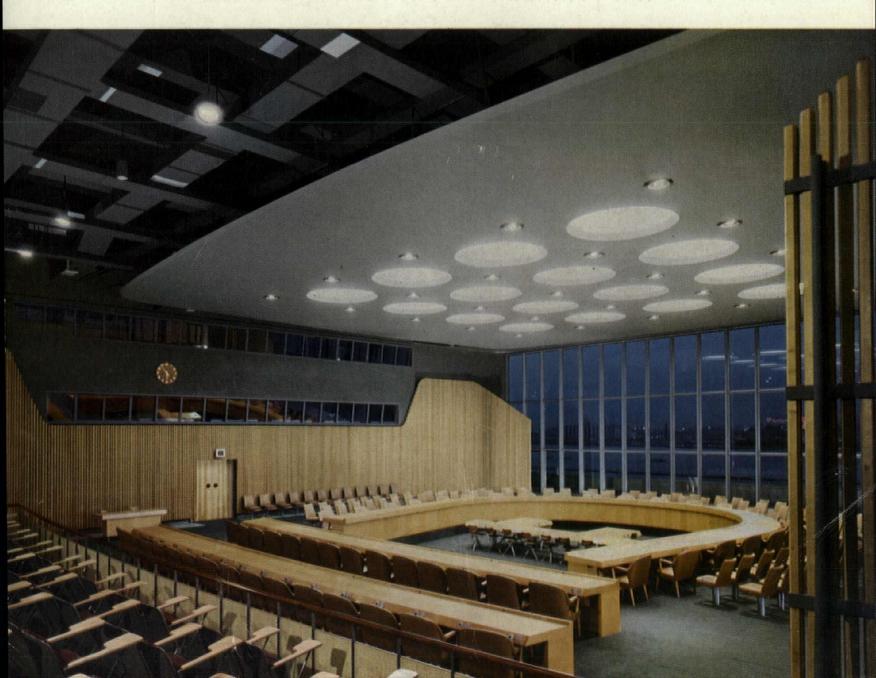
## architectural forum



ART

April 1952	MINNEAPOLIS COLLESE OF & DESIGN LIPPARY
Spiral museum	Frank Lloyd Wright perfects his revolutionary proposal for a modern art gallery (p. 141)
Metal curtain walls	Aluminum and stainless steel get their first big tryout in Pittsburgh ( p. 135)
UN conference building	Exposed structure and mechanical equipment as decoration (below and p. 103)
Better masonry walls	By Professor Walter C. Voss of MIT (p. 162)
High school	Four one-story schools on top of each other ( p. (52 )
Building for atomic defense	Gov√ nment research d∉ nes the shelter problem ( p. 148)
Hospitals	The Skidmore, Owings & Merrill program ( p. 120)





## his office was planned for a fast-moving business

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## THE MAGAZINE OF BUILDING

96:4

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HOUSE & HOME Edition

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VOLUME 96, NUMBER 4



## architectural forum

#### APRIL 1952

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Cover: UN Conference Building, Photo: Ezra Stoller-Pictor.



DESIGNER : WILLIAM T, SNAITH OF RAYMOND LOEWY ASSOCIATES Architects: Pereira & Luckman and Charles O, Matcham General Contractor; the William Simpson Construction Company

CECO first

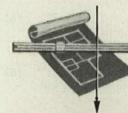
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Mellon Bank-U.S. Steel Building, Pittsburgh

ELEVATORS

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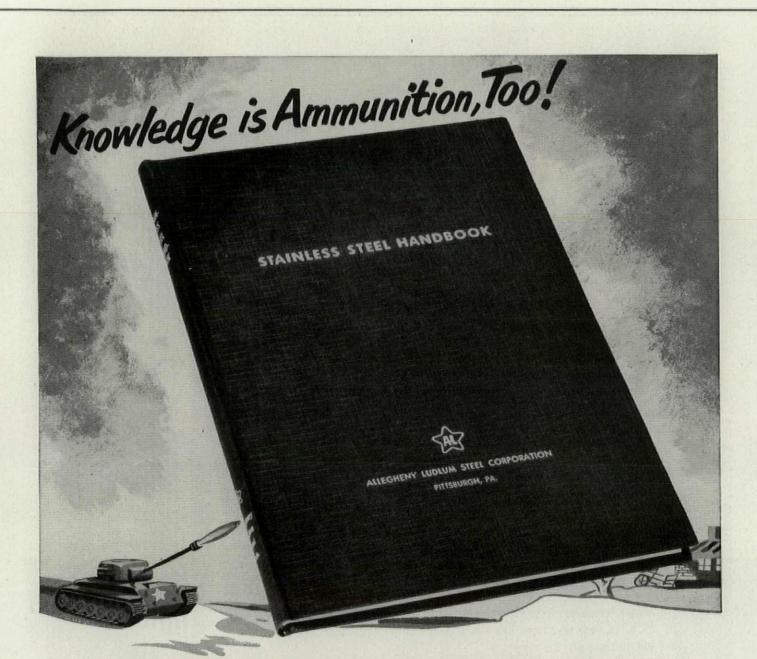
And when it came to elevator efficiency, it's understandable why the choice went to Westinghouse Selectomatic Elevators . . . 18 of them to move tenants smoothly, efficiently up and down all day long, under severe traffic conditions. This effortless handling of thousands of daily passengers is the work of Selectomatic's high I.Q. "electrical brain" that integrates calls, cars and floors and never makes a motion unless it's to put cars where they're needed, when they're needed.

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> 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 . . .

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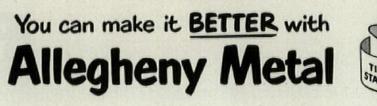
Scrap to make more Steel!

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of each type will guide you in specifying grades that will do your job most efficiently. Clear, concise fabrication data will help you speed production and cut waste.

Your copy of the Stainless Steel Handbook will be sent—without charge—upon request. Our only stipulation: please make your request upon your company letterhead. • Write Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa.

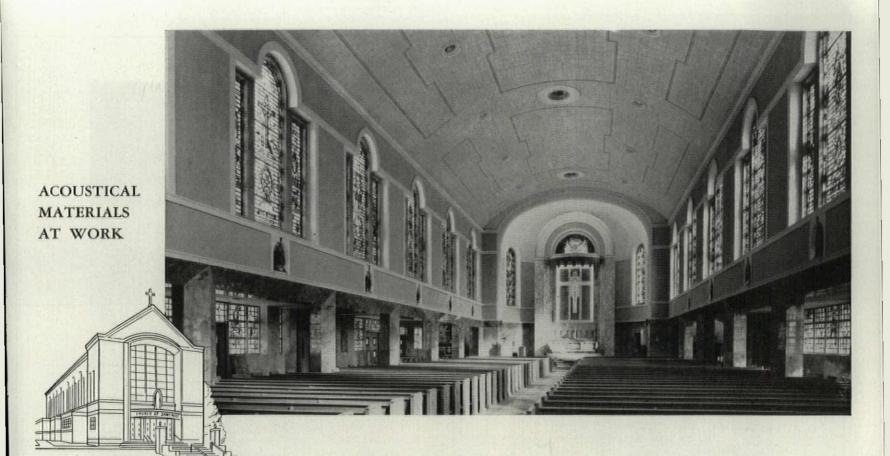
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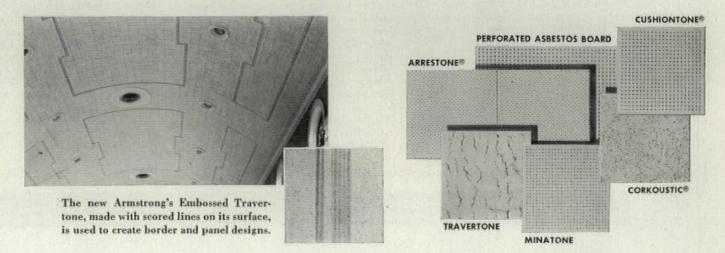
## CHURCH OF ST. ALICE, Upper Darby, Pa.

Architect: Henry D. Dagit & Sons General Contractor: McCloskey & Company Acoustical Contractor: Berger Acoustical Company

In addition to being one of the first air-conditioned churches in the North-Atlantic area, St. Alice's was the nation's first church to use the new Embossed Travertone acoustical tile. This unique material enabled the architects to work a pleasing, unobtrusive design into a ceiling spotted with lighting and air-conditioning fixtures.

The regular Armstrong's Travertone, which covers most of the ceiling area, is attractive in itself. Made of mineral wool with a beautifully fissured surface, Travertone imparts an added grandeur to the church interior.

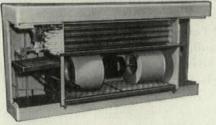
Other factors which recommended Travertone were its incombustibility and its exceptionally high absorption of middle- and high-frequency sounds. Your Armstrong Contractor will give you the full details on the complete Armstrong Line. For free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 5404 Stevens Street, Lancaster, Pennsylvania.



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panels, provide ease of installation and allow more than a 90° horizontal wrench swing. The Remotaire lends itself to special control adaptations to suit the particular installation requirements.



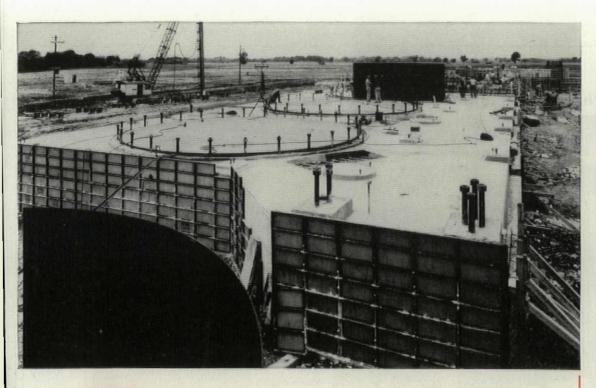
THE NEW REMOTAIRE by American-Standard, is a remote type room conditioner providing all-weather air conditioning for multi-room installations such as hotels, apartment houses, office buildings, hospitals, motels and other types of buildings.

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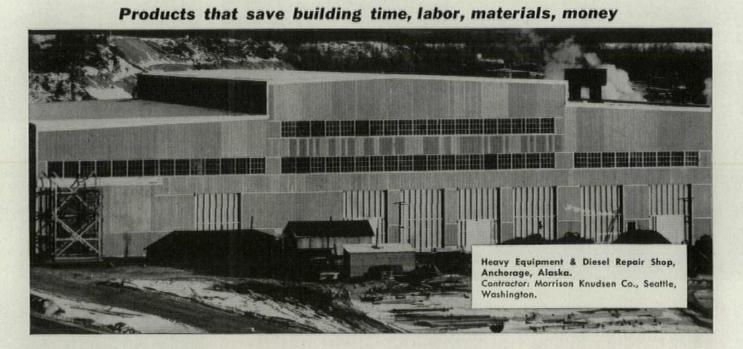
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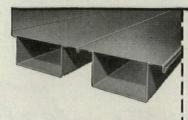
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Fenestra METAL BUILDING PANELS



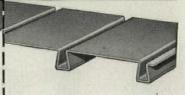
"D" Panels for floors, roofs, ceilings. Standard width 16". Depth  $1\frac{1}{2}$ " to  $7\frac{1}{2}$ ".



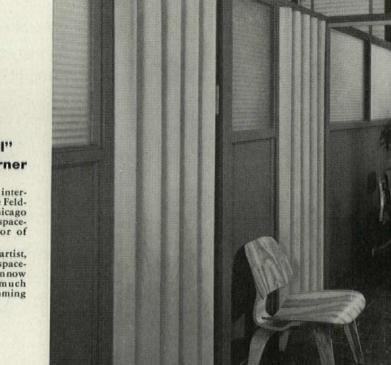
Acoustical "AD" Panels for ceiling-silencer-roof. Width 16". Depth up to 71/2".



Standard width 16". The depth is 3".



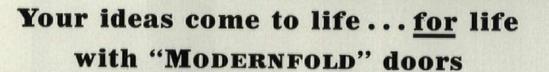
Holorib Roof Deck. 18" wide lengths up to 24'. Surface can be plain or acoustical.



#### Nothing "Neutral" **About This Corner**

It's busy... always has been. But inter-office traffic is smoother now—since Feld-kamp & Malloy Inc., prominent Chicago advertising art studio, knocked out space-grabbing swinging doors in favor of "Modernfold" doors.

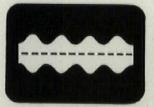
Behind each folding door—an artist, and a better producer. Thanks to space-saving "Modernfold" doors, each man now has more room to work in; as much privacy as he ever had; no door slamming and bageing to distrart him. and banging to distract him.



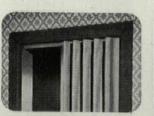
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New	Castle Products
	Castle, Indiana
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Plea	se send me full details on "Modernfold" doors.
Nam	e
	ress
C'a.	

Two thousand years ago the great Roman architect, Vitruvius, wrote: Architecture should `meet three requirements: unity, strength, beauty.

# TODAY ARCHITECTS STILL BELIEVE



STORE FRONT METALS . ALUMINUM FACING MATERIALS . AWNING BOXES AND HOODS .



Kawneer Glazing Sash and Entrances: Whitaker Guernsey Studio, Chicago, Ill. Harper Richards, Architect.

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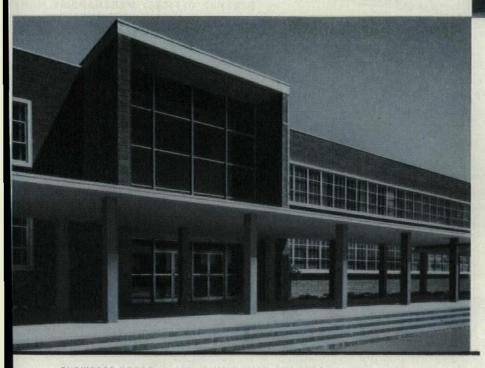


Kawneer Porcelain Enameled Zourite used in two colors as a facade covering, Kawneer entrances, glazing sash, trim: Sears, Roebuck Store, Port Huron, Mich. Wyeth & Harmon Architects.

Kawneer mullion construction, entrances, trim: Hall of Justice, Richmond Civic Center, Richmond, Cal. Elmer J. Freethy, Architect, Designers of Center: Milton H. Pflueger and Timothy L. Pflueger, Architects.



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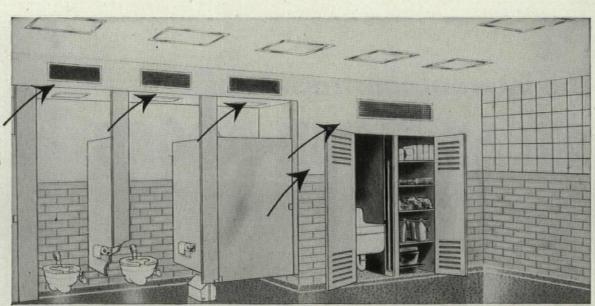
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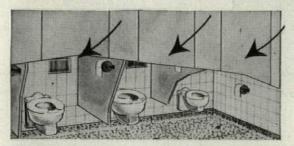
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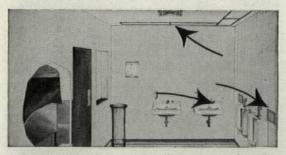
For best air circulation, odor and fume removal... use adequate vents on storage locker doors, recessed exhaust vents high on the wall.

# Ventilation planning

## can make or break a modern washroom



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#### **18 MANUFACTURING PLANTS**

Anderson, Cal. Crescent City, Cal. Laurel, Del. Brunswick, Ga. Houlton, Me. Greenville, Me. Patten, Me Cadillac, Mich.

Gladstone, Mich. Munising, Mich. Goldsboro, N. C. (2) Plymouth, N. C. Klamath Falls, Ore. (2) Portland, Ore. Williamsport, Pa. Newport, Vt.

SOLID CORE

The core material of the Atlas Solid Core Flush Door is Balsa Wood - inert, proof against stress and warpage. With the same K factor as cork, Balsa has important sound-deadening qualities. Its low thermal conductivity means efficient insulation. Its light weight means light weight for the finished door. The core blocks are positioned within a kiln-dried frame. Lock blocks on both sides permit the door to be hung from either right or left.



STATLER BUILDING, BOSTON 16, MASS. • Telephone: Hancock 6-0016 • Teletype: BS-644



#### HOLLOW CORE

In the Atlas Hollow Core Flush Door, kiln-dried soft wood struts -running both laterally and perpendicularly-interlock to form a grid. Wherever two struts interlock, the outer corners are beveled to permit free air circulation. The carefully machined frames are of kiln-dried White Fir or Ponderosa Pine, Lock blocks on each side permit hanging from either right or left. Before the surface panels are bonded to core and frame, the interior surfaces have been completely sized, to

counter-balance the pull of the final exterior finish.

#### AREHOUSES N. Y. N. Y. N. C.

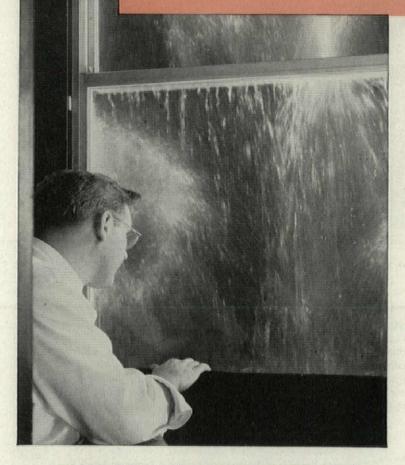
4 SALES OFFICES	AND WAKEHOUSE
ston, Mass.	New York, N. Y.
s Angeles, Cal. (2)	Goldsboro, N. C.
akland, Cal.	Cleveland, Ohio
cramento, Cal.	Dayton, Ohio
in Francisco, Cal.	Oklahoma City, Okla
enver, Colo.	Tulsa, Okla.
icago, III.	Portland, Ore.
ansville, Ind.	Pittsburgh, Pa.
stroit, Mich.	Corpus Christi, Tex.
ladstone, Mich.	Houston, Tex.
and Rapids, Mich.	San Antonio, Tex.
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hio City, Okla.



### F WATER A MINUTE GUARANTEES THE



#### ONLY ADLAKE ALUMINUM WINDOWS GIVE YOU ALL THESE "PLUS" FEATURES:

Woven-Pile Weather Stripping with Patented Serrated Guides

Minimum Air Infiltration Finger-tip Control

No Painting or Maintenance

No Warp, Rot, Rattle, Stick, or Swell

#### WEATHER-TIGHTNESS OF

Adlake Aluminum WINDOWS

**During the water test,** which is only one of the rugged tests that ADLAKE Aluminum Windows must pass, 500 gallons per minute are played upon the window. This actually goes beyond the air infiltration test of the A.W.M.A. at the Pittsburgh Testing Laboratory.

**ADLAKE'S exclusive combination** of woven-pile weather stripping with patented serrated guides forms a perfect weather seal. What's more, tests prove that ADLAKE's famous finger-tip control continues through *one million raisings*—and the windows last through the entire life of the building!

Yes, the standards of ADLAKE Aluminum Windows are kept high by quality control and thorough testing. That's why the ADLAKE name is your best assurance of dependability, long-range economy, and lasting beauty. Get the full story on ADLAKE Windows today . . . ADLAKE Representatives are in most major cities.



## COMFORT AIR CONDITIONING TOWER OF 1951

Architect and Engineer: Harrison and Abramovitz, New York City Prime Contractor: Turner Construction Co., New York City Mechanical Engineers:

Meyer, Strong and Jones, New York City Piping Contractor:

Dravo Corp., Pittsburgh, Pa. Cooling Tower: Equipment Division, J. F. Pritchard & Co., Kansas City, Mo.

Design Conditions: Capacity—7,648 gpm. 10° F. Cooling Range. 78° F. Wet Bulb Temperature

**Cooling Towe** 

\* Above Grade

& Air Treating

MIMBER

CTI

Located atop the new 525 William Penn Place Building (U. S. Steel-Mellon Bank) in Pittsburgh, Pa., is the highest\* comfort air conditioning tower in the world. Built by Pritchard, this tower is one of the foremost engineering achievements in the comfort air conditioning field in 1951. This tower is the critical "heart" of the system it serves and it must provide a *lifetime* of unfailing, reliable service. Some of the major considerations thoroughly engineered for specific functions were:

Built

by

Pritchard

Sound Control • Fog Dissipation • Drift Elimination Algae Control • Thermal Capacity Mechanical Reliability • Architectural Appearance Operating Flexibility • Maintenance Facility • Personnel Safety Insurability • Fire Hazards • Material Compatibility Structural Stability • Building Code Conformance

And these problems were *all* resolved to the satisfaction of all concerned. This sky-high tower is proof of Pritchard's ability to coordinate architectural treatment, mechanical equipment, engineering "know-how" and modern construction methods into an outstanding cooling tower installation. Whatever *your* cooling tower problem, it will pay you to call Pritchard *first* and gain the benefit of Pritchard's experience. Your specific inquiry is invited.



## **DETROIN** 4 DIFFERENT ARCHITECTS CHOOSE **ZONOLITE® CONCRETE ROOFS** FOR INSULATING 4 NEW HOSPITALS



1. St. Johns Hospital, Detroit. Zonolite insulating concrete roof fill over structural concrete. Zonolite Acoustical Plastic ceilings. Architect: Maguolo and Quick; General Contractor: Cunningham-Limp; Plastering Contractor: N. DeCample.

Because Zonolite vermiculite concrete for roof decks or roof insulation is low cost—permanent—lightweight —firesafe, it is the choice of leading designers and builders everywhere. In Detroit, for instance, four wellknown architects recently selected Zonolite concrete in four gigantic, new hospitals.

Architects and builders use Zonolite concrete on roofs two important ways:

1. ROOF DECKS—Here Zonolite concrete provides insulation built right into the roof deck. Poured over paperbacked wire mesh, high-rib lath, or other suitable forms, it eliminates the need for additional roof insulation.

2. ROOF INSULATION—Poured over existing roofs, such as structural concrete, metal, or wood, Zonolite vermiculite concrete affords permanent, firesafe insulation. Provides the ideal surface for built-up roofing.

Investigate the advantages these Detroit architects found in lightweight Zonolite insulating concrete. Send for brand new roof book with complete specifications and other helpful data. Mail coupon today.



## THE

natomy



The anatomy of the 525 Wm. Penn Place Building reflects a number of cost-cutting features of Q-Floor construction. Some of these advantages are obvious... some of them are intangible at show up as a credit on a builder's estimate.

and do not show up as a credit on a builder's estimate.

Take speed of construction, for instance. With Q-Floor, proper job organization can save as high as 20 to 30% in construction time. Consider what this earlier occupancy means to the owner. Modern office building rentals today are a minimum of \$.50 per square foot per month. On a large building, two months earlier occupancy (not unusual with Q-Floor construction) means \$1.00 per square foot earned—about the cost of the Q-Floor. No other element in a building pays its own way like this. Although intangible, this saving is as real as a tax refund.

Latest proof of Q-Floor's building speed is the 525 Wm. Penn Place Building . . . tenanted by nearly 4,000 employees, eleven months after steel construction began. Every day of time saved over old-fashioned construction methods is money in the bank for the owners . . . for which Q-Floor was directly responsible.

The anatomy of a healthy building reflects, also, an easy adjustment over the years to its tenant requirements. Q-Floor's flexibility to electrical layout, desk and partition changes, keep the building alive, just as good reflexes are the sign of a healthy individual. This, too, is an intangible and is often overlooked when building costs are being discussed.

Clean-cut Q-Floor construction brings many tangible savings which reflect in lower contractor's costs. The uncluttered, permanent working platforms all over the building give an unequaled opportunity for job organization and lower overhead. Be sure your contractor knows about this.

FLOOR

in a nut shell

525 Wm. Penn Place is merely the newest example of a healthy building. All across the United States are other Q-Floor buildings that are growing old without aging.

Steel Q-Floor is shown here with suspended ceiling and a condensed visualization of mechanical equipment needed in a modern building.

Note that Q-Floor exceeds the function of a mere structural floor. It provides raceways through the cells for any type of electrical system. No preset inserts are required for suspending the ceiling or the mechanical equipment.

Q-Floor construction, with its four-bour fire rating by Underwriters' Laboratories, Inc., weighs only about  $\frac{1}{3}$  the weight of oldfashioned, slow monolithic construction.

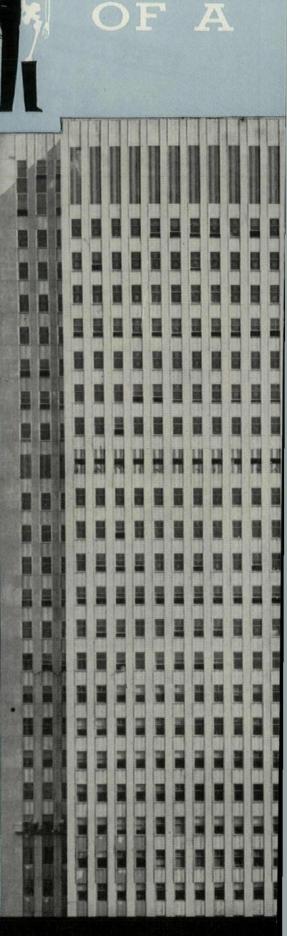
Write for Q-Floor Literature

## H. H. ROBERTSON CO.

2403 Farmers Bank Building Pittsburgh 22, Pennsylvania



Offices in ALL Principal Cities in the U.S.A. and Canada



## MODERN OFFICE BUILDING

The A. B. C. of Q-Floor Economy

S electricians "rough-in", no forms or falsework hinder their complete freedom of movement from floor to floor. Their "platform" is the permanent Q-Floor. It is usable by subcontractors as soon as it is laid in place. Two men can lay 32 sq. ft. in 30 seconds. The floor goes in as soon as framework goes up.

UILDING forms for spandrel fireproofing, the carpenters have plenty of space for their power tools. Yet other materials, such as facing stone, can be stored close to where it will be used, thus eliminating off-site storage costs.

#### **ONVENIENT** place-

ment of bricks and mortar within easy reach speeds bricklayers' work. Q-Floors provide plenty of safe working space, dry, uncluttered, noncombustible. Inclement and freezing weather cause no delay.

**RAFTING** room time is saved because no preset inserts are needed for hanging mechanical equipment and ceiling. With Q-Floor, hangers are simply dropped through the floor, or stud welded quickly to the underside, without headaches for the drafting room. Changes in layout are easily made on the spot.

## PILOGUE OVER THE YEARS

After the structural work is complete, a whole new set of electrical advantages accrue over t years. Outlets and partitions need not be located until after tenants move in. The outlets ca be established in a matter of minutes. An electrician merely drills a small hole, fishes his wire, and establishes the outlet fixture. This also saves a great deal of drafting room time and tremendously reduces alteration expenses for tenants. Thus the essential difference between the anatomy of a modern building and of a monolithic structure shows up as the difference—at every floor—between living, responsive arteries and dead, hardened arteries.

#### WHAT WE REALLY MAKE IS TIME



## FARMS THAT "GROW" CONCRETE TO BUILD A STRONGER AMERICA

Two of the strangest farms in America "grow" concrete in northern Illinois and central Georgia. They are the Portland Cement Association experimental farms, where scientists study the effects of weathering on concrete in northern and southern climates.

"Growing" here are better pavements for defense highways, stronger runways to resist the impact of huge commercial and military planes and the terrific heat of jets, walls with greater resistance to the elements for factories, schools, hospitals, homes, hangars, warehouses, stores and public buildings.

"Plantings" made on farms, starting in 1940, consist of rows of concrete slabs, posts and boxes which simulate pavements, structural columns and walls. Specimens contain different proportions and combinations of materials used in making concrete. Research like this is a continuing and expanding activity of the Portland Cement Association. Out of this research comes technical information on the best concrete mixtures and the best construction practices for building structures exposed to all conditions of service and weather.

Such information is made public immediately and freely through the Association's field engineering service and its educational and promotional program which is made possible by the voluntary financial support of its 68 member companies.

Thus the knowledge gained in the laboratory and in field tests can be used quickly by architects, engineers and contractors in designing and building more durable and **lower-annual-cost** facilities needed for our general economy and the defense program.

#### PORTLAND CEMENT ASSOCIATION 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

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## ONE STORY SCHOOLS OF WOOD

With some building materials in short supply wood is more than ever the answer to your school building problems.

Today's laminated wood structural members and modern truss and arch design are perfectly suited to the modern one story design which is daily gaining favor. The versatility of wood permits wide varieties of treatment, adaptability to size and climatic requirements, and warm, friendly beauty of design.

> There is no shortage of lumber. Take advantage of wood's strength, natural beauty, and *ready availability*, for the one story schools you design.

#### THERE IS NO SHORTAGE OF LUMBER



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C''School Buildings Your Tax Dollar Can Afford''

"Typical Lumber Designs" (for trusses).

"Standard Specifications for the Design and Fabrication of Structural Glued Laminated Lumber"

# "Tops" for new

## FOAMGLAS ... the long life insulation

This strikingly modern structure the new home of the United States Steel Company—is the latest addition to the skyline of Pittsburgh. The roof of this building, to be known as The 525 William Penn Place Building, is insulated with FOAMGLAS.

Architects: Harrison & Abramovitz, New York City.

General Contractor: Turner Construction Company, New York City.

Roofer: Warren-Ehret Company, Pittsburgh, Pa. buildings

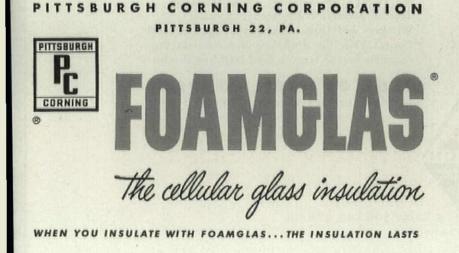


As notable new landmarks accent the skylines of great cities, the preference for this proven insulating material reaches new heights.

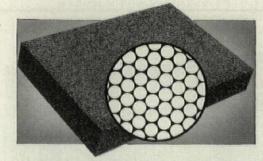
You can safely recommend FOAMGLAS to your most exacting clients for replacements as well as new construction with full confidence that you and they will find its performance completely satisfactory. Here's why:

Since FOAMGLAS consists entirely of still air sealed in minute glass cells, it offers more than just excellent insulation qualities—it is also unusually resistant to the many elements which cause ordinary insulation to deteriorate. Therefore, FOAMGLAS is long lasting and trouble free—an effective and economical insulating material, not only for roofs, but also for walls and ceilings, floors and sidewalks.

Before you specify an insulating material, be sure you have *complete* information on FOAMGLAS. Just send the coupon for a sample of the material and free copies of our fact-packed booklets.



Here you see workmen installing FOAMGLAS on the towering roof of The William Penn Place Building, 42 stories above the street. The big, rigid blocks form a firm, level base for roofing felts, lay up quickly and are easy to handle.



The best glass insulation is cellular glass. The only cellular glass insulation is FOAMGLAS. This unique material is composed of still air, sealed in minute glass cells. It is light weight, incombustible, verminproof. It has unusually high resistance to moisture, chemicals and many other elements that cause insulation to deteriorate.

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ple on Nor tria	ase send me without obligation a sam- of FOAMGLAS and your FREE booklets the use of FOAMGLAS for: Homes mal Temperature Commercial, Indus- I and Public Buildings , Refrigerated actures .
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Hal A. Miller of the office of Hal A. Miller, A. I. A., says:

"For the Marylander Apartments, we selected Truscon Double-Hung Steel Windows and Residential Steel Doors because they assured architectural beauty and structural strength."

In this spacious new Baltimore apartment building, Truscon Series 138 Double-Hung Steel Windows lend flowing architectural lines and provide adequate sunlighting, with easily controlled ventilation.

An impression of extra spaciousness in room area, and sweeping views of the landscape, are achieved by well-selected, well-known window combinations and placements.

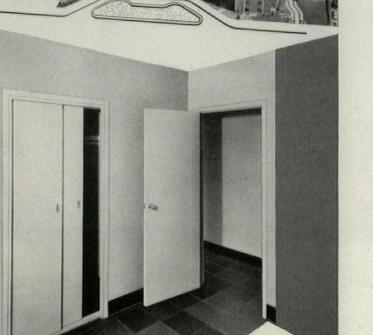
Long-term economy of maintenance is assured by these Truscon Windows. Because they are steel, they will not sag, warp, or rot. Their snug fit and built-in stainless steel weatherstripping help cut fuel costs, too.



Marylander Apartments, Baltimore, Md. Hal A. Miller & Associates, Architects John H. Hampshire, Inc., Plastering Contractors Baltimore Contracting, Inc., General Contractors.

TRUSCON a n

a name you can build on



Truscon Residential Swing and Slide Steel Doors furnish sharply modern notes; save space; and assure trouble-free, easily operated door service at all times. These doors are competitively priced with doors of any other material, and at the same time offer important installation economies and conveniences.

See SWEET'S for complete specifications on Truscon Series 138 Double-Hung Steel Windows and Truscon Residential Interior Steel Doors. Write for illustrated literature on the complete line of Truscon Steel Building Products.

TRUSCON<sup>®</sup> STEEL COMPANY 1102 ALBERT STREET, YOUNGSTOWN 1, OHIO Subsidiary of Republic Steel Corporation

Giant building or modest home, PECORA weatherproofing materials assure every advantage for the lasting, durable job. For almost a century, PECORA has been a standard of quality for materials in the construction of better buildings and better homes.

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Be Sure its Weather Proof Pecora Protected!



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Recognized as the top-quality seal-ing compound to repel cold, wind, rain, snow, and rot wherever build-ing materials are joined together... adheres tenaciously to wood, stone, terra colta, concrete, iron, steel, glass or other materials of construction, allowing expansion or contraction as temperature and conditions change, without opening leaks... protects the structure itself, as well as the occupants! occupants

## GLAZING COMPOUND

1

An easily handled material for bed-ding and facing glass in either wood or metal window frames...elimi-nates drafts, leaks, and expensive maintenance operations...preferred by professional glaziers, mainte-nance men, and "handymen" alike for the production of a durable, neat-appearing sash. Meels Federal spec-ifications for Glazing Compound, and is available in natural, gray, and aluminum colors.



#### WEATHERTITE **ROOF COATINGS**

Coatings available in several grades and colors to caulk and lengthen the lifetime of new roofs, as well as patch and renew the life of old roofs. Troweling consistencies are used to patch and caulk, liquid forms for complete coverage of roofs... resists sun, rain, snow, as well as chemical fumes from chinneys. A special aluminum pigmented grade is available to insulate against the summer sun, as well as black, red, and brown-colored compounds.



#### SEALING AND

#### DAMPPROOFING COMPOUNDS

Colorless liquids or asphaltic products used to Colorless liquids or asphaltic products used to protect masonry structures from penetration of moisture, either above or below grade. KLERE-SEAL: a colorless liquid with the consistency of thin varnish for sealing above-grade masonry on the exterior surface; will not discolor the masonry. The asphaltic sealers are available in paste or liquid form and used on the exterior surface of below-grade masonry, or the interior surface of above-grade masonry.



**CEMENTS AND LUTINGS** 



ADHESIVES AND MASTICS

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a new quality Douglas fir hardboard to help you save money ...save time...save material. ALLWOOD hardboard... amazingly tough...amazingly versatile...challenging comparison as a new leader in quality hardboard. Produced in the mountain forests of Oregon in a plant designed for maximum efficiency and positive quality control. Get all the facts on this new ALLWOOD hardboard. Distributed nationally by SIMPSON LOGGING COMPANY, Seattle, Washington.

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\*Trade Mark of the Oregon Lumber Co.

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> Manufacturers of Lumber and Lumber Specialties since 1889

When your new building plans and specifications are ready send them to ALLIED

When your contract is awarded, the skills and facilities of Allied's 3 huge shops operating as a unit are available to fabricate the steel quickly.

On location, erecting crews bring new dexterity to the scene to complete the work rapidly and on schedule.

Low, rambling, single story buildings; multiple story buildings; simple little structures such as small additions to plants; or bridges over mighty rivers ... all of these are jobs familiar to Allied. Send your plans and specifications to us to be estimated, or consult us if your building is in the talking stage.





#### The thermostat you see on the pillar in the photograph of Gordon's purse and glove section, right, is one of seven on the ground floor. Located near the main entrance, it gives arva control and aids the entrance thermostat in compensating for cold winter drafts and hot summer blasts.

## Why Honeywell Customized Temperature Control is a sound modernization investment for American Business



Specially designed system provides year-round comfort that pleases customers and employees-while saving 25% on fuel

You'd have to look a long time to discover a more "typical" American department store than Gordon's in Gary, Indiana. And you'd have to look a long time, too, to discover one that was more genuinely

comfortable-all year round.

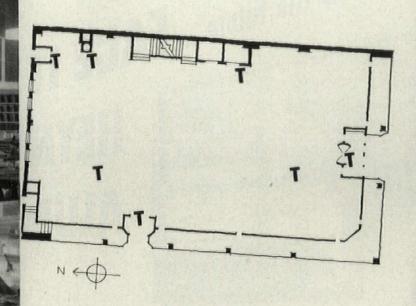
For providing customers and employees with a near-ideal "climate" —no matter *what* the weather—is a Honeywell Customized Temperature Control System.

And what's more, since this customized control system was installed the management of Gordon's Department Store has experienced a 25% annual reduction of fuel bills !

The intangible good will and efficiency benefits derived from customer and employee comfort, plus the very tangible benefits derived from fuel saving make Honeywell Customized Temperature Control a mighty sound investment.

Important to both comfort and fuel saving is the fact that Honeywell Customized Temperature Control compensates for exposure, use and occupancy differences. *How* it does this is explained in the individual picture captions, and by the plan showing a typical floor set-up.





#### The right number of thermostats for perfect comfort

As shown above, one of the keys to comfort in the Honeywell Customized Temperature Control System is the location of thermostats. Notice how this works on the floor plan compensating for exposure, use and occupancy differences. Notice how special thermostats guard every entranceway, make up for elevator shaft heat loss and give general area control—all of which adds up to ideal comfort.

Instrumental in planning the installation of Honeywell Customized Temperature Control in Gordon's Department Store were Gary architect I. M. Cohen; William Goodman, consulting engineer, Chicago; William H. Stern, Gary, general contractor; Klingaman & Sons, Gary, air conditioning and heating contractor.



A special thermostat in the women's coat and suit department on the third floor helps make sure customers don't become uncomfortably warm when trying on heavy garments. Other Honeywell thermostats located in other third floor areas help meet particular comfort demands of a variety of departments.



Office workers, too, are pleased with the year-round comfort Honeywell Customized Temperature Control provides. Before the system was installed, office sections—especially when they had no outside windows, as in the case of the one above—often became uncomfortably warm. Now they almost never do.

## For Comfortable, Even Warmth in New or Existing Public Buildings, Specify Honeywell Customized Temperature Control

Whether it's a store, factory, 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 facts on Honeywell Customized Temperature Control, call your local Honeywell office. There are 91 across the nation. Learn how Honeywell systems can help your clients and your business. Or mail coupon today.



"In my opinion, Gordon's has the finest possible comfort," says William Goodman, consulting engineer.



"The special system was designed to cover all comfort factors —occupancy, use and exposure. It does just that—superbly well—as customer and employee reactions prove."

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Dept. MB-4-104, Minneapolis 8, Minnesota	
Gentlemen: I'm interested in learning more about your Customized Ter ature Control System for public buildings.	nper-

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Store front of Ludwig Baumann's Hartford, Conn., branch using Reynolds Lifetime Aluminum embossed corrugated sheet and extruded sections. Architect: Morris Lapidus, New York, Contractor: Julius Greenberg Co., Hartford,

To adapt Reynolds standard aluminum building products to special purposes is an obvious economy...and a challenge to the designer's originality. Reynolds *Lifetime* Aluminum Corrugated is a good example. In .019" and .024" thickness, it is used increasingly for interior and exterior facings, ornamental trim, canopies, etc. Reynolds .032" Corrugated is, of course, a recognized specification for industrial roofing and siding.

Consider the adaptation of Reynolds Aluminum Residential Windows (casement, double-hung and awning, with fixed and picture window combinations)... and the rustproof durability of Reynolds *Lifetime* Aluminum Gutters. Check the convenience of Reynolds Aluminum Reflective Insulation wherever you require efficiency without bulk plus perfect vapor barrier. You get the advantages of Aluminum at low initial cost and with labor-saving application through well developed methods. Write for literature. **Reynolds Metals Company**, Building Products Division, Louisville 1, Kentucky.



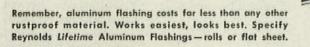
This Kansas City apartment building uses 306 Reynolds Aluminum casement windows. Architect: J. F. Lauck. Owner-Builder: George C. Norton. Write for catalog showing also Reynolds new awning window.

EYN



One of thirteen industrial, commercial and school buildings designed and built by George Mole in the Amityville, L. I. area—all roofed with Reynolds .032" Industrial Corrugated.







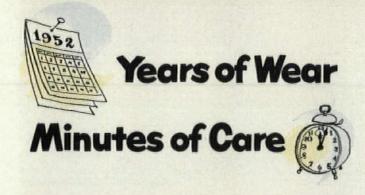
Military demands for aluminum limit supply of these products. Reynolds is rapidly expanding aluminum production. Keep checking your supply source.

Reynolds Aluminum Reflective Insulation is a superior lamination of embossed foil on kraft paper. Double-faced (Type B) and Singlefaced (Type C). In rolls of 250 sq.

ft., 25", 33" and 36" wide.



Coffee House, Waldorf-Astoria Hotel, New York City



Data on "Flexachrome" Floors Courtesy The Tile-Tex Division, The Flintkote Company, 1232 McKinley Ave., Chicago Heights, III.



You'll cut maintenance budgets for years and years to come with bright, durable floors like these! Just specify resilient flooring materials made with VINYLITE Brand Resins.

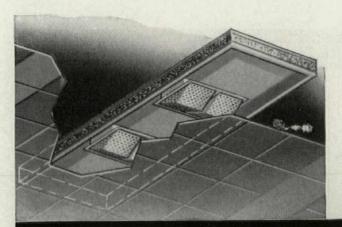
You'll find them in a range of colors to fit any decorating scheme-fresher, clearer colors than ever before possible in resilient floorings. Non-porous, tough, and easy to clean, they resist water, soap, oils, grease and cleansers-even acid and alkali solutions. Dirt can't penetrate their hard finish, so waxing is unnecessary, though waxing does give a matchless luster.

Whether it's tile or continuous flooring, if it's made from VINYLITE Resins, it stays flexible—conforms to uneven wood floors and normal floor play without cracking. And it can be applied to concrete in direct contact with the ground.

Look into these floor coverings now. They have the unique properties that make VINYLITE Brand Resins so essential to scores of products in defense and basic industry. Let us send you a list of suppliers. Write Dept. MQ-14.



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Low Velocity Air Diffusion

## in hospitals

**Operating Rooms Environment Control Rooms Delivery Rooms** 

## where precise atmosphere control is vital!

#### **Recent** hospital **Multi-Vent installations**

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ST JOSEPH'S HOSPITAL, Hancock, Michigan IVINSON HOSPITAL, Laramie, Wyoming

BYBERRY STATE HOSPITAL, Tubercular Patients Building N-10

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BRIEF DATA Glass—¾"-thick Muralex Glass, pattern on both surfaces. Reversible—can be used right or left hand. Standard Sizes—2'6" x 6'8" 3'0" x 6'8" 2'8" x 6'8" 3'0" x 7'0" —also 4 sizes for openings of these dimensions with proper allowance for clearances. Architects: Carr & Cunningham, Cleveland.

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... uses the ageless and fadeless material

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## Vitreous Porcelain \* on steel for toilet compartments

Sanymetal "Porcena" (Vitreous Porcelain on Steel) is a *material*, not merely a finish. It 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 enamel to the extent that it *cannot be hammered out*. Sanymetal "Porcena" (Vitreous Porcelain on Steel) is incomparable with any other material commonly used for toilet compartments. It is a lifetime material that stays new.

> Vitreous porcelain en amel being fused to steel at a temperature of 1350° - 1550° F. Baked-on paint en amel finishes would be totally destroyed by this temperature. Vitreous porcelain on steel is unlike paint enamel or lacquer finished steel in every respect.

> > Sanymetal Century Type Ceiling Hung Toilet Compartment of Vitreous Porcelain on Steel. There is nothing better – nothing so enduringly modern.

\*



Sanymetal uses vitreous porcelain on steel for toilet compartments not only for its enduring beauty and fadeless colors, but because of its durability, low cost maintenance, cleanliness, resistance to acids, defacement and abuse. Vitreous porcelain on steel is a product of the white heat of the enameling furnace that is as new as tomorrow – and as old as time! No other material is so ideally suited for

toilet compartments because it provides the utmost in sanitation and a degree of protection against obsolescence that is otherwise unobtainable. The sure way to perpetual cleanliness and a strictly modern rest room is to install Sanymetal Vitreous Porcelain on Steel Toilet Compartments. They are suitable and practical for all types of buildings-even for rest rooms and shower rooms in industrial plants.



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Vitreous porcelain on steel provides these features that *cannot be duplicated by any other material* suitable for toilet compartments:

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 lifetime material

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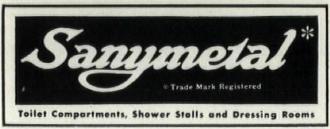
Its gleaming, colorful beauty does not depreciate; vitreous porcelain on steel is the ageless finish of fadeless colors and will not tarnish or peel.

Sanymetal "Porcena" (Vitreous Porcelain on Steel) Toilet Compartments are available in several different styles and a wide range of fadeless colors (refer to Sanymetal Catalog 89 for complete range of exact colors). Only Sanymetal offers "Porcena" (Vitreous Porcelain on Steel) Toilet Compartments. Ask the Sanymetal Representative in your vicinity to demonstrate the unusual and 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:

Santa Ana Community Hospital, Santa Ana, California + Denver Union Terminal, Denver, Colorado + Pennsylvania Railroad Station, Wilmington, Del. + Statler Hotel, Washington, D. C. + Y.M. C. A., Pensacola, Florida + Stevens & Wilkerson Bldg., Atlanta, Ga. + St. Joseph's School, Chicago, Ill. + Holl of Music Indiana University, Bloomington, Ind. + John Morrell & Co., Ottumwa, Iowa + Kentucky Hame Life Bldg., Louisville, Ky. + St. Charles Hotel, New Orleans, Ia. + Dunbar School, Baltimore, Md. & Michigan Bell Telephone Building, Bay City, Michigan + A. C. Spark Plug Co., Flint, Michigan + International Nickel Co., Bayanne, N. J. + Cluett, Peabody Co., Iroy, N. Y. + Otis Elevator Co., New York, N. Y. + Duke Pawer Co., Spencer, N. C. + Hoaver Hosiery Mills, Concord, N. C. + Armco Steel Corp., Middletown, Ohio + Sunshine Biscuit Co., Dayton, Ohio + Dormitory University of Tulsa, Tulsa, Okla. + Link Belt Co., Philadelphia, Pa. + Blue Ridge Textile Co., Bangor, Pa. + American Radiator-Standard Sanitary, Pittsburgh, Pennsylvania + Tennessee Eastman Corp., Kingsport, Tenn. + Corn Products Refining Company, Corpus Christi, Texas + Southern Dairies, Richmand, Virginia





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Reredos and Tester, Main Chapel Altar, Cardinal Stritch Retreat House, Mundelein, Illinois—Architects, McCarthy & Smith, Chicago

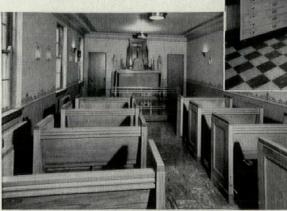
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Nun's Chapel, Cardinal Stritch Retreat House





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Above: The Pennsylvania Co., Phila, Architect: Howell Lewis Shay, Contractor: John McShain, Inc. Columns, counter, rear walls in Kalistron. Two Kalistron sheets-85 ft. and 60 ft. long cover entire counter front.

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minimizes maintenance costs. Cleans casily 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.



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Kalistron plus actual nail-file ) and folder "Facts About Kalistron,"

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### **Demand Grows for Easing of Reg.** X on Commercial Loans

With materials controls out of the way as the villain tormenting nondefense building, the industry this month turned on its tears over credit restrictions. For commercial building, the Federal Reserve Board's Regulation X requires 50% cash. To many a realtor and mortgage broker who has been unable to put together deals because clients lack that much money, the time seemed right for relaxation. Much speculative commercial building rises on 75 to 90% loans.

Said Marshall Davies of the Los Angeles construction firm of Davies. Keusder & Brown: "We lost two good jobs because of Regulation X. A few months ago we had a \$500,000 hotel garage job, to which the owner gave a firm commitment. The Regulation X people knocked down our loan \$110,000 below what we needed. Regulation X has stopped more building than any other factor."

Said Byron Shutz of Kansas City: "If they don't relax Regulation X on commercial building, the economy is going to suffer." He cited these Kansas City projects held in abeyance because of it: "a \$75,000 doctor's clinic building, a \$250,000 factory building, a block of stores including a super market, and a nine acre shopping development we ourselves were doing in conjunction with 300 acres of homes that we have build in the last five years. If Regulation X's limit were raised to 70%, a whole lot of projects would get going."

Said W. Laird Dunlop III of Washington's Walker & Dunlop: "I know of a \$1 million department store that is being held up. We are trying to get around it using capitalization rates. I also know of four shopping centers varying from \$350,000 to \$1 million that have been shelved because of Regulation X. I wouldn't say it was a serious drawback to commercial building, but a lot more of it would go ahead if it were removed.'

Flagrant violations. There was plenty of evidence that the regulation was widely flouted. Said one of New York's leading realty operators: "A great many banks don't understand the whole thing and a good many are disregarding it." In Houston, Vice President Wade Barnes of David C. Bintliff & Co. complained: "I lost a

### IN THE NEWS

Among the next 31 pages are reports on these important developments:

Steel seizure may bring looser controls	p.	42
WSB wage policy triggers labor trouble	p.	42
Truman exit foreshadows job shakeup	p.	43
Lever House takes an ingenious bath	p.	43
Atlas snaps back at air base probers	p.	45
U.S. sees vast demand for schools .	p.	49
Civil defense builds a street of ruins	p.	70

\$125,000 deal recently because of a \$25,-000 difference. The man owned his land and it would have been economically sound for me to up the value of his land to make the loan. But I wouldn't go that far because of Regulation X. But he found someone else to finance the building."

Formal request. The New York Building Congress put its plea to the Federal Reserve in writing: despite New York's special status as a distress area with a construction labor surplus and ensuing extra allotments, "we now find that a substantial backlog of commercial and industrial construction is prevented from going ahead by reason of Regulation X." Mortgage credit restrictions, the Building Congress' letter continued, were aimed at stopping inflation resulting from the war in Korea, but "in actuality, the demands of military production in the current year . . . will not approach anywhere near what was projected . . . (Instead) we have seen a growing deflation, a recession in business and the development of unemployment in various industries and areas even though most materials which were in short supply are now becoming available for civilian use."

It was precisely because winter's business lull might become spring's definite slump that the argument for immediate relaxation of credit curbs on commercial construction bore an air of urgency. Already, some retail store managements were shving away from new expansion plans because sales continued poor. Reported Mortgage Broker George Dovenmuehle of Chicago: "Regulation X was ok for a time, but it won't be necessary as business deteriorates. Owners of developments are not getting leases because business is not good, hence not expanding. Percentage leases particularly have been hurt. The big obstacle to commercial building is. . . general business conditions."

Substitute crutch. If nondefense construction-both commercial and local public works-got a big shot in the arm, it could take the place of the defense program as an economic crutch. But if government controllers prevent revival of activity until

#### LAST MONTH'S WASHINGTON DIARY

- NPA shifts soft-drink bottling plants from 3/12 commercial to industrial class in CMP.
- 3/12 Ralph S. Trigg, Deputy DPAdministrator for Program and Requirements, sets copper expansion goal at 2.3 million ton supply by 1955
- 3/13 Wage Stabilization Board places 15¢ an hour ceiling on building pay increases.
- NPA authorizes warehouse distributors of steel to make deliveries 15 days prior to 3/21 beginning of quarter for which allotment is valid.
- 3/24 NPA prohibits use of nickel-bearing stainless steel in Class B building materials (M-80) after April 1, 1952.
- Federal Security Agency gives green light to 500 deferred school building projects, 3/24 grants third and fourth quarter, 1952, allotments.
- 3/28 DPAdministrator Manly Fleischmann refers all industrial construction permit applications involving 2,000 kilowatts or more of alternating current to Defense Electric Power Administration.
- 3/30 Defense Mobilizer Charles E. Wilson resigns in protest over Truman decision to deny steel price boost to match wage hike.
- 3/31 NPA creates new superpriority (B-5) for military, atomic and machine tool production to break bottlenecks in flow of parts.
- 4/16 NPA increases self-authorization limits for schools and public roads, effective third quarter. New limits for schools: 50 tons steel, 1,000 lbs. copper, 1,000 Ibs. aluminum per project.

general business is definitely on the downgrade, construction decisions would be automatically postponed. This would reduce the chance of using construction as a booster at all.

At midmonth, Federal Reserve officials maintained that Regulation X had not dampened commercial construction-yet. But the Fed conceded that as more new starts get approval from NPA, credit might become a bottleneck. If credit curbs proved to be retarding the building in cities where the government recognized "critical" unemployment in the building trades, the Fed promised to review the situation.

Public backlog. Whatever the Fed did, public construction loomed as a major prop in the post-defense economy. Between 1941 and 1948, public construction totaled \$30 billion less than either the prewar or the 1949-50 level. To make up that backlog, public construction might go up \$3 to \$6 billion a year for a decade-if enough financing is available. Biggest immediate needs: highways, schools and hospitals.

Also on the horizon-but not before 1953-was an upsurge in television and atomic construction. The Federal Communications Commission, ending its threeyear freeze on TV station building, will begin hearings July 1 on granting of up to 2,000 more licenses. So construction should follow in about a year. The Atomic Energy Commission's plan to build a new \$1 billion plant should mean construction about the time other defense projects taper off.

### Angry Congress Studies Cut in Controls; NPA Gives Nondefense Building Big Boost

So much Congressional temper boiled up over government seizure of the steel plants that it began to look more and more as though Congress would whittle down federal controls over the economy considerably. As the Senate Banking Committee resumed consideration at midmonth of a bill extending the Defense Production Act beyond its June 30 expiration date, predictions most generally heard were:

▶ Congress will extend the law only until the middle of next winter, thus letting the next Congress decide whether to junk controls or continue them further.

▶ Price, wage and rent controls will be retained in the Banking Committee's version of the extension bill, but they will be pared down. For instance, the committee accepted an AIA-backed amendment exempting architects and engineers working for another member of the same profession from salary control. Moreover, a floor fight over price wage and rent control seemed likely and it was quite possible they might be voted out.

> Power to allocate materials will be continued, but barring a strike or new international crisis, most of the pinch on construction was over (see below).

In an effort to keep the committee from voting to abolish price controls, the Office of Price Stabilization readied a list of items selling below ceiling prices that it said it wanted to decontrol. There was a good chance many building materials would be among them: the National Association of Retail Lumber Dealers reported such basic construction items as lumber, roofing and wallboard were generally selling below ceiling prices across the nation.

**Cost of strike threat.** The threat of a strike that caused steel companies to bank their furnaces during the week of April 5-12 cut the industry's operating rate from 102.1% of rated capacity to 62.3%. This meant 826,000 tons of steel ingot production lost. (About a fifth of that, by the usual rule of thumb, was lost to the construction industry.) It was not too serious. It amounted to less than 1% of the nation's annual production.

About the only question DPA & NPA faced was how to dole out the increasing supply of materials for building. Allotments of structural steel for the third quarter (bravely announced *before* the government averted a steel shutdown by seizing the industry) backed up NPA promises of a big boost for commercial building, schools, hospitals and highways. For commercial building doled out by NPA's construction controls division, the 3d quarter allotment was 175% of the 2d quarter level. Principal allotments affecting construction:

#### STRUCTURAL STEEL (IN TONS)

	TILLER COL		
Acency	Ist QR.	20 QR.	3D QR.
Dept. of Army	13,000	12,870	14,000
AEC	43,500	20,642	23,591
Dept. of Defense	163,490	212,628	212,191
Def. Elec. Power	137,976	148,500	120,000
Fed. Security Agcy.			
Education	26,013	29,235	40,000
Hospitals	19,004	18,315	25,000
Gen. Services Adm.	4,500	4,950	5,000
HHFA	10,500	7,425	7,500
Petrol. Adm. for Def.	55,000	51,480	80,000
Bur. Pub. Rds.	56,000	80,600	125,000
Bldg. Mtls. Div.	4,566	5,345	5,100
Facil. & Constr. Bur.			
Constr. Controls	12,197	16,285	40,000
Indus. Expans.	360,768	268,140	183,000

Over the hump. Chiefly, it was the big drop in allocations for industrial expansion that made possible the increased steel for other building. Moreover, NPA built up its reserves significantly. And self-certification allowances were increased 23% over the second quarter to 90,678 tons. Such signs added statistical proof to the fact that the impact of the defense buildup on construction had nearly spent itself. NPA was busily shoring up construction in seven cities\* where unemployment in the building trades had reached "critical" proportions. At midmonth, for instance, it announced approval of 166 construction projects in ten areas totaling \$71,708,054. Los Angeles led the list with 57 projects worth \$18,313,601. The New York-Northeastern New Jersey area stood next with 49 projects totaling \$39,392,590. There was serious talk among controllers of relaxing the 15 month old ban on construction of theaters, night clubs, playgrounds and 44 other types of recreational structures.

<sup>\*</sup> Latest addition to the list: Providence and most of the rest of Rhode Island. Others: Boston, Washington, New York, Los Angeles, San Francisco, Portland, Ore., and Seattle.

NEW ( expendit				-		
		Mar				Month
			%			%
Type	'51	'52	Change	'51	'52	Chang
		PRIV	ATE			
Residential		al ben a				
(nonfarm)	862	784	-9.0	2,591	2,172	-16.2
Industrial	143	212	+48.3	407		+51.6
Commercial	128	79	-38.3	371		-36.7
*TOTAL	1,614	1,556	-3.6	4,718	4,425	-6.2
		PUI	BLIC			
Industrial	52	89	+71.2	119	247	+107.0
Military	41	132	+222.0	94	372	+295.1
Residential	37		+67.6	96	195	+103.1
*TOTAL	584	691	+18.3	1,543	1,937	+25.5
GRAND TOTAL	L 2,198	2,247	+2.2	6,261	6,362	+1.0

### CMP AX STRIKES VIOLATOR

NPA, which, ironically, has been stepping up its enforcement drive against CMP violators as materials grow more plentiful, handed out the stiffest penalty yet to Alsco, Inc., of Akron, Ohio, the nation's largest manufacturer of aluminum storm windows and doors. For using some 3.4 million pounds of aluminum above its allotments (by buying foreign metal), the company was banned from making Class B products for a year, which could put it out of business.

#### WSB WAGE FORMULA spawns confusion, higher building costs

The Wage Stabilization Board's announcement that it will permit maximum wage increases of  $22\frac{1}{2}\phi$  an hour (including  $7\frac{1}{2}\phi$ for welfare benefits) was adding much confusion to spring labor wage bargaining. The joker: WSB will charge all nonwelfare fringe benefits (like paid holidays, overtime, vacations, sick leaves) against the 15¢ pay rise authorized.

Result, in many cities, was that unions were advancing hastily contrived welfare plans to take advantage of the permissive  $7\frac{1}{2}\phi$  raise. In others, the WSB formula became the back-drop for a rash of strikes and strike threats:

▶ In the San Francisco area, 12,000 AFL carpenters struck for an immediate 15¢ an hour pay increase (to \$2,60) pending negotiations on their contract which expires June 15.

▶ In Eastlake and Akron, Ohio, structural steel workers walked out to back up demands for a 25¢ an hour pay hike. In Columbus, Ohio, equipment operators staged a brief wildcat strike against \$21 million worth of construction after their contract expired. Their demand: a 22¢ an hour increase.

In Kansas City, ten construction unions rejected offers of  $7\frac{1}{2}\phi$  to  $12\frac{1}{2}\phi$  an hour pay boosts and threatened to strike.

▶ In Cleveland, 14 building trades had signed contracts at \$2.97 per hour, a rise of only 5% under the old 10% catch-up formula. After the WSB announcement, unions began demanding the  $22\frac{1}{2}\phi$ on top of the new agreement.

A 5% cost rise? To most businessmen, the cards seemed stacked in labor's favor. (Two contractor representatives on the Construction Industry Stabilization Commission, AGC's James D. Marshall and Consulting Engineer Everett W. Dunn of Hartley, Iowa, called the  $7\frac{1}{2}\phi$  welfare announcement a "come and get it policy.")

Practically everybody assumed labor would get at least  $15\phi$ . So building costs would go up. In New York, estimated Dow Service, a  $15\phi$  wage hike would boost building costs 2 to  $2\frac{1}{2}\%$ , a  $22\frac{1}{2}\phi$  increase would bump costs up 3 to  $3\frac{3}{4}\%$ . On top of that would come the spiraling effects of whatever wage increase steel workers got. It looked as though labor would push building prices up about 5% this spring.



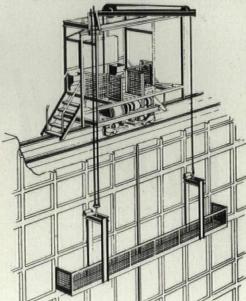
HHFA affected. The majority of light building agencies fall under the Housing & Home Finance Agency: HHFA Chief Raymond M. Foley, who

was appointed to his \$17,500 job in Dec. '47, is expected to bow out no matter what happens to the Administration. Those close to Foley say he is tired of dodging brickbats from both public housers and private enterprise and of trying to hold onto the reins of all housing agencies at once without the power to overrule any of them. Because HHFA's constituent agencies are so much on their own, Washington dopesters figure it's not unlikely that a Republican administration would scrap HHFA entirely to save money. If Foley goes, most of the top HHFA hierarchy could be expected to resign also. Many have civil service status, but few have such protection in their present jobs. Affected will be B. T. Fitzpatrick, deputy administrator; Neal J. Hardy, assistant administrator; Nathaniel S. Keith, director of the division of slum clearance; and Joseph Orendorff, director of the division of housing research.

Chief subordinate of the HHFA is the Federal Housing Administration. Through longevity and absence of political domination, the FHA is just about as popular with Republicans as a New Deal agency

#### LEVER HOUSE window washing solved by mobile elevator

To make possible the economies of fixed windows (30% cheaper installation, \$4,000 a year cheaper air conditioning and less dirt), Architects Skidmore, Owings & Merrill (with aid from Otis Elevator Co.) blended together a new kind of machine to wash the blue glass sides of Manhattan's Lever House. The result was proudly exhibited this month by Lever Bros. as the soap firm moved in. It is a window washing gondola, hung by cables from the arms of a  $10!_2$  ton power plant car that runs on standard railroad tracks around the roof. To balk swing, sway and tilt, the gondola is clamped onto stainless steel tracks as it runs up and down the 21-story building. In six days, two men can wash the entire structure.



EGAN January 20 should bring some new faces

### Jobs in Jeopardy: Truman Exit Means Shakeup in Federal Building Officialdom

When Harry Truman bowed himself out of the Presidential race he probably yanked the rug from underneath some high-ranking government office holders concerned with the construction industry. If there is a change of the party in power there obviously will be many new faces on the Washington scene. But even if the Democrats stay in, a new President will mean substantial reshuffling.

All shades of tenure. In a gigantic government payroll, like that which has been multiplying for the past 20 years, there are all shades of tenure. Not even civil service officials and personnel experts can read off the cuff the names of those who are immune from the axe. Jobs, generally, fall into four categories: The appointive positions, like the General Services Administrator and the HHFA and FHA chiefs, which require Senate confirmation. Like cabinet officers, such job holders serve at the President's pleasure. The appointive jobs with definite terms, such as members of the Home Loan Bank Board. Courts have held that such office holders cannot be removed until their term expires except for misconduct.

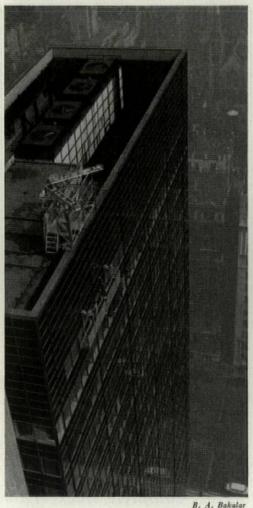
The special aides and department heads, who, through a bureaucratic code of ethics, are expected to submit a courtesy resignation when there own boss goes.

Lesser fry whose jobs either had civil service rating (and thus antidischarge insurance) to begin with or who gained it for themselves in 1942. At that time the Ramspeck Act provided a mass conversion for those who, though they may not have been employed through a competitive examination, at least had held onto their job for six months.

Despite the degree of tenure, the whole bureaucratic applecart could be toppled over by a trick introduced by President Harding: a co-operative Congress first legislates the abolition of the particular office or department, then, with the personnel all brushed off, legislates its re-creation.

Central building bureau? Among heavy building agencies, two will be chiefly affected by the November elections:

General Services Administration, headed by Jess Larson, which operates a central procurement service and maintains public buildings. This might well be abolished but not at the expense of its subordinate Public Buildings Service, headed by well liked Commissioner W. E. Reynolds, which could become the nucleus of an over-all engineering and construction bureau. This could include public roads, Bureau of Reclamation, and CAA's program of aid to state airport construction.



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RENTAL

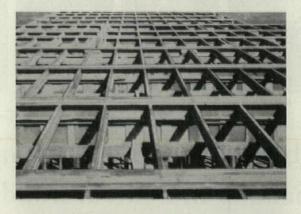
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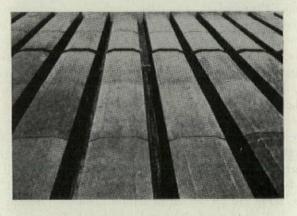
SERVICE

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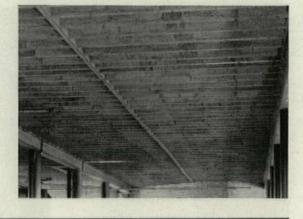
Gateway

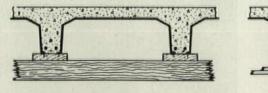


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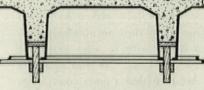


Gateway offers two types of Metal Pan Systems to contractors: The Nailed-Down System and the Gateway "Slip-In" System. A complete manual of erection details is available by contacting the nearest Gateway office. Centering erection is a "Gateway" specialty. 100,000,000 sq. ft. of Form Area installed, is Gateway's guarantee of service, reliability and responsibility.





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can get. Because of earlier horse-trading with Congress, the bulk of its technicians — appraisers, underwriters, architects—enjoy civil service status. In a more precarious situation are the top men: FHA Commissioner Franklin D. Richards, appointed by President Truman August 11, 1947; Deputy Commissioner Walter L. Greene; Assistant Commissioner for rental housing Clyde L. Powell; Assistant Commissioner for underwriting Curt C. Mack; Assistant to the Commissioner Donald M. Alstrup; and the 72 district FHA heads, all appointed. (One is Harry Truman's brother, Vivian.)

