## architectural forum



August 1952

Prudential's 38-story tower opens 80-acre lake-front area in Chicago, Costliest skyscraper

unveils a new idea for \$6 rents in a \$3 city (p. 90)

**Five small stores** Including Victor Gruen's gay restyling of a Manhattan derelict (below and p. 100)

Is production too low and the price too high? (p. 112) Structural steel

**Building Engineering** Alcoa's new office building explores the economies of aluminum wiring,

water pipes and cooling panels (p. 140)

Dupont's new office building pioneers the use of high voltage wiring (p. 147)

MARKET CALLEGE OF ART

Replanning Washington What should replace the Capitol's back-yard slums? (p. 124)

AIA's prize school Low-cost amenities for crippled children (p. 116)





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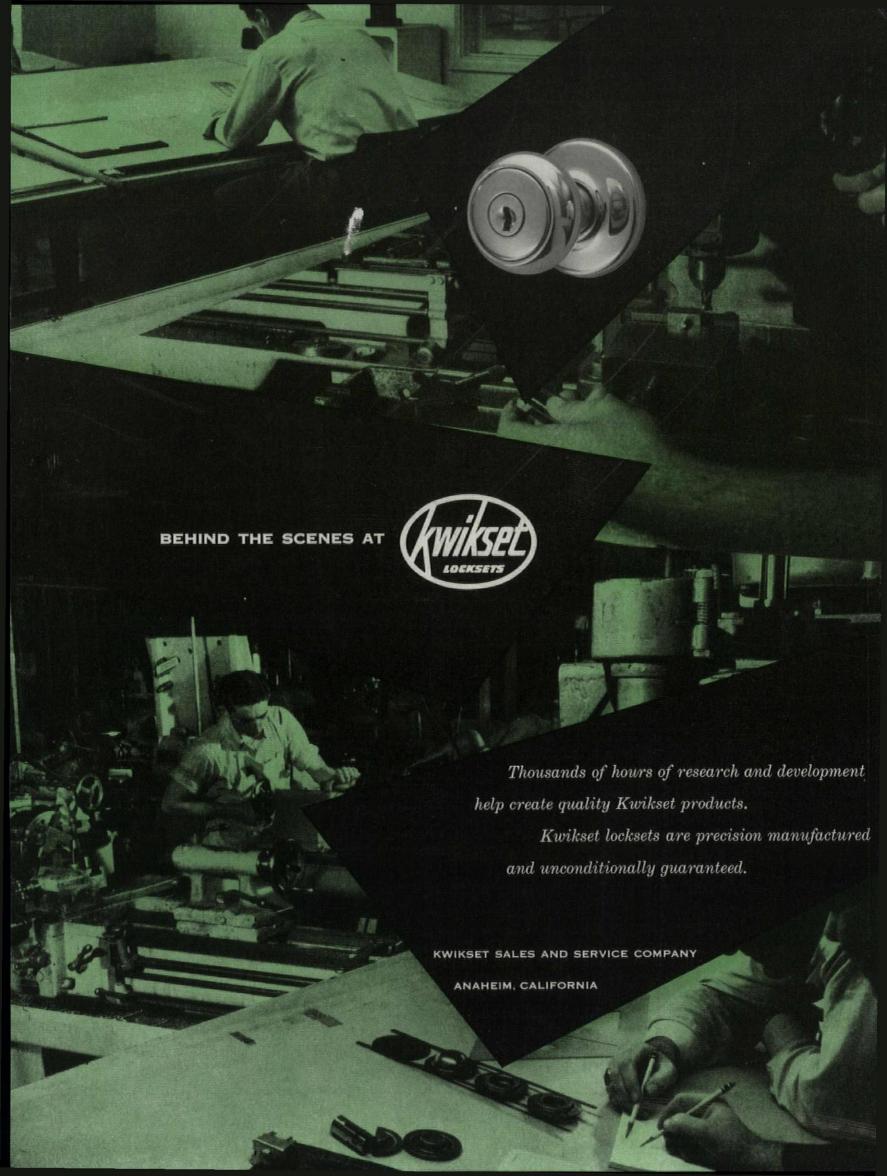
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AUGUST 1952

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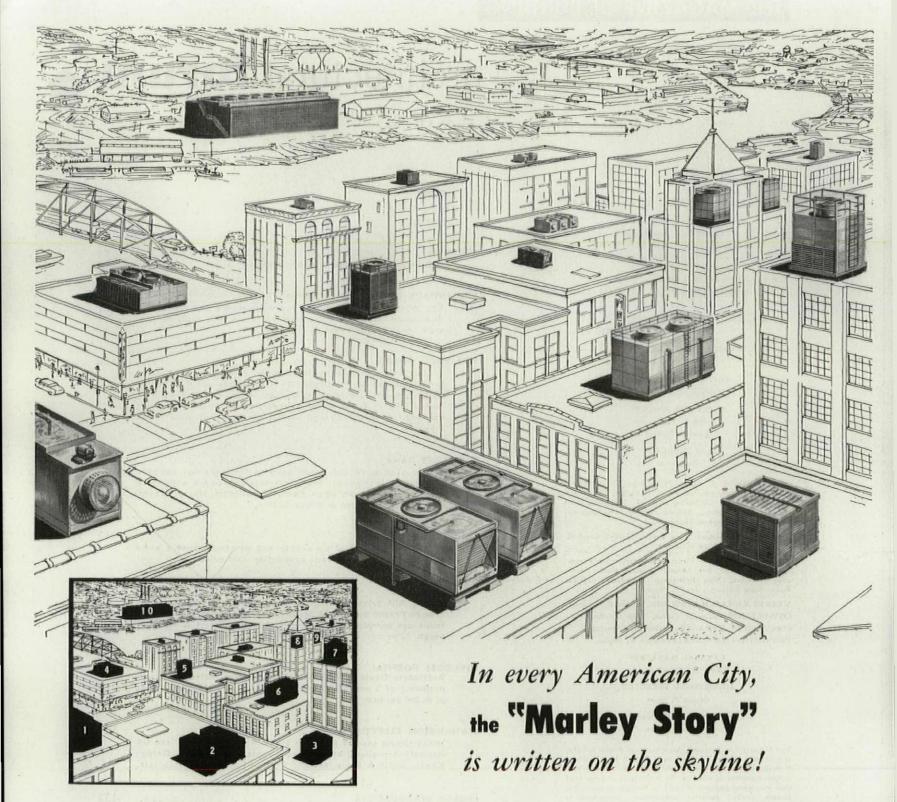
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PRODUCT NEWS

TECHNICAL PUBLICATIONS



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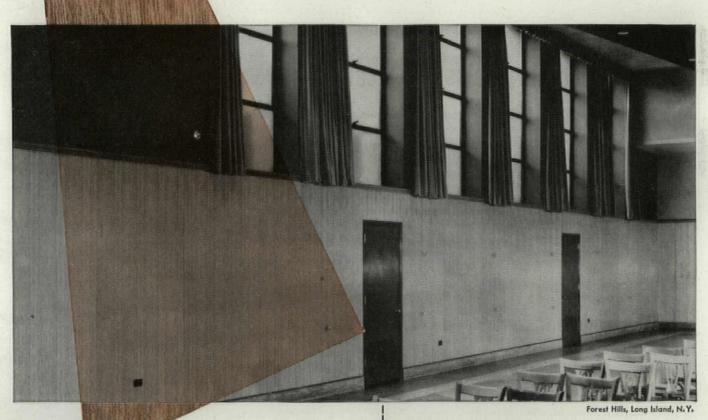
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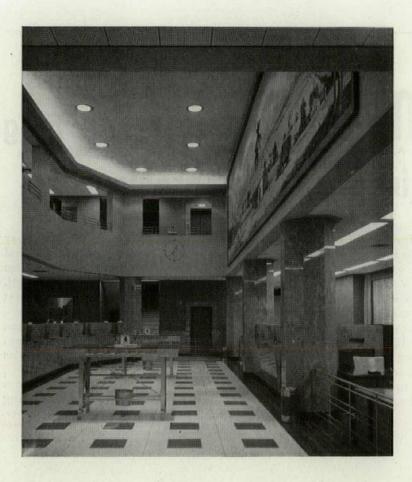
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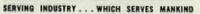
**Wood Treating Application** 

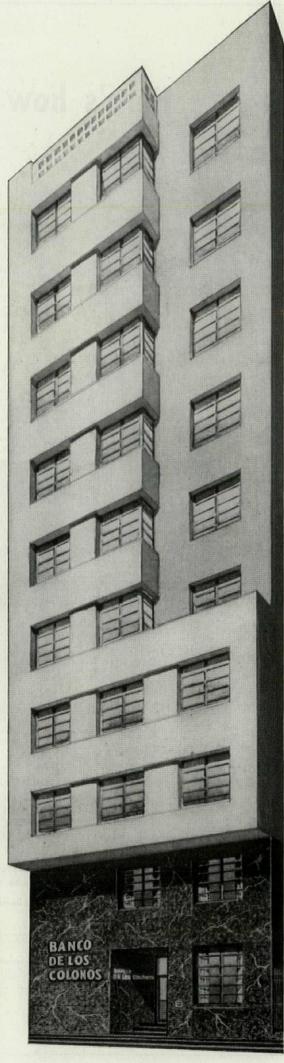
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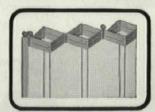
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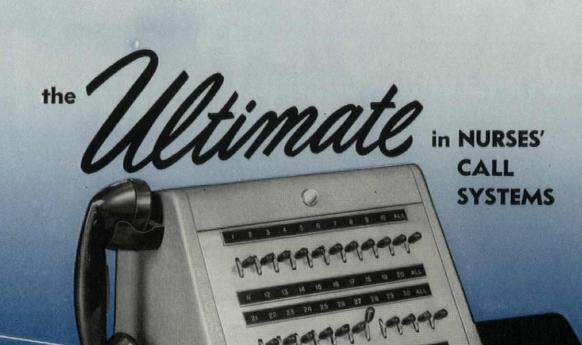
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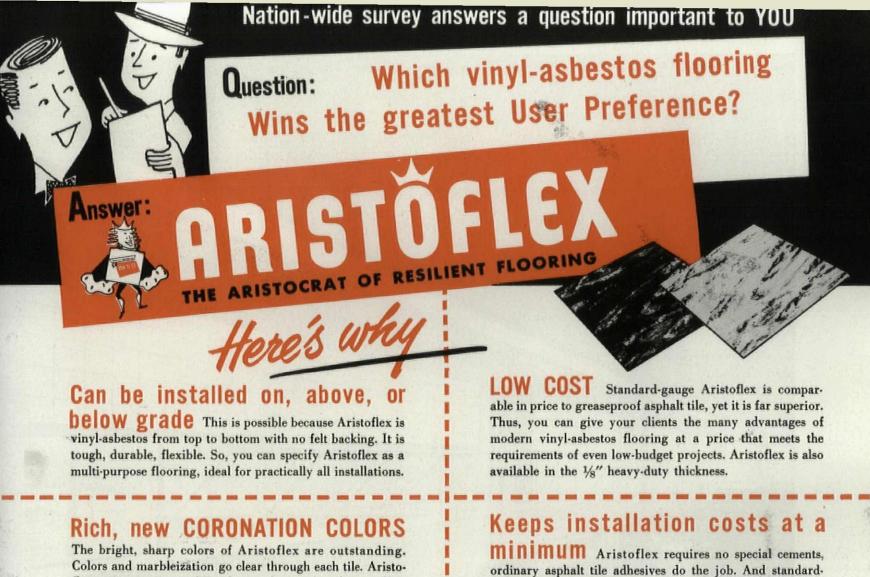
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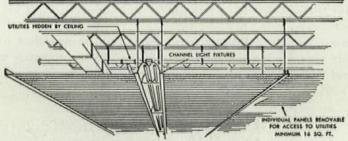
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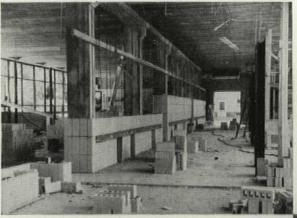
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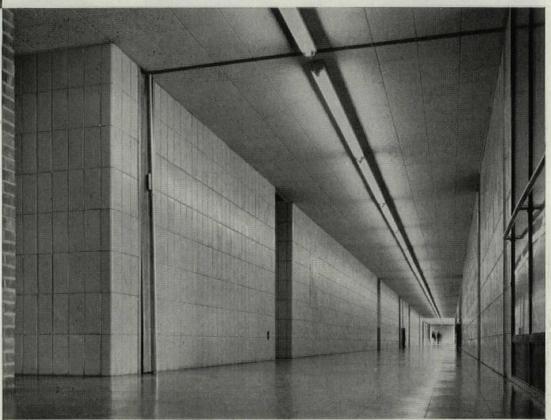
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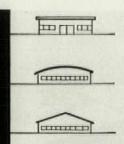
Today more and more architects, contractors and engineers depend more and more on Ceco in solving their building problems.

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General Offices: 5601 W. 26th St., Chicago 50, Illinois Offices, warehouses and fabricating plants in principal cities

In construction products CECO ENGINEERING makes the big difference

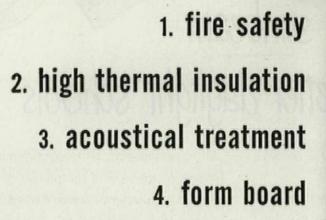
for flat curved. or pitched



poured-in-place

roof decks

there's only one form that offers these 4-in-1 advantages:



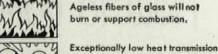
Fiberglas\* Insulating Form Board is entirely satisfactory as a form. It is strong and light in weight—easily and quickly installed. The weight of the poured mix causes only minimum deflection of the board during and after application. Highly functional with code acceptance (BOCA Report No. 51-6) where non-combustible roofs are required, Fiberglas Insulating Form Board resists the effects of moisture and dries rapidly. It is dimensionally stable, durable and can be painted when necessary.

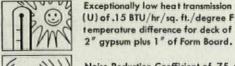


Fiberglas Insulating Form Board is installed by approved poured-in-place deck contractors. Call the Fiberglas Branch Office listed in your phone book for the name of contractor in your area. Ask to see the new presentation to architects containing many facts of great value to you. Or write to: Owens-Corning Fiberglas Corporation, Dept. 67-H3, Toledo 1, Ohio.

\*Fiberglas is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for a variety of products made of or with fibers of glass,





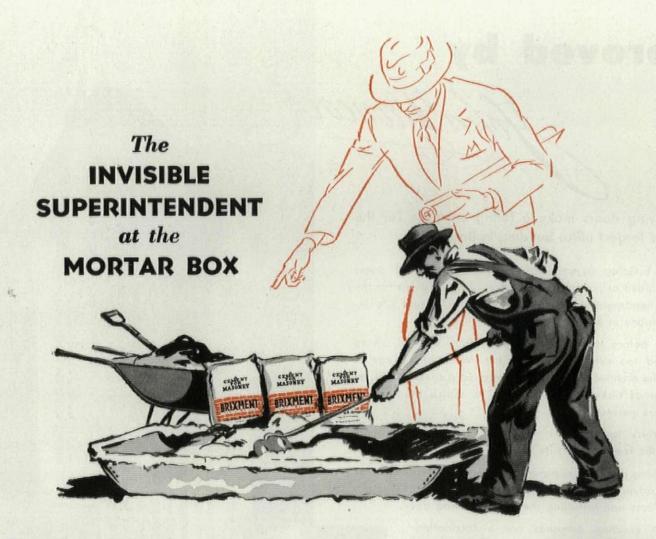


2" gypsum plus 1" of Form Board. Noise Reduction Coefficient of .75, with gypsum slab, is as good or better than most standard acoustica materials.





INSULATING FORM BOARD



## ASSURES THE MIX YOU SPECIFY

When the architect specifies definite proportions of portland cement and lime for mortar, he has no assurance that his specifications will be accurately followed unless his superintendent is constantly at the mortar box. . . The proportion of lime may be increased for the sake of plasticity, or the mix may be over-sanded. In either case, the strength of the mortar

is impaired. . . The use of Brixment, however, is your assurance that all mortar will be uniform in strength and color and that your specifications will be accurately followed. If over-sanded, Brixment mortar works short, and with no lime in the mix, the necessary plasticity can be secured only by using the proper amount of Brixment.

## BRIXMENT



LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

approved by

John Hancock

. . . revolving doors make a fitting entrance for the newest and largest office building in Boston\*

Because of building department restrictions, revolving doors were not included as part of the architects' original plans for the magnificent headquarters of the John Hancock Mutual Life Insurance Company in Boston.

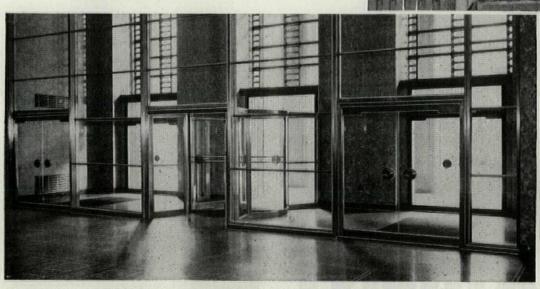
But, even before the building was officially opened, swing doors proved too drafty and inefficient. With the change in restrictions the architects ingeniously designed a special-built revolving door of nickel (white bronze) to match the original entrance work perfectly.

The centrally located revolving door handles the normal building traffic leaving the side swing doors as auxiliary exits.

The revolving door has eliminated the entrance problems. The results and advantages more than justified the cost of discarding swing doors and installing the new revolving door.

The most exacting demands are a fascinating challenge to the Revolving Door Division of International Steel Company.

Write, wire or phone us today about your entrance problems.



John Hancock Mutual Life Insurance Co. Building 200 Berkeley St., Boston, Mass. Cram & Ferguson, Architects & Engineers

REVOLVING DOOR ENTRANCE DIVISION

INTERNALIOÜETE NAUNET

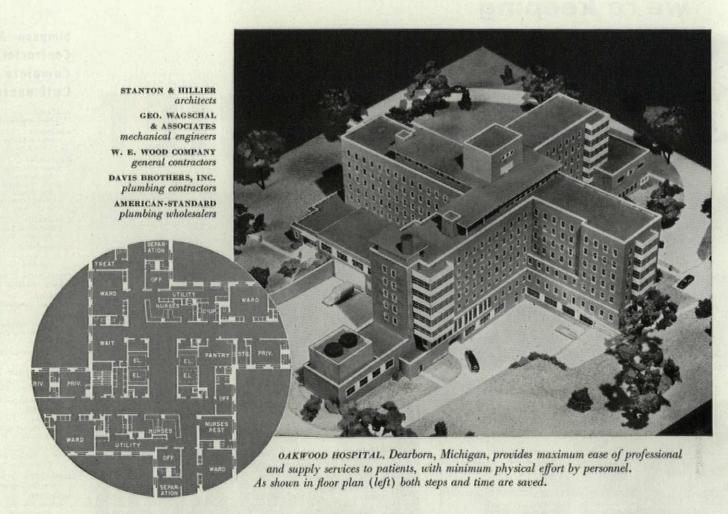
1909 EDGAR STREET

DOORS

EVANSVILLE, IND.

\*More than 50%
of all revolving doors sold
replace swing doors.

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



## ENTHUSIASTIC APPLAUSE FROM NURSES

That precious commodity known as nurses' steps was a major factor in the planning of the new Oakwood Hospital, Dearborn, Michigan. By adopting an offset cross plan, with relatively short nursing wings converging at a central elevator core, greatly reduced nurses' travel was effected. Two nursing stations face the central core, each located in its own half of the floor

and adjacent to its own utility services. Each bed in two-patient rooms has its own window, and each room has lavatory and toilet. These features are typical of the high standards which dominated all of the planning, constructing and equipping of this outstanding hospital. Likewise typical of highest standards was the selection of SLOAN Flush VALVES for installation throughout the building—more evidence of preference that explains why . . .

## more SLOAN Hush VALVES

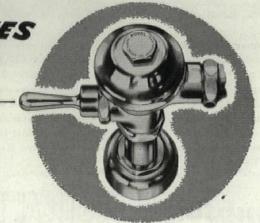
are sold than all other makes combined



#### 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.

Write for completely descriptive folder



## we're keeping













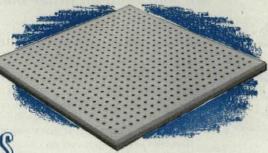




This smart suburban shopping center near Tacoma, Washington, furnishes complete shopping facilities for surrounding communities of nearly thirty thousand people. Nearly a carload of Simpson Acoustical Tile was installed in its 17 shops, stores and offices to provide comfortable quiet for patrons. Lea-Pearson & Richards, Tacoma were the architects who designed the center and specified Simpson Acoustical Tile. Installation was by Elliott Bay Lumber Company, Seattle and general contractors were Ketner Bros., Inc., Tacoma.

mpson ACOUSTICAL PRODUCTS

FOR BETTER SOUND CONDITIONING



SIMPSON LOGGING COMPANY **Acoustical Division** 1065 Stuart Bldg., Seattle 1, Wash.

### To keep things



## Simpson Acoustical Contractors offer a Complete Service. Call nearest one:

ALABAMA Stokes Interiors, Inc., Mobile

ARKANSAS National Builders' Supply, Inc., Little Rock

California Coast Insulating Products, Los Angeles Hal E. Niehoff & Associates, San Diego Cramer Company, San Francisco and Fresno

COLORADO

Construction Specialties Co., Denver

CONNECTICUT W. T. Roberts Construction Co., Hartford

DISTRICT OF COLUMBIA
Kane Acoustical Co., Washington

GEORGIA Dumas and Searl, Inc., Atlanta

ILLINOIS

General Acoustics Co., Chicago Melvin R. Murdy, Moline INDIANA

The Baldus Co., Inc., Fort Wayne

KANSAS

Kelley Asbestos Products Co., Wichita

KENTUCKY Atlas Plaster & Supply Co., Inc., Louisville

MASSACHUSETTS W. T. Roberts Construction Co., Cambridge

MINNESOTA Dale Tile Company, Minneapolis MISSISSIPPI Stokes Interiors, Inc., Jackson and Greenwood

MISSOURI Kelley Asbestos Products Co., Kansas City Hamilton Company, Inc., St. Louis

NEBRASKA Kelley Asbestos Products Co., Omaha

NEW JERSEY

Kane Acoustical Co., Fairview

NEW YORK
Robert J. Harder, Lynbrook, L. I.
Kane Acoustical Co., New York
Davis-Fetch & Co., Inc., Buffalo,
Rochester and Jamestown

NORTH CAROLINA Bost Building Equipment Co<sub>y</sub> Charlotte

OKLAHOMA Harold C. Parker & Co., Inc., Oklahoma City Kelley Asbestos Products Co., Tulsa

OHIO
The Mid-West Acoustical &
Supply Co., Cleveland, Akron,
Columbus, Dayton, Springfield
and Toledo

OREGON Acoustics Northwest, Portland R. L. Elfstrom Co., Salem

PENNSYLVANIA Jones Sound Conditioning, Inc., Ardmore

TENNESSEE
John Beretta Tile Co., Inc.,
Knoxville
The Workman Co., Inc., Nashville

TEXAS

Blue Diamond Company, Dallas

Otis Massey Co., Ltd., Houston
Builder's Service Co., Fort Worth

UTAH
Utah Pioneer Corporation,
Salt Lake City

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

...in size

Made to your order

.. in weight

ARMORPLY

BUILDING PANELS
for curtain wall construction

... in finish

Now you can specify a single structural wall and surfacing material that *exactly* meets your customers' requirements.

It's Armorply Building Panels!

Custom-made to your order in size, Armorply is available in all of the standard commercial sheet sizes up to 5 x 10½ ft. or even longer. They require no trimming or cutting on the job. They drop into place quickly and easily. They speed up (and save money on) any building job.

In weight, Armorply Building Panels with honeycomb core vary from about 1.5 to 6.0 lbs. per sq. ft., depending on the type of construction and insulating characteristics. They can be obtained in thicknesses

from 1/2 to 4 inches.

Being an interior and exterior wall in one, they make for a great saving in floor space. They take the place of standard masonry walls 12 to 15 inches thick.

In finish, Armorply Panels offer still other advantages. Armorply Panels are flat. They can be made in any color to specification. They can be made with any finish... porcelain-enameled steel, aluminum, plain steel or stainless steel. And they never need painting or other decoration. They save maintenance costs, year in, year out.

Yes, Armorphy Building Panels are made to order for every modern curtain wall installation. Get all the facts. Mail this coupon...today.

## United States Plywood Corporation

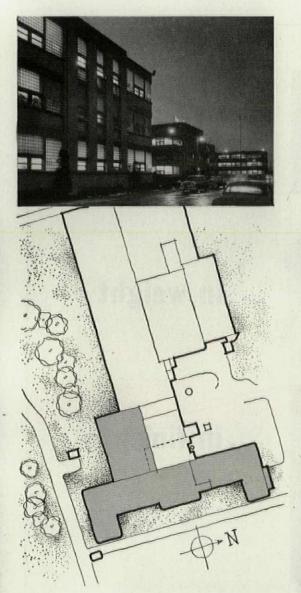
World's Largest Plywood Organization
Manufacturers and Distributors of
Weldwood® Plywood, Weldwood Doors
and other Wood Specialties.

## United States Plywood Corporation 55 West 44th Street, New York 36, N. Y.

Weldwood

Please send descriptive A. I. A. file material on Armorphy Building Panels.

Name......
Company......
Address.



### Over a half million square feet of factory, office

The shaded area on the floor plan indicates the air conditioned sections of the plant. Located here are offices, some shipping and stores, some manufacturing. The unshaded portion is mainly manufacturing, partly shipping and storage area.

Architectural firms that designed the main plant were Mundie, Jensen, Bourke and Havens, Chicago, and Bruce A. Gordon and Company, Chicago. Mechanical engineering was by Samuel R. Lewis and Associates, Chicago. Honeywell Customized Temperature Control was installed by L. H. Prentice Co., Chicago. Victor Charn of the Chicago firm, Ragnar Benson Inc., was the architect for the new factory area. Here mechanical engineering was done by Nelson and Nettnin, Inc., Chicago. Honeywell Customized Temperature Control here was installed by O. A. Wendt Co., Chicago.

#### Lens room temperature at exact 77 degrees

To make sure the pitch used in polishing precision optics retains the proper consistency, Honeywell Customized Temperature Control keeps the temperature exactly 77 degrees in the lens polishing room, right. And in Bell and Howell's film plant in Rochester, N. Y., customized temperature control guards another vital manufacturing process. There, a variety of temperatures—all different—are held at the critical level with a tolerance of only one-half of one degree Centigrade.

# How Honeywell Customized Temperature Control Helps Bell and Howell Meet Wide Range of Temperature Needs

Specially designed system provides precision industrial control, finest comfort-and saves fuel

These dramatic photos of Bell and Howell's Chicago plant demonstrate the kind of operation that has made the company one of the world's leading manufacturers of motion picture projectors, cameras and microfilm equipment.

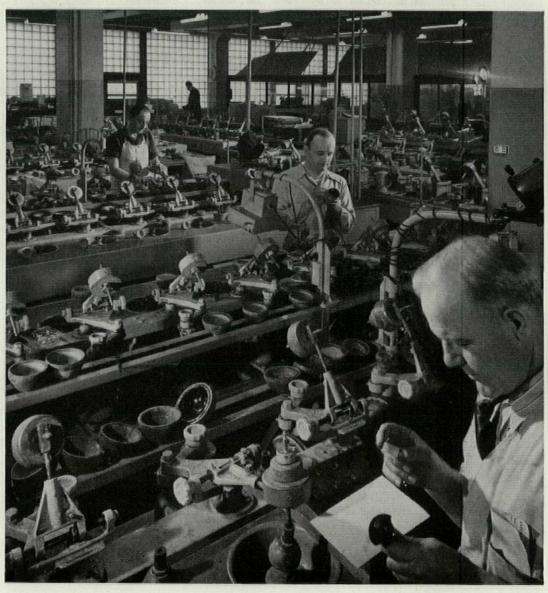
And they serve, too, to demonstrate the great flexibility of Honeywell Customized Temperature Control.

At Bell and Howell, Honeywell Customized Temperature Control provides factory personnel, office workers and executives with the finest kind of comfort thoughout the year.

But there's more to the story.

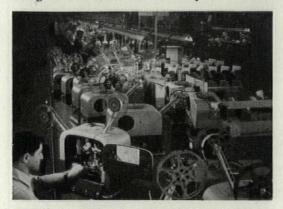
Many phases of a manufacturing operation that produces such precision equipment as cameras, projectors and film demand extremely precise temperatures. These, too, are provided by Honeywell Customized Temperature Control.

And it's this customized control system that enables Bell and Howell to save a great deal on fuel bills each year—by setting back the temperature at night in big factory areas.





In the company's projection salon often as many as 50 persons meet to view business films. Smoking is permitted, yet the air is never clouded. Honeywell Customized Temperature Control takes care of that-removing stale air and replenishing it with fresh air for complete comfort.



The final test line for Bell and Howell's famous 16 mm. Filmosound projector is shown above. It is in this part of the plant that Honeywell Customized Temperature Control makes possible great fuel savings. For here a master thermostat can be turned down at night to lower temperatures during the time the area is not in use.



Executive offices like this are perfectly comfortable-no matter how changeable the weather outside. Because in the office area Honeywell Customized Temperature Control provides an individual thermostat for every room. These thermostats can be adjusted by room occupants to give them the exact temperatures they want. And the

ultimate in comfort such a combined heating and cooling control system guarantees is shared by all who work in this part of the plant-secretaries, typists, restaurant personnel and executives. This raises efficiency and helps make Bell and Howell a pleasant, comfortable place to work-in August as well as January.

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

Whether it's a factory, store, office, school, garage-or any size public building-new or existing-there's a Honeywell Customized Temperature Control System to meet your clients' heating and ventilating problems.

Once equipped with a Honeywell Customized Temperature Control System, they'll have the newest, finest equipment available. They'll also have the right kind of controls to keep their employees, customers and tenants comfortable-and they'll save fuel besides.

For full facts on Honeywell Customized Temperature Control, call your local Honey-

well office. There are 91 across the nation. Learn how these systems can help your clients and your business. Or mail coupon today.

"I'll bet no other factory has better control over its heating and air conditioning," says Bell and Howell Superintendent of Maintenance Branson "Buck" Weaver.

"This Honeywell Customized Temperature Control keeps everyone comfortable. And it keeps me happy because it requires almost no maintenance. Besides that, I enjoy reporting the latest fuel-saving figures."



MINNEAPOLIS-HONEYWELL Dept. MB-8-69

Minneapolis 8, Minnesota

Gentlemen: I'm interested in learning more about your Customized Temperature Control Systems for public buildings.

Name\_

Firm Name

Address.

# oneywell First in Controls



## Permacoustic Acoustical Unit



## For a noncombustible acoustical ceiling of high efficiency and unusual beauty, specify <u>PERMACOUSTIC</u>

Johns-Manville Permacoustic Tile provides beauty in addition to fire safety and noise-quieting comfort. Its textured surface, created by random fissures, is distinctive and attractive... combines decorative appearance and sound-conditioning wherever desired.

Made of baked rock wool fibers moulded into 12" square panels, Permacoustic greatly reduces noise . . . the fissured surface increases the acoustical efficiency of the material which is in itself inherently highly sound absorbent. Noise reduction coefficient is 65% to 70%.

J-M Permacoustic is fireproof . . . it meets all

building codes that require the use of noncombustible acoustical materials to minimize fire hazard. And because it is made of noncritical materials it is readily available... permits you to plan present and future construction work without fear of shortages.

Permacoustic is easy to install—either by application to existing ceiling or slabs, or by suspension using a spline system of erection.

Send for your free copy of the new brochure about Permacoustic. Write Johns-Manville, Box 158, New York 16, N. Y. In Canada, write 199 Bay Street, Toronto 1, Ontario.



## Johns-Manville

J-M Acoustical Materials include Sanacoustic\* Units, Transite\* Acoustical Panels, and drilled Fibretone\*

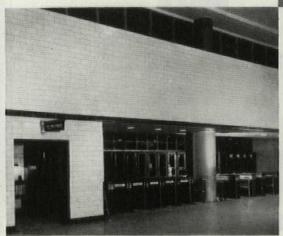
## Peerless public servant STARK GLAZED FACING TILE of millions

for heavy-duty interiors of lasting beauty

## SERVING 30 MILLION **COMMUTERS A YEAR**

Walls of Stark Glazed Facing Tile assure low-cost maintenance and a cheerful, clean environment in New York's new Staten Island

Madigan-Hyland, Architects and Engineers. Cauldwell-Wingate Co., General Contractors.







In buildings designed to serve the public, versatile Stark Glazed Facing Tile offers unique advantages.

Stark Glazed Facing Tile withstands the abuse of steady public usage—in transporta-tion terminals like the one shown here, in schools, hospitals, civic centers and commercial buildings. Its glass-hard surface will not mar, stain or fade. Maintenance costs are cut to a minimum-walls by Stark wash clean as a dish, never need redecorating.

Stark Glazed Facing Tile eliminates construction materials, gives you a load-bearing wall and a quality finish in a single timesaving step. Made in modular dimensions, it reduces cutting and pares high on-the-job labor costs.

Stark Glazed Facing Tile permits you to build good looks as well as rugged durability into public areas. Stark's range of colors will meet your most exacting requirements for good light-reflection, visual benefits, and a cheerful environment.

We welcome your inquiries. If you wish a copy of our new brochure on Modular Masonry, or other information, just write us on your own letterhead. Address your request to Dept, AF-8. See Sweet's Catalog 4f-St.

## CERAMICS, INC.

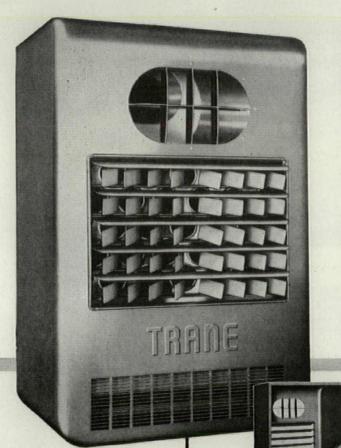
(formerly the Stark Brick Co.)

14305 Livernois Ave. Detroit 4, Michigan

Canton 1, Ohio

15 East 26th Street New York 10, N. Y.

# Announcing the most rugged TRANE gas unit heater ever built!



**Now! A Heater Built Like** 

d Boiler! Heavier gauge steel throughout! Bigger, more powerful motor! New steel fan designed especially for unit heater application! Welded seams all around. Durable "Bonderized" finish.

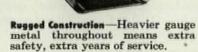
Even the joints in the heat exchanger have come in for special treatment. Trane has eliminated troublesome gaskets, furnace cement and other joining materials by using beaded and flanged connections to give you trouble-free joints as permanent as steel itself.

Features like these and other carefully engineered, exclusive details make it possible for you to hang gas heating from the ceiling more efficiently, more

economically than ever before.

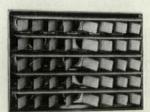
Have all the facts on hand when you plan your next gas unit heating job. Get the new Trane Gas Unit Heater Bulletin just off-the press. Write Trane, La Crosse, Wisconsin, for the name of the Trane Gas Unit Heater Distributor in your area.

These features mean extra years of trouble-free, thrifty operation

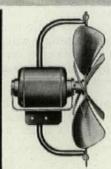




Built Like a Beiler—No gaskets, no furnace cement. Beaded and flanged connections throughout.



Heat Where You Want It—Extra control of heat placement with patented Trane Louver Fin Diffuser.



Special Trane Fan— Engineered specifically for unit heaters. Wide blade doesn't chop air. It pushes—quietly!

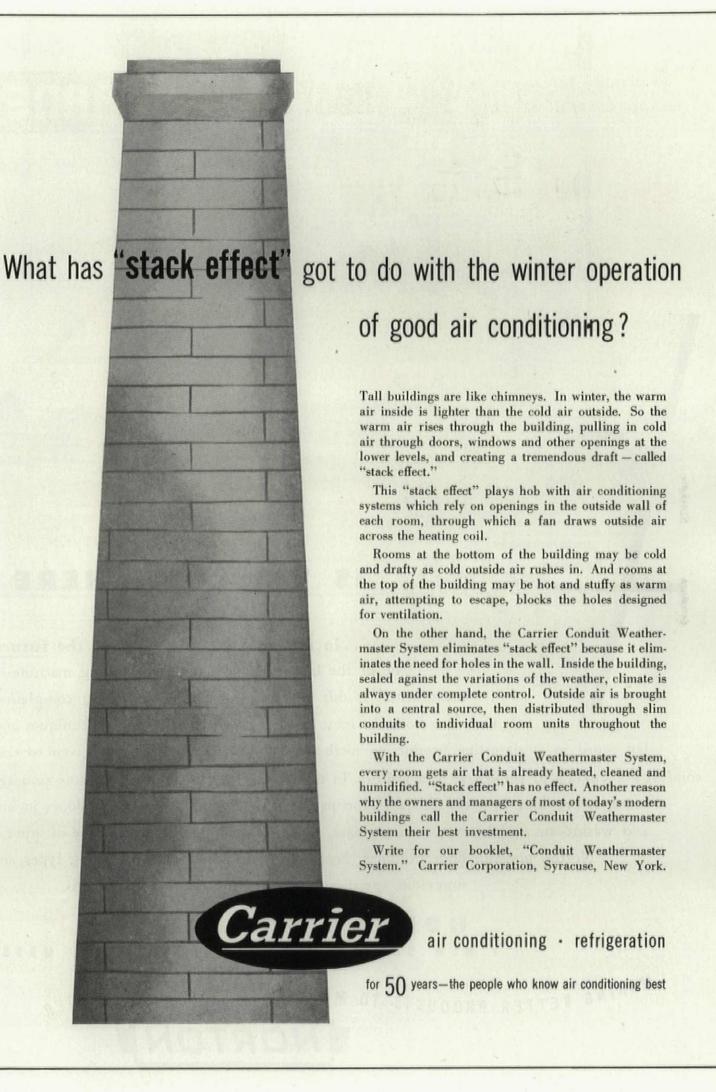


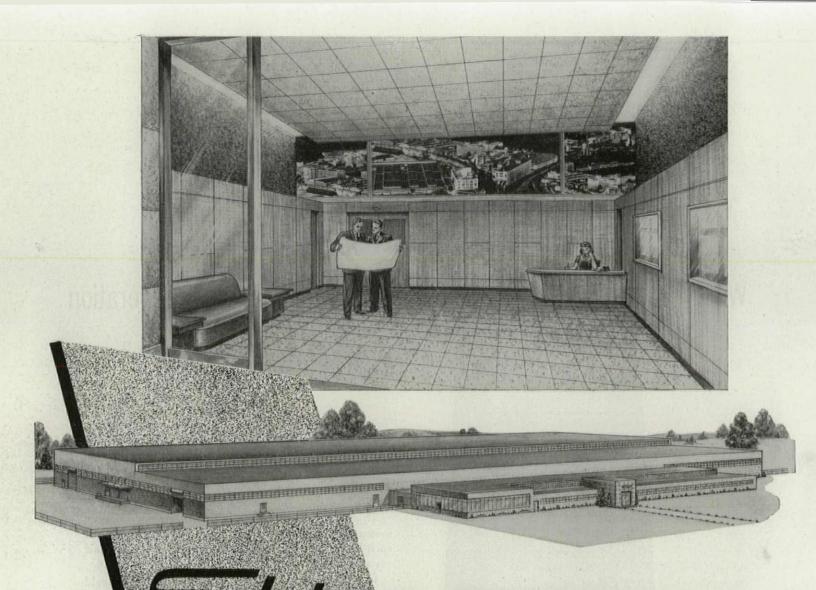
A. G. A. and Underwriters' Approved— Have been tested and approved by both the A.G.A. and Underwriters' Laboratories.

