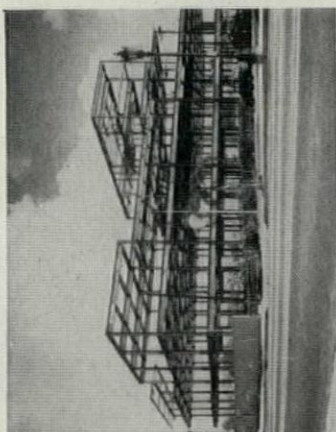


Fig. 3. Four Story Rigid Frame for the J. W. Robinson department store in Los Angeles, California. Architects: Pereira and Luckman and Charles O. Maticham. Structural Designing and Detailing: Paul E. Jeffers and Robert Wilder, Associate Structural Engineers. Steel Fabricators: Bethlehem Pacific Coast Steel Corporation.

WELDED DESIGN ALWAYS SAVES STEEL AND LOWERS COST

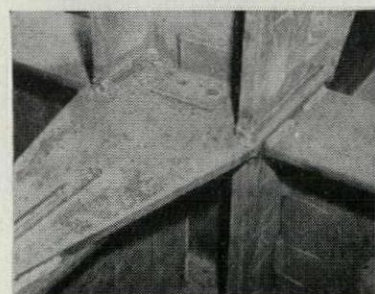


Fig. 1. Typical Column Joint — Develops continuity both vertically and horizontally. Vertical column continuities are shop welded to the continuous beam. Top plate, with slot to give extra weld area, develops continuity in transverse beams across column supports.



Fig. 2. Detail of Girder running through column. Column top and base are welded to beam flange. Vertical stiffeners provide continuity to column.

HERE'S MORE PROOF

Studies in Structural Arc Welding free on request.

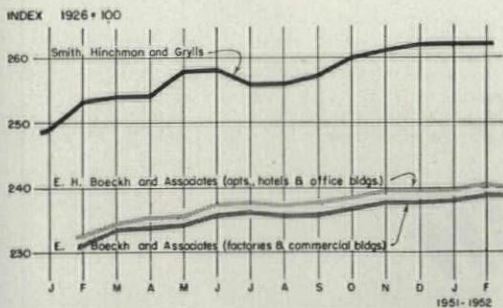
Designers and Engineers write on your letterhead to Dept. 351,

THE LINCOLN ELECTRIC COMPANY

CLEVELAND 17, OHIO

The World's Largest Manufacturer of Arc Welding Equipment

COST OF BUILDING



STABLE PRICE structure held firm during February, continuing a six-month-old trend. Slight drop in cost of plumbing fixtures was offset by scattered wage increases. Result: no change in over-all price indexes.

GEORGIA ARCHITECTS win fight to reform registration law

Last year, 20 out of 20 Georgia Tech students flunked the State of Georgia's architectural registration examination. The resulting uproar moved the Georgia AIA to demand reforms in the State Board for Examination and Registration of Architects. Last month, Gov. Herman Talmadge signed a law giving AIA what it wanted. The act:

- ▶ Abolished the old board headed by Architect W. W. Simmons, a political friend of Talmadge who died shortly before the Georgia General Assembly voted the new legislation.
- ▶ Set up an internship requirement for architects: a designer with only a high school diploma must have at least seven years' experience in a registered architect's office before he can take the registration exam.
- ▶ Requires an architect for buildings costing over \$10,000. Exceptions: farm structures, one- and two-family homes.
- ▶ Permits a new Board for Examination, Qualification and Registration of Architects to waive an examination for graduates of an architectural school approved by AIA who have three years' satisfactory experience in a registered architect's office.
- ▶ Waives examinations for registration for architects registered in another state whose requirements equal those of Georgia.

President Herbert Millkey of the Georgia AIA announced that if Talmadge appoints the men AIA nominated for the new board, they will ask the National Council of Architectural Registration Boards to set up new Georgia examinations. Architects felt the situation was pretty well in hand.

NEW CONSTRUCTION ACTIVITY (expenditures in millions of dollars)

Type	February			First 2 months		
	'51	'52	% Change	'51	'52	% Change
PRIVATE						
Residential (nonfarm)	827	665	-19.6	1,729	1,385	-19.6
Industrial	135	207	+53.3	264	405	+53.4
Commercial	121	73	-39.7	243	156	-35.8
TOTAL	1,518	1,379	-9.2	3,104	2,851	-8.2
PUBLIC						
Industrial	31	75	+141.9	67	158	+135.8
Military	29	115	+296.6	53	240	+352.8
Residential	30	66	+120.0	59	133	+125.4
TOTAL	451	594	+31.7	959	1,246	+29.9
GRAND TOTAL	1,969	1,973	+0.2	4,063	4,097	+0.8

WHAT WILL CONGRESS DO THIS SESSION?

The 1952 legislative program will be closely geared to the 1952 presidential and Congressional campaigns, and since the outcome of the campaigns is uncertain, the legislative program will be carried through with caution. The session will be known for the things it did not do.

No changes in the TAX LAW are likely. On the control front, power to limit credit on existing non-residential construction will not be granted, and the limits placed last year on the power to restrict residential mortgage credit will not be removed. The CAPEHART AMENDMENT on price control will not be stricken out. No important legislative relaxation of controls is to be expected.

After deliberate consideration (Senate hearings began early this month), the DEFENSE PRODUCTION ACT probably will be extended practically in its present form until March or April of 1953, thus placing the issue early on the calendar of the new Congress. Some modifications of the wage-price sections may be made. RENT CONTROL, at least in defense areas, will certainly be provided for. Materials allocations and direct credit controls probably will be kept but without any amplifications of present powers. Promises of administrative relaxation on the wage, price, and credit fronts may be the price the Administration will find it worth while to pay for the continuance of its authority.

If this were not an election year, the strong sentiment against control would undoubtedly result in a real watering down. However, the opposition does not wish to assume this responsibility, and, with a general understand-

ing that price and wage controls will be administered without undue vigor, it will go along on a reenactment of the present measure.

Other legislation of concern to building and mortgage finance will be minor. An addition—\$125 million to \$150 million—will be given to VA for DIRECT LENDING, to be administered with the same conservatism as the present program. Perhaps as much as another \$500 million will be given to FNMA for ADVANCE COMMITMENTS in defense areas. Some additional appropriations for community facilities and public housing in defense areas are probable. The war risk insurance bills seem doomed to another year of inaction.

A proposal to restrict the power of the Federal Home Loan Bank Board to approve branches for federal savings and loan associations will generate some heat, but will likely be buried in committee. A further effort to restrict the current volume of PUBLIC HOUSING will be made when the Independent Offices Appropriation comes up—good guess, another 50,000 units.

A more vigorous legislative program might be expected if there were prospects of a clear-cut victory for either party. Such a prospect does not exist. The Democrats are, of course, badly split, with Southern recalcitrance toward the President more evident every week. This situation, however, does not give the Republicans the easy confidence they had four years ago, since, irrespective of the outcome of the presidential election, loss of control of the Senate is a very real possibility.—MILES L. COLEMAN.



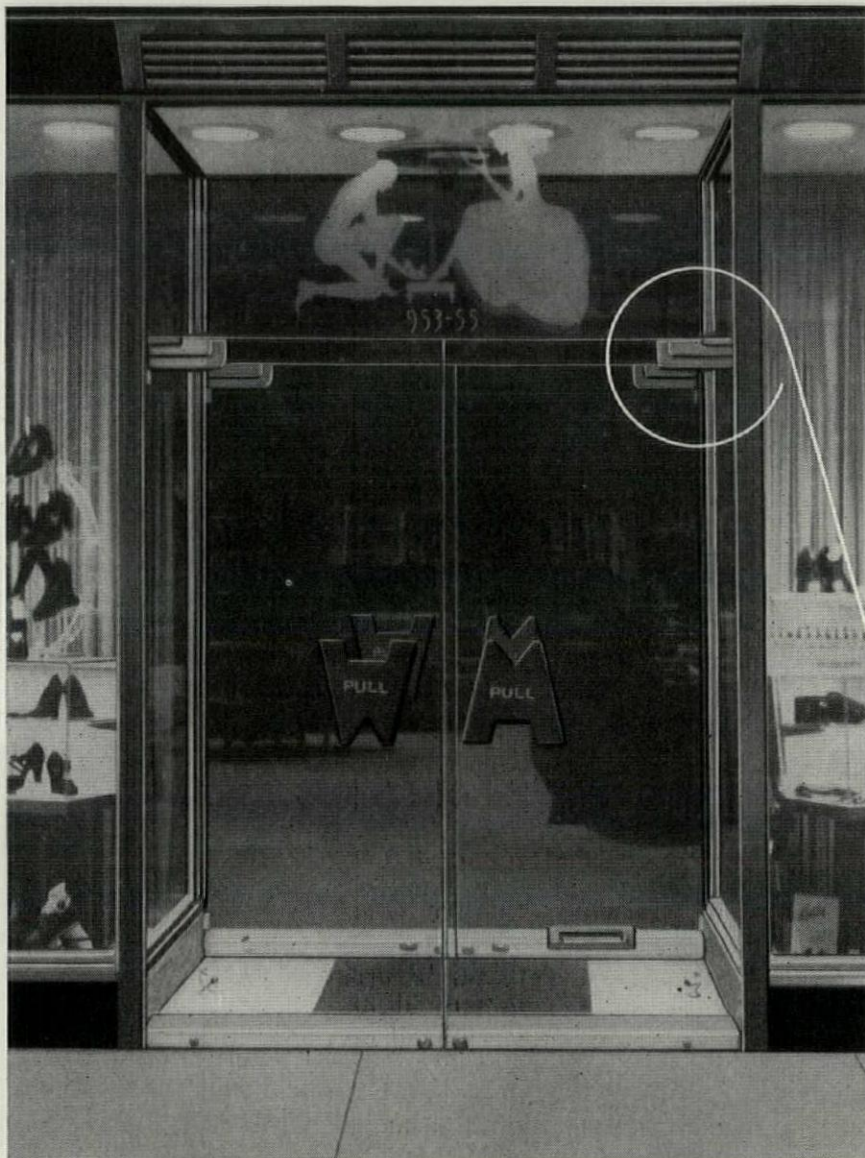
WEST BERLIN LIBRARY, honoring air-lift dead, to be cold war weapon

In May, workmen will begin building this graceful contribution to the West's psychological warfare against Russia. It is the \$2 million American Memorial Library in Berlin's American sector, financed by ECA counterpart funds.

The 60' high, reinforced concrete structure, will commemorate the 50 Allied airmen killed in the airlift to Berlin during the 1948-'49 Russian blockade. Plans worked out by four German architects (Gerhard Jobst, Willy Kreuer,

Hartmuth Wille and Fritz Bornemann) with two U. S. consultants, architect Francis Keally of New York and librarian Charles M. Mohrhardt of Detroit, call for a concave facade of Bavarian stone in two contrasting shades of gray, punctuated by bronze grilles which ventilate book stacks on the top four floors. The ground floor will be given over to a huge (300' x 60') glass walled reading room in which 100,000 of the library's 750,000 volumes will sit on open stacks.

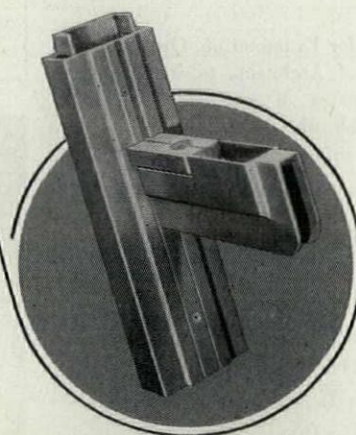
To cut on-the-job costs . . . choose ***precision-built*** ***Pittsburgh Doorways***



Architects: Solomon Kaplan & J. Joshua Fish, Philadelphia, Pa.

• When you specify factory-assembled, precision-manufactured Pittsburgh Doorways, you get units that cut labor costs substantially. For they eliminate time- and labor-consuming details of calculating, fitting and locating at the site. All that is involved is the unpacking of the frame, bolting it into the building opening and hanging the sturdy Herculite Doors, for whose strength the frames have been especially engineered.

Consider the high quality of Pittsburgh Doorways—their *total-installed cost*, not the list price—and you will find them your logical choice. We should like you to have our descriptive, fully illustrated booklet on Pittsburgh Doorways. Why not send for it now? There is no obligation. Write to Pittsburgh Plate Glass Company, 2102-2 Grant Building, Pittsburgh 19, Pa.



SUPPORTING the top pivot bearing, as well as the Herculite Door and Herculite transom glass, are sturdily-built transom brackets, as shown here. Eliminating the transom bar, they provide the maximum in open-vision, giving full view from floor to ceiling. Standard frames may be modified at the factory to include transom brackets instead of transom bars. For full information, see Sweet's Section 16b.

***Pittsburgh* DOORWAYS**



PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

Associated General Contractors Find Business Spotty, Hear AFL's Gray Blame CMP Chiefs

A year ago, the Associated General Contractors' convention fretted over where the materials were coming from for zooming defense construction.

Last month, at Detroit, AGC's 33rd annual convention found the situation reversed. Now many contractors wondered where the jobs were coming from to keep their organizations busy. Government materials controls, complained AGC's impressive annual survey of the general contracting industry, had such an uneven bite that some areas were "approaching almost complete idleness" while others were experiencing a frenzy of defense building. AGC said 49% of its 118 chapters (representing the 6,100 members who do some 80% of the nation's contract construction) "report members are not busy, including the majority of builders surveyed."

Little outcry. Despite their problems, AGC spoke in muted tones (compared to other segments of the construction industry) against the way CMP was operating. Their protest was confined to a resolution, one of 15, urging that construction controls be relaxed now and "abolished as soon as possible."* Two reasons for the relative silence:

▶ A whopping slice of contractors' livelihood was coming from the Defense Dept.'s \$4.8 billion construction program and other federal work.

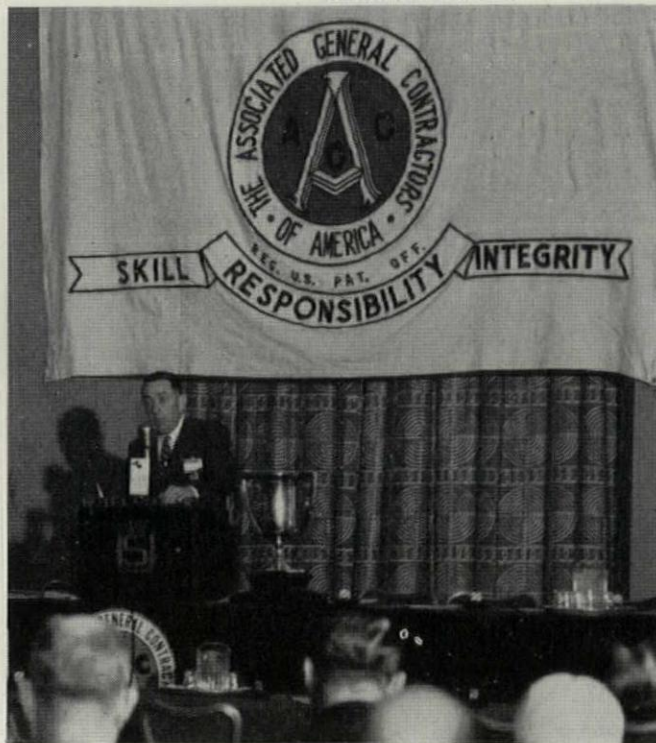
▶ Asst. NP Administrator Frank R. Creedon promised that better days lay just ahead. He noted that NPA now was "well along" at filling material needs of defense plants, which for a year have been the No. 1 gobbler of structural steel. And the \$800 million in backlogged commercial construction jobs (1,100 projects) in NPA's application files would require far less steel per dollar than factories. Creedon offered this comparison: U.S. Steel's Morrisville, N.J. plant, costing \$400 million, requires 165,000 tons of structural. The \$800 million of commercial will take only 70,000 tons of structural.

Blast by labor. It was left to white-haired Richard J. Gray, president of the AFL Building Trades Department, to say most plainly what was on the mind of many

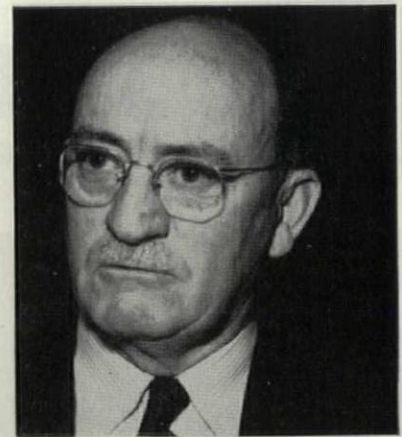
(Continued on page 61)

*Other important resolutions endorsed advance planning, relaxation of housing credit controls, denounced health and welfare fund contributions above ceiling wages as "inflationary," asked the Defense Dept. to abandon its policy of permitting bids on alternate designs.

Photos: Joe Clark except lower left, Acme



IN STATLER BALLROOM, DELEGATES HEAR FINANCIAL REPORT



Arthur S. Horner, 56, new president of AGC, is a mild-looking, bespectacled builder of Rocky Mountain dams, highways, bridges and irrigation projects. Son of a Topeka, Kan. homebuilder, Horner established the Denver construction firm that bears his name in 1922—only five years after he graduated from the University of Colorado as a civil engineer.

Associates know him as an active but quiet worker in civic and professional groups. He was twice president (1940 and 1944) of the Colorado Contractors Association. His hobby: raising registered Herefords on his ranch near Denver.



New York Contractor H. C. "Chan" Turner (l) was succeeded as chairman of AGC's Building Division by W. Murray Werner, Shreveport, La.



W. A. Klinger of Sioux City, Iowa, AGC president in 1937-'8, chats with A. L. Atherton, Seattle, '47 chairman of AGC's Building Division.



Welton A. Snow, AGC staff executive for the Building Division, and Managing Director H. E. Foreman who said 1951 saw AGC's "greatest activity."

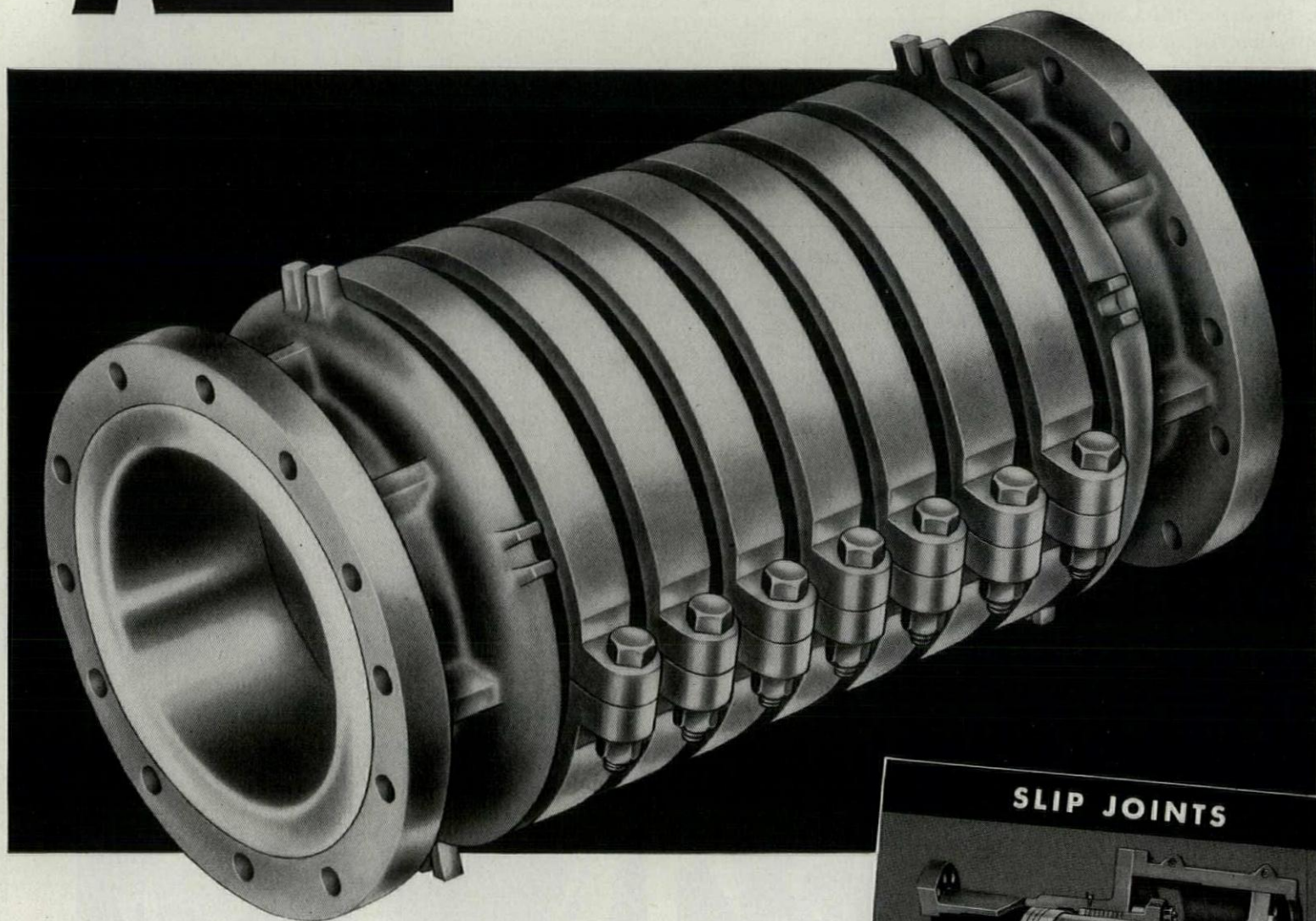


Besides criticizing NPA, President Richard J. Gray of AFL Building Trades (center, talking with Lester Rogers, AGC Labor Committee chairman, and Assistant Managing Director J. D. Marshall) urged AGC to "take the lead in uniting all segments of our . . . industry so that when we speak we will be heard throughout the country."

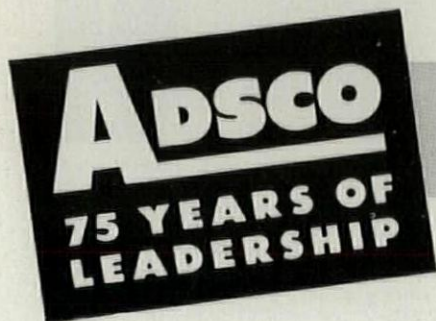


New Vice President C. P. Street, general manager of McDevitt & Street Co., Charlotte, N. C., is escorted to the rostrum to take office by AGC Treasurer William Muirhead of Durham, N. C., and Executive Committeeman D. W. Winkelman of Syracuse, N. Y. Street, 52, has worked for the same firm since graduating from Vanderbilt University in 1922.

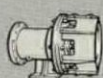
ADSCO EXPANSION JOINTS



We don't have to sell what you don't want to buy, because only ADSCO makes a complete line of expansion joints. The modern Corrugflex, shown above, is the result of 50 years' experience in packless expansion joints. Equalizing and non-equalizing Corrugflex joints cover wide temperature and pressure ranges and are built in many designs, including universal, tie-rod, hinge, and fully-guided. They will solve nearly all pipe-expansion problems caused by temperature differential, whether the material in the pipes is liquid, gas, or steam. Write for Bulletin 35-51.



EXPANSION JOINTS



SEPARATORS



METERS



STEAM TRAPS



HEAT EXCHANGERS



STRAINERS

AMERICAN DISTRICT STEAM COMPANY, INC.
NORTH TONAWANDA, NEW YORK



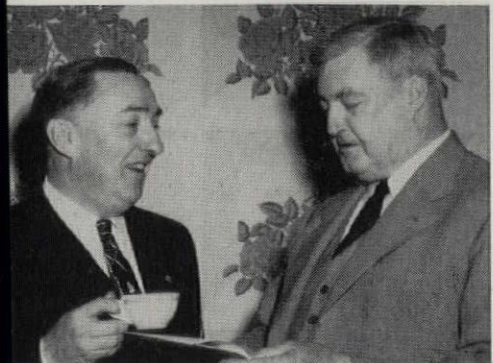
Retiring President Glenway W. Maxon of Dayton, Ohio, hands the gavel to his successor, Arthur Horner.



Talk of extra costs caused by state laws requiring separate bids for mechanical and electrical subcontracting engages S. M. Suskin of Boston; Milton Rosen, St. Paul public works superintendent; and Moses Slotnik of Boston.



Rear Adm. Joseph F. Jelley, chief of the Navy bureau of yards and docks (center, with Capt. M. W. Kehart and Navy civilian D. J. Katz), harped on Navy efforts to achieve economy in its \$800 million construction program. For all but four of its 1,555 current construction contracts in the U.S., the Navy has clung to lump sum bids, Jelley reported. In the next few months, the Navy expects to sign contracts for a major portion of \$559 million in construction contracts scheduled for the continental U.S.



Ex-President Walter I. Couse of Detroit grabs a press room cup of coffee with Ex-President ('47) Warren S. Bellows of Houston.



50 MEMBER AGC ADVISORY BOARD SITS DOWN FOR PRECONVENTION STEERING SESSION

'Problems of a Midwestern General Contractor'

LABOR PROBLEMS SPEED DESIGN CHANGES

Labor is the No. 1 problem of general contractors. Loafing by plumbers, steamfitters and electricians is beginning to spread to other trades. Chronic manpower shortages in some crafts are generating more and more pressure on employers to work an inefficient, costly 48 hour week. Among bricklayers, labor shortages and declining quality of workmanship are hurrying design changes eliminating brick entirely.

In making those observations, Executive Vice President John W. Armstrong of Darin & Armstrong, Inc., Detroit heavy construction firm, was as bluntly outspoken as a contractor is likely to get. AGC's Building Division thought Armstrong said such a mouthful that it promptly voted to have the full transcript sent to all 6,100 AGC members. Highlights:

The work week. "The 8:00 to 4:30 working day has come to mean 'portal to portal.' (It) crept up on us. It started during World War II when manpower was short and we gave in on many things to keep men on the job. From 1948 on, we tried to overcome this, . . . but the habit was too well established." Now, Armstrong charged, it is no surprise to find plumbers and electricians putting down their tools at 4:00 P. M. to have a cigarette around their shanties while waiting for 4:30 quitting time to arrive. "We repeatedly insist that our mechanical and electrical subcontractors correct this . . . but after two or three days the plumbers and electricians are sitting around their shanties again . . ." and carpenters and iron workers are complaining that they should be allowed the same privilege. "This evil can be corrected only when work slacks off to a point where a man must produce a little more than the next fellow to hold his job."

Manpower shortages. "In this area, general contractors are currently faced with a 48 hour work week on the majority of jobs for mechanical and electrical trades and for the structural iron worker . . . But we have

all come to realize that the extra work per man per week is very little more than that produced in a 40 hour week and the double time penalty cost is tremendous." Most pressing shortage, said Armstrong, is bricklayers, who desert general contractors during the busy summer construction season to make more money laying residential brick as "independent contractors." Armstrong's advice: provide winter work for bricklayers who stay on the job through the summer. Another help is a group life or hospitalization plan with the contractor paying most of the premium, he said.

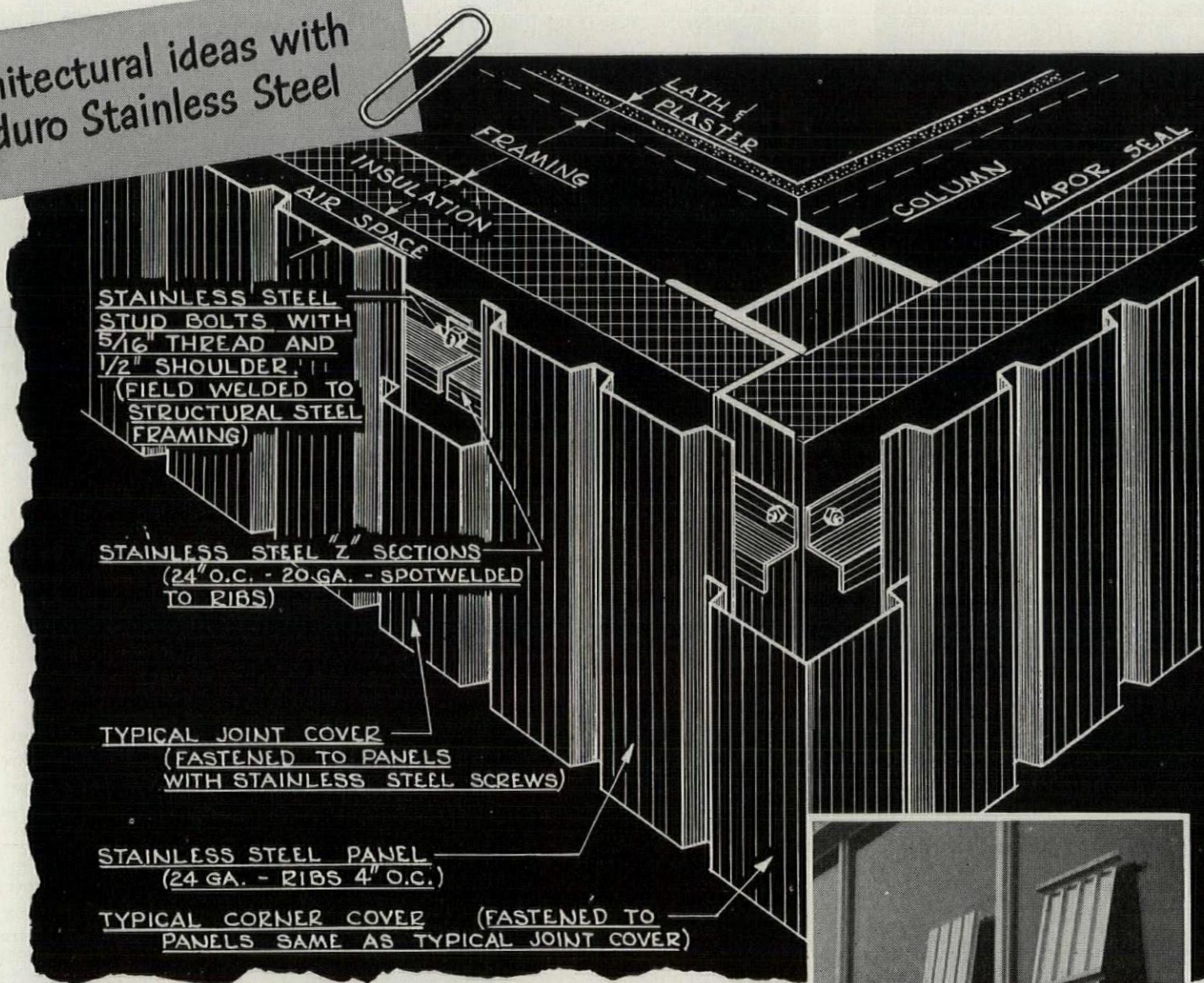
Jurisdictional disputes. Armstrong forecast that jurisdictional disputes arising out of machinery installation will "more and more" harass "straight line building contractors"—even those who "may feel at the moment as though this is no problem of yours." At the Fisher tank plant in Grand Blanc, Mich., where Davin and Armstrong held an \$8 million building contract for plant additions, millwrights and riggers working for another firm had a jurisdictional battle over machinery installation. Result: a millwright picket line stopped over 800 men from entering our construction job." It took a week—and pressure by the AFL Building Trades Dep't. on the Carpenters International—before the picketing ended.

Effect on design. At the Ford tank plant, said Armstrong, use of the precast wall panels 20' x 14' x 8" (weight: 14 tons) cut the installed cost to \$2 per sq. ft., compared to \$2.75 for a 12" common brick wall. Moreover, the panels were poured in August and September, under "ideal conditions," then stacked on edge until needed late in the fall. The resulting weatherproof, leakproof wall, he said, "is more than one can promise these days when bricklayers cannot be relied on to fill vertical joints in brick walls. The leaky brick walls in this part of the country have become such a headache that architects and owners are easily influenced away from brick walls."



ARMSTRONG

Architectural ideas with Enduro Stainless Steel



WALL PANELS and JOINT COVERS

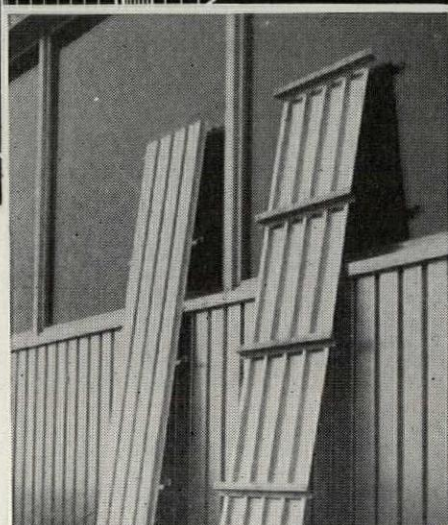
Ideas for you! About how you can build beauty and permanence with light, bright, weathertight Republic ENDURO Stainless Steel. ENDURO sparks ideas. There's so much you can do with it . . . so many jobs it does so well. ENDURO is much more than permanently beautiful. It happily combines handsome architectural effects with great structural strength, remarkable resistance to rust and corrosion, ease of cleaning and ease of fabrication. Here you see ENDURO functionally applied in wall panels and joint covers. Its ultimate usage is as broad as your imagination—because the combination of qualities ENDURO offers can be found in no other commercial metal. You'll find more ENDURO details in Sweet's. For special help in developing ideas of your own, write us:

REPUBLIC STEEL CORPORATION

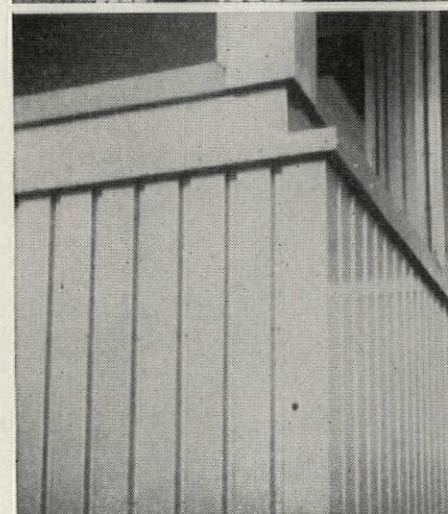
Alloy Steel Division • Massillon, Ohio

GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N. Y.

*Inside and outside view of
ENDURO wall panel prior
to installation. Strong, light,
lasting ENDURO is ideal
for new curtain-wall
construction.*



*Here is a typical corner
formed with ENDURO wall
panels and joint covers as
detailed above.*



Republic
ENDURO STAINLESS STEEL



See Sweet's for data on Republic Pipe, Sheets and Roofing...Electrunite E.M.T....Fretz-Moon Rigid Steel Conduit...Berger Lockers, Bins, Shelving and Cabinets...Truscon Steel Windows, Doors, Joists and other Building Products.

a contractor whose construction volume was dwindling: top DPA officials who "set the policy for the extent of cutbacks to construction" are mostly "either lawyers or economists" who do not understand what they are doing to the nation's biggest industry.

Gray named the people he meant: NPA Administrator Henry Fowler ("an able lawyer but hardly familiar with the intricacies of building"); DPA Economist George A. Steiner; DPA executive William C. Truppner; NPA Attorney Henry Heymann. He had encountered them all, he related, at a Jan. 9 meeting of NPA's Construction Industry Advisory Council. Not one "could answer our question." It reminded him, he said, of Will Rogers' saying: "We are all ignorant—we are just ignorant about different things."

Military construction. Despite cut-backs in the defense build-up (see p. 49), the Army Air Force construction program outlined by Lt. Gen. Lewis A. Pick, chief of Army engineers, looked sizable. Construction to be started in the next "six to eight months" in the U.S. alone totals \$1.6 billion. Contract awards will hit a late summer peak, Gen. Pick announced. Biggest items:

Troop housing	\$360 million
Warehousing	\$210 million
Air Force paving	\$110 million
Hangars	\$ 80 million
Hospitals	\$ 40 million

Even though AGC expected controls to cut 1952 construction back 5-10% to about \$27 billion, it would be a big year for a lot of contractors.

MANUFACTURERS' EARNINGS:
sales soar, profits sag during 1951

As with most other U. S. industries, 1951 was a year of soaring sales and disappointing earnings for building materials manufacturers. Stimulated by record construction activity, sales zoomed above 1950 but corporate taxes bit so deeply that net profits declined from 15-40% for 11 of the 13 big producers (see below). For many companies, this meant more and more expansion would require borrowed money, which could deter some construction.

Company	1950	1951	% Change
American Radiator-Standard			
Sanitary Corp.	\$ 28,453,497	\$ 22,027,024	-22.6
Celotex Corp.*	3,003,552	3,497,371	+16.4
Flintkote Co.	7,703,255	5,516,371	-28.4
General Electric Co.	173,423,702	138,116,527	-20.4
Johns-Manville Corp.	22,814,491	24,530,509	+ 0.8
Libbey-Owens-Ford			
Glass Co.	24,752,425	15,476,754	-37.5
National Gypsum Co.	9,286,528	7,395,983	-20.3
Owens-Illinois Glass Co. ..	24,319,001	17,022,616	-30.0
Pittsburgh Plate Glass Co.	41,928,749	31,075,981	-25.9
Westinghouse Electric Corp.	77,922,944	64,578,202	-17.1
U. S. Gypsum Corp.	27,258,518	19,820,261	-29.3
U. S. Plywood Corp.**	7,192,700	4,326,600	-40.3
U. S. Steel Corp.	215,464,142	183,953,202	-14.6

*Yr. ending Oct. 31

**Nine months, Apr. 30-Jan. 30

PEOPLE: Nelson elected contractor head; Dowling raps rental investments; Marion Davies reveals big N. Y. holdings

William F. Nelson, past president of the Washington, D. C., Building Congress, was elected president of the Mason Contractors' Association of America, Inc. at the group's annual meeting last month in Chicago. Concrete masonry units used by Nelson's group last year accounted for 71% of the U. S.'s masonry wall volume. The contractors noted that they are paying record-high wages to 110,000 stonemasons and bricklayers in the U. S. and Canada; that the two trades were enjoying 100% employment in Chicago, St. Louis and Washington, D. C.



Making just about a 180° tack, **Robert W. Dowling**, president of City Investing Co. of New York and consultant to Metropolitan and Equitable Life Insurance Cos. in the construction of Parkchester, Stuyvesant Town, Fordham Hill and other life insurance company-owned rental projects, said he was through with investing in rental housing. He wouldn't even be tempted by 100% mortgages. Said Dowling at a Yale Club dinner: the future lies in co-operative housing. Ownership makes people more interested in civic affairs, better citizens; it would be a good thing if Metropolitan Life sold Parkchester to its tenants on a co-operative basis.

Marion Davies, long-time confidante of the late publisher, William Randolph Hearst, evolved as a feminine financier far shrewder than the fragile blond beauty of her early movie days would have indicated. At Hearst's death it was disclosed that a ready check from her (\$1 million) once saved him from financial embarrassment. Last month Miss Davies had another surprise: she disclosed that as head of the Cosmopolitan Corp. she owned, among other things, the following Manhattan parcels: seven-, five- and four-story office buildings, a ten-story apartment and a group of five buildings at the valuable midtown corner of Park Ave. and 57th St.

"Any architect acquainted with one hospital job knows the price range between types of radiator valves or scrub-up sinks would buy a mural at current rates," wrote architect **William Lescaze**, of the New York State Building Code Commission, in a letter to *The New York Times*. "The struggle [for the acceptance of good modern architecture] has been won . . . the time has come for us—with the help of enlightened clients—to bring painting and sculpture into harmony with architecture." Such a triumvirate of the arts, wrote Lescaze, would produce a new Renaissance.

Manhattan's Webb & Knapp realty firm announced it was forming the Webb & Knapp Construction Co. to be general contractor for its own accounts. On the im-

(Continued on page 64)



William Garnett

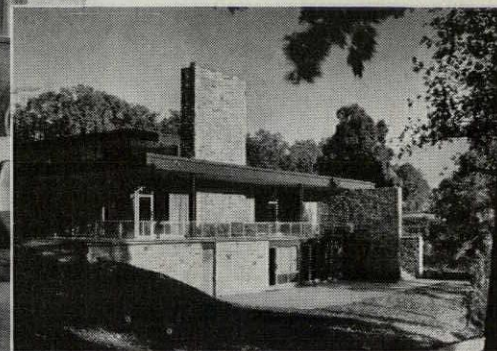
BIGGEST SUBURBAN STORE uses control tower for 10,552-car lot

Southern California, land of the adjective "colossal," last month gained a new set of superlative statistics. Los Angeles' May Co. opened the nation's largest suburban store (356,722 sq. ft.) in Lakewood, one of the most mammoth row-upon-row developments ever built (8,000 off the assembly line now, 9,000 more to come). The new store was put up at a cost of \$5.1 million by the Lakewood Park Shopping Center Corp. (whose 154 acres will play host to 90 stores). May Co. has a 50-year lease at \$165,000 yearly rent, plus 3% of its gross. Off-street parking space will

accommodate 10,552 cars in rows as neat as Lakewood's houses and the store is already dicker for more space (190,000 people arrived opening day). Floating amid its parking rows, the store resembles the superstructure island of an aircraft carrier. A control tower on the top floor will guide auto traffic in and out of the vast lot and along Lakewood Blvd. Trucks traverse a half-mile tunnel to keep loading off the street. A recent survey showed 17% of U. S. department stores now have suburban branches and another 8% are planning to build them.



Country Club, Raleigh, N. C.
Floored throughout with
Northern Hard Maple.



Architect:
Wm. Henry Deitrick, Inc.
Raleigh, N. C.

If it deserves fine architecture, it deserves
"The Finest Floor that Grows—"

NORTHERN HARD MAPLE

- ✓ resilient
- ✓ bright
- ✓ smooth
- ✓ tight
- ✓ warm
- ✓ dry
- ✓ non-splintering
- ✓ easy cleaning
- ✓ easy re-surfacing
- ✓ dent-resistant

Today's architecture truly and admirably "brings the outdoors in." And inevitably, too, foot traffic carries in some of that same "outdoors," to make life a bit tougher for any floor. The choice of enduring MFMA-graded Northern Hard Maple, in strip, block or pattern flooring, assures a floor that will grow old very slowly and gracefully. "There's always a new floor underneath" which will forever respond to simple refinishing, after millions of footsteps may have dimmed its original genial luster. Nature does not produce a finer floor material, nor has man's ingenuity ever outdone Nature in this respect.

MAPLE FLOORING MANUFACTURERS ASSOCIATION

Suite 564, Pure Oil Building, 35 E. Wacker Drive
CHICAGO 1, ILLINOIS

See Sweet's...
Arch. (13k-MA) for specifications data.

FLOOR WITH **NORTHERN** HARD MAPLE
BEECH AND BIRCH

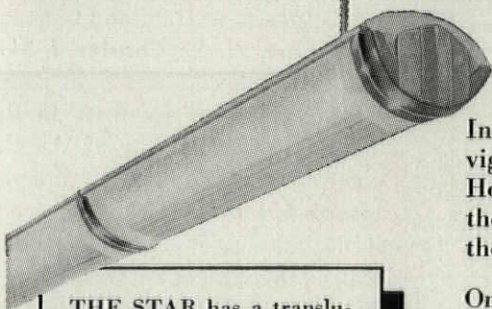
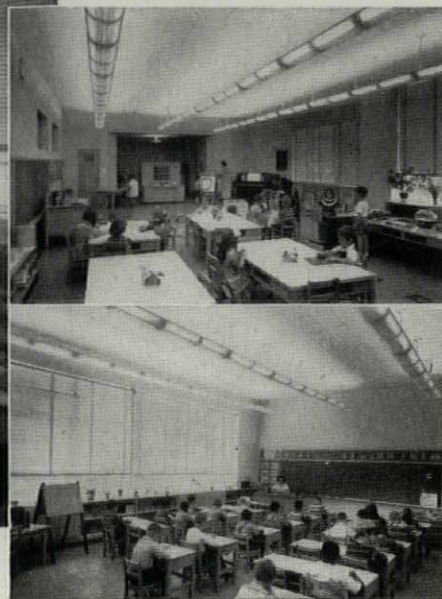
The Burlington School System

chooses the Wakefield fluorescent Star



Micklewright & Mountford, Architects

*for all new and relighted
classrooms of the City of
Burlington, New Jersey,
School System*



THE STAR has a translucent Plaskon reflector which completely shields the fluorescent lamps. When the lamps are lit the reflector and the ceiling above it are of approximately equal brightness. Thus glare, both direct and reflected, is reduced to a minimum.

In the City of Burlington's drive to "build new and modernize the old" a vigorous committee, sparked by the leadership of Superintendent Joseph W. Howe, made actual classroom tests of various lighting fixtures. As a result, the Wakefield luminous-indirect Star was selected for all classrooms in both the new and modernized buildings of the school system.

On this page are shown several of the relighted rooms. Walls were painted in soft pastel shades with good reflectances. For the first six grades, new movable blond furniture was purchased. Older furniture was sanded and brought up to no-glare, high reflectance standards. Floors were refinished in light colors or covered with light-colored tile.

With the Wakefield luminous-indirect Stars installed, the classrooms provide a comfortable visual environment, achieving brightness ratios equaling or bettering those recommended by the American Standard Practice for School Lighting.

For a copy of our 20-page booklet, "Supplementary Lighting for the CO-ORDINATED CLASSROOM", write to The F. W. Wakefield Brass Company, Vermilion, Ohio.

Wakefield Over-ALL Lighting

BASIC FOR CO-ORDINATED CLASSROOMS



FOR THE

Rich Beauty

OF NATURAL WOOD GRAINS



You'll need

Lustrewood
PREFINISHED HARDBOARD

Dens

Rumpus Rooms

Cottages

Offices

Stores

Foyers

Kitchens

Partitions

Lustrewood

Decorative, Economical

CORRECT DRESS FOR GOOD CONSTRUCTION

Ask Your Building Supply Dealer, or write to
LUSTREWOOD PROCESS CO. at BRISTOL, CONN.

mediate agenda: light industry defense plants at Roosevelt Field, L. I.; a 510-unit housing development and store and office building in St. Louis; a 1,356-unit defense housing project in San Diego. **Thomas C. Grady**, vice president of the parent organization, will head the subsidiary. Boss **Bill Zeckendorf** will keep an eye on things as chairman of the board.

Named: **John P. H. Perry**, retired Turner Construction Co. vice president, to expedite U. S. air base projects as deputy to the Assistant Secretary of the Air Force; **Fred J. Driscoll**, to a second term as president of the Building Trades Employers' Assn. of New York; **Alvin F. Franz**, as president of the Colorado Fuel & Iron Corp.; **W. R. Engstrom**, vice president of The Austin Co., as head of his firm's Pacific Northwest district; **Ernest Szekely**, president of the Bayley Blower Co., as president of the American Society of Heating & Ventilating Engineers.

Died: **Charles Dingman**, 66, architect, engineer, inventor and author of books on construction methods and management, Mar. 5 in Palmer, Mass.; **John C. Myers**, 73, board chairman of F. E. Myers & Bros., one of the U. S.'s largest manufacturers of electric water pumps, Mar. 1 in Ashland, Ohio; **Povl T. Lindhard**, 80, inventor of cement making machinery and designer of cement plants in U. S. and Canada, Feb. 20 in Rumson, N. J.; **Charles J. Seibert**, 76, who as a civil engineer built power plants, bridges and port facilities in Brazil and supervised installation of the Pentagon's water system, Feb. 6 in Washington, D. C.; **Joseph E. Stone**, 77, former vice president of the Stanley Works and one-time president of the American Hardware Manufacturers' Assn., Feb. 4 in New Britain, Conn.; **Walter P. Berg**, 60, vice president of the Dravo heavy construction company, Feb. 3 in Pittsburgh, Pa.

AEC CONSTRUCTION plans equal four more Savannah plants

AEC's new \$5 billion construction program, laid before Congress last month by President Truman, means the equivalent of four new plants as big as the Savannah River project, now expected to cost \$1.2 billion.

The new plants won't affect 1952 construction. The rest of the year will be required for blueprints and engineering. Moreover, AEC faces a dilemma over where to locate its new A-bomb factories. If it chooses the wide spaces of the Southwest, it will be hard pressed to find a site with enough water. If it picks a spot east of the Mississippi, where water is more plentiful, it faces the headache of transplanting displaced persons again.

(NEWS continued on p. 70)



DRAMATIC CEILING LIGHTING ... FOR BETTER SEEING ... BETTER SELLING

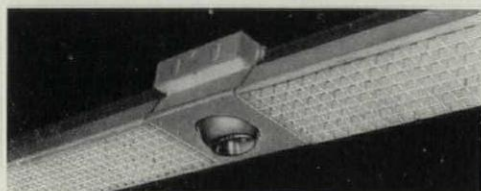
New versatile Sylvania Troffers make lighting a part of interior design You can make lighting an integral part of ceiling design with the improved line of Sylvania Troffers.

These shallow, versatile units may be recessed in practically any ceiling to form decorative lighting patterns. They give ample illumination where required ... without interrupting planned architectural simplicity.

New flexibility

You'll find Sylvania Troffers adaptable to a great variety of modern needs.

Detail photo shows 45° x 45° louver shielded troffers in continuous row with swivel spotlight.



Available in two, four, six or eight-foot lengths ... for single or continuous row installation. Equipped with choice of shieldings which include 45° x 45° louvers, translucent ribbed Albalite glass, Twinlite concentrator type lens, curved glass lens or light-weight plastic. Spotlights and corner boxes to match!

Easy maintenance is another important feature. Shielding frames are hinged for quick tube replacement ... close tightly with a spring latch.

So, for new installations or remodeling jobs, remember Sylvania Troffers. New folder gives full details. Mail the coupon for your copy now.



Sylvania Troffers, with Albalite shielding, also provide attractive "pattern" lighting for informal or non-working areas.

SYLVANIA



FIXTURES, FLUORESCENT TUBES, SIGN TUBING, WIRING DEVICES; LIGHT BULBS; RADIO TUBES; TELEVISION PICTURE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; PHOTO-LAMPS; TELEVISION SETS



Sylvania Electric Products Inc.
Dept. L-4203, 1740 B'way, N. Y. 19, N. Y.
Please send me illustrated folder describing the full line of Sylvania Troffers.

Name _____

Street _____

City _____ Zone _____ State _____

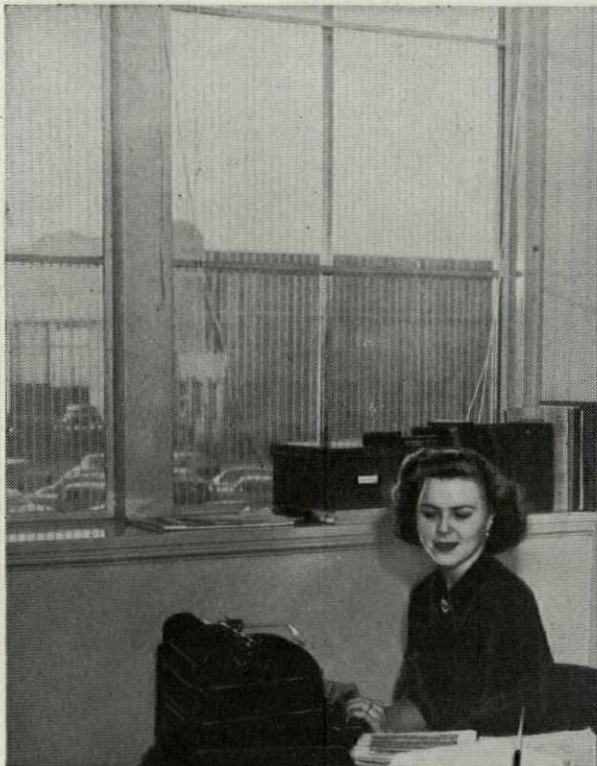
PLAN FOR TOMORROW



BEFORE



Sun-struck Windows of Lockheed Aircraft Corporation's Burbank, California plant created eyestraining glare, allowed heat rays to penetrate glass, caused uncomfortably high inside temperatures. Appearance of building exteriors was spoiled by unevenly adjusted blinds and the open and closed windows.



AFTER



Kaiser Aluminum Shade Screen now covers 10,000 square feet of windows on 7 buildings of the Lockheed plant. Thousand of tiny louvers deflect hot rays *before* they hit glass. Result: Glare eliminated. Interiors up to 15% cooler, more comfortable for work. Exteriors dramatically improved by uniformity of windows—emphasis of modern, horizontal lines.

WITH ALUMINUM

THERE WILL BE plenty of aluminum available for tomorrow's building requirements as a result of today's industry-wide expansion.

Kaiser Aluminum alone now is building new facilities which will increase its pre-Korea production of primary aluminum by 132 per cent!

So make your plans now to utilize the many advantages of light, strong, corrosion-resistant aluminum.

Check Before You Substitute

Most Kaiser Aluminum today goes to help meet the needs of the national security program. That's why it is not always readily available.

However, before you specify less-satisfactory substitute materials, ask for Kaiser Aluminum.

You may still be able to give your clients the best—Aluminum!

A Few of Today's Modern Aluminum Applications

Building materials made of Kaiser Aluminum offer exclusive advantages in design, beauty, and quality. Shown here are a few recent applications that prove aluminum is your best building material for tomorrow's plans.

Write for information

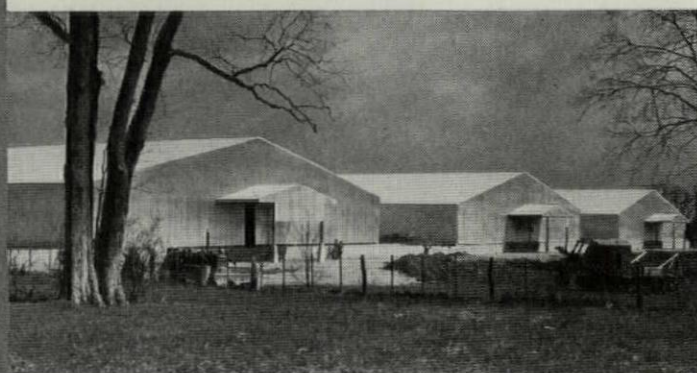
Write for full information about any Kaiser Aluminum building product—and for AIA files. Kaiser Aluminum offices in principal cities. Kaiser Aluminum & Chemical Sales, Inc., Oakland 12, California.

Kaiser Aluminum

Building materials for home, farm and industry



Kaiser Aluminum Siding, ideal for building or remodeling, gives sparkling modern look to Malley's Candy Shop, Cleveland. Weatherproof, rotproof, rustproof, aluminum siding lasts for generations. Baked-on enamel coat gives smooth surface that looks better, is easy to clean. Designed and erected by Lumi Land Distributing Co., Rocky River, Ohio.



Kaiser Aluminum Roofing on these Liggett & Myers tobacco warehouses is strong, *solid* corrugated aluminum. Bright surface reflects sun's rays—helps maintain uniform inside temperatures, often so important in warehousing goods. Specified by owner W. O. Crombie of Paris, Ky., because of aluminum's "complete lack of maintenance requirements."



Kaiser Aluminum Ductwork used in Los Angeles Times Building was fabricated *right on the job*, eliminating costly handling, trucking, storing of bulky pre-assembled sections. Easily fastened with rivets, by welding, or with sheet metal screws. Installed faster with less worker fatigue. And uninsulated aluminum delivers as much heat as insulated galvanized material at lower cost.

Quality-Engineered by **TYPHOON**

**DEPENDABLE EQUIPMENT FOR YOUR
AIR CONDITIONING NEEDS**

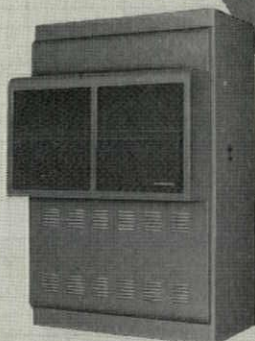
SELF-CONTAINED UNITS
SC MODELS 5 AND 81



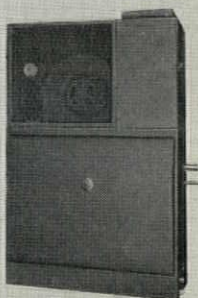
CONSOLE UNITS
SCO MODELS 1 1/2-2-3



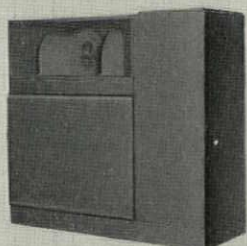
SELF-CONTAINED UNITS
SC MODELS 82 AND 10



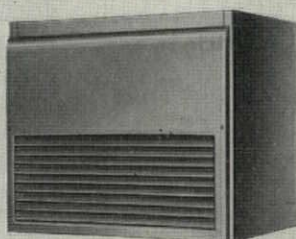
SELF-CONTAINED
(REMOTE) UNITS
SC MODELS
15 AND 20



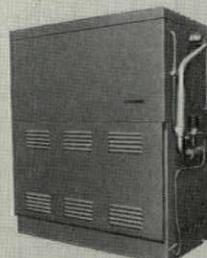
EVAPORATIVE
CONDENSERS
EC MODELS 3-5-8



EVAPORATIVE CONDENSERS
EC MODELS 10-15-20



AIR HANDLING UNITS



PACKAGED WATER CHILLERS



HEAT PUMPS

Whether the job calls for a single packaged air conditioning unit or a central plant . . . a packaged water chiller or a heat pump — you can count on Typhoon equipment to supply your needs. And Typhoon's quality engineering — backed by over 40 years of experience — is your guarantee of trouble-free performance.

Satisfied Typhoon users include famous companies like RCA, American Broadcasting Company, Warner Brothers and Whelan Drug Stores. They've found Typhoon equipment tops in economical operation . . . tops in cooling efficiency. You will, too.

ALSO — WINDOW UNITS, BOILERS, COILS AND MULTI-PACKAGED SYSTEMS UP TO 60 TONS.

Write for Detailed Information

TYPHOON AIR CONDITIONING CO., INC.

794 Union Street, Brooklyn 15, N. Y.

Specialists in Air Conditioning Since 1909



Johns-Manville **TERRAFLEX**

the vinyl plastic-asbestos floor tile,
offers advantages never before
combined in one type of flooring



COLORS ARE CLEARER

The vivid colors of Johns-Manville Terraflex Flooring have a clarity and warmth that add beauty to any interior—keep their *first day newness* for a lifetime. The wide range of marbleized colors in harmonious and contrasting shades offers unlimited freedom of design.



EASIER TO MAINTAIN

Terraflex is resistant to grease and oil, alkaline moisture and mild acid solutions. It is easy to clean and even caustic soaps which permanently damage other types of resilient floorings will not affect Terraflex—it cannot “wash out.” Many different decorative inserts are available to add interest and individuality to floor design. Knife-fork and teakettle inserts are shown above. Moisture-resistant, Terraflex is ideal for laying over radiant-heated concrete floors in direct contact with the ground.



WILL LAST A LIFETIME

Although Terraflex is extremely resilient, it will outwear other types of decorative floor coverings two to one. With its superior flexibility it conforms to uneven surfaces and absorbs normal floor play. It does not crack, curl, become loose, or brittle, or shrink around the edges. It does not become fuzzy or scratch or lose its sheen from constant wear.

FOR THE BEST there is in flooring—look to Johns-Manville Terraflex.

Send for a free brochure showing the full color line of Johns-Manville Terraflex and Asphalt Tile. Write Johns-Manville, Box 290, New York 16, N. Y.

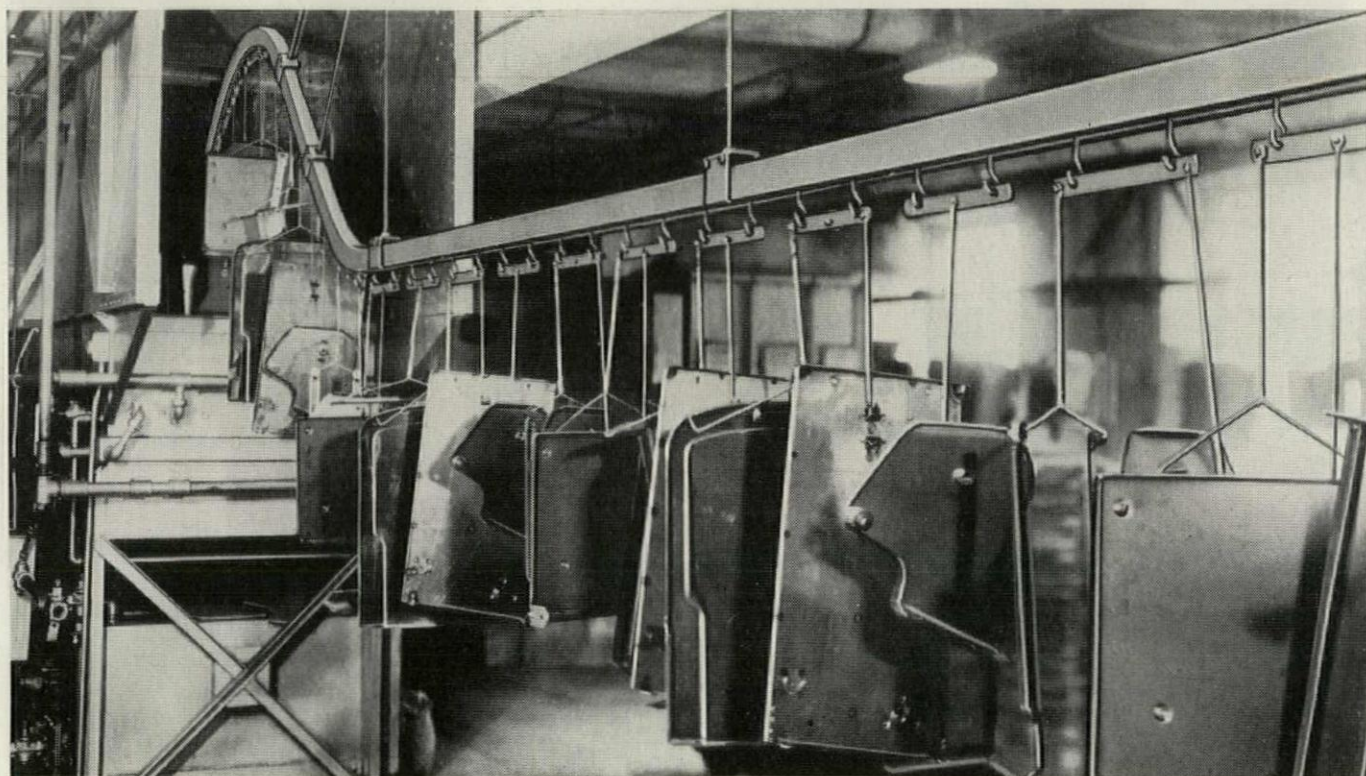


Johns-Manville

TERRAFLEX AND ASPHALT TILE FLOORING



For fast, sure, low-cost production it's *Richards-Wilcox* CONVEYORS



Efficiency—that's a word that means faster production, more profits for you. And efficiency is the word for Richards-Wilcox Conveying Equipment. R-W Conveyors speed up production by cutting down on handling time and releasing plant personnel for other jobs.

There's an R-W Conveyor for industry of all types—for handling of light, medium and heavy materials. You can boost production, cut costs and increase efficiency with Richards-Wilcox Conveying Equipment. Why not have an R-W consultant show you how you can lick your production problems with conveyor equipment engineered exactly to your own particular requirements. Just write or phone the nearest R-W branch office for free consultation—there's absolutely no obligation.

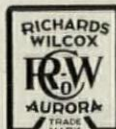
ONE OF THESE INSTALLATIONS IS RIGHT FOR YOU

"ZIG-ZAG" Continuous Power Conveyors—Unique powered chain conveyor with extreme flexibility. Designed especially for carrying light loads within confined areas—handles products through degreasers, dip tanks, spray booths, ovens, etc., (shown above).

"LOCK-JOINT" Trolley Track Over-Way Conveyors—Designed for handling light to medium loads, and maximum flexibility. Maximum capacity 3,000 lbs.

"TRU-TRED" Steel Beam Over-Way Conveyors—For heavy duty handling and electric hoist service with minimum superstructure—eight different track sizes. Maximum capacity 8,000 lbs.

1880



1952

OVER 72 YEARS

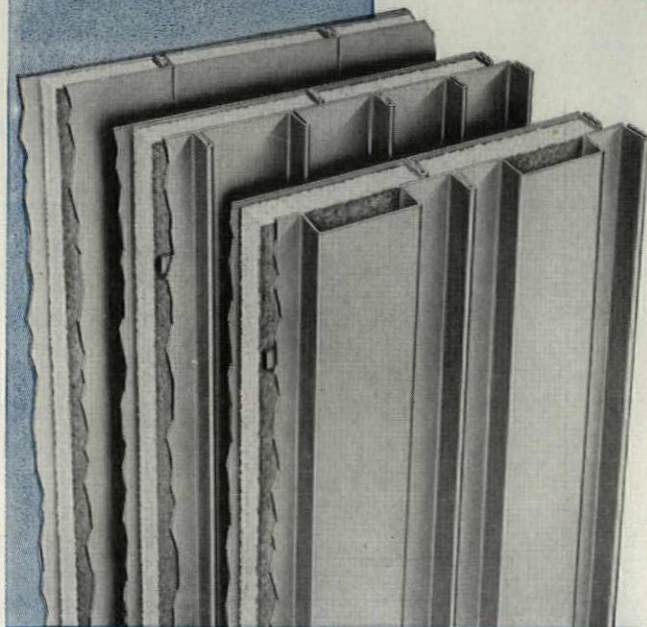
Richards-Wilcox Mfg. Co.

"A HANGER FOR ANY DOOR THAT SLIDES"
AURORA, ILLINOIS, U.S.A. Branches in all principal cities

SLIDING DOOR HANGERS & TRACK • FIRE DOORS & FIXTURES • GARAGE DOORS & EQUIPMENT
INDUSTRIAL CONVEYORS & CRANES • SCHOOL WARDROBES & PARTITIONS
ELEVATOR DOOR OPERATING EQUIPMENT

INSULATED METAL WALLS

for INDUSTRIAL and COMMERCIAL BUILDINGS
ALUMINUM, STAINLESS or GALVANIZED STEEL



FLUSH, RIBBED, or FLUTED
Over-all "U" Factor of Various Types is Equivalent
to or Better than Conventional 16" Masonry Wall

As further evidence of the trend to Insulated Metal Walls in modern construction, the new plant recently built for Quaker Oats in Omaha, Neb., is presented. A second plant for Quaker Oats is now nearing completion in Chattanooga, Tenn. Mahon Insulated Metal Walls with Aluminum exterior wall plates, coping, flashing, etc., and Mahon Steel Deck Roofs, were employed to good advantage in the construction of both of these completely new and modern plants. Mahon Insulated Metal Walls can be furnished in the three distinct exterior patterns illustrated at left . . . they are available in two "Field Constructed" types, and in two types of "Prefabricated Panels". Walls of the "Field Constructed" type can be erected up to fifty feet in height without horizontal joints—a feature of Mahon walls which is particularly desirable in power houses or other buildings where high expanses of unbroken wall surface are common. For complete information on this modern, permanent, firesafe Wall and Roof Construction see Sweet's Files, or write for Catalogs No. B-52-A and B.

THE R. C. MAHON COMPANY

Detroit 34, Mich. • Chicago 4, Ill. • Representatives in All Principal Cities

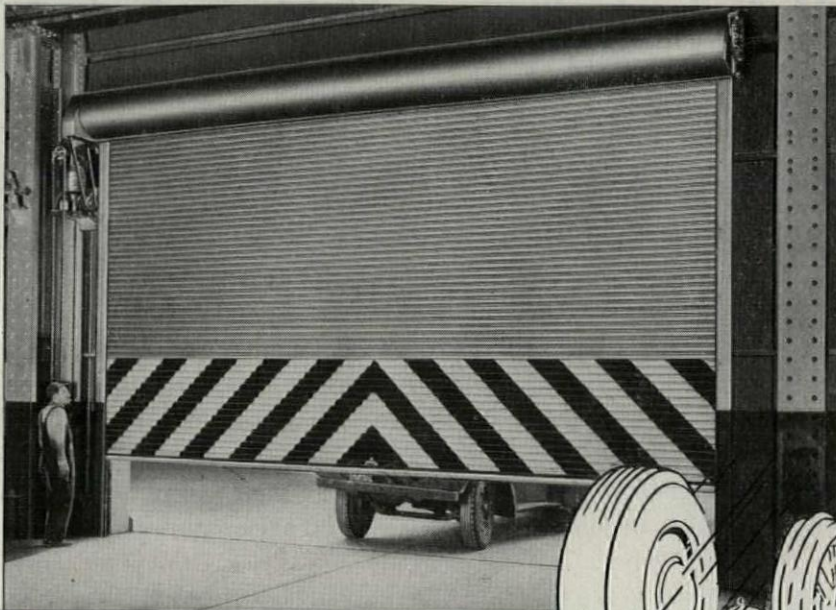
Manufacturers of Insulated Metal Walls; Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms; Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.



Mahon Aluminum Insulated Metal Walls and Mahon Steel Deck Roofs were employed in the construction of this new plant for Quaker Oats at Omaha, Neb. Verne E. Alden Company, Chicago, Ill., Architects and Engineers. Parsons Construction Co., Omaha, Neb., General Contractors.

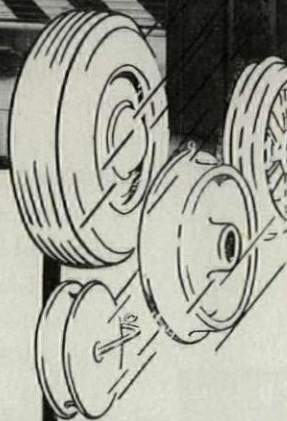
MAHON

Tomorrow's Buildings To Demand More Attention To Door Efficiency



Like the **WHEEL** . . .

KINNEAR Rolling Doors
are HERE TO STAY!



Like the rolling action of the wheel, the smooth upward operation of Kinnear Rolling Doors involves basic, unchanging principles of engineering efficiency. The door's advantages have been proved in thousands of installations, through more than half a century.

Today the dollar-saving importance of these Kinnear advantages is getting closer attention from building designers everywhere. As building construction, operation and maintenance costs continue to rise, the space, time, labor and construction costs that can be saved with efficient doors are major items in any business operation.

Kinnear's rugged curtain of interlocking metal slats opens straight upward. It coils compactly out of the way above the opening. Floor, wall and even ceiling space remain fully usable at all times. The door clears the opening from jamb to jamb, and from floor to lintel, completely out of traffic's way.

When open, it is safe from damage by wind or vehicles. When closed, it presents an all-metal barrier that assures extra protection against storms, intruders, and fire.

In addition, Kinnear Rolling Doors provide smooth, easy operation under all conditions. They may be controlled manually, mechanically (by chain or crank) or electrically. Motor operated doors can be equipped with any number of remote control switches, for highest convenience. Kinnear Rolling Doors are built of various metals, in any size, for easy installation in old or new buildings. Let us send you complete information.

The KINNEAR Manufacturing Co.

Factories:

1640-60 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in All Principal Cities

SAVING WAYS
TO DOORWAYS

KINNEAR
ROLLING DOORS

BUILDING CODES: move to speed use of new materials sought

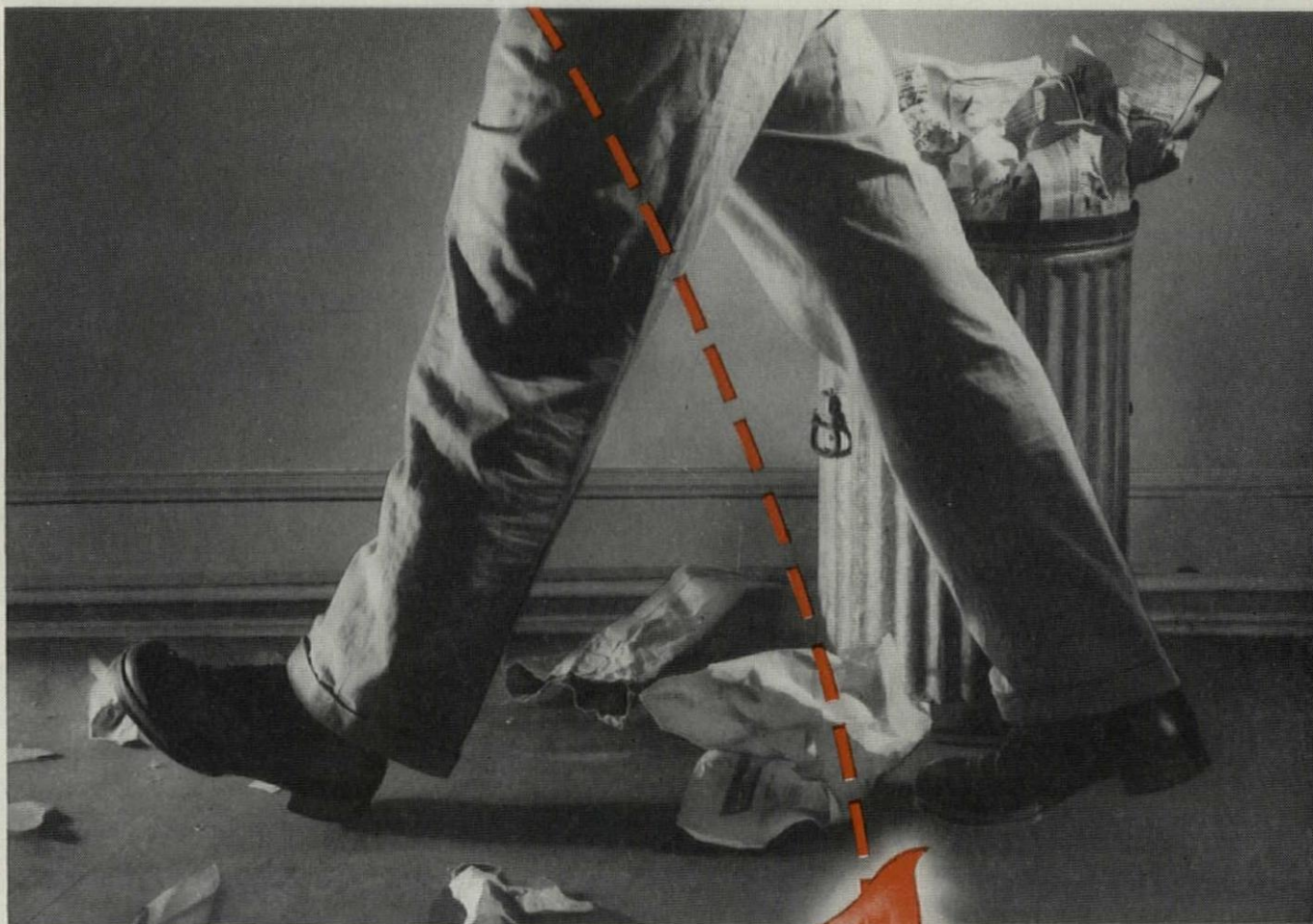
To makers of building materials, one of the major nuisances of the U. S.'s crazy quilt pattern of 2200 local and state building codes and regional codes is that laboratory tests for new materials often must be repeated over and over again at great and unnecessary expense. Moreover, even in cities where officials ought to know better, available research data is all too often ignored or inadequate while unscientific tests are accepted by ignorant or stubborn inspectors.

Joint action. At the invitation of Director C. W. Smith of Southwest Research Institute, 25 construction technical experts met last month in Washington's Mayflower Hotel to try a collective approach to the problem that disjointed action had so complicated. Mindful of the intense rivalry between the nation's major regional building code groups (Pacific Coast Building Officials Conference, Building Officials Conference of America, Southern Building Code Congress, National Board of Fire Underwriters, Midwest Conference of Building Officials), Smith painstakingly pointed out that he contemplated no discussion of building code unification. But discussion veered that way anyway. To everyone's surprise, Executive Director Marion L. Clement of the Southern Building Code Congress, which has been the chief enemy of building code unification so far, found himself proposing that a committee be formed to discuss unification of requirements for items like deflections and live loads. Reminded that SBCC had refused to participate in efforts by the three-year-old Joint Committee on Unification of Building Codes to do just that, Clement lapsed back into character: "We haven't committed ourselves to the JCUBC because we figured we'd stand to lose more than we'd gain. The committee is stacked against us."

Progress made. In the end, the day-long meeting produced encouraging progress toward wider distribution of data on reliable testing laboratories and greater acceptance of their tests throughout the country. The conferees agreed to ask Building Research Advisory Board to form a technical committee to identify competent materials testing laboratories, circularize major code organizations with the results.

Given a better flow of data on testing, code groups should be able to reach decisions faster on new materials and methods, then pass on to their member building officials speedy, authoritative guidance that would hasten adoption of money-saving waste-cutting innovations.

(NEWS continued on p. 74)



How Fires Start . . .

Carelessness

Top-of-the-list cause of fires, according to study after study, turns out to be just plain human carelessness.

Under the heading "Careless smoking habits" you'll find such oddities as the

waitress who cleaned *hot* ash trays with napkins destined for the laundry chute, and the mechanic who tossed a match into a puddle of gasoline. But far, far more frequently it's simply the ordinary guy who unthinkingly tosses away a lighted match.

How Fires Are Stopped . . .



Grinnell Sprinklers

Education does a world of good to prevent fires from *starting*. But until human behavior is perfect, your best protection lies in *automatic control*.

The surest control is with Grinnell Automatic Sprinkler Systems, which check fire at its source, wherever and whenever it may strike, with auto-

matic certainty. In factories, hotels, hospitals, schools and theatres, there is a moral obligation upon architects and management to provide the utmost protection of life and property.

For your own sake, be sure the lives and property for which you are responsible are protected with Grinnell automatic sprinkler heads — your assurance of positive fire protection.



GRINNELL FIRE PROTECTION SYSTEMS

GRINNELL COMPANY, INC., PROVIDENCE 1, RHODE ISLAND • BRANCH OFFICES IN PRINCIPAL CITIES



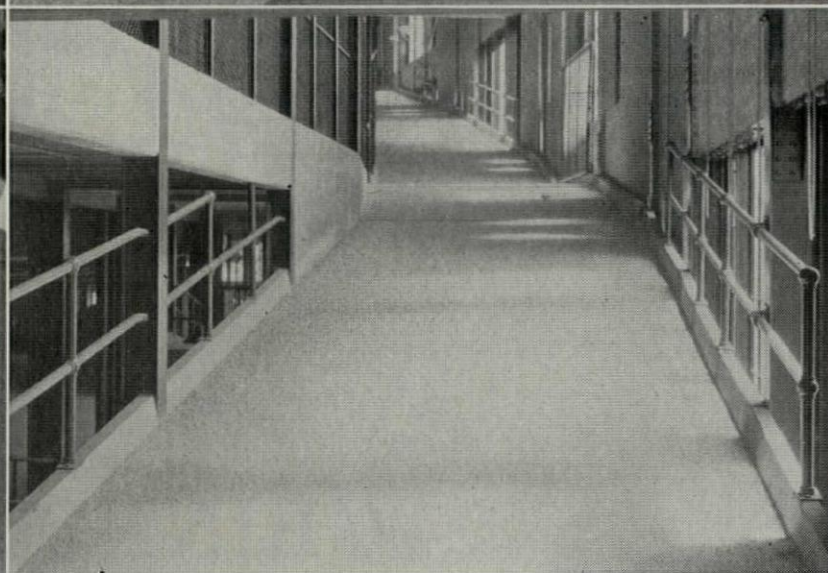
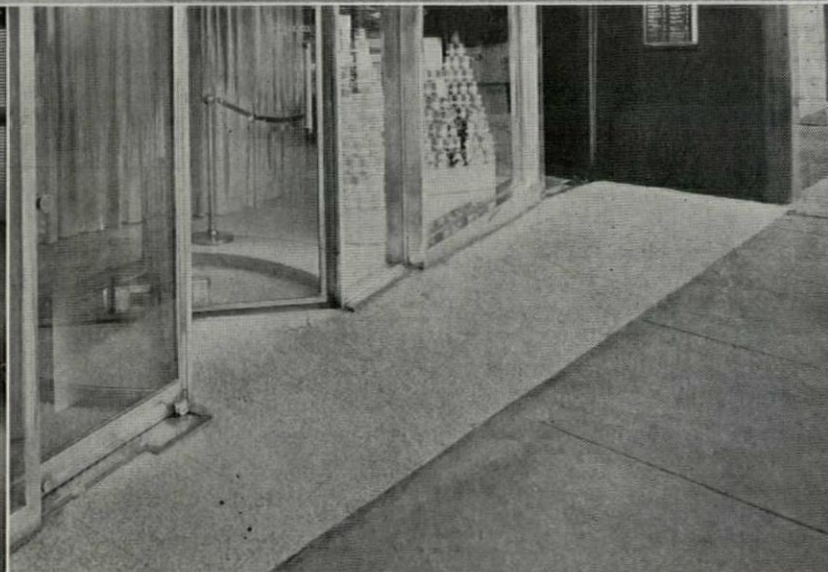
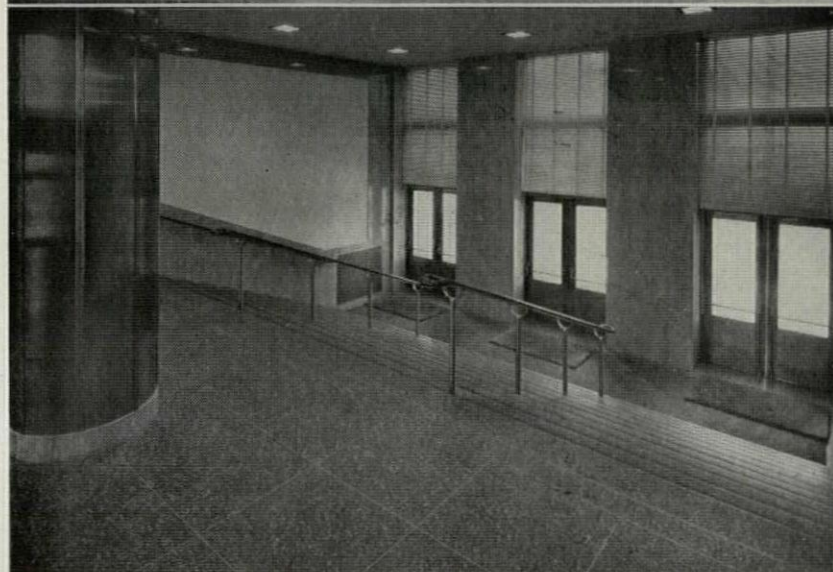
SAFE! and Wear-resistant

That's what all these walkways are. Safe, because floors, stairs and ramps have been made permanently slip-proof (even when wet) by the use of Norton ALUNDUM* Aggregate in either terrazzo or concrete floor surfaces. Banish the slipping hazard and double the life of floors, stairs and ramps with Norton Non-slip Floor Products.

Write for Catalog 1935-1

NORTON COMPANY
Worcester 6, Massachusetts

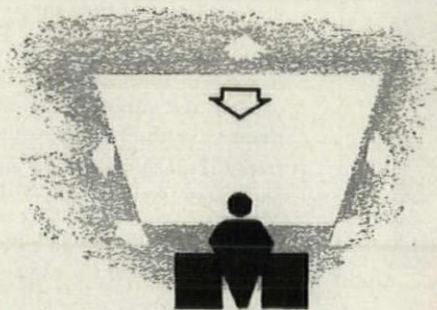
*Trade-mark Reg. U. S. Pat. Off.



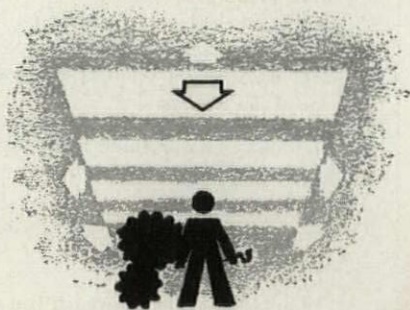
NORTON *Making better products to make other products better*



"a **light** year ahead in the development
of
fluorescent fixtures"



for the office . . . for the store



for the factory

There are two methods, in general, by which the designs of fluorescent fixtures are developed. The leaders in the industry do it by research, know-how and original thinking; the others by imitating the successful designs of the leaders.

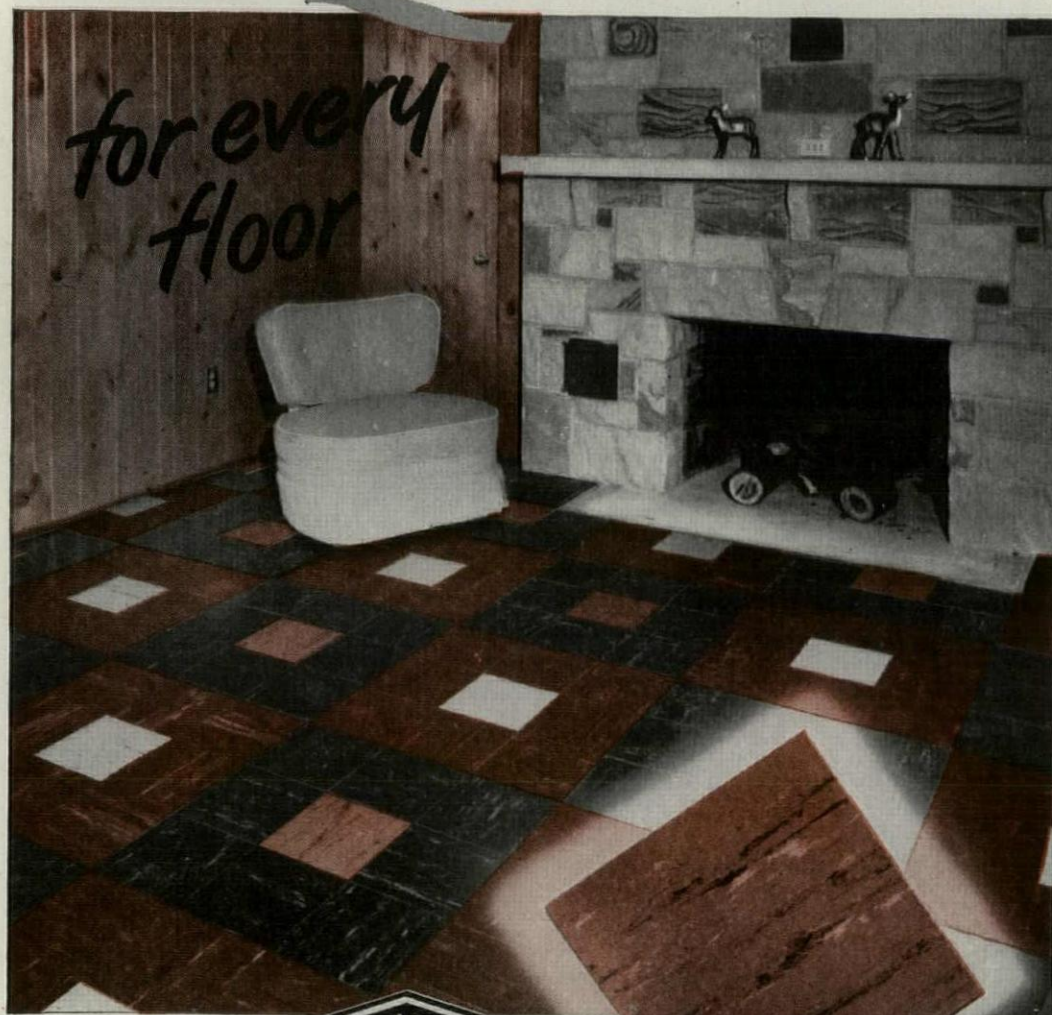
As one of the largest companies in the industry, Smithcraft can — and does — invest heavily in both time and money to create original and progressive lighting fixture designs. This leadership in design, added to Smithcraft's recognized quality of manufacture, has been, and will always be, the reason for Smithcraft's reputation . . . "a light year ahead in the development of fluorescent fixtures."

Two current Smithcraft developments are: Area Illumination, a lighting "fixture" of limitless dimensions and choice of shielding media; and, Industrial Lighting, which brings to the factory higher levels of illumination with greater visual comfort. Plan to see these Smithcraft developments at the 4th International Lighting Exposition in Cleveland (May 6-9) or write for preliminary information now in preparation.

America's finest fluorescent fixtures . . . **Smithcraft**

LIGHTING DIVISION
CHELSEA 50, MASSACHUSETTS

DOWNRIGHT DURABILITY



Asphalt Tile FLOORING

FOR INSTALLATION IN

- ▶ Private Homes
- ▶ Office Buildings
- ▶ Housing Units
- ▶ Government Buildings
- ▶ Churches and Hospitals

Downright durability makes HAKO Asphalt Tile Flooring adaptable to any floor area—in any room—in any building*. It resists the wear of heavy traffic. It can be laid on or below grade. It is inexpensive. It is available in a wide range of clear colors from dark to bright, in solids, pastels and marbled effects. With HAKO feature strips and insert tiles, design possibilities are unlimited. Each HAKO Asphalt Floor Tile is color-true and precisely square.



Exact Specifications are furnished for application on any type of sub floor. See our catalog in "Sweet's".

*Use HAKO Grease Resistant Asphalt Tile Flooring where excessive grease is a problem.

HACHMEISTER - INC.

2332 Forbes Street
Pittsburgh 13, Pa.

Dept. AF

Please send brochure: "HAKO Asphalt Tile Flooring" and Architects' "Portfolio of Flooring Ideas", A.I.A. File No. 23D at no obligation.

Name.....

Address.....

City.....Zone.....State.....

Since 1903

HACHMEISTER-INC.

General Offices
PITTSBURGH 13, PA.



CIVIL DEFENSE blamed by AEC for A-bomb data delay

For nearly a year, architects have been trying to pry out of the Atomic Energy Commission up-to-date data on blast effects of late model atomic bombs, which were tested against concrete buildings at the Eniwetok tests last May. Recently, AEC Chairman Gordon Dean blandly blamed the Civil Defense Commission for the delay. Said Dean: "We have turned over to civil defense a good deal of information from the Eniwetok tests. Unfortunately, I think all of this has been classified so far and the type of information would really have no meaning . . . to the public at large because it is bits and pieces, raw data. For instance, the reading of a pressure gauge off a concrete wall." Dean dodged on as follows:

Question: In your own evaluation would it be necessary to change these areas of destruction, etc. on the nominal bomb effect that had been put out a year or so ago?

Dean: One of the possibilities would be to make public the exact energy release of one of the shots at Eniwetok. Once we decide to do that, it would follow from that that you would give all of the effects from that shot. If we did that, then you are getting away from the so-called nominal bomb description. . . .

Question: How are the cities working on dispersion and other problems going to figure out changes in the build-up of industrial areas?

Dean: I don't know how much the changes will be because you can't move the city . . .

Question: They are talking about new plants.

Dean: Out away?

Question: Yes.

Dean: Practically all the plants that go out away go 10 or 12 or 15 miles. And if you change the reading on the bomb release, let us say, by a factor of two or three, it is not going to vary much the effect on where a plant is dispersed at the outer edge of the city . . .

Question: Two or three miles may mean a great deal in planning transportation costs.

Dean: Yes, that is true. It is all based on the assumption that you know where that bomb is going to hit.

There, for the moment, the matter lay.

BOMBPROOF HOSPITAL ward begun in Canadian mountain

Montreal's world-famed Neurological Institute is built on the rocky slopes of Mont Royal. When a new seven-story, \$2.3 million wing was planned, it was obvious that the basement would have to be hewn from solid rock. The by-product: Canada's first atom-bombproof casualty ward. Protected on three sides by the mountain itself, the ward's fourth side will be shielded by a special blast wall. Just to be sure that damage to the upper floors doesn't cripple

(NEWS continued on p. 78)

CASH REGISTERS

CAFETERIA EQUIPMENT

MAINTENANCE EQUIPMENT

LIGHTING

AIR CONDITIONING EQUIPMENT

BUSINESS MACHINES

WATER COOLERS

**WILL YOUR BUILDING BE PROFITABLE...
AS LONG AS IT WILL STAND?**

modern circuit protection means built-in profit protection

Modern commercial buildings profit if rentals are high, occupancy steady—if tenants are well served electrically.

When electrical circuits go dead, business stops cold. Power outages affect illumination, business machines, maintenance equipment and air-conditioning systems.

Panelboards are the nerve centers for most of these circuits. You can lick constant trouble, maintenance costs, future modernization expense by specifying Westinghouse Circuit Breaker Panelboards.

Here's why! First, they are equipped with the well-known Westinghouse "De-ion" Circuit Breakers. You get modern, economical circuit protection. Even unskilled personnel can restore power simply by flipping a switch. No fuses to replace. Circuit breakers are tamperproof, safe.

Look behind the breakers. You'll find extra margins of quality, safety and dependability in Westinghouse Panelboards. For instance, a rigid reinforced back pan protects the entire assembly against distortion or damage during shipment or after installation. Other features speed installations—cut job costs.

Be sure—specify Westinghouse.

For your copy of our new booklet "Panelboard Planning" B-5260, write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-93463

YOU CAN BE **SURE**.. IF IT'S
Westinghouse

PANELBOARDS



First Step to Better Daylighting at Lower Cost:

A Wasco Daylight Engineering Study

BETTER DAYLIGHTING . . . A properly engineered Wascolite Skydome installation provides glare-free, evenly distributed daylight for the interior of *any* structure. Wasco Daylight Engineering Studies, available without obligation, show:

- 1 The correct size, type, number, spacing and above-floor height of Wascolite Skydomes.
- 2 Illumination curves . . . reflection and climatic factors considered.
- 3 Task brightness ratios as required.

LOWER COST . . . A Wascolite Skydome daylighting system permits lower ceilings and walls with consequent savings in steel, other critical materials and labor. *Maintenance-free* Skydomes also pay dividends by eliminating upkeep costs usual with other bilateral lighting schemes.

Fill in and mail this coupon today with your Floor Plan and Lighting Requirements.

Wascolite Skydomes®
PATENT PENDING

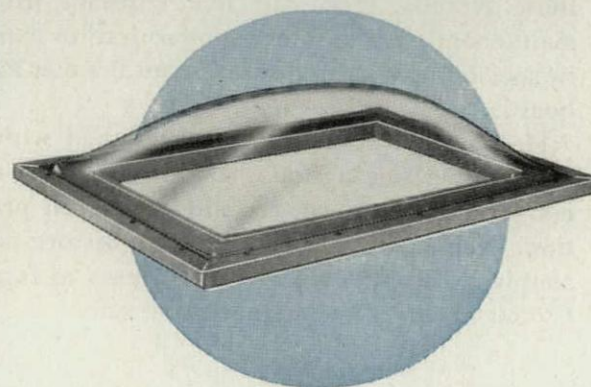
WASCO FLASHING COMPANY
87 FAWCETT ST., CAMBRIDGE 38, MASS.

- ☐ I am interested in a Daylight Engineering Study. I enclose a floor plan and specific lighting requirements.
- ☐ Please send Skydome folder and prices.

NAME _____
TITLE _____
ORGANIZATION _____
ADDRESS _____
CITY _____ STATE _____



Prefabricated Wascolite Skydomes are installed in minutes . . . are weather-proof, shatter-resistant and maintenance-free . . . come in three basic shapes and with clear colorless or white translucent, light-diffusing acrylic domes.



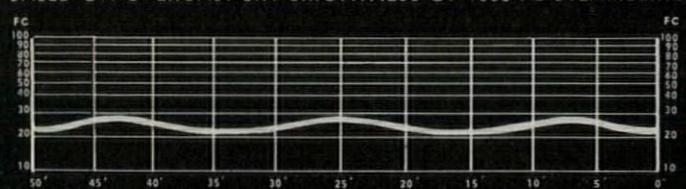
Wasco
Daylight Engineering
Study
For: Warehouse and
Maintenance & Operation
Buildings
Architects: Silverman and Cika
New York, N. Y.

SKYDOME ARRANGEMENT



ILLUMINATION LEVEL CHART

BASED ON OVERCAST SKY BRIGHTNESS OF 1000 FOOTLAMBERTS



DISTANCE FROM RIGHT WALL TO LEFT WALL



**confronted with
an oversize job?**

... or a small one?

RAYMOND

has equipment to do both!

*Driving Sectional Pipe Piles
Inside Building with Hammer
Mounted on Towmotor. ▼*



When you call in Raymond, you are turning your foundation work over to an organization which has specialized equipment, operated by expertly trained men, for pile jobs of any size. With 55 years of experience in foundation work ranging from a few test piles to more than 40,000 piles for one structure—Raymond has established a record for outstanding service.

THE SCOPE OF RAYMOND'S ACTIVITIES . . .

Soil Investigations, Pile and Caisson Foundations, Underpinning, Harbor and River Improvements and Cement-Mortar Lining of Pipelines by the Centriline and Tate Processes.

RAYMOND
CONCRETE PILE CO.

140 CEDAR STREET • NEW YORK 6, N.Y.

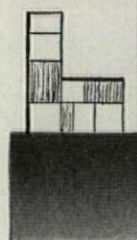
*Branch Offices in Principal Cities of
United States and Latin America*



◀ *Looking up leads of Raymond Universal piledriver while driving precast concrete piles for Morganza (La.) Floodway Control Structure.*

do you want the **BEAUTY**,
the maintenance-free **DURABILITY**
of a genuine plastic laminate

... **FOR YOUR WALLS?**



NOW you
can afford them with ...

LAMIDALL®
DECORATIVE PLASTIC LAMINATE

Because **IT COSTS SO LITTLE:** The low per-square-foot initial cost of Lamidall plus the low on-the-job application cost makes it the best wall value for you today... in institutional, commercial and residential building.

Because **IT APPLIES SO EASILY:** So easy to put up right-on-the-job because of its unusual structural strength and rigidity. Large, easy-to-handle panels of 1/8" thickness are quick and simple to cement to walls and top surfaces with adhesive... can be cut, trimmed and shaped with ordinary carpenter tools.

IMAGINE! the beauty... the lifetime durability of a genuine Plastic Laminate... now at such an amazingly low cost it will fit any building budget. Lamidall is YOUR answer wherever you want a hard, glass-smooth, permanently decorative surface for walls, wainscoting, ceilings, or top surfaces. It's available in panels up to 4' x 12'... in a wide range of handsome unusual wood grains, plus a selection of distinctive, decorative colors and patterns. Durable Lamidall will not crack, chip or peel... it resists heat, stains and hard blows and is so easy to wipe clean.

Where you want beauty *plus* structural strength *plus* economy, you'll want to use Lamidall... and you can in hundreds of applications for institutional, commercial and residential building.

MATCHING MOULDINGS! Easy-to-use, matching plastic laminated mouldings of exact Lamidall patterns and colors, make possible the greater beauty of continuous wall decoration.

PERFECT FOR TOP SURFACES! Lamidall is so easy to apply... so beautiful... so durable.

Send for Free Samples! Prove it to yourself... see the beauty... test the durability. Write also for complete details in new full-color folder.

Lamidall Plastic Laminate is a product of

WOODALL INDUSTRIES INC.

3508 OAKTON STREET, SKOKIE, ILLINOIS

Other Plants in Cleveland • Detroit • Laurel, Miss. • Mineola, N. Y. • Monroe, Mich. • San Francisco

the basement ward, separate water, steam, vacuum and heating systems will be provided. When work on the new wing began late in January Canada thought it was making a wise investment for perilous times.

PAY SCALES for building labor rose 4½ % last year, BLS finds

Like prices, union wage scales in the construction industry climbed at a slower pace during the last half of 1951. The Bureau of Labor Statistics quarterly recapitulation showed pay rates rose only 9/10 of 1% from October through December and only 7/10 of 1% the quarter before that, compared to 2% during the '51 spring quarter bargaining season. For the entire year, scales were up 4½%, compared to a rise of almost 7% in 1950 and 3% in 1949.

Bricklayers maintained their traditional edge over other crafts by winning biggest average pay boosts (7.6¢ per hour during the last three months of the year). As usual, Newark, N. J. emerged with highest wage rates in the 85 U. S. cities surveyed by BLS (No. 1 in all crafts but painters). Average pay of a building worker (\$2.46) was now 20% above the pre-Korea level and 92% above the June 1939 mark. BLS's figures:

TRADE	WAGE RATES January 2, 1952		
	low	average	high
Bricklayers	\$2.48	\$3.06	\$3.50
Carpenters	1.90	2.56	3.25
Electricians	2.00	2.77	3.25
Painters	1.50	2.47	2.83
Plasterers	2.25	2.96	3.50
Plumbers	2.10	2.75	3.10
Laborers88	1.67	2.41

NEW DISPLAY METHOD reveals FLW's work in 3 dimensions

"I have the feeling I'm standing right below the tower," said a woman visitor at New York's ever-imaginative Museum of Modern Art. Looking through a Stereo Realist Viewer at a three-dimensional colored photograph of Wright's Johnson Wax buildings, she was enjoying a new technique of museum display. Arthur Drexler, the museum's curator of architecture assembled 38 photographs for the exhibit (which closed in mid-March), showing the buildings and gardens in the glory of both their day and night colors. The viewers, grouped around the wall at angle identical to those from which the picture were snapped, had adjustment knobs for individual eye variations. The FLW peek show has proved to be immensely popular. Yet the innovation proved no bottle neck. Crowds tarried no longer than they would for full-scale blowups.



Offices of B. F. Goodrich Company, Cleveland. Simpson Acoustical Tile installed by The Mid-West Acoustical & Supply Company, Cleveland

**These Simpson Acoustical Contractors
Offer You a Complete Acoustical Service**

- | | |
|---|---|
| ALABAMA
Stokes Interiors, Inc., Mobile
J. G. Whiddon, Montgomery | NEBRASKA
Kelley Asbestos Products Co.,
Omaha |
| ARIZONA
M. H. Baldwin, Tucson | NEW YORK
Robert J. Harder, Lynbrook, L.I.
Kane Acoustical Co., New York |
| CALIFORNIA
Coast Insulating Products,
Los Angeles
Hal E. Niehoff & Associates
San Diego
Hugh Whaling, Upland
Cramer Company, San Francisco
and Fresno | NORTH CAROLINA
Bost Building Equipment Co., Inc.,
Charlotte |
| COLORADO
Construction Specialties Co., Denver | OKLAHOMA
Harold C. Parker & Co., Inc.,
Oklahoma City
Kelley Asbestos Products Co., Tulsa |
| CONNECTICUT
W. T. Roberts Construction Co.,
Hartford | OHIO
The Mid-West Acoustical & Supply
Co., Cleveland, Akron, Columbus,
Dayton, Springfield and Toledo |
| DISTRICT OF COLUMBIA
Kane Acoustical Co., Washington | OREGON
Acoustics Northwest, Portland
R. L. Elfstrom Co., Salem |
| GEORGIA
Dumas and Searl, Inc., Atlanta | PENNSYLVANIA
Jones Sound Conditioning, Inc.,
Ardmore |
| ILLINOIS
General Acoustics Co., Chicago
Melvin R. Murdy, Moline | TENNESSEE
D. E. Madden Co., Inc., Memphis
John Beretta Tile Co., Inc., Knoxville
The Workman Co., Inc., Nashville |
| INDIANA
The Baldus Co., Inc., Fort Wayne | TEXAS
Blue Diamond Company, Dallas
Otis Massey Co., Ltd., Houston
Builder's Service Co., Fort Worth |
| IOWA
Kelley Asbestos Products Co.,
Sioux City | UTAH
Utah Pioneer Corporation,
Salt Lake City |
| KANSAS
Kelley Asbestos Products Co.,
Wichita | VIRGINIA
Manson-Smith Co., Inc., Richmond |
| KENTUCKY
Atlas Plaster & Supply Co., Inc.,
Louisville | WASHINGTON
Elliott Bay Lumber Co., Seattle |
| LOUISIANA
Pioneer Contract & Supply Co.,
Baton Rouge | WISCONSIN
Building Service, Inc., Milwaukee
and Green Bay |
| MASSACHUSETTS
W. T. Roberts Construction Co.,
Cambridge | |
| MINNESOTA
Dale Tile Company, Minneapolis | CANADA
Albion Lumber & Millwork Co., Ltd.,
Vancouver, B. C.
Hancock Lumber Limited,
Edmonton, Alberta |
| MISSISSIPPI
Stokes Interiors, Inc., Jackson | |
| MISSOURI
Kelley Asbestos Products Co.,
Kansas City
Hamilton Company, Inc., St. Louis | |

We're Keeping This

Quiet

SIMPSON Acoustical Tile is "keeping it quiet" in the offices of the B. F. Goodrich Company, Cleveland, just as this superior acoustical material is "keeping it quiet" in many other offices, schools, stores, restaurants, hospitals and homes throughout the United States.