Another HHFA subordinate agency whose future seems to depend on the elections is the Public Housing Administration under John Taylor Egan, also appointed by President Truman. His chief aides are: Warren Jay Vinton, 1st assistant commissioner; Marshall W. Amis, general counsel; Roy M. Little, assistant commissioner for war emergency housing; Herbert L. Wooten, assistant commissioner for administration; Lawrence N. Bloomberg, chief economist.

A third HHFA subordinate agency, but in a relatively safe position because its members have definite terms and because it always contains at least one member of the minority party, is the Home Loan Bank Board. Members are William K. Divers and Kenneth G. Heisler, whose terms expire in June '53, and J. Alston Adams (Republican member) whose term expires in June '54.

In the most precarious position of all housing officialdom is Rent Stabilizer **Tighe Woods.** Since Congress last year put rent control under the defense economic stabilizer, the life of the entire agency now depends on war and politics. Moreover, it seemed inconceivable that Woods, who now serves at the pleasure of the economic stabilizer would survive a change of party.

In the Veterans Administration, all loan guaranty section personnel are blanketed under civil service, including chief **T. B.** (Bert) King. A topside VA shakeup could scramble things willy-nilly but an abrupt personnel change in anything so technical as guaranteed home loans promises so formidable a hassel as to discourage it.

On balance, 1953 will blow something between a tornado and a zephyr through the top brackets of federal construction bureaus, especially in housing, the building industry's most political segment. At the moment, some jobholders had a good case of jitters. As one said: "How can we tell what's going to happen? We've never had a change of government in the lifetime of this agency."

### Truman Acts to Strip Army Engineers of Civil Work; Atlas Rebuts Airbase Charges

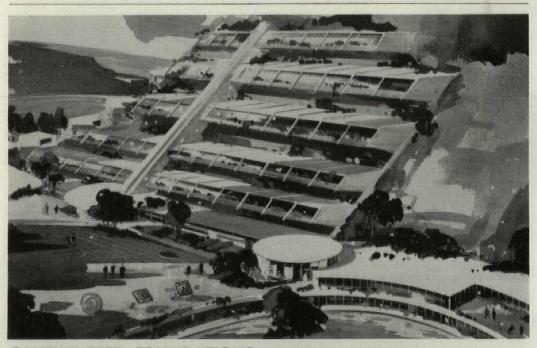
Back from a Moroccan trip, a knowledgable New York architect observed privately last month: "The air base mess may blow the Army Engineers right out of the water." His words were barely out before it began to happen—and all too literally.

Perhaps motivated by the Missouri floods, certainly impelled by the debacle in North Africa, President Truman this month prepared a bill to reorganize the Army Corps of Engineers, give its rivers, harbors and flood control functions to the Interior Department's Bureau of Reclamation under a new title: the Bureau of Water Resources.

The proposal was in line with the Hoover Commission's recommendations for governmental reorganization. It would mean a big shifting of federal appropriations. The Army now gets \$707 million for its "civil functions" and the Bureau of Reclamation's slice of the current budget is only \$3.6 million. Under the Reorganization Law, Congress has 60 days to veto such a Presidential proposal. It must do so by a majority of the membership of either house. With Congress out politicking during the election year build-up, a veto would be difficult. Moreover, the floods and air base troubles had tumbled the Engineers' standing with Congress to a new low.

Bickering over "Project Atlas," the program for building U.S. air bases in French Morocco, continued last month with the Atlas Construction Co. having its say for the first time. While everyone wondered why only two bases were under construction when five should have been *completed* within the first six months of 1951 (AF, Mar. '52, p. 50), this much seemed pretty clear to an investigating Senate subcommittee: ... NEWS ... NEWS

▶ Brig. Gen. Orville E. Walsh had been sent in to relieve the two top Army Corps of Engineers officers in charge of the air base construction: Col. George T. Derby and Lt. Col. Leonard Haseman.



**CANTILEVERED FOUNDATIONS** planned for hillside apartments

Los Angeles architect-engineers Pereira & Luckman have evolved an ingenious plan to let realtor William Zeckendorf plunk a housing development in a narrow Los Angeles canyon hemmed in by steep hills. Buildings will rest on foundations cantilevered from friction foundation beams. The beams will be imbedded in hillside rock. The system averts expensive grading, should balk lethal landslides which often follow heavy rains in Los Angeles hills.

Closeup of single-family house planned on 12,000 acre "Mountain Park." Initially, Zeckendorf hopes to erect an apartmenthotel (top drawing), apartment building, commercial area, five homes, recreation area and pool. Residents will use inclined elevator to reach top tiers.



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It was Haseman who had Nousseur Air Base housing work halted and done over again when his wife, Violet, complained her new prefab was being set 25' from its neighbor instead of the scheduled 50'. The second installation involved double the roadway, plumbing, wiring and sewage cost.

▶ The Air Force originally planned to rehabilitate four World War II bases which the U.S. had turned over to the French but instead switched to building five *new* ones (which the French also will have the option to take over).

"Project Atlas," originally slated to cost \$300 million, was now estimated at \$455 million ("because," said Air Force civilian engineer James Wise, "of rising construction costs and additional classified work").

**Industry black eye.** Contractors who feared the whole building industry was getting a black eye for revelations brought out in "Project Atlas" should have been encouraged by the statement of J. B. Bonny,

Photoreportage Belin

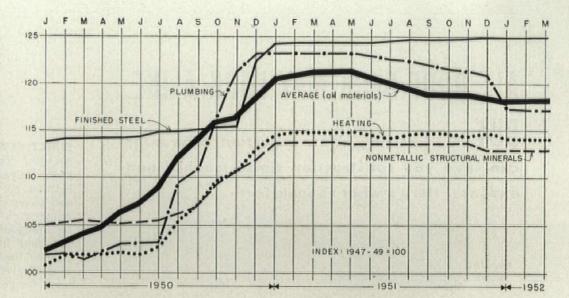


chairman of the operating committee of the Atlas combine (private contractors Morrison-Knudson, Bates & Rogers, Nello Teer, Mills & Blythe and Porter-Urquhart; and architects Skidmore, Owings & Merrill, Associated). When Col. Harry Reed, chief of the Army Auditing Agency, said he found evidence of "fraud, mismanagement and waste" in construction of the bases, Bonny rebutted: "The job cost per sq. yd. is less than the original estimate by the Air Force." Instead, Bonny blamed the Army Corps of Engineers for lack of planning and for conflicting orders on the plans it did have. The Atlas combine also explained the high cost resulted from a French-U.S. agreement that purchase preference was to go to items available in Morocco.

#### MILITARY WASTE in building charged at Maryland base

A House subcommittee on government operations headed by Rep. Porter Hardy, Jr. (D, Va.) paid a call on the Andrews Air Force Base at Camp Springs, Md., found that not all of the air arm's wholesale distribution of the taxpayer dollar was confined to far-off North Africa.

Andrews, built in 1943 on a 4,489-acre site as a fighter-interceptor base for the protection of Washington, also provides facilities for the Military Air Transport Service. The Hardy Committee's investigation was prompted by Andrews' new expansion



NEW PRICE INDEX of Bureau of Labor Statistics shows wholesale building materials prices on a postwar (1947-49) base instead of a 1926 base. Two years in the making, the new index unveiled last month is considered a far more accurate tool than the old one. It has 45 more components and far fewer nonbuilding elements than its predecessor. Instead of feeding all lumber and wood product prices into the over-all index, for instance, the new series selects only lumber actually used in construction, eliminates wood

program. The committee's observations, published last month, received scant attention in the nation's press but included serious accusations:

An airplane wash rack, budgeted for \$14,000, turned out with a final cost estimate of \$100,000 as plans grew fancier and fancier *after* Congress voted the money. Upshot: the Air Force shelved the project entirely.

▶ A bachelor officers' quarters building, scheduled to have 20 rooms, ended up with 40 because the Army Engineers misread instructions, sent out the wrong specifications. An extra \$22,000 was spent on it because it was built on swampland (where four other BOQ's are still scheduled to go up) and an extra \$7,000 was tossed appearing as furniture and crating. Relative importance of each element has been shifted to reflect technological change. Thus light metals get far more weight than they merited in the '20s. · · · NEWS

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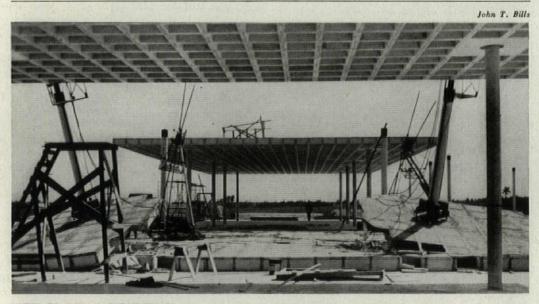
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During March, over-all building material prices kept their months-long stability, 2.7 points below where they were a year ago. But President George A. Bryant of Austin Co. forecast that industrial building costs will shoot up sharply if (as seemed certain) steel and other key wage rates rise substantially.

in to get it up in 60 rather than 90 days (which, prorated among its WAF occupants, cost the government \$13 per day per WAF—"double what it would have cost to put them up at the best hotel in Washington").

▶ "There is reason to believe rehabilitation of the existing barracks at Andrews will eliminate the need for seven new buildings authorized in the 1952 program and result in a saving of about \$3 million." (Existing enlisted men barracks were declared "beyond economical repair" without anybody inspecting them or estimating how much it would cost to rehabilitate them.)

▶ Of Air Force plans to spend \$750,000 to house all bachelor officers stationed in Washington in three new BOQ's at Andrews, the committee showed that the air arm seemed to be using the

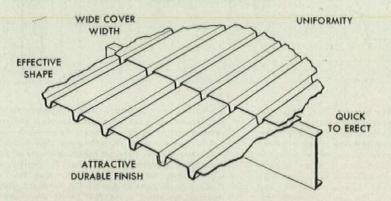


#### LIFT-SLAB ACCIDENT: Florida roof falls from lifting jacks

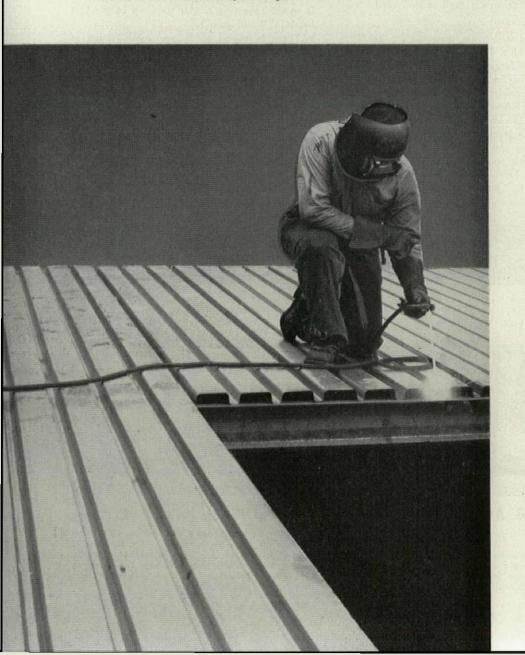
Atlas Terminals of Florida, Inc., at work on the first of 40 Miami warehouses (AF, Mar. '52, p. 122), had an accident last month when a 175,000 lb. waffle-block roof section fell 3' while being lifted into place by the "Youtz-Slick" lift slab method. Atlas blamed the mishap on one of the four lifting Jacks. When a workman tried to level off with the other three, the 40' x 50' section went tumbling down. Damage was estimated at \$4,000. One workman was slightly injured. Construction was delayed a week. The waffle slab itself fractured only around the columns.

# ALL ROOF DECK MAY LOOK ALIKE,

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Granco Steel Roof Deck has longitudinal ribs  $1\frac{5}{4}$ " deep spaced on  $5\frac{5}{4}$ " centers and is available in 18, 20, or 22 gauge. The ribs are flared at one end permitting proper nesting at end laps. Maximum sheet length is  $14^{\prime}$  4". Positive attachment obtained by welding.



**EFFECTIVE SHAPE**—Are you getting maximum sheet strength? You are if the roof deck you select has been designed to obtain the proper relationship between rib and flat. To give maximum strength and cover per pound of steel, there must be a proper ratio between these rib (tension) and flat (compression) sections . . . the same relationship you find in Granco Roof Deck! In addition, Granco Roof Deck has the same thickness as a 2" x 4" giving maximum flexibility for architectural design.

WIDE COVER WIDTH—Will an excessive number of side laps weaken the roof? An expanse of frequently lapped sheets cannot possibly offer as much resistance to concentrated loads as a wide seldom-lapped surface. That's why it's best to select roof deck for maximum width with a minimum number of laps. Granco Roof Deck has a wide cover width of  $28\frac{3}{4}$ "... wider than most competitive brands. That means more strength and safety, less welding, and on large jobs, a considerable economy in laying time.

**UNIFORMITY**—Are the patterns identical in every sheet? In most brands of roof deck, yes. But, there are exceptions. When hands and human judgment are employed in the forming process, slight sheet variances must occur. These variances are greatly multiplied when sheets are placed end-to-end. Don't risk improper fits, endless re-matching of sections and slow, costly job progress. Specify GRANCO STEEL ROOF DECK because Granco sheets are rotary press formed, machine-made for uniformity and perfect fit. "Sheet crawl" is virtually eliminated.

**ATTRACTIVE DURABLE FINISH**—How will it look in 5, 10, 15 years? Of course, that will depend largely on weather and atmospheric conditions in your locality. But, some roof deck is better prepared to withstand age and oxidation than others. Granco Roof Deck, for example, is protected with a tough, rust-resistant alkyd resin, baked on for longer life. Granco Deck looks better, lasts longer, creates a striking panel effect for ceilings, too.

**QUICK TO ERECT**—Is your roof deck the correct shape for fast placement? It does make a difference! Long, narrow sheets are cumbersome to handle, difficult to lay properly. The same applies to short, wide sheets. Granco Roof Deck, on the other hand, is a convenient shape for fast placement. Each sheet covers 34 square feet. Sheet dimensions were designed with speed in mind.

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GRANCO STEEL PRODUCTS CO. (Subsidiary of Granite City Steel Co.) Granite City, Illinois Korean war as an excuse to build nonessential facilities just because appropriations were easier to get. Said the report: "We cannot countenance any attempt by the military to use the present emergency as a ripe opportunity to provide themselves with facilities and equipment they can presently do without but which they might have difficulty securing funds for at some later date." **)** Forty new dormitories at Andrews, now under construction, "are as good if not better than any college dormitory in the country. (They have not) even a scintilla of the 'austerity' which is supposed to characterize the military public works program."

The committee recommended a more sincere attempt at defining temporary or semipermanent construction. The present "10 year life" barracks it estimated will actually last 75-100 years. So similar are they to the "25 year life" barracks there is only a 4% difference in cost. On more questionable grounds, it also rapped the Air Force for using its new two-man bedroom standard for barracks as a justification for reconstructing or replacing old but serviceable buildings. Concluded subcommittee chairman Hardy: "In building up we must keep ever present in mind the possibly more imminent danger of spending ourselves to bankruptcy."

#### RENEGOTIATION: reports from gov't. contractors due May 1

After holding up its preliminary regulations for contractor and business groups to shoot at, the Renegotiation Board was ready this month to start squeezing excess profits out of the defense program. Building and other contractors must file initial statements with the board beginning May 1, tell how much income they received from government work during 1951. Similar reports will be required later for years through 1953.

The law applies to all contracts and subcontracts for specified agencies where the amounts received from the government total \$250,000 or more a year. Architects and engineers are included if their annual business with Uncle Sam grosses this much. Work for exempt agencies does not count toward the total.

What is defense work? In framing the law, Congress granted much more administrative latitude than usual. No formula for measuring excess profits is provided. There is no complete spelling out of exempt and nonexempt agencies. In general, the board has decided that bureaus and departments that play no major role in the defense program are to be lifted out from under the act.

On the exempt list are the small amount of construction activities the Public Buildings Service is carrying on at this time, the Bureau of Public Roads, and the HHFA—except for its direct construction and trailer purchasing activities under Title III of the Defense Housing Program. Subject to the renegotiation are contracts by such agencies as the Army, Navy, Air Force, Coast Guard and AEC.

**Competitive bids, too.** Before the program was whipped into final shape, the Associated General Contractors failed in an effort to persuade the board that contracts awarded on a competitive bid basis be placed outside the act. Argued AGC: when a contractor takes such a gamble he should be allowed to win as well as lose. The board's rejoinder was that it could not go quite so far but would give the risk factor sympathetic consideration in shaving down profits.

As board officials visualize the operation, most contractors will be given a clean bill of health after their preliminary reports have been scanned. Even where further scrutiny is found necessary, they believe that in all but 5% of its cases a voluntary agreement can be reached.

52%

37%

ELEMENTARY & SECONDARY

44%

18 %

26%

40%

38 %

35%

21%

SECONDARY

22%

COMBINED

23%

44%

#### WAGE OVERPAYMENTS: WSB upholds Hedlin guilt, cuts penalty

Although upholding its regional enforcement commission in finding the J. D. Hedin Construction Co., of Washington D. C., had violated wage restrictions (AF, Feb. '52, p. 49), the Wage Stabilization Board this month halved the company's penalty.

Hedin was found guilty of paying bricklayers over scale last year to draw them from Detroit to the lower-pay Ann Arbor area where the company was building a VA hospital. The regional WSB refused to allow the company to deduct \$40,000 (the extent of overpayment) as an income tax business expense and directed the VA to withhold \$40,000 from its bill.

Hedin claimed the WSB lacked the authority to interfere with a cost plus fixed fee contract. In hearing the appeal, the threeman WSB in Washington side-stepped that point and therefore had to ignore the withholding directive to the VA. Hedin now plans to appeal to federal courts.

15 %

15%

23%

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68 %

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COMBINED - ELEMENTARY & SECONDARY

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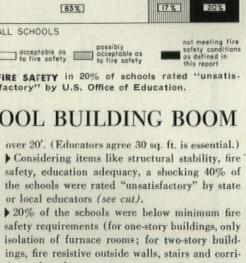
### EDUCATORS URGE SCHOOL BUILDING BOOM

If the cries of alarm from educators meant anything, the U.S. was getting closer to a monster school building boom. The U.S. public school system, said U.S. Education Commissioner Earl J. McGrath this month, is "in danger of a breakdown . . . unless we take immediate steps to provide more classrooms and teachers." Because school construction was neglected, first in the depression, then in a war, and lately under CMP, the backlogged need for schools "is very much worse than any time during the last 25 years," he explained.

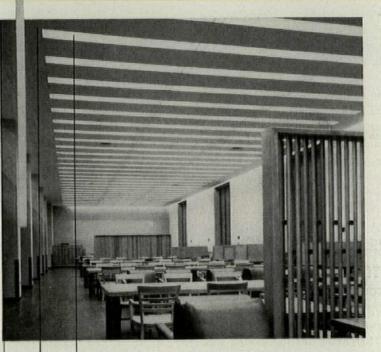
To a House committee, McGrath cited the shocking results of a survey of school needs in 25 states which enroll 44% of the nation's public elementary and secondary pupils: • 40% of the schools are over 30 years old; one

in every six is over 50.

▶ 15% of classrooms have less than 15 sq. ft. of floor space per pupil. Another 31% have not



dors; for three-story structures, fire resistive throughout except wood floor cover and trim). (See cut.) Result, as computed by McGrath, is that the U.S. schools need \$659 million of rehabilitation and remodeling, \$8.7 billion of new construction now. On top of that the World War II baby crop confronts schools with a 25% increase in pupils by 1958. Compared to the \$10 billion (or \$2 billion a year) thus needed to bring U.S. schools up to date by 1957, the nation was spending only \$1.3 billion on its schools in fiscal 1951-2. EWS ... NEWS ... NE



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### Near-Airport Land Values Unaffected by N.Y. Crashes as Homes Encircle Runways

Airborne catastrophe was becoming tragically habitual around New York City this spring. The resulting public uproar posed Gordian problems not only for the airline industry, dependent for its livelihood on access to metropolitan mass markets, but for the real estate industry whose laissezfaire approach to land use around airfields might be forced into drastic revision.

**Even on a pyramid.** After the American Airlines Convair crash at Newark Airport Feb. 11 (killing 28 passengers and four residents in Elizabeth, N. J., homes) the New York *Times* commented: "In an age of air travel we can expect accidents, and it is impossible to move wholly away from danger. One might say one is not safe from an airplane accident . . . even on top of a Mexican pyramid (where two were killed and one injured a week later), or in an office in the Empire State Building (where 13 were killed and 25 injured when a plane clipped the building's 79th floor in 1945)."

The *Times*'s fatalism was not shared by the people of Elizabeth. Having tallied three crashes and ten resident deaths during a two-month period, they demanded Newark Airport be shut down permanently as a hazard.

On April 5, a C-46 cargo plane crashed in the middle of a Jamaica, Long Island, residential section. Five persons (three of them residents) were killed. Thirteen others were hurt. Five homes were destroyed. The plane had missed its landing at New York's mammoth Idlewild Airport. Two days later, four New York City councilmen were demanding that both Idlewild and La-Guardia Fields be shut down.

Localized furore. The New York area uproar, however, gave no sign of spreading elsewhere across the nation. Explained realtor A. B. Cass of Dallas, who specializes in property around Love Field: "I am convinced that commercial airliner crashes have to happen in your home town to have any appreciable effect on property values near your airport."

Many communities were nonetheless busy with zoning regulations to restrict building in the path of runway approaches. But in at least as many more, judging from a FORUM survey of eight major U. S. airports, homes and industries were mushrooming unrestricted on the edge of airports where they face the same perils as Elizabeth.

Two-mile safety belt. The FHA, in an analysis last July of residential areas near airports, found major airports should be at least 2 mi. from homes. Reason: glide angles currently in use put planes at 210' to 350' above ground 2 mi. out. (AF, Feb. '52, p. 148.)

Said FHA in outlining an "effective area of objection" to homesites around airports (*see diagram*): "The resulting noise, vibration and hazard—psychological as well as real—of low-flying aircraft will have a depressing effect upon the desirability and marketability of land . . ." In two cities, FHA had acted to back up its policy.

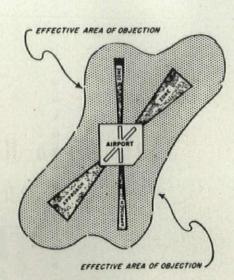
▶ In Tulsa, FHA banned its insurance on loans in areas near Municipal Airport—partly because heavy C-47 jet bombers manufactured there soon would be using the runways.

▶ In Seattle, FHA refused to insure further loans in the Boeing Field area Jan. 1 because it considered the lengthening of a field to accommodate the new Boeing XB-52 a threat to the homes built right across the street. The field is less than an air mile from the downtown's center and planes fly as low as 50' over housetops a block from the field's north end. The Elizabeth crashes had no effect on property values because, as one realtor put it: "Since a nonsked plane crashed into a house 18 months ago property values around the field have been so low they couldn't get worse."

Zoning controls. Even in some cities protected from take-off and landing crashes by geographical advantages, zoning laws restrict developments close to approach zones.

▶ In Boston, which considers its Logan Airport the best-protected in the U. S., the field is a filled-in peninsula with practically all take-offs and landings made from the water side. Although the field is only 20 mins. from downtown Boston, its unique location jutting into the harbor keeps planes at a minimum 1,000' altitude over the nearest residential areas. Zoning regulations, passed this year by the Massachusetts legislature, temper new building heights for a radius of 8 mi.

In St. Louis, the airport is 14 mi. from the center of town-way out-and housing is the optimum



AIRPORT HOMESITES should avoid areas inside a kidney-shaped belt around airports, warns this FHA diagram. Approach zones for noninstrument runways usually flare from 500' wide at the edge of a field to 2,500' 2 mi. out; approach zones for instrument runways spread from 1,000' at field's edge to 4,000' wide 2 mi. away.

2 mi, away from the instrument runway's approach zone. However, developments are now being considered on land within the approach zones. The city, afraid of starting a land speculation run by buying up property, is instead trying to get its suburban municipalities to co-operate in zoning future construction out of these approach zones.

▶ In Kansas City, Mo., a city ordinance limits building heights around Municipal Air Terminal to from 50' to 108', depending upon the building's proximity. When a builder tried to put up four 12-story apartments on a bluff near the airport's north approach two years ago the airlines protested. The builder compromised by erecting five 10-story apartments instead and moving them back from the bluff.

Schools by runways. In at least three cities community complacency ignores the fact that residential areas are jammed right against the airport:

▶ In Dallas, planes landing at Love Field fly 250' above homes abutting the instrument runway. Residential developments are adjacent to two sides of the field, ¼ mi, from the other two. Although the Elizabeth crashes had no effect on land values, a local crash in 1949 (killing 28 persons) brought "a terrific turnover" for eight to 12 months.

Fay Foto Service, Inc.



BOSTON AIRPORT HAS SAFETY BELT OF WATER AND PLANES STAY 1,000' ABOVE NEARBY HOMES

.. NEWS ... NEWS

### Santa Rosa Hospital Built for Reliability . . . and Selected



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### HEAVY-DUTY BOILERS

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SANTA ROSA HOSPITAL, San Antonio, Tex. PHELPS, DEWEES & SIMMONS, Architects GUARD M. BAKER, Engineer JUD PLUMBING & HEATING CO., Heating Contractors



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By specifying Kewanee Heavy-Duty Boilers, for 100, 125 or 150 pounds working pressure, large institutions can be certain of dependable heat at all times with an ample reserve for emergencies . . . plus high pressure steam for kitchens, laundries, sterilization and other equipment.

Pictured is the Santa Rosa Boiler Room with its battery of 2 Heavy-Duty Kewanees each of 270 HP . . . producing a total of 15,000 lbs. steam hourly.



AMERICAN-STANDARD + AMERICAN BLOWER + ACME CABINETS + CHURCH SEATS + DETROIT LUBRICATOR + KEWANEE BOILERS + ROSS HEATER + TONAWANDA I

▶ In Los Angeles, although the Municipal International Airport is 15 mi. from the downtown section, factories and homes have clustered so close to the field planes fly as low as 50' over their roofs. Even when 1,000' in the air, the planes flicker TV images and vibrate houses. Sabre jets, making their final "break go-around" tests, scream through the neighborhood. As one Inglewood realtor explained: "The few normally nervous people either don't buy here or move out quickly. Because of all the industry springing up around the airport [to facilitate air freight shipments] people are mad for property in this area. Hell, they would buy right alongside the runway if they could get it."

(In Pomona, north of Los Angeles, a new Convair guided missile plant has pushed realty values near one of the city's two airports from \$4,000 an acre to \$30,000 and \$40,000.)

In Chicago, residential property adjacent to the mile-square Midway Airport has actually increased in value the past few years (\$30 to \$50 a front foot for 30' to 40' wide lots). Said one homebuilder: "You don't get disturbed by anything unless you become immediately affected by it yourself." This complacency is pointed up by the fact that 3,500 of the 4,500 homes built near the airport during the past three years are occupied and 1,000 more are abuilding. The only civic protest occurred several years ago when the roar of planes taking off and landing on the southwest runway made teaching hectic at the Hale Elementary School, on the south edge of the airport. Upshot was that airlines promised not to use the runway during school hours.

**Dilemma.** In general, residents object to airports because of the safety factor (future Elizabeths), noise, heavy night illumination, and the motor traffic that brings the passengers and freight back and forth.

The Urban Land Institute has taken the stand that airports and residential areas are "incompatible"—there should be 10 to 20 mi. of open country between them, even if it means instituting a helicopter commuter service. ULI Director Max S. Wehrly says this should be retroactive: in other words, Newark Airport should pack up and move out.

Despite ULI's safety arguments, municipalities are well aware of the business an airport brings. They know that the public chooses air travel as a time saver and that banishing an airport to the hayfields will diminish that time saved. Even though Newark Airport is still closed to commercial flights, it is doubtful northern New Jersey can long be without a major airport.

Most students of the problem say the answer lies not in abandoning airfields, but in increasing their safety factors and in subordinating adjacent residential development to the more primary requirements of runway approaches. This is the problem currently confronting Lt, Gen. James H. Doolittle, who heads a Presidential commission studying the location and use of airports. The commission, formed after the third Elizabeth crash, will present its findings to the White House by May 20.

### PEOPLE: Iumberman named DPA construction chief; Perkins & Will

to do Field shopping center; Imperial Hotel shakes off its colonels

Appointed as Deputy Defense Production Administrator in charge of construction and resources expansion was John H. Martin,



39, president of United Lumber Yards, Modesto, Calif. Heading a new set up of DPA's former offices of resources expansion, Martin will be the key policy man in all DPA decisions affecting industrial construction.

Thus DPA belatedly named a top-level construction coordinator, months after the real need had ended. Martin's will be the needed signature on DPA activities affecting tax amortization, industrial expansion loans, procurement loans and advance payments to industry. Martin served five years with the War Production Board. He succeeds troubleshooter James F. King, who is to become DPA representative on the International Materials Conference.

Chicago architects Lowrence B. Perkins and Philip Will Jr. won the coveted assignment of designing the giant Marshall Field & Co. shopping center at suburban Skokie, III. (Dec. issue '51). The \$25 million center, now named Old Orchard (to suggest the "casual country atmosphere"), will occupy 110 acres, have room for 90 stores, 7,000 cars. Field itself plans to mother its nest with a 350,000–400,000 sq. ft. branch store. Perkins & Will are preparing final plans, hope to break ground before the end of the year—the government willing. Perkins & Wills's plan won out over Skidmore, Owings & Merrill; Howard T. Fischer & Associates; and Shaw, Metz & Dolio. Field bought all four sets of plans.

The American Army generals moved out of Frank Lloyd Wright's Imperial Hotel the first of this month and the people of Tokyo knew the war was really over. Gone were the Very Important Persons and the very top brass who with rent-free suites and 40¢ banquet repasts never had it so good (colonels' ladies now and then had to be restrained from walking through the lobby in slacks and halters). The Japanese took over with a flourish, announced rooms would now be \$5 to \$40 a day, passed canapés to the tune of "The Roses Are Blooming in Picardy" and had the Emperor's daughter on hand to lend social endorsement. Wright sent a telegram of congratulations.

After a facts-of-life talk by Walter Gropius, knowledgeable chairman of Harvard's School of Architecture, members of the Chicago chapter last month became the first AIA group to study lifting the traditional ban against an architect engaging in building contracting. Said Gropius: "Architects must regain the medieval role of

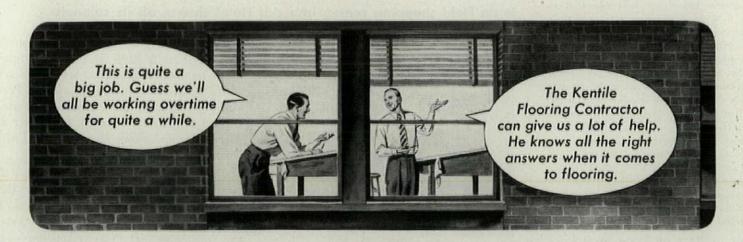
(Continued on page 60)



#### CHILDREN'S HOSPITAL gets plug from Disney in fund raising

Resourceful Texans, anxious to raise funds for a much-needed Texas Children's Hospital (July issue '51) persuaded Walt Disney to draw the cover for their money-hunting brochure. Disney obliged with a Mickey Mouse-Donald Duck's eye view of the completed structure. The campaign opened in February and so successful was the approach that \$400,000 of the needed \$1.2 million (\$1.35 million had already been raised from foundation gifts and horse show proceeds) came pouring in by the end of last month.

Already under construction, the hospital occupies 6 acres of Houston's Texas Medical Center. Architect Milton Foy Martin has designed a five-floor, 100-bed structure that will have a large auditorium, an outpatient department, pediatric diagnostic laboratories, private rooms for worried parents to stay overnight and, for the kids, a toy shop and soda fountain. ..NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS...NEWS



### Consider the Kentile Flooring Contractor a willing addition to your staff

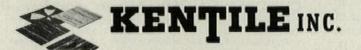
DUE to the complexities of modern flooring materials available today, selection is increasingly a job for trained flooring experts... men like the Kentile Flooring Contractor whose years of study and experience qualifies him to choose the right floor for every installation... the one floor that has most to offer in appearance, durability, and economy in the use to which it will be put.

Whether the problem is one of new construction or the remodeling of existing facilities, the Kentile Flooring Contractor is available night and day to help you select the floor that will give you the most for your money. Call on him as you would any member of your actual staff.



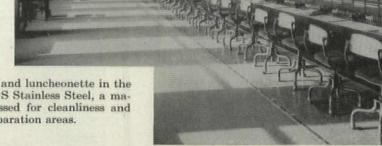
**KENTILE** Asphalt Tile is preferred for commercial and industrial installation, large and small, because it always looks fresh and new in spite of constant daily traffic . . . resists dirt, stain and wear for long years of easy, inexpensive cleaning ... retains its original, locked-in colors with only an occasional no-rub waxing. And, Kentile's low initial cost plus speedy, tile by tile installation over any smooth, firm surface provides moneysaving advantages where business must continue without cost-consuming delay.

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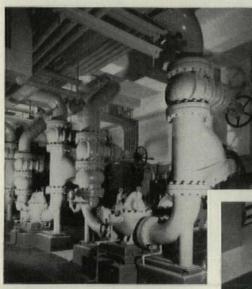




KITCHEN AREAS in the restaurant and luncheonette in the building are equipped with U·S·S Stainless Steel, a material that has proved unsurpassed for cleanliness and ease of maintenance in food preparation areas.

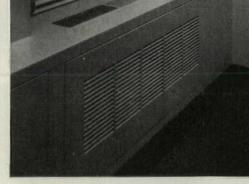
**HEART** of the building's mail system is this central room where a steel conveyor, electrically-operated, carries baskets to distribution offices on each floor. Table tops in the mail room and handcarts for the mail girls are U·S·S Stainless Steel. **ONE** of the largest private branch exchanges in the world handles telephone traffic in United States Steel's new head-quarters. Literally thousands of miles of wiring and much equipment, using a great deal of steel, serve the 2,000 dial stations in the building.





**TWO** automatically controlled airconditioning systems made up of miles of steel pipes and ducts provide uniform temperature, humidity and air cleanliness through all seasons of the year. Conditioned air is brought into individual offices through steel window enclosures like the one shown below.

## jobs so well





WASHROOMS, in the center section of the building, have pleasingly colored walls of porcelainenameled U·S·S Vitrenamel in large panels.

PITTSBURGH, PA.



UNITED STATES STEEL COMPANY

A TYPICAL reception area on one of the office floors of United States Steel's new head-

quarters at 525 William Penn Place shows how attractively the Stainless Steel elevator

doors are combined with carbon steel panels finished in baked enamel.

**525 WILLIAM PENN PLACE** 

NITED STATES STEEL

#### AT 525 WILLIAM PENN PLACE

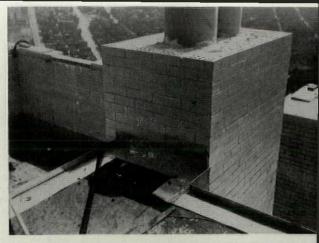
### **Only STEEL can do** so many jobs so well

COMPLETELY VERTICAL window spandrel, window frame and fin assemblies in Stainless Steel are outstanding in this clean-cut design. The venetian blinds are of painted carbon steel.



100

STRUCTURAL STEELWORK on the 41-story building was handled by the American Bridge Division of United States Steel Company. Only 138 working days were required from the time the first column section was raised until the 520-foot building was "topped off." Fifteen thousand tons of framework steel are used in the structure.



ROOF FLASHING is U'S'S Stainless Steel for long life and reduced maintenance. It's one of the many architecturally interesting and important uses of Stainless in the building's construction.



STAINLESS STEEL spandrels-3300 of them-were fabricated with Stainless window frames, windows and fins to form complete assemblies. A temporary plastic coating protected the span-drels during shipment and erection and was peeled off after installation.



CELLULAR STEEL FLOORS carry electrical and telephone cables that can be tapped at almost any exposed point. In addition, light fixtures, airconditioning ducts, acoustical blocks and even ceilings themselves are suspended from this cellular flooring.

### UNITED STATES STEEL PITTSBURGH, PA.

UNITED STATES STEEL COMPANY

**525 WILLIAM PENN PLACE** 

# YORK Unitary\_AIR CONDITIONING



#### Lower Installation Costs

York Unitary Air Conditioning can be installed in existing buildings where space is at a premium or the cost of ductwork prohibitive—or in buildings under construction where the required number of units can be installed more economically than a central system.

Only three pipes are required—water supply and return, and drain. To facilitate piping, both right and left hand units are available. Each York Unitary Air Conditioner has an outside air plenum which allows you to locate the outside air intake anywhere from window sill to floor level.

#### Lower Operating Costs

Each York Unitary Air Conditioner has its own controls. During holidays, weekends, nights when only a few tenants are present, only part of the system need be operated to condition the spaces actually occupied. Cleaning and redecorating costs are kept to a minimum because all air—recirculated as well as outside air is filtered.

#### **Minimum Space Required**

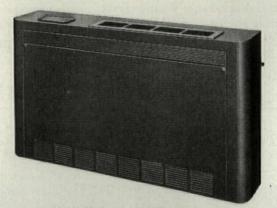
In the engine room, only space for a central water cooling system is needed. No air handling equipment is necessary. In the rental area, the compact York

### A Major Advance in Multi-Room, Multi-Story Air Conditioning

York Unitary Air Conditioning is a system of individually controlled unit room air conditioners for heating or cooling, with water from a central point.

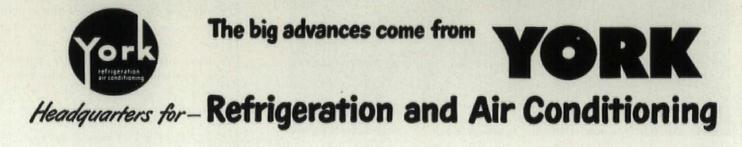
Unitary Air Conditioner takes up little space . . . can be partially recessed into the wall.

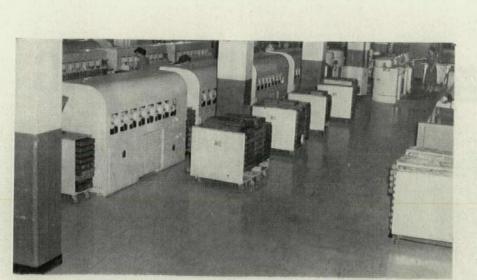
Your nearby York Representative will be glad to show you how this latest York advance in more economical, more efficient air conditioning can save you time and details . . . save your client money and space. See him today or write York Corporation, York, Pennsylvania.



#### York Unitary Air Conditioner

Model CF-300 illustrated. Built in sizes with capacities from 5000 to 14,000 Btu's/hr. Contain direct connected centrifugal fans, water coils, and filter. Factory assembled and tested.





WRIGHTFLOR RUBBER TILE in lens grinding plant of Bausch & Lomb Optical Company at Rochester, New York.

### Even ground glass doesn't bother WRIGHT RUBBER TILE

Bausch & Lomb had a severe problem in their plant at Rochester, New York. They needed a floor covering that would stand up under a constant bath of kerosene, oil, abrasives used to grind lenses, and the ground glass itself. It sounded like an impossible problem.

They installed promising floor coverings of different types in areas where conditions were most severe. At the same time they tested samples in their laboratory.

All tests indicated that WRIGHTFLOR was by far the best of all materials tested. Successful service on the job was final proof that WRIGHTFLOR would stand up.

Bausch & Lomb now has over 40,000 feet of WRIGHT RUBBER TILE in their plant and are replacing office floors with WRIGHT as soon as the present floors become worn.

Your floor covering requirements probably are not nearly so severe as those of Bausch & Lomb, but this performance record is proof that you can take advantage of the beauty, comfort, safety and ease of maintenance of WRIGHT RUBBER TILE in every installation.



'master builder' if they are to survive in the industrial age. When the great cathedrals were built the architect headed the construction team as co-ordinator. Now the young architect must learn to: work with the scientist and producer in developing new building materials; incorporate finished materials into his design; work with the contractor on the site." What's more, said Gropius, an architect would no longer be "penalized" with a small fee. As it is, clients suspect he "rigs" the house price in order to increase his earnings. Were he a definite part of the financial enterprise such suspicion would be removed. Gropius repeated his words before the Philadelphia AIA this month.

Texas Glenn McCarthy, the laird of Houston's Shamrock Hotel, the McCarthy Gas & Oil Co. and the McCarthy Chemical Co., met financial come-uppance at the hands of New York's Equitable Life Assurance Society. McCarthy was about to form Glenn McCarthy, Inc., a wildcatting venture for which ten million shares of stock would be sold at \$2 each, Equitable, which has lent McCarthy \$34 million for the Shamrock and the gas and oil company (Metropolitan Life staked him to the chemical company at \$20 million), didn't like the idea of its debtor spreading his talents so thin. Said Warner H. Mendel, Equitable counsel: "Equitable believes Mr. McCarthy should be required to devote all his time and energy to the new enterprise and that, therefore, his connection with the old companies must be terminated." Equitable set no time limit but strongly hinted that since McCarthy has fallen behind in his loan amortization (though not in interest payments) the next action might very well be foreclosure.

Los Angeles architect-city planner Robert E. Alexander found business so brisk last month he decided to close his own office and concentrate on his joint business with architect Richard Neutra. On their agenda: a redevelopment plan for Sacramento, Calif.; the designing of Elysian Park, a super Los Angeles public housing project; and a mammoth physical and economic program for Guam to keep the island's civilian economy flourishing after the Navy and Air Force construction programs peter out. The two architects' ten year contract with Guam guarantees them a minimum of \$25,000 annually and a maximum of \$75,000, plus travel costs and living expenses while visiting the island.

For 45 of his 80 years New York architect Electus D. Litchfield has been fighting to (Continued on page 62) IDEAL FOR STORES, SHOWROOMS, SCHOOLS, BANKS, HOTELS, HOSPITALS, THEATERS, CHURCHES, OFFICES, VESTIBULES AND OTHER COMMERCIAL AND PUBLIC BUILDING AREAS

### A remarkably useful unit with dozens of applications

M ODINE Cabinet Units meet the requirement for fast, positive and quiet distribution of heated or cooled air — where the expense and elaborateness of unit ventilators or air conditioners are not warranted.

Models for heating with steam or hot water . . . cooling with chilled water. Cooling models may be used for *both chilled water cooling and bot water beating*.

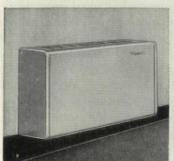
Exceptionally attractive in appearance and versatile in application, Modine Cabinet Units offer many interesting possibilities for new buildings and remodeling jobs. Available in five sizes from 120 to 640 Edr.



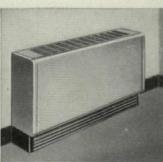
GET FREE ILLUSTRATED BUL-LETIN 550 TODAY and find out how you can profitably use Modine Cabinet Units. Call your Modine representative listed in the classified section of your phone book. Or write direct to Modine Manufacturing Company, 1507 DeKoven Ave., Racine, Wis.



C-1145



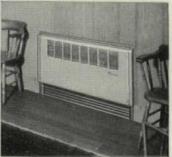
Type C — basic Modine Cabinet Unit for wall mounting where off-the-floor installation is desired.



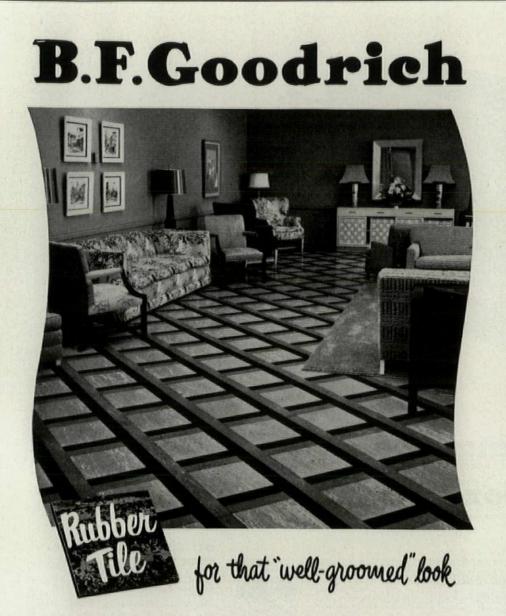
Attractive louvered plenum base — with or without fresh air damper — makes Type C a floor mounted cabinet.



Type C with optional inlet grille for ceiling use — (heating only). Duct connectors also available.



Type CR with face outlet grille and plenum base for recessed installation. This unit for heating only.



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The superiority of B. F. Goodrich Rubber Tile lies in its *Super-Density*, an exclusive B. F. Goodrich feature which eliminates dirt-catching pores and creates a smooth, long-lasting, easy-to-clean surface. It *needs no waxing*... unless an extremely brilliant lustre is desired or foot traffic is unusually heavy.

Super-Density has been achieved without the sacrifice of natural resiliency through technical knowledge, research and over 28 years of experience.

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clear the name of his great-grandfather, William S. Cox. Cox was court-martialed by the Navy when a 3rd lieutenant aboard the U. S. frigate Chesapeake during the War of 1812. At the time, he was charged with being below deck instead of keeping the ship from surrendering to the British. Litchfield claims Cox was below deck simply because he had helped carry to his cabin the dying captain, James Lawrence (who en route uttered the Navy scripture: "Don't give up the ship"). Last month, it looked as if Litchfield at last may have succeeded in his unsmudging. Pending before Congress was a bill introduced by Rep. Eugene Cox (D, Ga.)-no relation-to restore Great-Grandfather Cox's honor and commission.

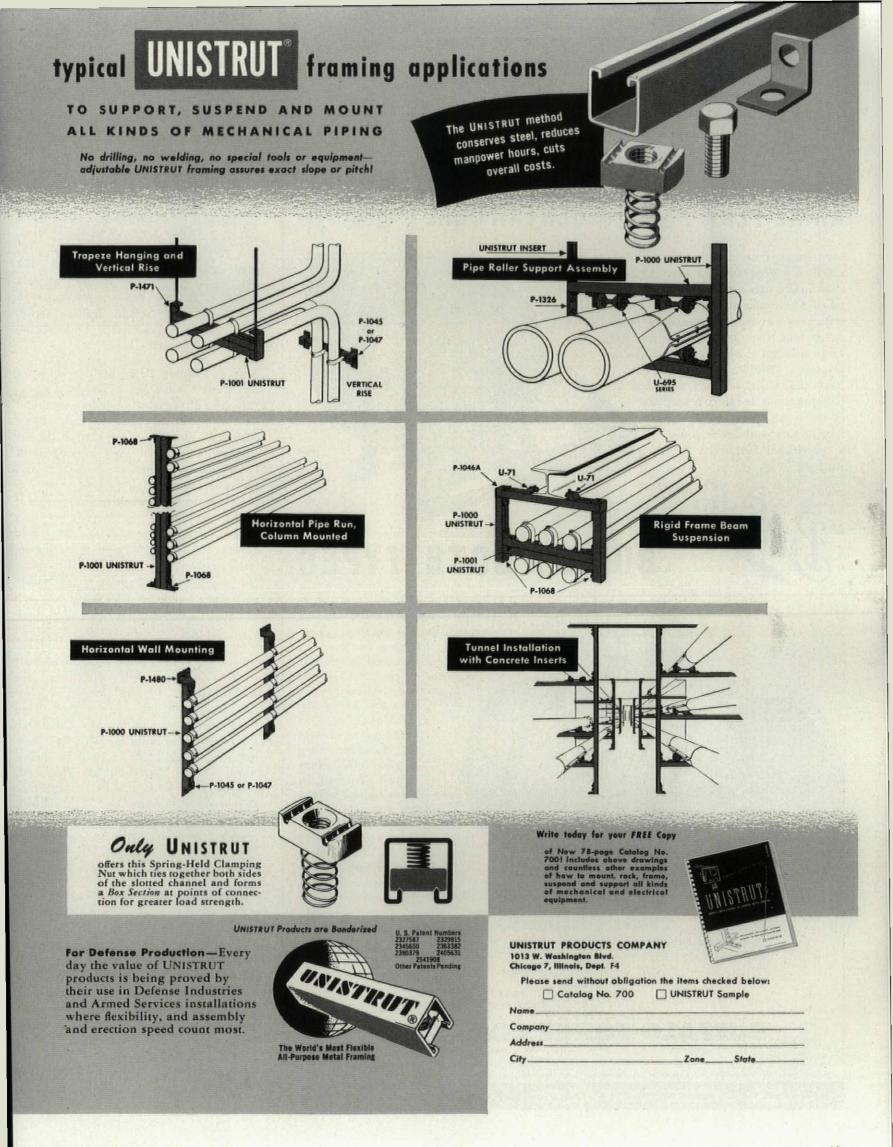
Said: Clifford S. Strike, F. H. McGraw & Co. president, to the Purchasing Agents' Assn. of Connecticut: "We must not destroy



our allies by making them more and more dependent on U. S, aid to balance their econ o m i c b u d g et s. France's physical capacity in the construction and building materials industries can only complete about

20% (of our military installation program) within a specified time. An agreement exists between our two governments to spend all the construction program money within the French economy. This is so patently impossible we should re-examine our whole policy."

Robert Moses, New York City Construction Coordinator to the New York State Assn. of Highway Engineers: "Unless radical restrictive measures are adopted selfish property owners and pressure groups who have had a hand in increasing the traffic burden by overbuilding mid-Manhattan will bitterly regret what they have done." Jose Louis Sert, architect and town planner, at the annual meeting of the New York Decorators Club: "Open spaces in the city are outdoor living rooms that need decorating. Sculpture and other art objects are an important part of city decorating and should not be hidden in museums. Buildings should be of harmonious architecture to create more beautiful city landscapes." Carl Feiss, HHFA slum clearance and urban redevelopment planning and engineering chief, at a regional AIA meeting in Colorado Springs: "Instead of learning from the older cities what not to do, we out here, (Feiss is a former Denverite), either from ignorance or an 'it can't happen here' attitude, are following the same downhill trend that has turned two-thirds of Cleve-(Continued on page 64)



NEWS ... NEWS

Tips on FANS

# AXIAL FLOW?

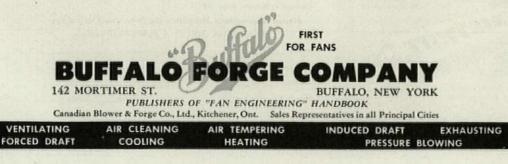
Centrifugal fans like this "Buffalo" Limit-Load model are generally the first choice for large ventilation, exhaust and air conditioning systems. Their efficiency is high even when installation is at a curve in the duct. Medium speed fans, they are ideal for handling large volumes of air quietly at medium pressures. "Buffalo" Limit-Load Fans have the additional advantage of being non-overloading, regardless of the system pressure. For further factors in the selection of a centrifugal fan, write for Bulletin 3737.



### **BUILDS BOTH TYPES**

Axial Flows on the other hand, move air by the propeller principle, straight through the fan housing. These fans will thus be most efficient mounted in straight runs of duct. They are ideal for light-duty ventilation and air conditioning service at pressures to around 2". Axial Flows are higher velocity fans than centrifugals, are lighter weight and more compact than centrifugal fans, therefore lower cost for duct-mounting on ceilings, walls, etc. However, the per-

formance curve is often the last analysis in your choice of fan for each job. "Buffalo" Bulletin 3533-C contains a comparison performance chart of both "Buffalo" Limit-Load Fans and Axial Flows. A copy will be mailed to you on request.



land and equal percentages of Detroit and St. Louis into slums. Western cities are already showing signs of internal decay."

Wanted by the FBI for driving a stolen car across state lines and by local authorities for stealing blank checks from upstate New



York architectural offices, forging and passing them, is Allon Frederick Gausman, 30, of St. Paul, Minn. According to the FBI, Gausman (who has nine known aliases) knows just enough about drafting termi-

nology and working habits to hoodwink architects into hiring him.

Named: Stephen D. Bechtel, president of the West Coast's giant Bechtel Co., as "alumnus of the year" by the University of California Alumni Assn. His class: 1923; Albert W. Butt Jr., as president of the Architectural League of New York; Ivar H. Peterson, as a member of the five-man National Labor Relations Board. He succeeds James J. Reynolds, who resigned; Carl D. Franks, as executive vice president of the Portland Cement Assn.; Dr. Maria Telkes, M.I.T. metallurgical research associate (designer of a solar-heated house in Dover, Mass.), as recipient of the Society of Women Engineers' first meritorious service award; Arthur E. Silver, retired Westinghouse Electric chief engineer, as winner of the American Institute of Electrical Engineers' 1951 Lamme Gold Medal; Dr. Albert L. Washburn, executive director of the Arctic Institute of North America, as scientific director of the Department of Defense's Snow, Ice and Permafrost Research Establishment at Wilmette, Ill.; Col. Benjamin B. Talley, as the Corps of Engineers' North Atlantic division chief; Walter D. Teague, New York industrial designer, as Designer for Industry in Britain's Royal Society of Arts; Charles B. Levinson, as president of Cincinnati's Knapp Brothers Mfg. Co., producers of metal trim building products for schools and hospitals.

Died: F. C. Biggert Jr., 73, board chairman of the United Engineering and Foundry Co. and a pioneer in the design of continuous strip mills, Feb. 10 in Pittsburgh; Morris W. Kellogg, 79, whose M. W. Kellogg Co. planned the Oak Ridge atomic energy installations and put up oil refineries around the world, Feb. 20 in New York City; Bernard L. Green, 82, retired head of the Osborne Engineering Co., which put up Yankee, Cleveland and Notre Dame stadiums, Feb. 28 in Cleveland; Oliver S. Lyford, 81, who as a consulting engineer (Continued on page 66)

The Pace Setter

ALUMINU

### M MIAMI AWNING WINDOW

Along America's Southern Riviera and San Francisco's mountain retreats, in towering office buildings and neat little Cape Cod homes — here you'll find slender-styled all-aluminum Miami Awning Windows.

 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 allowing easy, balanced opening and closing.
 Concealed plastic weather-stripping, optional.
 Available for immediate shipment.

William T. Vaughn, Architect

ARINER



Specify the all-aluminum Miami Awning Window for homes, hospitals, schools, and office buildings.

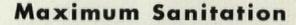
Air Infiltration Tests Taken by Pittsburgh Testing Laboratories



For further information, see Sweet's Architectural File 17A or - write, wire or phone Miami Window Corp., Dept., BF-4.

MIAMI WINDOW CORPORATION 5200 N.W. 37th Ave., Miami, Fla.

### for Fine, Modern Appearance



Induring Service



Weisart installation in new office buildin, of M & St. I. Railway, Minneapolis, Minn Architect Clyde W. Smith; general con tractor James Leck Co. Ceiling bun, Weisart, illustrated, enables easier floo cleaning. Same quality available in floo braced models.

Smooth modern lines and lustrous finish of Weisart compartments are the exterior symbols of thorough-going quality. This quality is protected three ways: (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 gleaming beauty in choice of 24 colors!

In appearance and in the enduring Serviceability which their quality assures Weisways are eminently suited for use in today's finest buildings. For detailed information, write

HENRY WEIS MFG. CO., INC., 402 Weisart Bldg., Elkbart, Indiana

NEWS ... NEWS ..

helped put up New York's Pennsylvania Station and the railroad's tunnels under the Hudson River, Mar. 5 in Daytona Beach, Fla.; Harold K. Perry, 39, Easton, Pa. architect, Mar. 12 while attending a local Board of Education meeting which had approved his design of a school addition; James S. Cushman, 80, New York realtor and founder of the Allerton "white collar" hotel chain, Mar. 19 in New York City; Col. John Millis, 93, who devised and superintended the illumination of the Statue of Liberty, Mar. 20 in Cleveland; Everitt K. Taylor, 86, architect of New York schools, churches and homes, Mar 21 in South Orange, N. J.; Merritt J. Morehouse, 84, architect for the Chicago Fair of '93. Mar. 23 in Mansfield, Ga.; Paul C. Wolff, 65, vice president of New York's Fred F. French Co., architects of Tudor City and Knickerbocker Village, Mar. 23 in Portland, Me.; Thomas W. Marshall, 80, designer of engineering plans for the House and Senate roofs and the new House Office Building, Mar. 28 in Washington, D. C.; Edwin A. Strout, 80, whose Strout Realty Co. handles farm and country sales on a mass basis from offices in 31 states, Mar. 28 in Phoenix, Ariz.; William J. Farthing, 61, former regional agent of the RFC Mortgage Co. and manager of the RFC's New York loan agency and real estate advisor to multimillionaire Jesse Jones, Mar. 30 in New York City; Sumner Spaulding, 59, architect for Los Angeles' Civic Center, the Catalina Island Casino, and onetime head of a national AIA committee for urban redevelopment, Apr. 10 in Los Angeles; Lewis J. Johnson, 85, Harvard professor of civil engineering (1896-1934), and devisor of the city manager form of municipal government, Apr. 15 in Cambridge, Mass.

#### **ANTITRUST** probe of three mud trades opens in Chicago

Federal grand juries in Chicago last month began investigating possible monopoly in the lathing, plastering and tile industries.

Subpoenas went out to 39 employer and union organizations dealing with lathing and plastering (including Material Service Corp., U. S. Gypsum Co., Journeyman Plasterers Protective and Benevolent Society (AFL) and the Chicago Building Trades Council). Indications were the jury would focus its inquiry on contracts for Federal projects built in Chicago during the last two years and use of union funds to obtain changes in city building codes. In the investigation into possible antitrust practices in Chicago's tile industry, eight subpoenas were issued to members of the tile layers union, tile contractors and manufacturers.

· (NEWS continued on page 68)

A roofing sheet to remember...

38 Years Young. Siding, roofing, gutters, downspouts and flashings of this coal hoist are Monel. Installed in 1913 at a riverside power plant, the metal is still in excellent condition.

### for protection against wear and abrasion!

a fran when the

Look out! There's trouble in the air!

Maybe it's dust or dirt. Maybe it's cinders or fly ash.

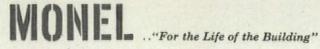
Whipped in by wind – and washed around by rain – these trouble-makers gang up on a roof.

But they don't get far against roofs made of Monel<sup>®</sup>!

**For Monel** is stronger and tougher than structural steel. It can *never* rust. Its smooth, hard surfaces not only resist erosion; they withstand even the abrasive, wearing action of sliding snow and ice. **Right now** – because of the demand for nickel and nickel alloys in the defense program – Government orders prohibit use of Monel for building applications.

But the time will come again when there is enough Monel available for normal roofing needs! Meanwhile, let INCO help you in planning for the future. Call on our Architectural Section for the latest technical information and literature.

THE INTERNATIONAL NICKEL COMPANY, INC. 67 Wall Street, New York 5, N. Y.



### Explain yourself, Miss Smith!



### "Why naturally I've enjoyed work more since we got the Autophone!"

"With the Autophone, my board doesn't get jammed with inter-office calls — the automatic dialing leaves me free to handle long distance and important outside calls. And judging by the way everyone in the office uses the Autophone, they must love that 'one-shot dialing'."

Chances are, your "Miss Smith" has a *full day* handling outside calls and expediting long distance messages. Why not relieve that jammed-up board by installing an Autophone System to handle your inter-office calls for more speed and efficiency? It will save you money too! Write, outlining your requirements, for information on the Autophone System best suited for your particular need.

### COUCH AUTOPHONE SYSTEM

. . . 30 or 50 line systems . . . "one-shot" dialing saves time, eliminates manually operated switchboard . . . simple, rugged, inexpensive.

Private telephones for home and office . . . hospital signaling systems . . . apartment house telephones and mail boxes . . . fire alarm systems for industrial plants and public buildings.



### BUILDING MATERIALS sales rise to fourth in U.S. retail trade

... NEWS ... NEWS

Retailers of building materials and hardware were grabbing a bigger share of the U.S. consumer dollar. Reported the Dept. of Commerce: between 1948 and 1951, building materials and hardware moved up from sixth place to fourth place among the nation's retailers, passing apparel and department stores. Last year, building materials and hardware men accounted for 7.1% of the country's \$150.6 billion dollar retail trade. Ahead of them: food (24.5%), autos (17.6%) and eating and drinking places (7.5%).

#### APARTMENT FOR AGED planned under FHA Title 7

Boston is planning to build the U.S.'s first apartment development designed exclusively for old people. The \$1.8 million project was born when the Home for Aged Colored Women came to the Housing Association of Metropolitan Boston with a proposal to build a third class hotel to take care of some of the 600 aged in Boston's South End. Association Director William C. Loring Jr., persuaded the Home to switch to FHA Title VII (which requires only a 10% investment, permits 40 year amortization and lets the Federal government and city pay two-thirds of the site cost). The Home for Aged Colored Women agreed, gave \$250,000 to the Commonwealth Housing Foundation.

Last month, architects Hugh A. Stubbins Jr. and James Lawrence were planning a six to eight-story building with 300 apartments accommodating 400 people. There will be kitchenettes for those able to do their own cooking and a central cafeteria for those who can't, common rooms on each floor, medical and recreational facilities and elevators (Lawrence, after extensive studies of similar building in Scandinavia, discovered old people distrust ramps). Construction is to start within a year.

Rents will vary from \$42 monthly for those on old age-assistance to \$65 for those financially independent. Half the tenants will be from 55 to 65 (to discourage the "last lap" atmosphere) and the rest over 65.

Bostonians are convinced they have a good thing. A recent geriatric study showed that although old folks in rural areas traditionally live with their relatives, 70% of those in urban industrial communities prefer to live in their own place. (The HHFA, in a recent study, found the U.S.'s 11 million oldsters (over 65) were worse housed than any other segment of the community. HHFA officials have indicated they may ask Congress to set up a special housing program to take care of this group.)

(NEWS continued on page 70)

### MUNICIPAL BUILDING in historic Hamilton, Ohio, is

air conditioned throughout with Frigidaire equipment

Overlooking picturesque Memorial Park and Miami River, the Hamilton Municipal Building is an imposing landmark in this pleasant Ohio city.



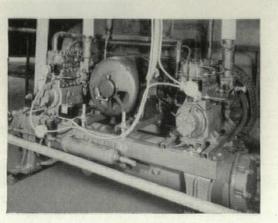
City council chamber is dominated by mural depicting the founding of the city's predecessor, Fort Hamilton, by General "Mad Anthony" Wayne, in 1791.





Cool, fresh, filtered air from wall type grilles add comfort to lobby office, where utility bills are paid.

Frigidaire water-cooled compressor has step control for automatically regulating capacity to meet changing load reauirements.



A city government that has taken advantage of modern refrigeration equipment to facilitate and improve its activities can be found in the progressive city of Hamilton, Ohio, whose municipal building is one of the most modern in the country.

The Frigidaire refrigeration equipment installed in this building includes two large central system air conditioners; and a large central water refrigeration system, providing fresh, cool water for three remote drinking fountains.

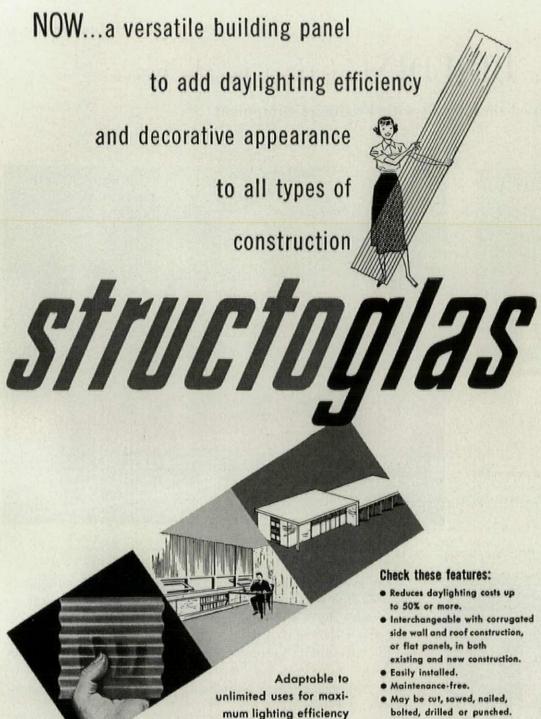
A 20-ton system furnishes air conditioning for the 4th floor utility offices, council chamber, city manager's offices and utility director's offices. A 15-ton system, located in the basement, supplies conditioned air to the police department and Municipal Court chambers.

This air conditioning system has been in operation for 12 years, and during that period only one minor servicing job has been necessary. So, whatever your next air conditioning problem is, why not call the Frigidaire Dealer, Distributor or Factory Branch that serves your area? Look for the name in the Yellow Pages of your phone book. See Frigidaire catalogs in Sweet's Files, or write Frigidaire Division of General Motors, Dayton 1, Ohio. In Canada, Leaside (Toronto 17), Ontario.

### FRIGIDAIRE America's No.1 Line of Refrigeration and Air Conditioning Products

Refrigerators + Electric Ranges • Home Laundry Equipment Food Freezers • Water Coolers • Electric Water Heaters • Air Conditioning Electric Dehumidifier • Commercial Refrigeration Equipment

> Frigidaire reserves the right to change specifications, or discontinue models, without notice



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
- Interchangeable with corrugated side wall and roof construction, or flat panels, in both
- existing and new construction.
- 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.

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#### CIVIL DEFENSE

### 'Rescue Street' **Built in Ruins**

NEWS ...

One of the oddest construction jobs in U. S. history got started in Olney, Md. There, the Federal Civil Defense Administration began building a \$200,000 street of ruins to train atom bomb rescue workers.

"Rescue Street" will consist of a group of buildings typical of most U.S. citiesa store, a theater, two-story dwellings, apartments and a five-story concrete office building-but all with walls blown out, girders and beams twisted, roofs caved in, and piles of debris blocking doorways. Yet rigid engineering principles of stress, weight and use of materials governed design of the structures, says FCDA. Designs were developed from studies of high-explosive bombings in Great Britain and Germany and the atom bombing of Hiroshima and Nagasaki.

Leaks, gas and shocks. A two-story and basement wood frame house (see photo of model, below) will provide instruction in tunneling in earth and debris. In the basement, a simulated electric service will give trainees a mild shock if they brush an uncovered wire.

The two-story office-store-theater building (second model, below) will typify many city school buildings and meeting halls which are "not well suited to withstand" an atom bomb blast, says FCDA. Big danger: a shift of the walls will let the roof collapse, trapping occupants.