TRANE

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

MANUFACTURING ENGINEERS OF HEATING, VENTILATING
AND AIR CONDITIONING EQUIPMENT





## IS WELCOME HERE

One of the largest single units for grinding machine manufacture is this 6½ acre Norton plant nearing completion.

It embodies both the most modern machine tool design techniques and the last word in straight-line production methods. Practical consideration is given to the comfort and safety of employees and visitors. In the attractive lobby permanent protection against slipping is provided by wear-resistant Norton Non-slip Floor Tile. Terrazzo floors in kitchen and washrooms... wherever water, grease, etc. might be present... make use of other Norton non-slip floor products. For helpful information as to colors, types and

suggested specifications write for catalog #1935-FAC.

## NORTON COMPANY

7 NEW BOND STREET . WORCESTER 6. MASS.

MAKING BETTER PRODUCTS TO MAKE OTHER PRODUCTS BETTER



## For Elegant Simplicity...

## SECURIT® INTERIOR GLASS DOOR

From the design standpoint . . . from the practical standpoint—here's the most interesting thing that's happened in doors for a long time.

The Securit Interior Glass Door is a flush door a single sheet of translucent glass and lovely, modern hardware. Its attractive Muralex pattern creates a rich, textured effect. It transmits light to brighten interiors. Yet, it guards privacy.

Practical? Very much so. This door is so toughened by a tempering process that it can take the rough treatment of use in offices and commercial buildings. You can get this door already drilled to take Sargent door closers or concealed LCN closers. The Securit Door is easy to hang—no cutting, mortising, drilling or painting. All hardware and complete instructions come with each shipment.

Here's smartness for interiors—for offices, stores, hotels, hospitals. And a note of striking beauty for homes. The Securit Door is priced so reasonably that you can afford to use it in almost any type of building. Ask your L·O·F Distributor or Dealer for further details. Or mail the coupon.

#### BRIEF DATA

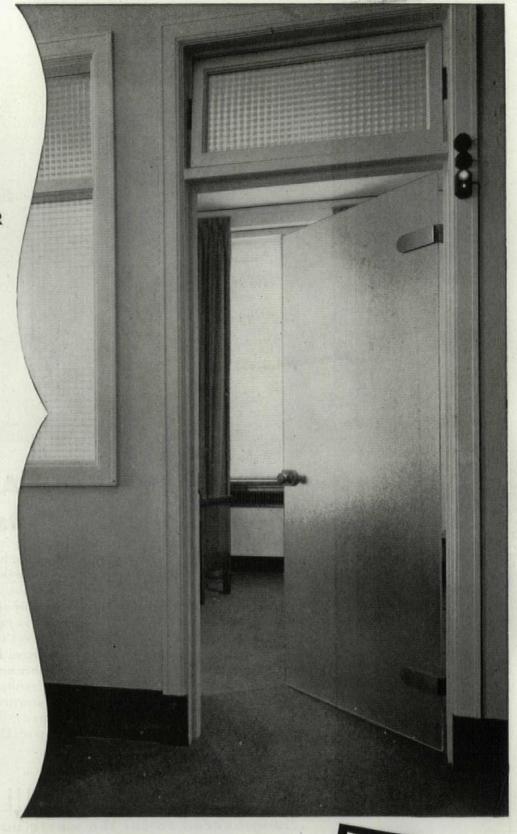
Glass—¾"-thick Muralex pattern on both surfaces.

Tempered—3 to 5 times stronger than untempered glass of same thickness.

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.



FOR COMPLETE DETAILS MAIL THIS COUPON



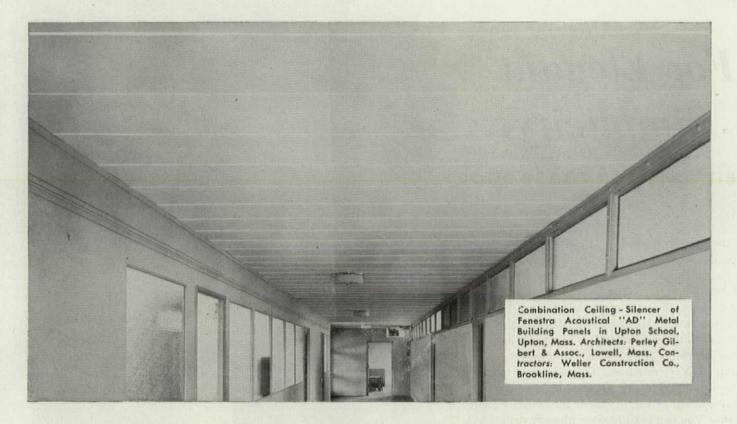
Libbey-Owens-Ford Glass Company Patterned & Wire Glass Sales B-2082 Nicholas Building, Toledo 3, Ohio

Please send me your folder, "Blue Ridge Securit Interior Glass Doors".

Name (please	print)	the strains			
1					

Address \_\_\_\_\_

City\_\_\_\_\_State\_\_\_\_



## Fenestra's New Structural-Acoustical Ceiling Keeps Rooms Quiet . . . Cuts Building Costs

Here's a wonderful, economical way to hush the hubbub in corridors and rooms in the new building you're planning.

Fenestra\* Acoustical "AD" Metal Building Panels form acoustical ceiling and structural subfloor or roof—all in one package . . . saving building time, labor, materials and money!

An "AD" Panel is a box beam with a flat surface top and bottom and open space between. The top surface forms the subfloor or roof deck. The perforated bottom surface forms the ceiling. In the open space is glass fiber insulation (see

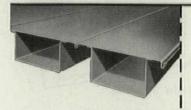
illustration below).

You can see how a Fenestra combination Structural-Acoustical Ceiling cuts building costs. It is speedily and easily erected—the panels interlock. It is practically indestructible. Bumps and knocks can't hurt it. The acoustical efficiency is not affected by washing or painting. And these panels are noncombustible.

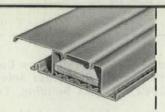
For further information call your Fenestra Representative. Or write Detroit Steel Products Company, Dept. MB-8, 2251 East Grand Boulevard, Detroit 11, Michigan. \*Trademark

## Fenestra METAL BUILDING PANELS

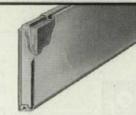
...engineered to cut the waste out of building



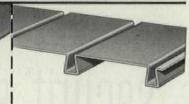
"D" Panels for floors, roofs, ceilings. Standard width 16". Depth  $1\frac{1}{2}$ " to  $7\frac{1}{2}$ ".



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



"C" Insulated Wall Panels. Standard width 16". The depth is 3".



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

# Why pay bills like this

#### Industrial Painting Contractors

16712 LAVERNE AVENUE - CLEVELAND 11, OHIO

June 1

For Window Painting for typical factory STA TEMENT

Labor

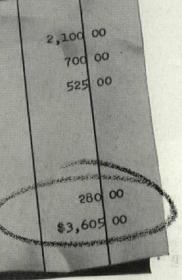
Material (Paint)

overhead

(Scaffolding Ladders Drop Cloths Insurance Cartage)

Profit

Total



When you can do this

## INTEROFFICE CORRESPONDENCE

W. T. Benson TO

FROM R. C. Hudson

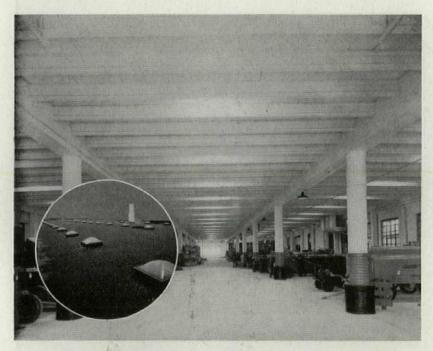
RE: New Madison Plant

Just saw an ad on Fenestra Super Hot-Dip Galvanized Steel Windows.
Look like the kind of windows we need for the new plant. They're steel, so you know they're really rugged, and the ad says they're galvanized by a special system so they are super protected from galvanized by a special system so they are super protected from rust. That will save our maintenance department a lot of money every year. Ad also says write to Detroit Steel Products Company, every year. Ad also says write to Detroit Steel Products Company, Dept. I.C., Detroit 11, Michigan for complete information and a special free book on the Fenestra Galvanizing System.

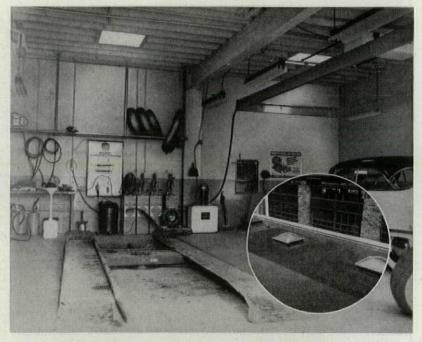
Check on it right away, will you?

Driele

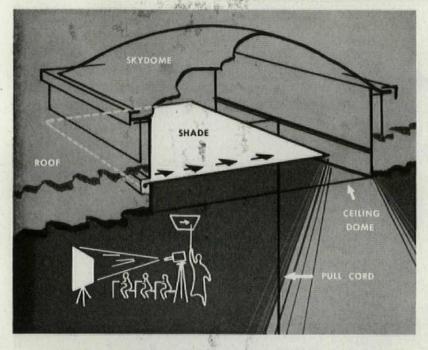
### WHY specify Wascolite Skydomes for daylighting?



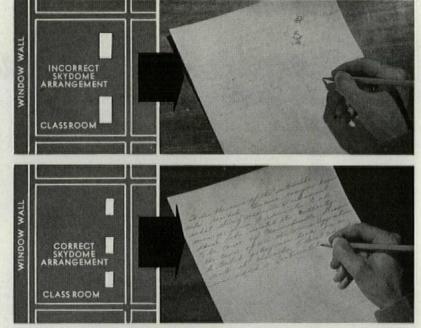
EVEN DAYLIGHTING OF LARGE AREAS is achieved easily and economically with Wascolite Skydomes. Over 21,000 feet of floor space are uniformly daylighted by 57 carefully "spotted" Skydomes in Choctaw, Inc. warehouse, Memphis, Tenn., shown here. Intensity of daylight at working level is more than adequate. The architect is Charles S. Peete, Memphis.



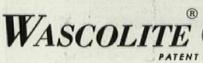
WHEN SIDE WALL WINDOWS ARE BLOCKED by surrounding buildings, architects overcome handicap by top-lighting with Skydomes. Operators of Gulf service station in Manchester, N.H., say daylight via Skydomes creates safe, efficient working conditions for grease and wash racks shown here. Skydome performance is unaffected by adjacent building (inset photo).



WHEN DAYLIGHT MUST BE SHUT OUT, as for motion picture showings, the Wascolite Skydome daylighting system has the necessary flexibility. The Wascolite Roller Shade, recessed into the skylight well when not in use, permits 100% room darkening in a few seconds.



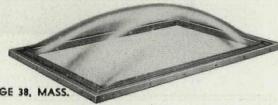
TO INSURE CORRECT LIGHTING, Wasco offers complete Daylight Engineering Service to architects. Just send floor plan of project and tell lighting requirements; Wasco recommends correct number, type, size and spacing of Skydomes. Light distribution and illumination data included. No obligation.

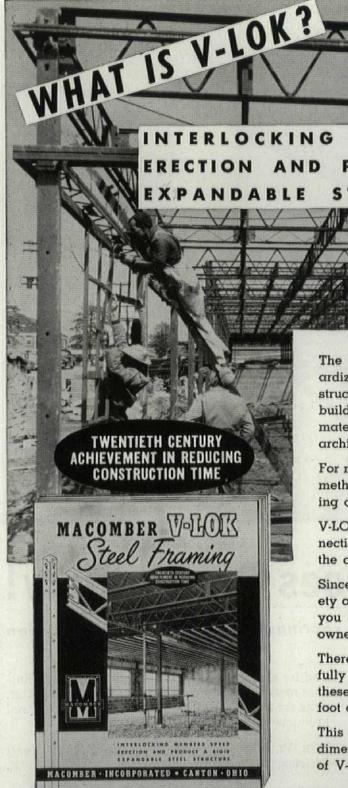




SKYDOMES

WASCO FLASHING COMPANY 87 FAWCETT ST. CAMBRIDGE 38, MASS





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This new catalog gives designing information, dimensions, loadings and IDEAS in application of V-LOK to today's needs. Your copy is ready.

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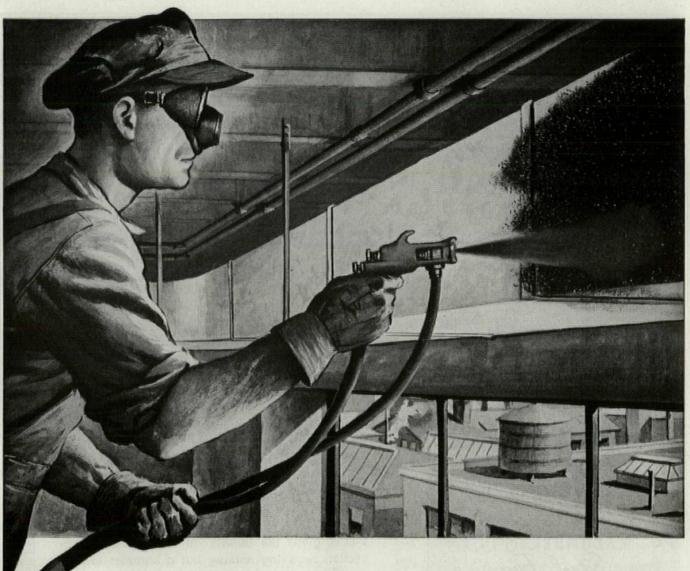


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THE FLINTKOTE COMPANY, Industrial Products Division, 30 Rockefeller Plaza, New York 20, N. Y.

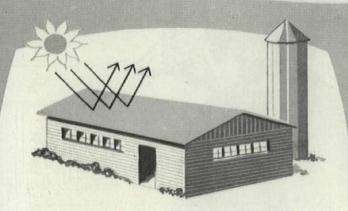
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KARRAK. In serving the needs of the building trade, Karnak experience, research and ingenuity have produced an outstanding family of products. All Karnak Products are made or fabricated from materials conforming to the specifications of the American Society of Testing Materials.



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Karnak Asphalt-Aluminum Roof Coating as developed after extensive research by our laboratories combines carefully selected asphalts and vehicle with full leafing aluminum pigment. The result is a superior product which gives excellent protection and beautifies the structure coated. The aluminum particles leaf as the asphalt base dries, which forms a firm metallic shield that resists weather and reflects the hot sun rays.

Composition roofs are revitalized by the penetrating qualities of the asphalt which in turn is protected by this firm aluminum shield. Rustable metal sidings and roofs are protected against moisture and corrosion. One gallon covers approximately 250 to 400 square feet depending upon the type of surface area.

The quality of Karnak Asphalt-Aluminum Roof Coating is certified by the Warranty Seal which is attached to every container. This is your assurance of the manufacturers' integrity in supplying the best product for the money expended.



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Doors open for her — in the smartest restaurants, the best hotels, the most exclusive couturiers.





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They specify Stanley Magic Door Controls for buildings designed to accommodate this Very Important Person—the hospital as well as the super-market . . . the theater, bank, department store, terminal — wherever she goes.

Stanley Magic Doors say "Glad to see you" and "Come again" with the grace and attentiveness of an honored host. Controlled by the "Magic Eye" (photoelectric) or "Magic Carpet", entrance and exit doors (service doors, too) open automatically on approach, stay open until all traffic has passed, then close quickly and silently — as if by magic!

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Address: The Stanley Works, Magic Door Division, 3038 Lake Street, New Britain, Connecticut.



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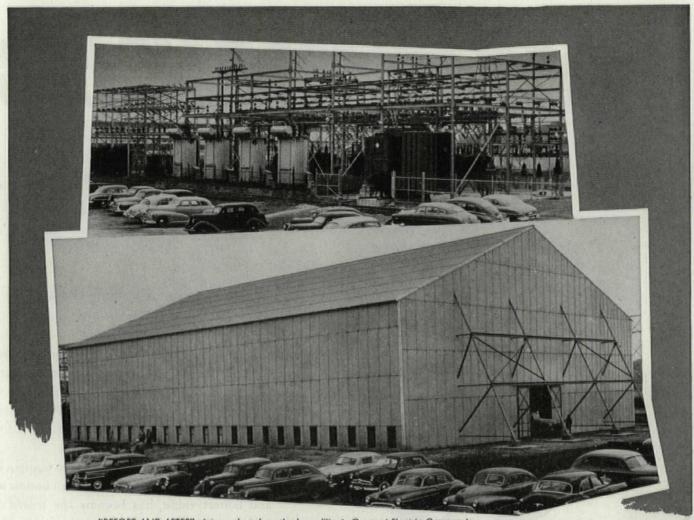
HOTEL

#### DOOR CONTROLS

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Completely automatic door controls for swinging, sliding or folding doors

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"BEFORE AND AFTER" pictures show how the lowa-Illinois Gas and Electric Company's sub-station at Bettendorf, lowa, was protected by an "umbrella type" cover of "Century" Asbestos-Cement Corrugated. **Erection Contractor:** Illinois Roofing and Insulation Company, Chicago, Illinois.

For a special problem
—such as an "umbrella"
for a sub-station—
or for 1,000-and-1 typical
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#### "CENTURY"

roofing and siding
is the satisfying,
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"Century" Asbestos-Cement Corrugated solved an unusual problem at Bettendorf, Iowa. The 69,000-volt sub-station there of Iowa-Illinois Gas and Electric Company had an hour's service breakdown in early 1950. It was found that a sulphurous acid mixture of smoke and fog, swept in from a nearby generating station by the wind when in a certain quarter, had collected on the insulators and caused flashovers or shorts. It was decided that the entire sub-station should be put under cover (which rarely, if ever, is done) as protection against this condition, and a steel framework covered with "Century" Roofing and Siding was erected. This "umbrella" has kept the insulators clear, and service uninterrupted.

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Years of close contact with the builders' hardware problems which confront architects and contractors have made these Corbin consultants among the top men in their field. In your locality there is a Corbin representative of similar high calibre who will gladly work with you in the selection of builders' hardware. Put his experience, integrity, and know-how to work for you now!

Corbin offers all the hardware to equip a building... a complete line that, through honest service and honest value, has become the world's most widely used builders' hardware.



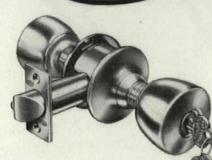
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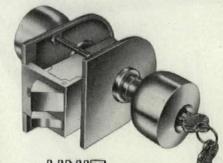
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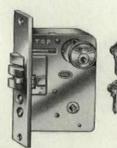


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For every type of construction. Heavy-Duty, with extra-quality features, including % inch throw and the famous smooth-working, longlasting roll-back Corbin latch principle. 100% reversible. Made in 24 most-used

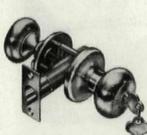


Ideal for schools and hospitals. Because they are factory-assembled in one piece and installed as a unit, Corbin Unit Locks can be installed faster than any other type of lock! 11 functions.



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Made in a variety of functions and sizes for every requirement. Can be masterkeyed with other Corbin cylinder locks.



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Excellent for use in residences and apartments. Corbin timetested pin tumbler security at low cost. Functions for every residential door.



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Can be used on right or lefthand doors. Adjustable holdopen attachments available. Made in six sizes and all popular finishes.



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To insure unfailing performance, Corbin Exit Fixtures have dropforged levers and are precisionmade throughout in solid brass, or bronze. Also available in cast iron and steel. Rim or mortise types for all doors.



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DIVISION

The American Hardware Corporation New Britain, Connecticut, U.S.A.



# Now! Here's the inside story of the Celotex Self-Insulating Wall

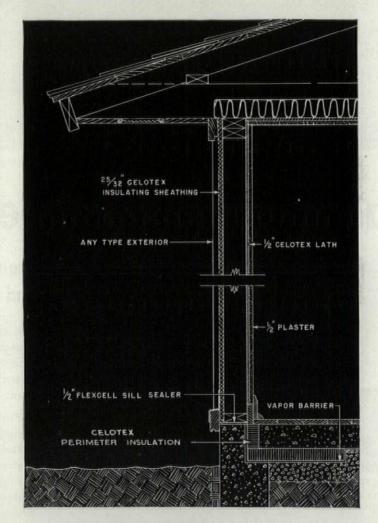
- Costs less to build than conventional insulated frame wall of comparable insulating efficiency.
- Exceeds FHA insulation requirements in about 90% of the areas in the United States.
- Greater structural strength—easier, quicker to erect.
- Any type siding can be applied to it speedily and economically.

You get a stronger, better wall with BUILT-IN insulation—at less cost—when you specify the Celotex Self-Insulating Wall!

Celotex 25/32" Insulating Sheathing on the outside insulates and weatherproofs as it builds. All at one cost. Saves labor, materials. Has 2½ times the insulating value of yellow pine. Celotex 25/32" Big Board Insulating Sheathing has 30% greater bracing strength than ordinary sheathing. Eliminates need for corner bracing. Goes up 30% faster, with up to 15% less waste. It's DOUBLE-WATERPROOFED—inside, by integral treatment; outside, by asphalt coating. Yet has more than twice the vapor permeability required by government agencies.

Celotex 1/2" Insulating Lath on the inside provides a strong, solid, continuous plaster base — PLUS 5 times the insulation value of ordinary lath! Shiplapped long edges slide easily into place, fit snugly. Beveling of all face edges provides added plaster thickness at joints. Two types: Regular, and Vapor Seal with an asphalt vapor barrier on the back. Both Celotex Insulating Sheathing and Celotex Insulating Lath are made of tough, strong, interlocking Louisiana cane fibres — and protected by the patented Ferox® Process from dry rot and termite attack.

Write today for factual literature giving full technical data on the Celotex Self-Insulating Wall. The Celotex Corporation, Dept. MB-82, 120 S. LaSalle St., Chicago 3, Ill.



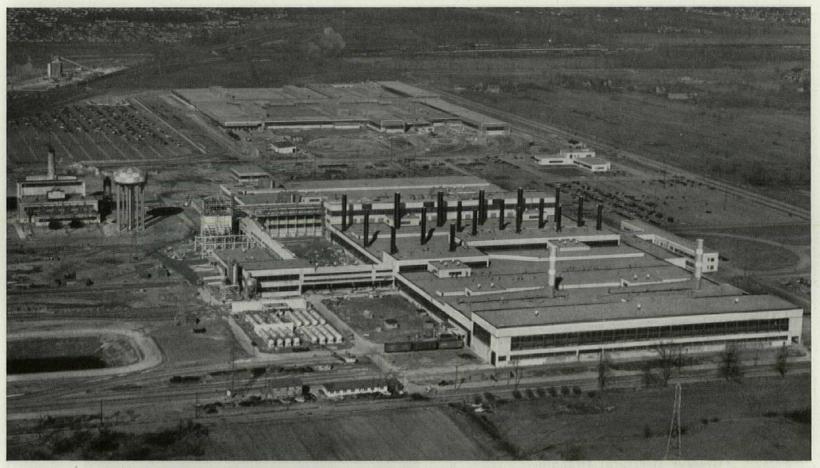
"U" VALUE OF THIS WALL IS 0.15 with wood siding and plastered interior. SAME WALL but with wood sheathing and 3%" gypsum lath has "U" value of only 0.25.

Build Better . . . Specify Genuine



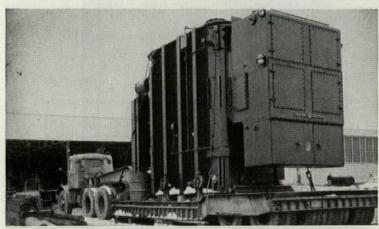
BUILDING PRODUCTS

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EASY TO SPECIFY AND INSTALL, G-E POWER DISTRIBUTION EQUIPMENT SERVES 1,000,000 SQ FT IN NEW ENGINE PLANT

## "Packaged power" speeds Ford expansion



PRE-ENGINEERED to make system design easier, this 35,000-kva transformer is on its way to the plant substation. Two such units, supplied by separate sources, furnish power for entire plant.



**EQUIPMENT ARRIVES** in unit form ready for fast installation to conserve skilled manpower. Here, switchgear section of a load-center unit substation is moved into position in penthouse on roof.

#### Pre-engineered components save months on design and installation of power system for new plant

Use of many automatic machines and processes in the new Ford Motor Co. engine plant near Cleveland means a heavy power demand. That made planning, selection, and installation of the power distribution system one of the most important phases of plant construction.

Ford, and Hatfield Electric Co. electrical contractors, saved months of engineering and installation time by selecting a power system made up of G-E equipment. Here's how: (1) co-ordinated systems are readily designed using pre-engineered G-E components, (2) "packaged" G-E equipment is quickly installed and connected, and (3) lost time involved in "piecemeal" systems is eliminated since we co-ordinate manufacture and shipment of components.

You can save time and money on industrial plant electrification by specifying user-preferred G-E equipment. And our engineers are ready to assist in such planning and design. Besides power distribution, they'll help on outdoor lighting and electric drives for plant service systems. Contact your G-E Apparatus Sales Office early in the planning. General Electric Co., Schenectady 5, N. Y.

Engineered Electrical Systems for Industrial Plants

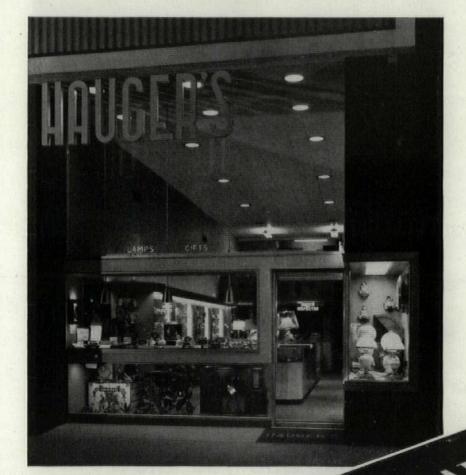


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with Carrara Structural Glass because it is a wall material of limitless possibilities -a material in which the elements of decoration are inherent. Homogeneous in structure, it is available in ten attractive colors, permitting a wide variety of combinations. Whether it is installed over exterior or interior walls, it contributes unsurpassed beauty to the building or room in which it is applied. It is outstanding in its quiet elegance and modern smartness. A finely-machined product, its joints are true and even. There is no lippage, no warpage. And it is a permanent material -impervious to weather, water, chemicals, grease and pencil marks. Additional facts on Carrara Glass are contained in Sweet's Catalog, Section 13e, or they may be obtained by addressing Pittsburgh Plate Glass Company, 2216-2 Grant Building, Pittsburgh 19, Pa.



Rich, handsome, permanent, Carrara Glass is a veneer material that will stand the test of time and can be applied to store fronts without necessitating structural changes in the building. Here is an interesting example of how Carrara Glass was utilized in remodeling a jewelry store. Architect: S. Russ Minter, Cumberland, Md.

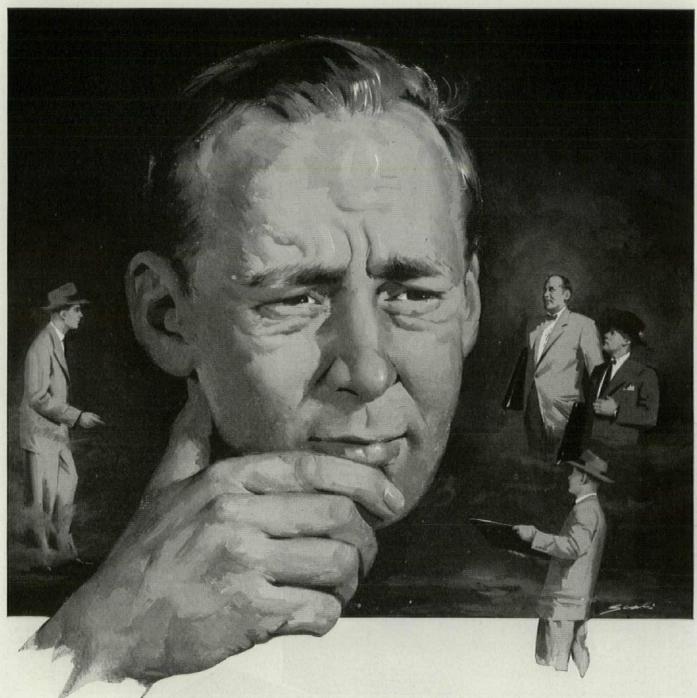
the quality

structural glass



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WHEN YOU SPECIFY DUNHAM... you save time, trouble and confusion over who makes what in the heating equipment field.

All you need remember is: Dunham makes everything—from the simplest trap to fully automatic precision temperature control systems. If it's steam heating equipment... for residential, industrial,

commercial or institutional applications ... it's in the complete Dunham line—and easy to find in one catalog.

Why gamble on divided responsibility for heating equipment performance? Why not, instead, make it a flat specification for Dunham heating—and keep your client, and yourself happy.



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# DISASTER averted by

# FIRESTOP BESTWALL

### FIRE CONFINED TO TWO BATHS IN HUGE HOUSING PROJECT

A vicious fire raged for over an hour in a small area of the Susan B. Clayton Housing Development in Houston, Texas.

But it could not break through the FIRESTOP Bestwall barrier.

The unretouched photos tell the story. According to FPHA authorities, FIRESTOP Bestwall "saved the entire building from being a total loss."

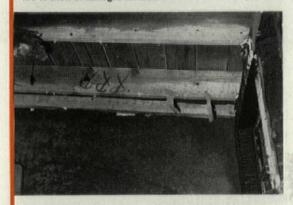
FIRESTOP Bestwall, considered by many as the greatest improvement in gypsum wallboard history, offers up to 1 hour resistance for walls and ceilings.

This amazing gypsum product far outclasses any ordinary wallboard. Besides its superior fire resistance, FIRESTOP has greater structural strength and better sound-deadening characteristics. It is the one and only wallboard carrying the mark of Underwriters Laboratories (4) Re-examination Service.

"Facts about FIRESTOP" is yours for the asking. It contains complete information on fire resistance and other characteristics of this remarkable development.



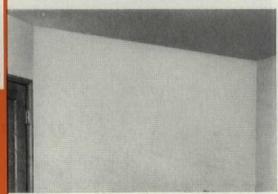
Right foreground shows section where firemen broke through FIRESTOP during blaze. Charred side of wooden stud is the result. Then compare remaining undamaged studs between the FIRESTOP wallboards. Wallboards were broken away after fire to show undamaged condition.



FIRESTOP Bestwall was removed from overhead wooden beams after the fire to show their undamaged condition. Note that walls above tiling remained intact though severely burned.



Nowhere has fire broken through the wall, although the tile panels are blistered.



The Firestop wall adjacent to bathroom remains intact and undamaged. On other adjacent walls the intense heat blackened the nailheads, but Firestop Bestwall remained undamaged.





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ARDMORE, PENNSYLVANIA

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## "LOWEST MAINTENANCE COSTS"



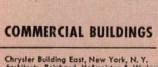
Veterans Administration Hospital, Seattle, Wash. Architects: U. S. Army, Corps of Engineers Contractor: Sound Constr. & Engr. Co.





**PUBLIC HOUSING** 

Unit in Public Housing Project—Ga. 78-1 East Point, Georgia Architects: Abrev & Robeson Contractor: Gilbert Beers



Chrysler Building East, New York, N. Y. Architects: Reinhard, Hofmeister & Walquist Contractor: Turner Construction Co.



#### **APARTMENTS**

Clairborne Towers, New Orleans, La. Architects: Nowland Van Powell and Henry A. Ehrensing Contractor: Shelby Construction Co., Inc.

#### INDUSTRIAL BUILDINGS

Coca Cola Bottling Company, Columbus, Ohia Architects: Tibbals, Crumley and Musson





SCHOOLS

Firestone Memorial Library Princeton University, Princeton, N. J. Architects, R. B. O'Connor & W. J. Kilham, Jr. Contractor: Turner Construction Co.



ANY manufacturer whose windows meet the rigid A.W.M.A. specifications can qualify for this Quality Seal of Approval. Insist on the Seal when specifying or buying any aluminum windows.

#### FOR YOUR CLIENTS' PROTECTION INSIST ON THIS QUALITY SEAL









### explain today's trend to

# QUALITY APPROVED (TYPE) A.W.M.A. Quality Specifications—Materials, Construction, Strength of sections and Air infiltration requirements—confirmed by Pittsburgh Testing Laboratory, MEMBER—ALUMINUM WINDOW MANUFACTURERS ASSOCIATION

# Quality Approved

# ALUMINUM WINDOWS

When you plan a building, you want it to be beautiful, you want it to be useful; and if it is for investment purposes, you want it to earn the owner a profit. In all cases, you certainly want to stay within the appropriations set aside for it.

And most important, you want to keep the annual maintenance costs as low as possible. Quality-Approved Aluminum Windows will help you achieve all these objectives.

Check current costs for all types of good windows and you will find that Quality-Approved Aluminum Windows are in a competitive price range.

Figure maintenance costs over a 10, 20, or 50-year period and the savings from Quality-Approved Aluminum Windows add up to amazingly large amounts. In some buildings, they may be important enough to make the difference between a passable earning on the building investment and a really desirable cash return.

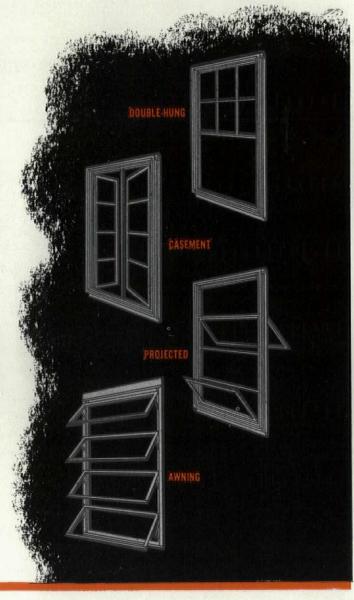
Equally important to architects, builders and owners is the fact that Quality-Approved Aluminum Windows are available for immediate delivery in an almost infinite variety of styles and sizes.

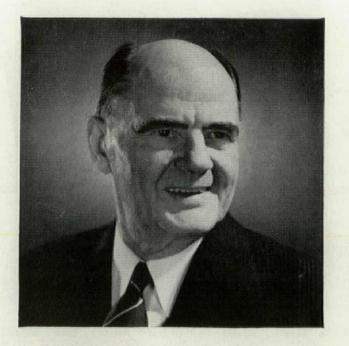
All are designed and engineered for long, trouble-free, low-cost service. They won't rust or rot; they never need painting. Practically the only maintenance is an occasional washing and wiping.

For detailed specifications covering Quality-Approved Aluminum Windows and names of "approved" manufacturers, consult Sweet's Section 17a/ALU, or write direct to Dept. AF-8.

Aluminum Window Manufacturers Association

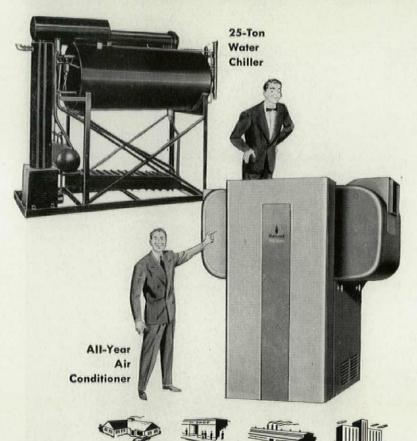
74 Trinity Place, New York 6, N. Y.





"I can always rely on Servel's amazing dependability when I specify air conditioning for the buildings I design."

## No Other Installation Has <u>All</u> The Servel Performance Extras!



No other air conditioning installation under the sun backs up your recommendation with all these sensational features. Here is the world-famous Servel refrigerating unit that has no compressor—no moving parts, no vibration, no noise. Factory-guaranteed for five full years! It sets a brand new low in maintenance economy, requires no special foundations, can be located anywhere that's most convenient. Uses water as a refrigerant... operates under a vacuum with no pressure, thus conforming to all building codes. Lighter floor loading and lighter per ton of capacity. Uses heat to create cold for a complete choice of energy source ... operates on gas, oil, LP gas, waste heat or steam at any pressure. Specify Servel with confidence—it's the smoothest-operating, most trouble-free unit on the market—custom engineered to do every job best.

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



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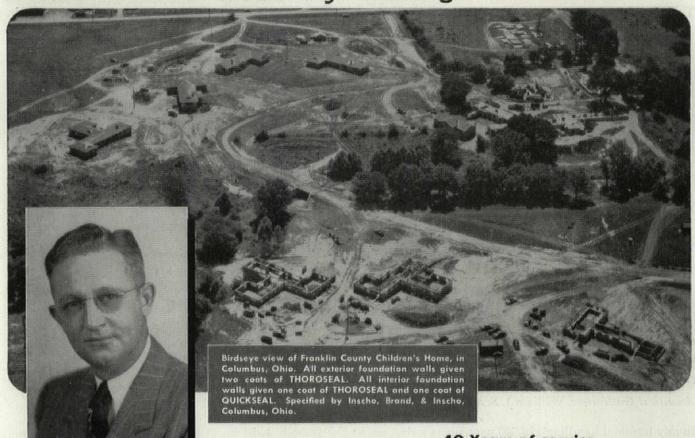
Servel, Inc., Dept. MBL-8, Evansville 20, Indiana
Gentlemen: I'm interested in the dependability and low operating cost of
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Phones-

GEORGE SHEAF & CO.

General Contractors

COLUMBUS 3, OHIO

September 6th, 1951

Mr. Robert C. Saundors Standard Dry Wall Products, Inc. Box I New Eagle, Pennsylvania

Bear Mr. Saunders:

For several years now, we have been using your THORD SISTEM Products, MATERFAUG, THORDSELL, and QUICKSELL, and thought you would be interested in the results we have obtained with them.

We have used THOROSEAL, applied in two brush coats as per your specifications, as an exterior foundation coating and have found this method of waterprocing foundations not only to be highly effective but seconomical area

We have used HHERGERAL and QUICESEAL, above grade on masonry walls, both exterior and interior, and are very well astisfied with the results, having obtained completely scaled walls as well as decorative finishes that have proven as durable as your literature maintains.

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Sincerely,

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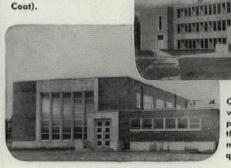
Le. Alef

Geo. Sheaf

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the wide variety of colors
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#### ACOUSTICAL MATERIALS AT WORK





Main floor concourse

#### PORT AUTHORITY BUS TERMINAL, New York, N. Y.

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Chief Engineer: John M. Kyle

General Contractor: Turner Construction Company

Acoustical Contractor: William J. Scully Acoustics Corp.

In any terminal handling 125,000 passengers a day, noise and confusion might be expected. But New York's Port Authority Bus Terminal—the nation's largest—is surprisingly quiet. Proper sound conditioning was a prime consideration in designing this building for efficient, orderly operation. Three acres of ceiling area have been covered with Armstrong's Arrestone, a perforated metal pan acoustical unit that absorbs up to 85% of the noise striking it.