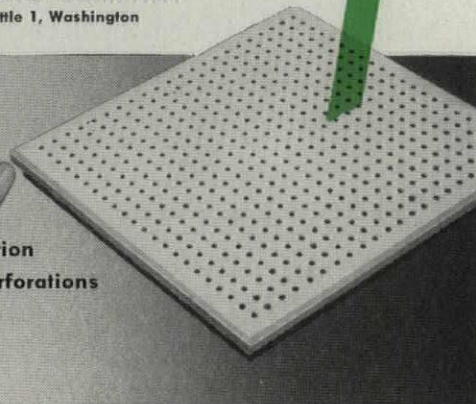
Simpson Acoustical Tile is specified by more and more architects because of its high sound absorption, exclusive Hollokore drilled perforations, beautiful washable finish, painted bevels, and because it retains its crisp beauty and its efficiency, even after it has been repainted several times.

Specify Simpson Acoustical Tile for better sound conditioning. The authorized Simpson acoustical contractor nearest you is listed at the left.

SIMPSON LOGGING COMPANY
1065 Stuart Building, Seattle 1, Washington

**Only Simpson
Has All Five!**

1. Washable Finish
2. High Sound Absorption
3. Hollokore Drilled Perforations
4. Finished Bevels
5. Thermal Insulation



Simpson
QUALITY SINCE 1895

ACOUSTICAL PRODUCTS

For Better Sound Conditioning

Type 430 Stainless Steel

--with a 25-year service record

Architects:

Barott, Marshall,

Montgomery & Merrett,

Montreal, Canada

"Can Type 430 Stainless Steel be used in place of Type 302 (18-8) in hotel and restaurant service?" These *unretouched* photographs of Type 430 cafeteria fixtures, in their 25th year of service, answer this question. The veteran installation is reported completely sound and almost as new and lustrous looking as in 1927 when it was installed.

Here is the reason why this installation is of special interest today. Armco 17 Type 430 Chromium Stainless Steel is available *now* without restrictions on end uses. In many architectural applications it will serve as a replacement for nickel-bearing Armco 18-8, Type 302, which is now restricted by NPA Order M-80.

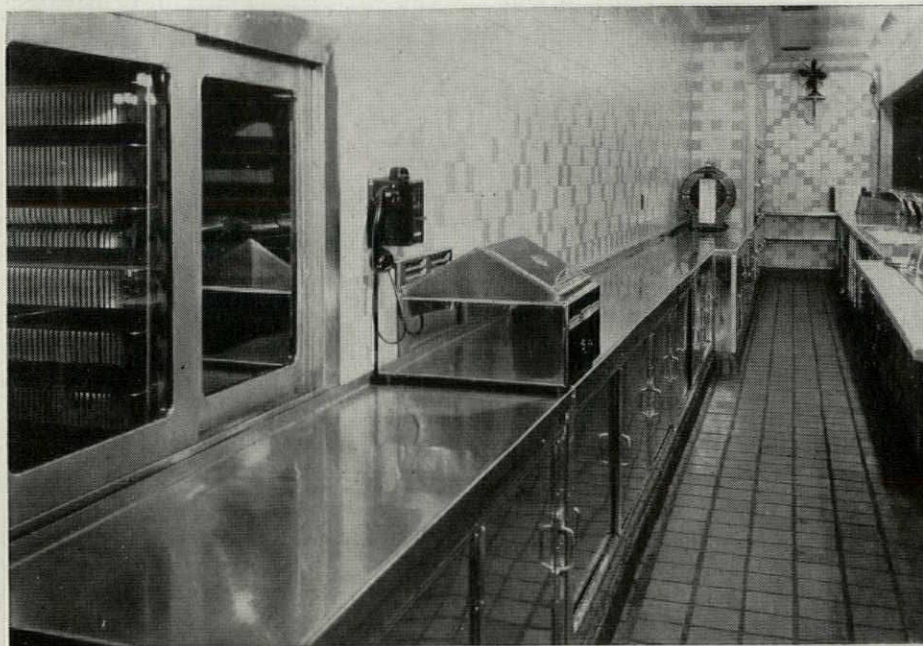
Same Finishes as 18-8

Armco 17, Type 430, is produced in the same gages, sizes and finishes as 18-8 and lends itself to the same designs. The grade is sold by Armco Distributors from coast to coast. Ask your sheet metal contractors about it.

Besides hotel, restaurant and bar equipment, consider Armco 17, Type 430, for such applications as: Kick Plates, Column Covering, Moving Stairway Trim, Stair Railings, Balconies and Balustrades, Lighting Fixtures, Mailboxes, Building Directory Frames and Telephone Booths. Remember too, Porcelain Enamel on Armco Enameling Iron, alone or in combination with stainless steel, is used for Curtain Wall Panels, Marquees, Signs, Toilet Partitions, Kitchen-, Store- and Laboratory-Interiors.

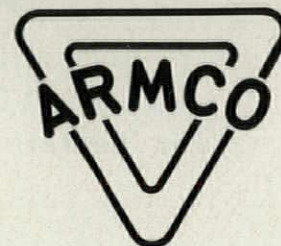


A pioneer stainless installation—not a new one! These are recent photographs of equipment made entirely of Type 430 Stainless Steel, installed in a Montreal cafeteria in 1927.



ARMCO STEEL CORPORATION

1932 Curtis Street, Middletown, Ohio • Plants and Sales Offices from Coast to Coast
Export: The Armco International Corporation



modern and beautiful

after 22 years

because it's built with

HANLEY DURAMIC BRICK

Today, after more than two decades, the Daily News Building in New York City still stands out proudly among its neighbors. Architect Raymond Hood wanted distinctive simplicity in architectural design, and at the same time, a building that would be permanently attractive. He selected Hanley Duramic Brick.

The clean, modern lines of the Daily News Building are accentuated by its fresh, "just-built" appearance. This building, like all others constructed with Hanley Duramic Brick, will retain its "new-look" through the years.

Yours is a design that lives when you build with Hanley Duramic Brick. This superb, premium-quality brick is weather-resistant, stainproof, and cannot discolor.

Hanley Duramic Brick is available in the following controlled shades:

- 501 Pearl Grey
- 623 Limestone Grey—Light Speck
- 723 Pearl White—Light Speck
- 725 Pearl White—Manganese Speck
- 824 Oyster Grey—Medium Speck

Full information will be sent upon request.

HANLEY COMPANY

I N C O R P O R A T E D

101 PARK AVE., NEW YORK 17, N. Y.

MURRAY HILL 9-4134



14545 Schaefer Highway, Detroit, Mich.

VERMONT 7-3200

←
The
DAILY
NEWS
BUILDING
42nd Street,
New York City
Raymond Hood,
Architect



Photo Associates, Dallas — by ULRIC MEISEL.

Silvray 1500 Line units were specified for both the Washington School in Clinton, Okla. and the Fairview Elementary school in Elk City, Okla. by: Caudill, Rowlett, Scott and Associates, College Station, Texas — architects; J. W. Hall, Jr., Bryan, Texas — engineer. The photograph above shows the auditorium of the Washington school.

1. WASHINGTON SCHOOL — Clinton, Oklahoma
2. FAIRVIEW ELEMENTARY SCHOOL — Elk City, Oklahoma

Two new schools install Silvray silvered-bowl lamp fixtures

These two new schools are among the more than 1000 that have installed Silvray silvered-bowl lighting units in the past 18 months.

Silvray installations are characteristically free from eye-torturing glare — both direct and reflected. Largely responsible for the visual comfort afforded by Silvray luminaires is their use of silvered-bowl incandescent lamps. Functioning as both a light-source and light-control element, they collect and direct light to the ceiling making it the pri-

mary source of diffused light. The resulting indirect light minimizes shadows and reflected images . . . permits certified efficiencies of 80-90%.

Yet, a Silvray installation is within reach of every school building budget. In fact, Silvray equipment — because of its low initial cost, maintained efficiency of light-output and simplified maintenance — is often lower in overall expense than other lighting systems.

SEND FOR COMPLETE DETAILS



Smoot-Holman, Inc. — west coast licensee.

SILVRAY Lighting, Inc.
107 West Main St., Bound Brook, N. J.

Gentlemen:

Please send me full details on Silvray indirect lighting units.

Name _____

Firm _____

Title _____

Address _____

City _____

Zone _____ State _____

LETTERS

HIGH vs. LOW APARTMENTS

Sirs:

Applause for your analysis of high vs. low apartments (AF, Jan. '52, p. 100).

You should get much approving comment . . . from planners in the redevelopment field, wrestling with building types for medium-density neighborhoods. The rows, walk-ups and "skip-scissor balconies" offer imagination to those trying to visualize a new neighborhood and also trying to sell it to cool-eyed investors. Good for you! . . .

TALBOT JONES, *Project Planner*
Minneapolis Housing &
Redevelopment Authority
Minneapolis, Minn.

Sirs:

Congratulations on your first issue of ARCHITECTURAL FORUM; I'm glad to have the old name back again.

Your argument for the high apartment was particularly excellent. It summed the whole thing up in a single easily read and very convincing capsule. Even horizontal Chicago seems to be going highrise in a number of places. . . .

HARRIS ARMSTRONG, *Architect*
Kirkwood, Mo.

RENTS vs. INSURANCE RATES

Sirs:

I was interested to read of the high vacancy rate in San Francisco's Parkmerced and Los Angeles' Parklabrea's tower apartments completed by the Metropolitan Life Insurance Co. (AF, Jan. '52, p. 56).

That this \$100 million investment error was "proving only a bothersome pinprick to the nation's richest corporation" can lead me only to conclude that my insurance premium rates must be too high.

FRANK LOMBARDI
San Francisco, Calif.

TWO FOR ONE

Sirs:

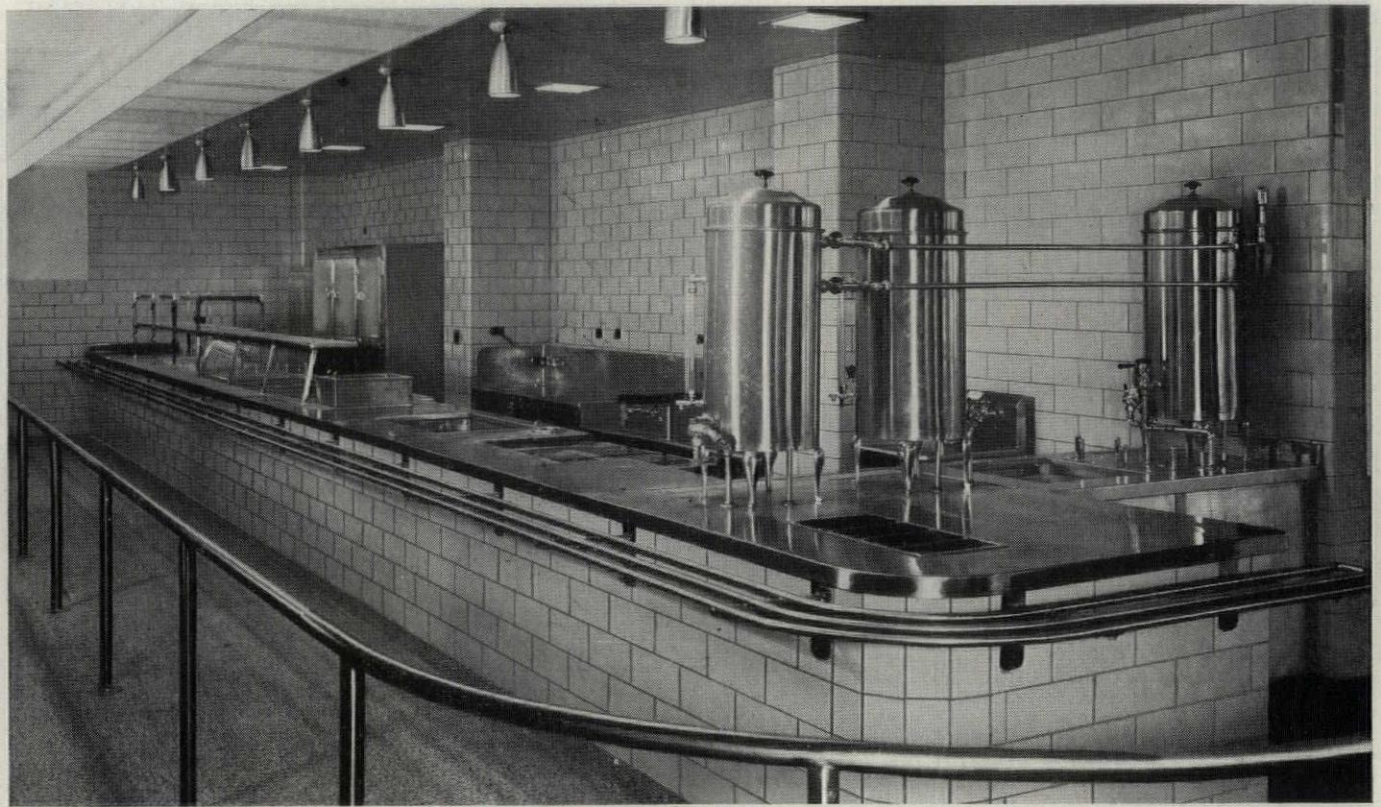
I commend you on the wonderful work you have accomplished. When you first mentioned the idea of separating the old edition I thought the HOUSE & HOME edition would be the only one of interest to me. However, I failed to notify you of this and therefore received both editions, for which I am certainly grateful. There are many things in both editions that are of prime interest to me professionally and otherwise. . . .

WESLEY L. PATERSON
City Planning Director
Logan, Utah

Sirs:

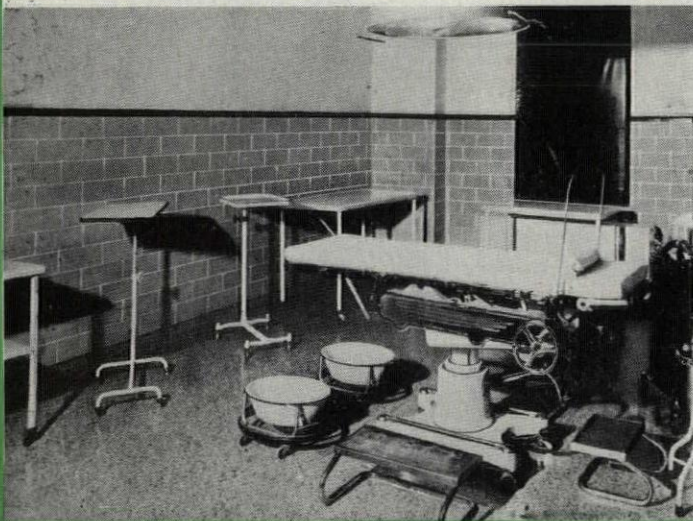
Congratulations on the two new books, ARCHITECTURAL FORUM, and its sister or brother, HOUSE & HOME. First and foremost, I am so glad to have The Magazine of Building go back to being ARCHITECTURAL FORUM.

(Continued on page 84)



Wonderful treatment for hospital interiors

STARK GLAZED FACING TILE



When you design and build hospital interiors with Stark Glazed Facing Tile you do more than merely build a wall.

YOU SAVE ON CONSTRUCTION COSTS.

YOU BUILD THE WALL AND FINISH AT ONE TIME.

YOU ASSURE LOW COST MAINTENANCE AND REPAIR.

YOU PROMOTE HIGH STANDARDS OF SANITATION.

YOU PROVIDE **"COLOR-ENGINEERED"** ENVIRONMENT FOR BOTH PATIENTS AND STAFF.

YOU HELP GET THE HOSPITAL INTO OPERATION SOONER. LOAD BEARING WALLS OF STARK GLAZED FACING TILE HELP AVOID SHORTAGES OF HARD-TO-GET STRUCTURAL STEEL. AND STARK GLAZED FACING TILE IS AVAILABLE.



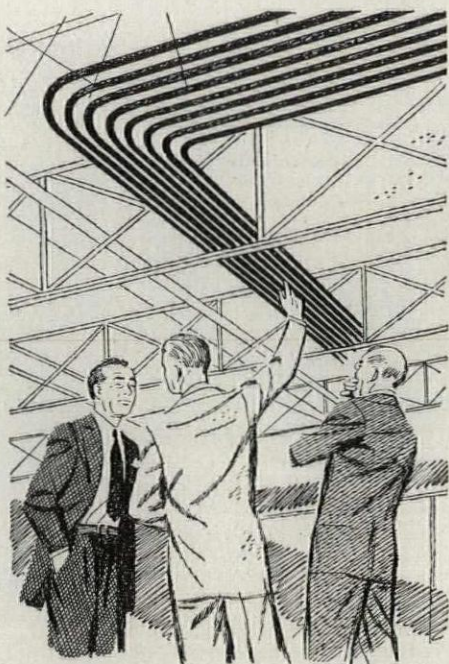
STARK CERAMICS, INC.

(formerly The Stark Brick Co.)

Canton 1, Ohio

14305 Livernois Avenue Detroit 4, Michigan
15 East 26th Street New York 10, N.Y.

NEW BROCHURE OF HELPFUL DATA. Our new brochure on Modular Masonry gives more information. Just write us on your own letterhead. Please address your request to Dept. AF-3.



"A 30 year service record wrote the specs for this piping job"

Recently, engineers for one of the nation's largest automobile manufacturers were asked to specify a piping material for the heating system in one of the company's newest plants.

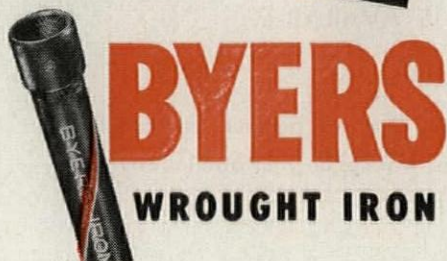
They didn't have to look far for the best material. In an adjacent company plant Byers Wrought Iron pipe had been serving for 30 trouble-free years.

Based on this excellent service record, specifications called for 850 tons of Byers Wrought Iron pipe in the new heating system.

Another example of a time-proven fact.

Corrosion costs you more than wrought iron

Now available—"A Winter Wonder"—first sound motion picture on snow melting systems. Send now for folder telling what the film covers and how to apply for a showing to your group. Write A. M. Byers Co., Clark Building, Pittsburgh 22, Pennsylvania.



LETTERS

It's like having an old friend come back and I'm most happy. . . .

DOROTHY LIEBES
New York, N. Y.

CAUDILL OUTPOINTED

Sirs:

You have a staff that knows its business. Your treatments of our three Stillwater schools and ventilation research (AF, Jan. '52, pp. 144 and 150) . . . could not possibly have been better. In fact, my associates and I are constantly amazed at your way of going about the analysis and presentation of our problems. They appear so complicated to us, but when we read what you write about our work, it seems so powerfully simple. . . . We only wish your excellent presentation technique would rub off on us. The organization of both articles together with the verbal and graphic presentation is the best we have ever read. . . .

WILLIAM W. CAUDILL
Caudill, Rowlett, Scott & Assoc.,
Architects-Engineers
College Station, Tex.

ALLEN OUTPOINTED

Sirs:

I am checking out. No more letters from me, written in quaint calligraphy on the tanned hide of an Amountin' Goat (an Amountin' Goat is a fauna well known about the more wooded parts of Grand Rapids and signifies a goat that is amountin' to more than most goats) will arrive in princely office of Forum, Building, House & Home, Hither and Thither, To and Fro, Push and Pull, or Whatever.

I know when I'm outpointed.

I am a plain, blunt, frontier character, myself. I use just the plain speech of the canaille, which I used to work on. The Erie Canaille. Rome Haul, Buffalo gals, will you come out tonight? All like that. I am not one to go for the rarefied syllables you have taken to throwing about lately. I get the impression from your language that the next time I meet one of your writers he will be wearing a beret. But berets are not the worst of it; whoever is writing the letterpress accompanying your pictures is having halo trouble. He is handing down stuff from On High. He is Telling Them.

No doubt by this time you have heard enough about that house of Van der Rohe's but the news that Mies, as we call him down at the fire barn, got \$27,000 for designing that deal changed my whole attitude. Hereafter when I tell some client what I propose to charge him and he says, recoiling, "That much? Who do you think you are, anyway?" I will say to him, "No, I do not think I am Anyway. As far as I know, there is no eminent architect named Anyway, although I may be wrong. I think I am Van der Rohe."

I spent a lot of time figuring out the ideal female tenant of that H-beam and glass canoe

(Continued on page 86)

Most economical passenger elevator

For 2, 3 or 4 Stories



No Penthouse!

Several advantages are gained in using Oildraulic Passenger Elevators: (1) You do away with the costly, unsightly penthouse that interferes with building design. (2) The light shaftway structure used with the elevator "that's pushed up" means a substantial saving in construction costs. The powerful hydraulic jack supports the elevator and its load. (3) The compact electric power unit usually requires no special machine room.

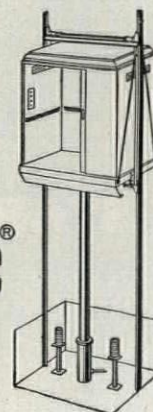
The new, pulsation-free Rotary Flow pump makes Oildraulic Elevators the smoothest operating and quietest of all hydraulic elevators.

For Catalog and data file, write
ROTARY LIFT CO.
1110 Kentucky,
Memphis, Tenn.

Rotary

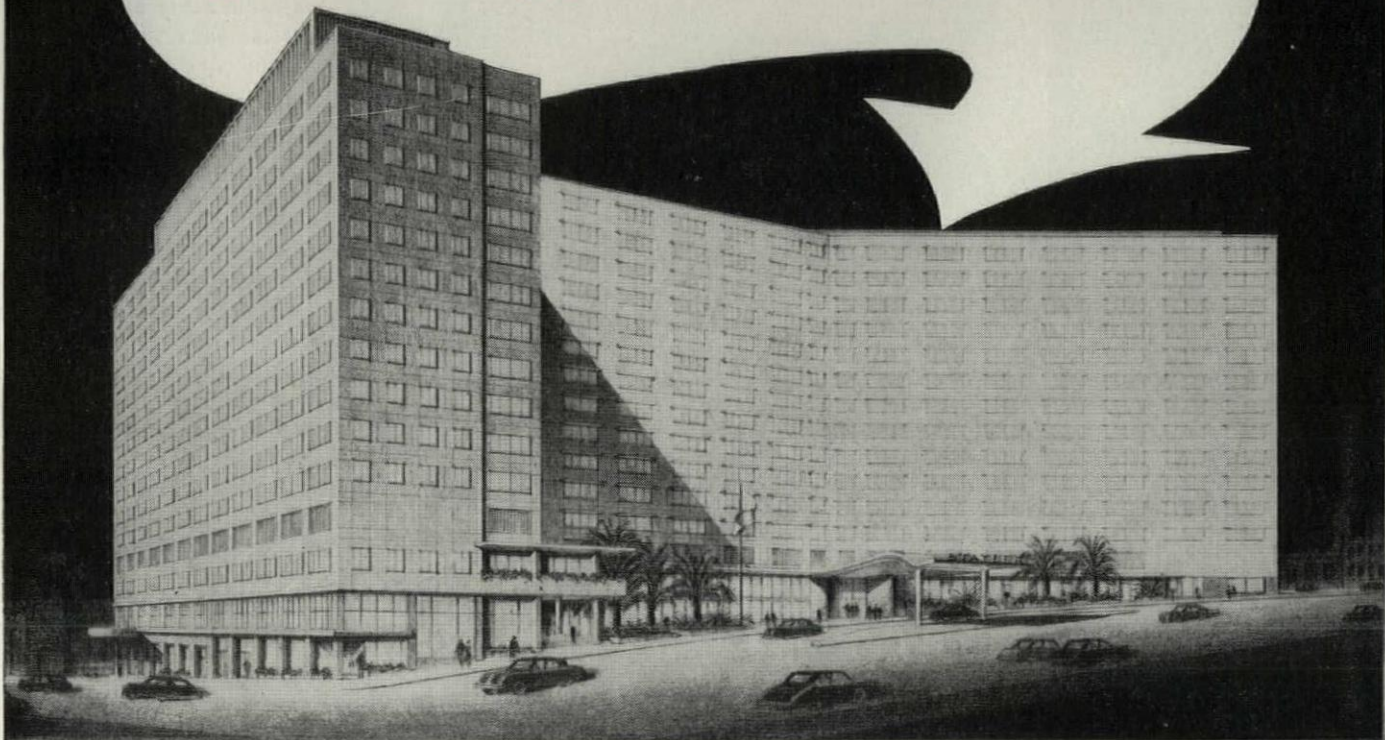
**OILDRAULIC
ELEVATORS**

See our catalog
in Sweet's



Biggest hotel built anywhere in 20 years

-gets a Koppers Built-Up Roof!



Architect's sketch of new Hotel Statler, Los Angeles, Calif. The Koppers Roof will be bonded for 20 years.

Architects and Engineers: Holabird & Root & Burgee, Chicago, Ill. Associate Architect: William B. Tabler.

General Contractor: Robert E. McKee, General Contractor, Inc., Glendale, Calif.

Roofing Contractor: Associated Roof Co., Los Angeles, Calif.

● With 1,275 guest rooms, the new 13-story Hotel Statler, now under construction in downtown Los Angeles, will be the biggest hotel built *anywhere* in the past 20 years. Truly a showplace, too, with promenade decks, tropical planting, sun decks, airing porches, and a swimming pool in the patio.

Built-up roofing will protect this ultra-modern hotel and Koppers Roofing Materials are being used exclusively. A wise choice, because roofs built up with Koppers Coal Tar Pitch and Approved Tarred Felt resist prolonged contact with water *without*

deteriorating, and are actually self-sealing if small breaks occur.

As for long life, a Koppers Bond will *guarantee* the performance of the roofing materials on this roof for 20 years. Your roof can have the same guarantee—for 10, 15, or 20 years if it is applied by an Approved Roofer according to Koppers specifications.

Koppers Roofing Materials are available throughout the United States, including the West Coast. Specify these materials, and your projects will have the best in built-up roofing. Get in touch with us for full information and specifications.



KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH AND WOODWARD, ALABAMA

• SPECIFY KOPPERS FOR LONG-LIFE ROOFING •



Luxury afloat...

Where the comfort and pleasure of discriminating travelers is of prime consideration, marine architects specify PLASCOR Tygon floor tile.

PLASCOR TILES

Floor coverings installed on today's luxury liners must meet more exacting requirements than those installed almost anywhere else. They must be truly flexible to absorb the stress and strain of the ship's movements. They must be highly resistant to skids! They must weather the salt of the air... must be impervious to acids, oils, greases, alkalies and alcohols! They must be luxurious in appearance... comfortable underfoot... extremely durable... and easily cleaned.

Check the facts... PLASCOR, and only PLASCOR meets every specification! The scientific engineers who evolved this modern floor tiling carefully combined the tough Tygon vinyl plastic with resin-impregnated cork to make a floor tile of unmatched wearability, quietness and comfort.

On sea... and on land, architects are repeatedly specifying PLASCOR where finer floors are the objective of particular clients. Easily installed on grade or over radiant heating, it comes in 8½", 11", 17" and 34" squares of ⅛" thickness. Harmonizing feature strips and cove base are available.

WRITE FOR SAMPLES OF PLASCOR FLOOR
TILES AND FOR FULL TECHNICAL
DATA FOR YOUR FILES

Chosen for:

Quiet comfort

Slip-resistance

Inertness

Luxury look

Longer wear

Easy cleaning

U. S. STONEWARE AKRON 9, OHIO

LETTERS

and finally, with an assist from a printer in the composing room of the Oklahoma City Times, I finally got it. Here it is, the way he described her:

"The bride is bolted together in sections and moved forward on rollers."

Let us get back to your language, shall we? In a recent statement you said, "The architect should study the curves of his clients' lives."

Let me congratulate you on the raw, sheer courage of the man who wrote that. Suppose the printer who set that copy was drifting back to the surface after a hard night, and it had come out in print, "The architect should study the curves of his clients' wives."

You would have been lawed from heck to breakfast. (Heck is merely h--l from which certain coal tar products have been removed, producing a mild, cool, satisfying smoke far superior to the ordinary brand.)

Before you confused yourself with the Book of Revelations you were a lot of fun. Do not think that I am quitting you, or canceling my subscription or any of that stuff. No, indeed. In the first place it would be next to impossible to get my subscription affairs straightened out, as they are in such a state that impartial experts after surveying the matter have advised me to commit suicide and let probate court wrestle with the problem. You see it is like this: I have had for some years TWO subscriptions to Building, Forum, House & Home, Castor and Pollux, His and Hers (I know a fellow with a two-stall garage marked His and Hers, and I don't like him for other reasons, too), in-laws and out-laws or whatever...

The reason I had two subscriptions was so the drafting room would have one and I would have one. One to cut up and one to keep. My plan is to have the boys in the drafting room, who are young, vibrant, in the prime of life, read both copies and then come in and chant to me certain less inflammable selections while my secretary accompanies them on a zither.

As the dawn comes up over Elsinore, I pick up the dice and bid a last adieu to the Letter columns of Building, Forum, House & Home, Pick and Pat, Hot and Cold, Gramp and Granny or whatever. You were a nice magazine while you had it, and brother, you've had it.

ROGER ALLEN, Architect
Grand Rapids, Mich.

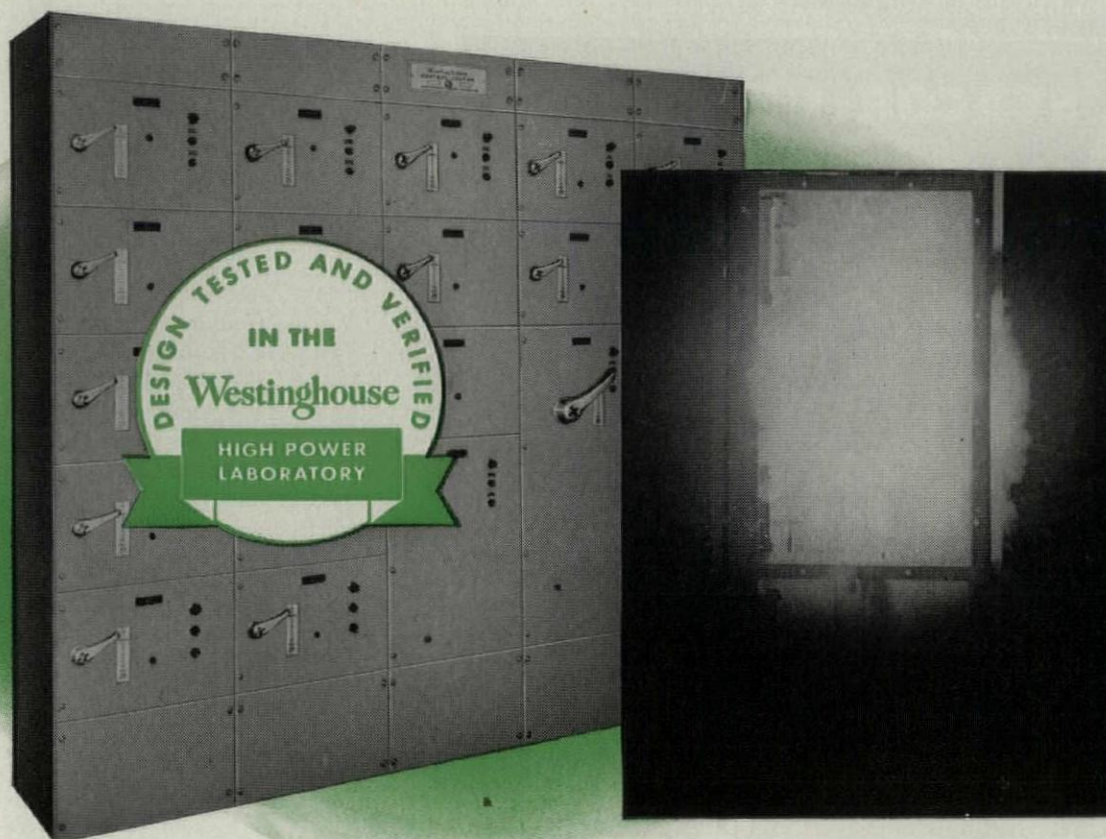
• Aw, please! Ed.

TAXES AND PUERTO RICAN BUILDING

Sirs:

There are several statements in your report on the L. D. Long tax exemption litigation (Dec. issue '51) which require clarification, especially the title under which the article appears. The inference is that building in

(Continued on page 88)



What other control center gives you this **TESTED PROTECTION**

Your control center holds the life line to your motors. Such guardianship demands top-quality construction, at *every* point, to provide complete protection.

Westinghouse Control Centers are built to give you this protection and laboratory tested to prove it:

1 Complete Baffling of each starter unit in Westinghouse Control Centers is a typical example of the fruits of this thorough testing at the Westinghouse High Power Laboratory. When interrupting a short circuit on a starter unit of non-baffled design, tests showed the short circuit could spread throughout the entire structure. Each Westinghouse starter unit is completely baffled to prevent these explosive chain reactions. Unusual arcing is localized if faults occur.

2 Ample Interrupting Capacity is another tested feature of Westinghouse Control Centers.

Each starter circuit breaker has a capacity of interrupting a fault current of not less than 15,000 RMS amps.

3 Sturdy, Self-Supporting, Tight Structures also are on the list of Westinghouse quality features. Each panel is built to stand by itself and to protect the internal electrical equipment.

You will want to know of the many other points of quality that make up Westinghouse Control Centers. Write for your copy of Booklet B-4213 which contains all the facts. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

J-27010

YOU CAN BE SURE.. IF IT'S
Westinghouse

CONTROL CENTERS



FOR **TOP** DRAFTING ROOM EFFICIENCY...

SHIPMENT 2-4 WEEKS
ALL ITEMS

STACOR STEEL EQUIPMENT

STEEL SECTIONAL BLUEPRINT FILING CABINETS

Grade "A" Quality, meets and exceeds
all Government Specifications.

- Smooth gliding drawers move on case hardened ball bearing rollers.
- Protective steel hood and double-hinged paper depressor in each drawer.
- Drawers can't pull out accidentally.
- 3 and 5 drawer units, that can be stacked on the same base.
- Drawers pre-punched for dividers.
- Interlocking cap and base.
- Double Walled drawer front.
- Green or gray hard baked enamel finish.



Heavy Lifetime Construction

5 DRAWER UNITS

Model	Appr. Ship. Weight	Inside Drawer Dimensions	Outside Dimensions Entire Unit	PRICE 5 Drawer Section	Price 6" High Base	Price 1" High Cap
1504	200 lbs.	37" x 26" x 2"	40 3/4" x 28 1/2" x 17"	\$111.20	\$13.65	\$16.01
1505	245 lbs.	43" x 32" x 2"	46 1/4" x 34 1/2" x 17"	133.14	16.22	17.75
1506	305 lbs.	50" x 38" x 2"	53 3/4" x 40 1/2" x 17"	167.58	17.48	22.41

3 DRAWER UNITS

1507	180 lbs.	37" x 26" x 3 3/4"	40 3/4" x 27 1/2" x 17"	\$104.79	\$13.65	\$16.01
1508	220 lbs.	43" x 32" x 3 3/4"	46 1/4" x 34 1/2" x 17"	123.85	16.22	17.75
1509	275 lbs.	50" x 38" x 3 3/4"	53 3/4" x 40 1/2" x 17"	156.03	17.48	22.47

PARTITIONS FOR DRAWERS AVAILABLE AT SMALL ADDITIONAL COST.

STEEL 4 POST DRAFTING TABLE

Check these 6 Exclusive Features

- 1.-All steel 4 post base with foot rest
- 2.-All steel adjusting devices
- 3.-All steel shallow reference drawer size 36x28x2
- 4.-All steel tool drawer with lock, 2 keys & tool tray size 10x27x5
- 5.-Selected smooth finish kiln dried soft wood top
- 6.-Prestwood dust cover

Drafting Tables—Steel Base	Board Size	App. Ship. Wt.	Price
EB6036B (Wood Tops)	36 x 60	140 lbs.	\$108.90
EB7236B all with tool	36 x 72	155 lbs.	118.80
EB7242B & shallow drawers	42 x 72	185 lbs.	134.64
EB8442B	42 x 84	210 lbs.	168.00

Waterproofed Dust Covers for Drafting Tables Complete with Brackets Available at Small Additional Cost.

ALL STEEL FLUORESCENT TRACING TABLES

Hard baked Hammertone grey enamel finish • Cool • No eye strain • Smooth glass working surface • Sand-blasted underside for diffused lighting • Scientifically designed reflector • Details show up clearly even on old blueprints • Extra long electric cord • Equipped with Underwriters listed electrical parts • 2 adjusting devices to raise or lower tracing surface to comfortable working angle • Shipped K.D., easy to assemble.

TRACING TABLES

MODEL	TRACING SURFACE	APP. SHIP. WEIGHT	PRICE
TR420T	20 x 25	150 lbs.	\$127.11
TR436T	24 x 36	175 lbs.	152.41

PORTABLE TRACING BOARDS ALSO AVAILABLE (SAME CONSTRUCTION AS TRACING TABLE)

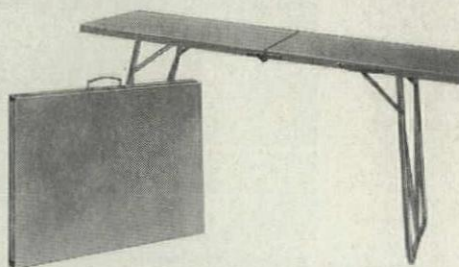
TR-16	16 x 20	35 lbs.	\$33.22
TR-20	20 x 25	70 lbs.	78.54
TR-36	24 x 36	90 lbs.	91.85

"ALUMAFOLD" FOLDING ALUMINUM TABLE

Ideal for field or indoor use • Folds to carry like a suitcase • Light—compact, easy to clean • Carry it in your car, fold it away in closet • Holds 850 pounds.

Powerfully constructed of rustproof ALUMINUM reinforced with steel to serve over 200 YEAR-ROUND USES. For hundreds of outdoor and indoor uses. Strong—yet so light a woman or child can easily carry ALUMAFOLD.

	Open Size	Closed Size	Weight	Price
MODEL "A"	2' x 5'	2' x 2 1/2'	19 lbs.	\$21.95
MODEL "E"	2 1/2' x 5'	2 1/2' x 2 1/2'	24 lbs.	\$29.95
MODEL "B"	2 1/2' x 6'	2 1/2' x 3'	27 lbs.	\$31.95



Rated Firms Shipped on Open Accounts. All Others Cash with Order.

ORDER
DIRECT
FROM

DIV-RACK CORPORATION

66 West 53 St.
New York 19, N. Y.
(Prices F.O.B. N.Y.)

LETTERS

Puerto Rico is tax free, which is not true.

Under the special legislation whereby qualified industries are granted tax exemption, the building and construction industry is not included, and neither is there any general tax exemption for construction projects. This legislation, enacted in 1947, did however provide for tax exemption only for new hotels or for existing hotels which increased their facilities for tourists. . . .

The impression, moreover, has been created that Mr. Long was "promised" something which did not materialize. . . .

Former Governor Jesús Piñero, now an official of Mr. Long's Puerto Rico corporations, has said repeatedly he did not promise, when governor, that Long's operations would be entitled to tax exemption. . . .

There is no "anti-Long" clique in Puerto Rico and it seems manifestly unfair to tag this label on Governor Muñoz-Marín personally. His administration to the contrary has been bending over backward to simplify and facilitate many of Long's problems and procedures. . . .

. . . Many business men and industrial leaders of the mainland continue their keen interest in the advantages of operating in Puerto Rico. In February the 150th new industry to start operations under our "Operation Bootstrap" program will be inaugurated, and in the months to come perhaps another 50 factories will be built and put into operation.

The tax exemption legislation was enacted to encourage the investment of capital for industrial production, but "assembly line housing" or a type of housing never before produced in Puerto Rico was not included in the provisions for exemption. If Mr. Long, or anyone else, were to build a factory for the production of building materials new to the Island, it is possible that such factory would qualify under the tax exemption laws. Similarly, Mr. Long's Darlington apartments, four of them now awaiting completion, could come within the specific regulations for exemption if they are operated as transient hotels for tourists. . . .

SALVADOR TIO, Director

Office of Public Relations

Economic Development Administration
San Juan, Puerto Rico

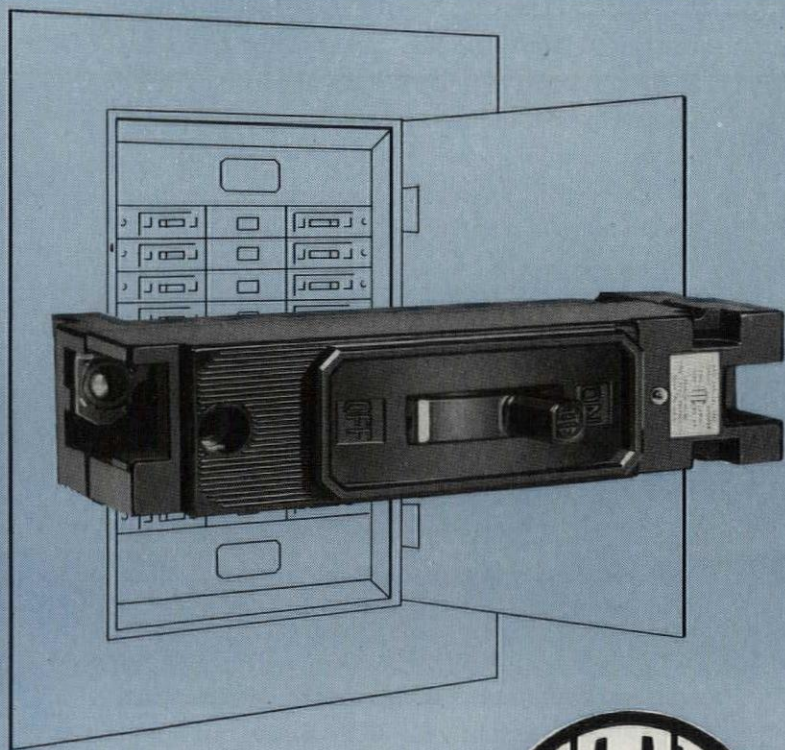
B.O.Q. NOT BARRACKS

Sirs:

Your article about the two-man barrack rooms adopted by Navy (AF, Jan. '52, p. 57) for its naval ordnance test station at Inyokern, Calif., is misleading. These dormitories for civilian scientific and technical personnel are built to bachelor officer quarters standards, not to barracks standards.

J. P. JELLY, Rear Admiral
Chief, Bureau of Yards & Docks
Navy Dept.
Washington, D. C.

DON'T LET THE SPEC-LESS SPECTRE HAUNT YOUR REPUTATION



For further information, including specifications and dimensions, write I-T-E Circuit Breaker Company, 19th and Hamilton Sts., Philadelphia 30, Pa.

Your reputation will never be haunted by the ghost of antiquated electrical specifications if you specify modern panelboards in all your designs.

And even the panelboards themselves can be antiquated, unless they use modern *circuit breakers* to protect lighting, power and distribution circuits. As you know, circuit breakers give maximum protection and flexibility. They're safe because operators and maintenance men can't come in contact with live parts. They indicate at a glance when breaker has tripped on overload and can be readily reset.

I-T-E Molded Case Circuit Breakers are the last word in breakers. They are designed and built by circuit breaker specialists to meet the exacting requirements of everyday commercial and industrial use. They have all these outstanding circuit breaker features:

- Pre-tested for accuracy
- Visual indication when tripped
- Will carry full rated load indefinitely
- Reserve thermal and mechanical capacity
- Sealed cases to prevent tampering
- Heavy duty, sturdy molded cases

Protect your designs with modern panelboard specifications. It's easy! Just make sure they include I-T-E Molded Case Circuit Breakers. And remember, you can specify I-T-E all the way—from 10 to 600 amperes.

Specify

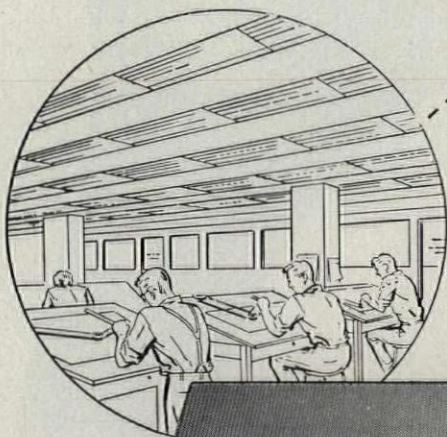


MOLDED CASE CIRCUIT BREAKERS

I-T-E CIRCUIT BREAKER CO. • 19th and HAMILTON STS. • PHILA. 30, PA.

R & IE Equipment Division, Greensburg, Pa. • Canadian Mfg. and Sales: Eastern Power Devices, Ltd., Toronto • Export Sales: Philips Export Corp., N.Y. 17, N.Y.

for excellent **FUNCTIONAL** lighting...



CORNING'S CRYSTA-LITE!

Good functional lighting directs maximum light into the working zone. Corning's CRYSTA-LITE prismatic lens panels do even more. Linear prisms eliminate high-level glare of fluorescent light by bending the high-angle rays downward into zones where they are most useful for illumination — giving you more light for seeing plus accurate brightness control.

Lightweight CRYSTA-LITE is made of water-white crystal glass and is not color selective. There is no distortion of the color source, making surroundings more pleasing . . . merchandise more appealing.

Especially suitable for long runs as well as individual fixtures, it is available in widths up to 24", lengths up to 100". CRYSTA-LITE may be obtained from leading fixture manufacturers, many of whom feature CRYSTA-LITE in their fixtures. For further details on all types of Corning engineered lightingware, send for Bulletin LS-32; Photometric sheets also available.



CORNING GLASS WORKS
CORNING, NEW YORK

Corning means research in Glass

VISIT THE NEW CORNING GLASS CENTER

Technical Products Division: Laboratory Glassware, Signalware, Glass Pipe, Gauge Glasses, Lightingware, Optical Glass, Glass Components



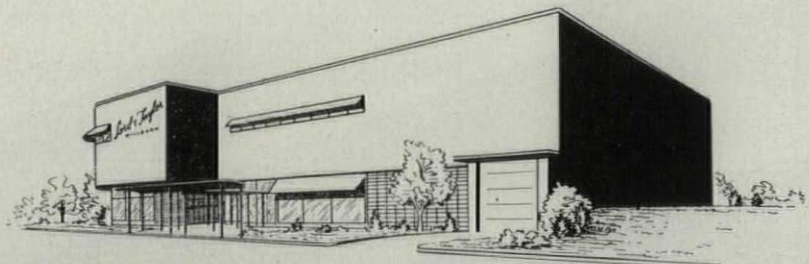
CORNING GLASS WORKS, Dept. M-3, Corning, N. Y.
Please send ☐ Bulletin LS-32 describing CRYSTA-LITE;
☐ Photometric sheets.

Name _____ Title _____

Firm _____

Address _____

City _____ Zone _____ State _____

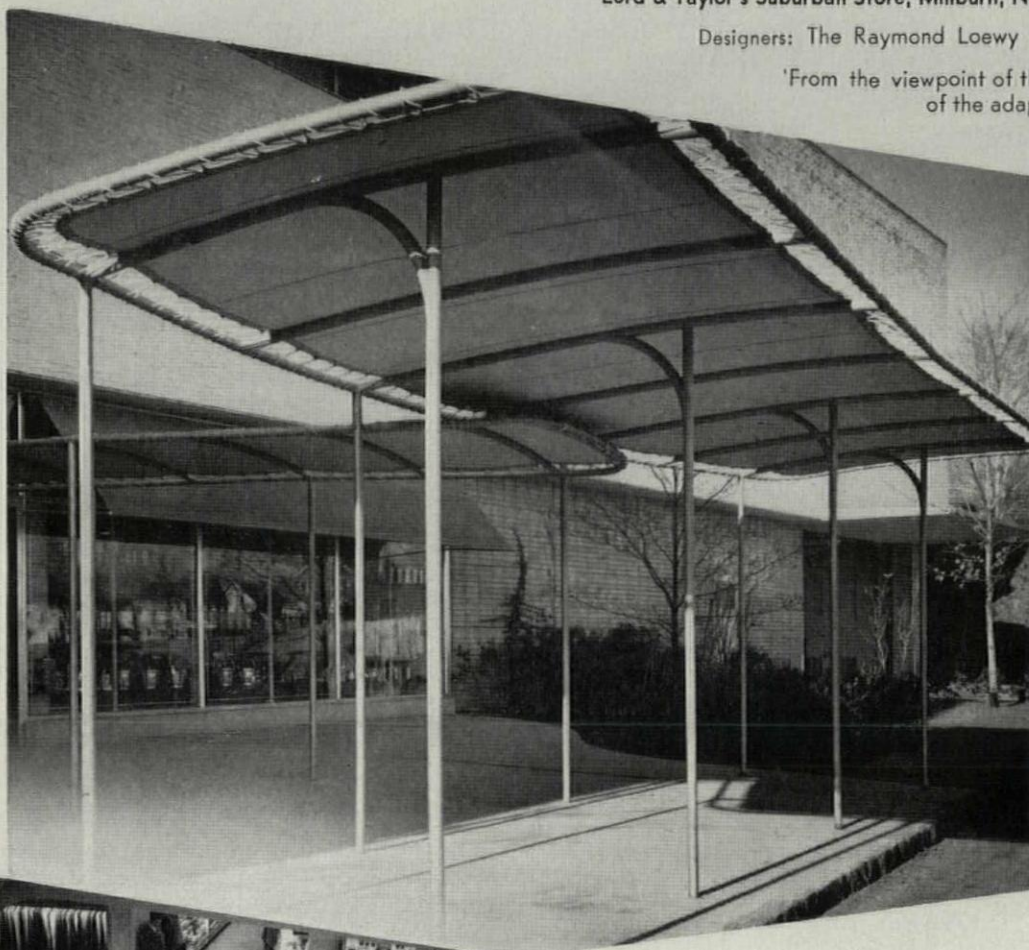


Lord & Taylor's Suburban Store, Millburn, New Jersey

Designers: The Raymond Loewy Corporation

'From the viewpoint of the building designer, canvas is another of the adaptable materials which can be integrated into a total design to provide color, texture, grace. As I use it, canvas is not seasonal or demountable; it is part of the architecture. Although alternate materials may seem to have greater durability, I doubt if canvas can be matched for economy. Primarily, I like the variety of applications it allows me and the fact that it introduces a note of lightness, delicacy to offset the weight of a building mass.'

William T. Sneath, President
The Raymond Loewy Corporation



modern design and Canvas

Among the materials which help contemporary architecture achieve its purpose of combining function with beauty, none can match CANVAS in providing maximum design flexibility. Awning fabrics lend color and texture to both interiors and outer features, permit greater freedom in the use of glass by economically solving problems of solar heat control.

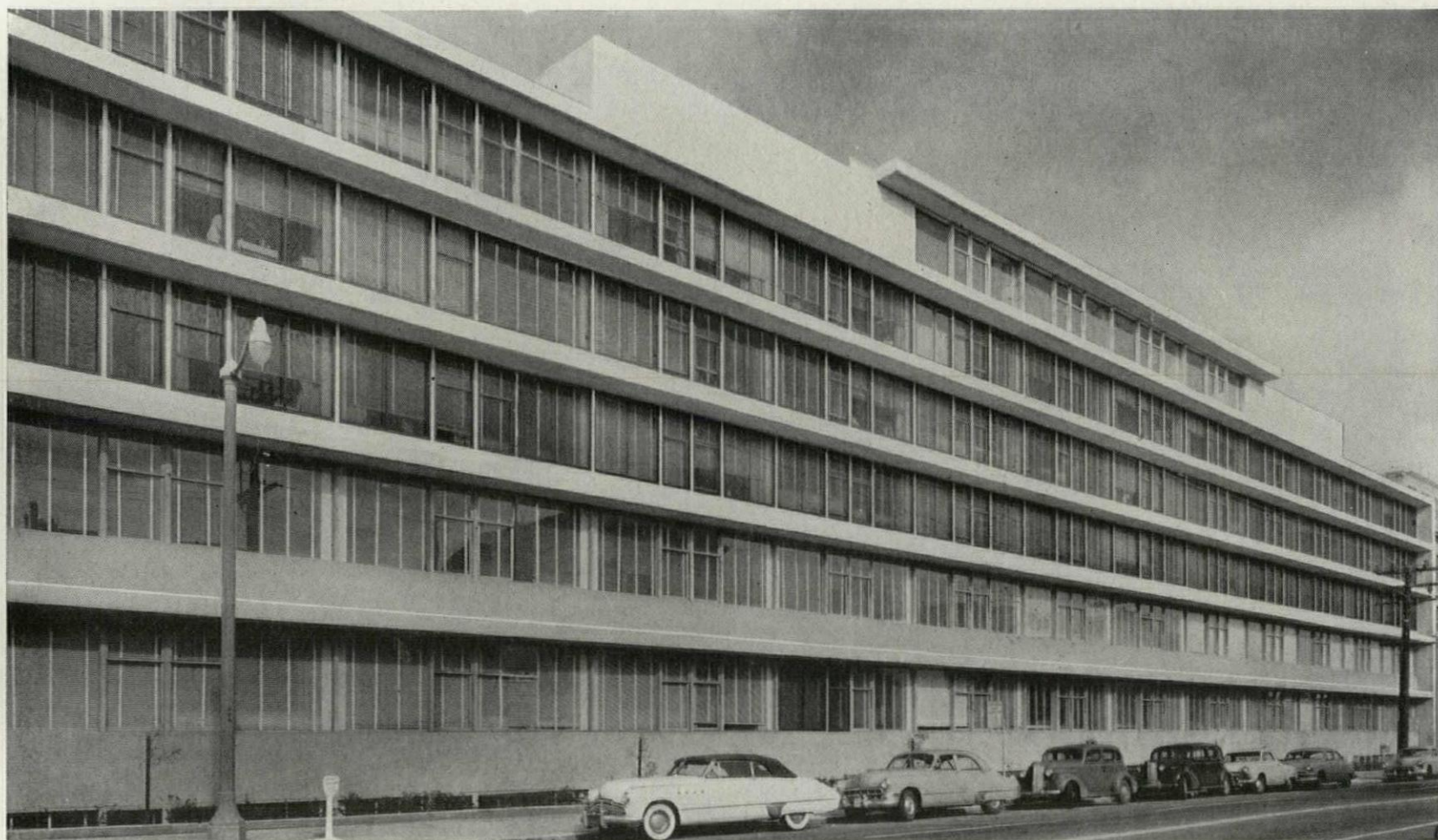
The Loewy Corporation chose Canvas Awnings to meet the Lord & Taylor standard for fashion and decor, blending them gracefully into an outstanding modern store design.



**CANVAS AWNING INSTITUTE
and NATIONAL COTTON COUNCIL**

P. O. BOX 18

MEMPHIS, TENN.



Architects: Skidmore, Owings and Merrill; KoolShade Contractors: Western Asbestos Co.

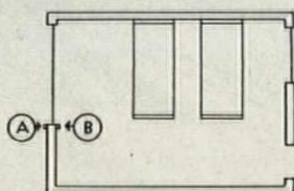
Mt. Zion Hospital's "Short-Cut" to cooler rooms keeps sun's heat from coming through windows

San Francisco's Mt. Zion Hospital discovered that, on a sunny day when the outside thermometer (a) registered 90°, a thermometer (b) placed in a patient's room read 115°.

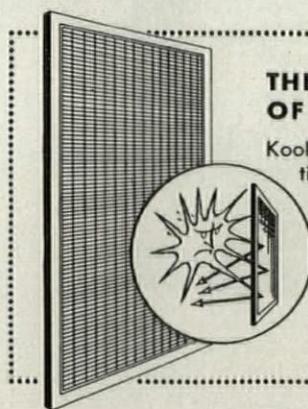
They installed KoolShade Sunscreen on the windows and now when the outside thermometer reads 90°, the inside thermometer in the patient's room reads only 80°—a reduction of 35° in room temperature. They found that the best way to deal with the sun's heat is to keep it out, not try to cool it or remove it after it has passed through the glass into the room.

KoolShade Sunscreen blocks out as much as 87% of the sun's heat rays. It also keeps out insects like ordinary screen while admitting plenty of air and a cool, glareless light. Made of bronze, it needs little attention. Unlike awnings, it doesn't block the view from the window—rot, tear, or flop in the wind.

For hospital, school, office or residence... KoolShade Sunscreen can solve many of *your* problems of summer heat and glare. For maximum efficiency and undivided responsibility, specify Ingersoll aluminum framing for all KoolShade installations. At the present time, priorities will speed delivery on both KoolShade and framing.



To get the complete story on the Mt. Zion Hospital experience with KoolShade including a full report on the temperature tests, write for "The Report on the Mt. Zion Heat Tests" and the "KoolShade Manual for Architects and Builders" to Ingersoll Products Division, Borg-Warner Corporation, Dept. MB-3, 321 Plymouth Court, Chicago 4, Illinois.



THE MOST EFFICIENT OF ALL SHADING DEVICES

KoolShade Sunscreen is like a miniature venetian blind woven of thin bronze strips. These bronze louvers set at a 17° angle, reflect and radiate up to 87% of the sun's heat rays outside windows before they reach the window glass. It's the modern way to insulate windows against sweltering summer heat.



A PRODUCT OF BORG-WARNER

© 1952—Borg-Warner Corp.

Ingersoll KOOLSHADE® Sunscreen
A PRODUCT OF BORG-WARNER

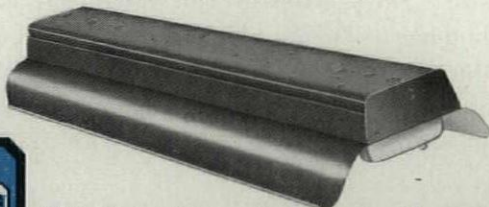
URE FOR EVERY LIGHTING
Leader

Quality Fixtures for Quality Lighting



moulded plastic louver with choice of 31° or 45° shielding. For two, three or four 40-watt lamps, or Slimline lamps in lengths from 48" to 96".

RECESSED TROFFERLITE



A perspective view of a long, narrow, rectangular architectural element, possibly a decorative molding or a small window. It features a square decorative panel on the left end, which has a radial pattern of lines emanating from a central point. The rest of the element is a long, narrow rectangular section with a slightly textured or ribbed surface.

Leader troffer fixtures offer versatility of lighting design and high light values. Shown here with matching incandescent spotlight. Trofferlites are available with a wide variety of glass or specialized lenses, also in louvered, baffled and open styles. Complete range of lengths, choice of regular or shallow depth, 12" or 24" width, for from two to eight lamps.

*Sold and installed by the better
electrical dealers and contractors*



*Sold and installed by the better
electrical dealers and contractors*

Leader *America's No. 1 Lighting Equipment Manufacturer*

Leader Electric—Western: 800 One Hundredth Avenue, Oakland 3, California
Campbell—Leader, Ltd.: Brantford, Ontario, Canada

PERKINS & WILL
architects and engineers

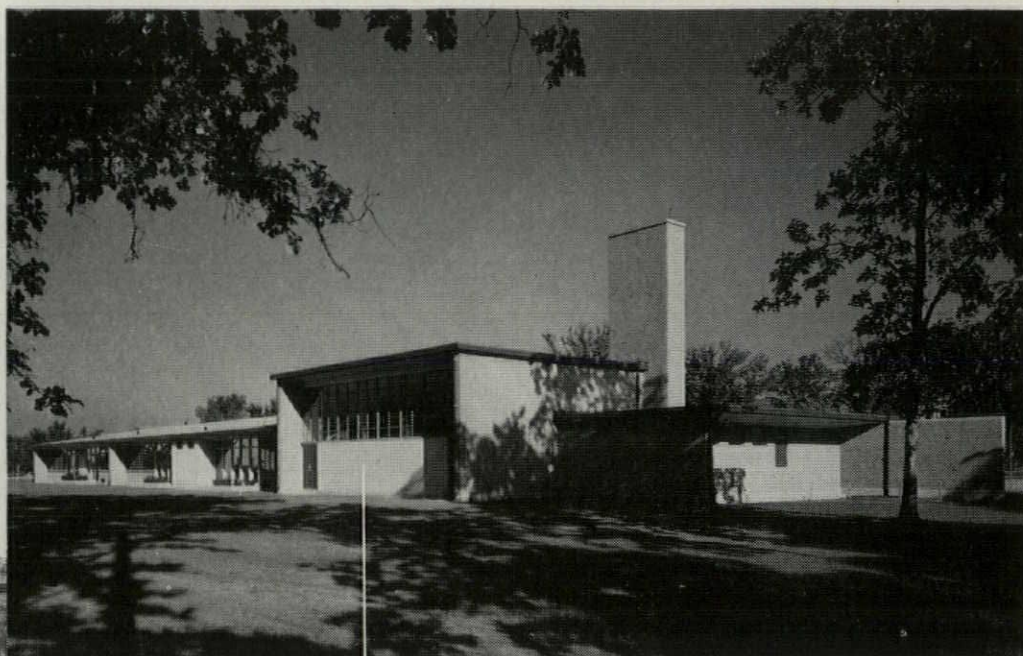
CHELL & ANDERSON
general contractors

JOHN J. CAHILL, INC.
plumbing contractor

JAMES B. CLOW & SONS
plumbing wholesaler



New Primary School, Deerfield, Ill. Kindergarten room is one of eight classrooms grouped in the wing at the left in exterior photo. Gym-cafeteria unit is in the center, the administrative wing on the right. Exterior finish is colonial red brick with Indiana Limestone trim.



for Happier School Days...

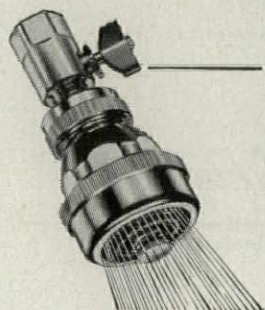
UNITY

WITH THE OUTDOORS

• The little folks who attend Deerfield, Illinois' compact new primary school have little reason to feel "cooped-up." Generous floor-to-ceiling windows make every classroom seem an intimate part of the wide interesting world outside. Designed throughout to assure the physical and psychological benefits* of maximum daylight—and featuring multi-purpose

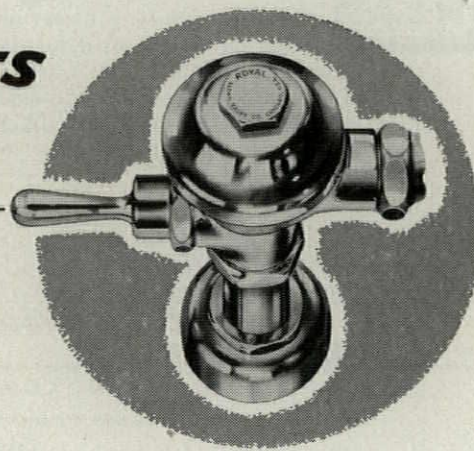
rooms to conserve space—the Deerfield school may well serve as a prototype for many other schools its size. Since materials and equipment used in the building had to meet highest standards of quality and durability, it is only logical that SLOAN Flush VALVES were installed throughout—another example of preference that explains why . . .

more **SLOAN** *Flush* **VALVES**
are sold than all other makes combined



SLOAN VALVE COMPANY • CHICAGO • ILLINOIS

Another achievement in efficiency, endurance and economy is the SLOAN Act-O-Matic SHOWER HEAD, which is automatically self-cleaning each time it is used! No clogging. No dripping. When turned on it delivers cone-within-cone spray of maximum efficiency. When turned off it drains instantly. It gives greatest bathing satisfaction, and saves water, fuel and maintenance service costs. Try it and discover its superiorities.





Solid Olsonite seat Numbers 5 and 10 were specially designed for industrial and commercial installations. Extra-heavy, one-piece construction eliminates joints, seams, and crevices —no weak spots to break or crack. Hinges are covered with matching Olsonite, leaving no exposed metal to rust or corrode. Model Numbers 5 and 10 are available in either white or black, for regular or elongated bowls.

NOT HOLLOW • NOT CONCAVE • NOT CORED...BUT **SOLID**

Olsonite



SWEDISH CRUCIBLE STEEL CO., Plastics Division
8561 BUTLER AVENUE • DETROIT 11, MICHIGAN

Here it is!

The most unusual,
most beautiful
Sound
Conditioning
material
in **20** years...

Acousti-Celotex RANDOM PATTERN Perforated Tile



Completely new and unlike any other Sound Conditioning material in appearance, Acousti-Celotex RANDOM PATTERN Perforated Tile brings you an exciting new range of decorative possibilities for interiors of every type.

- ... sharply profiled perforations of varying sizes, arranged in random fashion
- ... rich, linen-like surface that gives better light diffusion
- ... a pattern that minimizes joint lines, for beautiful over-all effects

... these are the new, exclusive features of Acousti-Celotex RANDOM PATTERN Perforated Tile that enable you to create striking, dramatic decorative

effects impossible with any other Sound Conditioning material!

But beauty is only part of the story. Like all Acousti-Celotex Sound Conditioning Products, RANDOM PATTERN Perforated Tile has high sound-absorbing value. And it also has a remarkably durable *new washable finish* that keeps its smart, soft-white beauty after many washings.

ASK YOUR DISTRIBUTOR of Acousti-Celotex products to show you a sample of new Acousti-Celotex RANDOM PATTERN Perforated Tile. If you don't know where to reach him, write to The Celotex Corporation, Dept. A-32, 120 S. LaSalle St., Chicago 3, Ill. In Canada, Dominion Sound Equipments, Ltd., Montreal, Quebec.

TOPS IN WASHABILITY—Two coats of tough finish, bonded under pressure of a hot knurling iron, build a surface of superior washability right into Celotex Cane Fibre Tile.



ACOUSTI-CELOTEX
TRADE MARK REGISTERED U.S. PAT. OFF.
Sound Conditioning

PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

THE CELOTEX CORPORATION, 120 S. LA SALLE ST., CHICAGO 3, ILLINOIS



Why Stainless Steel?

Here are the answers received from
manufacturers of architectural products who
have already switched to stainless steel.

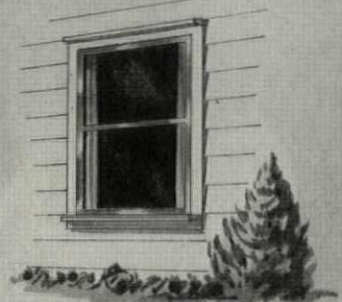
★ Certain types of stainless steel are now obtainable without
restrictions. Contact your nearest Sharon office or write
direct for further information.



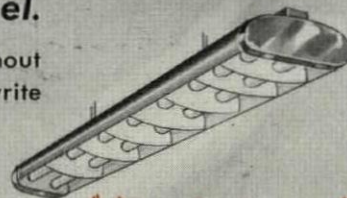
*"Better
looking"*



"No upkeep"



*"Weather doesn't
touch it"*



"Doesn't discolor"



"Doesn't corrode"



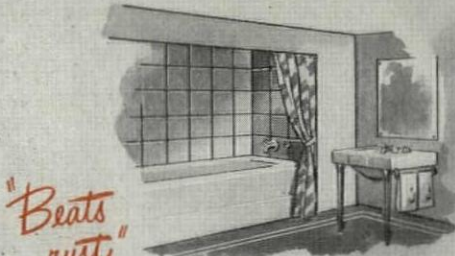
"Stronger"



"Won't wear out"



"Cleans easier"



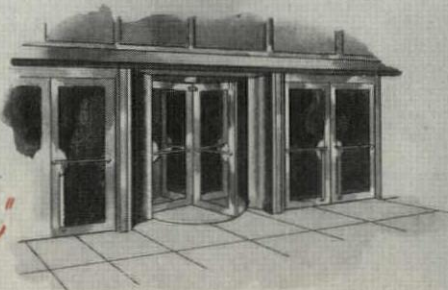
*"Beats
rust"*



"Lasts forever"



"Whips salt air"



*"Looks
richer"*



"People demand it"

STAINLESS STAYS NEW FOREVER

SHARON STEEL CORPORATION
Sharon, Pennsylvania

DISTRICT SALES OFFICES: Chicago, Ill., Cincinnati, O., Cleveland, O., Dayton, O., Detroit, Mich.,
Indianapolis, Ind., Milwaukee, Wis., New York, N. Y., Philadelphia, Penna., Rochester, N. Y., Los Angeles, Calif.,
San Francisco, Calif., Montreal, Que., Toronto, Ont.

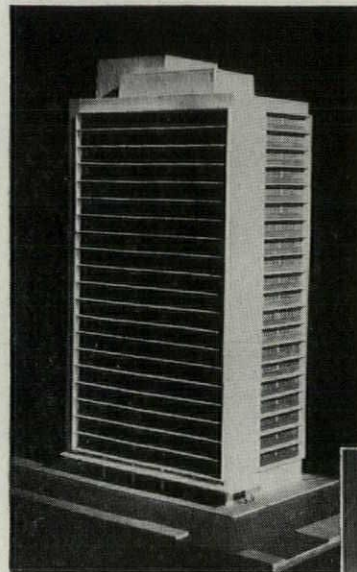
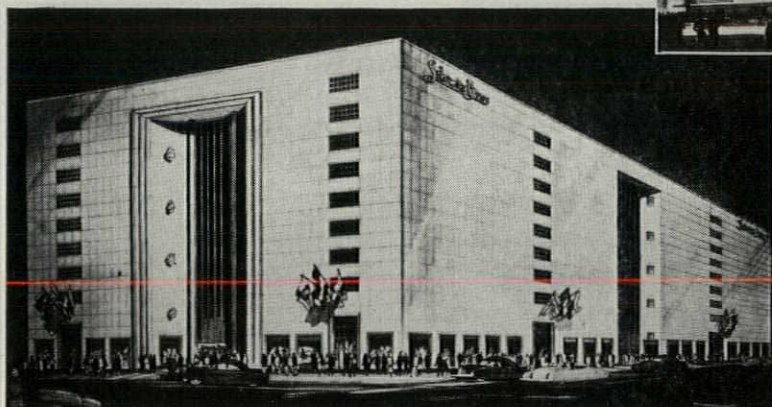
SHARONSTEEL

How Houston gears for electrical growth with G-E Q-FLOOR WIRING

As the skyline of Houston, Texas, grows, the requirements for expanded electric service *within individual buildings* grow. These four buildings, with G-E Q-Floor wiring, are prepared for the future—whenever the rearrangement of office or store equipment demands additional electrical service.

The steel cells of Q-Floors provide the ultimate capacity for the wires of power, signal, and telephone circuits. Outlets can be installed at any time to provide electrical facilities where needed over the entire floor area. And the provision for electrical expansion will outlast the building itself.

To provide for tomorrow's changing needs of electrical growth, specify G-E Q-Floor wiring. Write for the complete story—a copy of the *G-E Q-Floor Wiring Data Manual*. Section C4-34, Construction Materials Division, Bridgeport 2, Connecticut.



← **Melrose Building**

Architect: Lloyd & Morgan
Gen. Contr.: Tellepsen Constr. Co.
Consulting Engr.: Herman Blum
Elec. Contr.: Hirsh Elec. Co.
Owner: Melvin A. Silverman and Bennett Rose

This new Q-Floor building will always be ready for unforeseen changes in floor arrangements . . . changes that demand new electric outlets.

Bank of Commerce Building →

Architect: Alfred C. Finn, F.A.I.A.
Gen. Contr.: Manhattan Constr. Co. of Texas
Elec. Engr.: Reg. F. Taylor
Elec. Contr.: The Howard P. Foley Co.
Owner: The National Bank of Commerce of Houston

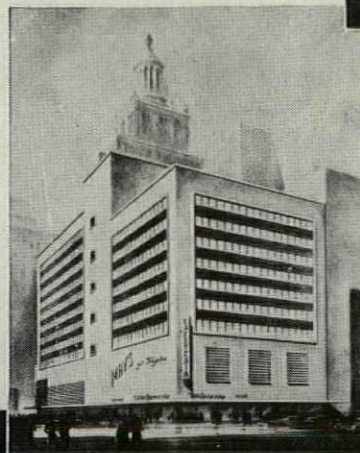
With G-E Q-Floor wiring, electric outlets can be added or relocated quickly—without disturbing this building's tenants.



San Jacinto Building

Architect: Kenneth Franzheim, F.A.I.A.
Gen. Contr.: W. S. Bellows Const. Corp.
Struct. Engr.: Ward Butterwick
Elec. Engr.: Reg. F. Taylor
Elec. Contr.: J. S. Copeland Elec. Co.
Owner: Brown-Bellows-Smith, Inc.

Dead load was reduced in the rebuilding of the San Jacinto Hotel into a modern office building. After stripping the building to its original steel frame, the heavy, arched concrete floors were replaced with Q-Floors (steel floor and race-way combined).



Sakowitz Building

Architect: Alfred C. Finn, F.A.I.A.
Interior Architect: Brochsteins Inc.
Gen. Contr.: Tellepsen Constr. Co.
Elec. Engr.: Reg. F. Taylor
Elec. Contr.: J. S. Copeland Electric Co.
Owner: Sakowitz Bros.

G-E Q-Floor wiring gives this department store complete electrical coverage for display window, show case, and office lighting.

You can put your confidence in—

GENERAL  ELECTRIC



Francis Haar

SHOCKPROOF OFFICE BUILDING

**unites novel structural system,
heat pump, U. S. open planning,
with Japanese gardens
and clear design**

ANTONIN RAYMOND & L. L. RADO,

Architects-Engineers

PAUL WEIDLINGER, Structural Engineer

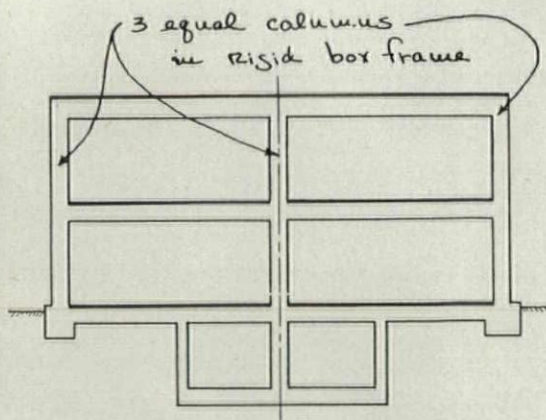
MORRIS SHAPIRO, Mechanical Engineer

CLAUDE R. ENGLE JR., Electrical Engineer

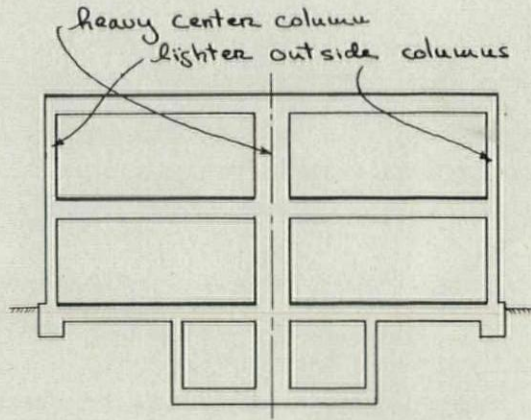
Since the war, *Reader's Digest* had accumulated half-a-million readers in Japan. When it consequently built its own office building in Tokyo, directly overlooking the emperor's grounds, the magazine sought wisely for simplicity and directness in construction and design rather than any blend of Japanese and American "effects." Architect Antonin Raymond had long been familiar with Japanese ways; his partner L. L. Rado and engineer Paul Weidlinger brought in such up-to-date Americanisms as a new version of earthquake resistant structure, a heat pump, and flexible office planning (Japanese open planning had been confined to houses).

Yet the thing that makes the *Digest* building significant anywhere, regardless of country, is the thoughtful expression of structure and plan, the loving treatment of materials for their own intrinsic value, the search for beauty not as a monument to the personal likes or dislikes of the architects, but as an "art of life." For the method and the result, turn the page.

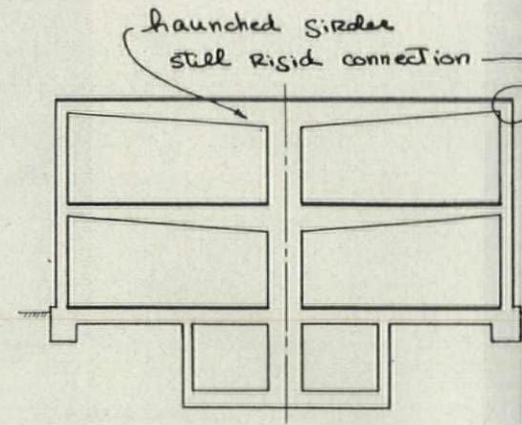
Novel construction was evolved to meet economic conditions and design needs



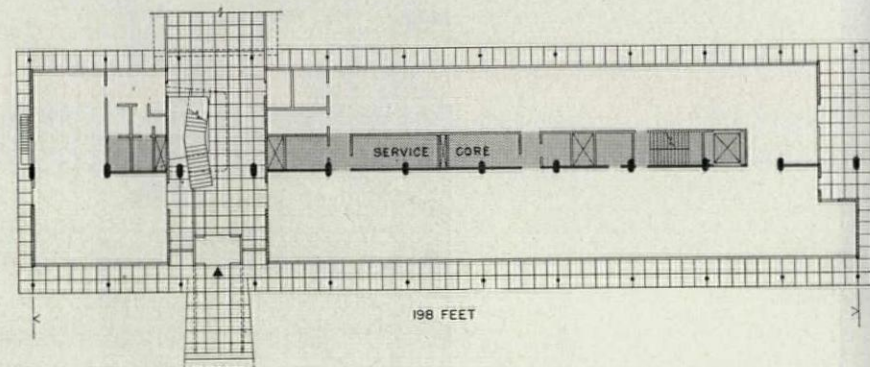
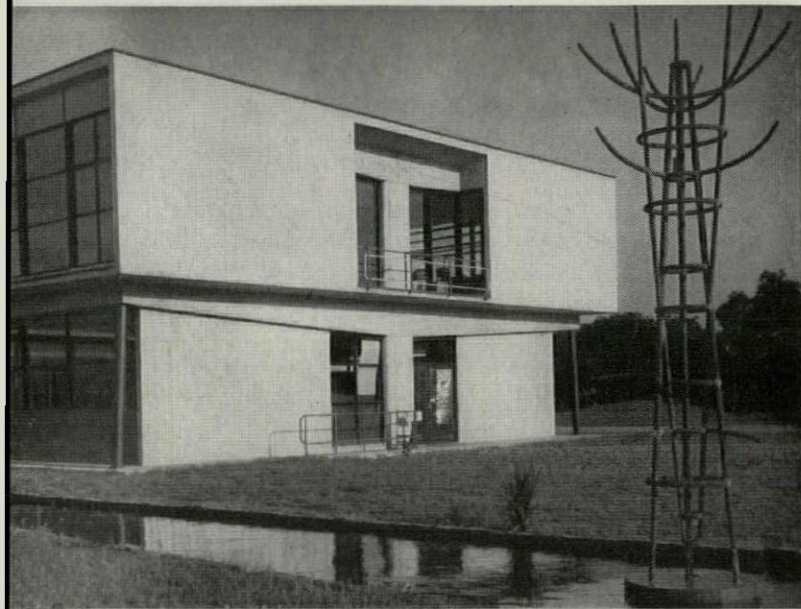
In basic rigid frame three columns would have same stiffness, absorb approximately equal amounts of bending. Exterior columns would be too heavy.



Increased dimensions and stiffness of center pier allow exterior members to absorb less load and permit their lightening.



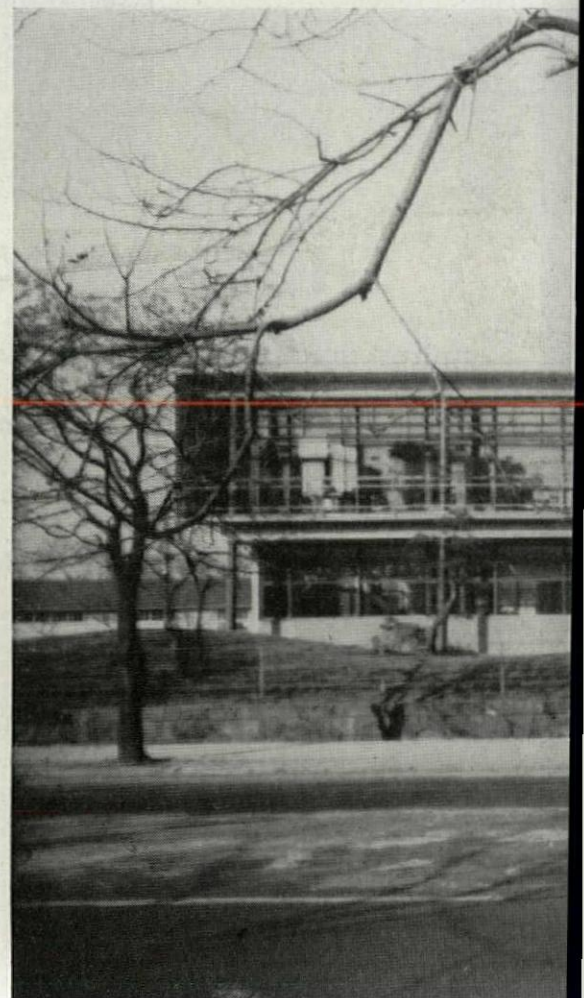
Further relief of load on exterior members accounted for by haunching of girders and concentrating load at center.

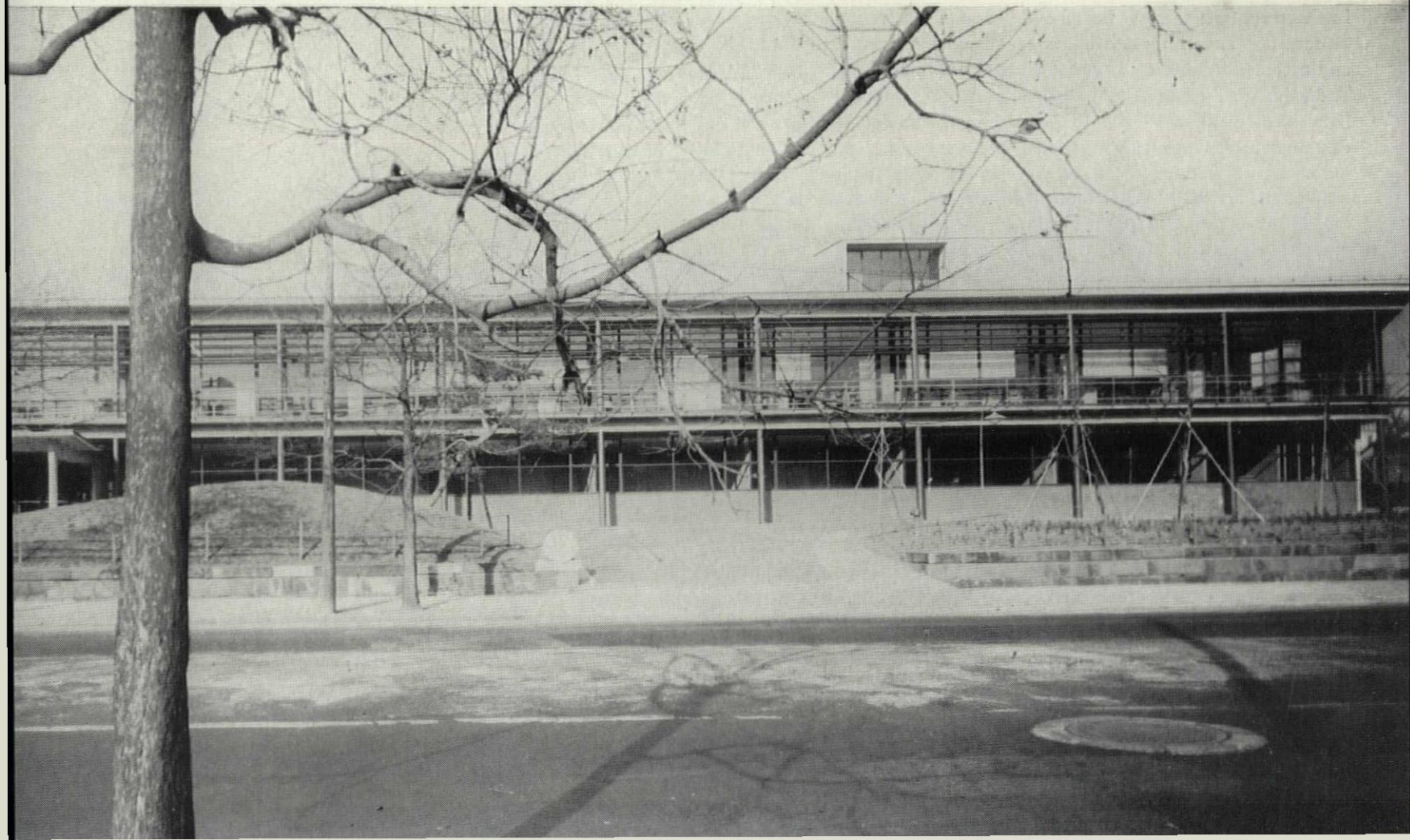
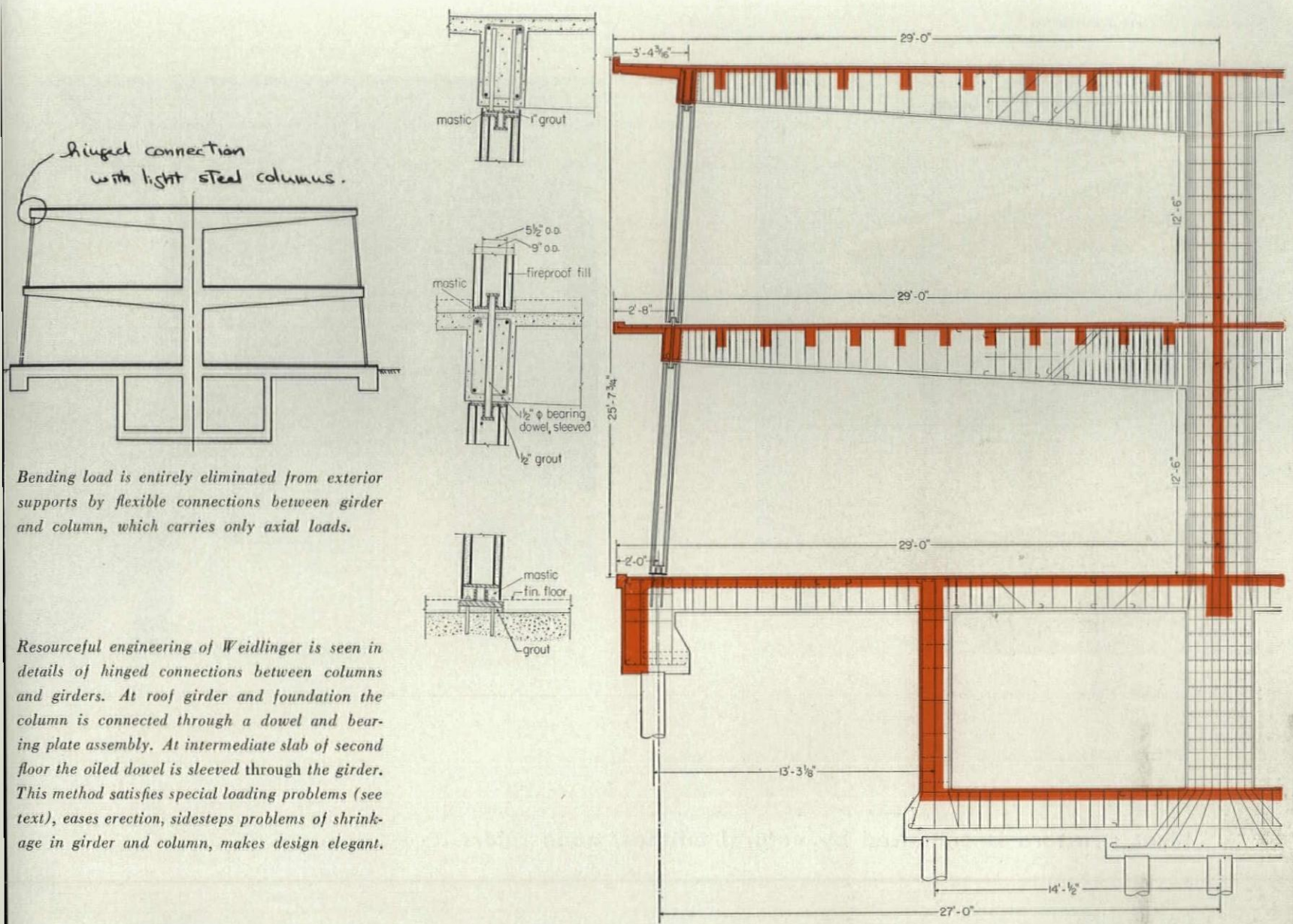


Three main factors conditioned the structural solution: 1) high cost of materials and low cost of highly skilled labor, 2) need for antiseismic construction in earthquake-ridden Japan, 3) desire for an open flexible floor plan with light outside walls. The answer: a construction chiefly of concrete, rigid at the center, hinged at the sides.

Down the center line of the building is a row of heavy reinforced concrete piers, each of which forms a rigid frame in conjunction with its tapered girders branching at the second floor and the roof. This concrete frame carries the major part of the bearing load. Exterior columns are 51½" steel pipe ringed by lightweight concrete fireproofing and an outer 91½" pipe. These columns carry a minor part of the load because they are "hinged," not bonded, into the concrete girders by an ingenious method perfected by engineer Weidlinger (see opposite page). A rough analogy would be an apple tree with the ends of its branches propped. No "bending" load is exerted by the concrete girder on the exterior columns; the axial load on the columns is transmitted directly to the ground without bearing on the second-floor girder. (The column is "sleeved" through the girder—see detail, opp. page.) An important result: the thin outer columns let Raymond & Rado design the kind of open-faced building that they wanted. And the slanting of the columns, set at an angle of 90° to the tapered girders, offers added resistance to the horizontal forces of earthquakes.

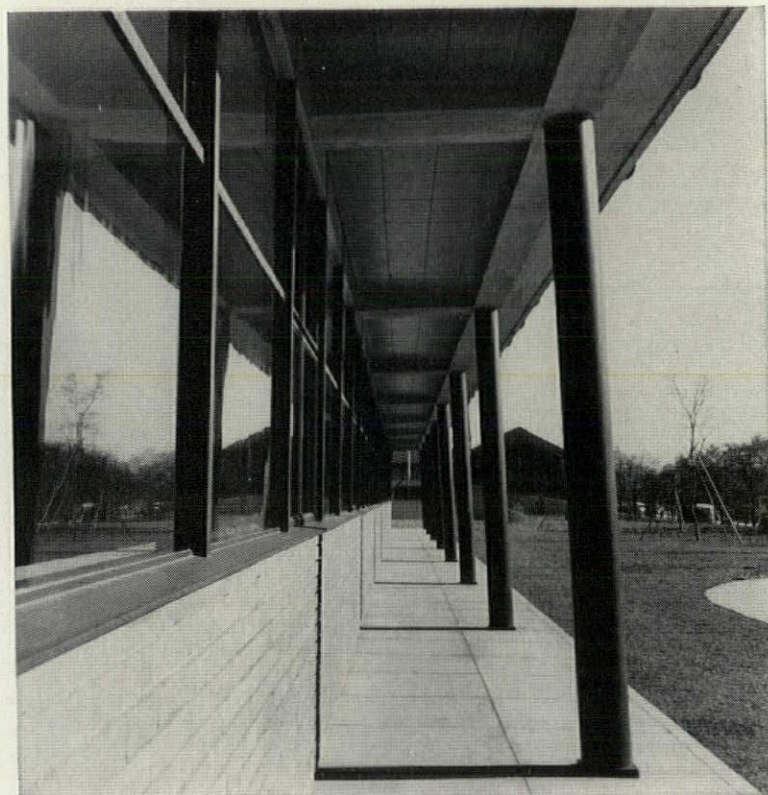
Because the bearing load is not all concentrated on the heavy center piers the system—despite appearances—is not cantilevering. Cantilevers would have required deeper haunching of the beams and fattening of the piers at too high a price in lost space.







Today's "veranda": reinforced concrete, steel and glass

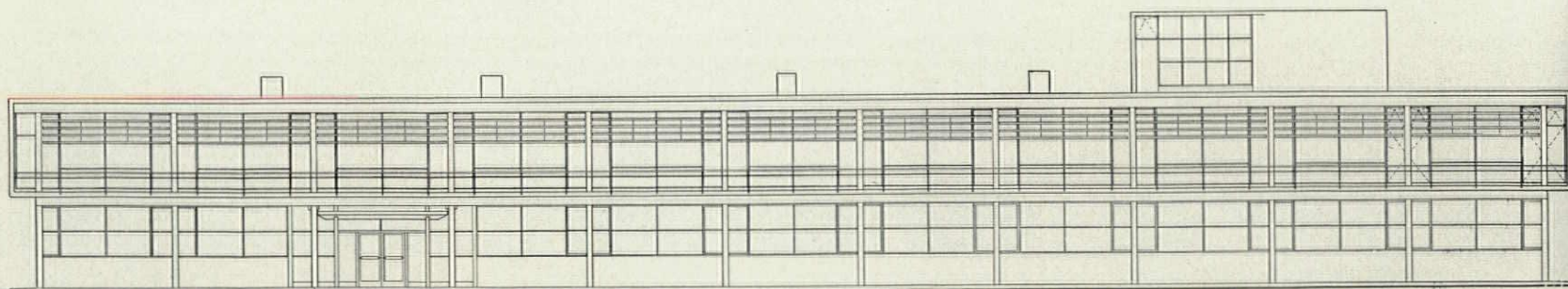


Posts and beam are slanted against lateral earthquake shocks

Neat structure is enhanced by natural finishes, good colors

In sharp contrast with the boxed end (*above*), the front elevation presents two "verandas," superimposed one above the other, framed by bold overhangs and accented by the repetition of the steel columns marking off the 18' bays. These inclined columns and the inclined longitudinal beam make the overhang seem incidentally to tilt up (although actually flat) like the roof line of a Japanese temple (*photo, top right*).

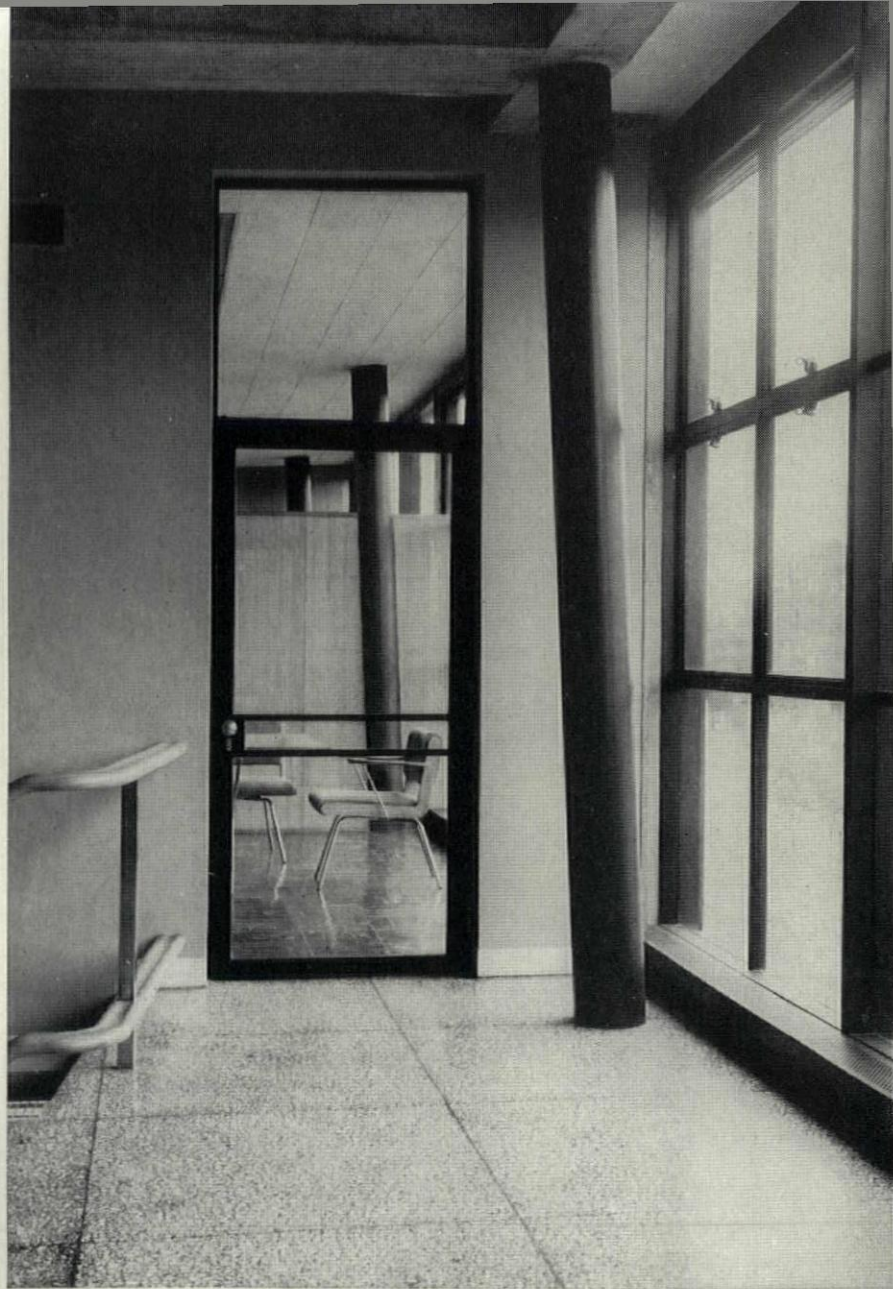
Neatly highlighting the structural parts is the trim polychromy: the dove gray of the artisan-like concrete work just as it came from the forms without buffing or creaming (this cut down possible cracking or peeling); the modest salmon-red of the first-story brick apron wall; the flat Prussian



blue of the steel pipes, louvers and balcony railing. As a composition, the balance between the enclosed ends and the long airy facades with their gentle rhythm is the inevitable logical consequence of a successful structural solution. The result confirms the desire of the architects to meet the standards of another nation as well as their own. Traditional Japanese qualities of lightness and grace are expressed through modern concrete and steel.



South side posts are outside wall; louvers are for shading



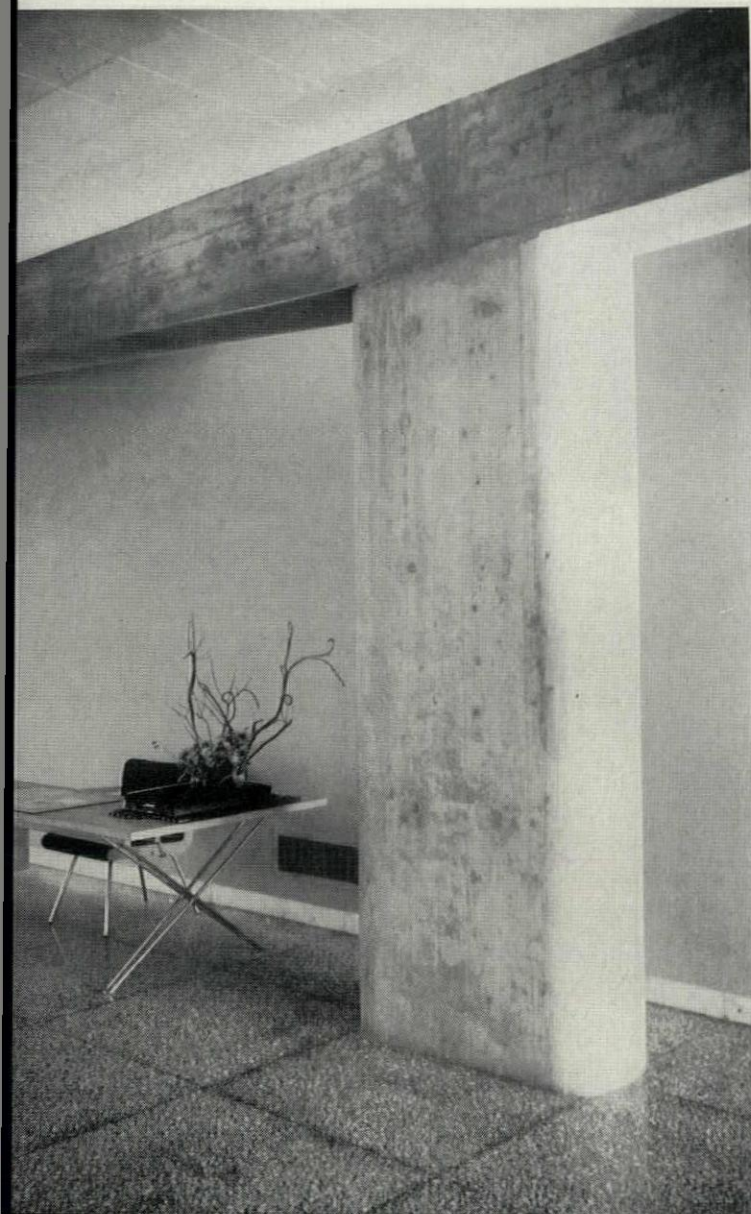
North wall is outside of posts; no louvers needed. Shoji ply panels act as doors. Finned radiator in jacket on floor prevents down draft next to glass.



Stair is to left side of structural frame; upstairs wall is offset on right side of frame to create added sense of space at stair well. Floor joists continue to the frame as a decorative set of open girders (not to be mistaken for steps).

Stair well is set to one side of entrance hall. Extra space on second floor is used as lobby.

Freestanding column and tapered girder stand in entrance hall giving clear idea of structure. A Japanese note is seen in the typical flower arrangement on table.