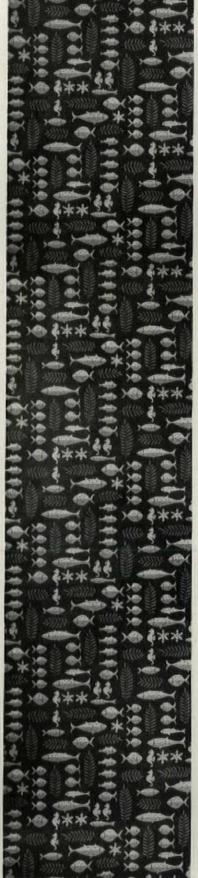
(Continued on page 72)



TWO-STORY WOOD FRAME HOUSE



TWO-STORY OFFICES, STORE AND THEATER











THREE-STORY STEEL AND MASONRY APARTMENT

The two-story and basement row house, typical of U. S. urban building from 1890 to 1920, will require different rescue techniques because water will pour from simulated broken water mains, and leaks 'of harmless gas will cover other areas. FCDA experts think walls of most row homes would not shatter into bits under bombing, but would crack into big pieces, with side walls pancaking into horizontal layers held apart by furniture.

Needed: more data. Like the typical American town's structures, the buildings at Olney are far from ideal for bomb shelters. Up-to-date bomb protection for most U. S. citizens was still blocked by military refusal to reveal to architects the results of last year's Eniwetok A-bomb tests, where blast and radiation resistance of various types of structures was carefully measured. So far, only one fact had slipped out about Eniwetok. The Navy's Civil Engineer Corps Bulletin reported that the most successful structures tested were of precast concrete formed with thin-shell ribbed panels welded or bolted together in arches, domes or gables (see p. 151). Covered with 2' of earth, they become safe personnel shelters 1/2 mile from ground zero of a Japanese-type A-bomb.

### DENVER SCHOOL of architecture to close for lack of funds

To the 120 students enrolled in Denver University's school of architecture and planning, Chancellor Albert C. Jacobs made a surprise announcement last month: the school would be closed at the end of the spring quarter in June because "the university cannot give to the school the financial support it deserves."

The school, founded in 1946, has a fiveyear course and was about to become accredited. The students who will be rooted out, many of them just short of graduation, heard Chancellor Jacobs' sad sermon on finances: "Independent education cannot in these days support a first-class educational or technical program without endowment funds or aid from the community. That help has not been forthcoming."

# TWO TYPES OF DISTORNA PISTORNA IO MEET EVERY USE NEED

RING

- ANDA

NOW . . . the familiar PlyForm grade-trademark appears on both Interior-type and Exterior-type panels . . . making this time-tested Douglas fir plywood form panel MORE VERSATILE THAN EVER. NOW... PLYFORM



### EXTERIOR-TYPE for Maximum re-use

Exterior-type PlyForm, a new grade-trademark, replaces the old grade-name, Exterior Concrete Form; the EXT-DFPA continues to identify the Exterior-type panel. Bonded with completely waterproof phenolic resin adhesives, Exterior PlyForm should be specified where forms will be re-used until the wood itself is literally worn away, in excessively humid areas, or under other extreme use or storage conditions. Exterior PlyForm is identified by the new diamond-bar grade-trademark shown at left. Edges sealed with distinctive red sealer.

**Specifications:** Completely waterproof bond. Both faces of B veneer which is smooth and solid, but may contain small tight knots and neat circular repair plugs. Inner-ply construction (as in all Exterior fir plywood) of C veneer contributes to strength and superiority of panel. Sanded both sides; edge-sealed with red and, unless otherwise specified, mill-oiled. Width 4'. Length 8'. Thickness:  $\frac{1}{6}$ " and  $\frac{3}{4}$ ", 5-ply.



### INTERIOR-TYPE for Multiple re-use

Interior-type PlyForm is now manufactured with improved glues to provide greater service than ever. These newly fortified glues are not waterproof, although highly moisture-resistant. Interior PlyForm panels will withstand several pourings of concrete ... up to 10 or 15 are not unusual, dependent upon care on the job and between pours. Interior Ply-Form continues to be identified by the familiar diamond-shaped grade-trademark. Edges sealed with distinctive green sealer.

**Specifications:** Highly moisture-resistant fortified glues (not waterproof). Interior PlyForm is identical in faceply characteristics and inner-ply construction to Exterior PlyForm. Sanded both sides; edge-sealed with green and, unless otherwise specified, mill-oiled. Width 4'. Length 8'. Thicknesses:  $\frac{1}{2}$ ",  $\frac{9}{16}$ ",  $\frac{5}{6}$ ",  $\frac{3}{4}$ ", all 5-ply, and  $\frac{1}{4}$ " 3-ply for form liner.

### OTHER PLYWOOD CONCRETE FORM PANELS

AProduct of the Plywood Industry

New overlaid panels [plastic surfaced plywood and hardboard-taced plywood] have all the inherent strength properties of plywood plus hard, glass-smooth surfaces, Fir plywood industry symbol [above] on overlaid plywood panels indicates product craftsmanship and quality.

COVER ILLUSTRATION: Artist's conception of Exterior plywood form sections used for foundation walls of Port Authority Bus Terminal, N.Y.C. Consultant Engineer Jacob Feld, N.Y.C., who designed 28'-high by 24'-long pre-assembled plywood sections, reports "forms very successful. Six reuises on walls, plus re-use on other parts of building, but forms could have been used indefinitely." Contractor: Foss, Halloran & Narr, Inc., Long Island City, N.Y.



For special architectural concrete which requires the finest possible finish, specify new overlaid plywood or either Exterior or Interior grades with one or both faces of "A" veneer [veneers of highest appearance quality]. Such grades include: EXT-DFPA PlyShield [A-C], EXT-DFPA.A-A; Interior PlyPanel A-D and Interior A-A.

#### (B) These registered grade-trademarks identify quality plywood manufactured and DFPA-Inspected in strict accord with U.S. Commercial Standard CS45-48

PlyForm Creates Smooth, Fin-Free Surfaces



made in 2 typ

PlyForm was specified on the new Carnation Company western headquarters building, Los Angeles, by Stiles Clements Associated Architects and Engineers for "smooth, fin-free concrete, ease of handling and overall job economy." According to the architects, "Plywood offered the simplest, most direct medium for achieving the smooth concrete because it permits an even-textured monolithic surface to be cast simultaneously with the structure." Smooth walls required a minimum of finishing before painting. Contractors on the job: William Simpson Construction Co., Los Angeles.

**PlyForm Can Be Used Over and Over** 



"We've found plywood forms to be the most economical for several reasons," says C. J. Rollo, job superintendent for Brown & Root, Inc., contractors for the new Rice Institute Stadium, Houston. "Given proper care, they can be re-used again and again; they're easier to handle, produce better looking concrete." On the job, built-up Interior-type PlyForm seat forms were still in good condition after ten re-uses. An even greater number of re-uses was recorded for wall and fence forms. Architects: Floyd & Morgan and Milton McGinty, Houston, Texas.

#### **PlyForm Saves Time and Labor Costs**



"Plywood speeded form work all along the line," says Earl Starbard, job superintendent of Woodworth & Co., contractors for all concrete work on the new milelong Tacoma Narrows Bridge. On the job, contractors report, use of built-up plywood form sections "cut time and labor costs by 15%." Plywood forms were used to form the reinforced concrete roadway and for all above ground concrete on the anchors, toll houses, bents and viaduct. Structure built by the Washington State Bridge Authority; Charles E. Andrew, chairman and principal engineer.

#### **PlyForm Offers** Design Adaptability

Plywood forms were called on to solve an unusually intricate concrete job in building the spectacular twinspiral ramps at the University of Washington grid bowl addition. "Plywood forms offered the simplest and least expensive solution," reports Elmer Strand, partner of Strand and Son, General Contractors, Seattle, Wash. "The panels can be re-used many times. They're easy to fabricate into cost-cutting built-up form sections and are easily bent to form curved surfaces." Architects: George W. Stoddard and Associates, Seattle, Washington.

# PLY-FORM.

FORM SHEATHING AND LINING COMBINED IN ONE PANEL

#### **APPLICATION-USE DATA**



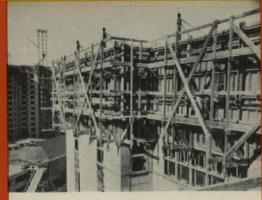
#### **Care On Job**

Although plywood is far more rugged than other panel materials, maximum serviceability and re-use depends largely on the care it receives on the job.

After each use, nails should be pulled and panels cleaned with a wide blade, stiff broom or wire brush. Wipe clean with a burlap pad. After each use, panels should be re-oiled with a uniform coating of good form oil. (For plastic surfaced plywood, see individual manufacturers' directions on whether to oil.)

Attention should be given to corners and edges. All saw cuts and other workings should be "doped" with lead and oil, aluminum primer, shellac or similar material as the job progresses. Open cracks in joints should be pointed up or caulked with lead, putty or plaster of Paris filler.





#### Application

Plywood forms require proper support from studs or joists. Height, rate of pour and fluidity affect pressures and spacing of supports. Desired smoothness of finished wall also affects form specifications.

The following values are offered as guides to thicknesses of Douglas fir plywood for concrete form construction. Allowance is made for the decreased stiffness (about 20%) of the panel by wetting, the period of loading, and the increased stiffness developed when the panel is continuous over two or more spans. Values calculated on panels with face grain across the studs.

PlyForm Thick- ness	Stud Spac- ing	Deflection Permissible	Load
5/8 "	12"	1/270 of Span	880 lbs./sq. ft.
5/8 "	16"	1/270 of Span	375 lbs./sq. ft.
3/4 "	12"	1/270 of Span	1,330 lbs./sq. ft.
3/4 "	16"	1/270 of Span	560 lbs./sq. ft.
5/8 "	12"	1/360 of Span	660 lbs./sq. ft.
3/4 "	16"	1/360 of Span	420 lbs./sq. ft.

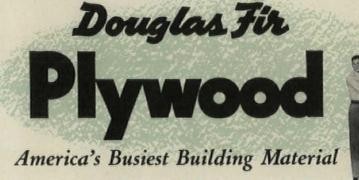


#### Stripping, Storing

Large, rigid plywood form panels strip quickly, easily. The resilience of the wood distributes pull over a large area to minimize any danger of spalling. If wedging is required, use only wood wedges, lightly rapped to break the adhesion. Panels should not be allowed to drop from ceilings or walls, but should be removed using scaffolding or platforms.

After stripping, panels should be cleaned and re-oiled (see directions at left). If form sections are completely dismantled, panels should be stacked evenly on a dry and level platform, protected from rain, sun, and traffic abuse. Long-time storage should be indoors. Interior PlyForm panels should *not* be stored under tarpaulins.

For Additional Data, write: DOUGLAS FIR PLYWOOD ASSOCIATION Tacoma 2, Washington



## Now MATICO offers a SUPERIOR, NEW PLASTIC FLOORING for on, above or below grade

Impervious to petroleum solvents, oils, greases, turpentine, alkalis and household acids.

Extremely resilient. Good sound absorption.

Smooth, non-porous surface sheds dirt — wipes clean with damp mop.

Excellent indentation recovery.

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Wide variety of bright, clear, non-fading colors.

Easy to install—no special adhesives needed.

Available in 9" x 9" standard gauge and ½s" tiles.

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#### PLASTIC-ASBESTOS ... NO FELT BACKING

New MATICO Aristoflex Tile Flooring is plastic-asbestos through and through. It's extremely tough, very flexible. Vivid, sparkling colors and marbleization go clear through each tile. Long wearability and enduring beauty are assured.

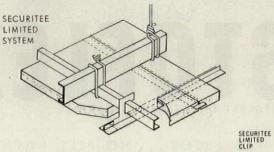
Aristoflex may be laid direct on concrete . . . over terrazzo or ceramic . . . on wood over 15-pound saturated felt . . . and over magnesite (above grade).

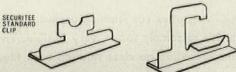
Installation is unusually easy, and less costly. No special cements are required, ordinary asphalt tile adhesive does the job. It lays in tightly, immediately, due to square corners and clean edges.

Write for free Aristoflex samples and specification data. Dept. 64

Birmingham Trust National Bank, Birmingham, Ala. Architect—Miller, Martin & Lewis General Contractor—Sullivan, Long & Hagerty Acoustical Contractor—Badham Insulation Co., Inc. Acoustical Tile—Fiberglas Acoustical Tile by Owens-Corning Fiberglas Corp. Installed on Securitee Limited System







\*T.M. Reg.

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THE PERMANENCE afforded by a Securitee System\* installation of acoustical tile is one important reason for its outstanding superiority.

Finest quality materials, high manufacturing standards and careful load testing of each component part assures users that a Securitee System installation will last the life of the building under normal conditions.

Easy access to piping or wiring helps to quickly localize any between wall, or ceiling, trouble. Flush lighting fixtures may be installed inexpensively and without the usual construction problems.

Specify and insist on Securitee-the outstanding suspension system on the market.



See Sweet's Architectural File or write direct for complete technical data

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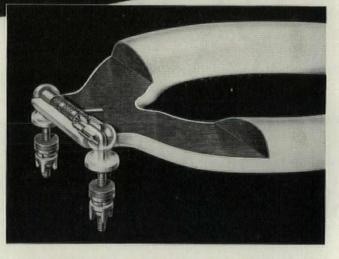
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COREX<sup>®</sup> is a special composition, molded over a core of hardwood fibrous chips, under tons of pressure, into a homogenous unit whose toughness and resilience defies fracture, cracking, chipping, warping or deterioration.

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Heavy brass insert imbedded continuously across back and locked into molded core, absorbs any stress, strain or shock.

CHURCH PLASTIC WALL TILE Individual tiles of gleaming plastic in a wide range of colors, now available. Its light weight and ease of application make it particularly suitable for remodelling or new industrial construction.

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In the expertly planned Lucas County Library at Maumee, Ohio, floors of PLAS-COR, installed by Bernard's, Inc., Toledo, are func-tional and decorative

Where quiet is essential to concentrated and effective study or relaxed reading, PLASCOR floors underscore the silence motif. Scientifically created of Tygon vinyl plastic with resin-impregnated cork, these tiles are "sound mufflers", and their extra resiliency adds to comfort afoot. Yet PLASCOR is almost completely free of "indentation" characteristics.

Here, too, architects must specify flooring that will take wear in stride . . . stand up under the daily passage of busy, careless feet.

Careful comparison reveals to the architect the fact that no other modern floor tiling can give ALL the advantages of PLASCOR. Neither alkalies, acids, grease nor oils affect it. It offers the quietness of cork plus versatility of color selection and un-matched wearing quality. It is truly flexible and easy to maintain . . . and it is less expensive than you might think. No wonder more and more architects are specifying PLASCOR for libraries, institutions, churches, public-meeting places and private homes.

Easily installed on grade or over radiant heating, PLASCOR is available in 1/8-in. thick squares of 81/2", 11", 17" and 34" size.



COMFORTafoot, walking or standing, is yours with re-

obey the library silence sign WEARABILITY tests prove the endurance of PLASCOR floors under demanding conditions.

> SLIP-RESISTANT, wet or dry, PLASCOR removes the skid hazard of many average tile floorings.

ATTRACTIVE colors in marble effect, may be combined with harmonizing feature strips and cove base.

SEND FOR FREE SAMPLES AND INFORMATION TO KEEP YOUR FILES UP TO DATE FOR YOUR CLIENTS

342.C

#### **NO MORE RIVETING?**

#### Sirs:

I have read your article "No More Riveting?" (AF, Mar. '52) with interest. . . .

At present, due to the inability to be sure that high tension bolts have been properly tightened, engineers with field experience and familiar with the rather crude methods yet developed to test these bolts feel that they cannot be sure of the stability or strength of the connections. With proper testing this method of bolting connections will be very satisfactory. But, until I am sure that they can be properly tested. I will be reluctant to use them.

... In the course of my experience, I have seen so many loose rivets after years of userivets which I know were very tight when placed-that I would be reluctant to believe that after a period of years the deformation which could take place in a tension bolt would not eventually loosen it. . . .

We are very sure, through inspection processes, of every weld that goes into a structure. So I feel that welding is absolutely safe. I would feel the same about the tension bolts if all bolts could be satisfactorily tested for proper tension. . . .

> VAN RENSSELAER P. SAXE, Engineer Baltimore, Md.

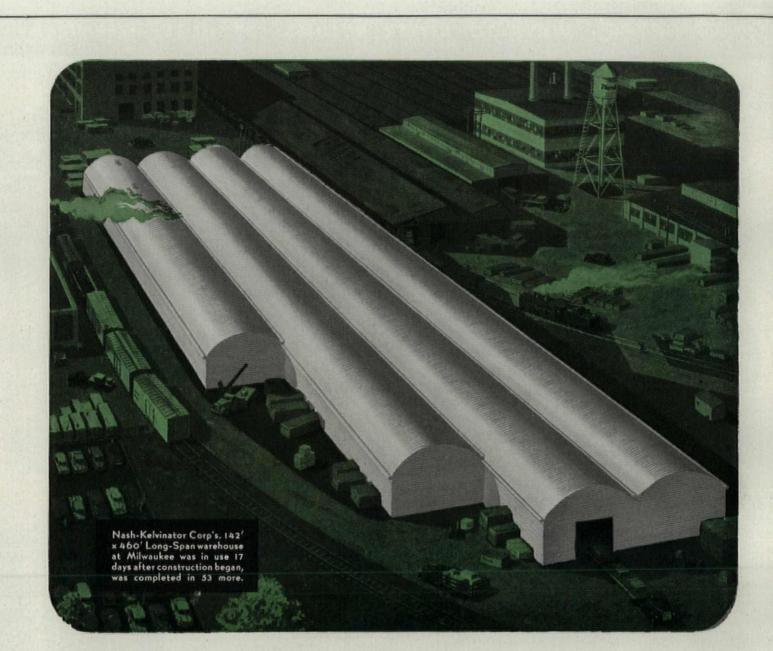
Sirs:

We have not completed any study of the costs of replacing riveting by high-tensile bolting. The steel frame of the Buick factory in Flint, Mich. is to be riveted. The Johns Hopkins Hospital at Baltimore and the Mayo Hospital at Rochester, Minn., where we are currently erecting extensions, will make use of high-tensile bolting. In other words, there is no set policy, and determination of methods (Continued on page 80)

V., W., F. & S.'s WALL



• Detailed in the Dec. '51 issue (but unfortunatel without credit) and shown above, the 11/3 mil long serpentine wall enclosing Ford's provin grounds at Dearborn, Mich. was designed by archi tects Voorhees, Walker, Foley & Smith .- ED.



## For every industrial use ... the new LONG-SPAN MULTIPLE

Your best bet for industrial plant expansion! That's the new, allsteel Long-Span Multiple, the building designed and engineered for maximum industrial efficiency.

The Long-Span Multiple gives an amount of usable, unobstructed interior space hitherto unavailable with mass-produced, prefabricated buildings. Its unique column arrangement provides ample room for modern industrial equipment, complete palletization, and production lines. Its arch roof gives unusual height advantages for low-cost installation of boilers, presses, other tall equipment.

The Long-Span Multiple is easily and economically insulated, skylighted, ventilated. Size is adaptable to any lot or use requirement. Ribs and trusses are of N-A-X HIGH TENSILE steel for long life, strength and economy. It goes up in weeks instead of months.

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15- or 18-Ft. Interior Clearance 40' x 35'6" Bays • Easy Insulation Complete Flexibility

ATTONA	STEEL	RPORATION
Yes, I would Span Multip	l like to know more a le.	bout the new Long
Name	All Andrews	
Title		
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#### Engineered ways to better business by globe-wernicke

## Hang those BIG SHEETS\* with Cello-Clip to save their lives!

\* Plans Tracings Drawings Prints Maps Charts Artwork A STUBBORN rolled-up drawing (or other large sheet) can and usually does develop more obstinate, contrary, infuriating tricks than an octopus with a mule's disposition. It won't lie flat; it curls and crimps — and often gets itself torn, wrinkled, dirt-smudged, and dogeared. NOT good for valuable papers!

FLAT-DRAWER STORAGE is little if any better. You handle many sheets to find one. Removal or replacement is awkward, causes damage and smudging, wrinkling and creasing.

**ONLY ONE SYSTEM** provides assured safety for valuable large sheets— Globe-Wernicke Cello-Clip. This system suspends each sheet (or group of sheets) vertically— so that each sheet or group can be removed or replaced individually, without disturbing other sheets. Every sheet stays agreeably Flat! - Clean! - Intact!

**READY INDEX** fits any requirement, provides finding INSTANTLY! Time saving — work saving — top efficiency!

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... because Cello-Clip provides complete PROTECTION ... and complete ACCESSIBILITY; costs LESS — stores MORE!

**ASK FOR THE FACTS** — use the convenient check list request . . . More than 4000 other ways to better business originate with Globe-Wernicke; are sold and serviced by dependable G/W dealers, listed in classified 'phone books under "Office Equipment."





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for these advantages

- Eliminates need of expensive central-heating system and labor costs of operating and maintenance men.
- ★ Minimum of installation space required and no fuel to order and store.
- ★ Flexible operation, heat is used only when and where it is needed.
- ★ Low operating costs resulting from the efficient use of clean gas heat, automatically controlled.
- ★ Engineering layout service assures sound installation planning to meet individual heating requirements.
- ★ Heating can be combined with ventilating or summer air-conditioning distribution systems.



<u>30 SIZES</u> AND TYPES OF UNIT HEATERS



18 sizes and types provide capacities ranging from 50,000 to 450,000 Btu/hr. Features include individual ribbon burners converting heat to separate heat exchangers to provide greater efficiency in less space. Blower equipped units are used to quietly circulate warm air against higher static resistance, permitting the use of ducts.

DUCT HEATERS No fan or motor is required for these units as installations are made to temper ven-



tilating air or to supply heat through summer air-conditioning duct work where air is circulated by a blower system. 5 sizes provide capacities from 85,000 to 225,000 Btu/hr.

**HEAVY DUTY FLOOR MODELS** 



Sectional construction of units permits heating capacities up to 1,500,000 Btu/hr. Sections can be equipped with directional diffuser outlets or to connected duct work. Units widely used for heating large areas such as airplane hangars, warehouses and plants handling large assemblies.

Write today. use of unit beaters for commercial and industrial installations. Ask for A.I.A. File 30-C-43.

SURFACE COMBUSTION CORPORATION

# **MORTON SALT COMPANY** FOUND A WAY TO SAVE **ON SMOKE STACKS...**

# right in their own back yard

Keeping profit-eating maintenance and repair costs on a starvation diet was the aim of the Morton Salt Company when plans called for two new stacks. They found the profitable solu-tion standing right in their own back yard . . . two genuine wrought iron stacks with 11 years of maintenance-free service to their credit and still in excellent condition. The new stacks were also fabricated from Byers Wrought Iron plate.

You'll find it profitable to check the durability records of Wrought Iron the next time you consider material for corrosive service.

#### **Corrosion costs you more** than wrought iron

You'll want to see this sound film on Byers Snow Melting Systems. Our Melting Systems. Our folder, "A Winter Wonfolder, "A Winter Won-der," tells you what the movie covers and how to apply for a showing. Send for your copy now. Write A. M. Byers Company, Clark Building, Pittsburgh 22. Pennsylvania.





#### LETTERS

will depend upon the situation affecting any particular job. . . .

J. CARLISLE MACDONALD Assistant to Chairman United States Steel Corp. New York, N. Y.

#### Sirs:

. . . I recognize that considerable research has gone into the preparation of this article and that it contains much information that I am glad to see publicized. In some places, however, it treads on thin ice and advances conclusions prematurely. . . .

JONATHAN JONES, Chief Engineer Bethlehem Steel Co., Inc. Bethlehem, Pa.

#### Sirs:

... On the jobs erected in this territory we have encountered no trouble in the use of bolts. As a matter of fact, on a riveting job there are many places that give trouble where there is no room for backing up the rivets. In such cases bolts have been used and if there are any limitations on either type of construction, it would be on riveting rather than bolting. . . .

W. H. HART, District Engineer American Institute of Steel Construction, Inc. Milwaukee, Wis.

#### WELDING AND WEATHER

#### Sirs

Your article "Welded Hospital" (AF, Feb. '52) stated that the structural steel was erected in bitterly cold weather. The welders will certainly agree with this statement. . . . The bulk of the welding was performed at temperatures between zero and 15°.

... This cold was not entirely detrimental, however. At these temperatures the steel beams were shortened their maximum amount, thus aiding in seating the erection clips. Also, with all welds made on contracted steel, any change in the steel dimensions caused by temperature, thereafter, was an elongation. This expansion placed the welds under compression. The welds could not be placed under tension by temperature changes.

Weather also subjected the steel framework to a crucial test. On July 20, 1951, the most severe wind storm in recorded history swept this area. Wind velocities up to 135 mi. an hour were recorded at the airport 1/2 mi. from this building. At that time the entire steel framework was erected and welded, but only the first two floors had been concreted. Brickwork was completed on the first floor only. The scaffold for the brickwork was in place on all sides of the structure supported by cables from outriggers placed above the roof. These cables were played out practically their entire length. The wind whipped these scaffolds as you would shake a rug, for a period of more than

(Continued on page 84)



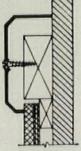
Quick Tip On a

#### NEW USE OF METAL TRIM

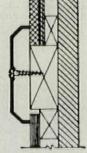


Standard Knapp

trim has been



developed so that chalkboards and cork bulletin boards can easily be installed on any finished surface. No special wall construction is needed, permitting expansion of classroom area without expensive remodeling. Easy to install, neat and trim in appearance, Knapp Standard trim No. 28 and No. 29 are easily adapted to any wall condition.

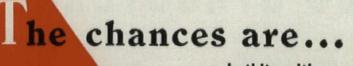


Learn more about this and other new trim methods by reading "Trim Talks" a regular bulletin sent to you free. Write and ask to be placed on the mailing list. Write to Dept. TMB-452



MANUFACTURERS OF QUALITY METAL TRIM SINCE 1905

KNAPP BROTHERS MFG. CO. CINCINNATI 16, OHIO



a building like 525 William Penn Place would be equipped with

CONTROL

Johnson T-271 Heating-Cooling Thermostat for air conditioning units.

 An office in the 525 William Penn Place building, Pittsburgh, Pennsylvania.
 Harrison & Abramovitz, New York, and William Y. Cocken, Pittsburgh, architects;
 Dravo Corp., Pittsburgh, heating & air conditioning contractors.

In building after building, Johnson is called upon to furnish and install dependable automatic temperature and humidity control for modern air conditioning systems. No matter what the extent of the problems involved, the chances are that they will be turned over to the nation-wide Johnson organization.

In Pittsburgh's newest skyscraper, 1,650 yeararound air conditioning units provide all-weather comfort in each exterior room. A Johnson T-271 Heating-Cooling Thermostat is located in one of the units in each room, with its temperature bulb mounted close behind the recirculating air grille to respond quickly to the average temperature of the air entering the units. Thus, the Johnson V-152 valve, on the hot and cold water supply to the coil in each unit, is operated to determine automatically the heating or cooling effect to be applied.

The interior areas in the building are served by 51

central-type air conditioning systems, and 105 Johnson T-315 Submaster Room Thermostats control Johnson V-105 coilvalves on the steam supply to booster heaters.

In addition to the *Individual Room* control, there is comprehensive Johnson Master Control, "behind the scenes", to regulate temperatures and humidities for the 10 systems which supply primary air to the units, as well as the conditioned air delivered by the 51 central systems which serve the booster heaters in the interior sections.

Yes! THE CHANCES ARE that a Johnson engineer from a nearby branch office has the answer to complex temperature control problems such as those encountered at 525 William Penn Place. He is equally conversant with smaller problems, too. A talk with him entails no obligation. Ask him to call on you, any time. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.



## **NATCO STRUCTURAL CLAY TILE**

## for Exterior and **Interior Walls** in the Modern Factory

Such exterior walls, when lined with Natco-Ceramic Glazed Vitritile, also non-critical, represent the best in masonry construction. These interior walls and partitions of Natco Vitritile set up sturdy and strong are attractive and cheerful, and require little or no maintenance other than an occasional cleaning with soap and water. The finishes and colors available with Natco Ceramic Glazed Vitritile have been scientifically selected and developed to provide a permanent structural wall and a permanent attractive functional finish in one operation.

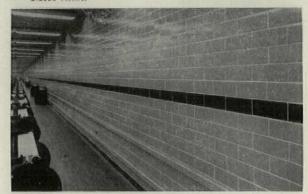
Immediately available, when you specify and use Natco Structural Clay Tile, you are free from costly, time-wasting delays. Send now for your copy of Faber Birren's Book entitled "The Scientific Approach to Color Specification." It is yours for the asking.

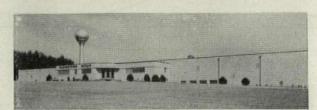
Exterior walls of non-critical Natco Manganese Spot Dri-Speedwall Tile or Natco Tex Dri-Wall Tile are strong and enduring, are load-bearing, architecturally attractive and resist moisture penetration. In addition, they are fire, termite and vermin proof, cannot rot

or decay, are free from shrinking and cracking and require no painting or repairs.

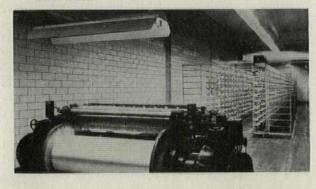


Exterior and interior views of Greenwood Textile Mills, Cothron, S. C. Engineers — McPherson Company, Greenville, S. C. Exterior walls of Natro Mingled Shades, Tex Dri-Wall Tile lined with Natro Ceramic Glazed Vitritile.





Exterior and interior views of Schneider Textile Mills, Taylorsville, North Carolina. Engineers — Biberstein & Bowles, Charlotte, N. C., General Contractor — Luke Gwaltney, Taylorsville, N. C. Exterior walls of Natco Manganese Spot Dri-Speedwall Tile lined with Natco Ceramic Glozed Vitritile,



Brick Faced W

PRODUCERS COUNCIL TILE INSTITUT Raggle Blocks Speed-A-Backer Tile fo NATIONAL FIREPROOFING x 51/5" x 12" Nom. Size CORPORATION GENERAL OFFICES: 327 FIFTH AVENUE . PITTSBURGH 22, PA. Branches: New York · Syracuse · Detroit · North Birmingham, Alabama Chicago · Philadelphia · Boston · Toronto 1, Canada Non-Loadbearing Tile, Scored and Unscored, 12" x 12" Face In Standard Wall Thicknesses "The Quality Line Since 1889" Ceramic Glazed Vitritile 8" x 16" Nom. Face Size

TT TACING P

NATCO QUALITY

AY PRODUCT

CLAY



Glazed Vitritile 51/3" x 12"

Spot, Salt Glazed, Red

Textured Dri-Speedwall Tile, 51/3" x 12" Nom. Face Size



The photo above is a partial view of the Koroseal Tile Supreme installation in the counter and kitchen areas of the J. C. Penney Co. cafeteria in New York.

## Counter-attack ... with a floor that can't be beat!



Sloane Koroseal Tile Supreme eliminates floor disintegration because it is totally unaffected by grease, oil, fat, acid, alkalis and other substances.

Shown by every test to be the longest wearing resilient floor tile ever made, its vinyl plastic composition insures indefinite service in any area where food is processed, cooked, or served.

is practically indestructible ...defeats destructive food-formed acids ...stands up under the toughest traffic

Koroseal Tile Supreme is more sanitary, too. Its nonporous surface can't hold dirt...stays beautiful with quick, easy soap-and-water mopping and occasional waxing. And that means added economy.

The through-and-through colors remain beautiful under the severest food and foot traffic . . . won't fade or stain. Regardless of location—from engine room to luxury show room—Sloane Koroseal Tile Supreme represents the ultimate in resilient floor covering—unmatched in beauty, comfort and durable service.

Send today for free samples and specifications. Write Sloane-

Blabon Corporation, Box AF, 295 Fifth Avenue, New York 16, N. Y.



SLOANE Koroseal\* TILE SUPREME

SLOANE-BLABON CORPORATION • A DIVISION OF ALEXANDER SMITH, INC. LINOLEUM • TRENWALL • KOROSEAL TILE • LINOLEUM TILE • RUBBER TILE • ASPHALT TILE • TRENTONE RUGS AND FLOOR COVERING



Type 150 Suspended Unit Heater — propeller fan type; 60,000 to 150,000 Btu capacities; shipped assembled and pre-wired. AGA and UL approved.

#### GAS-FIRED UNIT HEATERS

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#### save costs in many ways

Capacities and Types for Every Job



Blower type 151 — Four sizes: 60,000 to 150,000 Btu input; all welded, horizontal design; AGA and UL approved. Shipped assembled and pre-wired.

Floor Type UH — nine sizes: from 180,000 to 540,000 Btu input in 45,000 increments; AGA approved. Easy to assemble and install.

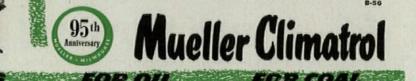


For an independent heat source when plant expansion exceeds steam capacity, or for a compact, efficient heating system in new construction where time and costs are vital factors — the Mueller Climatrol unit heater line supplies the perfect answer!

Here are a few of the many savings they offer:

- Installation Cost is tow shipped pre-wired, completely assembled . . . just hang, connect to gas and power lines and vent. No special chimney needed.
- Operating Cost is Low efficient horizontal design assures maximum heat extraction, minimum fuel costs.
- Maintenance is Easy can be completely cleaned and serviced from below without lowering the unit.

When you think of space-heating think of Mueller Climatrol. Capacities to fit any job you have. Write for complete information . . . L. J. Mueller Furnace Co., 2020W W. Oklahoma Avenue, Milwaukee 15, Wis.



#### LETTERS

two hours. The outriggers were twisted in all directions and the scaffold planking was carried hundreds of feet from the building. In spite of this extreme racking and twisting the framework remained plumb and not a weld was broken.

All welds were re-examined prior to the placing of concrete forms and not a cracked weld was found in the entire structure.

This is the first all-welded tier type building erected in this north central area and we all feel proud of the results. A better building was produced at a saving in both steel and labor costs.

> COL. R. A. PHELPS Fort Snelling St. Paul, Minn.

• Representing the government on this VA hospital project, Col, Phelps was in charge of field construction.—ED.

#### PLEASANT BUT NOT REVOLUTIONARY

Sirs:

By your monthly publication of one or more hospital projects, you are performing a much needed service to architects and all others who read your journal. I am sure I express the sentiments of your readers in thanking you for this service. However, in all humility, we must constantly look to the improvement of all that we do...

The Anderson Hospital in Houston (AF, Feb. '52) is pleasant to behold and is well planned. I only wish that the planners could have avoided interrupting the various laboratory and research floors by the interposition of the operating department at the fourth floor. If the research wing perpendicular to the service wing were handled in some other way, a comparatively narrow court would have been avoided and a better outlook secured for the patients in the nursing wing which the research wing masks to a considerable extent. I also think it is a mistake to block corridor ends by stairs. Not only does this rob the corridor of light, air and view, but in case of future expansion it would be necessary to tear down those dearly bought stairs, only to rebuild them elsewhere.

As to your method of presentation I would like to see more plans in preference to photographs, and less extravagant claims. . . . It is not necessary to claim that every other hospital you present is revolutionary. . . .

> ISADORE ROSENFIELD Architect & Hospital Consultant New York, N. Y.

#### DOES RICH'S TELL MACY'S?

Sirs:

I read with great interest the article on the Rich's Department Store addition (AF, Feb. '52), because in many respects Rich's solution was directly contrary to our solution for Macy's Kansas City Store.

In many respects, the project for Rich's is completely successful, particularly the light-

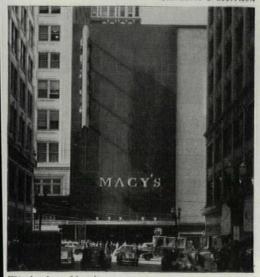


#### Windowed Rich's

ness and general clean effect of the exterior. Likewise, the interior design was competently handled. I believe, however, the disadvantages of the open front are quite obvious, as you have noted in your article. Our solution which resulted in a windowless building for Macy's was based on the clients' requirements that we have a peripheral stock room system which put reserve stock as close as possible to the selling departments. This, of course, placed the stock against the periphery or exterior walls of the building and therefore made windows a nuisance. I believe the requirements established by Rich's must have differed, therefore making possible the window wall on facade of the building.

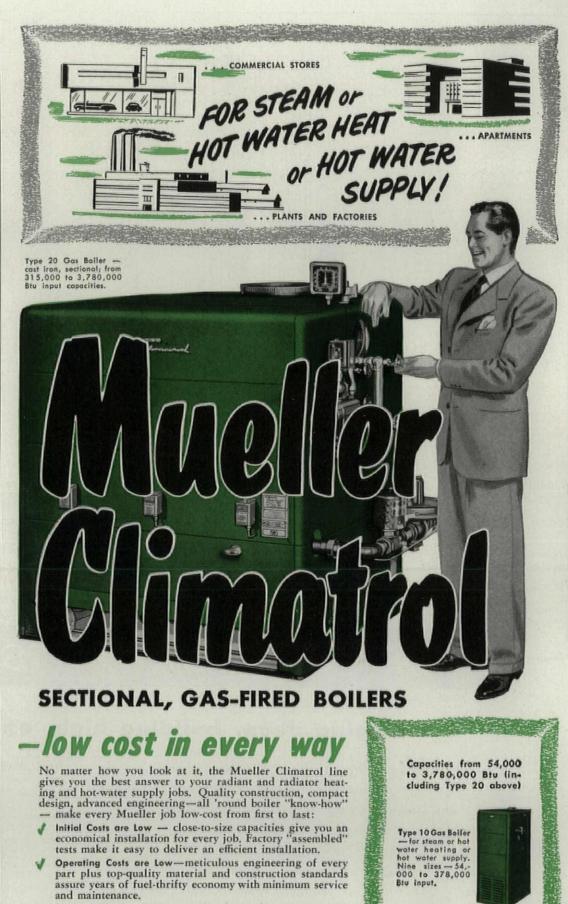
Although your article didn't indicate an interior fixture arrangement, it has been our experience that there are certain limitations in floor arrangement flexibility due to a window wall. Our client, as well as ourselves, was (Continued on page 88)

Randazzo & Morrison



Windowless Macy's



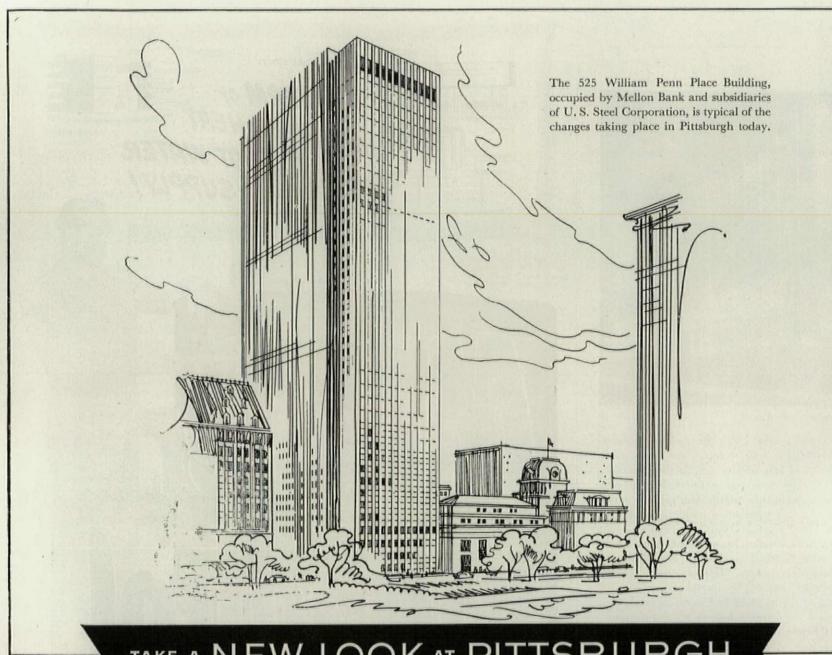


Future Expansion Easy — sectional cast iron construction makes it easy to add capacity for additional loads simply by adding new section-burner units.

And that is just a brief outline of the many low-cost advan-tages of Mueller Climatrol boilers. Write for complete details ... L. J. Mueller Furnace Company, 2020W W. Oklahoma Avenue, Milwaukee 15, Wisconsin.



Type 11 Gas Boiler — Same as the Type 10 shown above except for the outer casing — controls are exposed.



## TAKE A NEW LOOK AT PITTSBURGH

#### It's digging deep, building high, expanding fast

Giant, skyscrapers rising in the heart of the Golden Triangle ... blighted areas being reclaimed for modern housing projects ... new and old industries spending upwards of a billion dollars for new or modernized plants.

That's progressive Pittsburgh today!

If you've thought of Pittsburgh merely as a busy "workshop"—take a *new look!* Today it's one of America's boldest and most vigorous industrial cities.

In this home of many of the "first names" of industry, you'll find a resurgence of civic spirit unmatched in America today. Add to this Pittsburgh's natural advantages of location and raw materials, its importance as a market for your products . . . and you may well decide that here is a logical place for *your* new plant or office. **IN COMMERCIAL BANKING** . . . the services of Mellon National Bank and Trust Company have played an important part in the development and growth of many industries. Building construction, steel, aluminum, glass, oil, transportation, electric power, gas, abrasives, coal and coke production . . . are some of the many industries that have benefited by these commercial banking services. Perhaps this broad experience, plus Mellon Bank's large loaning facilities, can be of special value to *your* business.



CAPITAL \$60,100,000 SURPLUS \$140,000,000

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Quality-Engineered by

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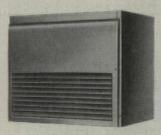
SELF-CONTAINED UNITS

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



EVAPORATIVE CONDENSERS EC MODELS 3-5-8

EVAPORATIVE CONDENSERS EC MODELS 10-15-20



You will, too.

AIR HANDLING UNITS



trouble-free performance.

PACKAGED WATER CHILLERS



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

Satisfied Typhoon users include famous com-

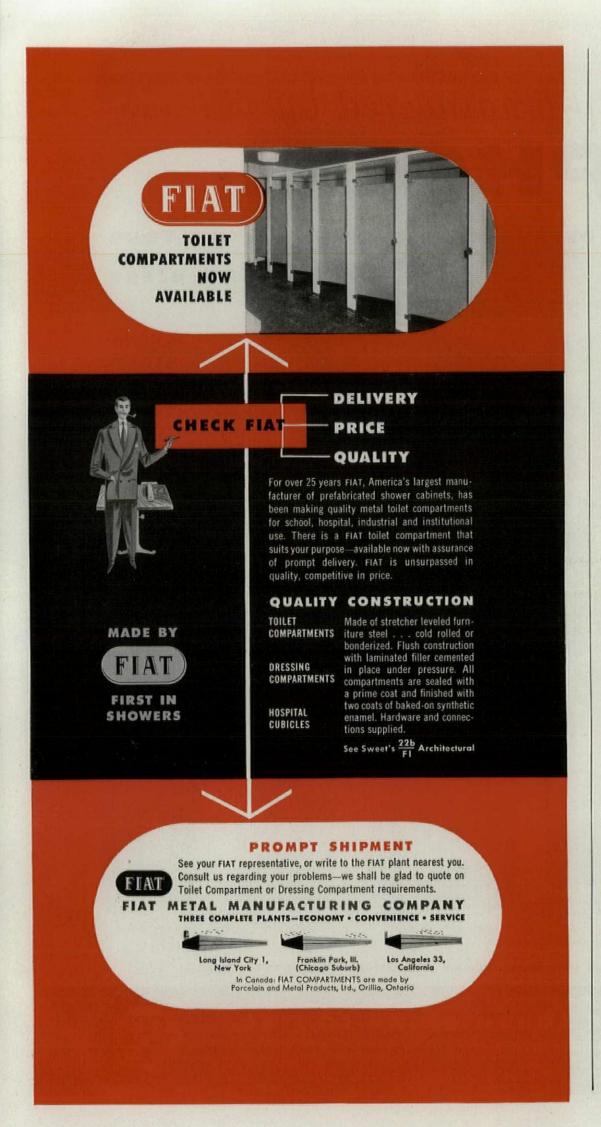
panies like RCA, American Broadcasting Company, Warner Brothers and Whelan Drug Stores. They've found Typhoon equipment tops in economical operation . . . tops in cooling efficiency.

HEAT PUMPS

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







#### LETTERS

likewise concerned with the unbalanced light intensity which would be created by a window wall, the maintenance and window washing costs, the heat loss and the additional air conditioning tonnage which was a big factor on our particular project. In the case of the Macy project, and its requirements, we felt that the windowless building offered greater advantages than a building with windows. I personally feel that the Macy solution, as well as the Rich solution, although at opposite poles to each other, each possibly satisfy the clients' requirements and both can be considered successful. . . . I doubt whether Rich's architects, Stevens & Wilkinson, would agree that the window wall solution is a universal solution for all department stores. It would be interesting to conjecture which solution each of us would have obtained had Macy's been their client and Rich's our client. I suspect that the basic result would have differed little from that which we each obtained with our present architect-client relationship.

Much of the success of a solution depends on conditions that are specific to each job and in view of these conditions, how well the architect solved the problem. For this reason, I feel that Stevens & Wilkinson, architects and engineers, and Eleanor LeMaire, designer, have produced an exceedingly handsome piece of architecture on both the exterior and interior. I seriously doubt that the Rich's solution "emphatically contradicts" the Macy solution, but rather that they are two entirely different problems which we logically solved in two entirely different yet satisfactory ways....

As usual, this presentation continues the high standards of reporting set by your organization. The layouts represent good taste in selection and arrangement....

RALPH E. MYERS Kivett & Myers, Architects Kansas City, Mo.

#### Sirs:

Regarding the new "Store For Men" built by Rich's, in Atlanta . . . we have heard glowing reports of this article from many members of the men's wear trade.

> BOB SIMON Ben Simon's Quality Apparel Lincoln, Neb.

#### WHY HIGH HOUSING?

Sirs:

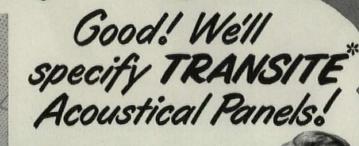
I dispute "The Case for the High Apartment" presented in your January issue.

The economics of industry, demands of defense and optimum living requirements are operating forces toward decentralization. But as long as society licenses the real estate investor to increase population densities at the expense of human well-being, the now apparent disadvantages of high urban concentration will be maintained. Aside from the *(Continued on page 96)* 



KNOLL ASSOCIATES, INC. • 575 Madison Avenue, New York 22, N.Y.

I want the same efficient acoustical material used in broadcasting studios!



You'll find Johns-Manville Transite Acoustical Panels among the most efficient and versatile noise-quieting ceilings—and they are made of non-critical materials!

• MADE OF ASBESTOS, Transite Acoustical Panels are particularly resistant to fire and moisture, and provide noise-quieting ceilings that are exceptionally flat and true. They are architecturally desirable for use in offices, hospitals, homes—and of course in kitchens and cafeterias, chemical laboratories, broadcasting studios, etc.

The 12" square panels consist of a perforated asbestoscement Transite facing, 3/16" thick, backed up with a sound-absorbing element available in several thicknesses and types depending on acoustical requirements.

Six hundred perforations per square foot help to give



Transite Panels extremely high sound-absorbing efficiency. The panels are extremely durable, can be washed, painted and repainted.

Other J-M Acoustical Ceilings include Fibretone\*, a drilled fibreboard; Sanacoustic\*, perforated metal panels backed up with a noncombustible, sound-absorbing element, and Permacoustic\*, a textured, noncombustible tile with great architectural appeal. Write today for our free brochure, "Sound Control." Johns-Manville, Box 158, Dept. MB, New York 16, N. Y. In Canada, write 199 Bay Street, Toronto 1, Ontario. \*Reg. U. S. Pat. Off.



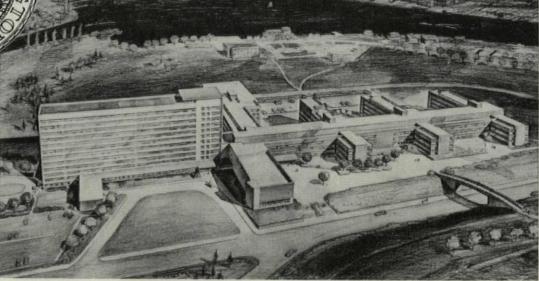
Movable Walls—Terraftex and Asphalt Tile Floors—Corrugated Transite\*—Flexstone\* Built-Up Roofs—Etc.



New luster has been added to the great seal of the University of Washington by the fulfillment of a long-cherished dream of greater service to mankind

NARAMORE, BAIN, BRADY & JOHANSON architects

MC CLELLAND & JONES associate architects JOHN PAUL JONES supervising architect BOUILLON & GRIFFITH professional engineers J. C. BOESPFLUG CONSTRUCTION CO. general contractors UNIVERSITY PLUMBING & HEATING CO. plumbing contractors SEATTLE PLUMBING SUPPLY CO. plumbing wholesalers



## STEPPING STONE TO BETTER HEALTH, LONGER LIFE...

• On the beautiful campus of the University of Washington, Seattle, stands one of the finest structures of its kind in the United States. It is the new nine-million-dollar Health Sciences group, designed and equipped for education and research in medicine, dentistry and nursing. Integrated with the group, but not yet completed, will be a 500-bed teaching and research hospital. A building project

of such magnitude and significance required many specialized skills and vast knowledge and experience. Obviously all materials and equipment of every kind had to measure up to highest standards. Thus **SLOAN** is justifiably proud that its precision-made *Flush* VALVES were selected for installation throughout—another example of preference that explains why...

more SLOAN Hush 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 conewithin-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.



## Here's helpful data

## that simplifies electrical planning

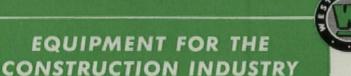
## for Architects and Engineers

The completely new edition of the famous Westinghouse Data Book is ready now! Prepared especially for Architects and Engineers, it contains valuable planning help on everything electrical. A truly complete electrical reference source.

It aids in selecting and specifying . . . quickly and conveniently. It is accurate, up to date. The data will enable you to apply electrical equipment to the very best advantage. Here all in one place is the latest factual information on every electrical product made by Westinghouse for the Construction Industry. It is your authoritative guide on electrical application. The presentation is simple and slanted to your needs and methods.

Distribution is being limited to those directly concerned with electrical planning. If you need the material and have not already received a copy, please contact your Westinghouse representative. J-94893

Westinghouse



ITECTURAL FORUM · APRIL 1952

#### The kind of structure that builds an architect's reputation . . .

#### with an assist by "Century" Corrugated Asbestos

One of the features that helps this building outperform its owner's expectations\* is the "Century" Corrugated Asbestos-Cement used for the drivethru loading building exterior walls.

You may know that a loading building is like a firing line—no time out, has to keep going in all weathers. Can't halt for rain...fire...rot... rust... or repair.

And that's where those big, sturdy, weather-resistant walls of "Century" Corrugated Asbestos pay off.

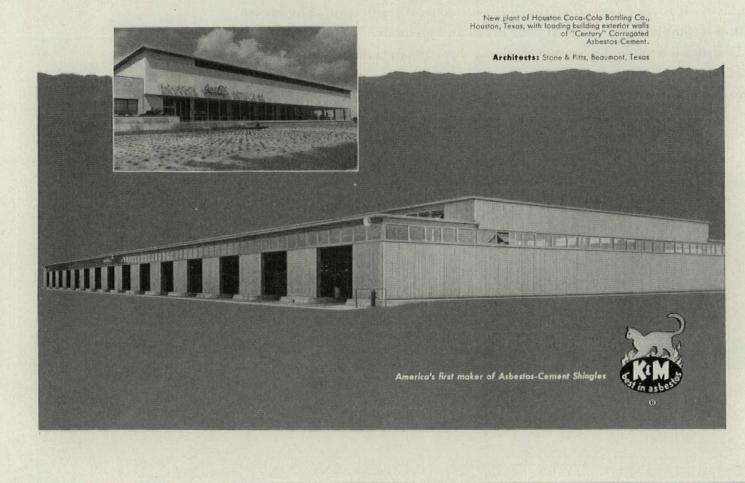
Made of asbestos fiber and portland cement "Century" Corrugated is a dense, tough and structurally strong material. It is practically maintenance-free and never needs painting for protection.

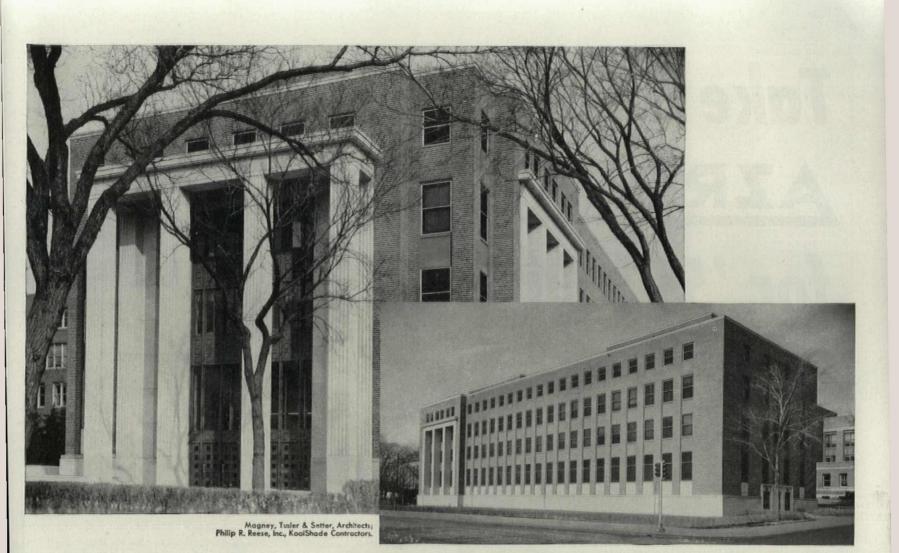
You might expect to pay a premium for this lifetime protection. But actually, "Century" Corrugated Asbestos is one of the lowest cost materials you can specify—low in first cost ... low in application cost (because it's easily sawed, drilled, and fitted on the job) ... and low in upkeep.

Today this modern, versatile siding and roofing is being used for industrial and commercial buildings, stores, theaters, and even homes! Write us for information about particular applications . . . we'll rush a reply with complete data.

\*and casts, thereby, a bouquet to the architect !

COMPANY · AMBLER · PENNSYLVANIA





### How sun's heat and glare is kept out of University of Minnesota classrooms

When Ford Hall, the University of Minnesota's Social Science building on the Minneapolis campus, was first occupied, instructors and students complained of the excessive heat and blinding glare from the windows. The 117 windows on the south and west sides let in a tremendous amount of glare and heat whenever the sun shone on them-which was a good part of the day.

The Maintenance Department soon had Ingersoll KoolShade Sunscreens installed on all 117 windows. Now the rooms



are comfortable inside even when the sun is blistering hot outside. Also, the bright highlights at the windows are reduced and only a cool, glareless light is admitted through the KoolShade louvers.

KoolShade Sunscreen blocks out as much as 87% of the sun's heat rays . . . 100 square feet of KoolShade on sunexposed glazed areas is equal to one ton of air conditioning (12,000 B.T.U.'s).

KoolShade Sunscreen with thin bronze louvers set at a 17° angle is scientifically designed to admit glareless light; eliminating bright glare and deep shadows that cause so much eye-strain.

KoolShade Sunscreen can solve many of your problems of summer heat and glare . . . for school, hospital, office or residence. To secure maximum efficiency from any KoolShade installation, specify Ingersoll aluminum framing. At the present time, priorities will speed delivery on both Kool-Shade and framing.

KoolShade Sunscreen is supplied and installed by factorytrained men in Ingersoll KoolShade distributorships throughout the country.

Get the complete KoolShade story by writing for the "KoolShade Manual for Architects and Builders" to Ingersoll Products Division, Borg-Warner Corporation, Dept. MB-4, 321 Plymouth Court, Chicago 4, Illinois.



## Take a look at AZROCK

#### TAKE A QUICK LOOK

for '52!

at AZROCK's New Color Line for '52! Spread out the colors and compare them with any other asphalt tile color line. See how color for color AZROCK is brighter, cleaner, more attractive. These colors will help you satisfy your clients more completely.

#### TAKE A CRITICAL LOOK

- like your clients do. AZROCK colors are designed to give the architect a completely balanced line of colors so that he can design interiors of greater architectural perfection.

#### TAKE A LONG LOOK

at the physical characteristics of these new color samples. Note the smooth surface, the attractive marbleizing, and the sharp, precise dimensions. They all contribute to the AZROCK reputation for performance!

Write today for your copy of the 1952 Azrock Color Chart.



## FROST BANK BUILDING SAN ANTONIO, TEXAS



AZROCK Makers of ... AZPHLEX

AZROCK Asphalt Tile AZPHLEX Thermoplastic Tile VINA-LUX Reinforced Vinyl Tile

"AZROCK Makes Fine Floors"

#### LETTERS

important social consequences, a profit system which requires extensive land use overloads facilities to the point that adequate transportation and parking, health and public services require financing in a measure far beyond municipal ability.

As a means of control, the limiting of densities is the most important single step which can be taken to benefit the community. Why perpetuate excessive density through the construction of high housing, which in reality is merely our monument to a poor urban environment?

> ROBERT L. JONES, Architect Chicago, Ill.

#### **AUSTRALIAN ROOF BUBBLES**

Sirs:

Your December articles on built-up roofs are very interesting to me, having been connected with the manufacture of bituminous roofing and felts and especially with the laying in hot bitumen of built-up roofing specifications.

Your article on preventing bubbles mentions that the felts are stuck down to the insulation with hot bitumen. I have found that the membrane of felts laid loose to either the concrete slab or the insulation will save blistering. If the concrete slab should crack, the surface roofing will not be affected.

HARLEY F. WILLIAMS Troy Roofing & Flooring Pty, Ltd. Alexandria, Australia

#### GULF OIL BUILDING

Sirs:

I compliment you on the very excellent coverage on the Gulf Oil Building in Atlanta (AF, Feb. '52).

. . . ARCHITECTURAL FORUM should also be complimented on the "professional" approach in its reporting.

> I. M. PEI, Architect Webb & Knapp, Inc. New York, N. Y.

• In the presentation of the Gulf Oil Building, the editors regrettably failed to credit Stevens & Wilkinson as associate architects among whose important contributions to the design of the building was their thoughtful landscaping work.—ED.

#### **READERS DIGEST'S FURNITURE**

Sirs:

Your article on the *Readers Digest* Building in Tokyo (AF, Mar. '52) mentioned that the furniture was designed by the architects but failed to note that Henry Robert Kann was in charge of this phase of the work.

Also, the uncredited photographs were taken by Fumio Murasawa, Tokyo.

L. L. RADO

Raymond & Rado, Architect: New York, N. Y.

## BRIXMENT is more plastic!

ONE of the most outstanding characteristics of Brixment is its plasticity. Its working qualities are comparable to those of lime putty. Because of this unusual plasticity, a bag of Brixment will carry three full cubic feet of sand, and still make good workable mortar. . . .

This exceptional workability makes it easy for the bricklayer to secure neat, clean brickwork, with the brick properly bedded and the joints well filled. The final result is a better job, at lower cost.



LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

## Lick Your Window Maintenance Problems

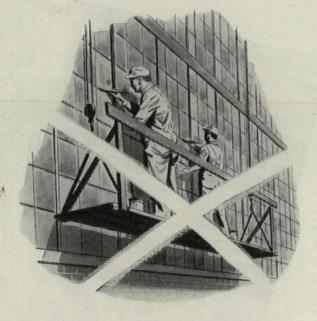
## ... get *Fenestra* Super-Galvanized Steel Windows

Steel windows have the strength and rigidity that no other windows can match. And now Fenestra has even eliminated maintenance *painting!* Insist on Fenestra\* Super Hot-Dip Galvanized Steel Windows.

Here's why they are called *Super* Galvanized: Fenestra has developed a Hot-Dip Galvanizing system designed specifically for steel windows and built a special plant around it. It is the only one of its kind in America.

In Fenestra's new plant, completely automatic controls move Fenestra window assemblies through a series of special tanks where they are cleaned and pickled, rinsed, fluxed, dried, galvanized and Bonderized. Timing, temperatures every step—is laboratory controlled.

So add Super Hot-Dip Galvanizing to your present list of Fenestra advantages . . . such as integral ventilator butts that increase window strength, precision machining of window bars for perfectly uniform window size, automatic



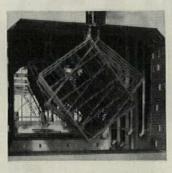
assembly of ventilators for perfect permanent fit, continuous double contact for weather-tightness all around vent openings, rigid *interlocking* muntin joints.

And, remember, Fenestra's volume production, permitted by standardization of types and sizes, gives you high-quality Fenestra Steel Windows at remarkably low cost.

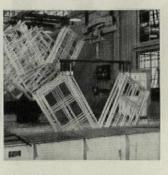
Call your Fenestra Representative or write Detroit Steel Products Company, Dept. MB-4, 2251 East Grand Blvd., Detroit 11, Michigan. \*\*



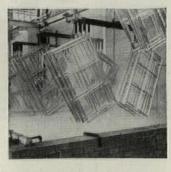
FLUXING. After cleaning, pickling and rinsing, Fenestra Windows dip into a flux bath that provides a film to prevent contamination of the cleaned steel as it passes to galvanizing tank.



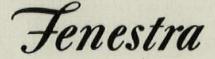
DRYING. In this oven, the flux is dried on. Of course, in the galvanizing tank, this protective coat of flux volatilizes on contact with the molten zinc to permit a strong zinc-iron bond.



GALVANIZING. Assemblies dip deep into molten zinc, and come up with a thick, smooth, uniform coating. Temperature and timing are automatically controlled with laboratory accuracy.



BONDERIZING. Here you see the galvanized assemblies being Bonderized to give the surface a soft silver color and to provide a holding surface for decorative paint, if it is ever desired.



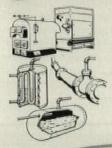
SUPER HOT-DIP GALVANIZED STEEL WINDOWS from America's first plant especially designed to galvanize steel windows

## You're ahead 4 ways when you SPECIFY SERVEL

## **AIR CONDITIONING EQUIPMENT**

**EXCLUSIVE ADVANTAGES OF SERVEL "ALL-YEAR"** AIR CONDITIONING MAKE IT YOUR BEST CHOICE FOR TODAY-AND FOR THE YEARS AHEAD!

#### Use existing steam lines to operate Servel at low cost!



Servel air conditioning units can be connected to any present source of steam to give you air conditioning at nominal cost. Servel "All-Year" Air Conditioners also operate on gas, oil, LP gas, waste heat, or steam from any source, at any pressure. With this multiplicity of fuels, Servel lets you choose the most economical energy source for any installation.



#### Servel "no moving parts" design cuts maintenance costs!

Operating on the famous absorption principle, Servel units deliver quiet, continuous, vibrationless operation at peak performance . . . year atter year . . . and, because there is nothing in their cooling systems to wear out, require a minimum of maintenance! Operating within a vacuum-they are absolutely safe.



#### Servel has the model to do all jobs better!

Do you have a factory problem that could be solved by the use of chilled water in one of the processes? Servel has the unit to remedy it! What do you want to air condition . . . a factory space, a store, an office? Servel has the unit or combination of units to provide economical air conditioning how and where you specify it! You may have cooling only... a year 'round combina-tion of heating and cooling... or com-bination units for vibration-free multiple floor air conditioning.



#### Servels have a five year

The perfected Servel absorption refrigeration unit is warranted for five full years! Five times as long as all other air conditioning units having comparable capacity.

Servel air conditioning offers low operating costs, proven dependability, vibrationless operationand an exclusive 5-year warranty.







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



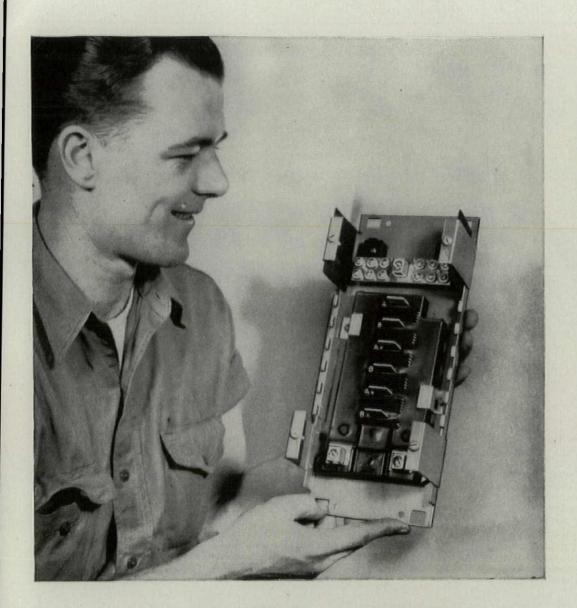
Made by the makers of the famous Servel Refrigerator SERVEL, INC. • Evansville 20, Indiana

Write for the amazing cost-cutting facts about Servel Air Conditioning today!

Servel, Inc.,	Dept. MBH-4,	Evansville 20, Indiana
Gentlemen:		

I'm interested in more information on Servel's new, low cost air conditioning. Rush me details on ( ) Industrial ( ) Commercial Air Conditioning.

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## New insulating material MAKES PANELBOARD SALES!

The base of this panelboard interior is made of *Plastisol*... the first time this amazing plastic material has been used for this purpose.

Here are some reasons for your recommending Trumbull's new NLTQ Panelboard to your customers.

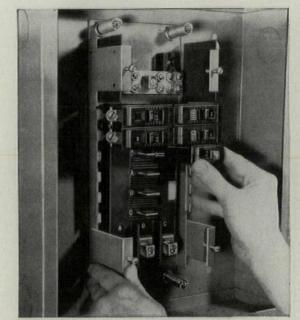
Plastisol has very high thermal conductivity and is an excellent radiator of heat. Copper bus bars encased in Plastisol run 10% cooler than in open air!

#### SALES POINTS THAT OUT-SELL OTHER INSULATION

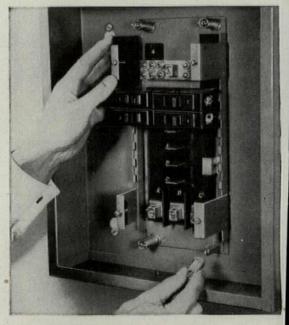
Other Plastisol advantages making it superior to all other types of insulation for this purpose include its ability to resist acid and alkali, high temperatures (not harmed at 212 F), tracking and carbonizing. It will not shrink or become brittle, even at minus 30 F.

Trumbull's Plastisol base is Underwriters' Laboratories, Inc. approved and endorsed by the Electrical Council.





ANOTHER TALKING POINT IS THE BREAKER—Trumbull's new NLTQ Panelboard introduces the first *plugin* circuit breaker with quick-make, quick-break operation. Other features: both *thermal* and *magnetic* protection . . . trip-free . . . pressuretype, silver-plated copper plug-in contacts . . . all ratings physically interchangeable. Adjacent breakers are on alternate phases — assuring balanced loads and circuits.