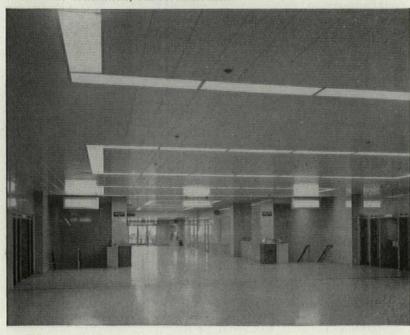
Arrestone, with its baked white enamel surface, was an ideal choice for the job. It has high reflectivity, and its

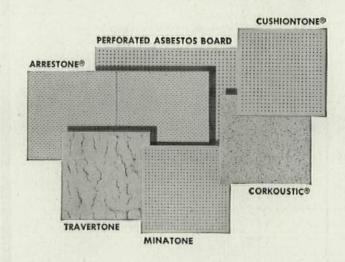
smooth, hard finish is easy to keep clean. Arrestone is completely incombustible and meets all fire safety regulations. Applied on a mechanical suspension system, it hides a maze of ducts, pipes, and wiring. Lighting and ventilating fixtures are installed flush with the ceiling.

Your Armstrong Contractor will be glad to give you full

Your Armstrong Contractor will be glad to give you full details on the complete line of Armstrong's Acoustical Materials. For the free booklet, "How to Select an Acoustical Material," write directly to Armstrong Cork Company, 5408 Stevens Street, Lancaster, Pennsylvania.

Main floor concourse, 9th Avenue side





ARMSTRONG'S ACOUSTICAL MATERIALS

#### Controls will pinch a while, and prices rise-but outlook brightens

Construction prospects have brightened steadily since the steel-strike settlement. The controls shoe will pinch for the remainder of this year, but optimists now anticipate a relatively uncomplicated 1953, and the enticing possibility that all controls might be completely ended by midyear.

In Washington NPA has decided to convene the Construction Industry Advisory Committee late this month. This is the group NPA must "consult" before making any major construction controls changes, and judging from the present outlook any major changes that would be under consideration would be only on the favorable side.

Under NPA poststrike policy industrial projects that are "critically important" for defense will receive top steel priority until Jan. 1, even if this means withholding steel from other jobs already approved.

Reversing an earlier decision to make no new nondefense steel allotments for the fourth quarter, the control agency later approved tickets for 162 miscellaneous commercial, religious and entertainment projects valued at more than \$121 million. It did this, however, with a declaration that it did not guarantee that the builders would get the materials, particularly if supplies for "critically important" projects were insufficient.

Normalcy in '53? DPAdministrator Henry Fowler stated at the end of the strike that he hoped steel would be back to normal again by March. Despite the loss of 20 million tons, existing CMP self-certification limits were not reduced, and announcement has already been made of plans for extension of self-certification to additional nonconstruction users to begin Jan. 1.

Copper and aluminum restrictions also were very liberally relaxed early this

#### **NEW CONSTRUCTION ACTIVITY**

(expend	itures i	in mill	ions of	dol	lars)
---------	----------	---------	---------	-----	-------

	July				First 7 months		
Туре	'51	'52	% Change	'51	'52	% Change	
		PR	IVATE				
Residential (nonfarm) Industrial Commercial	965 195 121	1,007 190 97	+4.4 -2.6 -19.8	6,326 1,098 879		-5.9 +25.3 -34.2	
*TOTAL	1,968	1,990	+1.1	12,358	12,014	-2.8	
		PL	JBLIC				
Industrial Military Residential *Total	93 86 47 905	181 155 55 1,079	+94.6 +80.2 +17.0 +19.2	454 383 276 4,844	933	+101.5 +143.6 +47.8 +23.7	
GRAND TOTAL	2,873	3,069	+6.8	17,202	18,008	+4.7	

IRONIC FOOTNOTE to the 4.7% increase in construction expenditures for first 7 months of year was contained in National City Bank of New York report on net earnings of leading building, heating and plumbing equipment corporations for first half of '52. These were down from \$37,893 thousand to \$21,988 thousand, or 42% decline from same period

month. For commercial projects the old and new self-certification allowance compared as follows:

	***	roject	per quarter New	
Copper			1,000 lbs. 2,000 lbs.	
For industrial plants			THE PERSON NAMED IN	
vised as follows:				

	per project	t per quarter	
	OLD	New	
Copper	2,000 lbs.	5,000 lbs.	
Aluminum	2,000 lbs.	4,000 lbs.	

Prices head upward. Wage increases won by the striking steel workers will not be long in reaching the price tags for con-

#### WASHINGTON DIARY

- NPA removes inventory controls on more than 50 commodities, including cast-iron pressure pipe and fittings. NPA permits builders to sell unused al-lotted materials to recognized distributors.
- 7/23
- NPA cuts consumer steel inventories to 30-day supply (from 45 days) for remainder of year starting Sept. 1.

  NPA orders iron and steel producers to
- reserve certain percentages of production for military, atomic energy, machine tool and military manufacture beginning fourth quarter, 1952.
- NPA revises basic construction order ICMP Regulation 6) to permit greater use of aluminum and copper in construction, ups self-certification limits.
- NPA lifts restrictions on use of copper in downspouts, gutters, ornamental metal-work, unit heaters, store fronts, etc. (Revoked: M-74, Dir. 1.) DPA fast tax writeoff approvals for new or expanded facilities rise to 13,138
- 8/15 valued at \$21.9 billion.

struction materials. Before August 30, OPS was to announce new regulations permitting manufacturers all along the line to pass on virtually 100% of the higher steel costs that resulted.

Steel companies were authorized to boost ceiling prices an average of \$5.20 a ton for carbon steel products to offset higher wages, with item prices rising from about \$4 a ton for shapes to \$31 a ton for wire rope. Also coming were higher prices on copper and aluminum products because of increased costs at the sources.

#### "Easy Money" policy ended, but mortgage market faces softening; may turn in January

The "easy money" credit policy of the Truman administration was "buried" by the Federal Reserve Board on July 30, according to financial reporters. Yet currently mortgage financing, both residential and commercial, faces softening conditions. How to reconcile the contradiction?

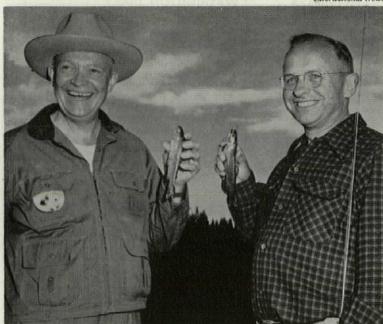
The demise of easy money, its obituaries stated, occurred when the treasury was forced to offer 2% interest for one-year money-the highest rate on this type of financing in 20 years. Editorialized the Wall Street Journal, as it prayed there would be no political efforts for a resurrection: "The easy-money policy of the war years and later has cost the country in price inflation many times what it saved the Treasury."

Symptoms of an ominous new inflationary trend just ahead caused the Federal Reserve to urge higher interest on new government obligations and make them attractive to private investors. This would lessen pressure on the Federal Reserve to absorb the bulk of such issues by the creation of inflationary printing-press credit, and would simultaneously stiffen private-loan rates.

Eventually. Why not now? But as mortgage experts pointed out, short-term and long-term interest rates have little immediate interaction. Short rates can stiffen suddenly for temporary reasons, fluctuate widely over several months. But should they remain consistently higher over an extended period, the same forces can eventually be expected to effect long-term rates too.

At mid-August, however, steadily accumulating savings and amortizations had given principal mortgage sources more available cash than at any time since their government bonds were frozen by the unpegging in March '51. Insurance companies were increasing their mortgage commitment quotas to regional offices and correspondents. Those unable to acquire sufficient conventional loans to hold down mounting surpluses were turning to 4% VA paper again.

Upward turn in january? At present it appears a good time to be a mortgage borrower. But after Labor Day, say some experts, watch for a trend to higher rates on prime commercial and industrial loans and for further encouragement by the Federal Reserve for tighter money generally. If this follows the boost in short-term rates, say these sources, the mortgage market may tighten about the turn of the year.





CANDIDATES AND HOUSING LEADERS met immediately after each convention, Eisenhower and Aksel Nielsen for a trout-fishing vacation (left), Adlai Stevenson and Wilson W. Wyatt (above), to discuss Wyatt's future role as Stevenson's personal campaign manager. Stevenson and Wyatt have long been personal friends. One reason former housing expediter was chosen to direct Democratic campaign was fact he has been outside of administrative fold in recent years, should be free of any corruption tag.

#### Ike not likely to make public housing an issue: Wyatt's return worries builders

As electioneering got underway it appeared that Gen. Eisenhower would treat public housing as only a minor skirmish, or no issue at all, compared to the bigger, basic campaign issues of foreign policy, government waste and corruption.

To midmonth there had been no full or formal discussion of public housing at Eisenhower headquarters, and any definitive statement or speech about it was considered unlikely until the intensive phase of the campaign begins. Then, according to best conjecture of headquarters observers, it may be reasonable to assume that the Republican candidate will probably take a position that gives a very qualified approval for a limited amount of federal assistance.

No record is available of any of the General's views on the subject before he entered politics. But based on a pattern of thinking he has displayed on somewhat similar issues (federal aid to education, FEPC, labor), these observers now suggest that Ike would regard housing as primarily a local problem that should be handled locally as far as possible. But it could also be expected, they add, that he would recognize that there might be instances where local authority and business could not meet the situation, and that in such cases some federal help might be necessary.

Nielsen not a "houser." Aksel Nielsen, 1949 president of MBA, was Ike's host for a postnomination vacation in the Colorado Rockies, and if his advice was sought Nielsen undoubtedly spoke against public housing. On the other hand, this mortgage

executive's record of opposition has not been rabid or bitter. While he has objected to public housing he also has felt that "something must be done" regarding low-income shelter, although he has not offered an alternative to the present publichousing formula.

Should Eisenhower approve federal housing assistance when "necessary," the

crux of the matter will be his definition of necessity. Dewey and the GOP '48 platform took this general stand, but then left citizens completely in the dark on exactly what circumstances might be regarded as compelling.

Nixon in delicate spot. Eisenhower's running mate, Richard M. Nixon, has an established antipublic-housing record. He voted to eliminate the public-housing section of the 1949 housing act, and then voted against this entire housing and urban

(Continued on page 66)

#### Allocation plan cutting public housing to 35,000 units; LA council facing contempt

Public housing faced pruning from both top and bottom. Under the Congressional cutback to 35,000 units for the current year PHA officials in Washington worked out an allocation scheme to scratch more than two-thirds of a total of 110,000 units that were on the books to start by next June 30. In local communities agitation mounted to resist expanded programs or scrap formative projects.

The PHA allocation plan tentatively approves 44,000 units, allowing for attrition to 35,000 through inevitable obstacles. Approved projects can call for bids first come first served, but with an automatic cutoff at 35,000 units. All projects out for bids on June 30 were approved; also all community programs totaling less than 100 units. Where there are two projects exceeding 100 units the larger is approved, where there are three for more than 100 units about half the units are permitted.

Councilmen to jail? In the Los Angeles squabble the fifteen members of the City Council were served with orders to appear

in court on Sept. 29 and show cause why they should not be held in contempt and jailed. The order obtained by the City Housing Authority charges the council with refusing to obey a prior writ of mandate to fulfill the public-housing contracts it repudiated after the June 3 public referendum that favored cancelation of these agreements 379,050 to 258,777.

Other antipublic-housing developments during the month included:

Toledo City Council appropriated \$13,500 to reimburse Toledo Metropolitan Housing Authority for planning expenditures already made, thus completing cancelation of plans for 350 more units. Termination accomplished without legal battles. Simultaneously council voted to wind up four veterans' temporary housing projects containing 240 families starting next July 1.

Galveston Citizens Committee supported by taxpayer, real estate and builder groups launched campaign to block housing authority eviction and condemnation move for two-block area. City commissioners recently called off proposed project, but housing authority says it has already spent \$36,000 on survey and blueprints and threatens suit for contract fulfillment.

## New site, new drafting team, seen assuring impressive, modern structure for UNESCO

Designing an up-to-date UNESCO headquarters building for the Paris block fronting on the semicircular Place de Fontenoy —in a manner that would complete a "composition" of 18th-century classical structures—would have been an impossible task for anyone but an amazing genius of extraordinary talents.

Unhappily this was not recognized by UNESCO until after the gift location had been accepted from the French government. An unfunny comedy of errors followed, which apparently had to be played out patiently, politely and diplomatically to a foregone rejection of Eugene Beaudoin's preliminary drawings because the site was unsuitable.

New site offers challenge. Now very understanding of its own initial mistake, the government has provided another more appropriate site on the outskirts of the city on part of the old 1937 Paris Exposition grounds. For this the fresh team of Bernard H. Zehrfuss, of France, chairman, Pier Luigi Nervi, of Italy, and Marcel Breuer, US, should have little difficulty in drawing plans for an imposing structure of truly modern design.

The new site, in fact, will make a special kind of modern design practically obligatory, being a fish-shaped area between Porte Dauphine and Porte Maillot and facing the Bois de Boulogne. The building will be seen first head-on, like the prow of a ship, and then develop as the observer passes to one side or the other,

Land and loan offer. UNESCO officials have been understandably uncommunicative about the whole awkward situation, but as related by authoritative sources it unfolded somewhat like this:

It was in April, 1951, that the French government offered UNESCO the first site, and an interest-free construction loan of \$6 million to be repaid over 30 years. One side of this block is a quarter-circle facing the Monument à la National Defense, a gray stone slab that dominates the small half-circle Place de Fontenoy. The Labor and Merchant Marine Ministry building fronts on the other half of the semicircle, and across the small intervening park the new UNESCO headquarters would have faced the rear of the low, classical Ecole Militaire buildings.

Thoughtless acceptance. Last November the UNESCO general conference accepted the government's first offer, and a 10-country headquarters committee headed by US delegate Charles Thomson commissioned Beaudoin to draw preliminary designs. Winner of the first Prix de Rome in 1928, Beaudoin had established his reputation with the Ecole de Plein Air at Suresnes and a combination market and auditorium at Clichy. He also is director of the school of architecture at the University of Geneva,

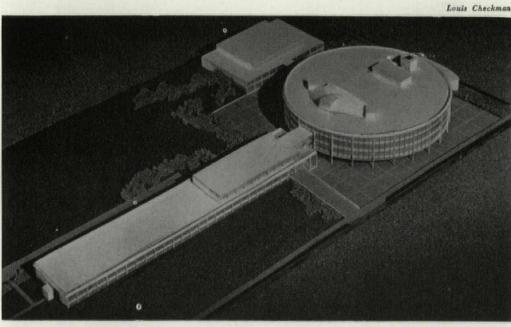
EXTERIOR TRIMMINGS for the new Prudential Insurance Co. building in Houston include 75' x 42' swimming pool as well as tennis courts and free lending library. These, plus air conditioning, are intended to make the 21-story, \$9-million structure more pleasant for workers, and the latter more productive. Pool reportedly will amortize itself in five years if employee turnover is cut only as little as 5%. (For another new Prudential building, see p. 90.)

and last year in competition against leading French architects, including Le Corbusier, he was commissioned to design a city housing project in Strasbourg.

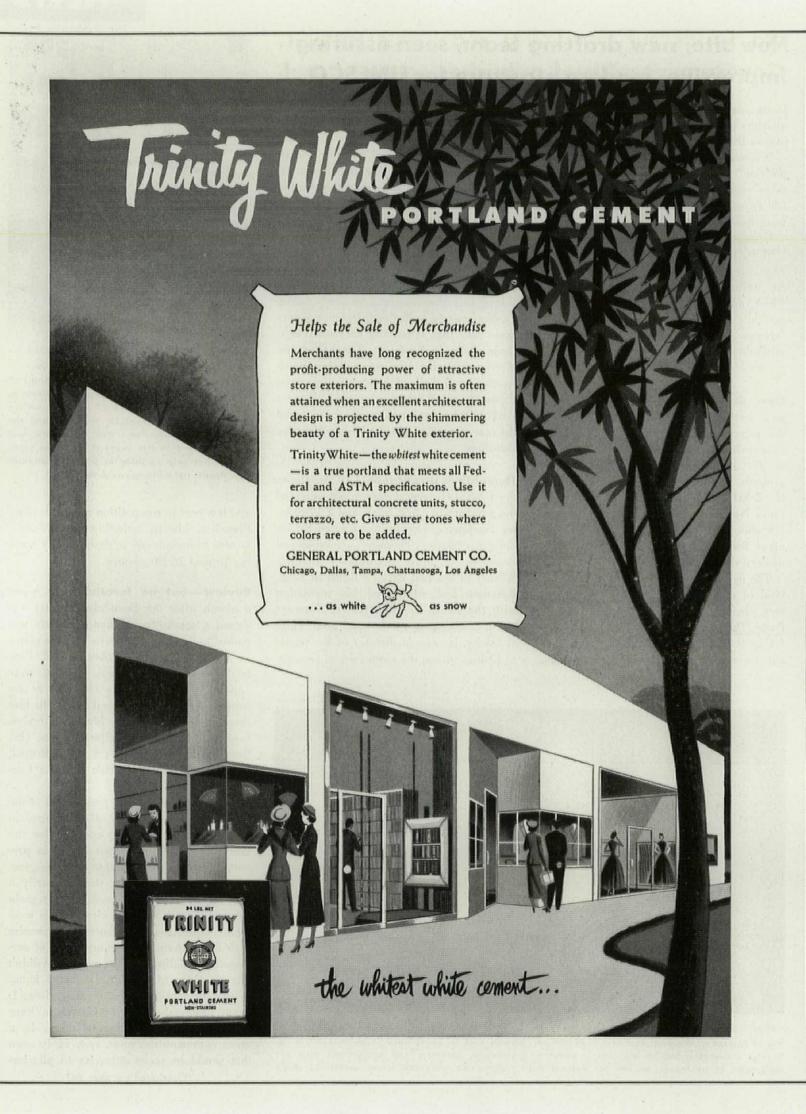
Review—but no forethought. About a month after the Beaudoin contract was signed a committee of five architects was named to "review and advise" on the plans. In addition, Howard Robertson, of England, and Eero Saarinen, of US, were appointed as consultants (but not as coworkers) to Beaudoin, and met with him three times from Nov. to May. The review committee consists of Walter Gropius, US; Sven Markelius, Sweden; Ernesto Rogers, Italy; Lucio Costa, Brazil; and Le Corbusier, France,

This review body was nonexistent at the time the site was accepted and Beaudoin was appointed. It didn't convene for the first time until May, when Beaudoin presented his completed plans. Its subsequent rejection of these plans was primarily a rejection of the site based on two main considerations: 1) Paris city officials were insistent that the new structure harmonize with Beaux Arts, 18th-century style of surrounding buildings, 2) the committee didn't like the idea of placing UNESCO house in that neighborhood in the first place. It would be overshadowed by historic military establishment rather than standing in a more commanding, open spot of its own that would be more attractive to pilgrims

(Continued on page 64)



BANJO-SHAPED SCHOOL designed for New York Board of Education by architects Kelly & Gruzen will be erected in Brooklyn at a cost of \$6 million. Square unit in background is gymnasium wing. Three-story circular section will contain academic classrooms, cafeteria and auditorium, plus art classrooms in penthouse (of left) for natural light. Elongated wing will house vocational shops and classrooms; library on roof.



#### No funds for plumbing code illustrations? Government official publishes them himself

The sincere, conscientious government worker seldom gets his due. This report, therefore, is specifically intended to acclaim a public servant, the official who was primarily responsible for the successful formulation of the National Plumbing Code\* issued last year.

Vincent T. Manas is the man. Present cause for an accolade is the preparation and publication at his own expense of *The National Plumbing Code ILLUSTRATED*, a supplement to make the formidable technical text of the master code much easier to follow, to reduce chances for error in its application and to accelerate its rapidly growing acceptance throughout the country.

No government funds. When it was decided that no federal money could be used to print an illustrated manual showing how to make many of the complicated installations described in the technical volume the government had issued. Manas felt this was so necessary that he undertook this publishing venture himself. Expenses for the 188page book, which has 184 illustrations plus 2½ pages of symbols, were about \$5,000. not counting his own time. But sales in two months to architects, city officials, master plumbers and others have passed 1,700 out of a first printing of 4,000 copies. At \$3 a copy (Manas Publications, 4513 Potomac Ave. NW, Washington) the risk of financial loss now appears ended.

"Development of National Plumbing

\*Report of the Coordinating Committee for a National Plumbing Code, Dept. of Commerce and HHFA, June, 1951, Government Printing Office, Washington, 50¢ Code," a lengthy, 6-page professorial article, appears in the *Housing Research* bulletin just issued by HHFA. This history gives appropriate documentary reference to scores of agencies and organizations whose contributions all cumulated in successful preparation of the master technical code. But devoid of a single name, this account gives no clew to the important role of Manas over a period of almost two decades.

In Washington since '34. Born in Brooklyn 57 years ago of Spanish parents, Manas became an engineer and plumbing contractor, and from 1920-32 was with the Charles H. Darmstadt firm in New York. In 1934 he went to Washington to help establish a plumbing and heating section in the Farm Security Administration. Later he joined the old PHA, subsequently was associated with various other housing and research bureaus, and at present is in NPA's construction division.

The Bureau of Standards, Dept. of Commerce, had issued several plumbing codes and manuals from 1923-40. But when the War Production Board sought greater acceptance of the last of these (BMS-66) for wartime material and man-power conservation, it found both management and labor unwilling to use it. Consequently Robinson Newcomb, then in Commerce, convened a joint trade committee to prepare an emergency code, with Manas as chairman, and both groups worked harmoniously under the resultant standards.

After the war NHA sought continuation



BLUE GLASS continuous band windows alternating with gray-blue porcelain enamel spandrels will sheath the air-conditioned nine-story home for Standard Federal Savings and Loan Association being erected at Wilshire Blvd. and Grand Ave.in Los Angeles. Inspecting the model are Welton Becket, architect (left) and George M. Eason, association president. There will be no interior columns. Upper seven floors will be rented.



VINCENT T. MANAS

of this progress toward acceptance of a national code, but a proviso of both employer and labor groups for continued cooperation in committee was that Manas serve as chairman again.

Life ambition realized. At this stage funds also were provided for plumbing research, using glass observation pipe, but when it came time to translate new findings into a revised code the question arose as to whether or not NHA could sponsor a plumbing code. The answer was to transfer the sponsorship and Manas to Commerce, which was followed by a broadening of the committee to bring in representatives of additional building-code committees from all sections of the country—health officers, technical societies, manufacturers and others.

Publication of the committee's recommended standards last year brought Manas's lifelong ambition for adoption of a national plumbing code close to fulfillment. Only drawback was the lack of an illustrated manual to give the technical text its greatest effectiveness; so, with the zeal of the master craftsman, he took care of that himself, including the drafting work for most of the illustrations.

Before the war, restrictive plumbing practices and obsolete regulations were among the worst plagues of the construction industry. The cure is not complete, but the cooperation of the war and postwar years brought about marked alleviation in this field. Today the model plumbing code prepared by the coordinating committee and the helpful illustrated manual prepared personally by Manas stand together as symbols of the progress that is also attainable in all other segments of construction, wherever there is competent leadership and a sincere interest by individuals in the welfare of both the public and the industry.

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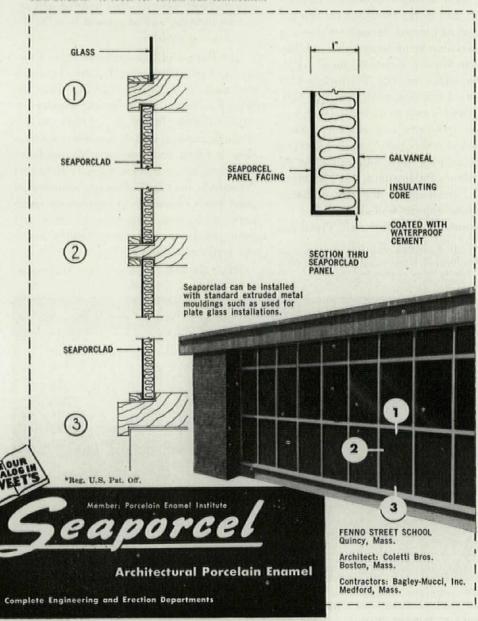
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MOST OF TEHACHAPI'S 12 DEAD were found in the two demolished buildings (right center) behind the fire truck. Odd Fellows hall (rear) of

poured reinforced concrete, was undamaged. The quake was considered too light to test buildings designed to resist seismic shock.

## California quake wrecks most of a town but code-conforming buildings escape

The southern California earthquake of July 21, which took 13 lives and caused property damage that may well reach \$100 million, gave the building industry a costly but invaluable demonstration of building code provisions intended to make structures withstand such violent shocks.

The quake had, said John M. Nord-quist of Caltech's seismological laboratory, the force of 2,000 atomic bombs—enough to shift the west end of Bear Mountain Peak 3' up and 3' north. Eighteen miles from the quake's center, the sleepy railroad ranch and mill town of Tehachapi (pop. 1,557), 118 miles north of Los Angeles, bore the brunt of its shattering force.

Not well built. Many Tehachapi homes were built of adobe brick. Many an old Tehachapi business building, erected long before the town adopted the uniform building code of the Pacific Coast Building Officials Conference, was fashioned of unreinforced brick held together by lime mortar. So to building inspectors who flocked to the scene from Los Angeles, it was no surprise to find 41 Tehachapi business buildings damaged, including nearly every one along its Main St. Seventeen were in ruins beyond repair. Of Tehachapi homes, 57 were damaged or untenable. Four were completely demolished. Of the 13 deaths, 12 were in Tehachapi-nine of them in two families crushed beneath aged falling walls of brick, stone, or adobe.

In the Tehachapi area one school erected in 1933 collapsed, but two newer structures, designed for seismic force, suffered only plaster eracks. A strict antiquake code was imposed on all California schools after the 1933 Long Beach disaster took 118 lives and revealed many schools as potential death traps. The theater in Tehachapi, constructed according to modern antiquake principles, suffered no damage.

"Tie the corners together." To Los Angeles' inspectors, it appeared that those Tehachapi buildings erected to withstand a lateral force of 10% or more of their total static weight (a provision required by Los Angeles' building code) came through this quake undamaged provided they were properly erected. For instance, on one building built in 1945, roof corners broke off. Checking the plans, chief LA building inspector Dick Morris found the design had not been followed by the contractor. Several poured, reinforced concrete structures ripped apart at the roof line. Inspectors said the reason was not enough reinforcing rods. What reinforcing there was saved such buildings from collapse, they added. Chief lesson for builders who want to strengthen old precode buildings was plain: be sure brick walls are reinforced and that corners are tied together with stringers and braces.

In other quake-rocked towns, damage ran higher, but loss of life was less. At Bakersfield (pop. 35,000), nearest city, two wings of Kern County general hospital were condemned (as was Tehachapi hospital).

Fluorescent hazard. The quake felled suspended fluorescent light fixtures in scores of buildings, notably the new Prudential building in Los Angeles where literally miles of tubing wound up draped over desks and floors. Worst hit were fixtures held to ceilings by rigid \(^1/4''\) rods (strong enough to support three men) at one end and by flexible chains at the other. As the earth's vibration synchronized with the swing of the fixture, rods snapped. Lights held up at both ends by chains proved safe.

After the quake Public Works director Frank B. Durkee, at the request of state architect Anson Boyd, implemented earlier plan for reactivating the state's Earthquake Safety Advisory Board, which acts on technical and structural matters affecting new school construction. Architects named to the board (payless) were: Stiles O. Clements and Herbert J. Powell, Los Angeles; John Lyon Reid, San Francisco; Will G. Corlett, Oakland. Structural engineers: Stephenson B. Barnes and Oliver G. Brown, Los Angeles; Harold M. Engle and Harold B. Hammill, San Francisco.

Associated Press

LA Building Dept.

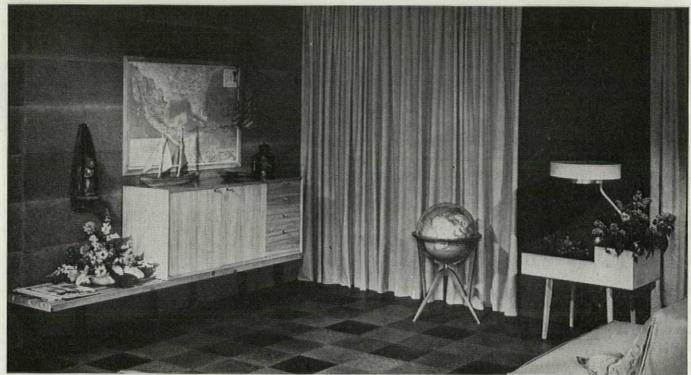


JUANITA HOTEL, where one man was killed, was rated as completely destroyed as was building at right. Construction: unreinforced brick.



S-SHAPED FLANGES (arrow). One end of anchor bolts kept roof atop this quake-wracked brick wall, said building inspectors.





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## PEOPLE: US architects to visit Germany as guests of government next month; Radiant City gets first occupants

Ten American architects to be named by the AIA are scheduled to leave New York next month for a tour of Germany arranged by the Bund Deutscher Architekten. Richard W. E. Perrin, executive director of Milwaukee Housing Authority, and Angus McCallun, of Kivett & Myers, Kansas City, will be two of the party, and names of others will be released later. German government is financing the tour in appreciation for hospitality extended to German architects visiting US since the war.

Mid-August flying visitor to Moscow was Leland W. King, director of State Department's foreign buildings service, who inspected two undisclosed buildings being offered for rent for relocation of US Embassy. The US has until Jan. 1 to evacuate present quarters, but for the present has no interest in erecting an embassy building in the Soviet capital.

Seven families of the French Ministry for Reconstruction have at long last moved into Le Corbusier's "radiant city" apartments in Marseille, and other co-op tenants may enter the long-delayed building by winter. The "12-months construction job" was started in 1948, but this summer workmen were still busy at "finishing touches." Despite Marseille difficulties, Maison Familiale, sponsoring society, last month announced plans for a second radiant city at Rezé, suburb of Nantes. The only change from Marseille suites would be to enclose the parents' bedroom, instead of having it as part of living room.

Tea party postulation by Van Evera Bailey, Portland, Ore., architect, to Dr. Richard Steiner, pastor of First Unitarian Church, overheard at home of Mr. and Mrs. David W. Eyre, designed by Bailey: "My house will have more effect on the morals and character of Cynthia's (Mrs. Eyre's) children than your Sunday school will ever have."—Subsequent discussion? Try it with your pastor.

Improved relations with clients and the public, as well as policing of its members, are objectives of the Missouri State Association of Registered Architects, formed recently with a membership of approxi-

MORE PARK AVE. OFFICES, 402,000 sq. ft. of them above the ground floor, will be provided in this new Tishman Realty & Construction Co. blockfront building two blocks from Manhattan's Grand Central Terminal. Emory Roth & Sons are the architects for 26-story, completely airconditioned structure that will be known as 99 Park Ave.

mately 750 and with headquarters at Jefferson City. Both members and non-members of AIA belong. The first officers are Harold A. Casey, Springfield, president; Joseph B. Shaughnessy, Kansas City, vice president; Rex Becker, St. Louis, secretary; and William R. Bovard, Kansas City, treasurer.

DIED: William Shary, 61, AIA member and partner with son, William Jr., in own New York City architectural office, July 25 in New York; Arthur L. Abbott, 79, author of National Electrical Code Handbook and St. Paul electrical contracting engineer for many years, July 26 at Rutherford, N. J.; Harry D. Watts, 67, retired board chairman of James Stewart & Co., and builder of New York Central building and many federal buildings in New York and Washington, July 27 at Southampton, L. I.; Henry J. Sherman, 82, former ASCE vice president, senior member of Sherman, Taylor & Sleeper, of Camden, N. J., and former head of Sherman-Sleeper Associates, architect-engineers for naval air bases, July 29 at Moorestown, N. J.; Andrew J. Higgins, 66, New Orleans boat and landing craft builder, who also experimented in prefabricated housing field, Aug. 1 in New Orleans; Herbert Godwin, retired member of Delano & Aldrich, architects, of New York, Aug. 3 at Wilton, Conn.; Leo A. Daly, 62, architect for Boys' Town and head of his own architect-engineer firm with offices in Omaha, St. Louis and Seattle, Aug. 5 in Omaha.

#### History's biggest building contract let— \$1.2 billion AEC job landed by Kiewit

Peter Kiewit Sons Co., an old Omaha contracting firm that mushroomed to gigantic size during World War II, has been named as the principal builder for what some accounts call "history's biggest building contract" (dollarwise). This will be construction of a \$1.25 billion gaseous diffusion plant for the Atomic Energy Commission in Pike county, Ohio—a 3- to 4-year operation that will require a peak labor force of 34,000 workers.

With awards to other firms for expansion of two present plants at an outlay exceeding \$950 million, the Kiewit contract sent AEC construction awards within one month to the staggering sum of \$2,218,000,000. The two earlier awards were for an addition to the Oak Ridge plant (\$464 million) by Maxon Construction Co., of Dayton, Ohio, and an addition to Paducah, Ky., facilities (\$459 million) by the F. H. McGraw Company, of Hartford, Conn.

Limelight dodgers. Tight-lipped Peter Kiewit Jr. heads the publicity resistant firm that was founded by Kiewit Sr. in 1875. To all but closest friends he is something of a mystery man; his age is estimated by

Omaha newspapers as "probably in his late '50s." Despite multimillion-dollar projects his firm still goes after tiny contracts too; as recently as 1949 was the successful bidder for a \$1,500 rural road resurfacing.

His company owns \$20 million of construction equipment outright, Kiewit once confided to a friend, and leases much more. He erected the \$10 million VA hospital in Omaha in 1948, and now has the contract for the city's \$5 million auditorium. Since 1940 his firm has handled or participated in more than a score of multimillion-dollar military, public works and private projects in US, Alaska and Greenland.

Six firms were retained for architectengineer services in planning and designing the Pike county plant, which will occupy a 6,500-acre site on the Ohio River,
about 25 miles north of Portsmouth, and
about 75 miles east of Cincinnati. These
firms are: Giffels & Vallet, Detroit; Sargent & Lundy, Chicago; Singmaster &
Breyer, New York; Holabird & Root &
Burgee, Chicago; Burns & McDonnell,
Kansas City, and Smith, Hinchman &
Grylls, Detroit.

## throwing a new light on drive-ins

### with Garcy-Engineered lighting installations



CENTRAL NATIONAL BANK, Playhouse Square, Cleveland, Ohio.

Architect:

Dalton, Dalton & Associates Electrical Engineer:

Superior

**Engineering Company** Electrical Distributor:

Elliott

Electric Company

Electrical Contractor: Parker

**Electric Company** Consulting Engineers:

G. E. Lamp Department



Illustration shows drive-in automobile area (banking) lighted with Garcy Slimline fixtures No. 7449-2 (background) with two 96' 430 ma. lamps, and Garcy No. 7895 4' x 4' square fixtures (foreground), providing high light intensity for effective lighting of drive-in banking area.



#### GREATER PITTSBURGH AIRPORT

Design of the Terminal Building was by Theodore Eichholz (deceased), under the guidance of Allegheny County Department of Aviation with the capable supervision of Director John B. Sweeney and Chief Engineer Edward G. Messner and with the assistance of Consulting Architect Joseph Hoover. James Paul Warner, consulting electrical engineer, is responsible for the airport's entire electrical system. The lighting facilities for this project were installed by Daniels Electric Equipment Co. and The Howard P. Foley Co.



Illustration shows driveway entrance on field level, lighted with Garcy recessed troffers and Garcy surface mounted cylindrical plastic-enclosed units to provide light-adaptation area for drivers coming into building from daylight.

There is no longer any doubt about it! Drive-ins are today essential to commercial success in many different fields. Good drive-in design calls for good lighting. Proper lighting handles drive-in traffic with greater safety and efficiency. In addition, lighting can be effectively used to guide shoppers up to adjacent merchandise displays. Garcy has specialized in lighting drive-ins to operate efficiently . . . and profitably!

Write for copy of new Garcy Lighting Equipment Catalog

# GARGU

GARDEN CITY PLATING & MFG. CO.

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CHICAGO 22, ILLINOIS



#### WSB construction group gets homebuilder alternate

Stronger position for homebuilders instead of exclusive contractor voice on the Construction Industry Stabilization Commis-



sion of WSB was achieved through appointment as an alternate member of Joseph H. Vatterott, of St. Louis, chairman of NAHB man-power committee. The understand-

ing is that Vatterott will be consulted on all matters related to wages involving residential construction, thus advancing movement toward separate treatment and bargaining for homebuilding labor.

Hourly average wage scale of construction trade workers advanced 2.6% in second quarter of '52, according to BLS, and as of July 1 stood at \$2.54 an hour. This was 33¢ an hour above pre-Korea level of Jan. 1, '50. Newest contract for bricklayers in New York City pays \$3.55 an hour, and Los Angeles plasterers this month won \$3.433/4 an hour, or \$27.50 a day-plus 52¢ a day paid to welfare trust by the employer. New York pension fund for bricklayers started two years ago has already accumulated \$1,625,937, and this month started making first retirement payments, Fund covers 8,000 employees. It will pay beneficiaries \$20 to \$100 a month.

In Seattle bricklayers turned cautious last month, however, and rejected a 15¢ an hour increase, lest they price themselves and their employers out of work. Concerned at inroads against masonry, these bricklayers, now receiving \$3.30, are also working on a plan with the Mason Contractors Association to raise a joint fund to promote brickwork among architects, engineers, and even the general public.

#### UNESCO (Continued)

after education, science and culture.

Artful recovery. Diplomatically the review committee calculatedly "deliberated" over the Beaudoin plans for about six weeks. In the consequent interim the French government apologetically, if not somewhat sheepishly aware of the awkward situation that it had helped create, set about with typical French politeness and understanding to find and acquire the new acceptable site. Then the new design team was appointed, with a deadline of Sept. 15 for the presentation of their ideas.

No one yet knows what the new UNESCO House will look like, but clues may be found in the past works of the new design team reviewed on page 132.



#### YOUR CLIENTS SHOULD KNOW HOW



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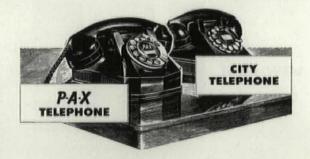
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You design business and industrial buildings to work for your clients. Today, you can plan inside two-way talking facilities right into these buildings, and increase the productivity of all who work in them! Thousands of organizations now own and use P-A-X Business Telephone Systems and find they step up work flow, management control and customer service.

P-A-X gives fast, sure, automatic talking convenience, 24 hours a day. The direct economy of the user-owned P-A-X often pays for the system in 3 to 5 years! Your clients will appreciate these facts. Consult your Sweet's File or write:

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PAX is a system of "inside" telephones, separate from the city telephones, and owned by the user.

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# DURACO GREASEPROOF INDUSTRIAL TILE

#### for Industrial Floor Areas

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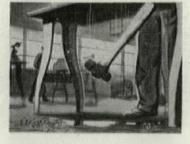
Oil and Grease abuse are part and parcel of practically every industrial operation. Any floor used in manufacturing establishments should be able to resist commonly used machine lubricants. DURACO does this well.

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A major problem in every plant is moving materials by truck. DURACO is specifically built to withstand the constant hammering and abuse of loads on wheels.

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Tools and machines are hard on floors. DURACO is made with high impact resistance and stands up well under the dropping of heavy objects—a virtue all-important in machine shops.

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DURACO's smooth, dense surface resists the wearing-in of grime—makes cleaning simple and fast.