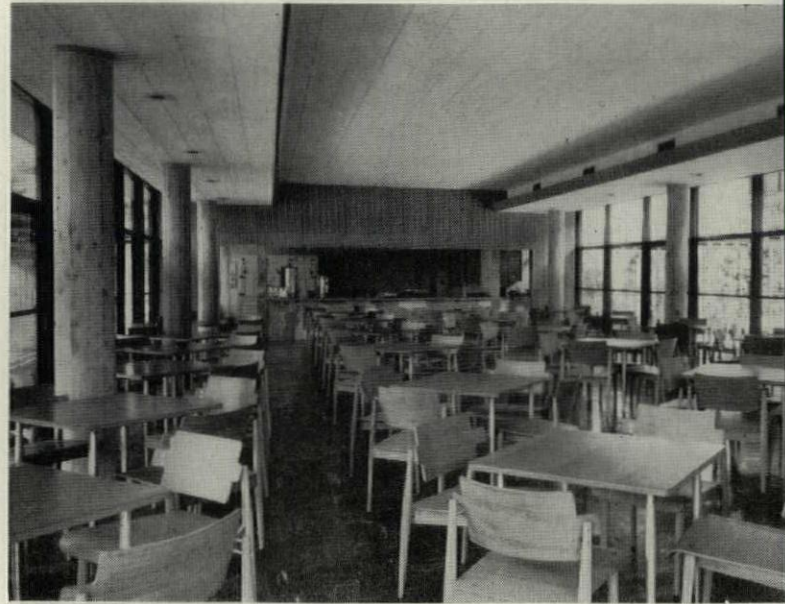
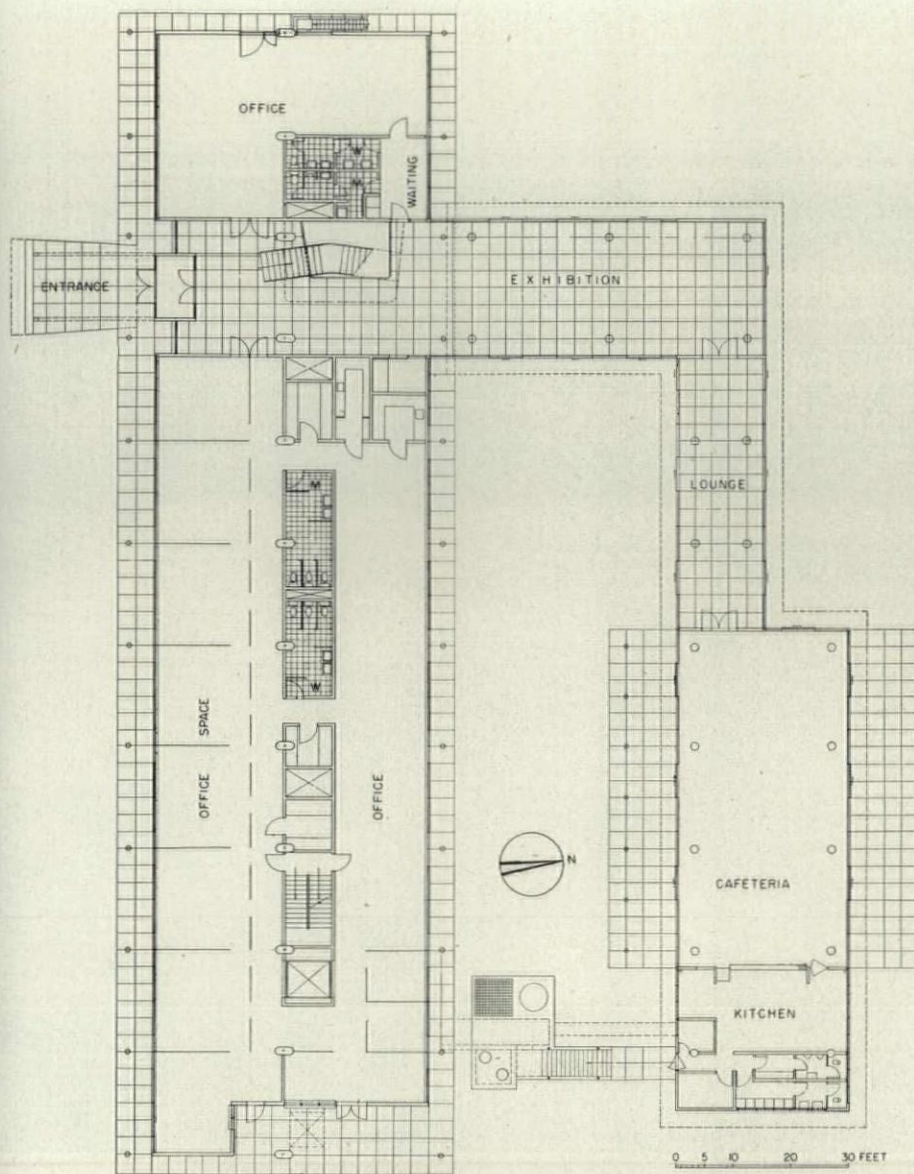
Subtle interior devices enliven the simple plan

In plan the building is divided into three parts: 1) a main office wing, 2) a connecting gallery which doubles as exhibition space, and 3) a second one-story wing parallel to the main office, housing the kitchen, cafeteria and lounge.

In the main building the utilities are bunched along the center line between the heavy piers leaving free open office space along both sides. In the one-story wings construction is conventional with outer walls cantilevered beyond the supporting concrete posts.

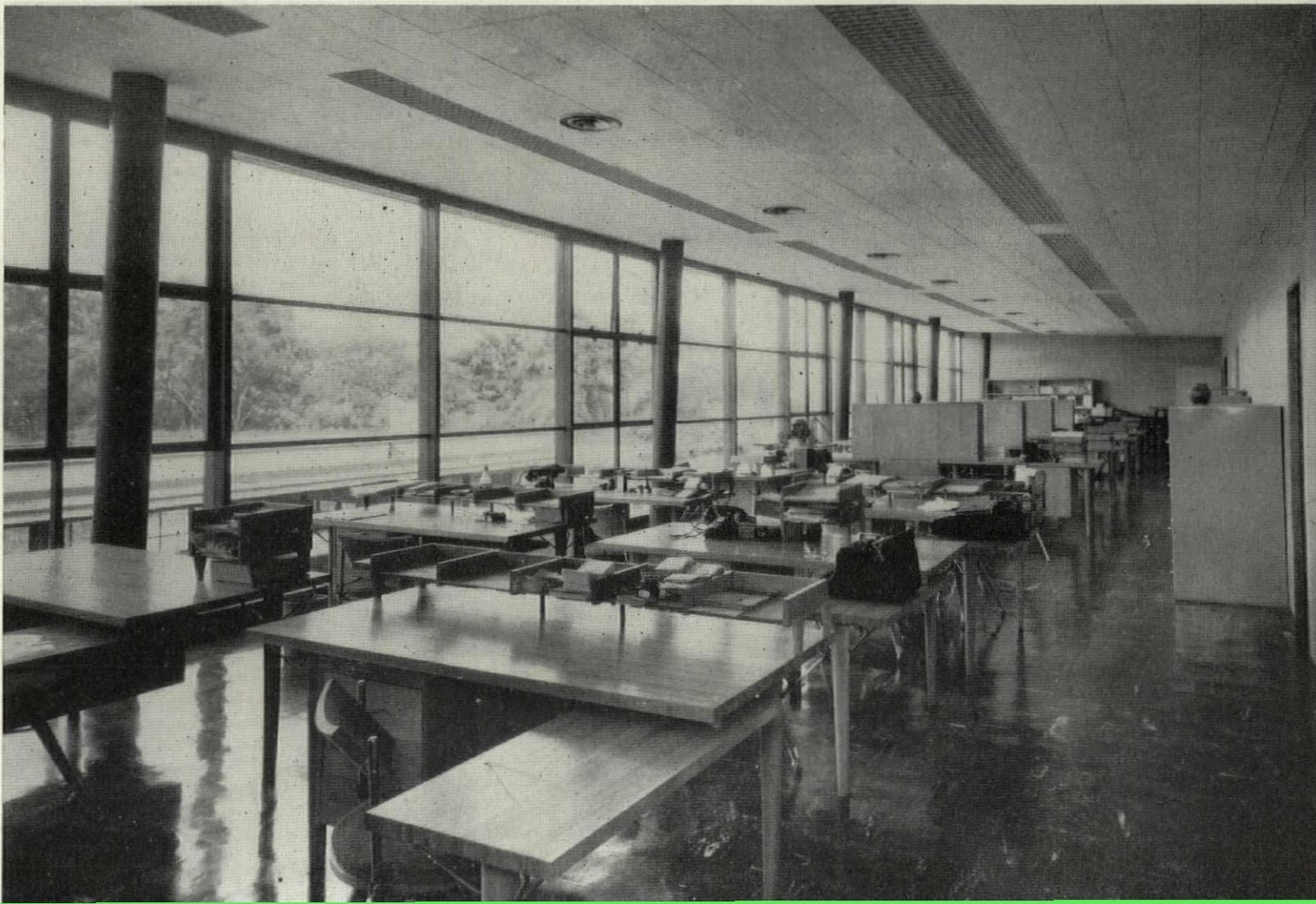
Subtleties of finish give the interiors their distinction. Panels of "shoji ply" (native wood resembling oak), acoustic fiber board tile, black-and-white terrazzo and rubber tile floor are used untouched throughout the building. In some cases the acoustic tile was hung to follow the line of the tapered girder to give a greater sense of space to the room.

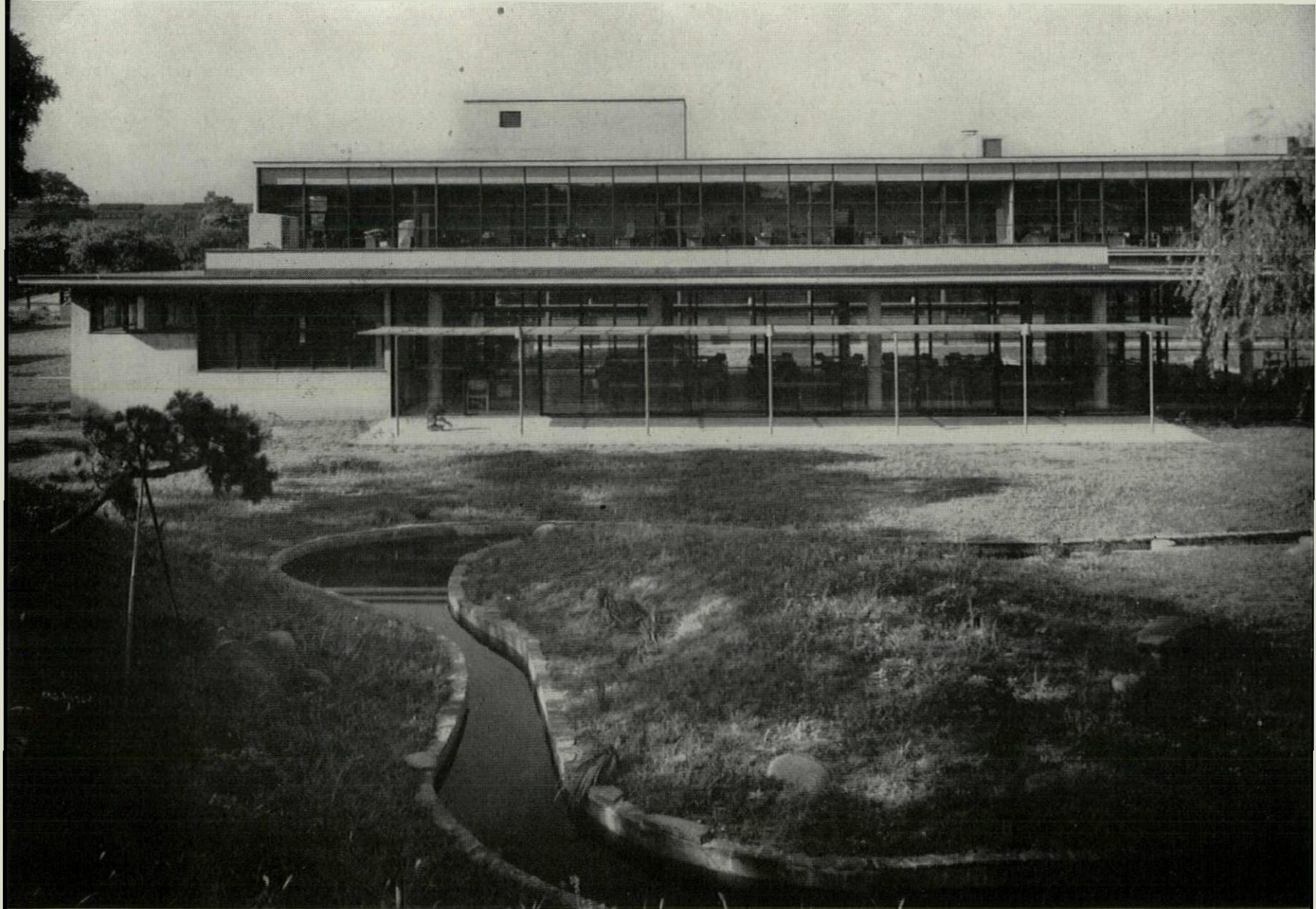
The distinctive steel and wood furniture was also designed by Raymond & Rado and executed in Japan. In everything they held to the same clean approach. No cluttering, no gadgetry, everything there for a purpose; and then it had to fit snugly into the over-all design.



Cafeteria and kitchen beyond are in the annex. They look out to garden on one side and pool-filled court on other. All the furniture was designed by Raymond & Rado, architects for the building.

Long office of the subscription department on second floor faces north. With less sun, louvers were unnecessary and wall was built flush to building's edge. More office space was obtained this way.





Francis Haar

Mechanics of heat pump aid a Japanese garden

Nowhere was the blending of cultures, new and old, Western and Eastern, more striking than in the collaboration between heating engineer and landscape gardener. The water needed for both the intake and the discharge of the modern heat pump (*see next column*) was turned to a charming second use, flowing through the grounds in the freely shaped pools of sculptor Isamu Noguchi's version of a modernized Japanese garden. For many an American institution, which has hitherto thought of no use for water used in air conditioning systems except to run it up to cooling towers, and then to go to added work disguising the cooling towers, this is an instructive installation.

Sculptor Noguchi had no opportunity here to compete with traditional Japanese gardens, upon which generations of men have spent successive days, months, years of thought and labor, endlessly changing details to their ultimate satisfaction. Yet for a commercial institution the idea is revolutionary enough: to have not only the wide open view from the glass "veranda," but a view cultivated so as to be in harmony with the thought of the structure, and so as to be agreeable no matter from what angle it may be looked upon.

HEAT PUMP. For heating and air conditioning in a climate similar to that of Washington, D. C., Raymond & Rado turned to the heat pump. Lord Kelvin, the great English scientist, announced 100 years ago that "tomorrow's methods of heating" would be the heat pump. However, tomorrow has been slow in coming because electric rates condition the heat pump's use more than anything else. But in fuel-less Japan where the only power potential is hydroelectricity the heat pump offers the answer.

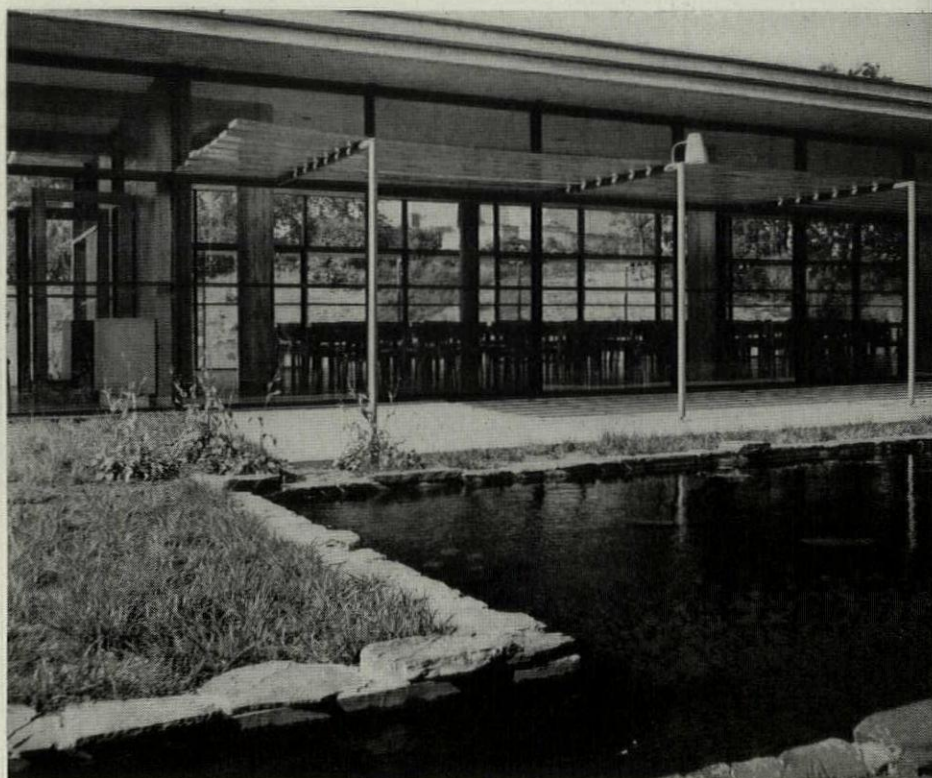
Like the refrigerator in any kitchen, the heat pump transfers heat from one spot to another, with one main difference—it can use the heat gain as well as the cold gain of the process. In the *Digest* building there is another difference: the cycle is water-to-water and not air-to-air. In the hot season with the cooling cycle in operation the refrigerant is first compressed and cooled and liquefied by ground water. The liquefied refrigerant then goes through an expansion valve to a cooler where on expanding it chills the air conditioning water by absorbing heat. The refrigerant is finally drawn back into the compressor and the cycle begins all over again. In summer ground water enters condenser at 63° and, after absorbing refrigerant heat, is discharged at 81°. Air conditioning water enters cooler at 62° and leaves at 47°.

In the heating cycle the process is reversed. Ground water is circulated through the cooler and air conditioning water through the condenser. The refrigerant on being compressed passes through the condenser where it liquefies and heats the air conditioning water. It then passes to the cooler where it expands and absorbs heat from the ground water. From there it is drawn back to the compressor. Here are the figures of the winter cycle: air conditioning water enters at 92° and leaves at 111°, ground water enters at 63°, leaves at 47°.

Heat pump water makes a rock-edged pool in the courtyard between annex (right) and main building. The canopied terrace serves as sunshade for cafeteria.

North facade differs markedly from street front because columns are inside the wall. Horizontal counterpoint of canopy and roof contrasts with curved features of garden—as yet unfinished.

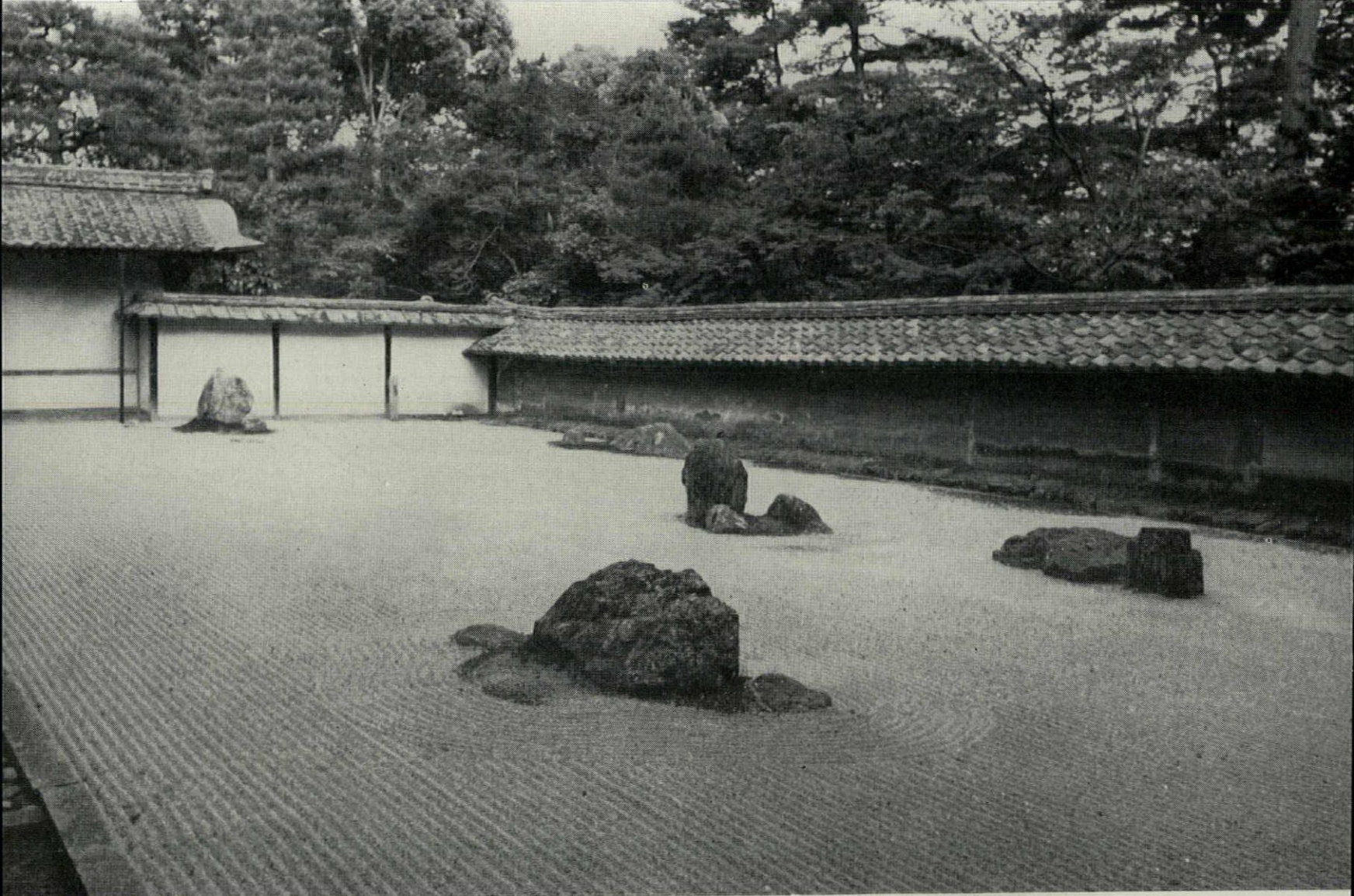
Isamu Noguchi's abstract sculpture rises starkly against dove-gray reinforced concrete ends. (Tower in background is not by sculptor.) Pool runs under wing to court on other side.



Francis Haar

Hirayana





JAPANESE GARDENS

Their technique can improve

landscaping of U. S. buildings just as Japanese architecture has influenced their design

"Softly beautiful are the tremulous shadows of leaves on the sunned sand, and the scent of flowers comes thinly sweet with every waft of tepid air, and there is a humming of bees."

So wrote Lafcadio Hearn of his Japanese garden. The Irish-American journalist from New Orleans, who more than any other Westerner has interpreted the distant country, delighted in his discoveries in the strange land. For him the Japanese building, which so many of ours are coming to resemble in their openness, their convertible rooms, their indoor-outdoor feeling, was like a magic lantern set in a jeweled and lacquered tray called a garden. He praised the people for having achieved something which we today are only just perceiving: "the effect of man's handiwork in union with nature's moods of light and form and color."

Having knocked out the walls of his buildings some centuries ago and brought nature into them, the Japanese has not left nature to its own devices by any means. If you want to contemplate nature, a soul-rewarding pastime, contemplate it in repose, he advises us, and if you want repose, you must observe nature in the shape of a well-tendered garden, so devised that it has the attractions of a real landscape and offers the impression that such a landscape conveys. If you must have indoor-outdoor living, you cannot leave the out-of-doors to accident, but you must take it and mold it to your choicest pleasure.

Architects Raymond & Rado, in co-operation with sculptor Isamu Noguchi, have begun to do just that in their *Reader's Digest* office building (p. 99). Unlike the landscaped factories and office buildings in this country where the problem is considered in terms of approach, presentation and parking, there the garden is designed to be seen from all parts of the building. Just as they have set a precedent in using the American open flexible plan for office buildings in Japan, yet finding themselves entirely within the Japanese tradition, they are setting another in landscaping a commercial structure, after the Japanese fashion, for repose.

It is impossible to judge at this stage if the experiment in dressing tradition in modern clothing will succeed as the project is only half-done, but the possibilities are startling. Corporations have found productivity boosted by placing plants and offices in the country, the landscape even through tall ribbon windows offering no distraction. If open office buildings in the country are to be the coming rule, and there seems no reason to believe that the present trend will weaken, the Japanese solution

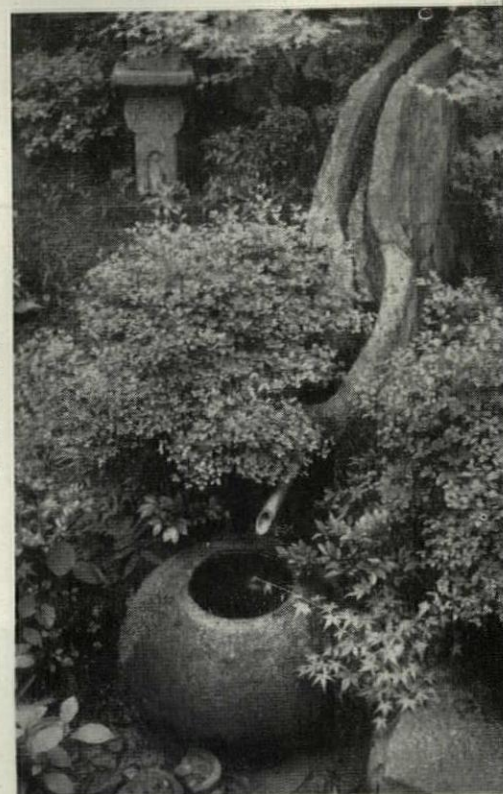
Famous stone garden of Ryuanji on the outskirts of Kyoto typifies the so-called flat garden style. Fifteen rocks are set out in five clumps with studied carelessness in finely raked sand. Only sign of green in this 78' x 30' space is moss around the rocks.

Photos: Isamu Noguchi



Tsukubai or "squatting" stone basin set beside a path of stepping stones is a miniature refreshment stand for the welfare of the visitor and one of the favorite pieces of Japanese landscape furniture.

The Japanese favors basins of granite, andesite and diorite which can take a patina. Here is another for the wayfarer with a stone lantern in the background.

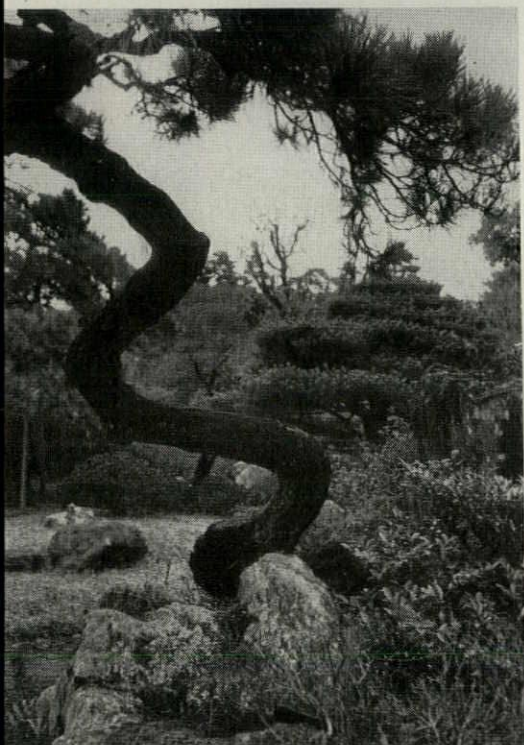


A stone pagoda and stone basin are set near the house veranda. The stone pagoda, with the stone lantern, was borrowed from the temple garden and is descended from the stone pagodas of Korea.





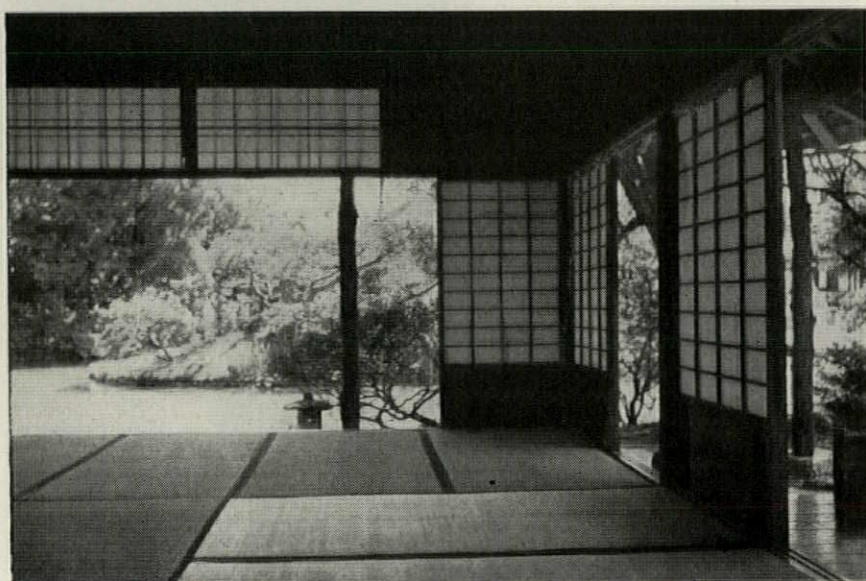
Carefully spaced stepping stones lead to a gateway at the Katsura Palace. The steps on the right are covered with moss highly esteemed in the Japanese landscape art.



The Japanese leave nothing to chance in their gardens. The pine tree stands in the Katsura Palace garden carefully twisted to the desired shape. Like the turtle, the pine tree is the symbol of long life.

Open veranda of a tea house looks out on the Katsura Palace garden. Note the mat flooring, the wood-and-paper screens and its open design.

LIFE: Dmitri Kessel; others Isamu Noguchi



offers an interesting variation on the contemporary adaptation of an ancient art, using the garden for the factory or office where formerly it had been used for the temple and palace.

In several respects the Japanese garden is not so far removed as we might at first think from our own natural landscaping tradition set by Andrew Jackson Downing and Frederick Law Olmsted. There, as with us, nature is an indispensable part of the composition. If a site offers any advantages they must be incorporated carefully into the design. Both traditions are picturesque, and both are romantic in their attempts to emphasize the distant and the strange, conveying the sensations of surprise and longing. Both attempt to bend nature to their bidding instead of forcing it. Of course there are important differences. Ours lacks the conventionalism so present in his, the tone of time which spreads over the gardens like moss on one of his rocks, the seemingly cluttered quality which is in such contrast with our sunny openness and, above all, the year-round sameness.

This last quality of the Japanese garden is its most useful virtue because it can be obtained with ordinary elements which require little maintenance. The effects are subtle with emphasis on careful detail, restraint, balance and harmony.

Japanese gardens, for all the elaborate symbolism and tradition which bind them in our eyes, are compounded of very simple materials: gravel, rocks, grass, moss, evergreens, sand and, wherever possible, water. To the poetic Japanese a few beautifully shaped rocks placed in carefully raked sand are as islands in a vast sea, for he accepts the sand as representing water, or they are tigresses with their cubs crossing a glen to distant mountain caverns as at the Ryuanji stone garden in Kyoto. The waving branch of a pine tree, which has been carefully trained to a certain shape, means more to him than a gorgeous floral display. There are few, if any, flowers to be found in his garden; where we depend on a season to bring life to our landscaping he, in his triumph of giving unity to the building and its surroundings, has one which smiles on him the year round.

It is difficult for us to conceive of the Japanese passion for gardens in even the most simple structures. Where an American town-dweller hovers above his window box of tired geraniums, the Japanese lovingly devises a tiny miniature box-garden which he moves about with him according to his fancy. If he has a small plot of ground, it is at once converted into a garden where a tall stone will symbolize Mount Fujiyama, an oblong one stretched over a bit of sand will be a bridge, symbolizing the infinite, a third will be a waterfall which, lacking water, leaves its splendor to the imagination, and the one tall pine represents a whole forest. More elaborate gardens have a hillock representing Mount Fuji, a pond the sea, and the paths winding through it will, like great highways, lead to special views where a waiting bench welcomes the wanderer. He may find shelter in the Pavilion of Moonlit Waves or at the Cottage of Contentment. The imagination kindles the most modest objects with glorious purpose, and the simplest garden, like Cinderella transformed, becomes sublime landscape.



Famous garden of the Katsura Palace lake was designed by a tea master of the 17th Century in the lake-and-island style. The single stone bridges,

the carefully placed pebbles, the miniature bays, the stone lanterns, with a single clump of iris are trade-marks of the Japanese garden art.



THREE SMALL HOSPITALS

combine residential charm, medical efficiency, structural economy

1. Desert Hospital, Palm Springs, Calif.



2. Wheaton Community Hospital, Minn.



3. Pelican Valley Health Center, Minn.



One of the brightest spots in hospital design today is the small community health facility. Under the stimulus of the Hill-Burton program this type of construction is booming—60% of the new general hospitals has 50 beds or less. And the wealth of fresh, local architectural talent brought into the field by this boom has helped spark a design revolution that is converting hospitals from aseptic prisons to places of hope and good cheer.

The three examples shown here and on pages 113-119 are well worth the study of every architect and hospital planner who would like to join this revolution. Ranging in locale from sunny California to the frigid plains of Minnesota, each has the essentials of a good small hospital:

- ▶ A plan which permits efficient operation with a minimum staff, yet separates patient and service facilities.
- ▶ An economical structural system which helps to offset the cost of expensive hospital equipment.
- ▶ A design treatment that reinforces medical care by lifting the spirits of both patients and hospital staff and relates the building to its site and climate.

LOCATION: Palm Springs, Calif.

WILLIAMS, CLARK & FREY, Architects

W. A. MASON, Electrical and Mech. Engineer

W. J. MEZGER, Hospital Consultant

M. C. FOY & Son, General Contractor

Garden patio, viewed from Desert Hospital's glass-walled lobby, gives patients and visitors a cheerful welcome. Canopies and aluminum louvers control sun.

Photos (2, 3, above) Photography, Inc.; (others) Julius Shulman





1. DESERT HOSPITAL is a homelike oasis of concrete built around typical California patio

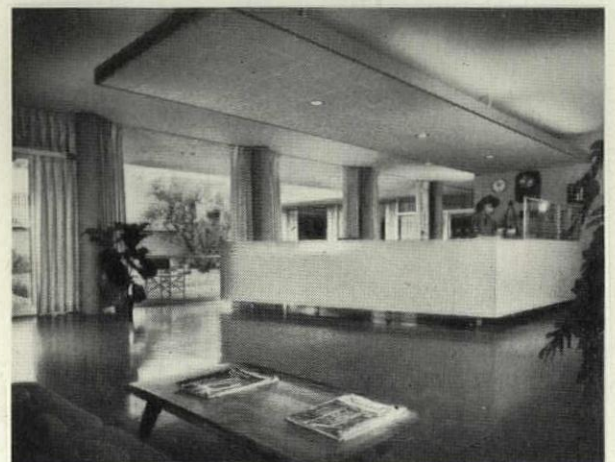
A lush garden patio, ground-hugging lines and an exterior patterned in soft desert colors help make this 33-bed Palm Springs hospital look more like a fine big vacation house. And by using a combination of sprayed and poured concrete construction (*page 114*), the architects also kept costs close to the residential scale.

With complete air conditioning, a toilet in each patient's room and adjunct facilities sized to serve more than double the present number of beds, total cost including fees and equipment was only \$455,554—or \$17.10 per sq. ft. as against a regional average of \$20-\$25 for hospitals bid at the same time.

Patio-centered plan is cheerful, efficient, expandable

By designing the hospital around a central patio, the architects not only provided a welcome spot of interior greenery but achieved clean separation of public, nursing and service areas.

Patients and visitors enter through an inviting glass-walled lobby which frames the patio on the east. Across the garden is a wing of adjunct and service facilities with ambulance and supply entrances



Entrance lobby is made inviting by big glass areas, sand-beige walls, honey-yellow drapes, gray-green columns.

well segregated from the public approach. On the south are the nursing wing and a compact block of obstetrical and surgical suites, flanking a clerestory-lighted sterile supply room. All patient rooms face north or south—away from scorching east and west sun (summer temperatures in Palm Springs hit 115°).

Plan permits seasonal and long range expansion

This plan also permits the hospital to expand or contract with the wide seasonal fluctuation of Palm Springs's population. In summer, when there is a general exodus, the eastern half of the nursing wing may be closed off to reduce the staff and lighten the air conditioning load. The six maternity beds and four surgical beds which remain open may be reached via a covered passage through the patio. In winter, when the hospital operates at capacity, this passage permits visitors to reach maternity rooms without entering the medical-surgical section. Separate nursing stations for each section control entrances, permit one or both to be used and give further independence to the two nursing areas.

The hospital may be enlarged by adding rooms to the western end of the present nursing wing and by building a parallel wing to the south. The stub corridor between maternity and medical sections will be extended to the new wing to keep traffic out of surgical and obstetrical corridors. Present mechanical equipment and adjunct services are designed to care for 80 beds.

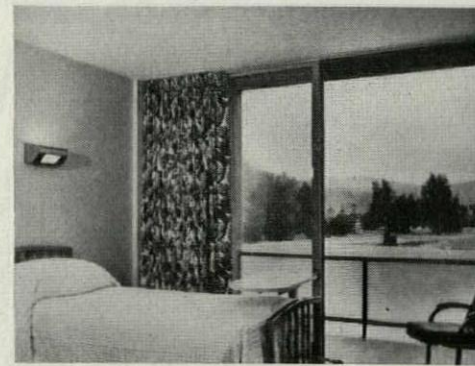
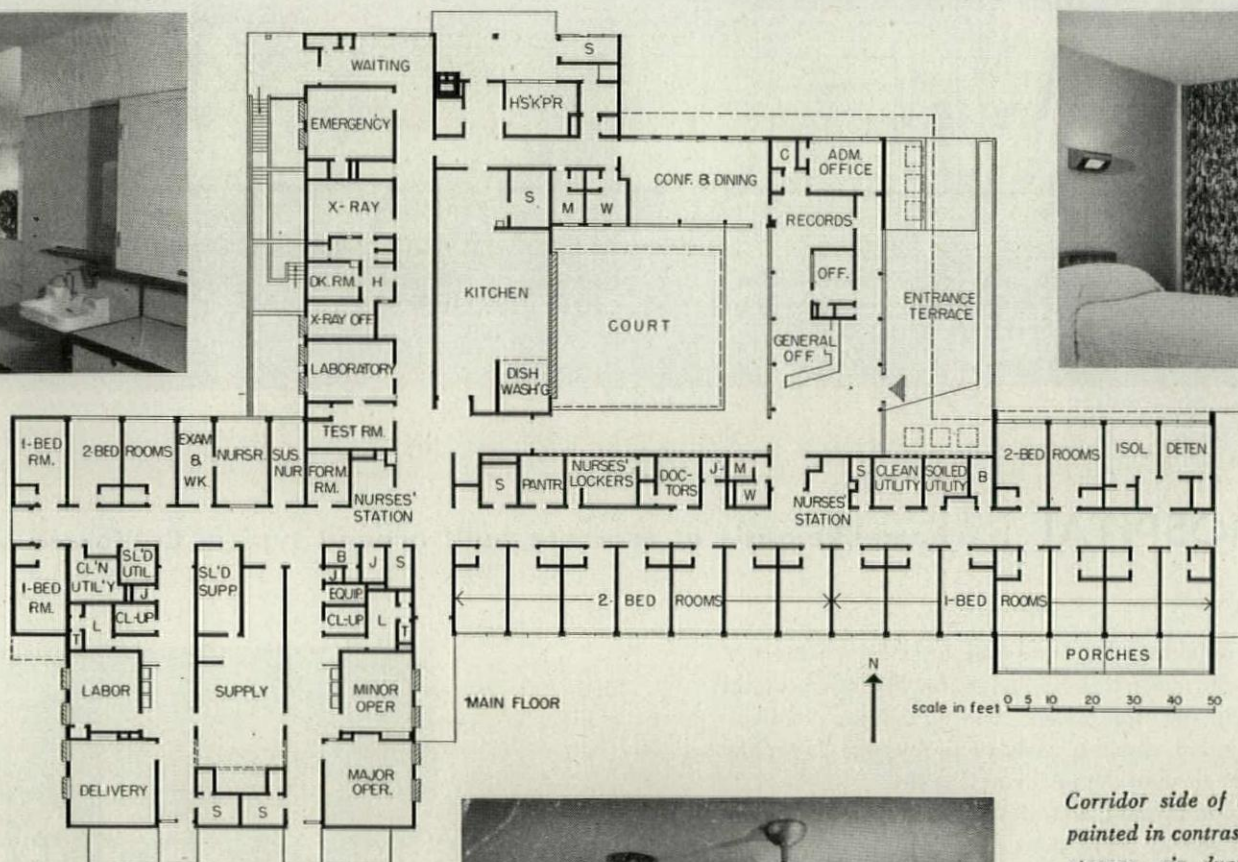
Nursing unit: colorful, homelike, work saving

The medical-surgical nursing unit combines homelike comforts for the patient and labor-saving devices for the staff. Most patients get the benefit of a mountain view to the south through continuous 5'-5" high windows which are shaded by a deep overhang. Each room has a feature rarely provided in a minimum-budget hospital—an individual toilet which not only cuts nurses' work but encourages early ambulation of patients. At the west end of the wing are four de luxe private rooms with complete bathrooms and full glass walls opening onto sheltered balconies. Gray-green asphalt tile floors, two putty-colored walls, and a contrasting wall painted in soft pink, blue or green to match the bathroom tile provide a refreshing play of color in patient rooms.

To cut staff travel to a minimum, nursing station, utility rooms and lounges for doctors and nurses are closely grouped on the north side of the wing. A checkerboard pattern of 12" x 12" glass block in the north wall filters daylight into this section without opening it to the public view. (One row of ventilated block in each room supplements mechanical ventilation.)

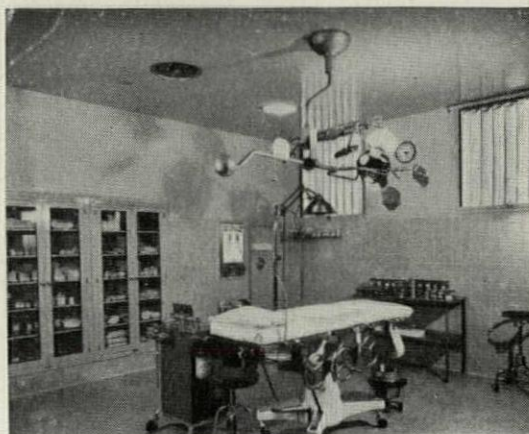
Sprayed concrete walls save time, space, money

By building up all exterior and interior structural walls with pressure-sprayed concrete, the architects gained these advantages:

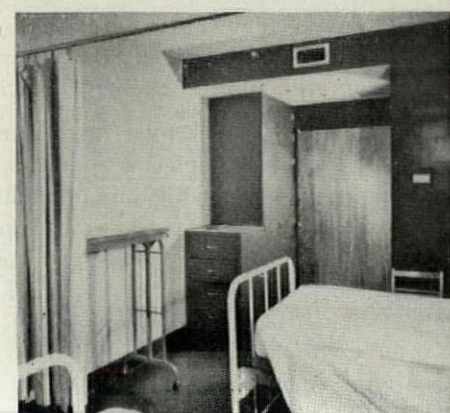


Photos: Julius Schulman

Central supply room (photo, above) between operating and obstetrical suites serves both, is lighted by clerestory windows. Note acoustic tile on walls and ceiling. Operating rooms (right) get diffused daylight through high windows, shaded from eastern sun by vertical aluminum louvers.



Corridor side of typical bedroom (below) is painted in contrasting color, combines built-in storage, air duct and individual lavatory-toilet. A draw curtain separates beds.



1. A 6" thick wall equivalent to an 8" masonry wall in strength, insulation value and fire resistance.

2. A 15% saving in construction time over either masonry or poured concrete.

3. Simple installation of utility lines—concrete is merely shot around ducts and chases, requires no vibrating.

Though the cost of these walls was only slightly less than poured concrete and roughly equivalent to masonry, the architects believe that substantial savings would be possible if use of sprayed concrete methods was widespread and competitive.

Although not new, this construction system is unknown in most parts of the country. After footings and floor slab were poured, first step in building up the walls was to erect form studding on the inside and mount panels of $\frac{1}{2}$ " pressed fiberboard. These form a backup for spraying and insulate the wall. Reinforcing steel was placed outside the panels and concrete was blown against it until the approximate total thickness was reached. The wall was then rodged and allowed to cure. Later a final coat of concrete was applied and screeded off to take a stucco finish. Form studs were removed and wire mesh was attached to double-headed form nails driven through the fiberboard and anchored by the sprayed concrete. Interior plaster was then applied over the mesh.

Roof slab and canopies are of reinforced poured concrete, topped by lightweight aggregate fill and built-up roofing with an aluminum

coating to reflect the hot summer sun. Ceilings throughout are suspended and finished with acoustical plaster or tile. Nonload-bearing partitions are steel studs covered with expanded metal lath for plastering.

Environmental controls are tailored to desert climate

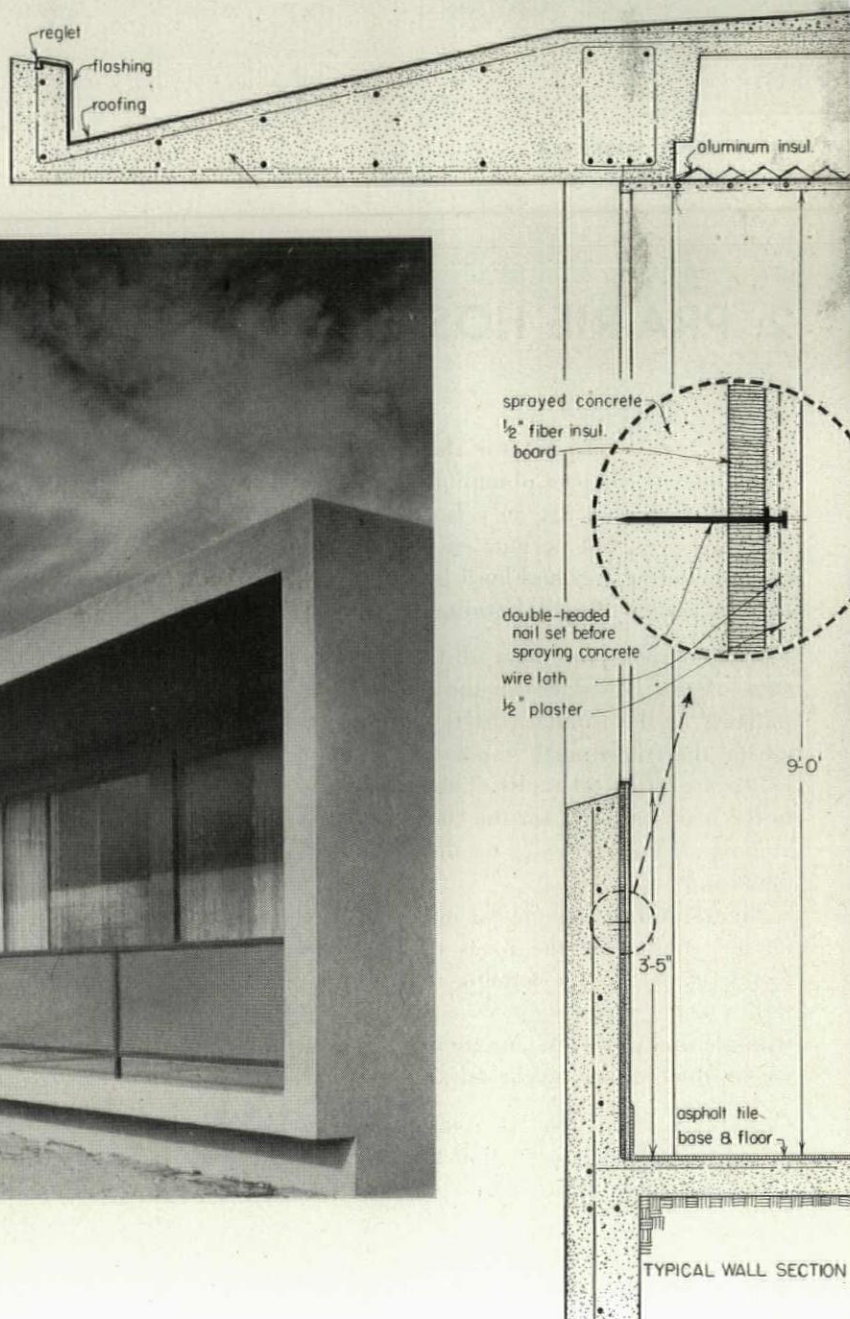
To permit the hospital to operate at peak efficiency during the scorching summer months, engineer William Mason provided it with a highly flexible air conditioning system.

Fresh, cooled air is delivered to all patient rooms by ducts equipped with cold water coils which reduce the refrigerating tonnage required. Room temperatures are controlled by individual thermostats which regulate a mixture of air from "cold" ducts and heating ducts. The load on the forced air system is also reduced by 1) shading all east- and west-facing windows with vertical aluminum louvers or wide (13') canopies, and 2) circulating water in copper coils in the ceiling for summer cooling as well as winter heating (these supply 20%-35% of the cooling and 75% of the heating).

Surgical and obstetrical rooms and the nursery are cooled and heated entirely by conventional single duct systems, each with its own coils, air washer, fans and controls for temperature and humidity. The kitchen is equipped with a high velocity ventilating system and a large evaporative type cooler. Cost of heating, ventilating and cooling systems was \$83,748 or \$3.10 per sq. ft.

Block of four de luxe private rooms (photos below and left) opens on sheltered balcony through full glass walls. Sectional drawing (right) shows pneumatic concrete construction of 6" bearing walls and integral gutter of poured concrete roof slab. Note how double-headed nails are used 1) to secure insulation board forming and 2) to provide anchors for metal lath of plaster wall finish.

Photography Inc.





THREE SMALL HOSPITALS

LOCATION: Wheaton, Minn.

THORSHOV & CERNY, Architects

EDWARD H. NOAKES, Associate in Charge

LARSON CONSTRUCTION CO., General Contractor

2. PRAIRIE HOSPITAL—its compact T-shaped plan pivots on nurses' station

This 21-bed hospital for the prairie village of Wheaton, Minn. is a model of compact planning and handsome, economical structure. Its T-shaped plan not only isolates patients from sterile areas and noisy services, but permits easy supervision by a small staff. And costs including fees and built-in equipment were only \$19.65 per sq. ft.—well below the local average.

The three-zone plan puts obstetrical and surgical facilities in the stem of the T, services in the northern half of the main wing and patients in the southern half, in rooms that face east and west to escape the frigid north winds (winter temperatures reach -40° and winds are often 50 mph). Laboratory and X ray are located close to the main entrance for the convenience of outpatients. Service and ambulance entrances are on the north side—well removed from patients and public areas.

Biggest aid to economical operation is the central location of the nurses' station—at the focus of all communication lines. It commands a view of the nursing unit corridor, all three entrances and the nursery, permits nurses to control the entire building at night with minimum travel. Maximum run from the station was held to 75' by double-loading the nursing unit corridor.

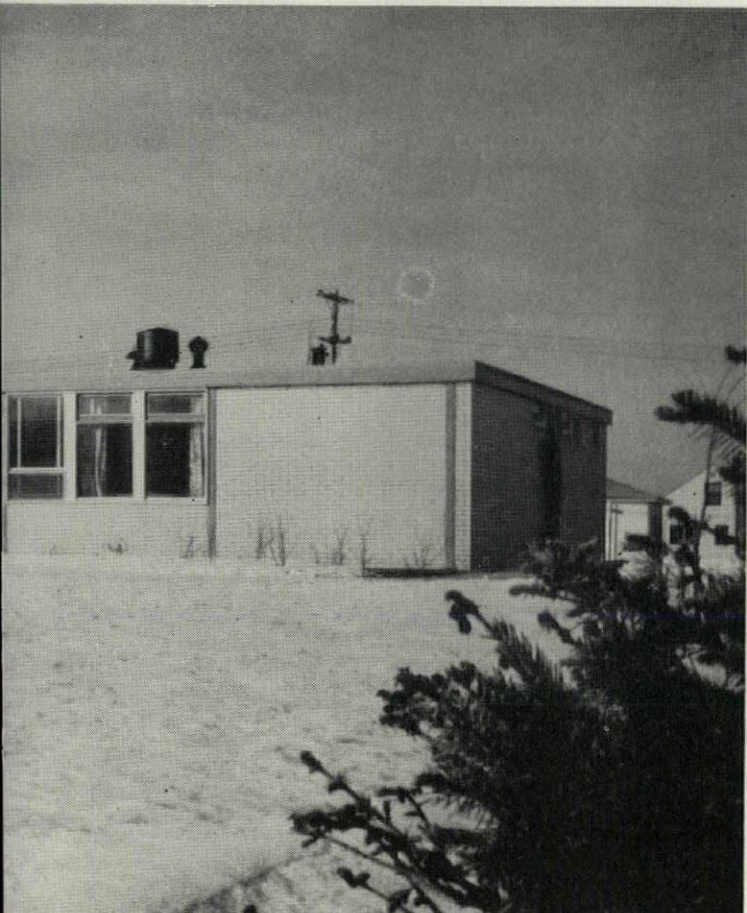
Uniform column spacing and cellular steel roof decking helped to cut costs and construction time. The entire plan is based on a 10'-6" x 16' bay which corresponds to the size of the basic two-bed

room and accommodates 16' span steel decking. To cut cubage and create a homelike environment for patients, ceilings were kept as low as possible—8'-6" in the main wing and 9'-6" in the west wing (minimum height for operating light). Ceilings are finished with acoustical tile glued to gypsum lath which is applied directly to the underside of roof decking. Exterior walls are cavity brick construction.

To add scale and pattern to the simple exterior architects Thorshov and Cerny exposed the steel faces of perimeter columns. These rhythmic verticals not only express the modular character of the structure, but relieve the dominant horizontal line of the continuous windows. (A detail of this column treatment appears opposite.)

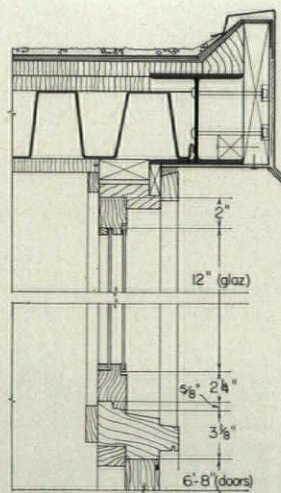
Flexible, draftless ventilation is provided by hopper type sash in each window. In patients' rooms, this sash is installed at the top of two fixed glass sections opposite the beds and at the bottom of the third section. This arrangement directs air upwards, keeps it from blowing directly on bedridden patients. And the asymmetric pattern of sash in each bay adds further interest to the facade.

Cold weather comfort is assured not only by the orientation of the building, but by double-glazing throughout, 2" thick rigid roof insulation and double doors at each entrance. Heating is by fin type convectors under windows, and a perimeter trench for heating pipes keeps the concrete floor slab warm enough for bare feet.

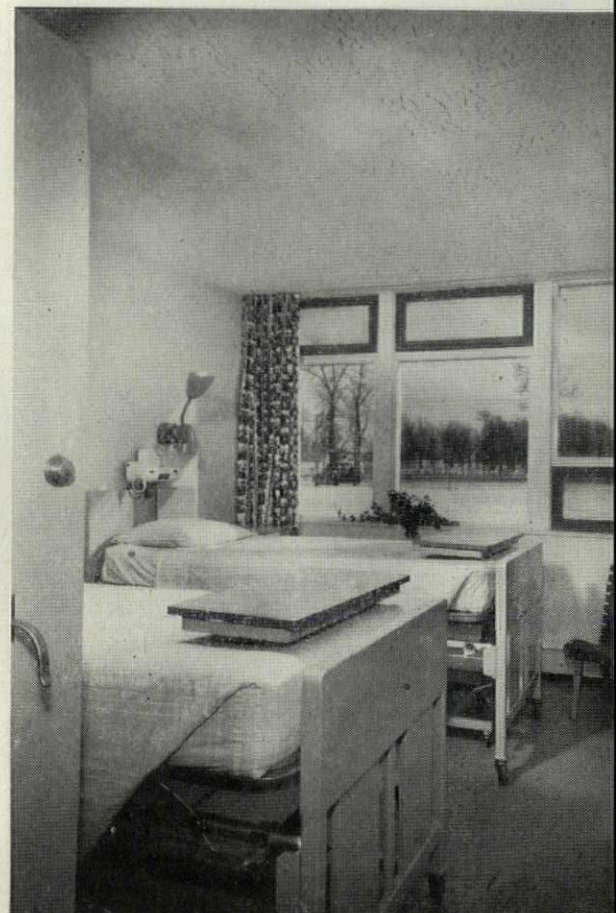


Photos: Photography, Inc.

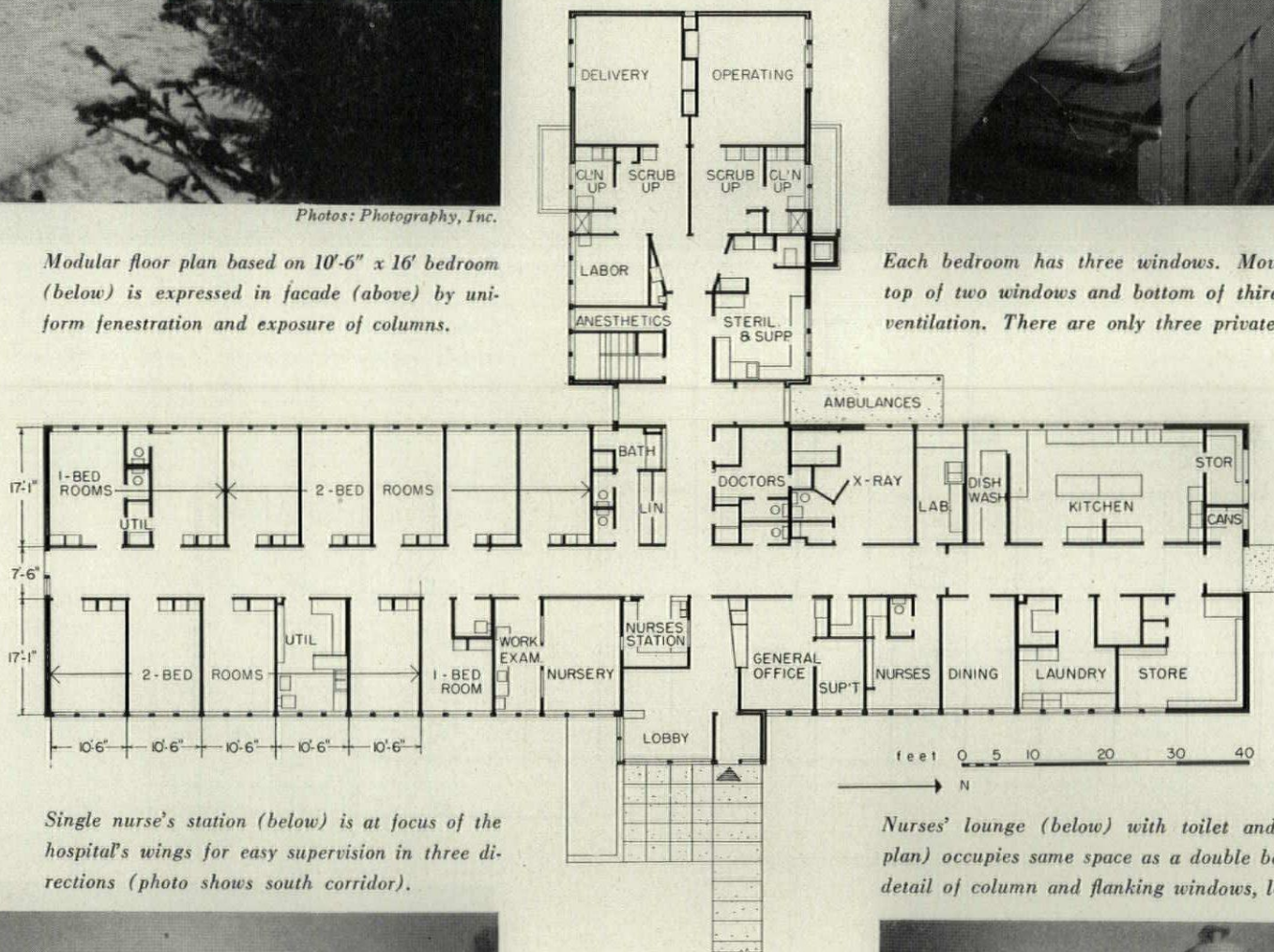
Modular floor plan based on 10'-6" x 16' bedroom (below) is expressed in facade (above) by uniform fenestration and exposure of columns.



Roof section at end wall shows cellular steel roof decking.

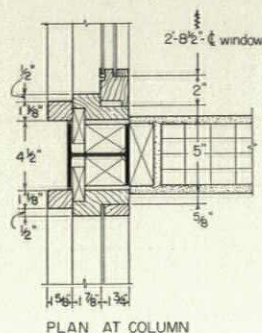
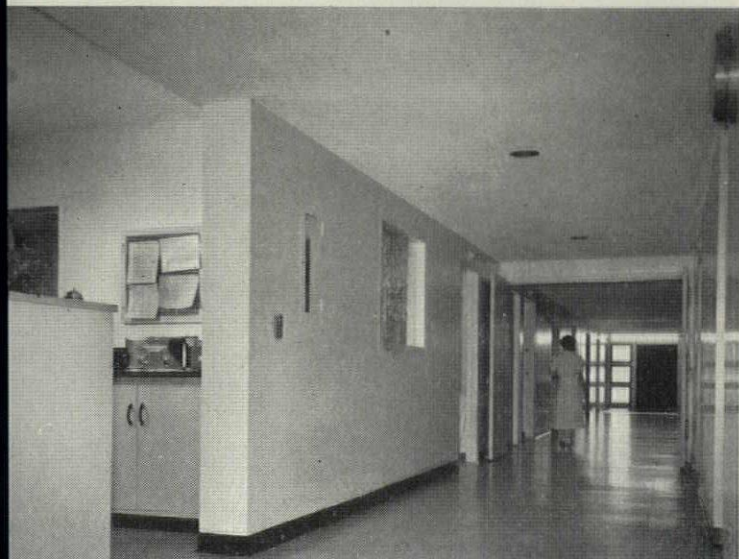


Each bedroom has three windows. Movable sash at top of two windows and bottom of third aid natural ventilation. There are only three private rooms.



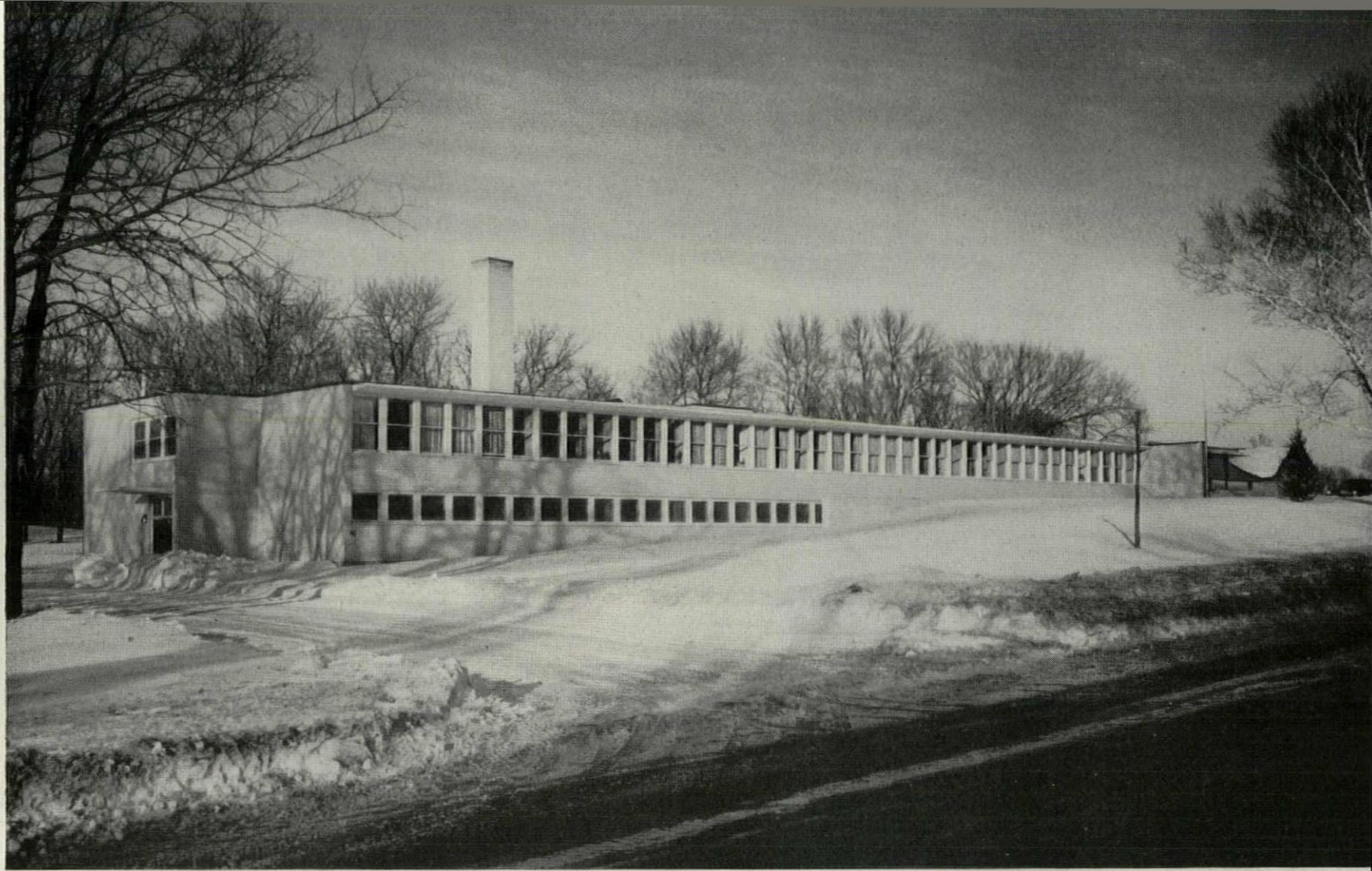
Single nurse's station (below) is at focus of the hospital's wings for easy supervision in three directions (photo shows south corridor).

Nurses' lounge (below) with toilet and closet (see plan) occupies same space as a double bedroom. Note detail of column and flanking windows, left below.

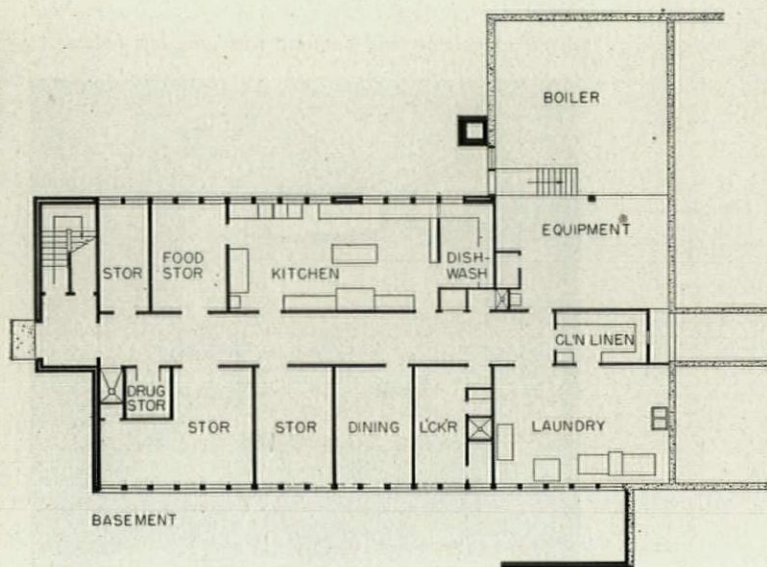
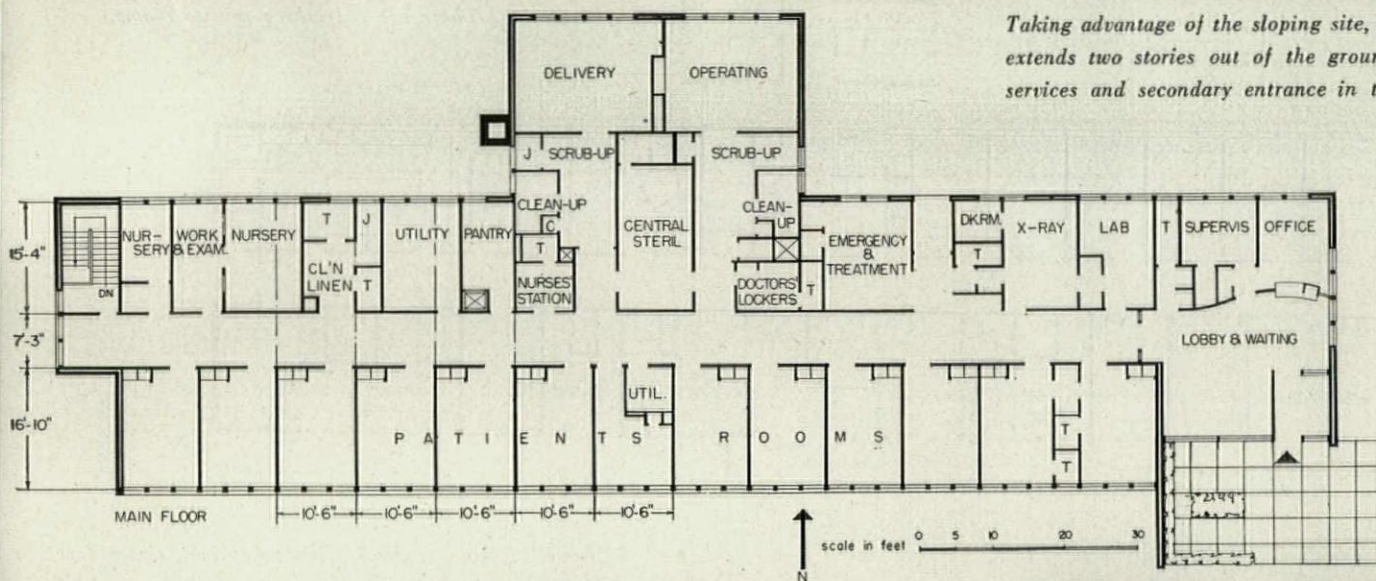


PLAN AT COLUMN

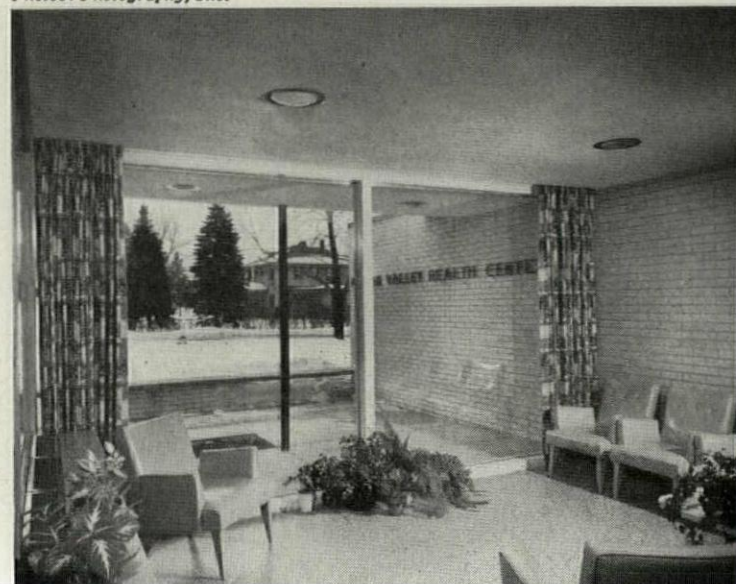




Taking advantage of the sloping site, one end of Pelican Rapids hospital extends two stories out of the ground (above), permitting location of services and secondary entrance in the "basement" (see plan).



Photos: Photography, Inc.



3. HILLSIDE HOSPITAL puts services in semibasement, gains space on nursing floor

For this 25-bed hospital in Pelican Rapids, Minn. architects Thorshov and Cerny developed an even more compact version of the T-shaped plan which proved so successful in their Wheaton Hospital. A sloping site permitted them to put kitchen, dining, laundry and storage areas in a semibasement, freeing the entire ground floor for beds and adjunct services. And despite added facilities—an emergency-treatment room and an isolation nursery—square footage per bed is only 484 as against 524 for Wheaton.

Periphery of the building was shortened by integrating the surgical and obstetrical block with the main nursing wing, instead of extending it as a separate wing. The central sterilizing room, conveniently located in the interior space between surgical and obstetrical corridors, is lighted from two sides by a clerestory. This arrangement saved square footage without sacrifice of comfort for the staff.

By putting all utilities and services on the north side the architects freed the entire southern exposure for patient rooms—a clear advantage over the Wheaton plan. Maximum run from the centrally located nurses' station is also shorter—50' as against 75'—but nurses do not have as close control over all entrances. A projecting wall screens the main entrance from the windows of adjacent patient rooms, and ambulance and service entrances are well placed to protect patients from noisy traffic.

Only major deviation from the structural system developed for Wheaton is the use of concrete floor and roof slabs with precast tile joists, instead of slab-on-grade and cellular steel roof decking. Double-hung windows held costs down but are not as effective in controlling ventilation as the hopper type employed at Wheaton. Cost, including fees and built-in equipment, was \$277,900, or \$20.26 per sq. ft.

Photography Inc.



Main entry (left and above) is shielded by a neatly detailed concrete canopy with lally column supports, has a vestibule for weather protection.

1. NO MORE RIVETING?

Growing scarcity of riveters forcing use of efficient high strength bolts

Key men in American construction since the first iron-framed skyscraper was erected in 1848, riveters are becoming as hard to get as the very steel they work with. Moreover the dwindling supply of riveters will remain critical long after the steel is available, may ultimately spell the doom of riveting.

Small wonder, then, that more and more buildings are being bolted together. Ordinary mild steel bolts have long been employed in small, lightly loaded structures but now stronger high tensile steel bolts are replacing rivets in many larger structures. Since the war 14 steel-framed buildings, up to 21 stories high, including six now abuilding, have been bolted together plus numerous railway bridges which are subject to severe vibrational loading. In all these installations not one high strength bolt has shown any tendency to back off.

In addition to offsetting the growing shortage of riveters, bolting boasts many advantages of its own:

1. *Less labor:* two men can fit and tighten 400 bolts in a working day, compared with the 300 to 350 rivets per day of the average four-man riveting crew, who also have the expense of moving and operating a furnace estimated at \$3.50 per hour.

2. *Less work:* bolts are inserted during erection of the frame and can be tightened in a second pass over the structure when the members are lined up. In riveting, the frame is bolted together temporarily, the members lined up, then the riveting crew have to remove the bolts and drive in rivets, making at least three passes over the frame. Obviously, time and labor is saved when the original bolt is left in place.

3. *Easier work:* bolting can be quickly taught to unskilled men.

4. *Less noise:* the air impact wrench used in bolting makes less than half the noise of a rivet gun and for less than half the time. Several steel-framed hospitals are being bolted for this reason.

5. *Easier inspection:* rivets need 100% inspection, often 3-5% is loose and has to be replaced. Bolting is more secure; AISC specifies that only 5-10% should be inspected and bolts rarely need adjustment.

6. *Greater strength:* high strength bolts are stronger than standard rivets, especially under dynamic loading, and permit the use of more economical continuous design.

7. *Lower cost:* sum of these advantages has convinced many authorities that bolting is more economical than riveting. Says AISC district engineer W. H. Hart, "Most erectors estimate that it costs 25¢ to put in one bolt in the field, while it costs 75¢ to put in one rivet. This does not give the true picture of the two types of construction as one high tensile bolt costs about 25¢ while one rivet costs about 5¢. The actual cost difference between the two will be in the ratio 50¢ to 80¢ rather than 25¢ to 75¢."

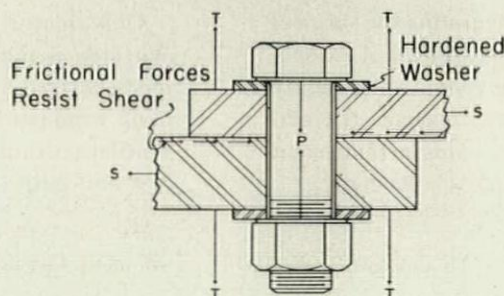
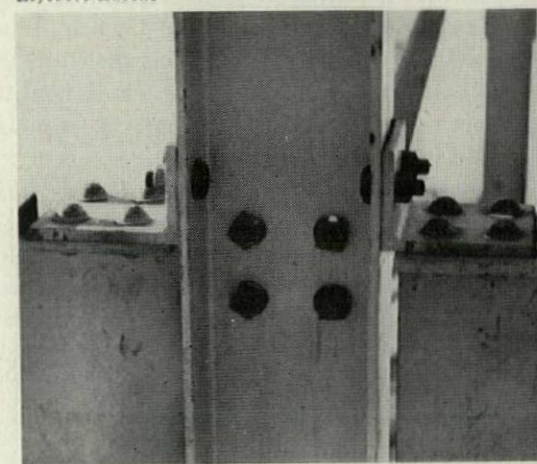
Since high tensile steel bolts are more than equal in strength to rivets of the same diameter, their substitution for rivets calls for no change in design, and they could be used up to any height in multi-story structures. However, most existing building codes do not yet recognize this



High tensile steel bolts tightened by air impact wrench with torque controlled by air pressure. Wrench weighs 10 lb. more than a rivet gun, makes less than half the noise.

Bolts create sufficient frictional force between contact surfaces to resist shear, can withstand greater fatigue loading than rivets, have less tendency to work loose.

Lefebvre-Luebke

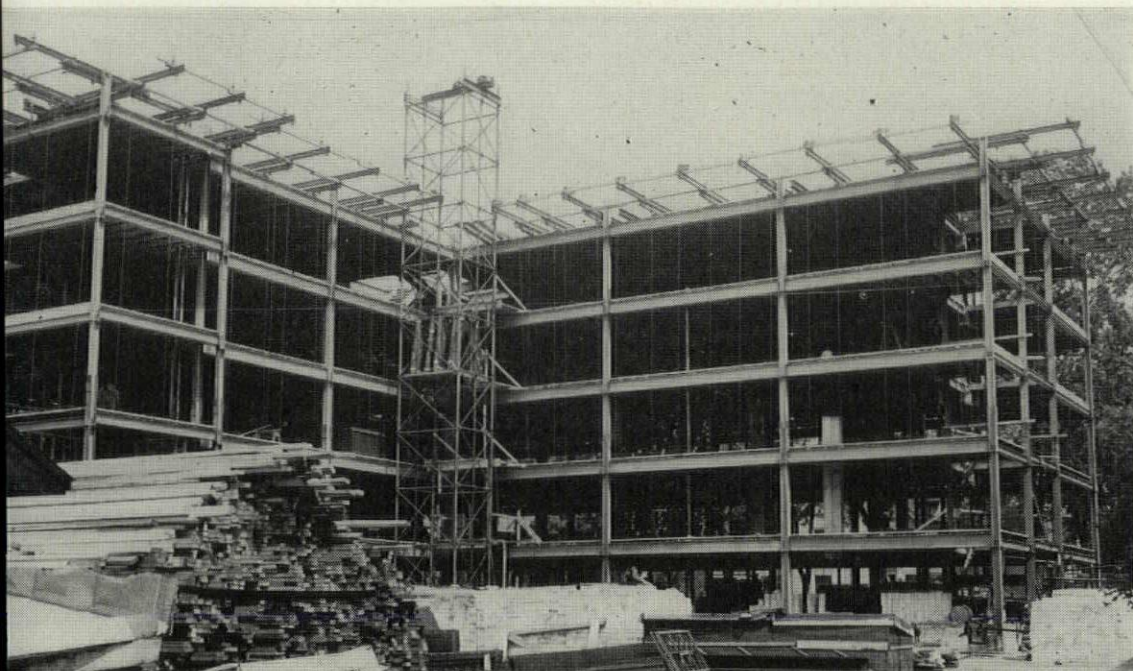


new development. New York, for instance, limits all bolted structures, using ordinary or high strength bolts to a height of 125'. Many buildings already show the worth of high strength bolts:

► In an eight-story apartment building at La Crosse, Wis., bolts (at 14¢ each) cost \$2.50 more per erected ton of steel than rivets, but the labor saved by bolting instead of riveting amounted to \$6 per ton (11% of the erection cost). Bolting therefore saved \$3.50 per ton.

► In the Home Office Building at Keene, N.H., architects Cram & Ferguson report savings of both time and money due to bolting. They estimate savings of \$2 per ton over riveted connection, and \$2.50 to \$3 per ton over welded connections.

► In the Norwood School at Green Bay, Wis., architects Feldhausen & Coughlin saved 11% in steel requirements by using high strength bolts to develop semirigid framing. The bolts were used only in the top angles since the percentage of rigidity depends on the moment resistance capacity of the top seat angle, which in turn depends on the tension that can be taken by the bolts connecting the angles to the column. In such a design the increased tensile properties of high strength bolts are



Don Swenson; La Crosse Tribune

This eight-story apartment at La Crosse, Wis., was bolted with an over-all saving of \$3.50 per ton of steel erected. Though bolts cost \$2.50 more per ton of steel erected than rivets, the labor saving was \$6 per ton—a net average saving of 11% of erection cost. Bolts were tightened with an air impact wrench, checked with a manual torque wrench. Architect: F. J. Hinton.

used to produce more efficient connections.

Not all bolted jobs have proved economical, however. In a 14-story hospital at the University of Illinois the cost of bolting was \$6 to \$7 more than the estimated cost of riveting. The reasons for this were unusual: the bolts were not stocked locally, cost 37¢ each vs. rivets at 7¢, and arrived so late that the frame was erected first with ordinary bolts which had to be replaced with high strength bolts.

Bolting gives a friction joint

High tensile steel bolts clamp adjoining members together under high pressure, creating sufficient frictional force between contact surfaces to resist shear. The result is a connection better able to withstand fatigue loading than ordinary riveted joints. This has been proved in four years of testing these bolts on heavy railway bridges subject to widely fluctuating dynamic loading. While rivets have worked loose after less than a year and have created an expensive maintenance problem, high strength bolts are already entering their fourth year of bridge operation without maintenance. Says bridge engineer E. J. Ruble, "The fact that the bolts have remained tight longer than rivets in structures subjected to vibrational loads should

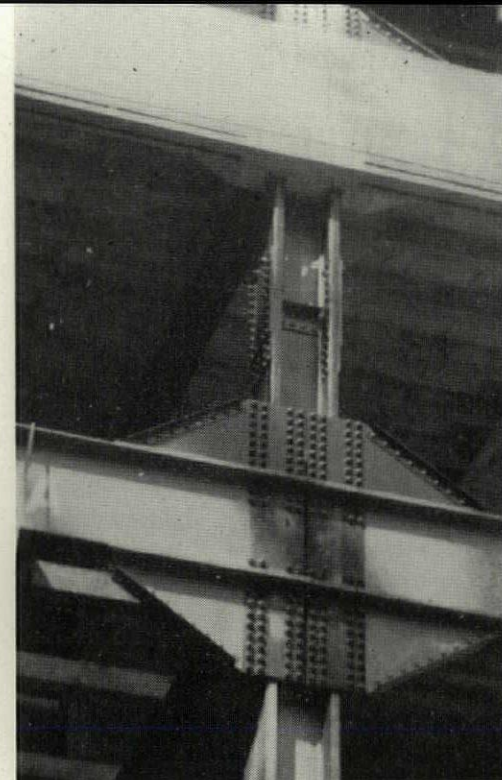
alleviate any doubt that their use in buildings is not practicable."

High strength bolts are made of quenched and tempered steel having a tensile strength of up to 110,000 psi, more than double the 52,000 psi tensile strength of the standard rivet. Each bolt is fitted with two washers hardened at least 0.015" deep to a hardness of 65 to 70 Rockwell "A," and each bolt is tightened to develop a unit stress on the mean thread area of 70,000 psi, about 90% of the yield stresses of the bolt. On 7/8" diameter bolts the required torque is 470 lb. ft., which is applied by pneumatic impact wrenches, giving a tension in the bolt of 32,400 lb.

In tests initiated by the Research Council for Riveted and Bolted Structural Joints (set up five years ago by the Engineering Foundation) high tensile bolt connections were found to be 14% to 19% stronger than cold driven rivet and 9% to 11% stronger than hot driven rivet connections. Even more remarkable was the fact that fatigue failure always occurred in the plates; fatigue cracks never went through holes filled with highly stressed bolts.

Control of bolt tension

High strength bolts can be tightened with a manual torque wrench which has a dial to



High strength bolts were used on the 11-story steel frame of the Diagnostic Building, Mayo Clinic, Rochester, Minn. Steel frame appears heavy due to the way wind loads were handled. Assumption was made that each floor is a beam acting laterally to transmit wind stresses to perimeter of building, and gusseted connections were used on outer columns.

record the amount of torque developed. It can be used to tighten all the way, but because of its unwieldy size (over 5' long) it is usually employed only to spot check bolts that have been previously tightened.

In most cases bolts are tightened by an air impact wrench, which is about 10 lb. heavier than a standard rivet gun. This pneumatic wrench has no gauge to indicate the amount of torque applied. In most cases nuts are driven to refusal and the tightness of the bolt is controlled by the operating air pressure, which is calibrated and set at the air compressor, the necessary control being effected by a spring loaded diaphragm air regulator in the hose that feeds each wrench.

Today's high tensile steel bolts are quite efficient and satisfactory. There is, however, need for a simple means of checking bolt tightness. Calibration by measurement of bolt tension is desirable because this tension is the essential factor in the use of bolts. Further research in bolting is now being directed to this problem and efforts are being made to produce a calibrated air impact wrench that will measure the torque on the nut quickly and efficiently. Such a device will help reduce the inspection cost in high strength bolting.

(Continued on page 160)

2. LIGHTER LIFT-SLABS

Precast coffered panels cut slab weight to 70 psf, warehouse cost to \$4 per sq. ft.

Lift-slabs made of high strength concrete pan blocks with reinforcing determined by photo reflective analysis have successfully reduced the weight and the cost of 40 warehouses in Miami, Fla. Roofs 200' x 100' are formed by eight 50' square slabs fabricated on the floor, jacked up and welded to the top of four 10" concrete columns in the familiar "Youtz-Slick" method (Sept. issue '51, p. 180). Each lift-slab weighs only 175,000 lb. (70 psf compared with the 120 psf of a standard 10" solid slab). This was achieved by:

► Slabs made of 2' square precast pan blocks using 5,000 psi concrete. They weigh 130 lb., are 14" deep with a 3" flange to carry reinforcing rods and grouting concrete which together make this "waffle" block as strong as a 10" solid slab.

► Stresses precisely determined by photo reflective stress analysis, which reduced reinforcing steel from the 4 psf needed by empirical analysis of a solid slab to the 1.82 psf actually employed in these lift-slabs.

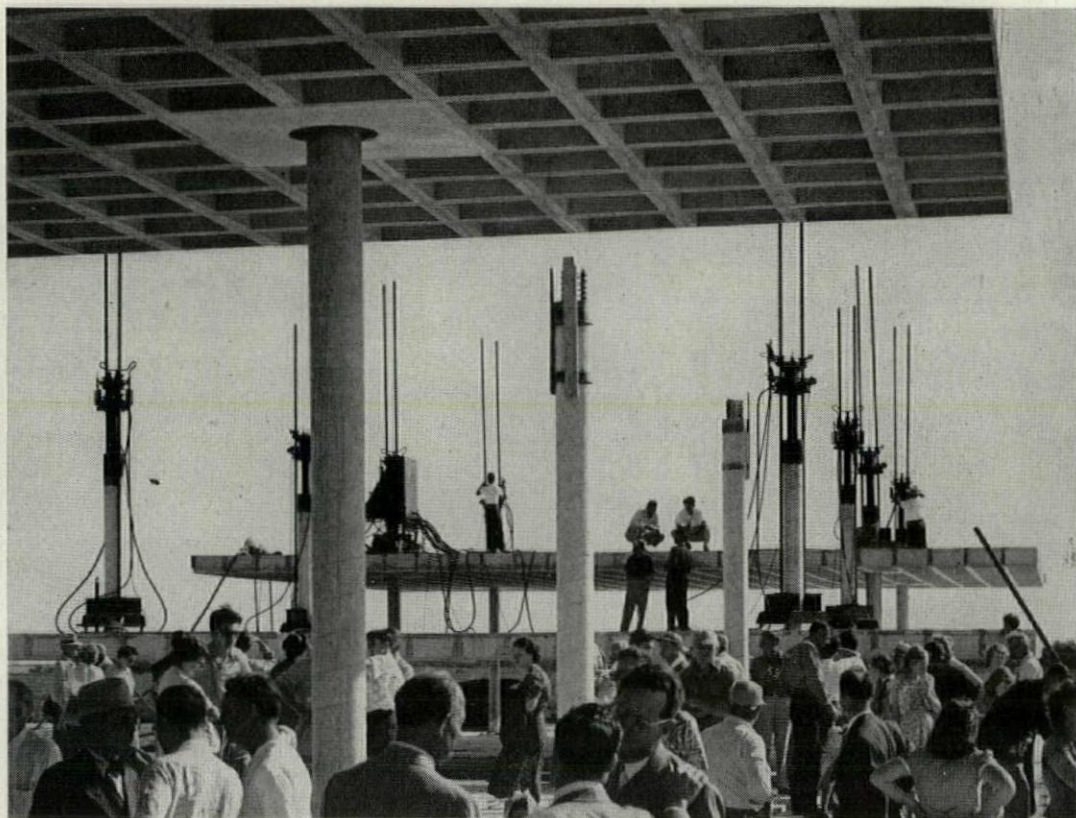
Economical modular layout. Columns are 30' apart with the slab cantilevered 10' each side. Demountable precast concrete wall panels and movable partitions fit between the 14' high ceilings and can be arranged as the tenant wishes.

All this led to rapid erection. After soaping the floor to prevent bond, the 625 pan blocks of one slab were placed in 19 man-hours, the reinforcing rods in four man-hours and concrete was poured in 25 man-hours. Grouting and pouring of the 4' x 4' reinforced concrete heads at the four columns was done by one cement finisher and four laborers in five hours. In three days the slab was firm enough to be lifted, whereas a solid slab had to be cured for eight days. A grout and head-mix could be used that would permit the slabs to be lifted after one day of curing but the engineers report this would have been uneconomical.

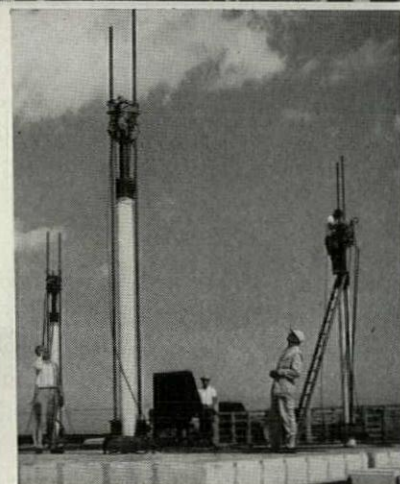
Slabs were hoisted at a rate of $2\frac{1}{2}$ ' per hour using a channel-yoke lifting harness, special care being taken that the slab around the column was adequately reinforced.

Floor slabs are cast on reinforced concrete grade beams on precast concrete piles, three beneath each column.

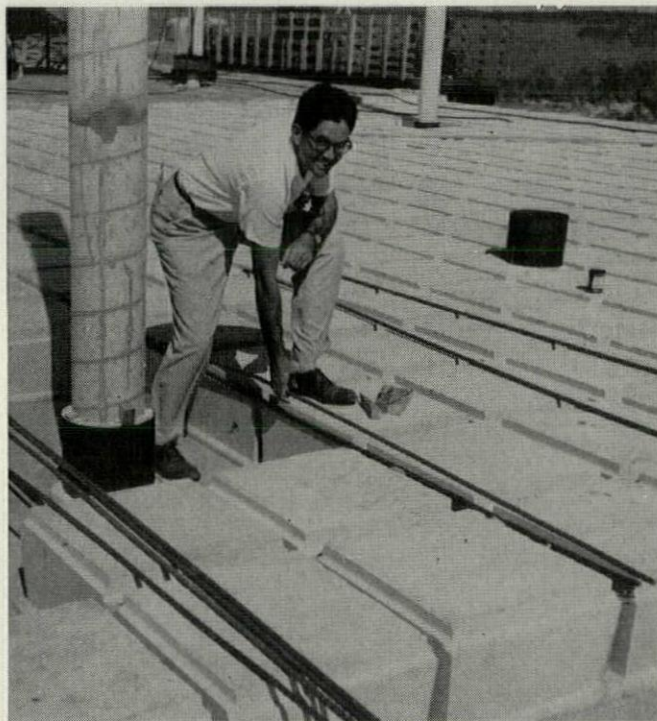
These warehouses form part of a development by Atlas Terminals Inc. The "waffle" slabs were designed by Laurence G. Farrant, structural engineer.



Precast "waffle" blocks lighten weight of lift slab in Miami warehouse development. Above, one slab already in position. Right, a slab being hoisted.



Photos: Miami Herald



Reinforcing rods are positioned in four man-hours, and three days after pouring concrete the slab is strong enough to be lifted into position.

Laurence G. Farrant, Miami engineer, with his new "waffle" block. Dimensions are 2' x 2' x 14" with a 3" flange. Block is precast with 5,000 psi concrete.



3. RIGID FRAME WAREHOUSE

Welding saves 21% steel and 28% dollars over riveting

Here is a warehouse in Baltimore designed and bid for both riveted and welded construction. It provides an interesting comparison of the costs of riveting vs. welding in that area.

It is a steel warehouse for A. M. Castle Co., 313' x 205' separated into three crane bays 50', 85' and 70' wide across the width of the building.

First designed for riveting, the frame included pitched roof trusses supported on H columns on 20'-3" centers spanning the three bays. This meant 48 trusses, 16 across each crane bay, and together with the rest of the framework would have needed 600 tons of steel plus an additional 40 tons for the riveted connections. The low bid for riveting came to \$150 per ton erected in place.

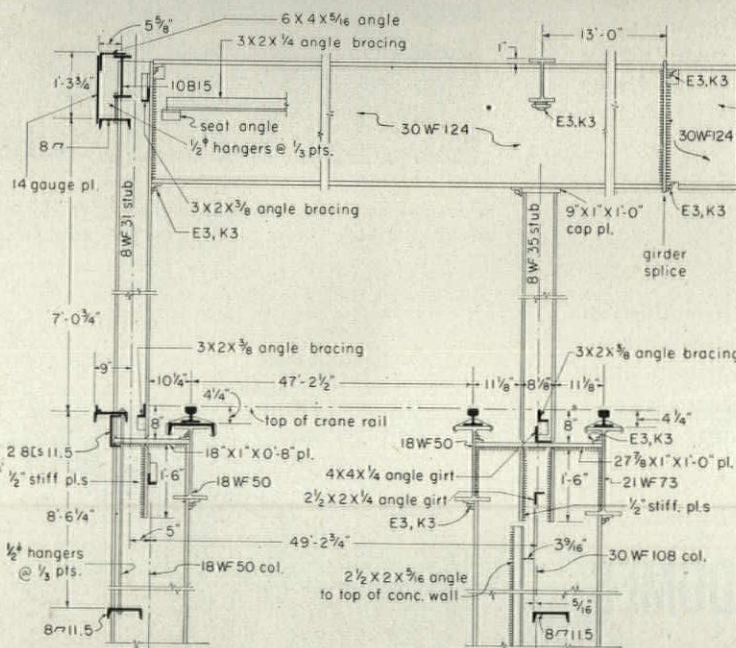
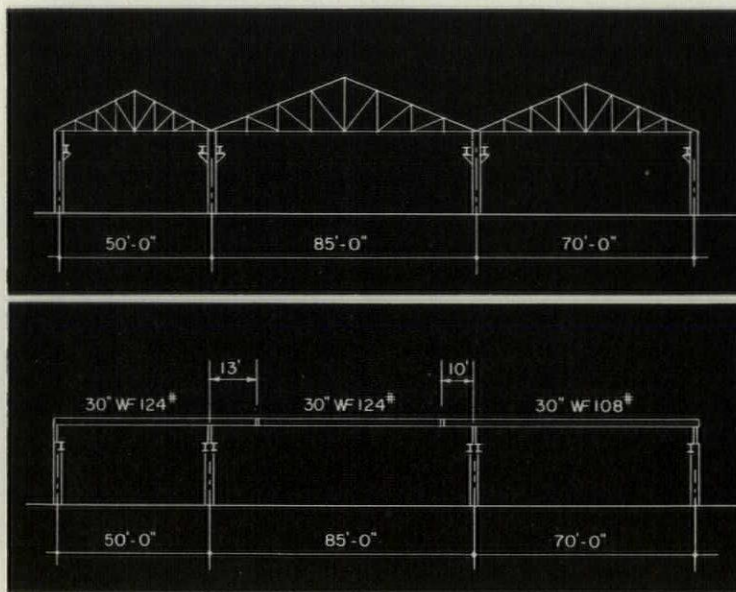
To avoid having to wait a month for the trusses to be fabricated, a second design was made using rolled WF beam sections as girders in place of trusses. Depth of girder in the 85' bay was kept down by employing the continuous girders over the columns, so that only 62' remained to be spanned between the ends of the cantilevers. The 50' bay was spanned by a 30" WF 124# girder cantilevered 13' over the 85' bay, the 70' bay by a 30" WF 108# girder cantilevered 10'. A 13' cantilever would have been more efficient but 80' was the greatest length that could be transported. A 30" WF 124# girder, joining the two cantilevers, completed the frame. This design required only 506 tons of steel, and rolled members were immediately available. Fabricators were invited to submit bids for this second design using either riveted or welded connections. The low bid was for a welded frame and was only \$124 per ton, \$26 per ton less than the low bid for riveting the same frame.

As built, welding resulted in a saving of 134 tons steel (21%), and \$41,246 (28%):

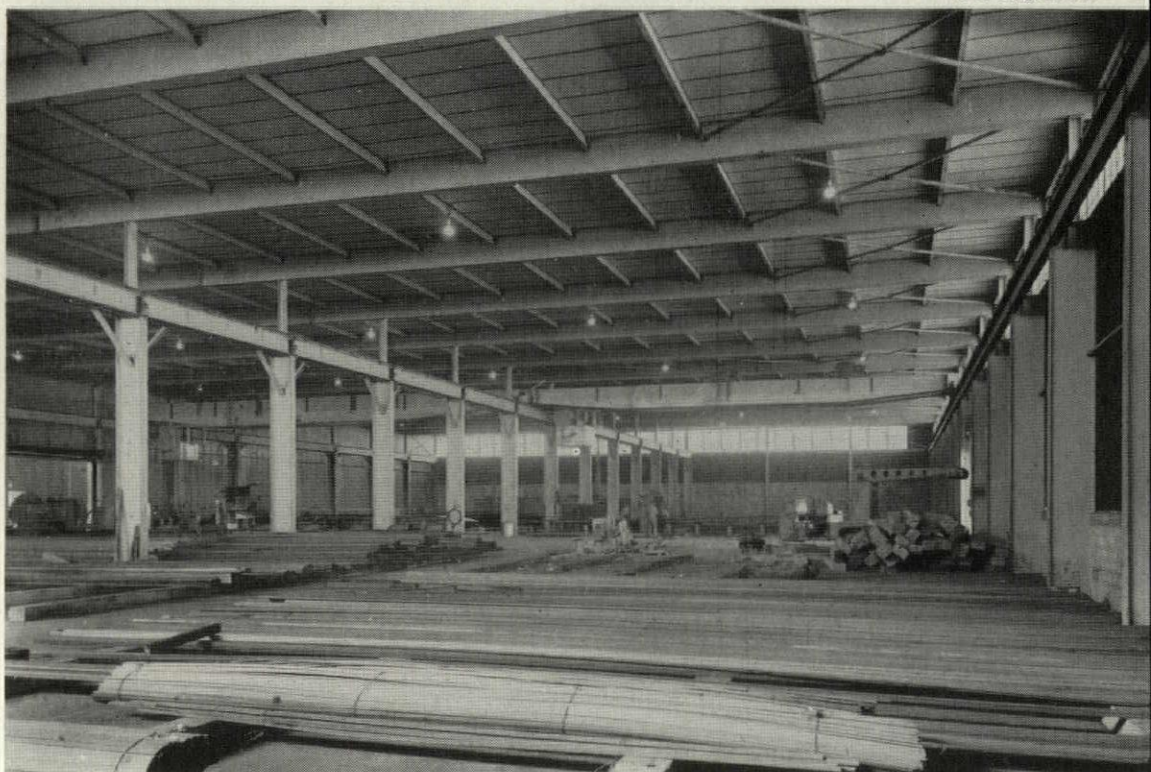
Riveting:	Cost of steel (600 tons)....	\$51,000
	Freight, fabrication and erection	\$96,000
	Total	\$147,000
Welding:	Cost of steel (506 tons)....	\$43,010
	Freight, fabrication and erection	\$62,744
	Total	\$105,754

Savings by welding \$41,246

In the welded design the girders were mounted on WF columns instead of H columns so that crane beams could be welded directly to beam flanges. Erection clips were employed to support the frame preparatory to welding.



TYPICAL SECTION



First warehouse design had riveted, truss roof, and frame would have required 640 tons of steel, and cost \$150 per ton erected.

Second design was for a welded, continuous girder roof spans needing only 506 tons of steel; low bid for welding was only \$124 per ton. Frame was erected in one month.

Section showing welded connections for crane beams and continuous girders.

Warehouse interior. Architect Lucius R. White Jr.; structural engineer Van Rensselaer P. Saxe. Steel work was fabricated and erected by Reading Steel Products.

The Hughes Co.

4. "RIBLESS" CONCRETE

Continuous vaults prove economical

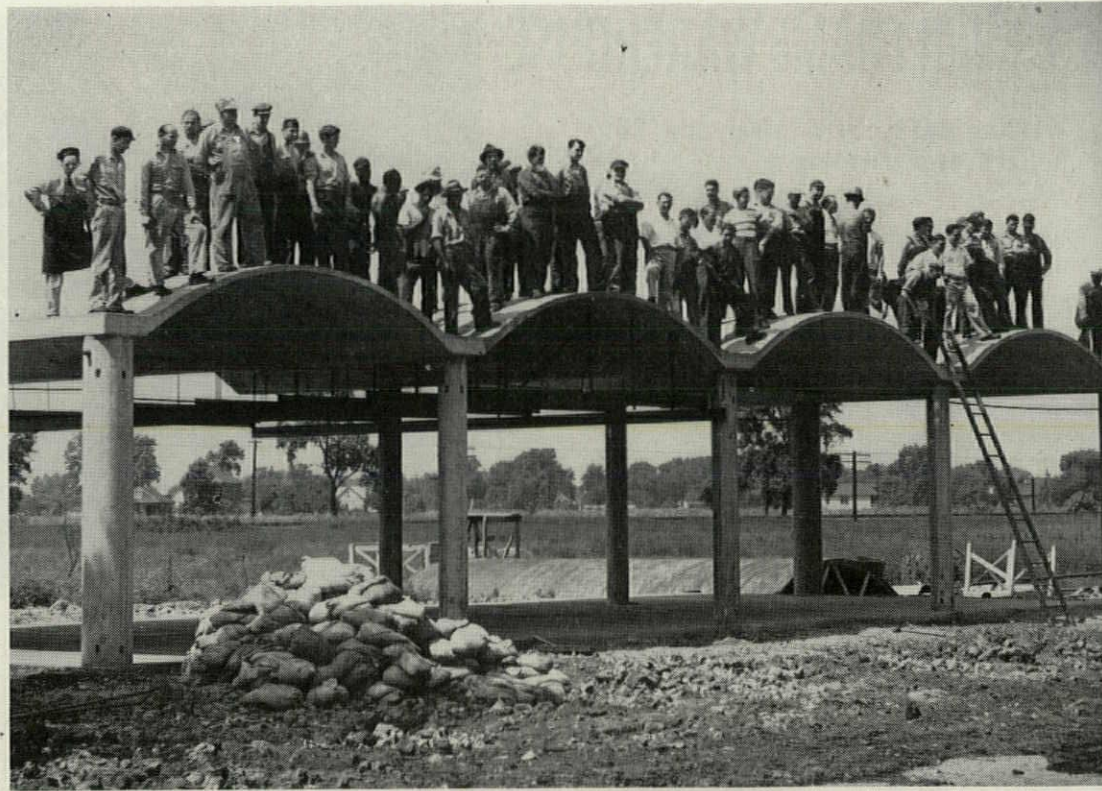
Shell concrete in the U.S. has been limited mainly to ribbed concrete roofing for hangars and arenas. Projecting above a thin shell these concrete reinforcing ribs entail special forms at considerable expense. Obviously, great savings could be achieved by eliminating such ribs in favor of a single monolithic shell, perfectly smooth top and bottom, supported by a single set of multi-use formwork.