YOUR CUSTOMERS WILL LIKE QUICK INSTALLATION – Interior is mounted in box by compression springs... which permit easy release for removal. Springs also permit lining up fronts regardless of uneven box installation. Trumbull NLTQ panelboards with lug or circuit breaker mains come in capacities up to 225 amperes in a range of 4 to 42 circuits. Write for Bulletin TEB-14.

### **Color links the wall to production**

in Color-engineered "Facing Tile

How can you make the wall a tool of production?

By giving careful attention to the selection of the right colors for industrial interiors.

You can do this, today, with "color-engineered" Facing Tile. You can select colors that help increase production by aiding eyesight, reducing fatigue and accidents and discouraging absenteeism. You can have colors that create psychologically-right interiors for employees, that encourage cleanliness and good housekeeping.

"Color-engineering" is the newest feature of Structural Clay Facing Tile -the rugged, load-bearing, steel-saving material that cuts construction and maintenance costs.

### FACING TILE INSTITUT



You will find real aid in color selection in our new book, "The Scientific Approach to Color Specification." It will help you make any room more useful. For your free copy, just drop a note to any Institute Member, or write us direct, Dept. MB-4.

#### LOOK FOR THIS SEAL



It is your assurance of highest qual-, ity Facing Tile. This seal is used only by members of the Facing Tile Institute...these "Good Names to Know."

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CHARLESTON CLAY PRODUCTS CO. Charleston 22, West Virginia

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HYDRAULIC PRESS BRICK CO. Indianapolis, Indiana

MAPLETON CLAY PRODUCTS CO. Canton, Ohio

METROPOLITAN BRICK, INC. Canton 2, Ohio

MENEES-KITTANNING CO. Kittanning, Pennsylvania

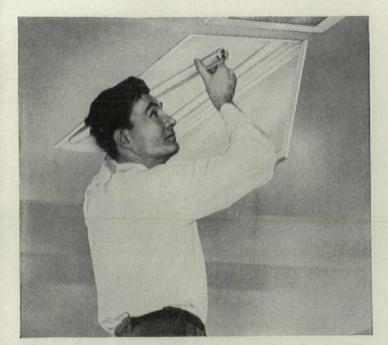
NATIONAL FIREPROOFING CORP. Pittsburgh 22, Pennsylvania

ROBINSON BRICK & TILE CO. Denver 9, Colorade

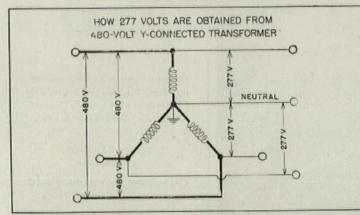
> STARK CERAMICS, INC. Canton 1, Ohio

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1520 18th Street, N. W., Washington 6, D. C. 1949 Grand Central Terminal, New York 17, N.Y.



With the 277-volt lighting system, you use standard fluorescent fixtures, standard lamps. Just specify 240-280-volt ballasts.



Voltage between line and ground, is 277 in standard 480-volt, 3-phase, 4-wire system.

# Cut Copper Requirements with 277-volt lighting

Two important ideas in wiring now offer extra savings in copper for highintensity lighting systems.

These two ideas (1) the G-E remote-control wiring system and (2) 277volt fluorescent lighting can actually help you reduce the copper requirement for a given lighting load or let you offer extra lighting with a given amount of copper—and here's how:

#### 277-volt Wiring System

By using 480Y/277-volt distribution for lighting, you get the coppersaving advantages of higher-voltage, lower-current distribution. This voltage is provided by the standard 480volt, 3-phase, 4-wire system, which offers a line-to-ground voltage of 277. Standard fluorescent fixtures with 280-volt ballasts can be connected directly into this system with no extra preparation.

extra preparation. lector G-E Remote-Control Wiring of m

Master selector switch RMS-2 and

oltage of<br/>fixtureslighting fixture—switches can be in-<br/>stalled at practically any convenient<br/>location.stem withIndividual switches and master se-<br/>lector switches offer the advantages<br/>of multipoint switching—in spite of<br/>today's tight copper supply.

other components of the G-E re-

mote-control wiring system offer convenient switching of as many as

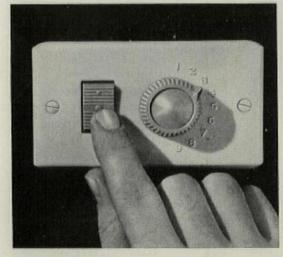
nine circuits, save copper by using

small 24-volt control wires. Remote-

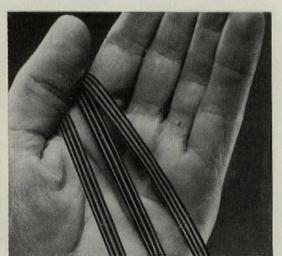
control relay RR-2 mounts in knock-

out box or ganged in pull box near

Investigate the 277-volt lighting system and G-E remote control. Write today for a copy of G-E Remote-Control Manual of Layout and Installation. Section D34-44, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.



**MASTER SELECTOR SWITCH** permits flexible control of large areas of lighting from central locations—can be used for watchmen's circuits and standard lighting control.



**ADDED COPPER SAVINGS** are accomplished by this small, lightweight control wire used with the G-E remote-control wiring system. Wires can be laid up on partitions, can be rerouted easily at any time.

GENERAL CEBELECTRIC



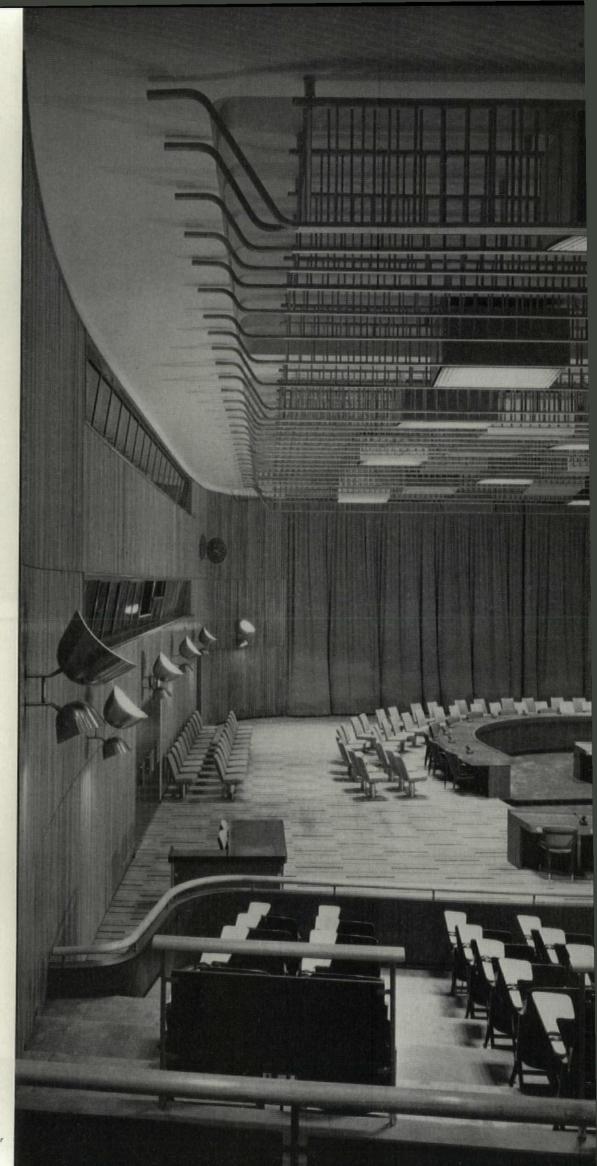
**REMOTE-CONTROL RELAY** operates on 24 volts—cuts costs and copper required to run load lines down to switches. Rated  $\frac{1}{3}$  hp; 15 amp; 125 volts; 5 amp, 277 volts. No need for derating with fluorescent loads.

You can put your confidence in\_

# UN

in the second

UN Trusteeship Council Chamber designed by Denmark's Finn Juhl is typical of the friendly interiors in the newly completed Conference Building. View here is from public galleries across press gallery to delegates' floor. Brightly colored boxes set into wood trusses are lighting and air conditioning units. For details of rest of building, turn page.





# UN completes the link

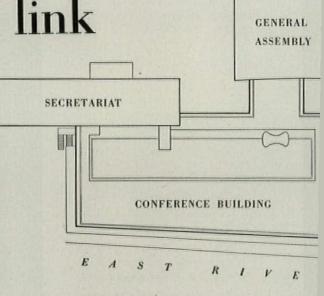
Conference Building cleans up Manhattan's water front,

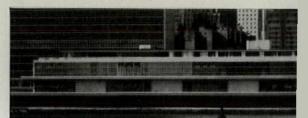
gives Secretariat a base to stand on

Of the three major structures that make up the UN headquarters group on New York's East River bank, the 400' long, five-story-high Conference Building completed last month is both the most complex and the least visible.

It is complex because it has three major (and sometimes conflicting) functions: It is the link between the towering Secretariat and the swaybacked General Assembly Building; it is the community center for UN employees who use its lounges, terraces, restaurants, bars and other facilities; it is, finally, the building in which different UN councils and committees meet in conference.

It is half hidden by the Secretariat tower and will be even more invisible





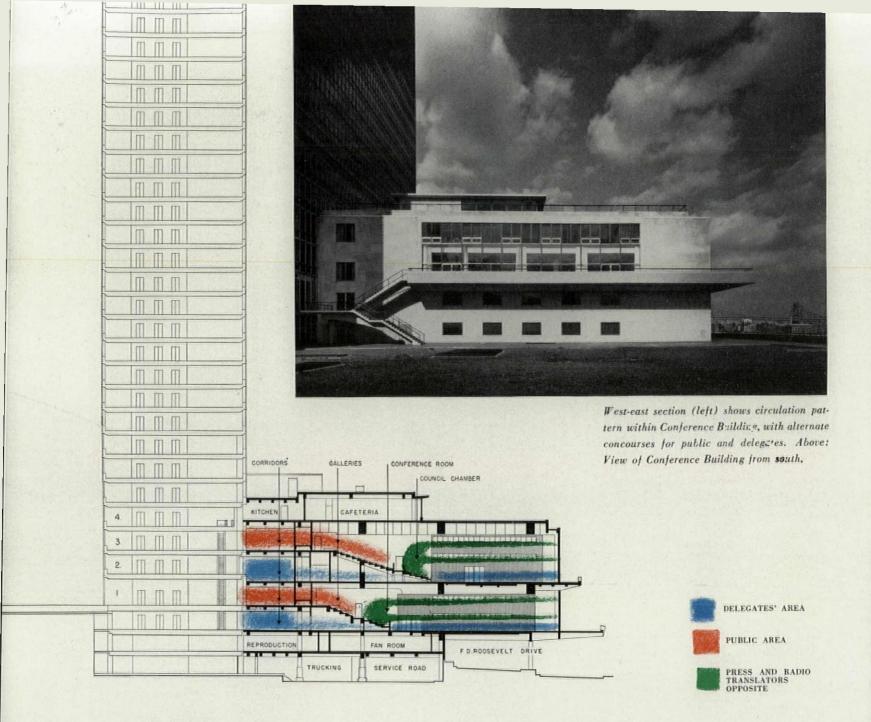


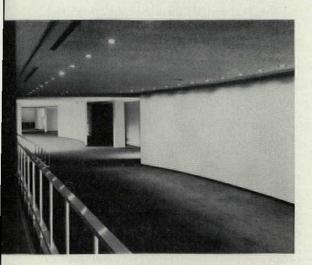
when the General Assembly Building is completed late this fall. Yet, though it seems but a hyphen between Secretariat and General Assembly when seen from the UN's Manhattan approach, the Conference Building is an important architectural element when seen from the East River (*above*): then it becomes the flat base upon which the 39-story Secretariat can rest its giant bulk, the visual "underpinning" needed to hold up such a mass.

Most visitors to the UN, however, will remember the Conference Building for two reasons: first, because it contains some of the most pleasant interiors to be found in a public building; and, secondly, because its sweeping terraces have set a spectacular example of how to clean up Manhattan's ragged water front (see below).

FDR DRIVE	SERVICE ROAD

For more than ¼ mi. Manhattan's East River front is now faced with a sweeping parapet of steel painted with aluminum. This clean cantilever juts out over Franklin D, Roosevelt Drive, is so designed as to give motorists in both lanes unimpeded view of river. Third lane services UN group.





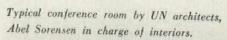
View of typical concourse shows curved screens used to mark entrances to meeting rooms and to avoid monotony of long corridors.

**Ease of circulation had top priority** in the design of the Conference wing. Three groups of people use the building and every effort was made to keep them out of each other's way: First are the delegates, most of whom will enter the building from the Secretariat; next is the general public, whose main access will be by way of the north lobby of the General Assembly Building when that is completed this fall; last are the press-radio-TV-movie personnel, whose elaborate facilities include press galleries and viewing slots on both sides of each meeting hall. To keep these three groups separate and give each direct access to its section of each hall, UN's architects developed an elaborate split-level system which brings each group in on separate levels.

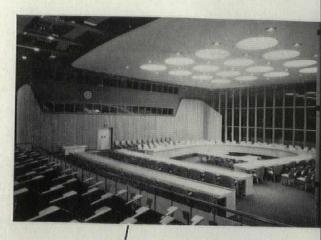
The result is a building sandwich four slices high on its west side (disregarding basements and penthouse), two slices high in the middle, and five slices high along parts of the river front between the meeting halls proper. The four slices are delegates' and public concourses; the two slices are the council and conference halls; the five slices are translators' booths and press, radio, TV and movie personnel galleries. The plans and sections on these pages will help to explain how the split-level system works. UN CONFERENCE BUILDING



Trusteeship Council Chamber by Finn Juhl.







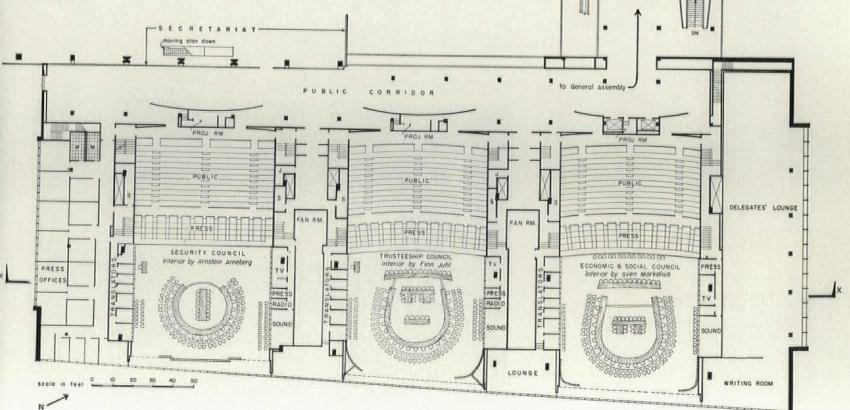
Economic and Social Council Chamber by Sven Markelius.

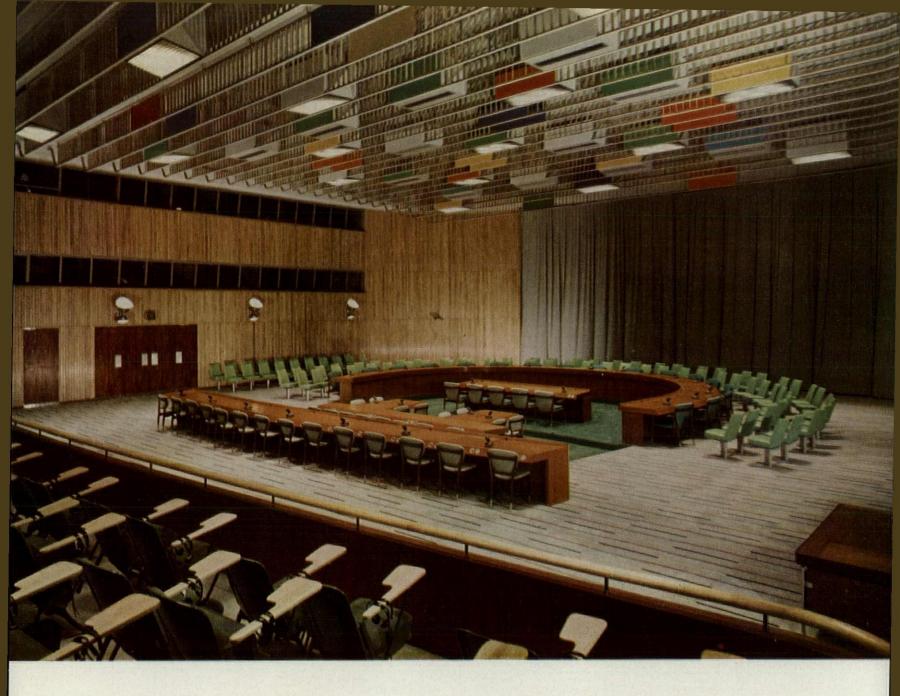
		KITCHEN	DELEGATES' DINING ROOM	
PRESS				
E DELEGATES' LOUNGE	SECURITY COUNCIL CHAMBER	TRUSTEESHIP COUNCIL CHAMBER	ECONOM & SOCIAL COUNCIL CHAMBER DELEGATES' LOUNGE	
COMMITTEE RM	CONFERENCE ROOM	CONFERENCE ROOM		
SERVICE DRIVE	TRUCKING AREA		R E P RODUCTION AREA	

SECTION X-X

Three council chambers (plan below) are directly above three conference rooms (section above). Conference Building is link between Secretariat (below) and General Assembly Building (right).

THIRD FLOOR





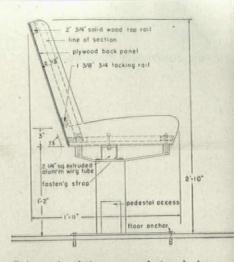
In both council chambers and conference rooms the wall surfaces were covered with vertical battens widely spaced and backed with sound-absorbing material. Chief interior design problem was to play down horizontal viewing slots in side walls. Above: Finn Juhl's Trusteeship Council Chamber with its special, articulated and brasstipped chairs. Below, right: Sven Markelius' Economic and Social Council Chamber. Note the abstract white-gray-black patterns painted on the exposed ducts. Markelius painted sides of ducts and ceiling black, suspended his lights low so as to throw ceiling patterns into semidarkness. Hand-woven curtain for glass wall in Markelius' chamber is yet to come. Its colorful design (with huge butterfly wings) is result of Swedish design competition.



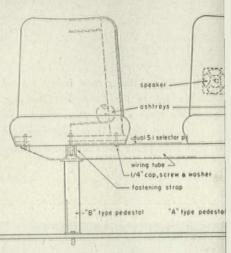
Interior design: More than anything else, the Conference Building was an interior design problem. Recognizing this, UN's director of planning, Wallace K. Harrison, called in Swedish architect Sven Markelius, Danish architect Finn Juhl and Norwegian architect Arnstein Arneberg to design the chambers for the Economic and Social Council, Trusteeship Council and Security Council, respectively. The result is three interesting variations on the "humanist" design idiom now popular in the Scandinavian countries.

Sven Markelius' design for the Economic and Social Council (see cover and lower photo, opposite) envisages the chamber as a vast and roughly built cavern in which the brightly lit delegates' area is picked out as an island of refinement and elegance. To create this contrast, Markelius suspended a perforated ceiling plane above the delegates' horseshoe, left the rest of the ceiling structure with its maze of ducts and pipes frankly exposed to the eye. A brilliantly colored curtain, hand-woven in Sweden and designed as a result of local competition, will soon be installed across glass wall to the east of the chamber.

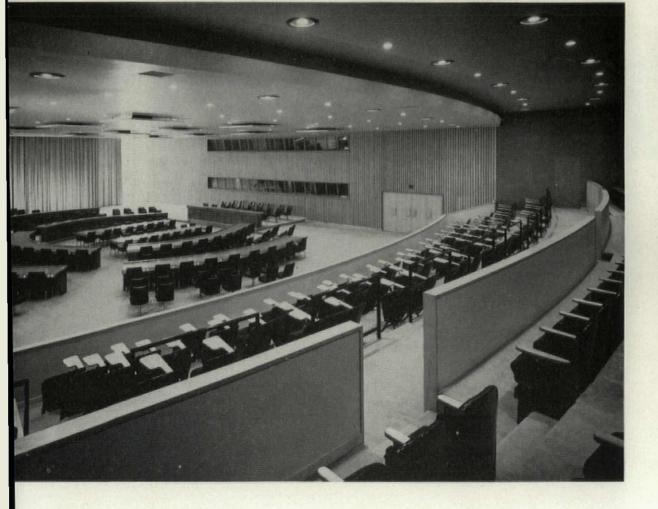
Finn Juhl's Trusteeship Council Chamber (opposite) is, by contrast, very playful. Its spidery wood trusses hold boxed lighting and air conditioning units, and big wall lights pick out their brightly colored sides. Where the Markelius chamber has a very large scale in its major elements, Juhl's room seems almost domestic. Architect Arneberg's Security Council Chamber does not measure up to the other two, is therefore not illustrated.



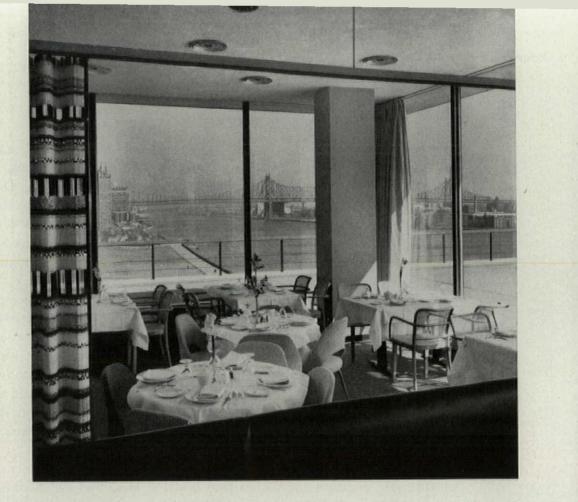
Delegates' chairs were designed in pairs, equipped with ash trays and selector switches to control simultaneous interpretation and loudspeakers.



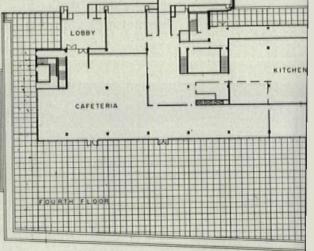
Left: typical conference room with dais along side wall, viewing slots arranged as in council chambers. Press gallery is nearest delegates' floor, public galleries are farther back. All gallery seats are equipped with six-position simultaneous interpretation earphones.



Delegates' dining room is in the penthouse on top of the Conference Building, has fine views of East River across spacious roof terrace. Light, colorful woven screens divide dining room into intimate areas.

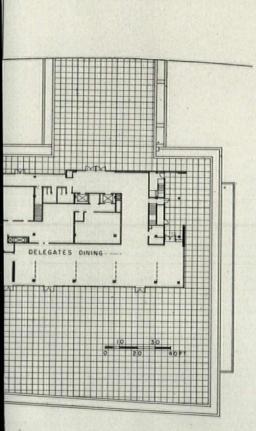




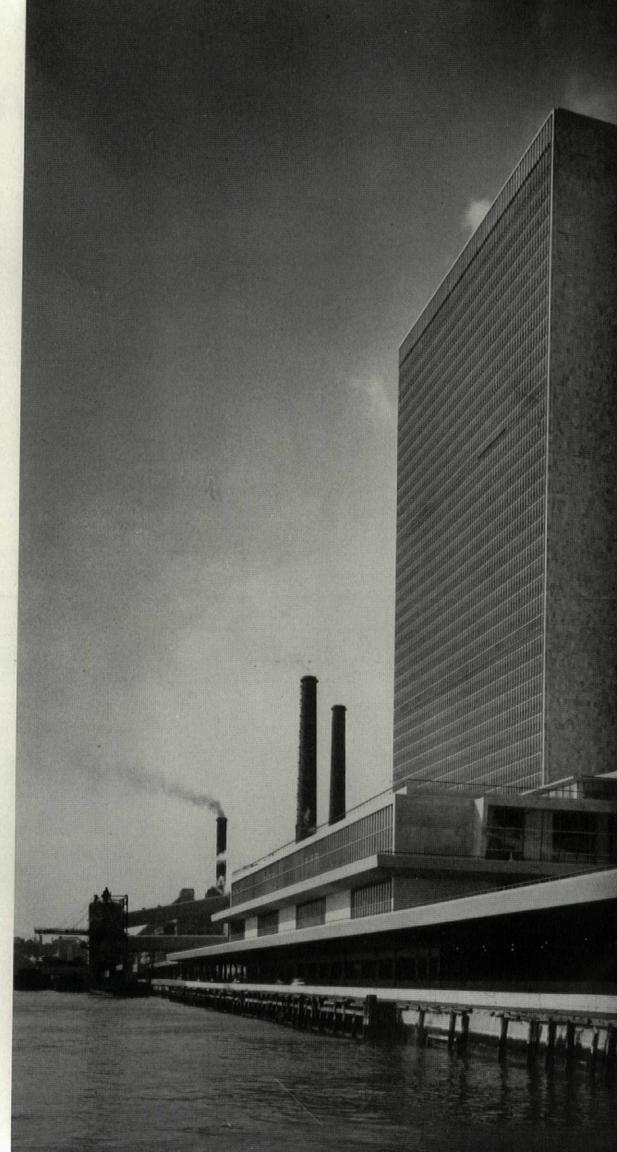


What do the critics say? They have only two objections: First, some feel the Conference Building is rather prosaic and uninspired. The answer is that it is merely a hyphen, was never meant to attract special attention.

A more serious criticism concerns the interiors: granting the Scandinavian-designed council chambers are (by and large) handsome and friendly, was there any good reason for limiting their design to the esthetic represented by men like Markelius and Juhl (who like to work in an almost domestic, rather than monumental, scale)? The answer is yes—first, because Norway, Sweden and Denmark donated the interiors to the UN on condition that the money be spent in their own countries; and secondly, because it occurred to some of the designers involved that the council chambers and conference rooms should be treated on an intimate scale to encourage faceto-face discussion; and that the General Assembly hall would present a striking contrast and a monumental climax. It seems only fair, therefore, to await the completion this fall of the General Assembly Building (and, with it, of the UN group) before rendering a final verdict.



Few people will ever see the Conference Building's best feature: its ¼-mi. long, aluminumpainted steel parapet along the East River. It is a spectacular example of what can be done to clean up Manhattan's chaotic water front.



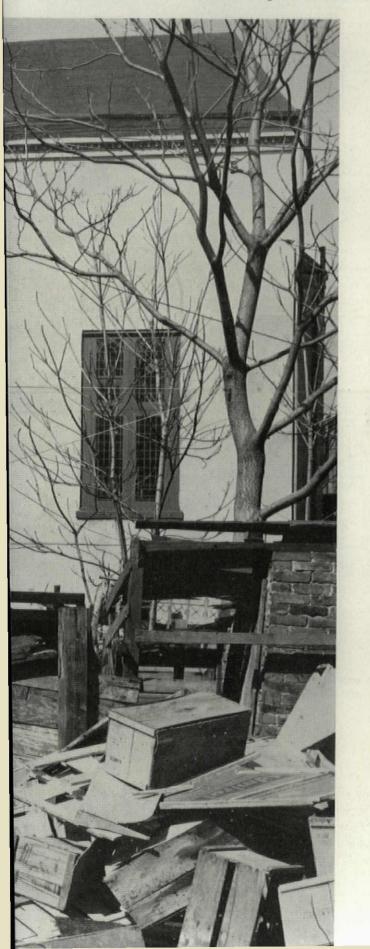
# THE PHILADELPHIA

The eldest, third largest and quietest



## CURE: clearing slums with penicillin, not surgery

metropolis in the U.S., Philadelphia, is attacking the problem of blight in a startling new way for a big U.S. city



-conservatively. In Philadelphia there are six definite differences to the redevelopment program:

1. Redevelopment has been cut down to size. There are no monstrous single-project solutions planned for Philadelphia. Instead, redevelopment areas have been cut up into separate projects of a size that local capital can take, so Philadelphia need not sit in vain hope of big insurance company financing. This independence has been made practical by a financing system of bonds issued by the Redevelopment Authority itself.

2. Philadelphia's small takes involve a minimum of dislocation of present inhabitants—the people now living in slums (see map; black denotes blight). This displacement and the threat of it have been major political headaches in other cities such as Chicago.

**3.** By holding meetings in the local areas *before drawing any plans*, Philadelphia's Planning Commission has preserved democracy and good feeling, obtained many good ideas that would not otherwise have been forthcoming, done a wiser job in the end, and avoided the friction generated in cities such as New York when a planning boss such as Bob Moses confronts the neighborhood at a "hearing" with a plan already cooked in total disregard of their own feelings.

4. By deliberately preserving local institutions such as churches, schools, clubs, now in the neighborhood, Philadelphia is protecting the social structure of the area *as a neighborhood* held together by an institutional structure which other cities in their redevelopment and housing projects have unwittingly destroyed (and treating only the spots of worst infection, Philadelphia expects the cure to spread normally).

5. By pulling in architects skilled in urban design (as distinguished from spot architecture) to co-operate with the various architects hired by the separate builders of the separate projects, Philadelphia has evolved remarkable new expedients for making whole city areas harmonious. This harmony does not destroy the individual freedom of the individual operator, but it restores the kind of over-all coherence that has all but disappeared from modern city districts.

6. Where possible, Philadelphia has tried to preserve the historical past of the area, as for example in the Friends' project—although this has turned out to be more costly rather than less costly. Yet even at a higher price this preservation of "depth in time"—as the AIA's committee on urban design has called it—has strong spiritual values in giving a sense of *continuity of life* from generation to generation.

**Redevelopment areas are carved** into many projects in the Philadelphia Way. Below is a plan showing the division of parts of two adjoining redevelopment sites, one project of which is already complete. East Poplar Homes (*lower right in area*) is, in fact, the first completed redevelopment project under Title I of the 1949 Federal Housing Bill.

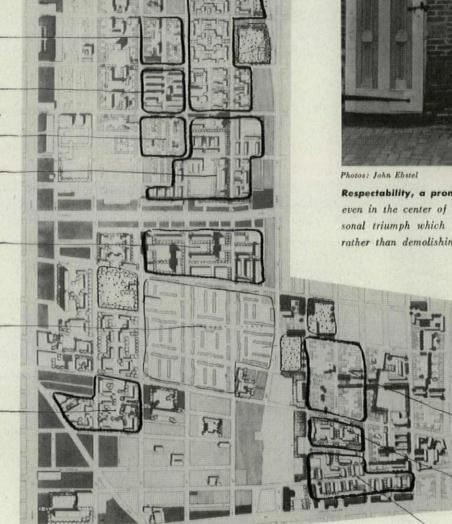
Private enterprise housing with state subsidy; Edwards & Green, Architects

Private rehabilitation and new construction; Frank Weise, Architect

Public Housing Project; Howell Lewis Shay, Architect

Existing Public Housing

Private Housing Development; Colish and Kahn, Architects





**Respectability, a prominent Philadelphia virtue,** stands triumphant even in the center of depressed areas. And this is the kind of personal triumph which the Philadelphia approach seeks to preserve, rather than demolishing it in general improvement.

> American Friends Service Rehabilitation Project; Oscar Stonorov, Architect

Redevelopment Authority Project; Paul M. Hesser, Jr., Weston B. Hillard, Architects; Horace Fleisher, Landscape Architect

East Poplar Project, Philadelphia Housing Authority (completed). Krimmel, Evans, Hatfield, and Malkus, Architects.



CO-ORDINATING ARCHITECTS:

KAHN, DAY, MCALLISTER and TYNG; CHRISTOPHER TUNNARD, Landscape consultant

The church will remain. The slums beside it will be replaced. Says Edmund Bacon, executive director of the Philadelphia City Planning Commission, "There is a structure of institutions (in all neighborhoods) which has vitality . . . which tie the people together. Redevelopment, whenever possible, should give these institutions new strength and validity."

#### THE MONEY

The nourishing root of urban redevelopment in the U. S. today is in Washington: the \$500 million appropriated by the U. S. Congress in 1949 for that purpose. From this fund, the U. S. triples local money, adding two federal dollars to each city dollar spent for land acquisition, clearance, and resale at less than cost. In this way, the U. S. encourages approved redevelopment projects.

But even before there was federal help, a novel state mechanism had been invented in Pennsylvania for raising redevelopment money, and today this seven-year-old financial strategem provides most of the unique money vitality in the Philadelphia Way:

By act of the Pennsylvania legislature in 1945, local redevelopment commissions were empowered to float their own bond issues, a power hitherto limited to cities, port authorities and turnpike authorities in most states. This makes cheap money  $(3\frac{1}{2}\%)$  on 40 year tax exempt bonds) available for building, and the manner in which the Philadelphia Redevelopment Commission is using this money is also a new expansion of the redevelopment process.

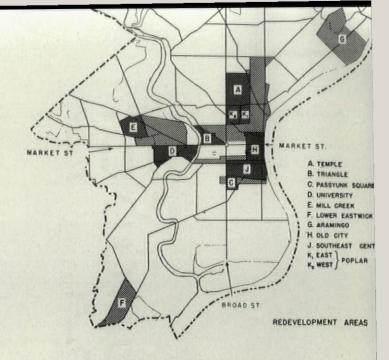
This process begins conventionally when the City Planning Commission certifies a blighted area for redevelopment (see map of certified areas, above right) and starts work in the neighborhood to stimulate support among the people who live there (which the Philadelphia City Planning Commission does uncommonly well). The blighted area is broken up into projects, which may include: 1) school projects by the Board of Education, 2) city playgrounds and parks, 3) rehabilitation projects by the famed Friends' Service Committee of Philadelphia, 4) public housing projects by the Philadelphia Housing Authority, 5) good blocks left untouched, and 6) the crucial private developments promoted by the Philadelphia Redevelopment Authority.

It is at this point that most redevelopment authorities go looking for big money from big institutions, but in Philadelphia the quest is not so desperate because of the Redevelopment Authority's power to issue bonds. For example, when no private investor could be found to put up \$1,700,000 (matching \$1,260,570 in federal, state and municipal subsidies for the area slated for private redevelopment in the East Poplar Redevelopment area (*see map on opposite page*), the Authority went ahead and issued bonds, hired an architect, and contracted with a manager for the project. Principal and interest payments for the bonds will be covered by rentals of the project, and the operator is given an exclusive option to buy the project at cost during the 28 years following the signing of the contract. Thus the Redevelopment Authority has made itself a bridge between the private operator and the cheap money market. This may turn out to be the most significant part of the Philadelphia process.

#### THE MEN

Leading in the cast of the over-all redevelopment picture in Philadelphia:

- 1. Architect Louis J. Kahn, chief co-ordinating planner
- 2. Edmund N. Bacon, executive director, Philadelphia City Planning Commission
- 3. Edward Hopkinson Jr., chairman, Philadelphia City Planning Commission
- 4. Francis J. Lammer, executive director, Redevelopment Authority
- Kevy K. Kaiserman, chairman, Redevelopment Authority (until this month, when he resigned)
- 6. Joseph N. Gorson, president of Fidelity Bond & Mortgage Co., whose company is providing some of the private money in the enterprise



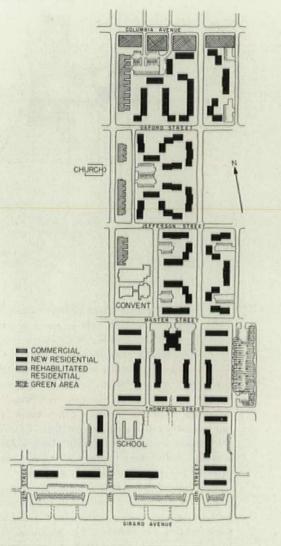
The natural calm which prevails along the banks of the Schuylkill even in times of crisis probably accounts for the basic conservatism of Philadelphia's redevelopment pattern. In 1947 a note of housing alarm was sounded loud and clear to Philadelphians at the memorable City Planning Commission show at Gimbel's Department Store (Dec. issue '47) but even then there was no rush to the nearest insurance company for help. Instead there was a period of deep thought, which has given birth to the new Philadelphia program.

This Philadelphia Way is new only because it escapes the violent postwar redevelopment pattern in our largest cities-the neighborhood-leveling techniques of planners like blockbusting Bob Moses of N. Y., who smash enormous rundown areas off the map, and then hand the aching sites to single large agencies or insurance companies for sliderule housing solutions. There are too many links with the past in Philadelphia for this drastic action, too many old cobblestoned alleys which are good for another 100 years' wear and which (cleaned up) could retain a pleasant memory for Philadelphians of their city's long heredity. (Even before the American Revolution, Philadelphia was the second largest city in the British Empire.) There are too many trees the Philadelphians don't want uprooted.

So that was why the "new" Philadelphia Way evolved. That long Quaker silence which settled after the wild success of the show at Gimbel's five years ago was not the silence of exhaustion or apathy. It has been a time for tough and realistic thinking by the astute planners in city commissions, who shifted into low gear for the long pull toward actual results.

Photos: Jules Schick; R. R. Frame & Co.; Kaiden-Kazanjian; A. Henry Kaufjman



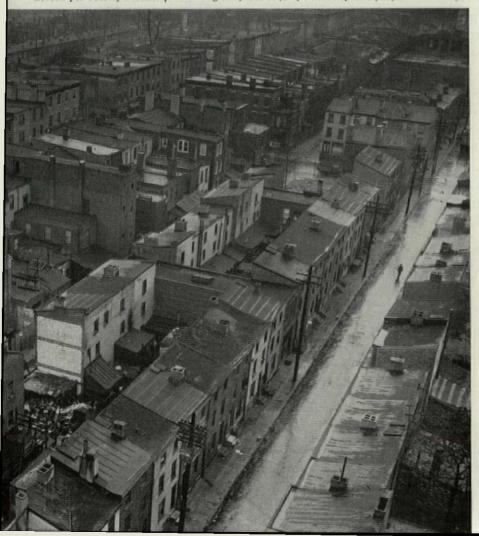


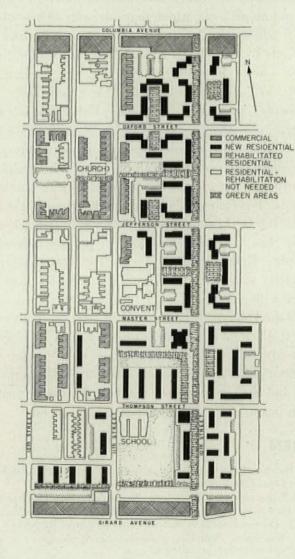
All did not go smoothly with the first of Philadelphia's atomized redevelopment projects, the East Poplar area. Incoherence, the besetting vice of urban operations by independent owners working side by side, almost killed it. When the plan was sent to Washington for HHFA approval, it went as a series of projects designed by different architectural firms. But Washington balked . . . the principles of the approved over-all plan had been lost, the Philadelphia Planning Commission was told, and other projects of this piece-meal character would be unacceptable.

Bacon, of the Planning Commission, immediately decided that the architects were not at fault, but that the fault was his commission's for issuing weak directives. With characteristic, quick energy he looked for an answer.

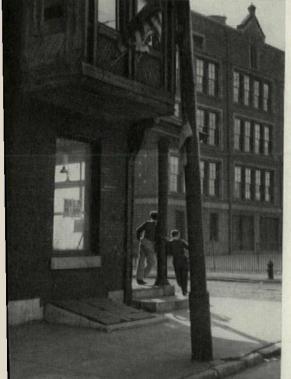
He found the answer in Louis Kahn, Philadelphia architect nominated by the local AIA as over-all consultant. (Working with Kahn as landscape consultant is Christopher Tunnard.) For the Temple Redevelopment area, which was already in preliminary planning stages, Kahn did five principal things (*see* before, *left*, after, *below*): 1) he established a setback on a central street, and planted it to make a shady promenade which continues through the separate projects and unifies the whole area; 2) then he added crosswalks from this main stream penetrating back into the housing areas, 3) working with the architects for the project (*see page 114 for identification*) he got them to realign some of the main structures, breaking symmetry within the different projects in order to maintain the over-all continuity of pattern; 4) he pulled parking spaces away from the promenade, with access from minor streets; 5) he opened up a back alley parallel to the main promenade and made it a secondary axis, a green walk.

Eleven per cent of Philadelphia is blighted, and 17% of Philadelphia's people live in blight



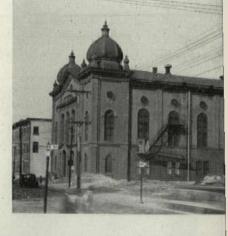


Photos: John Ebstel Philadelphia Housing Association



Landmarks are preserved and integrated into the promenade which leads across the replanned area. (School shown in lower left section of drawing appears also in photograph left.) Plaza in front of one new landmark, a 13-story apartment building, becomes the center of the community. Open space system filtering through community, dividing or intersecting the varied building enterprises, is intended to give cohesiveness socially as well as architecturally.

> Another building preserved in the new plan is a flavorful old labor lyceum which will continue to stand in all its towered glory,





Church below (and in drawing left) will be enhanced by making it the focus of a tree-lined crosswalk through the community.

Photos: John Ebstel



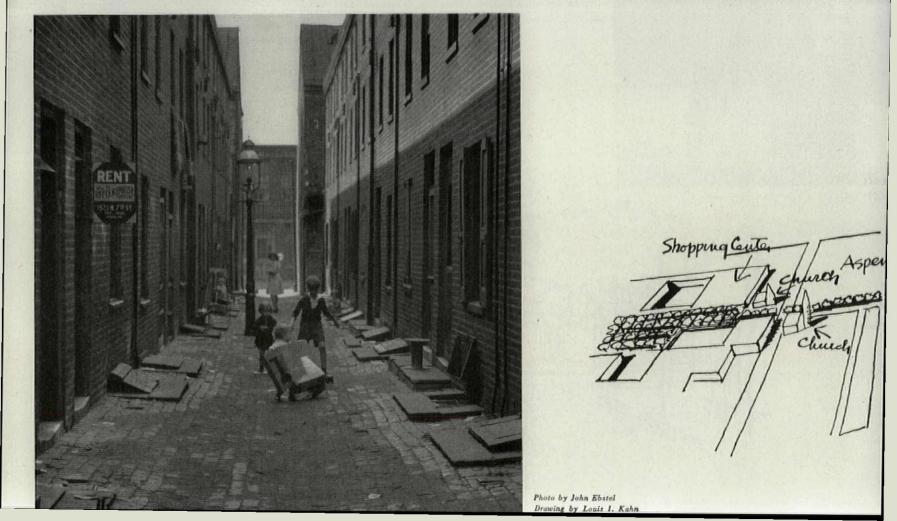
Drawings by Louis 1. Kahn

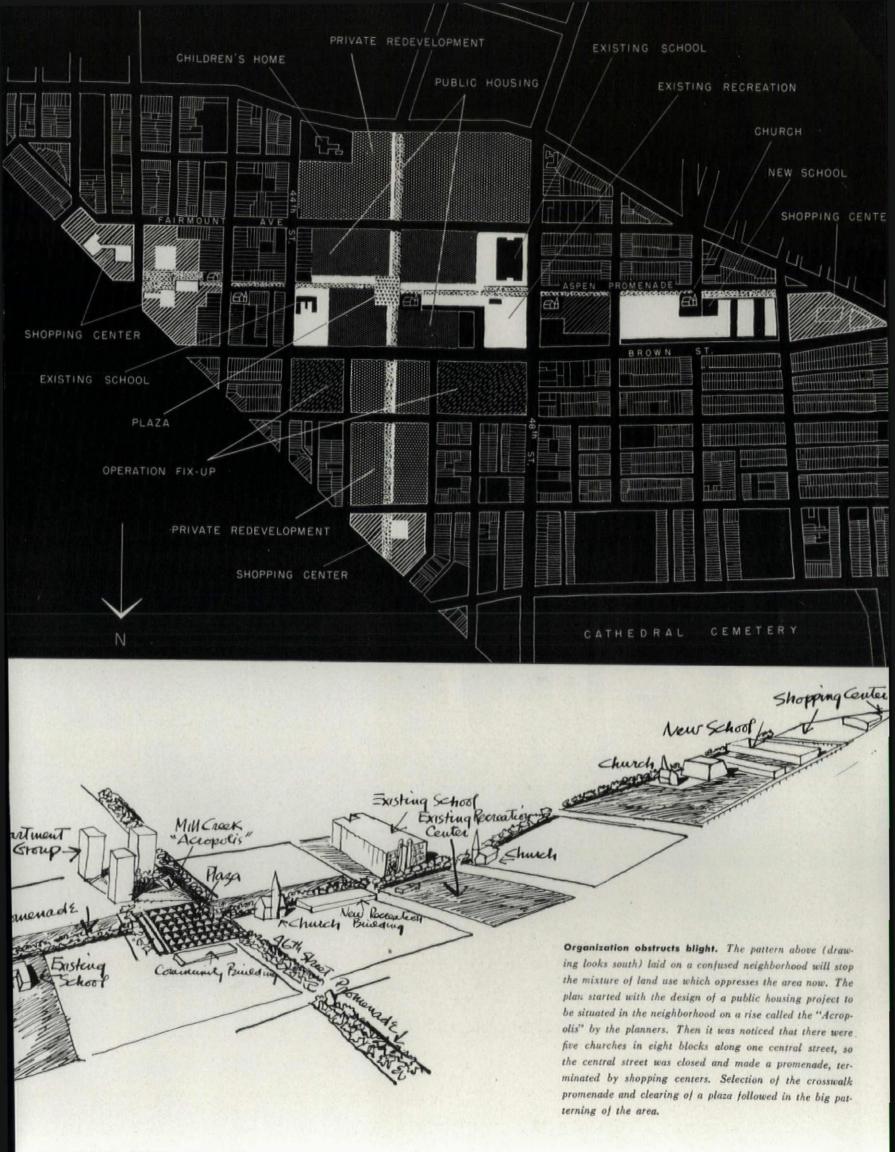


Old fashioned alleys are indigenous to Philadelphia, most of which was laid out long ago in a time of narrow transit. New plans will retain many alleys and will reclaim them from their present second-class condition. This is the over-all plan for the Mill Creek Area, a redevelopment project further down on the Philadelphia timetable. This was Kahn's introduction to redevelopment; when he and his associates were retained by the housing authority to plan a public housing project in the middle of this area, they first wanted a unified plan for the whole area, as a starting point. So they created this one. Into a typical alley-laced territory (see small plan, left) they brought order (see opposite page) by 1) proposing that the long central street be closed, and turned into a promenade which would act as a linear community green—with all the churches and community services bordering it, and a redeveloped shopping center at each end; 2) closing another street as a cross promenade to complete the pedestrian walkways for the area and knit the old and new sections together; 3) clearing a plaza at the intersection of the two promenades, and also generally redistricting land set aside by the Planning Commission for recreation.

This, too, is a conservative scheme in the truest sense of the word. Not only is this organization of promenades leading to open spaces as old as the oldest Greek towns, but it is expected also to rally the ambition of people in the untouched portions of the neighborhood to save their homes from blight. Kahn knows the Philadelphia slums well, because he grew up in them. The principle of retention of neighborhood values is not theoretical when he talks about it. "A slum is the most closely knit social neighborhood of all. There is more kindness and more natural behavior than anywhere else. There has to be, So you have got to make any redevelopment a product of the neighborhood, or it fails. You have got to search for the things which give the neighborhood its patriotic unity, and retain them. The amateur quality of the building should not be a consideration."

This repatterning rather than replacing of neighborhoods falls in with the general conservatism of the Philadelphia approach, which seeks to leave standing what can be left. Says Bacon, "In almost any neighborhood in Philadelphia it is a shock, as one wanders about decaying sections, suddenly to come upon three or four houses, a half-block or a whole street where each property owner has kept his home in fine condition, all of the houses painted, new fronts, and sometimes even a whole street with the same colored awnings . . . These cells have within them the latent capacity to restore themselves."







## HOSPITALS BY SKIDMORE, OWINGS & MERRILL

No architectural firm has done more than Skidmore, Owings & Merrill to give contemporary architecture a sure foothold in the tradition-conscious hospital field. Over the past decade this big team of individual designers working together in the modern idiom has planned some \$134 million worth of advanced hospitals. And though their work ranges from huge urban medical centers to small country health facilities, each job reflects a consistent, distinctive design approach.

#### Hospitals by SOM have these key elements in common:

#### A balanced design team, a complete program

To achieve a good balance of medical efficiency, sound engineering and architectural quality, SOM's hospital planning teams are composed not merely of hospital specialists but of men with experience in the firm's other work.

Says Robert W. Cutler, New York partner in charge of hospital planning, "By bringing fresh talent to each hospital job we get the benefit of new ideas developed on other kinds of projects. Our hotel experience has helped us to make patient rooms more livable. Knowledge acquired in our industrial and commercial work often improves the layout of a hospital's supply and service areas. And our big housing projects have taught us ways to create a more pleasing environment for people in hospitals."

As a result of this teamwork, a purely medical viewpoint does not dominate the design of SOM hospitals-the architectural concept is the designers' contribution. But the end product demonstrates that clean-lined, economical building shapes can meet medical requirements just as effectively as the more complicated structures produced by many hospital architects.

Long before this team draws a line, its key members practically move in with the staff of the old hospital to determine the needs of the new project. Functions and space requirements of each major element are worked out in conferences with the board, administrator and department heads. Diagrams, flow charts and written analyses are developed for each department, then consolidated into a complete program. This covers both present and future needs, establishes the relationship of the new structure to the old and sets a pattern for further growth before the first new unit is built. Not until the program has been pinned down do the architects turn to the problem of the actual building and site planning.

Clean-lined, rectilinear nursing wings with 90% of the patients' rooms facing the best sun, breeze or view, and services compactly grouped on the other side of the corridor. (Page 122.)

Homelike patient rooms with continuous windows, overhangs for sun control, individual toilets (where the budget permits), restful color schemes and two-way lighting. (Page 124.)

Efficient separation of patient and service areas—wherever possible ancillary services are grouped in a separate wing to preserve the framing module of the nursing wing and improve traffic flow. (Page 126.)

Well engineered structural systems which cut costs through uniform column spacing, repetitive detailing and an emphasis on clear vertical pipe runs. (Page 127.)

Handsome exterior treatments which are a direct expression of plan and structure.

THE TEAM:

Photos: Torkel Korling;

Koehne

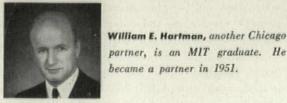


Gordon Bunshaft, chief designer in the New York office, earned his master's degree at MIT in 1935, became a partner in 1945.



Robert W. Cutler, New York partner in charge of hospital planning, is a member of the American Hospital Assn., was made a partner in 1945.

Nathaniel A. Owings, senior partner since 1936 in the Chicago office, is concerned with hospitals on a national basis.





partner, is an MIT graduate. He became a partner in 1951.

John L. King, is a general partner with John B. Rodgers for the San Francisco office.

### THE NURSING WING is shaped by orientation

"Favorable orientation of a patient's bedroom is the most fundamental element and must be decided upon first if the hospital is to be properly planned," says Gordon Bunshaft, head of design in SOM's New York office.

This conviction rules out X-shaped plans and leads to the characteristic SOM nursing wing shown on these pages—a simple slab structure with most patient rooms on the south side and services on the north. The patients' side is largely glass, shaded by continuous overhangs which are precisely dimensioned to bar the high, hot summer sun and admit the low winter sun for warmth and cheer.

One school of hospital planners opposes this concept on the grounds that it is uneconomical to put the major part of the patient rooms on one side of the corridor only, that the single-loaded corridor also increases nurses' travel, that big windows not only are of questionable therapeutic value to very sick people but also increase maintenance and heating costs. SOM's answer:

1. Since the required services for each 20–30 bed nursing unit require a fixed amount of space, putting them on the north side of the corridor along with stairs and elevators does not necessarily increase cubage.

2. With the nurses' station located near the center of each unit, this plan cuts nurses' travel as well as any other, and utilities directly opposite rooms lighten the nurses' work.

3. SOM are 'dedicated to the proposition that a hole-in-the-wall window not only creates unpleasant brightness contrast between glass and wall but limits the view from the inside bed.

4. Continuous windows are more flexible—the amount of light can always be reduced by means of blinds or drapes; a glass wall makes the room seem larger. Movable sash at the far side of beds keep direct drafts off patients.

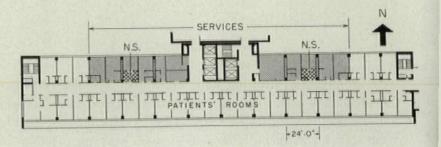
5. With overhangs designed to permit solar heating in winter, large glass areas actually lower fuel bills. (With an area four and a half times that of its old conventionally designed building, Greenwich, Conn.'s new SOM hospital consumes only one and a half times as much oil; in addition to solar effect this wing enjoyed improved heating design, zoned controls, better insulation.)

One clear advantage of the SOM nursing wing over those with projections, breaks or angled walls is that it permits a modular framing system that lowers construction costs. Column spacing along the length of the wing corresponds to the width of two basic rooms, designed to accommodate either one or two beds. Depending on the type hospital and the budget, these bays are usually 22' or 24' wide.

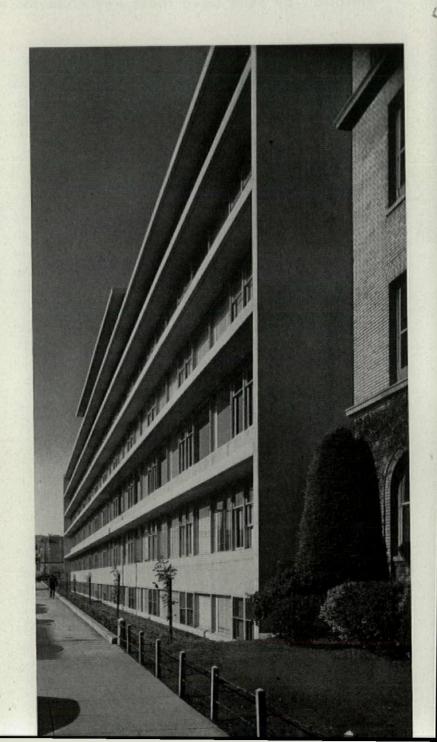
To those who claim that the facade created by this type plan and structure is "factorylike, dry and sterile," Nat Owings replies, "We don't think you will find factories designed as carefully as that; but anyway we have no particular objection to factories and see no harm in repeating something if it accomplishes the functional objective."

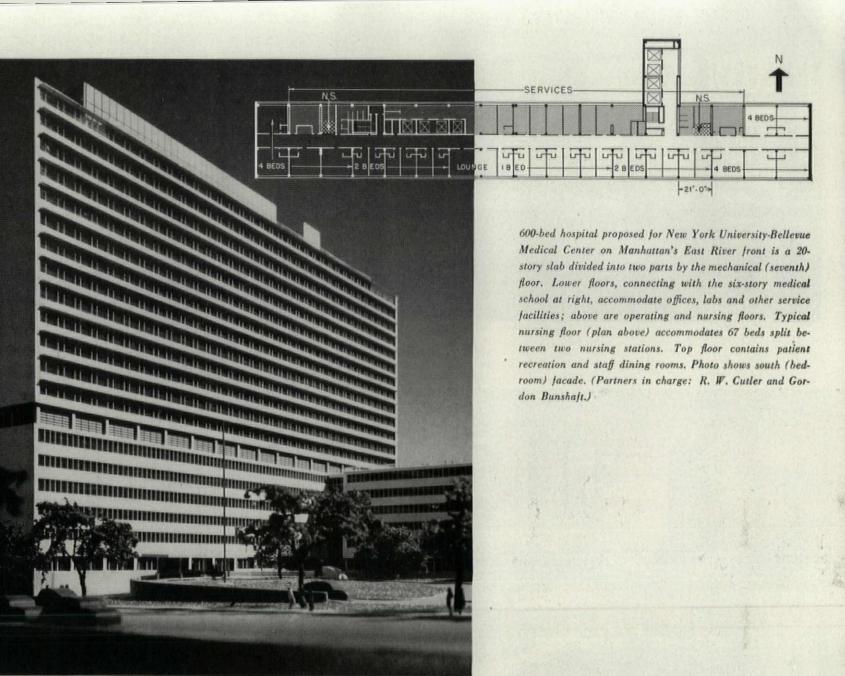
SOM do not contend, however, that the slab-type building is necessarily the final answer to hospital needs. Says Robert W. Cutler, "The hospital of the future may well be split into two separate elements: one, a structure similar to the one we now favor which will give convalescents and chronic patients the benefit of proper orientation and big glass areas; the other, a more compact building, perhaps windowless and completely air conditioned, which will be devoted exclusively to the care of the seriously ill."

Actually, SOM have already demonstrated that the slab building can be designed to facilitate intensive nursing. Certain nursing floors in the hospital unit of their N.Y.U.-Bellevue Medical Center (*opposite*, *above*) concentrate one-bed rooms for the very sick opposite service areas, and place larger wards for the less ill at the ends of the wing.



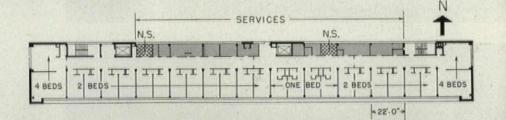
150-bed addition to Mt. Zion Hospital in San Francisco has its corridors down the exact center of the nursing wing. Entire south side of nursing wing (photo below) is devoted to bedrooms; six additional bedrooms per floor are located on the north side of the corridor.





Ezra Stoller-Picto

108-bed Shoitz Memorial Hospital in Waterloo, Iowa is comprised of three  $38' \times 260'$  nursing floors plus a service wing to the rear (north). A pair of two-bed rooms with adjoining toilet is contained within each  $18' \times 22'$  structural bay along the south facade, while the off-center corridor and other service facilities are housed within the strip of similar bays along the north wall.





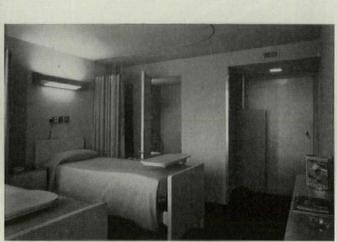
HOSPITALS

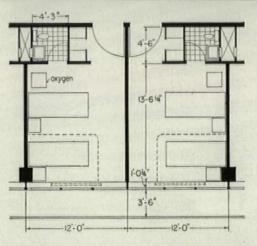


Photos: (above) Roger Sturtevant; (below) Torkel Korling

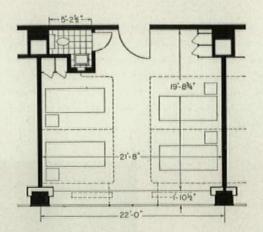








Typical semiprivate room at Mt. Zion Hospital, San Francisco (above) has wall-size windows which give even the inside patient a cheerful outlook. Note room's built-in lighting and handsome furnishings.



Four-bedroom plan for Greenwich, Conn. hospital (above) is similar to that for Alexandria Bay hospital (photo, left above). The latter has wall-to-wall windows, but a 3'-7½" sill because rooms face northwest (instead of south) toward a river view. Each bed may be completely isolated by a curtain.

- Sun control in Shoitz hospital nursery is provided by draw curtain at the wall-size window, permitting the use of floor space adjacent to the glass.

### PATIENTS' ROOMS combine homelike features, nursing conveniences

The bright, cheerful effect produced by the wall-to-wall windows of patients' rooms in SOM hospitals is shown by the photographs on the facing page. Combination of a large fixed glass panel on the side opposite the beds and a smaller section of movable sash on the other side not only keeps drafts off the patients, but permits the nurse to regulate ventilation even when curtains are drawn around the bed nearest the window.

Sill heights are varied to meet local conditions. In San Francisco's Mt. Zion Hospital, glass was carried from the ceiling almost to the floor to give patients the benefit of a view of the city. (A shallow convector forms the sill, prevents down drafts.) But in the Alexandria Bay hospital overlooking the St. Lawrence River, sills are higher than normal  $(3'\cdot71/2'')$  to counteract the cold climate and a northwest exposure, which the clients had insisted on because local inhabitants found more therapy in a view of the St. Lawrence than in a sunny room (*photos, opposite*).

The cheerful quality of the daylighting is augmented by soft wall colors, often in two related shades on opposing walls. Electric lighting is provided by a night light low on the wall opposite beds and two-way fixtures above each bed. Light, natural finish woodwork in doors and cabinets is favored to help avoid an institutional feeling. Doors are equipped with stainless steel push and kick plates to aid maintenance.

To reduce the amount of bed-pan handling and encourage early ambulation of patients, individual toilets are provided for as many rooms as possible. SOM share the conviction of the U. S. Public Health Service that the higher first cost of these facilities is offset by longterm savings in nursing care and by a quicker turnover of patients. Plumbing costs are reduced by putting water closet, lavatory and bed-pan spray back-to-back with those of the adjoining room, and running vertical pipe chases between them.

Space subtracted from the room by individual toilets is regained by using the toilet partitioning as a back-up for built-in closets and drawers for each patient. This reduces furniture to a minimum, makes the rooms seem more spacious and facilitates movement of beds.

In line with the best current practice, the four-bed room is the largest provided in most SOM hospitals. Since its width is just twice that of the basic room, the capacity of the hospital can be easily expanded or contracted by adding or removing partitions. Basic rooms accommodate either one or two beds and generally range in size from 10' x 16' to 11'-6" x 18', depending on the type hospital and the budget (*plans*, *left*).

### INTERIOR FINISHES are chosen for economy and ease of maintenance

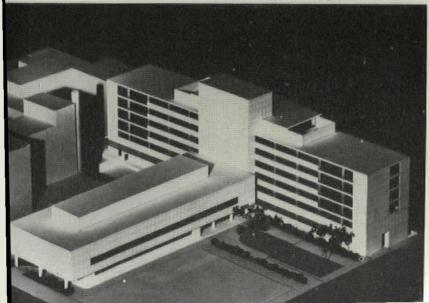
In finishing their hospitals, SOM follow the maxim, "Save on the low levels and spend on the high." This results in better equipment and more space for the patient.

In patient areas and corridors, asphalt tile floors, rubber cove bases and painted plaster walls predominate. SOM hold that paint not only adds color and warmth to the hospital but can be properly maintained by a well trained staff. Structural glazed block is used in utility areas and ceramic tile in operating rooms—for sterility and cleanliness. Acoustic tile ceilings are used in corridors and utility areas to deaden sound—tile is favored because of ease of replacement. Conductive floors in operating rooms are often composed of terrazzo mixed with carbon black-a technique borrowed from the munitions makers.

Besides providing the patients with open-ended rooms, SOM plan the hospital to bring daylight into as many service and staff areas as possible (with the exception of operating rooms, where daylight is sometimes a liability). For general lighting of corridors and public areas, recessed-type fixtures are favored for appearance, cleanliness and simplicity. The architects think that a certain amount of brightness contrast in lighting adds cheer to the hospital, avoids the institutional look of completely even light distribution. This theory is also applied in patient rooms where two-way lights above patients' beds create an interesting light pattern on walls and ceiling.

### SEPARATE SERVICE WINGS improve circulation, simplify structure

Service wing of Mt. Zion Hospital is arranged in typical SOM pattern



Except where land is at a premium, SOM prefer to separate surgery and ancillary services from the main block of nursing facilities. Their reasons:

1. The larger spaces and special mechanical equipment required by these services can be better accommodated in a separate wing with a different framing module from that of the nursing wing. Result: mechanical and structural economies in both units.

2. Obstetrical and delivery rooms in the service wing can be linked directly with the nursing floors which they serve, thus eliminating the vertical travel required when these rooms are above or below the hospital unit.

3. Noise, odors and traffic of service areas are kept away from patients and the danger of contamination is reduced.

Plans on the following page show how SOM have applied this principle to the design of small, medium and large size general hospitals. In the 72-bed Gouverneur hospital in upper New York state, the architects preserved uniform column spacing in the nursing wing and gave most patients a river view to the south by putting services in a wing on the north side. This wing provides space for administrative offices and laboratories on the first floor and surgical-obstetrical facilities on the second. The delivery room is cleanly segregated from operating rooms and is directly adjacent to the maternity unit at the west end of the nursing wing. Kitchen and laundry are on the basement level—above grade because of the sloping site. All services are scaled to accommodate a 40-bed addition at a later date.

In the 108-bed Shoitz Memorial Hospital in Waterloo, Iowa a low, U-shaped service wing provides an excellent circulation pattern around an inner court. Administrative offices and adjunct services are concentrated in the base of the U, easily accessible to outpatients from the entrance on the east side of the court. On the west side, a doublecorridor arrangement with operating rooms in the center segregates surgical traffic and gives inpatients access to treatment and diagnostic facilities. From the ambulance entrance on the north side, emergency cases can be moved quickly to surgery. Since this plan combines adjunct services, operating rooms and surgical beds on one floor, elevator traffic is cut to a minimum.

The slope of the site has permitted kitchen and laundry to be located on the basement level without sacrifice of natural light and ventilation. Both these facilities are designed to serve up to 100 more beds which will be added in the future by extending the nursing wing east and west.

This type of horizontal expansion is favored by SOM, because it provides more space for the money (the original roof is saved) and interferes less with operation of the existing building. But site conditions usually force provision for vertical growth.

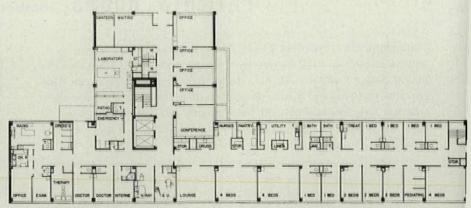
For the 211-bed Greenwich, Conn. hospital, SOM developed a typically clean T-shaped plan which puts adjunct services and surgery in the stem and south-facing patients' rooms in the crossbar. Plan of the third floor (*right*) shows how operating rooms fit into the 20'-8" x 18' bays of the stem, while the nursing wing is framed by 20' x 22' bays on the patients' side and by 15' x 22' bays on the service side of the corridor.

Laboratories, radiology and other adjunct services are immediately below the operating suites. Central sterile supply is directly above, linked to surgery by dumbwaiters. Expansion to 400 beds is possible with present facilities.

SOM's clean handling of traffic flow is exemplified by the bank of elevators which links the two units of the hospital. Two elevators, reserved for patients and visitors, open into a pleasant glass-walled lobby; the others, for services, open in the opposite direction to a receiving area for storage of heated food carts.

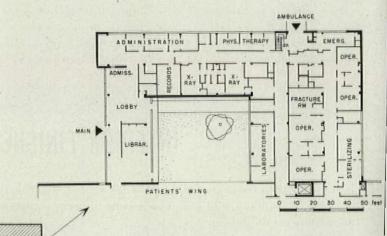
In larger hospitals, SOM frequently handle the elevator bank as a separate element to simplify framing. At Brooklyn Veterans' in Ft. Hamilton elevators and other vertical services form a connecting link between a wing of adjunct facilities and the main hospital. The service elevators opening into one corridor, and public and patient elevators into another. In the hospital units of Ohio State and N. Y. U.-Bellevue medical centers, elevators are housed in shafts projected from the main building.