DURACO is another AZROCK product designed and engineered to give architects an adequate answer to specific floor problems. All four AZROCK floor products enable you to design architecturally correct floors.





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#### NEWS

#### Eisenhower (continued)

redevelopment measure. In the Senate last year and this he voted to limit annual federal public-housing starts to 5,000.

He has not been reported as making any antipublic-housing statements since his nomination, which would be a diplomatic silence if Ike is eventually going to give it even a qualified benediction.

On the Democratic front the platform and candidates are in accord in favoring public housing. Adlai Stevenson's running mate, Sen. John J. Sparkman, Ala., has been in charge of all housing legislation in the Senate in recent years as chairman of the subcommittee on housing and rent control. Homebuilding and realty spokesmen in Washington question the middle-of-theroader label many writers have given Sparkman, however, and complain he has voted for every "socialistic" measure.

Fretful over Wyatt. But more disturbing to building-industry leaders than the "socialistic" record of Sparkman (who also voted for every private-enterprise housing measure) has been the thought of having Wilson W. Wyatt back in Washington since the latter was named Stevenson's personal campaign manager.

Former NHAdministrator Wyatt at the close of World War II drafted a controls and production subsidy program aimed at swift postwar construction of 2,700,000 housing units through 1946-47 (when combined starts were actually 1,520,000). He resigned in less than a year in a dispute over the Lustron program, which ultimately cost the government \$30 to \$50 million. (The last session of Congress also authorized HHFA to write off \$8 million in bad debts from smaller prefabricators who participated in the Wyatt program.)

Homebuilders recall that he consulted more with experimenters than with authorities in the industry. At the time of his departure some claimed postwar production would have increased faster except for complications he created as expediter.

#### Lescaze asked to design new curtain wall panel

The Porcelain Enamel Institute has retained William Lescaze, architect and member of the New York State Building Code Commission, to design a laminated, insulated curtain wall panel suitable for use in multistory buildings. Test sections of the proposed prefabricated panels will be made to withstand 1- to 4-hour fire tests and wind pressures of 30 psf. They are to be designed to permit erection from the inside of the building, and cost limit is to be \$5 per sq. ft. including a finished interior wall surface on the inner side.



Mansfield Brass and Aluminum Corp.

Mansfield, Ohio

HEATING CONTRACTOR
ALLEN KNAPP HEATING COMPANY
MANSFIELD, OHIO



## UNIT HEATER USED FOR CENTRAL HEATING SYSTEM

This two floor building with manufacturing on the first floor and office and storage space on the second offers a typical heating problem.

While unit heaters give satisfactory heating spotted throughout the open factory area, the second floor is cut up into separate rooms.

A single Janitrol Unit Heater suspended from the ceiling of the stockroom is connected to an extended plenum carrying warm air to the front of the building with separate ducts descending along outside walls to deliver heat to floor level.

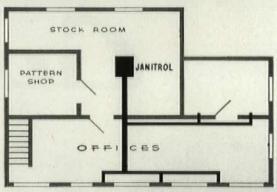
For the smaller private offices it was more practical to use high wall diffuser type registers. Executives and office employees are completely satisfied with their office comfort after a full heating season experience.

This is an example of the versatility of Janitrol Unit Heater installations in all types of industrial and commercial building.

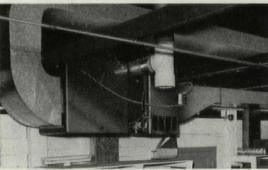
Write for more complete installation data.



Two diffuser type registers keep the private office comfortably warm regardless of outside temperatures.



SECOND FLOOR PLAN



This 175,000 Btu Unit, blower equipped uses no floor space. Operation is quiet and completely automatic.



In the general office three ducts on outside walls descend to within a few inches of the floor, introducing warm air where most needed.



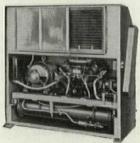
SURFACE COMBUSTION CORPORATION . TOLEDO, OHIO

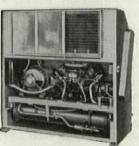
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# untis

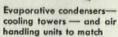












Central Type—10-15 Ton Air Conditioning

BECAUSE... Curtis equipment has an earned reputation for performance.

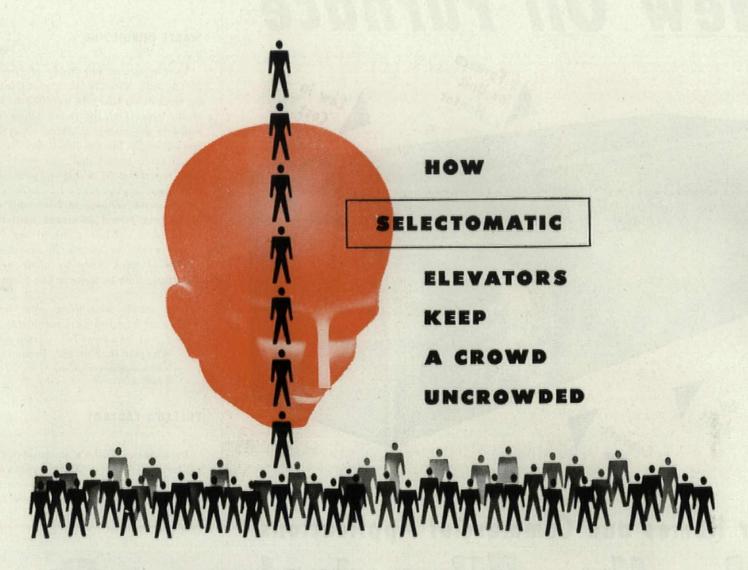
- Built by a company with over 98 Years of Successful Manufacturing Experience.
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- √ New additions to the Curtis line provide the correct size and type for any installation.
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It would be a nerve-jangling job for the human brain to cope with ever-changing elevator traffic demands 8 hours a day. And ordinary elevator control systems weren't designed to coordinate calls, cars and floors for really efficient service.

But Selectomatic's amazing "electrical brain" times elevators to the beat of your building's traffic flow. This revolutionary elevator control system goes into action at the setting of a switch . . . moves more people with fewer cars by "out-thinking" calls . . . then integrating these calls with cars and floors. The result is faster, more efficient elevator service that

puts cars where they're needed, when they're needed. An integral part of all Selectomatic installations is the fabulous Westinghouse Synchro-Glide Landing Control. This exclusive development gives fast, accurate-leveling, feather-soft landings to add greater

traffic-handling capacity to Selectomatic elevators.

So whether you're planning new construction or modernization, it will pay you to test-ride Selecto-matic before you decide. Our local Westinghouse office can give you the names of Selectomatic installations in your locality. Or write Westinghouse Electric Corp., Elevator Division, Dept. F-1, Jersey City, N.J.

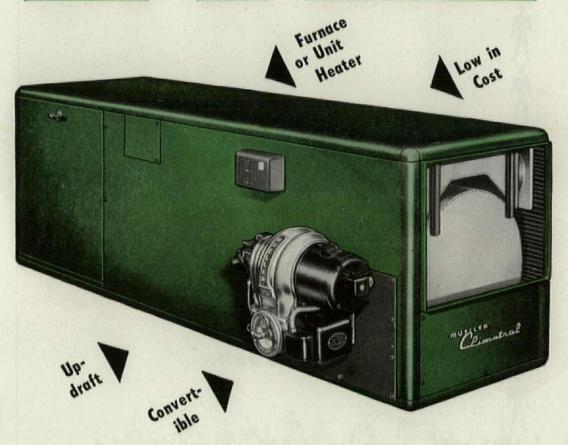
For years, Westinghouse engineering developments have stimulated the vertical transportation industry to strive for ever-higher standards of quality and efficiency. In every phase of vertical transportation—equipment, maintenance, and service—Westinghouse has been the vanguard for progress. So, whatever your traffic problems may be—there's a Westinghouse Integrated Vertical Transportation System to solve them completely. Look ahead with the leader . . .

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YOU CAN BE SURE ... IF IT'S



# New Oil Furnace



# For Homes and Commercial Applications

# Mueller Climatrol

### Type 253 Horizontal Oil-Fired Furnace



## Features

Welded Steel Heat Exchanger — Updraft flue travel. Unique design, with long flue travel, assures top efficiency. High, insulated crown sheet — will not burn out.

Handsome Casing — Trim, compact, easily accessible. Unit can be serviced in installed position. Entire unit cleanable without removing casing.

Large, Quiet Blower — To provide required CFM with lower blower speeds—thus reducing vibration sounds, and insuring longer life. Design of heat exchanger provides free flow of air over all heat exchanger surfaces.

Shipped Assembled — Pre-wired with fan and limit switch in position. Burner, blower motor and all controls are factory tested before shipment.

Here is an outstanding new horizontal oil furnace with unique design features which assure more efficient and quieter operation — with longer life. The Type 253 can be used as a horizontal furnace in attics or crawl spaces of homes, or it can be suspended for application as a blower-unit heater in commercial installations.

Initially, this unit is available in two sizes—110,000 and 150,000 Btu input. Soon to come are sizes up to 225,000 Btu input. It is available with either of two efficient Mueller pressure atomizing oil burners, and can easily and inexpensively be converted to gas.

It will pay you to get full information on the many outstanding design, construction and operation features of this new Mueller Climatrol horizontal oil furnace, Write today.

L. J. Mueller Furnace Co.



FOR OIL . FOR GAS . FOR COAL

B-66

## Mueller Climatrol

#### **LETTERS**

#### WASTE IN BUILDING

Sirs

Your report on our Study of Conservation in the July issue is most gratifying. While we were doing this job, we often looked back at the reports of the round tables you convened to get people thinking about this subject seriously for the first time. Needless to say, I often hoped that you would find our own report to be a big step in the right direction,

I get some amusement from such criticism as "a loose-joined document written with a heavy hand." When a researcher has only a few weeks to record the results of ten months of hard study by many people, he finds little time to make a fine piece of writing.

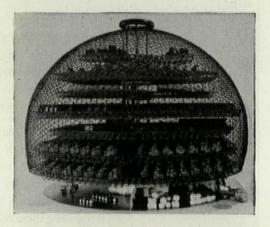
Your article does us a great service by helping to interpret an unavoidably cumbersome report into clear-cut, simple terms.

WILLIAM H. SCHEICK, Executive Director National Research Council Washington, D.C.

#### FULLER'S FACTORY

Sirs

Buckminster Fuller's proposal for a vertical factory (AF, May '52) presents a radically new concept of textile mill planning and construction, which is quite different from the post-World War II trend toward the one- or two-floor building.



Because of the possible advantages in economy, both of structural design and processing procedures, it definitely appears worthy of further study.

B. L. WHITTIER, Head
Department of Fabric Development
C. M. ASBILL, JR., Head
Machine Design Department
SCHOOL OF TEXTILES
North Carolina State College
Raleigh, N. C.

Sirs:

The Fuller project should serve as a challenge to the imagination of all engineers concerned with providing modern buildings for industrial use. The design is revolutionary,

(Continued on page 71)

yet we feel that it has definite possibilities for savings in both initial and operating costs.

D. L. GERY Erwin Mills, Inc. Durham, N. C.

### TO REBUILD TALIESIN

Sirs:

I have noted in your magazine the tragic news of the fire at Frank Lloyd Wright's Taliesin (May AF, p. 63).

Enclosed is a ceck for \$10, with the proposal that you publicize a drive for a fund to rebuild Taliesin.

It would seem to me only just that the architects of this country contribute something to our most colorful figure. I suggest that the AIA also make some effort in this direction.

THEODORE J. PRICHARD, Architect Moscow, Idaho

AF has endorsed Reader Prichard's contribution to FLLW for the reconstruction of Taliesin and will be pleased to forward such additional contri-butions as may be inspired by his initiative.—Ed.

### **CBS TV**

Sirs:

We are terribly excited and very pleased at the warm and human treatment you gave to the new CBS TV city (AF, May '52).

The manner in which it was handled is a clear indication of the extent of penetrating thought you and your organization devoted to this subject. We are all glad that we are on your team!

CHARLES LUCKMAN

Pereira & Luckman, Architects & Engineers Los Angeles, Calif.

### MATISSE CHAPEL

Your presentation of the Matisse Chapel recognizes this building for the phenomenon which it is in today's architecture-an example of complete unity of conception and execution in allied arts, by a recognized master of one.

I deplore with you that architects have virtually eliminated other artists from modern architecture, and hope that work such as this may stimulate collaboration and the incorporation of first-rate painting and sculpture into our buildings.

You have succeeded in conveying the total effect of this integrated design by your very full presentation and particularly in your color shots. It seems altogether fitting that an architectural magazine should lead the way in presenting work like this, and I hope you will find and publish other fine examples of collaborative design.

> THEODORE CRILEY, JR., Architect Claremont, Calif.

Sirs:

Architecture of the great periods was the expression of both spiritual ideas and techno-

(Gontinued on page 72)

# New Oil Boiler



## For Homes and Commercial Applications Mueller Climatrol

Type 35 Cast-Iron Sectional Oil Boiler

Here it is - an oil-fired boiler with the same superb quality, easy installation features, and money-saving efficiency as the Mueller Climatrol gas-fired boilers.

It's the new Type 35 for steam or hot water; heavy cast iron, sectional, wet nipple boiler - available with tankless heater or can be used for direct hot water supply.

The Type 35 is in a special size range for those larger residential jobs, apartments fact, any installation requiring from 240,000 to 560,000 Btu input.

Easily converted to gas, it is a perfect answer for areas where gas is not now available. Because it is shipped "knocked down", it is easy to get in any basement. Because it has been assembled and "triple tested", you are sure of a low-cost installation and long-life satisfaction.

Get complete details on the new Mueller oil boiler now. Write today.

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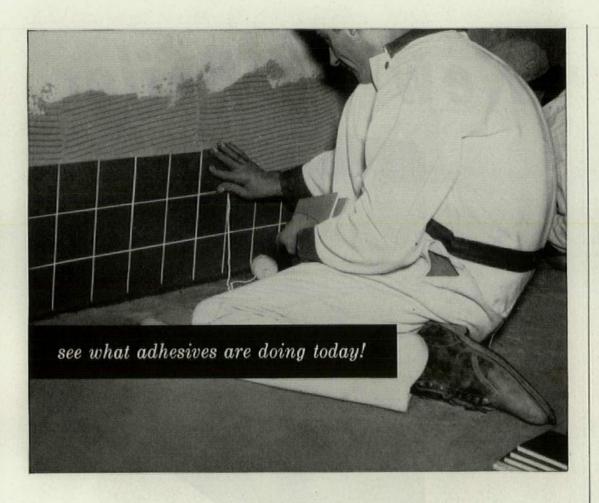
### With Outstanding **Design Features**

- Wide size range for steam, hot water, and hot water supply—inputs of 240,000 Btu to 560,000 Btu. Staggered fins in flue ways turbulate rising gases for greater heat transfer.
- Precision-machined nipple ports and gastight vertical flue passages.
- Modern, attractive styling. Easily cleaned from the top without removing casing. Enclosed controls. Casing can be assembled to boiler after boiler is installed and piped.
- Triple tested. Assembled at factory for hydrostatic testing at high pressure and for correct fit. Knocked down for shipment. Conforms to A.S.M.E. code.
- Equipped with Mueller's efficient oil burner which provides efficient combus-tion, trouble-free operation, A sturdy burner — quiet, vibrationless.



FOR OIL . FOR GAS . FOR COAL





## Setting tile in thrifty style

Look behind clay tile for the big news in construction methods today! 3M Ceramic Tile Adhesive is showing builders how to set tile faster . . . at less cost!

In new homes, builders find they can build "dry wall"—eliminating heavy mortar and steel lath—and get a clay tile job with 3M mastic that will last a lifetime. Remodeling jobs are simplified because 3M Ceramic Tile Adhesive eliminates rebuilding walls. Tile can be easily and rapidly set on existing surface.

3M Ceramic Tile Adhesive is tough, resilient and durable, resisting cracks, moisture and settling. It is clean and easy to handle. Reports from all types of building jobs show it can cut costs up to 20% on tile setting.



### FREE SPECIFICATION AND DATA SHEETS:

Whether you are a builder, architect or tile contractor, 3M Ceramic Tile Adhesive is money-making news to you. Write 3M, Dept. 158, 411 Piquette Ave., Detroit 2, Michigan, for latest information.

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AND COATINGS . "3M" ROOFING GRANULES . "3M" CHEMICALS

## **LETTERS**

logical genius. Today, when the technological genius is so much in the forefront, it was very refreshing to see the presentation of the Matisse Chapel (AF, May '52). This work is no doubt a very distinguished expression of a spiritual idea, even though it may be regretted that it was not coupled with a more creative technological approach.

Your presentation of it was excellent and highly stimulating. I would take exception only to the opening sentence of the article. The characterization of this work as a "completely personal expression" seems to me misleading. I feel that one of the admirable characteristics of this work is the personal modesty of the author, the lack of desire to astonish or impress his own personality or build a personal monument, which is unfortunately only too often the driving power these days.

L. L. RADO Raymond & Rado, Architects New York, N. Y.

Sirs:

The Matisse Chapel is the finest bit of design for a religious building published during recent years.

GEORGE J. ADAMS, Architect Los Angeles, Calif.

### **NEW PARKING IDEAS**

Sirs

In the Mayer & Schmidt store in Tyler, Tex. (AF, May '52), architect Victor Gruen has very ably solved the parking problem, where there is no appreciable pedestrian business involved. [He put it between the show windows and the sales floor.—Ed.]

The whole idea shows creative imagination for a medium-size project. However, it is obvious that when several stories are added to the main store building that the parking will be grossly inadequate.

If the display windows on the street had attached facilities for window props, accessories, workshops, etc., window dressing would be greatly facilitated.

KENNETH FRANZHEIM, Architect Houston, Tex.

### CURTAIN WALL COMPARISON

Sirs:

The article "The Curtain Wall Comes of Age" in your April issue was extremely interesting.

It is not often that so direct a comparison can be made of two similar techniques in steel and aluminum. This article, with its exactly comparable data, is a valuable addition to the files of architects, engineers and builders.

E. H. PRAEGER, Engineer Praeger-Maguire New York, N. Y.

### NIKKATSU BUILDING

Sirs:

It was a pleasant surprise to open the May issue and see the description of the Nikkatsu (Continued on page 74)

## SURE WAY TO

A FIRE ...

Rubbish ... collecting in the basement of a building, is like tinder in the bottom of a stove, waiting only for a spark to kindle it. Once started, flames and searing heat quickly travel upward through vents or hollow walls to break out on upper floors. Too late then to prevent ravage to property - or jeopardy to lives!



SURE WAY TO

A FIRE!



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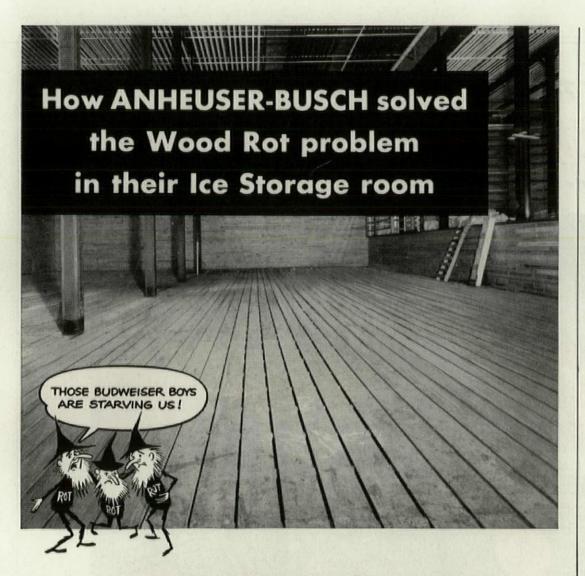
For your own sake, be sure the lives and property for which you are responsible are protected with Grinnell automatic sprinkler heads your assurance of positive fire protection.



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## LETTERS

International Building on page 160. The caisson-type foundation construction of this building aroused considerable interest among the members of an Engineering Education Mission to Japan last summer, of which I was a member . . . . A high order of engineering and architectural skill went into the design and construction of the building. . . .

The Japan Institute of Architects has recently selected the building for a double award for architectural design and for construction techniques. . . .

ALBERT G. H. DIETZ

Professor, Structural Engineering
Massachusetts Institute of Technology
Cambridge, Mass.

### ROGER ALLEN'S FAN MAIL

Sire

I always get such a "kick" out of Roger Allen's letters that I thought you would like to hear from the self-appointed president of the Chicago Chapter of the Roger Allen Fan Club, which makes me a member of a large organization, including Frank Lloyd Wright.

Have just read his latest contribution to the FORUM (AF, Mar. '52) for the fifth time and am still chuckling.

Have you ever considered collecting his letters for publication? I know I once spent several hours going through old Forums looking for letters of his I might have missed. It kept me out of pool halls for a while.

CORBY ALWARD
The Austin Co.
Chicago, Ill.

### NO MORE RIVETING?

Sirs:

We were interested in your article "No More Riveting?" (AF, Mar. '52) and especially in the cost figures.

We believe there will be a need for riveting for considerable time in some classes of projects. We are convinced, however, that when the inherent efficiency and economy of field and shop welding becomes more generally known, welding will largely replace both riveting and bolting. The difficulty of assembling satisfactory field riveting crews will assist in the more general adoption of shop and field welding. . . .

BOYD S. MYERS, ROBERT J. CUMMINS, Consulting Engineer Houston, Tex.

Sirs:

Your article. . .is interesting and provoca-

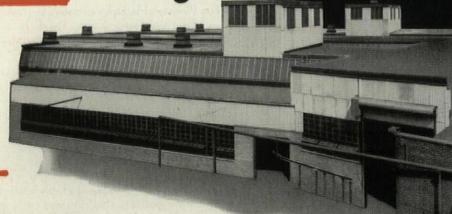
Aside from believing that the airing of controversial topics is desirable, I think that welding will be found less expensive than high-strength bolts for most operations and is more likely than the bolts to put an end to riveting eventually.

GILBERT D. FISH Consulting Engineer New York, N. Y.

(Continued on page 76)



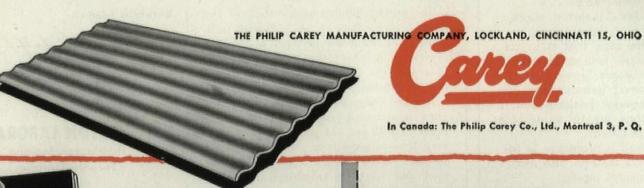
time
and costs...



New Superior Foundry Co. Building with Sidewalls of Carey stone...BUILT IN ONLY 6 WEEKS!

"Raze our old frame building and erect a new building with 60,000 square feet of floor space on the site. Do it fast to hold our production 'time out' at a bone-bare minimum! And do it within our budget!" That's the job engineers Christian, Schwarzenberg and Gaede and general contractor Sam W. Emerson were asked to tackle by Superior Foundry Company, Cleveland, Ohio. And — they did it! In record time! In a mere six weeks a new steel, brick and Careystone building was humming with production. A perfect example of the miracles American ingenuity can accomplish. And an eye-opening demonstration of Careystone's many virtues. Careystone — made of asbestos and Portland cement — posed no "availability" problems. Corrugated for great

structural strength, it is quick, easy and inexpensive to apply . . . comes in big sheets that cover fast, can be applied over wood or steel framing. It won't burn, rust, rot, corrode, nor can termites or rodents damage it. Exposure to weather actually strengthens it! Thus Careystone loaned these many virtues to the need for speed . . . will provide fire-safety and protection for the life of the building, without one cent for maintenance! If there's a new plant in a client's plans — or additions to present facilities — give serious consideration to the advantages only Careystone can deliver. Ask your Carey Industrial Sales Engineer for our new fact-filled manual. Or, if you wish, fill in and mail the coupon for your copy today!





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## LETTERS

### PHILADELPHIA STORY

The Philadelphia Story on urban redevelopment in the April issue is quite timely in view of the extensive program now under consideration in several hundred US cities.

The clear presentation and the concise statement of the problems and their solution are excellent.

Extensive urban redevelopment such as is needed in so many cities will not succeed if undertaken only by "block-busting" methods requiring large-scale financing. While some spectacular projects will be justified in a few strategic locations, the area of obsolescence in most cities is so large that this method is impractical. Far more reliance must be placed upon smaller units of redevelopment, which are more easily financed and wherein there is preservation of historical values and desirable local characteristics, than upon arbitrary or ruthless disruption.

Closer coordination and supervision is required to assure a satisfactory final result by this method. This is the responsibility of the city plan commission; in Philadelphia the commission appears to be doing an excellent

Pennsylvania law authorizing the Redevelopment Authority to issue tax-exempt bonds bearing reasonable interest is an exceedingly valuable contribution to the progress in this field.

> HARLAND BARTHOLOMEW City Planners and Civil Engineers St. Louis, Mo.

The article, "Philadelphia's Hour of Decision," is excellent, I am personally very enthusiastic about the proposal which, if it eventuates, should accomplish for Philadelphia what the Triangle Development is doing for Pittsburgh.

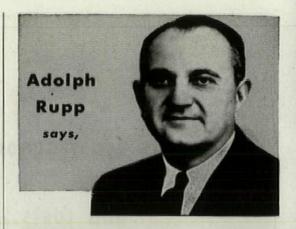
It takes imagination, courage and a real sense of design to make the necessary compromises with the old pattern of bad planning. It takes enthusiasm, common sense and political sagacity to sell a program of this kind, and it takes a knowledge of financial management and of promotional and developmental potentials to carry out programs so big. This proposal for Philadelphia, it seems to me, incorporates many of these essential elements. May these plans soon become reality.

CARL FEISS, Chief Planning & Engineering Branch Housing & Home Finance Agency Washington, D.C.

### ADVICE TO THE OUTWORN

On our conference room wall and on the blackboard in our office are the words: "Why Rebuild the Past for the Future."

Our experience in most remodeling jobs (Continued on page 78)



## 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** 

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Adolph Rupp, University of Kentucky

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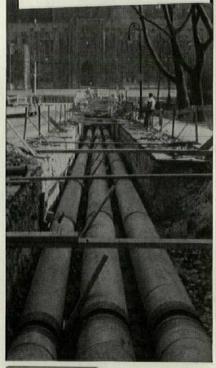
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UNDERGROUND OR OVERHEAD

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## **LETTERS**

forcibly underlines in our minds the aptness of the above phrase.

Remodeling that we find sometimes hard to avoid:

- 1. For friends or acquaintances of friends. (This type can become quite involved.)
- 2. Hardship cases: If there is evidence of suffering.

JAMES J. CHIARELLI, Architect Seattle, Wash.

### LABATUT ON GROPIUS

Sirs

Some architects, even students, like so much to talk and write, that I composed a poster for our drafting room and for our architectural laboratory reading

If you have nothing to say

Do not talk

Do not write

Do not draw

On that poster, the size of the letters and the intensity of their red color increase toward the last climactic three words. That poster would be even more effective if placed in every classroom behind the teacher for the students and behind the students for the teacher; also if placed in front of architects, architectural historians, and editors of architectural magazines. However, on the subject of Mr. Gropius' proposals, I do have a little to say:

Masterpieces of architecture would have been impossible without complete association of composer, builder and craftsman potentiality. The large number of architectural failures is due to the remoteness of the craftsman and contractor from the composer and designer at the time of the conception. Between the sculptor's mind and its product there is only his arm and his hand. But between the architect's mind and its final product there are so many intermediaries and isolated factors, multiplied by rules and regulations, that the only chance of salvation is in the formula: The less intermediaries and the more integration between them, the more chance to create an architectural product expressing the best of our time rather than the worst.

... Among recent masterpieces built at a minimum cost, and because of the complete association of craftsman, contractor, engineer and architect, is the Church of Le Raincy along with other works of Auguste Perret (my successful candidate for the Gold Medal of the AIA in 1952). For years this work was much criticized by the architectural profession in France.

On the opposite side of the story there is the architect-businessman-procurer, who uses as subcontractors, the picture maker, the delineator, the engineer, the builder, the landscape architect, and the decorator who have their own subcontractors—thus produc-

(Continued on page 82)

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These advantages, plus modern cabinet styling, quiet motor fan assembly and Test Code Ratings are your guarantee of satisfied customers—especially if you convince them the time to get the job done is now—before, not after, the heat is needed. Write for catalog. Representatives in principal cities. McQuay Inc., 1609. Broadway St. N.E., Minneapolis 13, Minnesota.

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shock, vibration or temperature which the pipe itself can withstand.

Furthermore, it is a relatively simple operation to make a Silbraz joint — no heavy scaffolding need be erected . . . just cut the pipe, flux, assemble, then braze, following the technique recommended by the Walworth Company. A silver brazing alloy — FACTORY INSERTED — in each port flows out when heated with the oxyacetylene torch, making a joint that is stronger than the pipe itself . . . a one-hand operation, with the mechanic out of the path of the deflected heat — at all times.

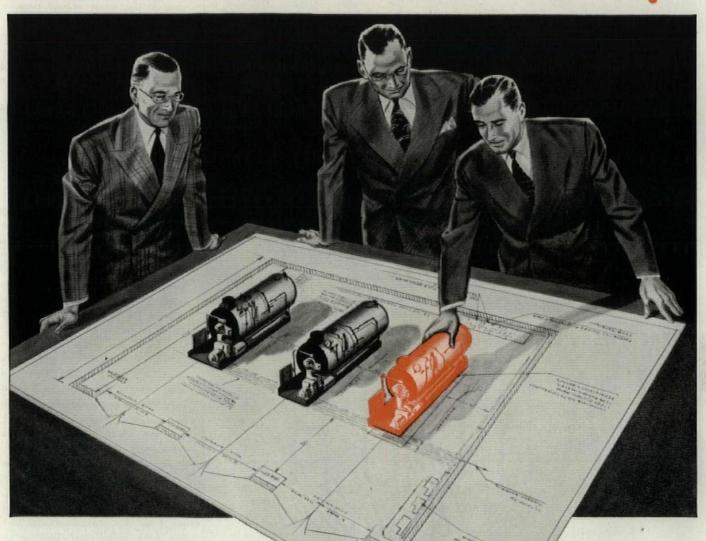
For full information about Silbraz joints made with Walseal products, write for Circular A-1.

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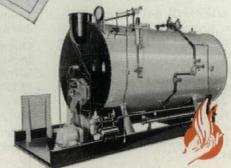
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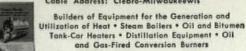
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# U. S. STONEWARE

## **LETTERS**

ing an architecture with the most doubtful meaning and resulting in the visual expression of the worst of our time, while within the rules of professional ethics.

These two examples are like two signposts pointing in different directions, one toward the high level of permanent values, the other pointing down toward the drain.

JEAN LABATUT
Director of Graduate Studies
School of Architecture
Princeton University
Princeton, N. J.

### GROPIUS ON GROPIUS

Sirs:

The reactions to my article, published in the May issue of FORUM, call for a clarification of a few points which apparently had not been made clear enough.

1. When I suggested that the average client would like to buy, if possible, the complete package for a fixed price and at a definite time of delivery, like any other goods he buys-an automobile or a refrigerator, I did not mean the so-called "package deal" as offered by some large building corporations. For in these corporations, architectural design is treated more or less as a minor appendix only to the all-important business transaction. In the true team, however, which I have in mind, the designer must have as much power of decision as the businessman and the builder; he must be a legitimate partner. A true, efficient team cannot be "arranged" or "ordered" by a boss; it must grow on a voluntary basis, developing from the grass roots, its members trusting each other and looking in the same direction.

All I intended to contribute was to help to make a way for potential, new combinations and teams to produce buildings with the industry and with the builder.

Nobody knows yet which measures will have to be taken to protect the profession against unfair competition, while at the same time giving the green light to those who want to take creative part also in the production itself of buildings and building parts.

I propose, therefore, a clarification and amendment of the AIA Paragraph 7 of the mandatory rules: "An architect may not engage directly or indirectly in building contracting." A thorough study made by all the Chapters in order to improve its terms or to repeal it should be welcome. As the rule stands now, it seems to be too rigid and even ambiguous (e.g., what is "engage . . . indirectly in building contracting"?), and it prevents us from coming to grips with the unavoidable issue of defining the overlapping areas between business and profession.

With this proposal I certainly do not think of a cure-all for the ills that beset our profession. All I propose to do in today's state

(Continued on page 83)

of fluidity is to keep the door open to a new set of problems, and knotty ones at that, which are the result of the impact of industrialization and must be solved by the new generation of architects.

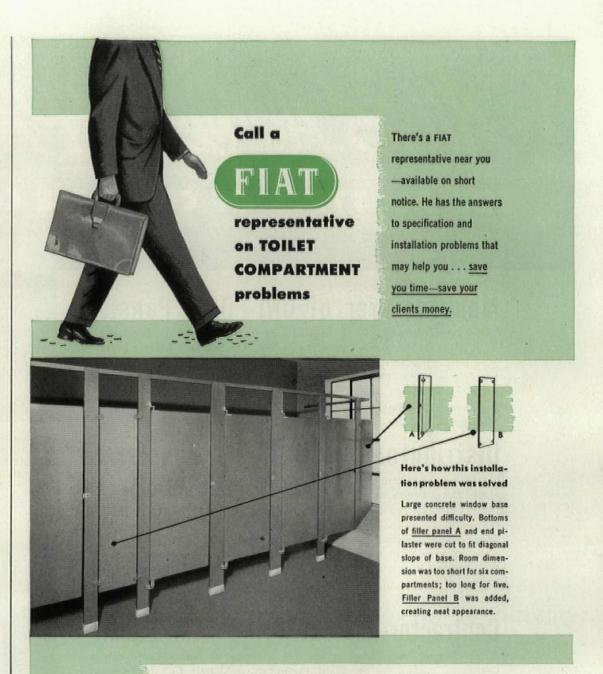
2. It is very true that the prevalent standard of materialistic values has deprived the architect of his role of leadership in our building work today. But this should not let us slide into a passive attitude, waiting until this state of mind may pass. The ancient aim of the architect to be the master of the process of building remains valid, and we must be prepared to fight for it. I say his "aim" for whether he actually is the master depends of course on his performance within the collaborating team. He cannot claim leadership as such, for the best man in a team should lead. But the historical mission of the architect has always been to achieve the complete coordination of all efforts in building up man's physical surroundings. Planning, designing, building-the whole range of building activities was formerly centralized in the hands of the architect or master builder. In spite of the later separation of builders, planners, engineers from the architect, he remains by vocation the logical agent of coordination. Whether he shall be able personally to reach the high historical aim of his profession, to integrate through his work all social, technical, and esthetic components into a comprehensive, humanly appealing whole, that shall depend on his creative vision.

The human landscape which surrounds us is a broad composition in space, organized from voids and volumes. The volumes may be buildings or bridges or trees or hills. Every visible feature in existence, natural or man-made, counts for the visible effect of that great composition. Even the most utilitarian building problems, like the location of a highway or the type of a bridge, are important for the integrated balance of that visible entity which surrounds us. Who else but the creative architect should be the legitimate, responsible guardian for the beauty and adequateness of our living space? Nothing less fits the definition of a true architect; nothing less should be the aim of architectural education.

WALTER GROPIUS, Architect Cambridge, Mass.

## ERRATUM-LEVER HOUSE PHOTOS

When FORUM found existing color photos of Lever House did not meet its cover needs, it commissioned able, up-coming photographer Alex Langley to take the photograph of the cover which was used. But when copies came on editors' desks they sadly noted the cover had been credited to another able photographer of long standing, Ezra Stoller (whose photos also illustrated the FORUM story), and Alex Langley's full-page color picture on page 105 had no credit at all. Editors' faces were redder than the flowers in Langley's picture of the Lever roof .- ED.



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## Contractor-user of UNI-FORM Panels

H. H. Dugan, Vice-President and Job Manager of Walsh Construction Company, sponsor for the Walsh-Perini-Groves-Slattery Companies, general contractors who are responsible for all of the foundation work, roads and utilities for the United States Steel Company Fairless Plant, said that 300,000 square feet of forms were required to pour approximately 700,000 cubic yards or about 7 million square feet of concrete surface. Approximately 90% of this form area was formed with 300,000 square feet of UNI-FORMS faced with plastic plywood. The GPX in the uniforms helped them to average 20 to 25 re-uses. These forms saved time, labor and money. "GPX takes an awful beating. We're sold on it," said Mr. Dugan.

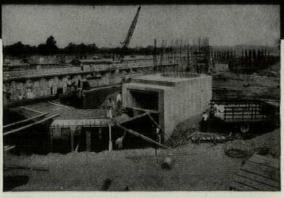
Whether pre-fab forms or forms constructed on the job, you'll find GPX Plastic-faced Plywood the perfect forming material for speedy, time-saving, cost-saving jobs. Send for descriptive GPX folder. Georgia-Pacific Plywood Company, 607-8A North Capitol Way, Olympia, Wash.



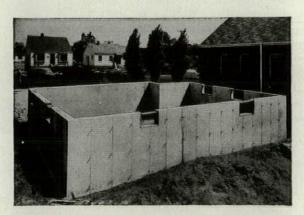
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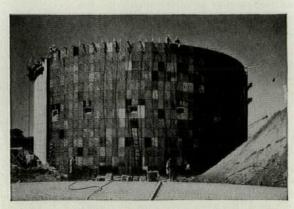
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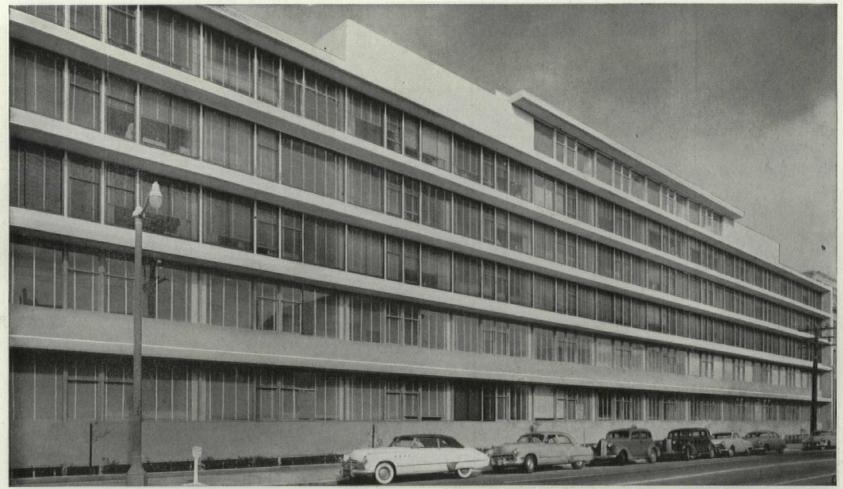
This foundation for part of U.S. Steel's Fairless Works is but one of the many foundations that utilized UNI-FORM Panels using GPX Plastic-faced Plywood. A hundred re-uses in repetitive forming is common. Two hundred is not unusual.



This House Foundation by Concrete Engineering Company, Whiting, Indiana, shows the smooth surface of unfinished concrete made with UNI-FORM Panels, using GPX Plastic-faced Plywood.



In circular tanks, like this Sewage Treatment Plant in Dallas, Texas, savings in material and labor, using GPX faced UNI-FORM Panels, have reduced costs as much as 70%. Cullum and Whittle of Dallas were the contractors on this job.