To explore this possibility engineers Roberts & Schaeffer built a 60' x 28' structure having four 15' x 18' bays, one side cantilevered out 9'. Nominal shell thickness varied from 1½" to 2½", reinforced basically with 6" x 6", #4/4 wire mesh. Costs were kept down by using the same formwork for each bay in turn, taking thrust with temporary ties until the frame was completed.

Test results:

Area	Loading	Deflection
Typical bay	50 psf	1/8"
One side of bay.....	100 psf	1/8"
Cantilevered bay	50 psf	1/8"

This design is applicable to industrial buildings with column spacing of approximately 60', and one such building is planned for Ohio at an estimated cost of \$1.53 per sq. ft. including foundations.



K. G. Ackerman

Four-bay test structure built in Harvey, Ill. by Roberts & Schaeffer Co. to examine the economics of continuous "ribless" shell concrete for industrial buildings.

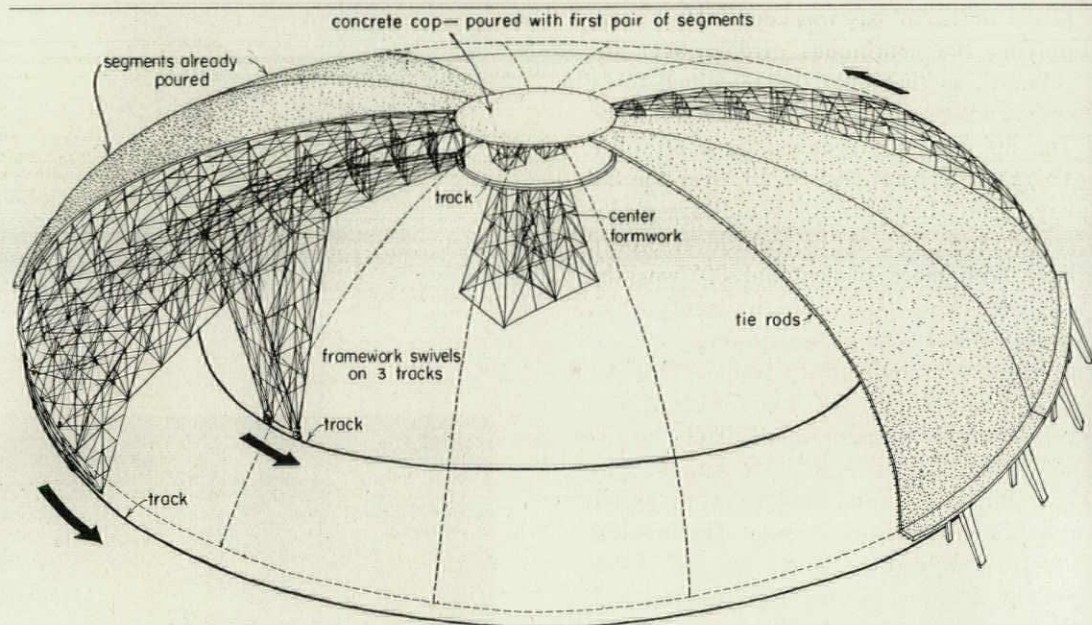
5. SEGMENTAL DOMES

Formwork cut 60%

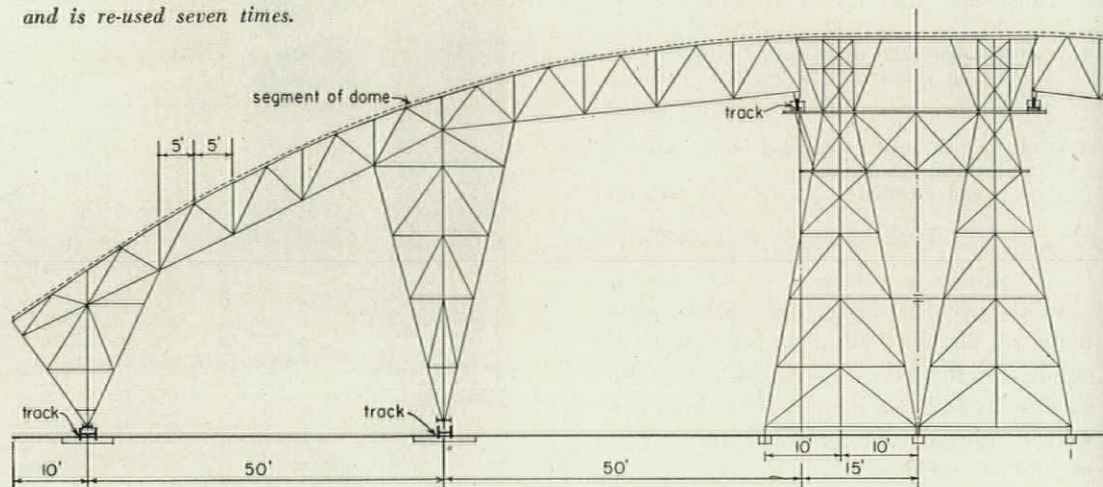
Design-wise, the dome is the most efficient shape for roofing wide areas. Shell concrete domes can be remarkably flat and can be pierced for fenestration. Limiting factor is cost. Since the whole roof must be supported until full dome action is achieved, the formwork can be used only once.

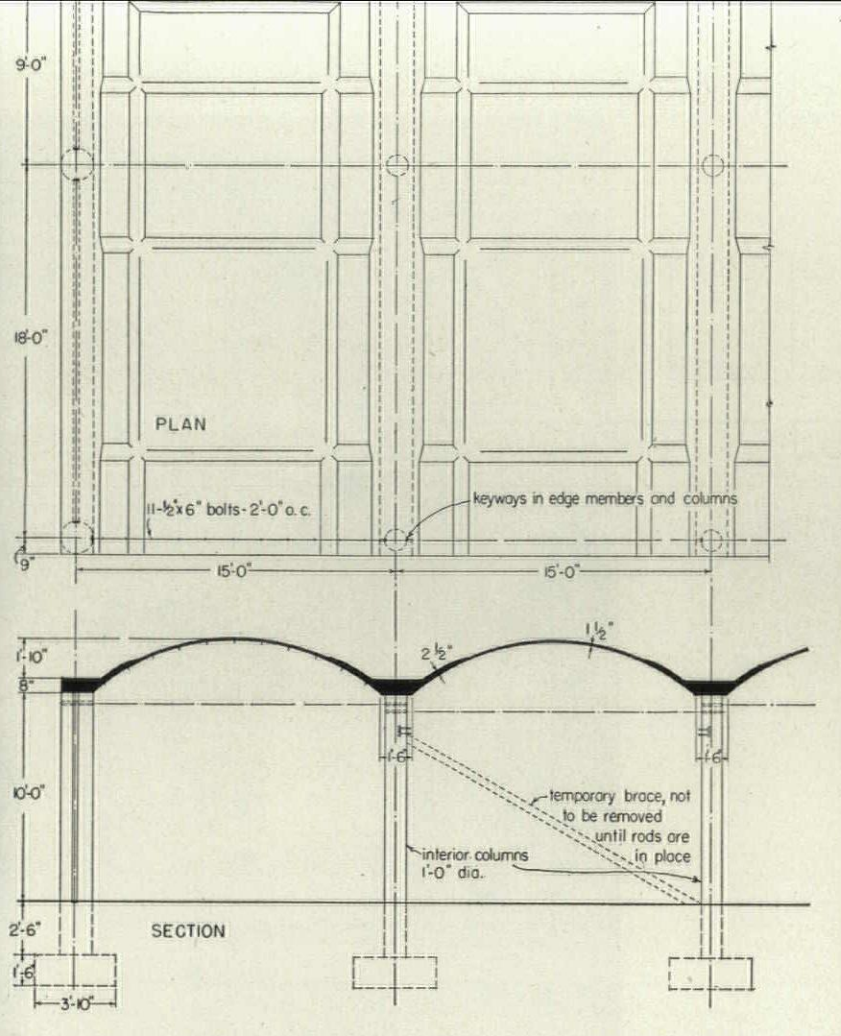
Roberts & Schaeffer have developed a construction system which they will use to overcome this difficulty. They will pour diametrically opposed "pie-slices" which will support each other as arches until all the segments are poured and the dome completed. Thus formwork need be built for only two segments, for it can be re-used several times. Also required is a stationary central tower supporting a circular concrete cap poured with the first two segments.

The engineers believe this technique would prove economical in spans over 200'. More reinforcing would be needed than for a dome poured in a single lift but this would be more than balanced by the economies in formwork.



Rotating formwork simplifies dome construction by enabling diametrically opposed segments to be cast in succession. Formwork rotates on circular tracks and is re-used seven times.





6. HEAVY-DUTY FLOORING

Low water-cement ratio gives tough durable concrete surface

Warehouses need heavy-duty flooring. Too often managers have skimped on first cost only to lose on subsequent repairs.

Used in 700,000 sq. ft. of flooring in a chain store warehouse at Kearny, N. J., an "absorption control" technique has produced a tough $\frac{3}{4}$ " surface designed for 450 psf loading. Absorption of excess water gives a water resistant and nondusting surface. Where over 10,000 sq. ft. can be applied each day cost is 25 to 35¢ per sq. ft., about 25% higher than standard flooring. Contractor: Kalman Floor Co.

1. Under-slab coated with clean cement grout and screeded.

2. Screeding of $\frac{3}{8}$ " crushed basalt leveled to grade.



4. In minutes concrete dries and burlap cover is removed.



6. Machine and hand troweling gives density and hardness.



Thomas Carew



3. Dry cement on burlap absorbs excess moisture.



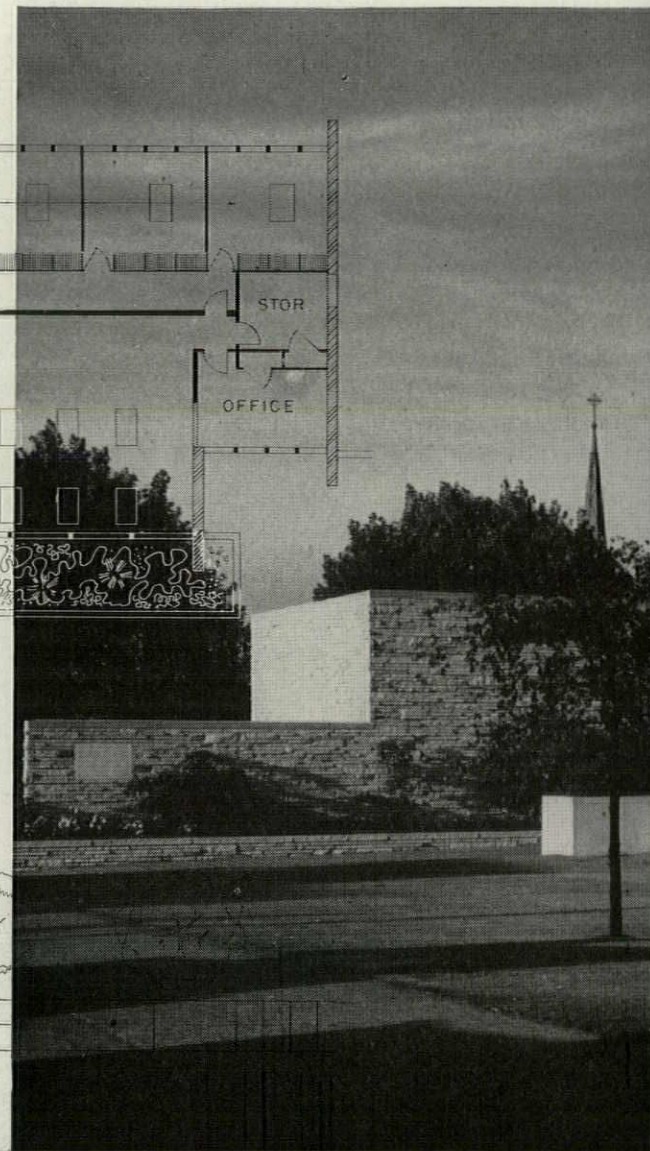
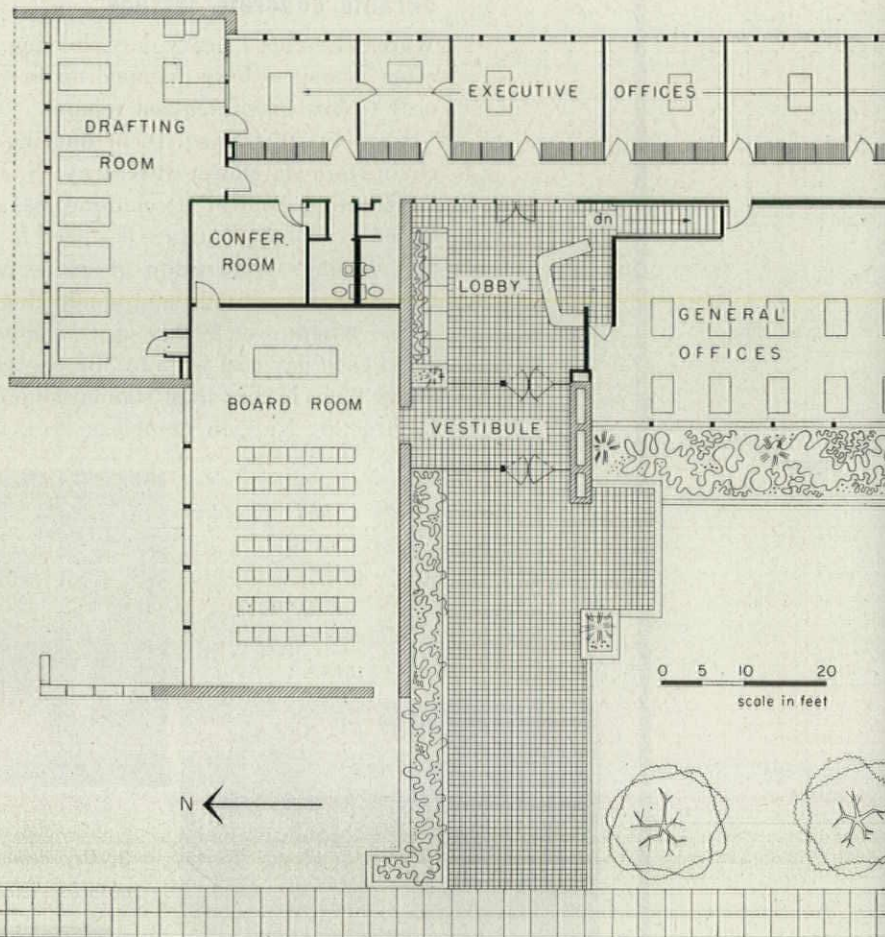
5. Revolving mechanical "floats" compact floor.



7. Careful finish gives tough impermeable surface.



Glass walls give Seattle's Park Administration Building plenty of light, half its character. Juxtaposed stone walls supply the balance.



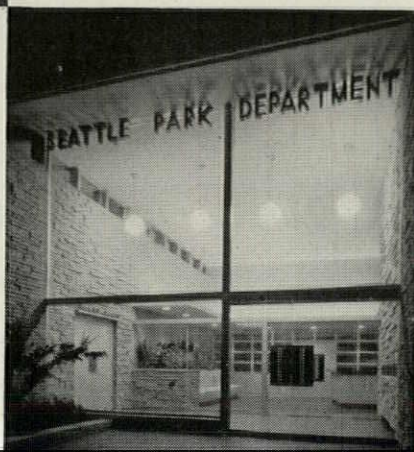
LOCATION: Seattle, Wash.

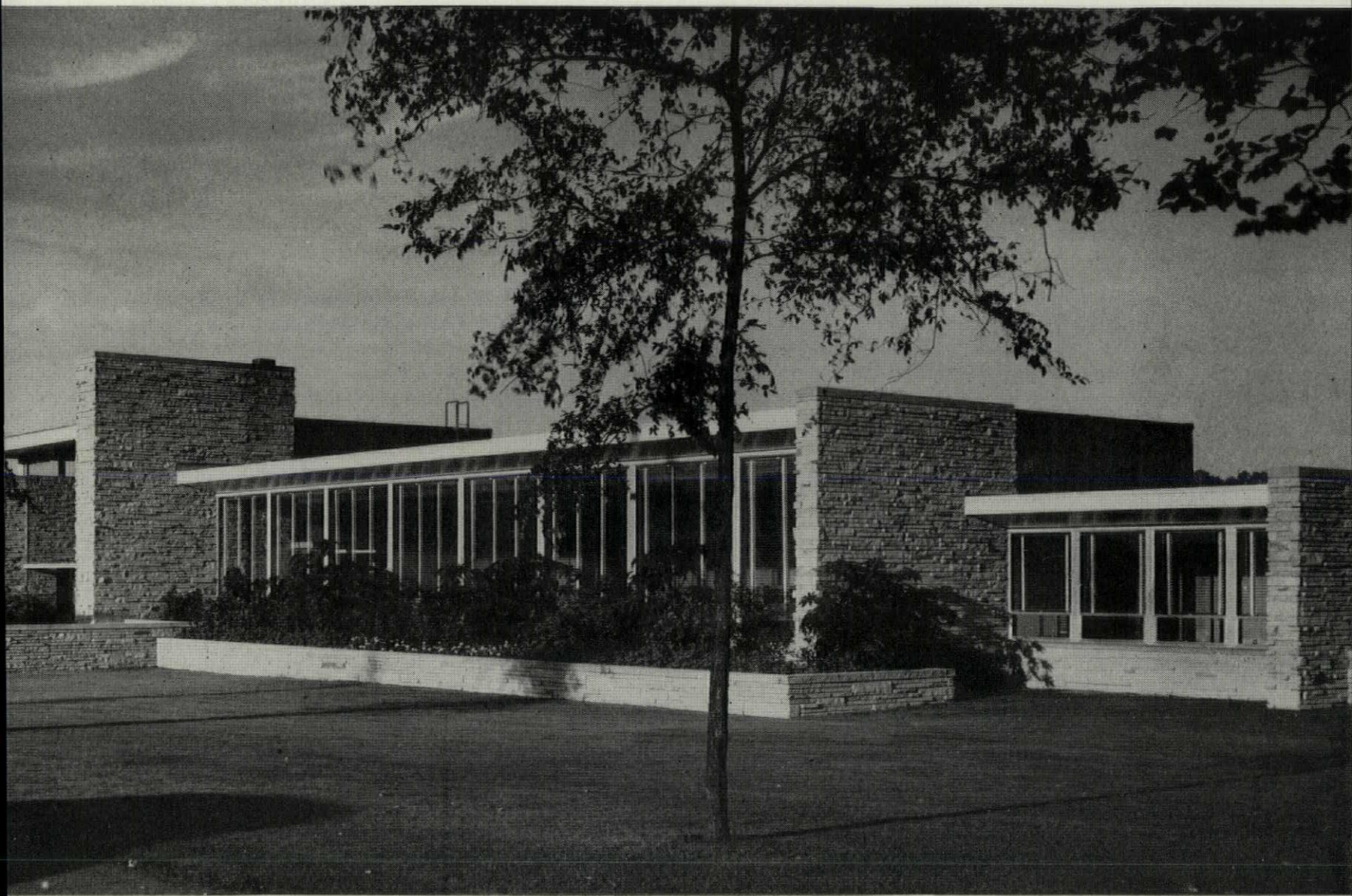
YOUNG & RICHARDSON, Architects

VEALE CONSTRUCTION CO.,

General Contractors

Colorful textured stone walls and red quarry tile entrance walk lead into the spacious 17' high glass-fronted lobby. Planting boxes add to park flavor and carry into the building where the light, colorful interior strikes a refreshing new note in park building design.





Photos: Dearborn-Massar

MODULAR FLEXIBILITY highlights refreshing new approach to park building design

Park building design, long frozen in an antique mold, has been given a vigorous boost by architects Young & Richardson. Their Seattle Park Administration Building has knocked the props from under those who think such structures should be either a rustic forest lodge or a massive public monument. Neither lodge nor monument, it expresses an excellent concept of park building design—expressed, inside, through modular windows, storage walls and lighting, giving maximum flexibility to office arrangement and, outside, thorough stone and glass areas giving permanency and lightness to the building. So successful is the result that it won the Grand Honor Award of the Washington AIA Chapter.

Informality and dignity combined

In the past, a logical desire for naturalness has frequently produced the familiar woodsy lodge type of structure in urban parks.

In other cases, an equally understandable desire for solidity and dignity in civic buildings produced an oppressive massiveness reminiscent of past temples.

Happily, Young & Richardson get both naturalness and solidity in their park building without burying these desirable characteristics under gables, hand-hewn beams or Parthenon-like details.

To get a feeling of nature, the architects used highly textured walls of the local "Wilkinson" field stone. Several such walls extend into the building; exterior planting boxes follow right along, bring the green planting inside; a red quarry tile entrance walk also extends into the building to form the floor of the lobby. Added to these elements is plenty of natural light coming through extensive window areas. The result is a thoroughly modern expression of nature without a trace of forest lodge tradition.

A feeling of solidity and permanence comes from the visual impact of the low, well proportioned building and from the wide stone walls that form it. The dignity associated with public buildings is attained through a generous use of space in the lobby where the

ceiling height is about 17'. Here again, the desired qualities are expressed without deliberately leaning on history.

The architects thus introduce a new concept in park building design. They freely admit that a city park is neither a wild, wooded glade nor a completely cultivated area like a garden. It is a happy combination of man-made and natural elements. The building reflects this in an admirable juxtaposition of industrial and natural materials. Industrial products—glass, aluminum and paint—are pleasantly related to natural materials—stone, tile and wood.

A matter of latitude

Axis of the building is north and south. This positioning puts large office window areas on normally unfavorable east and west sides. But in the latitude of Seattle sun heat presents no problem; and as for light, according to Young & Richardson, the eastern and western exposures introduce best natural light for offices.

The building is situated between two diagonal crosswalks at the west end of a two-block city park. From the front (west) side, it appears to be one story high. But a downward eastern slope permits it to be a two-story structure and, from the east, the full height of the building can be seen. Driveways skirt the north and south ends, lead to a parking area at the rear on the lower floor level.

The 15,000 sq. ft. building houses all administrative personnel of the Seattle Park System and was constructed at a cost of \$12.75 a sq. ft.

Unique feature of the plan is the location of a large board room which is accessible from the foyer of the building. Since this room is used frequently at night by community groups, its location

permits the rest of the building to be locked up even though the board room is in use.

Flexible space and light

Executive offices along the east side of the building boast almost 100% flexibility. Key to the achievement is a module of 3'-8" for both the east windows and the movable storage cabinet units that form the corridor wall. Dividends gained from this unusual planning device become instantly apparent.

Individual offices are formed by bolting thin partitions (1" plywood and insulating board sandwiches) to mullions, floors and cabinet frames. To move partitions, the only tool needed is a screwdriver to remove screw fasteners. Minimum distance which a partition can be moved is, of course, the width of one window.

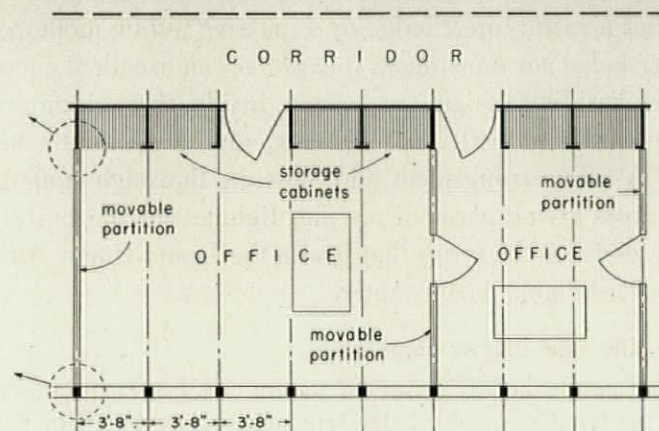
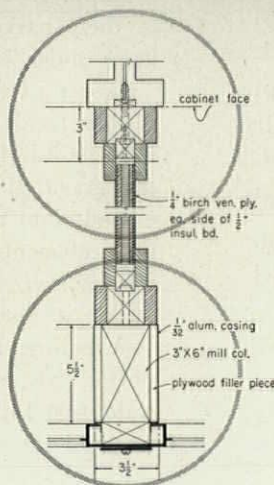
Office door frames are the same width as the cabinet units, so the doors can be moved to suit the occupant's furniture arrangement. Light switches are located in the sides of storage cabinets and can therefore always be positioned at an office entrance. Low voltage switch wiring, housed in a plastered duct above the cabinet units, can be brought down to switches at any module line.

Telephone outlets are provided at frequent intervals along the wall below window sills so that no matter what the office arrangement, a connection is available.

Over-all lighting flexibility is obtained through a wiring channel down the center of the office area. A series of fixtures, plugged into this channel, runs the entire length of the office area, interrupted only by partitions. When a partition is moved, fixtures can be realigned with a minimum of effort.

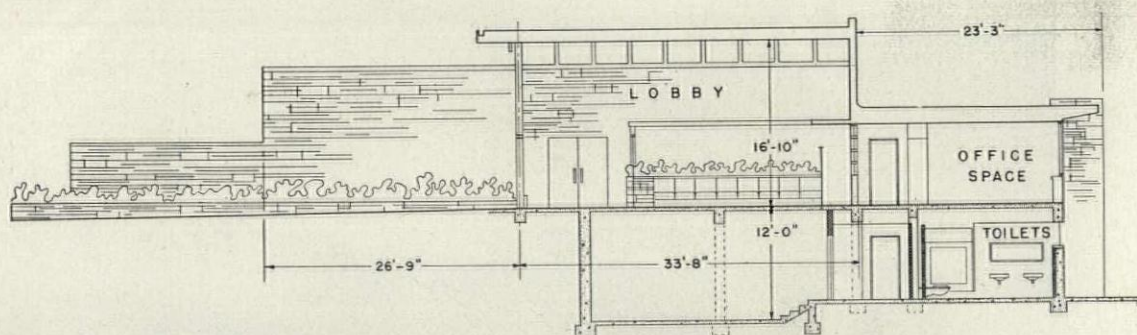
Solidity of stone walls gives street elevation (above) desired air of permanence while glass keeps the building from being heavy. Highest stone wall houses furnace stack.

Modular windows and storage partition sections (right) permit nearly 100% flexibility in office space arrangement. Plywood partitions are bolted to floors and like storage cabinets can be unscrewed, moved with minimum of effort. Lighting outlets, switches and telephone connections are provided at regular intervals for freedom of arrangement.

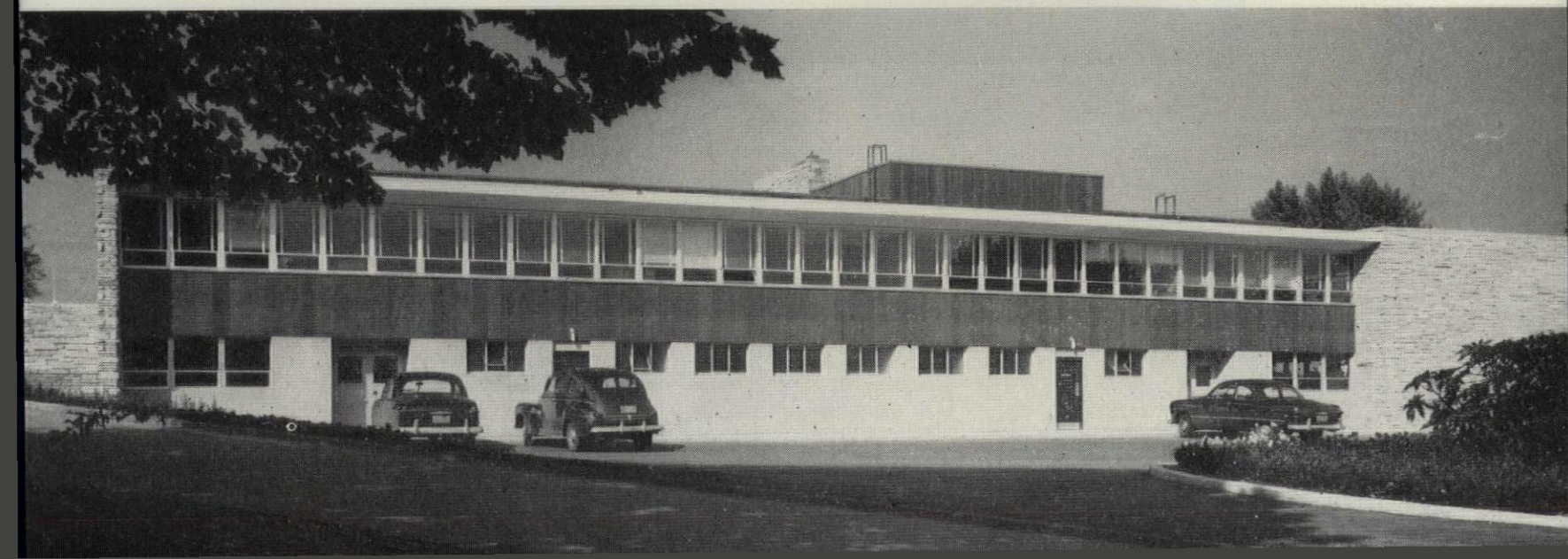




Sun control in general office area is accomplished with aluminum Venetian blinds. Though building has main exposures to east and west, latitude of Seattle makes this unusual orientation most advantageous. Note stone wall carried into far end of room, lush planting just outside.

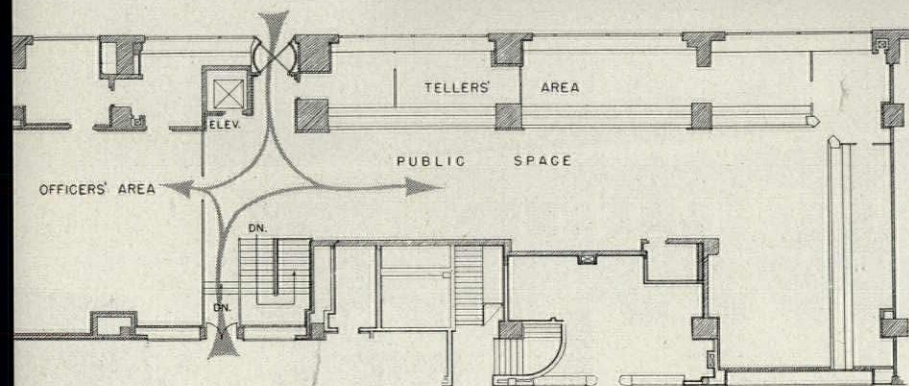


Rear two-story elevation (below) shows simple modular fenestration of executive office area above spandrel facing of vertical hand-split cedar boards.

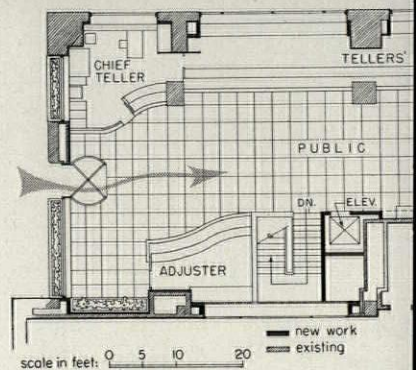




Ben Schnall



Green carpeting in entrance lobby of remodeled bank (above) contrasts with ivory terrazzo floor beyond and with light butternut plywood paneling. More space was added at office's west end, and both entrances were relocated. Old plan (left) created snarled traffic pattern which was untangled by new plan (right).



OWNER: Chase National Bank
 LOCATION: Rockefeller Plaza, New York City
 CARSON & LUNDIN, Architects

Before remodeling: institutional fence, dark ornamental wood, low light intensity.



STREAMLINED BANK

pays high to up-date its interior design for the fifth time in 20 years

After: new wide entrance invites customers

"Forget the hierarchy, let's think of the customer," sums up the new philosophy of bank design, and its application anywhere makes sense as well as news. Latest example is the fifth remodeling of Chase National Bank's busiest midtown New York branch in Rockefeller Center.

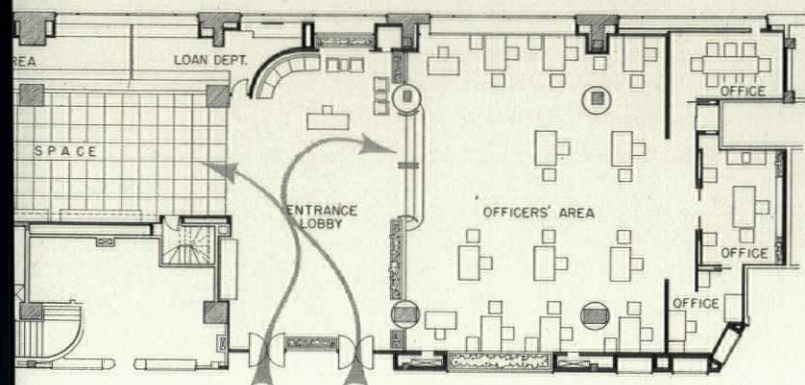
To keep business going as usual, the job required piecemeal work, night work, work on weekends and holidays. This factor sent costs soaring to more than \$500,000—at least twice what it would have been had the bank closed for alterations.

Why were Chase officials willing to spend so much? Briefly because the institutional look in banks is out and Chase knows it. Moreover, banking has become a production operation that must be streamlined. In five successive refurbishings during the last 20 years this bank has abolished traditional wrought iron fences, dim vault-like interiors, dark formal paneling—all visual reminders of inaccessible bankerdom. In their place have come an intentional mingling of banker and customer plus the ingenious application of those favorite architectural tools: glass, light and space.

Chase asked its architects to produce an inviting rather than a forbidding atmosphere, a smooth-working rather than institutional office. And within the limits of the awkwardly shaped space (50' x 184') interrupted by huge columns, they achieved notable success.



Photos: (above) Techni-Photo Studio; (below) Ben Schnall



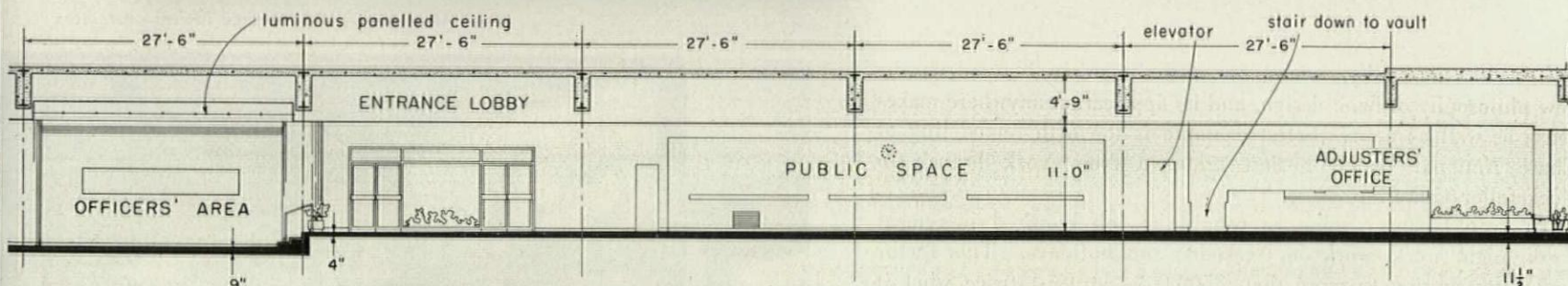
Planting box is sole division between customers and bankers. Lighted glass ceiling and translucent glass in exterior window quadruple the lighting level. Only dark woods are mahogany desks and chairs. Cylindrical columns are covered with light brown pigskin.



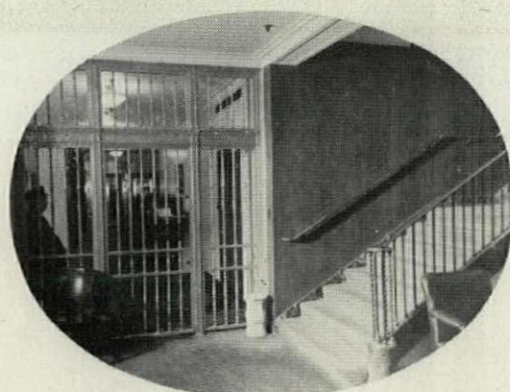
With an eye to attracting customers and speeding service rather than maintaining long-held hierarchical standards, the bank's entire interior was streamlined. Space obtained from an adjoining store permitted addition of a long-needed conference room and a larger area for officials' desks where these men became more accessible to customers.

Former entrances which faced each other across the street end of the office were relocated to aid customer traffic. The 49th St. door—a mere hole in the wall—was moved to the Plaza end and given the open window-entrance treatment common in modern store design. The entrance from the RCA building lobby that handles twice the traffic of the street entrance was widened and relocated. Steps inside these entrances were eliminated and the main floor turned into a long ramp to take care of a grade difference.

To get spaciousness, fences dividing officials from the rest of the bank were removed; ornamental wood trim was



BEFORE . . .



. . . AFTER

Photos: (top and below) Ben Schnall



eliminated; tempered glass was substituted for iron bars at the vault room entrance. Acoustical tile ceiling was hung flush with the bottom of window heads making the room extend visually to the outside without a break. Light plywood sheeting replaced darker, more formal wood paneling on walls and counters. Combined incandescent and fluorescent lighting fixtures installed behind flush-fitted ceramic coated glass panels in the ceiling gave nearly four times as much light as before.

Former unsightly roll-top lids that pulled down over tellers' counters were replaced by small tables on wheels called busses. Attached to the counters during banking hours, they hold cash trays, which can be wheeled easily into the vault when the day is over.

Forbidding grille of vault room (above) gives way to tempered glass partition (left) which presents no visual barrier on lower concourse level. Light wood and carpeting help remove former jail-house atmosphere.



Julius Shulman

NEIGHBORHOOD CHURCH

uses today's techniques and design language to convey ancient qualities

ONEONTA CONGREGATIONAL CHURCH

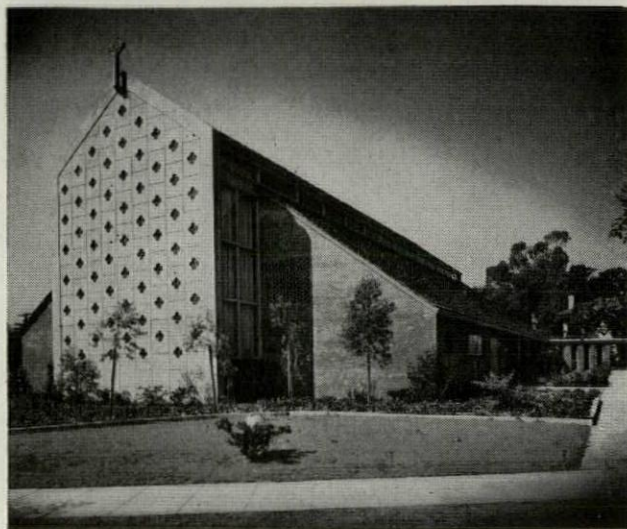
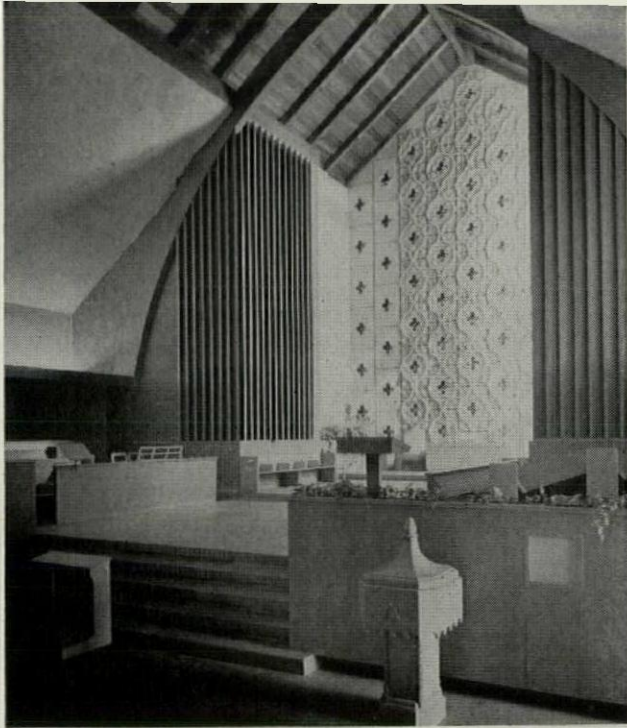
LOCATION: South Pasadena, Calif.

MARSH, SMITH & POWELL, Architects

STEED BROS., Contractor

How can you get big elements of durability, stateliness and grace into a relatively small church? In other words, how in modern times can you achieve the basic character of the traditional English parish church?

Architects Marsh, Smith & Powell's answer is this church which has the tweedy simplicity of a parish church in a modest (56' x 140') space. It has the repose and durability of a big barn—with a barn's simple, dignified lines. Its roof is supported by seven laminated wooden arches that give stately rhythm to the nave. Add to this a graceful, intricate reredos (of cast stone instead of dressed masonry) with small, jewel-like quatrefoils of stained glass, plus the enduring warmth of natural finished woods and their answer is complete. The result is less cluttered than the traditional barn, yet warmer than many an antiseptic example of modern design. In spite of its halfway position between past and present, it is successful. It is imposing without being awesomely formal, warm without being aggressively rustic. Its success has brought honors: the 1951 Church of the Year award of the Church Architectural Guild, plus an honor award of the Southern California and Pasadena AIA chapters.



Photos: (top) Fred R. Dapfrich; (below) Julius Shulman

Cast-stone reredos as seen from chancel (top) and outside (above) contains 64 small quatrefoils of stained glass. Light shining through gives them a jewel-like quality. Below: site plan for complete community of church buildings includes (A) nave, (B) church offices, (C) chapel—already built—and (D) Sunday school building, (E) assembly hall, club rooms, (F) church parlor, meeting rooms and kitchens, (G) associate minister's residence.

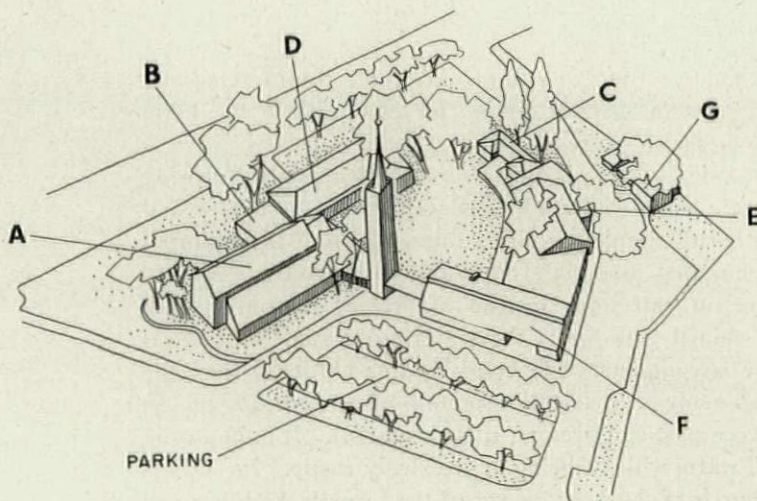
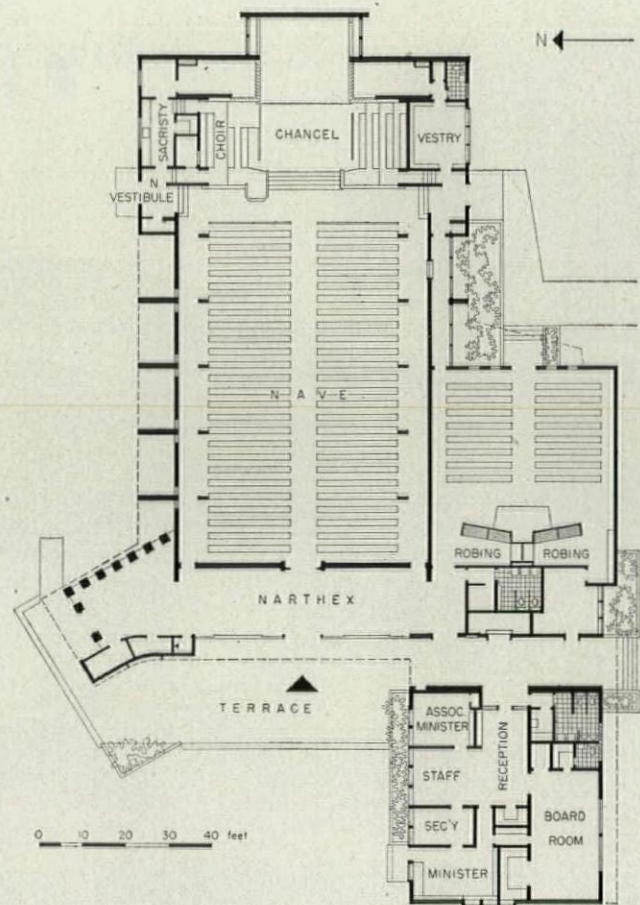


Diagram of Final Unit



NEIGHBORHOOD CHURCH

Located on a 4-acre site in a residential neighborhood, Oneonta Congregational Church fits its environment, becomes a neighborly rather than awe-inspiring building through brick and redwood exteriors, shingle roof and the informal character of the adjoining office wing. Required elegance comes from dramatic play of light over the church interior through clerestories and tall vertical stained glass windows to the west, plus side windows behind the chancel to the east. Here the light enhances the cast-stone reredos which, with its small stained glass quatrefoils, forms the east wall.

Traditional forms in the church combine with many modern devices to increase the worshipful atmosphere. In a control room behind the pulpit, for example, a one-way-vision glass panel separates an operator from the audience. But watching through the glass, the operator can dim or brighten lights without embarrassing miscues and control the speaker volume to suit the occasion. In the narthex is a small voice-controlled speaker connected to the organ console. An observer can thus watch the approach of a wedding group or other procession and tell the organist when to begin playing.

Not planned as a single building, the 600-seat church is part of a "campus" of seven buildings plus a 175-car parking lot planned to fill the site. Already an office wing and small chapel have been built. Cost of the three existing units: \$189,000, including \$14,000 architects' fee, or \$12.70 per sq. ft., 65¢ per cu. ft.

When completed the group will include church, chapel, assembly hall, parlor and meeting rooms, kitchens and a minister's residence.



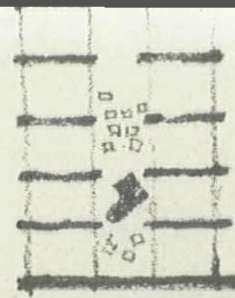
Julius Shulman

Two-and-a-half ton laminated wood arches (below), costing a total of \$10,500, support the 42' high roof above nave which seats 600. Above: west end of church with barn roof strikes imposing but informal note.

Fred R. Dapprich



TWO SPACE-SAVING SCHOOLS



put center corridors to multipurpose use,
cut costs, improve natural lighting
and ventilation



Wide central corridor in Fairview School (below) eliminates need for special purpose rooms, may be used for assemblies, dining or rainy day play, also funnels breeze into classrooms.



1. Fairview School, Elk City, Okla.



Photos: Ulric Meisel

These two Oklahoma schools by architect William W. Caudill may signal a major shift in U. S. school design—from sprawling finger plans to compact types better suited to today's scarce materials and high costs.

Patterned directly on ideas proposed in FORUM's 1949 *School Issue*, each school is a simple rectangle with a wide, central multipurpose area flanked on two sides by classrooms. This tight plan reduces periphery, simplifies heating and plumbing, permits an economical structure of repetitive bays.

Result: whopping cost cuts with no teaching sacrifice. Both schools were built for under \$9 per sq. ft.—\$1 less per foot than the Caudill firm's comparable finger plan schools for the same area (Jan. issue '52). And teachers claim that they are second to none in comfort and efficiency.

Chief problem: through ventilation

In developing this type plan for the 11-classroom Fairview Elementary School at Elk City, Okla., in the hot Southwest, the architects also sought good natural ventilation in the deep interior space.

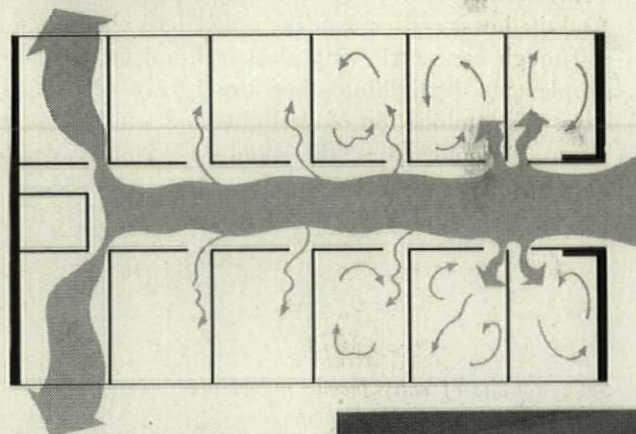
To trap the prevailing southern breeze needed for classroom comfort in Oklahoma's hot months, they first thought of putting ship type ventilators in the roof. But when research showed that these openings would have to be excessively large, they hit on the idea of making the multipurpose central corridor serve as a plenum chamber. Facing directly into the wind, it funnels air into classrooms on either side through floor-level slots in the corridor walls. Doors on the inside of the slots permit teachers to regulate intake; and suction created by the sweep of the wind past the sides of the building draws air out through the windows.

Air pressure in the corridor is built up by flaring the walls at its mouth to scoop in the wind, and by putting an office island near the intake end. Wind-tunnel tests made on a model at the famed Texas Experiment Station show that the island is needed to distribute air evenly to all rooms—without it, the wind would by-pass rooms nearest the entrance (see diagram), rush into those at the far end.

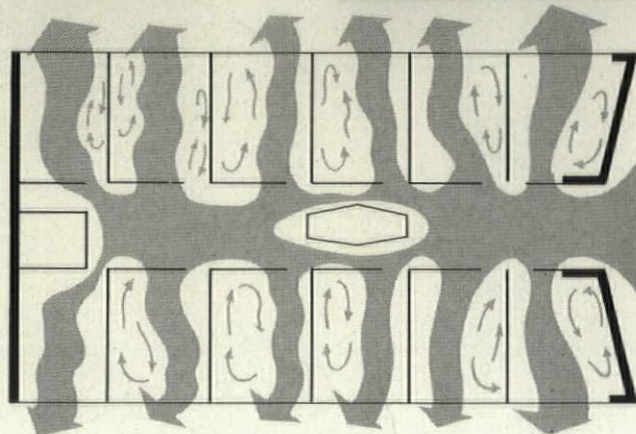
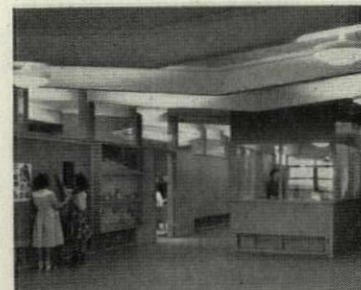
2. Washington School, Clinton, Okla.



In wind-tunnel tests of first model (below) only rooms at end of corridor benefited from breeze.



Air distribution was equalized by putting office island in corridor (right and below). This slows breeze, builds up air pressure, also permits easy supervision by principal.



TWO SPACE-SAVING SCHOOLS: 1. FAIRVIEW SCHOOL, Elk City, Okla.
 CAUDILL, ROWLETT, SCOTT &
 ASSOCIATES, Architects
 J. W. HALL Jr., Mechanical Engineer
 DOYLE NEECE, General Contractor

Skylights supplement windows, brighten interior in butterfly-roofed school

To provide balanced daylight for Fairview's classrooms, a combination of manufactured strip skylights is used above the inner walls and high continuous windows on the exterior. The top-lighting also filters into the central hall through glass-topped corridor partitions, preventing a feeling of confinement in the interior space. Cost of skylights installed was only \$1,500.

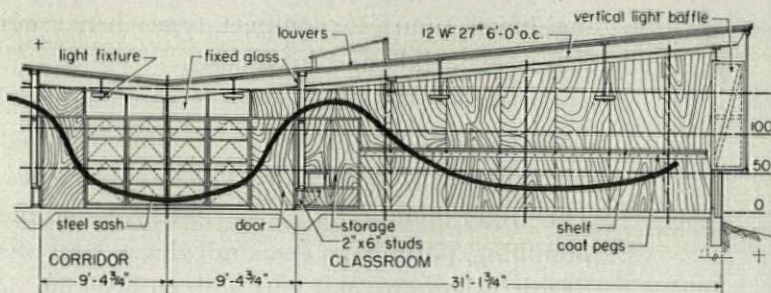
Sun and glare control is provided by wooden egg-crate louvers beneath the skylights and by vertical interior window baffles of cement asbestos board framed in wood. Set at a 45° angle, the baffles not only shut out east and west sun, but keep children from being bothered by glare when their attention is focused on the blackboard. But by turning their heads, they *can* get a glimpse of the sky—an option which Caudill believes they should have.

Fairview's butterfly roof also contributed to better classroom lighting. By sloping the roof toward the center, the architects got the benefit of higher windows, more light on the ceiling, and a scale better suited to children. The slope reduces the brightness ratio between the ceiling and the brighter skylights and window areas. And the lower ceiling over the center hall also pared cubage and cost.

Though concentric ring electric filament fixtures are provided to supplement daylighting, they are rarely needed. Even on cloudy days, the combination of skylights and windows keeps intensity well above 30 foot-candles, the standard recommended by the National Council on Schoolhouse Construction. The second source of light

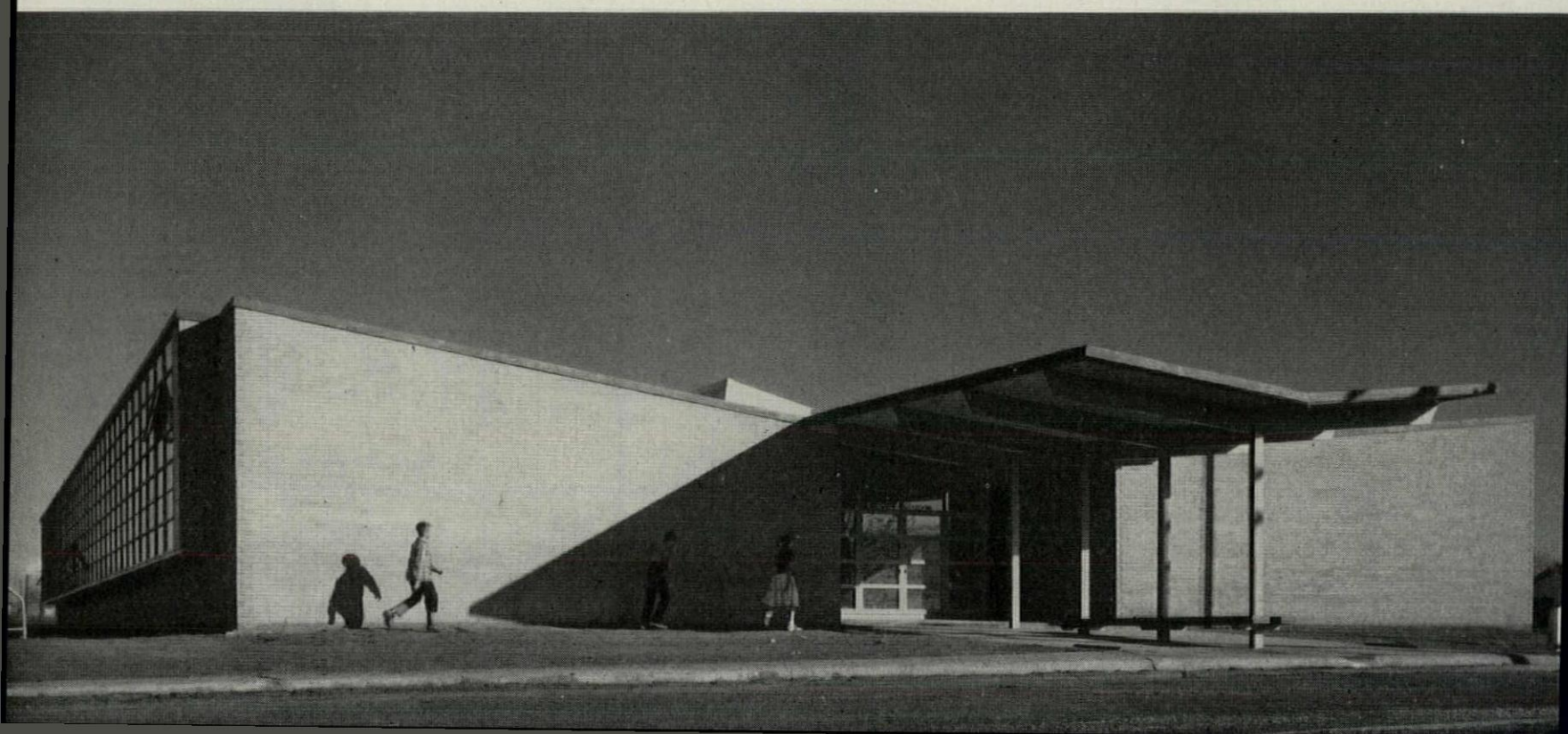


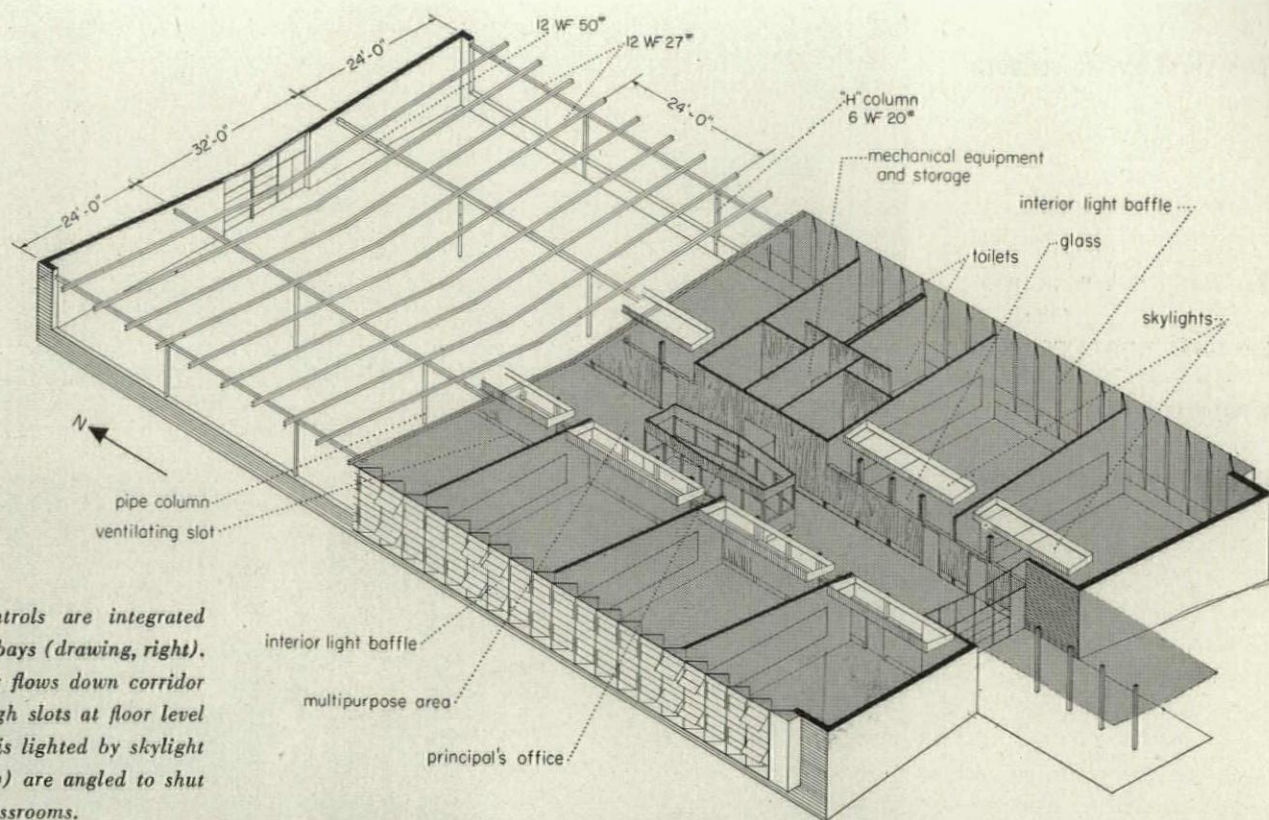
Strip skylights with wooden egg-crate louvers supplement light from classroom windows. Glass-topped classroom partitions bring daylight into corridor.



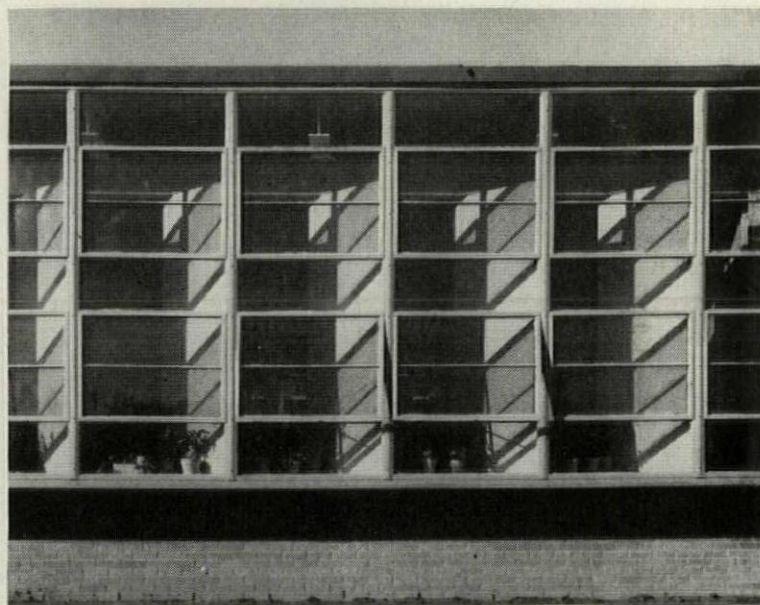
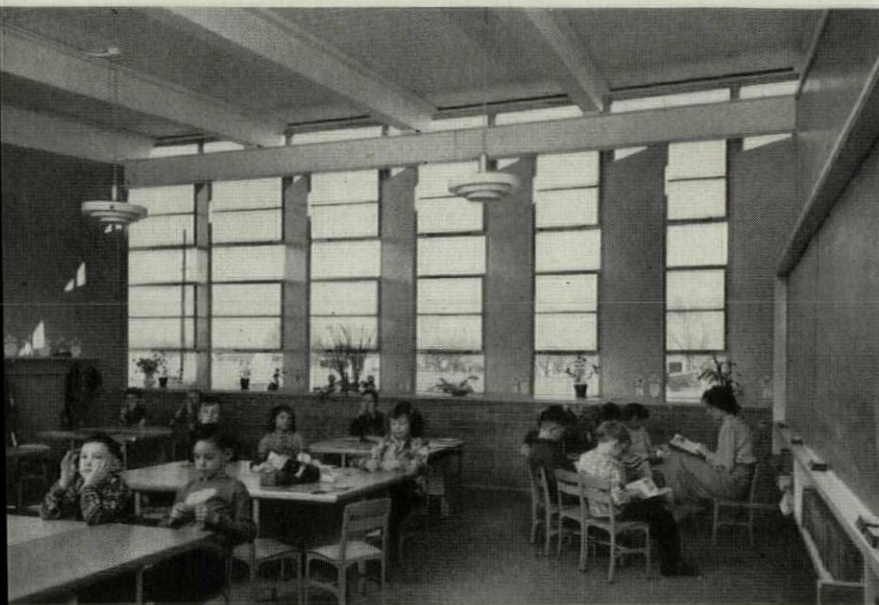
Even with an overcast sky, intensity of light in classrooms is above 30 foot-candle standard and distribution is fairly good (above). Light quality is better than average because baffles control both glare and sun.

Splayed walls of entry facade funnel breeze into corridor





Natural lighting and ventilation controls are integrated with economical structure of repetitive bays (drawing, right). Breeze trapped by funnel-shaped entry flows down corridor and is distributed to classrooms through slots at floor level. Interior classroom and corridor space is lighted by skylight (left). Vertical window baffles (below) are angled to shut out direct sun from east and west classrooms.



through the roof also permitted Caudill to shorten the building and save glazing by putting the long axis of rooms at right angles to the corridor.

Structural features control acoustics

Despite the fact that no sound-absorbing materials are used in the building (to cut costs), teachers report that acoustics throughout are excellent. Sound reverberation is reduced by the combination of vertical window baffles and the sloping ceiling with exposed steel roof beams topped by V-joint sheathing. All these devices help to break up big sound reflective surfaces.

Ventilating slots opening into the multipurpose area have no effect on sound transmission between one classroom and the next but noisy activities cannot be scheduled in this central area while classes are in session. Teachers find that this is not a serious handicap, since most grade school activity is centered in the rooms; the corridor area is used mainly for noon meals, assemblies and other programs involving the whole school.

Factory type framing cuts costs, meets school needs

Repetitive steel framing based on the standard factory bay helped to speed construction and lower costs to \$8.16 per sq. ft. Side bays are 24' x 24' and a 32' wide center bay accommodates skylight framing over the inner ends of classrooms and keeps columns out of the 18' wide center corridor. Walls are merely nonload-bearing screens—longitudinal beams carry the roof load to columns.

This framing system gave Caudill leeway in locating corridor partitions, enabled him to provide a 6' wide working area with sink and counter on the corridor side of 24' x 30' classrooms, directly under the skylights. Main seating area is within the 24' x 24' bay—an ideal shape for flexible furniture arrangement.

Other cost-cutting features include a roof-ceiling of 12 WF 27 beams and T & G planking with lighting conduits exposed, brick cavity end walls unfinished inside, and slab-on-grade flooring with radiant heating. (The compact plan made supplementary heating unnecessary even in cold Oklahoma winters.) Total cost of the 11-classroom school, including kitchen facilities and extensive built-in storage units, was \$96,688.

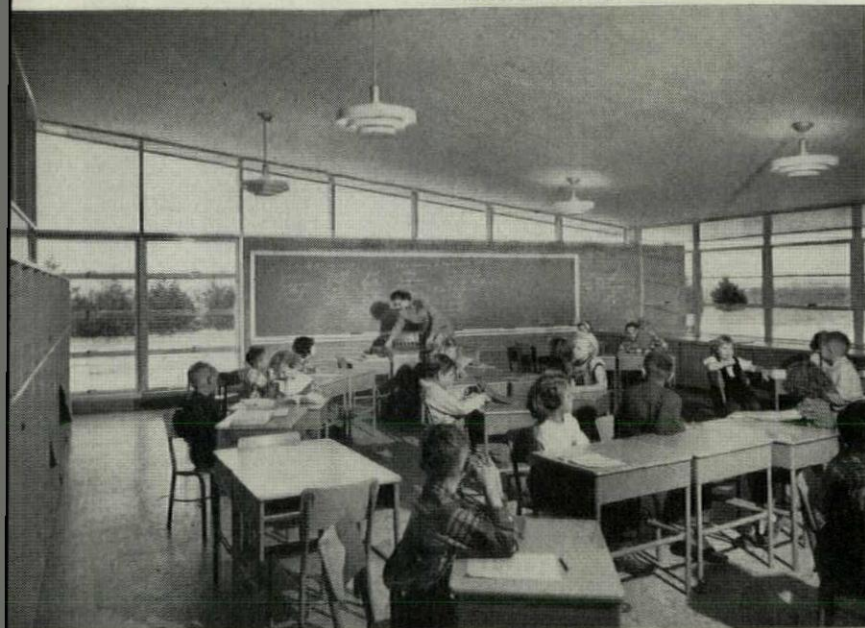
TWO SPACE-SAVING SCHOOLS

2. WASHINGTON SCHOOL,
Clinton, Okla.
CAUDILL, ROWLETT, SCOTT
& ASSOCIATES, Architects
J. W. HALL Jr.,
Mechanical Engineer
HOKE CONSTRUCTION CO.,
General Contractor



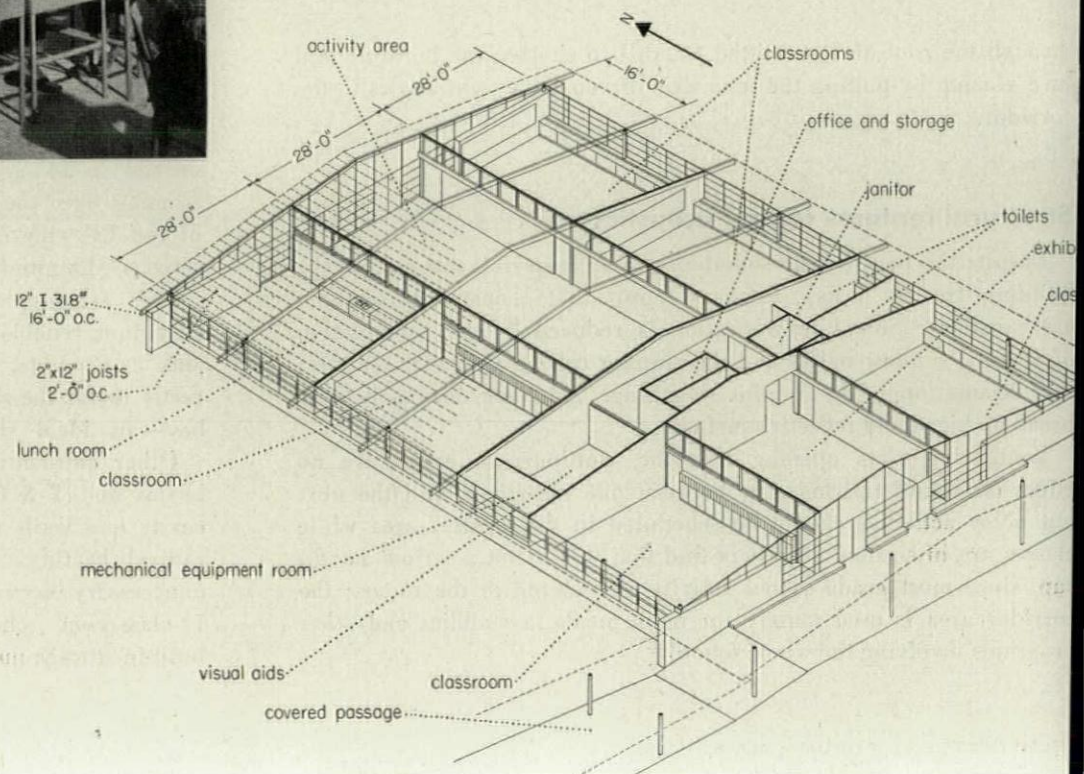
Photos: Ulric Meisel

Gable roof with glassed ends adds to sense of spaciousness in multipurpose central area (above). Stage, backed by principal's island office, permits use of corridor for assemblies and plays. Note heating convectors along walls above doors.



End classrooms (left) get light from three sides, are shaded on south and west by wide roof overhangs. Sky glare is offset to some degree by high over-all light intensity in room.

Wide center corridor (right) serves as secondary light source for middle classrooms, is also used for assemblies, crafts, exhibits and games. Though present cafeteria could be converted to classroom, plan cannot be otherwise expanded without cutting down on light for middle rooms. A duplicate unit will be built for future needs.



Gable-roofed school feeds light and air to classrooms through wide central corridor

This little five-classroom school at Clinton, Okla. shows that a wide center corridor can serve not only as a multipurpose area and a ventilating duct, but also as a secondary light source for classrooms on both sides.

By substituting a gable roof for the butterfly type used at Fairview, the architects were able to create perhaps a more agreeable building shape and to flood the corridor with light from the high glassed ends. So much of this light spills over into classrooms through glass-topped partitions that skylights or other devices for two-sided lighting were not needed—even for rooms in the center. Tests show that intensity in these middle rooms remains above the 30 foot-candle minimum even on overcast days, that distribution is good (less than a 2-to-1 drop in intensity from windows to inside wall).

Wide (6') overhangs of the sloping roof protect east and west facing windows from the sun, except during early and late winter hours. But without other shading devices the ratio of task brightness to sky brightness is not good (1:40). When existing trees beside the building are in foliage this ratio is improved, since light from the corridor side then becomes proportionately stronger. Says Caudill, "Fairview's vertical baffles are more economical and efficient, but we lean slightly to overhangs because of the pleasant

sheltered feeling they give. Efficiency is not enough—a school must also feel good architecturally."

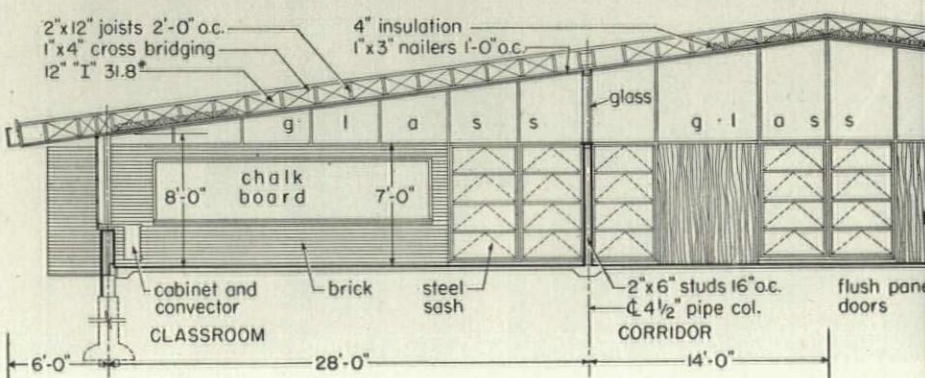
The natural ventilating system for this school is basically the same as the one developed for Fairview. The south wind is scooped into the center corridor through big doors and distributed evenly to classrooms by the braking action of the principal's office island. But because of the shorter corridor length (113' as against 145'), Caudill was able to get a good air flow through classrooms by providing each with two doors instead of a continuous ventilating slot.

Though column spacing is even more uniform than at Fairview—all bays are 16' x 28'—costs were slightly higher, \$8.67 per sq. ft. as against \$8.16. This difference is accounted for by a more plush treatment throughout and a number of extras: a full acoustical ceiling, more built-in storage, a stage in the center area, larger classrooms with long sides exposed and a more elaborate heating system of finned convectors in both classrooms and corridor.

Says Al Harris, Clinton's superintendent of schools, "This is the most comfortable building that it has ever been our pleasure to use . . . The multipurpose room is definitely successful, and we particularly like the lighting and ventilation, the mechanically ventilated audio-visual room and the all-weather play area formed by extending the roof to the south."



Section through end classroom (below) shows how glass is carried up into gable to light central area. Big roof projection on south shades glass areas, shelters outdoor play area. Broad eaves control east-west sun.



Le Corbusier's



Marseilles Apartments

Almost everybody can identify this giant mass of reinforced concrete—450' long, 66' wide and 185' tall—because it has been published and republished from its earliest sketches (in 1945) down to the present in just about every architectural magazine in the world (see Jan. issue '50).

Though still very much incomplete and very much uninhabited, it has already been the subject of at least three complete books, several movies, half-a-dozen TV shorts; it has also been the object of thousands of devout pilgrimages, of vilification as well as adulation, of political, social and esthetic criticism. It has, in short, put its brilliant, 65-year-old designer on a spot to which he has long been pleasurably accustomed: right smack in the center of a tornado.

Debate about Le Corbusier's fabulous *L'unité d'habitation* has now been raging on both sides of the Atlantic for more than five years. And it goes on and on. But when you analyze it, it boils down to only four major issues 1. practicality

pro: con:

"Apartments very cool, very light . . .
very good soundproofing . . .
very good community services . . ."

"Pilotis are useless, add to cost . . .
ceilings are too low . . .
bad odors from open kitchen . . ."

Photos: Lucien Herve



Le Corbusier's building looms large on Marseilles sky line

2. suitability

pro: con:

"Beautiful on Marseilles sky line . . .
Modular proportion on which building is based
produces harmony with human form . . .
plenty of youthful enthusiasm in Marseilles . . ."

"People of Marseilles don't like to live in this type of apartment . . .
it's a social monstrosity . . ."

3. economics

pro:

"An experimental prototype . . .
higher costs due to inflation,
inefficient government contracting . . ."

con:

"We could have built a thousand houses
for the same money."
(Estimates vary from \$5.15 to \$8.6 million total—Ed.)

4. esthetics

pro:

"Sensational . . . lovely . . . graceful . . .
delicate . . . heroic . . . stirring . . ."

con:

"Mad . . . inhuman . . . offensive . . . onerous . . ."

In other words, you can take your choice.

To get to the bottom of this controversy, FORUM's editors and correspondents interviewed specialists and laymen (both in France and in the U. S.) who had seen Le Corbusier's building. Their reactions differ widely, as shown on the next page. Some critics who had supported the modern esthetic in the early days now condemn Le Corbusier's building as socially objectionable—while others (still talking in esthetic terms) praise it as "a major monument of modern plastic art." Some French architects call it impractical and inefficient—while some practical large-scale American builders praise Corbu's efforts to find eminently practical solutions to problems of sound insulation and of the economics of community services. Finally, some Frenchmen and Americans claim that "the people" hate Corbu's building—while at least one competent American observer points out that a large number of Marseillais of the rising generation have been rooting for Corbu all along.

Perhaps the best interim conclusion was drawn by a young French newspaperman who said "this is a place built around a theory." The future will tell whether or not Corbu's theories on society, construction and esthetics can stand the test of time.

Prendergast: "The building is sensational . . . It rises suddenly and dramatically . . . the concrete looks white and cool, the colored panels lovely . . ."

Labro: "It is inhuman, offensive and onerous."

Hitchcock & Johnson: "If it is not Le Corbusier's masterpiece, (then) it is at least the brilliant failure of an epochal architectural genius, as is so much of Michelangelo's architectural production . . . this is truly a major monument of modern plastic art . . ."

Zeckendorf: "The Marseilles job is, of course, too much custom built, and production would have to be speeded up to suit American investors. Corbu's great contribution, however, lies in his pioneering . . . his critics are mostly living in an antediluvian world."

Claudius-Petit: "Because of its concept, the building draws attention to new theories of social habits. The extent of the current debate shows that this result (i.e. getting people interested in advanced ideas—Ed.) has been attained."

Gurney: "Le Corbusier was very conscious of the problems of sound. He isolated each apartment from the next, built flexible connections to plumbing stacks to cut down noise transmission that way. I'll be most interested to know how this will work out."

Pei: "The deep, narrow apartment units offer extraordinary spatial qualities, which must be seen to be appreciated . . ."

Labro: "They give one an impression of being crushed and suffocated . . ."

Gurney: "I think they are very cheerful. I never got the feeling of being hemmed in."

Prendergast: "I think the terrace is really useful . . ."

Gurney: "I was disappointed in the balconies—they seem too tight . . ."

Carrefour: "The pillars on which the building rests are useless and add to the cost . . ."

Prendergast: "(Yet) they make the whole place light . . . Although probably twice as big as the conventional looking apartments currently being built in the old port area, Le Corbusier's building looks only half as big . . ."

Gurney: "I think the shopping street halfway up the building might work in France. It would never work here—our storekeepers would need more than 330 families to support them."

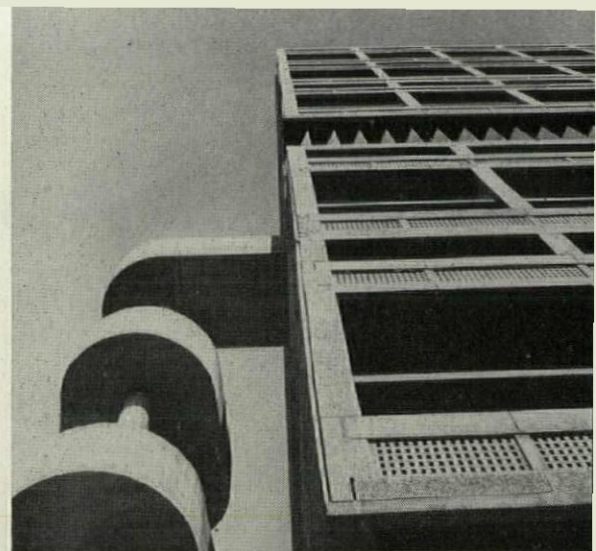
Rasmussen: "Everything has been worked out for (the inhabitants), artistically as well as technically—except how children are to develop in such surroundings."

Gurney: "Well, the nursery school on the roof is a very good idea. It utilizes space that you've got to pay for anyway. Separate nursery schools certainly don't work from an investment point of view . . ."

Zeckendorf: "By conceiving a simple, cellular grid Corbu made it possible to think and deal basically in units, and his building is handsome too."

Pei: "It is excellent proof of most of Le Corbusier's important theories concerning his 'Vertical Garden City.'"

Hitchcock & Johnson: "This great structure emotionalizes the rationalism of its general planning with a free and even arbitrary use of plastic forms . . . (it) illustrates the artistic vigor of modern architecture in the mid-century."



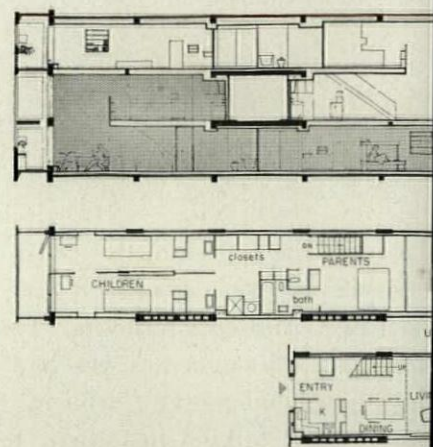
Firestair from shops halfway up the building

Magnum Photos Inc.



Corbu at Marseilles

Apartment section and plans below



Comments above by: CARREFOUR — Paris Weekly, which commented on Marseilles in Feb. '52 article; G. HARMON GURNEY, Chief Architect, New York Life Insurance Company; PROF. HENRY RUSSELL HITCHCOCK, Director, Smith College Museum of Art; PHILIP C. JOHNSON, Director, Department of Architecture & Design, Museum of Modern Art (Quoted from "The Buildings We See" by Hitchcock & Johnson, published in NEW WORLD WRITING by The New American Library of World Literature, Inc.); GEORGES LABRO, Architect, Professor at the Beaux Arts in Paris; I. M. PEI, Architect, Webb & Knapp, Inc.; EUGENE CLAUDIUS-PETIT, French Minister of Reconstruction; CURTIS PRENDERGAST, TIME INC's Paris Bureau; STEEN EILER RASMUSSEN, Danish Architect (quoted from "Towns And Buildings," The University Press of Liverpool); WILLIAM ZECKENDORF, President, Webb & Knapp Inc.

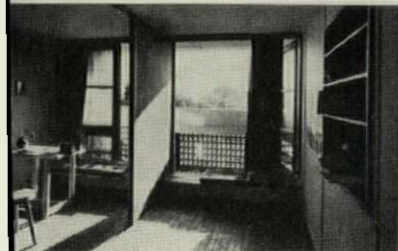
**Everybody is talking
about Le Corbusier's building,
but nobody knows very much about it.
Here are the facts:**

about the building itself . . .

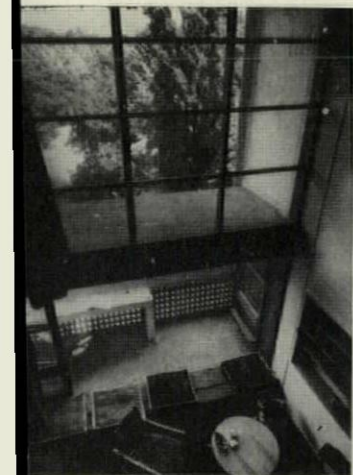
- ▶ The building is 450' long, 66' wide, 185' high.
- ▶ There are 15 floors for living, two for community services (incl. numerous stores, doctors' offices, a library, lecture hall, hotel, restaurant, club rooms), an open ground floor (only the lobby is glass enclosed), full basement for storage, etc., and on the roof, terraces, elevator pent-houses, a gymnasium and a big indoor-outdoor nursery.
- ▶ It has 337 apartments of 23 types, mostly duplex (see section) and inside a 13'-10" wide, 65'-10" long sliver of space with balconies at both ends.
- ▶ Typical apartment has three bedrooms, play space, living-dining-kitchen area, inside baths and toilets.
- ▶ It has five elevators, three interior stair wells, exterior fire stairs, chutes to its own garbage disposal plant, and a detached garage elsewhere on the 9-acre site.
- ▶ Parts of building are air conditioned (apts. also have natural cross ventilation) and ice is delivered to kitchens from central refrigeration plant.
- ▶ Basic structure is cage of concrete columns and girders. Apartments are inserted into cage as if it were bottle-rack, rest on lead pads to prevent transmission of sound from floor to floor, apartment to apartment. Plumbing fixtures in each unit are attached to vertical plumbing stacks with flexible connections, to prevent sound transmission via pipes. Most nonstructural building parts and panels were prefabricated.
- ▶ Side walls of balconies are painted in brilliant reds, yellow, blues, browns and greens.

about the project . . .

- ▶ It was initiated in Aug. '45 under French minister of reconstruction. Present minister: Claudius-Petit, a Corbu backed by Francois Billoux, Communist deputy to National Assembly from Marseilles who later became minister of reconstruction. Present minister: Claudius-Petit, a Corbu fan and a former cabinetmaker.
- ▶ Plans were accepted in June '46. Ministry of Health objected to low (2.26m) ceiling height, fire inspectors demanded three more stairs, military authorities said air-intake vents would inhale poison gas in case of attack (Le C.'s answer: put gas masks over the vents!). Finally, building permit was issued outside regulations.
- ▶ Fencing of property started late '47, construction in Jan. '48. Trouble from the start was financing. Original figure was 353 million francs, crept up to estimated two billion or more at present (some reasons: 300% inflation since '48, bungled government material buying).
- ▶ According to competent observer, building progress is not bad for France. ("There's a general air of activity about the place—250 workers on the site itself—in contrast to the normal pace of French building, where there's an air of everyone perpetually out to lunch . . .")
- ▶ Building is 80% complete, will be finished by year end.
- ▶ Apartments will be sold with French Government subsidy. There will be down payment, installment charges, periodic maintenance charges. Building was intended for bombed-out French families—but price of apartments (average 4.2 million francs) is steep for most of them. Ministry of Reconstruction asserts there are "plenty" of applicants, nevertheless.

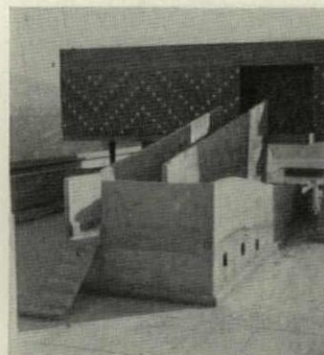
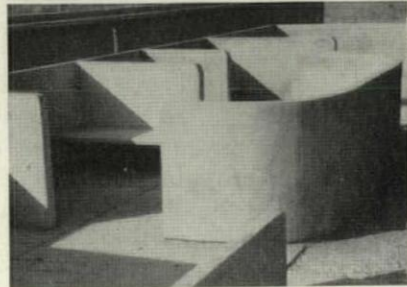
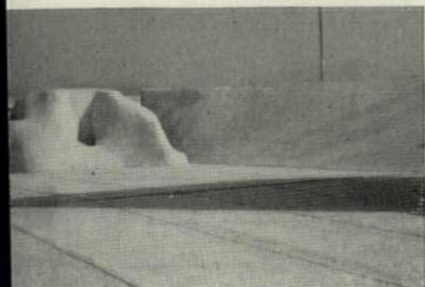


Children's rooms and balcony

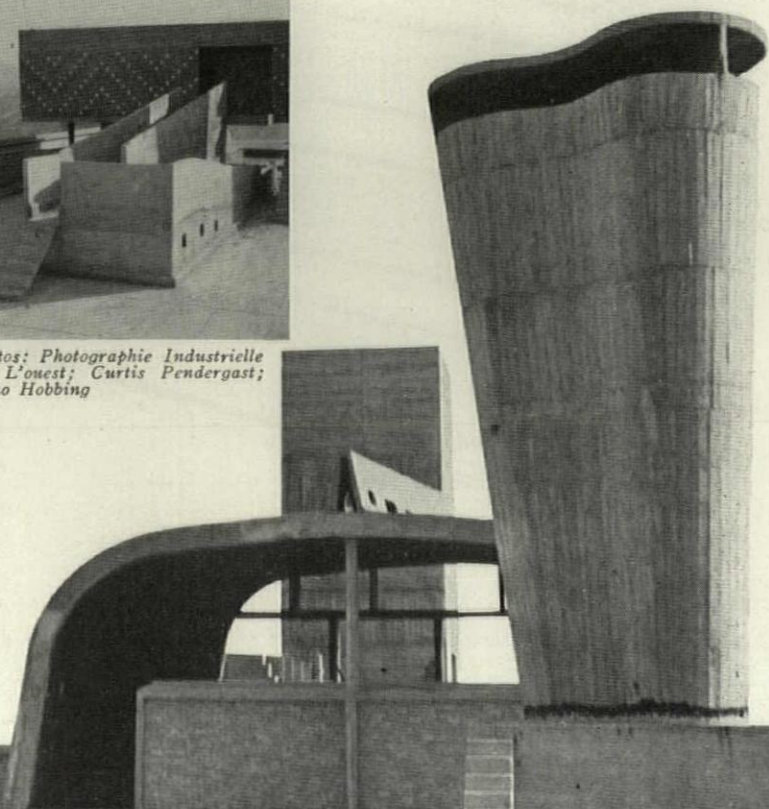


Two-story living room and large balcony

Roof has nursery, miniature mountain range for kids, auditorium, gym, cinder track



Photos: Photographie Industrielle De L'ouest; Curtis Pendergast; Enno Hobbing

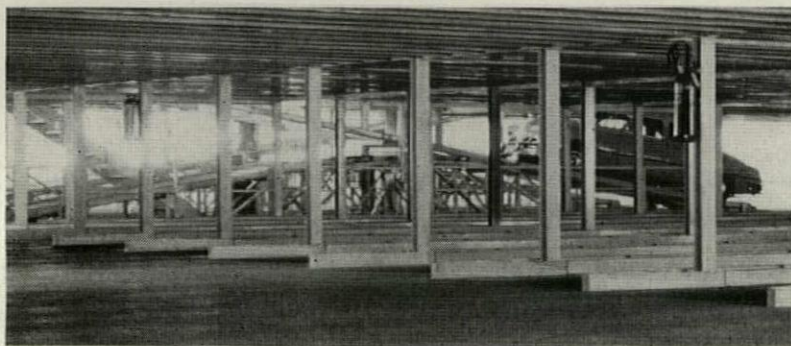




ROOF

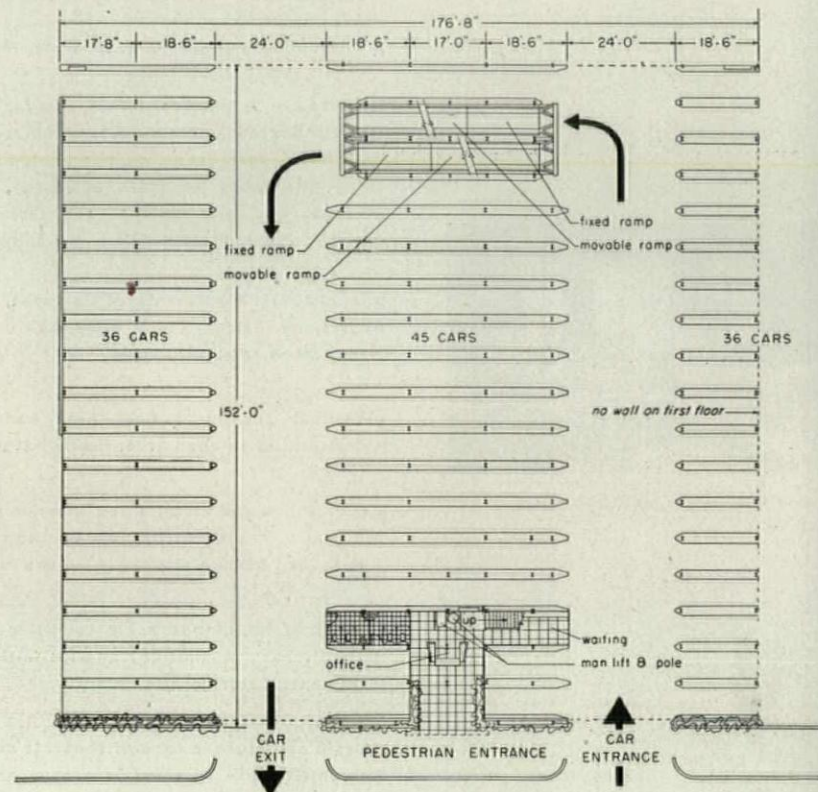


SECOND FLOOR



RAMP

LOCATION: Beverly Hills, Calif.
PEREIRA & LUCKMAN, Architects
MULTI-DECK CORPORATION OF AMERICA, Engineers

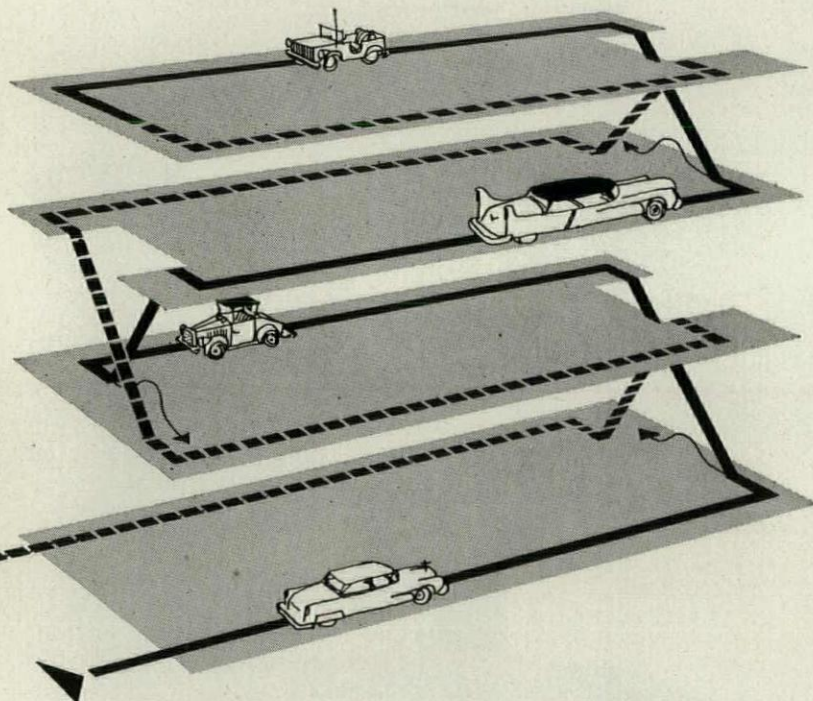


PREFABRICATED PARKING GARAGE . . . density up 20%, costs down to \$793 per car

thanks to modular bolted-steel construction,

drawbridge ramps and

lightweight nonfireproofed frame



Each level has two 29' parallel driving aisles with cars parked two deep on either side and three deep between them. Drawbridge ramps permit cars to be driven either up to next level, or across to the opposite aisle on the same level.

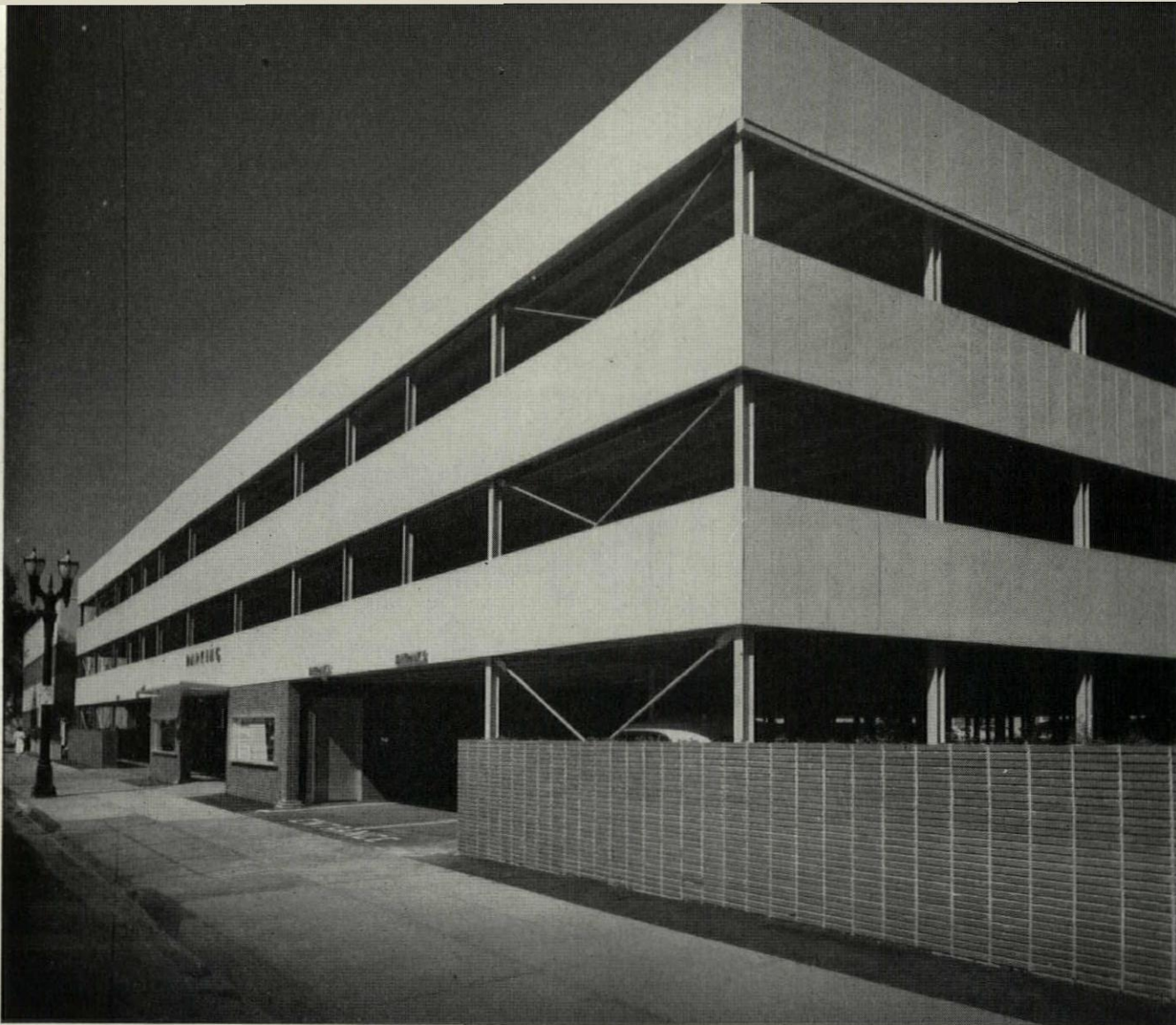
This four-level structure is a 412-car parking garage which has set many new construction and operating records:

► *It went together with the ease and speed of an erector set*—four men and a crane crew bolted the 600 tons of modular steel parts together in only 15 days. The entire open-walled building was completed in 60 days.

► *It parks its cars in a minimum of space*—special guide rails, light narrow columns and hinged ramps reduce the over-all density 20% to 230 sq. ft. per car, providing room for 48 more cars per day.

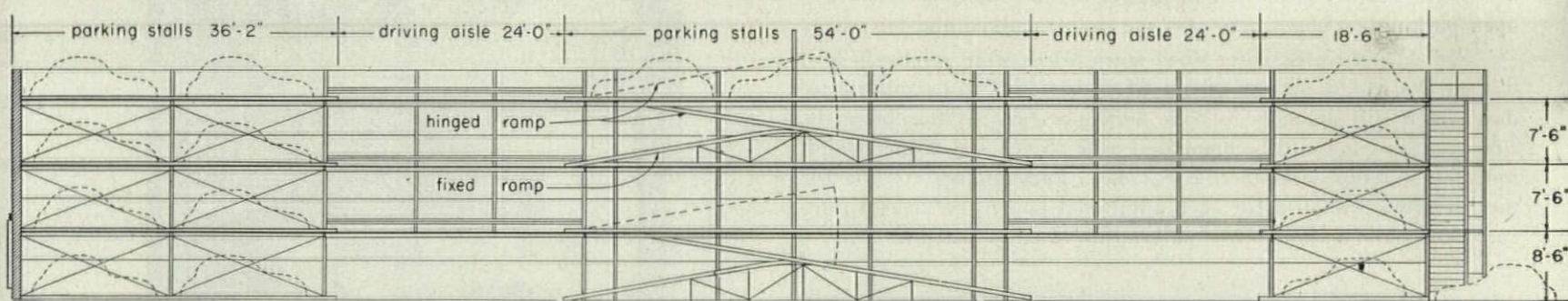
► *It parks and delivers cars in a hurry*—thanks to conveyor belt lifts, firemen's poles for the garage staff, and a roller device which the owners assert permits a shorter turning radius and faster, safe driving onto the ramps; 10 to 12 attendants can park or deliver cars in less than 90 seconds each.

► *It cost relatively little*—the combination of no fireproofing and careful use of space saved weight and permitted lightweight modular construction which reduced costs to only \$3.50 per sq. ft.



Only 23½' high, this four-level structure parks 412 cars where previous parking lot capacity was only 109. Spandrels are faced with architectural porcelain.

Drawbridge ramps, hinged at the upper level, can be lowered to connect with a "humped" ramp for cars to proceed from deck to deck. When ramp is raised cars go through to opposite side of the same level. Section is drawn through the rear half of the building.



or \$793 per car (pre-Korea rates)—\$1,000 less than the going rate for standard multistory garages in Los Angeles.

► *It is almost 100% re-usable*—its prefabricated parts, bolted together, can be quickly taken down and reassembled as the use pattern of a city dictates.

► *It is as handsome as it is efficient*—it won an honor award in the 1951 AIA competition.

Building ordinances in Beverly Hills require that 1 sq. ft. of parking space be provided for every 4 sq. ft. of rentable office space in all new buildings. Thus investor-developer George Cordingly, who owns seven medical buildings in the immediate neighborhood, could not build any more as all his vacant land was covered with mandatory parking lots. This four-deck garage permitted him to use a parking lot across the street for another medical building. Further demand for parking space came from the neighboring Beverly Hills business district and a large shopping center.

Light weight, simplicity and ease of construction are achieved by

six basic modular prefabricated parts designed by engineer Ellis E. White:

1. *Drawbridge ramps*: Counterbalanced ramps, electrically or manually operated and consisting of a pair of narrow steel troughs (16" wide, 5" deep, 3/16" thick) securely guide the ascending or descending car from floor to floor. They are hinged at the upper level and in the down position meet with a "humped" ramp 3'-9" above the lower level. When the drawbridge ramp is raised, cars proceed over the hump to the other driving aisle on the same level. The hump is of steel truss construction supporting the same type of steel troughs as the drawbridge ramps, and working in conjunction with the latter, permits ascent and descent on a 16% grade.

2. *Wheel aligner*: At the entrance and exit of all ramps a converging roller bed "finds" the 16" troughs for both front and rear wheels of the car. The rollers are solid round steel bars 2 7/16" in diameter actuated solely by the forward motion of the car.