For the big hospital SOM prefer to rely largely on elevators for delivery of food and supplies rather than on dumb-waiters or mechanical conveyor systems. Says Robert W. Cutler, "Too much gadgetry can complicate the work of the staff through slip-ups in timing and through mechanical breakdowns. With proper administration, elevators can deliver enough supplies to nursing stations in the morning to meet most of the day's requirements."



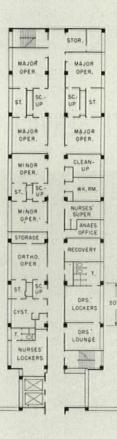
FIRST FLOOP

**Small two-story service wing** projecting to the north of the 72-bed hospital in Gouverneur, N. Y. is sufficient to handle a 40-bed addition.

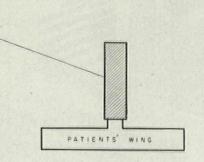


PATIENTS WING

U-Shaped service wing for 108-bed Shoitz Memorial Hospital in Waterloo, Iowa is built around an open court, provides excellent circulation.



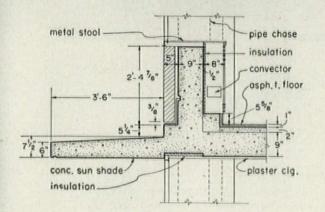
Service stem of T-shaped, 211-bed Greenwich, Conn. hospital is adequate for 189 more beds. Elevator banks are at juncture of the two wings, simplify traffic flow.



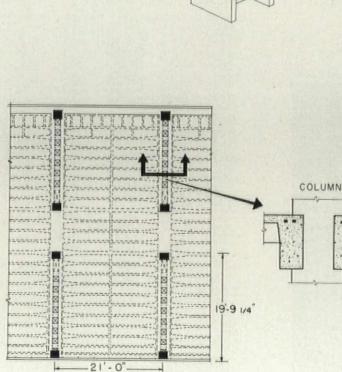
### STRUCTURAL AIMS: simplicity, uniformity, economy

Structural simplicity is a dominant characteristic of all SOM hospitals. This is achieved by meeting plan requirements with clean, rectilinear building shapes, by stacking like elements to permit uniform column spacing in each major wing, by keeping vertical pipe shafts in clear runs with most horizontal pipe lines in the basement.

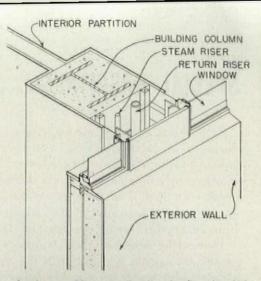
SOM prefer steel framing for hospitals mainly because it provides more flexibility for future mechanical and structural changes. Due to metal shortages and the higher costs of steel construction, however, many of their recent hospitals have been framed in reinforced concrete. Details on these pages show simplifications developed by SOM in both systems.



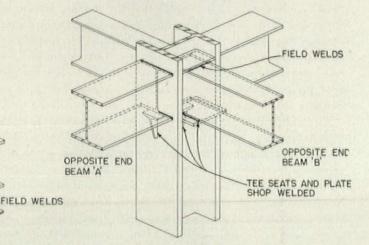
Section through exterior wall on patients' side of Greenwich Hospital shows how reinforced concrete floor slabs are extended to provide sunshades, upended to form spandrel beams. Upturned spandrel beam permits windows to be carried up to the ceiling, eliminates furring and makes the canopy a visual extension of the ceiling. Spandrels are faced with light gray matt-finished brick. Columns are placed within the wall, and have enclosed pipe chases on their inside faces making a direct connection with convertors below windows. (R. W. Cutler, partner-in-charge; David Scholes, design co-ordinator.)



BEAM A



In the new Maternity Pavilion for Los Angeles' Cedar of Lebanon Hospital, exterior columns were set back to permit steam risers and returns to feed directly into convectors below the windows. This not only eliminated bends in pipe, but also shortened the span between outside and inside columns, permitting lighter steel framing. (SOM's John B. Rodgers, partner-in-charge.)



BEAM 'B'

TEE SEATS AND PLATES

To reduce noise during erection of the 150-bed addition to San Francisco's Mt. Zion Hospital, SOM used an all-welded steel framing system. Column connections (detail, right) were designed by engineer I. Thompson for maximum shop fabrication and ease of erection. Plates and brackets at juncture of beam and column permit "downhand" welding of all field connections and allow leeway which eliminates precision cutting of beams. Resulting continuous beam structure, far more rigid than conventional steel framing, economically handles wind and earthquake stresses. (John B. Rodgers, partner-in-charge.)

- For Ohio State's 600-bed university hospital SOM developed a structural system in reinforced concrete which combines uniform column spacing and flexibility for mechanical runs. By bracketing columns within double beams and using metal pan joists, a row of rectangular openings is provided between each pair of columns. The opening next to corridor columns accommodates the present vertical pipe chases between rooms; the other openings, covered temporarily with a 3" unreinforced slab, may be used to bring ducts or pipes up at any point on the column line to meet future needs. (N. A. Owings and R. W. Cutler, partnersin-charge.)

### SPECIAL HOSPITALS develop fresh architectural forms to fit new medical concepts

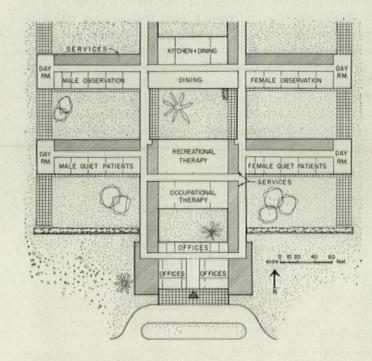
Their ability to design new building types to meet the new requirements of special hospitals is demonstrated by SOM's handsome, ground-hugging structures shown here. Like the slab-type hospitals shown on preceding pages, they are shaped primarily by the patients' needs. But in two of these cases, the dominant need was for a friendly, psychologically helpful atmosphere—one is for crippled children, another, for mental patients. The third is relatively small.

Though the height of these buildings is limited to one or two stories, the criteria which govern the design of SOM's multistory hospitals still apply: proper orientation for patients' rooms, structural simplicity, clean separation of patients from service areas.

For the receiving and diagnostic building of Illinois' Tinley Park mental hospital (top view, opposite), SOM designer W. T. Priestley developed a spreading two-way finger plan which puts male and female patients on opposite sides of central service areas. A series of interior courts brings light and air into these areas and their connecting corridors. The layout of each nursing unit, with all rooms facing south and utilities on the north, carries out the theme of SOM's general hospitals—except that the nursing station is located at the end of the corridor for control of a spacious dayroom. Courts between the nursing wings provide outdoor recreation space for patients. And to avoid a shut-in feeling, most patient areas will have full glass walls, with lights of tempered glass which will eliminate the need for costly detention screens. The entire plan is based on repetition of a standard 20' x 20' bay.

Alexandria Bay hospital (*middle view*, *opposite*) is one of three "North country hospitals"—the Edward John Noble Hospitals located at Alexandria Bay, Gouverneur and Canton, N. Y., among which Gouverneur has central facilities such as the laundry serving all three. These differ from the big hospitals of SOM in that all the functional elements that usually require separate framing are combined in a single simple structural shell—the operating rooms, patient rooms and other facilities being adapted to a single framing dimension. (David Scholes, in charge.)

The Indiana children's hospital in South Bend (bottom view, opp. page), designed in association with Pohlmeyer & Pohlmeyer, achieves a similar blend of pleasing environmental effects and economical construction. Two patient wings, with rooms facing south, are linked at one end by a covered porch and at the other by a block of diagnostic and therapy facilities which serve outpatients as well.

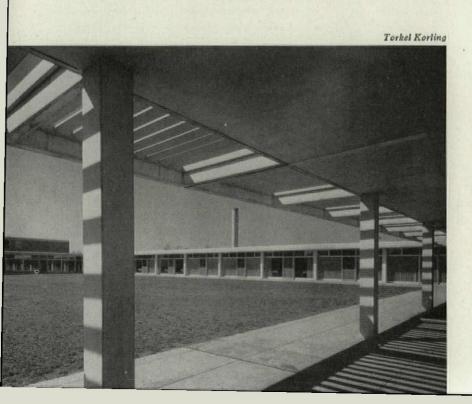


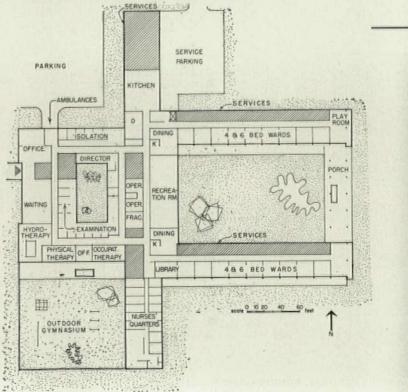
State mental hospital in Tinley Park, Illinois will be mainly one-story finger plan buildings with patients' wings facing south on either side of central service facilities. Five-story building is general hospital.

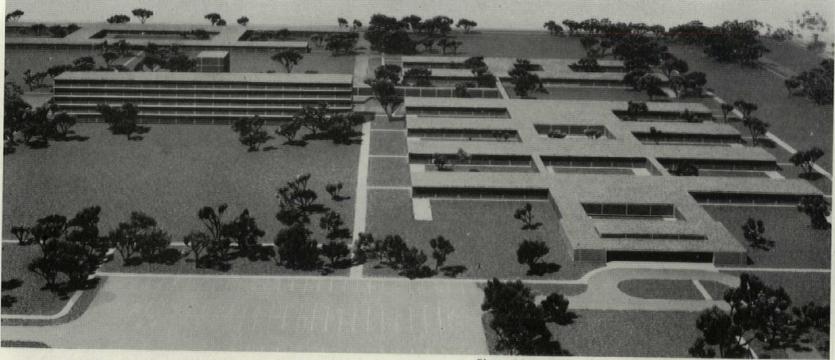
10 20 40 N	LABOR 8 NUR- DELIVERY SERY W		PRIVATE RMS
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		FI	RST FLOOP

General hospital at Alexandria Bay, N. Y. is charmingly small, accommodates only 87 beds. Unlike most SOM jobs, it is contained within a simple rectangular shell without wings. And its patients' rooms are oriented north to the view rather than south to the sun.

**Children's hospital** at South Bend has two patients' wings facing south connected by a two-story block of diagnostic and therapy facilities (photo right) and a covered walk (photo left).

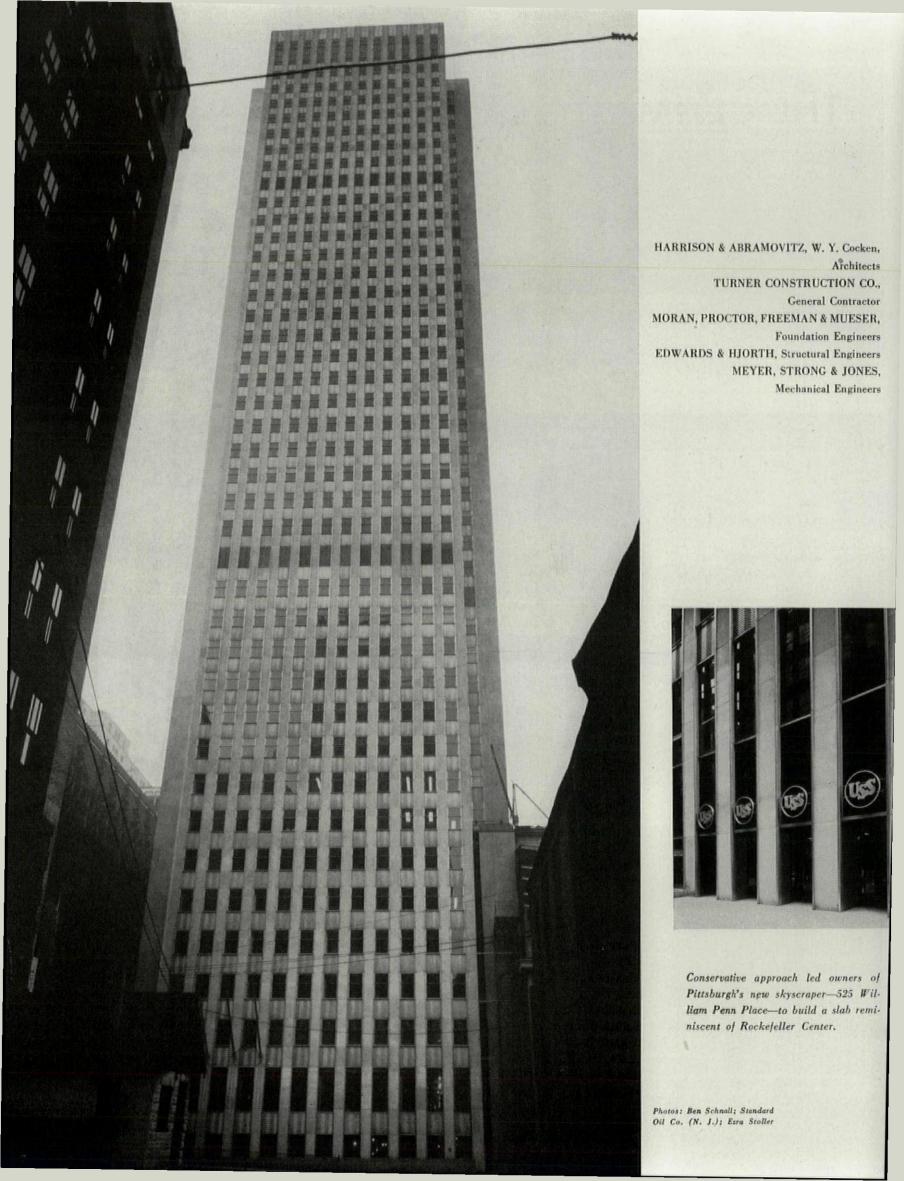






Photos: (above) Chicago Architectural Photography Co.; (below) Torkel Korling





## THE ULTIMATE SLAB uses the best of proved building techniques,

brings to a climax a skyscraper design evolved over two decades

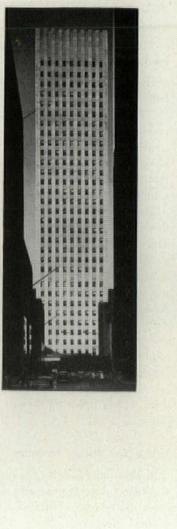
This is the most expensive office building erected in the U. S. since the RCA Building in Rockefeller Center. Named 525 William Penn Place, the 41-story Pittsburgh skyscraper was put up at a bare-building cost of \$19.5 million. Obviously, a capital investment of this size (enough to build nearly three such "experimental" buildings as Lever House) called for a conservative approach which meant that experiment, research, innovations—the cornerstones of building progress—had to be left to less expensive projects.

The result is a thoroughly conservative building. It uses the best of proved materials and climaxes the evolution of a skyscraper concept first expressed by Manhattan's Daily News Building in 1930. In that building, vertical piers and a clean, knifelike roof line set the pace for the design of skyscrapers during the '30s. Rockefeller Center buildings carried the concept further but all retained massive and monumental bases from which towers and slabs sprang.

Now here is the ultimate slab—without crown, setback or vestigial base. The vertical lines of its ribbon piers flanked

Remarkably similar to the slab of Rockefeller Center's Esso Building (r.), 525 differs sharply in ground floor treatment. Piers on 525 go straight down into the sidewalk, forming doorways (l.), while traditional concept of a building base was preserved in Esso Building (below).

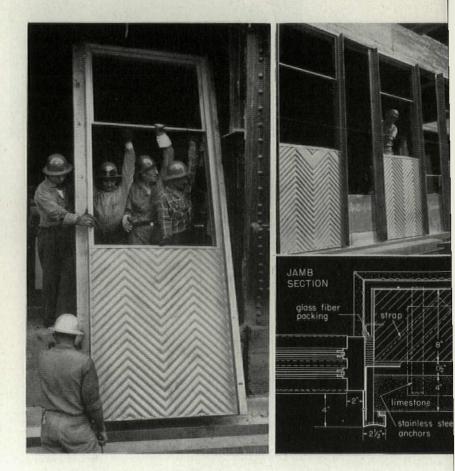


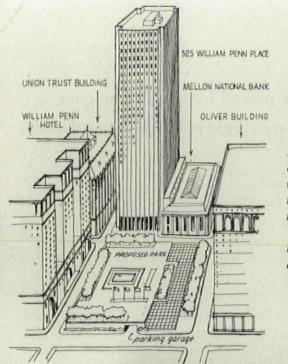


by stainless steel fins plunge from a height of 520' straight into the sidewalk—where entryways are treated simply as elongated window spaces. No store display windows distort the fenestration pattern and no zoning restrictions hamper the sheer rise of its walls.

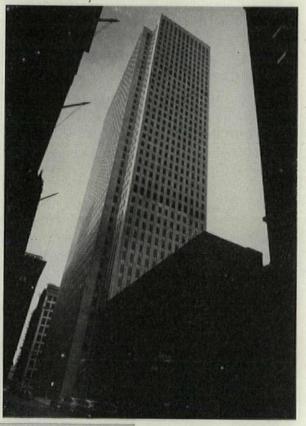
In it can be seen details borrowed honestly from its forerunners—the RCA Building and the Empire State Building. Yet each borrowed detail is improved in the transfer. The metal spandrel, for example, was first used on Rockefeller Center buildings—but here the spandrel facing is stamped, not extruded, and the entire window frame plus spandrel skin is a prefabricated unit reaching from floor to floor and bolted in place in one economical operation. The idea of metal fins to help secure the facing stone and to emphasize vertical dividing lines between the "stacks" of windows and the limestone piers came from the Empire State Building but here the fins are integrated with the window spandrel units producing a 41-story stack which asserts the building's soaring verticality.

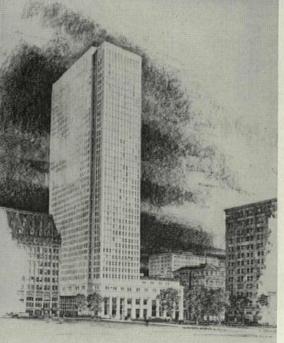
Prefabricated stainless steel window spandrel facing unit (below) is quickly set in place. Only brick backup and limestone pier facing are needed to complete the exterior wall.





Block-size park and low adjoining bank building will give a degree of openness to Pittsburgh whose narrow streets make tall buildings such as 525 a matter for community concern.





First study proposed extending classic bank facade around base of new building (1.). Such a synthesis would have compromised the integrity of both old and new buildings, was wisely abandoned.

#### **Evidence of new Pittsburgh**

How this tall slab came to be is a story of Pittsburgh's top industry: steel, a bank, the valuable ground in downtown Pittsburgh, the zoning provisions of a city which still is in the presetback era, plus the impetus toward parklike space provided by the Point Park development several blocks away. But over and above all individual considerations looms the farsighted Allegheny Conference: town planning headquarters de luxe for Greater Pittsburgh and one of its most enthusiastic supporters, Richard Mellon.

Completion of 525 William Penn Place brings Pittsburgh one step nearer its goal of redevelopment (Nov. issue '49). Applying, on a limited scale, the Rockefeller Center principle of juxtaposing buildings with adequate surrounding space, 525 faces its as yet uncompleted counterpart—the Alcoa Building—across a block that will be turned into a park (*see sketch*) with money donated, in part, by Mellon. (Under this planned oasis will be built a multilevel garage.) Thus the park front of the building is assured enough space for a balanced display of its mass.

On one side, above the low Mellon bank, enough space is left to give light and air to the huge, sheer slab. But conditions on the two remaining sides point up an alarming situation. Here, the enormous slab faces two existing buildings across narrow streets (the curse of downtown Pittsburgh) and blocks out light. To maintain the slab design and avoid setbacks—which could have alleviated the situation—air rights over the Mellon bank were taken and the building line was set 6' further back than was legally necessary. Even so, there simply was not space enough to "carry" the large building. The unhappy condition may spur the eity to open up its downtown section in the future, but for the present, the buildings across the streets from 525 are blinded and suffocated.

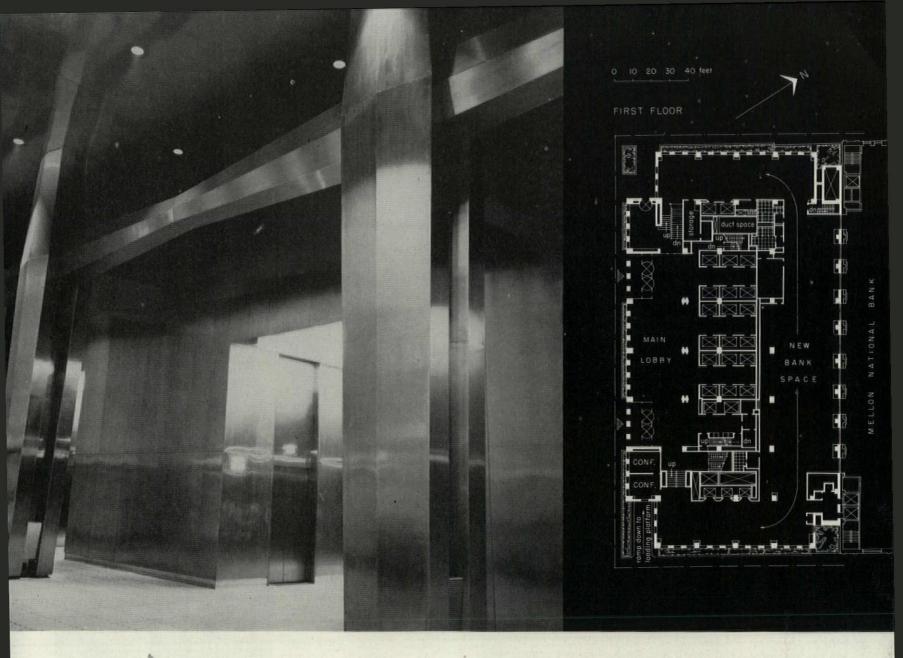
#### **Two buildings joined**

In designing the clean slab building the architects had the problem of joining it to the adjacent three-story Mellon Bank & Trust Co. Building. Both the owner and architects felt the necessity of respecting the bank's stolid neoclassicism in an extension of the treatment of the old building around the base of the new one (*see sketch*). But after making many studies and models the flaws in the thinking became obvious and a more direct solution was sought.

Many may argue that, while 525 may be the ultimate slab vertically, it is adulterated in plan by the corner notches or reveals. The departure from a simple rectangular slab sprang fom an unavoidable site condition: the block on which the building stands is a parallelogram but not a rectangle. The bank building itself is a parallelogram though this is not apparent to a casual observer. Necessarily rectangular, 525 had to be joined with the old bank and oriented with sidewalks and curb lines on the other three sides. Hence the notches or reveals. In addition, the reveals help relate the two dissimilar buildings in a way that repays study. Instead of joining the corners at the outside building line, the junction is recessed. This treatment defines each structure, leaves them widely differing though nonconflicting architectural expressions.

#### Space for three tenants

Mellon Bank & Trust Co. occupies and owns the first eight floors of 525, a substreet floor and two basement levels. The lowest basement, the lobby and 30 floors are leased by U. S. Steel. T. Mellon & Sons' investment offices occupy the 39th floor. The building is



owned by 525 William Penn Place Corp. of which John W. Galbraith is president.

Typical floors measure 114' x 220', average 18,000 sq. ft. net, show the imprint of Rockefeller Center planning—on which the same architects worked. The service core is at the center of the rectangular floor and no side office space is more than 36' from windows. Deep office space at both ends of each floor is useful here, however, by virtue of later advances not available to Rockefeller Center—high intensity lighting, complete air conditioning and glass office partitions. With these, the corridors and interior offices avoid a claustrophobic feeling.

#### Showcase for steel

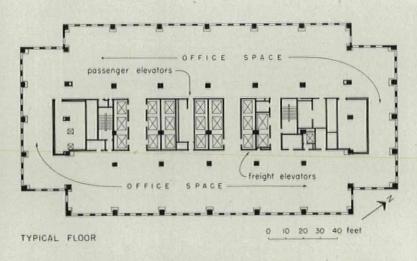
Keynote of the building's extensive use of steel is the lobby. In it, chromium stainless steel sheathes irregularly shaped exposed beams and columns. A black-painted steel pan ceiling conceals pinhole lighting which is reflected from the white terrazzo floor. High level lighting prevails in the elevator lobbies where most of the ceiling consists of fluorescents concealed behind plastic pans. Here again, walls are finished with stainless steel as are elevator doors and cabs.

As a decorative finish, stainless steel is used also for trim around glass doors, for drinking fountains and wall-mounted ash trays in corridors, on counters, and in flatware and table tops in the employees' luncheonette. Kitchens are all stainless steel, and Lobby sheathed in stainless steel keynotes decorative possibilities of the metal while irregularly shaped columns and girders symbolize steel's structural use. Glittering lobby is illuminated by pinhole lights in lofty black metal pan ceiling.

Photos: Ben Schnall







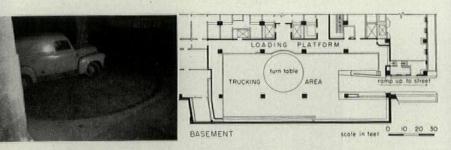
even interior window sills on the executive floor are of the same bright metal. Climaxing the use of stainless steel is the ceiling of U. S. Steel's huge 53' x 26' board room on the 38th floor. Decorative acoustical pans of stainless steel form the luxurious ceiling. The pans were strengthened by a special operation which permits 26-gauge steel to be used, giving the same rigidity as 22gauge.

As important as the use of many stainless varieties is the use of steel in less obvious forms. Cellular steel flooring throughout (except on mechanical floors) speeded construction, saved weight and gave electrical flexibility to the building.

Full office flexibility was assured with movable partitions of carbon steel panels. After rubber or asphalt tile was in place over an entire floor the partitions were bolted in position.

Washrooms, located in the service core, boast the first major installation of sound deadened, porcelain-enameled steel wall panels. (Fixtures and partitions are wall mounted.) Electric outlets by washbowls, full-length mirrors in women's rooms, stainless steel towel cabinets and utility shelves add a luxurious note to the rest rooms.

Also in the service core is an electrically operated conveyor system for routing mail and office supplies. Special baskets slide from small ramps on each floor onto arms attached to an endless vertical conveyor. An arrangement of electrically controlled fingers on the arms regulated by a dial at each dispatching station route the baskets to their intended floors.



#### **Turntable service access**

In the basement, a 26' diameter turntable permits off-street parking for trucks in the 27'-6" bay between the loading platform and the outside wall. Basement unloading was mandatory for cash-carrying bank trucks, but the scheme also avoided on-street parking for all deliveries. With the turntable, trucks up to 30' long can easily be handled in the narrow space.

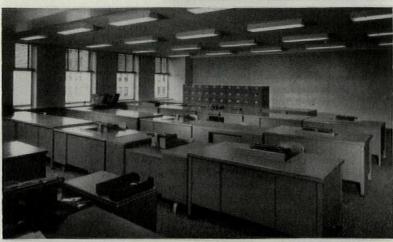
Photos: Ben Schnall





Top to bottom: board room with stainless steel ceiling, elevator hall with stainless steel doors and trim, rest room with steel partitions, general office area with steel windows and furniture, interior office area with movable steel partitions.







BUILDING REPORTER

### THE CURTAIN WALL COMES OF AGE

First large scale demonstration of lightweight, fireproof, metal-faced curtain wall goes on view this month in two Pittsburgh projects

After a decade of research and experiment, the metal-faced curtain wall has emerged from the test tube to enclose four of the largest postwar buildings: the aluminum-clad Alcoa headquarters and the steel-clad trio of office towers sponsored by Equitable Life—both in Pittsburgh.

Unlike anything ever used before, these metal skins offer certain distinct advantages over masonry. Besides having the properties of masonry (structural adequacy, insulation, fire resistance and flexibility) they are thin in cross section, light in weight, and, because they are built of large panels with relatively few joints, they are quickly erected, highly resistant to rain and moisture penetration and easy to maintain.

The desirability of an efficient curtain wall has long been appreciated, but the difficulties in the realization of this idea proved almost as great as the advantage that might be obtained. Just how serious these difficulties were can best be indicated by the fact that it took architects Harrison and Abramowitz, Alcoa, and the George A. Fuller Co. several years to develop their aluminum-faced wall, while master builder Andrew Eken of Starrett Brothers & Eken has been working since 1946 to develop Equitable's prefabricated stainless steel panel. The complexity of the curtain wall problem is further underlined by the fact that the two solutions achieved in Pittsburgh are diametrically opposed in almost every particular. Apart from its prefabricated aluminum facing panels, Alcoa's wall is built up on the site. On the other hand, Equitable's wall is a complete, prefabricated package which has only to be bolted and welded to the building frame. Both walls eliminate the need for expensive scaffolding.

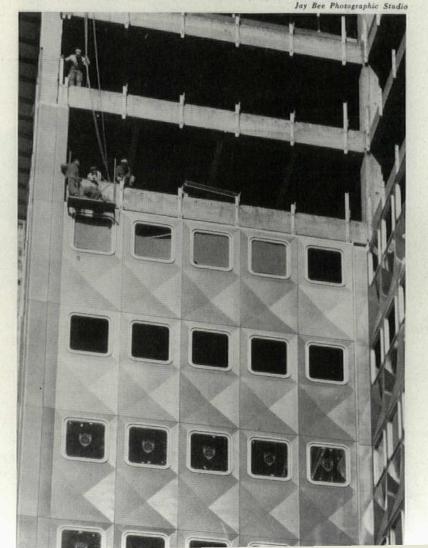
Designed to simplify and speed up site work, Alcoa's wall is faced with 6' x 12' story-high aluminum panels  $\frac{1}{8}$ " thick but stamped 8" deep in an inverted pyramid shape designed to take a 30 psf wind load. Behind this panel is a 2" to 8" air gap and a 4" wall of perlite concrete with a 1" lath and plaster finish, giving a total thickness of 6" to 13". The wall is erected from inside the building, the perlite concrete being sprayed with McNulty's plaster pumps onto a base of slotted aluminum lath after the facing panels are in place.

Equitable's stainless steel wall consists of an outer skin of 22 gauge 17% chrome steel, backed with a very porous 11/2" concrete breather bed and then 3" to 4" of reinforced perlite

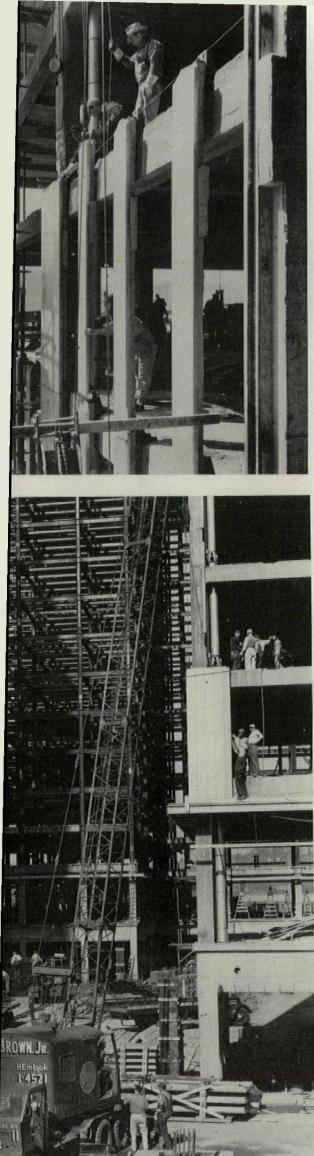


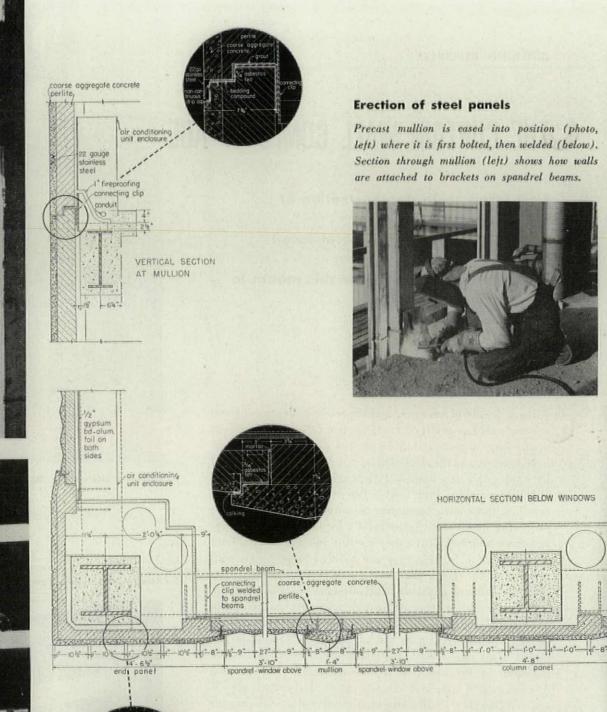
Equitable Life's three 20-24 story office towers

-precast steel-faced structural wall sections



Alcoa's 30 stories—aluminum skin and a sprayed concrete wall



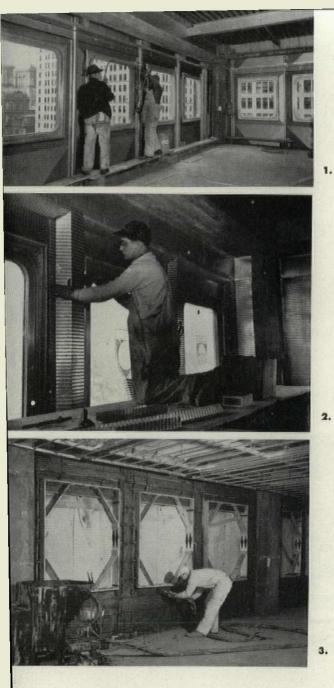


column continuous weld eeep hole

A 3½ ton corner column section is hoisted into position. Completely prefabricated, all 288 sections used on each floor are placed in an 8-hr. shift. Horizontal section (above) shows structural parts making up wall—column covers, corner column covers, mullions and spandrels. Resultant wall, 5½" thick, has a "U" value of 0.23, an estimated cost (less research) of \$6.80 per sq. ft. concrete, making a total thickness of only  $5\frac{1}{2}''$ . This wall is made in five basic panel sizes. These structural members are: 1-2) two widths of story-high column covers, 11'-9" high and weighing about  $1\frac{1}{4}$  tons each; 3) story-high exterior corner covers, L-shaped in plan with  $4\frac{1}{2}'$  wings and weighing  $3\frac{1}{2}$  tons; 4) story-high mullions 1'-4" wide and  $7\frac{3}{4}''$  thick weighing half a ton; 5) spandrel wall sections  $3'10'' \times 5'-7''$  high also weighing half a ton. Thanks to prefabricated construction and careful organization this wall goes up at the rate of a complete story (9,264 sq. ft. of wall) every day.

#### **Steel versus aluminum**

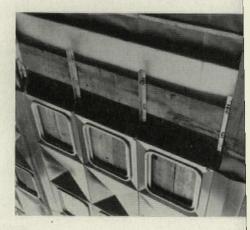
Since these two walls involve widely different techniques of curtain wall construction it is useful to study the manner in which each satisfies the requirements of a good wall:



	tlexible rubber	6 % -2 -	5		
	oluminum sheet lath	+			
	perlite*			4	2"
	4"x 4"x 14" anale		1		
	cellular steel floor		1		
		- 610"-	- 6 ½	+**	weld
	0-125"gouge aluminum		1		/ 
	slots in åluminum skin			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	***
	aluminum flashing				
1	Venefian blind packet	6 1/2	4		
	flexible rubber	4.7 -2-			
	VERTICAL SECTION	.4			

#### **Erection of aluminum panels**

Alcoa's wall panels, complete with windows, are bolted to angles hung from soffit spandrel beams. Section (left) shows wall to be 13" thick but half of this comes from diamond pattern on facing.



HORIZONTAL SECTION THROUGH SPANDREL

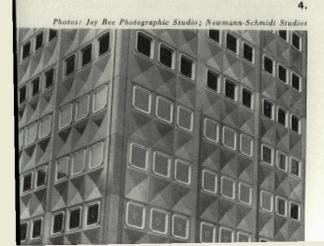
Section above details wall construction, This wall weighed only 40½ lbs. per sq. ft. (panel 2½ lbs., perlite concrete 28 lbs., furring and plaster 10 lbs.).

1. Panels, bolted from inside, have 1/4" weep holes to drain condensation.

2. Slotted aluminum lath fastened to spandrel beams as backup for sprayed perlite concrete. Aluminum lath might be corroded by alkaline cement but once wall is set this is of no consequence.

3. Reinforcing attached to channels in floor and spandrel beams. Perlite concrete sprayed in four 1" layers.

4. Below, exterior view of finished wall.



**Thickness.** Equitable's wall is  $5\frac{1}{2}''$  thick compared with 13'' on the Alcoa Building, which could, however, have been reduced at least 6'' by eliminating the architectural "diamond" feature in the face panels.

**Insulation.** Alcoa's wall provides better insulation having a "U" factor of 0.16 compared to 0.23 in Equitable's prefabricated panel. This underlines the efficiency of a big air space as an insulating medium.

Weight. Forty lbs. per sq. ft. for Alcoa's wall compared with  $42\frac{1}{2}$  lbs. for the stainless steel wall, which contains a  $1\frac{1}{2}''$  layer of heavier porous aggregate.

**Speed of erection.** Equitable's wall went up at the rate of a floor a day while the backup wall in the Alcoa building was installed by four 4-man crews at the rate of  $2\frac{1}{2}$  floors per week. Thus the prefabricated panels went up twice as fast as the walls built on the site. **Fabrication.** Big presses stamp out aluminum panels  $6' \ge 12'$  at a stroke, whereas the steel must first be formed in strips only 12'' wide, which are then welded together.

**Rigidity.** Being mechanically bonded to its concrete backing, the steel panel is more rigid than the unbacked aluminum though both are designed for 30 psi wind loads. (Most codes require buildings higher than 100' to withstand wind loads of 20 lbs.)

Fire resistance. Both concrete backups are designed to withstand a 4 hour fire test (Pittsburgh requires a 2 hour test at  $1,700^{\circ}$  F.) immediately followed by a hose stream test. The stainless steel (melting point 2,600° F.) would still be strong enough to take the hose test even without, backing, whereas the aluminum would have melted away at  $1,300^{\circ}$  F.

**Condensation.** The designers of both buildings are confident that they have pro-

Stainless steel sheet, 22 gauge, shaped in 12" wide strips and welded. White lines in this corner section are edges of steel turned in to hold layer of coarse, porous aggregate in position.

A column cover section with reinforcing placed on top of coarse aggregate layer ready for casting of lightweight perlite concrete. Reinforcing consists of 4" wire mesh together with  $\frac{1}{2}$ " strengthening rods.

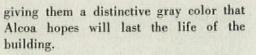
Perlite concrete cast on assembly line from huge hoppers. Porous layer is 1" to  $1\frac{1}{2}$ " thick while perlite concrete layer is 3" thick, giving a total wall thickness of  $5\frac{1}{2}$ " in the column sections and  $4\frac{1}{2}$ " thick in the spandrel sections.

vided adequate air circulation right behind the metal skin to take care of any condensation. Both walls provided weep holes at each horizontal joint.

**Calking.** Joints constitute a maintenance problem in any wall. Alcoa aimed at avoiding this problem by building the inner wall continuous (except for the window openings) from spandrel beam to spandrel beam and from column to column.

On the other hand, the joints between each structural section in Equitable's walls are heavily calked. Starting on the outside there is a  $\frac{5}{8}''$  layer of bedding compound compressed to  $\frac{1}{4}''$ , then  $\frac{5}{16}''$  thick asbestos fire-felt, while the inner side of the joint is grouted.

Maintenance, corrosion. Because both aluminum and stainless steel are highly weather resistant and because there are a minimum of joints to be calked, maintenance will be low. The aluminum panels are coated with a 5% silicon-aluminum alloy



Since nickel for regular 18-8 stainless steel was unobtainable at the time Equitable's walls were manufactured, a 17% chrome stainless had to be used as the best available substitute. This actually cost more than nickel steel because it had to be used in 22 gauge instead of 24. Studies of weathered samples up to 20 years old indicated that almost all cases of rusting occurred when the chromium content dropped below 16% so the chrome content minimum was set at that figure and Builder Eken expects it to retain its finish indefinitely. Engineers will be able to compare the weathering of this chrome steel with that of the regular stainless steel faced masonry walls of the U.S. Steel Building close by (see page 130).

Finishing. After Alcoa's sprayed concrete inner wall is set it is furred and plastered on the inside. On the other hand, Equitable's wall is of completely dry construction except for a little fireproofing on the columns.

trucked to site for erection.

Photos: Jay Bee Photographic Studio

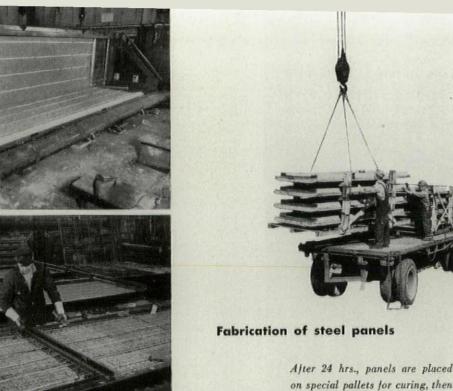
As a vapor barrier the inside of Alcoa's wall is coated with a vapor resistant paint. Equitable provided no vapor barrier except that the dry wall under the windows was lined with aluminum foil primarily to deflect heat from the window units back into the room.

#### **Production of Equitable's Wall**

The steel faced structural sections are prefabricated in two stages: first the stainless steel facing is shaped and prepared, then the reinforced backup is cast using the facing as formwork.

The stainless steel sheet is shaped into rigid sections about 12" wide which are welded together as required. Before welding, the outside edge of each section is turned inwards to about 1" from the outer facing. Thus the porous concrete, once set,

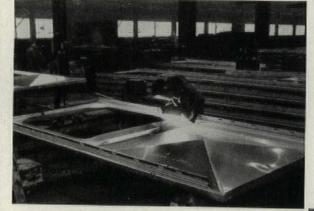




Alcoa's 1/8" thick story-high 6' x 12' panels are stamped in a huge press. After being anodized and finished, the reversible aluminum windows are fitted and the panels are ready for transport to the site.



**BUILDING REPORTER** 



Corners of aluminum panels are welded together to provide rigidity in the panel. Erection is simplified by having slotted holes in the sides of the panels attached to the supporting angles.

#### hotos: Jay Bee Photographic Studie

#### **Fabrication of aluminum panels**

Acres of aluminum panels in fabricating plant await shipment. More than 80 panels are used in each of the 30 stories of Alcoa's new headquarters office. With the lightweight backup the aluminum skin saved 1,500 tons of structural steel against conventional wall construction.



is held rigidly in place behind the metal skin.

After welding, the metal skin for each panel is placed on a steel form shaped to fit the corrugations of the panel, so that it does not become distorted by the load of concrete upon it. The sides of the forms are hinged up for easy manipulation. A 1" layer of coarse aggregate concrete of a dry mix (consisting of only 3%" screened aggregate and a minimum of cement and water) is laid in the form. This breather bed, so porous that water can be poured right through it, permits moisture to be dried out by natural ventilation.

Once the stainless steel facing is shaped and welded ready to go to the casting yard the face is protected with a layer of plastic skin to avoid damage to the stainless steel surface during transportation, casting of the back-up or erection. This plastic is steamed off when the panels are in position in the wall.

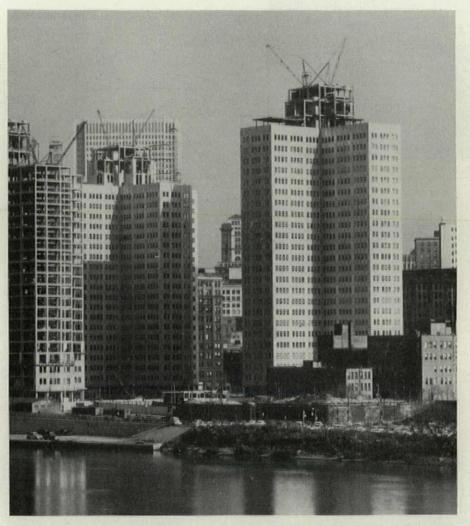
Next wire mesh and bar reinforcement are placed in the form together with the necessary connecting plates and lifting hooks before embedding in a 3" layer of perlite concrete. The mix is  $5\frac{1}{2}$  bags of cement, 1,365 lbs. of fine sand, 17 cu. ft. of perlite and  $43\frac{1}{2}$  gals. of water. This gives a concrete having 1" slump, a strength 2,200 psi in 28 days and a weight of 104 lbs. per cu. ft. This strength was considered sufficient and any increase meant a corresponding increase in weight. After 24 hours, the sections are moved from the forms to pallets for curing and delivery to the site.

A factor in the steel skin wall is the cost of the 300 forms. These cost \$300 each, or  $151/2\phi$  per sq. ft. of wall, and to enclose a floor each day requiring 288 panels this number of forms had to be continually in use with the factory operating on a threeshift basis. In spite of over 60 re-uses the forms are still good for future jobs.

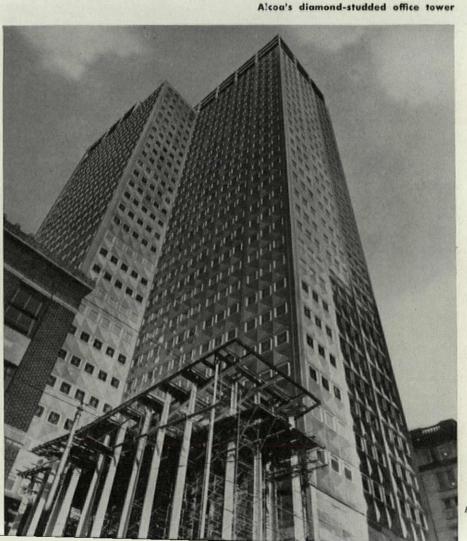
Lifting hooks, with considerable reinforcing to handling stresses over the whole member, are placed in the top of each panel. Corner columns are also reinforced by diagonal braces which are removed once the members are positioned in the wall.

At the building, column piers and mullions are bolted and welded at each end to brackets on each floor beam. Bolt heads were attached to the reinforcing before casting. Each bracket supports the top of the lower column and the bottom of the column above it. At each floor beam there are two brackets for each column pier and corner pier, one at each side; only one bracket is needed for each mullion. Spandrels rest on projections off the mullions and piers where they are bolted into position.

Regarding costs Andrew Eken with this experience behind him, estimates that a wall like this could be built for \$6.80 per sq. ft. net wall area, compared with about \$9.60 for limestone, \$5.40 for brick, and \$7.50 for part limestone and part brick. Included in the \$6.80 figure is \$2.10 for the stainless steel panels, \$3.10 for backing them up, and \$1.60 for erection, caulking and cleaning. The masonry estimates include an allowance for additional structural steel to



Equitable Life's Gateway Center trio



support the heavier weight. Alcoa's cost figures were not available.

#### **Production of Alcoa's wall**

Fabricating the aluminum panel is much simpler than fabricating the steel—so simple, in fact, that a big press forms a 6' x 12' story-high panel and cuts out a 4'-2" x 4'-7" high window opening in a single operation.

After being anodized, the aluminum panels are stamped, trimmed and inspected before the windows are fitted and the panels are taken to the job site and stacked on each floor ready to be erected.

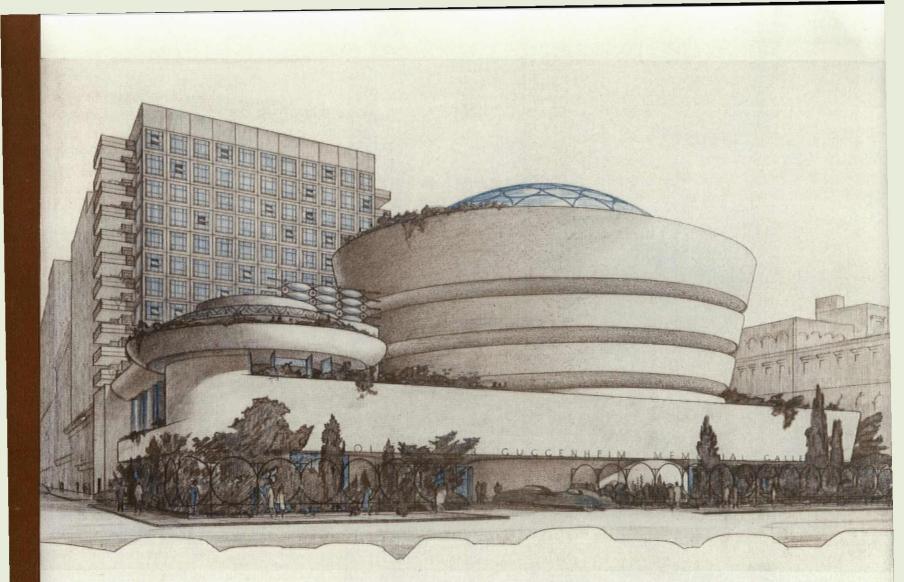
Panels are bolted to galvanized brackets secured to soffit spandrel beams. Slotted aluminum lath is attached flush with the outer edge of the concrete covered spandrel beams and two layers of 1/4" reinforcing rods are attached to channels in the floor and the underside of the spandrel beams. Then, with the window protected by a wooden framework, perlite concrete is sprayed on in layers not more than 1" thick. The mix (1 cu. ft. cement, 31/2 cu. ft. perlite, 81/2 gals. of water and an agent to reduce viscosity) is placed in a special blowing machine of 8 cu. ft. capacity, which forces out the mixture at pressure of about 15 lbs. per sq. in. (The gunite process, by comparison, uses pressures of 40-80 psi.) This concrete has a strength of 2,000 psi after 28 days and weighs 70 lbs. per cu. ft.

#### Labor problems

As with any new building technique, curtain wall construction is not clearly covered in union jurisdiction rules. Both sheet metal workers and structural ironworkers claimed the right to erect these curtain wall panels. On the Alcoa building when ironworkers got the job sheet metal workers picketed the building, holding up work for four days. The Pittsburgh Building Trades Council then suspended the sheet metal local for picketing in a jurisdictional dispute and got the rival locals to agree to a truce, while the question was decided by the industry's Joint Board on Jurisdictional Disputes. The job was finally given to the ironworkers but the jurisdictional problem will have to be resolved on each future project by local building trades councils. The Pittsburgh decision does not constitute a precedent.

On the Gateway Center buildings, sheet metal workers, ironworkers and stone masons all claimed jurisdiction, but worked out a compromise settlement. The sections were manufactured by sheet metal workers, hoisted into position by ironworkers and attached by stone masons.

Photos: (top) Jay Bee Photographic Studio; "Judge"



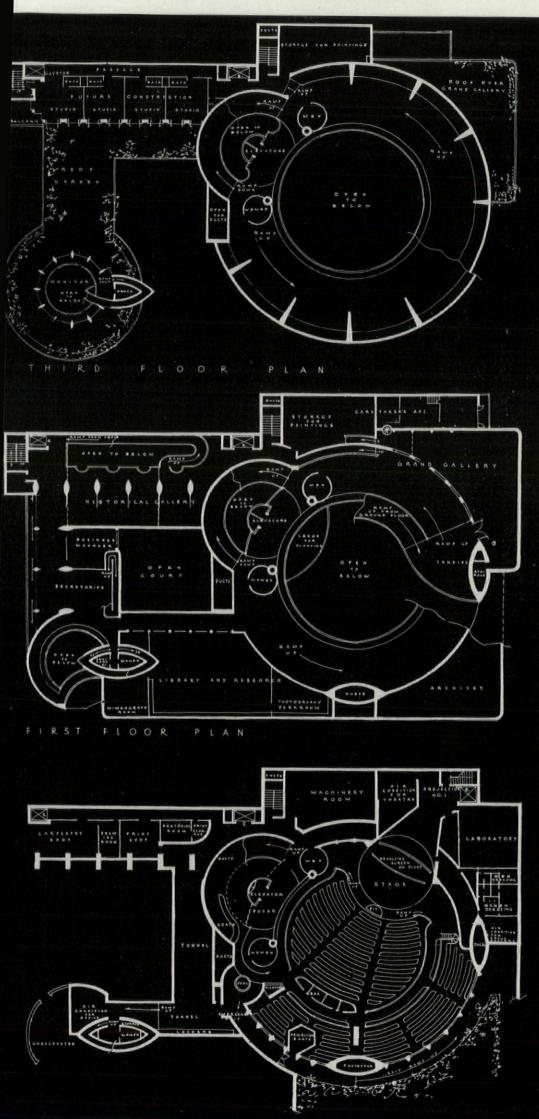
**FRANK LLOYD WRIGHT'S MASTERWORK,** the Solomon R. Guggenheim Memorial Museum, may be in construction before the end of the year. Plans for this modern gallery, curved around a spiral ramp, were filed with the New York City Building Commission last month. Thus New York City can expect to get its first building designed by the world's greatest architect and the American public can expect to get an architectural masterpiece.

The 50-sheet roll of plans for the building was filed with the help of Holden, McLaughlin & Associates, a top New York architectural firm who made the floor-by-floor space computations and supplied the other detailed data set down on the long forms which initiate the process of securing city approval. (Architects Arthur Holden and Wright have a long friendship based on a mutual respect for de Tocqueville's DEMOCRACY IN AMERICA.) Because the building is a continuous spiral, with no division between floors, even the routine requirement of estimating space on each floor became a laborious undertaking. But actual differences between this unconventional building and requirements of the New York City code now appear less than many had supposed. The major ways in which this modern gallery may be at variance with code requirements, city building officials said, are these:

1. The building's remarkable openness, which merges exhibit area and access area into a single unrolling space, does not meet fire-safety provisions which require that public halls be enclosed by a fire-resistant wall.

2. The translucent material which the architect hopes to use for a crystal dome at the top of the spiral does not meet the city's requirement for a roof with a 1½ hr. fire-resistant rating. These considerations as well as any other minor variances will be referred by the City Building Commission to the Board of Standards and Appeals, a four-man group chairmanned by architect Harris H. Murdock. While the gallery's reinforced concrete structure is also so unprecedented as to fall outside the stipulations of the city code, city officials are confident that there will be no obstacle to its approval. The Board of Appeals may request certain tests, but engineers who have examined the structural system report that it will meet loading tests without question.

While the plans filed by Wright last month show revisions over the original plans as published by the FORUM (Jan. '46), the basic concept is unchanged: a wide spiral ramp rises tangent to a half-circle



(containing steeper ramps and an elevator) giving fast access to any level of the continuous exhibit arranged along the spiral. In the new plans the height of the spiral has been decreased by one level and the connecting administration building has been somewhat decreased in size. The Guggenheim Foundation has now acquired the entire Fifth Avenue Block, between 88th and 89th streets, where the Museum will overlook Central Park, and Wright has added to his plans an adjoining 15-story building which will be rented for studios and apartments.

As this remarkable building moved on its way through the many humdrum processes set up to apply to everyday building, it was supported by an immense popular enthusiasm. This enthusiasm, on unprecedented scale, was shared alike by city officials and by distinguished art critics, by the owner and by the public itself. Much of it is reflected in the statements below:

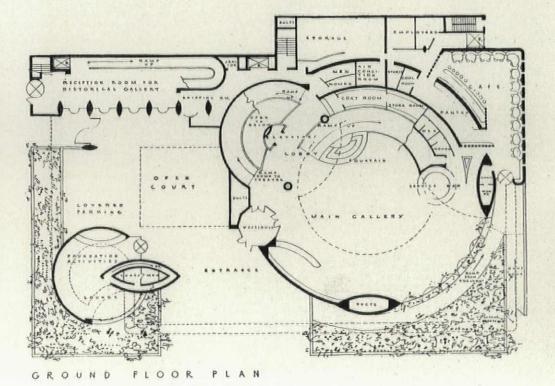
New York City's Building Commissioner Bernard J. Gillroy will determine to what extent the Museum meets the city's code requirements. Said the Commissioner, who is an engineer by training: "There is no question in my mind but that this building will be a great magnet, drawing thousands of visitors to New York City. Wright's architectural conceptions are truly democratic; they do not rely on the architectural sophisticates alone for appreciation, but appeal to something in the imagination of almost every man. Not all things of beauty are restful, but one of the remarkable aspects of this building is its repose, its easy-to-absorb beauty. Wright has an intuitive engineering sense. While many of his concepts cannot be proven by formula, they are unquestionably sound. Laws are written to protect the public from the hazards of the average building. No code could possibly anticipate the advances of an extraordinary structure like this. That's why it is essential to have a body like the Board of Appeals to which such a building can apply for variance."

Harry F. Guggenheim, chairman of the Board of Directors of the Solomon R. Guggenheim Foundation, said: "We intend to carry out the wishes of the founder of the Foundation who saw great inspiration in



Frank Lloyd Wright's architecture and felt that it should be made available to Americans generally. We are hopeful that the plans will be approved by the city. Mr. Wright believes that the small steel sizes used for the network of reinforcing rods may simplify the problem of obtaining materials. Start of construction, of course, will depend on 1) approval of the plans by the city authorities; 2) availability of materials; 3) assurance that the building can be constructed within the sum estimated by the architect."

**Curzon Dobell**, president of the Preload Co., Inc., is a brilliant engineer in prestressed concrete construction. When Wright was considering prestressing this spiral structure, he asked Dobell to go over his calculations. (For Wright's pres-



ent and more economic structural system, see section below.) Dobell said: "Wright has a great sense of what is within the limits of possibility in structures. In executing this spiral, he was dealing with a tremendous horizontal component thrust, a kind of bursting force at the edge of the spiral. His concept was spectacular even when compared with the most advanced work in Europe and perfectly feasible for execution. His round form exploits the self-bracing characteristic of the circle: the circle, supported and braced from the enclosing wall, is made to act as a spiral cantilever floor.

"This building is extremely efficient. Here instead of a heavy monstrous building, we have a lively, pleasing light structure whose slow gradual ramp completely removes the fatigue and ennui heretofore associated with a trip to the museum."

Speaking for the great public interest in this building, **Rene d'Harnoncourt**, Director of New York's Museum of Modern Art said: "The news that Frank Lloyd Wright's plans for the Museum of the Guggenheim Collection are soon to be realized is very important news for all who are interested in contemporary art. Whenever Frank Lloyd Wright deals with a new problem he starts with fundamentals and develops new forms. A museum by America's master builder should not only be an architectural achievement in itself, but should also open new vistas for all of those interested in the presentation of works of art.

"I cannot think of a happier occasion for the people of the City of New York who are interested in cultural values than the erection of a building that will give them an important work by Frank Lloyd Wright and enable them to see a great collection of modern art."

Said Frank Lloyd Wright: "Here for the first time architecture appears plastic, one floor flowing into another instead of the usual superimposition of stratified layers cutting and butting into each other by post and beam construction.

"The whole is cast in concrete more like an egg-shell in form than like a criss-cross beam structure. The concrete flesh is ren-

STEEL AND CONCRETE SPIRAL RISES LIKE A COILED SPRING: THE RAMP IS A CONTINUOUS CANTILEVER

One of the most fascinating aspects of Wright's work is the skill with which he can develop any given structural system to reach his end. He has studied various ways of building this spiral; none has forced him to depart from his original concept of a "coiled spring." His first design was for prestressed reinforced concrete; this would probably have required expensive winding at the edge of the spirals like that used in huge concrete tanks. Discouraged by the high cost of reinforcing steel, he once "turned the job over to the shipyards" for an estimate on welded steel construction

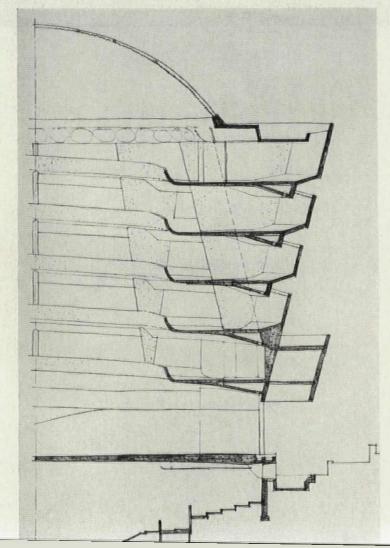
In his final system, Wright has hit upon an economical way to transfer the load of the ramp to the surrounding wall by cobweblike networks of reinforcing rods. The section shows how the outer wall is stiffened by a series of vertical fins or braces set at 30° sectors (like the membrane sections of a grapefruit). These fins start at the first floor and gradually deepen to 24' at the top of the spiral, but are a uniform thickness of 8".

dered strong enough everywhere to do its work by filaments of steel either separate or in mesh. The structural calculations are thus those of the cantilever and continuity rather than the post-and-beam formula. The net result of such construction is a greater repose and an atmosphere of the unbroken wave --- no meeting of the eye with angular or abrupt changes of form. All is as one and as near indestructible as it is possible to make a building. Unity of design with purpose is everywhere present and naturally enough the over-all simplicity of form and construction ensure a longer life by centuries than could be sustained by the skyscraper construction usual in New York City. The building is intended by Solomon R. Guggenheim to make a suitable place for exhibition for an advanced form of painting wherein line, color and form are a language in themselves, independent of representation of objects.

"This advanced painting has seldom been presented in other than the rooms of the old static architecture. The paintings themselves are in perfectly air-conditioned, well-lighted chambers, chambers something like those of 'the chambered nautilus,' all are well lighted by natural daylight as well as artificial light. Thousands of paintings are thus provided for. A theater appropriate for special new exhibitions of light, motion, color and sound in varied patterns is an underground and bombproof feature of the building.

"The structure itself is extremely light and strong and will be a glistening, white plastic-aggregate formed of white cement and crushed white marble in various sizes — in general a matt-finished surface polished wherever desired. Glass tubing, long tubes laid up like bricks in a wall will form the top-lighting surfaces like the central dome. Interior insulation, wall linings and floors will be of cork stained pale gray or the floors may be of gray rubber tile. It will be completely air conditioned, and there will be no movable windows.

"The nature of this building-design will seem more like a temple in a park on the avenue than like a business or residential structure. The side streets are left wider open than usual and the whole presents an almost unbroken garden-front to the avenue."



LOCATION: Kiptopeke Beach, Va. LESTER TICHY, Architect JOHN P. PETTYJOHN & CO., Contractor STROBEL & SALZMAN, Structural Engineers LEWIS SMITH, Lighting Consultant V. J. CUCCI, Mechanical Engineer

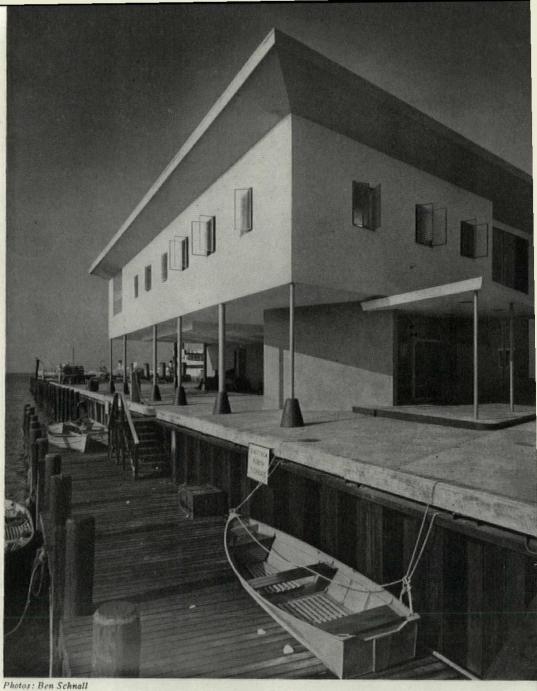
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## **TRIPLE-PURPOSE TERMINAL**

designed for travelers, sight-seers and vacationers, built to withstand the jolt of ferry docking

To motorists it's a ramp; to pedestrians it's a hard, wooden bench. But architect Lester Tichy decided a ferry terminal could be much more.

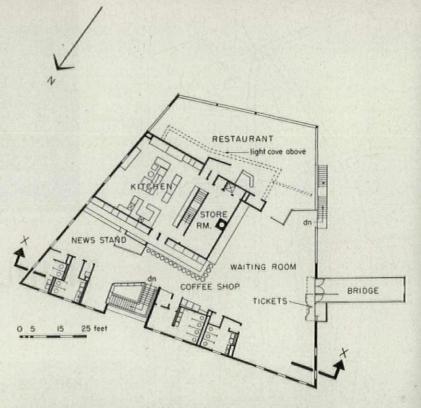
Ignoring all the ill conceived, badly executed transportation terminals littering the U. S. today, he took a cue from the most progressive air terminal design to provide not only a comfortable waiting place for travelers but also an attractive place from which sight-seers can watch boats arriving and departing. The high point is a large, window-lined luxury dining room. On the shore side, the owners plan a resort complete with houses, a shopping center, athletic fields, beaches and small boat harbor in the lee of the pier and terminal building.



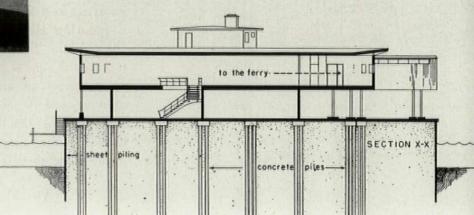
Luxury dining room for sightseers as well as travelers seats 105 people, has %" fixed plate glass windows opening south and west on view to boats and ocean.



Open, sheltered space under bridge on terminal's first floor is used for service of boats and building. Note neat handling of exterior stairway to waiting room.



Odd shape of terminal building (above) was dictated by pier shape and building function. Put on separate pilings (below), terminal is free of pier to keep building from being damaged when boats dock and jolt the pier structure.



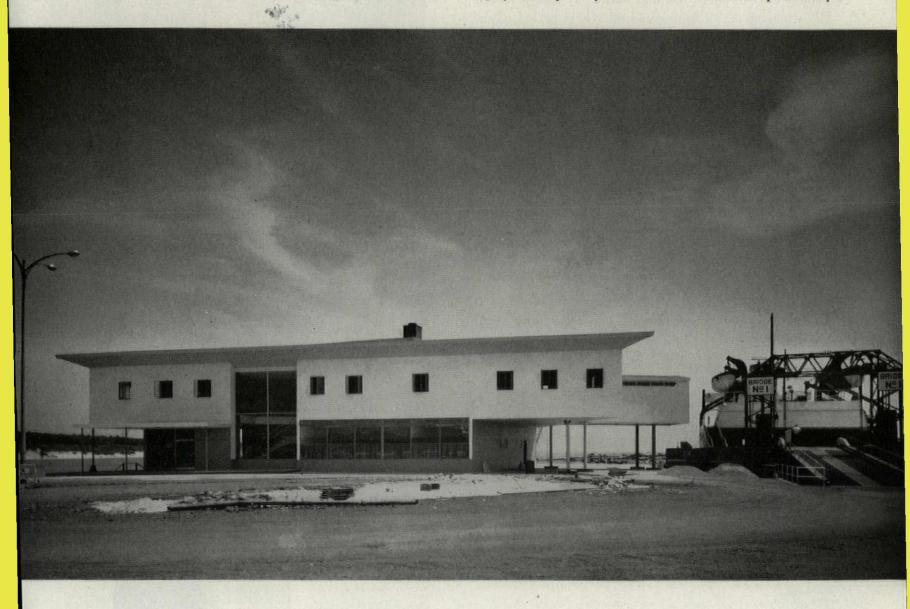
Located 15 mi. further out on the Cape from its former site the new terminal avoids the town of Cape Charles's congested traffic and reduces the running time of the ferries by 30 mins. To get the more favorable location, Virginia Ferry Corp. bought 315 acres of farmland adjoining the coast and paid 25% of the costs of extending U. S. Highway 13 to the new terminal. When this Kiptopeke Beach acreage is fully developed, land and road costs will be recovered through the sale of house lots and lease of planned commercial buildings—including a motel, shops and stores—which should turn the beach into a profitable business. Careful plans have been made to this end. Sewage from the terminal building, for example, is not dumped into the water where it would pollute the beaches. Instead, it is carried inland for disposal.