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

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

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

They installed KoolShade Sunscreen on the windows and now

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

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

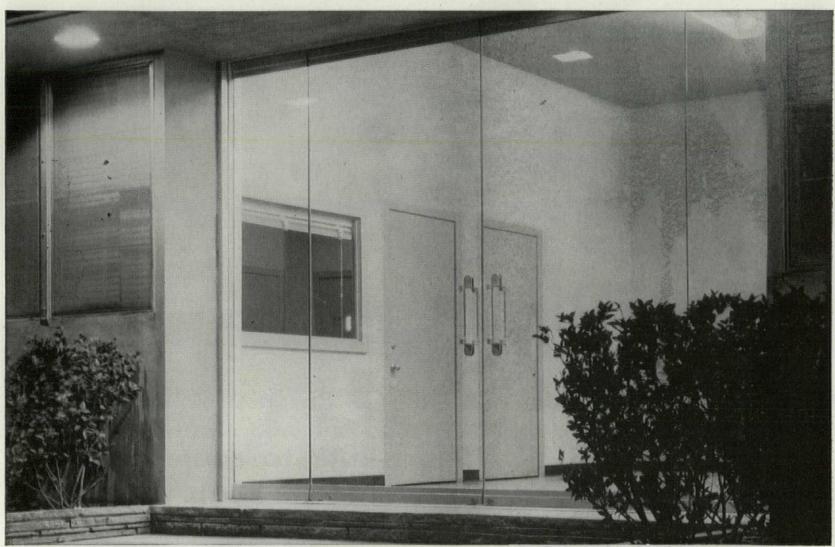
For hospital, school, office or residence... KoolShade Sunscreen can solve many of your problems of summer heat and glare. For maximum efficiency and undivided responsibility, specify Ingersoll aluminum framing for all KoolShade installations. At the present time, priorities will speed delivery on both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

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



© 1952—Borg-Warner Corp.

# Ingersoll HOOLSHADE Sunscreen



Parcel Post Terminal, Dallas, Texas, Architect, James Edward Smith

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Tuf-flex\* Tempered Plate Glass Doors complement a dignified exterior as they reveal the interior. The variety of types available offers a latitude of choice to the architect.

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MADE ONLY BY LIBBEY-OWENS-FORD GLASS COMPANY 8882 Nicholas Building, Toledo 3, Ohio

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Thickness: 3/4".

Strength: three to five times that of regular plate

glass.

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Libbey-Owens-Ford Glass Company 8882 Nicholas Building, Toledo 3, Ohio

Please send me a copy of your booklet showing uses of Tuf-flex Doors, as well as your installation detail folder.

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MECHANICAL FEATURES THAT PROVIDE . . .

EASY WORKING

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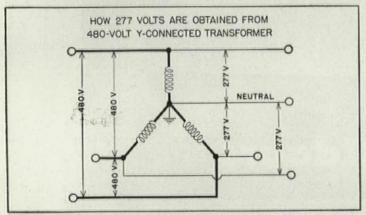
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With the 277-volt lighting system, you use standard fluorescent fix-tures, standard lamps. Just specify 240-280-volt ballasts.



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

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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:

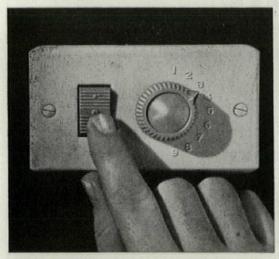
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By using 480Y/277-volt distribution for lighting, you get the coppersaving advantages of higher-voltage, lower-current distribution. This voltage is provided by the standard 480volt, 3-phase, 4-wire system, which offers a line-to-ground voltage of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

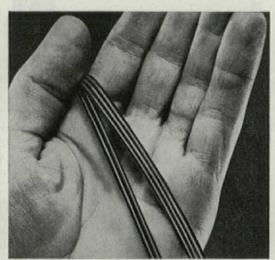
**G-E Remote-Control Wiring** Master selector switch RMS-2 and other components of the G-E remote-control wiring system offer convenient switching of as many as nine circuits, save copper by using small 24-volt control wires. Remotecontrol relay RR-2 mounts in knockout box or ganged in pull box near lighting fixture-switches can be installed at practically any convenient

Individual switches and master selector switches offer the advantages of multipoint switching-in spite of today's tight copper supply.

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MASTER SELECTOR SWITCH permits flexible control of large areas of lighting from central locationsbe used for watchmen's circuits and standard lighting control.



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GENERAL ELECTRIC

## What is good about public housing?

It may be too early to bury public housing but it is not too early to praise what is good about it.

Public housing since the war has done more to improve design and planning of apartments at lower rentals than all private enterprise out of the same period. Except for a few insurance-company projects, you could list on less than half a page the private enterprise apartments that offered anything but minimum rooms packed tightly behind a somewhat dubious colonial front. The reason is simple: too often the sponsor's idea of an architect was a man who could squeeze a minimal project through FHA, scraping off the inches—a man who would work for 1% but would let them include a fee of 5% in their appraisal claim.

Public housing has benefited from paying for professional services.

True its fees were not generous and AIA negotiators were accused by some architects of settling too low, but these fees were sufficient to attract some of the nation's best architects. On the other hand virtually no top architect has been ready to take the double beating involved in 608's and the like—first a low fee and then browbeating in the interest of minimal standards.

Public housing achievements have come from independents. Just as bureaucrat-ridden as any other activity, public housing has achieved its thin top layer of remarkable progress through a few strong architects working for a few strong local administrators. The point is that the architectural firms were able at least to recover their major expenses, whereas private fees for FHA work are generally too low to cover a real study.

Architects such as Hellmuth, Yamasaki & Leinweber, or Skidmore, Owings & Merrill, or Fred Keck or Harry Weese have given Chicago and St. Louis a whole repertory of childgallery plants and "tot lots in the air" to make high-rise apartments habitable for families with children. And such a list omits other architects whose work is as deserving.

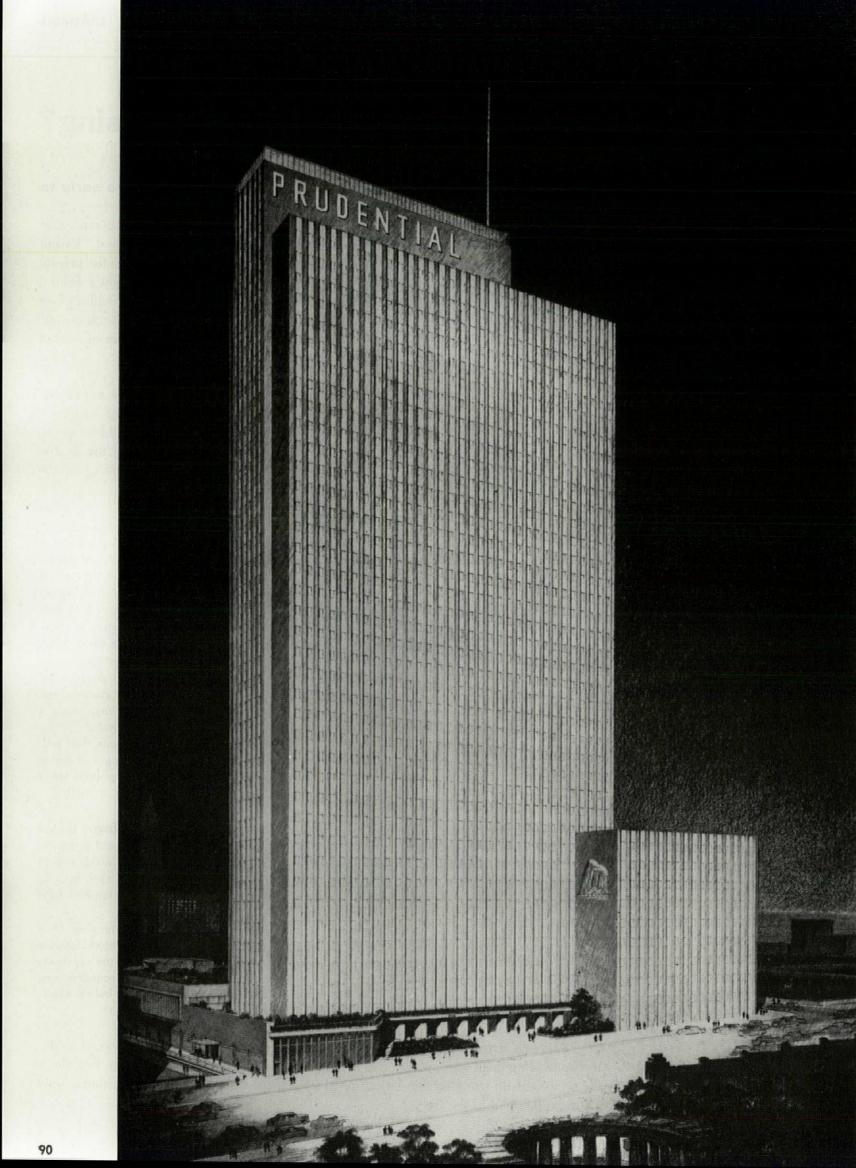
Private architects such as O'Neil Ford and Richard Colley working at skimped but not wholly inadequate fees have supplied impecunious Mexican families in Houston and Corpus Christi with better through ventilation, in row housing at \$6,500, than many a Texan has bought in nonarchitect-designed \$10,000-and-up houses built for sale,

It is a remarkable condition when tax-supported groups get better results than selfsupporting taxpaying citizens, and it traces to just one thing: Good planning and design is the very cheapest way of adding value to an apartment. Public housing has been ready to pay something for good planning and design; private enterprise housing has not.

Room for experiment has also been given by public housing. Despite the incredible inflexibility of PHA in Washington, individual administrators and architects have won some latitude in introducing innovations ahead of proved demand. In this respect public housing resembles those remarkable limited-dividend ventures of private housing which brought such fine results in the twenties and thirties-again because top architects were employed at modest but adequate fees.

Out of these projects came virtually all that distinguishes mid-century housing from the Dark Ages: the house fronting the garden, not the street; the open block interior freed of alleys and garages; the grassy superblock safe for pedestrians; the cul-de-sac entryway; the hillside plan that goes with, not against, the contours, and countless new interior plan arrangements. This result proves that private enterprise can indeed excel; it need not bow to public housing on points of excellence.

Private enterprise must again act: 1) to pay adequate fees to good architects providing them with an incentive for good design and planning; and 2) to rise above the minimal ham-stringing regulations of pinchpennies and bureaucrats so initiative may return to the land of the free.

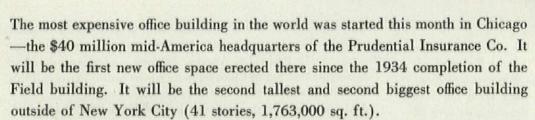


## **CHICAGO'S PRUDENTIAL BUILDING**

pays high but gets world's best-serviced office space,

breaks city's 20-year office building jinx

NAESS & MURPHY, architects and engineers



As architecture, Prudential will be no design experiment, no Lever House, no Alcoa, no UN Secretariat. Like Pittsburgh's Mellon-US Steel Building (which Prudential likes very much), its emphatically vertical limestone and aluminum (or stainless steel) slab is contemporary with Rockefeller Center.

As a building, it sets a new high for many US office building standards (see right) and is well worth careful study to see just what improvements such a big, well-informed investor is willing to buy.

As an advertisement, it beats the Rock of Gibraltar. The south face of its 600' slab is conceived as a gigantic spectacle dominating the Chicago lakefront, and the 16' letters of the Prudential's name on the penthouse wall will be visible at night from Gary, 35 miles away!

As an investment, to pay off Prudential needs nearly 50% more than the average rent for good office space in Chicago, notoriously a low rent city. To justify those rents it has worked out an ingenious scheme (see page 95) to lift its space above competition by offering more special services and higher space standards than any other office building in the world.

As a real-estate venture, the Prudential tower starts the development of the biggest and most dramatically located unused tract in Chicago or any other American city (see page 96)—80 acres of air rights over the Illinois Central yards between Michigan Avenue and the lake—six times as large as Rockefeller Center, three times as big as the Grand Central air rights, four times as large as the area open to redevelopment in Philadelphia by the closing of the Broad St. station.

Chicago has dreamed for years of opening up this area potential business district. But today some Chicagoans view the event with misgiving, since the success would pull the Loop's expansion in exactly the opposite direction from the new South Side improvement favored by the City Planning Commission and at right angles to the Miracle Mile north of the Chicago River (see page 96).

Photos: Chicago Architectural Photographing Co.



Prudential Building overlooks Grant Park

Biggest tower floors (20,000 sq. ft.) outside New York City.

Second tallest office building outside New York City. (Cleveland Terminal building is taller.)

Fifth largest office building in US. Top four: RCA, Empire State, Equitable, in New York City; Terminal building in Cleveland.

Highest intensity lighting of any major US office building: 40 fc at desk height with provision for 100 fc in such special areas as drafting rooms.

Highest electrical design load of any US building (excluding air conditioning): 5 w. per sq. ft. (compared with 2.5 per sq. feet in the RCA building, 3.5 for Pittsburgh's Mellon building, 3.3 for John Hancock).

Biggest floor-to-floor height—13' and equaled only by John Hancock.

Fastest high-rise elevators in the world: 1,400 fpm.

More elevators proportionately than any office building built since 1929: 26 passenger cars (plus moving stairs to the third floor) to serve 40 floors (compared with 5 for 20 floors in Lever House, 24 for 41 floors in Mellon-US Steel, 18 for 36 in UN).

Biggest built-in garage serving a single office building in the US: space for 550 cars. (The garage for all Rockefeller Center takes only 800 cars.)

Widest column spacing of any big building outside of Boston: 31' x 24'.

More double glazing than in any US office building: 74,977 sq. ft.

Biggest air-conditioning tonnage of any single US office building: 3,150 tons.

Heaviest air-conditioning design load per sq. ft. of rentable area due to heavy lighting load: 5 w.

Novel cooling technique: uses nearby river as a cooling tower (following example of UN buildings).



1 Early solution of two symmetrical lower masses was abandoned since it faced building straight down Grant Park instead of opening approach to Michigan Ave. 2 Low mass on east side moves higher on building to maintain space requirements. Screen wall in masonry frame is variant of UN Secretariat. 3 Simple vertical solution approaches final design 4right, which incorporates penthouse, Prudential sign, plus "backbone" on west facade.

## THE BUILDING

The \$40 million Prudential building will rise 587' above the city streets over the tracks of the Illinois Central Railroad. It will be Chicago's tallest building\* and will have more office space than any other building in the city. Each floor from the 11th to the 38th has 25,600 sq. ft. gross with a net rentable area of 19,400 sq. ft. A three-story penthouse above the 38th floor contains air conditioning and elevator machinery plus more rentable space. The top, or 41st floor will have a 7,500 sq. ft. observation deck enjoying a dramatic view of skyline and lake.

From its basement between railroad tracks and platforms to the observation deck, the building grosses 1,763,000 sq. ft. with a net rentable area of 1 million sq. ft. Initially Prudential plans to occupy about 300,000 sq. ft. leaving 700,000 for others.

The site is a 378' x 377' block of air over 22 depressed tracks and the suburban station of the Illinois Central Railroad just north of Grant Park. No building can obscure Prudential from the south since title restrictions prohibit building in Grant Park or on any land between the park and the lake shore. Further site protection was gained by taking an option on the block to the north and first refusal on the next block north. Prudential also has some say-so in the adjoining blocks to the east. The site cost Prudential \$2.270.315.

Building design under Chicago zoning laws is not so sharply inhibited as it is under New York City's creaking cake-mold regulations. Simply put, Chicago zoning permits any disposition of the building cubage above ground so long as it does not exceed 144 times the area of the lot. Working freely under these conditions, architects Naess & Murphy presented a wide number of possible solutions to Prudential (see above). In the light of Lever House, the UN Secretariat and its own Los Angeles building, Prudential's Chicago headquarters seem to be a reversion to the Daily News-RCA-Mellon building school. Actually Prudential considered the continuous window treatment of its Los Angeles building. But the resulting candy-striped effect on so tall a slab as this would have been entirely different and far less satisfactory than the same treatment on the essentially horizontal Los Angeles building. Its West Coast building has taught Prudential lessons. For one thing, high intensity lighting and air conditioning have convinced Prudential a window is just "something to look out of." Glare has been something of a problem in Los Angeles too. But more importantly, Chicago's cold climate

\* Discounting the purely ornamental 75' pyramidal top and sculpture capping the Board of Trade building.

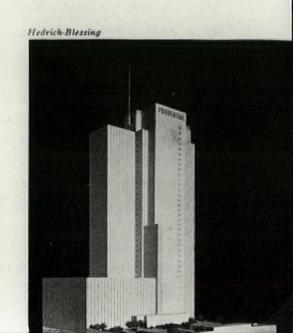
would have meant heavy heat loss with a continuous window treatment. In addition, consideration was given to the tastes of the region. In flashy Los Angeles, extreme design—good or bad—is acceptable. But in Chicago, more conservatism exists and this conservatism was to some extent respected.

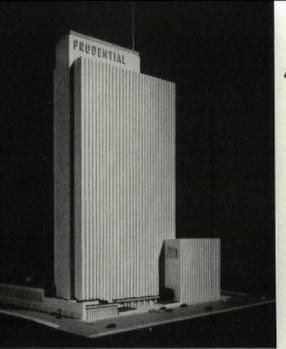
Main element of the building is the 75' x 251' tower slab joined from the 11th floor down by a lower jutting mass on the east end of the tower. Ground and mezzanine floors cover the entire site forming a broad, solid base. Below, connected by moving stairs, is an Illinois Central station.

The assymetrical solution proved best since the main view of the building is not axial like the RCA development when seen from Fifth Ave. Here, the main view is from a southwesterly direction along Michigan Ave. Thus the west side of the building was opened up to view to the extent of letting the tower rise free on the west side, slanting the two-story west wall of the main entrance plaza toward Michigan Ave. and putting a two-story high glass wall in the southwest corner of the ground and mezzanine floors.

North of the tower slab and lobby is 3-level parking space for 550 cars plus off-street loading space for service trucks. Parking space for 3,200 more cars is available in an open parking area southeast of the building. In addition, this year the Chicago Park District will commence construction of an underground garage southwest of the building (under Grant Park and Michigan Ave.) to take another 2,400 cars. This garage will be linked to the building below ground.

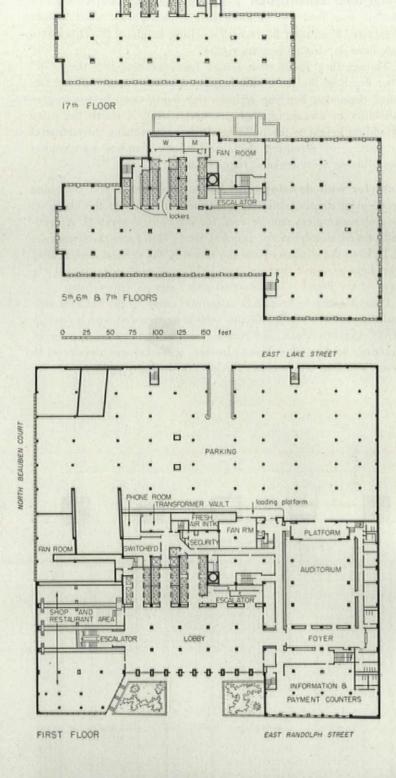
Service core outside tower area clears space inside but clutters north face of tower. Open roof-top parking on third-floor level is available on this side of building.





Hedrich-Blessin

Floor plans (right): tower floors (11 to 38) each have about 20,000 sq. ft. of rentable space; lower ones (3 to 10) have about 44,000 sq. ft. Outside service core permits huge uninterrupted areas for clerical staffs. This idea is, therefore, very popular for insurance offices. Block size first and second floors have lobby, shops, dining room and lounges to south, garage space to north.



Lobby runs 150' east to west rising to two-story height in the central section (photo, right). Heavier than usual structural columns rise 23' in the lobby center, with their height emphasized by sheathing the flanges in stainless steel and the web in bronze.

Upper walls of the lobby well are slanted inward to show off glass and stainless-steel murals. Lights behind a suspended plaster ceiling wash down over these displays and provide most of the general artificial lighting. Daylight through lobby doors adds to this, Small downlights in the ceiling supplement the indirect lighting. No special acoustical treatment is planned; it is felt the height and spaciousness will successfully inhibit noise,

A 1,000-seat assembly hall opening off the northeast corner and a large dining room at the southwest corner plus retail shops complete the street-level development. Mezzanine space not used for parking is given over to a cafeteria and extensive lounges for Prudential employees. Moving stairs as well as elevators serve the first three floors.



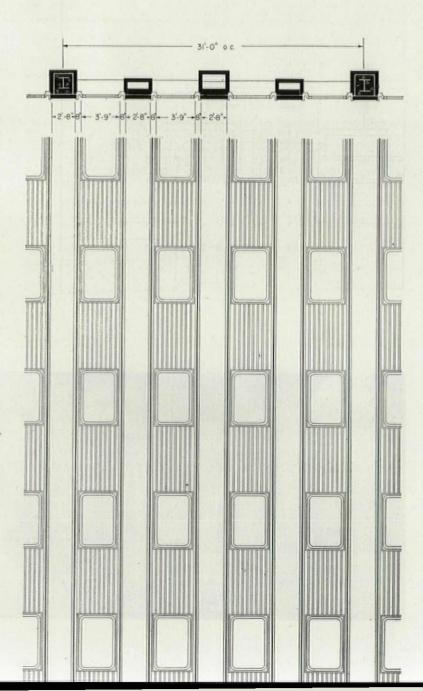
Deep floor construction is used in Prudential despite the fact that it increased the building height nearly 50'. Floor-to-floor height is 13' on most floors with a ceiling height of 9'. This leaves a 4' floor depth (see section, right).

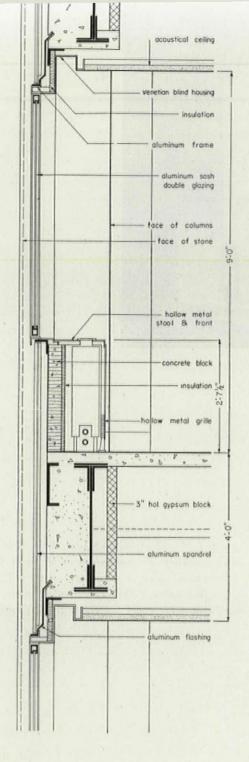
Though they could have settled for something like the 11'-6" floor depth of the RCA building, Prudential's experience has satisfied them that hanging ceilings well below deep beams to give flexibility in arranging ductwork and wiring is worth the price of adding height to the building. It prevents cutting through steel in routing or rerouting ducts and offers complete partitioning flexibility to meet tenants' requirements.

**Exterior wall development** has equal width (2'-8") limestone faced piers running uninterrupted the full height of the building. Noncolumnar piers can be used for mechanical services. A vertically fluted aluminum (or stainless steel) skin faces the spandrels.

To keep the windows from interrupting the vertical design, they were kept narrower than the spandrel facing, and a narrow (3½") strip of the fluted skin is carried past them on either side.

Poured concrete fireproofs spandrel beams on the exterior side and top and bottom. Inside, the web is proposed with a backup of 3" gypsum block. No masonry is between bottom of spandrels and window heads. Instead, a pocket was developed to house Venetian blinds above the level of the hung ceiling.





Wall and floor section (above) graphically details the building's unusually high ceilings (9'), and deep floors (4'), as well as its unusually small windows (6' high) and deep spandrel panels (7'). Note recess in ceiling for Venetian blinds.

Wall pattern (left) is composed of stone-faced piers, fluted aluminum (or stainless steel) spandrel panels, and relatively small round-cornered windows. Double glazed in clear glass, the windows are reversible like those first used in the Alcoa Building (Nov. '49 issue) and thus are washable from the inside.

## THE RENTAL STORY

The paradox that has stymied office-building construction in Chicago since 1934—the paradox of low rents in a high construction cost city—has evoked an ingenious and hopeful response from Prudential and its agent, L. J. Sheridan & Co.

Here's the problem. Chicago's 31 million sq. ft, of office space is 97+% rented. There is virtually no top-grade space over 5,000 sq. ft. available so no large company can move into the town nor can any existing large company integrate offices scattered about the city.

But: building costs now are so high no investor can make a building pay if he tries to compete with existing rental rates of around \$4.50 a ft, for top-grade space.

The answer: build a building that does not compete with existing space. In short, build a de luxe building that will lift itself out of competition, so higher rentals can be charged to make the building pay off. Prudential has tried just this by offering tenants advantages not found elsewhere in Chicago:

- Complete air conditioning of the entire building.
- Best elevator service in the city.
- Highest light intensity in the US
- Hung acoustical ceiling with troffer lighting throughout.

column lot

caisson lot

- More in-building parking space than any Chicago office building. In addition, the building offers luxury services undreamed of before:
- A 1,000-seat auditorium available for large company meetings and exhibition purposes. Automobiles, trucks and other heavy

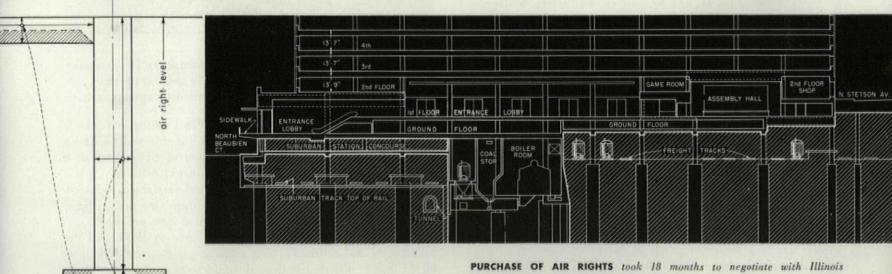
equipment can be driven from garage to stage and auditorium floor to be shown.

- ▶ Travel bureau where consolidated ticket offices of rail, air, and steamship lines make reservations, deliver tickets to building tenants at short notice.
- ▶ Special meeting and conference rooms available on tower floors seating up to 100 people to be equipped with motion picture and slide projectors and screens plus kinescopes for previewing television programs.
- ▶ Executive luncheon and dinner club on 39th floor with spacious outdoor dining facilities. Also floor devoted to private dining rooms available to tenants.

The building's services and amenities make it a one-building Rockefeller Center and clearly put it on a plane above surrounding competition. As such, plans are to charge higher rent than any general office space commands in the city—agent Sheridan says the average is \$6.50 a ft.

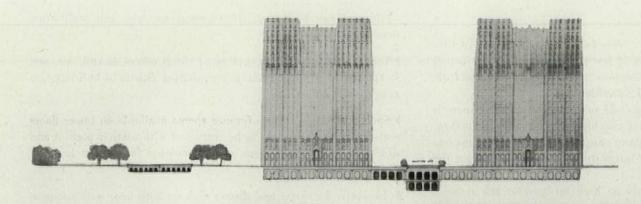
To prevent unsettling of the local market, however, Prudential is looking first for out-of-town companies that want to move into Chicago. Beyond that the owners will be sympathetic to firms whose offices are now scattered about the central business district and who want to consolidate and streamline their operations.

Other, indirect advantages may help justify the higher rental—if offered services don't suffice. Clear, rectangular floors and wide-spaced columns reduce tenants' space requirements as much as 20%. Air conditioning and high intensity lighting increase worker efficiency; personnel turnover under such conditions is expected to be materially reduced.



PURCHASE OF AIR RIGHTS took 18 months to negotiate with Illinois Central Railroad which owned land. Sale of air right above tracks (shown by heavy line above) proved simple but defining 550 separate caisson, column footing, column, girder and wind bracing lots below that line was difficult. Detail (left) shows typical problem. Prudential bought combined caisson and column footing lot with Illinois Central reserving shaded area. Shaded area beneath girder represents similar reservation on part of the railroad. Long, expensive negotiations in this case defined procedure for buying remaining lots in the area. Acceptable to the railroad, Prudential's deed can serve as a guide for future purchasers of additional railroad air rights.

Expense of this foundation system adds considerably to costs of building over tracks, makes any investor cautious. Sinking caissons to bed rock at 110' is expected to cost Prudential more than \$2 million. Work must be coordinated with relocation of several tracks, must proceed under rigid schedule to prevent undue interruption of railroad operations.



In 1923, Eliel Saarinen drew planned development of Prudential area. Sketch left shows two buildings, envisioned over the tracks. Below: 80-acre Prudential area as Saarinen would have developed it with large hotel over a station.

## **FUTURE DEVELOPMENT OF CHICAGO**

By setting a pattern for marketing air rights over Illinois Central's lake-front freight yard, the Prudential building dumps a huge 80-acre tract of prime real estate right in the lap of Chicago. Where Philadelphia is excited about the opening up of 19 acres. and New York City figured it had a bonanza in 26 acres of air rights over the New York Central tracks years ago, Chicago now gets over three times either of these amounts to work on.

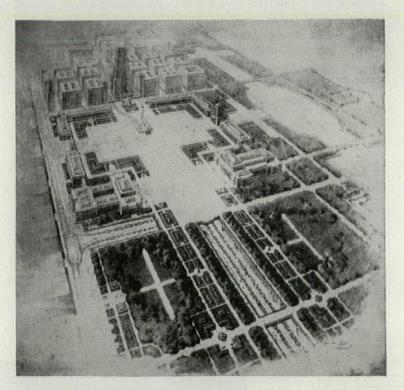
The impact could be enormous. The Prudential building itself probably will fill the city's need for top-grade space for years to come. But inevitably the 80 acres will exert a pull on the business district in exactly the direction the City Planning Commission does not want it to go—away from the railroad terminals and away from the Commission's South Side improvement in permanent scheme consolidating the tracks and terminals east of the Chicago River.

Breaking a stranglehold. In one sense, this air-right acreage has always been available. But two things held up its exploitation: first was the high cost of construction where caissons had to go down between tracks 100' to bedrock and where double the normal structural steel had to be used to build wide spans astride the tracks. Second was Illinois Central's reluctance to sell all rights retaining only an easement for its tracks.

Not until a company with the resources of Prudential decided to build was anyone willing or able to go through the expensive process of acquiring title the hard way. This meant 18 months of negotiations during which 550 separate lots for caissons, impinging girders, columns, column footings and windbracing structures were separately defined and purchased. With successful conclusion of the deal, other acreage over the Illinois Central became, as agent L. J. Sheridan says, "as negotiable as any lot in Chicago." Future buyers can use the wording of Prudential's deed to write their own with the railroad.

De luxe sites. The 80-acre tract opened up by Prudential's project has long been recognized as one of Chicago's most dramatic developable areas. Of the total tract, Prudential bought 3½ acres. If streets are developed in line with the city's grid system, nearly 33 acres will be needed for roads and sidewalks, leaving 44 acres for actual building. Plans now call for exploitation of the area a block at a time with control exercised over future building to insure continued high values in that area.

Comparisons will inevitably be made with the Grand Central complex in New York City and air-right development over the 26-acre area bounded by Lexington and Madison, 41st and 51st Sts. Nearly 5½ million ft. of top value property erected there, including hotels, office buildings and apartments, has added millions to the City's tax rolls. It is unlikely, however, that such a concentration of high buildings will be developed in Chicago. Effort is being made to plan the 44 buildable acres to achieve a balance between high and low structures as well as to get a diversification of activity in the area.



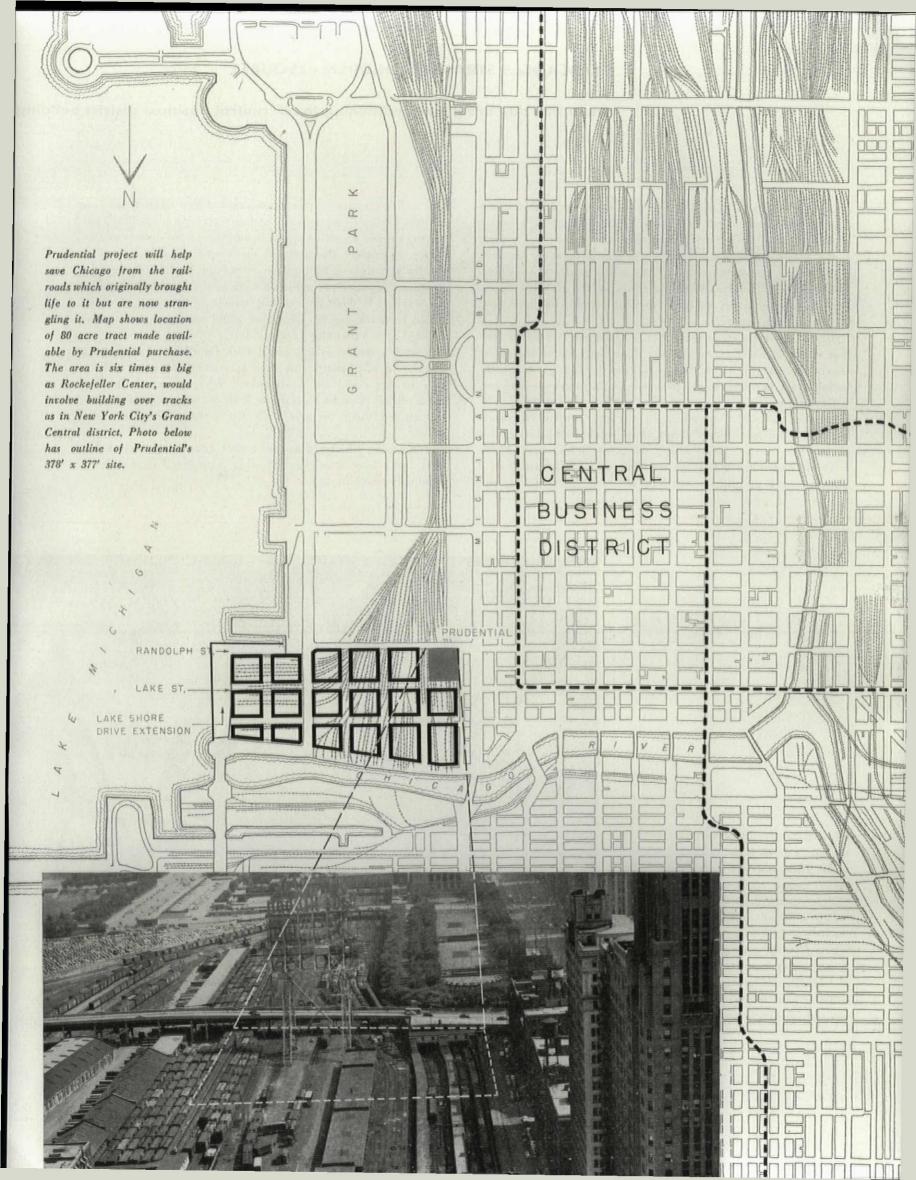
Illinois Central Railroad, itself, has a great stake in developing the area. If it can sell its remaining air-right space at the same rate Prudential paid, it stands to cut its funded debt at least in half.

Realization of a long-held dream. Plans dating as far back as early 1900's envisioned the opening up of this and adjoining acreage for development with the retention of Grant Park as a spacious foil to surrounding building. Greatest activity in planning took place in the twenties when several farsighted architects took a crack at organizing the area. To a surprising degree, these men forecast the kind of development that is now projected.

As long ago as 1923, Eliel Saarinen came to grips with the problem of the railroad's encroachment on this area, He predicted that 1) the Illinois Central would acquire air rights above their property, 2) the railroad would depress its tracks either completely below street level or partially with street levels raised to cross over, and 3) the railroad would be permitted to build (or sell the right to build) high structures over its properties.

Saarinen's plan, which he detailed exhaustively, envisioned development of the Grant Park area to the lake shore on a north-south axis with a central train station below ground in the 80-acre plot now open for building. Above the station he planned a large hotel facing down a mall built over the tracks. Flanking the hotel he planned a variety of commercial buildings all architecturally harmonious and balanced.

All such plans, until now, have fallen through. Difficulties in acquiring sites and cost of developing air space prevented their fulfillment. With Prudential's acquisition, the door is finally opened to the development of the 80 acres.



## CHICAGO'S STRANGEST HIDDEN RESOURCE

## may one day bring air-conditioning to all central business district building

Prudential's plan for complete air conditioning and for running a main two blocks north to tap the Chicago River as a source of cooling water brings into focus one of the city's big problems—and one of its biggest unused assets. The problem is the lack of wide-scale air conditioning in Chicago's commercial buildings. The asset is a fantastic 50-mile network of tunnels beneath the city's streets originally designed to haul freight, but now used mainly for trash removal.

To air condition entire buildings in the Loop completely, the best source of water is the Chicago River (city mains and storm sewers are already overloaded in Chicago). But for the Field building, for example, to tap the river four blocks away and run a disposal sewer line to it would be prohibitively expensive. The expense of installing equipment in already crowded basements of existing buildings puts the cost of air conditioning further out of reach.

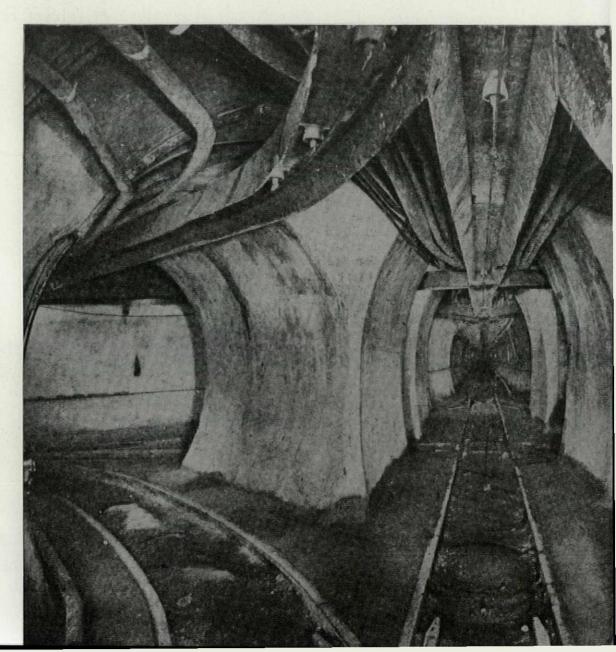
Yet 16 years ago a Chicago engineer, J. L. Wise, analyzed a scheme to use the 50-mile network of small (6' x 7'-6") tun-

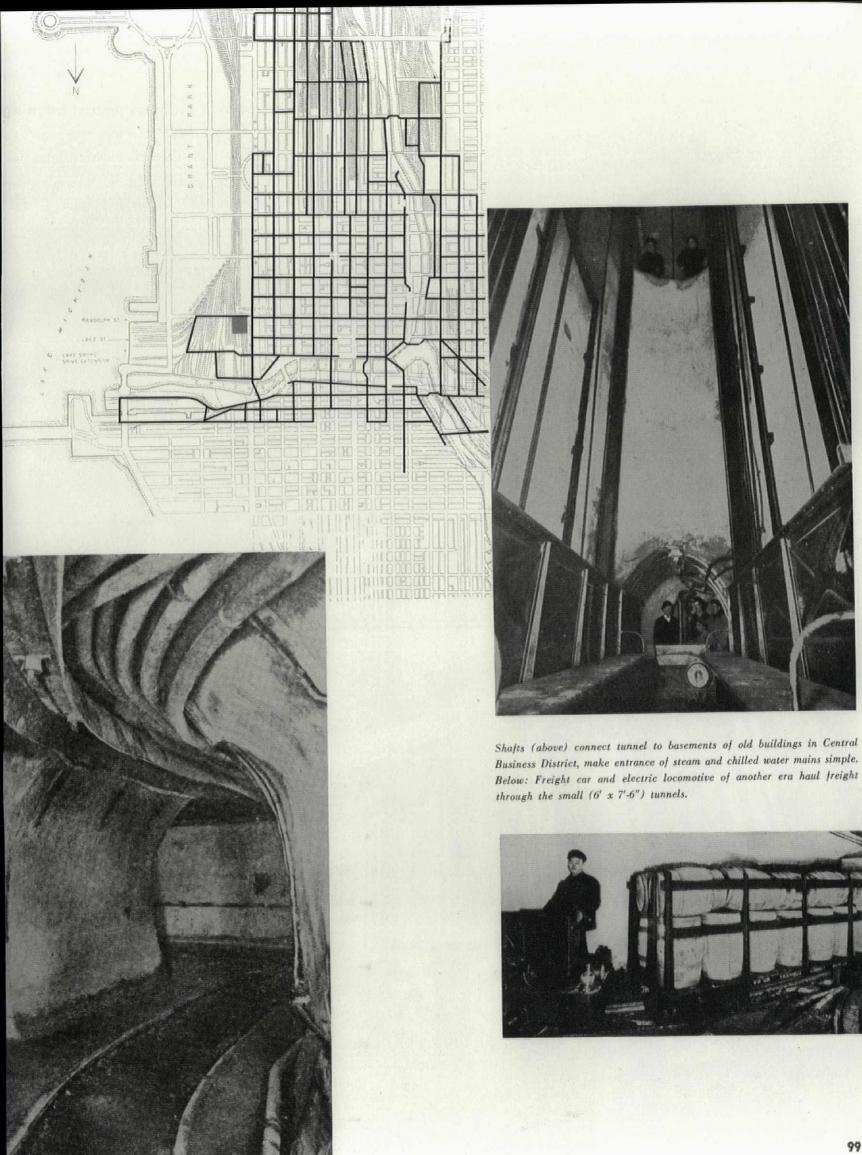
nels to house mains carrying steam and chilled water to all Loop buildings from a central steam and refrigeration plant that would use the river as a cooling tower. In addition, Wise's plan envisions selling by-product electricity to the Commonwealth Edison Co. His budgets show a \$40-million investment would turn the trick, produce a profit of \$11 million if 45% of the Loop buildings used the service. Without the existing tunnels, initial costs, of course, would be much higher. This plan could make air conditioning feasible in even the oldest Loop building.