3. *Aisle sections*: The two parallel driving aisles are built up from 29' x 8'-4" prefabricated floor sections. Each section consists of

standard 10" junior beams on 25" centers and welded to 1/4" non-skid checker floor plate. End beams are 10" 6 1/2# channels, to mate with identical stall channels—back to back.

4. *Stall sections:* Cars are parked on pairs of steel U-beams (about 17' long, 16" wide, 8" deep and 3/16" thick), being confined by 5" high guard rails. The 2' walkway between cars and the flooring beneath car tracks consists of light 16 gauge steel sheet. Thus the only loaded portion of the stall floor is the relatively narrow pair of tracks designed for this load with the advantages that 1) the greater part of the floor can be constructed from low cost light-weight sheet metal, and 2) car fenders are protected against careless parking.

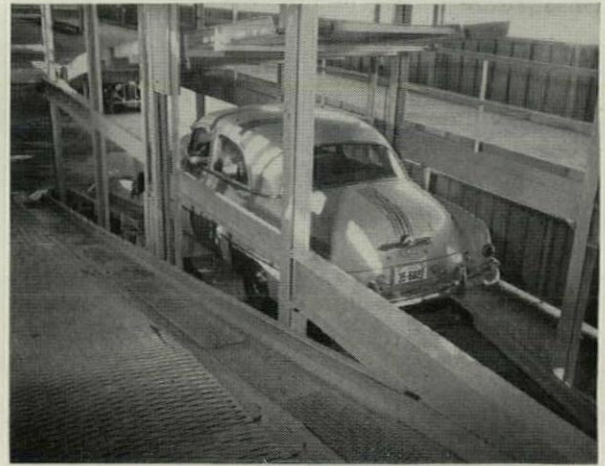
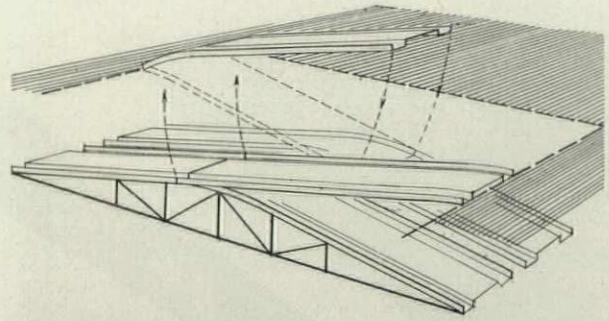
5. *Columns:* Thanks to the lightweight construction, the 5" H-section 15# columns (on 8'-4" centers one way and 17'-29' the other) support the entire structure. Floor-to-floor heights are 8'-6" for the ground level and 7'-6" for the other two.

6. *Man lift:* A vertical moving belt with alternate footrests and handholds takes garage staff to upper floors. Firemen's poles for descent are staggered at each floor.

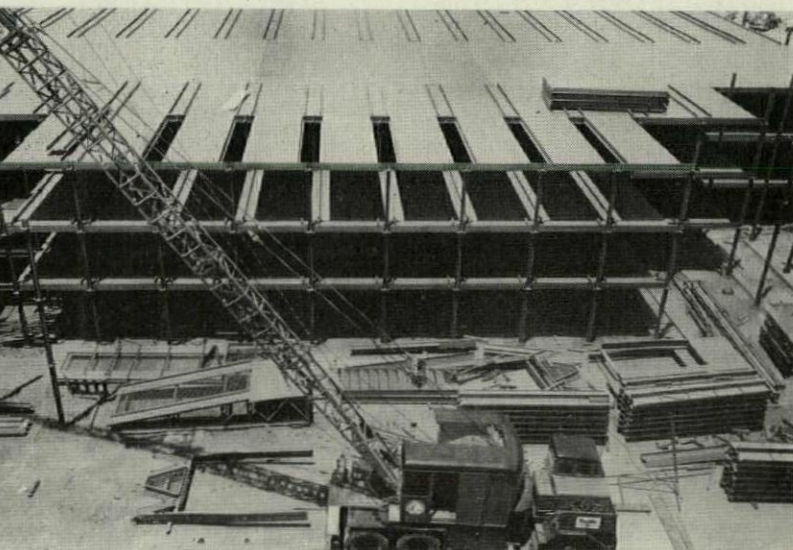
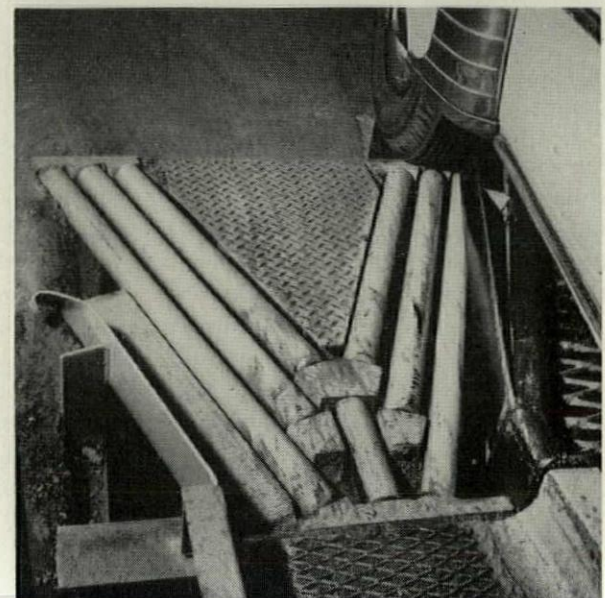
Main feature that saved space and weight, erection time and money in this garage was its nonfireproof construction. Steel columns and floor members are left entirely naked (though eight portable fire extinguishers are placed on every level). This construction was made possible by a modification of the local building code, whereby an open parking garage, selling no gasoline and with adjoining buildings at least 20' away, need have no fireproofing around structural members. (Partial fire walls are required where any adjoining building is closer than 20'.)

Most cities consider garages a fire hazard. In New York, for instance, all garages are classified as Class I buildings requiring a minimum of 2" concrete around all structural members. Repair garages and filling stations are no doubt fire hazards but building officials in Beverly Hills believe that codes can safely be relaxed in open parking garages where cars are simply parked and left alone.

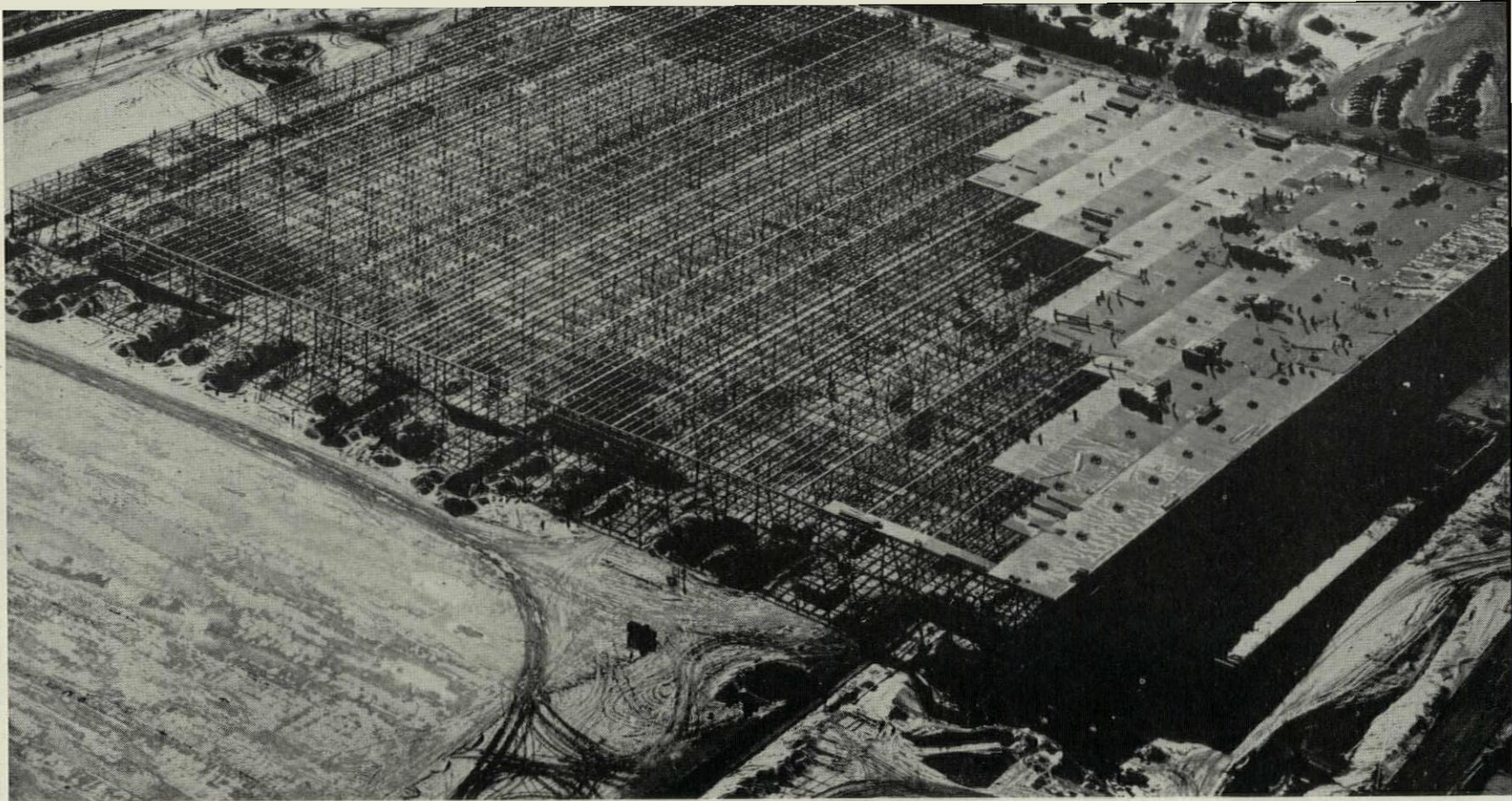
Based on pre-Korea costs when steel prices were relatively low, this garage would come to about \$4.25 per sq. ft. to duplicate today, which still amounts to only \$950 per car. At this price the first cost per car could be amortized over 25 years at \$5 per month including interest—less than 20¢ a day. Parking fees are 35¢ for the first hour with 10¢ for each additional hour, plus special rates for doctors and an hour's free parking for doctors' patients.



Ramps are prefabricated of a pair of 16" wide steel troughs to take car wheels, separated by light-gauge sheet steel. Drivers are assisted in "finding" wheel troughs by a bed of converging rollers actuated by the forward motion of the car, providing safer operation and a shorter turning radius.



Built of 600 tons of prefabricated steel parts, the building was bolted together in only 15 days, fully completed in three months. This photograph was taken only six days after setting the first steel column.



AIRCRAFT PLANTS

Another look over the shoulder of
Albert Kahn Associated Architects
and Engineers reveals:

- ... a new low-maintenance plant
for 50-year stand-by
- ... a complex new building problem:
the test cell
- ... new ideas in hangar design

The \$4 billion aircraft industry, which started only 49 years ago in a bicycle shop, is, at the moment, expanding its plant faster than any other industry in the U. S. The qualification—*at the moment*—is of more than usual importance in any reference to the aircraft industry. For aircraft has from the start been a feast-or-famine industry, dependent as it is on government largesse and the harsh market of war. This fact is the first of many that sharply distinguish the aircraft industry's building requirements from those of any other industry.

If a Washington decision on foreign policy or a Congressional decision on government spending can sharply affect the amount, kind and location of aircraft plants built, design innovations within the industry have the same lightning-like effect. Within the last 25 years, the switch from the wood to metal air frame, F. B. Reuschler's confidence in the radial air-cooled engine, the development of aluminum foundry processes (to name a few examples) have launched both the great consolidated manufacturing operations which dominate the field today and completely new types of building programs.

Right now building for the aircraft industry is shaped both by a military timetable and by a major technological change.

The timetable is new: In February Administration policy makers set 1955 as the deadline for expansion of our Air Force to a maximum strength of 143 wings. This revised target date (the date for full readiness had been set originally as 1953) means, among many other and more complex things, that we probably will not build any more huge aircraft assembly plants like those built in World War II. Present aircraft assembly space is considered enough to take care of the production rate needed to meet this lengthened timetable.

The major technological change is at least five years old: this is the advent of the jet engine (and the atomic-powered engine is already looking over its shoulder). The jet engine plus our preparedness timetable means that the present expansion in aircraft production facilities is occurring primarily in engine manufacturing space, with a lesser amount of new building underway to take care of a variety of component parts.

Increased emphasis on engine manufacture has produced the first radically new building type industrial architects and engineers have had to deal with in a generation. This is the engine testing cell, only yesterday an open shed at the edge of a flying field, now an extraordinarily complex structure which may cost more than \$500,000 and whose design has pushed architects and engineers to the very outposts of research in structure, in acoustics, in materials (*see p. 152*). Does this design problem sound remote from the paths architects customarily tread? Only one small element of this research has already, in the work of the Albert Kahn firm, paid off in a more exact way to locate vertical expansion joints in walls.

Co-ordination at a zenith

But probably more important than such small but specific increments in our design know-how is the working pattern which this new problem imposes upon the team of design specialists who are confronting it. Industrial building has always called for a close co-ordination of architecture and all the engineering specialties. In the design of the test cell, this close relationship is raised to a kind of zenith: How do you muffle the intense noise of high- and low-frequency sound waves? Do you do it by folding a concrete structure to change the air path with acoustic treatment lining the air tunnel? Or do you do it by applying acoustic materials in ribbons of blocks or by other media still in research? How do you handle air temperatures up to 3,000° F.? Do you introduce mechanical cooling devices? Or do you devise a structural system which in itself is heat resistant?

If these highly specialized questions lead you to conclude that the architect is left on the sidelines by the engineers in the problem of the test cell, reflect on this interesting fact. The new test cells Pratt & Whitney are building at their plant in East Hartford (*see p. 154*) were cut down in number by an architect's insight in the use of space. The architect's provision of a number of "dressing" rooms, in which engines are readied for test, helps make it possible for Pratt & Whitney to increase the number of engines it can test in each cell. Since one engine manufacturer estimated that it costs \$400 per minute to operate the elaborate control equipment used in these cells, this kind of space planning pays off in more than initial construction cost.

100,000 tests per engine

Because the Albert Kahn firm has been designing for the aircraft industry since the U. S. built its first aircraft hangars in 1917 and has its name on many of the famous aircraft plants of World War II, the work now on the drawing boards in this great Detroit office offers an excellent view of the highly variable building requirements of this industry. Having grown up with the auto industry, the Kahn firm was able to lend a helping hand at the birth of aircraft mass production. But Kahn men are the first to point out that aircraft production differs from any other kind of mass manufacture in its extreme requirements for precision, strength and quality control. As compared to other kinds of production, aircraft manufacture demands: 1) more machining; 2) a much larger number of inspections and tests—more than 100,000 tests are made in producing a single aircraft engine; 3) many more cleaning operations—most of these are kerosene cleaning and demand special fire protection systems; 4) a workable system for keeping track of every single piece of material, so that its identity can become part of the quality control record of each engine or propeller or other part. Requirements like this could easily balloon a manufacturing plant to fantastic size. This has not

happened because the Kahn architects worked step by step with manufacturer on layout studies to put space to multiple use.

Today's fast-moving aircraft industry breaks down into three major manufacturing branches. It makes:

Engines with the delicate fit of a jeweled watch and the power of a locomotive.

Propellers as wide as a room, with complex hubs.

Air frames with wings that span a city block. All of these are built to close tolerances on a mass production basis.

Engine manufacture requires a machining and assembly plant, plus a variety of facilities for carburetor testing, experimental testing, production testing and development laboratories. The large number of tests require a big gasoline and oil farm (one engine manufacturing plant is supplied fuel by a train of 100 tank cars a day; jet engine tests use a barrel of fuel a minute). Sometimes owners build magnesium and aluminum foundries nearby.

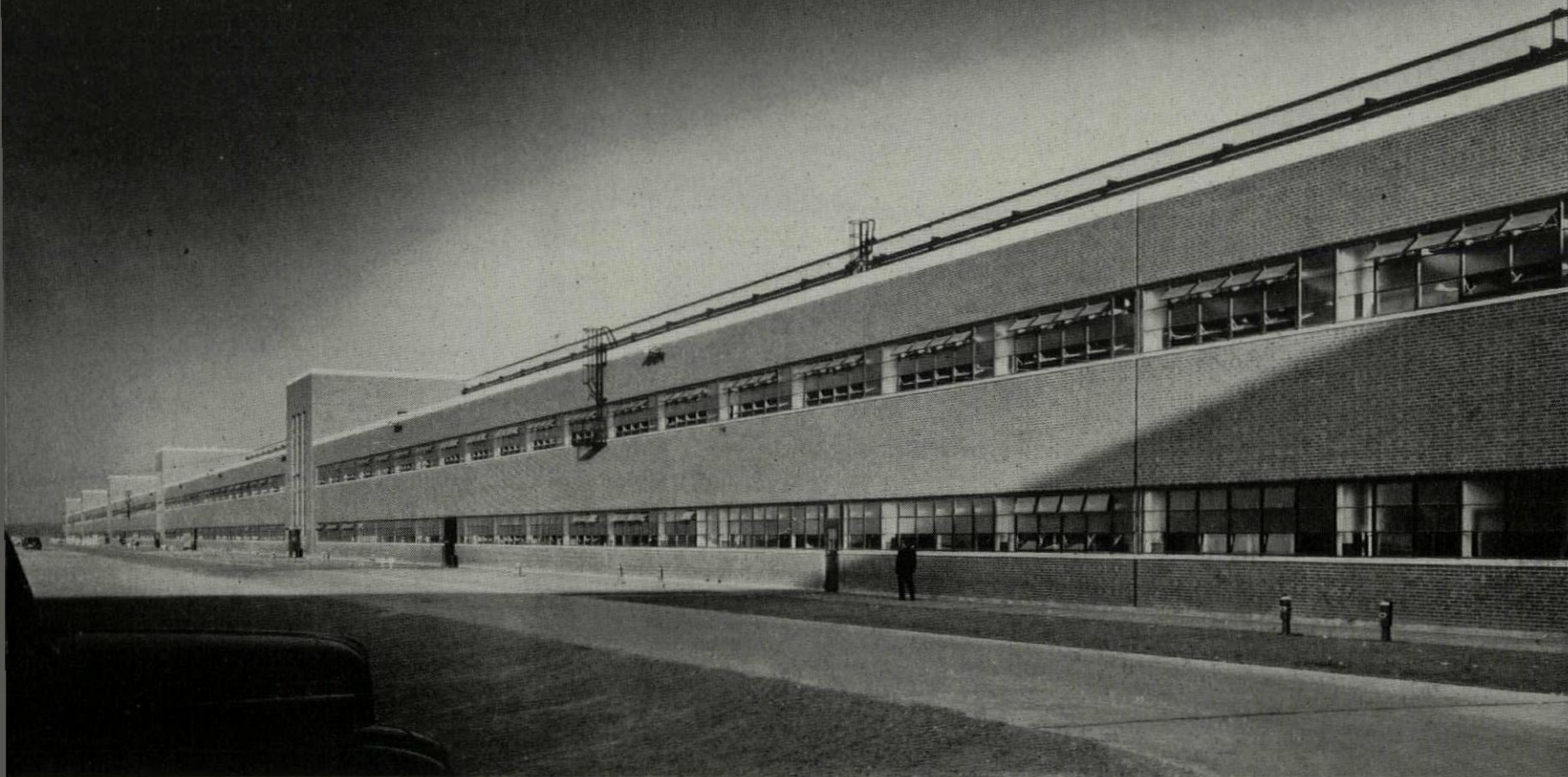
Propeller plant layout may revolve around either woodworking or aluminum forging and machining, depending on the product. Propeller test cells are required.

Airplane assembly plants are, of course, the spectacular big-span buildings. Glenn L. Martin's 300' span plant is a famous example. Where frame manufacture and final assembly are all under one roof as at Willow Run, these plants must include press and machine shops, storage of engines and propellers, sub-assembly lines, and final assembly. In the final assembly area (where dwarfs work inside the parts to mate the subassemblies) clear span and height are set by the wing span and tail clearance plus the crane services required for the hoisting of the completed plane. Assembly plants are also equipped with flight hangars (*see p. 156*).

Plant for 50-year stand-by

While defense plants built to date are practically all privately owned, direct government building is accounting for the majority of the aircraft engine plants now on the boards in the Kahn office. These plants show some interesting differences from the "five-year" plants of World War II, when the world's biggest plant (Chicago Dodge) used manually operated sash. While security considerations bar publication of these new government plants in any detail, it is interesting to note that they are designed for a theoretical life of 50 years and for a minimum of maintenance when they are taken out of production and placed in stand-by status. The thinking back of this kind of building is that we may need such permanent military production facilities for the rest of our century, and that they must be designed for many starts and shut-downs over this period. The goal is immediate reactivation at minimum cost. This approach has dictated the use of the most durable materials. Item: plants will be windowless to save the expense of washing and replacing glass. Their sponsoring agencies believe that top-quality construction will save money for the taxpayers in the long run and point out the incontestable fact that maintenance and rehabilitation bills during and after stand-by status can amount to dollars for every penny pinched out of initial construction cost.*

* Many a private owner might be impelled by the government's example to brush up on this old building maxim—if it were not for a paradoxical tax situation. While government builders can emphasize spending on initial cost and saving on maintenance, the private owner is encouraged by the tax laws to do just the opposite.

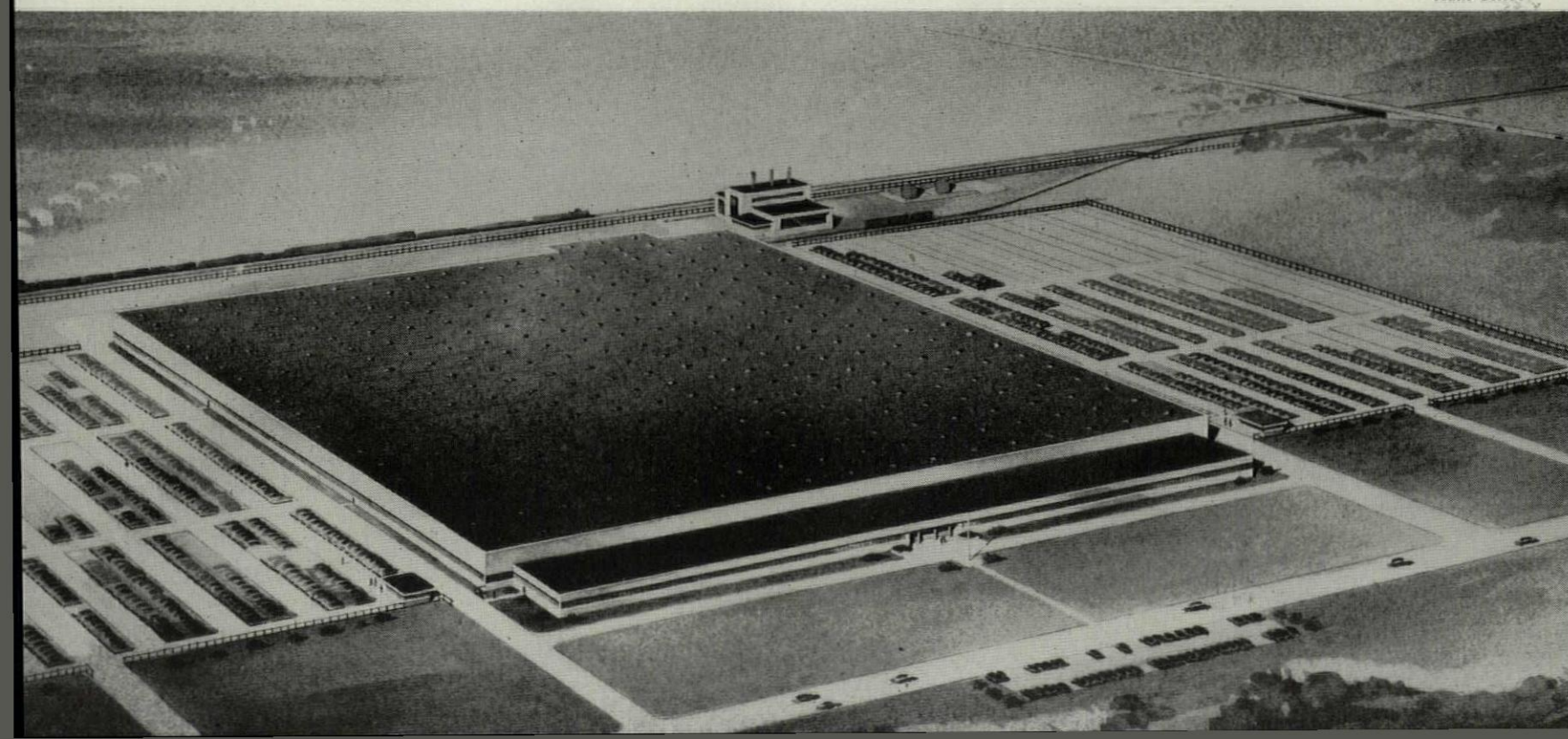


Hedrich-Blessing Studio

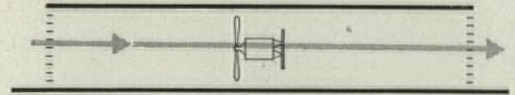
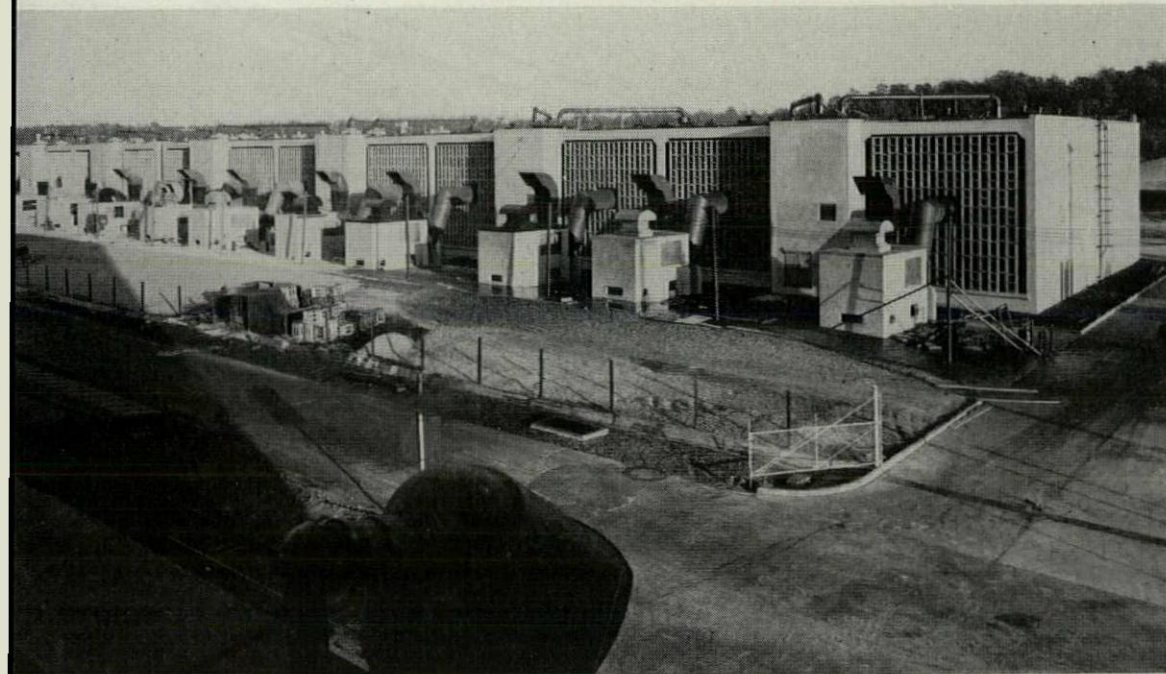
NO MORE HUGE ASSEMBLY PLANTS like the famous Willow Run will be built—unless policy decisions reshift the target date for our Air Force build-up. Willow Run is the plant where the Ford Motor Co. broke down production of the B-24 into three subassemblies: the tail, center section and nose. Three points of mating were set up where these three major subassemblies were wired and hooked together. In final assembly, each B-24 moved down a line the width of a 150' building. Kahn architects had to stretch their plans for this plant out like an accordion as the program was changed from parts manufacturing to both manufacturing and final assembly. One Willow Run building is in use today as Detroit's air terminal; the rest are occupied by Kaiser-Frazer.

NEW PLANT FOR PRATT & WHITNEY Aircraft Division, United Aircraft Corp. will house some of the engine parts manufacture now underway at Pratt & Whitney's main plant in East Hartford. Another United Aircraft division, Hamilton Standard, is moving to a new plant at Windsor Locks, Conn. In the Hamilton Standard plant, an underground entry tunnel has been built so that it can serve as an emergency air raid shelter, with 500 lb. structural strength over the tunnel compared to a normal 150 lb. No transformers or other electrical equipment have been put on the plant roof—they are housed in a separate building. Total plant area is 800,000 sq. ft.

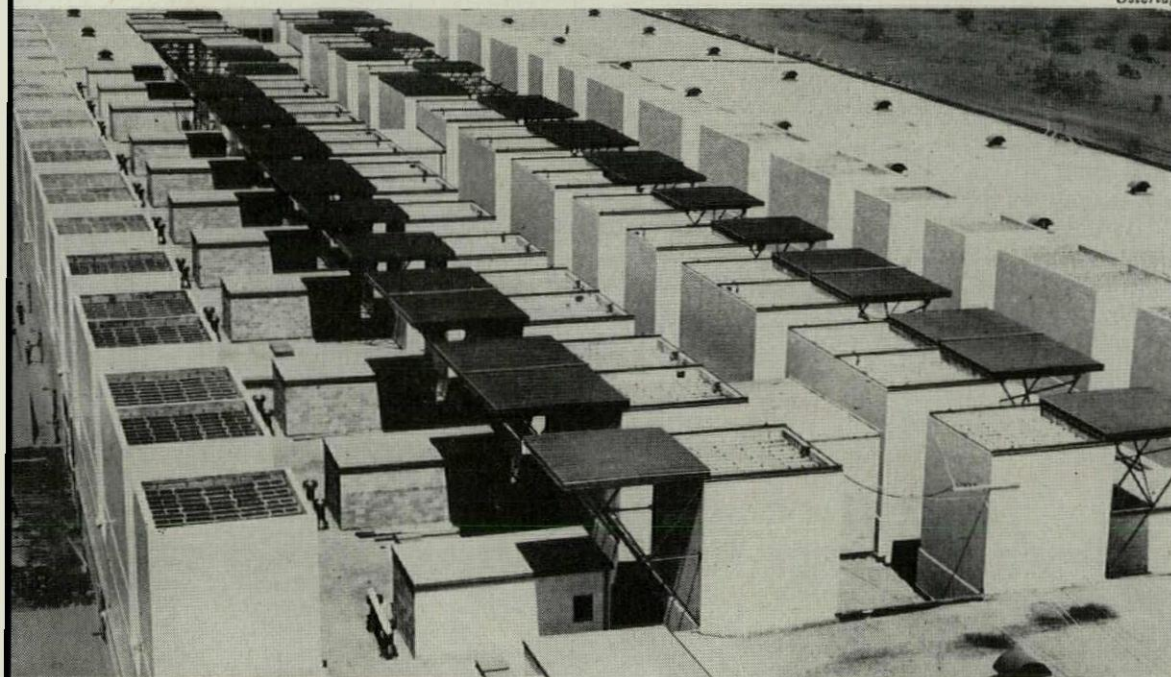
Multi Color



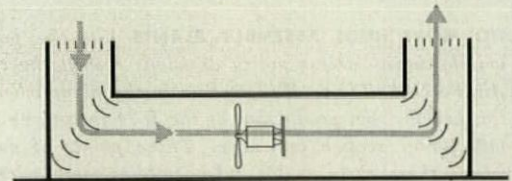
TEST CELLS are the item most in demand in today's booming aircraft building market



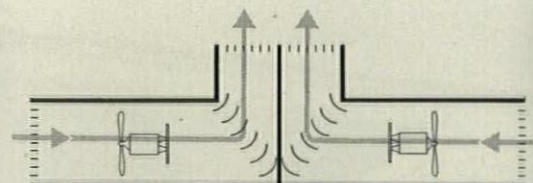
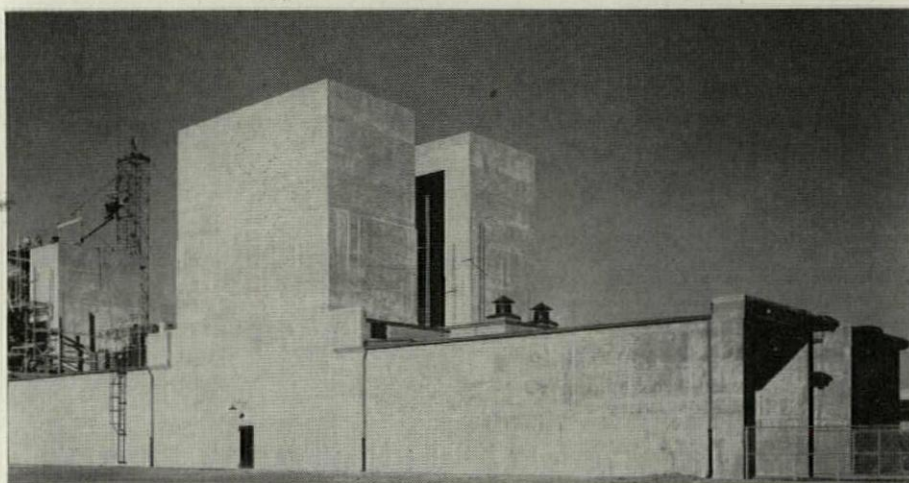
HORIZONTAL CELLS built to test reciprocating engines by Wright Aeronautical Corp. at Wood Ridge, N. J. are 30' high. Even the one-story high blocks housing the fans which supply air to cool the engines are dwarfed by comparison. Note pipes on roof of cell which supply carburetor air through ram blowers. The checkerboard visible at the front of the cell extends 20' back into the intake chamber. It is a stonelike material used to absorb sound. New designs have abandoned this kind of soundproofing because it takes up too much room in the cell and is not suitable for new requirements.



Osterlag



U-SHAPED CELLS were built by G-M's Chevrolet Motor Division at Tonawanda, N. Y. Air intake stacks with movable roof covers are at center. Exhaust stacks are outside, have no covers but do have vertical curtains to keep out cold air during engine set-up. World War II cells like these were usually built round inside, on the theory that eddies in corners of the cell would distort the air flow around the propeller. This shape made it necessary to support the engine by radial cables. Now cells are built square and steel baffles are used to direct the air flow around the corners (see drawing, p. 154).



L-SHAPED CELLS in a double pattern are one type of cell built by Pratt & Whitney Aircraft at its huge plant at East Hartford. This simple pattern of air flow can be compared with the folded stack Pratt & Whitney are now building (p. 154). Conversion of cells like these, designed to test piston engines, is a booming item in current aircraft building. Kahn men say it can often be done for half the cost of building a new cell.

Their design explores new frontiers in pressure, temperature and sound.

In the jet engine testing cell, structure is pitted against stresses and temperatures seldom encountered at the rim of the earth. Jet thrusts have already gone beyond the range of credibility: only yesterday a thrust roughly equivalent to 6,500 h.p. seemed fantastic; now thrusts equivalent to 60,000 h.p. or even 100,000 h.p. can be glimpsed behind security veils.

The jet's tremendous small-cycle pulsation shakes a building like a terrier shaking a rat. In the early brick cells, it pulled the mortar right out of the joints. The enormous volume of air the jet pulls through the cell creates both the high-frequency sound waves that can make a dog howl in pain and the even less controllable low-frequency waves that can shake a house a mile away. But the problems of muffling sound and designing a structure that will withstand the sharp positive and negative pressures generated by this enormous air movement are simple compared to the question of handling the terrific heat generated by some jet engines. Where an after-burner is used to kick up jet speed, temperatures

(up to 3,000°) are generated which no structural material can withstand.

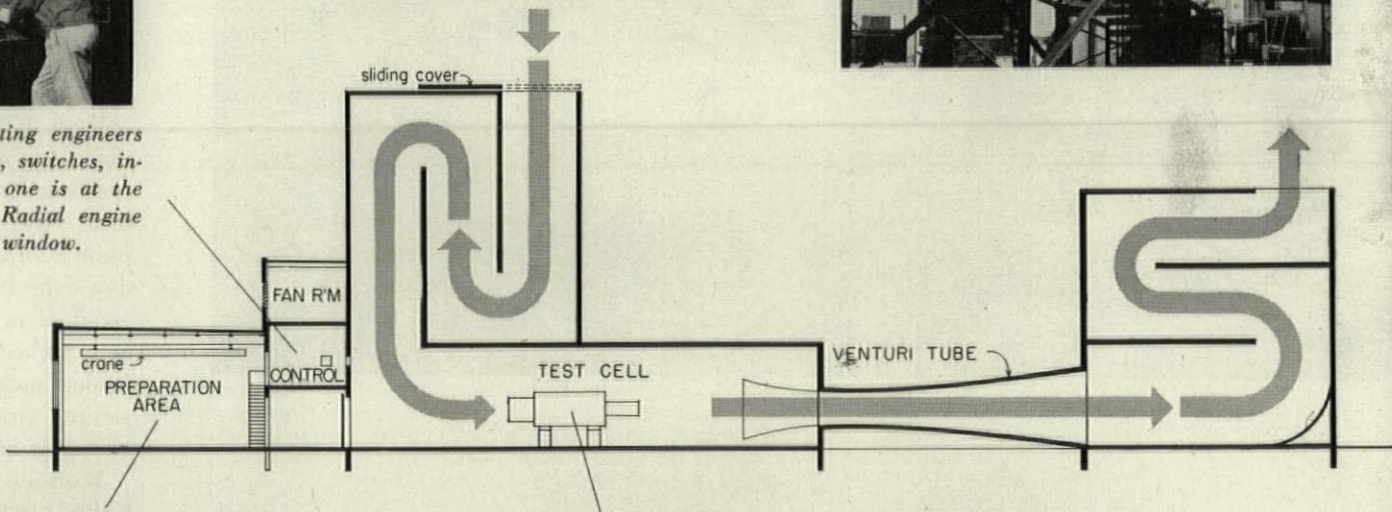
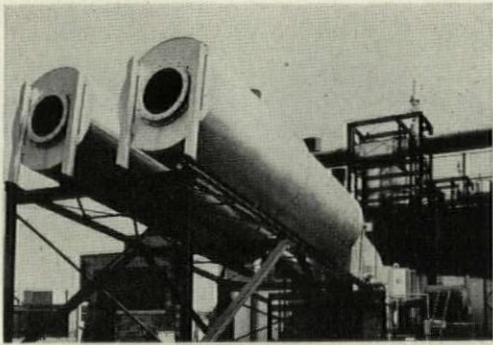
These stresses are being met in many different ways by Kahn designers. Methods are tested, adapted or abandoned so rapidly that each new test cell is a completely new design problem. The evolution of this new building type can be seen in the strange shapes pictured on the page opposite. All of these are cells built during World War II to test piston engines. (Piston engine tests require considerable mechanical equipment for cooling, etc. which jets do not. Some of this is described on the opposite page.) Note how the structural shape in these relatively simpler cells evolved from the straight horizontal air passage, through the U-shaped, to the L-shaped chamber. The diagram below shows a recent Kahn study for a jet cell. In cells like this, intake and exhaust units may be stacks 60' high designed to suppress sound waves by turning the path of air movement and by acoustic materials applied at the turning points.

Hedrich-Blessina Studio

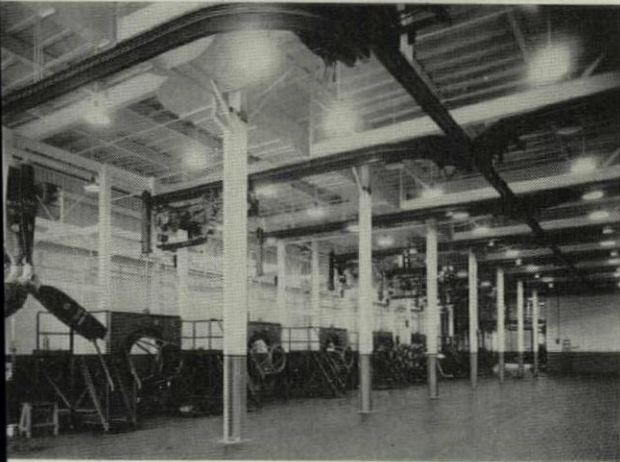


CONTROL ROOM is where testing engineers watch dial gauges, flow meters, switches, indicator light and scales. This one is at the former Dodge Chicago plant. Radial engine can be seen through bulletproof window.

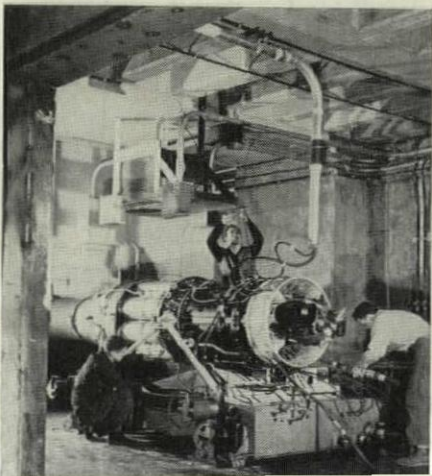
MAXIM SILENCERS like these monsters shown at Wright Aeronautical Laboratory, Wood Ridge, N. J. were used first to muffle the sound waves set off by jet engine tests. Now the size of stacks (and the thrust of engines) has outgrown them. Kahn engineers discovered they could design the stack to change air direction and so diminish the troublesome sound waves. This system, shown in the drawing below, replaces the Maxim silencer.



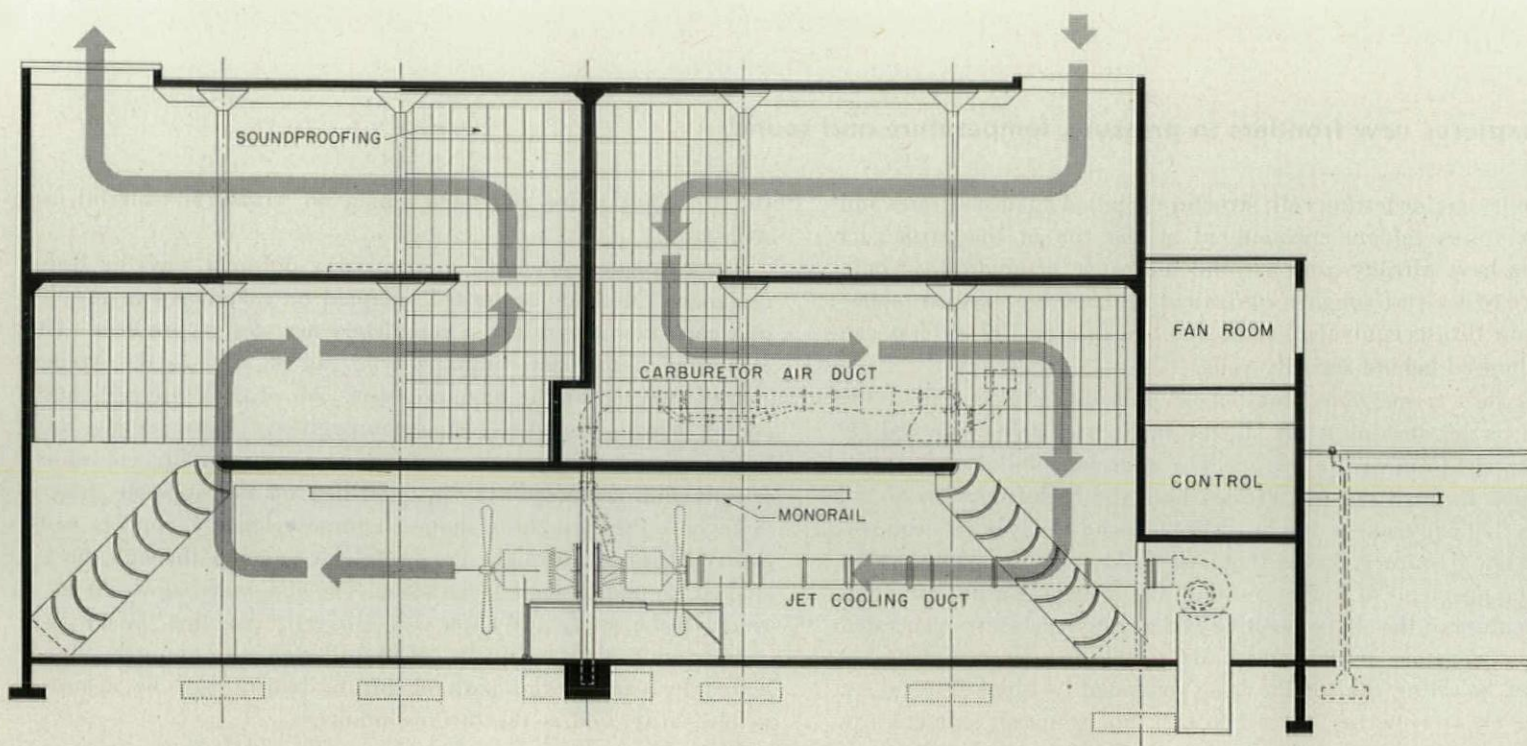
ENGINE PREPARATION ROOMS in older Pratt & Whitney testing areas show how engines are moved by monorail to test cell. Today heavier engines may be moved by crane.



JET ENGINE in cell at General Electric plant, Lockland, Ohio. New "plastic armor" may replace metal back of 12" concrete wall strip.



JET TEST CELL STUDY (drawing above) shows how Venturi tube is used in some designs to increase the jet's ability to pull air through the cell. Engine itself pulls in the air needed for combustion, but from 2½-4 times this amount of air may be needed for cooling. Even with this amount of air, temperatures where after-burners are used may be so high that the Venturi tube portion of the cell is built of high heat-resisting materials. Kahn structural engineers have designed a neat system by which precast units of aluminum cement concrete can be hung from collar supports made of ordinary reinforced concrete. An alternate method for dealing with high temperatures is a water quench.



Pratt & Whitney's new test cells are designed for both piston and new jet engines

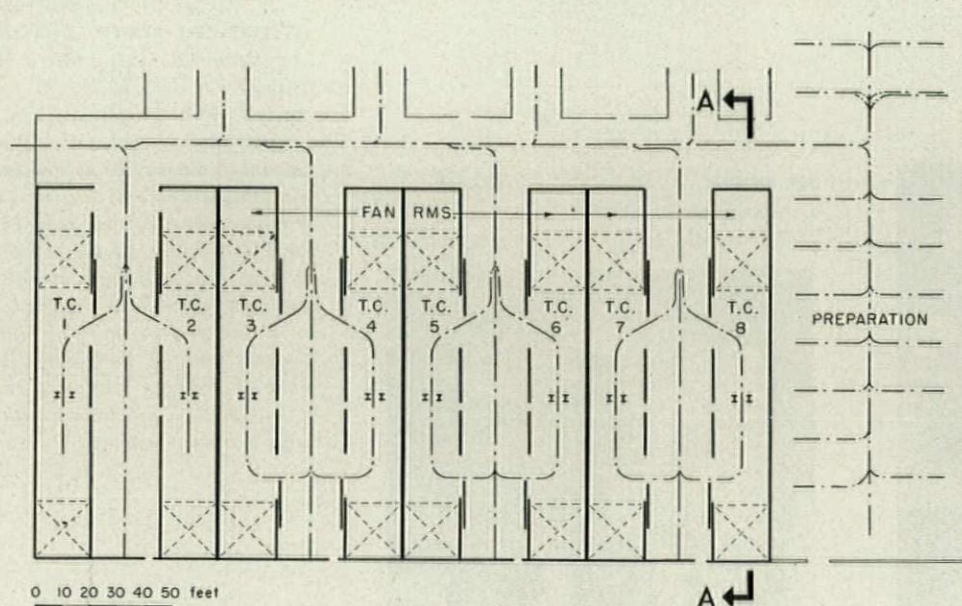


The drawing above shows a piston engine in position for testing. This cell can easily be converted for testing a jet engine. It would be necessary mainly to remove special devices needed for the piston engine: 1) jet cooling fans and motors for engine cooling; 2) all equipment for supplying carburetor air. Note that this cell uses metal baffles to lead air flow around corners.

Pratt & Whitney believe the folded stack shown here is best method of suppressing sound waves troublesome in jet tests. Near the Connecticut River, this plant could use a water quench to knock down the high temperatures jet engines generate in the exhaust chamber of the cell, but in these cells the distance of the folded path through the stack is considered great enough to dissipate the excessive heat.

Working with the owner's engineers, Kahn electrical engineers designed a marvelous series of interlocking electrical controls to start and stop the intricate mechanical equipment in a cell like this. For example: before the engine under test will respond to its electric starter, the tester must have pushed these electrical push buttons, in this order: 1) start engine cooling fan; 2) open stack covers; 3) start flow of lubricating oil to bearings; 4) turn on fire warning signal system; 5) start fuel pumps.

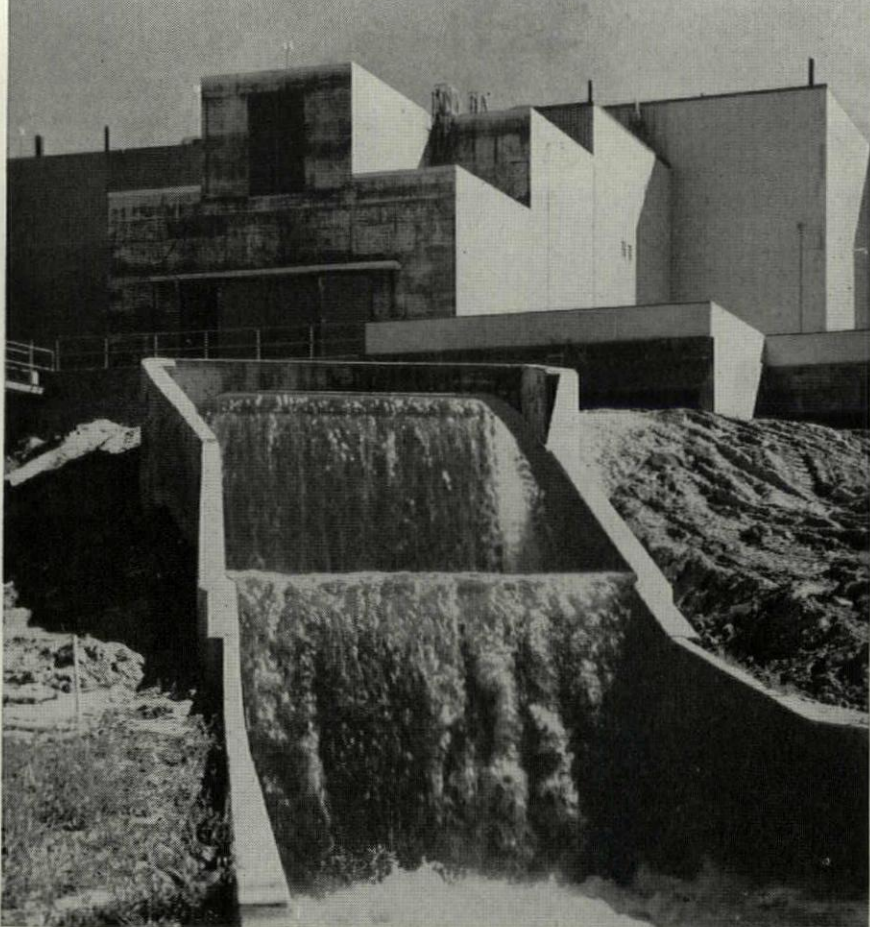
A similar interlocking system in reverse guards against fire and explosion hazards. Plant owners have become especially sensitive to such hazards since a recent test cell explosion in Indianapolis which killed five men, blowing one of them through a 12" concrete wall.



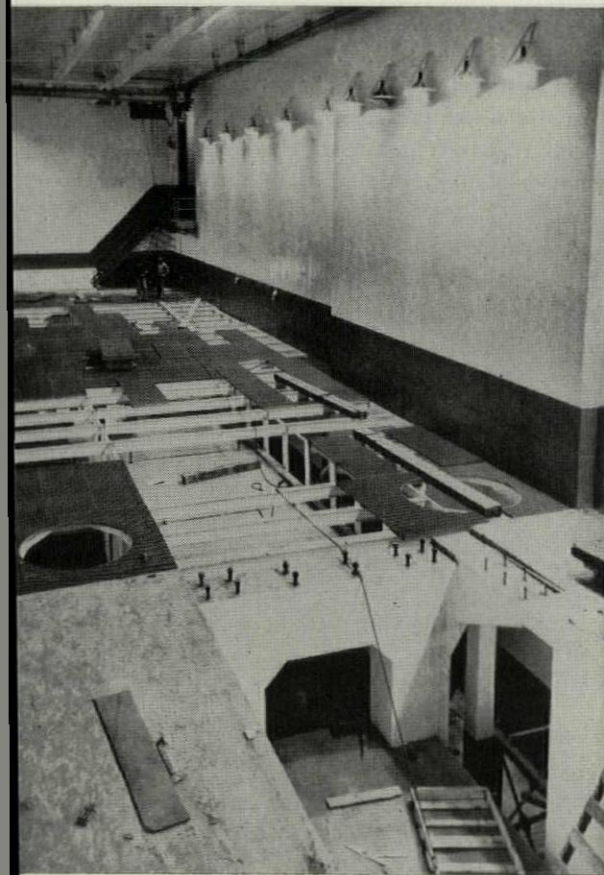
TESTING LABORATORY

The industry which used to carry its plans in its hat now builds great development laboratories like this \$12 million Pratt & Whitney building on the Connecticut River. Named for the late Andrew Willgoos, designer of the Wasp radial engine, this massive windowless structure is devoted to the development of jet engines. The laboratory contains four gigantic test cells for burners, compressors, turbines and complete engines. Such experimental test cells far exceed production test cells in complexity. These are all equipped to simulate flight conditions in various temperatures and altitudes. There is a complicated piping installation to bring cold, dense or thin air of varying intensities into the cells.

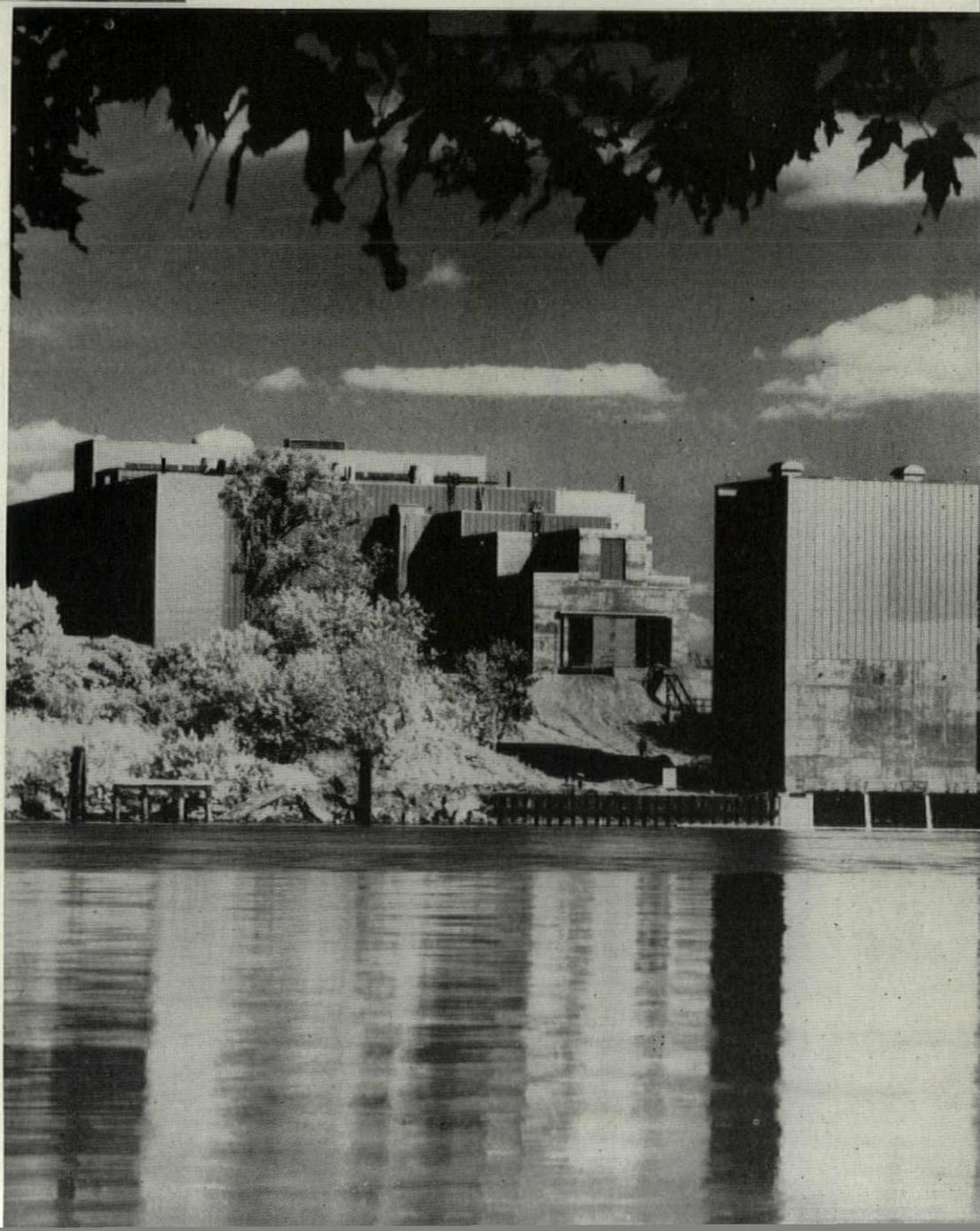
Pratt & Whitney figure they have spent more than \$300,000 to muffle the roar of jet engine testing. The system is basically the same as the folded stack shown in the production test cell drawing on the page opposite. But in the laboratory the labyrinth-like cell stacks are buried underground. Soundproofing is so successful that the jet roar is reduced to a gentle hiss.



OPEN SPILLWAY is remarkable evidence that architecture is always more than pure functionalism. This torrent, which conveys the enormous amount of water used for cooling back to the Connecticut River, was originally hidden in plans calling for a concrete pipe. Kahn planners proposed this esthetic and equally functional solution, to liberate the waterfall.



THIS TEST CELL is one of four in the laboratory. It is used for testing jet engine compressors which are bolted to the heavy concrete supports which show in the foreground. Air in this cell can be cooled to -70° and thinned to an equivalent of the cold reaches of the upper atmosphere.



HANGARS: Kahn engineering research shows some new and economical wide spans to shelter today's big planes



Hedrich-Blessing Studio

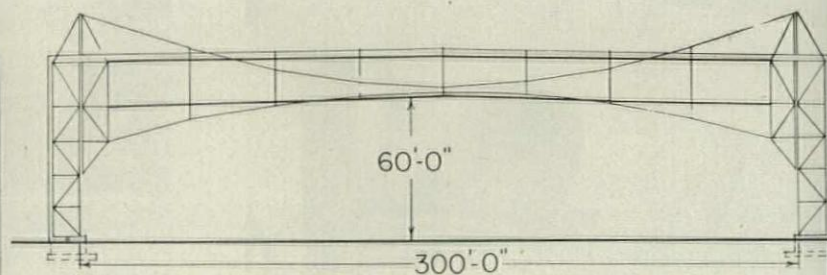
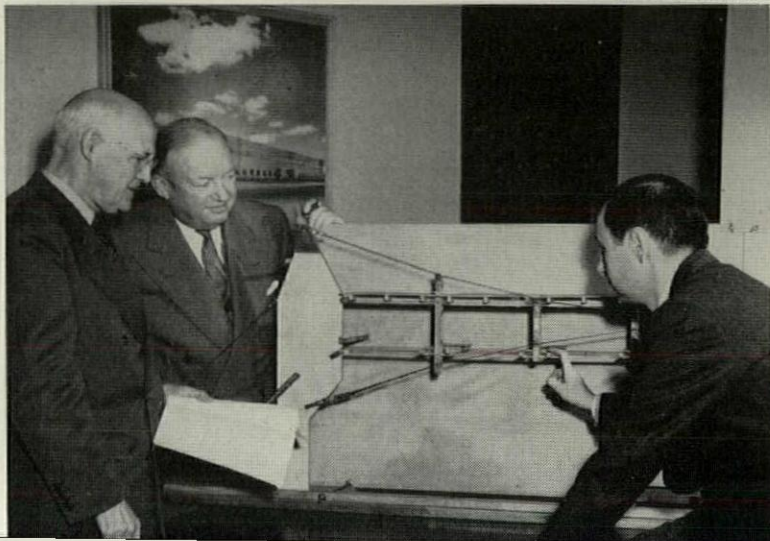
As planes grow bigger and bigger, hangar spans must be increased to accommodate them. Kahn's chief structural engineer, Joseph Matte Jr., says: "During the war we did not dare depart in any way from conventional design for fear of delays. Since then there has been time to study and experiment. We have arrived at some new concepts which provide maximum spans and clearances at minimum cost. All of our plans provide for free movement of individual planes and for future expansion of shop space.

"Our studies have led us to favor elimination of canopy doors and substitution of properly located rolling walls. We are also in favor of the kind of complete fire protection which can snuff out fires before expensive aircraft are damaged or a gasoline explosion occurs. Concrete construction is frequently favored as fireproof. But a fireproof building offers no protection against

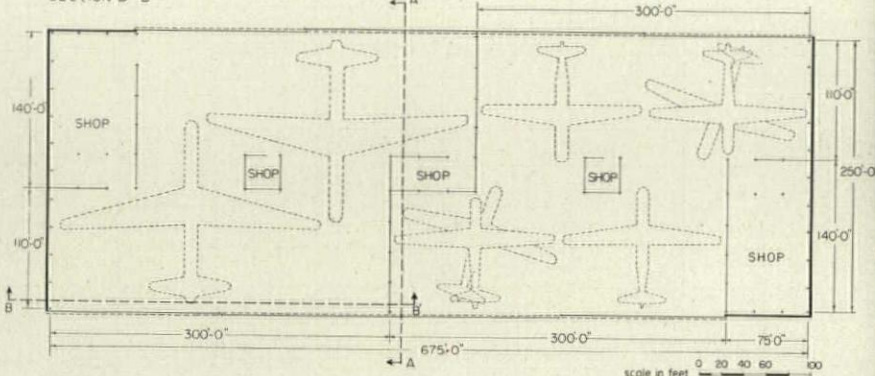
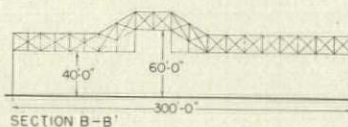
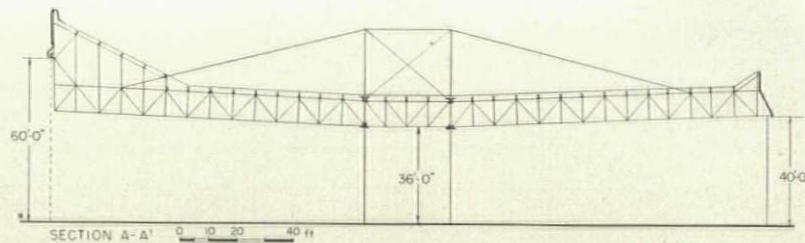
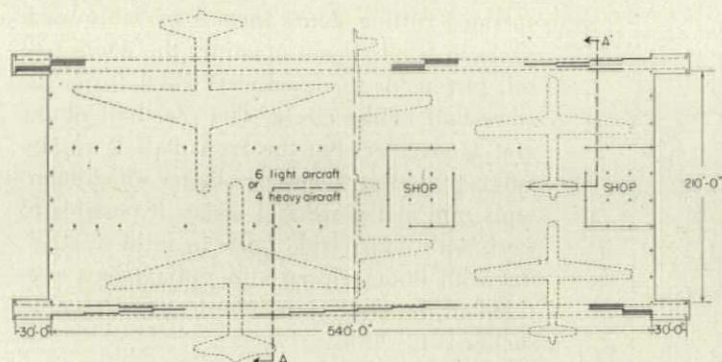
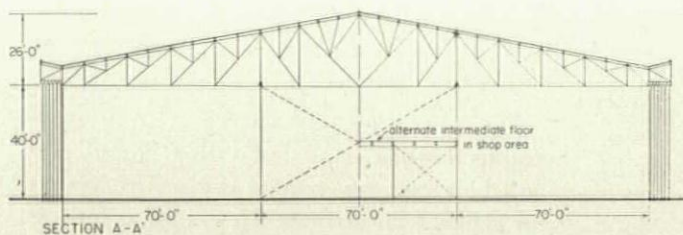
fire damage to the planes in it. Nor does the usual sprinkler system act fast enough to prevent serious damage. Because the planes in a hangar are usually worth more than the structure itself, our fire control engineers regularly install a deluge sprinkler system that will protect not only the building but also its valuable contents against fire loss."

One of the most interesting new Kahn hangar designs is the round frame shown on page 158. Another Kahn research study (see page opposite) arrives at the unexpected conclusion that a full coverage hangar can, if properly planned, be built for about the same cost per plane serviced as a door-equipped nose hangar. A Kahn study for a steel frame hangar is also compared with the shell concrete hangars which the Army built to house the city-block-wide wingspread of the B-36.

Robert J. Anderson



NEW CABLE SUSPENSION STRUCTURE is a design that came out of the continuous research carried on by the Kahn firm. Design would be especially suitable for remote military outposts, because cables can be packed into minimum shipping space. Model photograph shows hangar verticals attached to load-carrying cables by sliding seats. Examining model (l. to r.): Vice Presidents F. A. Fairbrother (chief architect) and R. E. Linton; engineer Fritz Kramrisch who designed the structure.

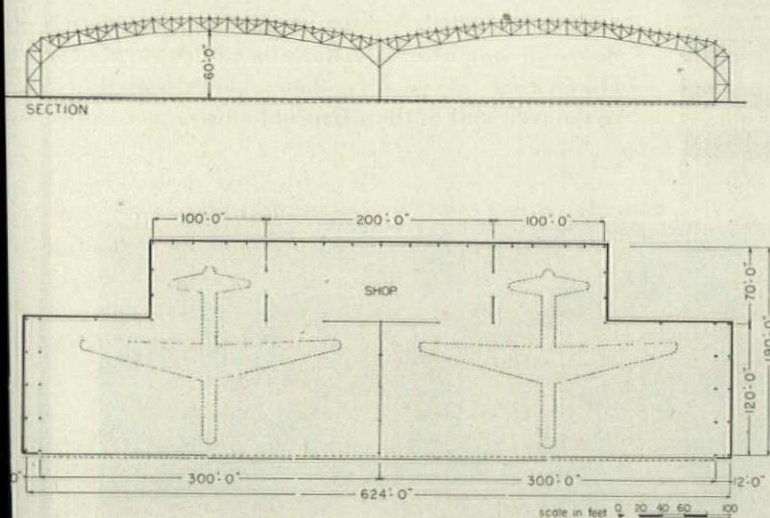


NOSE HANGAR vs. COMPLETE HANGAR

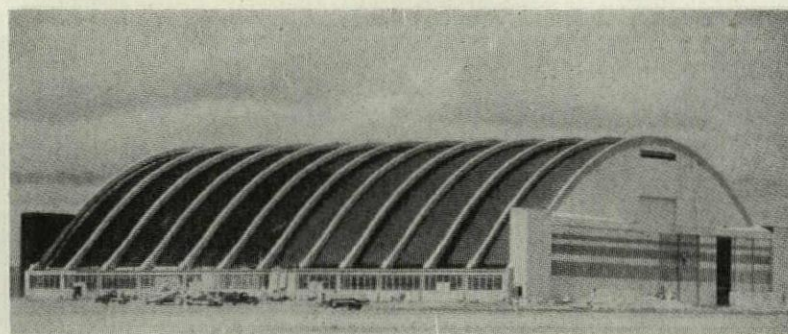
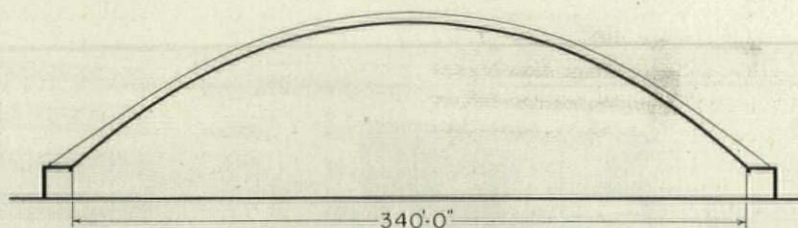
This 210' x 540' cantilever structure is intended to house either four large planes (the B-36 or C-99) or six "small" ones (140' wingspread) simultaneously. While the hangar is the nose type, leaving tail and fuselage outside, it is equipped with rolling doors that fit around the fuselages by canvas attachments or other means. Area amounts to about 20,000 sq. ft. per small plane.

This 675' x 250' full-coverage hangar can handle four big planes or eight small ones simultaneously. Area is 21,000 sq. ft. per small plane serviced. Rolling doors are provided on two sides. Thus a full-shelter hangar can be built in Maine for the same cost per plane as a nose hangar in Miami. Maintenance costs will be cheaper in warm climates.

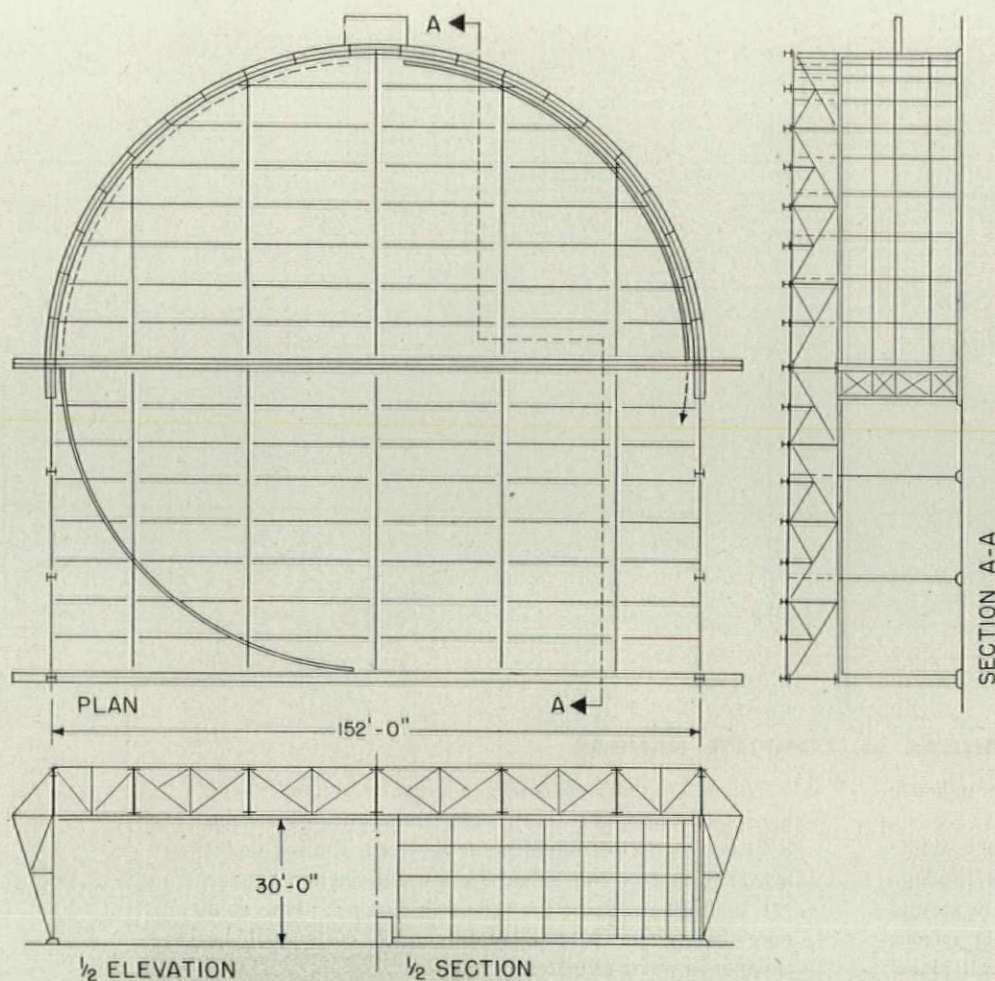
STEEL vs. CONCRETE



This Kahn study for a steel-framed hangar could be an alternate to the concrete arch hangars which the Army built at bases in South Dakota and Maine. Note that each 300' span is big enough to accommodate the huge B-36 or the C-99. (The Kahn firm designed the very first hangar ever built to house the B-36 at Patterson Field, Dayton. At the time, the B-36 was still a production secret and Kahn engineers were given merely a specification calling for an unprecedented hangar span.) In this steel frame, the 300' clear span is the wingspread plus reasonable clearance; this span is equal to the door opening. Plan of this hangar makes it possible to bring a pusher-type plane in tail first and to place tails and wings near the shop space.



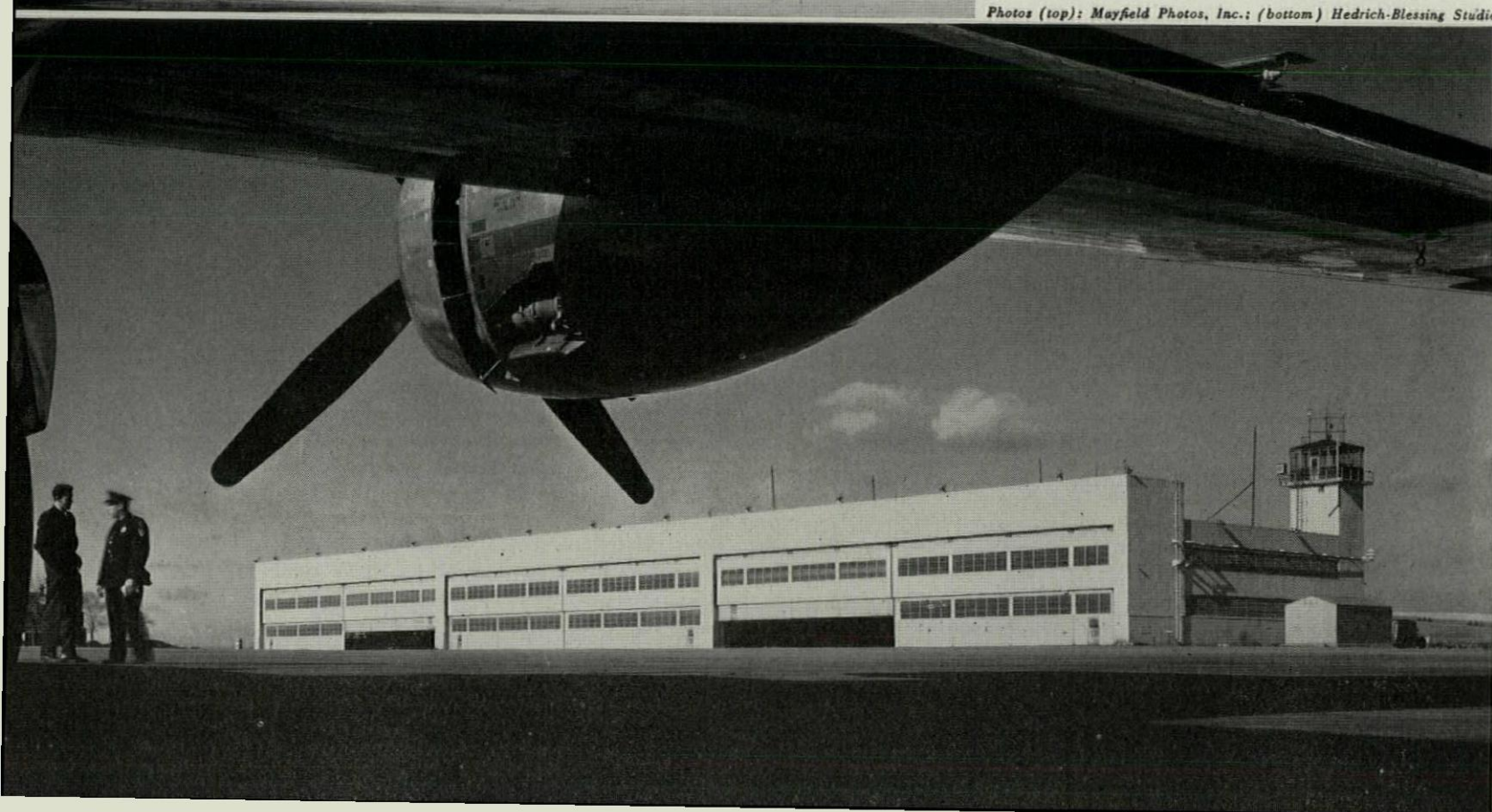
Arched concrete hangar was built by the Army at Rapid City, S. Dakota. Span is 340' and the hangar is 300' long. Its reinforced concrete stiffening arches are spaced 23' apart. In comparing this hangar with a steel-framed one of similar size, Forum editors note these points of difference: While concrete construction is fireproof, it may not protect the aircraft housed in it from fire damage. On the other hand, shell concrete offers good protection from bomb damage; war experience in other countries shows cases where bombs knocked holes in concrete shell roofs, left the rest of the structure undamaged. Arch construction, however, has the disadvantage of a span 75 to 100' more than the door opening, space largely wasted by low headroom.



ROUND HANGAR is an interesting design proposed by Kahn researchers as a service hangar for commercial airlines. This circular form is self-bracing and makes it easy to surround planes by shops flexibly placed at the perimeter of the rear half of the circle. Motor-operated rolling doors form a movable semi-circle in front. Upon opening, the doors will roll just inside the fixed wall which forms the other half of the circle. The rear half of the roof is circular, but the front half is rectangular, providing a canopy shelter which intercepts rain and glare and makes it possible to work with doors wide open in mild weather. But with doors closed and radiant heat provided in the floor slab complete bad weather shelter is possible.

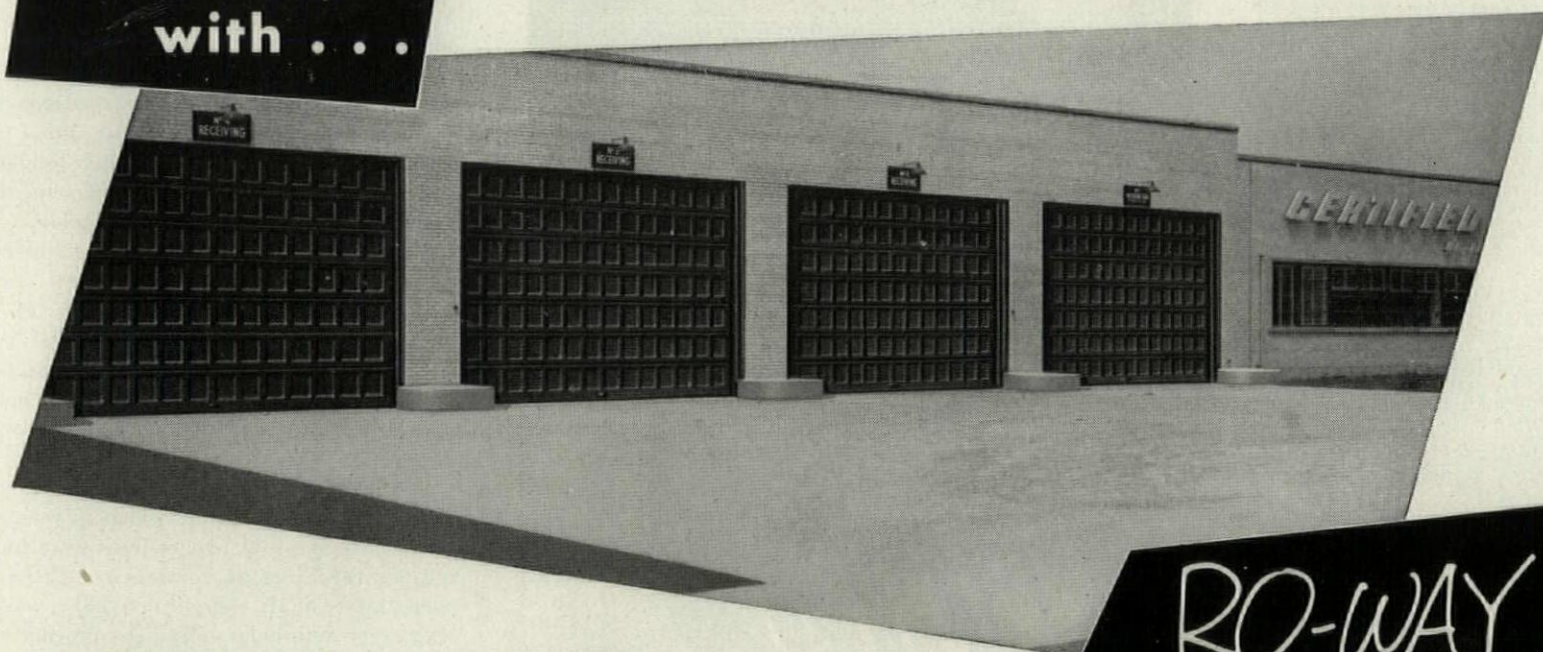
ROLLING DOORS can now be greatly modernized by improved rolling bearings, wheels, lightweight materials and motor drives. Kahn engineers believe they have many advantages over the canopy door (shown in the big photo below of a flight hangar built for Glenn L. Martin at Omaha). Canopy doors impose an extra weight of sometimes 200 tons on the steel structure and eliminate such economic systems as, for example, bowstring trusses. Rolling doors are especially economic when "door pockets" (which show in the Army B-36 hangar at Dayton, Ohio in the small photo at left) can be eliminated. Nesting hangars and facing doors in opposite directions is one way of eliminating the pockets, doors being braced to the rear wall of the adjacent hangar.

Photos (top): Mayfield Photos, Inc.; (bottom) Hedrich-Blessing Studio



**you'll like
to do
business
with . . .**

your nearby RO-WAY distributor



**RO-WAY
door features**

You'll like the intelligent service he gives you.

You'll like his helpful spirit, and the pride he shares with you in doing every job right.

You'll like the way his "know-how" saves your time.

You'll appreciate his experience and care in helping you select the right size and type of Ro-Way Door for the appearance and service requirements of each particular job.

You'll like the painstaking way he looks after all the details of installation to make sure both you and your customer are happy.

**so get in touch with the RO-WAY
distributor first on every job**



Remember, he is an important part of a nationwide network of selected sales and installation engineers. See the wide choice Ro-Way offers in standard and special garage door sizes and styles for practically every Industrial, Commercial and Residential need.

Consult your classified telephone directory or write for name and address of your nearby Ro-Way Distributor. You'll like to do business with him . . . and with us.

Include—Springs power-metered to the weight of each door; ball bearing rollers with double-thick tread; all hardware Parkerized and painted after fabrication . . .

—and Brand New

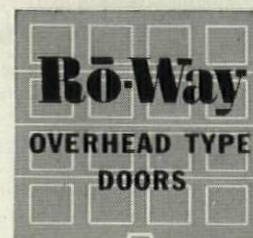
for complete protection against weather

TAPER-TITE CLOSURE. Vertical track angled away from jambs. As door closes it automatically fits tightly against jamb and is held there snugly.

SEAL-A-MATIC HINGES—graduated in height provide perfect opening and closing in connection with the TAPER-TITE CLOSURE.

there's a Ro-Way for every Doorway!

ROWE MANUFACTURING CO., 998 HOLTON ST., GALESBURG, ILL.



Ore bridge at Ashtabula, Ohio, where high strength bolts were found to have greater resistance to dynamic loading than rivets. On bridges throughout the U. S. rivets were found to work loose after a year of service, but bolts have already seen four seasons of successful service.



NO MORE RIVETING?

(Continued from page 121)

Bolting vs. welding

Today bolting appears to be growing in popularity among steel erectors. This is largely because it involves no additional design problems for today's hard-pressed engineering staffs; each rivet is simply replaced by a bolt of equal diameter.

On the other hand substitution of welding for riveting may not achieve any cost reduction or may even increase the cost unless full advantage is taken of the lighter weight of girder obtainable by the more efficient, rigid frame connections possible with welding.

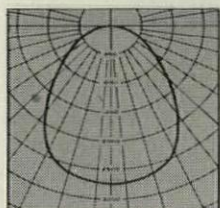
Most building codes permit steel frames to be welded up to any height. New York's Building Code, for instance, states: "In tier structures less than 125' in height and in all structures of a special character, connections of beams and girders to columns, and beams and girders bracing columns, shall be riveted or welded."

Continuous design also calls for precise positioning of the frame, which is comparatively, easy in a low, two- or three-story building, but which many contractors believe becomes increasingly complicated and expensive with every additional story. Disagreeing with this, welding engineer Van Rensselaer P. Saxe comments, "In my experience there are no physical or economic limitations to the height a multistory building can be welded. In all cases continuous welding is cheaper and more efficient than riveting or bolting." And Engineer Saxe should probably know. He designed the 17-story rigid-frame welded Allied Arts Building erected in Lynchburg, Va. in 1931 (probably the tallest welded structure ever) and a 14-story welded apartment house now abuilding in Baltimore.

Another interesting comment comes from S. A. Greenberg, technical secretary of the American Welding Society: "The problem of lining up multistory framing is essentially the same for all types of connections. Nowadays the Empire State Building could be as efficiently and economically welded as riveted . . . The ultimate economy in steel-framed skyscrapers, however, may well lie in a combination of shop welding and erection with high strength bolts."

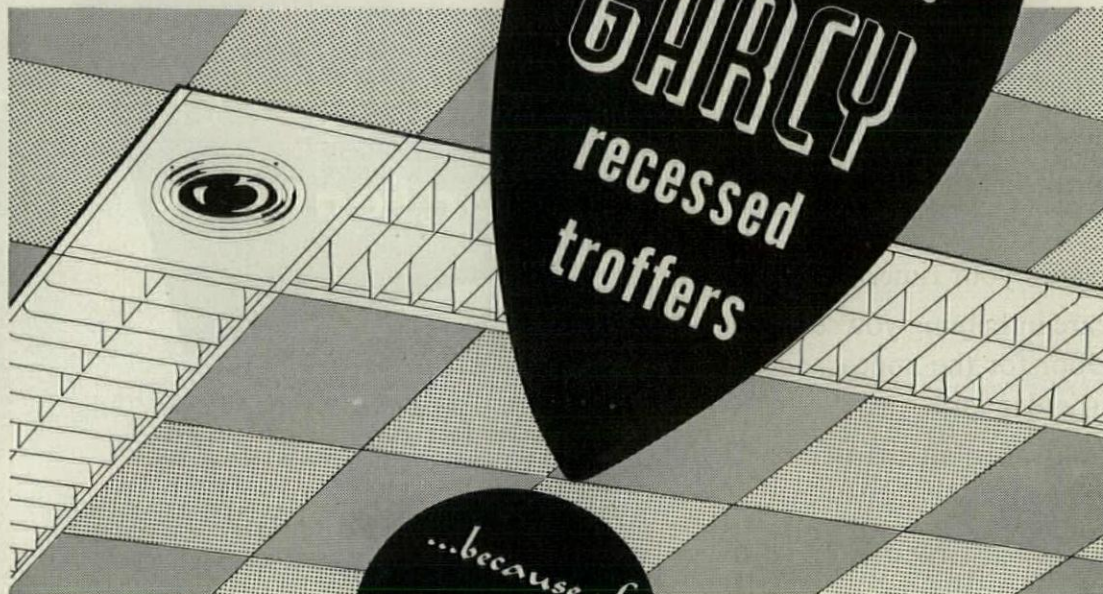
Riveting's future

The shortage of riveters is no temporary crisis. There are few riveters left and even less are joining them to learn the trade slowly via the apprentice system. After World War I thousands of riveters trained in busy shipyards were available for the building boom of the Twenties; during World War II ships were mainly welded, no riveters were trained and the building industry is faced with the present acute shortage. Many contractors have to choose between the expense of training new riveters, or the expense of training their men in a new building technique. In the long run it will probably be cheaper to choose the latter.



LIGHTING EFFICIENCY

35° crosswise, 41° lengthwise shielding combined with high utilization.

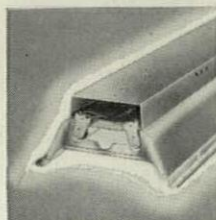


...because of these "ENGINEERED-IN" features



ONE PIECE LOUVER

Punched and formed in one piece with continuous outer frame for lasting rigidity. New, simplified hinging reduces maintenance.



UNIQUE COUPLING PLATE

- Lets light pass from one unit to next for more uniform brightness throughout the run.
- Wide open wireway for fast splicing.
- Simple, bolt-together coupling.



VERSATILITY

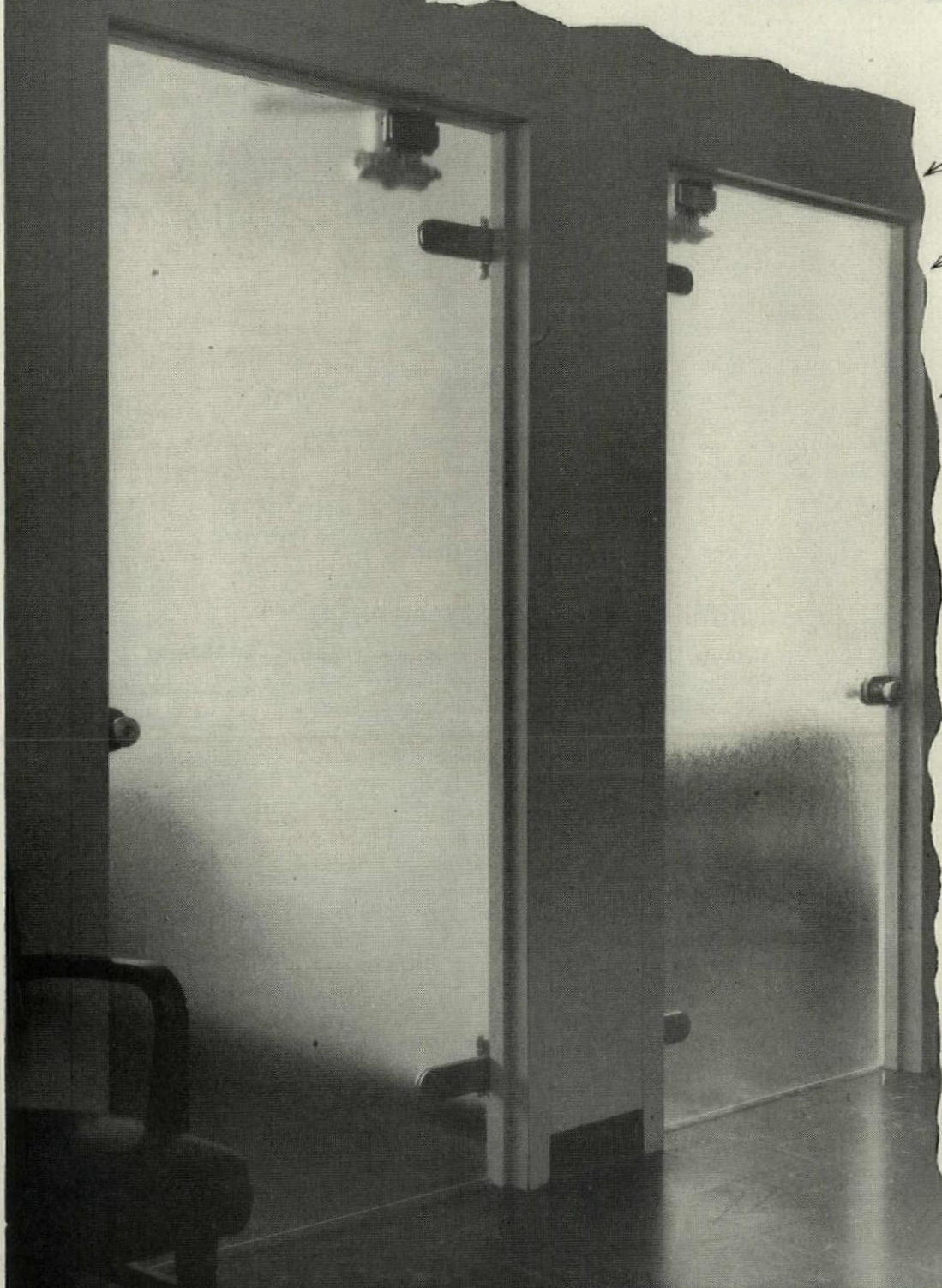
- For any type ceiling.
- 1, 2 or 3 lamp rows.
- 4, 6 or 8 ft. lengths.
- Standard fluorescent or slimline.
- Varied bottom treatments, including louvers, diffusing glass, flat or curved lenses.
- Matching Spot-a-Lites available.

GARDEN CITY PLATING and MFG. COMPANY

1736 North Ashland Avenue
CHICAGO 22, ILLINOIS

Striking...Different

FRAMELESS INTERIOR GLASS DOOR



—patterned glass for beauty

—tempered for strength

—complete with distinctive hardware

Here's a practical way to give interiors an extra touch of beauty ... an effective way to brighten rooms. This translucent door passes light through, while it guards privacy.

It's a single slab of Muralex Patterned Glass, $\frac{3}{8}$ " thick, tempered to make it 3 to 5 times stronger than non-tempered glass. Comes complete with Stanley Hinges and Sargent Hardware.

People who've seen this new door always remark on its smartness. And they're invariably surprised at its low cost. Your Libbey-Owens-Ford Distributor can tell you all about it. Or mail the coupon.

Securit Glass Doors in Corning (N. Y.)
Glass Center. Architects: Harrison,
Abramovitz & Abbe, New York.



securit®



INTERIOR GLASS DOORS

Libbey-Owens-Ford Glass Company

Patterned & Wire Glass Sales

B-2032 Nicholas Building, Toledo 3, Ohio

Please send me your folder on *Securit* Interior Glass Doors.

Name (please print) _____

Address _____

City _____ State _____

NOW!

Speeds all these jobs — and many more!

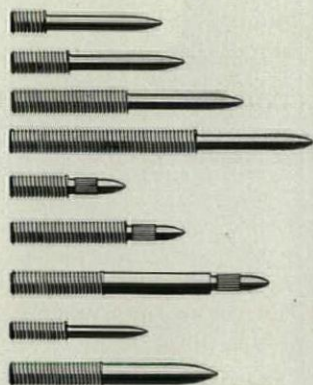
1. Fastening wood sleepers to concrete floor slab.
2. Hanging steel sash and door bucks to concrete and brick.
3. Anchoring stadium, theatre and church seats to concrete or brick.
4. Fastening wood furring strips to concrete for attachment of metal lath.
5. Anchoring wood plates to concrete floors and ceilings for setting partitions.
6. Hanging radiator housings to concrete or brick.

REMINGTON STUDS FOR ANY JOB

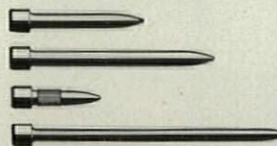
Genuine Remington studs are designed for specific fastening jobs. They are made of special hardened steel alloys permitting pull-out resistance as high as 2 tons, depending on the stud used. These studs were developed by Remington after exhaustive testing for hardness, strength and profile.

Cartridges are available in 5 different power loads, each clearly marked by colored plastic heel caps. These tough heel caps permit instant assembly of any cartridge with any Remington stud. Easily removed from the stud after driving, the heel cap also protects the thread of the driven stud.

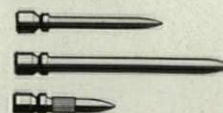
EXTERNAL THREAD



STANDARD HEAD



BREAK-OFF HEAD



INTERNAL THREAD

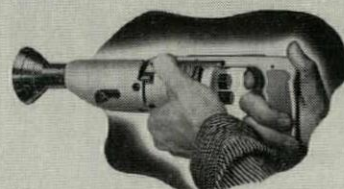


Only Remington studs are identified by this target trademark on the head—it's your assurance of safe, dependable fastening.

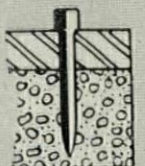
It's fast, easy and safe to operate The Remington Stud Driver.



Simply hand-assemble stud and power cartridge, load as a unit in easy-to-open Remington Stud Driver, and close.



Then press loaded Stud Driver firmly against surface, depress safety lever, and pull trigger.



Explosive charge imbeds stud solidly. Open Stud Driver with a twist of the wrist, eject empty shell, load next stud. Whole job takes seconds.

Do your construction fastening up to 100 times faster with the

NEW CARTRIDGE-POWERED MODEL 450 **REMINGTON STUD DRIVER** and do it safely!

LOOK AT ALL THESE FEATURES

COMPACT AND PORTABLE—Weighs only 5½ pounds, ideal for scaffold, ladder, overhead work, inaccessible places. Comfortable to use in any position.

SPEED—One man can set up to 5 studs per minute, as much as 100 times faster than other methods. Sets stud at whatever depth is required up to 2¾ inches, depending on material.

ELIMINATES INVESTMENT in outside power source—Self-powered. Especially useful in isolated places.

FOUR WAYS SAFE—Plainly visible red dot indicator shows when it's cocked; safety lever must be depressed before and during squeezing of main trigger; permanently attached safety shield must be compressed against work before Stud Driver will operate. Stud Driver will not operate if tilted at more than a slight angle. Slight recoil. Low noise level.

RUGGED—All working parts of the Stud Driver are made of heat-treated alloy steels, housing of strong, light weight aluminum that carries no operating stress. Lining of safety shield is a solid block of tough, resilient Du Pont neoprene.

PRICE for Model 450 Remington Stud Driver complete in rugged steel carrying case—only \$119.50.

Firmly fastens steel or wood to concrete or steel in seconds!

With the amazing new Remington Stud Driver you can set fastening studs up to 100 times faster than with conventional methods . . . and cut costs, too. This revolutionary fastening tool easily sets as high as 5 studs per minute . . . with no outside power source—no other equipment needed!

Easy to operate, the Remington Stud Driver weighs only 5½ pounds. It's compact, rugged and safe! With one lightning-fast operation, this self-powered tool firmly fastens steel or wood structural pieces and fittings to concrete or steel surfaces . . . a squeeze of the trigger and the job is done!

Test-proved to be the world's finest and speediest fastening system, the Model 450 Remington Stud Driver is made by Remington Arms Company, Inc., *America's oldest and foremost sporting arms manufacturer.* To obtain detailed information on this time- and money-saving tool, and for the name of your nearest distributor, fill out and mail the coupon below.

"If It's Remington—It's Right!"

Remington



Remington Arms Company, Inc.
Industrial Sales Division, Dept. MB-3
935 Barnum Ave., Bridgeport 2, Connecticut

I am interested in obtaining descriptive literature on the Model 450 Remington Stud Driver.

Name _____

Firm _____

Position _____

Address _____

City _____ State _____

Photos: Erich Kastan



An aluminum constructionist sculpture by Robert Cronbach is set against a billowing gown in Gene Moore's fashion window display in the Guild show. William Lescaze planned the movie lobby at the left with three sculptors.



REVIEWS

SCULPTURE in architectural settings at current Guild show

"Ambivalence," a 41" high terra cotta mother and rejected child, is one of the works exhibited by the Sculptors Guild at New York's American Museum of Natural History. The viewer, whose interest in the show had been honed on a mimeographed promise of "sculpture in conjunction with architecture," found empathy in the small statue's garbled emotions. The show *Sculpture in Time and Place* is slow paced and the place is too often revisited.

Only two of the eight designers called upon by the Guild to create living environments for its members' works collaborated with the sculptors from their plans' beginnings. It is easy to pick out which two.

Architect William Lescaze's movie lobby is a subtle study in mass and volume; without the sculpture (notably Harold Ambellan's plywood and brass tubing "Sailor") the space would be void in trump. Gene Moore, window dresser supreme (Bonwit Teller's, N.Y.C.), worked out an eye-catcher with Robert Cronbach's aluminum abstraction, and added a fan to keep things (*mousseline de soie*) moving.

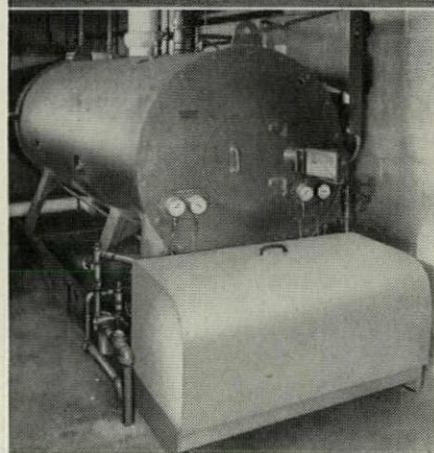
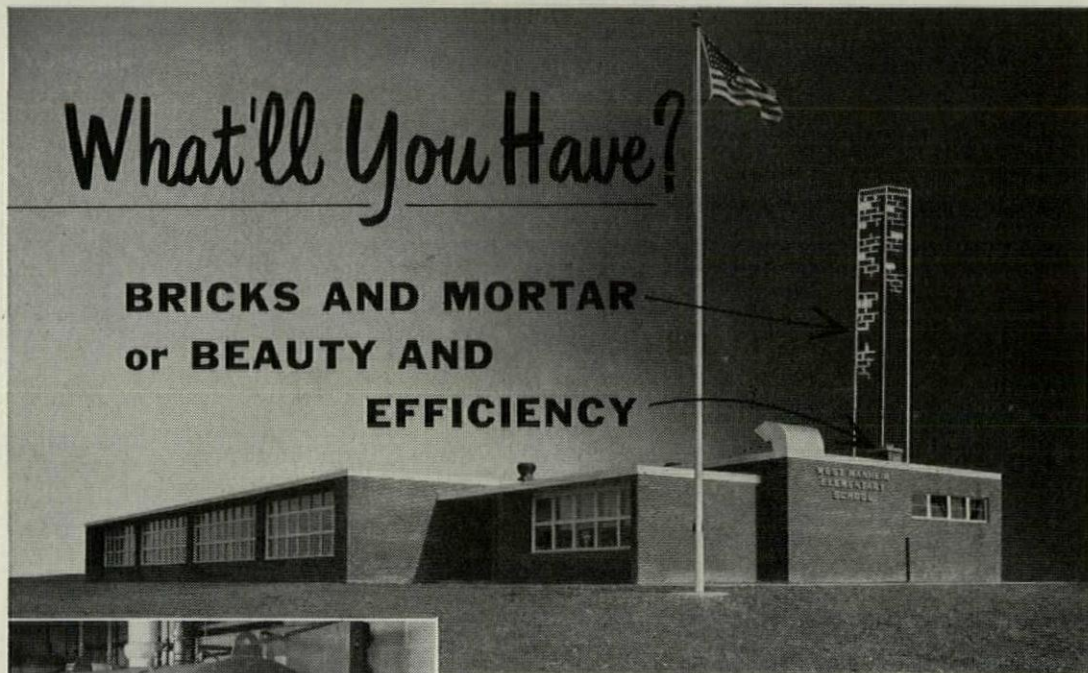
A near-miss is registered in Victor Proetz's airport lounge. Unfortunately the actual setting is not faithful to the original rendering (pictured below); Proetz's Corbu-ish use of framed space has become a mere hole-in-the-wall. Koren Der Harootian's marble "Seabird and Fish" is an excellent choice to set against the imaginary horizon and DC-6's. The wall-mounted pieces and "Burro" in the greenery do not come off as handily.

In most of the other settings the sculptors were taken. The architects and designers selected a smorgasbord of works (neorealist in the majority) from the Guild's voluminous photographic coffers, and then niched, shelved and, worse still, pedestaled them in cluttered interiors and a formal garden. The arrangements will send many sensitive onlookers out gasping for air. This is the kind of precious gallery treatment that puts a strangle hold on an esteemed art form. In their battle to regain ground lost since the Renaissance, the Sculptors Guild might have made a more positive impression on architects with a picture

(Continued on page 170)

What'll You Have?