The unostentatious building was designed primarily for function and low maintenance costs. In addition it possesses the sophistication of quiet, rather than stridently sought, simplicity. Its spare, shipshape exterior has white block walls (finished with stucco despite the architect's doubt about its longevity in that climate), yellow plywood soffits with blue painted metal sash. Columns are either grey or yellow. Setting off the building's utilitarian character is an artfully designed stairway visible from outside through a dramatic two-story window. Its stringers are gracefully arched laminated wood, with white oak treads, open risers and stainless steel rail.

Putting the building on the pier (rather than on the more usual shore abutment) raised the problem of providing strong flexible foundations to cushion sway and shock when the big ferry boats jolt the pier. Solution lay in sheet piling for the pier and sand fill, separate concrete piles for the building. The result is a "floating base" for the terminal and the absorption of lateral loads by the sand and pilings themselves. Cost of these pilings was \$8,775 apart from the \$228,000 building cost.

First floor of the 13,500 sq. ft. steel and concrete block building is devoted to service facilities: offices, utilities, storage area, sheltered parking space for service trucks and employees' dressing rooms. All public space is on the second floor where the kitchen is the operational center. Sprouting from it are two lunch counters, a cigar stand and service entrances to the 105-seat capacity dining room on the south side. Only other enclosed spaces are tile finished rest rooms along the north wall. Waiting rooms fill the rest of the floor where passengers board boats through a covered bridge. Economic considerations made it necessary to finish walls with plaster.

A fan room on the roof ventilates the building and provides year round air conditioning for the dining room made necessary by fixed %" polished plate specified to resist wind loads up to 80 m.p.h.



Passengers board ferry from second floor public room through covered bridge and over a gangplank which is retractable. Terminal will be the focal point of projected beach resort area complete with motel, shops, stores, beaches and small boat harbor to lee of the ferry pier.

## **BUILDING FOR DEFENSE**

... Civil Defense Administration tells

how to strengthen existing structures,

how to design new ones against atomic attack

Though only an utter defeatist would say that World War III is inevitable, all are agreed on a long period of international tension. This could blaze into shooting war if an aggressor nation came to believe that sudden aerial onslaught would permanently wreck the opponent's economy. Therefore civil defense, the ability to recover from a sneak attack, is as important as offensive weapons for the preservation of Western democracy and world peace.

Following the principle that we should hope for the best but prepare for the worst, we are faced with a number of vital questions:

- What are the effects of atomic bombs on each of the main types of buildings in our cities today?
- 2. What degree of protection might these buildings afford for our people and our essential productive machinery?
- 3. How can this protection be improved most rapidly and economically?

For two years the Shelter Division of the Federal Civil Defense Administration has been studying these questions and co-ordinating field surveys in 53 cities with basic research at Lehigh University and MIT. Now they have some answers.\*

#### CD's shelter program would protect 17 million people in existing buildings, 16 million by new construction

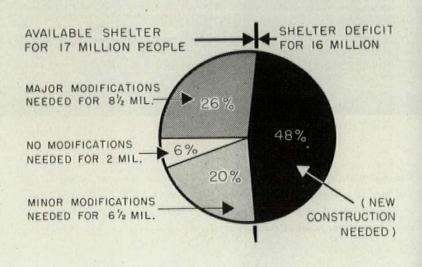
As a result of preliminary surveys Shelter Division estimates that of some 67 million people living in critical target areas, prob-



ably half of these are working in central commercial, industrial and institutional buildings in which right now there is adequate shelter available for not more than 2 million people. With minor and major modifications costing up to \$40 per person another 15 million could be sheltered, leaving 16 million people to be protected by new construction at an estimated cost of \$90 per head.

In all, \$1,800 million are needed for the protection of the working population of our vital target areas, of which half must be found by the states. The federal government is authorized to supply only matching funds for shelter program purposes. States are now busy surveying precisely how many people can be sheltered where, and how these areas can best be strengthened.

So far the amount appropriated for civil defense is tragically insufficient. Out of a total of \$535 million of federal funds originally requested, Congress has granted only \$75 million. It is evident that more than enough funds for civil defense will never be forthcoming. Realistically, CD points out that the protection



<sup>\*</sup> The answers are detailed in three manuals published this month:

<sup>1.</sup> Shelter from Atomic Attack in Existing Buildings—Part I. Methods for Determining Shelter Needs and Shelter Areas. This manual sets forth a census and survey technique for determining where and to what extent shelter is needed, also gives a method for selecting suitable shelter areas within existing buildings.

<sup>2.</sup> Shelter from Atomic Attack in Existing Buildings—Part II. Improvement of Shelter Areas. This manual indicates how existing buildings may be improved to eliminate existing hazards.

<sup>3.</sup> Interim Guide for the Design of Buildings Exposed to Atomic Blast. This technical publication contains minimum standards and criteria for the design of new structures that will have a reasonable chance of survival half a mile from ground zero—a nominal bomb (equivalent to 20,000 tons TNT) exploded at optimum height (2,000').

#### **Effects of an Atomic Explosion**

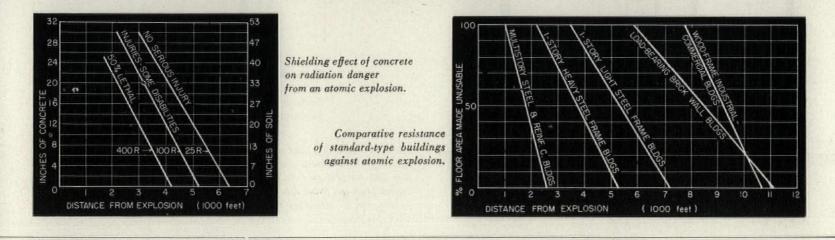
An exploding atomic bomb generates terrific temperatures and a violent pressure wave. This blast is withstood by earthquake resistant construction at distances of half a mile, but will still damage houses at more than 2 mi. There is an initial abrupt rise in pressure which falls to zero in approximately one second, after which a much less intense suction phase occurs, lasting for several seconds.

Effect of such a pressure wave on a building is equivalent to a heavy blow (of the order of 50 p.s.i. immediately below a 2,000' high air-burst) followed by a steady pressure—in effect, a giant squeeze—on all sides and the roof of the building. After the shock front has passed there remains a drag force of following winds directed away from the point of detonation. This drag force decreases to zero, and is succeeded by a steady force in the opposite direction during the suction phase.

Nuclear radiations have no permanent effect on buildings, but are deadly to exposed persons; even at 3,000' they will prove fatal to about 50% of people protected by 12" of concrete.

Thermal radiations (flash heat) are less harmful to human beings but can set fire to highly inflammable materials. Greatest danger comes from fires spread by secondary effects such as the scattering of furnace and kitchen fires, the shorting of electrical circuits and the disruption of gas pipes, all acting on the mass of combustible materials splintered by the blast. Whether the building is flattened or not by the sequence of forces of an atomic explosion will depend upon the strength of the structure and the number of openings in it which can relieve blast pressure. Window glass will break and fragments become dangerous missiles. Curtain walls and partitions will be dislodged and thrown about. The frame of the building may be distorted or may collapse, and there is the likelihood of fire.

Ability to resist lateral forces, to accept plastic deformation and to withstand fire are the most important criteria for structural adequacy in an atomic attack. In addition, there must be sufficient material thickness to protect personnel against deadly nuclear radiations.



of our growing population will be largely a matter of local initiative in which architects and engineers have the challenging responsibility of 1) assuring that the slender funds available are used to provide the greatest degree of protection where it is most needed and 2) seeing to it that wherever possible protective cores are provided in all new buildings.

#### CD's yardstick for gauging the safety of existing shelter areas is already in use by 30 cities

In formulating this shelter program a number of assumptions were made: that the enemy's chief weapon would be the atomic bomb; that the most likely targets would be the concentrated areas of our large cities to cause the maximum disruption of our national economy; that the greatest warning time before an attack would be 5 mins.; and that there would be no general evacuation of our cities.

Thirty cities are already preparing a Master Shelter Plan along the lines suggested by the Shelter Division. They are making a block-by-block census of maximum population densities and a survey of the shelter available in each building. The results are tabulated and preliminary engineering studies made as to the most effective modifications that might be made to existing buildings wth an estimate of the costs and materials required.

#### CD classifies building types by their ability to withstand atomic blast:

Group A-1. Steel framed 2. Reinforced concrete framed Group B-3. Semiframed (steel or reinforced concrete) 4. Masonry wall bearing

- 5. Wood frame (masonry or wood or other covering)
- 6. Other types of construction

In group A buildings, potential shelter areas are selected in each of the basement and the sub-basement (if any) and in each story except the top three, while in group B buildings potential shelters are selected only in the basement. To satisfy CD standards, a shelter area should have the maximum amount of dense material between it and the outside of the building and should be the largest area which meets the greatest number of these characteristics, listed in order of importance:

1. It should be in a part of the building which is structurally compact with close spacing of columns and short span floor beams.

2. The area should be out of direct line with doors and hallways having outside exposure.

3. It should be free of glass, heavy lighting fixtures or anything that might be thrown about by blast.

 It should have at least one interior stairway—one not adjoining an outer wall.

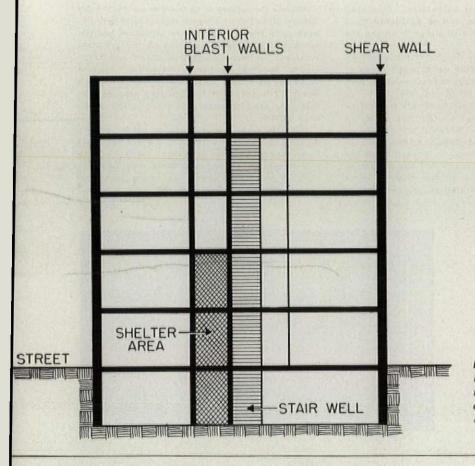
5. It should contain no furnaces or boilers and no large steam, water or gas pipes.

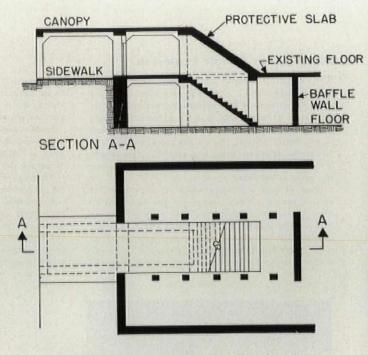
6. The ceilings should not be of the suspended type.

7. The floor directly above should not have unusually heavy concentrated loads.

8. The area should be as free as possible of furniture or other heavy materials.

Hardly any potential shelter areas will be found reasonably free from hazard without a certain amount of modification. CD therefore urges that building owners, architects and engineers cooperate with municipal authorities in making these specifications as quickly and effectively as possible. Far more people can be protected per dollar spent by upgrading potential shelter areas than by any new construction. Additional shelters can be provided later as required, and as more funds become available.





**Protective exit** shown by section and plan above is required for basement shelters in wall bearing structures. Such an exit must jut out beyond the building line and be strong enough to withstand the collapse of the building.

**Protective core** in a steel or reinforced concrete framed building. Shelter areas must be at least three floors from roof and be protected by 8" reinforced concrete walls against blast and flying debris. Interior blast walls should be designed to strengthen the structure against collapse.

#### At Hiroshima and Nagasaki CD engineers noted the resistance of various types of buildings to atomic blast:

1. The strongest were reinforced concrete or heavy steel framed multistory buildings designed for earthquake resistance. These have continuous connections between all parts of the structure. Masonry curtain walls may be expected to fail.

2. Next came industrial buildings with strongly braced continuous steel frames. The light coverings generally associated with these structures are likely to be blown away or broken, especially the brittle types such as corrugated asbestos sheeting.

3. Strongly braced wooden frame houses that are relatively low and wide are quite strong, especially if diagonally sheathed. Large glass areas are vulnerable but in shattering may lessen the load on the frame.

4. Light shed-type commercial structures with long spans, light columns and little lateral bracing have poor blast resistance. They are easily pushed over.

5. Masonry wall-bearing structures are especially vulnerable to blast because of their lack of resistance and relatively low strength under lateral loads.

6. Tall, light wood-frame buildings of the tenement pattern are very weak. Their lack of bracing in the walls makes them especially vulnerable to blast and they are very susceptible to fire.

#### CD gives first priority to strengthening shelter areas in existing buildings

Heavy suspended ceilings and fixtures should be removed against the possibility of their being torn free by blast and becoming dangerous missiles. Lighting fixtures should be compact and firmly attached to the ceiling. Steam or gas mains should be housed to minimize danger resulting from rupture. Large water pipes in basement shelters should be relocated or suitable drains provided to minimize the danger of flooding.

Glass which could be blown into a shelter area should be replaced with a soft fiberboard or plastic that would fail by tearing.

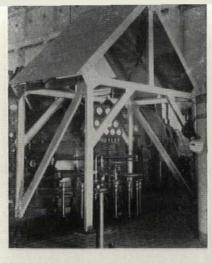
Large utilities such as furnaces or electrical equipment should be closed off from a shelter area by a masonry or equivalent wall having a minimum fire rating of 2 hrs.

Internal shelter areas can be protected by building reinforced concrete blast walls, the load of which is carried by building columns. Walls of plaster on metal lath with wood or metal studs can also offer reasonable protection. The blast wall should act as a thin beam spanning from column to column and should be stiffened at least every 20' by an intersecting wall or column. Where the structural support is available it is desirable to span the blast wall in the short direction from floor to ceiling.

Reinforced concrete blast walls give good protection and should also be designed to strengthen the entire structure by acting as very strong wind bracing. Attention should be given to the danger of overloading, and if that is a possibility the blast walls should be continued right down to the foundations.

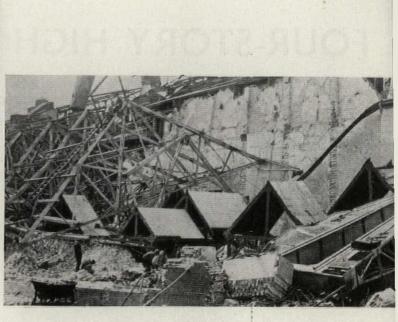
Partial blast walls 7' high might be advantageous. Where limited space is available their construction would be easier, the opening above the wall would allow for blast equalization and the additional weight on the columns would be smaller. Light metal screens should be secured between the top of the wall and the ceiling to stop flying missiles, while entrances should be strongly baffled.

Basement shelters should be strong enough to withstand any debris load that may fall upon them. The roof of the shelter can be strengthened by placing intermediate supports beneath the floor members and thus making them capable of carrying greater loads on shorter spans. These intermediate supports can be supplied by beams mounted on column studs, partitions or masonry piers. Protection of equipment. Industrial plants are extremely vulnerable to damage and vital equipment can best be protected individually. These pictures show how powerhouse equipment was protected in Germany during World War II. They are taken from Damage Control in Wartime, published by National Industrial Conference Board, Inc., New York.





**Precast concrete frames** (left) afford most protection but ¾" steel roofing (above) can be used where there is danger of floors being overloaded. After a direct hit (right) machinery so protected remained undamaged.



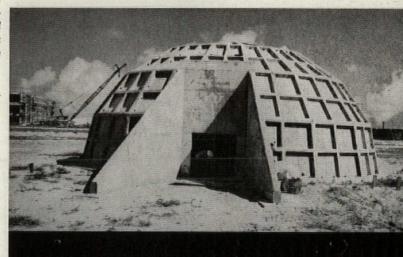
Protection of personnel. Among the precast personnel shelters tested by the U. S. Navy at Eniwetok Atoll these thin-shell ribbed panels bolted together to form a dome shelter proved the most efficient. Covered with 2' of earth, they provide safe shelter ½ mile from point of burst.

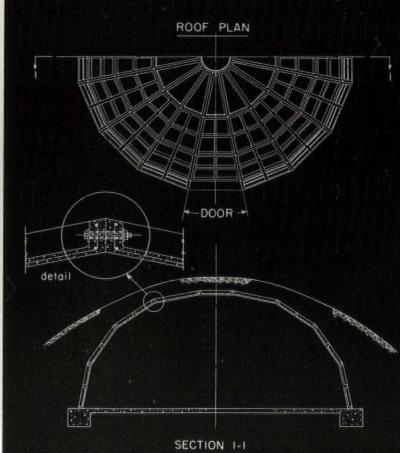
In new construction CD engineers recommend principles of earthquake resistant design against atomic blast

Blast loads on a building are affected by the intensity of the shock wave, by the size and shape of the structure and by its behavior—that is, whether or not windows or wall panels will shatter and so relieve pressure. Moreover the very short duration of the intense initial loading means that its effect is considerably less than a similar permanent loading and it will frequently be necessary to consider plastic structural action. Most important, there should be no weak link in the structure which might permit collapse before other parts of the structure are brought to full capacity.

In both Hiroshima and Nagasaki, buildings of earthquake resistant design proved the most stable under atomic attack. Therefore to increase blast resistance a procedure similar to seismic design is recommended. The complicated dynamic blast forces are replaced by equivalent lateral and vertical static loads that can be handled by customary analysis.

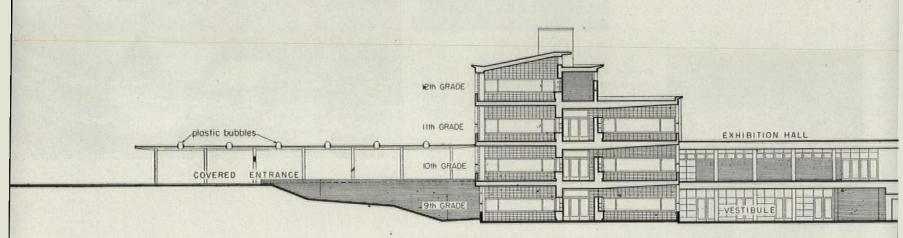
Shelter Division engineers recommend that equivalent static forces of 90 p.s.f. of gross side area and vertical forces of 70 p.s.f. of roof area be applied to the structure. The floors and roof are treated like very deep beams loaded in the horizontal plane by the forces from the front walls and supported by bents or shear walls at intervals to transfer the lateral loads down to the foundations. Working stresses for wind loads may be used to calculate the necessary resistance. Structures designed for these loads are expected to have a reasonable chance of survival at distances over half a mile from a Nagasaki-type bomb and are estimated to add not more than 5% to the total cost. Buildings could be designed for even greater resistance to blast but this would require so much material as to be impracticable in most cases. In every question relating to building for defense we have to balance our secu-*(Continued on page 176)* 





FOUR-STORY HIGH SCHOOL: Site planning conceals its bulk;

floor planning makes its operation easy for students and staff



A four-story school is usually bulky to look at, tiring to climb and difficult to administer. But not this one. It cleverly uses a slope down from the street to conceal its bulk. It bridges the slope with an entry walk to the second floor, making it unnecessary for students to climb more than two flights of stairs. And it distributes its four grades one to a floor, simplifying the administration and circulation problem. Thus it is actually four one-story schools stacked on top of each other.

To accommodate an immediate enrollment of 1,200 and provide for expansion to 1,600, the architects were forced to build their central classroom wing vertically. (A sprawling one- or two-story building would have overcrowded the 17-acre site.) Faced with this fact, the architects took elaborate pains to give their four-story school many of the advantages of today's popular low-lying schools:

• Just as the facade was reduced in apparent height, so the rear was made to appear only three stories high—by setting the narrow  $(42'-10^{1}/2'')$  top floor back from the face of the 67'-9" wide building.

• Direct access is provided to both of the two lower floors. At the front, the entry "bridge" to the second floor is supplemented by an entry walk which follows the slope down to the first floor level. At the rear two entries to the ground floor are supplemented by a ramp leading from the playing field up to the second floor gym.

• Vertical circulation is minimized and easily controlled. Each floor is a one-grade school in itself—complete with administrative office. Stairs are relegated to the ends of the classroom wing. All wings (except the library wing) connect with the second floor. The library connects on the third floor level and is supplemented by reading rooms on the other floors—connected by a book lift.

▶ Special use rooms are removed from the main classroom wing—connected by buffer zones to minimize noise transfer. To the front, easily accessible from the street, is an open-air assembly area (later to be covered with an auditorium) and the convent chapel wing connected to the classroom wing by the library. Projecting to the rear is the multipurpose room at one end and the cafeteria and gym at the other. Architecturally this has resulted in a well "articulated" building mass—one in which the different uses show clearly and are easy to "read."

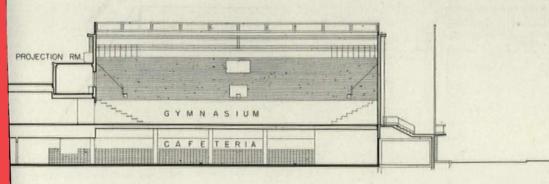
Classrooms are square in plan—an ideal shape seldom seen in high schools—to decrease the length of corridors and the expensive perimeter. To bring all possible daylight into the deeper rooms the architects will use directional glass block over vision strips.

▶ Top lighting is achieved in the gym where skylights and prestressed concrete beams form the entire roof. Plastic roof domes in dressing rooms and showers carry out top-lighting scheme in supplementary areas.

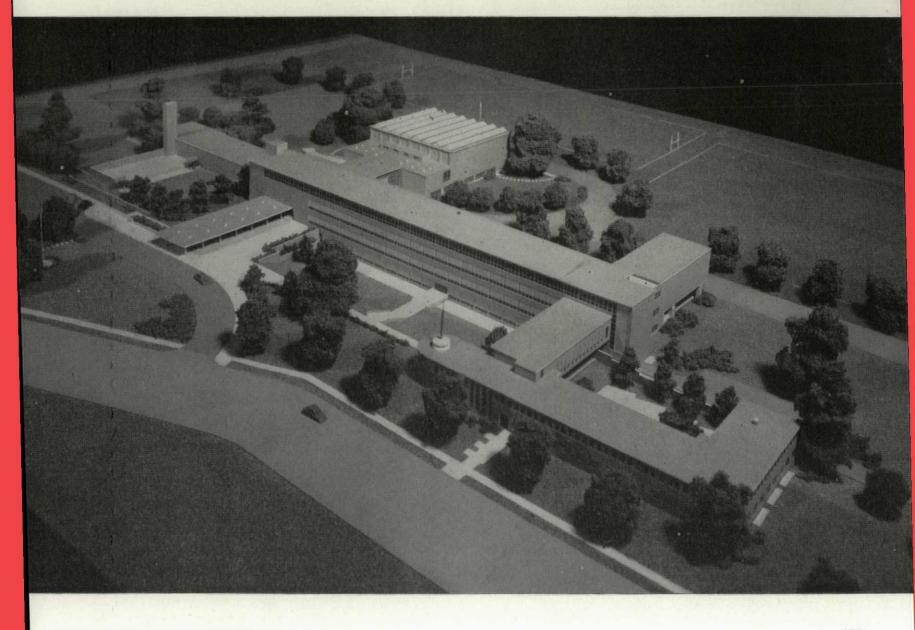
▶ Bad weather outside playing areas are provided by open ground floor space under-special use wings.

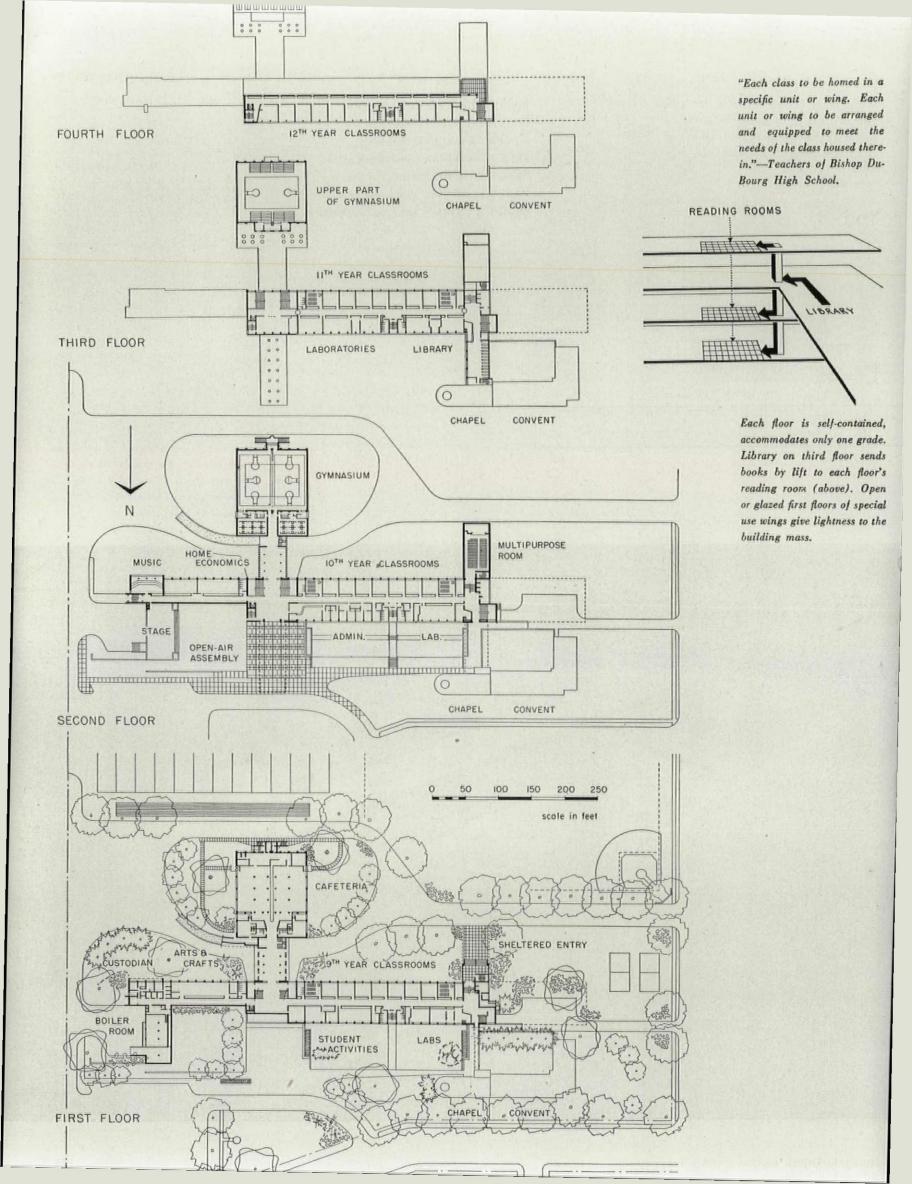
• Expansion will be easy with eventual enlargements already planned to extend the classroom stem and build an auditorium over the intial open-air assembly area.

BISHOP DUBOURG HIGH SCHOOL LOCATION: St. Louis, Mo. MURPHY & MACKEY, Architects FRED N. SEVERUD, Consulting Engineer NEAL J. CAMPBELL, Structural Engineer HARRY F. WILSON, Mechanical Engineer EMMET J. LAYTON, Landscape Architect



From the street, the four-story school will appear only three stories high due to a one-story drop in site. Main entrance is at second floor level of classroom "stem." Special use rooms (gym, chapel, etc.) are housed in wings.





#### Four one-story schools

In the main classroom stem, each floor houses one grade, starting with the ninth grade on the ground floor and going up to the 12th grade on the fourth floor. Horizontal traffic on each floor is thus limited to students of a single grade (about 300). Moreover vertical traffic is divided between two sets of stairs, one at either end of the floor where it will least interfere with study.

Each floor is administered separately from its own administration room connected to the central administration area (next to the street entrance) by an intercommunication system.

Even when it comes to getting books the students need not leave their own floor—each floor has a satellite reading room supplied by book lift from the central library, which is in a separate wing on the third floor.

#### Four special use wings

The detailed organization of the plan is evident in the location of the four special use wings. Gym, cafeteria, chapel, library and multipurpose room as well as the open-air assembly are placed at the ends of the main stem near the stairs to reduce traffic through the classroom areas, and are separated from the main stem by sheltered walkways and vestibules which serve as sound buffers.

Parts of the school which will be used by the community are quickly accessible from the street. Central administration offices are just inside the main doorway. Both the chapel and library are on the street side—accessibility coupled with traffic noises was apparently

#### FOUR-STORY HIGH SCHOOL

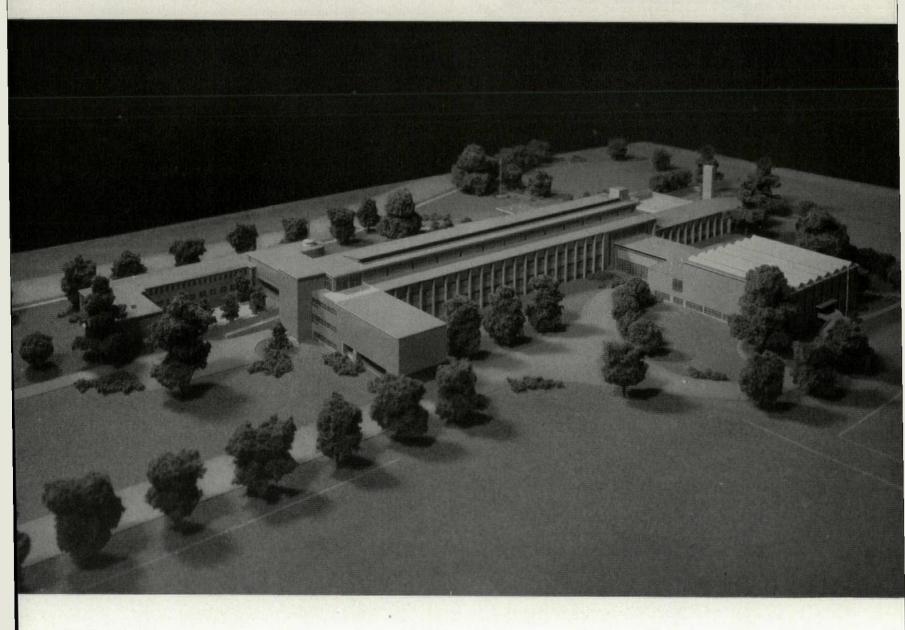
preferred to privacy coupled with the noise of children on the playing fields at the rear of the building.

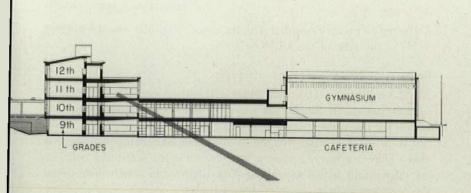
#### Costs

The 2.5 million cu. ft. school plant will cost an estimated \$3 million -\$1.20 per cu. ft., \$2,500 per pupil, or \$83,000 per classroom. One reason for the higher-than-average cost per pupil is that central facilities are already in place for the future enlarged enrollment. There is also a generous use of space in lobbies and in the vestibules connecting the various wings as well as such luxuries as semiprivate dressing compartments in the gym shower rooms.

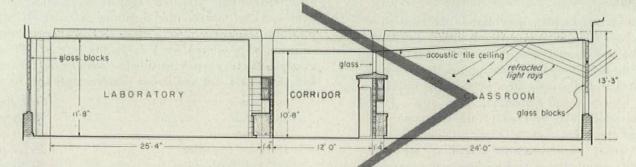
Where students' welfare was not involved, every effort was made to keep costs down. To help their clients thoroughly understand the proposed design and to permit contractors to bid the job closely, the architects not only prepared extensive detail drawings and specifications but also took off the quantities of materials, equipment and furniture required. In some cases several alternate methods of construction were offered for bid. In the case of floor structure, for example, the four types listed below were let out for bid and the one with the lowest cost and fewest disadvantages will be selected.

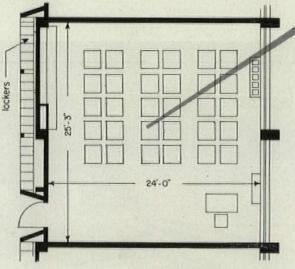
Structure	Cost Estimate
Solid slab	\$1.45 per sq. ft.
20" metal pan	\$1.10 per sq. ft.
18" x 12" tile filler	\$1.55 per sq. ft.
12" x 12" tile filler	\$1.40 per sq. ft.



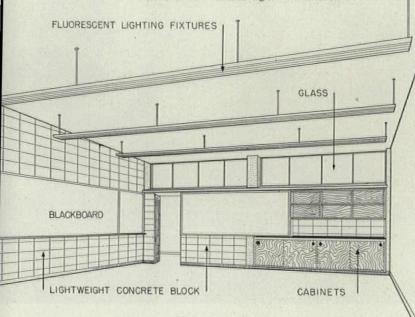


Exterior wall of each clossroom has a glass block panel over a vision strip. Rooms facing south also have sloped ceilings.





Square classrooms require minimum of expensive perimeter wall. Glazed area above storage partitions admits natural light to corridors.



#### Side-lighted classrooms

To keep the length of the classroom stem from becoming too long (it now measures 390') and get a maximum number of rooms per foot of exterior wall, classrooms are square (24' x 25'-3") in plan an ideal shape according to many educators.

Chief problem of such a room shape, of course, is daylighting, and the architects solved it by using light-refracting glass block between the 2'-6" vision strip and the ceiling. Light through the glass block is redirected toward the ceiling to get maximum illumination to the interior wall. The hung plaster ceiling was sloped from a height of 11'-9" at the windows to 10'-6" at the corridor partition to bounce back the redirected light to desks. [But this effect of sloped ceilings is usually overrated—Ed.] On the first three floors, corridors borrow natural light from the classooms through glazed areas above cabinets

and lockers which form the corridor partitions. Fourth-floor rooms are bilaterally lighted with the aid of a south clerestory over the corridor. (See section through classroom wing at top of page).

Rows of hung fluorescent fixtures parallel to the windows supplement natural light in all rooms.

#### **Top-lighted** gym

The top lighting of the gym has exciting possibilities. To simulate outdoor light the architects have made the entire roof the light source —it consists of skylight strips alternating with prestressed concrete beams. (These span the short way of the 94' x 110' gym; they are 4' wide at the flange and 5' deep.) To kill the striped effect the architects have hit on a handsome light diffusing medium. Under the roof they will hang an egg-crate baffle consisting of glass fiber curtains 4' deep suspended on frames, so that the eye will see a shimmering soft web up above. At night fluorescent lights hung below the web will produce a comparable effect.

Sound control is helped by affixing acoustical tile to the exposed webs of the prestressed beams.

Shower rooms and semicompartmented dressing space located on both sides of the gym vestibule are top lighted through plastic domes set in the roof.

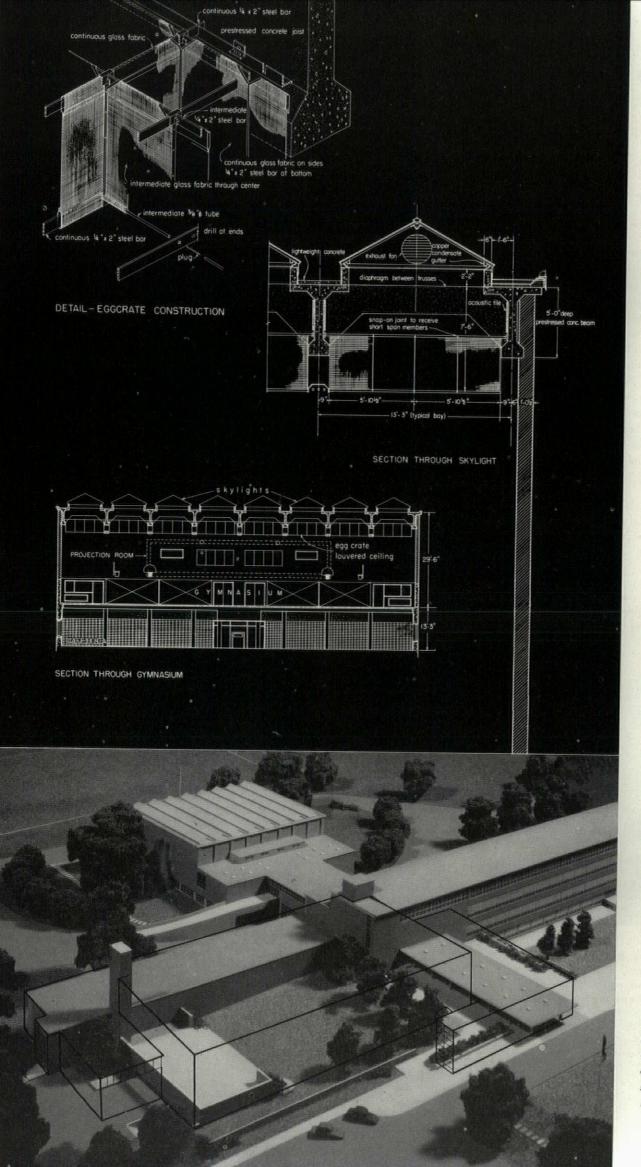
To make the much-used gym playing floor do double duty, an electrically operated curtain can divide the playing area in half.

The ground floor of the gym wing contains the cafeteria which can serve 20–25 students per minute. A feature here is a continuous conveyor belt system on which students place used trays; the belt carries the utensils directly to the dishwashing area.

#### **Plans for expansion**

When enrollment reaches 1,600, the class stem unit will be extended westward to enclose the convent courtyard. Music and dramatic arts programs will get another floor over the two-story east wing.

Student assemblies (to be held at first in the gym) will get a separate auditorium large enough to seat the entire student body in the area now designated for open-air assembly. The initial openair stage will provide part of the foundation.



Prestressed concrete girders spanning 94'-wide gym roof support skylights. To diffuse the direct sunlight, plans call for an eggcrate arrangement of 4' glass fiber curtains suspended from girder webs. Skylights bear on edges of girders' upper flanges, leaving middle of the flanges for storm drainage gutters.

Future expansion plans envision a third floor added to east wing, auditorium built over open-air stage area large enough to permit assembly of student body.

## NINE TOP SCHOOLS:

#### winners in two competitions

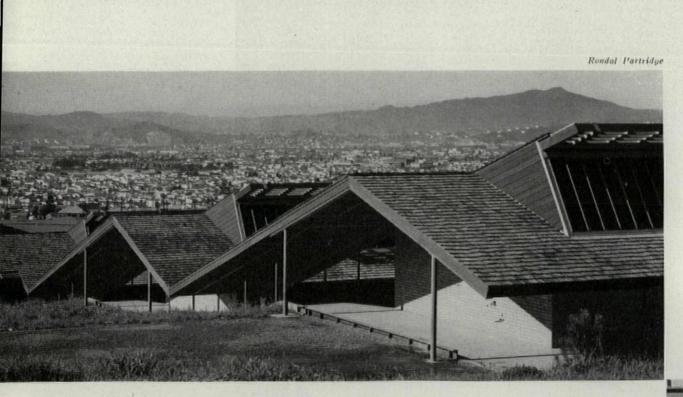
#### feature wide variety of contemporary design

Long recognized by the architectural press, the merits of contemporary school design have finally come into their own. Guided by a jury of experts,\* *School Executive*, magazine for school officialdom, in its first competition for Better School Design awarded all five prizes and most of its honorable mentions to schools of modern architecture. And this broad decision was echoed in the awards made in another competition sponsored jointly by the equally conservative American Association of School Administrators and AIA.

Concerning today's contemporary schools in general, School Executive's jury commented: "This competition demonstrates that school buildings can be designed from the inside out, and that program requirements need not be fitted—somehow—into some stereotyped building form, as has been the case so often in the past. Most of these buildings evolve in a natural way as the result of a logical interpretation of the educational program in terms of site, space, structure, materials and equipment."

Other excerpts from the jury's comments caption each photograph.

\* Architects Morris Ketchum Jr., Robert Hutchins, Walter Kilham Jr., Ray L. Hamon, chief of the School Housing Section of the U. S. Office of Education, and Benjamin C. Willis, superintendent of schools in Buffalo.



MIRA VISTA ELEMENTARY SCHOOL, East Richmond Heights, Calif. John Carl Warnecke, Architect. "Location of administrative and special purpose rooms with their roadways and parking areas on the comparatively flat entrance level and the skillful and bold handling of the classroom wings and their connecting walkways on the steep hillside above both prove the designer's ability to take full advantage of difficult site conditions. School and site blend in a charmingly romantic composition." (June issue '51, p. 185.)

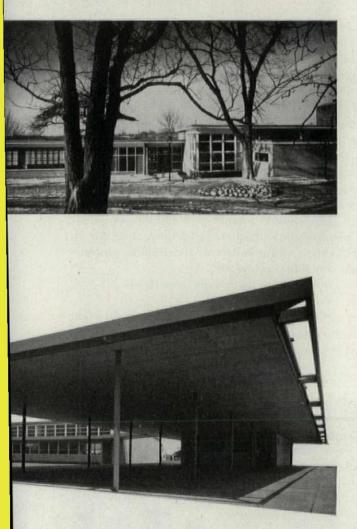
LIDO BEACH SCHOOL, Long Beach, Long Island, N. Y. Reisner & Urbahn, Architects. "This combined elementaryjunior high school is a superlative exercise in space composition by a plan which spreads out in a series of well related wings and courtyards. This school shows some noteworthy advances, particularly in a logical use of plastic skylights and in the choice of such easily maintained exterior materials as aluminum sash and porcelain enamel panels." (Dec. issue '51, p. 172.)



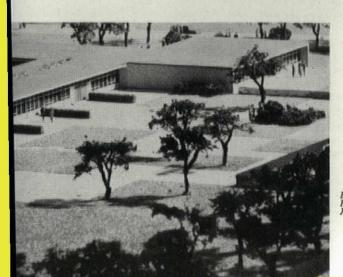
NEW BANGOR ELEMENTARY SCHOOL, Bangor, Me. Eaton W. Tarbell & Associates, Architects. "Another outstanding example of good regional architecture based on a skillful use of natural materials and appropriate colors used with a fine sense of scale and proportion. In plan, several wings are grouped together to form open courtyards that are partially sheltered against winter winds and snowdrifts. This school's outstanding achievement is its warm and friendly character." (Scheduled for detailed presentation, AF, May '52.)



**ROSEDALE ROAD SCHOOL,** Yonkers, N. Y. Edward Fleagle, Architect. "The centralized location of administrative and specialized rooms, which permits expansion of either classroom wing, is noteworthy. The building is also well related to its sloping site. Space, structure, materials and equipment are all competently handled. Indoors and out, the building has a nice residential character."

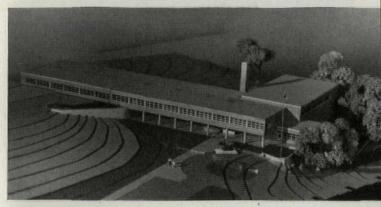


WILL ROGERS ELEMENTARY SCHOOL, Stillwater, Okla. Caudill, Rowlett, Scott & Associates, Architects. "The excellent regional character of this elementary school has been achieved by careful attention to climate control. The entire solution is based on careful preliminary studies of ventilation, lighting and acoustics. Overhanging roofs shelter classrooms and open play areas against excess sunlight, heat and glare. Its dignity, honesty and simplicity have been achieved at minimum cost." (AF, Jan. '52, p. 144.)



Photos: Ruth Gray; Rondal Partridge; Hedrich Blessing; Julius Shulman









AASA-AIA AWARDS, selected from a field of contestants which only partially overlapped School Executive's, duplicated the magazine's in only one case: the Stillwater, Okla. building by architects Caudill, Rowlett, Scott & Associates (left above). The four other winners are shown above (top to bottom): Senior High School, Oak Ridge, Tenn., Skidmore, Owings & Merrill, Architects; Lee Elementary School, Manhattan, Kan., F. O. Wolfenbarger, Architect; Sunshine School, Fresno, Calif., David H. Horn & M. D. Mortland, Associate Architects (a detailed picture taken of this school will appear in a subsequent issue); Clayton High School, Clayton, Mo., William B. Ittner, Inc., Architects-Engineers.



Millinery store. General illumination of 125 foot-candles is provided by the luminous ceiling consisting of transluscent corrugated plastic hung 18" below rows of fluorescent tubes spaced 18" on centers. Accent lighting of 200 foot-candles is supplied by 40-watt louvered incandescent down lights mounted flush with the ceiling. Vertical perforated acoustical baffles divide the ceiling into 36" strips. Harry L. Nicol, General Electric Supply Corp., and Larry R. Nall, Detroit Edison Co., Detroit, Mich.

### LIGHTING competition spotlights new trends: combination of light sources, more plastics, higher voltages, easier maintenance

Selected from 330 entries in the fourth annual competition of the International Lighting Exposition, these photographs illustrate six highly successful methods of lighting six widely different kinds of buildings, ranging from a textile plant to a shooting gallery. All of them winners but not necessarily prize winners, they were picked by FORUM editors as those which combine good lighting with good architecture—a limited classification in a competition open to electrical contractors, utility companies, equipment salesmen, as well as architects and consulting engineers, and including such miscellaneous subjects as street lighting, airport beacons and floodlighting.

As significant as the individual designs shown on these pages are the lighting trends observed by the jury in its study of all the entries:

- Toward an increasing use of luminous ceilings of plastics and glass
- > Toward the combination of light sources: incandescent and fluorescent
- Toward more geometric lighting patterns integrated with the architecture
- Toward the use of special lighting equipment to solve particular problems
- Toward easier maintenance of lighting equipment
- Toward higher voltages particularly in fluorescent installations
- Toward better quality, higher intensity lighting

The \$2,500 contest was sponsored by the Industrial and Commercial Lighting Division of the National Electrical Manufacturers Assn. Winners will be announced May 5 at the Exposition in Cleveland.





Library lobby. Flush ceiling troffers spaced alternately 4' and 5' on centers and containing 40-watt, 60" fluorescent tubes are supplemented by similar lamps in the cove around the circulation desk. Directed toward the ceiling, the cove lights reduce somewhat the brightness contrast between the ceiling and the troffers—the bugaboo of all troffer ceilings. With the aid of the off-white acoustic ceiling tile (69% reflectance), the lighting design produces 48 foot-candles of general illumination in the lobby, 30 foot-candles at the counter. Brightness readings: ceiling, 5.4 foot-lamberts; edge of cove, 4 to 6.8 foot-lamberts. Leonard H. Gussow; Harley, Ellington & Day, Inc.; Detroit, Mich. E. Irving Blomstronn

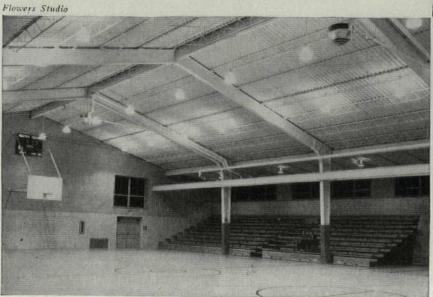
Art gallery, measuring  $32' \times 60'$  with a 12' ceiling, is lighted by 30 fluorescent fixtures with four 40-watt, 48''tubes each. The tubes are controlled in pairs to permit lighting of the walls or the central area of the room, or both. Fixtures are modified with a central vertical baffle of metal and the two outside tubes are covered with clear glass while the inside tubes (used only for light displays in the center of the room) are shielded with ground glass to reduce glare. Illumination of paintings is 20 foot-candles with only the two outside rows of lights on, 32 foot-candles with all lights on. Brightness: 30 and 34.7 foot-lamberts, respectively. Delbert K. Perry, architect, New Britain, Conn.

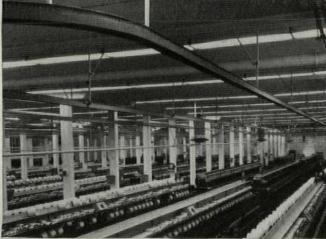


Rifle range. In the modernization of this room for a rifle and revolver club, a carefully devised combination of light sources resulted in higher scores for experts and beginners alike. On the firing line, 16 indirect 500-watt incandescent fixtures suspended 3' from the 15' ceiling provide 40 foot-candles. Over the range four rows of twolamp fluorescent fixtures produce 60 joot-candles. They are angled at 45° toward the targets and three of them are shielded from the firing line by an inclined baffle (see photo). Targets are illuminated to 130 foot-candles by two rows of seven 300-watt incandescent floods-one row on the floor, the other hung from the ceiling-both 5' from the targets. Result: marksmen at the firing line 50' away can see .22 caliber bullet holes in the targets with the normal unaided eye. Robert G. Watkins (utility man), Detroit Edison Co., Detroit. Mich.

Lavoy Studio

School gymnasium uses three types of incandescent lamps to light the 94' square area. Over the playing floor 27 high-intensity (750watt) fixtures mounted 20' above the floor and spaced 10' x 17' deliver 16-28 foot-candles—an average of 24 foot-candles without shadows. Each spectator section is lighted to 7-8 foot-candles by a row of four 330-watt fixtures which serve mainly to cut down brightness contrast. Each back board is illuminated to 35 footcandles by 300-watt ceiling hung spots. Joseph E. Baker (architect) and C. W. Paine, Ohio Power Co., Crooksville, Ohio.





**Textile plant** is comfortably and efficiently lighted with rows of fluorescent fixtures (two 40-watt tubes with provision for a third) on 11' centers and 16' above the floor hung perpendicular to the rows of winding machinery. An average of 40 foot-candles is delivered to the work surface. Shadows, glare and gloom are practically nonexistent. (Previously the room was inadequately lighted by two-tube individual units hung 7'-6" above the floor and about 11' apart parallel to the winding machinery.), R. M. Person (distributor), Mill-Power & Supply Co., Charlotte, N. C.

### **BETTER MASONRY WALLS**

MIT's construction experts analyze the oldest form of construction,

#### recommend eight ways to make it meet modern standards of appearance,

#### strength and weather protection-an article by Professor Walter C. Voss\*

"Those March winds drove the rain right into our new warehouse as if its block walls were cheesecloth."

"Within six months after we moved into our new branch office building, we had to recall the mason contractor to patch up the brickwork."

"Our stone library walls looked fine when they were finished, but you should see them now!"

Such laments are typical of the continual chorus of complaint inspired by faulty masonry wall construction. Unfortunately, too many architects and builders think of a masonry wall simply as so many small units laid one on top of another. This explains why too many walls crack and leak.

Building a presentable, durable, weathertight masonry wall is a complicated operation whose success depends on many factors —some controlled by the architect, some by the builder. Here is my philosophy of good masonry construction:

1. Study the frame in connection with the masonry wall and eliminate all restraints which may cause joint failure.

2. Analyze the characteristics of hollow backup units, particularly their dimen-""" "This article is based on a paper delivered by Professor Voss, Head of MIT's Department of Building Engineering and Construction, before a recent meeting of architects and contractors at Birmingham, Ala. sional stability, and construct the wall to minimize shrinkage of the masonry.

3. Choose, if possible, masonry units with an absorption of 4% to 10% for facework and not to exceed 15% for backup. Units with higher absorption rates should be controlled by uniform wetting.

 Select a mortar which is not too rigid and has characteristics of reconstitution and reasonable elasticity. Know the composition of the cement.

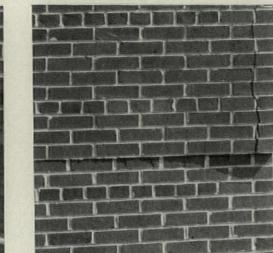
5. Insist upon delivery of dry units; keep them in dry storage; lay them dry (unless their high absorption rate requires that they be laid wet); and protect them after laying.

6. Use a dense joint forced back against the brickwork after initial shrinkage has taken place. Never point wet mortar; strike only when it is thumbprint hard.

7. Avoid excessively acid cleaning washes—preferably use none at all. Clean with plain water or ordinary soap powder and water, removing all fins and mortar blotches with a stick and fiber brush.

8. Study the effects of thermal and wetting expansion and contraction to free the wall from excessive restraints so it may move without serious stresses. Let the wall float—flexibly restrained but not clamped.

Walls of various kinds present different problems. Bearing walls are always more weatherproof than curtain or panel walls of the same detail, simply because their heavier dead loads produce more intimate



contact between the masonry units and the mortar. In high buildings the design of curtain walls is complicated by the elastic consolidation and lateral forces imposed by this type of structure. This requires very careful consideration of the movement characteristics and the construction details at interruptions in the envelope.

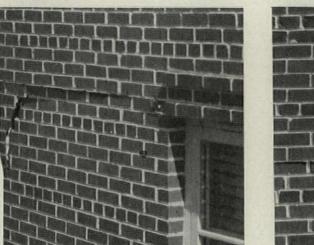
While use of the continuous frame permits construction economies, improper detailing may raise maintenance costs and cause eventual cracks and leakage. Reason: continuous frames are more likely to transfer stresses over greater distances than simple frames.

Because wood framing of simple spans is not bonded to the masonry and therefore allows movement without excessive stress, it creates little displacement of the masonry. Wall-supported structural steel and precast reinforced concrete frames behave similarly except that bond is usually present and refers movements to the walls.

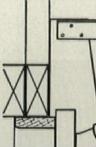
Types of walls. Research has proved that weather tightness of a wall increases with the number of continuous vertical mortar barriers or withes between the wall's two faces. A single vertical mortar withe will increase weather resistance as much as six times. A solid 8" brick wall has no such mortar barrier-headers extend through the wall. To create a continuous internal mortar barrier in an 8" wall, many architects specify full stretcher or clipped header courses bonded with galvanized ties. Such walls have given excellent weatherproofing results while many header-bonded walls have failed. The usual 12" solid brick wall or the wall of 8" solid brick backup faced with 4" ashlar also provides a single continuous vertical mortar barrier. If the header bond courses of the backup are properly spaced to occur between the horizontal joints of the facing brick or ashlar, even greater protection is afforded.

Where hollow backup units are specified, we are confronted with an even more complex and troublesome problem. Most units now available have faults from the point of view of weather tightness and these must be overcome in construction. Hollow backup units are usually laid with their walls

(Continued on page 184)



Masonry wall ruptures due to thermal expansion of the frame



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TWO

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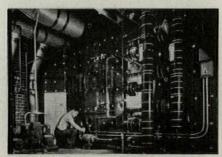
#### 525 Wm. Penn Place Corp. Building

conditioning system of this massive structure. In a portion of the building, electronic air cleaning by the Westinghouse PRECIPITRON® removes dirt, soot, pollen—even smoke—from the air, will pay for itself many times over in reduced cleaning costs.

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Architects: Harrison & Abramovitz, N. Y .; Consulting Engineers: Meyer, Strong & Jones, N. Y.



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#### **Commercial building needs credit**

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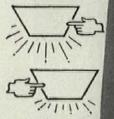
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Even if materials controls are substantially eased as promised by NPA, credit control—the Federal Reserve Board's Regulation X will remain. And Regulation X is tough on commercial building, limiting the loan to 50% of value. Federal Reserve says this is not as tough as it sounds since the regulation permits the loan to be based on capitalization-type appraisal under which the loan might be much more than 50% of the investment. Owners and promoters, however, complain that lenders are conservative in their appraisals and rarely go over half of replacement cost. The result is often an equity requirement of 50% or more.

Anyone who has ever arranged the financing of a commercial structure knows what a rare bird 50% equity is. It is a fit inmate for a financial zoo; it certainly doesn't run around loose. Efforts to evade the regulation by sale-lease-back deals or by financing on other than mortgage security are no avail. Such transactions, if not hooked by Regulation X, are netted by the Voluntary Credit Restraint Program. There is no legitimate escape.

Yet up till now there is no indication that credit relaxation is being considered.

**Commercial building has been hit harder than many realize.** Because commercial building activity—warehouses, office buildings, loft buildings, stores, restaurants and garages—came through 1951 with a slight gain over 1950, many believe this kind of building has not been severely hurt by controls.

The facts prove otherwise, **Item:** the gain was made almost wholly in the early part of the year; the last six months of 1951 showed steadily growing declines from the corresponding months of the year before. **Item:** the decline became much sharper after NPA's very rigid restraints on new commercial building starts for the last quarter of 1951 and the first half of 1952. **Item:** most commercial building that did go ahead in 1951 had had its financing arranged before Regulation X had been imposed and before the end of the easy money days last March. **Item:** for the first two months of 1952, commercial building activity was running more than a third behind the volume for the same period a year ago. (Only recreational and amusement building —almost entirely banned by NPA—has been hit harder.)

#### Five good reasons for relaxing credit control on commercial building activity:

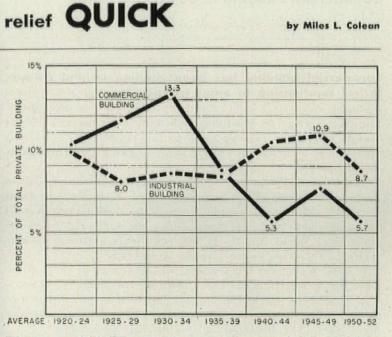
1. From now on the duration and seriousness of the present slump in commercial building will be determined mainly by the availability of sufficient credit to make financing feasible.

2. There is little prospect that construction activity in 1952 will be inflationary. On the contrary, it will probably be deflationary, with an unavoidable slump in commercial building.

**3.** Because of the long time lag between decision to build and actual expenditure, an early relaxation of credit is needed to pre vent the slump in commercial building from continuing and per haps becoming more serious in 1953.

4. Commercial activity since World War II has lagged behin its historical relationship to total building and to the economy a a whole. Credit relief is needed to prevent further distortion.

5. Credit control discriminates against commercial building i favor of industrial building, even though commercial is behin demand while the industrial may be reaching saturation.



While commercial building has historically taken more of the total private building dollar than industrial building—except during war periods—today the reverse is true.

Outlook for the year is for a volume of commercial activity no more than 60% of last year's total. And even if credit relaxation should be added to the easing of materials controls, the result would not be greatly different. It takes almost as long to get ready to build a commercial building as it does to build it. Land acquisition, architectural and engineering plans, financing negotiations, permits and so forth consume months. Aside from the 1,000-odd projects awaiting NPA approval at the middle of March, it is doubtful that many additional projects, except those of a very small size, could be started during 1952. A 1952 commercial building slump is a certainty.

There is nothing inflationary in the construction outlook to justify credit control of commercial building. Regulation X has only two reasons for being: 1) to help conserve critical materials and 2) to help restrain inflation. The first, on the basis of NPA's own actions, no longer is important. The question of inflation alone remains.

The probability of renewed inflation in 1952 has fewer supporters than only a few months ago. On the contrary, the prophets of economic relapse are becoming more and more vocal. Without engaging in this broader speculation, there is nothing to suggest that construction itself can raise much of an inflationary wind during 1952. Here are the portents, in addition to the slump in commercial building:

1. Total volume of construction-private plus public-will at best fall short of 1951.

2. Military construction is running behind expectations.

**3.** Local public works programs are generally lagging and cannot be rapidly increased for the same reasons that commercial building cannot be rapidly stepped up.

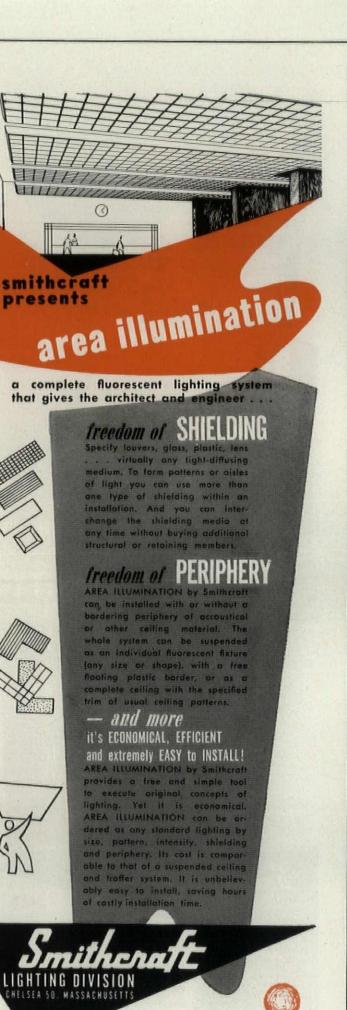
4. Private residential building at best will fall short of last year.

5. Industrial building will peak sometime in the third quarter.

All along the line there are signs of weakness, in relation either to what was built last year, or to what was expected this year, or both. No inflationary dangers lurk in these shadows. Instead, there is more than a little risk that the decline in private activity may become more serious in 1953, as a drop in industrial building is added to that in commercial activity.

The best offset to the inevitable slowing down of industrial work yould be an increase in commercial building. But many plans for commercial building will be deferred so long as the prospects of easible financing terms are slight. Thus responsibility for risking a uilding slump is on the managers of Regulation X.

(Continued on page 168)





#### **Commercial building needs credit relief**

**Commercial building has been running behind its historical relationship to other trends.** The desirability of encouraging commercial building rests on other grounds than that of furnishing a temporary stabilizing mechanism. Since the end of World War II, commercial building has been running behind its historical relationships to industrial building, total private building and gross national product.

In the past, industrial building has usually played second fiddle to commercial building except in war years. For every five-year period since 1920—the first year for which records are available—commercial has run ahead of industrial except during the war years and for the period after World War II. In the latter years, relationships were reversed. The graph (p. 167) points up this story:

1. After World War I, commercial was usually ahead of industrial. Since World War II, it has been ahead only two years out of six.

2. Since 1946, commercial building has been lower in proportion to total private activity than the average of any five-year peacetime period after 1920. Industrial building has kept pace better.

3. Since 1946, commercial building has not been much greater than it was in the high building years 1925–29, when population and national income were both much smaller than now. In terms of physical volume, commercial building since the war has averaged about half that of the 1925–29 period.

Compared with the gross national product in the two postwar periods, the contrast is even more striking. During the first half of the 1920's, commercial building averaged 0.8% of the average gross national product. During the second half of that decade, the ratio rose to 1.1%. For the five years 1949–50, however, commercial building averaged slightly over 0.4% of the national product.

It is clear then that, even in the time of the easy money market between 1946 and the Korean outbreak, commercial building did not keep pace with the growth of the economy. A change in Regulation X would help to prevent the lag from becoming more serious.

**Regulation X is unduly discriminatory against commercial building.** As an example of "selective control," Regulation X permits a few officials to substitute their judgment for that of the market as to what types of activity are most beneficial.

So long as the whole community is generally agreed on the objectives—that, in dire emergency, materials must be conserved for defense purposes and that consequently, industrial building to provide for defense needs may be more essential than commercial construction such an official judgment will be tolerable. However, when the problem of distributing materials no longer exists, when the nation's industrial capacity has been brought to the required level, and when the control of inflation remains the whole consideration, the discrimination as between one type of demand and another no longer is reasonable or desirable,

If, amid a free market for materials, inflation should still prove to be a threat, then the measures to be taken should be those of general applicability, which affect the whole demand for credit, but leave individual claimants in their normal competitive positions. In particular, little justification can be made of a policy which holds back commercial building, which is already seriously lagging, and continues to give free rein to industrial building, which may be threatened with overexpansion.

For this, if for no other reason, the grip of Regulation X on commercial building should be eased. The reluctance of the Federal Reserve Board to let go altogether is understandable in view of the serious problems of debt management that may lie ahead. Nevertheless, caution may be overdone. A relaxation to permit a two-thirds loan-to-value ratio in place of the present one-half would bring Regulation X into line with the Voluntary Credit Restraint Program. I would still exercise restraint on purely speculative ventures, but i would let needed sound projects get under way. The time is over-ripe for such a move.

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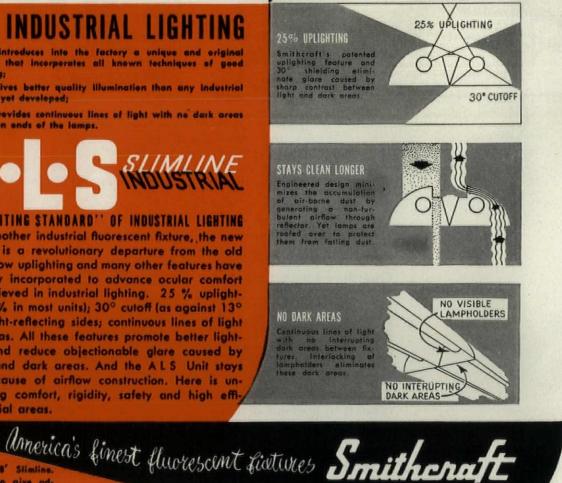
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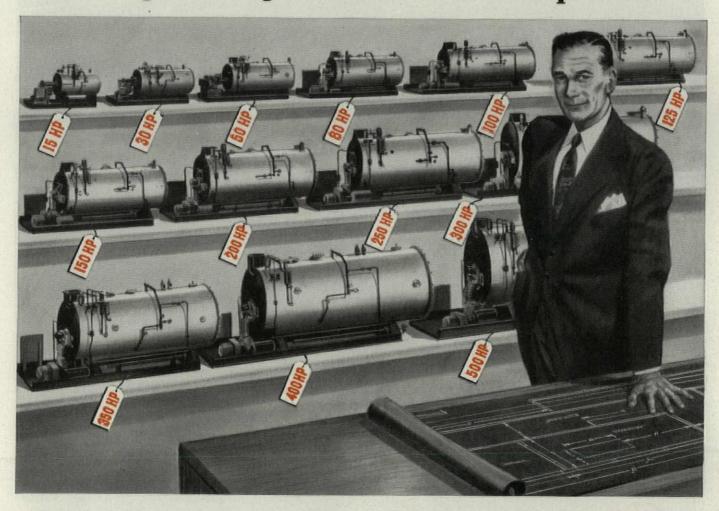
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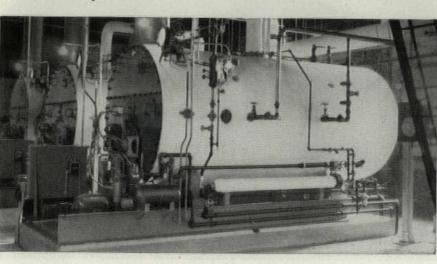
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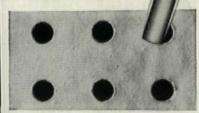
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Great American Reserve Insurance Building, Dallas, Texas. Architect: George L. Dahl. Simpson Acoustical Tile installation by Blue Diamond Company, Dallas.