If such a central system could work for Chicago, it raises the question of why other highly built up commercial areas as favorably located could not do likewise? Why, for example, could not a central plant be built in the Wall St. area to produce steam and chilled water for sale while using the river as a cooling tower?

Admittedly, Chicago's unique tunnel network gives it a head start, but a long-range plan for other commercial districts might eventually prove profitable.

Fifty-mile network of tunnels built early in the century lie 40' beneath Chicago's business streets. Once used as a freight subway, the tunnels connect all older buildings. Plan by Chicago engineer J. L. Wise envisions use of tunnels to bring steam and chilled water mains into all buildings from a central generating plant. He plans to use Chicago River as a "cooling tower"—as will Prudential's new building. Sale of steam and chilled water would be supplemented by sale of by-product electricity to Commonwealth Edison Co.







### **FIVE SMALL STORES**

## 1. Playful chocolate shop

## breaks four rules of store design

### The rules:

- 1. The front must look "modern."
- 2. Strong colors should not be used; they overwhelm the merchandise.
- 3. Don't call attention to the ceiling, away from the the merchandise.
- 4. Sales counters should be all glass (or open) to show as much merchandise as possible.

"Store design is taking itself too seriously," says architect Gruen, himself a pioneer of modern store design. When Barton's Bonbonnière, a chain retailing continental chocolates, asked him to bring a fresh approach to their 50th\* store he saw it as "an opportunity to attack some of the clichés that grow out of the notion there is some kind of a recipe book for store design." In breaking rules, however, he carefully abided by the two basic precepts: 1) put the customer in a buying mood, 2) give the merchandise the best possible break. To these ends, he designed what he calls "a toyshop for adults," and furnished it with a number of clever display devices. Like its predecessor, the new shop immediately proliferated; a second version, in New York, is completed, a third in Philadelphia is about to open.

The front: Like most small, one-time residential quarters in the commercial centers of cities, the building was empty above its ground floor. The oldtime merchant who lived above his wares has drifted away to the suburbs; central warehousing has replaced storage on the premises. These buildings have become an urban version of the false-front emporium in the old western cowtown. The usual solution is either to ignore the upper stories or to cover them with something sleek.

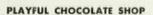
Gruen's solution was determined by the existence of a pleasant Victorian front on a building that could never be good modern; a wish to interrupt the dullness and drabness of the street (in Manhattan's Herald Square shopping district) with something that would make people smile; and a shrewd feeling

Brilliant paint and neon light transforms a typical apartment-over-store building into a lively poster, gives a lift to a drab street.

BARTON'S BONBONNIÈRE: New York City VICTOR GRUEN, architect ALVIN LUSTIG, graphics consultant STANLEY McCANDLESS of Century Lighting, Inc., lighting consultant MESTEL STORE CONTRACTING CORP., general contractor CONTINENTAL SIGNS, INC., signwork

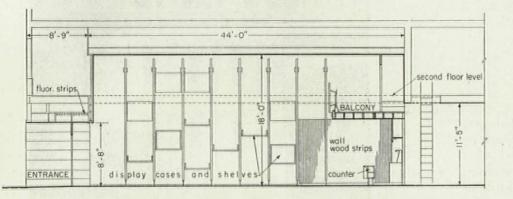
that the most effective "poster" for his adult toy

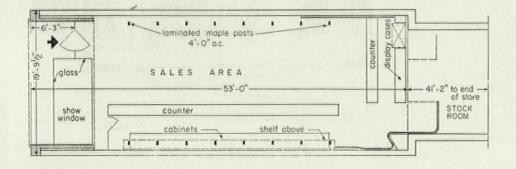
<sup>\*</sup> He also designed their first (Sept, '41 issue) from which the next 48 took their key.





Low entrance ceiling is lighted by fluorescent strips over corrugated plastic. For extra height in the selling area, second floor was removed in favor of a ceiling hung from third floor (see section below). Balcony marks off the separate department for packaged ice cream, emphasizes spaciousness and gives a setting for the main interior sign.







Laminated maple pylons cope neatly with the problem of ever changing signs and seasonal displays. Pylons are pierced every 6" for the handsome, easily turned brass bolts which hold modular boxes, shelves and panels. Each sign panel has four clamps to hold temporary masonite signs that are made up to a predetermined color scheme in the chain's own sign - painting shop. Lighting wires run from wall pull boxes through brass brackets and down the back of rabbeted pylons. All brass fittings were specially cast.

store should be toylike itself. The treatment frankly expresses that this is a new one-story store in an old building. While it pokes mild fun at the original architecture, it does not violate it. The Victorians loved to pick out their doodads in color, and the building's frivolous old age is a logical outcome of its frippery youth. And Gruen's retention of the old brick and trim points a way to keep a quiet harmony on older streets that the usual modern false fronts too often brashly disrupt. So appreciative was the Avenue of the Americas Association that it awarded Gruen and Barton's president Stephen Klein plaques for the lift they gave to the street.

Cost of the treatment of the two upper stories and attic, including roof repairs, repair of ornamental frames around windows, painted windowpanes and sash, sheet-metal and wire-rod work, and the neon lighting that peeks through the sheet-metal holes, was about \$5,000 (or about the same as an economical blotting-out job). The total cost of the job, exclusive of fee and air conditioning, was approximately \$50,000.

Color: In breaking the rule against vivid color, with lavish use of the three primaries, gray, white, black and bright brass, Gruen's intent was to induce a playful state of mind conducive to candy buying, and to set off the color of the chocolate itself. A new technique, worked out by the architect, was used for the color in the structural glass at the entrance and on the pier between the recessed show window and the building line: lettering and stripes were sandblasted into the white glass, then painted.

**Ceiling:** When a guest of Mark Twain's ever hopeful schemer, Colonel Sellers, inadvertently knocked off the front of his host's rickety stove and revealed that its glow emanated from a single candle, the Colonel was not discomfitted by disclosure of his pretense. "What you want," he said, "is the appearance of heat...."

This is precisely the philosophy behind Gruen's frolicsome ceiling. From a light engineering point of view, the three rows of recessed lights give full foot-candle requirements. The spun aluminum chandeliers add little actual light. They are to make the customer conscious of light, and particularly of the festive light associated with candles or Christmas trees. The job of the stabiles in this cheerful legerdemain is to divert attention from the engineered light and air diffusers.

Display counter: The self-edged formica panels form a frame (roughly equivalent to white space in an advertisement or wall space between pictures) for the chocolates, which Gruen felt were less effectively displayed in the usual uninterrupted masses. The utilitarian purpose of the panels was secondary, but it worked out well: to the right of each cash register is a weighing and wrapping counter; spaced along the lower tier are bins for reserves and wrapping materials. Prewrapped boxes are stowed in partitioned space against the wall under the back counter. The delicacy of the 1½" lacquered hardwood frame, which contributes much to the elegance of the counter, was achieved by meticulous detailing and workmanship.



Stabiles, designed specifically to divert attention from the workaday recessed lights, do much to set the store's tone of gaiety. While their design appears free and complex, it is basically simple. Each stabile consists of three identical arms. The 15 aluminum discs then combine the factors of color, diameter (3" to 6") and length of hanging wire (5" to 13") in 15 different ways.

## 2. Stockroom store

## Striking mural plus low budget alteration ideas organize a

## huge miscellany into one tantalizing display

RADIO SHACK, Boston, Mass.

CARL KOCH & ASSOCIATES, architects

(FREDERIC L. DAY JR., associate in charge)

MARSHALL LESLIE CORP., contractor

GEORGY KEPES, mural



View through ceiling shows how edges of the flexible corrugated plastic are held between ¾"-wide aluminum extrusions above and 1-¼"-wide translucent plastic extrusions below. Occasional incandescent bulbs are nightlights. Photo below shows how ceiling merges into wall at rear.



Old stair stringer was covered with ¾" oak skirt. Owner has experimented with arrangement of center counters different from that on plan.

The architects had the measure of this radio and electronic shop's customers: like the people who stand transfixed before hardware or seed stores, they are an enthusiastic tribe; the gimmicks of their hobby are the most fascinating objects on earth.

So they put as many objects as possible straightforwardly on show, made it clear that thousands of others can be had quickly. The shop is really one big stockroom given interior coherence by its unifying ceiling and counters.

On the exterior the display is pulled together and rapport between customers and merchandise further exploited by Kepes's diagrammatic radio-wave mural of wire and porcelain enamel on stamped steel. This mural should and probably will go into the textbooks. It is an example not just of art used with architecture but of art as an integral part of the architecture, something still rare in contemporary design. While decidedly a work of modern abstract feeling, it has a clear—even a literal—meaning for the shop's customers. Most such happy combinations of art, function and communication blossom wistfully in galleries as proposals; this is right out where it belongs. (Nonmembers of the cult in downtown Boston also enjoy the mural, say the architects.)

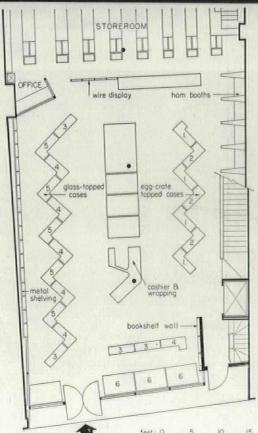
Most interesting interior feature is the mobility of counters and display cases. No. 6 cases (see plan) are on wheeled platforms, are pushed into storeroom at the rear for display changes. Egg-crate tops (Nos. 1 and 2) can be lifted off for refill in storeroom. Space-saving L-shaped elements can be arranged in either saw-tooth or U patterns. (Except for top treatment, egg-crate and glass-topped L's are identical.) Straight elements can be used together at oblique angles by adding filler wedges.

Before alterations the sales area—in an old loft building that had already been through many metamorphoses—was a mess of irrational partitions and patchwork walls. Once the impedimenta were cleared out, alterations consisted mainly of four cover-ups:

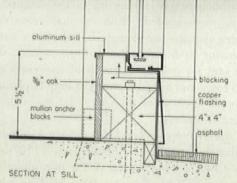
- 1. Cover-up of ceiling with translucent plastic run downward at the rear of the sales area to 7'-6" above the floor; there it meets shelves hiding unaltered storeroom space.
  - 2. Cover-up of old stair stringer with oak box.
- Cover-up of delivery entrance with partially concealing bookshelf wall.
- 4. Cover-up of the old plaster walls, at left with floor-to-ceiling metal shelving, at right behind stairs with acoustically treated open booths. Plywood panels carried through to the exterior are cover-up for pipes near entrance.

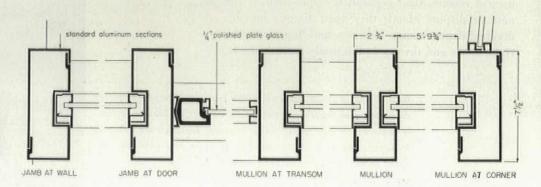
All alterations were made while the store was running full blast.

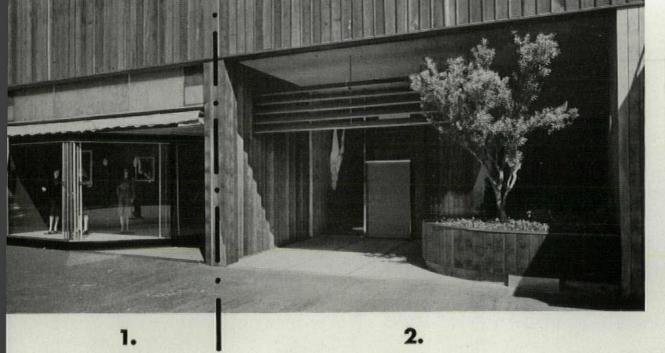


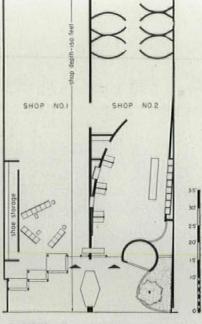


Kepes's entrance mural shows a diagram instantly recognizable to the shop's customers: propagated frequency waves (at left) transformed into output waves (at right) by passage through a radio circuit. The mural is made of wire and colorful porcelain enamel on steel which has a herringbone texture. At night alternating neon and black light give the effect of a "moving" mural. Vertical siding over furring in the unobtrusive service door area covers old structure.









CAHN'S: Fresno, Calif.
ALBERT HENRY HILL, architect
TAYLOR & WHEELER, contractor

## 3. Store in three stages

a well-laid expansion plan

pans out because of good initial design

In 1946, a moderate-priced dress shop in Fresno, Calif., outgrew its drab, cramped quarters, took over a restaurant next door to add new departments, remodeled its new half (AF, July '47), planned some day to remodel the old space, finally did. So far, a common-enough cycle for successful small stores.

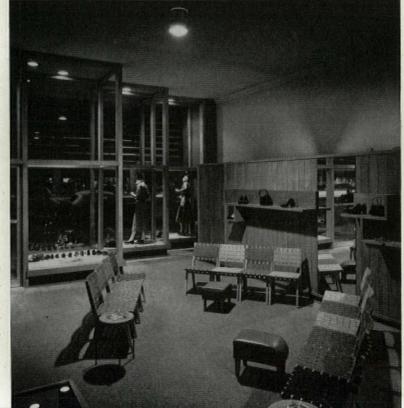
What is uncommon in this case however is that no second thoughts, no jacking up of the original remodeling, were needed. With its good proportions and quiet, sensitive use of materials, the older alteration remains fresh and undated, which is more than can be said for most store fronts of five years ago. Stage 3 could and did go forward exactly as planned, at a cost of \$5,319 for the new front and shoe department (see plan).

The deeply recessed front was designed primarily to combat the western sun and the Fresno 110° heat. It comes into a second use with the new alteration. It creates a unified and interesting outdoor lobby, saves space which would ordinarily be devoted to general entrance area indoors. The two original entrances remain, their separation emphasized by the outdoor display island; they open directly into individual departments—millinery and lingerie on the right, shoes and dresses in the newly furbished left.

Remodeling of Shop No. 1, the store's original space, completes expansion plan begun five years before. Vertical louvers formerly dividing the two shops were removed, leaving only column; horizontal louvers were extended in front of new windows. Resawn fir half-partition in shoe department (right) provides inconspicuous storage for 1,176 shoe boxes.

Photos (above): Roger Sturtevant; (below) Morley Baer





# 4. Investment in design

### Handsome facade of small taxpayer pays off handsomely

Here is a cheap "taxpayer" which has proved to have enormous drawing power because of its design. Designer Ellwood (who temporarily leased one of the stores himself) reports:

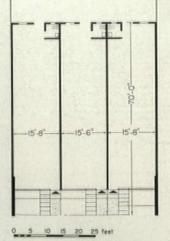
"The owner closed a 5-year lease with another tenant before the expiration of my lease; not one day's rent was lost and further, all stores have been occupied since completion. The new tenant passed up at least a half-dozen comparable-sized neighboring stores at lower rents. Two slightly smaller adjacent stores have been leasing for less than two-thirds as much, have been vacant over two years. This all adds up to the obviously important fact that the small business tenant is willing (and anxious) to pay extra for design; and although he may not completely comprehend the esthetics of a structure, he fully realizes their sales and prestige value."

The canopy was necessary for protection against western sun and the checkered pattern of the facade is the direct result of exposing the steel of the canopy framing (the rest of the building is wood stud, plastered on both sides).

At the glazing plane, exterior and interior walls frame into 6" H columns connected at the top with a continuous laminated wood beam (at the footing they weld to reinforcing rods of a 12" x 24" concrete member). Four 8" beams 20' long project 8'-7" beyond the columns; they are tapered and welded to 3" at outer ends to receive the 4" H-beam which forms the canopy fascia. Intermediate canopy joists are 2" x 10" spaced 16" on centers.

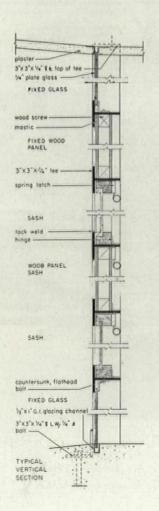
Glazing members, other than the H-columns at interior partitions, are 3" T's, with glass held in place by steel angles, as shown in section. The pattern develops out of the lines of columns and door framing. Three of the small panels beside each door open. All the plywood panels and doors are primary yellow except one panel of orange-red. Steel is deep umber. Veneer units at the ends of the canopy are cement brick actually manufactured for sill units in concrete block construction.

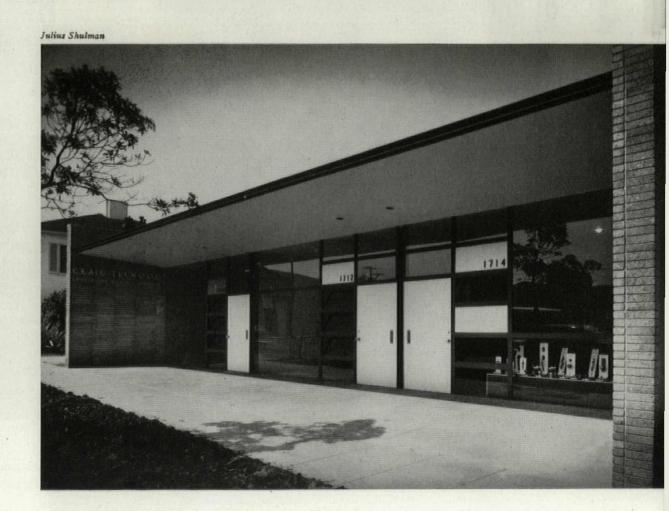
The design's economy of means translated itself directly into economy of money. Reports Ellwood: "Because of the structure's complete lack of embellishment, the contract price (\$4 per sq. ft. including canopy area) was less than for comparable conventional buildings." Rents are \$150 a month for each store. Total cost was \$14,500, including architect's fee of \$1,000. With land cost, the investment was approximately \$25,000; it brings a 15% return before operating costs but after amortization payments on a 12-year, \$12,500 mortgage.



LOCATION: Westwood, Calif. CRAIG ELLWOOD, designer JAY DODSON, contractor MACKINTOSH & MACKINTOSH, consulting engineers

Architect cleverly turned an "undesirable" western orientation to good use: the facade, giving distinction to three otherwise ordinary stores, is based directly on exposure of canopy framing system. Repetition of the glazing pattern in entrance concrete (see plan) is lost in timid execution.



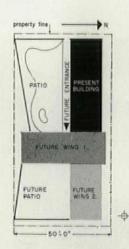




FIVE SMALL STORES

## 5. Designer's own shop

Unpromising site and small budget plus ingenuity and attention to the amenities yield a pleasant, workable shop-school-studio



When Designer Hewitt's former employer turned from homebuilding to land development, Hewitt got the chance to set up his own designing office for builder clients. Meantime the handweaving shop and school and the yarn-and-loom selling business he ran on the side needed more space. Along the way he also formed his own construction company ("I realized that if I was ever going to be able to design contemporary speculative houses I would have to build them myself").

The \$6,000 building he constructed to house these multifarious activities proves again the cliché that ingenuity and taste can go a lot farther than money. Among its virtues:

• an appropriate "handcraft" look without the least taint of quaintness;

▶ a thoroughgoing respect for the pleasantries of life;

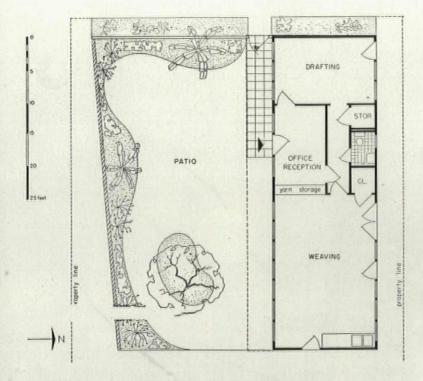
▶ a space-economizing interior plan that is both well defined and flexible;

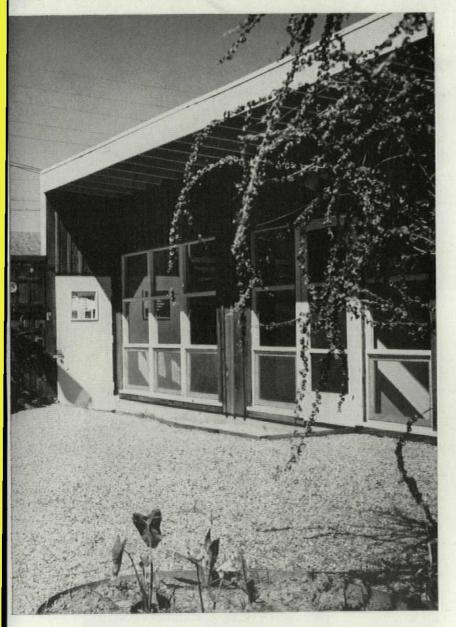
a bold solution to a difficult orientation problem;
 an orderly and realistic expansion plan.

Hewitt's site faced west into the blistering afternoon sun of Texas; the houses of an old residential district crowded against its other three sides. He placed the building far to the north side of the lot, oriented it south for maximum summer breeze and winter sunshine (top winter gas-heating bills run

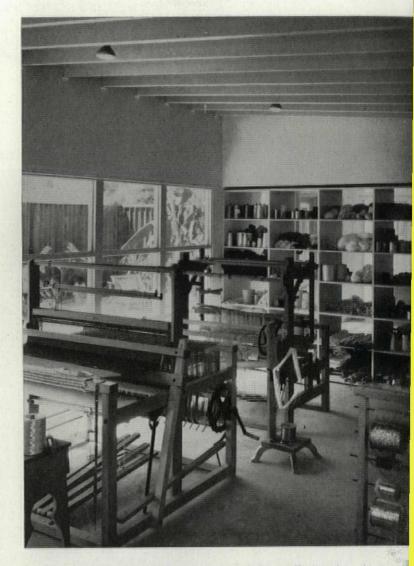


HOUSTON HOUSE: Houston, Texas T. H. HEWITT, designer-owner-builder





Clients, entering through patio gate, get pleasant introduction to shop. After expansion (see plot plan, opposite page) entrance will be at rear of patio. Slab for future first wing (yarn dyeing) is already poured; second wing, with private patio, will be either small apartment or new office space.



Open yarn case partition and patio outlook belie small size of workroom

less than \$1 a month), gave it a patio outlook, completely closed the front except for the patio gate. He angled the patio's southern wall of redwood louvers and sacrificed a wedge of land to give the house next door more light and provide a more interesting shape for the patio.

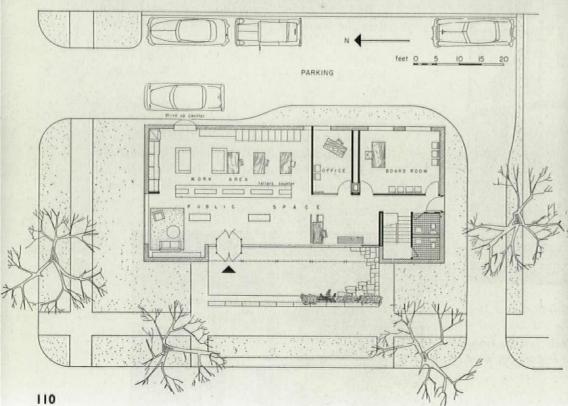
By keeping windowpanes to about 7 sq. ft. (prudent for hurricane protection) he was able to use double-strength glass instead of plate, keep the glass cost of the south wall to \$133. The single row of high, obscure windows on the north are the same size.

Ingenious feature of the interior is the rolling yarn case which creates a half-screen between the reception and weaving rooms; its contents are open to weavers on the one side and to yarn buyers or clients for upholstery and drapery fabrics on the other. It can be moved to create one large area for exhibitions.

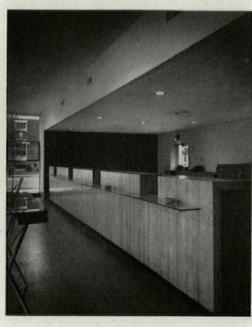








Banking floor (above) is opened to street on two sides but separated from sidewalk traffic by front terrace and side yard. Tellers' "cages" (below) are also open.



THE MAGAZINE OF BUILDING

### WIDE-OPEN BANK turns itself from an institution into an invitation

Photos: Bill Hedrich, Hedrich-Blessing

by featuring an open front, lounge area, driveway teller's window

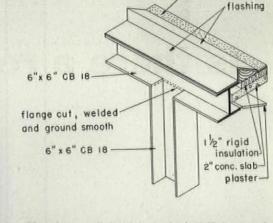
This handsome savings and loan headquarters in Holland, Mich. very nearly turned itself inside out to get rid of a bank's traditionally institutional look. The architects persuaded the conservative bankers to accept a complete expression of the contemporary approach: 1) A spacious terrace delineated by a low marble wall separates the bank from the sidewalk, 2) Floor-to-ceiling windows are recessed in the center of the facade to make all bank activities visible from the street. 3) Inside, only a simple counter and a break in the ceiling level separate customers from bank personnel. 4) Lending officials are separated from the public only by a token railing which defines their desk area-only enclosed spaces in the building are service areas, basement vault, one office and a boardroom. 5) One end of the foyer is turned into an informal lounge-waiting area. 6) A curbside teller's window facing the rear driveway and parking lot permits motorists to transact business without leaving their cars.

Structure of the bank is as simple as its operation. Because the cast gypsum deck with built-up roof is supported on bar joists spanning the 32' depth of the building, there are no bearing partitions inside to inhibit rearrangement of the space. It is large enough to handle 100% more business than is currently being done. Along the window front thin H-columns carry the roof load, are capped by another H-member used as a plate on which bar joists bear. Taper at the ends of these joists produces a thin, simple cornice line as well as overhang for sun protection for the westerly facing building. (Further protection is given by tall trees in a park across the street.)

Lighting over the employees' area is provided by incandescent downlights recessed in a hung ceiling of acoustical tile. In public areas, spherical incandescents are suspended from the high, plastered ceiling. Heat is forced hot air with provision made to accommodate air conditioning in the future. Cost-\$42,980, or \$18.77 per sq. ft.

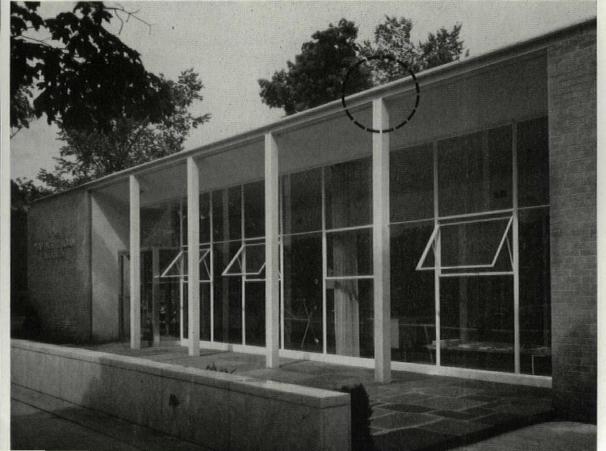


Side street fenestration (above, left) echoes pattern of main facade. Latter is floodlighted at night by fixtures behind terrace parapet.



built-up roofing

Glass front wall (left) is set back 3'-8" from roof line for sun protection. Soffit slope formed by taper of bar joist produces thin roof line comparable to slim detailing of columns (detail above).



LOCATION: Holland, Mich.

OWNER: Ottawa Savings & Loan Association

ARCHITECTS: Harry Weese, John van der

Meulen & Bruce Adams

GENERAL CONTRACTOR: Gordon Streur

Here assembled for the first time in any publication are the basic facts about the supply of steel for construction:

- In 1929 the building industry got 2,744,615 tons of heavy structural steel. In 1949, the last year before Korea, it got 1,538,435 tons, only 56% of what it was getting 20 years earlier! Last year it got only 2,242,877 tons.
- No other major user got less steel in 1951 than in 1929. In the intervening 22 years, total net steel production was increased 71%, or 32,931,205 tons. But steel for construction was cut back 19%, or 501,738 tons.
- 3 Erected cost of structural steel has increased from \$90 in 1929 to \$235 today. Of this \$145 increase, \$36 was for the rolled shapes, up from \$38 to \$74; and \$109 was for fabrication and erection, up from \$52 to \$161.
- 4 More and more building jobs that would have been built in steel a few years back are going to concrete, in whose use more and more economies are being worked out.

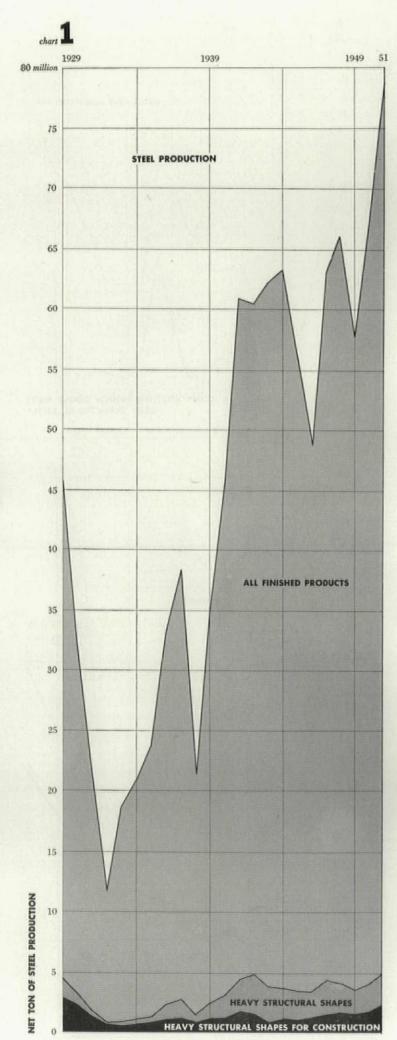
Around these facts, the construction industry is witnessing a great argument:

# Is there a real structural steel shortage?

... has Steel's production kept pace with its customers' needs?

"In my opinion, the present capacity to produce and fabricate heavy structural shapes far exceeds normal demand." So says F. K. McDanel, president of the American Bridge Division, biggest fabricators of structural steel. He voices the opinion of the entire structural steel industry.

Answers the US government: "Demand for heavy structural shapes is 150% of supply." And the government believes it speaks for the construction industry.



Source: American Institute of Steel Construction

The shortage question is an old quarrel with the steel industry, which in both World Wars I and II came under heavy pressure to expand capacity or risk the advent of competition from government-built steel mills. Now the pressure is on again, and Steel is talking back.

Assume that there is a debate, and that Steel's position is contested by Construction, who is chiefly interested in the building industry's share of structural steel.

STEEL: You're worried about structural steel. All right. We say we can produce all the steel that is needed.

CONSTRUCTION: That's a tall statement. How do you back it up?

STEEL: By facts. We're producing almost 80 million tons of finished steel a year. That's close to double the 1929 rate.

**CONSTRUCTION:** If you don't mind, let's stick to the question, which is structural steel. I'm particularly interested in a comparison between production now and in the last big building period of the late 20's.

steel: Same pattern. In 1951 almost 5 million tons (4,921,970) of heavy structural steel shapes were turned out. (That doesn't count junior beams or any other light members.) That's as much as we put out in the peak years of the war, and more than the 4,542,288 tons produced in 1929.

construction: That's one way of looking at the figures. But what interests me are statistics which show that the decrease of structural steel to construction users has been serious since 1929. That year (when, as you say, 4,542,288 tons of heavy structural shapes were produced), construction got 2,744,615 tons—or 65%. Of 1951's 4,921,970 tons, however, only 2,242,877 tons—45%—went to construction. In 1949, the last pre-Korea year, construction got 1,538,435 tons—or 42%—of the 3,651,743 tons produced. (See Chart No. 1.)

STEEL: But that's hardly the fault of the steel industry. We're producing more structural steel.

CONSTRUCTION: Then why is construction getting so much less?

**STEEL:** There are many new users of structural steel. The railroad industry is spending heavily to make up for the rundown state its rolling stock reached in the war; it is buying structural shapes for the undercarriages of railroad cars. The revival of shipwork is taking structural shapes, too. Another new market is for the heavy structural steel bases widely used under today's heavier production machinery.

CONSTRUCTION: Well, then, why haven't you expanded your production of structural shapes enough to take care of your new customers without taking 500,000 tons away from construction? You should be able to take care of the new users and still give construction what it needs.

**STEEL:** But that's just the point. We are. It's a matter of interpreting construction demands. The figures shown in allocation requests are ridiculously swollen. And if you're saying that construction has increased a lot since 1929 you're on the wrong track. It hasn't.

**CONSTRUCTION:** Yes it has. Look at the Department of Commerce figures (*Chart No. 2*) showing the adjusted dollar volume of construction for the last 22 years. It puts 1951 construction 30% above the 1929 peak.

**STEEL:** Not the kind of construction for which structural steel is needed. Take out housebuilding and such miscellaneous items as farm construction. Then you get a better look at the construction picture as we see it: the kind of construction that could use heavy steel is only 15% higher. (Same chart.)

CONSTRUCTION: Well, even your own figures show a shortage. With heavy construction up 15% from 1929, you say it got 20% less steel. That's certainly a big enough squeeze to force prices up. So let's talk about prices. Wouldn't a lot more builders want steel if it weren't so high priced—so many more that you couldn't take care of them at your present production level?

**STEEL:** You'll pardon me if I sigh wearily. I'm getting a bit used to these price fixing-charges. Take a look at the Bureau of Labor Statistics' index of building costs since 1929. (Chart No. 3.) You will see that structural steel has kept discreetly below the combined cost index for all building materials, and its rise has been nowhere near so spectacular as the skyrocketing of such individual materials as lumber, for instance.

**CONSTRUCTION:** That's unfabricated steel. How about steel in place?\* Contractors are paying \$235 today for steel that cost \$90 in 1929.

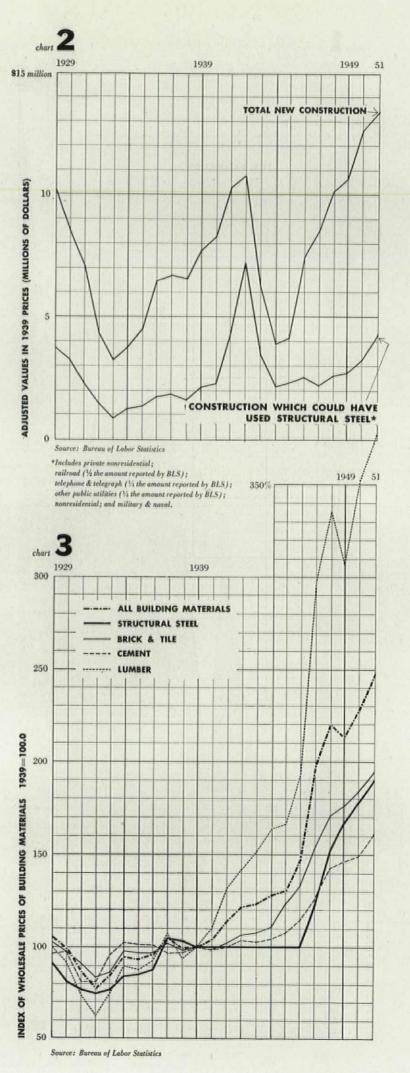
**STEEL:** Is that increase out of line? Building prices average 2.5 times what they were in 1929. Two and a half times \$90 is \$225. Any two bids are likely to vary as much as \$10 a ton.

construction: The price rise in unfabricated structural shapes may be OK. But it looks to me as if the cost of fabrication and erection is more than three times what it was in 1929. As I get it, the picture looks like this:

	SHAPES	FAB. & ERECTION	TOTAL
1929	\$38	\$52	\$90
Now	74	161	235

steel. That's right. Costs of fabrication and especially costs of erection have risen much more than the cost of producing steel. Take the prime example—labor. The riveter is a vanishing man in today's building labor force, and it costs a lot more to keep him on the job. Often riveters won't work unless they can get enough overtime to double their base earnings on a 40-hour week, and even then they erect less steel per man-hour. Wage rates in the fabricating shop have gone way up, too—almost tripled in some areas.

<sup>\*</sup>In comparing the cost of unfabricated structural steel with the steel the contractor finally pays for, the only reliable cost figure to use is erected steel—which figure includes the cost of both fabrication and erection. So far as construction is concerned, erection is generally considered to be part of the fabricating process, since in more than half of all steel jobs—and in probably more than 80% of all big jobs—the steel work is erected by the company that has fabricated it.



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### The debate is over; now a look at the basic economics of the structural steel industry

Structural steel is a very tight little market, tighter than steel as a whole and one of the tightest in all US industry. Two producers (US Steel and Bethlehem), who produce only 60% of the nation's total steel supply, produce 90% of the structurals. Mill affiliates of the Big 2—USS's American Bridge Div., and a special division of Bethlehem—hold a perhaps equally dominant position in fabrication; they buy the shapes from their parent companies, fabricate them, and erect most of the heavy shapes they fabricate. Just what percentage of the total annual output of fabricated heavy shapes they are responsible for, they are not saying. But if you are a contractor putting up a big (over 12-story) building, you will likely get only three steel bids—one from each of the Big 2, and one from a local competitor.

Structural steel is such a tight market that these two producers have been under no competitive pressure to increase the supply of steel for construction at the same rate that the rest of Steel has expanded to serve industry as a whole. They have let heavy structurals fall from 10% of total production in 1929 to 6% today, and Building's share fall from 6.6% in 1929 to 2.8% today. With total steel capacity up 71% since 1929, production of heavy structurals is up only 9%, and Building is getting less than none of the increase.

#### Why has this happened?

One reason might be that the steel industry, distrusting the traditional boom-and-bust history of Big Building, has been cautious about going too far to meet its boom demands.