**BRICKS AND MORTAR
or BEAUTY AND
EFFICIENCY**



UPPER—New elementary school for West Manheim Township, Pa., Buchart Engineering Corp., York, Pa., Architect & Engineers. LOWER—Model SPL-60-50 Steam-Pak Generator. Heating plant designed by W. K. Hood, Associates, York, Pa.

STEAM-PAK generators cut building costs

When you specify Steam-Pak Generators for heating or steam generation in a new building, you immediately reduce cost of the building because you eliminate need for a high stack or chimney. A low vent is all that is required.

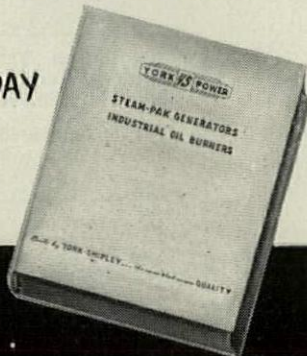
You save much more than in building costs though—because Steam-Pak Generators are built to provide heat and process steam at efficiencies unattainable in standard boilers. This saving alone in many plants has paid off the cost of new equipment within a year.

We invite you to write today for more details.



GET YOUR COPY OF THIS MANUAL TODAY

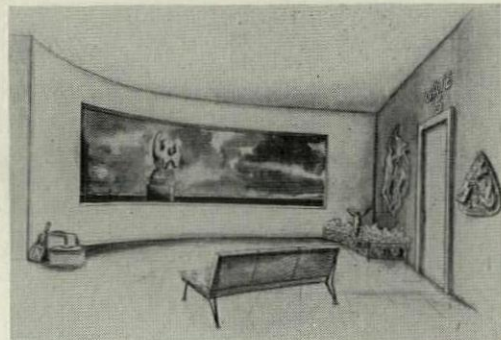
Steam-Pak's 208-page Architects' Manual is the only complete reference on steam generators. Contains specifications, hook-ups, wiring and piping diagrams, operating charts. Request Manual 101-B today on your letterhead.



YORK-SHIPLEY, INC.

Industrial Division, York, 6, Pa.

Automatic Heat & Power Specialists since 1918



Victor Proetz set a soaring marble sculpture solidly against the sky in his airport lounge.



Right—because all units are kept in uniform time, to the second, electronically.

Right—because with an IBM Electronic Time System* no special clock and signal wiring is needed. Clocks and signals connect with the regular AC lighting circuit.

Right—because units may be added or relocated later without the inconvenience and expense of special wiring.

Right—because behind the IBM Electronic Time System stands IBM's 50 year record of accuracy and dependability in time control.

IBM time equipment includes Electronic and Electric Time Systems, Program Signaling Systems, Nurses' Call, Fire Alarm, and Intercommunicating Telephone Systems, Recording Door Locks, Tower Clocks, Athletic Scoreboards and Timers.

*Electric Time System with Electronic Self-regulation.

IBM, Dept. MB-1

590 Madison Ave., New York 22, N. Y.

Please send data on IBM Electronic Time Systems, or on individual units checked.

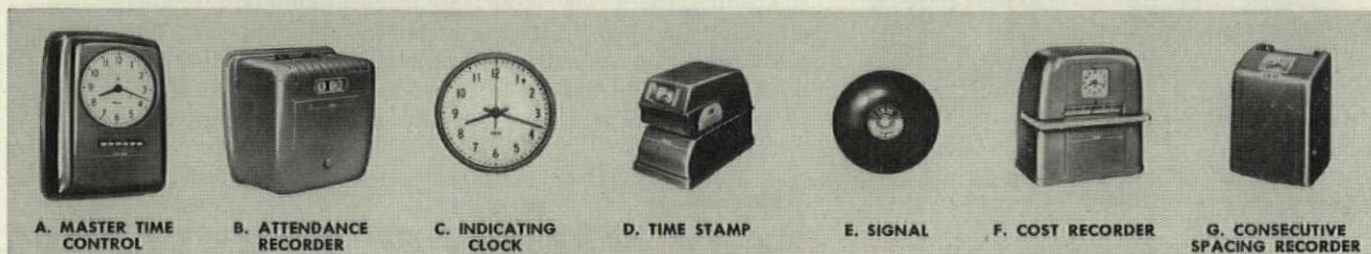
A. ☐ B. ☐ C. ☐ D. ☐ E. ☐ F. ☐ G. ☐

Name _____

Company _____

Address _____

City _____ State _____



A. MASTER TIME CONTROL

B. ATTENDANCE RECORDER

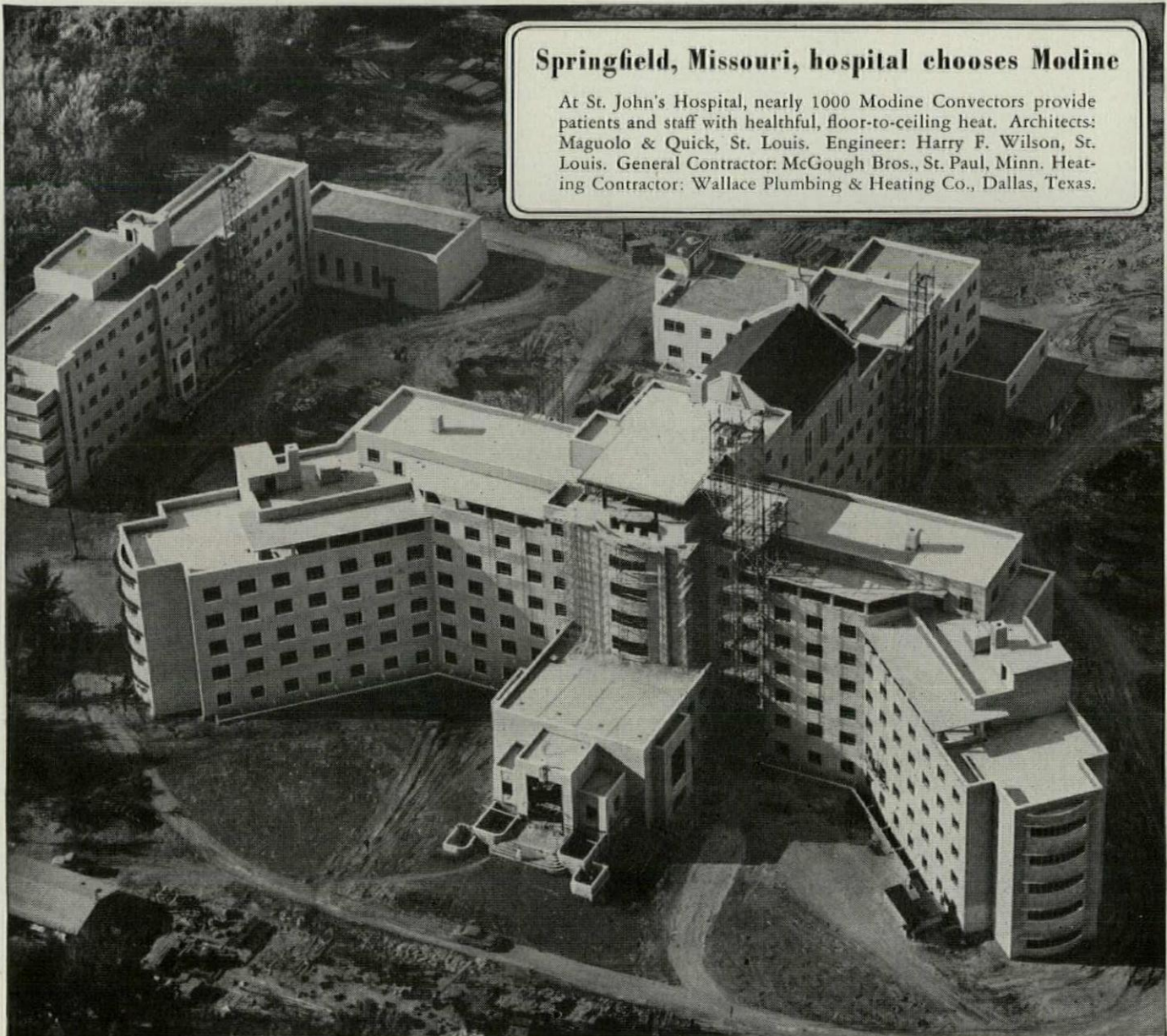
C. INDICATING CLOCK

D. TIME STAMP

E. SIGNAL

F. COST RECORDER

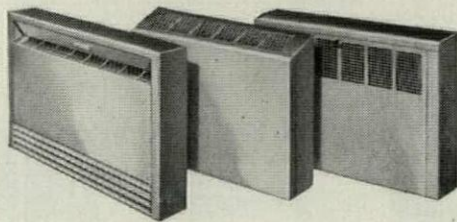
G. CONSECUTIVE SPACING RECORDER



Springfield, Missouri, hospital chooses Modine

At St. John's Hospital, nearly 1000 Modine Convectors provide patients and staff with healthful, floor-to-ceiling heat. Architects: Maguolo & Quick, St. Louis. Engineer: Harry F. Wilson, St. Louis. General Contractor: McGough Bros., St. Paul, Minn. Heating Contractor: Wallace Plumbing & Heating Co., Dallas, Texas.

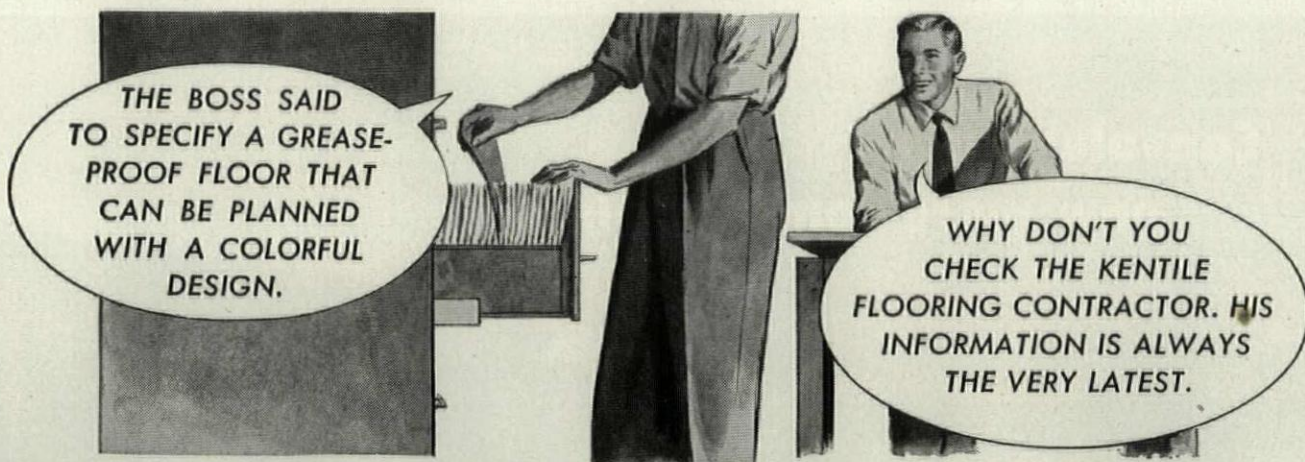
*America's finest buildings
use America's finest convectors*



Choose from three enclosure types in Standard and heavy-duty Institutional models for free-standing, recessed or wall-hung installation

FOR today's hospitals, superior heating performance must be teamed with subtle styling and long-life construction. On all counts, Modine Convectors meet exacting professional standards. That's why more and more Modine Convectors are being specified by leading architects and engineers. For full information on heating at its finest, call your Modine representative. You'll find him listed in your classified phone book. Or write Modine Mfg. Co., 1507 DeKoven Ave., Racine, Wis.

***Modine* CONVECTORS**



In a cafeteria like this, the Kentile Flooring Contractor would recommend SPECIAL (greaseproof) KENTILE because of its resistance to greases and oils; its colorful beauty and ease of maintenance.

The information the Kentile Flooring Contractor gives you is always accurate, up-to-date and complete

EVERYBODY knows that certain flooring materials are better than others for specific installations! But, not everybody realizes that it takes a trained and experienced Flooring Specialist to recommend the one floor that is exactly right ... the one floor that combines minimum expense with maximum wear ... eye appeal with

ease and economy of maintenance. The Kentile Flooring Contractor is such a man ... qualified by years of training and experience to decide which of the countless products and materials available today are best for your needs. Be sure to call on him whenever you need his technical knowledge. No obligation, of course.

KENTILE • SPECIAL (Greaseproof) KENTILE • KENCORK • KENTILE RUBBER TILE

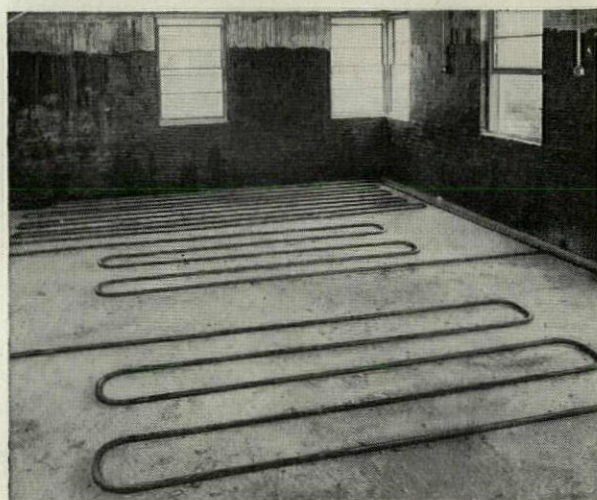
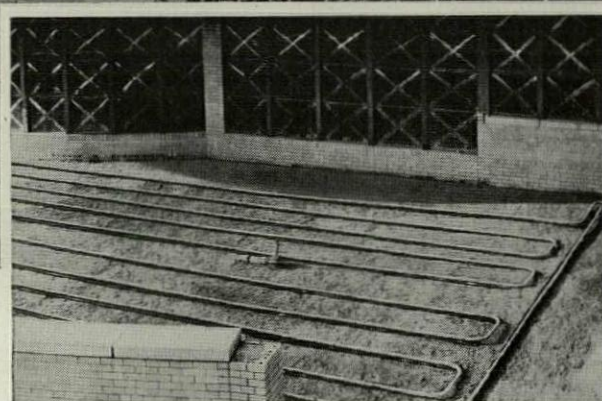
 **KENTILE INC.**

KENTILE, INC., 58 Second Avenue, Brooklyn 15, New York • 350 Fifth Avenue, New York 1, N. Y. • 705 Architects Building, 17th and Sansom Streets, Philadelphia 3, Pennsylvania • 1211 NBC Building, Cleveland 14, Ohio • 225 Moore Street, S.E., Atlanta 2, Georgia • 2020 Walnut Street, Kansas City 8, Missouri • 1440 11th Street, Denver 4, Colorado • 4532 South Kolin Avenue, Chicago 32, Illinois • 1113 Vine Street, Houston 1, Texas • 4501 Santa Fe Avenue, Los Angeles 58, California • 95 Market St., Oakland 4, Calif. • 452 Statler Building, Boston 16, Mass.

**Convalescents
now more comfortable...**



**with radiant heating
and snow melting**



● You'll look a long time before you find a building more ideally suited to the needs of the convalescent. It's the Brooklyn Jewish Home for Convalescents in Far Rockaway, N. Y.

They used 27 tons of National Steel Pipe for the radiant heating and snow melting installation. Every room has radiant heat—the ideal heating system for the aged and the ill.

To make full use of the terrace year round, a snow melting system was installed using National Steel Pipe. Now, patients can utilize the sun-bathed terrace in all but the very worst weather.

National Steel Pipe has been used for many radiant heating systems in homes, institutions and industrial plants. The pipe is made to the same rigid standards that have made National the preferred pipe for conventional heating for over 60 years.

If you have any questions regarding pipe for radiant heating or snow melting, make use of our wide experience. We think we'll be able to help you.

NATIONAL TUBE DIVISION, UNITED STATES STEEL COMPANY, PITTSBURGH, PA.

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS : UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S NATIONAL Steel PIPE

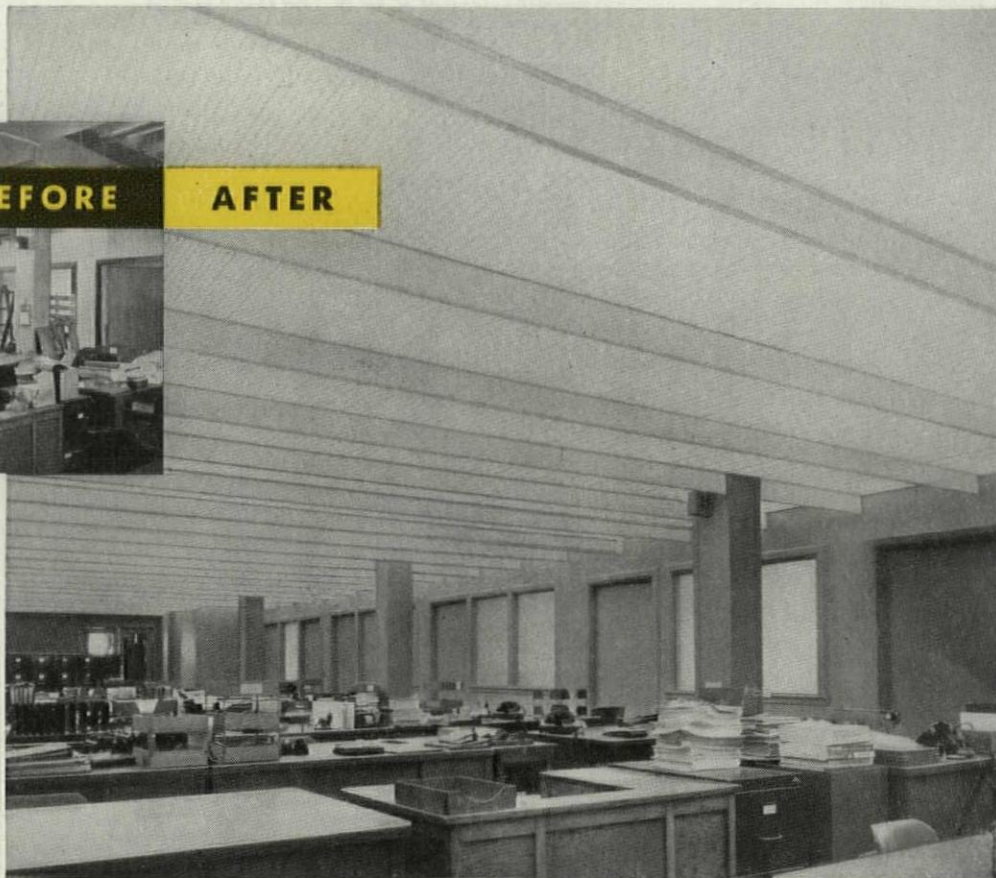


UNITED STATES STEEL



BEFORE

AFTER



New Ceiling Creates

Of course it's the same room! Only the ceiling is different. But what a difference!

... a sea of light!

But what a difference! A soft, glareless light from concealed fluorescent tubes is diffused *through the ceiling*, uniquely constructed of VINYLITE Rigid Sheets. Light reaches every corner, dispels every shadow, radiates a "luminous environment" from wall to wall. The room has a new, eye-appealing sweep. Gone from sight are the light bulbs, wires, pipes, air ducts, and beams. Gone, too, is excessive noise. Fatigue is reduced, efficiency is improved, dinginess is banished.

Readily installed, economically maintained, corrugated VINYLITE Rigid Sheets in 36-inch-wide strips rest on supporting channels suspended from above. They roll back in sections for easy access to light fix-

tures and valves and for cleaning. There's no interference with sprinklers—the VINYLITE Sheets lose their rigidity and drop at 140° F. Baffles of perforated steel enclosing sound-absorbing pads may be attached to the supporting channels for superior acoustical correction.

Luminous ceilings of VINYLITE Rigid Sheets are light in weight, flexible, and dimensionally stable. They're easy to clean, resistant to oil, moisture and combustion. They're another example of the scores of VINYLITE Plastic products made for defense and basic industry. If you're building, remodeling, or redecorating, you'll want to learn more about them. Write Dept. MC-14.

Data courtesy Luminous Ceilings, Inc., 2500 W. North Ave., Chicago 47, Ill.

Vinylite

BRAND

PLASTICS



BAKELITE COMPANY

*A Division of
Union Carbide and Carbon Corporation
30 East 42nd Street, New York 17, N.Y.*

Be sure to visit
BAKELITE'S EXHIBIT
Booth 314-324 at the
NATIONAL PLASTICS EXPOSITION
Philadelphia, March 11-14.



FOLDDOOR

FOR OFFICES

...gives privacy and increased efficiency



FOLDDOOR

FOR BUSINESSES

...adds profitable facilities in same floor area



FOLDDOOR

FOR INSTITUTIONS

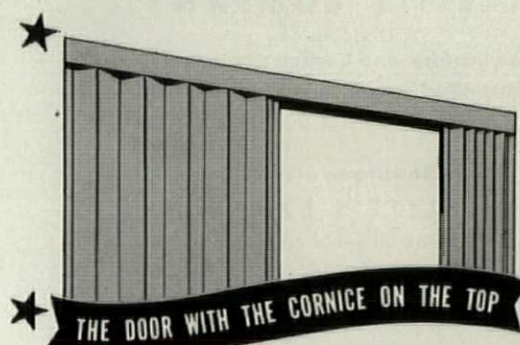
...brings economical flexibility of space

WHEN YOU NEED FOLDING DOORS, SPECIFY FOLDOOR

The smartest thing in doors!

FOLDOOR installing distributors are located in most principal cities. Contact the one nearest you . . . inspect his recent installations . . . see for yourself what a decorative, practical and economical space-saver FOLDOOR is. Sizes and colors to fit every need.

Full details and illustrations of installations shown in Sweet's Architectural Catalog. Copy on request.



Always identify FOLDOOR by this exclusive, attractive cornice top.

HOLCOMB & HOKE MFG. CO., INC.
1545 Van Buren Street, Indianapolis 7, Indiana

HOLCOMB & HOKE
FOLDDOOR

REVIEWS

show of some of its members' works which have been used successfully in building: among them, William Talbot, Bernard Rosenthal, and Gwen Lux.

The ninth purpose of the Guild as set forth in its Preamble is "to enlist the co-operation of the architectural profession that the sculpture and the architecture of buildings may again be planned simultaneously and homogeneously." If this show holds a lesson for sculptors and architects, it is largely a negative one: the arts cannot be integrated in a file drawer.

PROCEEDINGS OF THE FIRST U. S. CONFERENCE ON PRESTRESSED CONCRETE,

Massachusetts Institute of Technology. 256 pp. 8 1/2 x 11". Illus. Paper bound. \$1.50, plus 12¢ postage (21¢ to Canada and abroad), payable to "MIT Acct. No. 1793.63A," MIT, Room 1-163, Cambridge 39, Mass.

This is a complete transcript of all 38 of the papers delivered by experts at MIT's important conference on prestressed concrete which comprehensively covered the present status and potentialities of this relatively new construction technique (Sept. issue '51). As an up-to-date report on U. S. experience in this field, it is an invaluable reference book which fills an important gap in the industry's library.

EARLY AMERICAN ARCHITECTURE by Hugh Morrison. Oxford University Press, New York, N. Y. 619 pp. 6 1/2 x 9 1/2". Illustrated. \$12.50.

Here at last is a truly definitive study of the architecture of colonial America. Though this rich period has long been a happy hunting ground for architectural historians, Dartmouth's Hugh Morrison is perhaps the first to compress into a single volume a comprehensive account of all types of building in each of the colonial regions—from St. Augustine in 1565 to San Francisco in 1848.

The book is far more than a mere catalogue of style variations. It brings into sharp focus all the forces which shaped the buildings of the period—the influences of the old world technology, materials and regional requirements of the new. Though architects will be familiar with most of the examples that Professor Morrison has chosen to illustrate the great colonial styles, his method of presenting buildings in the full context of their time gives them new vitality and meaning.

Each of the book's three main sections points up the distinctive regional qualities of colonial architecture—in the 17th Century under New England, Dutch and Virginia leadership, in the Spanish and French colonies, and in the Georgian period from 1700 to 1780. An excellent concluding chapter provides a bridge to the present with a concise summary of 19th Century developments; the

(Continued on page 174)



FLOOR TYPE

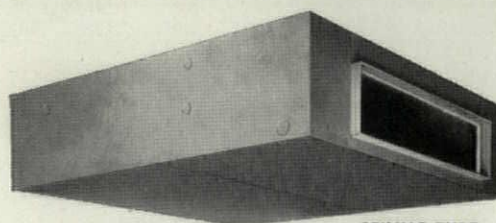
McQuay SEASONMAKERS

INDIVIDUAL ROOM AIR CONDITIONERS

(For use with central chilled water or freon system)

A best seller for you and the best buy for your customer! McQuay Seasonmakers satisfy the demand for individual room comfort. The Seasonmaker's quiet operation and attractive design are welcome additions to any multi-room building.

The Seasonmaker's year 'round performance actually "make the seasons come to you" . . . providing heated, and filtered air in winter; cooled, dehumidified, and filtered air in summer.



CEILING TYPE
for suspended mounting

Famous McQuay Ripple-Fin coil construction assures long life and dependable service. These units are easy to install and maintain. Available in three sizes and types to fit the requirements of old and new buildings. Write for Condensed Bulletin 700 for full details. Representatives in all principal cities.



BASIC TYPE
for fully recessed
installation

McQuay INC.

1609 BROADWAY STREET N. E., MINNEAPOLIS 13, MINN.

AIR CONDITIONING • REFRIGERATION • HEATING



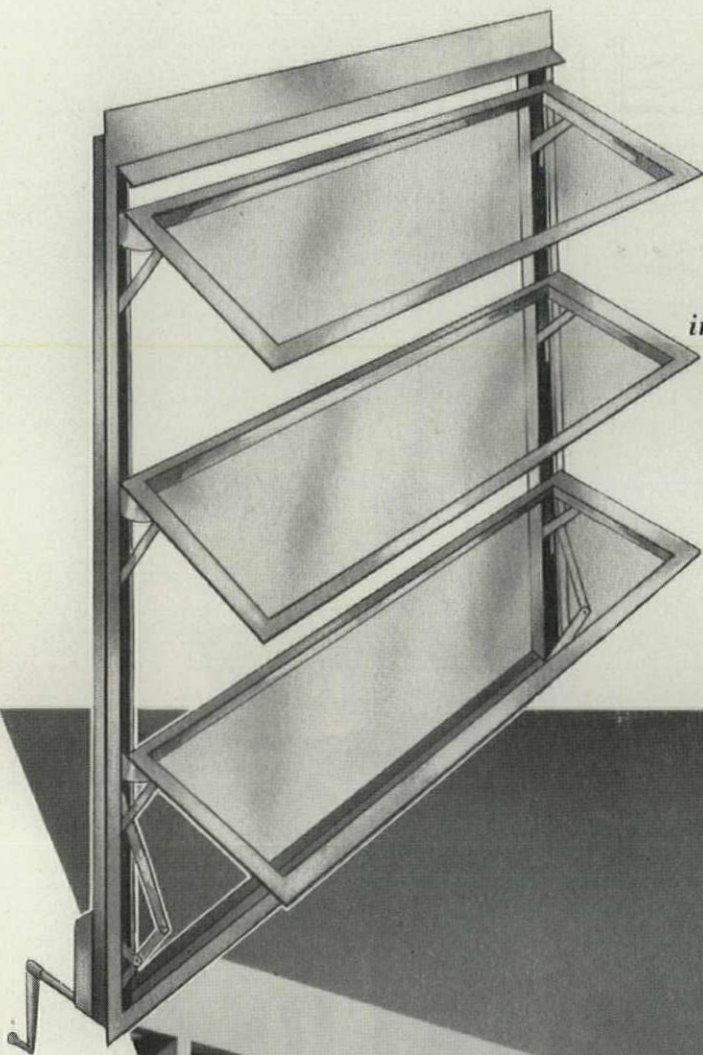
FOR THE BIG JOB

Specify All-Aluminum

MIAMI AWNING WINDOWS

Windows take hard punishment in schools. Wear and maintenance considerations are therefore of primary importance in specifying windows — especially today. Windows must be built to last the long, uncertain years ahead. And — Miami Awning Windows are built for this big job. That's why Robert M. Little, Architect, specified all-aluminum Miami Awning Windows in the University of Miami's famed Merrick Building.

Constructed from extra heavy aluminum alloy sections (63-ST5). Both sides of vent sections are actuated with equal pressure through a patented, concealed torque shaft. Plastic weatherstripping optional. For homes, hospitals, schools, and office buildings. Available for immediate shipment.



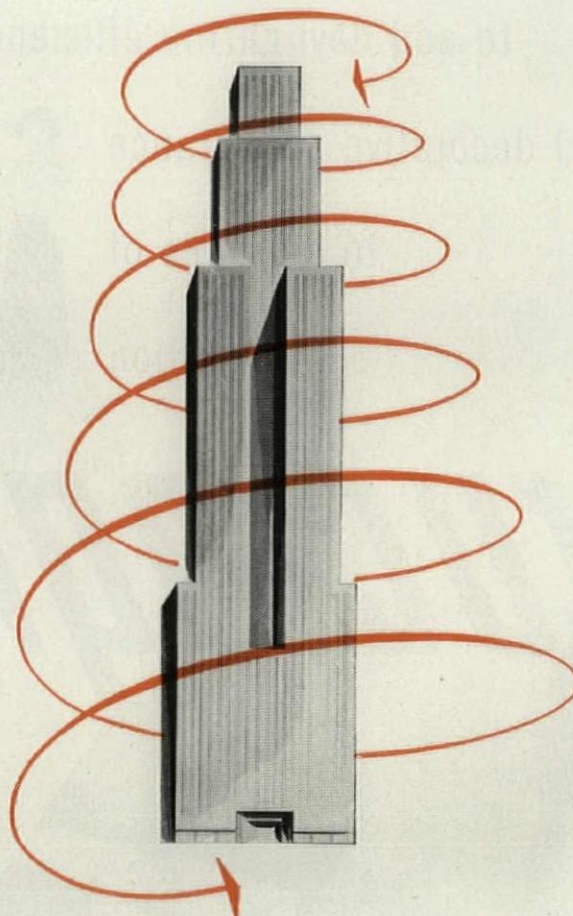
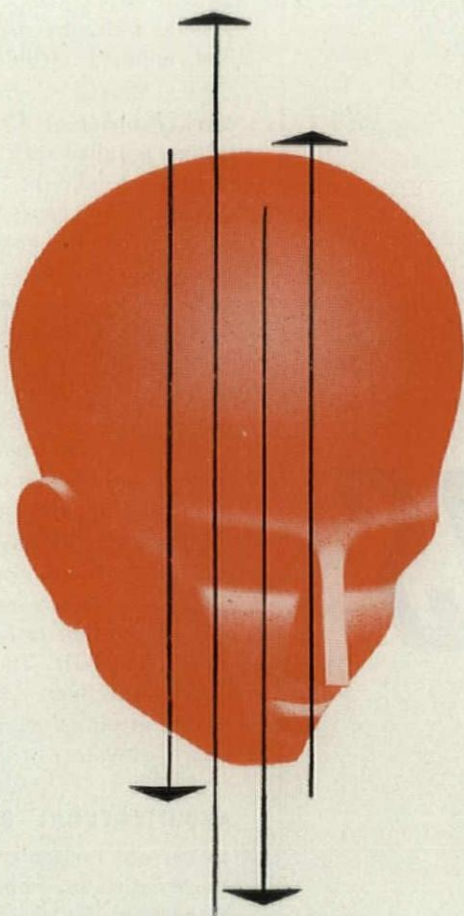
Merrick Building
University of Miami
Robert M. Little, A.I.A.
Architect

Member
Aluminum Window
Manufacturers
Association

For further information,
see Sweet's Architectural
File ^{17A}/_{Mi} or -- write, wire, or
phone Dept. BF.

MIAMI WINDOW CORPORATION
5200 N. W. 37th Avenue • Miami 42, Florida

MIAMI
Awning
WINDOW



HOW **SELECTOMATIC** ORGANIZES CONFUSION

Up, down, down, up, down . . . push the button . . . and wait and wait and wait. This could be a typical elevator traffic pattern in buildings using ordinary control systems. And the starter . . . must be guide, dispatcher, traffic cop and public relations man all at once? If any of these problems disrupt the flow of elevator traffic in your building, Westinghouse has the answer.

To organize confused elevator traffic conditions . . . to take the guesswork out of your starter's job, let Westinghouse Selectomatic take over. This will mean syrup-smooth flow of traffic all day long. For at the setting of a switch, Selectomatic matches calls, cars and floors, concentrates its unique "electrical brain" on putting cars where they're needed, when they're needed. With amaz-

ing Selectomatic at work in your building, your starter is free to handle his number one job, full time . . . directing lobby traffic.

And now, Selectomatic installations include fabulous Synchro-Glide Landing Control, the exclusive Westinghouse development that makes accurate landings super-fast and feather-soft.

But test-ride a Selectomatic installation and see for yourself why your elevator plans should include this investment-wise Westinghouse control system. Contact your nearest Westinghouse Elevator Office for the name of a Selectomatic installation in your locality. Or write Westinghouse Electric Corp., Elevator Division, Dept. F-1, Jersey City, N. J.

For years, Westinghouse engineering developments have stimulated the vertical transportation industry to strive for ever higher standards of quality and efficiency. In every phase of vertical transportation—equipment, maintenance, and service—Westinghouse has been the vanguard for progress. So, whatever your traffic problems may be—there's a Westinghouse Integrated Vertical Transportation System to solve them completely. Look ahead with the leader . . .

YOU CAN BE SURE...IF IT'S

Westinghouse

J-98624

NOW...a versatile building panel

to add daylighting efficiency

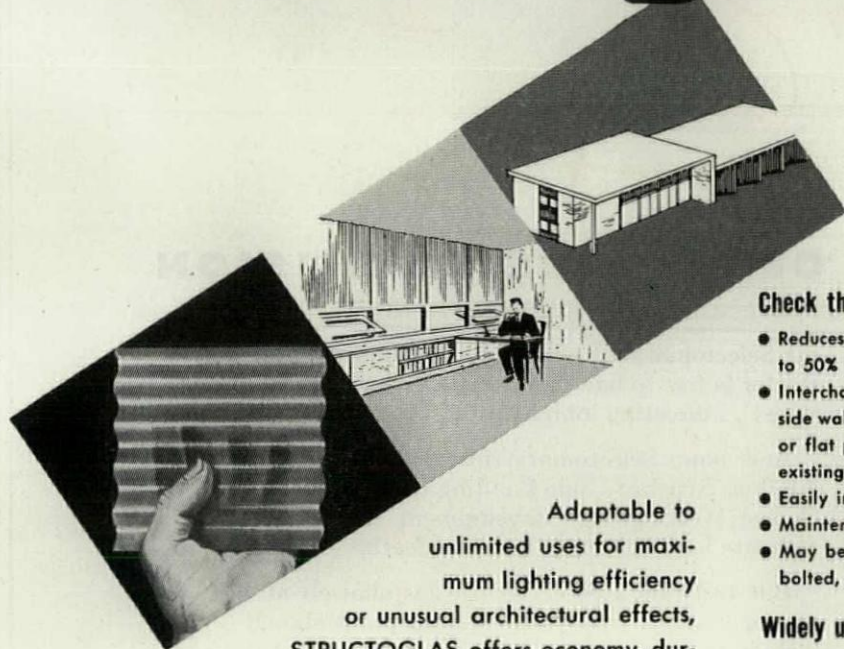
and decorative appearance

to all types of

construction



structoglas



Adaptable to unlimited uses for maximum lighting efficiency or unusual architectural effects, **STRUCTOGLAS** offers economy, durability, high level transmission of natural diffused light...plus attractive appearance. This translucent, Fiberglas-reinforced building panel is extraordinarily strong, yet lightweight; low cost but long-lasting!

Translucent colors: Surf Green
Crystal Blue • Harbor Blue
Tangerine • Ivory • Lemon Yellow

Opaque colors: Tile Red
Sunflower Yellow • Emerald

Available in standard heavy and extra heavy corrugations to match metal and asbestos cement in standard sheet sizes up to 12 feet in length. Also available in flat stock.

See our catalog in Sweet's File, Architectural

For full details, send this coupon today! ▶

Check these features:

- Reduces daylighting costs up to 50% or more.
- Interchangeable with corrugated side wall and roof construction, or flat panels, in both existing and new construction.
- Easily installed.
- Maintenance-free.
- May be cut, sawed, nailed, bolted, drilled or punched.

Widely used for:

- Skylights.
- Window walls.
- Office partitions (fixed or moveable).
- Shower and toilet partitions.
- Canopies and awnings.
- Interior wall panels.
- Decorative exterior facings and many others.

STRUCTOGLAS Division of
international molded plastics, inc.
4387 West 35th Street, Cleveland 9, Ohio

Please send me complete Structoglas information.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

REVIEWS

Federal style, the rise of electricism and the first rumblings of the modern revolt.

Like Morrison's previous book, *Louis Sullivan, Prophet of Modern Architecture*, this history is salted with shrewd critical observations which take the "great styles" from their pedestals. The heavy framing of the colonial house is "a monument to conservatism and lack of inventiveness . . . It must always remain a cause for amazement that the modern balloon frame was not invented until 1833." And "whether deception in architecture . . . is to be condemned on moral grounds . . . the important fact is that these 'rusticated wood' (Georgian) houses do not look as well as their more honest contemporaries, especially in close-up actuality."

Since Morrison hopes that his laymen readers will "learn to read buildings themselves, rather than mere words about them," the book is profusely illustrated with nearly 500 photos, plans and details. Though the selection of pictures is excellent, their small scale and poor quality of reproduction detract from an otherwise fine book.

ARCHITECTURAL & ENGINEERING LAW.

By Bernard Tomson. Reinhold Publishing Corp., 330 W. 42nd St., New York, N. Y. 6 1/4 x 9 1/4". 424 pp. \$7.00.

Based on 1,300 cases that have come before the courts involving architects and engineers in one way or another, this book covers these seven subjects: 1) license laws for the architect, engineer, surveyor and general contractor; 2) relations among architects and engineers; 3) architect, engineer and owner—the employment relationship; 4) the decision or certificate of the architect or engineer; 5) rights of architects and engineers: compensation; 6) liability of architect or engineer to owner; 7) rights of the architects and engineers—property in plans.

CHURCH MAINTENANCE MANUAL. By Roger C. Whitman. Doubleday & Co., Inc., Garden City, N. Y. 5 1/2 x 8". 255 pp. \$3.00.

Designed to answer every question relating to the maintenance of church equipment, buildings and grounds, this book is written simply and concisely, with easy-to-follow instructions. It includes chapters on the cleaning of church interiors; care of linen; repair of floors, walls, ceilings, furniture and woodwork; acoustics and bells; organs and pianos; repair and maintenance of outside walls, windows, doors, roofs, belfries, steeples, chimneys and gutters.

The painting of churches and of church equipment is discussed thoroughly, as is the efficient operation of heating, plumbing and lighting systems; fire prevention and insurance; and ground maintenance.

(Continued on page 178)

1
PLANT:



2
REASONS

Asten-Hill Manufacturing Co., Philadelphia, Pa., The Ballinger Co., Architects and Engineers.

for choosing **kno-draft** adjustable air diffusers

Office space and manufacturing areas in this new asbestos dryer felt plant posed separate problems in air conditioning. In the manufacturing section, the vital factor in diffusion was the *even distribution* of the thoroughly conditioned air. Kno-Draft *Adjustable* Air Diffusers got the call because of their demonstrated efficiency in similar critical installations.

In offices and other employee quarters, beauty as well as efficiency had to be considered. Here again, Kno-Draft *Adjustable* Air Diffusers were selected. In addition to their unobtrusive harmony with any surroundings—from severely plain work areas to paneled directors' rooms—they assure the comfort of *draftless* air distribution.

Another big reason for choosing Kno-Draft *Adjustable* Air Diffusers for every job is their adjustability *after* installation. This means exactly the right balance of temperature and air distribution throughout the area for user comfort . . . and saves engineer and installer a vast amount of preliminary figuring. There are types and sizes of Kno-Draft *Adjustable* Air Diffusers to meet all requirements.

NEW EDITION! KNO-DRAFT DATA BOOK now in new 32-page format. Complete up-to-the-minute engineering and installation data on Kno-Draft *Adjustable* Air Diffusers. Bring your files up to date. Mail coupon today.

TRADE MARK "KNO-DRAFT" REG. U. S. PAT. OFF.

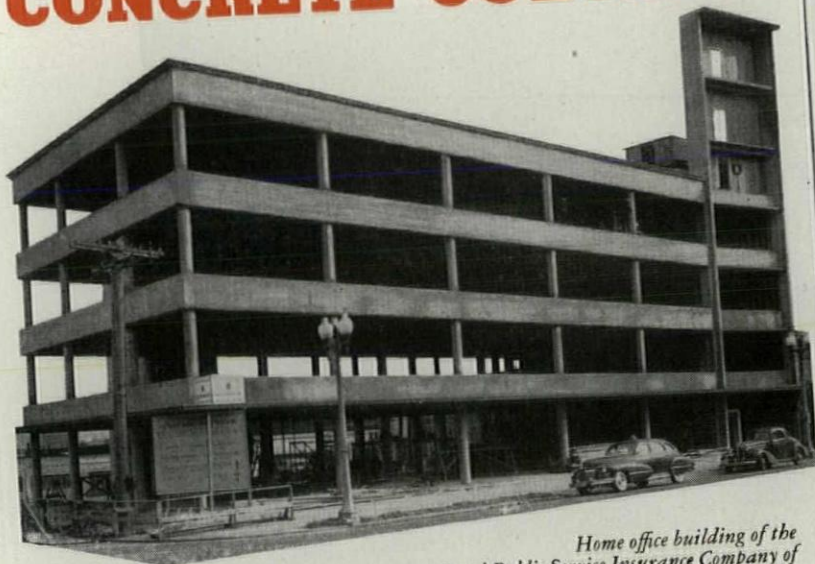
W.B. CONNOR ENGINEERING CORP.
Danbury, Connecticut
Air Diffusion • Air Purification • Air Recovery
In Canada: Douglas Engineering Co., Ltd.,
190 Murray Street, Montreal 3, P. Q.

W. B. CONNOR ENGINEERING CORP.
Dept. D-32, Danbury, Connecticut

Please send me the *new edition* of the Kno-Draft Data Book—without obligation, of course.

Name.....
Position.....
Company.....
Street.....
City..... Zone..... State.....

CONCRETE COLUMNS



Home office building of the
National Public Service Insurance Company of
Seattle, Wash. Architect, Kenneth S. Ripley.
Builder, Brazier Construction Company.

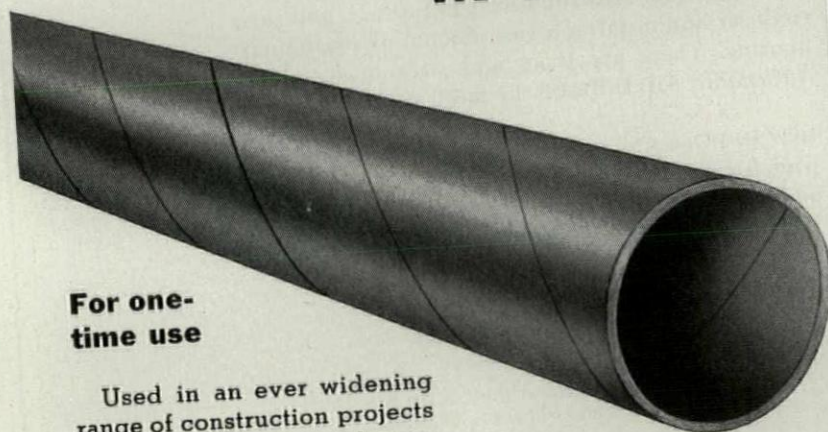
formed with

Sonotube®

PAT. APP. FOR.

FIBRE FORMS

Save TIME
LABOR
MONEY



**For one-
time use**

Used in an ever widening
range of construction projects
requiring concrete columns,
piers, piles, underpinning, etc.
Available in sizes from 3" to
24" I. D. in lengths up to 25'
...hand sawed to dimensions
on the job.

Write for complete
information and prices



SONOCO PRODUCTS COMPANY
HARTSVILLE, S. C. MYSTIC, CONN.

This ad is one of a series telling industrial and commercial Management the story of Coolair Breeze Conditioning.

LOW-COST COOLING FOR PLANTS & OFFICES WITH A BREEZE!

With Coolair Breeze Conditioning Fans you can introduce cooling, healthful breezes into plants and offices at low cost, without major installation expense and at a minimum outlay for operation and upkeep. No water required! Result—more comfort, better summertime production.

**Coolair Breeze Conditioning Can
Solve Your Summertime Heat Problem!**

The Coolair line ranges from window fans up to 9' industrial giants. Remember, it takes a real breeze to keep you cool. And your Coolair representative will be glad to plan the installation with the capacity to provide you with cooling breezes all summer long.



Production in this food plant never sags in hot weather! Coolair Breeze Conditioning sweeps entire plant with cooling breezes—improves morale, production.

Low-Cost Cooling? You'll be surprised how little Coolair Breeze Conditioning costs! Write TODAY for complete information and the name of your local Coolair representative. American Coolair Corporation, Jacksonville 3, Fla.



The complete line of Coolair Breeze Conditioning Fans includes mouse-quiet, spring-mounted models for cooling homes, offices, schools, churches.





Perfect daylighting even on a dim day—with Fenestra Steel Windows. Bendle Elementary School, Flint, Michigan. The ceiling is Fenestra "AD" Metal Building Panels. They form ceiling, subfloor or roof all at once.
Architect: Bennett & Straight—Dearborn, Michigan
Contractor: Perry-Root Co.—Flint, Michigan

How The FENESTRA Daylighting System Develops Good Learning Environment

For good daylighting, you first need to bring an abundance of daylight into the room. You may control the intake of light with simple shades—to give your students the amount of light they need for the specific job they are doing. Light-reflective room surfaces will spread the light evenly throughout the room.

Two years of research, by Professor R. L. Biese, Jr., Lighting Expert, and his staff at Southern Methodist University, conclusively proves that proper correlation of Fenestra* Steel Windows, controls, decoration and seating provides excellent economical daylighting.

For the best daylighting, an environment of comfort and alertness and brightness—you need a ceiling-high, wall-to-wall, bank of slim-lined, economical Fenestra Intermediate Steel Windows. They don't shut out the light . . . they bring it in. Even on dim days daylight fills

the room. (As you can see from the picture above.) And they don't give students a closed-in, trapped feeling—they give you a wide-open view.

Fenestra Windows give you more glass area, more daylight, more view than most windows because frames are especially designed to be strong without being bulky. You get controlled fresh air through protecting vents . . . even when rain is pouring down! You get economical upkeep because Fenestra Windows are washed and screened from inside. And they are available Super Hot-Dip Galvanized to eliminate any need for maintenance-painting.

Fenestra Windows are the mark of a modern school. The mark of a school that children like. For full information call the Fenestra Representative. Mail the coupon for your free copy of the easy-to-read Daylighting Book based on Professor Biese's research.

WINDOWS THAT OPEN YOUR
SCHOOL TO DAYLIGHT...

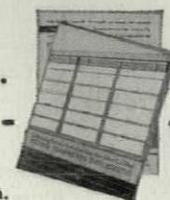
Fenestra

FREE AUTHORITATIVE BOOKS . . .

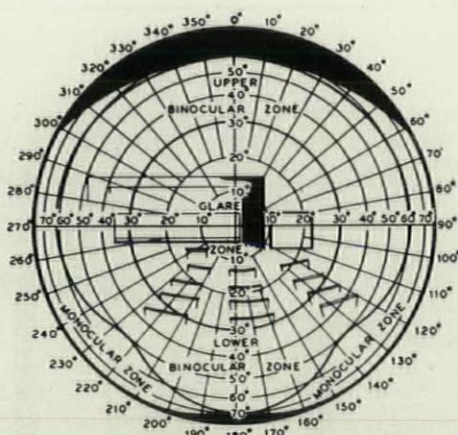
Detroit Steel Products Company
Dept. MB-3, 2251 E. Grand Blvd., Detroit 11, Mich.
Please send me: ☐ Better Classroom Daylighting
☐ Fenestra Hot-Dip Galvanizing

Name _____

Address _____



Angular extent of the visual field from each eye (monocular field) and the combined, or binocular, field are graphically illustrated in this chart which author Howard Sharp uses through the courtesy of Holophane Co.



INTRODUCTION TO LIGHTING

By Howard M. Sharp. Prentice-Hall, Inc., 70 Fifth Ave., New York 11, N. Y. 337 pp. 6 x 8 1/4". Illus. \$6.65.

Students of artificial lighting are fortunate that a man of Sharp's abilities has written a textbook for them. Not just a theoretical discussion of the complicated and controversial field of lighting, this is a working volume complete with typical problems and questions and a list of references at the close of each chapter. However, despite the highly technical nature of the subject, the language is simple and the sentences are short and readable. Thus, Sharp's subject becomes clear and understandable.

There is no question about the author's authority: besides being an active consulting electrical engineer, he is assistant professor of engineering at the University of Buffalo and a past president of the Illuminating Engineering Society.

Since most architects do not boast a lighting engineer's training and experience, there is much in Sharp's book which should prove helpful to them—even though they probably cannot afford to take the time to master the subject and must continue to call in consultants for their more important jobs.

Fluorescent facts. Typical of the book's simple, direct approach is its chapter on gaseous discharge lamps which clears the scene of much of the hocus-pocus that has accompanied the recent and rapid acceptance of fluorescent lighting. "The fluorescent lamp," Sharp says, "is simply a device for converting [the mercury's arc's] ultraviolet radiation, which is of course invisible, to visible radiation. The transforming agent is known as a phosphor, which is a chemical distributed over the inside of the tube. . . . The arc stream is through mercury vapor. Argon or krypton gas is used in small quantity to help start the arc. These gases have a lower resistance than the cold mercury vapor and hence will start at a lower voltage. The heat from the argon discharge vaporizes the mercury and normal operation occurs. . . . The result is a light source of high efficiency."

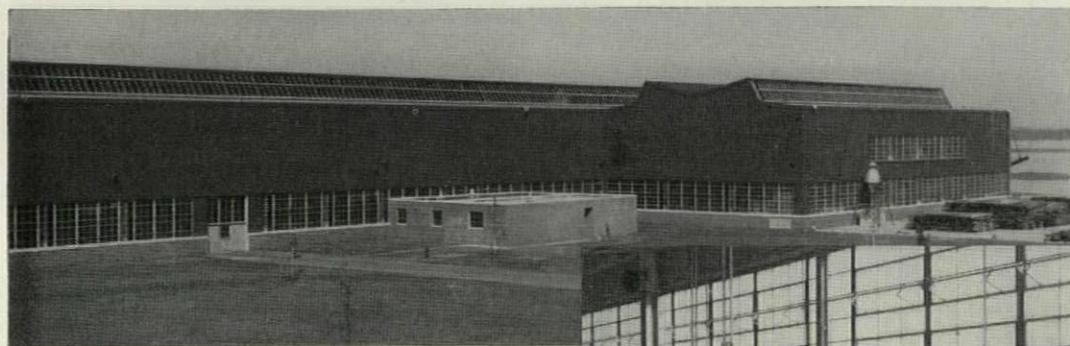
Spotted throughout the same chapter are other important facts of life concerning the fluorescent tube:

▶ "Efficiency of tungsten-cathode lamps increases with length of tube and increase in tube diameter. . . . The cathodes are treated with emitting salts and some of this is sputtered off at each start. . . . Thus the lamp should not be started at frequent intervals, the life being proportional to the total number of starts.

▶ "For efficient light production, fluorescent lamps of the preheat- and tungsten-cathode

(Continued on page 182)

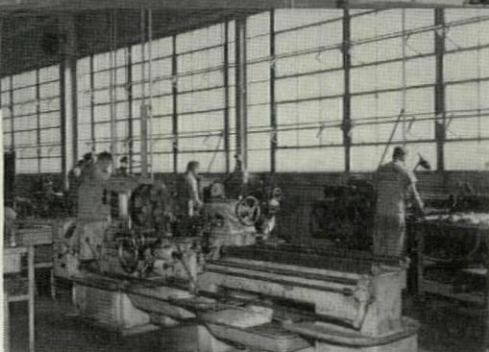
PLENTY OF LIGHT TO MAKE IT RIGHT!



Over 85,000 sq. ft. of Coolite in skylights and sidewalls at Calumet & Hecla Consolidated Copper Co., Inc., Wolverine Tube Div., Decatur, Ala.

Architect—Howard, Hickerson & Jordan, Nashville, Tennessee
Contractor—Foster & Creighton Company

Softened, diffused daylight, filtered through Coolite aids seeing and permits precision work without artificial illumination during normal daylight hours.



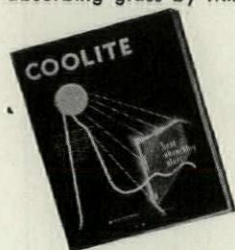
87,000 Square Feet of Coolite Glass Floods Defense Plant with Natural Illumination For Accurate, Accelerated Shell Band Production

Manufacturing shell bands is an exacting process, for there is no place for mistakes on the firing line. To catch misfits before they can cause trouble, all work in this modern plant is carefully inspected by micrometer measurement . . . and to make that measurement as accurate and easy as possible, it is performed under natural daylight.

Under normal conditions the entire mill is illuminated perfectly by daylight admitted by Coolite, the heat absorbing glass by Mississippi. Coolite's hammered

texture and delicate tint gives the transmitted light diffused and softened qualities conducive to greater eye comfort. Coolite absorbs solar heat rays, keeps workrooms degrees cooler, makes conditions more pleasant. This installation has proven effective and convenient and little artificial lighting is employed in the building.

Employees at precision tasks see better, work better, feel better under natural illumination controlled by Coolite, the Heat Absorbing Glass by Mississippi.



Specify Mississippi Glass and make daylight a part of your plan. Send today for literature and free samples.

Translucent, Figured and Wired Glass by Mississippi is "Visioneered" for better daylight illumination. Available in a wide variety of patterns and surface finishes scientifically designed to distribute light to best advantage.



MISSISSIPPI Glass COMPANY

88 ANGELICA ST. SAINT LOUIS 7, MO.

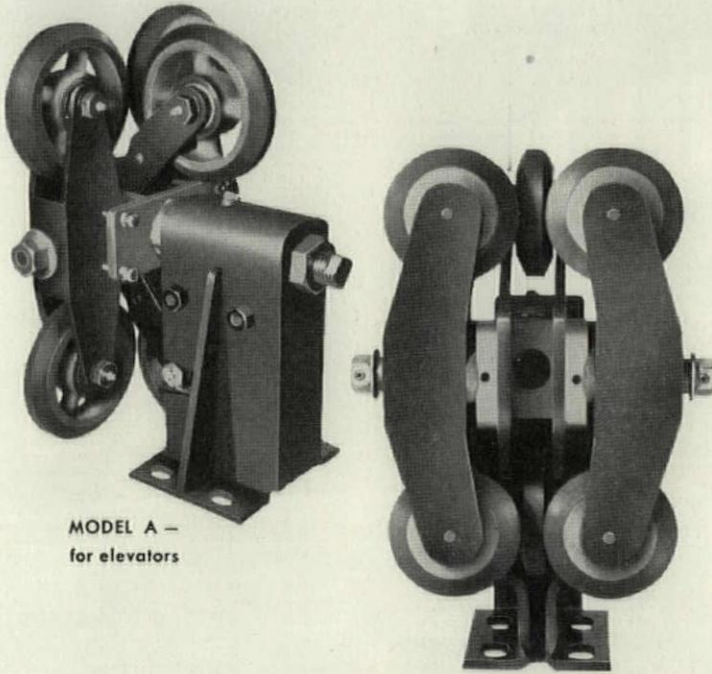
NEW YORK • CHICAGO • FULLERTON, CALIF.

WORLD'S LARGEST MANUFACTURER OF ROLLED FIGURED AND WIRED GLASS



ELIMINATE THE GREATEST FIRE HAZARD IN YOUR BUILDING WITH **ELSCO**

IMPROVED
SAFETY
ELEVATOR
ROLLER GUIDES



MODEL A —
for elevators

MODEL C — for counterweight
and low rise, low speed elevators

AMONG OUR AGENTS, DEALERS AND CUSTOMERS

American Elevator & Machine Co.—American Manufacturing Co.—Atlas Elevator & Lift Co.—Atlas Elevator Co.—Bagby Elevator Co.—Bartman Elevator Co.—Bay State Elevator Co.—Central Elevator Co.—Campbell Elevator Co.—Canton Elevator Co.—Charles Lerch Elevator Co.—Chicago Elevator & Machine Co., Inc.—E. C. Long Elevator Service Co.—Eastern Elevator Co.—Eastern Engineering & Elevator Co.—Elevator Construction & Repair Co.—Elevator Engineering Co.—Elevator Maintenance Co., Ltd. (L. A.)—Elevator Mfg. Co. of America—Elevator Service Co. (Ft. Worth)—Elevator Service Co. (Waterbury)—F. Grote Manufacturing Co., Inc.—F. H. Allen & Co., Inc.—F. S. Payne Co.—Gem City Elevator Works, Inc.—General Elevator Co. (Ga.)—General Elevator Co. (Md.)—General Elevator Co. (N. J.)—Georgia Elevator Co.—Globe Hoist Co.—Goetz Elevator Co.—Gust. Lagerquist & Sons—Gust. Weber Elevator Co.—Haughton Elevator Co.—Higdon Elevator Co., Inc.—Hollister-Whitney Co.—Home Elevator Co. (Cal.)—Home Elevator Co. (Ind.)—Hunter-Hayes Co.—A. Kieckhefer Elevator Co.—John W. Kiesling & Son, Inc.—Johnson Elevator Co.—Kimball Elevator Co., Ltd.—Kimberly-Clark Corp.—Long Beach Elevator Co. (Cal.)—Maintenance Co., Inc. (N. Y. C.)—Marshall Elevator Co.—Martin A. Ceder, Elevators—Miami Elevator Co.—Mobile Elevator Co.—Monarch Elevator & Machine Co.—Montgomery Elevator Co.—Moody, Sweazy & Rowe—Murphy Elevator Co.—Nelson Elevator Co.—Northwestern Elevator Co.—Pacific Elevator & Equipment Co.—Phoenix Elevator Co.—Pittsburgh Elevator Co.—R & O Elevator Co., Inc.—Ragsdale Elevator Co.—Reliance Elevator Mfg. Co.—Roanoke Elevator Co.—Rotary Lift Co.—Salem Elevators—Schindler & Co., Ltd.—Security Elevator Co.—S. Heller Elevator Co.—Shepard Elevator Co.—Staley Elevator Co., Inc.—United Elevator Corp.—Warner Elevator Mfg. Co.—Warsaw Elevator Co.—Watson Elevator Co., Inc.—Westbrook Elevator Mfg. Co.—White-Evans Elevator Co., Inc.—Wm. R. Timpany Elevator Co.

A CROSS SECTION OF ELSCO INSTALLATIONS

ALA. Waterman S. S. Bldg.—ARIZ. Title & Trust Bldg.—ARK. State Ed. Bldg.—CAL. City Hall, Navy Supply Depot, Met. Life Ins. Bldg., Federal Bldg., Marine Corps. Depot, Town House—FLA. Hotels Delano, Delmonico, Bel-Aire, Casa Blanca, Mercy Hosp.—ILL. Hotels Washington, Seneca, Stevens, Palmer House, Abe Lincoln, Board of Trade Bldg., LaSalle-Wacker Bldg., Harvester Bldg., McNeill Bldg., Westminster Bldg., North American Bldg., Victor Gasket & Mfg. Co. Bldg., Chi. Burlington & Quincy R. R. Bldg., City-County Bldg., St. Mary's Hosp., Swift & Co., Norwegian Old Peoples Home—IND. Swift & Co., Hamilton Co. Hosp., Shorland Towers—KEN. Hotels Brown, Kentucky—MD. Naval Gun Factory, Ardell Realty Bldg.—MASS. Gen. Elec. Bldg., Morgan Bldg., Boston Sanatorium, Norton Co.—MINN. University of Minnesota, Selwood Bldg.—MO. Vets. Admin. Bldg., Fidelity Bldg.—N. J. Jersey City Medical Center, Swift & Co., Morningstar Nicolli Bldg.—N. M. Hilton Hotel—N. Y. Gen. Elec. Bldg., Turbine Bldg., Rockefeller Center Bldg., McGraw Hill Bldg., Ins. Co. of North America Bldg., 30 Broad St. Bldg., Broadway Realty Bldg., Grasslands Hosp., N. Y. Bus Terminal, Arnold Gregory Mem. Hosp., Lutheran Home for Aged, Int'l Tel. Bldg., Hotel Plymouth, Piccadilly, Commodore, Taft, Roosevelt, Statler, Plaza—N. C. Bladen Co. Hosp., Franklin Co. Hosp., Richmond Co. Mem. Hosp., Caldwell Mem. Hosp.—OHIO Goldblatt Mem. Hosp., Ohio State U.—PA. Cresson State Hosp., New Medical Bldg., Altoona Hosp., Torrancia State Hosp., Atlantic Bldg.—S. C. Georgetown Mem. Hosp.—TEX. Midland Bldg., Leonard Bros. Dept. Store, Marshall Bank Bldg., Medical Arts Bldg., Cobb Bros. Dept. Store, Tyler Bank Bldg., M & M Bldg., Hotels Scharbauer, Jefferson, Hilton—VA. Blue Ridge Sanatorium, Howard U.—WASH. Olympic Nat'l Life Ins. Bldg., St. Johns Hosp., 1411-4th Ave. Bldg., Bon Marche Dept. Store, Olympic Hotel, Exchange Bldg., Rhodes Dept. Store—WASH. D. C. Naval Gun Factory—WISC. Berlin Mem. Hosp.

- 1** Eliminate oil and grease from the elevator shaftway and operate your elevator on dry rails. Elevator shaftways with inflammable oil, grease and fuzz are the greatest fire hazards in your building.
- 2** Save between 25% and 40% in electric current. ElSCO Safety Guides are an anti-friction device.
- 3** Save large labor costs by eliminating the necessity of frequent cleaning of hatchways.
- 4** ElSCO Safety Roller Guides take up badly aligned rails and unbalanced conditions. ElSCO Guides contain stabilizing springs.
- 5** Dry rails permit safety jaws to hold better in the event of accident.
- 6** ElSCO Safety Roller Guides give a smooth, gliding ride.
- 7** ElSCO Guides approved by N. Y. C. Board of Standards & Appeals up to 1200 F.P.M. adaptable to passenger and freight elevators.
- 8** ElSCO Safety Roller Guides are the only guides with oscillation, traction and knee action, and may be installed on all passenger and freight elevators space permitting.

(PATENTED AND TRADE MARK REGISTERED)

For further information
inquire of your maintenance
company or

**ELEVATOR
SAFETY
CORPORATION**

165 Broadway, New York 6, N. Y.

SAFETY WITH SAVINGS



In the offices of a Lansing, Michigan, insurance company: *lighting that provides "vision insurance"*

If you're looking for proof that architect-controlled construction produces a better job—you'll find a perfect example in the Auto Owners Insurance office building in Lansing, Mich. This impressive reinforced concrete structure, faced with Indiana limestone, is the creation of a father-and-son team of architects, Lee Black and Kenneth C. Black. They supervised and coordinated all phases of the construction, interior decorating, furnishings and landscaping.

The results were great. The owners got full value for every dollar spent. Waste and duplicated effort were eliminated and, in several instances, actual savings were effected. The company's employees got the best of working conditions, comfort and convenience. The community got a proud milestone in its civic development. (continued on next page)





KENNETH C. BLACK



LEE BLACK

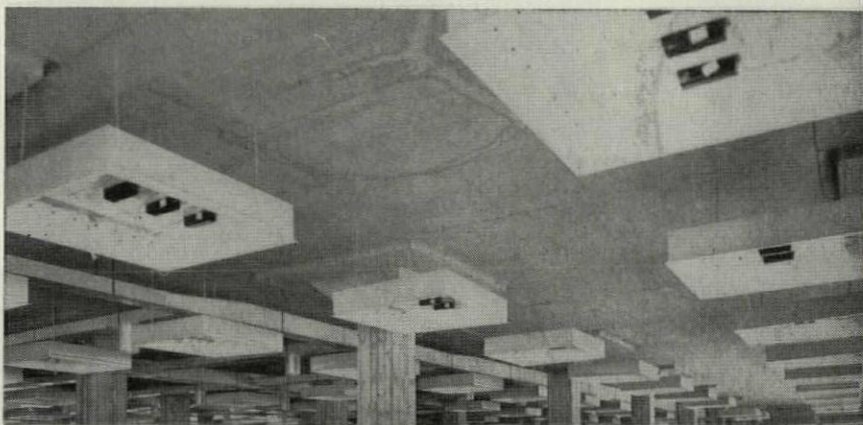
It's particularly fitting that this office building boasts one of the finest lighting installations in the country. In effect, this progressive insurance company "insures" its own people against eyestrain and nervous fatigue while on the job.

Some 600 Day-Brite "Four-By-Four" units furnish the lighting in all large office areas—one of the largest single installations of this type ever made. The "Four-By-Four" fixtures are recessed into the suspended ceiling, on 10-foot centers, and are supported by steel rods from inserts embedded in the concrete superstructure above. (See photo at right.) An improved method of hanging the fixtures, developed by the electrical contractor and Day-Brite engineers, resulted in a substantial saving in construction work.

Architects Black and Black and their consulting engineers, GEORGE WAGSCHAL Associates, who selected Day-Brite "Four-By-Fours," report complete satisfaction. After six months in service, under normal maintenance conditions, this "Four-By-Four" installation is delivering an average of 60 footcandles of illumination. That's real lighting performance!

And speaking for his company, Mr. Vern V. Moulton, president of Auto-Owners, sums it up this way: "I couldn't be more pleased with our lighting. I'll match it against any other office lighting installation anywhere."

There's an entire line of Day-Brite fixtures available to you . . . each designed and built by master craftsmen. Your important commissions deserve the finest lighting—and, always, you can stake your career on a Day-Brite specification.



PRODUCT DATA, DAY-BRITE "FOUR-BY-FOUR" UNITS

BASIC UNIT measures 48" x 48" x 9" deep, die-formed steel construction. Same basic unit for six, eight or ten 40-watt fluorescent lamps. Recessed, surface or suspension mounting. LOUVER ASSEMBLY hinged on two sides; BOXCO louvers are double-wall construction, interlocked for extreme strength. HOT-BONDED SUPER-WHITE finish, rust inhibited. INDIVIDUALLY WIRED, ready for installation. ETL Certified ballasts, no-blink type starters.



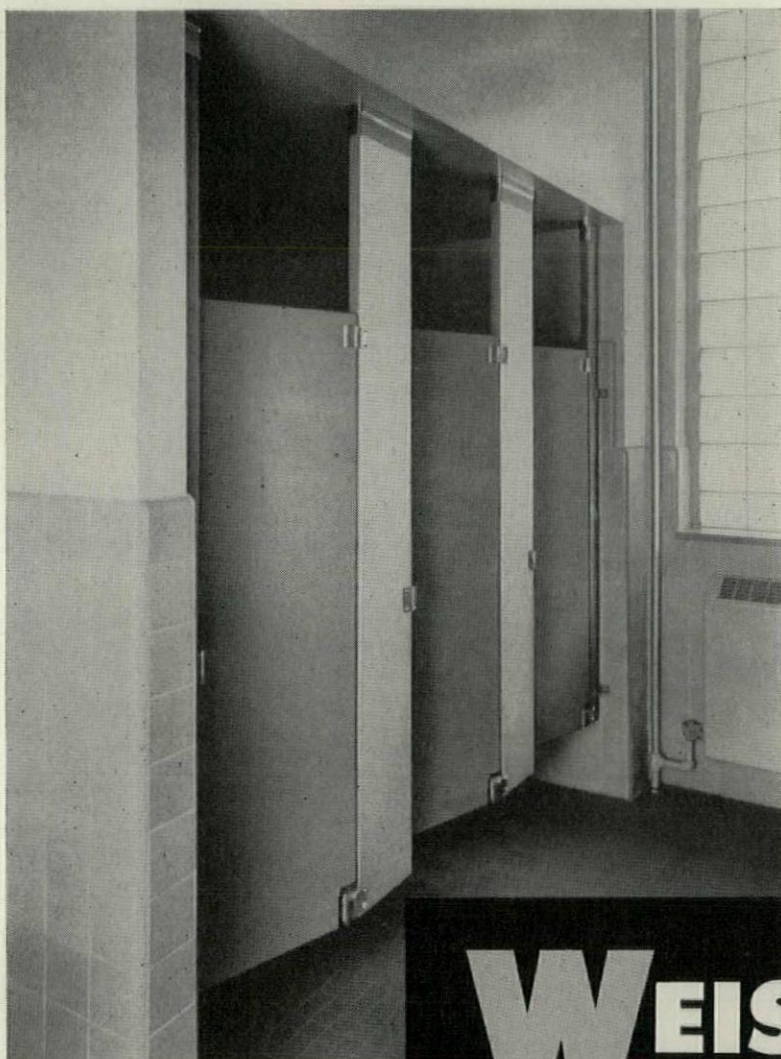
Day-Brite Lighting, Inc., 5471 Bulwer Ave., St. Louis 7, Missouri. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario. Distributed nationally by leading electrical wholesalers.

243



Smooth Modern Lines Maximum Cleanliness

Quality **PROTECTED 3 WAYS**



Ceiling-hung Weisart Installation in high school, Edina, Minn. Lang and Raugland, architects and engineers. Maurice Schumacher and Associates, contractors. Ceiling-hung WeisArt leaves floor clear for easy cleaning. Same quality available in floor braced models.

**Lustrous
Finish
in Choice
of 24
Colors**

WEISART
COMPARTMENTS

Appearance, sanitation and stamina make Weisart compartments the logical choice for today's finest structures. Their enduring serviceability has triple protection: (1) flush steel construction with edges locked and sealed, galvanized surface smooth as furniture steel (2) Bonderized for additional corrosion resistance and positive adhesion of enamel (3) synthetic primer and enamel separately baked combining highly protective surface with lustrous beauty in choice of 24 colors! For detailed information write

HENRY WEIS MFG. CO., INC., 302 Weisart Bldg., Elkhart, Indiana

REVIEWS

variety should not operate in a surrounding air temperature of less than 50°. The rather critical relationship between bulb-wall temperature and current density requires that the lamp designers choose some surrounding air temperature as a point of departure. They have taken 80° Fahrenheit as this point.

► "Lamps can be built to operate at low temperatures but the current density will be so high as to produce light very inefficiently. Conversely, lamps for high-temperature operation will have current densities so low as to be poor light producers. With 80° Fahrenheit chosen as the design point, low surrounding temperatures cause heat to be dissipated too fast, while high surrounding temperatures cause higher arc temperatures. . . .

► "Direct-current operation of fluorescent lamps is not recommended because of the high loss in the series resistance—equal to lamp watts—and the excessive blackening at one cathode. This blackening can be equalized by reversing line current every 24 hr.—a troublesome remedy. Lamp life and lumen maintenance are not favorable. . . .

► "Direct-current operation of fluorescent lamps is possible by substituting a resistance for the autotransformer. The objection is that the resistance consumes about the same power as the lamp. In addition, lamp life is shorter because of less reliable starting conditions. Lumen maintenance is poorer."

Settling the argument about the cooling effect of fluorescent light, Sharp points out that "the lower radiant component of energy has caused the term 'cool' to be applied to fluorescent lighting. Actually, 1 kwhr of electrical energy produces 3,414 Btu per hour regardless of the source. It is true that for equal foot-candles the amount of radiant energy is less for fluorescent sources than for filament sources. On the other hand, levels of illumination are generally higher with fluorescent lamps than with filament lamps so that the net heat effect upon the user of light is about the same."

Luminaires. Cautioning the reader against the tendency to overemphasize the importance of luminaire efficiency, the author emphasizes that "both the quantity of light and the manner of its distribution are vital to the visual function. Since luminaire efficiency relates only to quantity of flux, it is only one criterion of luminaire worth. The most efficient luminaire is a socket holding a bare lamp, but the resulting illumination in most cases would be glaring and uncomfortable. It would hinder vision and reduce visual efficiency. Luminaires of each classification should be compared not only for efficiency, but for candle power distribution and brightness. If the latter two are matched, then the luminaire with the higher efficiency should be favored. . . ."

The growing tendency of architects to integrate luminaires with the ceiling structure

(Continued on page 186)



Architect Vernon A. Moore says:

"We picked Truscon Steel Building Products for the extremely modern requirements of the Norfolk Airport Building."



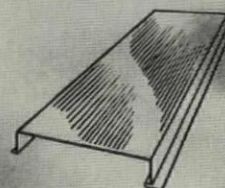
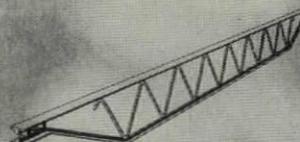
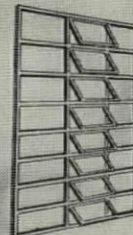
Modern projects such as the new Norfolk (Va.) Airport Building illustrate the architectural distinction and the operating efficiency possible with Truscon Steel Building Products. From one single source, Architect Vernon A. Moore was able to specify and secure delivery on Truscon Series 46 Double-Hung Steel Windows, Truscon Architectural Projected Steel Windows, Truscon Intermediate Steel Windows, Truscon Donovan Steel Windows, Truscon "O-T" Steel Joists, and Truscon Steeldeck Roofing. Doyle and Russell, Contractors, erected this magnificent new structure.



See "SWEET'S" for complete details and specifications on all Truscon Steel Building Products, or write for illustrated literature.

TRUSCON® STEEL COMPANY
1102 Albert St., Youngstown 1, Ohio
Subsidiary of Republic Steel Corporation

TRUSCON a name you can build on



Which will happen to YOU?





A \$200,000 LOSS, as in this paint and varnish factory, can happen only where full fire protection is lacking. To more and more men responsible for protecting life and property, full fire protection means a carefully engineered alarm or release system incorporating Fenwal DETECT-A-FIRE® thermostats.



SPEEDY ACTION when fire starts helps keep losses low. Fenwal Rate-Compensated DETECT-A-FIRE thermostats activate alarm or release fire protection systems the instant the temperature of the surrounding air reaches the danger point. No hazardous delays! No troublesome false alarms! No other fire detection units are so positive.



YOU GET EXTRA VALUE, TOO, when your fire protection system includes Fenwal DETECT-A-FIRE thermostats. Their long life, corrosion resistance and repeatability give you long-term economy. They're approved by ... listed by . Investigate the extra value of Fenwal DETECT-A-FIRE thermostats.



THESE FREE BULLETINS give you the complete facts about Fenwal DETECT-A-FIRE thermostats... the only units which give you the benefits of the new Rate-Compensation principle of fire detection. Fenwal engineers will be glad to work with you and your system installer so that you, too, can enjoy all the benefits of full fire protection. Write Fenwal, Incorporated, Temperature Control Engineers, 253 Pleasant St., Ashland, Mass.



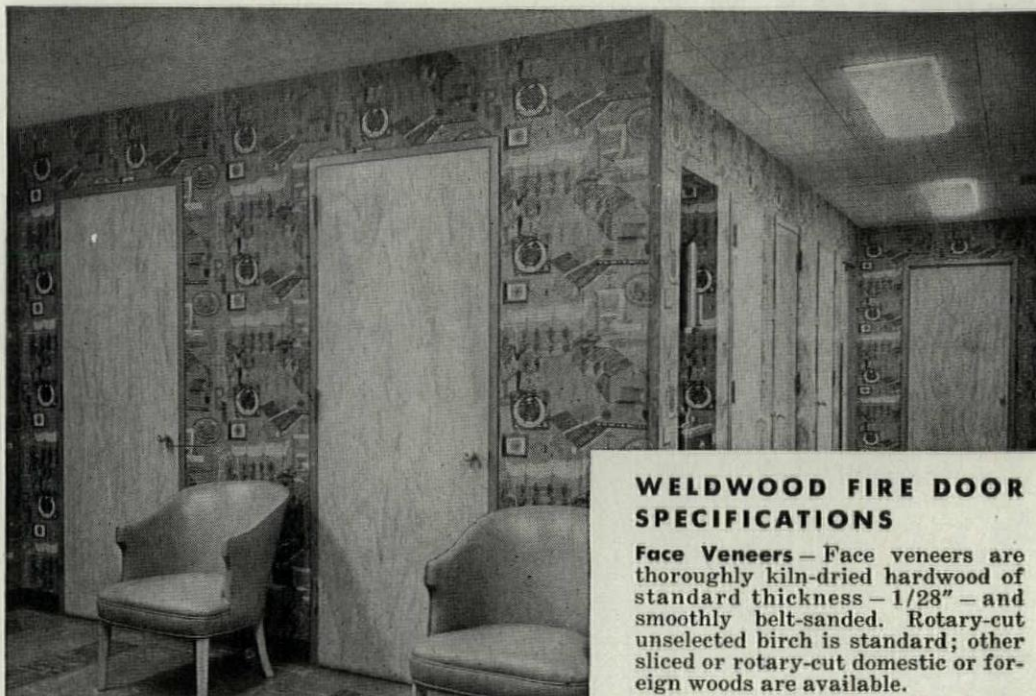
DETECT-A-FIRE®

Thermostats

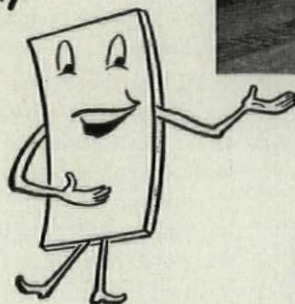
DYNAMIC, RATE-COMPENSATED FIRE DETECTION

Beautiful Birch Weldwood Fire Doors in offices of the Consolidated Cigar Company, New York City.

Architect: J. D. Weiss.



*"Come in!"
it says to you...*



*"Keep out!"
it says to fire*



...The Weldwood® Fire Door

Visitors feel right at home when greeted by the soft, friendly beauty of Weldwood Fire Doors.

But these doors also present a tough, *keep out* attitude where fire and heat are concerned.

With Weldwood Fire Doors on the job, no fire can spread should it break out in any office.

And if fire should invade from elsewhere, the Weldwood Fire Doors, with their remarkable mineral core, stand ready to give the kind of protection that earned them the hard-to-get Underwriters' Label.

So be sure your buildings have this protection.

Also, remember the Weldwood Stay-Strate Door where a labeled door is not necessary, but where fire resistance is a desired advantage.

The Weldwood Stay-Strate Door is available in the same wide range of beautiful hardwood faces as the Weldwood Fire Door . . . and offers the same advantages except that the edge banding is not fireproofed.

Like the Weldwood Fire Door, it has striking beauty . . . unusual light weight . . . exceptional stability . . . extraordinary durability . . . and is proof against rot, vermin and decay.

Send for complete information about both of these Weldwood Flush Doors today.

WELDWOOD FIRE DOOR SPECIFICATIONS

Face Veneers—Face veneers are thoroughly kiln-dried hardwood of standard thickness— $1/28"$ —and smoothly belt-sanded. Rotary-cut unselected birch is standard; other sliced or rotary-cut domestic or foreign woods are available.

Core—The core is made of incombustible Kaylo® composition, having a normal density of 20 pounds per cubic foot. The core sections are joined together with tongue-and-groove joints, as approved by the Underwriters' Laboratories. The core is smoothly sanded prior to application of crossbands and face veneers.

Banding—The edge banding is of birch, treated with Class "A" fireproofing agent. The top banding is $1/2"$ in thickness; the side banding $3/4"$; and the bottom banding is $1 1/4"$ in thickness, made by laminating two $3/4"$ pieces.

Crossbands—Crossbands are thoroughly kiln-dried hardwood, $1/16"$ thick, extending the full width of the door.

Adhesives—The core and edge banding are bonded together with a waterproof resin glue. The entire core is sized on two sides to insure perfect glue bond between core and crossband. The core, crossband and face veneer are bonded with waterproof Tego film phenolic glue by the hot plate process.

Sizes—The thickness of all fire doors is $1 3/4"$. Available in range of standard sizes up to and including 4' by 7'.

Vision Panel—If required, a vision panel frame for a 10" x 10" light (only size available) shall be provided carton-packed and complete with screws. A baked finish of light brown metal paint is provided on all surfaces. Glazing with $1/4"$ wire glass shall be done by others.

*T. M. Reg. Owens-Illinois Glass Co.



United States Plywood Corporation carries the most complete line of flush doors on the market including the famous Weldwood Fire Doors, Weldwood Stay-Strate Doors, Weldwood Honeycomb Doors, Mengel Hollow-core Doors, Mengel and Algoma Lumber Core Doors, $1 3/8"$ and $1 3/4"$ with a variety of both foreign and domestic face veneers.

WELDWOOD® FLUSH DOORS

Manufactured and distributed by

UNITED STATES PLYWOOD CORPORATION

55 West 44th Street, New York 18, N. Y.

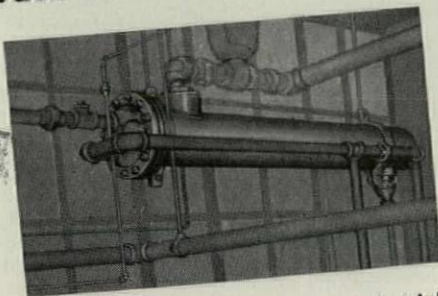
Branches in Principal Cities • Distributing Units in Chief Trading Areas
Dealers Everywhere

TACO has a proved record of helping

FACTORIES • OFFICE BUILDINGS • SCHOOLS
HOSPITALS • CHURCHES • STORES

SOLVE THEIR HEAT and HOT WATER PROBLEMS . . .

Provides hot water for wash fountains and showers for employees

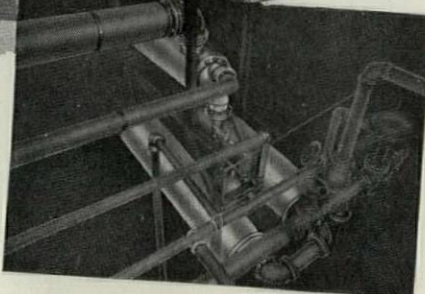


Taco water heaters are supplying abundant low cost hot water in industrial plants throughout the United States. Our more than 30 years' experience in this field is a big help to those with hot water heating problems.

Heats entire building with heat formerly thrown away

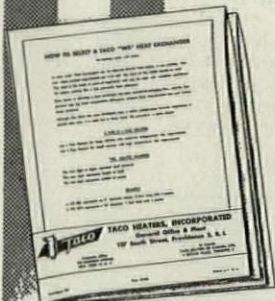


A large industrial user of steam was dumping the condensate from their steam processing into a creek. Now, thanks to the 3 Taco heat exchangers on the right, they're reclaiming enough to heat the 220' x 560 building shown above. Taco products can perhaps do a similar service for you.



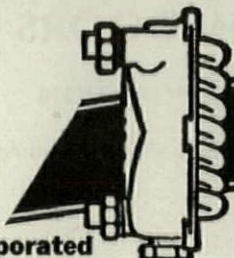
ARCHITECTS—ENGINEERS

...WRITE FOR
simplified selection chart
for sizing Taco water
heaters under any
conditions such as steam
pressure, temperature
rise and pressure drop.



A TRAINED TACO
SALES ENGINEER
IS AVAILABLE
WHENEVER YOU
NEED HIS HELP

Better Heating-
Better with Taco



TACO HEATERS, Incorporated

137 South Street • Providence 3, R. I.

REVIEWS

commended, but Sharp warns that a considerable knowledge of light sources and light-control media is necessary for success. ("One should always bear in mind that a luminaire possesses inherent lighting qualities that are modified, or accentuated, by the surroundings.") Moreover, the author points out that the use of fluorescent direct luminaires of the recessed trough type, such as frequently seen in the ceilings of new stores, offices and schools, have the "negative attributes of high contrast and direct and reflected glare."

Although, by definition, completely luminous ceilings are direct luminaires, the author contends that "in those of the grid louver type all the negative factors associated with direct lighting can be eliminated. The usual practice of placing bare fluorescent lamps above the grids does not eliminate reflected glare. When the ceiling is composed of diffusing material all the negative factors disappear if the surface brightness is low."

All too true in Sharp's observation concerning the esthetic appearance of today's luminaires: "Unfortunately too many luminaires of basically pleasing design are either unduly glaring, or annoyingly dim. Likewise many luminaires have neither pleasing appearance nor good lighting qualities."

Instruments vs. eyes. At the close of his excellent chapter on the measurement of light and lighting, Sharp puts aside his instruments and notes that "an appraisal of foot-candle is no measure of the visual effectiveness of a lighting system. Foot-candles are only a step in the mathematics of design. Visual effectiveness depends upon brightness and brightness distribution."

Vision and light. Introducing the underlying subject of vision, Sharp calls on his long experience in analyzing various lighting installations, notes that "what appears as a lack of precision in lighting application is not always due to faulty technique but to the very nature of the end product, which is vision." Later on in this discussion of vision he comes to some important conclusions about contrast: "... increasing the foot-candles in any space will increase the brightness of the surfaces in the space. This in turn will increase the sensitivity of the eye to brightness differences. Consequently, to maintain visual comfort, brightness differences must be reduced as the general level of brightness is increased. Lighting installations which are planned solely from the standpoint of foot-candles often cause dissatisfaction because of failure to recognize this. For example, one may look at a full moon against a dark night sky with no discomfort. The contrast between moon and sky is of the order of 5,000,000 to 1, but the background brightness is low, and the eye will accept large contrasts in brightness. In a room lighted to 10 ft-c a bare lamp is not comfortable."

(Continued on page 190)



On the double for Industrial Building

Saving Men... Money... Material



THE AUSTIN COMPANY, ENGINEERS & BUILDERS.

There's a double job facing building today that has to be done on the double. For the industrial plant of America must expand . . . to build our defenses . . . to provide a healthy economy at home. And yet we must save our vital resources of men, material . . . yes, money, too. And to help you meet this double demand, Ceco

offers a double-duty building service . . . two construction methods. Each is versatile enough to meet specialized building needs . . . efficient enough to use a minimum of critical resources . . . two types of joist construction — fire-resistive — each saving three big ways.

Here's How Ceco Saves Vital Resources

CECO'S MEYER STEELFORM CONSTRUCTION

For Human Occupancy Buildings, light manufacturing plants, many other structures using any framing.

Saves Men because less time and labor are required to provide open wood centering and form work.

Saves Money by saving concrete . . . the "dead load" is kept at a minimum. Also, less lumber is used.

Saves Material because only a minimum of critically short steel is needed. Less concrete, too.

CECO'S STEEL JOIST CONSTRUCTION

For Human Occupancy Buildings and roofs of industrial plants using steel or masonry framing.

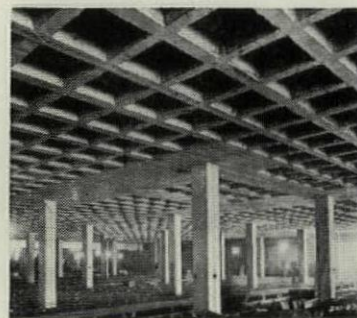
Saves Men because steel joists are light and easy to install. Special equipment is not required.

Saves Money because steel joists are self-centering. Concrete form-work rests directly on the joists.

Saves Material because the "dead load" is amazingly low. Beams, columns and footings weigh less.



Ceco Steel Joists are practical as purlins in roofs of one story factories and plants.



Meyer Steelform Construction uses little steel, provides long spans, maximum manufacturing area free of columns.

CECO STEEL PRODUCTS CORPORATION

General Offices: 5601 West 26th Street, Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities

**CECO
STEEL**

In construction products **CECO ENGINEERING** *makes the big difference*



On-grade installation with Armstrong's No. S-104 Chemical-Set Waterproof Cement

The rich colors and sharply defined graining of Armstrong's Rubber Tile offer exceptional opportunities for the design of distinctive flooring effects. This floor combines beauty with outstanding resilience and durability. An exclusive Armstrong adhesive development now permits its installation over new on-grade concrete.

Volk Bros. Company, Wynnewood Shopping Village
Dallas, Texas

Dewitt & Swank, Architects

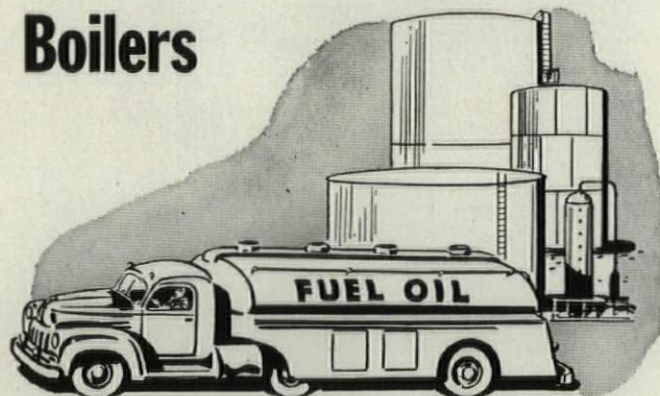
ARMSTRONG'S RUBBER TILE
ARMSTRONG CORK COMPANY • LANCASTER, PENNSYLVANIA

You keep main-line efficiency when switching fuels with Smith-Mills Cast Iron Boilers

Ideal for installation with combination gas-oil burners

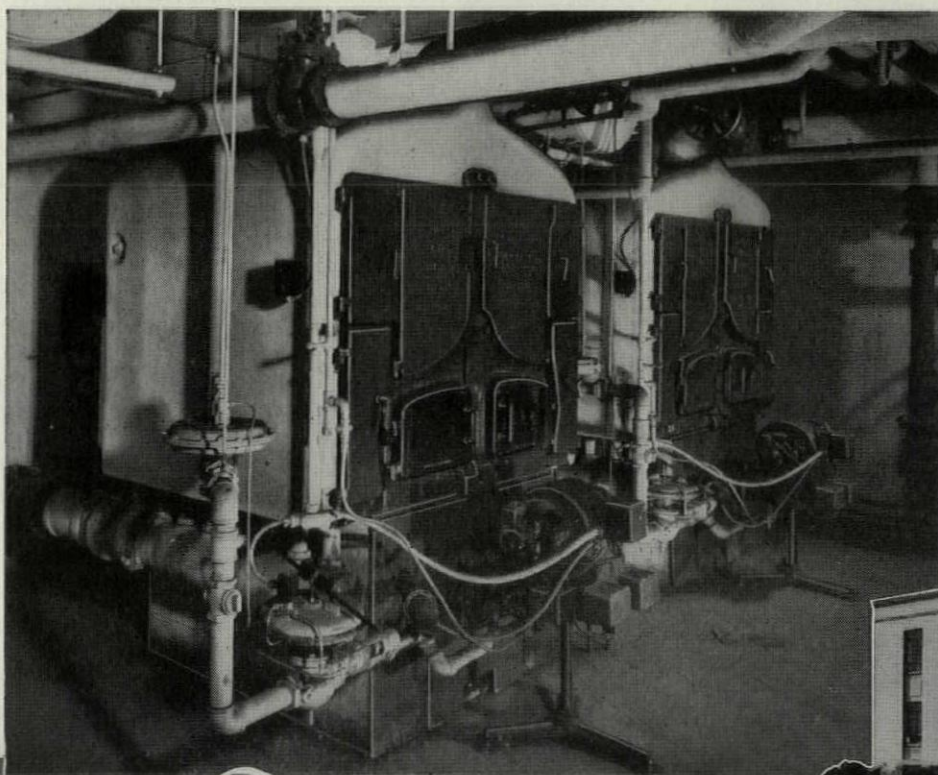
Stand-by service offers very real fuel economy — provided the boiler maintains uniformly high efficiency with either gas or oil. When the call comes to switch fuels there is no change in the demand for constant, uniform heat. A Smith-Mills Cast Iron Boiler responds, maintaining top performance whether the switch is from gas to oil or oil to gas.

This is one of the reasons why Smith-Mills Cast Iron Boilers are "following the pipe lines." Their unique fuel design absorbs heat quickly from any fuel, with low draft loss, and high efficiency. Their



smooth, uniform cast iron water tubes resist gas corrosion — are practically self-cleaning.

Now add the other advantages: Over-all savings in initial investment, high heating efficiency with fuel economy, low maintenance cost, installation and expansion without structural changes — *and extra long boiler life* — and you have the perfect combination for your conversion gas-oil sales.



Pictured at the left is the boiler room of the Commercial Motor Freight Terminal in Columbus, Ohio, showing two #440 Mills Boilers. They are now burning gas but can convert to oil in a few minutes should emergencies arise making it necessary to restrict the use of gas. Below is an exterior view of the new Commercial Motor Freight Terminal. Sauer Co., Columbus, Heating Contractors.



H. B. *Smith* **CAST IRON BOILERS**
THE H. B. SMITH CO., INC., WESTFIELD, MASS. Established 1853

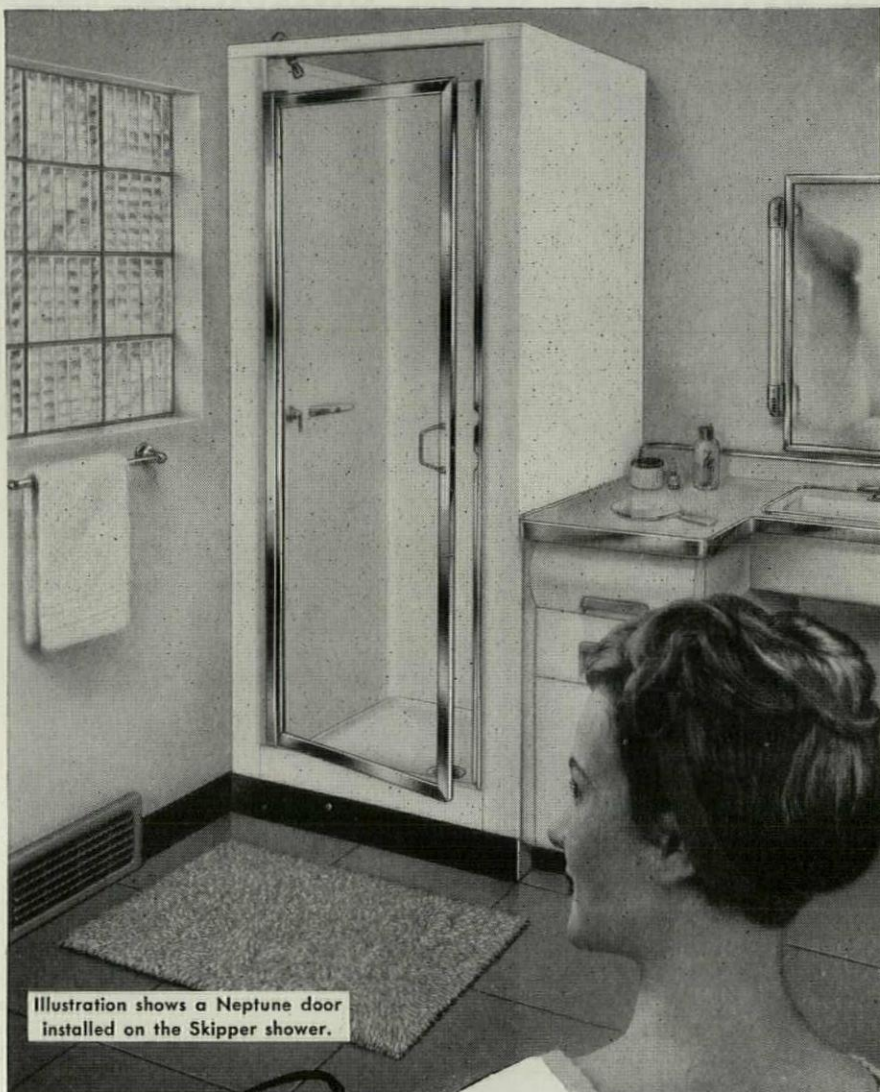


Illustration shows a Neptune door installed on the Skipper shower.

Beauty

...combined with
the greatest value
ever offered in a
bathroom shower

The Fiat Skipper

The largest selling shower cabinet in the plumbing field. Such popularity of the Skipper shower can be attributed to its distinctive pleasing lines that give a smooth clean cut beauty found only in other much higher priced showers.

The interior of this shower is unusually free from joining seams which makes it very easy to keep clean. Bonderized, galvanized steel used throughout eliminates rusting. The precast stonetex receptor provides a solid permanently water-tight base. The workmanship is the standard Fiat high quality, no raw unfinished edges.

Size 32" x 32" x 76"

Consult your plumbing contractor on the economy features of Fiat shower installations.

Write for
catalog of
Fiat showers



FIAT METAL MANUFACTURING COMPANY

Three complete plants

Long Island City 1, N. Y.

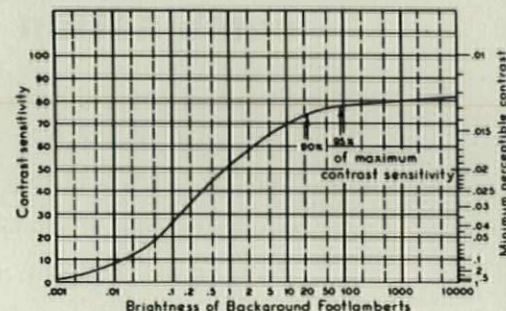
Los Angeles 33, Calif.

(Chicago area) Franklin Park, Ill.

In Canada: The Porcelain and Metal Products, Ltd. Orillia, Ontario

REVIEWS

able even if the contrast of bare lamp to general background is only 400 to 1. The adaptation level is higher than when out of doors on a moonlight night, and hence the eye is less tolerant of brightness difference."



Contrast sensitivity increases as background brightness is increased.

Another important conclusion regarding vision: "Maximum visual efficiency occurs in the region where surrounding brightness is not less than 1/10 that of the work. When the surrounding brightness exceeds that of the work, vision is poor.

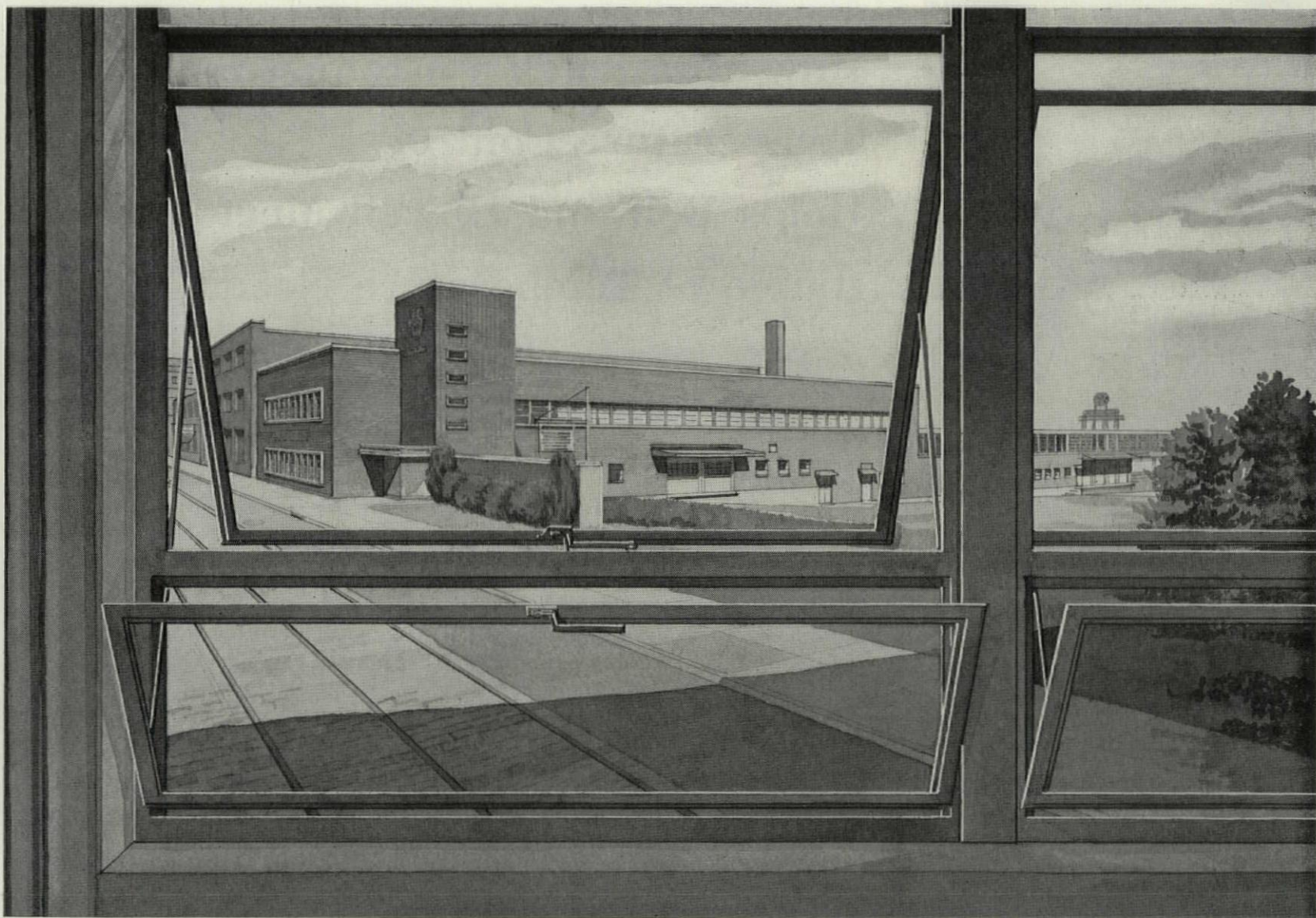
"This latter condition is often called glare. Glare is then described as that condition in which brightness or contrast of brightnesses interferes with vision. It is commonly divided into two categories: 1) direct glare, when the offending brightness is in the field of view, and 2) reflected glare, when the brightness is reflected from the work in such a manner as to reduce contrast or produce discomfort."

Reflected glare may be controlled by limiting the lightness within areas that are reflected to the eyes from the work surfaces. Suitable contrasts can be maintained by increasing the diffusely reflected light from the work surfaces and by finishing these surfaces with a light diffusing mat surface. Direct glare may be controlled by keeping the intrinsic brightness of luminaires below certain values and by locating unavoidable glare sources off the visual axis.

Brightness values for luminaires are suggested in the various published standards. But, claims Sharp, "the trend is to limit brightness to those angles which contribute to direct glare and to pay scant attention to the brightnesses in those angles which contribute to reflected glare." The reason: "The control of glare is expensive in direct cost or in loss of 'efficiency.'" His conclusion: "Published values of brightness in application standards should be considered as maximum values, because, in general, they are much in excess of those which research indicates are desirable.

"The attainment of proper brightness ratios and the reduction or elimination of glare, are often referred to as the quality factors in lighting. They are slighted in all too

(Continued on page 194)



General Electric Appliance Office & Warehouse, Pittsburgh, Pa. Architect: Hunting, Larsen & Dunnells Inc. Contractor: O. H. Martin Company, Pittsburgh, Pa.

Years from now this GE Office-Warehouse will still have window appeal — it features Lupton Master Aluminum Windows with these tangible advantages:

special aluminum alloy frames and members that eliminate painting — drastically cut maintenance and repair bills . . .

efficient operating life through carefully fitted parts — manufacturing processes developed through forty years experience . . .

positive weather control through ventilators that fit snug and tight naturally, without forcing . . .

smooth trim lines that blend with any architectural scheme — windows become an integral design feature of the building.