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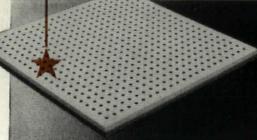
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UTAH Utah Pioneer Corporation, Salt Lake City

VIRGINIA Manson-Smith Co., Inc., Richmond WASHINGTON Elliott Bay Lumber Co., Seattle

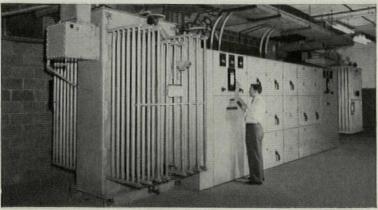
WISCONSIN Building Service, Inc., Milwaukee and Green Bay

CANADA Albion Lumber & Millwork Co., Ltd., Vancouver, B. C. Hancock Lumber Limited, Edmonton, Alberta

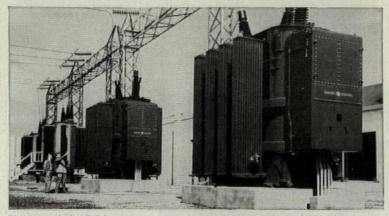


FIFTY-THREE ACRES OF PRODUCTION SPACE IN THIS GIANT PLANT ARE RELIABLY SERVED BY "PACKAGED" GENERAL ELECTRIC POWER DISTRIBUTION EQUIPMENT.

# **Tanks Roll in 7 Months at New Plant**



Secondary power distribution in the new plant is made on a 480-volt groundedwye system—for greater safety, better system operation. This is one of 18 new 1500 kva G-E load-center unit substations added during the plant conversion.



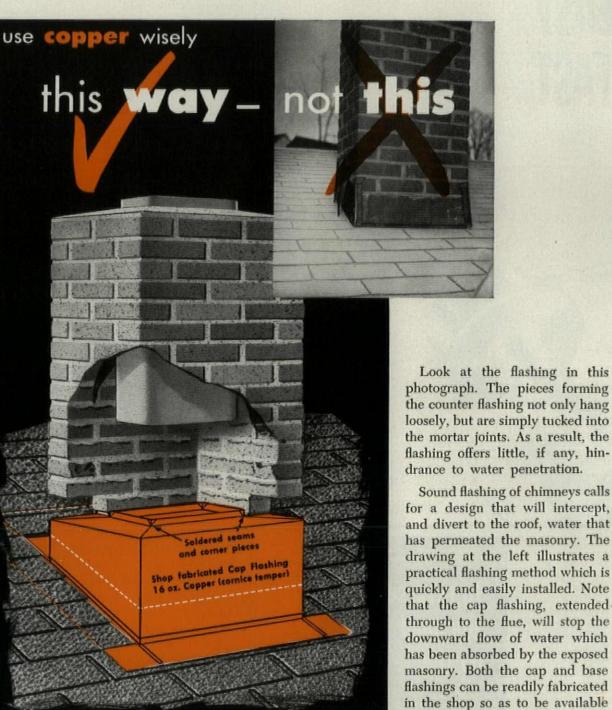
Two new 132-13.8-kv transformers, foreground, together with breakers, disconnects, and structural parts, form the pre-engineered "package" which was integrated with existing G-E equipment to form the plant's master substation. G-E power distribution equipment—easily specified, quickly installed—helps speed plant conversion to defense production

This new plant is an outstanding example of rapid conversion to defense production. Despite many obstacles, the first tank rolled off the line only seven months after the World War II plant was taken over. A major project in the conversion effort was the complete revamping and expansion of the electrical distribution system to meet the heavy demands of tank manufacture.

Selection of General Electric equipment helped speed conversion in these ways: (1) co-ordinated systems are readily designed around easy-to-specify G-E equipment, (2) "packaged" G-E equipment is quickly installed and connected, and (3) when substantially all power equipment is G-E, we will co-ordinate manufacture and shipment of system components.

You can gain these time-saving benefits for your industrial plant projects by specifying dependable, user-preferred G-E distribution equipment. And remember, G-E application engineers are ready to advise and assist those charged with distribution-system planning and design. Contact your G-E apparatus representative. And write for new brochure GEA-5600, "Electric Power for Industry's Third and Largest Expansion." Sect. 665-115A, General Electric Company, Schenectady 5, N. Y.



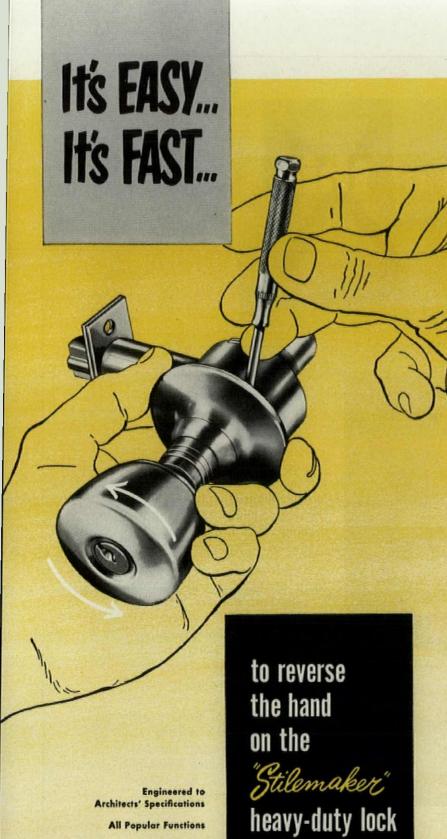


#### WRITE FOR DETAIL DRAWINGS

The purpose of recent research and investigation by Anaconda building specialists has been to develop methods of using a minimum of sheet copper for maximum results in the protection of buildings from weather. This work has resulted in a series of drawings which show suggested detail of new applications and improved methods for sheet metal work. These drawings, including the ones shown here, are available in a complete portfolio on  $8\frac{1}{2}$ " x 11" sheets convenient for filing. Send for your set now. Ask for Portfolio S. Just write to The American Brass Company, Waterbury 20, Conn. for better sheet metal work—use ANACONDA<sup>®</sup> copper

on the job when needed.

ARCHITECTURAL FORUM . APRIL 1952



Knob Styles . . . in wrought or cast bronze or brass

In 4 simple operations, the

"Stilemaker" lock can be

delays if hand of door

has been changed.

cylinder of the new Russwin

reversed for a different hand of door. It takes less than a

minute. No serious installation

When time is at a premium, this and other advantages of

the "Stilemaker" lock count

heavily in the architects' favor.

for complete description of the advance-design "Stilemaker".

Ask your Russwin Distributor

Russell & Erwin Division, The

American Hardware Corp.,

New Britain, Conn.



BY THE MAKERS OF THE ORIGINAL KEY-IN-THE-KNOB LOCK

#### **BUILDING FOR DEFENSE**

(Continued from page 151)

rity against cost and to use what limited labor and materials we have available so as to give the highest average protection per dollar spent.

There is one basic difference between seismic design and blast design. For earthquake resistance, structures should be as light as possible since the forces involved increase generally with an increase in the weight of the structure. On the other hand, for blast resistance, mass is helpful. The over-all blast loads are proportional to the areas exposed and only those areas exposed to unbalanced forces are affected.

Shelter areas need special consideration. They will usually be sited in the central core of a multistory building and either exterior walls or interior partitions surrounding them should be designed for survival. They should be of concrete, 8" thick, reinforced with  $5_8$ " rounds at 6" o.c. designed for a minimum lateral load of 150 p.s.f. and be firmly tied to supporting members.

Floor weaknesses are 1) the possibility of buckling of the floor slab, prevented by stiffening ribs running perpendicular to the outer wall, or 2) the possibility of failure at construction joints, which can be avoided by extending reinforcing steel far enough through the joints to develop maximum strength.

Shear panels, says CD, are the most critical elements of the structural system. They must be adequate to carry the lateral and vertical blast loads transmitted by floors and roofs in addition to the usual live and dead loads and they should be used consistently throughout the structure. They should also be placed on either side of an expansion joint in a floor. The best material to use is reinforced concrete securely connected to the surrounding floors and columns in a rigid-frame design.

The possibility of unbalanced blast pressures will have to be considered. For instance, where the space beneath a floor does not contain openings or breakable panels amounting to 20% of the lower story wall area, the floor should be designed for a live load of 100 p.s.f. acting towards the unvented region. Similarly, horizontal and vertical pipe galleries should be vented with breakable panels about 25' apart and amounting to about 20% of the area.

Elevator shafts may also admit blast pressure. Their walls should be designed to withstand a pressure of 150 p.s.f. from either side. A reinforced concrete cap, for instance, with holes for the various cables, should be placed on the top of the shaft designed for similar 150 p.s.f. loading.

In short, venting may be more easily permitted than prevented, and panels should either be very weak or very strong. If designed to fail they should be light, relatively fragile sheets such as gypsum of asbestos that will disintegrate without forming dangerous missiles.

#### For new construction CD recommends a central protective core area, says the extra cost is not more than 5%

If more or less identical shelter areas are constructed in all stories of a building by placing blast walls at corresponding locations, the result is essentially a structure within the structure which may be called the protective core. In addition to defining relatively safe, more or less central areas that can be used for shelter or vital storage, such a core provides additional shear resistance to the building as a whole. Each shelter area should have a minimum of two exits and it is desirable that the core should contain stairs.

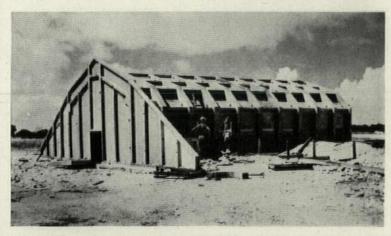
It is best to leave enough openings in the protective core so that pressure equalization is quickly achieved on both sides of every wall. These openings must be arranged with a series of strong baffles to minimize the danger of debris entering the shelter area.

#### For existing factories CD suggests ways to protect personnel and vital equipment

New construction affords the best opportunity for including protective measures at minimum cost, but existing structures can also be strengthened. Blast damage can be reduced by strengthening against lateral and downward forces, by the removal of irrelevant features that might be dislodged and by the elimination of fire hazards.

Industrial-type buildings with saw-tooth type roofs are especially vulnerable to blast damage. The most effective measures will be 1) to reinforce the structure and thus eliminate any weak links that would permit collapse before other parts of the building have reached the full capacity of resistance, and 2) purposely to provide a weak connection between the frame and the curtain walls so that the latter can easily blow away (again without creating a missile hazard) and so permit pressure equalization inside and outside the building.

Complete protection of industrial buildings against blast is impossible. It will therefore be necessary to protect personnel and the most valuable equipment in the plant. Precast concrete walls can be used to protect both men and machinery. They can be prefabricated in segments in a ribbed shell concrete design as sug-

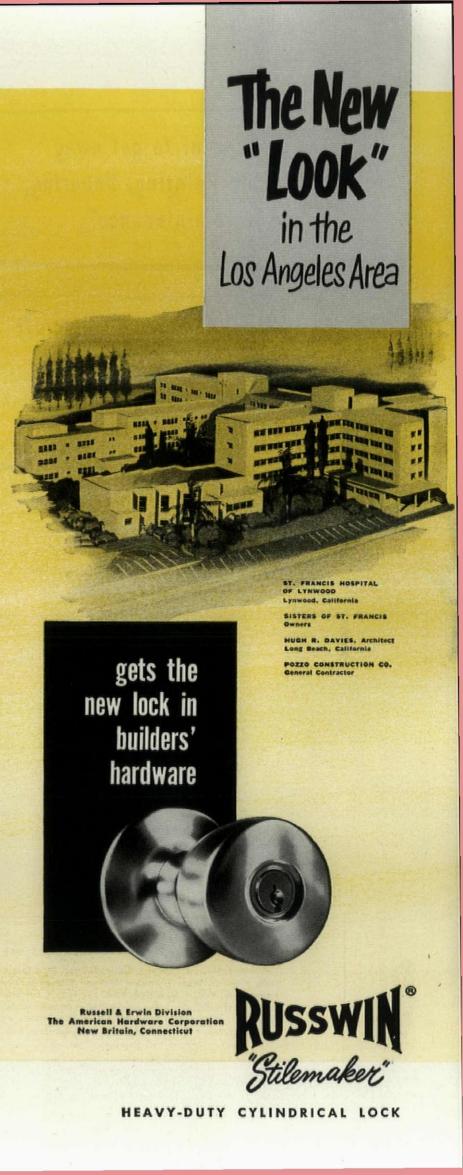


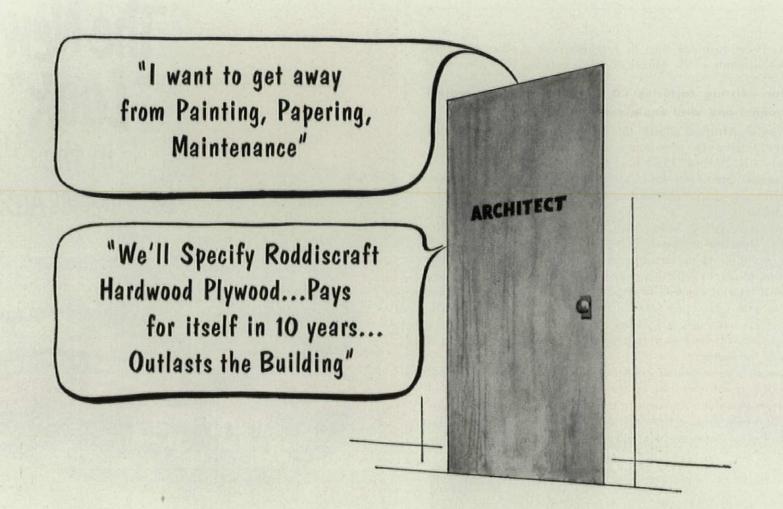
Designed by navy engineer Arsham Amirikian, this precast gable-shaped, ribbed shell, concrete personnel shelter proved good  $\frac{1}{2}$  mile from point of burst in the Eniwetok Atoll tests of 1951. Design loads were 40 p.s.f. snow and 70 m.p.h. wind. Panels are bolted together, cheap and easily stockpiled.

gested by Arsham Amirikian, head design engineer of the Bureau of Yards and Docks. Such shelters, erected in whatever span was required and carefully sited on the manufacturing floors of large plants, proved invaluable in Europe during the last war in reducing the number of casualties to both men and equipment.

### CD stresses the need to plan rescue operations before the attack

Adequate protection against bombing will require very comprehensive and detailed planning to avoid panic and to allow first aid, rescue and fire-fighting teams to operate after an explosion. These teams, and their equipment, must be in protected structures to avoid incapacitation. Utility lines and sewers should be protected and there must be reserve water supply points for the control of fires. These matters should receive the very highest priority and the first allocation of whatever limited funds are available.





 $\mathbf{Y}^{\mathrm{OU}}$  have always recommended paneled walls for appearance. Today with scarce, high-cost maintenance labor, you can also recommend them on the basis of economics. The higher original cost of installing plywood is often offset in ten years or less by savings in painting, paper hanging and maintenance.

And for the life of the building, paneled walls will continue to pay dividends in savings, and in beauty that ripens with age.

Remember — the quality of plywood can vary as much as the quality of any other manufactured product. The veneers, the care in matching, proper seasoning, moisture control, glue, gluing methods, sanding, thickness of faces and storage — all influence the quality of plywood.

Roddis craftsmen control the step-by-step manufacture from veneer selection to the finished product — no shortcuts — no compromise. You can be sure when you specify Roddiscraft.

#### NATIONWIDE Roddiscraft warehouse service

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# Rolling Steel DORS



MAHON STANDARD POWER OPERATOR 920-P



Nahon Release Device and Goveror on the Automatic Closing techanism of a Mahon Rolling Steel ire Door, Fusible links release the techanism in case of fire and the oor closes automatically.

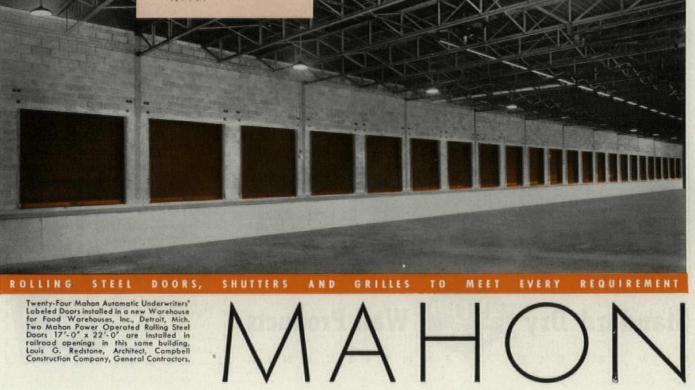


Mahan Release Device for Chain-Gear Operator on Mahan Mechanically Operated Rolling Steel Fire Doors. Fusing of the Fusible Link, which releases the Automatic Closing Mechanism, simultaneously disengages the Chain-Gear Operator.

### Manually, Mechanically, or Power Operated

In the openings between an enclosed loading dock and a large food warehouse illustrated below, twenty-four Mahon automatic closing, Underwriters' Labeled Rolling Steel Fire Doors were installed to protect the contents of the building. These doors are manually operated in normal service, but are equipped with fusible links and an automatic closing device which quickly closes the door in case of fire. Mahon Underwriters' Labeled Rolling Steel Fire Doors, like all other Mahon Rolling Steel Doors, occupy no usable space inside or outside the opening . . . they are built to give a lifetime of trouble-free service . . . for instance, the galvanized steel for the interlocking curtain slats of Mahon Rolling Steel Doors is chemically cleaned, phosphated, and chromated to produce paint bond, and the protective enamel coating is baked on at 350° F. prior to roll-forming. This is just one of the extra value features of Mahon Rolling Steel Doors-you will find others if you check specifications carefully. See Sweet's Files for complete information, or write for Catalog No. G-52.

#### THE R. C. MAHON COMPANY





General contractor and technical supervisor of Standard Dry Wall Products, Inc., plan correction of an extreme condition existing in bleacher seats at Braves Field, Boston, Massachusetts.

Right photograph shows soffits of concrete seats where concrete has blistered away from reinforcing rods. Rods were sandblasted and sealed with THORITE Patching Mortar and entire undersurface sealed with THOROSEAL.

HOROSEL







Above photograph shows THOROSEAL FOUNDATION COATING being grouted into upper, or wearing, surface of bleacher seats.

General contractor, Henry Gironi, Allston, Massachusetts, an expert, with long experience in masonry maintenance, rehabilitation and surface protection, performs correction task on Braves Field, with satisfaction to all concerned. Waterproofing Products, Inc., Allston, Massachusetts, furnished the materials.

THORITE Patching Mortar was used for sealing rods and patching cracks and blisters in concrete. THOROSEAL FOUNDATION COATING was used for grouting wearing surfaces.





Architects: ADE and TODD Rochester, N.Y. Consulting Engineers: ROBSON & WOESE, Syracuse, N.Y. Heating Contractor: W. A. McCORMICK, Rochester, N. Y.

-used in many prominent modern buildings

Here is one of the nation's prominent modern schools with a radiant heating system supplemented by mechanical ventilation -completely controlled by Powers.

POWERS

**RADIANT HEATING CONTROL** 

For flexibility of adjustment and better control the temperature regulating system is divided into six zones.

Each Zone-is heated by circulated hot water regulated by a Powers MASTROL system which controls temperature of water in relation to outdoor weather.

10

RUSH-HENRIETTA CENTRAL SCHOOL Henrietta, N.Y.

Ventilation for each of the six zones is supplied by large unit ventilators controlled by a Powers duct thermostat operating Flowrite valves and dampers.

Auditorium is heated by a central fan ventilating system. Gymnosium is heated by two large unit ventilators. Both types of ventilation

circulate room air except when rooms are occupied at which time outside air is proportioned to the load. Temperature in both of these spaces, as well as in the Locker Room, is regulated by various Powers controls.

Steam Boiler Control for Varying Loads Three oil-fired boilers here are regulated by a Powers No. 252 Pneumatic Pressure Regulator controlling three PE switches which cut in the right number of boilers required for the heating load.

Powers MASTROL System of Control is ideally suited for radiant heating. It has been widely used to control many types of forced hot water heating. Performance records show it unsurpassed for reliability. Maintenance cost is practically nil.

When problems of control for any type of heating or air conditioning arise, call Powers. Our more than sixty years of experience in supplying control for important buildings may be helpful to you.



Ceiling Coils before plastering

#### 8 Powers Individual Room Thermostats here, control ....

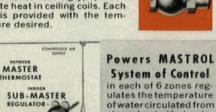
87 Powers NO-PAK Valves (packless, non-leakingtype) which regulate heat in ceiling coils. Each room is provided with the tem-perature desired.

**Powers FLOWRITE** 

**Control Valves** 

Regulate steam to Hot Water Converters • Heat-ing coils in Classroom Ven-tilators • Central Fan Sys-tem in Auditorium • Large Unit Ventilators in Gym-nasium

nasium.



System of Control in each of 6 zones reg-ulates the temperature of water circulated from steam-heated hot water converters to various rooms. Temperature of water is maintained in direct relation to weather out-doors.

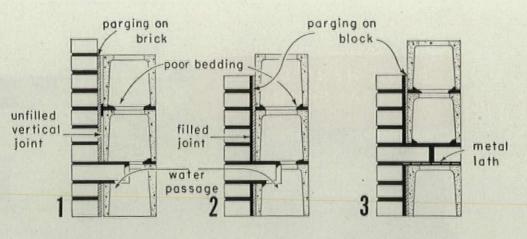


Only a few of our many types of control for Radiant Heating are shown here.

OFFICES IN OVER 50 CITIES COMPANY SKOKIE POWERS THE REGULATOR

### ETTER MASONRY WALLS

Three methods of construction using concrete block backup result in walls of varying quality: 1) Usual practice of laying up brick first and parging it results in unfilled vertical spaces between brick and backup. 2) When backup is laid first and parged, vertical joint is filled, but moisture passage through header brick leading into void of backup block is still present. 3) Mortar barrier dams the water passage, and a strip of metal lath holds continuous mortar bed to produce a still better wall.





vertical but sometimes, as in the case of clay tile, these elements are horizontal. In either case it is difficult to create full, sound mortar bed and end joints. When laid vertically, a complete bed joint depends upon the thickness of the walls. (In this respect concrete block or tile is less troublesome than clay tile, unless it is of the double-walled high load bearing type.) Vertical joints in these cases are discontinuous or entirely lacking except for indifferent face mortar pads. Even these may fall off in laying and be pointed later with only a "lick and promise." In addition, when such a wall encounters a facing bond course of brick, the headers lead directly into the voids of the unit (see figs. 1 and 2 above) so that any unfilled or partially filled side joint in the header course can lead water directly into the backup voids to travel no one knows where. When the backup is laid with the walls horizontal, the vertical and joints present an even greater problem and cause a great deal of leakage. Header backers so commonly used in this type of wall construction are no better except that they do allow the backup and the facing header course to break joint. Where facing is applied to a wood frame or to cast concrete, the problem is not usually leakage but anchorage, for this type of backing provides a positive dam to the entrance of water. when properly constructed.

Methods of construction. Regardless of type, a masonry wall must be well built to be durable, presentable and weather tight. Construction practices which affect quality include the sequence of laying, conditions at time of laying, pointing and protection.

Where hollow backup units are used the usual procedure is to lay up the face brick to bond course height, parge the brickwork, then set the backup block or tile. This procedure has been responsible for much faulty masonry work, but the inertia of contractors and architects still prevents improvement. Several things are bound to happen if walls are laid up this way (see fig. 1, above). First, the joints in the face brick are likely to be broken if enough pressure is applied in parging to do a good job. This very definitely spells trouble later. Furthermore, in setting the backup tile it is necessary to fill the vertical face joint behind the parging-a joint which may be as deep as 12" in the case of (Continued on page 190)

# ITTO IN IMPORTANT PLACES

YOU'LL NOTICE

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 highpressure 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.





UNITED STATES PLYWOOD CORPORATION 55 West 44th Street, New York 18, N. Y.
Please send color guidebook and full application information on MICARTA.
NAME

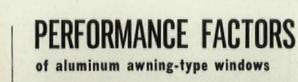
ZONE\_STATE

MB-4-52

ADDRESS\_

CITY\_\_\_

J-06465



Every day, more and more architects and contractors are turning toward aluminum awning-type windows. These newer, more modern windows are being specified for all types of construction, including factories, commercial buildings, apartments, hotels, schools, hospitals and homes. Over a period of years, the aluminum awning-type window has been subjected to rigid and exhaustive tests to determine its performance characteristics and operating efficiency under every known weather condition. This research has been carried on by the leading manufacturers in cooperation with leading architects.

### THE "OPEN" WINDOW

One important advantage in favor of the aluminum awning-type window is that it can remain "open" to provide ventilation and fresh air circulation even when it is raining. Slanting sash is the answer. One aluminum awning-type window, the Ludman Auto-Lok, goes a step farther in this respect. The bottom sash of the Auto-Lok window is designed to remain slightly open, while the upper sash are closed tight and automatically locked. This feature allows for night ventilation and limited ventilation during inclement weather.

### **BETTER VENTILATION...easier to clean**

Because of their outward projection, the vents in aluminum awning windows provide maximum possibility of attaining 100% ventilation. While not all awning windows can be opened to nearly 90 degrees (almost straight out) the degree of their opening can be predetermined by checking the manufacturer's specifications. In their wide-open position awning type windows can be cleaned from the inside. This very important maintenance factor cannot be underestimated. However, the basic design of the window must be checked. For, on certain of these types, where vents are pivoted on a fixed point, the top vent cannot be cleaned from the inside. The Ludman Auto-Lok window can be cleaned completely ... all from the inside, top sash, too. This feature is accomplished by Ludman's uniquely designed operating hardware, in which the hinge points of the top sash float down with the mechanism when the window is opened to provide a convenient 6" opening between the top sash and the window frame.

### AIR INFILTRATION

Paradoxically, the use of aluminum awning windows has for many years been retarded because of their generally unsatisfactory per formance on the score of tight closure and elimination of air infiltration. Yet, today, the tightest closing window ever made is an awning

### DOY THE THE INDOWS SUCCESS

THE FIRST WINDOW TO MAKE

CONTRACTOR

TO ORDER



WARMER IN WINTER

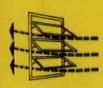
... because it seals itself

like a refrigerator...

keeps heat in, cold out!

FRESH AIR WHILE IT'S RAINING...no more running to close windows. Rain can't enter through slanting sash!





COOLER IN SUMMER ...because it opens widest...scoops air in and up...luxurious ventilation, but no drafts!

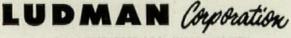
## DO YOU KNOW THE THREE STEPS TO Auccessful installation?

The window the Architect specifies...for his reasons ...must work out to advantage for the Contractor...in terms of trouble-free, economical installation. Finally, from the Owner's standpoint, the successful window is the window that proves most practical...not only in the planning and construction stages, but through a lifetime of maintenance-free service and attractiveness!

PERFORMANCE COUNTS first

AUTO-LOK is the first and only window made that successfully meets all window requirements...in use as well as in every step of architectural planning and construction work. No other window so completely meets the "three-way" performance requisites that result in successful window installations.

IT WILL PAY YOU TO WRITE FOR THE "HOW" AND "WHY"!



BOX 4541, DEPT. AF4, MIAMI, FLORIDA

sealed l like a refrigerator

type window. This unit is Auto-Lok, developed by Ludman Corporation after many years of research. Its tight closing performance is made possible by its patented hardware, a self-locking device which automatically seals the window tight when closed. Auto-Lok hardware provides a closure ten times tighter than the popular established standards for casement windows and projected sash. Pittsburgh Testing Laboratory tests reveal that air infiltration through a standard, assembly line Auto-Lok window amounts to only 0.095 cubic feet per minute ... a degree of weather-tightness heretofore thought impossible in any window. Though the Auto-Lok locking action is exclusive with Ludman, other manufacturers are beginning to use a vinyl plastic weatherstripping material similar to that which Ludman uses to weatherstrip the Auto-Lok unit.

#### SIMPLE OPERATION

The "one-hand" operation of aluminum awningtype windows is another feature that is very well accepted...and, in many instances, one of the important deciding factors in the selection of these windows. For example, this feature is important to hospitals, where busy nurses with a tray in one hand can still open or close the windows with their free hand ... saving time and trouble. Each individual manufacturer utilizes a distinct type of operator to actuate the window operating hardware. Usually they have large gear boxes to generate the great amount of force required to actuate the torque bar window mechanism. Because of their size they extend over the face of the window sill into the room. Some have removable cranks and extension drives. A study of the operating hardware of all aluminum awning-type windows reveals the fact that Ludman, maker of the Auto-Lok Window, has the most efficient mechanism from the standpoint of easy operation and trouble-free service. The automatic, self-locking principle of the patented Auto-Lok operating device eliminates torque strain required to force the hinges in order to pull individual sash in tight against the frame. In fact, the Auto-Lok mechanism is so perfectly balanced and requires so little pressure that a child can operate the windows.

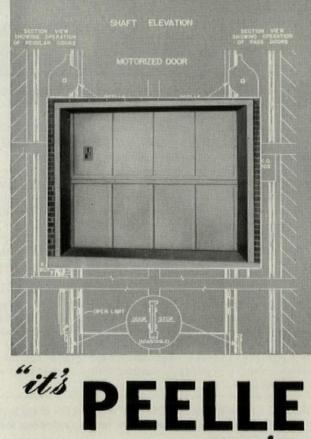
#### THE IDEAL WINDOW for any installation ...in any climate

The aluminum awning-type window is practical from every standpoint. Installations all over the world, in all climatic extremes, have proven their practicability. Their attractive horizontal lines make them entirely adaptable to all types of architectural design from cottage to skyscraper. Their rapidly growing acceptance is having a marked influence on architectural designs because their clean horizontal lines fit admirably nto modern architectural styles.









### they handle peak loads with maximum efficiency and minimum maintenance

Peelle Counterbalanced Motorized Doors increase the carrying capacity of freight elevators as much as 20%. When peak load demands would tax the physical capacity of a manual operator, Peelle Motorized Doors and Peelle Vertical Sliding Car Gates open and close in one fourth the time of manually operated doors. This eliminates costly bottlenecks in busy plants, yet the cost of motorizing is but a small percentage of the total investment.

It is no mere chance that Peelle Motorized Freight Doors are being installed in so many modern plants. The Peelle Company has pioneered motorized doors for many years and has originated many major improvements which add to the safety and efficient operation of these doors.

Peelle Motorized Freight Elevator Doors assure safe, smooth operation and reliable performance. These doors are approved by the Underwriters' Laboratories and the Factory Mutual Insurance Companies. They <u>always</u> carry the U. L. Seal.

Write us about suggestions or complete specifications. Peelle Engineers will help you solve your door problems.



BETTER-ENGINEERED PRODUCTS FOR MORE THAN 45 YEARS

engineered

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E PEELLE COMPANY

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THE EDWIN F. GUTH CO. / ST. LOUIS 3, MO.

# A man's work is his Cathedral

Edwin F. Guth, Sr., has given fifty years of his life to his work with almost religious devotion. His efforts have been rewarded.

His company, now celebrating its Golden Anniversary, is recognized as one of the leaders in the lighting industry. He has achieved fame for his contributions to the betterment of lighting. We at GUTH pause to honor this man who has shaped the past and future of our company.

Thanks, E. F. Guth, Sr. And thanks to all of you who have been so wonderful to us during this past half-century.

### Who put a bonus on the roof?

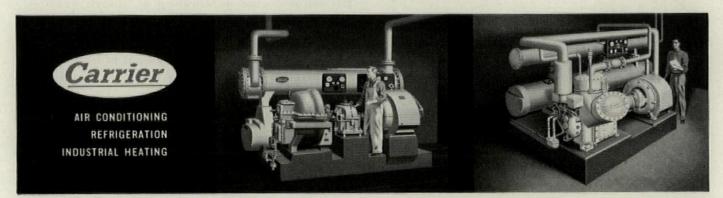
It's no mean trick to turn a problem into a bonus. But the owners and builders of New York City's new 27-story Sinclair Oil Building did it. Here's how.

Problem: because there was a bed of solid rock beneath Fifth Avenue and 48th Street, the cost of blasting for a sub-basement refrigerating plant for air conditioning would have been terrific. Solution: Carrier Absorption Refrigerating Machines chill water with steam by absorption. They have no major moving parts and are practically vibrationless. So it was practical to put them on the roof.

Bonus: Instead of long, costly condenser water lines, and pumps with extra horsepower and extra-heavy casings to withstand the hydrostatic pressure of 27 floors which an ordinary basement plant would have required, the roof-top installation used short water lines and pumps with standard casings... a clear saving of some \$25,000 on first costs alone!

Another bonus: the Carrier Absorption Refrigerating Machine handles extremely light loads automatically with high efficiency. This is mighty important in a year-round air conditioning system like Sinclair Oil's, where only a small amount of refrigeration will be needed during cool weather.

The Carrier Absorption Refrigerating Machine is built in five sizes, from 115 to 350 tons. Maybe it can help *you* turn a problem into a bonus, too. The nearest Carrier office will give you all the information you want. Or write for our folder, "Absorption Refrigerating Machines." Carrier Corporation, Syracuse, New York . . . for 50 years – the people who know air conditioning best.



Your particular chilled water system might best be handled by the Carrier Centrifugal Refrigerating Machine. In many applications, the Carrier Reciprocating Refrigerating Machine — a single package — is the most economical choice.

Architects, Carson & Lundin; consulting engineers, Jaros, Baum & Bolles; general contractor,

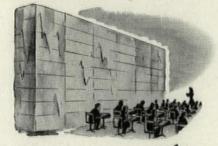
Turner Construction Co.;

owner, Massachusetts Mutual Life Insurance Co.;

agent, Leonard J. Beck, Inc.

COLD WINDOW DOWNDRAFT HEADING STREET

The free-standing Nesbitt Syncretizer Unit Ventilator with Wind-o-line Radiation extending from both ends of it, at the sill line.

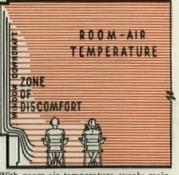


### To solve your "WALL-OF-ICE" problem... this NESBITT THERMAL BLANKET:

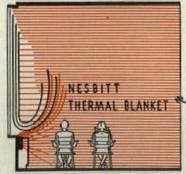
rchitects who design and school officials who approve large window areas in the modern classroom may delight in their choice if thermal comfort has been considered. Unit ventilators could be selected by conventional standards if thermal comfort depended alone upon the classroom air temperature. But today we know that low-temperature exposures and cold window downdrafts may remain the robbers of pupil comfort, even in classrooms with close control of room-air temperature. The practical solution to the chilling effect of window downdraft is to release heat upward over the exposure.

For conditions of large glass area and cold outdoor temperature, Nesbitt provides Wind-o-line Radiation for integration with the Syncretizer. Wind-o-line consists of fin-and-tube radiation in a grilled wall-hung casing to extend from both ends of the ventilating unit for the full window lengthand continued, if required, along cold outside walls. (Or it may be had as a component of the storage cabinets forming The Nesbitt Package.) Wind-o-line solves the problem of heat loss logically with a heat gain where and when needed. Convected currents of warm air temper the window downdraft and divert its flow upward and above the heads of the room occupants.

Inquire further of John J. Nesbitt, Inc., Philadelphia 36; Pa.



With room-air temperature evenly maintained, downdraft from large cold windows may remain the robber of comfort.



Nesbitt Syncretizer and Wind-o-line temper the downdraft, raise it out of impres-sion range, and improve thermal balance.

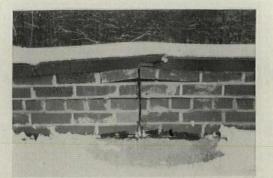
IND O LINE

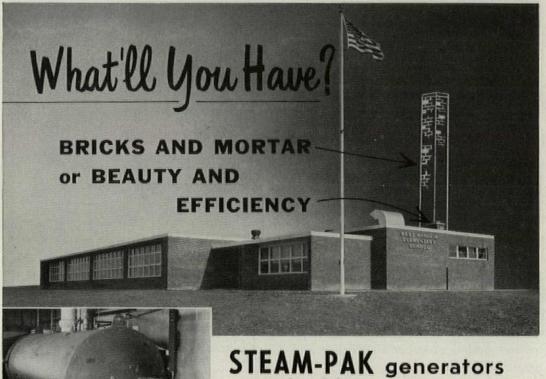
Wind-o-line Radiation may be integrated as part of The Nesbitt Package of Syncretizer and storage cabinets.

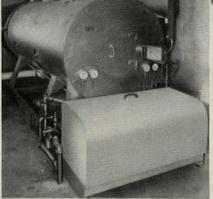
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Contraction Contract				

### BETTER MASONRY WALLS

Despite the provision of an expansion joint, mortar expansion caused the failure of this snow-covered brick parapet wall.







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.

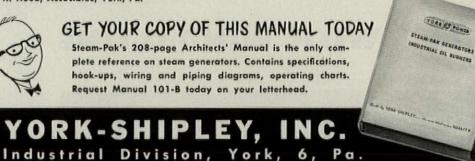
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clay tile and usually as much as 8" when concrete block are used. This filling can only be accomplished by troweling the mortar into the joint, an expensive operation which further disturbs the face brick because of hydraulic pressures. If stiff mortar is used the task becomes almost impossible. The broken face joints and excessive voids behind the parging lead to leakage in most cases.

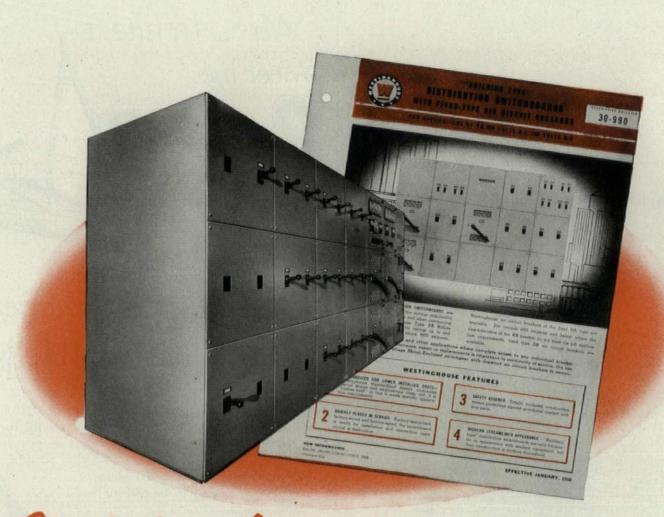
Proper way to lay this type of wall is to set the backup tile or block first, parge them, then lay the face brick into full beds of mortar to insure completely filled joints (see figs. 2 and 3, p. 184). This sequence compresses the parging against a greater mass of masonry wall and avoids the necessity of filling joints of a greater depth than 2". When finally laid and jointed, the face brick remains undisturbed to harden without shock or pressure on the bond.

Another problem in placing mortar on hollow backup units, where such units are laid with their walls and webs vertical, is the difficulty of providing a continuous, intimate bed of mortar. All such backup units should have a strip of light metal lath laid over the openings, upon which a bed of mortar can be placed (see fig. 3, p. 184). Since this lath will also increase the shear resistance of the joint against shrinkage forces, it is particularly important with dimensionally unstable concrete units and where header courses project into the body of the wall.

Protection of a wall during erection cannot be overemphasized. Rain-soaked walls will never be as satisfactory in performance and appearance as those laid with dry units and protected with weighted canvas covers. A good slogan is "deliver, store, lay and keep the units dry until capped by construction details." This will eliminate many shrinkage strains, help prevent efflorescence, and help keep the work clean.

Thermal variations. Aside from movement induced by wet and dry weather, another climatic effect which often causes distress is thermal variation. Most materials expand with a rise in temperature. This expansion is proportional to the length of the wall, the maximum temperature differential and the coefficient of expansion. This thermal coefficient increases with the density of the assemblage. Thus extremely dense units when used with rigid, dense mortars expand more per unit of length, per degree of temperature rise. On the other hand, reasonably porous units laid in more elastic mortars have lower expansion coefficients.

When the over-all movement of a wall section reaches a critical value, expansion joints should be provided. If the wall is restrained by structural frames, great care must be taken to allow expansion to take place without inducing shears. This involves technical analysis (Continued on page 200)



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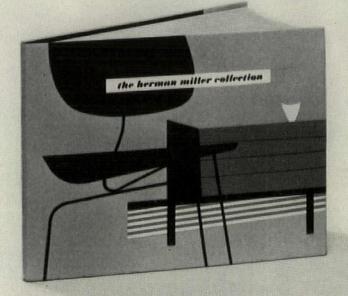
Bulletin D.B. 30-990 gives the complete story on how to figure your requirements quickly and simply.

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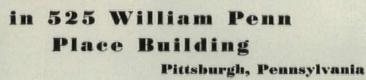
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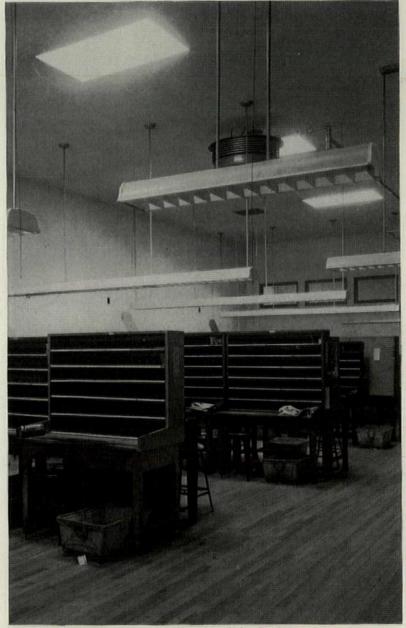
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# turn daylight into WORKLIGHT





Many architects are specifying Wascolite Skydomes to fulfill exacting lighting requirements for close work. The reasons of architect W. Henry Neubeck, Trenton, N.J., for using Skydomes in the Hamilton Township, N.J., postoffice, shown here, are typical:

"In the work space, we used five Skydomes in preference to two sawtooth skylights as originally suggested by the Postoffice Department. The appearance is more pleasing, light distribution is improved, heat loss reduced and maintenance eliminated. By using Skydomes instead of windows, we also obtain the necessary privacy for this work."

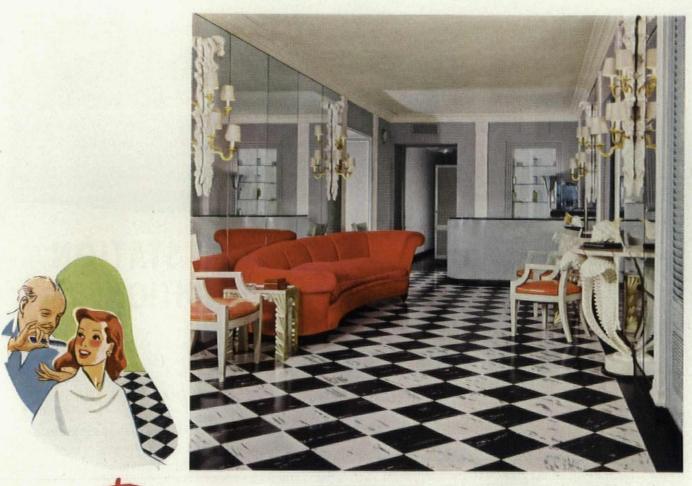
Better daylighting at lower cost is assured by Wasco daylight engineering studies, available without obligation. A study of your project will show:

✓ The correct size, type, number, spacing and above-floor height of Wascolite Skydomes.

✓ Illumination curves . . . reflection and climatic factors considered.

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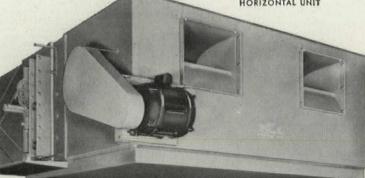
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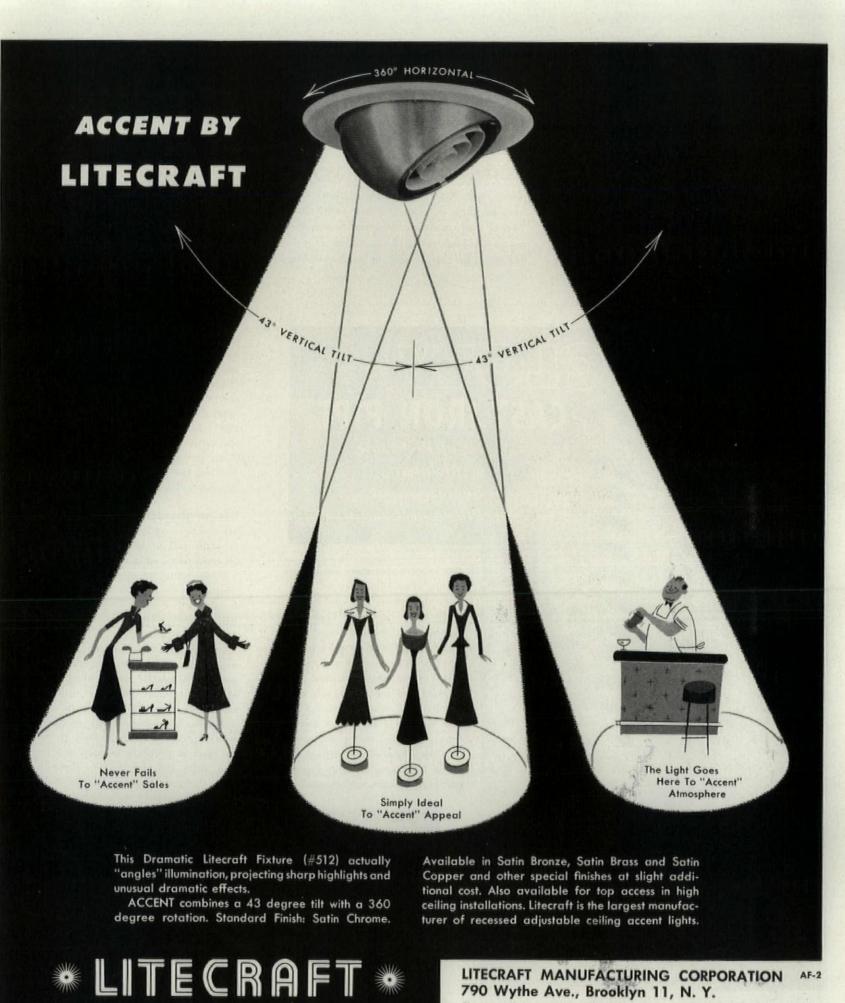
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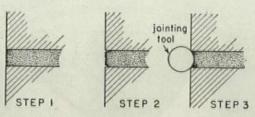
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### BETTER MASONRY WALLS



Three steps in preparing a proper joint: 1) excess mortar is cut flat, 2) mortar is allowed to become thumbprint hard, 3) mortar is compressed with cylindrical tool  $\frac{1}{5}$ " larger in diameter than the joint, thus compensating for mortar shrinkage.



based upon the climate variation which will be experienced by the wall from the time it is constructed to the time when other extremes occur. Unfortunately, most builders and some designers never give these matters much attention and some striking failures have resulted (see cut, p. 190).

Joints. Best joint of weatherproof walls is the concave struck joint. Proper specifications require that all brick be laid in a full bed of mortar with the excess mortar cut flat with the face of the brickwork as the bricks are being laid. Jointing should not be done until the mortar is thumbprint hard, at which time the joint should be struck with a cylindrical tool about 1/8" larger in diameter than the average joint thickness. In this way the mortar is compressed, compensating for any initial shrinkage (see cut). A wall so laid and jointed will be much cleaner and can often be cleaned down with plain water and a fiber brush, thus avoiding the use of acid which may penetrate the masonry and encourage efflorescence.

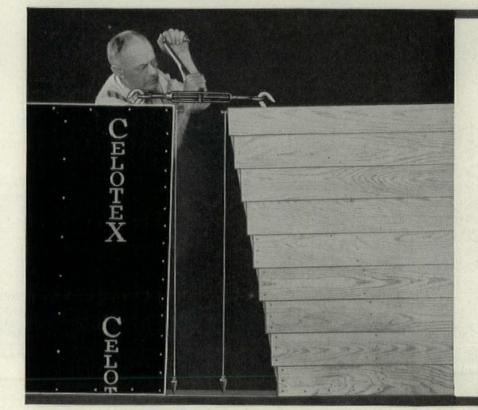
**Critical characteristics of masonry units** are their absorption, dimensional stability and strength—all of which have great influence on the success of a wall.

If the units are of a type that expand and contract with each wetting and drying, the usual practice of wetting them before laying will aggravate disruptive stresses after laying and cause efflorescence. When units are laid after expansion by wetting and heat, lower humidities and lower temperatures will produce a cumulative strain which is certain to open up vertical joints. If sufficient water movement is present, most units and mortars will effloresce. Use of dry units will insure less efflorescence, particularly if the face of the wall is properly pointed and the mortar and units are compatible. However, laying units dry requires a mortar which has a high flow after suction-in other words, a mortar which resists the extraction of water and possesses what is called antibleeding properties.

No wetting is required for units with an absorption of less than 15%. On the other hand, units with excessive absorption should be carefully and uniformly wetted—a difficult task which poses the possibilities of efflores-cence.

A masonry unit with a high rate of total absorption will remove more water from the mortar than a unit with a low rate. This characteristic must therefore be considered simultaneously with the mortar specification. On the other hand, a unit which has too low a rate of total absorption will cause water gain at the unit-mortar interface and impair intimacy of contact and eventual bond. Somewhere between these two extremes lies the proper unit and mortar. It has been my prac-(Continued on page 204)

# **Does Far More...Yet Costs No More** *than ordinary sheathing, applied!*



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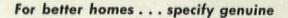
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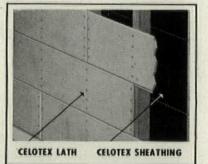
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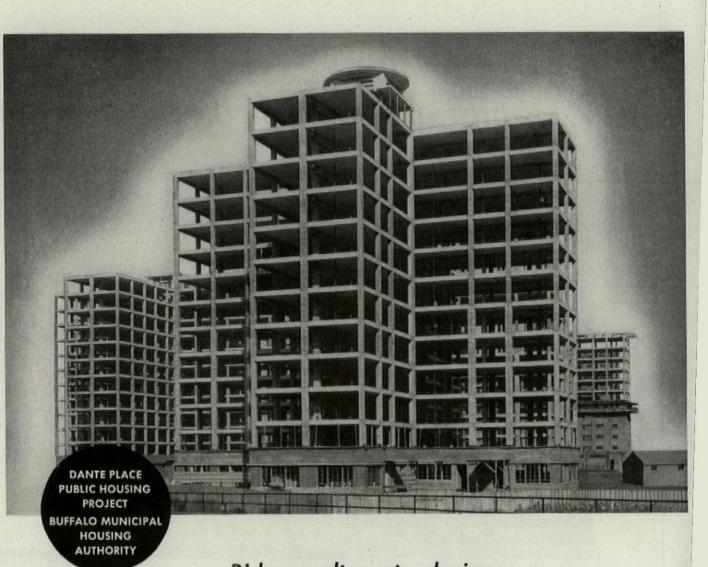


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### Bids on alternate designs show reinforced concrete saves 6.76% ... cuts steel requirements 50%

In planning this 616-unit public housing project, the Buffalo, N. Y., Municipal Housing Authority ran exhaustive cost studies to determine which type of building frame would be less expensive—reinforced concrete or structural steel. Costs for the project had to be estimated closely, before appropriations could be made.

Engineers of the Housing Authority prepared a complete floor and column design for one building for both structural steel and reinforced concrete. In addition, a separate structural steel design was pre-

202



pared by an outside engineer. Then all three designs were submitted to contractors for preliminary pricing.

The results are shown on the opposite page. Reinforced concrete won hands down. It offered a clear saving of 6.76% of the general contract cost, or \$270,038.00! Furthermore, reinforced concrete used 2,350 fewen tons of steel, urgently needed for national defense.

Savings like these are typical of those realized by builders all over the country with reinforced concrete And reinforced concrete *is not only* economical . . . i is inherently firesafe, and provides a permanent rugged structure which is highly resistan

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Contractor C, Buffalo 1	.945	2.499	2.41
Contractor D, Buffalo 2	.178		2.053
Contractor E, BuffaloNo	estimate aper	e, but stated	concrete was

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Total		2,200*
Actual design requirem		
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FULL STORY -SEE PAGES 35-39 OF THE JANUARY 3 ISSUE OF ENGINEERING NEWS-RECORD

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estimate \$2.053 per sq ft
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Saving 0.373
For 616,644 sq ft of supported floor area:
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### BETTER MASONRY WALLS

tice to limit the cold-water absorption of face units to from 4% to 10% and to allow a maximum cold-water absorption of 15% for backup units. Units which have higher absorption can be used, but with care.

Dimensional stability of a masonry unit is also extremely important. In this regard clay units are far superior to concrete units. Curing and drying shrinkage of concrete units are responsible for many wall failures. Because these units are made in many shapes, many plants utilizing many diverse techniques, their curing, aging, water content and homogeneity vary widely. If laid in a wall while relatively green and wet, the ordinary  $8 \times 8 \times 16''$  concrete block may shrink during the first few months as much as 1/16'' in length—equivalent to a coefficient of shrinkage of about .004'' per in. The resultant tensile stress imposed upon the vertical joints and upon the block



## source of pride for Michigan State, all hotel men and Van

• The illustration above shows the regular dining room serving section of the main kitchen of the New Continuing Education Building at Michigan State College . . . a part of the new W. K. Kellogg Center. The equipment here is only a part of Van's contribution.

• Here and throughout Architect Lewis J. Sarvis of Battle Creek allotted space as Van engineering indicated was required by the unusual problem of serving up to 150 house guests in the hotel and up to 1200 in the banquet room and private dining rooms for the large groups who will come for refresher training.

 Read the articles on this building. Then you will know why you can rely on Van for your food service equipment as has Michigan State on previous occasions, too.



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is inordinately high—much more than the bond strength of the mortar and even the tensile strength of the concrete in the block.

Mortar. Many investigators have blamed the mortar for most of our troubles with masonry walls. No one can deny that mortars must provide integrality and aid in producing weather resistance. Much depends upon the bond produced and the capacity of the mortar to offset some of the troublesome basic characteristics of the units. It is therefore important to make sure that the mortar has the ameliorating characteristics necessary to form a sound wall.

All mortars are a combination of well known cementitious materials, sand, water and sometimes some admixture. Including Portland cement, natural cements, slag cements, hydraulic limes, limes, or combinations of two or more of these, these cementitious materials each contribute certain characteristics to a mortar:

▶ Portland cement produces higher strengths and more brittle interfaces, induces bleeding and has a lethargic response to wetting and drying movements. It also arrives quickly at a stabilized state of solution and gel structure without the capacity of reconstitution.

▶ Natural cements are more elastic and have characteristics of reconstitution, but have great variations in composition because they come from rock which has great natural variations.

▶ Slag cements are sometimes in much the same category as Portland and at times resemble the behavior of natural cements, except that they are usually controlled in their composition.

▶ Hydraulic limes combine some of the gelforming characteristics of the hydraulic materials but also possess the reconstituting capacity so necessary to successful mortar performance. A bit lower down the scale in strength, they nevertheless possess other highly desirable characteristics. Thus, the designer must choose between strength and watertightness.

• Ordinary limes possess to an even greater extent these characteristics of reconstitution. They reduce the compressive strength of mortar but materially increase its bond and resilience.

This complex situation has resulted in some marketed cements of doubtful efficacy in mortar. While they meet standard specifications for strength and for other characteristics which in themselves are compromises with scientific facts—they fall far short of proper performance. Therefore, no one ought to use any bagged material, whatever its name, unless he is certain of its composition, i.e. unless its basic constituents are printed on the bag.



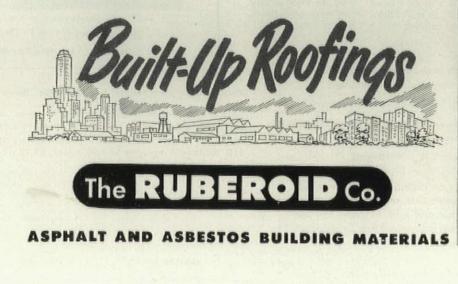
# A OSSON FROM SEARS ROEBUCK

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Houston (North Shepard), Texas

Architect:

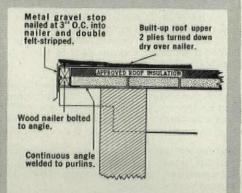
GEORGE DAHL, DALLAS

**General Contractor:** WARREN BELLOWS CONSTRUCTION CO., HOUSTON

**Roofing Contractor:** JAMAR-OLMEN COMPANY, HOUSTON

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# ODDS ARE THIS\* WILL BE YOUR NEXT BIG PROBLEM:

#### \* Perhaps it already is

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Maybe a sales staff works for you. Or maybe a Sales Manager works for you. (Better start thinking, hard, about how hard he and his men are selling.)

Because whatever your business, whatever your job, you will almost surely have more need for selling as the year grows older.

U.S. production is topping all previous peaks. But, as defense-buying tapers off this year, you and your firm and all Industry will be caught short unless you turn your attention (personally and corporately) to the major problem of how to sell more—and more effectively.

For these reasons, the editors of FORTUNE are devoting a major part of the text in their next ten issues to a series of searching articles on "Selling in Today's Economy."

You have probably read a great deal on the subject, much by men who call themselves "experts" in this guasi-science, all written from some point-of-view in the remote or recent past.

This FORTUNE series has little if anything in common with other things on Selling you have read. The editors of FORTUNE are not specialists in selling-nor do they pretend to be. They are not writing a "how to do it" series (in the ordinary sense of the phrase). What they are doing (for the first time on this scale in their twenty years of publishing) is to apply to the great, lore-laden subject of selling their peculiar and special talents as first-rank business journalists with unique experience in their trade.

In the course of these ten articles, the editors will marshal and report many techniques and procedures of selling as they are used and employed by companies of all kinds all through our economy today. Since you cannot read about the way knowledgeable people conduct their businesses without learning a great deal to apply to your own business, these articles might after all be called a "how to do it" series.

But they make no judgments. They do not recommend ways of selling-methods of compensation for sales—retirement policies or distribution set-ups. They report, with a clarity and understanding unapproached by any other group of journalists writing about business today, on what many companies of considerable stature and reputation all through the American economy are doing and thinking about the subject of selling.

The first report appears in FORTUNE'S April issue. It will be called "Why do People Buy" and it will not be "easy" reading. It sets the stage for what will follow—and may well be a mind-stretching exercise for many a reader. The following articles will get highly specific, will probe and expose such areas as:

- ★Is the social taboo against salesmen ★How much is the science of merchandisgrowing?
- \* Can retailers be turned into merchants? ★ Is "Market" research really research?

tion for the great selling crisis that almost surely lies ahead.

- ★ The secrets of the Ivy League of Selling ★ Are small companies outbidding big ones (capital goods)
- ★ How to keep a salesman . . . . . happy
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For every month, you'll find in FORTUNE the essence of the fast-paced, epic story of our industrial civilization-deeply probed, organized, beautifully presented. For example, the monthly Business Roundup is the best-based short and long range look ahead in type today. Labor brings you the best labor reporting available anywhere-and other departments. keep you up-to-date on essential, provocative news about New Products and Processes, People and Technology. These features add continuity to the definitive articles of venture and adventure, in-and-about Business, which are the long-famous foundation of FORTUNE's continuing story.

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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. Corridor in Rego Park Apartments, New York area, decorated with Wall-Tex. Kelly & Gruzen, architects.

IIII

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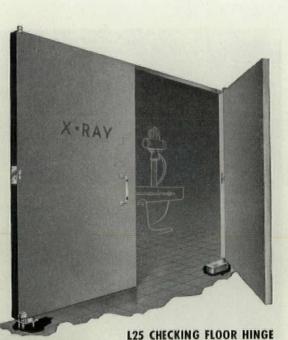
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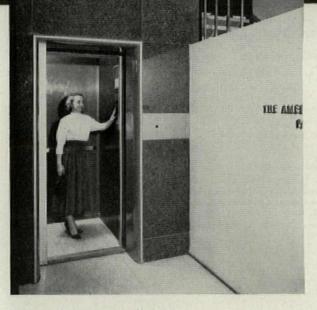
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Los Angeles, Calif Architect: Richard J. Neutra Contractors: C. W. Driver, Inc. Rotary Oildraulic Elevator (passenger) installed by Elevator Maintenance Co., Ltd.



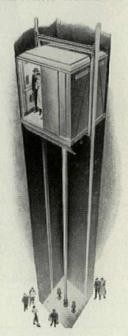
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### CITIES SERVICE OIL COMPANY

Chicago, Ill. Engineers and Contractors: Sumner S. Sollitt Construction Co. Rotary Oildraulic Elevator (freight) installed by Gallaher & Speck, Inc.

Photos by Torkel Korling

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### **BOOK REVIEWS**

Frank Lloyd Wright on architecture . . .
Elwyn E. Seelye on civil engineering . . .
R. C. Reese on concrete design . . . John Lindsey on Wren . . .
Giulio Argan on Gropius

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#### AMERICAN PEOPLES ENCYCLOPEDIA YEAR

**BOOK,** 153 N. Michigan Ave., Chicago 1, III. 576 pp. 634 x 934". Illus. \$10

There are two good reasons why the 1951 edition of this Encyclopedia Yearbook is of more than usual interest to architects: two top-flight architects are included among the contributors.

**Richard J. Neutra**, discussing trends in home construction, compares residences of the "My House, My Castle" era with today's compact "self-service" houses with their myriad contraptions, devices and gadgets which simplify their design and upkeep.

On the broader subject of architecture, Frank Lloyd Wright writes in a style as inimitable as his architecture. Because they are brief, provocative and dangerous to excerpt, Wright's comments are presented below in their entirety:

"The Renaissance in Europe—'a setting sun all Europe mistook for dawn'—was imported by free America to bring architecture up to the level of a democratic civilization dedicated to freedom.

"But the *spirit* of Architecture was dead. Human thought had found the printed book. The other arts had fled. Printing was the Machine. In spite of sporadic attempts at 'rebirth' by special kinds of abortion, the ancient forms of architecture could only be outraged by the Machine.

"Meantime the Machine became the monstrous power that moves us now. By way of it, all-out timely materials, like glass and steel, came to hand as a great new means of building. But there were no architectural forms suited to their use. The practice of architecture was so far gone to the composer of the picture that we had no architects able to conceive the radical new forms needed to use the new tools and materials with nobility, inspiration, or even intelligence. So our own architects in this new world further falsified ancient symbols and again prostituted the new materials not only by a kind of mimicry but by mechanical outrage that made our architecture what it is today-servile, insignificant refuse or puerile nostalgia.

"When I speak of architecture as organic I mean the great art of structure coming back to its early integrity: alive as a great reality.

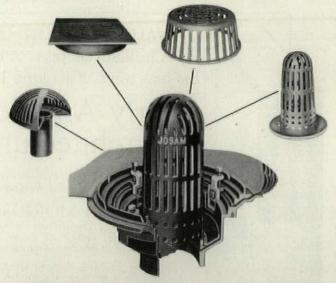
"What forms shall buildings now take if the glory of the great edifice is to come back to man again and he be blessed with the great beauty of truth in the way of his life we call his environment: so meretricious, so inappropriate now?

"How is the sap of human life which we call culture—escaping from autocratic monarchy to democratic freedom—going to establish itself?

"It was evident long ago that we must no longer picturize, compose, or in any way pretend. We must conceive and integrate. Be-(Continued on page 216)



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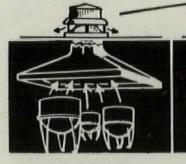
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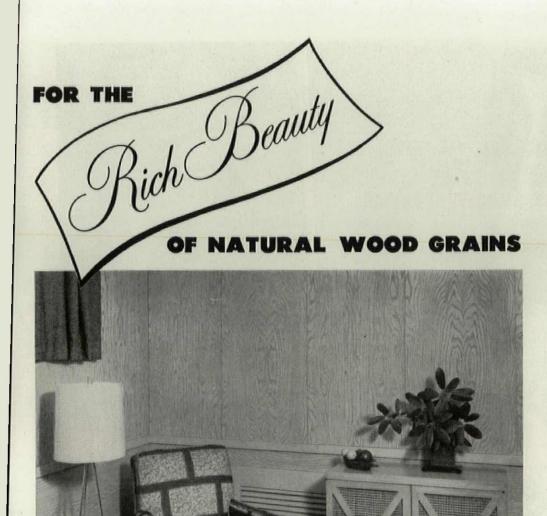
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**BOOK REVIEWS** 

ginning again at the beginning we must build the right kind of building in the right way in the right place for the right man. An affair of genius.

"Organic building is natural building so organic architecture is the right answer. Construction again proceeds harmoniously from the nature of a planned or organized inside outward to a consistent outside.

"The space to be lived in is now the core of any building and in terms of space we find the new forms we seek. Or lose them. The old order called "classic" is therefore reversed and, where so many of our basic materials are wholly new, we are searching again for the natural way to build appropriate to the unprecedented life now to be lived in them. Our modern advantages should not continue so disadvantageous as they are becoming.

"That we be enamored of the negations brought by the Machine may be inevitable, for a time. But I like to imagine this novel negation to be, as I have used it,—only a platform underfoot to enable a greater splendor of life to be ours than any known to Greek or Roman, Goth or Moor. We should know a life beside which the life they knew would seem not only limited in scale, narrow in range but pale in richness of the color of imagination and integrity of spirit.

"As the matter stands, the pallor is ours and the shame. The giant leverage the Machine might be for human good may fail in its own weight from helpless, human hands, far short of our hope.

"Spirit only can control it but Spirit is a science Mobocracy does not know and Democracy must motivate.

"Our American architecture has become no work of art at all but, at best, a technical makeshift. Buildings more than ever are a mere piece of property. As for kindred 'production' our big industrialists are so busily 'streamlining' standardizations that we have been not only compelled to see some egregious makeshift touted, passed along as creation, but also to see superficial effects instead of causes finally accepted as euthenics by the 'higher education' and the officialdom it must please in order to live at all.

"Restlessly, we as a tirelessly exploited and in turn exploiting—people must find some kind of release.

"Lacking refreshment for whatever native love of beauty the god of the creative impulse may have passed along to us by nature, we turn to Organic architecture. As preceding generations found symbolism and empty pretensions called monumentality, so we find refreshment in rejection of shoddy sensationalism and new-fangled invention or the novelty of superficial beautifications by the commercial 'designer.'

"These are really no higher than those of the professional beauty parlor or a cigarette

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Building: Lincoln Electric Co. ......Cleveland

Design and Construction: The Austin Company.....Cleveland

Year of Completion: 1951

Type of Deck: Steel

Type of Built-up Roof: 4-ply tar and gravel

Insulation: Fiberglas Roof Insulation, approximately 750,000 sq. ft.



\*Fiberglas is the trade-mark (Reg. U. S. Pat. Off.) of the Owens-Corning Fiberglas Corporation for a variety of products made of or with fibers of glass.