Another reason might be that the scattered building industry, unlike the concentrated automobile industry, could not threaten to build its own mills if Steel did not take care of its increased needs at a satisfactory price.

The third reason is one that may surprise the building industry: as Steel sees it, Building will not pay enough for its structural shapes. The steel industry can get more money by selling basic steel to other customers—particularly such new buyers as the automobile industry.

In the building boom of the 20's the automobile was only a minor customer in the nations' steel markets. In 1926 the automakers bought less than 6,000,000 of tons of steel; in 1946, they bought more than 17,000,000 tons. And as that industry has grown, it has paid well. In 1946,\* when structural shapes were selling for an average \$46 per ton, the automakers paid an average of \$62 per ton for this steel. (In fact, of all major steel products, only rails sold at a lower price—\$43—than structural shapes.) Even allowing for the higher fabricating costs of the steel products used by the automobile industry (and even bearing in mind that the costs of structurals is more or less a matter of bookkeeping when the producer does the erecting too), it is probable that steel makers find Auto's price more profitable than Building's.

From Steel's point of view, this glimpse of the competition for basic steel points directly counter to Construction's lament that structural steel costs too much. Indeed, if the matter were introduced into our theoretical debate, an aghast Construction might say at this point: "Do you mean that structural steel

\* Last year for which comparative price studies are available. (National Bureau of Economic Research reference series.)

is not overpriced but underpriced?" And a smug Steel would reply: "That is correct."

Does all this mean that the pattern of Big Building must be shaped by the amount of steel the steel industry wants to give it at the price steel chooses to set? No.

#### The construction industry is not really defenseless

In the first place it can do much itself to cut the cost of steel:

- by wider use of welding and continuous design, especially in buildings under six stories;
- by using high-tensile bolts if riveting is too costly (see AF, Mar. '52);
- most important of all, by dimensional standardization.

THE MAGAZINE OF BUILDING last year held a round table on waste, attended by leading architects, big builders, engineers, producers and government men. Those experts compiled a report which stated: "If after careful study architects, engineers, and builders could agree that the requirements of almost every (commercial) structure could be met by columns spaced 20', 24', 28', or 32' apart (or on some other increment), the whole economics of steel construction could be revolutionized. To complete this revolution, NPA might well invite the patriotic cooperation of code-making authorities in accepting national standards for floor loadings and perhaps for wall weights. Structural shapes could then be rolled by the mile, stock piled in a minimum of sizes, ordered out by the bay, and sold at prices reflecting all these economies."\*

(See AF, Mar. '51.)

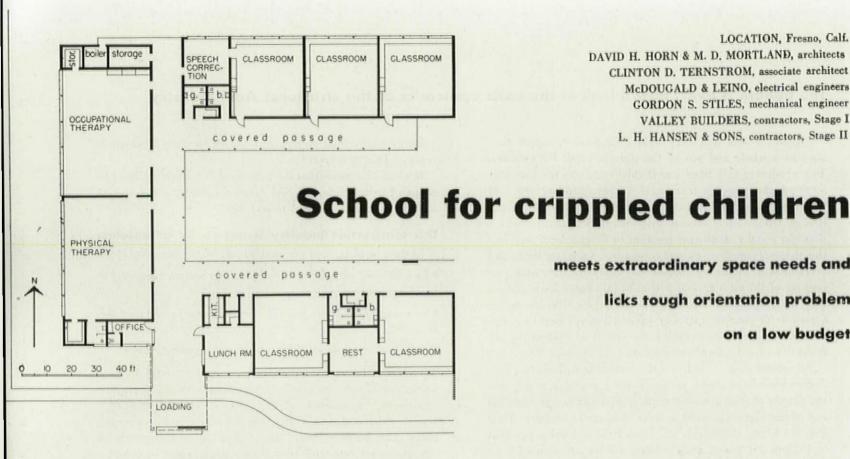
#### But Building has yet another defense

Against Steel's cooling interest in its problems is the warm interest that Concrete is showing. Today, Concrete is bidding for Steel's customers harder and more successfully than ever before, aided by new technologies like prestressing, continuous design, stronger mixes and forms so smooth that you need no plaster.\*\*

These developments have in the past few years given a new importance to reinforced concrete in this country. And it may well be that that importance will grow even more as Steel continues to cold-shoulder Building. It may be that in the dust stirred by the debate over Steel, the construction industry glimpses a rupture in the 50-year-old marriage of modern design and steel construction, and in that dust the signs of a new romance.

<sup>\*</sup> Twenty years ago the American Bridge Co. tried to encourage such standardization by offering lower prices for standard steel sections for highway bridges (where a few inches could make little difference). But even here the construction industry was so wedded to the wastes of special design that the offer found no takers.

<sup>\*\*</sup> One notable example of the kind of building that concrete is not likely to take over, however, is the one-story factory, which has become a big new user of structural steel since 1929 (when a large percentage of factories were multistory and built of reinforced concrete). Two big reasons have made the one-story factory almost a captive of structural steel: 1) the steel does not have to be fireproofed; 2) factories today are designed for very long spans for which truss construction, economical for one-story factories but out of the question for tall buildings, makes it possible to design for very economical use of steel



LOCATION, Fresno, Calf. DAVID H. HORN & M. D. MORTLAND, architects CLINTON D. TERNSTROM, associate architect McDOUGALD & LEINO, electrical engineers GORDON S. STILES, mechanical engineer VALLEY BUILDERS, contractors, Stage I L. H. HANSEN & SONS, contractors, Stage II

meets extraordinary space needs and licks tough orientation problem on a low budget

There are more than 2 million physically handicapped children of school age in the US. By and large they have been getting a poor deal. Too many who are unable to make out one way or another in regular classes are assigned to home instruction simply because no proper school provisions exist. Or they attend special classes in handicapped buildings planned as churches, barracks or regular schools.

Sunshine School, biggest school prizewinner of 1951 (three awards from AASA, one from AIA) squarely tackles this problem, shows how the school districts of Fresno city and county were able to build specifically for severely crippled children at a cost of only \$110 per pupil per year over a 30-year period. Even this figure doesn't indicate all the school gives for the money. Besides its 50 regular day students (aged 3 to 21), it serves as many "outpatient students" who come only for therapy.

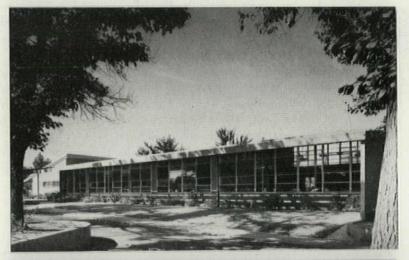
The school stayed within an over-all budget of \$64,368 for the 1949-built stage I (south wing and physiotherapy unit) and \$101,788 for the 1952 stage II (north wing and occupational therapy unit) by sticking absolutely to essentials.

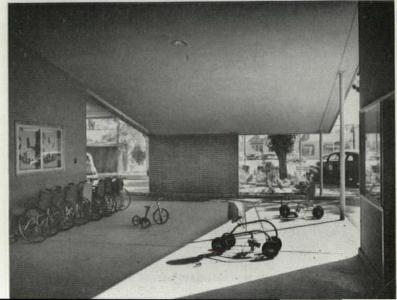
First among the essentials were seven points that architect Horn worked out after investigating all crippled children's schools in his part of the state (and discovering that most were in makeshift quarters). The points:

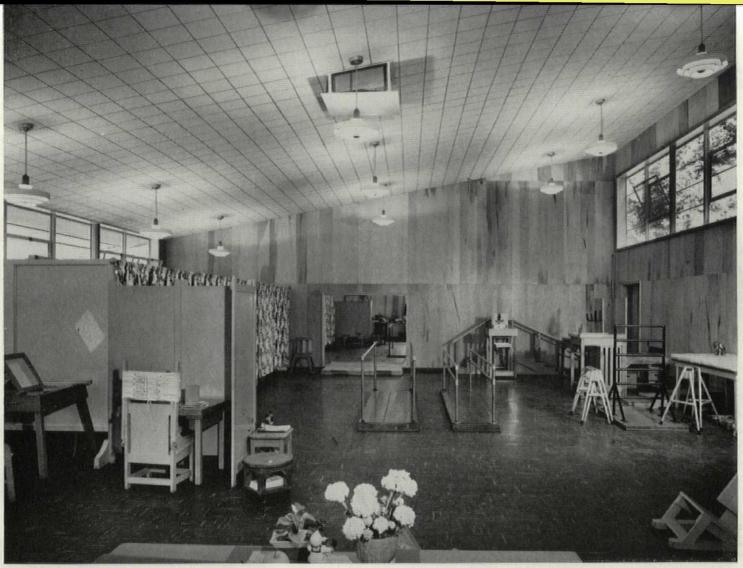
- > Space for wheel chairs and other special equipment in corridors and classrooms (classroom allocation per pupil is close to 100 sq. ft., more than three times that recommended for ordinary schools);
- All floors at one level, including exterior porches and entrances;
- Extra space around toilet fixtures, vertical and horizontal hand bars adjacent;
- All doorways large (3'-6" was found adequate);
- Large kickplates on lower parts of doors and jambs to protect them from equipment;
- Sinks and work counters open under and in front so they can be approached and used by children in vehicles or special chairs;
- Large storage areas for bulky, specialized equipment. Second big essential was a playcourt protected from occasional



Section shows sun protection arrangements for classrooms on both sides of playcourt. Below, south wing facade and, bottom, entrance area.







Physical therapy room opens into outdoor entrance area for serving nonstudents as well as enrolled pupils.

winds on the north and from sun on the west and south. This posed a problem in classroom orientation. In the hot, sunny San Joaquin Valley children get enough sun out of school, need to be protected from it in class; north exposure is considered ideal. The architects managed to give both classroom wings large windows and two-directional lighting, and at the same time locate corridors on the court side of each wing, by providing the south clerestories of the north wing with vertical louvers, and the big south windows of the south wing with horizontal louvers (see diagram). Horizontal louvers filter out the west sun from the therapy units, and obscure glass in the lower west windows prevents activities in these rooms from being observed from the street.

Construction is steel beams and columns with wood stud walls and partitions; stucco and cement plaster exterior; gum plywood interior. "The important lesson learned from this project," says Horn, "is that adequate space properly related to function is far more important than elaborate construction or finish."

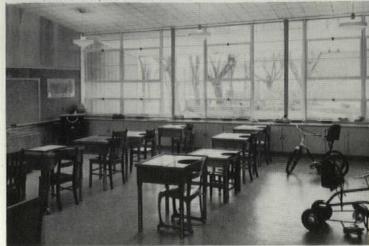
As usual, real life had a couple of surprising last words. Originally, glass windows were planned to enclose the court corridors, were omitted only for economy. Use indicates that the open corridors are far more desirable because the children are able to use them as part of their play space and because closed corridors would have been subject to considerable glass breakage. While it remains true that stairs would have impeded activities and created problems, Horn reports: "It later developed that a practice stairway for children to learn to climb stairs was desired. At present the school uses a temporary movable type. However, for children who have learned to conquer this piece of equipment, the administration feels it would be desirable to have a real stairway fairly comparable to that found in residential and other common buildings."

COST DATA: (excludes architects' fee but includes site preparation and paving figure of \$18,293)

	sq. f	t.	cu. ft.		total
Stage I	6,673 @	\$ 8.70	87,640 @	\$0.66	\$58,070
Stage II	6,855 @	13.72	91,672 @	1.03	94,248
Complete	13,528 @	11.25	179,312@	0.85	152,318
Cost per cl	assroom				\$30,463
Cost per pu	ipil				3,046

East classroom in south wing, Rooms are usual size for 30 pupils in ordinary school but here take only ten because of bulky equipment and individualized instruction.

Photos: (below) Claspill's Studio; (others) Julius Shulman



# **Dual purpose schoolrooms**

### bring big building advantages to small elementary school

Outstanding feature of this four-room rural school is the clever use of the corridor as a working part of the "multipurpose" area, Multiuse economies are multiplied and the usual awkwardness of multiuse arrangements is diminished.

By simply dropping the customary partition between main assembly room and corridor the architects have converted the corridor into an open, well-lighted annex. The annex alone is used as cafeteria. Food spilled on its asphalt tile floor is no hazard to players on the main floor of maple. Cafeteria tables need not be removed to make the main room quickly available for plays or assemblies; the same applies to corridor seating setup for sports spectators. The two areas, clearly marked by different ceiling heights and intervening columns, are easily used by separate groups or in combination.

Space normally occupied by the foyer is thrown into the multipurpose area, but placement of the entrance (see plan) keeps traffic out of the cafeteria corridor.

The school has borrowed welded rigid frames from factory construction. (Due to supply difficulties, the steel is overly heavy.) Walls are brick and concrete block with 1" air space. Floors are radiant heated by warm air which is guided through a 2' deep hypocaust between the 5" concrete foundation slab and the 2%" floor slab and then discharged into the rooms through grilles under windows.

Success of the classroom lighting scheme (see sketch) relies on wood and aluminum egg-crate diffusers hung beneath skylights on the south slope of the roof. HILL SCHOOL, Crystal Bay, Minn.

BRANDHORST & HARDENBERGH, associated architects

DEAN L. WITCHER INC., contractor

BEN MAYERON, structural engineer

GAUSMANN & MOORE, mechanical engineer

Photos: Photography, Inc.

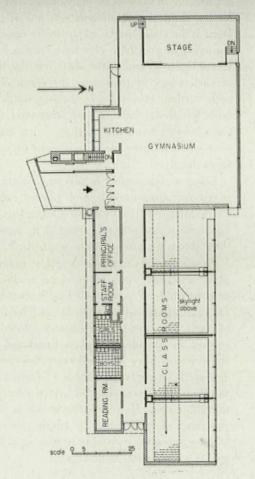




South facade features main entrance which opens directly into the assembly area (above, right). Usual foyer and corridor space are absorbed. Service entrance is neatly worked in behind main entrance.

#### COST DATA

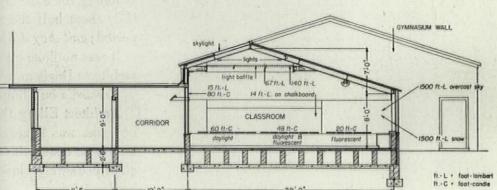
William William	
Total	\$178,297.00
Per sq. ft	16.00
Per cu, ft	1.05
Per classroom	44,574
Classroom per pupil	1,486







Low-ceilinged space serves as cafeteria or for gym spectators; large meetings use the entire area. Roof is steel decking; cafeteria ceiling has sprayed acoustical plaster.



Classrooms have north windows and a skylight on the south roof slope. Top lighting is diffused through a wood and aluminum egg crate. Sketch shows readings of foot-candles and foot-lamberts (units of light given back by a reflecting surface) on an overcast day.



Photos: Hedrich-Blessing

Hospital is pleasantly domestic, uninstitutional, in spite of rigid economies of construction and detail

### **BARGAIN RATE BEDS**

Despite full air conditioning this small Nebraska hospital halves usual bed costs by sensible economies of structure and space

The farming community of Seward Neb. (pop. 3,000) had a site and a top limit of \$225,000 (½ Hill-Burton funds) for a county hospital and everything in it. It also had hopes of getting something around 30-35 beds. With other small communities paying an average of approximately \$9,600\* per bed for construction alone, chances of reconciling the hopes and the budget looked impossible. But—

They got their 33-bed hospital—and a good one—with all its equipment, furniture, bedding, utensils and full summer and winter air conditioning for \$219,398. They got it at a construction cost of \$4,946 per bed, about half the average of small hospital contracts let in the same period; and they did so with better than average fire resistance in this class.

It was no fluke either. Five other rural Nebraska hospitals designed by architects Davis and Wilson landed in the same construction cost brackets as Seward's building.

Architect Ellery Davis modestly points out that a big factor in the low bed cost was simply "getting as many beds as possible." Illustration: bids were taken with and without the two south bays of four rooms. These eight beds were obtained at a construction cost of \$9,300 or \$1,117 per bed!

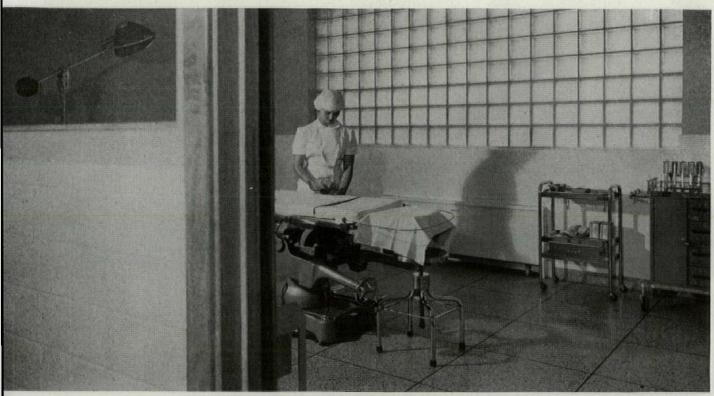
The trick of course is to pare down the expensive general costs to their irreducible minimum, so as to have money left for "as many beds as possible." At Seward the trick was turned partly by economical construction resulting in a low cost per sq. ft. (\$11.07 against an average of \$17.46), and partly by saving space (451 gross sq. ft. per bed against an average of approximately 550). Says Davis: "Low bed cost in small

MEMORIAL HOSPITAL, Seward, Neb.
DAVIS & WILSON, architects
WESTCOTT & BOWEN CONSTRUCTION CO.,
general contractor

<sup>\*</sup> All comparison figures, 1949







View of operating room from scrub-up area. Operating and delivery room orientation is northwest

hespitals is achieved by being liberal with the total net bed space and as stingy as possible with the space devoted to other facilities; the only other factors are careful economy all along the line." Here's how they thought out the problem for Seward.

The architects took a good hard look at the inevitable fact of low operating and maintenance budgets, at the requirements of summer air conditioning and no large wards; and at the site (level near the street frontage, sloping sharply at the rear). Then they made five fundamental decisions, proceeded to rationalize the design from these.

- ▶ 1. There must be a central duct system zoned to meet varying load conditions for summer cooling. Rationalization: this means it will cost little to add steam coils for winter air conditioning, and with complete mechanical ventilation (a) some functions can be completely interior; (b) most window areas can be fixed.
- ▶ 2. A single nurse's station must control the nursing unit, operating and delivery suites, emergency, visitor traffic. Rationalization: this means a compact, cruciform plan.
- ▶ 3. There must be absolutely no unused cubage. Rationalization: since basement facilities must be limited to the few functions requiring a minimum of stair travel, this means the floor level must be set as low as possible.
- ▶ 4. The design must be kept architecturally simple; no elaboration or stunts of any kind. Rationalization: this means nothing special, nothing custom built, widest latitude to all contractors in choosing among competing materials. (The only special items in the entire building are the inexpensive, low silhouette ventilators shown in detail. They were designed by the architects to avoid making the flat roof an exhibit of sheet metalwork.)
- ▶ 5. Almost all rooms must have two beds. (Only one room is single.)

With a fully equipped city hospital 30 miles away, Seward's need was mainly for maternity care, minor operation and emergency accident facilities. The architects held this constantly in mind, refused to let the building get too big for its breeches. A glance at the plan shows how general space (exclusive of bedrooms and patient toilets) was held down to a low 343 sq. ft. per bed. Facility by facility, space was parceled strictly on a basis of saying "without sacrificing the limited functions needed, what can be left out?"

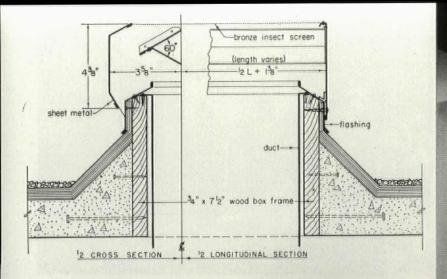
Example: the X-ray department, instead of consisting of radiography room, darkroom, office and separate waiting room (as it does in many small hospitals of similar purpose), is trimmed to its essentials: radiography and darkrooms. Storage is well distributed but minimal. The only questionable space economy is the joint emergency-operating scrub-up area opening directly into emergency.

Each bedroom got one fixed glass area large enough to make the room bright and cheerful; beside it (located at foot of beds and hinged to catch prevailing winds) a single commercial steel casement. Only six rooms out of the 17 got private toilets. Washbasins are out in rooms, neatly tucked beside closets. A questionable economy is the one bathroom, no showers, for patients.

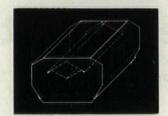
Construction is rib joist, lightweight steel, with 12" bearing walls of brick and light-weight concrete block. Floor and roof construction are concrete over riblath. Interior finish is painted plaster with tile wainscot where necessary; basement masonry was left unplastered.

Heating is forced circulation hot water with convertor in two zones; air is forced over high-pressure steam coils in three zones. The air-conditioning system provides for 100% outdoor air because of the putative ways of viruses, with provision for reducing fan speed under extreme weather conditions. Cost of the summer cooling system was kept down by omitting provisions for reheating the air. (Reheating is considered advisable when proper humidity control dictates cooling air to temperatures uncomfortably low.) Davis points out that the ceiling of a one-story building in summer is an automatic radiant reheat surface in spite of insulation and roof flooding, says that a number of such installations without reheat have proved perfectly satisfactory to clients. It creates no problem in delivery and operating zone where humidity must be kept high in any case to combat static electricity.

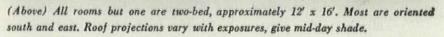
Davis remarks that eager bidding (which the Seward job had) can reduce costs as much as 20%, and a wide and fair latitude on materials, resulting in substantially the same building, can bring a 10% reduction. Even giving these factors full value and assuming them not to have held elsewhere, costs at Seward per sq. ft. and per bed were still far below average. It looks as though good basic thinking and plain penny watching all along the line gave Seward full value for its money—and then some.



Low silhouette roof ventilators are inexpensive, proof against rain, snow and blow-back. The one shown above takes 3" ducts; designs for 5, 7 and 9" ducts vary slightly in proportions. Largest is 11-%" high.

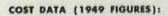




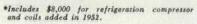


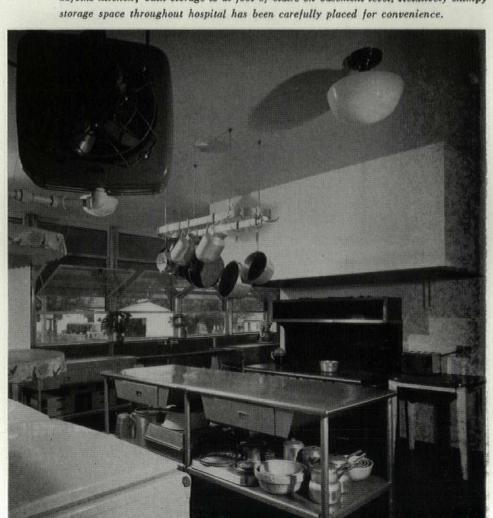
(Left) Nurse's station serves also as reception desk, has good control over all hospital traffic. The single waiting room, doubling as lobby, can be seen at rear.

(Below) Kitchen has northwest exposure to leeward of prevailing winds. Day storage adjoins kitchen; bulk storage is at foot of stairs on basement level, Relatively skimpy storage space throughout hospital has been carefully placed for convenience.



General contract	\$101,756.00
*Plumbing, heating, vent.	50,351.00
Electric	10,907.00
Finish hardware	1,854.00
Total construction	164,868.00
Architects' fee	9,617.00
Furn. & movable equip.	44,913.00
Total	219,398.00
Const. cost per sq. ft	11.07
Total cost per sq. ft	14.66
Const. cost per cu. ft	.63
Total cost per cu. ft	.79
Const. cost per bed	4,946.00
Total cost per bed	6,597.00







USHA: photo by Oliver

# What is urban redevelopment?

Replanning of Washington's famous Capitol slums poses a basic question for every US community

by MARY MIX FOLEY

Among newspapers in Washington, D. C. there is a horrible photograph used periodically to raise the blood pressure of the readers. It includes a slum alley, the dome of the Capitol of the US, and occasionally a shocked Congressman deploring the shanties and trash on the national doorstep. The scene has stirred indignation for generations. It is still good today.

Now for the first time Washington has a real chance to eliminate this perennial picture—by bold use of the redevelopment title of the 1949 Housing Act which gives federal and local aid for clearing the worst rundown areas.

But in this clearing and rebuilding Washington poses a question vitally important to other cities:

Should urban redevelopment attempt to raise the character of an entire area thus bringing economic health and desperately needed tax money back from the suburbs?

▶ Or should redevelopment simply clear slums, ceding in perpetuum the best city land to the lowest income families and in all probability creating new slums for the future?

Closely tied in with this question is another: should the bold steps necessary to attract private investors be taken—or should much of the lots go to public housing by default?

These questions rage around a new proposal—the so-called "Justement-Smith Plan" for 427 acres of the worst slums in the "southwest survey area," directly below the mall, with a 1950 population of 22,539 and a "redeveloped population" of 24,172. The architects under a contract with the Redevelopment Land Agency, have proposed bold changes. The scheme foresees a richly varied area: a fitting part of the capital, an asset rather than a drain upon its budget.

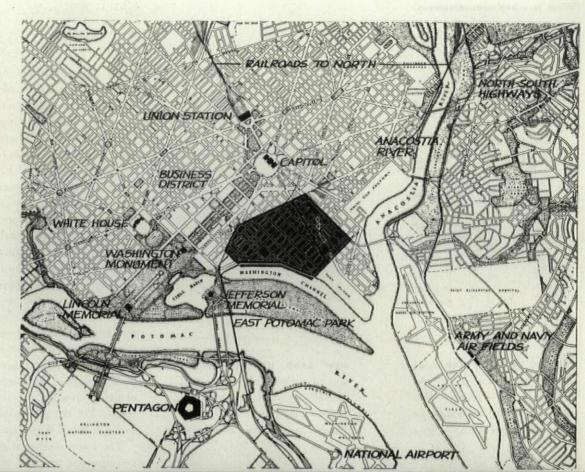
But the National Capital Park and Planning Commission, with power of veto over any redevelopment proposal, appears to want little change in the southwest area. They have summoned formidable and august consultants to prove that "natural expansion" will happen elsewhere, that what has been tends still to be. And when the district commissioners hold hearings in September, to determine whether and for what to

JUSTEMENT, ELAM & DARBY, architects and KEYES, SMITH & SATTERLEE, architects & LETHBRIDGE, associate



MAP OF CITY CENTER points up strategic location of southwest survey area (dark tone). No other section is so near all major transportation outlets, government core of the city, central business district and existing recreational facilities.

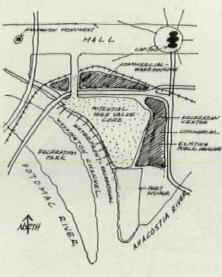
AIR PHOTO brings out important relationship of the rundown southwest survey area to the mall on one side and the river with its yacht basins on the other. Big building at left is Government warehouse.





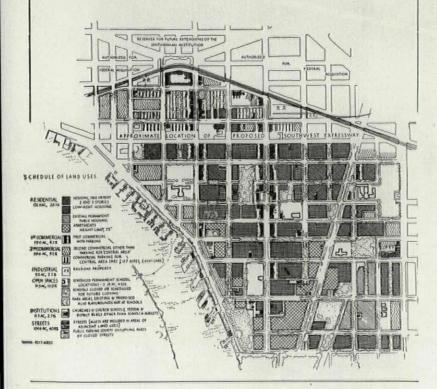


existing land use map shows chaotic mixed usages in this problem area. Within its 427 acres of blight are almost no structures of real value.



NEW LAND USE MAP shows transformation of slum with link to Mall, organized high potential core on waterfront, and buffer of low-cost housing and commerce.

Plan BY ELBERT PEETS was used by National Capital Park and Planning Commission as a "basically conservative" scheme to guide changes disturbing the present slum-dwelling population as little as possible. Its buffer area (north of expressway) is solidly dedicated to an iron curtain of "second commercial uses" isolating the area psychologically and through commercial traffic. Existing stores are opened by giving them limited parking. Many existing structures would be preserved (Philadelphia has found remodeling extremely expensive). Areas: 122 acres residential, 19 commercial, 53 industrial and secondary commercial, 55 parks, schools, recreation, 7 public and semipublic, 171 streets & alleys.



make appropriations, only a thorough airing of basic facts and principles can overcome ingrained official timidity.

What makes the southwest area particularly challenging is its strategic location. Lying southwest of the Capitol it is within walking distance of all congressional buildings, most government offices, the Smithsonian Institute, the National Gallery of Art and, across the Mall, the central business district. It is five minutes by car from the Union railroad station and the Pentagon, ten from the National Airport. Its entire southern boundary is waterfront, already partially developed into marinas by the US Corps of Engineers, with the National Yacht Club prominent, and the beautiful grounds of Fort McNair extending to the farthest southern tip of land. Five minutes away by ferry are swimming, golfing, tennis, boating and picnic grounds on East Potomac river park, a curving peninsula which follows the southwest's shore line. Due west is the. Tidal Basin and to the north the Mall with the Jefferson, Washington, and Lincoln memorials. A proposed expressway will soon makethe southwest the major north-south tourist route through Washington, and the entrance to the city from the south. No other area in Washington, and indeed few in any city, can boast such convenience to work, recreation, and transportation facilities of all types. Yet the southwest, like a bad spot in an apple, is in decay in the midst of Washington's greatest beauties.

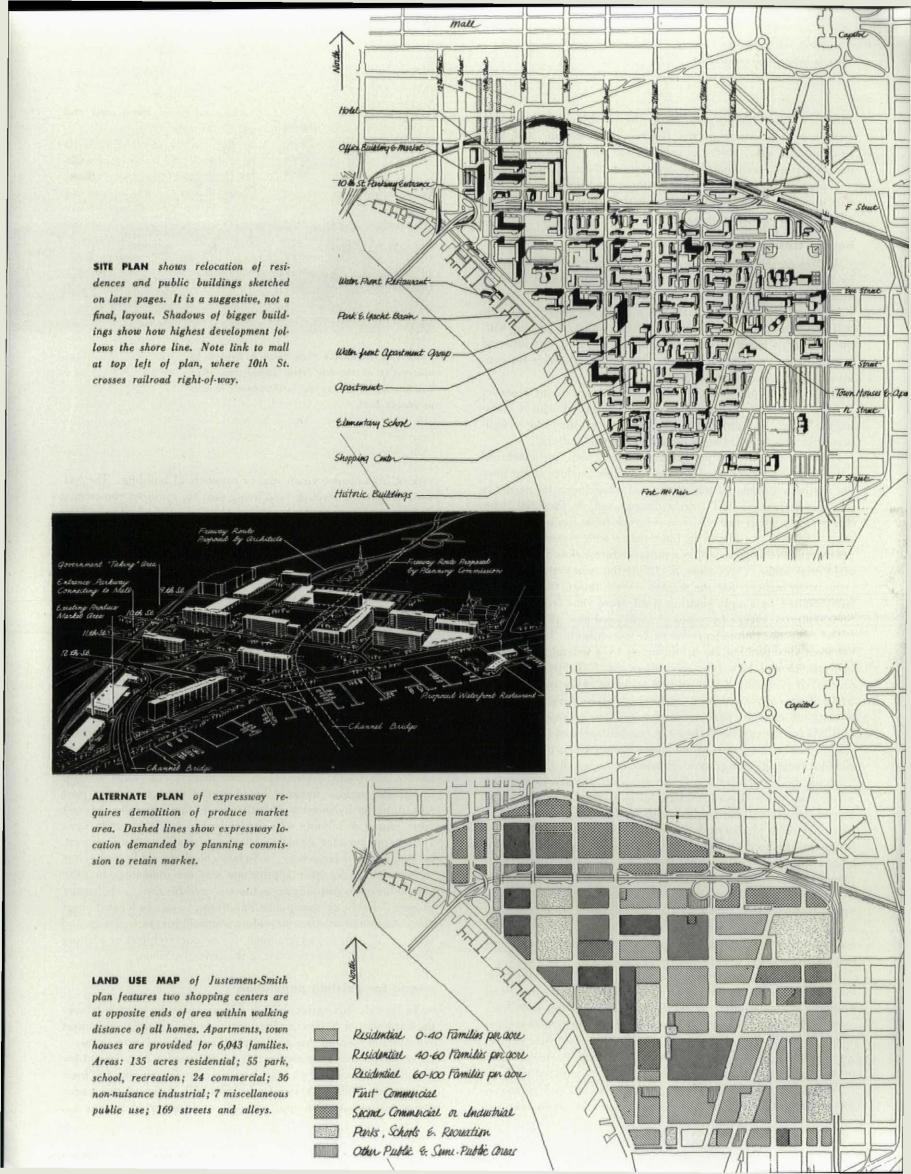
The basic reasons that once made it so poor are gone. Its once swampy and malarial character due to the drainage canal is long since past, leaving only relics, in the dingy commercial areas—some of the dingiest in Washington, cut off as the area is from the rest of Washington by the Pennsylvania Railroad tracks (see plan, left above). The question is, can such an area, many years run down, be reunited to its city? The Justement-Smith answer is, yes, but only by decisive and comprehensive measures.

#### "To stir men's blood"

The key to making the southwest area really profitable, so reasoned Justement and Mrs. Smith, is its unusual fine length of attractive, yacht-dotted waterfront. And the key to converting the waterfront into the first-class residential section that it should be, is to open up an easy link—easy to travel and easy to follow by eye—between this new waterfront and the Mall to the north, where people of high income have their work. And once open to the Mall (less distant from the southwest waterfront than New York's Madison Avenue is from new apartments on Sutton Place), the new-fashionable district would be in close contact also with the fashionable area of the Washington northwest. (The projected expressway would connect it with high-class areas across the river.)

This then would make the choice, converted waterfront genuinely attractive to profitable investment—intense in value, not dense in population—a section of elevator apartments set in parks, close-to existing first-class recreation and projected shopping, a section capable of reversing the flow of high-income population out west-beyond the city boundaries, bringing back the tax income to thecity by which alone the city's contribution to redevelopment could be both diminished and recouped, and the rebuilding of lower-income areas farther east in the project be supported without disastrous public cost.

The solution (see plan, top, opp. p. and sketch) shows a broad landscaped avenue straight through on 10th Street, from the Mall south to the waterfront, running between luxury apartment houses, offices and perhaps a hotel, set in parklike grounds. Development of subsidiary access on 4th and 7th Streets replaces shabby stores with new garden apartments, a planned shopping center and community buildings, set back from the street line to



allow lawn and landscaping. And the north-south expressway (which is under study by the Highway Commission—and here runs east and west) places an entrance for out-of-town traffic near the waterfront, surrounded by open green space.

These projects are accomplished without condemning really valuable or irremovable commercial property, which is rendered inoffensive by a procedure of skilful buffering.

#### How to cross a commercial "moat"

At present, the southwest is cut off from the rest of Washington by the Pennsylvania Railroad tracks and an adjoining band of dingy warehouses, markets, and ramshackle houses. This is what was hitherto pinched off the area as a neglected island; and now that the expressway is to be built farther south and parallel with the railroad, a band of land averaging roughly 200' in width and lying between the two will be more than ever unavailable for genuinely livable residential building.

To traditional planners this might have been a major obstacle, but Justement & Smith have simply played hopscotch with it, crossing the "moat" by a series of existing bridges and shielding its ugliness from view by building or planting as visual "buffers."

In the first version of the Justement-Smith plan, the anachronistic terminal market next to the shore, with its produce center near the northern boundary, was eliminated altogether. Its need for this special location had largely disappeared, so they felt, with changes in shipping methods. And the truck traffic inseparable from the market was considered an interference with a satisfactory expressway interchange as well as a nuisance factor close to high-class residential areas. (See plans p. 127.) But when the planning commission insisted that the market remain intact, the architects compromised by simply shutting it off from view from the 10th Street entrance avenue by means of a proposed new office building.

Buffering the railroad proved to be not difficult. It is already cut from view between 7th & 9th Streets by a federal warehouse; between 9th and 12th (the area where the 10th Street entrance crosses) it is already depressed and could be easily covered; and where it rises above ground it can be shielded, by park strips using existing tall trees, by parking garages and new commercial buildings. As for the express highway, it can be depressed like the railroad below street level at the more important crossings, and shielded from adjoining luxury apartments by wooded park strips.

Along the waterfront itself, the open-air restaurants and fish wharves to which Washingtonians bring their out-of-town guests are not demolished, but farther south along Main Avenue, a complex of stores, a lumberyard, and other commercial buildings have no compelling need to occupy the choice area, to which all have helped to give it its "wrong-side-of-the-tracks" reputation. It is planned that they be removed (to other equally good locations). In their place, beyond the present yacht club and its marinas, is placed an inviting park strip with walks, a bicycle path, small refreshment stands and a spacious waterfront café. This development is in conformance with the Corps of Engineers plan for further development of yacht basins and pleasure boating.

In all of this, the compelling reason was to attract tenants from the higher income brackets. The cost of condemning commercial property would be offset by increase to the city's tax rolls from luxury riverside apartments and restaurants similar to those erected along Chicago's Lake Shore Drive. Planned shopping centers would regroup commercial interests in an attractive setting, again promising greater taxes as a consequence of stimulated trade.

Without the presence of inviting entrance streets and an attractive waterfront, however, private investors would hardly take the



PARKWAY ENTRANCE from north is flanked by apartments on the left (view above) and office building on right (opp. p.) with farmer's market at ground level.

risk of high-income residential or commercial building. The hazards of entering through, and living next to, rundown commercial districts and large public housing projects would undoubtedly keep away the type of resident necessary to transform the southwest.

#### Behind the periphery: more modest uses-

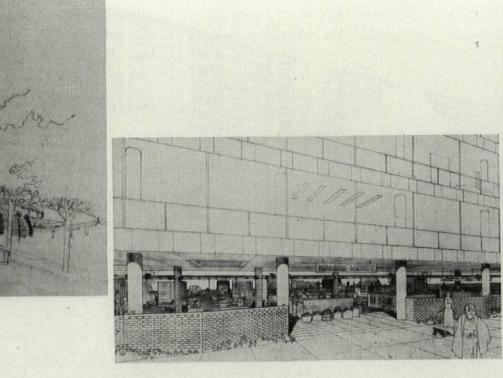
If preceding paragraphs have treated of the periphery of the southwest and its traffic arteries, that is because this is the natural location for top-rank investment—as the aerial photographs of any well-kept waterfront among US cities will show. But these peripheries cannot be separated from the area as a whole. Coincident with the entrance and waterfront treatments in the Justement-Smith plan is the planning of the central portion, interweaving medium and low-cost housing that will lead from the high-rent waterfront apartments to existing public housing near the railroad at the east. Here are shops and markets, schools, churches, and community buildings for a balanced urban neighborhood.

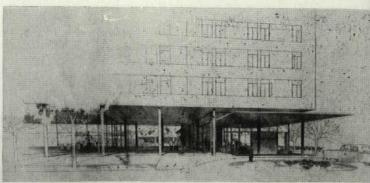
The aim is stated in the architects' presentation: "The great FHA garden apartment developments and more recent huge elevator apartment sections financed by insurance companies offer poor substitutes for balanced neighborhoods . . . they are dull . . . (and) form islands of families with similar income levels, interests, ages. . . . No one investor should be allowed to dominate the southwest, no single type of residence. . . . No large block should be exclusively 'residential' where other appropriate uses are indicated. In addition to the main shopping areas there is need for the . . . old 'corner grocery.' Public or semi-public buildings . . . can be located along main residential avenues, providing welcome breaks in design and scale. . . ."—And, just to clinch it, "no one architect or planner should dominate" the execution of the general scheme.