You will find Lupton Master Aluminum and Steel Windows worth investigating — and specifying. Write today for the General Catalog, or see it in Sweet's — both give complete data for all types of Lupton Windows.

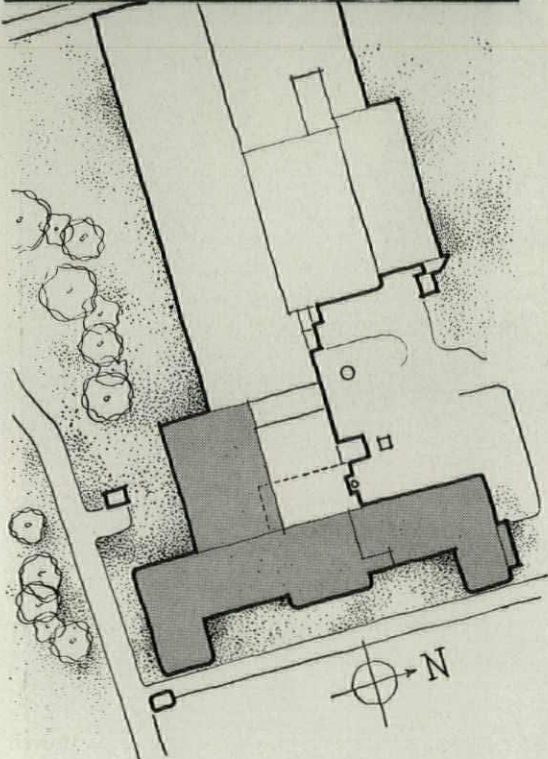
MICHAEL FLYNN MANUFACTURING CO.

700 East Godfrey Avenue, Philadelphia 24, Penna.

Member of the Metal Window Institute and Aluminum Window Manufacturers' Association

LUPTON

METAL WINDOWS



Over a half million square feet of factory, office

The shaded area on the floor plan indicates the air conditioned sections of the plant. Located here are offices, some shipping and stores, some manufacturing. The unshaded portion is mainly manufacturing, partly shipping and storage area.

Architectural firms that designed the main plant were Mundie, Jensen, Bourke and Havens, Chicago, and Bruce A. Gordon and Company, Chicago. Mechanical engineering was by Samuel R. Lewis and Associates, Chicago. Honeywell Customized Temperature Control was installed by L. H. Prentice Co., Chicago. Victor Charn of the Chicago firm, Ragnar Benson Inc., was the architect for the new factory area. Here mechanical engineering was done by Nelson and Nettin, Inc., Chicago. Honeywell Customized Temperature Control here was installed by O. A. Wendt Co., Chicago.

Lens room temperature at exact 77 degrees

To make sure the pitch used in polishing precision optics retains the proper consistency, Honeywell Customized Temperature Control keeps the temperature exactly 77 degrees in the lens polishing room, right. And in Bell and Howell's film plant in Rochester, N. Y., customized temperature control guards another vital manufacturing process. There, a variety of temperatures—all different—are held at the critical level with a tolerance of only one-half of one degree Centigrade.

How Honeywell Customized Temperature Control Helps Bell and Howell Meet Wide Range of Temperature Needs

Specially designed system provides precision industrial control, finest comfort—and saves fuel

These dramatic photos of Bell and Howell's Chicago plant demonstrate the kind of operation that has made the company one of the world's leading manufacturers of motion picture projectors, cameras and microfilm equipment.

And they serve, too, to demonstrate the great flexibility of Honeywell Customized Temperature Control.

At Bell and Howell, Honeywell Customized Temperature Control provides factory personnel, office workers and executives with the finest

kind of comfort throughout the year.

But there's more to the story.

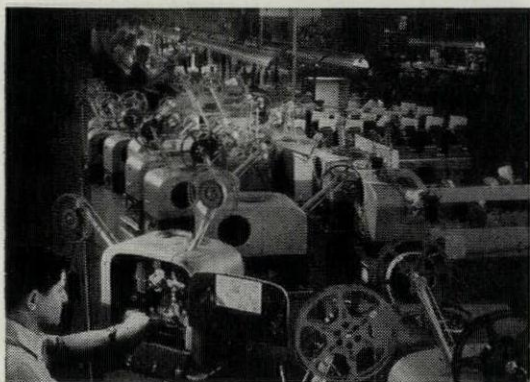
Many phases of a manufacturing operation that produces such precision equipment as cameras, projectors and film demand extremely precise temperatures. These, too, are provided by Honeywell Customized Temperature Control.

And it's this customized control system that enables Bell and Howell to save a great deal on fuel bills each year—by setting back the temperature at night in big factory areas.





In the company's projection salon often as many as 50 persons meet to view business films. Smoking is permitted, yet the air is never clouded. Honeywell Customized Temperature Control takes care of that—removing stale air and replenishing it with fresh air for complete comfort.



The final test line for Bell and Howell's famous 16 mm. Filmosound projector is shown above. It is in this part of the plant that Honeywell Customized Temperature Control makes possible great fuel savings. For here a master thermostat can be turned down at night to lower temperatures during the time the area is not in use.



Executive offices like this are perfectly comfortable—no matter how changeable the weather outside. Because in the office area Honeywell Customized Temperature Control provides an *individual* thermostat for every room. These thermostats can be adjusted by room occupants to give them the exact temperatures they want. And the

ultimate in comfort such a combined heating and cooling control system guarantees is shared by all who work in this part of the plant—secretaries, typists, restaurant personnel and executives. This raises efficiency and helps make Bell and Howell a pleasant, comfortable place to work—in August as well as January.

For Comfortable, Even Warmth in New or Existing Public Buildings, Specify Honeywell Customized Temperature Control

Whether it's a factory, store, office, school, garage—or any size public building—new or existing—there's a Honeywell Customized Temperature Control System to meet your clients' heating and ventilating problems.

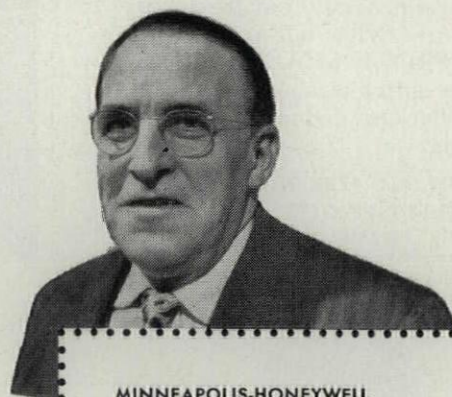
Once equipped with a Honeywell Customized Temperature Control System, they'll have the newest, finest equipment available. They'll also have the right kind of controls to keep their employees, customers and tenants comfortable—and they'll save fuel besides.

For full facts on Honeywell Customized Temperature Control, call your local Honey-

well office. There are 91 across the nation. Learn how these systems can help your clients and your business. Or mail coupon today.

*"I'll bet no other factory has better control
over its heating and air conditioning," says
Bell and Howell Superintendent of Maintenance
Branson "Buck" Weaver.*

"This Honeywell Customized Temperature Control keeps *everyone* comfortable. And it keeps *me* happy because it requires almost no maintenance. Besides that, I enjoy reporting the latest fuel-saving figures."



MINNEAPOLIS-HONEYWELL
Dept. MB-3-69
Minneapolis 8, Minnesota

Gentlemen: I'm interested in learning more about your Customized Temperature Control Systems for public buildings.

Name

Firm Name

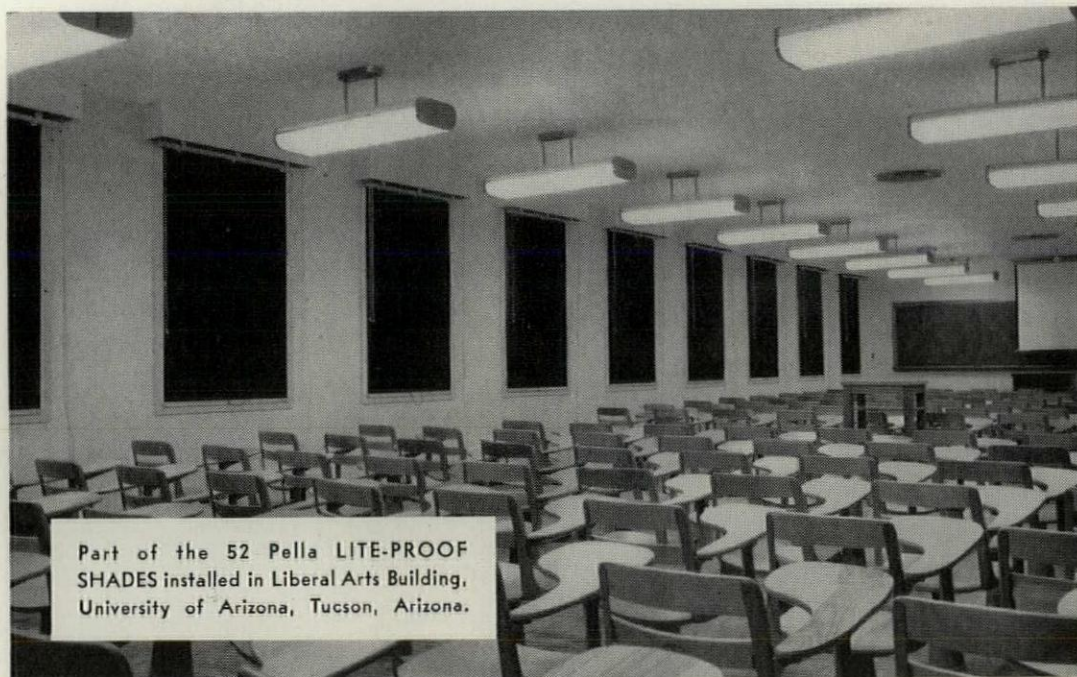
Address

City Zone State

MINNEAPOLIS Honeywell



First in Controls



Now! Darken Classrooms

WITH CONVENIENT, ECONOMICAL . . .

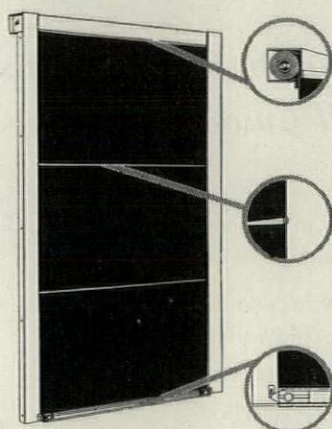
Pella LITE-PROOF SHADES

It takes a minimum of effort to darken classroom windows quickly and efficiently with newly designed Pella LITE-PROOF SHADES. Side guides hold shade material in place and seal out light. Black shade material is Vinyl-resin coated and treated to resist fire. When not in use, Pella LITE-PROOF SHADES roll up onto a spring-actuated, ball-bearing roller enclosed in a neat metal housing.

FIT ALL TYPE WINDOWS

Pella LITE-PROOF SHADES fit perfectly because they are made-to-measure. Investigate these economical, permanent-type Pella LITE-PROOF SHADES.

DEPENDABLE LITE-PROOF FEATURES



SMOOTH ROLLING
Pella LITE-PROOF SHADES roll up onto a spring-actuated, ball-bearing roller inside this compact metal housing which measures $2\frac{1}{8}$ " to $2\frac{7}{8}$ " square depending upon length of shade.

PERFECT TAUTNESS
Stiffening bars are available for use on all Pella LITE-PROOF SHADES. Bars fit across the shade so it will not bag or pull from guides. Stiffeners project into side guides and roll up with shade into housing.

TIGHT SILL CONTACT
Spring catches grip both ends of operating bar. No distracting light rays leak through at sides or sill.

See Pella Lite-Proof Shades in Sweet's Architectural File, 41/RO.

ROLSCREEN COMPANY Dept. D-18, Pella, Iowa

Without obligation, please send FREE folder containing details on Pella LITE-PROOF SHADES.

FIRM NAME _____

ADDRESS _____

CITY AND ZONE _____

STATE _____

NAME _____



**WRITE FOR
NEW FREE FOLDER**
on Pella LITE-PROOF
SHADES for class-
rooms, laboratories
and auditoriums.

Manufacturers of Pella Windows, RolSCREENS, Venetian Blinds and Wood Folding Doors

REVIEWS

many instances because of poor equipment design, cost, or faulty application technique.

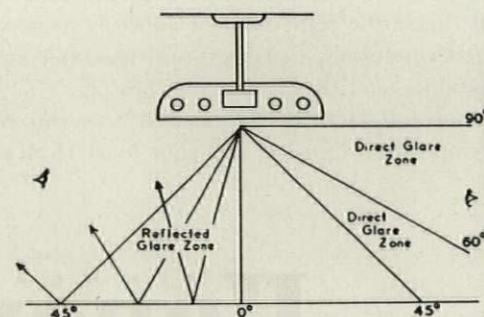
"It is no problem today to put enough light into a space. Low cost of electrical energy and high efficiency of light sources make possible the attainment of high foot-candles (and hence of task brightness) well within the optimum ranges indicated by research. Provision of adequate foot-candles requires very little skill. It is in the realm of brightness control and distribution that the highest standards of illuminating engineering meet the test."

In schools and offices. Following his detailed discussion of lighting in general the author presents three chapters on the application of the principles to three types of buildings: 1) schools and offices, 2) factories, 3) stores. Highlight of the first of these chapters is his list of the types of lighting most suitable for offices, drafting rooms, classrooms and libraries, in the order of their quality:

1. Luminous indirect
2. Totally indirect
3. Semi-indirect (brightness not to exceed 500 ft-L in the 0° to 45° zone—see cut)
4. Direct-indirect (45° shielding toward line of sight)
5. Glass-covered troffers on 3' to 4' centers (glass not to exceed 500 ft-L brightness in 0° to 45° zone)
6. Deep open-bottom troffer with single lamp (spacing not to exceed 5' and brightness not to exceed 1,200 ft-L in 0° to 45° zone)
7. Glass-covered troffers on conventional spacings (brightness not to exceed 100 ft-L in 0° to 45° zone).
8. Open-bottom or louvered troffers on conventional spacings with standard lamps

Also of outstanding interest to office and school designers is the table of recommended brightness limits for luminaires in such rooms:

(Continued on page 198)



In rooms of average ceiling height three luminaire zones of brightness affect eye comfort and visibility. In high ceiling rooms, the direct glare zone extends from 30° to 90°.

Engineered WAYS TO BETTER BUSINESS by



GLOBE-WERNICKE

1/4-turn for full
work efficiency

privacy wherever
desired

special work
facilities
as needed

smart modern
appearance

always complete—
never final

rearrange at will—
without special
tools or skill

18% up to 43% saving
in floor space

In a dozen

daily ways you SAVE SPACE-TIME-MONEY

with

TECHNIPLAN

the ORIGINAL modular office

IMMEDIATE ACCEPTANCE has greeted the introduction of **TECHNIPLAN**, confirming the widespread practical need for this modular office system. Actual installations can be seen in most parts of the country.


STANDARD UNITS comprise the **TECHNIPLAN** office. They are interchangeable, interlocking, to form countless combinations and arrangements. To meet changing needs rearrangement is readily accomplished without special tools or skill. **TECHNIPLAN** is always complete—never final.

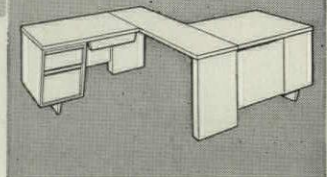
HIGHEST EFFICIENCY results from job-fitted facilities for each work station, and the time-saving 1/4-turn work position. All work surfaces and facilities are within easy reach, ample, without waste.

PRIVACY, WITH SOUND BARRIER, is provided by standard partitions, as desired, either all wood or wood and glass.

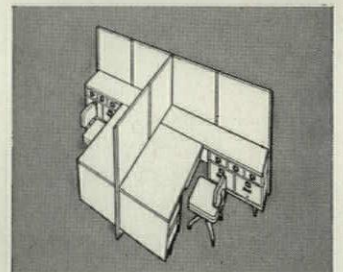
SMART, MODERN appearance is assured by traditional G-W craftsmanship devoted to fine woods, superbly finished in rich walnut.

KNOW THE FACTS—use the convenient Check

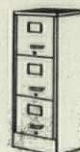
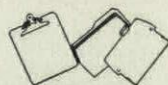
List Request. 



Variation of the **TECHNIPLAN** arrangement in main illustration.



Another **TECHNIPLAN** arrangement, with partitions, fitted to its area.



Engineering Specialists in
Office Equipment, Systems,
and Visible Records

Cincinnati 12, Ohio

**CHECK this LIST for
wanted information—
promptly furnished:**

- ☐ **TECHNIPLAN** Facts
- ☐ Modern Filing Methods
- ☐ Visible Record Facts
- ☐ Special **BIG** Papers System

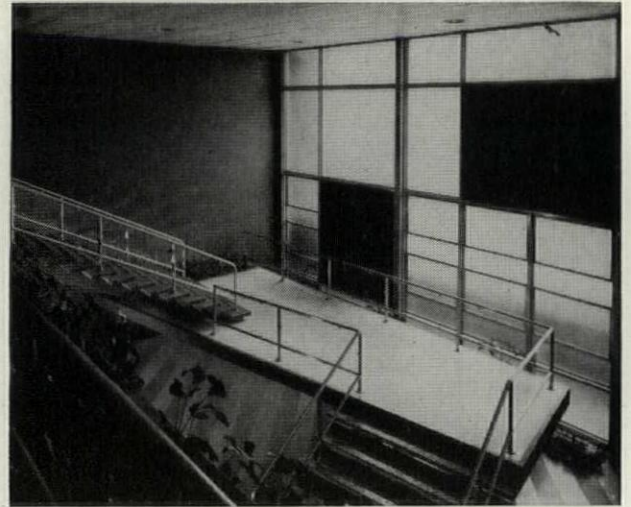
**Check above, attach
to your letterhead—
and MAIL—TODAY!**

How American

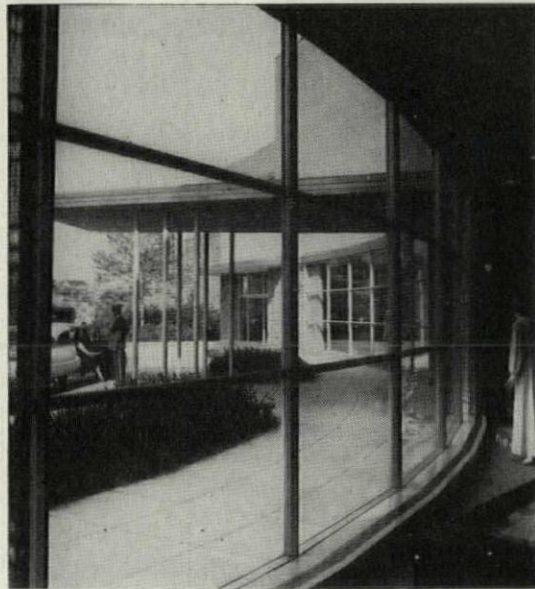


architects are utilizing Pittsburgh Glass in heavy construction

CONTRIBUTING to the over-all distinctive appearance of the new Drayton Arms Apartments in Savannah, Georgia, is the ample use of Pittsburgh Products. Windows are glazed with Solex Heat Absorbing Plate Glass—"the best glass under the sun"—to keep rooms ten to twenty degrees cooler. The soft greenish coloring of Solex, while almost unnoticeable when looking through the glass from inside, acts as a wonderful guard against eyestrain from glare of bright sunlight. Pittsburgh Doorways, Polished Plate Glass, Pittco De Luxe and Premier Metal help to create an open-vision lobby, and Pittsburgh Mirrors are used in every room. Architects: Cletus W. and W. P. Bergen, Savannah, Ga

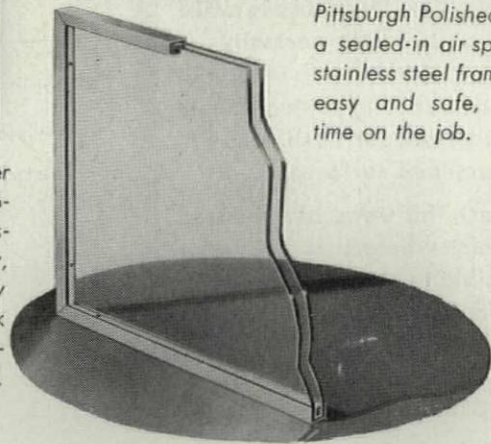


THIS STAIRWAY of a remodeled office building in Charlotte, N. C., shows the application of 1/4" Herculite Polished Plate Glass on the stair rails. The first floor of this building features large expanses of Pittsburgh Plate Glass. The second floor, which overhangs the first, is glazed with Solex Heat Absorbing Plate Glass. Other glass products used here include Herculite Doors, Pittco Premier Store Front Metal, Pittsburgh Mirrors in the washrooms. Architects: A. G. Odell, Jr. & Associates, Charlotte, N. C.



ALL EXTERIOR GLAZING at the new John Wanamaker department store at Wilmington, Del., with the exception of the display windows, utilizes Twindow, Pittsburgh's window with built-in insulation. Additionally, 2700 sq. ft. of Pittsburgh Polished Plate Glass, ninety Herculite Doors and 1/4" Pittsburgh Copper-Back Mirrors are effectively used in this most appealing structure. Architects: Massena & du Pont, Wilmington, Del.

TWINDOW® permits designing large window areas, without sacrificing heating or air-conditioning efficiency. That means abundant daylighting, with interior comfort. Twindow, as shown in the cutaway section here, consists of two panes of Pittsburgh Polished Plate Glass, with a sealed-in air space between. The stainless steel frame makes handling easy and safe, saves installation time on the job.



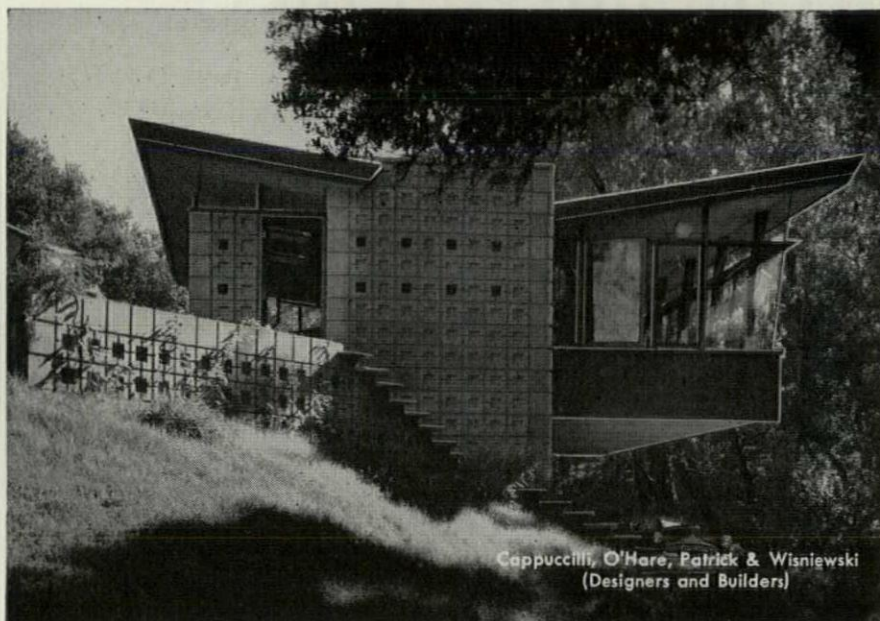
Design it better with

Pittsburgh Glass



Your Sweet's Catalog File contains detailed information on Pittsburgh Plate Glass Company products.
PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY



Cappuccilli, O'Mare, Patrick & Wisniewski
(Designers and Builders)

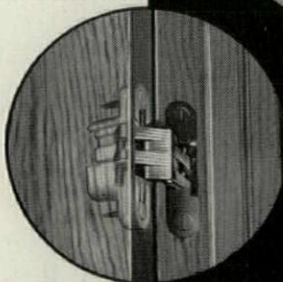
FAMOUS "MIDGLEN HOUSE" USES **SOSS** Invisible HINGES

The correct usage of modern building products, including SOSS INVISIBLE HINGES, is one of the reasons why the "Midglen House" received such wide national acclaim.

You, too, will find that somewhere, in every house, in every building there are places where SOSS INVISIBLE HINGES are an absolute necessity... IF we are to keep in step with the demands of contemporary architecture for flush, smooth, streamlined surfaces.

In fact, this trend has reached a point where it is no longer possible to classify a building as "modern" unless it includes Flush Doors hung on SOSS INVISIBLE HINGES.

Write for FREE Blueprint Catalogue that gives complete information on "The Hinge That Hides Itself" to:-



"The unobtrusive quality of the SOSS hinge lends itself beautifully to contemporary architecture."

Very truly yours,
Celestyn Wisniewski
Celestyn Wisniewski

SOSS
INVISIBLE
HINGES

SOSS MANUFACTURING CO.

21779 HOOVER ROAD
DETROIT 13, MICHIGAN

A. I. A. File
No. 27-B-1



REVIEWS

Zone	Foot-lamberts
0°-45°	500-1,000
45°-90°	350 for single luminaire, 200 for continuous row of luminaires
45°-60°	450
60°-90°	225
Luminous ceiling	175

Commenting on these limits, Sharp states that "the control of brightness in the 0° to 45° zone presents a difficult problem to the designer. In the first place it does not receive the attention it deserves. This portion of the luminaire is not so readily seen. It does not have much bearing upon immediate visual comfort.

"Luminaire designers like to push as much light as possible through this zone because of the favorable effect upon 'foot-candles.' But this part of the luminaire is 'seen by the work' and often reflected by the work toward the eye. This reflection is annoying and reduces the visibility of the seeing task."

In the store. The chapter on stores covers a little appreciated aspect of lighting which should challenge the imagination of designers, engineers and merchants alike: "The phenomenon of eye adaptation is of importance in store lighting. Most shopping is done during the daytime. The eye is adapted to the daylight. Upon entering a building your eyes immediately begin adapting to the lower brightness levels. This takes a few seconds. During this period the eye is quite inefficient. By means of merchandise layout and lighting, the shopper is encouraged to explore those portions of the store farthest from the street entrance. This takes time, during which adaptation can take place. Common experience is that a person sees more while on the way out of a store than upon entering it."

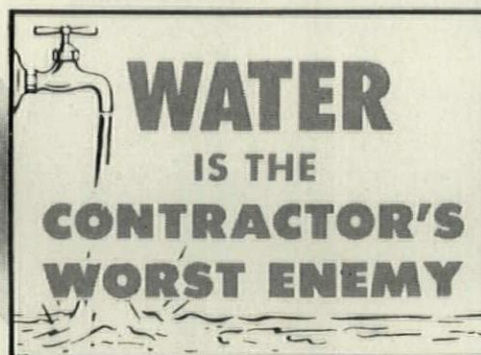
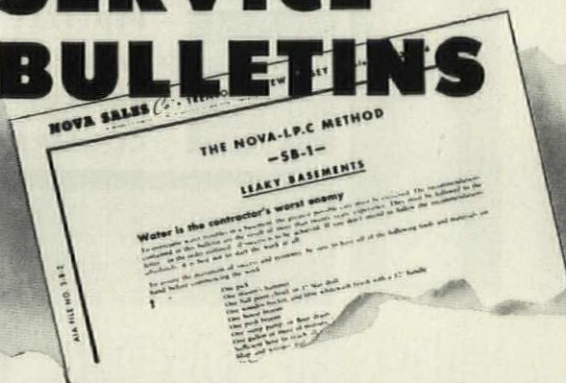
The cost of light. Final chapter of book presents in detail a method for analyzing the relative costs of various lighting systems. While an engineer's theoretical cost studies based on assumptions may be useful, the conclusions derived from them "should be used with caution," according to the author. "For any given situation the lighting systems under consideration should be designed for the specific areas... and the analysis should be based upon those designs."

Sharp shows what he means and illustrates his method of cost comparison in the following example: "A classroom is to be lighted to a level of 25 ft-c. Indirect lighting is chosen for the purpose, and a comparison between the cost of fluorescent and incandescent sources is desired. The school board wishes to amortize the luminaire investment in ten years. The wiring will be amortized in 20 years. Money is borrowed at 2%. No taxes are paid; insurance is 2%. Annual ownership cost is, therefore, 14% for the

(Continued on page 202)

another **HOMASOTE FIRST**—designed to reduce the cost of building

SERVICE BULLETINS



that actually show you how to meet your most difficult **WATER PROBLEMS**

• These Bulletins are designed to give practical help on the water problems that constantly confront the Architect and the Contractor. Each incorporates more than 20 years' experience, research and constant field testing. Both the Architect and the Contractor—in specifying and in application—will find that the results achieved are effective, economical and lasting. Nova-I.P.C. Products and Methods,

plus trained supervisory personnel, offer you a *practical* means of solving the problems listed.

The coupon affords a convenient way to secure any or all of the Service Bulletins—without obligation. We welcome the opportunity to discuss with you, personally, any of the problems listed and to work with you on any current problems.

WRITE FOR THESE SERVICE BULLETINS

- (SB-1) Leaky basements
- (SB-2) Instructions for pouring concrete slabs on grade without radiant heat
- (SB-3) Instructions for pouring slabs on grade with radiant heat
- (SB-4) When to trowel
- (SB-5) Floor coverings on concrete slabs
- (SB-6) Condensation in concrete slabs on grade
- (SB-7) Basement footings, walls and floors
- (SB-8) Nova-I.P.C. Admix
- (SB-9) Relieving joints

- (SB-10) Exterior masonry coatings
- (SB-11) Novacrete Masonry Paint
- (SB-12) Approximate quantities of materials required per 100 Sq. Ft. of various thickness slabs
- (SB-13) Portland Cement, plaster, stucco, floor topping and mortar proportions
- (SB-14) How to find areas and capacities
- (SB-15) Concrete
- (SB-16) Cause and correction of condensation below grade
- (SB-17) Cold weather protection

NOVA SALES

Co.

TRENTON 3, N. J.



« A wholly owned subsidiary of Homasote Company—manufacturers of the oldest and strongest insulating-building board; wood-textured and striated panels; $\frac{5}{8}$ " underlayment for $\frac{1}{8}$ " linoleum and wall-to-wall carpeting. »

Another group of **NOVASCO PRODUCTS**



NOVA SALES CO., Trenton 3, N. J., Dept. 38A

Without obligation—send Service Bulletins checked below:

- ☐ SB-1 ☐ SB-2 ☐ SB-3 ☐ SB-4 ☐ SB-5 ☐ SB-6
☐ SB-7 ☐ SB-8 ☐ SB-9 ☐ SB-10 ☐ SB-11 ☐ SB-12
☐ SB-13 ☐ SB-14 ☐ SB-15 ☐ SB-16 ☐ SB-17 ☐ All 17

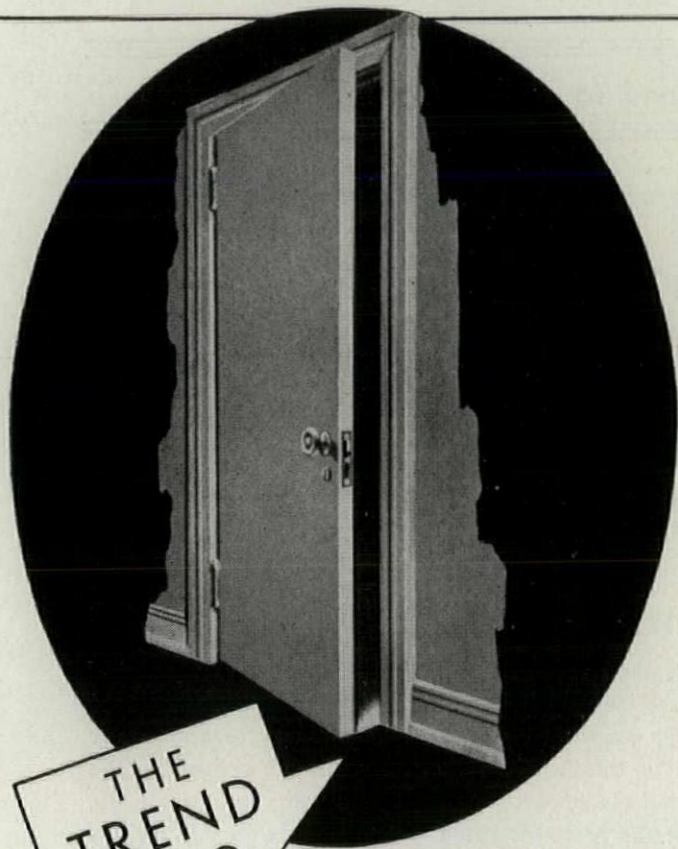
NAME.....

ADDRESS.....

CITY & ZONE..... STATE.....

My lumber dealer is.....

MORE AND MORE



THE
TREND
IS TO

Thomason FLUSH DOORS

(ALL WOOD THROUGHOUT)

From coast to coast, architects are specifying and builders are using THOMASON Flush Doors. It requires practically the entire production facilities of one of the two large plants of the THOMASON PLYWOOD CORPORATION to meet the demand.

AVAILABLE WITH THESE FACE VENEERS

In addition to the Gumwood faced door, the THOMASON Flush Door comes faced with veneers of Mahogany, Walnut, Oak, Birch, Knotty Pine, Cativo, or in any face veneer desired.

ALSO MADE FOR EXTERIOR USE

Available either plain or with any one of five standard patterns of light opening. Or you may have the THOMASON Flush Door with a solid all-wood core, faced with any type of veneer desired.

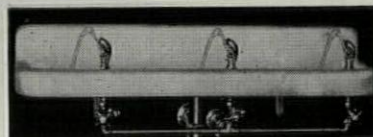
Sold Only Through Distributors

THOMASON
PLYWOOD CORPORATION
FAYETTEVILLE • NORTH CAROLINA

There's a type
for you ... in '52



- PEDESTAL
- WALL AND RECESS
- BATTERY TYPES
- COOLERS



HALSEY TAYLOR COOLERS & FOUNTAINS

The Halsey Taylor line of Drinking Fountains and Coolers embraces types for every kind of structure ... public, educational, church, hospital, commercial and industrial. And you'll find types to suit your needs, each with typical Halsey Taylor advantages ... sanitary contamination-proof projector, contemporary design and a welcome freedom from servicing annoyances.



THE HALSEY TAYLOR CO., WARREN, OHIO

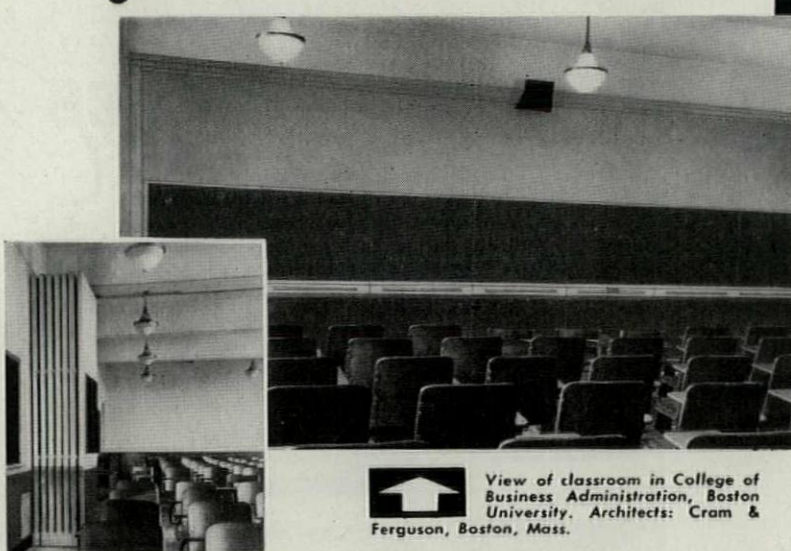
A-20

AT BOSTON UNIVERSITY

it's

Fairhurst
T.M. Reg.

Unitfold®
FOLDING WALLS



View of classroom in College of Business Administration, Boston University. Architects: Cram & Ferguson, Boston, Mass.

Continuous slate blackboard and recessed chalk rail emphasize functional uses for Unitfold folding walls. 7 panels form a solid, rigid wall 30' wide, 11' high. In-

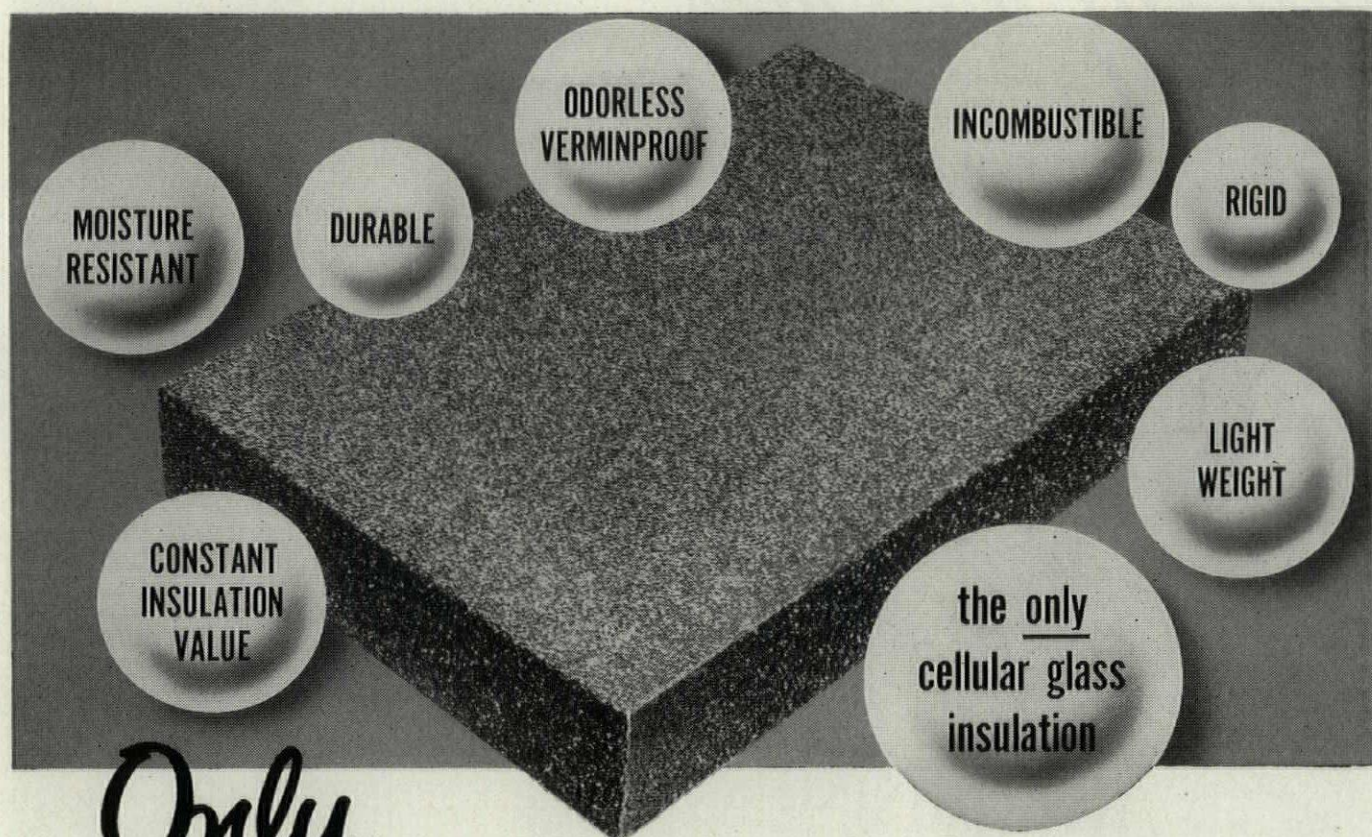
stalled 1939. No maintenance or repairs in 13 years' constant use. Photo inset shows how wall sections fold back to stacked position.

From Boston University: "... complete satisfaction ... any statements we might make regarding its quality and durability would be most favorable."

John T. Fairhurst Co., Inc.

45 West 45th Street

New York 19, N. Y.



Only FOAMGLAS®

gives your clients all these advantages

FOAMGLAS is the only insulating material composed of millions of tiny glass bubbles containing still air. Still air is the world's best practical insulation. And glass, in this cellular form, has exceptionally high resistance to many elements that cause other materials to deteriorate.

That is why **FOAMGLAS**, the only cellular glass insulating material, is such an effective, long lasting, economical insulation.

The eight features mentioned above are the main reasons for the rapidly increasing use of **FOAMGLAS** in walls and ceilings, on roofs and under floors in all sorts of structures.

When next you figure on insulation, make sure your clients get all the advantages they can enjoy only with **FOAMGLAS**. Send the coupon for sample and booklets.

Pittsburgh Corning Corporation
Dept. BC-32, 307 Fourth Avenue
Pittsburgh 22, Pa.

Please send me without obligation a sample of **FOAMGLAS** and your **FREE** booklets on the use of **FOAMGLAS** for:

Normal Temperature Commercial, Industrial and Public Buildings ☐
Refrigerated Structures ☐

Name.....

Address.....

City.....State.....



PITTSBURGH CORNING CORPORATION • PITTSBURGH 22, PA.

Just Off the Press!



HERE'S
VALUABLE,
UP-TO-THE-MINUTE
INFORMATION
To Help You
Solve Your
AIR
CONDITIONING
PROBLEMS!

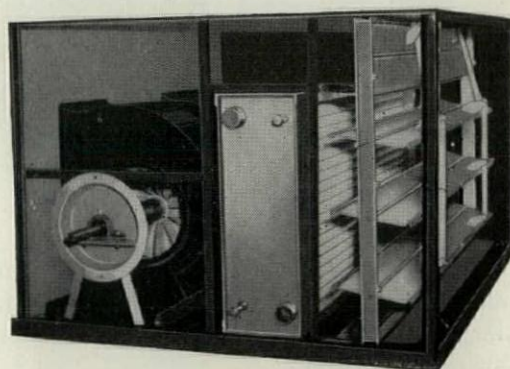
Write
FOR

YOUR COPY TODAY

● Here is information on the very latest developments by "Buffalo"—the new model "G" Air Conditioning Cabinets. Bulletin 3703A explains fully, by detail photos, diagrams, charts and tables, what these units can do for you.

You'll be interested in the developments in these new "Buffalo" units. External appearance is clean and modern. The light, efficient "mixed-flow" fans are stable in performance over a wide range of capacities and pressures. Sectionalized construction and standardized parts make for easy installation, simple maintenance and flexibility of combinations. The new model "G" Vertical Type "VPC" Cabinet is in three easy-to-assemble parts—blower head, coil section and pan—easy to move thru ordinary building openings—and uses flat type Hi-velocity filters, which greatly reduces the space requirements of the unit. Both Vertical and Horizontal cabinets may be equipped with Air Washer sections, and any air conditioning function or combination of functions can be had.

For helpful information on your air conditioning problems, write today for Bulletin 3703A, on your company letterhead.



"Buffalo" Model "G" Type "PC" Cabinet with side panels removed. Simple cooling, cooling and dehumidifying, heating and humidifying, continuous cleaning—are available functions in these cabinets.

Buffalo
FIRST
FOR FANS
BUFFALO FORCE COMPANY

142 MORTIMER ST.

BUFFALO, NEW YORK

PUBLISHERS OF "FAN ENGINEERING" HANDBOOK

Canadian Blower & Force Co., Ltd., Kitchener, Ont. Sales Representatives in all Principal Cities

VENTILATING
FORCED DRAFT

AIR CLEANING
COOLING

AIR TEMPERING
HEATING

INDUCED DRAFT
PRESSURE BLOWING

EXHAUSTING

REVIEWS

luminaires, and 9% for the wiring. Experience has shown that for this school the classroom lights are in use for an average of 600 hr. a year.

"Based upon standard design methods, a room 22' x 30', lighted to 25 ft-c in service, requires six 750-watt silver bowl filament lamp luminaires and 21 two-lamp fluorescent luminaires utilizing 40-watt, 48-in. lamps (preheat cathode, standard white color).

The analysis:

Comparative lighting costs per classroom

I. Ownership

1. I. C. I. type of lighting system	Filament indirect	Fluorescent indirect
2. Luminaire	Silvered bowl 750-watt	40-watt, 48-in. lamp
3. Total number of luminaires	6	21
4. Individual luminaire cost	\$ 29.00	\$ 29.00
5. Installation cost per luminaire	\$ 1.50	\$ 1.50
6. Total luminaire cost	\$183.00	\$640.50
7. Branch circuit wiring	\$120.00	\$ 75.00
8. Total investment (sum of items 6 and 7)	\$303.00	\$715.50
9. Annual ownership cost of luminaires	\$ 25.65	\$ 89.60
10. Annual ownership cost of branch wiring	\$ 10.80	\$ 6.75
11. Total annual ownership costs	\$ 36.45	\$ 96.35

II. Operation

12. Lamp watts per luminaire	750	80
13. Auxiliary watts per luminaire	0	17
14. Total watts per luminaire	750	97
15. Total wattage of system (item 14 x item 3)	4,500	2,037
16. Total number of lamps	6	42
17. Individual lamp cost	\$4.75 list	\$1.00 list
18. Total lamp cost	\$ 28.50	\$ 42.00
19. Rated lamp life in hours	1,000	7,500
20. Average yearly hours use of complete system	600	600
21. Yearly lamp cost:		
item 20 x item 18	\$ 17.10	\$ 3.36
item 19		
22. Lamp replacement labor cost:		
item 20 x (item 16 x \$.50)	\$ 1.80	\$ 1.68
item 19		
23. Kwhr per year (item 15 x item 20)	2,700	1,200
24. Electrical rate per kwhr	2.5¢	2.5¢
25. Annual electrical energy cost	\$ 67.50	\$ 30.50
26. Annual maintenance cost	\$ 3.60	\$ 26.00

III. Summary

27. Total annual charges: items 11, 21, 22, 25, and 26	\$126.45	\$157.89
28. Average foot-candles in service	25.7	23.8
29. Cost per foot-candle year	\$ 4.92	\$ 6.62

Throughout his important concluding chapter on costs appears the author's underlying insistence that in such cost comparisons only systems of equal lighting effectiveness be considered. Otherwise the results will be meaningless.

WHEN THE WORD COMES TO . .

STEP ON IT!

let Barrett SPEED your Roofing Jobs!



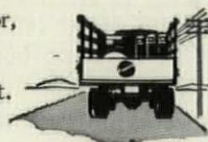
The urgency of America's defense program calls for a lot of speed on the part of American industry. And for a lot of new roofs, too! New roofs on new plants . . . and new roofs, or repairs, on old plants, as well.

Nearly 100 years of experience in meeting roofing demands of every kind have fitted Barrett to give you the world's longest-lasting built-up roof in the shortest possible time. For Barrett speeds your roofing jobs in 4 important ways.

1 BARRETT SPEEDS specifications. Ready at hand are Barrett time-tested, scientifically calculated application specifications for almost every built-up roofing problem. These are so foolproof that Barrett Specification* Roofs can be bonded for 20 years, and generally last much longer. Approved by the National Board of Fire Underwriters—Class A.



2 BARRETT SPEEDS deliveries. Strategically located supply points enable us to rush materials to your Barrett roofing contractor, and to your job when they are needed. Barrett does not have to rely on outside sources of supply for roofing pitch and felt. Because Barrett Specification* pitch and felt are made in our own factories, production can be controlled to meet demands. Your Barrett roofer can be sure that he will get the materials he wants when he needs them.



3 BARRETT SPEEDS application. The Barrett Roofer can be sure that roofing materials will be of uniform high quality. Application goes smoothly because there is no defective felt or pitch to interrupt and slow down operations. No time lost on the job!



4 BARRETT SPEEDS you the finest possible roof. Skilled workmen make for fast jobs. Barrett Approved Roofers have had many years of practical experience, plus well-trained manpower, plus Barrett engineering help, to assure you the finest possible roofing job in the shortest possible time.



THE BARRETT DIVISION

ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

203 W. Wacker Drive, Chicago 6, Ill.
1327 Erie Street, Birmingham 8, Alabama
36th & Gray's Ferry Ave., Philadelphia 46, Pa.

In Canada: The Barrett Company, Ltd., 5551 St. Hubert St.,
Montreal, P. Q.

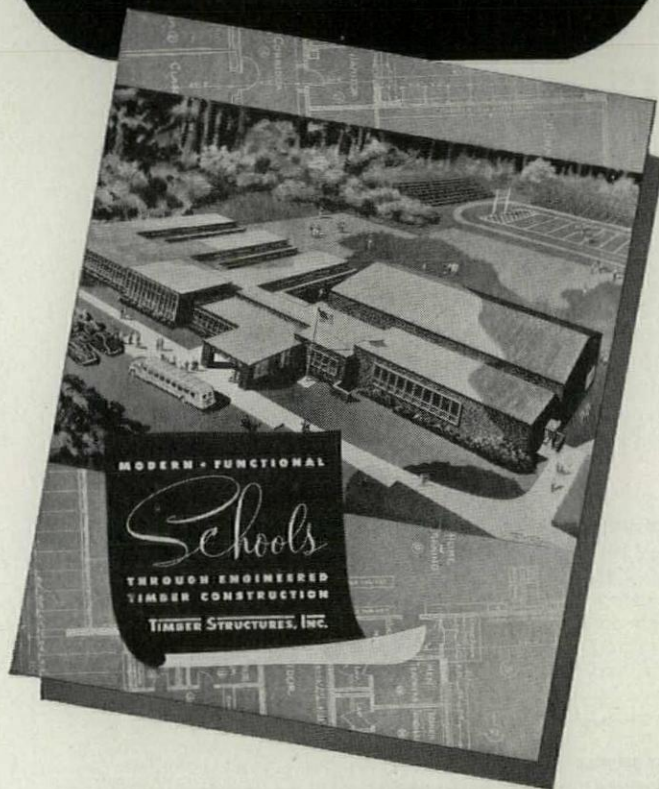
*Reg. U. S. Pat. Off.



But don't wait until you're up against it before ordering necessary roofing work. Call in a Barrett Approved Roofer today, or write us.

How to get lasting SCHOOL BUILDINGS

...at moderate cost
...with readily available
material



THIS BOOKLET may help you solve a building problem by reducing building costs and getting quick construction unhampered by material shortages.

The booklet shows how permanent, fire-safe schools of contemporary styling may be built by using engineered timber members of Timber Structures, Inc.

Illustrations show how these members provide modern class rooms, gymnasiums, auditoriums, vocational shops and multi-purpose rooms. Basic data on timber arches, beams and trusses is included, along with facts about effective resistance to destruction by fire, wind and quake.

A copy of this informative booklet is yours for the asking. Get it from your nearest Timber Structures office, or mail the filled-in coupon.

TIMBER STRUCTURES, INC.

P. O. BOX 3782-B, PORTLAND 8, OREGON

Offices in New York; Chicago; Detroit; Kansas City; Seattle; Spokane

TIMBER STRUCTURES, INC. OF CALIFORNIA • Oakland, California

TIMBER STRUCTURES OF CANADA, LTD. • Peterborough, Ontario

Local Representatives throughout the United States and Canada

TIMBER STRUCTURES, INC.

P. O. Box 3782-B, Portland 8, Oregon

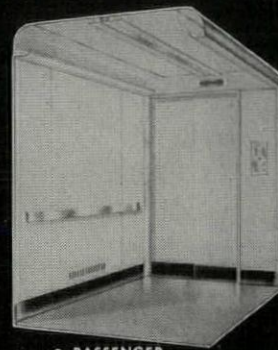
Please send me a copy of booklet, "Modern Functional Schools".

Name _____

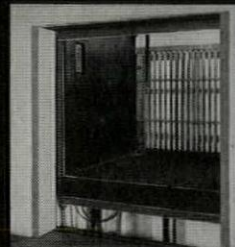
Company _____

Address _____ Zone _____

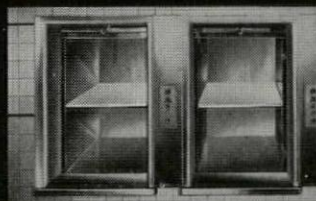
City _____ State _____



• PASSENGER ELEVATORS



• FREIGHT & SERVICE ELEVATORS



• DUMBWAITERS

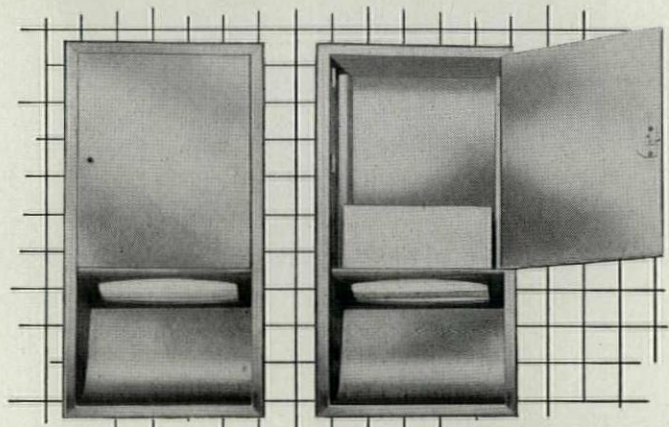
SHEPARD

for HIGH DEPENDABILITY
GREATER ECONOMY
LESS MAINTENANCE

Shepard passenger and freight elevators are quiet, dependable and extremely trouble-free. Their simple yet ruggedly designed mechanism and foolproof controls require minimum maintenance. Liberal use of ball bearings, practical design and precision manufacture assure long, low-cost service. Write for 58-page architect's elevator reference book.

THE SHEPARD ELEVATOR CO.
5007-C2 BROTHERTON RD.
CINCINNATI 9, OHIO

ELEVATORS



No. 943 Recessed Towel Cabinet
is fabricated of stainless steel.

Fixture dispenses approximately
400 "C" type folded towels.

To make washrooms *really* modern

—specify the Scott No. 943 Recessed Towel Cabinet

Here's the fixture designed to keep step with today's growing trend to recess fixtures. It's one of the many Scott fixtures available to meet the most exacting demands for modern washrooms.

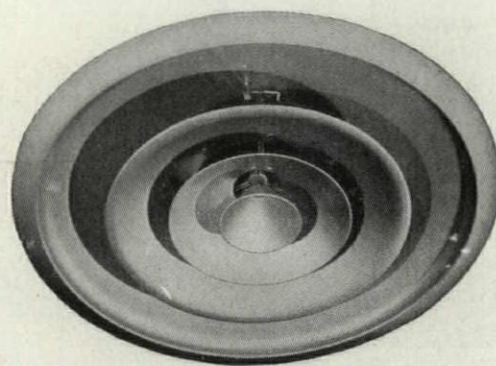
For a detailed dimension and installation drawing of the No. 943 fixture or for the help of a trained Scott consultant, write Washroom Advisory Service, Dept. MB-3, Scott Paper Company, Chester, Penna.

SCOTT

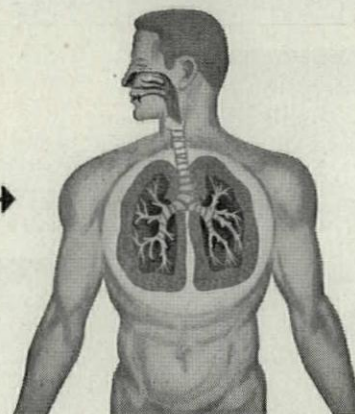
Symbol of Modern Washrooms

Trade Mark "Washroom Advisory Service" Reg. U.S. Pat. Off.

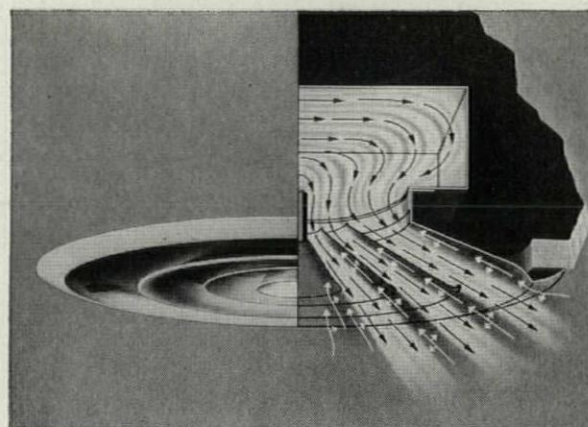
Anemostat
Air Diffusers...



actually "breathe"...



to give you
conditioned comfort



The familiar process of breathing dramatically illustrates the Anemostat principle of aspiration. Just as we inhale air, mix it within our lungs and expel it, so Anemostat air diffusers also aspirate . . . by drawing room air *into* the unit and mixing this room air with supply air *within* the outlet before distributing the mixture in many planes traveling in *all* directions.

This aspiration effect eliminates uncomfortable drafts and stale air pockets . . . equalizes temperature and humidity throughout the conditioned area.

Yes, breathing is essential to human life . . . and to the proper performance of heating, ventilating and air conditioning systems. Remember, only Anemostat air diffusers are designed to perform this vitally important function of aspiration.

AC-1284

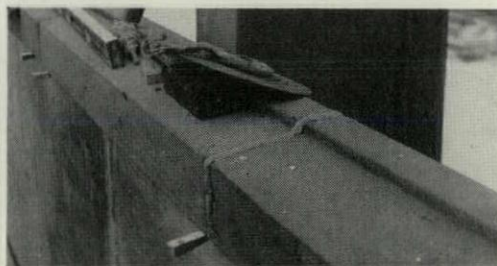
ANEMOSTAT®
DRAFTLESS *Aspirating* AIR DIFFUSERS

ANEMOSTAT CORPORATION OF AMERICA
10 EAST 39th STREET, NEW YORK 16, N. Y.
REPRESENTATIVES IN PRINCIPAL CITIES

*"No Air Conditioning System Is Better
Than Its Air Distribution"*



PRODUCT NEWS



MORTARLESS JOINT comes coiled in can

Long lasting, watertight expansion joints of almost any size and shape may be formed quickly with *Plastoid Plastic Rope*. A compound of heavy oils, asbestos fibers, and pigment molded around a cord center for easy handling, the material is said to remain pliable and not to crack, harden, or stain. It comes coiled on cardboard disks packed in a five gal. can to be cut to required length and molded on the job. It may be used as sill course and stone coping joints; as calking between door and window frames and masonry; as base for steel partitions; and as pointing for tile, glass block, stone, and other structural unit materials. It is also reported to be suitable for use below structural glass bases and above and below bulkheads in store front construction.

Plastic Rope is available in diameters of from $\frac{3}{8}$ " (at 9¢ per lin. ft.) up to 1" (at 18½¢). The size of the rope, according to the manufacturer, should be $\frac{3}{8}$ " to $\frac{1}{2}$ " larger than the joint specified. Thus, the $\frac{5}{8}$ " thickness, which sells for 10¢ per lin. ft. and is packed 137' to the drum, is adaptable for joints of $\frac{1}{8}$ " to $\frac{1}{4}$ ". When the material is applied as an expansion joint, a liquid bond is first brushed on the edges to be connected (brush and bond are in the can) and the rope is uncoiled from a disk along the edges. In the photo above left, *Plastic Rope* is being used to form a joint between 14 T. precast concrete wall sections. When used to set a sill course, as in the photo above right, the compound is held in place by "thumbing" it at the inside edge; no bonding fluid is used. It takes about $\frac{1}{2}$ min. to form the sill course joint illustrated; no additional calking or pointing is necessary.

Manufacturer: Plastic Products Co., 6465 Georgia Ave., Detroit 11, Mich.

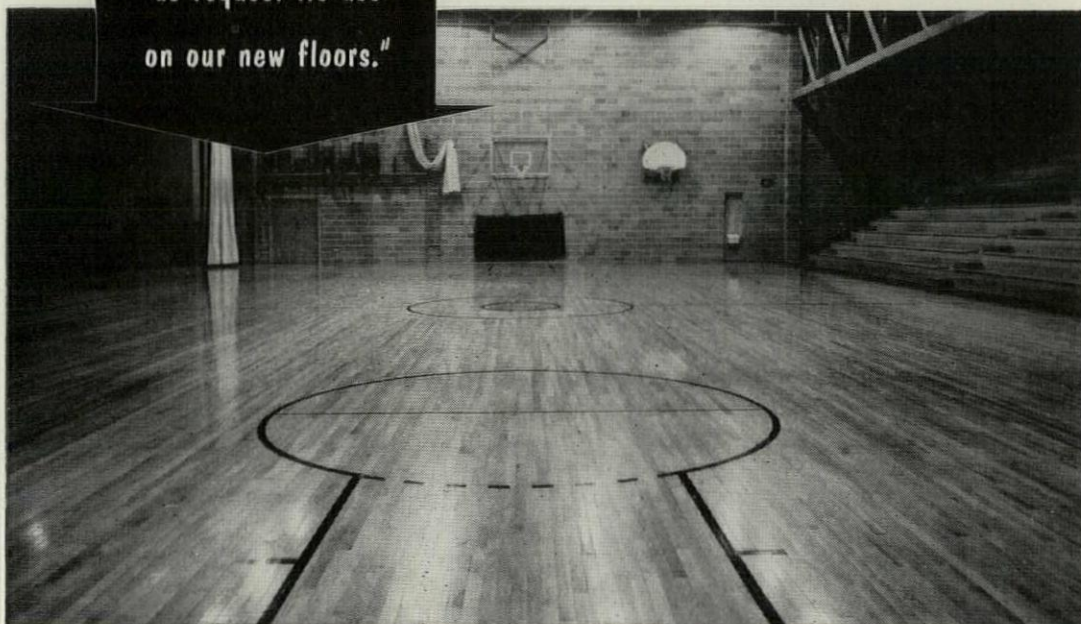
Another firm recently announced a similar product, *Armstrong Mastic Rope*.

Manufacturer: The Armstrong Co., 241 S. Post St., Detroit, Mich.

"Experience with
SEAL-O-SAN made
us request its use
on our new floors."



DAVIS AND WILSON ARCHITECTS



"in the new North Platte, Neb., Gyms,
we specified that **SEAL-O-SAN** be used."

Edo Oakes Superintendent

NORTH PLATTE schoolmen know from experience which gym floor finish wears and looks best in their schools. That's why they specified Seal-O-San Gym Floor Finish when they planned two new gyms recently. Their gyms are used as auditoriums, dance-floors and for other school events which punish the finish. They know that they can depend on Seal-O-San for a fine finish, low maintenance costs and long life—even on multi-purpose floors which get constant use! Investigate Seal-O-San now. Write today for complete specifications. Huntington specialists will consult with you at your request.

HUNTINGTON LABORATORIES, INC.

Huntington, Indiana



Toronto, Ontario

- ☐ Send specifications for all Seal-O-San finishes.
- ☐ Send helpful folder, "Key to Gym Floor Finishing."

NAME _____ TITLE _____

ADDRESS _____

CITY _____ STATE _____

SEAL-O-SAN
GYM FLOOR FINISH

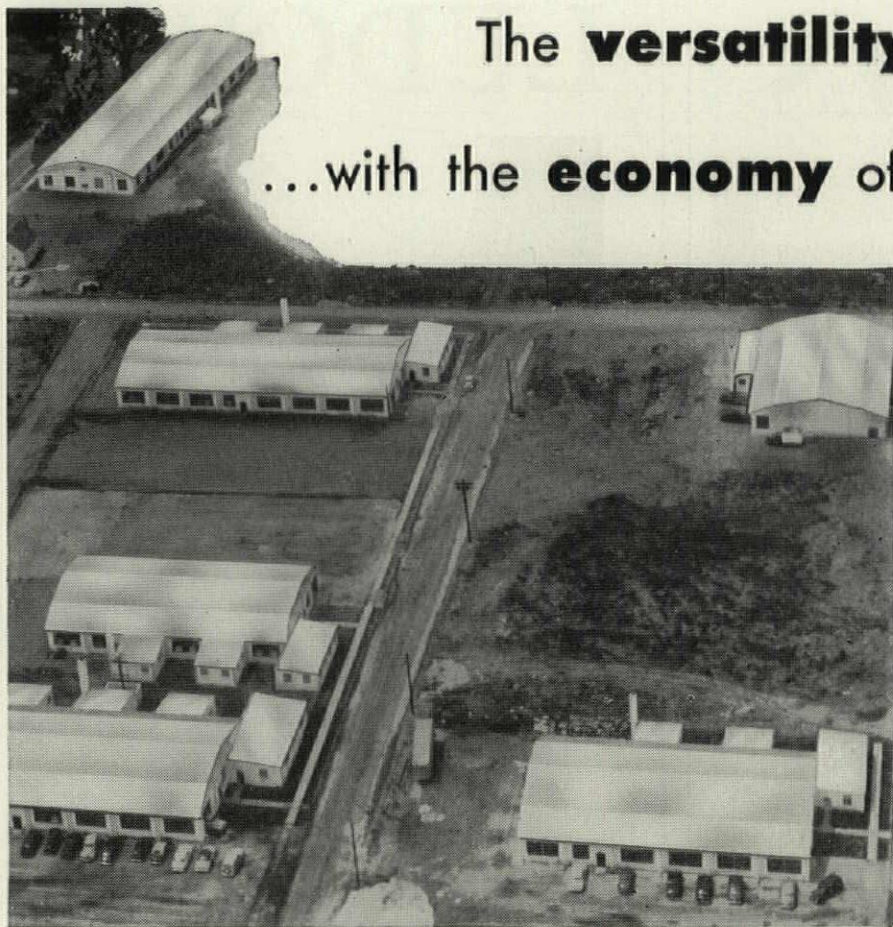
RESILIENT FLOORING of synthetic rubber is resistant to harsh chemicals

Vulcrete, an inexpensive latex mix, forms a springy, sound absorbent floor coating. A



\$10 unit—consisting of 1 gal. of liquid latex and a 34 lb. bag of vulcanizer grains—can be

(Continued on page 210)



The **versatility** of aluminum

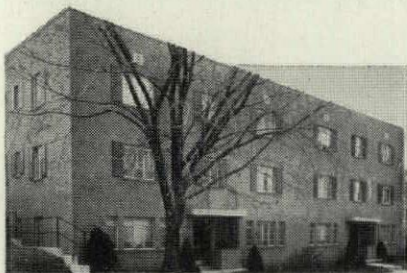
...with the **economy** of standard products!

New forms and treatments of versatile Reynolds Aluminum continue to come from building designers. But standard forms can also be handled with originality... and with obvious economy. Economy in initial cost, through mass-production. Economy in application... through well developed methods, understood by more and more workers.

Consider the adaptation of these popular and proved products to any plans, conventional or not. You will be getting the important advantages of lightness, strength and rustproof durability at low cost. Consider, too, the heat-reflection value of aluminum... in roofing and siding or insulation. Write for literature.

Reynolds Metals Company,
Building Products Division,
2020 South Third Street,
Louisville 1, Kentucky.

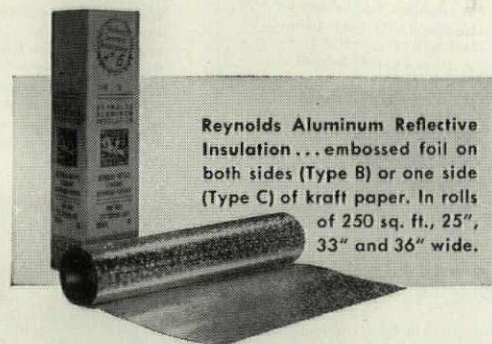
Reynolds Lifetime Aluminum Industrial Corrugated spreads its bright roofs all over the Amityville, L. I., area — through George Mole, contractor. Three schools, eight industrial plants, five commercial buildings. Sixteen in all (six shown in photo above)—and more coming! This is .032" with extra-deep corrugations ($\frac{7}{8}$ "). George Mole says that besides low initial cost, this roofing gives him greater permanence, lowest maintenance, and heat-reflected comfort inside.



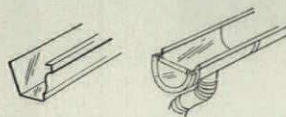
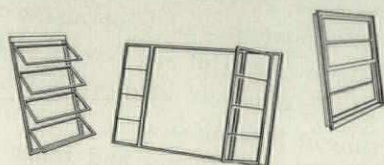
Reynolds Aluminum Residential Windows—Casement, Awning, Double-Hung — can be adapted to many uses. Made of Reynolds own extruded shapes, superbly finished. Above: Kansas City apartments — J. F. Lauck, architect; George Norton, owner-builder.



Reynolds Lifetime Aluminum Gutters come in 5" Ogee and Half-Round, smooth and embossed; also 6" Industrial Half-Round. Above development, Overland Park, Kan., has 5 miles of Reynolds gutters. Architects: Duncan & Mulhern. Contractor: Geo. Miller.



Reynolds Aluminum Reflective Insulation... embossed foil on both sides (Type B) or one side (Type C) of kraft paper. In rolls of 250 sq. ft., 25", 33" and 36" wide.



Specify Reynolds Lifetime Aluminum Flashing. Remember, aluminum costs far less than any other rustproof material.



Military demands for aluminum limit supply of these products. Reynolds is rapidly expanding aluminum production. Keep checking your supply source.



REYNOLDS ALUMINUM

"The Kate Smith Evening Hour" on Television, Wednesdays—Tallulah Bankhead in "The Big Show" on Radio, Sundays—NBC NETWORKS

Master builder of kitchens for **SCHOOLS**



For more than 30 years Kitchen Maid has been building kitchens for schools — solving the problems that such installations present. In projects involving either new schools, or remodeling of existing structures, Kitchen Maid is recognized as a master builder of kitchens.

Recent Kitchen Maid School Installations

Andrews School for Girls Willoughby, Ohio	Mascoutah Community High School Mascoutah, Illinois
Asbury Elementary School Washington Co., Tennessee	New Haven School New Haven, Indiana
Bellevue High School Bellevue, Pennsylvania	North Manchester College North Manchester, Indiana
Bippus High School Bippus, Indiana	Piercetown High School Piercetown, Indiana
Carmel School Lake Mahopac, New York	Roanoke High School Roanoke, Indiana
Carver High School Spartansburg, S. Carolina	Roosevelt High School Westfield, New Jersey
Center Moriches School Center Moriches, New York	Saddle Rock School Great Neck, New York
Clear Creek High School Huntington, Indiana	St. John's Cathedral Cleveland, Ohio
Dalhart School Dalhart, Texas	Salamonie School Salamonie Township, Indiana
East Rock Creek High School Bluffton, Indiana	Shurtliff High School Chelsea, Massachusetts
Elementary School New Canaan, Connecticut	Silver Lake High School Silver Lake, Indiana
Fairmont High School Fairmont, Indiana	Stinnett Independent District High School Amarillo, Texas
Franklin High School Franklin, Pennsylvania	Swayzee High School Swayzee, Indiana
Garrett High School Garrett, Indiana	Union Township High School Kewanee, Indiana
Geo. Clem School Greenville, Tennessee	Union Township School South Bend, Indiana
Grant, Oak Park and Hess Park Grade Schools Decatur, Illinois	Wayne Township School Huntington, Indiana
Gray Elementary School Washington Co., Tennessee	West Hill Elementary School Ithaca, New York
Hartford City High School Hartford City, Indiana	West Rock Creek High School Huntington, Indiana
J. Sloat Fassett School Elmira, New York	Westfield High School Westfield, New Jersey
Klondike High School Lafayette, Indiana	Williamsville Junior High School Williamsville, New York
Morgan County School Oakdale, Tennessee	

Choose the best!

Kitchen Maid builds fine hardwood cabinets with Flo-Line styling, quiet, rubber cushioned doors, rustless aluminum drawers, permanent wood shelves and many other features. For more data see Sweet's Catalog, your Kitchen Maid dealer, or write factory.



KITCHEN MAID

FIRST AND BEST IN
KITCHENS

THE KITCHEN MAID CORPORATION, 623 Snowden Street, Andrews, Indiana. Please send new folder showing the complete line of Kitchen Maid units with details and specifications. I am an ☐ Architect, ☐ Builder, ☐ Administrator.

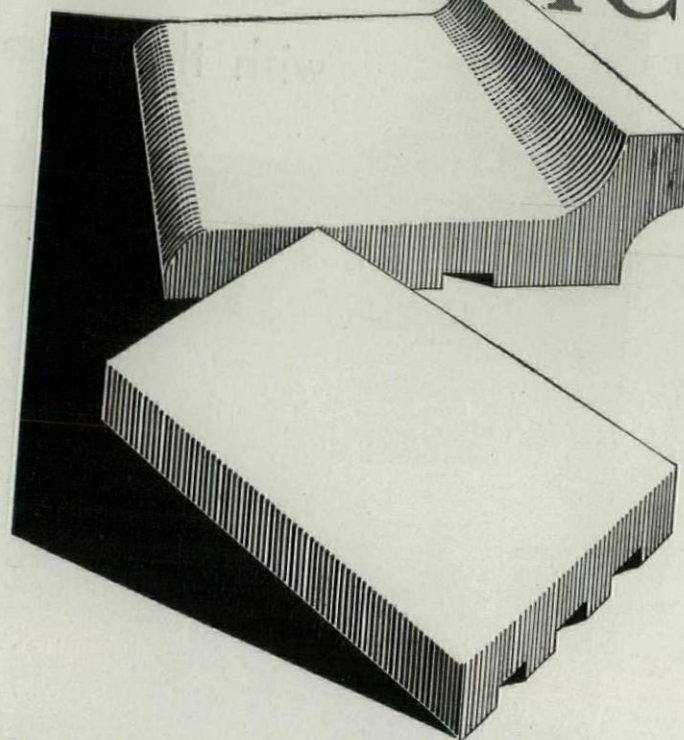
Name _____

Address _____

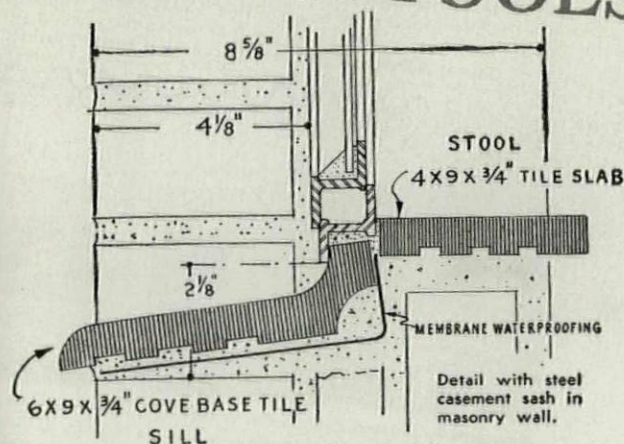


Look for this sign in your dealer's window. It recommends him as a member of the nation's oldest kitchen planning organization.

LUDOWICI



QUARRY TILE • SHALE SLABS SILLS and STOOLS



• Lay up exterior sills and interior stools with these impervious, hard-burned, convenient tile slabs and tile shapes. They provide attractive architectural treatment and a no-maintenance window base for any type of sash. The above detail is used in a large government housing project. Write for circular on sizes, shapes and range of colors available.

LUDOWICI-CELADON CO.

NEW YORK • WASHINGTON • DALLAS • CLEVELAND

Suite 1203, 75 E. Wacker Drive, Chicago 1, Ill.

In the new Port of New York Authority
Bus Terminal*—most modern in the world
—the furniture covering and the decorative
trim is

Boltaflex



All set for the rush, and these Boltaflex-covered seats will stay fresh-looking.



Boltaflex was specified for this job to match the streamlined decor and to provide easy-cleaning, long-lasting beauty in the most rigorous kind of public service.

Write for samples of the new *leather-like*, *textured* and *quilted* Boltaflex patterns. And be sure you have a Boltaflex catalog in your files. Write Box 92.

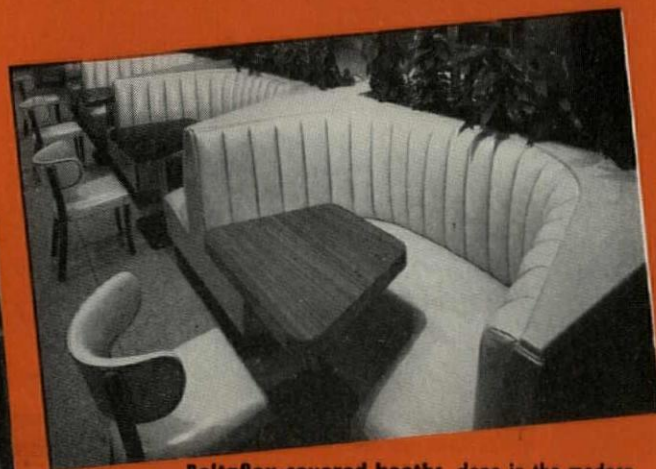
BOLTA, Lawrence, Massachusetts

Branch Offices and Warehouses: New York, 45 W. 34th St.; Chicago, Space 211 American Furniture Mart; High Point, N. C., 513 English St.; Los Angeles, 3544 East Olympic Blvd.; Cleveland, Ohio, 7306 Wade Park Ave.; Miami, Fla., 121 N. East 9th St.

Quilted Boltaflex (Bolta-Quilt) is also available



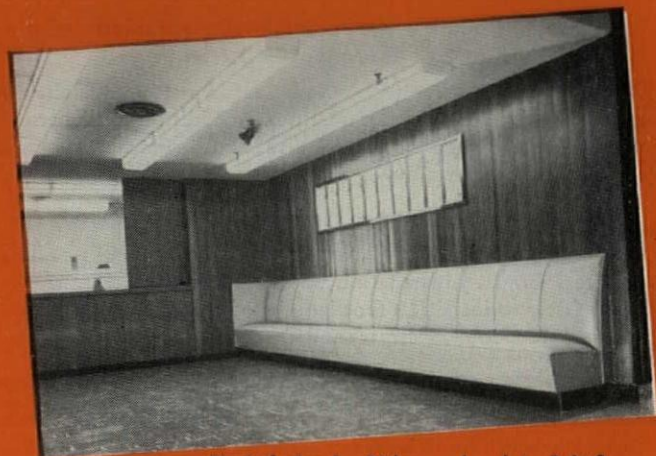
Boltaflex picks up the modern motif of the bar and surrounding booths.



Boltaflex-covered booths, done in the modern manner, will clean with a damp, soapy cloth.



Boltaflex fits the severe modern lines of this bench to a "T". (Note formica paneling.)



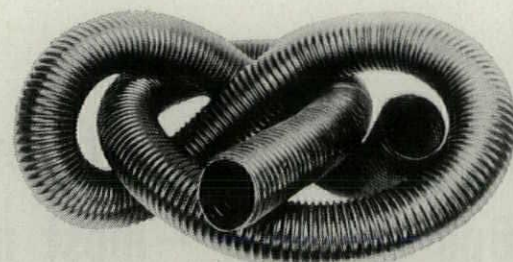
First choice for 24-hour-a-day duty, Boltaflex won't chip or peel, resists staining, scuffing, and fading.

*Architect — Arnold A. Arbeit; Fabricators — Chairmasters, Inc.

spread $\frac{1}{8}$ " thick over a 100 sq. ft. area. (For thicknesses of more than $\frac{1}{4}$ ", the material may be extended with sand.) It is used without a primer over wood, metal, concrete or composition surfaces, and is claimed to bond well with all building materials. The $\frac{1}{8}$ " thickness dries ready for use in 1 hr. Waterproof and fire-proof, the coating is said to have high tensile strength and to resist point loads. A good shock absorber, it is suitable for application

around machine bases; and, being alkali and acid resistant, may be utilized as economical cafeteria flooring and topping for laboratory sinks, tables and benches. It also is a practical maintenance material for restoring damaged floors, and repairing worn stair treads. Light gray in its natural state, *Vulcrete* will take paint without bleeding.

Manufacturer: Flash Stone Co., Inc., 30 E. Rittenhouse St., Philadelphia 44, Pa.



FLEXIBLE HOSE is lightweight duct for air conditioning systems

A tough hose made of neoprene and nylon and reinforced with wire, *Flexaust* may be utilized as ductwork for air conditioning—particularly for high pressure systems. Prices are about \$1.50 per lin. ft. for the 2" diameter, \$2.25 for the 4", \$3.25 for the 6", and \$4.75 for the 10". Other sizes are made up to 24". In the smaller diameters, the hose can be used for blowing in insulation fill. Because of its light weight and extreme flexibility, *Flexaust* is easy to handle.

Manufacturer: American Ventilating Hose Co., 100 Park Ave., New York 17, N. Y.

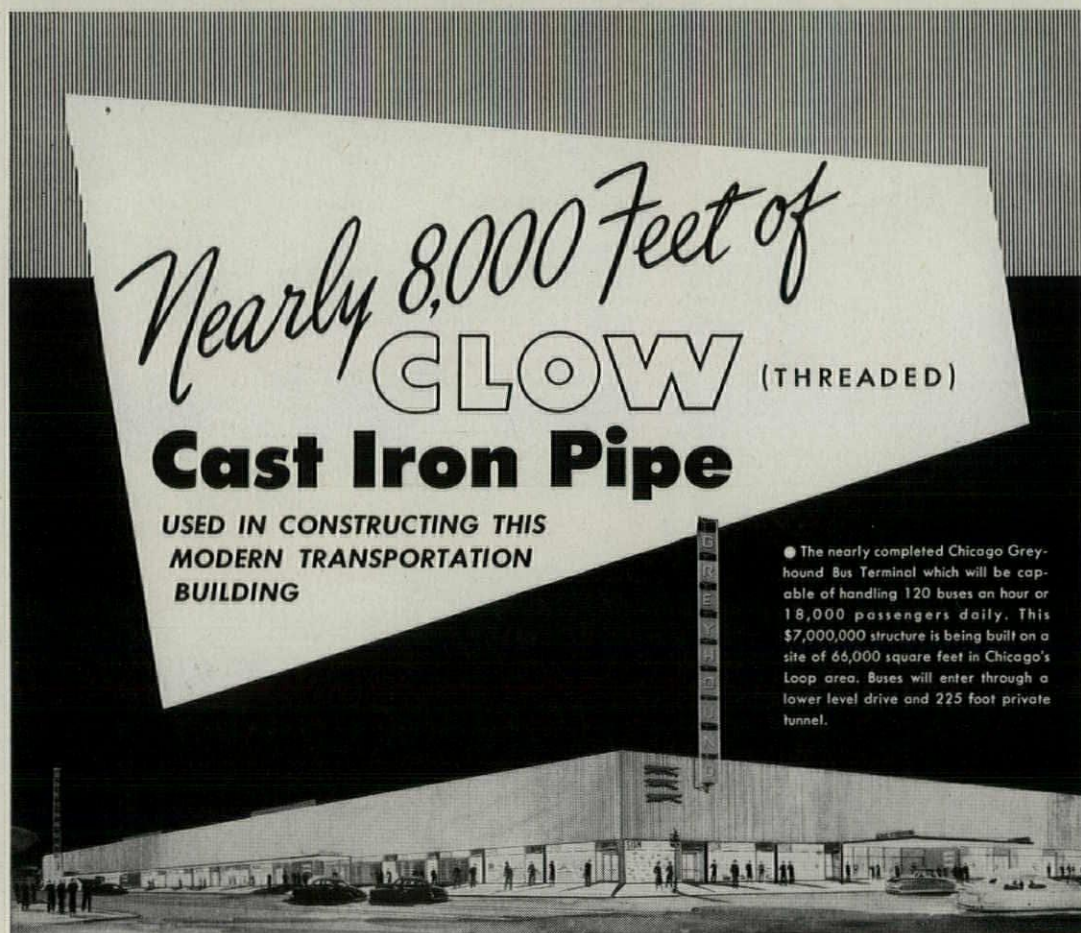
SHREDDED PLASTIC FILTER attracts smoke and pollen particles

While the affinity which many plastic materials have for dust drives their fabricators to absorb (and currently to antistatic chemicals), one company has capitalized ingeniously on the natural electromagnetism of certain resins and waxes. Goodyear has shredded polyethylene sheet into a porous mass and encased the filaments in a wire cage to make a highly efficient air filter for heating and cooling systems. For two years the product has been tested in big and little applications. The findings, revealed in the January *American Society of Heating & Ventilating Engineers Journal*, are impressive. Unlike the oil type filters which work like flypaper, catching only what hits the surface but letting many minute particles pass through, the plastic filter picks up an electrostatic charge when hit by an air stream which attracts and retains fine dust, soot, and pollen particles which are suspended in the air. Another feature of the new filter: it can be cleaned easily by a rinse in clear water and may be used countless times without losing its effectiveness.

It is evident that the \$12.50 plastic filter has advantages over the ones that work by impingement but how does it compare with the expensive electrical precipitator devices? Goodyear has no conclusive test data as yet, but they have found when the filters are used in tandem with a mechanical precipitator, the dust removal process is improved. Because of metal restrictions (the frame is an aluminum alloy), the filters will be available nationally only in limited quantities. They are made in three sizes; 16" x 25" x 1", 20" x 20" x 1", and 20" x 25" x 1".

Manufacturer: Goodyear Tire & Rubber Co., Akron 1, Ohio.

(Continued on page 214)



Nearly 8,000 Feet of CLOW (THREADED) Cast Iron Pipe

USED IN CONSTRUCTING THIS
MODERN TRANSPORTATION
BUILDING

• The nearly completed Chicago Greyhound Bus Terminal which will be capable of handling 120 buses an hour or 18,000 passengers daily. This \$7,000,000 structure is being built on a site of 66,000 square feet in Chicago's Loop area. Buses will enter through a lower level drive and 225 foot private tunnel.

Deceptive in appearance, this ultra-modern building actually has five levels. And in this block-long structure, over 7900 feet of Clow Cast Iron Pipe has been installed for all 3-inch and larger downspout, waste and vent piping.

Here's why the Architects specified Clow (threaded) Cast Iron Pipe:

According to the Architects, Clow Cast Iron Pipe was specified because of its corrosion-proof qualities. In addition to its permanence, they stated, Clow Cast Iron Pipe gives a more finished appearance to the installation.

Here's what the Plumbing Contractor said about Clow (threaded) Cast Iron Pipe:

"On this job, easy installation was an important factor. We found it much faster to install 18 foot lengths of Clow Cast Iron Pipe," said Mr. Oswald J. Cook, Secretary and Treasurer of O'Callaghan Bros. Inc.

ARCHITECTS-ENGINEERS:
Skidmore Owings & Merrill
PLUMBING CONTRACTOR:
O'Callaghan Bros. Inc.

Clow (threaded) Cast Iron Pipe has same O.D. as wrought pipe, is available with plain or threaded ends, in 3, 4, 5, 6, 8 and 10" sizes in 18' random lengths. Also available with integral calking hub on one end (other end plain) in 18' random lengths in 4, 6, and 8" sizes.

CLOW CAST IRON PIPE CAN BE



on the job, with ordinary
tools of the piping trade.

JAMES B. CLOW & SONS

201-299 North Talman Avenue

Chicago 80, Illinois

and their National Cast Iron Pipe
Division, Birmingham, Alabama;
subsidiaries:
Eddy Valve Co., Waterford, New York;
Iowa Valve Co., Oskaloosa, Iowa.

*Mengel Flush Doors —
the Permanent Furniture
of Your Building!*



Plywood Division
THE MENGEL COMPANY
Louisville 1, Kentucky

Growers and processors of timber . . . manufacturers of veneers
. . . plywood . . . flush doors . . . fine furniture . . . corrugated
containers . . . kitchen cabinets and sliding-door wall closets
. . . largest manufacturers of hardwood products in America.



THIS UNIQUE CORE PREVENTS WARPING IN **MENGEL**

HOLLOW-CORE *Flush* DOORS

Mengel Hollow-Core Flush Doors *stay flat*. Mengel's exclusive, Insulok core is just one of the important "reasons why". This patented interlocking grid has no directional "grain", provides a rigid, neutral core. Each strip is $\frac{3}{8}$ " wide, and the strips are only 1" apart. This closely-spaced grid provides greater bonding surface than is found in any competitive hollow-core door — helps give Mengel Doors unmatched strength and resistance to warping . . .

Mengel Flush Doors have genuine hardwood stiles, rails, lock blocks, cross-banding and faces. They are the finest that can be built. They are fully guaranteed without limitation as to time — yet sell for little more than softwood doors.

STANDARDOR

Ask about Mengel's popular new economy door, Standardor. Made by the same craftsmen as the famous Mengel Door, yet simplified for large volume production, bringing substantial cost-savings to you!



When Appearance Counts— Specify Plywood Forms

How SMOOTH can concrete be? As smooth as the material against which it's cast. That's why plywood-formed* concrete surfaces are smooth, dense, uniformly attractive. Large panel size automatically reduces fins and joints to an absolute minimum. Exact-size Douglas fir plywood concrete form panels are tough, rigid, dimensionally stable. Stark monolithic surfaces, curved surfaces, rustication lines, fluting and other special architectural design effects are also easily achieved with plywood forms. For free catalog, write Douglas Fir Plywood Association, Tacoma 2, Washington.

Only Plywood Offers All These Advantages

- Plywood forms create smooth, fin-free surfaces
- Economical! Plywood forms can be used over and over
- Plywood forms speed work—save time and labor
- Plywood is strong, rigid—yet light, easy to handle
- Plywood forms are puncture-proof, water and mortar tight
- Plywood has superior nail and tie holding properties
- Plywood is easy to work with hand or power tools
- Plywood provides sheathing and lining in one material



Douglas Fir
Plywood

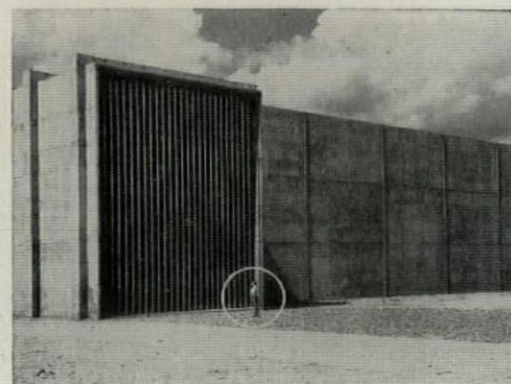
AMERICA'S BUSIEST BUILDING MATERIAL

*Several plywood grades are manufactured for concrete form work. Highly moisture-resistant glues in PlyForm® grade permit multiple re-use (up to 10-15 are not unusual). For greatest possible re-use, specify waterproof bond EXT-DFPA Concrete Form grade. For special architectural concrete, requiring finest finish, use Exterior or Interior plywood grades with "A" face veneer—or one of the new plastic-surfaced or hardboard faced plywood panels.

® Registered grade-trademarks of Douglas Fir Plywood Assn.

PANEL DISCUSSION

Plywood Helps Complete Rush Job On Schedule



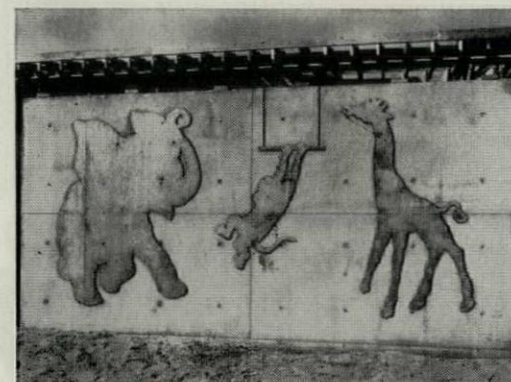
Douglas fir plywood helped speed formwork time by 15 per cent in building the giant reinforced concrete wind tunnel silencer at the Lewis Flight Propulsion Laboratory of the National Committee on Aeronautics at Cleveland, Ohio.

"It was a hurry-up contract with a penalty clause," explains H. F. Hadde, chief engineer for the Hunkin-Conky Construction Company, Cleveland, contractors. "Plywood forms helped get the job done fast and also formed the smooth concrete required in the design of the structure."

Smooth concrete was a must on the inner walls because roughness would cause a drop in air pressure, requiring more power to pass air through the system of ducts and baffles which curb noise and pressure waves generated by "hot" ram-jet engine tests. Plywood forms were used on outer walls for appearance.

Forms were built by placing standard 4'x8' plywood sheets across 2"x6" studs, backed by 2"x6" walers.

Plywood Forms Concrete Intaglio



Plywood cut-outs, nailed to the plywood form face, were used to create these whimsical nursery figures on the exterior concrete wall of the kindergarten play yard at the Whitman School, Tacoma, Wash. Architect John G. Richards of Lea, Pearson and Richards developed the idea. Over 7' high, the figures were formed using $\frac{3}{8}$ " plywood cut-outs, secured to $\frac{5}{8}$ " form panels. On the soon-to-be-completed proj-

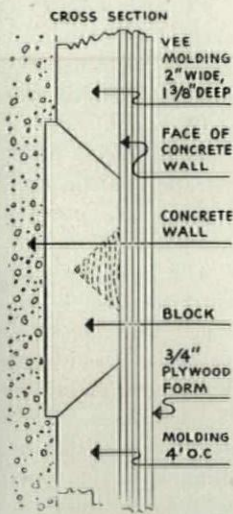
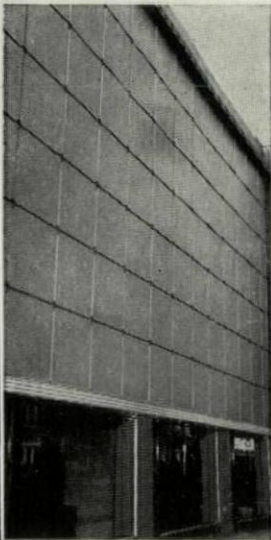
ect, plywood forms are being re-used as roof decking. Contractors: Standard Construction Company, Tacoma, Washington.

Plywood Shapes Modern Church



Because they offer the simplest method of obtaining the smooth, curved walls, Architect Paul Thiry specified plywood form panels for all concrete work on the Church of Christ the King, Seattle, Wash. Built by the Austin Co., Seattle, the curved walls were formed by nailing 4'x8' sheets, $\frac{5}{8}$ "-thick, horizontally across double 2"x12" walers, bandsawed to the desired radius. In no place were the 2x12s sawn to less than 3 inches. The walers were backed by 2"x4" studding.

Concrete Wall Cast In Novel Block Pattern



Windowless concrete walls cast in block pattern, painted a cheerful old rose, distinguish the Tarlow Furniture Store, Portland, Ore. The structure is from the design board of Richard Sundleaf of Portland and was built by the George H. Buckler contracting firm with A. L. Funk, general superintendent. Plywood form panels were specified to create the desired design effect.

The novel block pattern was formed by nailing vee-moldings, 2"-wide, $\frac{13}{8}$ "-deep to the plywood form face. To create additional interest with varying shadow lines, the inset diamond-shaped blocks are slightly deeper than the moldings.



When Re-Use Counts—Specify Plywood Forms

MEASURED in terms of cost per use, Douglas fir plywood ranks as one of the most economical of all form materials. On apartments, office or factory buildings, plywood form sections can be used to job completion—eliminating the problem of form reconstruction once the job is under way. Plywood deserves ordinary care in handling, but it does not require extreme caution at every step and is far more rugged than other panel type materials. The exact number of re-uses obtained vary with grade and the care it receives on the job. Builders report up to 10 or 15 re-uses with PlyForm (see grade data below) panels . . . twice as many with Exterior-type and plastic faced plywoods.

Only Plywood Offers All These Advantages

- Plywood forms create smooth, fin-free surfaces
- Economical! Plywood forms can be used over and over
- Plywood forms speed work—save time and labor
- Plywood is strong, rigid—yet light, easy to handle
- Plywood forms are puncture-proof, water and mortar tight
- Plywood has superior nail and tie holding properties
- Plywood is easy to work with hand or power tools
- Plywood provides sheathing and lining in one material

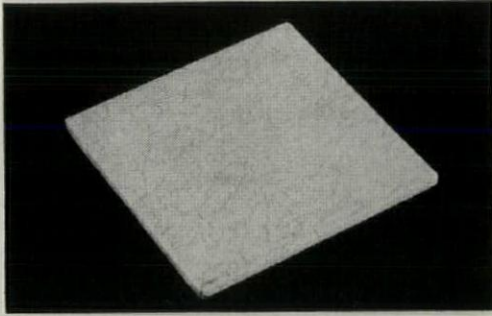
Douglas Fir
Plywood



AMERICA'S BUSIEST BUILDING MATERIAL

*Several plywood grades are manufactured for concrete form work. Highly moisture-resistant glues in PlyForm® grade permit multiple re-use (up to 10-15 are not unusual). For greatest possible re-use, specify waterproof bond EXT-DFFPA Concrete Form grade. For special architectural concrete, requiring finest finish, use Exterior or Interior plywood grades with "A" face veneer—or one of the new plastic-surfaced or hardboard faced plywood panels.

© Registered grade-trademarks of Douglas Fir Plywood Assn



SANITARY ACOUSTICAL TILE is faced with patterned plastic film

Planned especially for restaurants, this new acoustical tile has an incombustible washable vinyl plastic face. The membrane, stretched taut over a Fiberglas mat, acts as a drumhead, reverberating sounds which hit its surface and losing them in the fibrous mass. Currently available with a gray mother-of-pearl finish, the product soon will be sold with the

festive pattern illustrated. Industrial designer Walter Dorwin Teague developed this off-white and sand color abstraction which suggests the glass fibers behind the tile face. The surface provides good light reflection and the tile is an effective sound deadener. Its noise reduction coefficients are .65 for center tile (plastic film is adhered at the edges only) and .40 for border tile (film is adhered to the face as well as the edges). The tile is 1' square, 3/4" thick. Installed costs per sq. ft. run about 55¢ to 70¢, depending on local labor and whether the units are hung mechanically or secured with adhesives.

Architects who plan commercial food serving areas probably will latch on to the first carloads but there is no reason why the pretty contemporary tile cannot be used to set off home cooking—and muffle milady's pot-clanging in the bargain.

Manufacturer: Owens Corning Fiberglas Corp., Toledo 4, Ohio.

LIGHT DIRECTING GLASS BLOCK produced in larger units

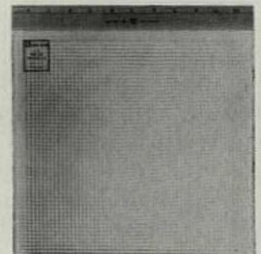
Scale conscious designers will be pleased to note that Pittsburgh Corning has extended its line of light directing 8" block with three 12" units—a nonpolitical "Big 3":

PC Prism A 55 is a light directing block for highest light transmittance on non-sun elevations.

PC Soft Lite Prism B 55 LX is a double cavity block for use on sun exposures. It provides a high degree of brightness control and is said to reduce heat gain.

PC Soft Lite Essex B 55 LX is also a double cavity diffusing block, but is designed for fenestration on sun walls in stair wells and other areas where maximum light diffusion is required.

The new block have the same functions as corresponding 8" units and so may be combined with the smaller block in a variety of patterns. Used alone, the 12" block require less mortar and therefore provide greater light transmittance. Their thermal insulation is said to equal that of 8" concrete block. Handling costs in construction should be somewhat lower since one of the new block covers

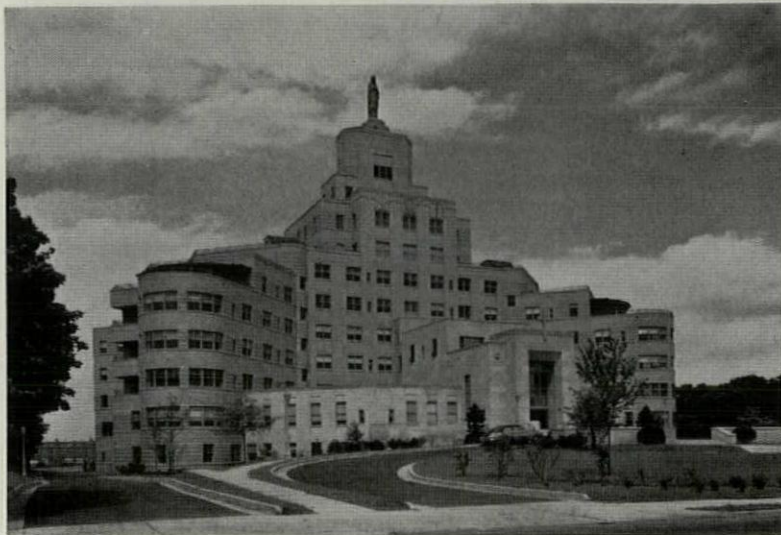


Pittsburgh's new 12" glass block directs diffused daylight into room interiors.

more area than two 8" units. A factory applied plastic skin protects the glass face during setting and makes it easy for the mason to clean off excess mortar.

Manufacturer: Pittsburgh Corning Corp., 307 Fourth Ave., Pittsburgh 22, Pa.

(Continued on page 214)



OUR LADY OF LOURDES HOSPITAL, CAMDEN, N. J.
Paul C. Reilly, New York, N. Y., Architect
George A. Fuller Co., New York, N. Y., Builders
Rolla-Head Venetian Blinds throughout.

for permanent, practical windows
specify... ROLLA-HEAD
custom-made all-metal venetian blinds

See SWEET'S Catalog for Complete Information,
Specifications and Installation Details.

Only Rolla-Head has
all the features!

First Choice . . . for Important
Buildings Everywhere

- Hotel DuPont Plaza, Washington, D. C.
- U. S. Naval Hospital, Bethesda, Md.
- Parkview Apartments, Collingswood, N. J.
- Hancock Village, Brookline, Mass.
- Methodist Hospital, Memphis, Tenn.
- Main Post Office, Washington, D. C.
- Duvall Manor Apartments, Philadelphia, Pa.
- Carlton House, Pittsburgh, Pa.

For every important industrial, commercial, office building, school or institutional construction specify ROLLA-HEAD All-Metal Venetians. They provide maximum window efficiency through better control of light, easier cleaning and longer wear as well as low initial cost.

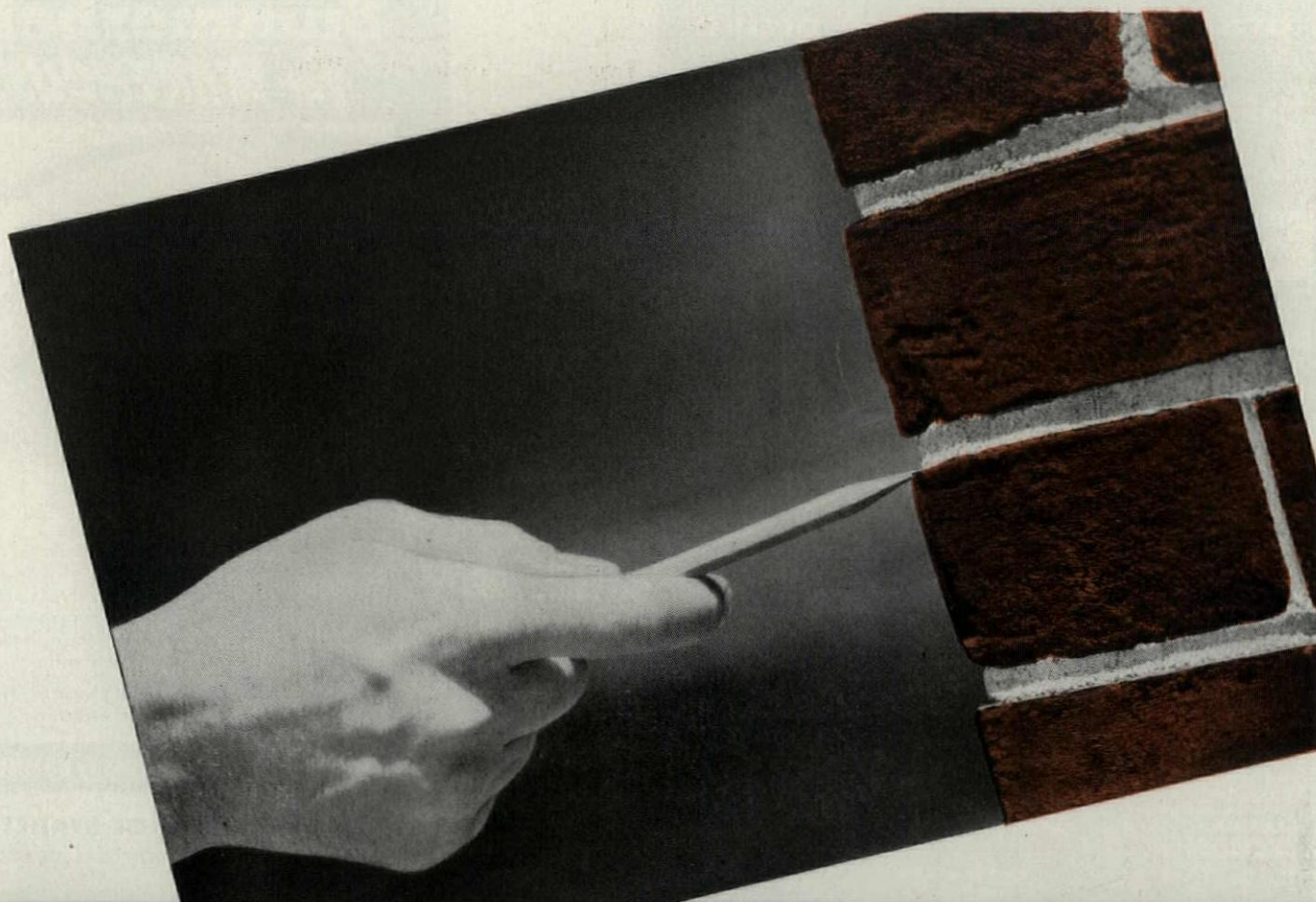
ROLLA-HEAD All-Metal Venetians are custom-made in any size or any color to fit your design ideas. Enclosed metal head, flexible ROLLA-TEX SF-55 Alloy slats in lifetime DuPont Finish, easy to clean, one-piece metal bottom rail and either long wearing cotton or plastic ROLLA-TEX tapes. Specify ROLLA-HEAD and be sure!