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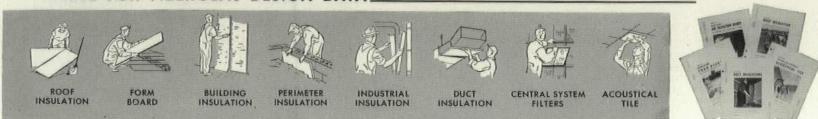
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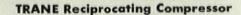
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**TRANE SELF-CONTAINED AIR CONDITIONER.** Here's a year-round air conditioning unit that takes a minimum of space for the job it performs—a boon for stores, restaurants, offices. From 3- to 20ton sizes, with built-in evaporative condenser optional in 15- and 20-ton models. Easy to install. Heating coil optional. For more information see TRANE Bulletins DS-362 and 362-A.



# makes a compressor!

More evidence appears daily that the new TRANE Reciprocating Compressor is living up to the greatest expectations. You want modern design-TRANE Reciprocating Compressor delivers it! You must have efficient performance-TRANE delivers it! You expect long life, quieter operation, simplified installation and maintenance-TRANE has delivered that too, on the line!

#### No other compressor offers all these features!

• UNLOADED STARTING . . . permits use of normal torque motor.

• FOAM BREAKER . . . reduces loss of oil from crankcase when oil foams from start-up.

OIL PRESSURE PROTECTION SWITCH provides a second guard against lubrication failure.

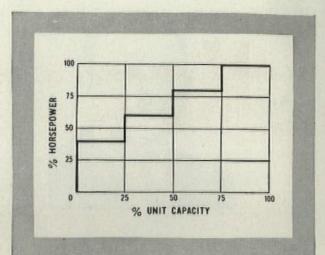
• QUIETER OPERATION because of dynamically balanced construction and direct drive.

• SIMPLIFIED INSTALLATION with fewer connections to make on jobit's factory assembled!

• MODERN DESIGN with two piston sizes, 2, 4 and 6 cylinders, 10- to 50-ton capacity. Available with shell-and-tube condenser above compressor.

• SMOOTHER OPERATION because of carefully balanced lightweight aluminum pistons and connecting rods.

For FULL INFORMATION about the TRANE Reciprocating Compressor and these other great TRANE refrigeration products, contact the TRANE representative in your area, or write the main office, La Crosse, Wisconsin.

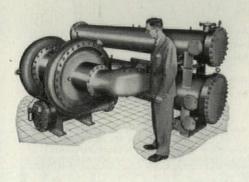


PROOF: More Power Saving When Loads are Reduced! TRANE hydraulic cylinder unloader reduces horsepower when cooling load is reduced. It's completely automatic and internal-suction pressure controlled. oil pressure actuated.

B		verag on Care				
New Type Trane Valv	e					
Valve "A"					*	
Valve "B"						
	•	A 10	A 20	A 30	*	A 50

## PROOF: More Hours of Op-

eration from Valves! That's because TRANE ring plate valves have a special surface treatment for long life. Tests prove TRANE valves have up to 8 times the life of other valves tested under the same conditions.

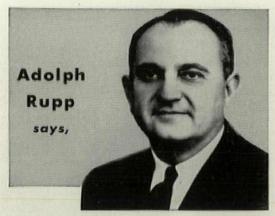


TRANE CenTraVac. A complete water-chilling system, hermetically sealed. Capacities as low as 45 tons! Power consumption very closely proportionate to load through entire range. Saves power. Saves money. TRANE Bulletin DS-399 provides complete data.

THE TRANE COMPANY IA CROSSE WIS Eastern Mfg. Division, Scranton, Pa. Trane Company of Canada, Ltd. . . . Toronto

Offices in 80 U.S. and 14 Canadian Cities

MANUFACTURING ENGINEERS OF HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT



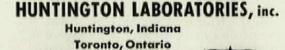
#### "SEAL · O · SAN gym floor finish must be used on the fieldhouse floor"

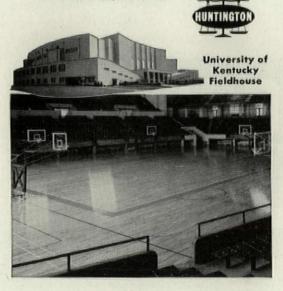
COACH RUPP is convinced about what makes the best playing surface. He states: "I specified that Seal-O-San must be used on the floor (of the new Kentucky Fieldhouse), in spite of the fact that almost every other floor finish company has been here asking me to give them a chance to put their product on the floor. I have refused to do so." And he advises Seal-O-San for every school gym floor: "I have endorsed Seal-O-San hundreds of times every winter in letters to schools asking me to recommend the best (floor finish)."

#### **Basketball Coach**

ledogh 7 Rupp

Adolph Rupp, University of Kentucky





#### **BOOK REVIEWS**

in nimble fingers. We think we find—and we try to find—beauty in urbanism's streamlined machination. But Organic architecture finds no satisfaction in push-button power, not much entertainment in gadgetry or gag-ism; no happiness in preoccupation with the socalled efficiencies of every kind that have come to have no more spiritual significance than gangsterism itself. We take no pride in our triumph as 'The Great Nation of the Substitute.'

"Last—but not least—this important line between the curious and the beautiful now becomes so confused by so-called 'modernarchitecture' itself that the dividing line between the curious and the beautiful—the line that marks civilization itself from savagery or degeneracy—grows dim indeed.

"Organic architecture is itself a recourse for the deeper more essential Usonian-self. That self has a soul. Should that soul now be tempted to search for great repose: a serene and blessed mood? Ay, Peace. Not only a political peace but organic peace. Were we to find peace organic a native culture true to democracy would be so sure as to emerge even from the rubbish heap into which we have built ourselves."

CONCRETE DESIGN HANDBOOK. Prepared by R. C. Reese, Concrete Reinforcing Steel Institute, Chicago, III. First Edition, 1952. 412 pp. 6 x 9", \$5.00

This new engineering manual greatly simplifies the design of concrete structural members by eliminating most of the computation. Its tables save considerable time in outlining and in making cost comparisons of structural problems. Based mainly on the American Concrete Institute's 1951 Reinforced Concrete Building Code, it covers floor systems, columns, footings, retaining walls and areaways together with complete design techniques and engineering data.

Though the column, flat slab and joist tables are extremely well laid out, it should be mentioned that the beam tables are calculated on the basis of uniformly distributed safe load carrying capacity and therefore might not suit those engineers who prefer to design on a basis of resisting moments. General layout is good and everything is comprehensively indexed. (For convenience a thumb index might well be added in the next issue.) The compilers are to be congratulated on producing a manual which goes a long way towards speeding up the laborious intricacies of concrete design.

WREN, HIS WORK AND TIMES. By John Lindsey. Philosophical Library, New York, N. Y. 256 pp. 81/4 x 51/4". Illus. \$6.00

Neither biography nor treatise, this narrative outlines Wren's life (as an astronomer, anatomist, scholar, scientist, politician and (Continued on page 224)



Sedgwick MACHINE WORKS 140 WEST 15th ST., NEW YORK 11, N. Y. Specialists in Vertical Transportation Since 1893 SOME OTHER SEDGWICK PRODUCTS:





MEN'S RESIDENCE HALL, MCCORMICK THEOLOGICAL SEMINARY, CHICAGO MITTELBUSHER & TOURTELOT, Architects, Chicago • A. L. JACKSON COMPANY, General Contractor, Chicago • WALTER INGSTRUP COMPANY, Painting Contractor, Chicago

## OLOL KEYNOTE for Spiritual Study

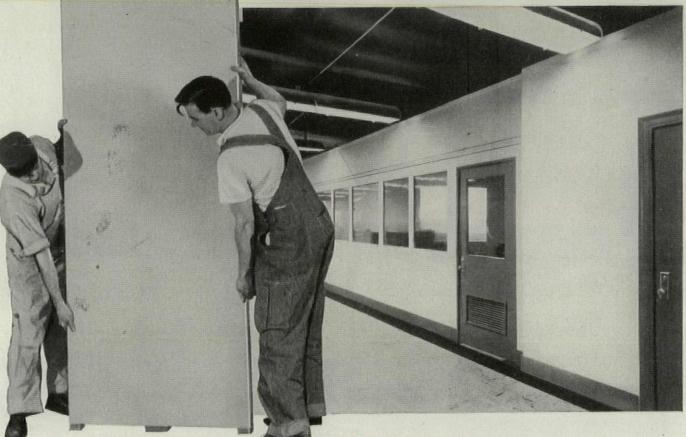
In this recently-built residence for young divinity students, Pratt & Lambert *job-tested colors* help to create an atmosphere conducive to spiritual study as well as home-like living.

This employment of color for both decorative and functional purposes, was effected by using Pratt & Lambert Paint and Varnish throughout the building. Because of their beauty, durability and low-cost maintenance, these dependable, protective coatings are specified and used on buildings from coast to coast.

Your nearest P&L Architectural Service Department, staffed with trained men, is always ready to be of assistance in writing sound painting specifications and in developing harmonious color plans.



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#### Johns-Manville Asbestos Movable Walls are made of noncritical materials. They permit the quick, easy space changes vital to today's rapidly expanding industries.

• 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

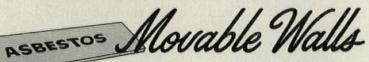
JM Johns-Manville

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

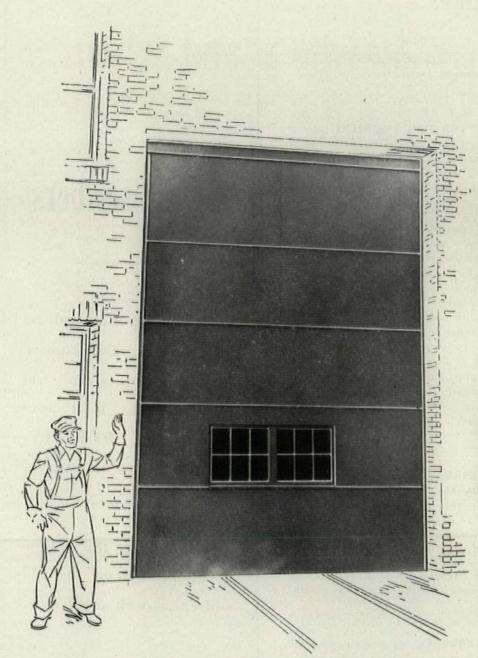
**TRANSITONE Movable Walls**—A recent and unique development of the Johns-Manville laboratories is the Transitone Movable Wall, with asbestos panels integrally colored. Nonfading pigments are blended into the asbestos fibres, thus eliminate the cost of periodic decorative treatment. The color goes all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

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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.

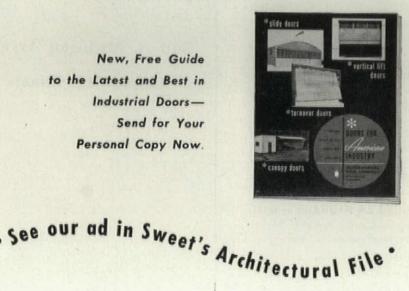


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New, Free Guide to the Latest and Best in Industrial Doors-Send for Your Personal Copy Now.



## how to take the problem out of industrial

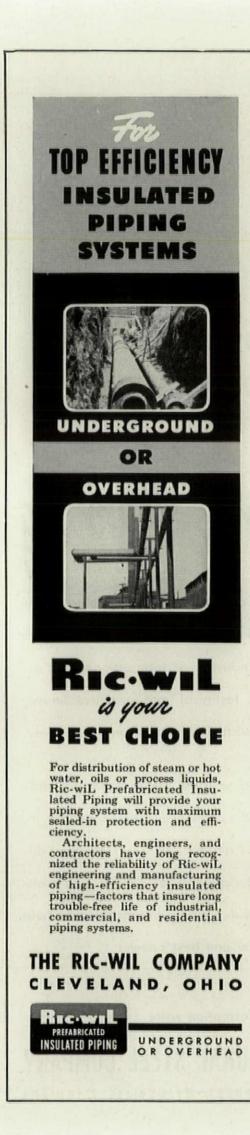
ntrance Planning

From decades of experience — devoted to the designing and building of entrances for both business and industry — International has accumulated the technical and practical knowledge to solve virtually any entrance problem.

You are invited to draw freely upon this wide and specialized experience, when planning industrial doors of any type or size. However "different" the installation — or difficult your problem — you can depend on International to help you develop the one best answer.

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#### **BOOK REVIEWS**

architect) and his work with major emphasis on his crowning achievement—St. Paul's Cathedral.

DATABOOK FOR CIVIL ENGINEERS, Second Edition, two volumes: I. Design and II. Specifications and costs. By Elwyn E. Seelye. \$10 and \$13, 521 and 506 pp. respectively. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y.

Somewhat comparable in purpose and format to Architectural Graphic Standards, these two volumes plus the unrevised third volume (1947) on Field Practice are valuable props for the civil engineer and contain much useful data for architects. Volume I's prime purpose is to furnish the engineer with "sufficient data so that he could design any civil engineering work without other reference books." Volume II includes sample specifications for nearly every type of building and heavy construction, plus "cost figures for all labor, materials and other factors involved in construction work and a method for keeping them continuously up to date."

MOUNT RUSHMORE, By Gilbert C. Fite. University of Oklahoma Press, Norman, Okla. 534 x 834". 27 pp. \$3.75

This is the story of the Mount Rushmore National Memorial—the "four faces" carved in granite in the Black Hills of South Dakota —the "most flamboyant attempt ever made by man to preserve his heritage for future generations."

THE ART NOUVEAU. By Henry F. Lenning. Martinus Nijhoff, 9 Lange Voorhout, The Hague, Netherlands. 8 x 11". 143 pp. 21 guilders

This is devoted to the style which brought the pictorial arts as well as architecture and the related arts out of the lingering romantic tradition of the 19th Century. It deals with the importance of the style as an indispensable bridge to organic construction and interior design.

THE POWER OF ART. By John M. Warbeke. The Philosophical Library, Inc., New York, N. Y. 534 x 9". 493 pp. \$6.00

An illuminating discussion on the functions of sculpture, poetry, painting, music, drama and architecture, and their possibilities for the enrichment of life.

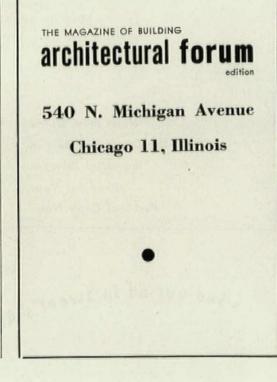
WALTER GROPIUS E LA BAUHAUS by Giulio Carlo Argan. Giulio Einaudi Editore, Torino, Italy. 202 pp. 170 Illustrations. L. 800

A profusely illustrated discussion (in Italian) of Gropius' work up to and including the Harvard dormitories.

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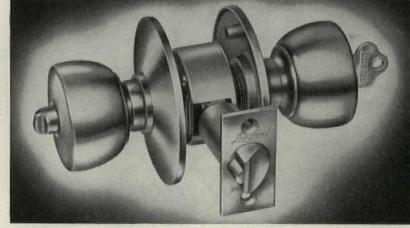
Heavy Brass Forgings for the important structural and functional parts. Brass is of course, the time proven material best suited for lock manufacture. Forging it to shape however, is a superior method of fabrication comparatively new to builders' hardware. A denser granular structure is achieved, increasing toughness and reducing wear and breakage in service.

**Permanently Aligned Assem**bly when installed is another bonus feature of the rugged structural members. All functional parts are rigidly held in proper relationship. Binding of parts, with resultant sluggishness or failure in action is eliminated . . . wear is further minimized.

**Quick Installation** . . . reversing of hand is a simple matter requiring only seconds . . . changing cylinders (on the job, to change keying) is an extremely easy matter.

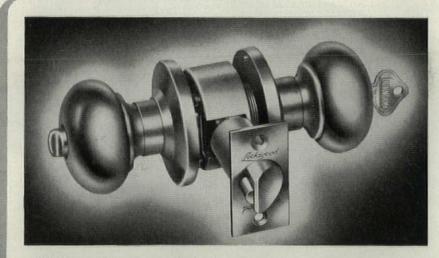
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#### Hatten Design

Contemporary lock design at its enduring best . . . its urn-shaped knobs are comfortable to grip, yet offer a pleasing diversion from the traditional eliptical profile. The  $3\frac{1}{2}$  inch roses give the appearance of extra ruggedness and provide extra protection for the door finish. Made in cast brass, bronze or aluminum . . . a SOUND CHOICE for the finest structure.



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Simpler perhaps than the Hatten, and with its knob and rose patterned more closely after the traditional, HOLBROOKE is designed to give the smooth, enduring performance of the Lockwood Heavy Duty Series at lower cost. It is made of wrought brass, bronze and aluminum. Where the allowance does not permit specification of Hatten . . . HOLBROOKE is a <u>SOUND CHOICE</u>!

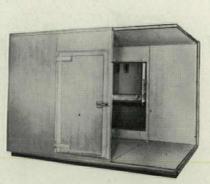
#### FOR USE ON SCHOOLS, HOSPITALS, HOTELS, COMMERCIAL, INSTITUTIONAL AND INDUSTRIAL BUILDINGS.



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### **PRODUCT NEWS**

Suitable for quick low cost construction, the  $4' \times 8'$  formed plastic panel weighs only 60 lbs.



Put *Intico* ... America's most beautiful rubber flooring ... in that new department store



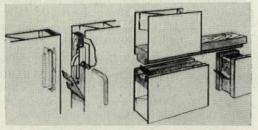
AFFILIATES . . . BILTRITE RUBBER COMPANY, CHELSEA 50, MASS. • AMERICAN TILE & RUBBER CO. TRENTON 2, N. J. • PANTHER-PANCO RUBBER CO., CHELSEA, MASS. • AMERICAN TILE & RUBBER CO. (CANADA) LTD., SHERBROOKE, QUEBEC • PANTHER RUBBER CO. LTD., SHERBROOKE, QUEBEC, CANADA

#### PLASTIC-FIBER STRUCTURAL PANEL has corrugated core fused betwen faces

The big construction news to come out of last month's Plastic Industries Exposition in Philadelphia is the *Kerr Panel*. A low pressure laminate, the lightweight panel is one of the few building materials which exploit plastic's molding possibilities.

In the processing, the panel's reinforcement serves as the skeletal mass for the final shape. A thin (1/16'') glass fiber mat crimped into 16 corrugations 3" deep is sandwiched between two flat 4' x 8' fiber mats. The three layers are then pressed between heated platens and impregnated with pigmented polyester resin. Off the press comes a 60 lb. monolithic structural panel with high compressive, tensile, and flexural strength.

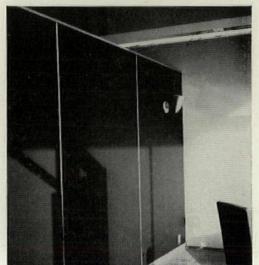
Incombustible, insectproof, and corrosion resistant, the Kerr Panel is being used for interior partitions, demountable prefab buildings and walk-in refrigerators. (K factor for the 3 3/16" thick panel is .15; it may be brought down to .09 by slipping preformed insulation inside the corrugations.) It is suitable for outside walls and, used as flooring, has a safe working live load of 25 lbs, per sq. ft, on an 8' span. It may be sawed, drilled and routed with hand tools and can be furnished with curved sides or ends. Special tongued



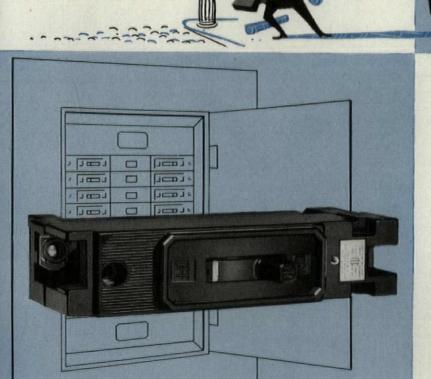
and grooved fittings for joining the panels are available. Since color is fused into the material during fabrication, no additional finish is required. Translucent white is the standard color but the panels will be made in almost any shade specified. Prices range from about \$1.75 to \$2.30 per sq. ft., depending on quantity purchased. Current plant capacity is 200,-000 sq. ft. a month.

Manufacturer: Alexander H. Kerr & Co., Inc., Kerr Panel Div., 2950 Winona Ave., Burbank, Calif.

(Continued on page 232)



# SPEC-LESS SPECTRE



To obtain further information consult the nearest I-T-E representative. Or, write I-T-E Circuit Breaker Company, 19th and Hamilton Sts., Phila. 30, Pa.

Specify

This architect forgot to specify the proper panelboards to control lighting in his project. While other buildings are used 'round-the-clock without trouble, his frequently have lighting difficulties. This haunting annoyance could have been avoided by specifying a modern circuit breaker panelboard.

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I-T-E Molded Case Circuit Breakers offer for commercial and industrial use the design features dictated by the requirements of actual usage. In construction, I-T-E breakers far surpass minimum requirements. Every I-T-E circuit breaker embodies *all these* features—not just one or several.

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- Indication of tripped position
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- Reserve thermal and mechanical capacity
- Sealed cases to prevent tampering
- Heavy duty, sturdy molded cases

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- 5/8 inch throw insures secure locking even on doors that shrink or warp!
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cylinder doubles the number of possible key changes!

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**Every fine building** deserves these extra-quality features provided by Corbin Cylindrical Locks. Compare these locks point by point, feature by feature, with any other cylindrical locks you have ever used. You will find that Corbin offers all the standard features *plus* extra quality advantages that mean more satisfactory operation — longer wear with less maintenance — fast, low-cost installation.

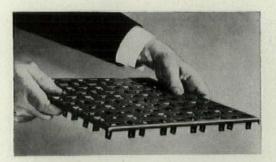
**Corbin Cylindrical Locks** are furnished in four designs — each made in the 13 functions most frequently used in schools, hospitals, apartments, offices, public buildings and fine residences.

There is a Corbin Distributor or Corbin Representative in your vicinity who will gladly give you complete information about Corbin Cylindrical Locks and assist you with specifications for any type of installation. If you do not know his name and address, we shall be happy to furnish them.

YOUR CORBIN DISTRIBUTOR IS A GOOD HARDWARE MAN!

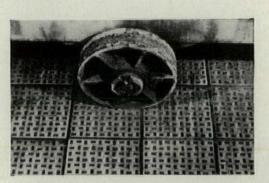
Corbin distributors are selected for their ability to work with you constructively on builders' hardware specifications. Corbin helps them by conducting two builders' hardware schools each year for distributors' employees.

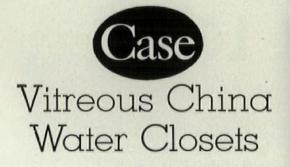
The quality of their service, together with the fine quality of Corbin products, has made Corbin the most widely used builders' hardware in the world!



In heavy traffic areas, the steel plate gives concrete flooring additional wear resistance.

#### PRODUCT NEWS



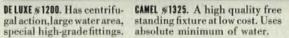


... designed and priced for every building need



ONE-PIECE\* #1000. First with positive non-overflow and low-level integral tank. Quiet centrifugal flush.







standing fixture at low cost. Uses absolute minimum of water.

BENNING #1380. Siphon action washdown bowl with jet. Tank bolts directly to bowl. Free standing. • There is a Case vitreous china water closet



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to meet every requirement of utility, appearance, and price in custom-built homes, low-cost housing, commercial and industrial structures, and institutions. Like Case urinals and lavatories, these fixtures enable you to provide the engineering advantages and dependable performance in demand today. For distributors, see your Classified Telephone Directory. Or write W. A. Case and Son Mfg. Co., 33 Main Street, Buffalo 3, N.Y. Founded 1853.



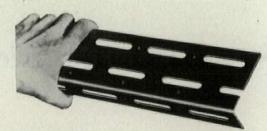
#### FLOOR REINFORCING PLATES. Modular units for quick assembly

These quickly assembled squares of hot rolled steel are designed to reinforce and protect heavy duty concrete floor surfaces. Cut to fit 1' increments of floor area, the plates may be laid out easily without special tools. Each unit has 100 small rectangular holes and 100 barbed prongs which anchor it firmly to the concrete. Its rounded edges form a flange that becomes imbedded in the concrete for additional rigidity. No sharp edges protrude on the finished surface. For new floors the concrete topping is poured and screeded and the plates pressed into the mix until it oozes up through the holes. A 2 x 4 is then used to level the plates with the floor surface and each other. The plates weigh about 3 lbs. each and are packed 20 to a carton which sells for \$6.60 f.o.b., factory.

Manufacturer: Acme Steel Co., 2840 Archer Ave., Chicago 8, Ill.

#### **SLOTTED STEEL ANGLE used for construct**ing plant equipment

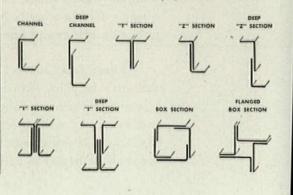
Industrial accouterments - from scaffolding, partitions and cabinets to benches, handrails and hatracks-may be assembled with Dex-Angle fabricating units. An erector set grown up, the 10' slotted-leg galvanized steel angle



The steel angle has slots for bolt connections

is put together with bolts and a wrench. No drilling or welding, or special brackets, clips or hooks are necessary. Equipment may be constructed, altered, and dismantled easily and rapidly, and the DexAngles are completely salvageable. Small indentations every 3" along the angle simplify measuring and accurate cutting.

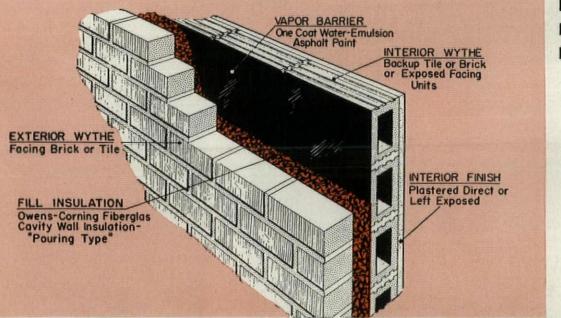
When used as uprights in lengths up to 5'-6", the DexAngles each support loads of 1,200 lbs. For greater loads up to 4,000 lbs., the angles may be combined in channels, (Continued on page 234)



## See how this <u>new</u>

## SCR INSULATED CAVITY WALL

provides full insulation and moisture resistant construction without furring or lathing



It's insulated with Fiberglas\*\* Cavity Wall Insulation—Pouring Type



The new SEB Insulated Cavity Wall is the latest development in masonry construction.

It is insulated with Fiberglas Cavity Wall Insulation—Pouring Type, specifically developed by Owens-Corning Fiberglas Corporation for this particular wall.

The SE3 Insulated Cavity Wall not only eliminates moisture penetration, but also provides "extra" insulation where needed for low heating and air conditioning costs.

This SEB Insulated Cavity Wall has a tested U value of .12.

It needs no furring or lathing. And it can be plastered directly, or interior surfaces can be left exposed.

For these reasons the SEB Insulated Cavity Wall makes it possible for you to design better without change in structural or code construction specifications—lets you give your clients "more house or building" at less cost.

If you have any questions, or desire additional information and factual data, our technical staffs are at your service. Just write us at Dept. AF-4 on your own letterhead.

\*Trademark, Structural Clay Products Research Foundation \*\*Trademark, Owens-Corning Fiberglas Corporation



#### STRUCTURAL CLAY PRODUCTS INSTITUTE

1520 18th STREET, N. W., WASHINGTON 6, D. C.

#### **PRODUCT NEWS**

"Z," "T," "I," and box sections. Ten 10' angles packaged with 75 nuts and bolts sell for \$20. In quantities of 50 or more packages, the price is \$17.60. Accessory steel panels 3' long and 6" wide with 1" flanges are made for use as shelving. Each panel will support 300 lbs. Casters are also available for portable bins and hand trucks.

Manufacturer: Acme Steel Co., 2840 Archer Ave., Chicago 8, Ill.

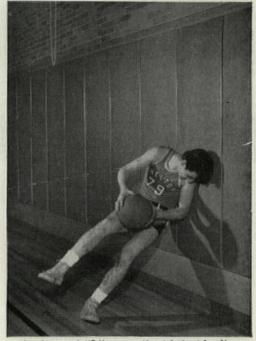




#### RUBBER SANDWICH: gym walls with bounce

Hard surfaced gymnasium walls have caused many serious injuries. A fatal accident in a Connecticut school spurred a local manufacturer into research on a resilient wall. A structural crash pad, Spongex Safety Cushion Wainscoting, is the result of that study. The new panel consists of a 2' x 6' x 3/8" plywood sheet to which are bonded a 5/8" layer of rubberized curled animal hair and 3/4" of soft cellular rubber. (Both spongy layers are compressed to a 1" thickness before lamination for added resiliency.) A strong vinyl sheeting with a mottled green finish is drawn over the sandwich and stapled to the plywood backing. To provide the air relief necessary for efficient cushioning, six 1" portholes are drilled in the plywood. The panels also are good sound deadeners for the athletic exuberances on the court.

They are supplied with 4 metal clips for easy attachment to horizontal furring strips. A  $\frac{1}{4}''$  baseboard with a rabbet along the inside top edge may be constructed to serve as a bottom



rail. A wood "L" top rail with inside dimensions of  $1\frac{1}{2}$ " x 2" may be built to cap the panels. The price of the wainscoting is \$21.25 per section.

Manufacturer: The Sponge Rubber Products Co., Shelton, Conn.

#### STAINLESS STEEL made with noncritical alloy

To help conserve the short nickel supply, Allegheny Ludlum has developed a technique for large scale fabrication of stainless steels alloyed with manganese and chromium. Known in the laboratories for many years, these steels are now available commercially. They are reported to be suitable alternates for 18-8 chromium nickel stainless steels in applica-

(Continued on page 236)



## 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.

Drawing photographed by Veterans' Administration

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.



SERVING INDUSTRY ... WHICH SERVES MANKIND

#### **PRODUCT NEWS**

tions where high corrosion resistance is required.

Manufacturer: Allegheny Ludlum Steel Corp., Pittsburgh 22, Pa.

#### RESIN VARNISH is fast-drying sealer for concrete floor surfaces

For concrete floors subjected to heavy wear in factories and warehouses, Rex is producing a new sealing compound, *Concrete Glaze*. This fast-drying clear varnish seals the pores of concrete with a tough durable coat which is said to have excellent resistance to acids, alkalis, grease, oil, water and steam. It may be brushed or sprayed, and the floor can be walked on less than four hours after finishing. It can be used for exterior applications as well as inside jobs. Price is \$3.95 per gallon in 5 gal, pails.

Manufacturer: Rex Home Supply Co., 142 S. Highland Ave., Ossining, N. Y.

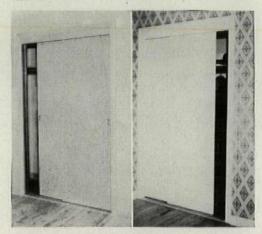


or manage as your physical well-being is to you. What would you think of your doctor if he diagnosed and prescribed treatment without making an examination? On a similar basis, fire protection equipment cannot provide complete safety unless the specific needs are pre-determined and the system engineered to the exacting requirements. That's why the first point in "Automatic" Sprinkler 10-Point Fire Protection is "JOB SURVEY and ENGINEERING ANALYSIS . . . detailed to meet individual needs."



#### WARP RESISTANT SLIDING DOORS made with new wood laminate

One of the first fabricators to utilize U. S. Plywood's *Novoply* (Dec. issue '51) in a building ing product, National Door Co. is making low priced sliding doors with the wood-waste wonder material. Two- and three-panel *Slidoor* 



units are available 6'.91/2'' and 8' high for openings from 2' to 12' wide. The doors glide noiselessly on ball-bearing rollers, and adjustable rear slide guides compensate for any inaccuracy in header height. The unit's construction, combining hardwood frame with the lightweight laminate board doors, is said to assure exceptional dimensional stability. A 4' x 6'.91/2'' two-panel model sells for \$25. Manufacturer: National Door Co., Kenilworth, N, J.

#### KNOCK-DOWN STEEL DOOR FRAME is slim counterpart to flush door

Kewanee's prefab steel door frame, designed for all 1%'' and 1%'' interior doors, is priced for low cost housing projects. Selling for about \$6.50 to \$8 (depending on quantity purchased), this slim trim affords the builder savings in labor as well as initial cost. The

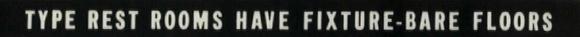
frame is primed at the plant with a corrosion resistant aluminum coating and packaged in three parts—the top and two sides. Nail holes are prepunched every 7" along the frame flange for attachment to the subframe —a rigid fastening method said to prevent vibration. A small space is allowed for laying the finished floor under the frame; thus the time spent cutting the floor



around the jamb contour is eliminated.

Another of the frame's features is its recessed edge (designed for both plaster and wallboard construction) which acts as a plaster ground so that no temporary stops are needed. Recesses also are provided in the jamb for standard  $3\frac{1}{2}$ " x  $3\frac{1}{2}$ " butt hinges. *Manufacturer:* Kewanee Mfg. Co., Kewanee, Ill.

(Continued on page 240)



ALL THE LOAD



Perpetual cleanliness in rest rooms of an ultra-modern skyscraper is a must. Immaculate cleanliness is no problem where plumbing fixtures are off the floor, because there is nothing to interrupt the sweep of the broom and the swish of the mop. Fixture-Bare Floors reduce the day-by-day dollar cost of maintenance to an all-time low, while lifting sanitation to a new high. The New Way of building utilizes wall type plumbing fixtures throughout, installed the Zurn Way—the simple, safe way of installing wall type closets, lavatories, sinks, and other fixtures. This New Way saves time and labor, reduces the use of building material and *protects rest rooms from premature obsolescence*. Specify wall type plumbing fixtures installed with Zurn Wall Type Closet Fittings and Carriers. Write for booklet entitled, "You Can Build It (Cubic Foot of Building Space) For Less A New Way".

THE TURN WAY RELIEVES THE WALL OF

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

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.

Pittsburgh's new 525 William Penn Place Corporation Building houses the U. S. Steel Company, Mellon National Bank & Trust Co. and T. Mellon and Sons. Architects: Harrison & Abramovitz, N. Y.; Consulting Engineers: Meyer, Strong & Jones, N. Y.

REPART



The hundreds of plumbing fixtures in this building, such as wall type closets, lavatories and sinks, were installed with Zurn Wall Type Closet Fittings and Carriers which give maximum protection against premature obsolescence of sanitary facilities. Zurn Engineered Floor and Roof-Drains and other drainage equipment were also installed in this building.

> Write for this booklet. It tells how "You Can Build It (Cubic Foot of Building Space) For Less A New Way".

J. A. ZURN MFG. CO., PLUMBING DIVISION, ERIE, PA., U. S. A.
Please send me the new Zurn Booklet, "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. AF

#### Rest Rooms with Fixture-Bare Floors in These Buildings and Hundreds of Others:

OFFICE BUILDINGS: Farmers Mutual Insurance Company, Madison, Wis. • New Hampshire Fire Insurance Building, Manchester, New Hampshire Southwestern Bell Telephone Co., Toll Building, Mouston, Texas • International Business Machines, Endicott, N. Y. • General Food Building, Newark, N. J. • The Texas Company, Minneapolis, Minn. • Humble Oil Company, New Orleans, La. • FOUCATIONAL BUILDINGS: Fisher Memorial Dormitory, University of Notre Dame, Notre Dame, Ind. • Maple Heights High School, Maple Heights, O. • Dilworth School, Salt Lake City, Utah • New Engineering Laboratory, Virginis Polytechnic Institute, Blacksburg, Va. • Medical Research Building, University of Michigan, Ann Arbor, Mich. • INDUSTIAL SUILOINGS: DeLaval Separator Company, Poughkeepsie, N. Y. • Houston Lighting and Power Company, Houston, Texas • Berkshire Knitting Mill, Andrews, N. C. • Minneapolis Honeywell Regulator Co.,

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Minneapolis, Minn. Chrysler Corporation, Trenton, Mich. Dan River Mills,
 Philadelphia, Pa. Court House and City Hall Building, Minneapolis, Minn.
 Oregon State Penitentiary, Salem, Oregon & HOSPITAL BUILDINGS: Cuyahoga
 County Chronic Hospital, Warrensville, O. National Jewish Hospital, Algoma, Wis.
 Central State Hospital, Petersburg, Va. Oakwood Hospital, Dearborn, Mich.
 IfRMINAL BUILDINGS: New Norfolk and Western R. R. Warehouse, Roanoke, Va.
 Holland American Line Terminal, Hoboken, N. Y. New Greybound Terminal, Phoenix, Ariz. MRCANILE BUILDINGS: Emporium, Oakland, Cal. Sugarland
 Sugarland, Texas & Federal Stores, Cleveland, O. Macy's Kansas City Store, Kansas City, Kan. Rexall Drug Company, National Head-quarters Building, Los Angeles, Cal.



#### used available space— **UP IN THE AIR!**

When a company in northwestern Ohio needed more than the 65,000 bu. storage space they already had in eight Neff & Fry bins, they talked to us about more bins.

Adjacent ground could not be obtained for lateral expansion. So the alternative was to build tall bins. The four shown in the photo are 70' high. They provide additional storage for almost 200,000 bu. of grain. On top of the four big bins is a  $16' \times 30'$ 

machinery house, the roof of which is 100' up

in the air where space is always available-and free!

Maybe room upwards will solve your problem for handling and storing flowable bulk materials.

Be sure to read our interesting folder, "Bins with the Strength of Pil-lars." Write, wire, or phone for a copy.

THE NEFF & FRY CO. 148 Elm St. • Camden, Ohio

NEFF & FR



SUPER-CONCRETE STAVE STORAGE BINS



Mum maintenance. Get full facts now! Also Model M Versa-Liner for moist diazo process (no fumes) at \$1095.00 list. Spee-Dee Sheet Printers up to 24" x 36" from \$55.12 to \$149.81.



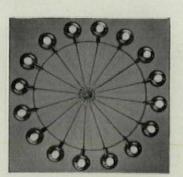


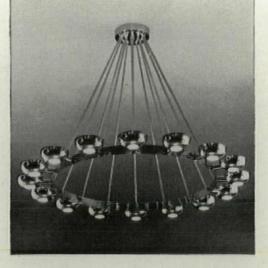
The distinctive textured appearance and subtle tone variations of Armstrong's Cork Tile make it an excellent flooring choice for interiors with modern architectural styling. Its natural color, extra durability, and unusual resilience are the result of an exclusive manufacturing process that retains the natural characteristics of cork.

Parkside Branch San Francisco Public Library Appleton and Wolfard, Architects

ARMSTRONG'S CORK TILE ARMSTRONG CORK COMPANY · LANCASTER, PENNSYLVANIA

#### **PRODUCT NEWS**





The polished brass fixtures are made in Italy.



#### Translucent Glass Jalousies\* Divide An Office Without Disjointing Its Organization

Something is happening in modern office design! Venetian window partitions or jalousies employing translucent glass by Mississippi are fast replacing solid separations that cut off light, ventilation and communication from adjoining areas. These interior jalousies help integrate the entire organization and permit more accurate control of temperatures for heating and air conditioning.

The new adjustable dividers give each office better control of illumination and air movement. Opened or closed, the translucent glass floods interiors with softened "borrowed light" that creates a friendly feeling of spaciousness and comfort.

Opened windows permit the executive an unrestricted view of his entire force. Yet, he can have complete privacy when desired with an easy turn of the crank. And the closed vanes reduce office clatter to a minimum.

> For "venetian window" office partitions, specify translucent, light diffusing glass by Mississippi. Available in a wide variety of patterns wherever quality glass is sold.



Send today for free booklet, "Figured Glass By Mississippi." Contains many ideas for commercial applications of this versatile, modern material.

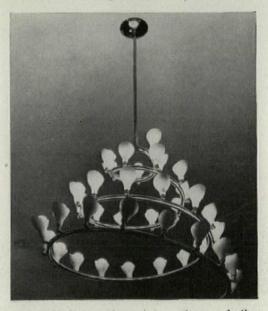
\*Mississippi Glass Co. does not construct or install jalousies. For estimates and other information, see your local supplier.

MISSISSIPP Hass COMPAN BB ANGELICA ST. SAINT LOUIS 7, MO.

WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

#### **CONTEMPORARY CHANDELIERS:** old world elegance for showrooms and lobbies

Executed by Sarfati of Milan, Italy for Lightolier, these white-tie ceiling fixtures are decor in the grand manner. Scaled for large rooms (the one below is of fullback proportions) they fancifully combine elegant forms with mechanics-flexible joints, movable discs, adjustable arms, etc. The crownlike chandelier at left has as its light source 16 polished brass



cups which nest frosted incandescent bulbs. Most of the illumination is directed downward: the remainder plays around the radial filigree of 16 supporting rods. It retails for \$325. Above, eggshell cups perch on a tubular brass spiral, aiming light in all directionsfor \$295.

Manufacturer: Lightolier, Inc., 11 E. 36 St., New York, N.Y.

#### EAMES HIP-POCKET CHAIR adapted for office use

The plastic shell which architect-designer Charles Eames countercontoured, somewhat generously, to fit most people has a new twist. A pivot plate beneath the flotsam mold gives

(Continued on page 246)



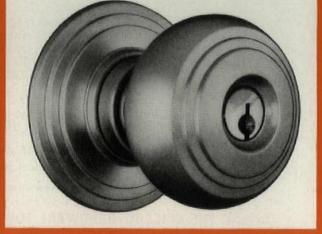
## SCHLAGE CYLINDRICAL LOCKS...Time-Proven

Schlage Dependability—proven by 25 years service—makes Schlage Locks leading choice for today's important buildings

PEACHTREE—SEVENTH BUILDING

THITTHITT

EQUIPPED WITH SCHLAGE "NOVO" DESIGN LOCKS



Peachtree — Seventh Building, Atlanta, Georgia Architects, Alexander and Rothschild Contractor, Charles R. Massell Owner-Builder, Benjamin J. Massell

"The proved, low-cost maintenance record of Schlage Locks was an important factor in our final selection"— Alexander and Rothschild, architects.



THE Time-Proven CYLINDRICAL LOCK

SCHLAGE LOCK COMPANY 2201 Bayshore Boulevard, San Francisco, California SCHLAGE LOCK COMPANY OF CANADA, LTD., VANCOUVER, B. C.



## for PUBLIC BUILDINGS

SUMMERBELL glued laminated arches are ideal for many kinds of buildings...particularly Public Buildings and Schools...where maximum unobstructed interiors are required. The constant radius glued laminated arch, as shown above, is in increasing demand for buildings where both economy and utility must be considered.

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



## Longevity underwritten by Jenazzo

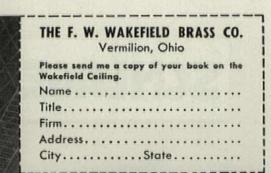


All the attributes of stability and business-like appearance, so important to an insur-ance company, are insured by this floor of TERRATION TERRAZZO.

Marble-hard and concrete-durable, TER-RAZZO presents highest life expectancy, with extra dividends in the form of inviting, easily cleaned surfaces. Maintenance costs -for floors, stairs, wainscots, pilasters or walls, are negligible.

Write for free AIA Kit, the complete reference work about TERRAZZO

THE NATIONAL TERRAZZO MOSAIC ASSOCIATION, INC 711 14th St., N. W. Kass Bldg. Washington 5, D. C.





To know all there is to know about this patented, packaged, proven means of providing total luminous-acoustical environments you must have this book. A copy is waiting for you.

## **VE** Maintenance and Towel Costs with

**ELIMINATES TOWEL** EXPENSE . . . SAVES MAINTENANCE

ELIMINATES FIRE HAZARD! Save valuable maintenance time and eliminate continuing towel expense. New, improved features make Sani-Dri faster drying . . provide quick, automatic hand or hair drying service 24 hours a day year after year! Sani-Dri is a permanent solution to washroom sanitation and drying prob-lems—and SAVES UP to 85% of WASHROOM COSTS!

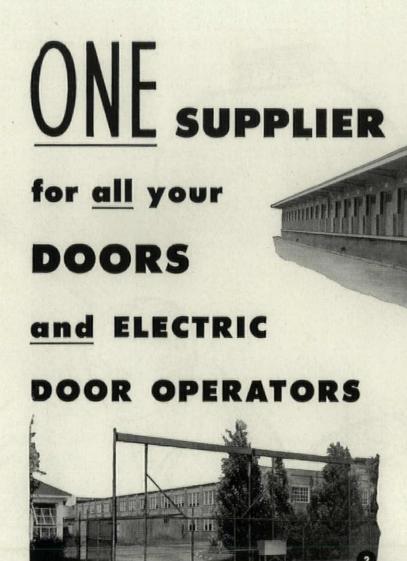
Sani-Dri

ELECTRIC Hand or Hair Dryers

All Sani-Dri Electric Dryers are GUARAN-TEED, and have carried the Underwriter's Seal of Approval for over 18 years!

SEND FOR NEW BROCHURE showing all models and installation pictures.

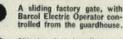
**Distributors in Principal Cities** THE CHICAGO HARDWARE FOUNDRY CO. "Dependable Since 1897" 9452 Commonwealth Ave. . North Chicago, Ill.



Barber-Colman Company can furnish Electric Door Operators to handle all kinds of overhead, sliding, swinging, and steel rolling doors, and sliding gates - and can also furnish all sizes of Barcol OVERdoors, the improved overhead doors. As a designer and manufacturer of both Doors and Operators, Barber-Colman is in a favorable position to provide properly matched equipment, to give experienced service, and to take good care of a wide range of requirements — all from a *single* source. You will be well advised to take advantage of the efficiency of this centralized responsibility. Consult your Barcol representative!



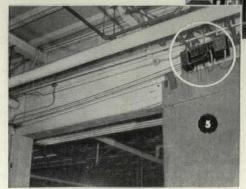
String of Barcol OVERdoors along the loading platform of a large warehouse.



Shipping dock installation of a large Barcol OVERdoor with matching Electric Operator.

Four big Barcol OVERdoors arranged for all-vertical rise, with Electric Operators,

Heavy, automatic-closing metal-clad fire door with Barcol Electric Operator.





I

1

THE

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BARBER-COLMAN COMPANY **158 MILL STREET, ROCKFORD, ILLINOIS** 

Factory-Trained Sales and Service Representatives in Principal Cities



## by ANY Quality Standard

by all ELECTRICAL standards

BENJAMIN

MOBILIZE

LIGHTING

LEVELAND IOCA

by all LIGHTING Standards... When compared with the most approved standards in the science of illumination, "Magna-Flo" systems excel: in *high lighting efficiency*, because these units are specifically designed for maximum utilization of the highly efficient T12 Slimline Lamp; in *high light output*, providing high footcandle readings on vertical surfaces and horizontal levels; in *proper brightness balance*, to provide maximum visual comfort and seeing efficiency; in *elimination of direct glare*, to reduce eye fatigue and interference with vision.



Compare Benjamin "Magna-Flo" Industrial Lighting Systems with *all* established quality standards. You'll easily see why "Magna-Flo" units excel *all* ways! The "Magna-Flo" line is SO COMPLETE that over 300 combinations are possible from just 4 basic reflectors and 3 channels. This completeness makes possible TASK-MATCHED installations for the proper lighting of practically all types of industrial seeing tasks. In addition, "Magna-Flo" excels:

**by all ELECTRICAL Standards...** In "Magna-Flo" units you get equipment that meets the maximum established electrical standards to assure simplified installation, high efficiency and dependable operation. Top-of-channel knockouts provide handy line-wire entrances. Channel caps are easily fastened to the channel by two screws. For maximum efficiency and continuously-cool operation only high-power factor "ETL"-approved ballasts are standard equipment on "Magna-Flo" lighting units.

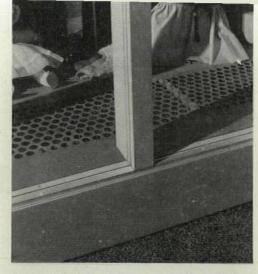
by all CONSTRUCTIONAL Standards... You'll find "Magna-Flo" excels in all ways to assure longer life and quicker, simplified maintenance. Reflecting surfaces are genuine "Life-Time" Porcelain Enamel, which does not discolor, scratch or become dull. Year after year, original light-reflecting efficiency can be sustained by simple soap-and-water cleaning. Further, "Magna-Flo" excels because ONLY "Magna-Flo" has "Springlox". This all-metal lampholder speeds up relamping, improves lighting equipment maintenance.

Write for Bulletin AD-5705; Benjamin Electric Mfg. Co., Dept. YY, Des Plaines, Ill.

#### **PRODUCT NEWS**

the chair the free-swiveling mobility essential to office efficiency. A metal rod cat's cradle braces the wood legs. The shell is pigmented in four neutral tones—elephant hide, greige, parchment and neutral gray—and in lemon, sea foam green, red, and dark blue. The legs are birch or walnut. Retail price is about \$39.50.

Manufacturer: Herman Miller Furniture Co., Zeeland, Mich.



Square cut ends on the glass holding members make neat corners and cut installation expense.

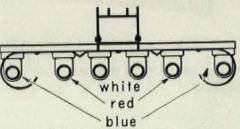


#### BUTT JOINT WINDOW MOLDING: clean corners on store fronts

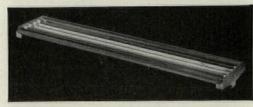
The Butt-Way store front moldings used throughout the Framingham, Mass. "Shoppers' World" (Dec. issue '51) eliminate costly mitering and capping. Fabricated of extruded aluminum coated for corrosion resistance, the glass holding members have flat surfaces and square cut ends which are butted together. The channel is drawn snug against the glass by tightening a bolt (diagram above). Labor time in this installation method is reputed to be 25% less than in conventional techniques. Manufacturer: National Store Fronts Co., Roxbury, Mass.

#### LIGHT FIXTURE reproduces true whiteness of sunlight

In showrooms, industries and beauty salons where artificial illumination must be used to reveal the true color of merchandise or people —for sales, fabricating, or psychological reasons—the *Spectro-Lite* may find wide usage. By means of a specially engineered curved



reflecting surface, the fixture blends primary light colors to produce a color temperature of 6,000 kelvins—a balanced white light which shows white as white and tinges black with red, just as sunlight does on a clear day. The



ceiling model pictured utilizes two blue 6' slim-line lamps (partially shielded by the curved coves), two red and two cool white lamps. It sells for \$170.

Manufacturer: John P. Filbert Co., Inc., 2007 S. Vermont Ave., Los Angeles 7, Calif. (Technical Publications, page 250)

### FOR LEAKPROOF, TROUBLE-FREE PIPE RUNS

Cut-a-way view of a Walseal Tee showing ring of silver brazed alloy, and completed Silbraz joint.

### Specify Walseal\* Products

On all types of piping jobs where Type "B" copper or red brass pipe is used, trouble can be avoided by installing Silbraz\* joints – made with Walseal valves, fittings and flanges.

Threadless, patented Silbraz joints are silver brazed (not soft soldered) pipe joints that are leakproof, trouble-free — permanent ... connections that will not creep or pull apart; that literally join with the piping system to form a "one-piece pipe line". Thus, these modern joints eliminate the need for maintenance and costly repairs — especially important where lowered operating costs are imperative.

For complete details on the modern Silbraz joint, made with Walseal products, write for a copy of Walworth Circular 84.

\*Patented - Reg. U. S. Patent Office.

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



#### **Recommended for**

Hot and Cold Water Circulating Systems

**Boiler Feed Lines** 

**Steam Return Lines** 

**Condensate Lines** 

Low and High Pressure Air Systems

Lubricating Oil Circulating Systems

Industrial Gas Piping

Solvent and Vacuum Piping Systems



## Wheeling Steelcrete

#### Steelcrete ExM Vault Reinforcing

For the Federal Reserve Bank of San Francisco's newest branch in Portland, Oregon, it's a solid concrete vault reinforced with Steelcrete ExM Vault Reinforcing.

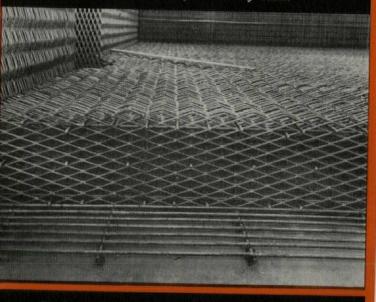
Not woven, not welded, but pierced and stretched from a single plate of solid steel, ExM proves the most easily placed and most highly resistant reinforcing known for modern bank vaults. Vault Reinforcing is but one of many materials for which architects, engineers and builders turn to Wheeling. The Wheeling line of building materials includes: Steelcrete Reinforcing Mesh • Expanded Metal • Metal Lath and Metal Lath Accessories • Tri-Rib Steel Roof Deck • ExM Angle Frame Partitions. Wheeling Steelcrete Vault Reinforcing supplied and erected by SOULE STEEL COMPANY. Architect: PIETRO BELLUSCHI; CONSULTING Engineer: MILES KAYE COOPER; General Contractor: ROSS B. HAMMOND CO.

ATLANTA BOSTON BUFFALO CHICAGO COLUMBUS DETROIT KANSAS CITY LOUISVILLE MINNEAPOLIS NEW ORLEANS

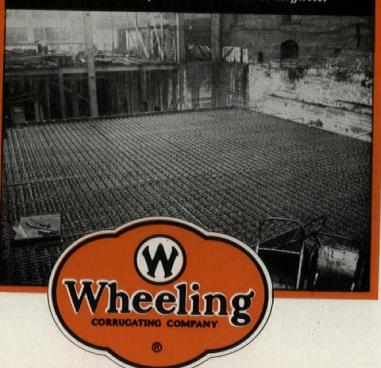


Here in this close-up is seen the sturdy interlaced reinforcing that Steelcrete gives to concrete walls.

In this photograph the simplicity of Steelcrete assembly is readily seen.



In the roof view, note the relatively long spans made possible by Steelcrete's lateral stiffness.



WHEELING, WEST VIRGINIA NEW YORK PHILADELPHIA RICHMOND ST. LOUIS

#### **TECHNICAL PUBLICATIONS**



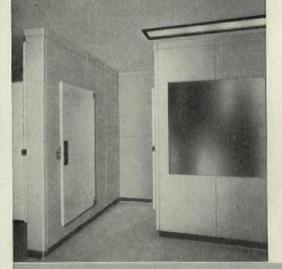


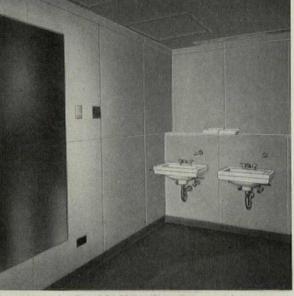


In the 525 William Penn Place Building

## WASHROOM WALLS of Ing-Rick

Note partition faced with Porcelain Enamel, showing narrow end panel.





Greyed rose Ing-Rich PORCELPANEL walls in one of the women's washrooms. Openings for plumbing fixtures are pre-cut.

# of Ing-Rich PORCELPANELS

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In the Mellon-U.S. Steel's 525 William Penn Place Building the washroom walls on 31 floors are paneled in durable, sanitary Ing-Rich Porcelpanels—porcelain enamel on steel. They can be kept clean and attractive by an occasional washing, and will never need refinishing. The color of the panels in the women's washrooms is greyed rose, and the men's, ivory.

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INGRAM-RICHARDSON MANUFACTURING CO. Beaver Falls, Pennsylvania **STEEL.** This Is International Steel. International Steel Co., Evansville 7, Ind. 44 pp. 81/2 x 11".

In an informal narrative the book relates the story of a steel company—its resources, facilities and services. Good shop photos and pictures of final jobs illustrate the many facets of International's custom steel work and its stock products.

**HEATING.** Heating Coils, Bulletin DS-385. The Trane Co., La Crosse, Wis. 68 pp. 81/2".

Steam and hot water coils in standard and nonfreeze types are described in this new bulletin. Outlined for quick reference are capacities, selection, performance, installation and dimension data on all the manufacturer's heating coils. The standard coils are described as having a solderless bond which is formed by mechanical expansion of seamless copper tubing into aluminum flat plate fins. This fabrication method is said to contribute to the coils' high heat transfer efficiency and durability.

**INSULATION.** Roof Decks and Roof Insulation. Zonolite Co., 135 S. LaSalle St., Chicago, III. 12 pp. 81/2 x 11".

Uses of vermiculite concrete in roof construction are discussed in the illustrated booklet. A micalike mineral, vermiculite is described as having 12-16 times the insulation value of sand when used as a concrete aggregate. The physical properties of vermiculite concrete and specifications for several types of installation are listed.

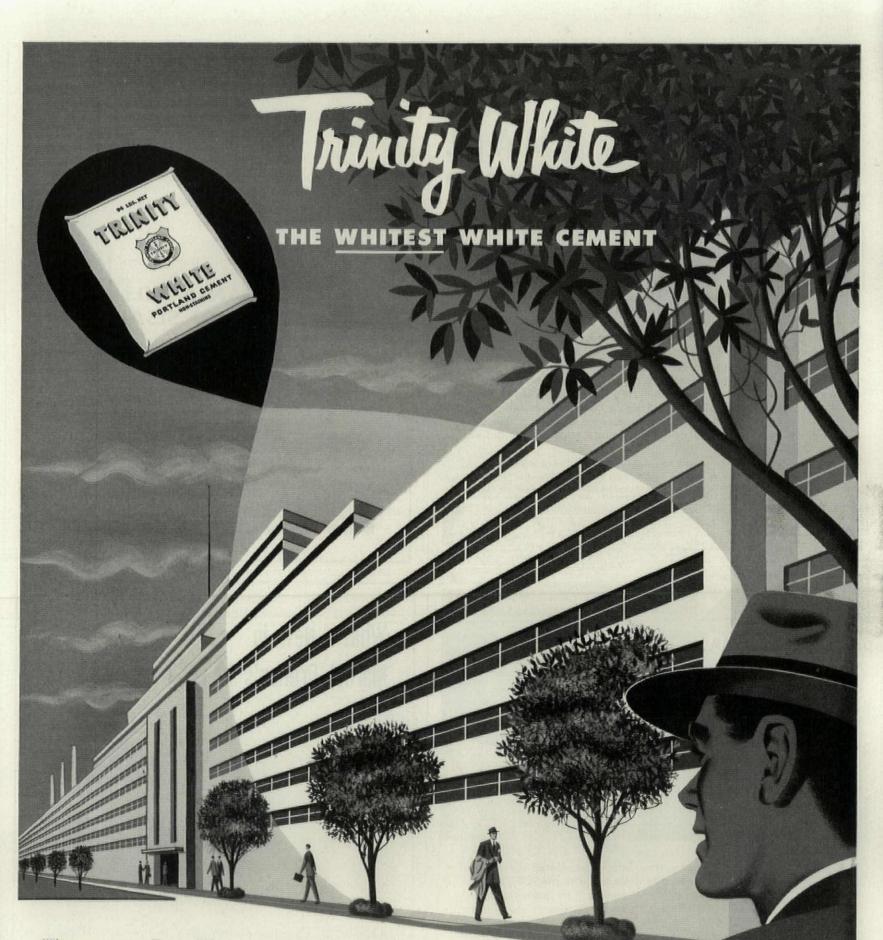
INSULATION. Kaylo Keat Insulation. Owens-Illinois Glass Co., Toledo, Ohio. 8 pp. 81/2 x 11".

Ilustrated with graphs and drawings, the booklet contains technical information on *Kaylo*, a hydrous calcium silicate insulation. The material is said to be suitable for industrial applications where temperatures reach up to 1,200° F. It is available in a wide range of shapes and sizes for insulating tubes and pipes from  $\frac{1}{4}''-6'$  in diameter and vessels up to 60' wide, as well as flat surfaces.

SOIL COMPACTION. Barco Rammer Bulletin, 621 Barco Mfg. Co., Dept. R-4, 1801 Winnemac Ave., Chicago 40, III. 8 pp. 81/2 x 11".

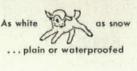
Useful production data for figuring work schedules and costs on soil compaction jobs are covered in this bulletin. Describing applications of a portable gasoline rammer for tamping fill or black-fill in tight areas, the information should interest builders and contractors. The rammer is suggested for use in the construction of highways, buildings, airports, trenches and parks.

(Continued on page 254)



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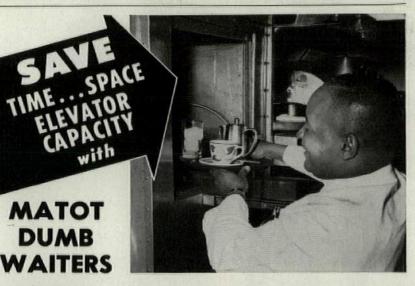
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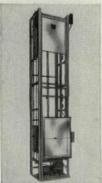
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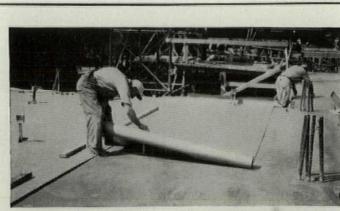


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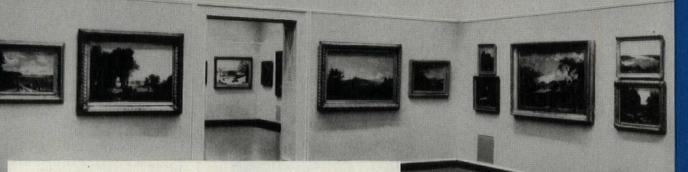
The important answer-illustrated in full color, analysed in depth-will appear in the May issue of House & Home.

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THE MAGAZINE OF BUILDING



# Diffused Lighting... with PLEXIGLAS

You may well think you are under a naturally-lighted skylight when you visit this gallery at the Museum of Fine Arts in Boston. The effect, however, is obtained by the use of translucent white diffusing panels of PLEXIGLAS acrylic plastic, mounted below fluorescent lamps.

PLEXIGLAS luminous ceilings provide high quality lighting in eight new exhibition rooms at the Museum. The totally diffused illumination is free of shadows and reflected glare. The effect of daylight, the most desirable condition for human vision, is achieved and the disadvantages of depending upon natural light, with its constantly shifting values, are eliminated.

The even spread of artificial light across the PLEXIGLAS surfaces and the absence of visible lighting fixtures make the luminous ceilings architecturally appealing. Higher light intensity and full color values for the paintings are supplied by directional louvers and recessed spotlights.

PLEXICLAS luminous ceilings satisfy the requirements of architects and lighting engineers for low brightness ratios, high illumination levels, excellent diffusion, and fixture-free appearance. In addition, the lightweight yet strong diffusers are removed easily and safely for cleaning and for access to the lighting source, resulting in a sustained high level of lighting performance.

If you have a lighting problem, investigate "daylighting" with a PLEXICLAS luminous ceiling. We will be glad to send you technical details about the installation shown above. Write for them.

The Rohm & Haas exhibit at the Fourth International Lighting Exposition and Conference, May 6-9, Public Auditorium, Cleveland, Ohio, will be in Booth 153. Special Galleries, Museum of Fine Arts, Boston, Massachusetts. Architects: Leland and Larsen, Boston. Illuminating engineers: Thompson Engineering Company, Boston. Photograph courtesy of General Electric Company.

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#### **TECHNICAL PUBLICATIONS**





PARTITIONS. Mills Movable Metal Walls, Catalog No. 52. Mills Co., 975 Wayside Rd., Cleveland 10, Ohio. 48 pp. 81/2 x 11".

Prepared as a guide for architects and designers concerned with the flexible space requirements of commercial and institutional buildings, the catalog covers Mills's complete line of movable partitions and accessories. The walls are said to be erected, dismantled and relocated easily and economically. Design fea-



tures noted for the metal walls include structural stability, sound control, adaptability and a baked enamel matte finish. In addition to installation photos and drawings of construction details, the book contains complete specification data.

**PARTITIONS.** How to Get the Most Out of Your New Hauserman Movable Interior. E. F. Hauserman Co., Cleveland 5, Ohio, 10 pp. 81/2 x 11".

Prepared to familiarize building owners, electricians and maintenance men with the care of movable partitions, the booklet describes ways to clean the units, service the wiring and hang pictures on them.

**ELEVATORS.** Vertical Transportation by Otis. Otis Elevator Co., 260 Eleventh Ave., New York 1, N. Y. 24 pp. 81/2 x 11".

Equipment and services for vertical transportation are discussed in this recent publication. Subjects covered in detail include passenger and hospital elevators, escalators, dumb-waiters and freight elevators. Photographs and line drawings accompany the text and a series of tables present dimensions and engineering data.

INDUSTRIAL BUILDINGS. Unibuilt Steel Structures. Bulletin No. 107. Brookville Mfg. Co., Brookville, Pa. 8 pp. 8½ x 11".

Structural details of prefabricated steel buildings are illustrated in this folder. The standard *Unibuilt* sections may be used singly or in multiples to erect warehouses, schools, or industrial buildings of almost any size.

**SAFETY.** Safety Rules for Electrical Maintenance and Construction Men. Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa. 16 pp. 4 x 6".

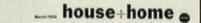
Work on electrical apparatus is generally hazardous but through adequate safeguards and care, accidents practically can be eliminated. The construction and maintenance safety rules contained in this pamphlet were set up by Westinghouse for study by job supervisors and workmen.

CLASSROOM SEATING. American Seating Co., Grand Rapids 2, Mich. 20 pp. 51/2 x 71/2".

This message to educators and school architects is a timely summary of some research results which have aided education's growth through better school environment. The booklet describes the development of school seating which has progressed in step with improved classroom design, and the resultant improvement in scholarship as well as vision and general health of school children. A bibliography of reference books on lighting, seeing, posture, and child development is included.



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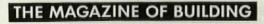
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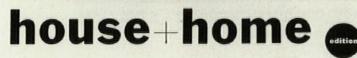
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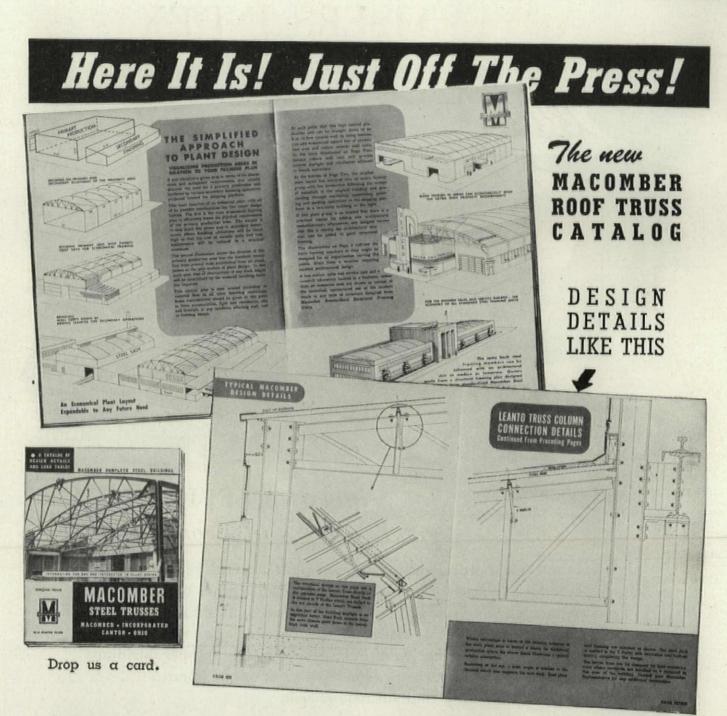
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