ROLLA-HEAD All-Metal Venetian Blinds are custom-made by over 1000 manufacturers with materials and processes of the

EASTERN MACHINE PRODUCTS COMPANY
AMERICA'S LARGEST SOURCE OF METAL WINDOW DECORATION

Baltimore Atlanta Brooklyn Vancouver Toronto





BRIXMENT

is more durable!

FOR permanent strength and beauty, mortar must be *durable* — must be able to withstand the alternate freezing and thawing to which it is subjected many times each winter.

Brixment mortar is *durable*. This durability is due partly to the strength and soundness of Brixment mortar, and partly to the fact that an air-entraining and water-proofing agent is incorporated into Brixment during manufacture. This helps prevent the mortar from becoming saturated — therefore helps protect it from the destructive action of freezing and thawing.

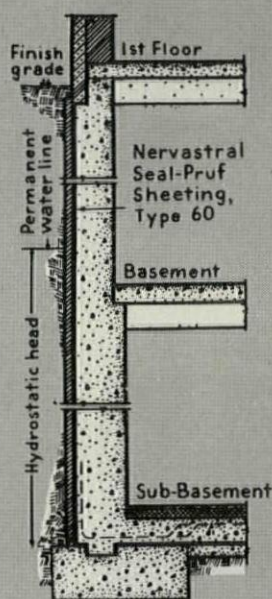


LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

laboratory tests
and practical experience prove
non-critical
NERVASTRAL
SEAL-PRUF
is better *

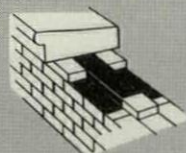
* better for
MEMBRANE WATERPROOFING

* better for
SPANDREL BEAM WATERPROOFING



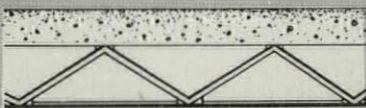
Since Nervastral SEAL-PRUF is completely unaffected by laitance of Portland cement and by acid in cinder concrete, it is ideal for spandrel beam waterproofing.

* better for
DAMP PROOFING



Under normal conditions, one ply of Nervastral SEAL-PRUF forms an efficient moisture-proof barrier.

* better for
CONDENSATION PROTECTION



For foundations, retaining walls, basements, subways, tunnels, etc., which must be made watertight. Nervastral SEAL-PRUF not only gives complete protection from water penetration but helps absorb shock and cuts vibration.

Nervastral SEAL-PRUF is an impermeable flexible sheeting which does not need to be embedded in plastic and is easily and economically installed.

It is available in two types: Type #30 is excellent for general construction in the residential field—28 mils thickness—rolls 72 feet long—in widths 36", 30", 24", 20", 18", 15", 12", 8". Special widths provided on request. Also available in Type #60 for heavier construction.

Nervastral is sold all over the country. Use coupon for name and address of nearest dealer and sample of material.



**RUBBER & PLASTICS
COMPOUND CO., INC.** 30 ROCKEFELLER PLAZA, NEW YORK



☐ Please send sample of Nervastral SEAL-PRUF and more information.

Name.....
Company.....
Street.....
City..... Zone..... State.....

Summerbell for WAREHOUSES



Merchandise Warehouse, Vernon, Calif. Albert C. Martin, Architect.
William Simpson Construction Company, General Contractors.

SUMMERBELL, for thirty years, has been a leader in the development of wood Roof Structures for all types of buildings where large unobstructed areas and maximum usable interior space is required. You can put your problem up to SUMMERBELL with every assurance of lasting satisfaction, dependable quality and honest value.

Glued Laminated Construction • Summerbell Bowstring Trusses
Lamella Roofs & All Types of Timber Structures

For quality, economy and satisfaction, specify SUMMERBELL

Summerbell ROOF STRUCTURES

825 EAST 29TH STREET • BOX 218, STATION "K" • LOS ANGELES 11

Lemco

**CUSTOM-BUILT
ALUMINUM WINDOWS**

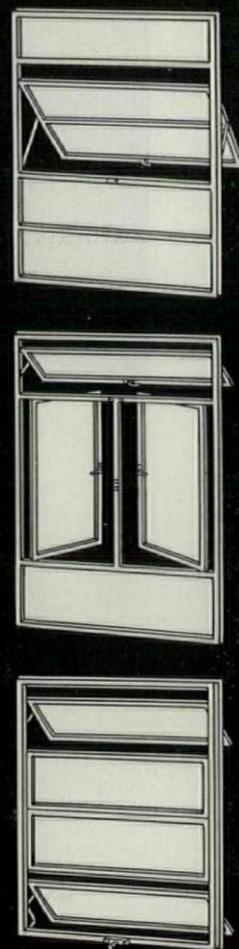
Croft Steel Products offers facilities for design and manufacture of custom-built aluminum windows, backed by over thirty years' experience in the metal window industry. Croft engineers, working with architects, have assisted in the development of windows for outstanding commercial, industrial, educational, and hospital buildings; a few representative types are shown at the right. The experience of our window engineers is always at your service.

Write today for
further information

AMERICA'S OLDEST CASEMENT
WINDOW MANUFACTURER

CROFT

Steel Products, Inc.
16 MARKET STREET
JAMESTOWN, N. Y.



Now... "individually engineered" panelboards... in minutes!

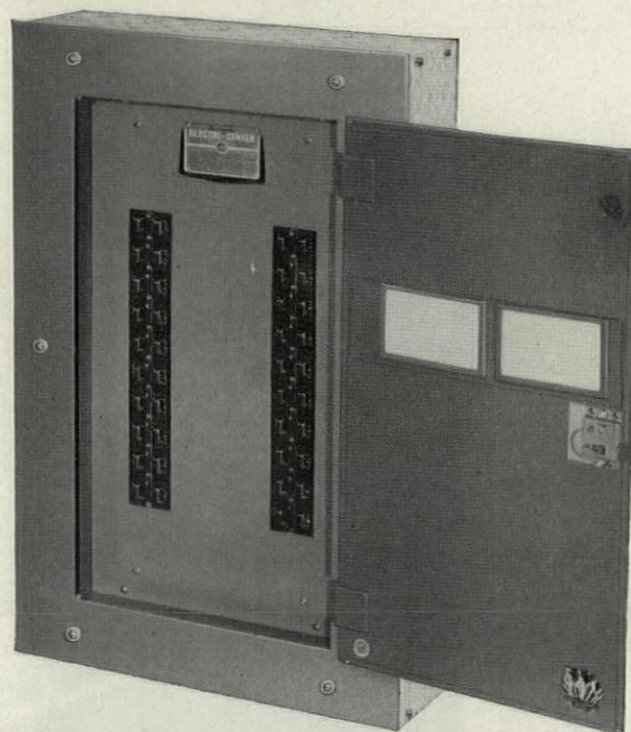
BullDog's new principle of standardized units gives architects new flexibility in planning, simplifies specification of panelboards up to 42 circuits

Here's news that architects will welcome. By standardizing on component parts, BullDog has engineered 5 basic panel devices that can handle any requirement up to 42 circuits.

These basic units can meet your circuit and rating specifications *exactly*, and, in effect, be "individually engineered" to your plans... yet your contractor or client can get them *immediately* from local BullDog Distributor stocks.

BullDog panelboards are highly flexible, too. Individual Pushmatic circuit breakers are interchangeable, and available in a wide range of ratings to meet present and future circuit requirements. Where circuit spaces aren't utilized immediately, filler plates may be used; and your client can add as many as 36 extra circuits later, as needed.

Forget about costly, custom-built panels that often cause construction delays, that won't adapt to changing electrical needs. Specify BullDog Pushmatic Electri-Center Panelboards. They're mass produced and cost your customers *less* at no sacrifice in quality... but at a definite gain in flexibility, speedy procurement and convenience.



BullDog Pushmatic Electri-Center Panelboards. For complete details, send for free Bulletin 513.

BULLDOG Pushmatic Electri-Center Panelboards

- For plants, commercial buildings, institutions.
- Underwriters'-listed up to 42 circuits.
- Individual Pushmatic units (Thermal Magnetic) rated 15, 20, 30, 40 and 50 Amps.; quick-mounting, fully interchangeable
- Meet Federal Specifications WP 131a Class A
- Push-button switching and automatic circuit protection. No reset position.
- Code Gauge steel fronts, flush or surface type.
- Code Gauge steel boxes with ample knockouts in removable ends.
- 4"-wide gutters for easy wiring.
- Provision for Main Lugs at top or bottom.
- Flexible from every standpoint.

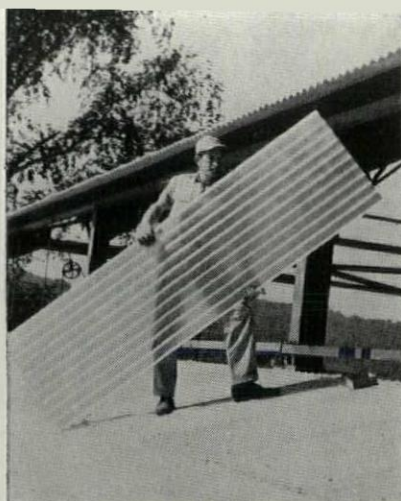
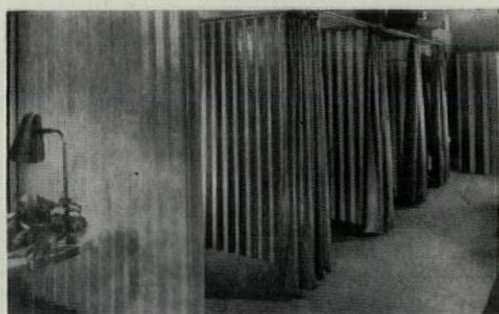


BULLDOG

BULLDOG ELECTRIC PRODUCTS COMPANY
DETROIT 32, MICHIGAN • FIELD OFFICES IN ALL PRINCIPAL CITIES
IN CANADA: BULLDOG ELECTRIC PRODUCTS OF CANADA, LTD., TORONTO
PIONEERS IN FLEXIBLE ELECTRICAL DISTRIBUTION SYSTEMS

1902-1952 . . . SERVING INDUSTRY FOR 50 YEARS WITH FINER ELECTRICAL PRODUCTS

PRODUCT NEWS



Lightweight and relative toughness of large plastic sheet permit one man to carry it

PLASTIC BUILDING PANELS include deep colors in standard line

Fabricating translucent structural panels of polyester resins and glass fiber similar to the versatile corrugated and flat sheets, already on the market, Resolite Corp. has added a few intense colors and a new crinkle: a raised diamond pattern. Cost of *Resolite*, about \$1.25 per sq. ft., is competitive with its forerunners.

The material is composed of about 70% resin and 30% fiber mat (which serves as decorative reinforcement). It is easily installed as skylighting since the corrugations match those of standard roofing materials. The amount of light diffused by the paneling varies according to the pigmentation: the pale green transmits about 75% as much light as clear glass; the dark green, only 32%. Besides these shades, *Resolite* is available in blue, red, yellow and ivory. (Other colors can be ordered at extra cost.) Years of service will change the appearance of the pigments very slightly, the manufacturer claims.

The plastic sheet is said to be unaffected by weather extremes and to be resistant to most industrial fumes and so is a good glazing material for factory sidewalls.

Useful in interiors too, *Resolite* makes a gay partition, affording light with privacy. Waterproof, it is suitable for shower stalls.

It has a tensile strength of 7,500 to 10,000 psi and a flexural strength of 10,000 to 15,000—depending on the size of the corrugation. Standard 30" sheets support a load of about 100 lb. per sq. ft. on horizontal spans of 4' to 5'. *Resolite* may be installed with almost any kind of fastener—nail, screw or bolt. Although sized to specifications at the plant, the material may be cut on the job with a hand saw if necessary.

Manufacturer: Resolite Corp., Zelienople, Pa.

a good way to HEAT a store*

* And all other kinds of commercial and industrial buildings, such as garages...filling stations...restaurants...theatres...schools...warehouses...factories.



Humphrey AUTOMATIC GAS UNIT HEATERS

You can recommend the Humphrey for any store or commercial building and be sure that this unit will do a superb heating job, at lowest cost.

The Humphrey is the most improved Gas Unit Heater on the market. It is the *only* unit with such valuable features as Free-Flow Heat Exchanger, Tilting Front, Dual-Flame Burner, and Non-Clogging Pilot.

Because the Humphrey is a better-made Unit Heater, it keeps on operating at top efficiency, year after year. This means continuing savings, both on maintenance and on fuel costs, over an extra long service life.

May we tell you more about Humphrey Gas Unit Heaters? Write for free Engineering Bulletin containing full specifications and instructions for installing.



GENERAL GAS LIGHT CO. • KALAMAZOO, MICHIGAN

23 Warren Street, New York City • 2nd Unit Santa Fe Building, Dallas • 225 Eleventh Street, San Francisco

FREEWHEELING LIGHT AND POWER. Compact dolly rolls electrical outlets to job

Wires which weave a tanglefoot trail from out-of-the-way outlets to a job detail now can be supplanted with a single safe device, the *NE Rolla-Duct*. A portable branch circuit extension on a 21' power line with a 3'-10" strip duct of flood lamp sockets and outlets, the neat 28 lb. assembly extends the service area of permanent electric outlets by a radius of 20' or more. The tubular steel carriage carries the grounded strip duct on a ball and socket swivel joint which locks in upright or horizontal positions. The duct can be raised to a height of 5½' or the whole unit may be collapsed to direct light overhead or to roll under low slung structure.

The unit carries an approved rating for 20 amp. loads for 115 or 220 v. operations. The strip duct is equipped with a circuit breaker

(Continued on page 222)



America's greatest treasure hunt is now underway!

It's a hunt for scrap metal of all kinds desperately needed to keep production of everything for defense and civilian needs at peak levels. Some 9,000 steel salesmen working with local Chambers of Commerce Committees are calling personally on every business establishment where there is a possibility of locating metal not now being used. (For example:—a small button works scrapped 20 tons of obsolete machinery.) The businessman is then

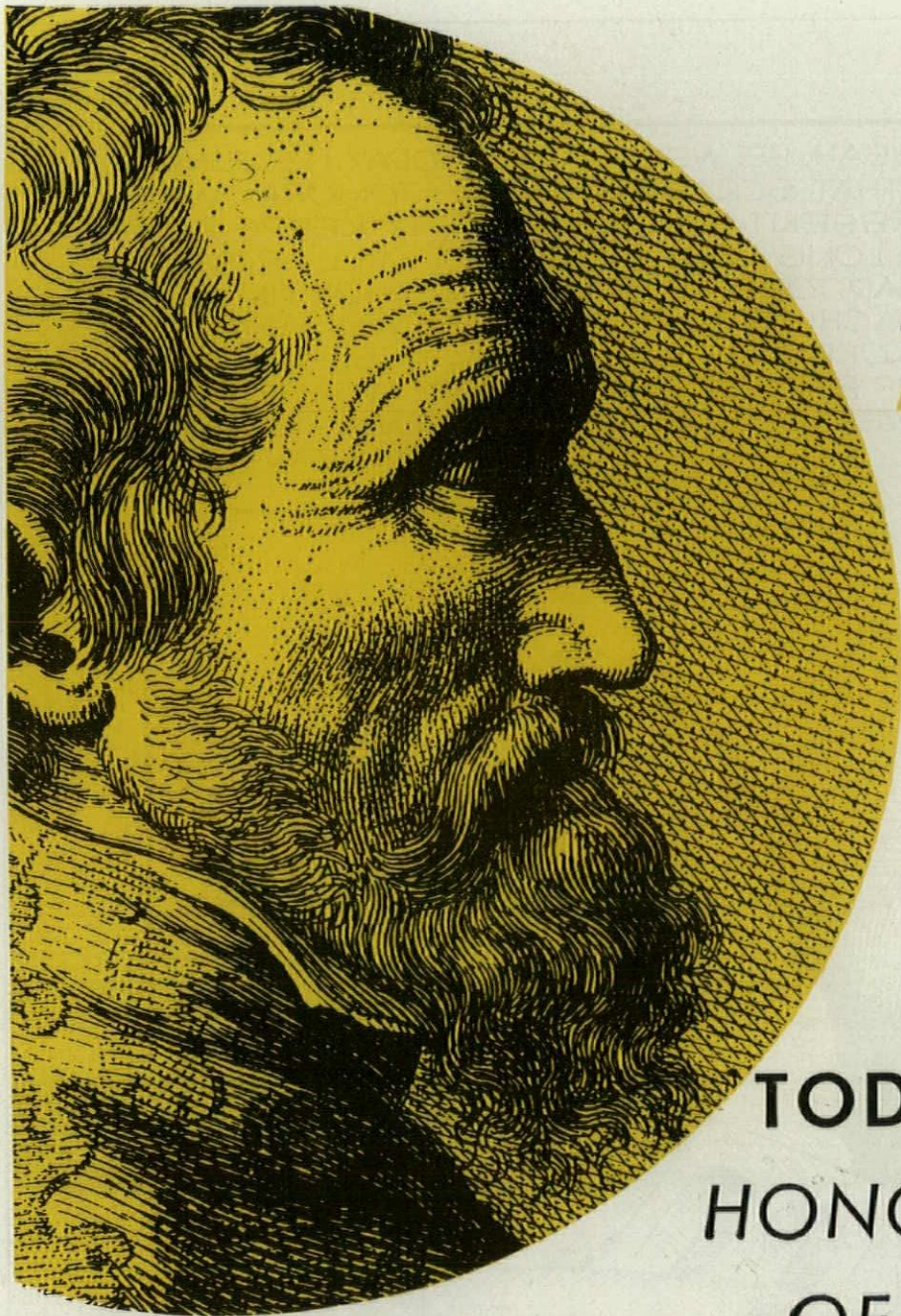
requested to sell his old steel or iron or copper or aluminum to a local scrap dealer who will sort, prepare, and resell it to the mills and foundries. Help your local scrap representative when he calls, or if he has already called on you keep looking for scrap. Junk your worn-out and broken machines and equipment now! Then put in a call to your local scrap dealer!

REMEMBER—STEEL IS 50% SCRAP!



JONES & LAUGHLIN STEEL CORPORATION
PITTSBURGH 30, PA.

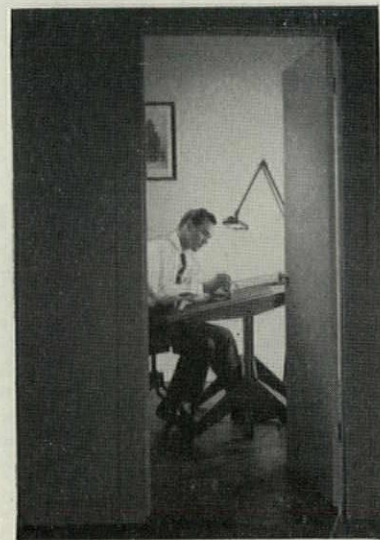




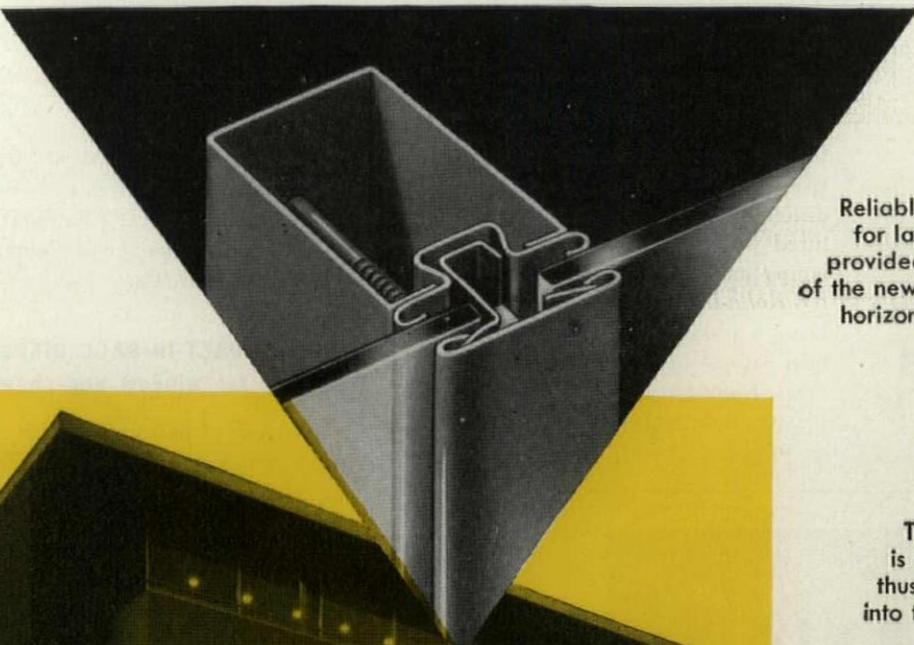
Michelangelo Buonarroti said,

*"When a plan has diverse parts,
all those which are alike in quality
and quantity must be treated
according to one model and one style."*

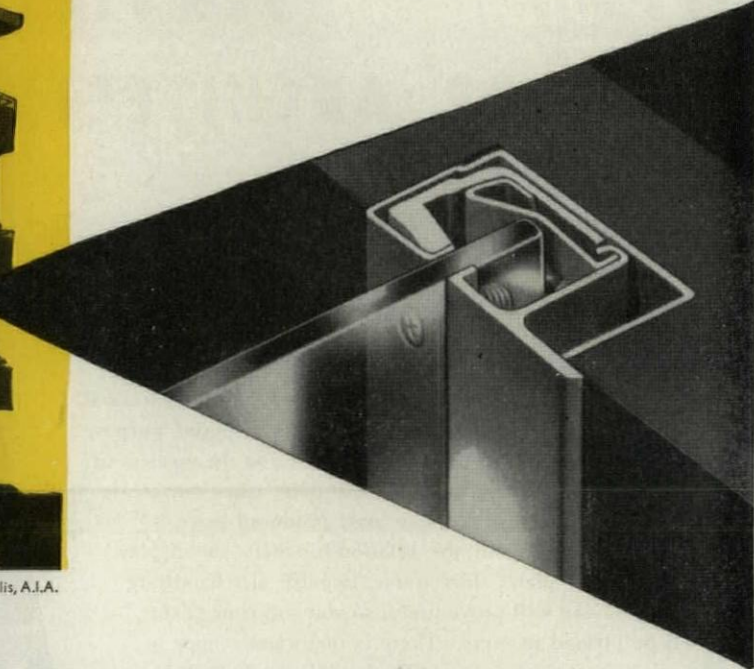
**TODAY, ARCHITECTS
HONOR THIS CONCEPT
OF VISUAL HARMONY..**



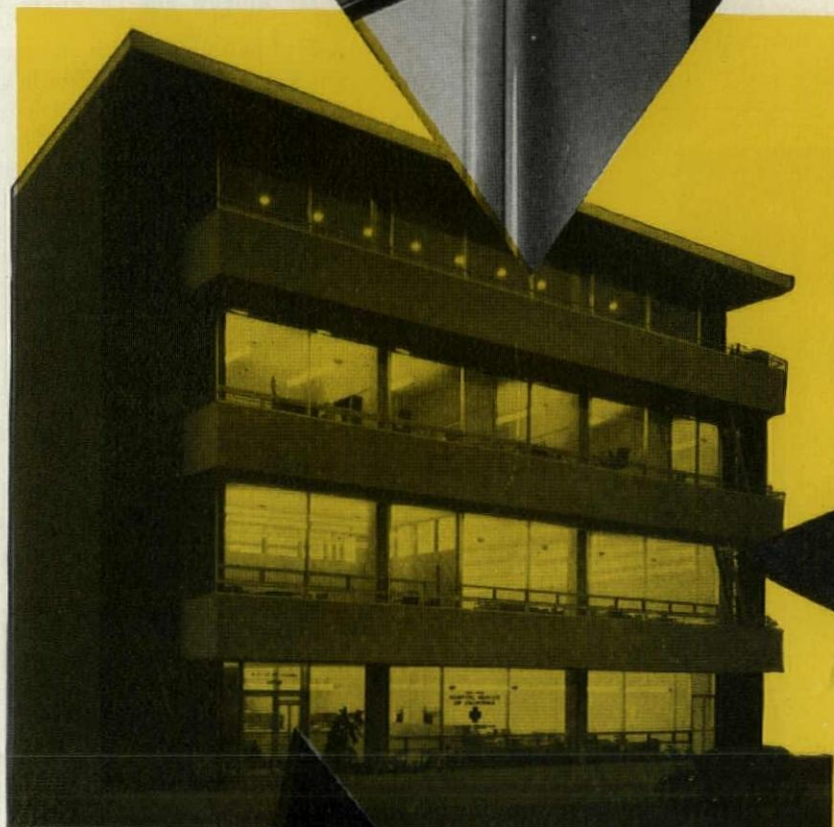
STORE FRONT METALS • TRIM • ALUMINUM FACING MATERIALS • ALUMINUM ROLL-TYPE AWNINGS • AWNING BOXES AND HOODS •



Reliable and compact setting
for large lights of glass is
provided by this modern member
of the new Kawneer line of
horizontal and vertical bars



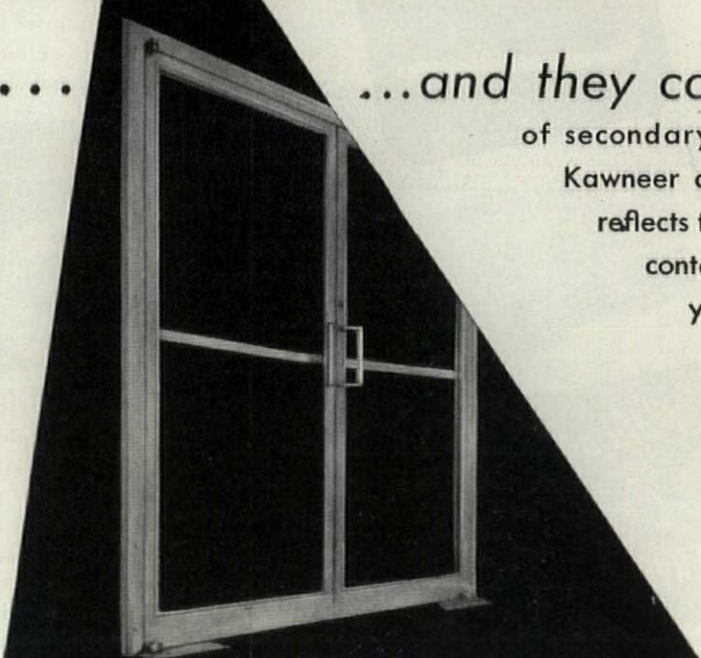
The face of this modern sash
is flush with surrounding surfaces,
thus eliminating visual obstruction
into the interior



The Blue Cross Building of
Hospital Service of California
Oakland, California

Architects: Confer & Willis, A.I.A.

.....



Kawneer stock
entrances offer
striking appear-
ance, slim sil-
houettes, and
trouble-free
performance.

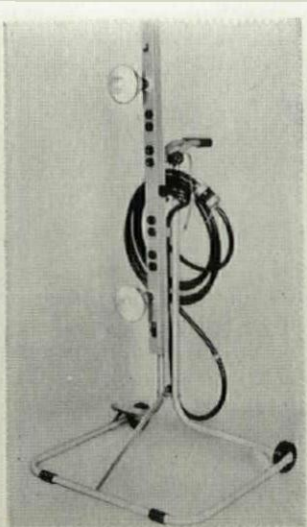
...and they can achieve this unity

of secondary elements by the creative use of
Kawneer assemblies. Every Kawneer assembly
reflects the clean lines, planes, and profiles of
contemporary architectural design. Consult
your Kawneer Details, Sweet's Catalog,
or write The Kawneer Company,
Dept. AF-91, 1105 N. Front Street,
Niles, Michigan, or 930 Dwight
Way, Berkeley, California.

THE
Kawneer
COMPANY

ALL-ALUMINUM FLUSH DOORS • SHOWCASE DOORS • ENTRANCES

ARCHITECTURAL METAL PRODUCTS



PRODUCT NEWS

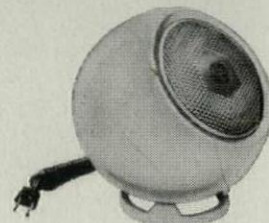
for the workers' protection, and nonconductive materials are used on the wheels for additional safety. In addition to the unit pictured which has two toggle-switch controlled lamps and seven outlets for portable tools, *NE Rolla-Ducts* are manufactured with a light head, a power head, and a strip for infra red heat lamps (useful outdoors for keeping cement from freezing and indoors for drying plaster and paint in a hurry). Each model

sells for \$100. All are listed by Underwriters Laboratories.

Manufacturer: National Electric Products Corp., Chamber of Commerce Building, Pittsburgh 19, Pa.

SOCKET-IN-BALL DISPLAY LAMP designed for window and showcase settings

A 7½" ball fixture with an aluminum lacquer finish, the *Amplex Focalite* is a neat efficient lamp for store window and showcase lighting.



The globe sits on a tripod base which is fluted to protect the fixture's finish as well as the surface it rests on. Easily adjusted to any angle, the *Focalite* holds its set

position. It will take a PAR 38 spot, flood or color reflector lamp, and is equipped with a 6' cord and plug. The price, without bulb, is \$8.50.

Manufacturer: Amplex Corp., Dept. FP, 111 Water St., Brooklyn 1, N. Y.

MERCURY LAMPS with inside reflector coating maintain efficient light levels

The two new 400 w. mercury lamps announced by G-E need no cleaning or maintenance during their 3000-4000 hr. life spans. Produced with built-in reflectors, the lamps make it possible to eliminate critical metals ordinarily required in high bay lighting for external shield-reflectors. The lamps are especially suited for use in inaccessible locations in foundries, welding shops and other places where the collection of dirt and grime normally causes reduced light levels.



The H400-R1 generates blue-white mercury colored light, and has a lumen output of 14,500. It sells for \$24. Priced at \$28, the H400-RC1 has

a phosphor coating on the inside face which improves the color quality of the light (the effect is about halfway between mercury and filament light), particularly on people—who are likely to appear a bit ghoulish under the pure mercury lamp. The phosphor also helps direct the light beam which is diffused through the bulb face. Each of the lamps is housed in a R-52 11¾" long bulb with a 6½" face diameter. The R-52 is contoured to concentrate the light downward effectively for use in working areas.

Manufacturer: General Electric, Lamp Div., Nela Park, Cleveland, Ohio.

(Technical Publications, page 2-26)

Columbus SERVICE

FOR ARCHITECTS

always at your elbow

The Columbus Show Case Company has developed an ideal working relationship with the busy architect. Columbus, as manufacturers of standardized store display equipment (wall cases, floor cases, open and closed displays, special purpose merchandising units, to name a few) offer you the services of their detail department to show how these cases can create a custom built appearance at a mass produced price.

If information about the relationship between display cases and floor plans, store traffic, impulse merchandising and step saving will prove useful to you and your clients, we'll be pleased to serve. There is important money to be saved in the proper specification of display equipment . . . and at no sacrifice in individuality.

Just write or wire us or phone us at UNiversity 2166 in Columbus.

THE COLUMBUS SHOW CASE COMPANY
894 W. Fifth Avenue Columbus 8, Ohio

Columbus Cases SERVE BEST

- ★ Custom built appearance from standardized units
- ★ Select cabinet woods in a variety of finishes
- ★ Smart functional design
- ★ Fluorescent illumination
- ★ Low installation cost

For Radiant Heating...

Continuous coils being formed into serpentine coils in heating contractor's shop.



Tied serpentine coils being loaded into heating contractor's truck for transportation to building site.

Recommended method of fastening serpentine coils to ceiling joists and covering with metal lath before applying plaster.



ONLY **GM** STEEL *tubing*

OFFERS ALL THIS:

- **LOWEST MATERIAL COST** of any tubing suitable for radiant heating. GM Steel Tubing is *all steel*—no secondary bonding alloys to encourage electrolytic corrosion.
- **120' TO 1000' CONTINUOUS COILS** eliminate fittings and joints in plaster and under grade—reduce labor costs and lessen chance of leakage.
- **COMPLETE SERPENTINE COIL EASILY FORMED** in heating contractor's shop... or on the building site.
- **SMALL SIZE TUBING** is tough enough to be walked on or handled roughly without damaging—yet can be readily formed.
- **CONSTANT INSPECTION AND TESTING** assure uniformity and freedom from defects. Every foot of GM

Steel Tubing is hydrostatically tested at 2000 pounds per square inch. *No other radiant heating tubing, ferrous or non-ferrous, undergoes such a brutal test.* In addition, a section of each coil is subjected to "destructive" tests such as flaring, twisting, flattening, etc.

- **AVAILABLE IN 1/2" AND 5/8"** outside diameter and, on the recommendations of FHA, in a wall thickness of .042.

FREE!... SPECIAL RADIANT HEATING BROCHURE

ENTITLED "A New Approach to Radiant Heating," this latest Rochester Products brochure tells why more and more progressive builders are specifying GM Steel Tubing. Send today for your free copy.



ROCHESTER PRODUCTS



DIVISION OF GENERAL MOTORS

Rochester, N. Y., U. S. A.

The Name **HOPE'S** *Guarantees*
WINDOWS



Doxey & Layton Medical Center, Salt Lake City, Utah

Arthur Fabr, Architect

Extremely practical considerations influence the design of a modern Medical Center Building. This one contains office suite accommodations for 70 physicians, surgeons and dentists, plus a radiologist's laboratory, a pharmacy, an optical shop and a cafe, with an adjoining garage and garage-roof parking area for 125 cars. Hope's Windows aid the planning of such a building by their fitness to the widest variety in layout...and they

increase its value by their strong construction, reliable operation and economy in upkeep for the whole life of the structure.

The advantages of Hope's full daylight steel windows are especially apparent in creating a most desirable cheerfulness of surroundings in a doctor's office. Their positive weathertightness and control of ventilation are important to the comfort of the physician and his patients at all seasons in the year.

HOPE'S WINDOWS, INC., Jamestown, N. Y.

THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS

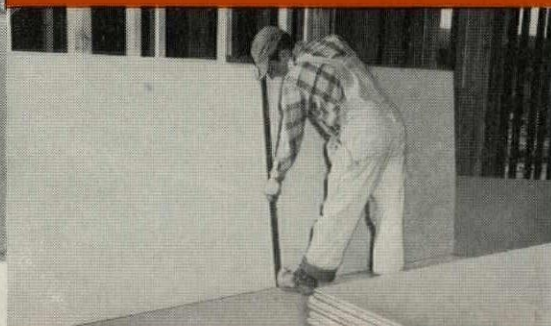
Something extraordinary is happening at Vandenberg Village



Vandenberg Village, a \$5,000,000 project being erected under the Wherry Federal Housing Act, is located outside Selfridge Air Base, at Lake St. Clair, Michigan.



400,000 sq. ft. of $\frac{1}{2}$ " FIRESTOP BESTWALL will be applied on all party walls and ceilings and the stair wells.



Down go construction costs when FIRESTOP BESTWALL goes up. Each panel covers 48 sq. ft. of wall surface; handles easily, is erected quickly.

F.H.A. wall and ceiling specifications are being met successfully for the first time with a single layer of $\frac{1}{2}$ " wallboard.

FIRESTOP BESTWALL—Certain-teed's exclusive development—is affording the same rigid fire resistance here that normally requires either a double layer of standard $\frac{3}{8}$ " gypsum wallboard or other more complicated types of interior wall construction.

Superior, new FIRESTOP BESTWALL may be just the wallboard you need to comply with the fire code requirements in your locality. It is now being made available nationally.



Write today for our FIRESTOP BESTWALL Folder. It contains complete information and specifications on this remarkable Certain-teed gypsum development.

Architects—J. Fletcher Lankton, John N. Ziegele and Associates
Building Contractors—E. H. Marhoefer Jr. Co.
Applicator—Perma Wall Co.



Unretouched photo showing a section of ordinary gypsum wallboard after it has been subjected to a fire temperature of 1,700°F. for 1 hour. Note the shrinkage cracks, characteristic of conventional gypsum wallboard when exposed to heat.



Under the same conditions, FIRESTOP BESTWALL shows no appreciable cracking, because its core is stabilized with incombustible fibers and unexpanded vermiculite, through an exclusive Certain-teed process.



Certain-teed

REG. U.S. PAT. OFF.

Quality made Certain...Satisfaction Guaranteed

CERTAIN-TEED PRODUCTS CORPORATION

116 LANCASTER AVE., ARDMORE, PENNSYLVANIA

ASPHALT ROOFING • SHINGLES • SIDINGS

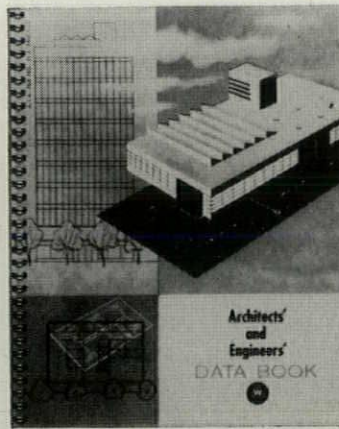
ASBESTOS CEMENT ROOFING AND SIDING SHINGLES

GYPSUM PLASTER • LATH • WALLBOARD • ROOF DECKS

ACOUSTICAL TILE INSULATION FIBERBOARD

ELECTRICAL EQUIPMENT. Architects' and Engineers' Data Book, B-2161-E. Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa. (Distributed by local Westinghouse district offices.) 330 pp. 8½ x 11".

This up-dated edition of Westinghouse's attractive compendium on electrical equipment presents detailed engineering information in a readily accessible format. Divided into four sections dealing with power plants, electrical



distribution, accessory equipment, and engineering data, the spiral-bound volume should be a useful reference in a technical library. Each piece of the manufacturer's apparatus is illustrated and described. Applications, features, selection, dimensions, and specifications of all the items are covered thoroughly.

ELECTRICAL EQUIPMENT. Laboratory and Switchboard Connector Series, Bulletin LS5-1951. Battery Connector Series, Bulletin GB4-1951. Cannon Electric Co., 3209 Humboldt St., Los Angeles 31, Calif. 24 pp. 10 pp. 8½ x 11".

The first of these two-color booklets covers experimental switchboard and laboratory cord connectors. Detailed in the catalog are two fittings recently added to the manufacturers line—the "CS" tandem type connector and the "combination jack and binding post." The second publication details Cannon's electric battery connectors which are used primarily for connecting and disconnecting starting equipment. The connectors also have been adapted for use in welding, stationary power units, pumping engines, and in general industrial applications.

SIGNAL EQUIPMENT. Hospital and Commercial Signal Equipment, Bulletin HSE-1. Cannon Electric Co., Box 75, Los Angeles 31, Calif. 32 pp. 8½ x 11".

Signal equipment products which may be utilized in hospital and commercial installations are cataloged in this new bulletin. The equipment described includes visual annunciators, fire alarm stations, lamp socket corridor lights, nurses' call systems, silent paging systems, and transformers.

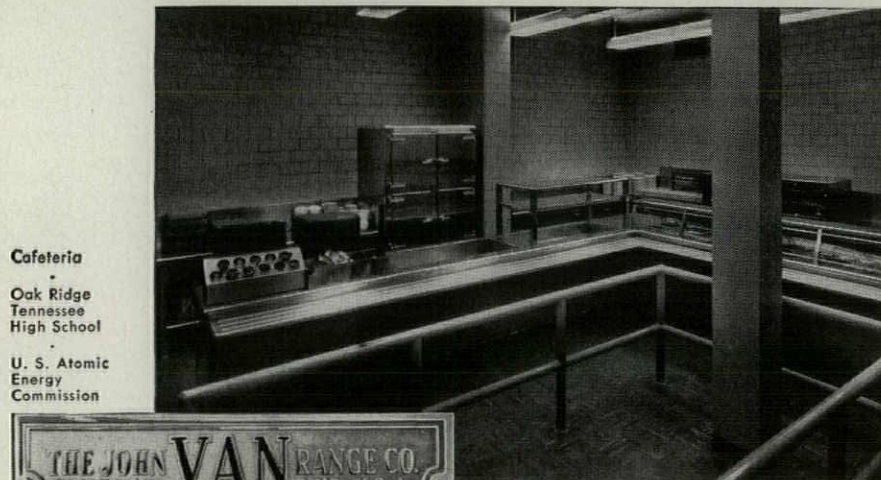
AIR CONDITIONING. Products, Bulletin PB-290. The Trane Co., La Crosse, Wis. 36 pp. 8½ x 11".

This bulletin provides a concise cross section of the manufacturer's air conditioning, heating, ventilating and heat transfer equipment. Short descriptions of each line are supplemented with cutaway drawings, products and parts photographs, construction features and condensed tables summarizing the units' capacity ranges, sizes and dimensions. Recent Trane developments featured in the bulletin include hermetic centrifugal water chilling units, reciprocating compressors, centrifugal fans and gas-fired unit heaters.

PUMPS. Yeomans Bros. Co., 1433 N. Dayton St., Chicago 22, Ill. 12 pp. 8½ x 11".

Describing all types of the manufacturer's pneumatic ejectors, the bulletin presents information on mechanically and electrically controlled equipment for pumping, sewage, drainage and solids-carrying liquids.

(Continued on page 230)



Cafeteria
Oak Ridge
Tennessee
High School
U. S. Atomic
Energy
Commission

Skidmore, Owings & Merrill • Architects

another Van installation at famous Oak Ridge

★ Wherever you find this name plate on equipment for the preparation and service of food, there you find satisfaction.

★ This busy cafeteria of the Senior High School at the Oak Ridge, Tennessee, project is no exception. The best evidence of satisfaction is a reorder and this is not the first time Van has been called to serve at Oak Ridge.

★ Bring us your problem and let us give you the same quality that the United States Atomic Energy Commission appreciates.

The John Van Range Co.

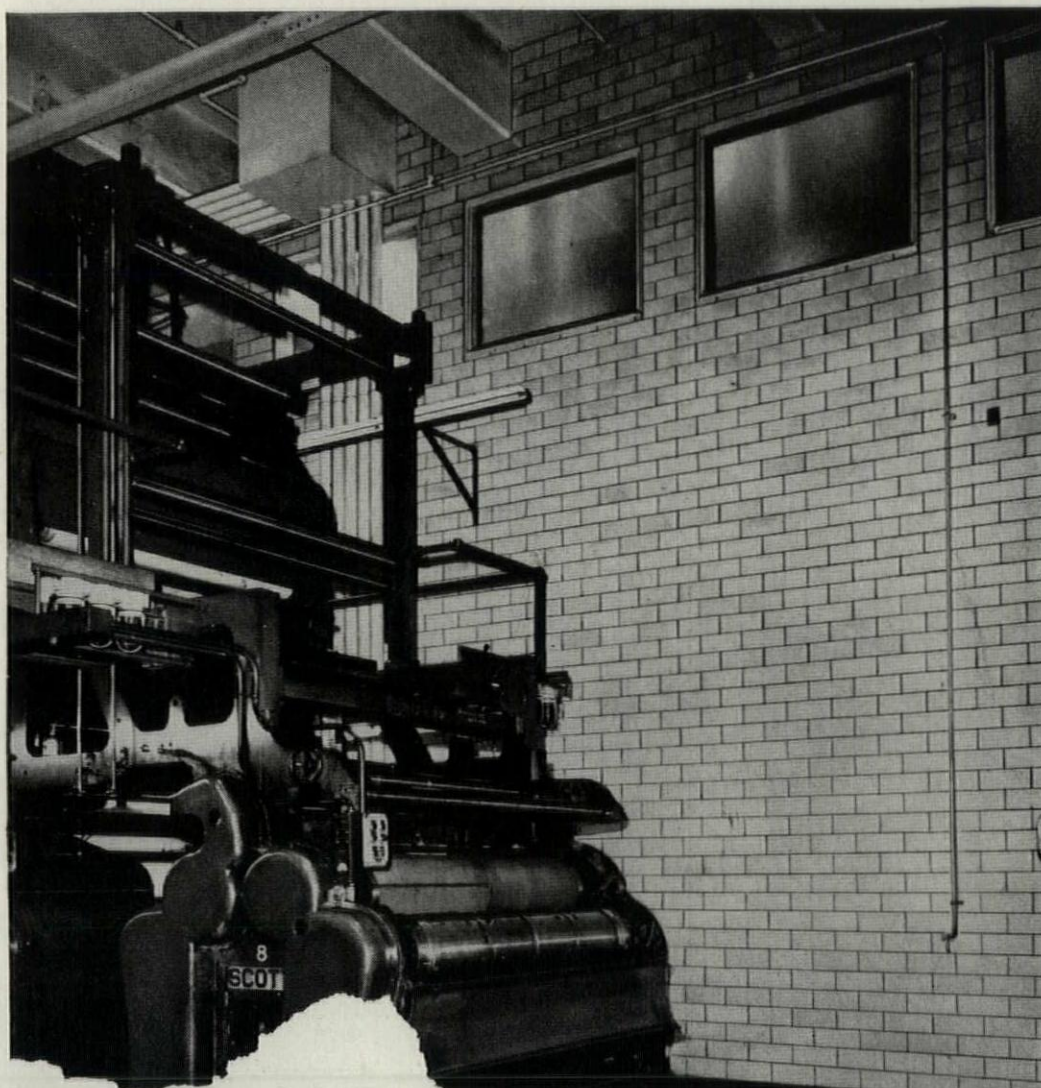
EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD

DIVISION OF THE EDWARDS MANUFACTURING CO.

Branches in Principal Cities

328 EGGLESTON AVENUE

CINCINNATI 2, OHIO



**How much does it
cost to shut down for
refinishing or repairs...?**

It doesn't happen with Facing Tile

In a broad sense, size and use of a building determine the cost of a shut-down for refinishing or redecorating walls.

There are specific factors which must be considered, too.

There's the time lost in shutting down.

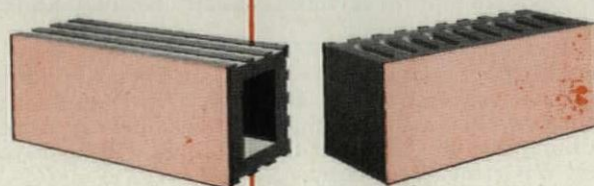
There's the loss of efficiency from interrupting operations.

There's the income lost from products not made or sold.

There's the cost of labor and materials for refinishing.

These costs can be avoided by selecting Structural Clay Facing Tile for building interiors. Facing Tile builds a strong, load-bearing wall combined with a color-right finish. The wall is fireproof and will not decay or disintegrate. The finish is permanent and will not scratch, mar or fade.

Whenever you use Facing Tile, you eliminate refinishing, redecorating and repairing.



GET ALL THE DATA ON FACING TILE

For full information on Structural Clay Facing Tile, glazed or unglazed, send for free booklets, "Catalog 52-C," "The Scientific Approach to Color Specification" and "Facing Tile Construction Details." Just address your request to any Institute Member or Dept. MB-3 of our Washington or New York offices.

LOOK FOR THIS SEAL



It is your assurance of highest quality Facing Tile. This seal is used only by members of the Facing Tile Institute...these "Good Names to Know."

BELDEN BRICK CO.
Canton, Ohio

CHARLESTON CLAY PRODUCTS CO.
Charleston 22, West Virginia

THE CLAYCRAFT CO.
Columbus 16, Ohio

HANLEY CO.
New York 17, New York

HOCKING VALLEY BRICK CO.
Columbus 15, Ohio

HYDRAULIC PRESS BRICK CO.
Indianapolis, Indiana

MAPLETON CLAY PRODUCTS CO.
Canton, Ohio

METROPOLITAN BRICK, INC.
Canton 2, Ohio

McNEES-KITTANNING CO.
Kittanning, Pennsylvania

NATIONAL FIREPROOFING CORP.
Pittsburgh 22, Pennsylvania

ROBINSON BRICK & TILE CO.
Denver 9, Colorado

STARK CERAMICS, INC.
Canton 1, Ohio

WEST VIRGINIA BRICK CO.
Charleston 24, West Virginia

FACING TILE INSTITUTE

1520 18th Street, N. W., Washington 6, D. C.
1949 Grand Central Terminal, New York 17, N. Y.

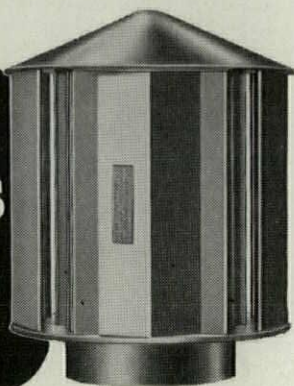
BUYING VENTILATORS? GET THE FACTS FIRST...

Ask for **CERTIFIED Ratings**...It's the only way you can be sure ventilator performance will measure up to the ratings claimed for it.

Ask for Ratings Based on **VARIABLE Wind Conditions**...if you want a ventilator that performs efficiently under *all* wind conditions. Ratings of most ventilators are based on *horizontal* wind tests only, or tests made at favorable angles. Many ventilators down-draft at other angles.

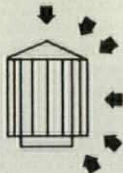
Breidert Air-X-Hausters

PROVIDE SAFE, SURE
VENTILATION NO
MATTER WHICH WAY
THE WIND BLOWS...

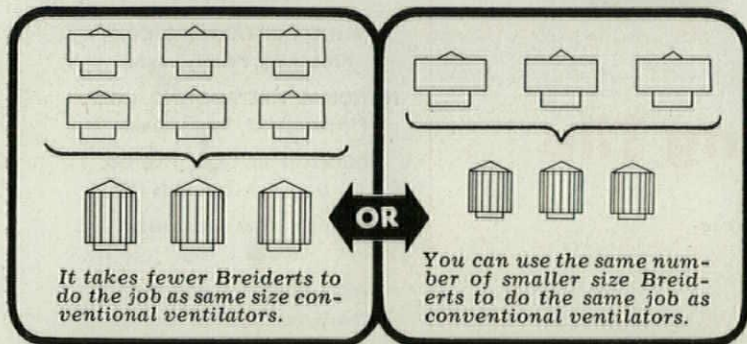


Patent No. 2269428

Certified tests show that the actual capacities of Breidert Air-X-Hausters are greater than published ratings (barring interior negative pressures). Stationary, no moving parts, nothing to jam or get out of order. *The Breidert is the pioneer ventilator to publish certified ratings based on tests* made with wind blowing in all directions.*



The Breidert Delivers Better Results at Minimum Cost



Get all the facts! Write today for complete Engineering Data Book, including certified capacity ratings. Address Dept. J.

✓ Every businessman should read "Plain Facts and Simple Figures," written by G. C. Breidert. This thought-provoking article pertains to the problems of every American businessman. The first twenty lines will open your eyes! Write for a free copy.

THE G. C. BREIDERT CO.

3129 San Fernando Road, Los Angeles 65, Calif.
Representatives in principal cities throughout the U.S.

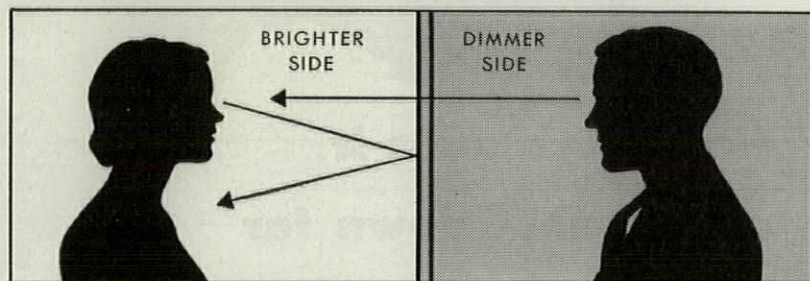
*By Pittsburgh Testing Laboratories



Customers see a mirrored shelf...



The druggist sees the customer



with MIRROPANE the Two-way mirror

Customers don't go unnoticed very long in this drugstore, with *Mirropane** in the partition enclosing the prescription room. From the pharmacist's side, this unique mirror lets him see through it. From the brightly lighted side, the customer sees—herself!

Can *Mirropane's* unique two-way vision help you in your business or profession? With *Mirropane*, a teacher, for example,

can observe nursery tots at play, herself unseen; the doctor and his nurse can keep an eye on the waiting room; the bank's telephone operators can survey customers on the banking floor. Hotels and restaurants are finding ingenious, useful and decorative applications.

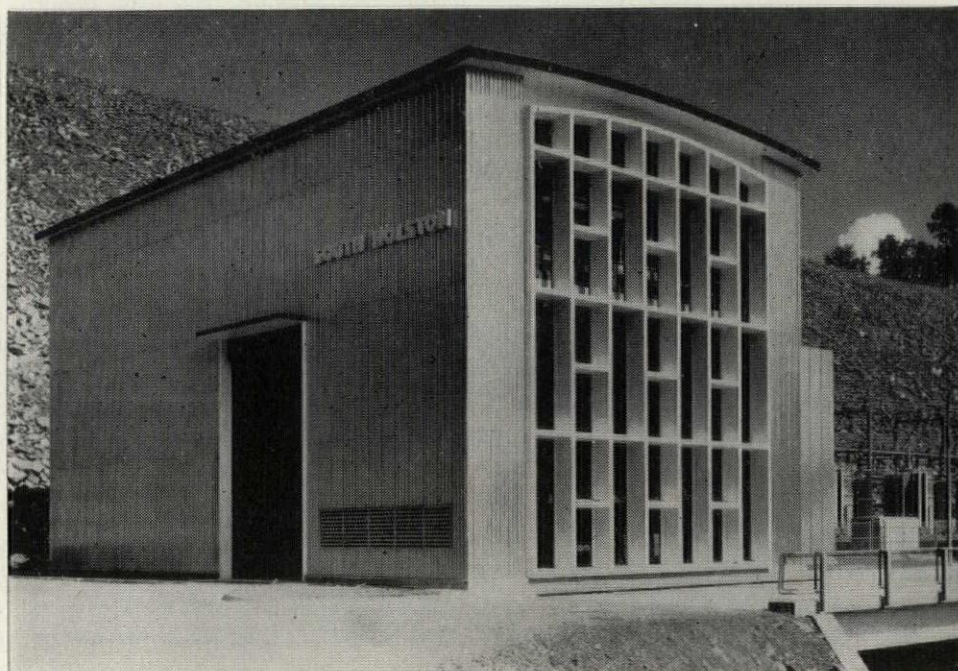
Mirropane can be installed by your local L.O.F. dealer (look under "Glass" in your classified telephone directory). *®

MIRROPANE



TRANSPARENT MIRROR

PRODUCT OF LIBERTY MIRROR DIVISION LIBBEY • OWENS • FORD
GLASS COMPANY. LM-132 NICHOLAS BLDG., TOLEDO 3, OHIO



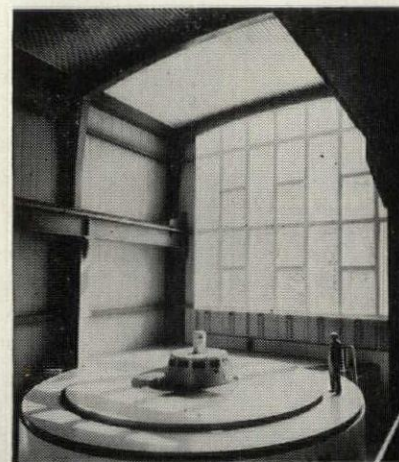
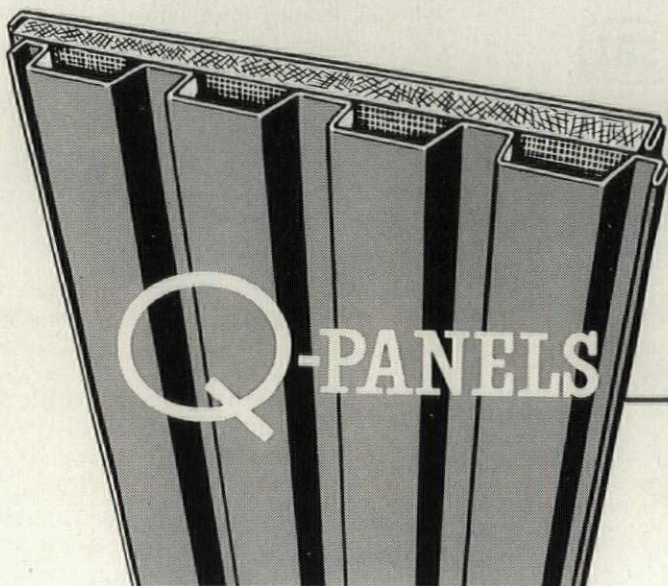
Good design originates in the designer's attitude, no matter what the material. But the simplicity of Q-Panel construction promotes logical straightforward design thought.

The T.V.A. Design Staff has used Q-Panels with such skill, and such understanding of simple lines, that the integrity and beauty of their Q-Panel buildings arouse admiration from laymen and professionals alike. The power stations shown use fluted aluminum outside and flat steel inside. The pictures are their own best testimony for the cleanness of line and pleasing proportions.

Q-Panels go up fast—50 sq. ft. in 9 minutes. A small crew quickly attaches the panels to the steel framework—much more quickly than little blocks can be piled up. Q-Panels are insulated metal sandwiches, only 3" thick but with insulation value greater than a 12" masonry wall. They are offered in a variety of maintenance-free exteriors, depending upon availability of materials at time of ordering.

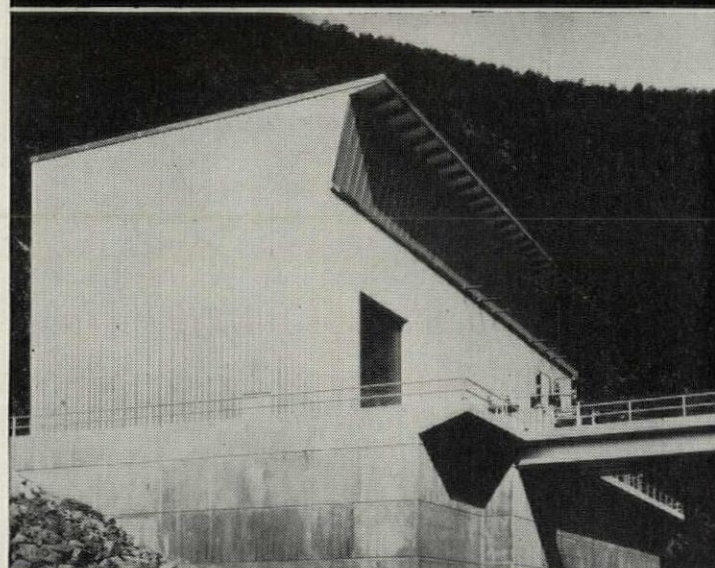
The great number of Q-Panel electric power stations, from coast to coast and in many other countries, now under construction witness to the superiority of this wall material for power plants. Q-Panels fill the bill so well, they are rapidly becoming the typical traditional material.

WRITE FOR Q-PANEL CATALOG



Two views of the South Holston Dam Powerhouse, Bristol, Tenn. Designed by Tennessee Valley Authority, Design Department. Built by T.V.A. Construction Dept.

ROBERTSON Q-PANELS set Design Standard for Modern Power Plants



Watagua Dam Powerhouse
Elizabethton, Tenn.
Designed by T.V.A. Design Dept.
Built by T.V.A. Construction Dept.

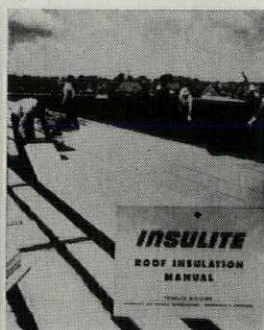
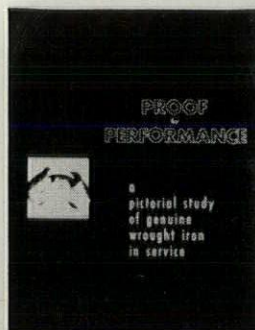
H. H. ROBERTSON CO.

2403 Farmers Bank Building
Pittsburgh 22, Pennsylvania



Offices in ALL Principal Cities
in the U. S. A. and Canada

World-Wide Building Service



ROOFING. Roof Insulation. Insulite, 500 Baker Arcade Bldg., Minneapolis 2, Minn. 16 pp. 8½ x 11".

Prepared for building contractors, this manual contains recommendations for applying Insulite insulation over roof decks of poured gypsum, wood, concrete, unit tile, and steel. It includes engineering tables which should help in writing up specifications. Also covered in the publication are product descriptions and performance data on two basic types of In-

sulite: *Ins-Lite*, a natural colored wood fiber board; and *Graylite*, a waterproofed asphalt-impregnated board.

WROUGHT IRON. Proof by Performance. A. M. Byers Co., Clark Bldg., Pittsburgh 22, Pa. 8 pp. 8½ x 11".

In an informal text the publication describes a number of installations in which wrought iron has given excellent service over long periods of time.

CONCRETE SILOS. Bins with the Strength of Pillars. Neff and Fry Co., Camden, Ohio. 12 pp. 3 x 9".

Hoop-bound and waterproofed, the materials storage bins described in this brochure are said to be exceptionally sturdy. The concrete used in their construction is molded under hydraulic pressure of about 140 tons, and pre-stressed rods are used as reinforcement. Engineered to specific requirements, the bins are adaptable to handling and storing a great variety of flowable bulk material. Other construction uses suggested in the publication include cooling towers, mixing tanks, well houses and smokestacks. A table on capacity data is provided.

PAINTS. Masonry Painting Handbook. Wesco Waterpaints Inc., 742 Grayson St., Berkeley 10, Calif. 12 pp. 8½ x 11".

Compiled to take the guesswork out of masonry painting, Wesco's new handbook consists of a series of excellent photographs of actual masonry surfaces accompanied by paint specifications which were prepared by architects and painting contractors.

THRESHOLDS. Thresholds by Wooster. Wooster Products Inc., Department G., Wooster, Ohio. 22 pp. 9 x 11".

Architects concerned with threshold design will find detailed information in this new file size portfolio. Containing 20 plates of cross sections, typical installation drawings and specifications, the literature furnishes quick data on abrasive cast, extruded and rolled steel thresholds. Various tread surfaces are detailed and extruded forms shown in corrugated and fluted patterns.

FLOORING. Embeco Method for Setting Floor Bricks. The Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio. 4 pp. 8½ x 11".

How to apply floor brick and heavy tile is the subject of this illustrated manual. Stressing the importance of narrow tight joints where corrosive conditions exist, the manual tells how floors with joints down to 1/8" may be obtained by using a readily flowable non-shrinking mortar produced with Embeco.

Vanderveer Estates (BROOKLYN, N.Y.) gets



"the best in steel boiler heat"

Heating Contractor:
Harry Barrow Inc.
Architects: Kavy & Kavovitt

Nineteen big FITZGIBBONS boilers bring solid comfort to the tenants, and fuel-saving economy to the owners of this fine new development, housing 2600 families. The boilers are the famous "D" Type, selected for large numbers of similar projects and developments on the basis of super-quality performance. Men who know boilers select Fitzgibbons.

The "D" Type Bulletin AF-3 tells why — write for it today.



Fitzgibbons Boiler Company, Inc.
General Offices: 101 PARK AVENUE, NEW YORK 17, N. Y.
Manufactured at OSWEGO, N. Y. • Branches in Principal Cities



A steel boiler is a lifetime investment — for "the best in steel boiler heat" —
THE FITZGIBBONS BOILER®



YOU'LL NOTICE **micarta** IN IMPORTANT PLACES

The table in this attractive Reynolds Metals conference room shown below is surfaced with walnut MICARTA® over aluminum foil. It is immune to burning cigarettes, cigars, doodles and pencil scrapes. It is always ready for the next meeting—can be cleaned with a damp cloth. Another typical example of MICARTA'S versatility.

In the UN Building, the Waldorf Astoria, The New Yorker and scores of other prominent places you'll find lustrous long-lasting MICARTA standing up to the worst possible wear people can impose. This quality high-pressure laminate combines function with beauty on furniture, wall surfaces, food counters, bar tops—in fact, wherever the job calls on a surface to resist stains, burns, scuffs, chipping, denting and cracking.

Investigate the planning freedom of this wonder-working material. Write for the full MICARTA story today.



Westinghouse
micarta®



DISTRIBUTED by UNITED STATES PLYWOOD CORP. and U.S.-MENGEL PLYWOODS, INC.

J-06465

UNITED STATES PLYWOOD CORPORATION
55 West 44th Street, New York 18, N. Y.

Please send color guidebook and full application information on MICARTA.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

MB-3-52

Mr. Architect:
Are you looking for
a Roof Deck which
meets all these
requirements?

POREX

STRUCTURAL STRENGTH

☒ Spans up to
8 feet

HEAT INSULATION

☒ Coefficient
U = 0.15 Btu

SOUND ABSORPTION

☒ Excellent
acoustical
ceiling

NAILABILITY

☒ Nailable
cement finish

FIRE RESISTANCE

☒ Practically
incombustible

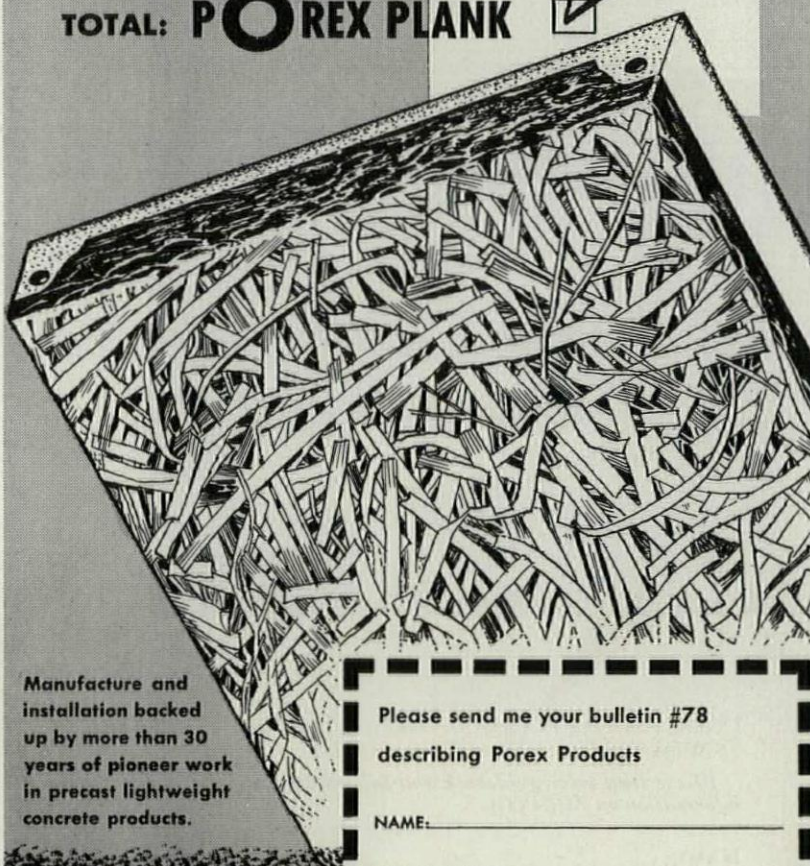
LIGHTWEIGHT

☒ Weighs under
15 lbs./sq. ft.

ECONOMY + EFFICIENCY

☒ Inexpensive,
eliminates
separate roof
insulation

TOTAL: POREX PLANK



Manufacture and
installation backed
up by more than 30
years of pioneer work
in precast lightweight
concrete products.

PORETE
MANUFACTURING CO.
North Arlington, N. J.

Please send me your bulletin #78
describing Porex Products

NAME: _____

ORGANIZATION: _____

ADDRESS: _____

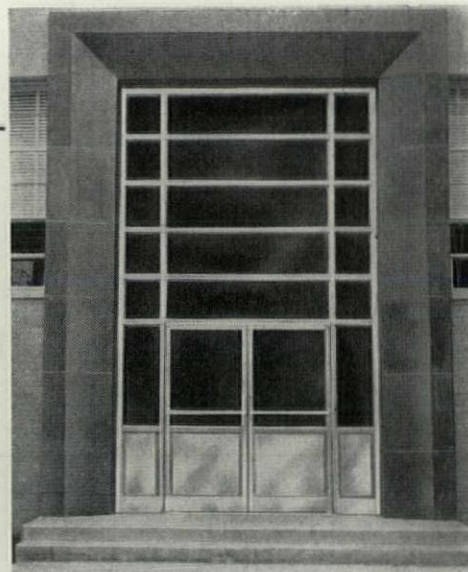
ALUMILINE

EXTRUDED

ALUMILITED

ALUMINUM

PRODUCTS



West End School, N. J., Architect: J. Mancuso

Specified by Leading Architects for:

HOSPITALS • SCHOOLS • RELIGIOUS BUILDINGS • BANKS
STORE FRONTS • OFFICE BUILDINGS • INDUSTRIAL PLANTS
HOUSING PROJECTS • SHOPPING CENTERS

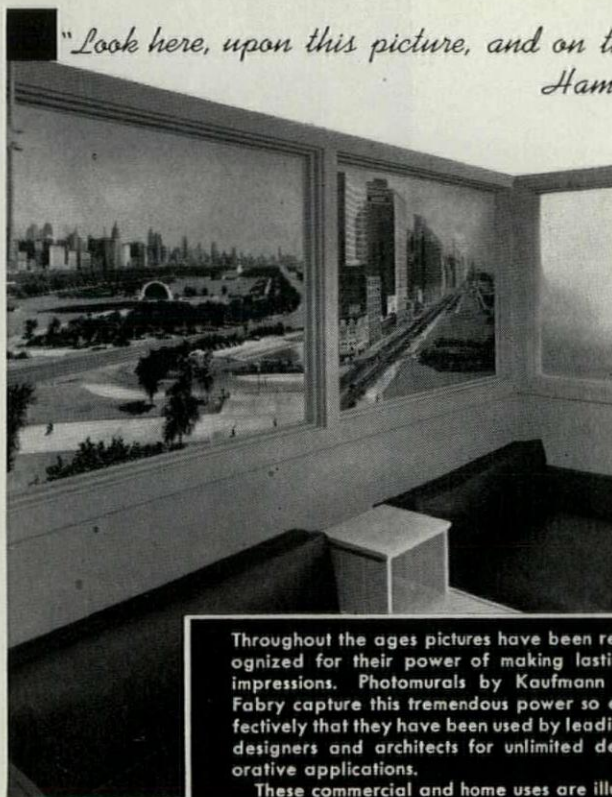
- Extruded Aluminum Store Front Construction
- Extruded Aluminum Factory Assembled Entrance Frames
- Narrow and Wide Stile Extruded Aluminum Doors
- Custom Built Extruded Aluminum Windows

Send for new 1952 Catalogs:
"Alumiline" Store Front Construction
and "Extrud-A-Line" Entrances

THE ALUMILINE CORPORATION
1540 COVERT ST. BROOKLYN 27, N. Y.



"Look here, upon this picture, and on this."
Hamlet



UNITED AGENCY
CHICAGO

Throughout the ages pictures have been recognized for their power of making lasting impressions. Photomurals by Kaufmann & Fabry capture this tremendous power so effectively that they have been used by leading designers and architects for unlimited decorative applications.

These commercial and home uses are illustrated and explained in full color and detail in our Free brochure, "Making Blank Walls Live." A copy may be yours without obligation. Write for it today.

KAUFMANN & FABRY CO.
425 S. Wabash Avenue, Chicago 5, Ill.



STEAM

FOR HEAT OR PROCESS

A complete steam plant whose heavy duty construction assures long-lived dependability throughout years of hard usage.

- One purchase, backed by undivided responsibility.
- Shipped completely assembled after factory tests to assure highest operating efficiency.
- More than 80% thermal efficiency guaranteed.
- 4-pass design provides ample heating surface . . . at minimum, 5 sq. ft. b.h.p.
- Built-in induced draft fans provide added safety and eliminate the need of an expensive chimney.
- Simple installation requires no special foundation.
- Clean, quiet operation.
- Burner equipment to suit your fuel; gas, oil or both.
- 18 sizes from 20 to 600 b.h.p. for pressures up to 250 p.s.i., or for hot water heating.

If you are planning new or additional steam facilities, you'll want Catalog 412 which tells all you should know about packaged steam plants.

for performance you can **BANK** on

SUPERIOR COMBUSTION INDUSTRIES INC.
TIMES TOWER, TIMES SQUARE, NEW YORK 18, N.Y.

SUPERIOR
STEAM GENERATORS

toward better understanding

Now, as never before, there is a need for a true picture abroad of life in the U. S. You can help create better understanding by sending copies of **ARCHITECTURAL FORUM** (when you are through with them) to a friend or relative abroad, or to a U. S. Information Library.

ARCHITECTURAL FORUM's editorial coverage—reporting trends and developments in design, construction, financing, new products, significant legislation, etc.—presents an authoritative and vital picture of the American way.

It costs only 1½ cents to mail 2 oz. of printed matter anywhere in the world. Just by rolling a copy of this magazine in brown paper—leaving the ends open and marking it "Printed Matter"—you can contribute to the free exchange of ideas which will help assure Peace.

If you donate your magazine to the U. S. Information Library, please send it to one of the addresses below:—

c/o American Embassy at:
 Ankara, Turkey
 Athens, Greece
 Buenos Aires, Argentina
 Cairo, Egypt
 New Delhi, India
 The Hague, Netherlands
 London, England
 Manila, Philippines
 Mexico City, Mexico
 Montevideo, Uruguay
 Paris, France
 Rangoon, Burma
 Rome, Italy
 Stockholm, Sweden
 Warsaw, Poland

c/o American Legation at:
 Bern, Switzerland
 Budapest, Hungary

c/o American Consulate
 General at:
 Batavia, Java-Indonesia
 Sydney, Australia

FASTER *Better Service* from **WISCONSIN'S** **Hardwood Forests** to your **Customers' Floors**

Whether you need Northern Hard Maple, Oak or Birch flooring, Yawkey-Bissell offers you these advantages:

- Centralized plant location up here in Northern Wisconsin, right where the hardwood timber grows.
- Mill facilities that provide ample capacity for large volume production of all types and sizes of hardwood flooring.
- Well balanced inventories of finished flooring available to take care of most orders promptly.
- Mill work second to none, producing strip and block flooring that you will be proud to sell and your customers will be proud to lay.

MEMBER
 MFMA
 NOFMA

Let us quote on your current and future flooring requirements. Remember, it's Yawkey-Bissell for *Faster, Better Service and Better Flooring!*

YAWKEY-BISSELL
HARDWOOD FLOORING COMPANY
 WHITE LAKE • WISCONSIN

PROTECT YOUR BUILDINGS

SPECIFY **WESTERN WATERPROOFING COMPANY** **FOR:**

- Protection from Water Damage (above or below ground, interior or exterior)
- Building Restoration • Building Cleaning
- Tuckpointing

Over 35 years experience serving building owners and architects throughout the nation. For detailed folders on these services write:

WESTERN
WATERPROOFING CO.

Engineers and Contractors
 1223 SYNDICATE TRUST BLDG. ST. LOUIS 1, MO.
 A Missouri Corporation Giving Nationwide Service

STOP RUST!

with

RUST-OLEUM

Protects Tanks,
Pipes, Girders,
Metal Sash,
Fences, Roofs
and Buildings,
Rail and Marine
Facilities

BEAUTIFY AS YOU PROTECT—ALL COLORS, ALUMINUM AND WHITE!

RUST-OLEUM may be applied directly over *rusted surfaces without removing all the rust!* Just remove rust scale and loose particles with wire brush and sharp scrapers... then apply by brush, dip, or spray. Costly sandblasting and chemical pre-cleaning

are not usually required. Easy as that to cut your maintenance costs. Specify **RUST-OLEUM** to your painting contractor or architect for *every rustable* metal surface! Prompt delivery from Industrial Distributor stocks in principal cities.

RUST-OLEUM CORPORATION
2502 Oakton Street • Evanston, Illinois



FREE SURVEY: A **RUST-OLEUM** specialist will gladly survey your rust problems. He'll make specific tests and recommendations. No cost or obligation. See Sweets for complete catalog and nearest **RUST-OLEUM** distributor, or write for literature on your company letterhead.

Stopping Rust with
RUST-OLEUM
769 D. P. Red Primer



CLIP THIS TO YOUR LETTERHEAD
MAIL TO: RUST-OLEUM CORPORATION
2502 Oakton Street • Evanston, Illinois

- ☐ Have a Qualified Representative Call
- ☐ Full Details on Free Survey
- ☐ Complete Literature
- ☐ Nearest **RUST-OLEUM** Source

Look for this label — be sure it's genuine
RUST-OLEUM



interested in **houses?** you'll want to see **house+home**

The **new** light construction edition of

THE MAGAZINE OF BUILDING

written and edited for those **architects, builders, investors** and **suppliers** who are interested in giving the American people better homes at less cost

—combing the country to let you see in fine photographs, plans and scale drawings the best homes of America's best architects and builders—the country's finest new garden apartments and shopping centers

you can still get the **march issue** which brings you:

indoor-outdoor houses

two top examples of the open-air house for different climates; architect Gordon Drake's bright solution for warm weather living; Ed Elliott's cold weather house that captures the outdoors in a remarkable variety of ways

park forest, ill.

house & home checks up on 1952 plans for America's top private enterprise venture in town building—new ideas for row houses, shopping centers and a close look at park forest's plans to build under the co-op provisions of the housing act

garages that sell

a series of fresh garage treatments by outstanding builders that transform this onetime stable for the family car into a multipurpose wing to the house

and

George Nakashima, the craftsman: his furniture, his house, his way of life—economist Miles Colean's critique on government interest rate fixing—a profile of Alan Brockbank, the National Association of Home Builders' new president . . . plus many other practical, money-saving studies

professional rate for a one year domestic or Canadian subscription to **house & home \$5.50**

THE MAGAZINE OF BUILDING

house+home

edition

540 North Michigan Avenue, Chicago II, Illinois

"Cuts cost three ways"

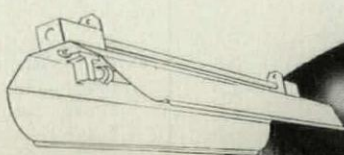
with Westinghouse MERCURY lighting

A tank company in Illinois ran cost studies on the new Westinghouse Mercury Lighting System. Results:

1. Operating costs are reduced because mercury vapor produces more light per dollar than any other light source.
2. Maintenance costs are cut because it takes fewer fixtures to produce high levels of illumination than with any other lighting system.
3. Lamp replacement costs are lower, because mercury vapor lamp life is 5,000 hours—5 times longer than the most efficient incandescent lamp.

This is one of hundreds of "time-tested" installations. Investigate the Westinghouse Mercury Vapor Line: 400, 1000 and 3000-watt units for low or high-bay areas... open or closed fixtures for clean or dirty locations... low or high-voltage ballasts for any distribution system.

Send for B-4727, "Westinghouse Lighting at Work" in every industrial area. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.



YOU CAN BE SURE... IF IT'S
Westinghouse

LIGHTING DIVISION
Edgewater Park, Cleveland

J-04295

ADVERTISERS INDEX

Alberene Stone Corporation	24	Ludowici-Celadon Company	208
Allied Chemical & Dye Corporation (<i>The Barrett Division</i>)	203	Lustrewood Process Company, The (<i>Division of Frederick J. Raff Company</i>)	64
Alumiline Corporation, The	232	McQuay, Inc.	171
American Brass Company, The	10	Macomber Incorporated	48
American Coolair Corporation	176	Mahon, R. C., Company, The	69
American District Steam Co.	58	Maple Flooring Manufacturers Association	62
American-Olean Tile Company	33	Mastic Tile Corporation of America	239
Anemostat Corporation of America	205	Mengel Company, The	211
Armco Steel Corporation	80	Miami Window Corp.	172
Armstrong Cork Company	20, 188	Mills Company, The	4
Asbestone Corporation	21	Minneapolis-Honeywell Regulator Company	192, 193
Bakelite Company, Division of Union Carbide and Carbon Corporation	169	Mississippi Glass Company	178
Barrett Division, The (<i>Allied Chemical & Dye Corporation</i>)	203	Modine Manufacturing Company	166
Blue Ridge Sales Division (<i>Libbey-Owens-Ford Glass Company</i>)	161	Monsanto Chemical Company	46
Bolta Company, The	209	National Tube Company (<i>U. S. Steel</i>)	168
Borg-Warner Corporation (<i>Ingersoll KoolShade Sunscreen Division</i>)	92	Norton Co.	72
Breidert, G. C., Co., The	228	Nova Sales Co.	199
Buffalo Forge Company	202	Otis Elevator Company	45
THE MAGAZINE OF BUILDING	234, 236	Overhead Door Corporation	Cover IV
Bulldog Electric Products Company	217	Owens-Corning Fiberglas Corporation	40
Byers, A. M., Co.	84	Peelle Company, The	22, 23
Cambridge Tile Manufacturing Company, The	Cover II	Pittsburgh Corning Corporation	18, 19, 201
Canvas Awning Institute, Inc., The	91	Pittsburgh Plate Glass Company	56, 196, 197
Carrier Corporation	16, 44	Porrete Mfg. Co.	232
Ceco Steel Products Corporation	187	Pratt & Lambert, Inc.	30
Celotex Corporation, The	96	Raff, Frederick J., Company (<i>The Lustrewood Process Company Division</i>)	64
Certain-teed Products Corporation	225	Raymond Concrete Pile Company	77
Chase Brass & Copper Co.	8	Remington Arms Company, Inc.	162, 163
Clow, James B., & Sons	210	Republic Steel Corporation	60
Columbus Show Case Company, The	222	Reynolds Metals Company	17, 207
Concrete Reinforcing Steel Institute	15	Richards-Wilcox Mfg. Co.	68B
Connor, W. B., Engineering Corporation	175	Robertson, H. H., Company	229
Corning Glass Works	90	Rochester Products Division (<i>General Motors Corp.</i>)	223
Croft Steel Products, Inc.	216	Roddie Plywood Corp.	43
Day-Brite Lighting, Inc.	180, 181	Rolscreen Company	194
Detroit Steel Products Company	6, 177	Rotary Lift Company	84
Div-Rack Corporation	88	Rowe Manufacturing Company	159
Douglas Fir Plywood Association	212, 213	Rubber & Plastics Compound Co., Inc.	216
Eastern Machine Products Company	214	Rust-Oleum Corporation	235
Elevator Safety Corporation	179	Sanymetal Products Co., Inc., The	34, 35
Eljer Co.	Cover III	Scott Paper Company	204
Facing Tile Institute	227	Seapocel Metals, Inc.	47
Fairhurst, John T., Inc.	200	Servel, Inc.	31
Fenwal, Inc.	184	Sharon Steel Corporation	97
Fiat Metal Manufacturing Company	190	Shepard Elevator Company	204
Fitzgibbons Boiler Co., Inc.	230	Silvray Lighting, Inc.	82
Flynn, Michael, Manufacturing Company	191	Simpson Logging Company	79
Garden City Plating and Mfg. Company	160	Sloan Valve Company	94
General Electric Company	98	Smith Co., Inc., H. B., The	189
General Gas Light Company	218	Smithcraft Lighting Division	73
General Motors Corp. (<i>Rochester Products Division</i>)	223	Sonoco Products Company	176
Globe-Wernicke Co.	195	Soss Mfg. Co.	198
Great Lakes Steel Corp. (<i>Stran-Steel Division</i>)	13	Standard Dry Wall Products, Inc.	41
Grinnell Company, Inc.	71	Stark Ceramics, Inc.	83
Hachmeister-Inc.	74	Stran-Steel Division (<i>Great Lakes Steel Corp.</i>)	13
Hanley Company Incorporated	81	Summerbell Roof Structures	216
Hauserman, E. F., Company, The	52	Superior Combustion Industries, Inc.	233
Holcomb & Hoke Mfg. Co. Inc.	170	Swedish Crucible Steel Company	95
Hope's Windows, Inc.	224	Sylvania Electric Products, Inc.	65
Horn, A. C., Company, Inc.	9	Taco Heaters, Inc.	186
Huntington Laboratories, Inc.	206	Taylor, Halsey W., Company, The	200
I-T-E Circuit Breaker Co.	89	Thomason Plywood Corporation	200
Ingersoll KoolShade Sunscreen Division (<i>Borg-Warner Corporation</i>)	92	Tile Council of America	5
Inland Steel Company	38, 39	Timber Structures, Inc.	204
Inland Steel Products Company	240	Trane Company, The	27
International Business Machines Corporation	165	Truscon Steel Company	183
International Molded Plastics, Inc.	174	Typhoon Air Conditioning Co., Inc.	68
International Steel Company	32	Union Carbide and Carbon Corporation (<i>Bakelite Company, Division</i>)	169
Johns-Manville	11, 68A	United States Plywood Corporation	185
Jones & Laughlin Steel Corporation	219	U. S. Plywood Corp. (<i>Kalistron, Inc.</i>)	36
Kaiser Aluminum Co.	66, 67	U. S. Steel (<i>National Tube Company</i>)	168
Kalistron, Inc. (<i>U. S. Plywood Corp.</i>)	36	U. S. Stoneware Co., The	86
Kaufmann and Fabry Company	232	United Steel Fabricators, Inc.	26
Kawneer Co., The	220, 221	Van Range, John, Co., The	226
Kentile, Inc.	167	Vonnegut Hardware Company, Von Duprin Division	7
Kinnear Manufacturing Company, The	70	Wakefield Brass, F. W., Company, The	63
Kitchen Maid Corporation, The	208	Walworth Company	12
Koppers Company, Inc.	85	Wasco Flashing Company	76
Kwikset Locks, Inc.	1	Waylite Co.	42
Leader Electric Manufacturing Corporation	93	Weis, Henry, Mfg. Co., Inc.	182
Levoler Lorentzen, Inc.	37	Western Waterproofing Co.	234
Libbey-Owens-Ford Glass Company	28, 29, 228	Westinghouse Electric Corporation	75, 87, 173, 231, 237
Libbey-Owens-Ford Glass Company (<i>Blue Ridge Sales Division</i>)	161	Woodall Industries, Inc.	78
Lincoln Electric Company, The	54	Worthington Pump and Machinery Corporation	14
Lone Star Cement Corporation	2	Yawkey-Bissell Hardwood Flooring Company	234
Louisville Cement Company, Inc.	215	York-Shipley, Inc.	164
		Zurn, J. A., Mfg. Co.	25

MATICO's new

MULTI-PURPOSE FLOORING

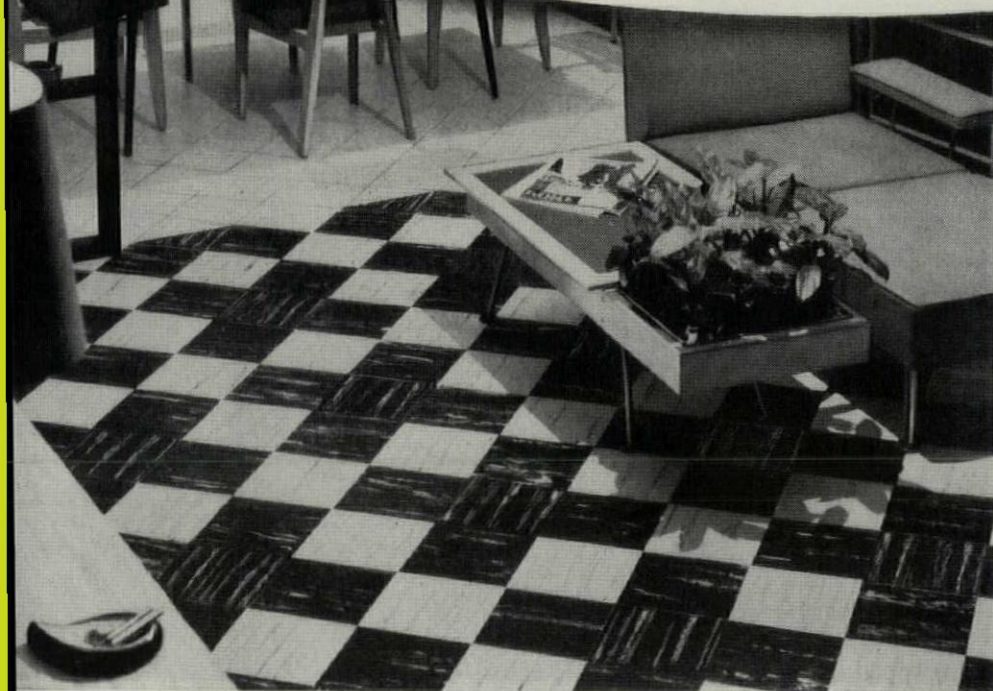
simplifies planning . . . cuts building and remodeling costs

LOW-COST, STANDARD-GAUGE



ARISTOFLEX

VINYL-ASBESTOS TILE FLOORING



- Resistance to acid, grease, and alkali make it ideal for such installations as laboratories, cafeterias, hospitals.
- Durability is outstanding. It's vinyl-asbestos through and through—no felt backing.
- Sparkling colors and easy-to-clean surface make it perfect for all installations.
- Recommended for installation ON, ABOVE, or BELOW GRADE.
- May be laid direct on concrete, terrazzo or ceramic.
- Can be installed on wood over 15-lb. saturated felt . . . over gypsum, plank or unfinished concrete slab with suitable underlayment . . . and over magnesite, above grade.
- LOW COST is comparable to grease-proof asphalt tile.

Now the problem of selecting the right flooring is simplified. New MATICO ARISTOFLEX does the jobs of many floorings . . . its modern, vinyl-asbestos qualities meet the requirements of practically all installations.

And the low price of standard-gauge ARISTOFLEX—comparable to that of grease-proof asphalt tile—meets thrifty budgets. Installation is easy and economical. No special cements are required, ordinary asphalt tile adhesive does the job. ARISTOFLEX lays in tightly, immediately, due to square corners and clean edges . . . cuts clean without use of a torch.

ARISTOFLEX is vinyl-asbestos from top to bottom—no felt backing. It resists household acids, alkalis, petroleum solvents, oils, greases, turpentine, and fire . . . is tough and flexible . . . and has excellent indentation recovery. Vivid colors and marbleization go clear through each tile. As a result, ARISTOFLEX is one of the most durable of floorings. It wears for years and years . . . and steadfastly maintains its sparkling beauty. The smooth surface sheds dirt . . . wipes clean with a damp mop. Maintenance costs are low. Available in 9" x 9" standard gauge and 1/8" tiles.

For vinyl-asbestos flooring quality with economy, look to ARISTOFLEX.

MASTIC TILE CORPORATION OF AMERICA

Member: Asphalt Tile Institute

Joliet, Ill.

Long Beach, Calif.

Newburgh, N. Y.



QUALITY CONTROLLED

MA-TI-CO
TILE FLOORING

MASTIC TILE CORPORATION OF AMERICA
Dept. 63, NEWBURGH, N. Y.

Send specification data and complete details about low-cost MATICO ARISTOFLEX vinyl-asbestos tile flooring.

NAME _____

FIRM _____

STREET _____

CITY _____

ZONE _____ STATE _____

Milcor Style K Access Door — Note exclusive hinge design which permits door to open 175° for easy work entry. Number of hinges and cam locks is determined by size of door.

MILCOR

50TH
Anniversary

Access Door

the standard by which all others are judged

Installed at lower cost.

Conforms to modern design requirements

MILCOR Access Doors install flush to the wall or ceiling — almost invisible — yet provide instant access to key points in piping and wiring systems. They blend with finished surface — just paint or paper right over them.

Low cost installation requires no special framing, no cutting or fit-

ting. Three types available for use, with plaster, masonry or wall board.

Quality design and construction make Milcor Access Doors the standard by which all others are judged. Specify them on *your* next job. Consult your Sweet's File, or write for complete information.

INLAND STEEL PRODUCTS COMPANY

*Reg. U. S. Pat. Off.

4033 WEST BURNHAM STREET

MILWAUKEE 1, WISCONSIN

BALTIMORE 24, MD. — 5300 Pulaski Highway • BUFFALO 11, N. Y. — 64 Rapin St. • CHICAGO 9, ILL. — 4301 S. Western Avenue Blvd. • CINCINNATI 25, OHIO — 3240 Spring Grove Ave. • CLEVELAND 14, OHIO — 1541 E. 38th St. DETROIT 2, MICH. — 690 Amsterdam Ave. • KANSAS CITY 8, MO. — South West Blvd. and State Line • LOS ANGELES 58, CALIF. — 4807 E. 49th St. • NEW YORK 17, N. Y. — 230 Park Ave. • ST. LOUIS 10, MO. — 4215 Clayton Ave.

M-101

Easy to look at...
Easy to work through



TWO RENEWABLE UNITS

Will Fit a Trainload of ELJER Fixtures

STANDARDIZED
HANDLE BROACHING

GENEROUS
LEAK-PROOF PACKING

DOUBLE ACME THREADS

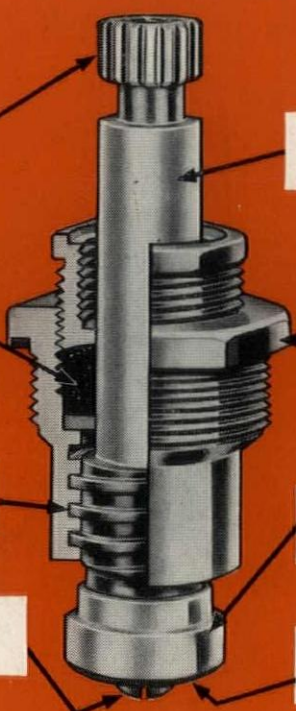
EASILY REMOVABLE SCREW

STEM CHROME PLATED

THREADED
REMOVABLE SLEEVE

SWIVEL DISC HOLDER

ENCASED SEAT WASHER



CUT MAINTENANCE COSTS

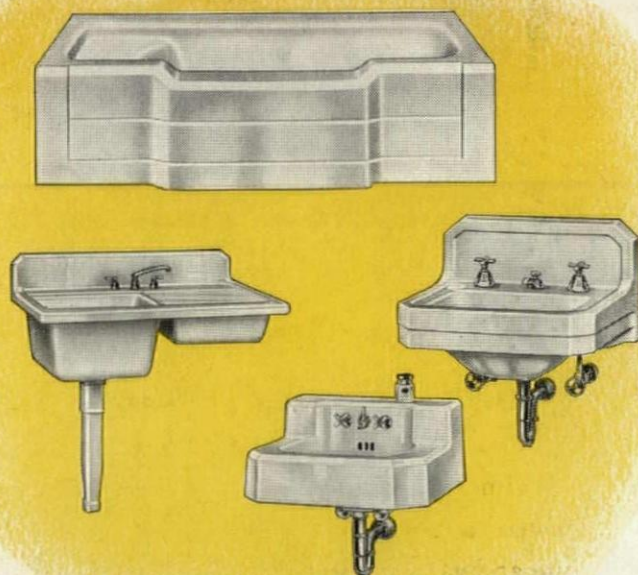
3 WAYS!

Because of their simple, efficient Renewable Units, Eljer Faucets offer distinct advantages to the user. Manufactured of top-quality brass to rigid specifications and tolerances, these units help cut costs three ways:

MINIMUM REPLACEMENT OF WASHERS AND SEATS . . . Eljer's exclusive Swivel Disc feature virtually eliminates dripping faucets because it prevents wear and tear on seat and washer. The valve can be closed tightly with only slight pressure on the handle. The Result: longer life and trouble-free service.

EASILY REMOVABLE . . . Eljer Renewable Units can be removed from the faucets quickly and without disturbing fixtures and walls. In addition, renewable seats can be removed without special tools. The Result: substantial savings in maintenance man power.

INTERCHANGEABILITY . . . Two units will fit a trainload of Eljer Fixtures. One is for concealed, the other for exposed fittings. Parts are also standardized and simplified and easily interchangeable: The Result: lower replacement costs and less waste.

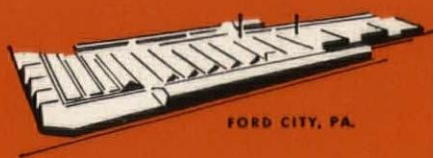


A Complete Line of Quality Fixtures

Eljer manufactures a complete line of Fixtures for both home and industry. Sweet's Files contain Eljer's Condensed Catalog of popular plumbing fixtures. For complete data write: Eljer Co., Specifications Department, Box 192, Ford City, Penna.

It pays you, it pays us—because we specialize in Plumbing Fixtures and Brass

ELJER



FORD CITY, PA.



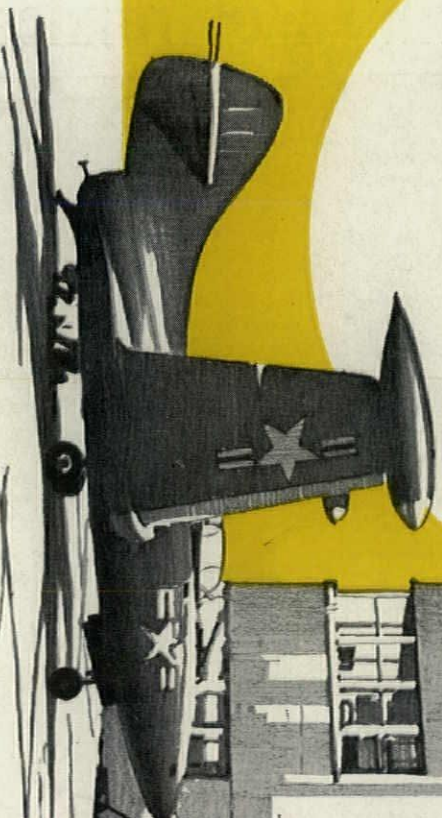
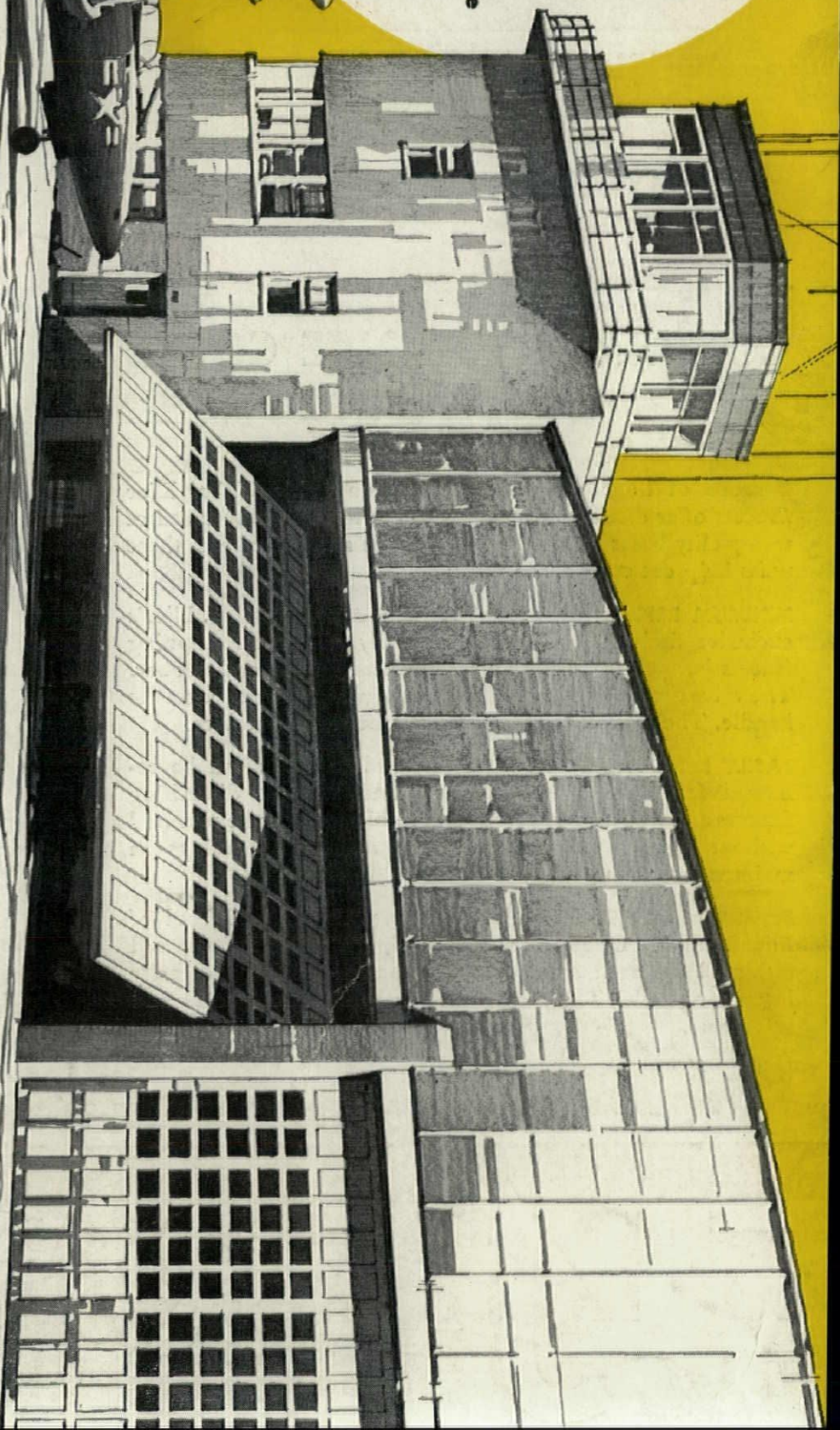
MARYSVILLE, OHIO



SALEM, OHIO

Only

OVERHEAD DOOR CORPORATION
and its manufacturing divisions make



THE



MIRACLE WEDGE
SALT SPRAY STEEL

TRADE MARK

OVERHEAD DOOR CORPORATION

Hartford City, Indiana, U. S. A.

MANUFACTURING DIVISIONS

GLENDALE, CALIFORNIA
DETROIT, MICHIGAN
NASHUA, NEW HAMPSHIRE

HILLSIDE, NEW JERSEY
CORTLAND, NEW YORK
OKLAHOMA CITY, OKLAHOMA

PORTLAND, OREGON
LEWISTOWN, PENNSYLVANIA
DALLAS, TEXAS

COPYRIGHT, 1952, OVERHEAD DOOR CORPORATION