#### -and for existing population

To provide this variety within a large redevelopment is to take the hard way in planning. It is particularly difficult in southwest Washington because this area is predominantly a Negro slum.

Actually some of the southwest's public housing is at present for low-income whites and an experiment in mixed occupancy has been announced. The plan shown here places high-income housing near the waterfront, retains approximately one-quarter of the present





HOTEL is strategically located to serve visitors arriving by rail, air, or car.

HIGH AIR VIEW shows retention of produce market (lower left corner), just off expressway. North-south link with mall is behind prominent screening office building, left foreground. Much of bow-shaped area between expressway and railroad is given to warehousing, shopping centers. Right foreground, high-class apartments; behind, low-cost housing; behind all, Capitol.



#### SHOPPING CENTER

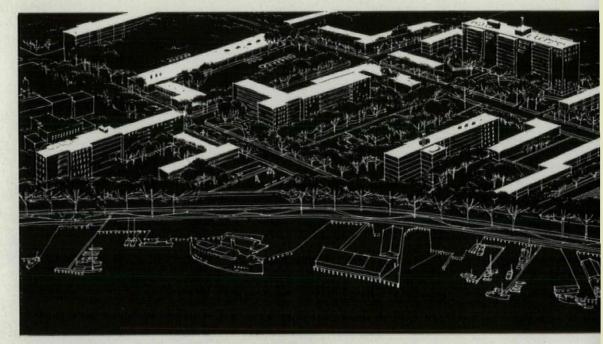




ELEVATOR APARTMENT

#### Residential development to attract capital, produce varied community

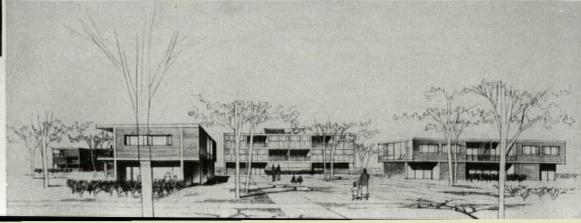
Sketch at right is key to the most intensive redevelopment proposed for the sake of economic rehabilitation. Elevator apartments (as in top sketch) flank open park areas facing on shore with its marinas. Well-to-do tenancy could justify erection by downtown stores of outpost shopping centers (above) to decentralize today's congestion. Below is seen the kind of public housing to which some planners would mistakenly devote all the area, thus causing its further decay. On the other hand, such housing in controlled quantity can help keep the area varied and is humanly very much more valuable than the many big FHA projects today serving only one layer of society. At the other extreme, large private families can enjoy city houses (bottom, right). Although Justement-Smith plan has been criticized as "fancy," it still serves one-fourth of present population; the most conservative other plans serve only one-half. For the sake of one-fourth of the occupants, say Justement & Smith, some planners would ruin chances of the entire area.



APARTMENTS ON OPEN PARK are possible only by clearing low-grade commercial uses of today.



TOWN HOUSES and garden apartments offer yards, balconies and roof terraces for family living in downtown Washington. Public housing (left) has raised quality of district but cannot support its economics as the only or major type.



population in existing public housing and new low-rent apartments near the eastern boundary, and interweaves medium and low-cost dwellings in between. The intermingling of white and Negro homes which still exists to some extent in Georgetown proves that it is feasible even in a fashionable area. Builders and investors have not seemed to be deterred by this factor in the southwest: but this may be an important reason for the official desire to keep the southwest a low-income area, despite land costs of \$5 and \$6 a sq. ft.

The land price remains the same, no matter whether high-income or low-income redevelopment is chosen. The only difference is in the burden for the US taxpayer and the Washington taxpayer when low-grade redevelopment can't carry a fair share.

#### Comprehensive or piecemeal?

For many years southwest redevelopment has been a series of starts, stops, surveys, plans and reports which produced a great many words and drawings but no change in the southwest. The Justement-Smith plan was contracted as a "preliminary final" solution. Other plans had already been scrapped as "not bringing about a sufficient transformation of the area to justify redevelopment." A bold plan to change the character of the southwest was therefore requested by the Redevelopment Land Agency. It had to meet stringent requirements by the National Capital Park and Planning Commission making it difficult to accomplish. Densities and uses had to be held within hair's-breadth allowances. Now that the plan has been worked out within the specified limits it has been met with less than unqualified approval.

Main criticisms of the Justement-Smith plan are found in a recent report by Harland Bartholomew & Associates of St. Louis, long-time consultants to the planning commission. Mr. Bartholomew states: "The result sought by the plan requires a complete transformation of the area; a result not easy to accomplish and the eventual success of which is questionable. While redevelopment should raise the level of the area, the level sought here is believed to be too high."

Under dispute are the moving of existing commercial property, the inclusion of "too many high-income apartments," and removal of a substantial proportion of the present population to other areas throughout the city. But in its concern for the present occupants the commission has passed over the fact that even the most conservative of former plans, which maintained the southwest as a predominantly low-income area, were compelled to move half the present tenants elsewhere to meet approved densities. The difference between high-level and low-level redevelopment is not the difference between taking care of all the present population in the area as against taking care of none, but between taking care of one-half as against taking care of one-quarter. And the three-quarters which must be rehoused under the Justement-Smith plan would not need to be moved in a single operation—as happens in large homolithic redevelopments—but a few at a time as projects were built elsewhere on more suitable sites.

The architects contend strongly that there are other areas in Washington, areas which lack the natural advantages of the southwest, which are far more appropriate for low-income housing.

As for the purchase of existing commercial property, that too must spread over a period of time, its cost absorbed as redevelopment progresses. One thing, say the architects, is sure: the *value* of the land acquired, and consequently the income to be derived from it, cannot go down in a genuinely healthy high-income area.

The Planning Commission is now at work on a compromise which purports to combine the best features of the Justement-Smith plan with a more conservative one which had earlier been dropped as "not bold enough." Some high-income housing is included near the waterfront, but no attempt is being made to remove existing commercial areas or improve the approaches to link the new housing with other desirable areas in the city.

If the Commission thoroughly explores low-velocity redevelopment it is likely to reestablish the hard facts of economics: That you can't pay \$6 for land and build for low rentals and preserve quality and escape suffering ruinous money losses.

The Justement-Smith plan may not in all its details be letterperfect but it does depend on the classical approach to American city building. To interest builders at a profit—the very ones who at this moment are projecting big apartments across the river there has to be intensive use promising adequate return, based on an over-all attractive condition, brought about by planning.

### **Washington comment:**

JOHN NOLEN, director of planning, National Capital Park and Planning Commission: "The southwest is ideal for low-income families working in the terminal, the railroads, the markets. These people must live somewhere. The northwest already has prestige. New high-income development can go there. We also feel that the Capitol and Union Station have a magnetic pull. Our plan for East Capitol Street is many years away-but we'll eventually place public buildings there. This will stimulate redevelopment by private enterprise. There's no need to invoke the redevelopment process . . . ."

JOHN SEARLES, executive director, Redevelopment Land Agency:

"The Bartholomew concern wanted to associate themselves with a realestate outfit in town. They chose Charles C, Koones, He knew Morris Cafritz was committed to 4,500 highincome units in Virginia—that's why he thought the competition was too much to insure more than 1,200 in the southwest in the next 20 years."

ALVIN L. AUBINOE, builder (The Dupont Plaza, the Congressional Hotel):

"If we can get a good approach-a beautiful approach—so you don't feel you're going into a slum, I'd be very interested. The Justement plan is just what I like, just what I want. I could name 10 or 12 builders who agree with me. Right now I have enough builders to build the whole thing up. I'd take several blocks myself. I'd do a multistory apartment on the waterfront, some part of the commercial, some twostory row housing and some detached. But I hear they're going to water it down. The boys from St. Louis are trying to plan this city and it won't work. We wonder if the whole idea isn't to make it so poor it will all have to be public housing. If they don't have a good approach it won't be built-by private enterprise."

JOHN IHLDER, executive director, National Capital Housing Authority:

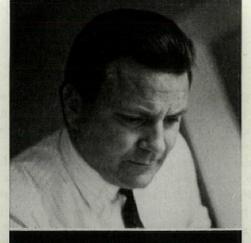
"The Justement-Smith plan is building a luxury type of dwelling for a high-income group which is not adapted to family life and children. Are you building for a stable population or for visitors? The purpose of rebuilding a city is to make it a place in which all kinds of people have their place. In the past, under private real estate, we have given all the preference to the well-to-do, and have pushed out the poor people. It's my job to try to stop the pushing."

W. G. LYONS, special assistant to the director, Housing and Home Finance Agency: "The locality must decide what type of area they want it to be. The federal government should not give an opinion as to whether the plam is good, bad or indifferent at this time. Anyway, high-income development depends on what kind of money you can get to go in. As far as the spirit of Title I goes, the best they can do is take people out of the slums and put them in better-housing."

GERTRUDE CLEARY, executive secretary, Washington Building Congress:

"The planners think they can't change the southwest. But the business people are worried about what's happening to values in downtown Washington. I think the southwest is the crucial test for urban redevelopment. This is the chance of a lifetime to really do something instead of puttering around with little second-rate things. There are locations which should be kept as lowcost areas and these people can be rehoused there. There's a group of builders and real-estate men who are even trying to work with the Redevelopment Land Agency to put up low-cost housing on 70 acres of land-I can't tell you where-to rehouse these people. So rehousing doesn't have to be a problem."

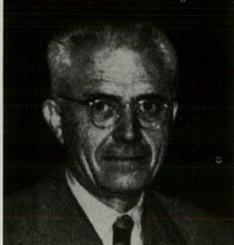
ZEHRFUSS



BREUER

NERVI





What lies in store for

# **UNESCO HOUSE?**

On September 15, two architects and one engineer will submit to the UNESCO General Conference in Paris plans for a new 2-billion-franc headquarters building to be erected in the Bois de Boulogne, on an impressive site donated by the French government. This design commission-second in international importance only to the one awarded after the war to build the UN headquarters in Manhattan-went to a team of three men long known for their brilliant leadership in modern architecture and engineering: Bernard H. Zehrfuss, architect and chairman (France), Marcel Breuer, architect (US), and Pier Luigi Nervi, engineer (Italy).

To give FORUM readers an inkling of what kind of building these three men are likely to produce, we have assembled on these pages representative examples of their executed and projected designs for other buildings. Rumors are that the first stage of UNESCO HOUSE will be a 20-story office skyscraper, that more facilities will be added later.

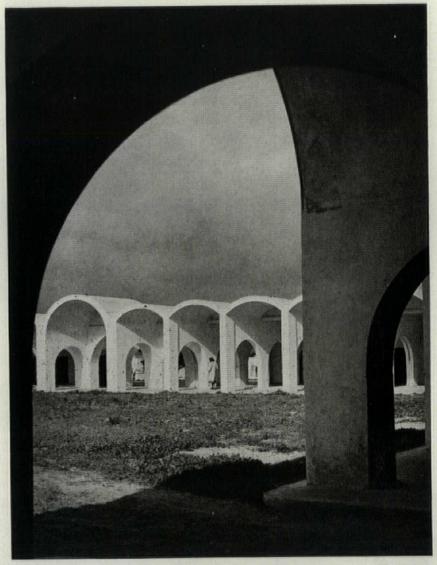
Judging by the Zehrfuss-Breuer-Nervi designs shown on these pages, UNESCO HOUSE will be 1) strikingly modern, with the best features of American and European modernism expressed without compromise; 2) superlatively well engineered, probably in Nervi's favorite medium, reinforced concrete; and 3) technologically superior to most French buildings of the postwar years.

If and when the UNESCO General Conference approves of the Zehrfuss-Breuer-Nervi scheme, FORUM will publish the preliminary design and let readers decide how well the promise of past performance has been fulfilled.



#### BERNARD H. ZEHRFUSS, FRANCE,

is chairman of the team,
won the Prix de Rome
in 1939, has built extensively
in Tunisia, France, Spain
and Portugal. Though
apparently somewhat influenced
by French pioneer Auguste
Perret, Zehrfuss' work
(especially in Tunisia, where
he is supervising all
postwar reconstruction) has
distinct personal flavor.



Covered Market in Bizerte-Zarzouna (N. Africa) by Zehrfuss, Drieu & Kyriacopoulos



Renault automobile factory under construction

Zadika College, a French-Moslem high school in Tunis



Photos: J. Kidder Smith



Building workers' Social Security building in Paris

MARCEL BREUER, US,

was born in Hungary, educated at Germany's Bauhaus where he later became the youngest teacher. Inventor of tubular steel furniture, Breuer has done architectural work in Germany, Switzerland, England, Latin America and the US, long taught at Harvard. His former partners include Briton F.R.S. Yorke and Walter Gropius.



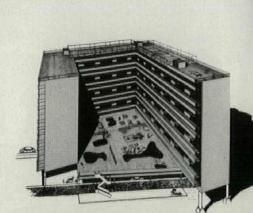
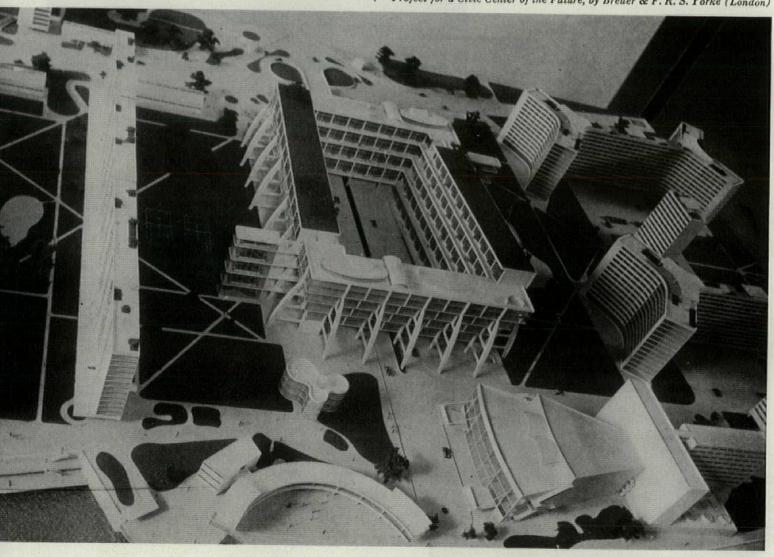


Foto Finsler

Apartment houses in the Dolderthal near Zurich, in partnership with A. & E. Roth

Project for a split-level apartment house on New York's East River front

Project for a Civic Center of the Future, by Breuer & F. R. S. Yorke (London)



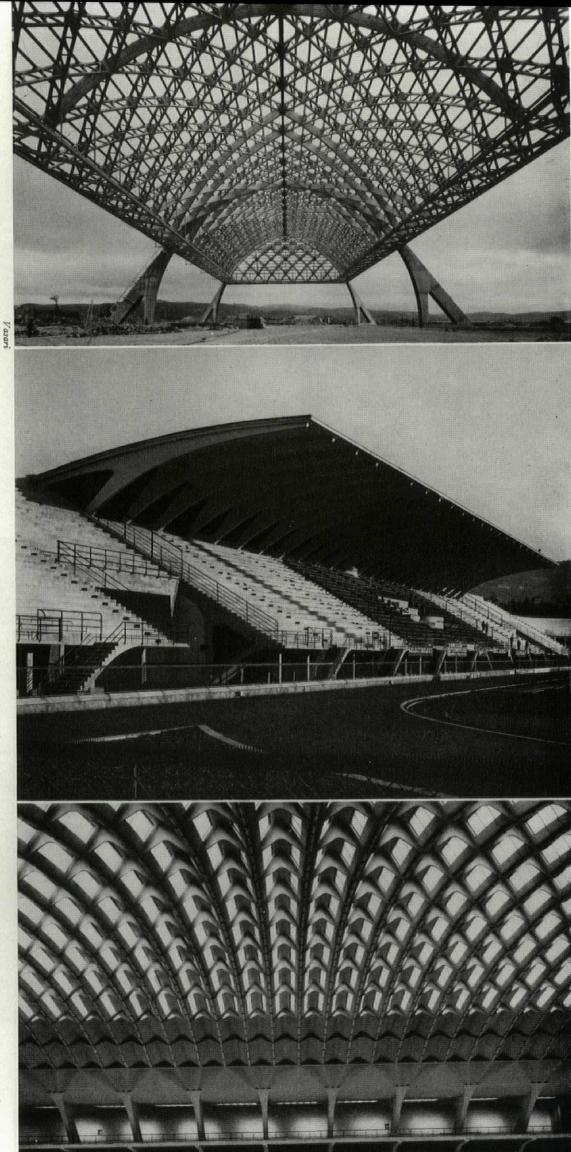
Airplane hangar measures 325' x 130'

ne of the world's most lliant engineers, teaches hitecture at the University Rome. His designs in nforced concrete and el include huge hangars, dia, exhibition halls, ps and aquaducts. Ich of his work done in collaboration



h the engineer Bartoli.

Stadium "Giovanni Berta" in Florence



Exhibition hall in Torino

Seattle's combined War Memorial-Public Safety Building has main facade on heavily traveled street (below), uses rear of lot on quiet street as Memorial Plaza (r.).





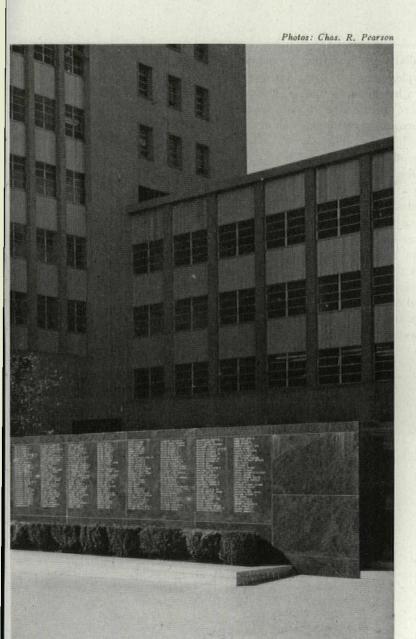
# DOUBLE

Names of city's World War II dead are inscribed on 9' red granite wall separating plaza from building



NARAMORE, BAIN, BRADY & JOHANSEN; YOUNG & RICHARDSON; E. MARCUS PRITECA, Associated Architects CARLETON and DETLIE, B. MARCUS PRITECA, Consulting Engineers BEVERLY A. TRAVIS & ASSOCIATES, Landscape Architect JAMES A. WEHN, DUDLEY PRATT, Sculptors KUNEY JOHNSON, Contractor

# **DUTY BUILDING**



New public safety building gives

Seattle a unique war memorial, new facilities
for city departments plus a start on
a planned center of municipal buildings

The refreshing good taste of Seattle public buildings—first evidenced in the city's park-administration building (FORUM, Mar. '52)—has laid to rest one more worn-out architectural solution.

For years when memorials were to be built in conjunction with municipal buildings, the hackneyed solution started with a broad flight of monumental steps placed in the center of a block on a main thoroughfare. At the top of the steps stood large, impressive sculpture on a broad plaza. Behind rose a dome centered on a formidable wide-reaching building facade. At this monumental effort, visitors gaped. Unsightly truck traffic, ash cans and cluttered service entrances were tucked away in the rear of the building.

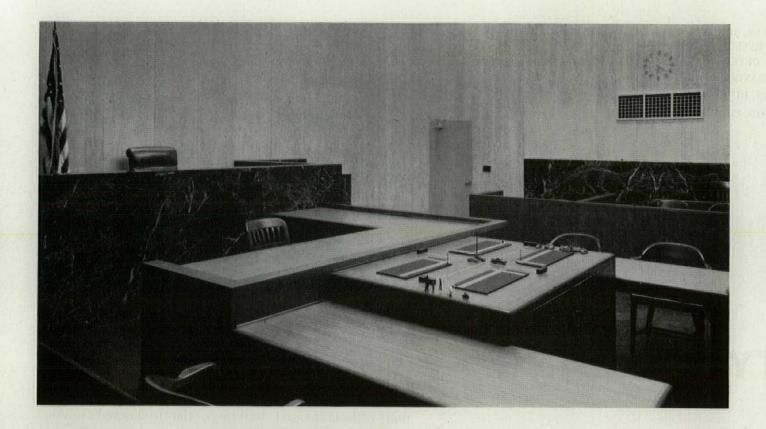
In refreshing contrast, the associated architects who designed Seattle's Public Safety Building (containing police and public-health departments) in conjunction with a memorial to the city's World War II dead sought and found a new solution, still monumental but more functional.

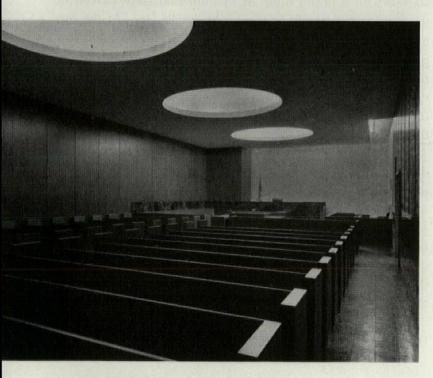
Here, the building was pushed to the very front edge of the site on the most traveled street. The space saved along the quieter rear street became the Memorial Plaza.

As a result, the building literally has no "back entrance." All of the entrances and building elevations are

Main entrance leads to police, public-health areas





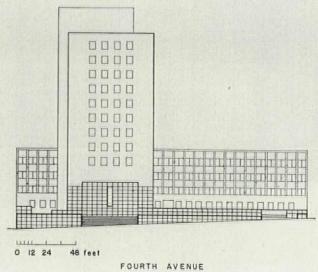


Courtrooms in police wing are interior spaces. Thus proceedings aren't interrupted by traffic noise. Floors are cork to reduce noise in rooms. Traditional paneled walls give dignity to court while indirect fluorescent lighting provides adequate level of illumination.

similarly honored, and the sloping ground is capitalized to bring people, cars, trucks, ambulances in at various levels.

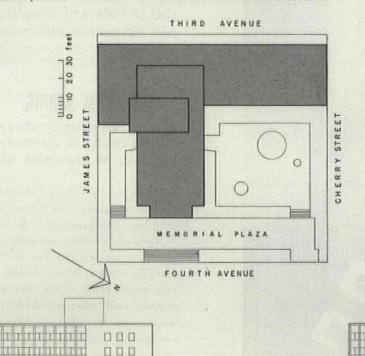
In her plaza, Seattle has given a striking example of how to execute an effective though unpretentious and inexpensive war memorial. A 9' high, red granite wall runs nearly the entire length of the plaza separating the memorial area from the workaday office building. Names of Seattle's World War II dead are inscribed on the wall whose base is a white marble podium supporting a row of shrubs and containing places for flowers below the names. The people of Seattle move through it constantly going about the business of their daily lives and are reminded that war is no longer distantly heroic, that Horatio at the bridge has become John Smith, Main St.

A total function of the plaza will be evident only when an adjoining three-block area is developed to complete Seattle's municipal center. When that is done, the plaza will relate all the buildings and provide air and light among them in a relatively crowded downtown area.





Interior jail cell with corridor on outside wall obviates barred windows



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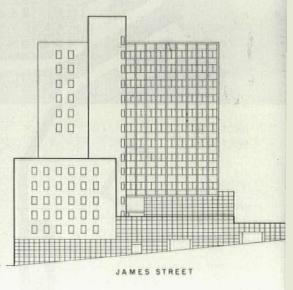
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### FENESTRATION

Two interlocking building masses-one vertical and one horizontal-define the dual purpose of the Public Safety Building. All police activities are in the low one, all public-health offices in the tall one. In doing the buildings themselves, the architects used their concrete structure to achieve a mode of monumentality which is very interesting though perhaps not entirely convincing. They treated their main walls as screen walls with concrete columns, ceramic faced, 1'-3" wide and protruding 10", creating a regular rhythm, Windows reach from column to column and the cellular aluminum spandrels add their blond sheen to that of the ceramic columns. As a foil to this kind of wall the architects used shorter solid walls faced with Wilkinson stone and punched with windows in a rectangular pattern. In a way it was a variant on the UN system of large glass walls in a frame of marble walls-the frame however being punched and the large screen walls being metal, glass and ceramic instead of glass.

But here the architects had a more complicated mass than the UN Secretariat and were not fully consistent with the framing theme-they juxtaposed the two kinds of wall as panels to make a composition. By implication they were saying that there is no one kind of tall-building fenestration today that is clearly best for any given room type or orientation! Actually the building might have been more successful had the UN system been followed through. On the Fourth St. side the taller tower would have contrasted better with the lower base had the tower presented a stone-and-window wall to the street instead of imitating the screen wall of the low mass. These arbitrary and "mannerist" treatments of fenestration open wide the question whether the persistent use of electric light and of air conditioning or mechanical ventilation does not alter the office-building window equation.



CHERRY STREET

THIRD AVENUE

# **ALUMINUM CHALLENGES COPPER**



- 1. For wiring
- 2. For panel cooling
- 3. For water piping

Alcoa's 30-story office building nearing completion in Pittsburgh is an aluminum mine of new ideas for the building industry. Forum described its reversible aluminum windows in conjunction with a preview of the entire building in the Nov. '49 issue, analyzed its aluminum wall panels in the Apr. '52 issue and last month showed its completed exterior of embossed aluminum. This month Forum presents the Alcoa building's pioneering uses of aluminum for electrical wiring (below), panel cooling (p. 142) and water piping (p. 146). When the building is finished late this year, Forum will complete its eightpart presentation with a final report in pictures.

### 1. ALUMINUM WIRING

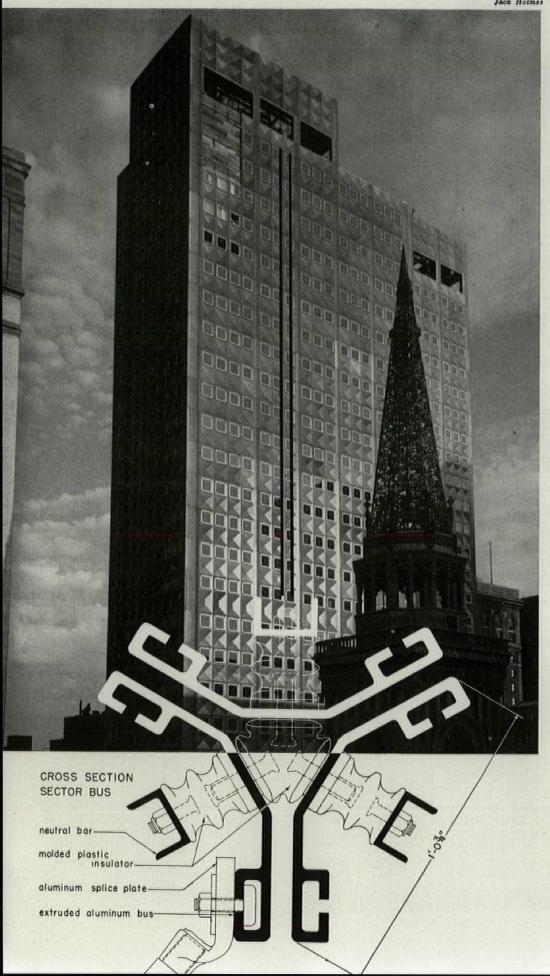
Alcoa's efficient Y-shaped rise 30 stories to distribute power to networks of aluminum wire

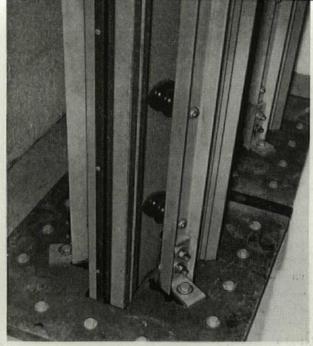
Alcoa is the first large US building to use aluminum wiring and a new-design aluminum bus circuit to replace the usual copper.

Alcoa claims that not only is aluminum practical for wiring, but its light weight (169 lbs. per cu. ft. vs. 553 lbs. for copper) and lower price (35% less per lb. than copper) could offer substantial savings with no sacrifice in operating efficiency. These savings, if realized, could run into real money because electrical costs, excluding lighting fixtures, often run 7 to 10% of total office-building cost.

#### Y-shaped bus 30 stories high

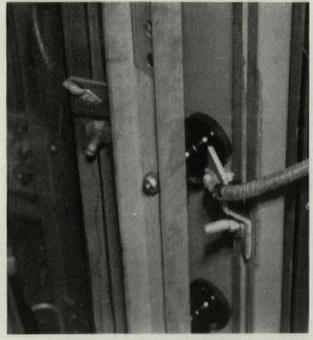
Most striking electrical feature of Alcoa's unusual building is a new-design bus feeder made of extruded aluminum. Two of these busses rise vertically through the building core similar to giant arteries, and electricity is tapped from them at every floor. (Even copper bus is seldom used in tall office buildings. Exceptions: the Cities Service and Telephone buildings in Manhattan, both of which are D. C. installations.)





All cement asbestos plate, 2" thick, supports each 12' aluminum bus section at every floor. The two sector busses rise vertically to top of building enclosed within a fireproof shaft.

Photos: Newman-Schmidt Studios



Slotted bolt connections facilitate wire tapoffs from sector busses at each floor. All cables, lugs, and bolts are aluminum.

Each bus will be loaded with 4,000 amp of 208 v., three-phase electricity. Engineers call them low-reactance sector busses because of their shape and design. (Conventional busses are usually parallel bars of flat copper held together by a metal frame.)\*

Alcoa's new sector busses have four important features:

Because of their triangular shape and design, higher voltage efficiency is possible than with the same amount of metal in the flat-type busses. (This new shape would probably increase the efficiency of copper bus and may prompt copper fabricators to take a fresh look at their bus designs.)

Alcoa's two 30-story aluminum busses are 17 tons (45%) lighter than comparable copper busses.

Because aluminum busses require less metal than copper busses and aluminum is much the cheaper metal, large potential cost savings should result in the future when initial production difficulties are ironed out. Additional savings should result from easier installation of the much lighter aluminum busses. (Actual cost figures will be available from Alcoa after their building is completed.)

Although two busses soar upward side by side, either can be switched off and isolated from the other with an extra-heavy rubber curtain. Therefore electricians can service either bus without necessitating a complete electrical shutdown.

Alcoa's engineers designed their sector busses to come in 12' long sections, one for each floor. Flexible expansion connectors join successive busses at each floor. Installation is further simplified because each aluminum section weighs 600 lbs. while an equivalent 12' copper bus would weigh about 1,100 lbs.

#### Aluminum vs. copper wiring

Seldom has aluminum wiring been demonstrated on such a large-scale project as the Alcoa building.

\* Flat aluminum busses are already on the market.

In the beginning, Alcoa's engineers were confronted with the handicap of training electricians to handle aluminum for the first time. Electricians were put through a training program and taught that aluminum differs from copper in three major ways when used as an electrical conductor.

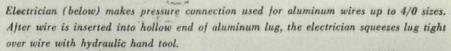
Since aluminum is more difficult to solder than copper, the biggest problem was making connections. Two methods are employed:

1) Aluminum wires up to 4/0 sizes are pressure connected into compression-type aluminum lugs (photos, below). Lugs come with joint compound already applied to their hollow interior. Pressure connections can be made as quickly as soldered joints, remain surprisingly tight and permanent.

2) Larger than 4/0 wires (for approximately 200 amp and up) are welded. Welding is more expensive than soldering but Alcoa engineers claim the other savings which accrue by using aluminum cables far outweigh the relatively small extra expense for welding.

An aluminum wire will carry only about 80% as much electricity as the same size copper wire. Consequently aluminum wire must be larger in cross section to carry the same current and is usually selected one or two sizes bigger than copper would require. However, aluminum wire weighs only 60 to 70% as much as copper wire for the same job (and this includes the heavier wrapping of insulation needed for the larger aluminum wire).

Since practically all electrical fixtures are copper wired, Alcoa engineers encountered a problem with bimetal connections. Thermal expansion of aluminum is greater than copper and repeated cycles of heating and cooling may loosen joints between the dissimilar metals. When connecting aluminum wires to copper terminals, Alcoa engineers attach a spring cup washer (cost is about 10¢) which automatically absorbs the uneven expansion. Alcoa engineers stymic elec-









trolytic corrosion here with a fluxlike joint compound, but moisture must be avoided at all costs.

#### Aluminum wiring's advantages

Despite the initial problems in this first big test, aluminum wiring has many advantages. First of all, Alcoa estimates that the cost of aluminum wiring and cable is 25% less (for material) than the cost of copper. Further savings result from lower shipping and handling costs for the lighter metal. And, once electricians are skilled in using aluminum, installation costs should be lower.

One example is the use of aluminum conduit instead of heavy steel conduit. Aluminum conduit actually is priced higher than steel, but one man can lift and handle large sizes of aluminum conduit whereas two men are needed for practically all sizes of steel conduit.

#### . . . and disadvantages

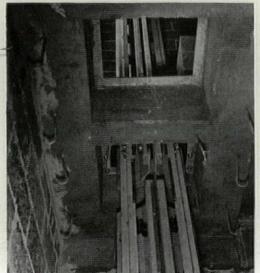
Biggest obstacle that confronts the aluminum people is the over-all problem of connections. Enormous research is underway to overcome soldering difficulties, corrosion and related joint hardships. Also the search is on for a good aluminum alloy with a conductivity equal to copper so that larger size aluminum wires and conduits will not be required. Its discovery would make really big news.

Alcoa engineers forcsee great over-all savings with the future use of aluminum wiring. Meanwhile, however, initial opposition to change must be overcome and electricians throughout the country must be trained in the ways of aluminum wiring.

On the other hand, the future competition which aluminum will offer copper wiring has already been recognized by the copper industry. One of the largest copper producers (Anaconda) recently announced its entry into the aluminum wiring field.

Heavy rubber curtain can be suspended from these ceiling hooks to isolate either bus while electricians work on other bus.

Photos: Newman-Schmidt Studios



### 2. ALUMINUM COOLING PANELS

Alcoa's first big US installation of new kind of air conditioning saves space, promotes comfort, confirms similar design data developed by others

Radiant cooling from aluminum panels gets its first big US demonstration in the Alcoa building at Alcoa's expense.

Best information obtainable from other sources is that it cost around \$1,600 a ton, not counting the aluminum acoustical panels themselves. This is substantially more than the generally accepted figure of \$1,300 for an average building. But Alcoa is explicit in stating that the next user of its system should be able to have any and all of the advantages claimed for radiant cooling at no increase in cost.

There are no major technological differences between the radiant cooling system installed in the Alcoa building and the two earlier radiant cooling installations previously reported in this magazine—the small installation in the TIME & LIFE building (Nov. '48) and the large installation in the Manufacturers Life building in Toronto (Apr. '51.).

Nonetheless, the Alcoa installation is important for several reasons:

- 1 Skeptics will be impressed not only by Alcoa's willingness to invest so much development money in the new method, but also in Alcoa's willingness to risk on it the success of so important and expensive a building. And skeptics who want to see for themselves will have a nearer spot than Toronto to do their looking.
- 2 Together with Alcoa's engineers, Jaros, Baum & Bolles conducted all their research for the system independently instead of relying on any other research. Alcoa's tests, conducted in its New Kensington laboratories, have apparently confirmed all the basic conclusions previously published.
- 3 Within this framework of mutually confirming engineering data, Alcoa has worked out an installation differing in almost every particular from any previous installation, thereby indicating a high degree of flexibility in the way radiant cooling can be used.

All these differences (most of which are listed on page 145) are just details of two methods of applying the same principles, and they are nowhere near as important as the points the two systems have in common. It is noteworthy that no casual observer would notice any difference in the appearance of two rooms cooled by one or the other method. Both systems take advantage of the much broader comfort zone permitted by radiant cooling to minimize individual controls. Both systems use small ducts to dis-

tribute only the amount of air needed for good ventilation (about 5/10ths cfm per sq. ft.) and take advantage of this 50% reduction in air quantities compared with a conventional system to effect great saving on the size and cost of their ducts (this saved some 500 tons of metal on the Alcoa ducts). Both systems achieve very substantial economies on their ductwork by zoning the chilled water for their cooling panels instead of zoning the air. Both systems use heat-absorbing paint for the underside of their cooling panels to improve their performance (bright aluminum makes a poor radiator). Both systems, with their small ducts, achieve substantial cubage savings through lower floor-to-floor height, compared with a conventional system, and both systems save the perimeter space which would be required by window units. (In the Alcoa building this added up to 15,000 sq. ft., or the equivalent of 11/2 stories.)

#### Alcoa's ceiling panels

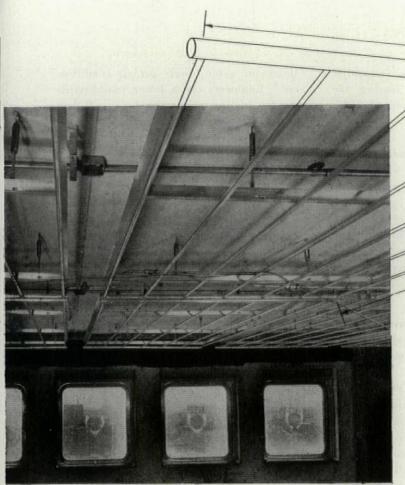
Because the cooling system is adapted to a modified Burgess-Marming acoustical ceiling (AF, May '51), Alcoa's stamped aluminum ceiling panels come in 12" x 24" sections. Their .040" thickness was determined by thermal and rigidity requirements balanced against economy.

These perforated panels are snap-fit (see drawing) to ½" standard-weight aluminum water pipes which support the ceiling. According to Alcoa engineers, very efficient thermal transfer results because there is continuous contact between pipes and each 24" side of individual panels. Moreover the panel "hook" wraps around the tubing with a spring action grip. Panel costs run about \$2 to \$3.50 per sq. ft. installed, "... sometimes higher, depending on insulation, thermal demands, and structural factors involved," according to the panel manufacturer. (Conventional acoustic ceilings average \$1 per sq. ft.)

To get peak radiation or emissivity downward, bottoms of panels are covered with heat-absorbing paint. Tops of panels are left shiny and untouched because a bright surface is a poor "emitter" of radiant heat. Therefore upward heat flow is greatly minimized.

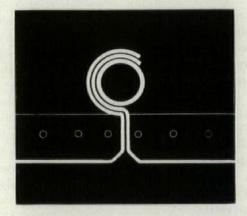
#### Water pipes

Alcoa's ½" aluminum water pipes are prefabricated in 6' x 12' grid-type sections with pipes on 12" centers. (These dimen-



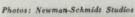
Jay Bee Studio

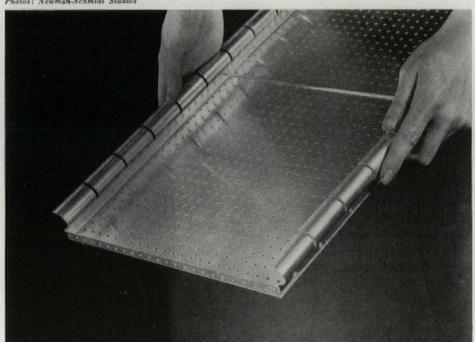
Prefabricated pipe grids have ½" aluminum pipes on 12" centers bracketed between 1¼" headers. Grids are attached to turnbuckle hangars threaded on same rod system which supports the fireproof plaster ceiling used on steel cellular floor.



Panels "hook" over pipe grids with spring action grip. Panels are heated in winter, cooled in summer by hot or cold water flowing through pipe grids.

Radiant aluminum panels are perforated to do double duty as acoustical ceiling. Panels for Alcoa building are made from stamped aluminum and come in 12" x 24" sections, .040" thick.





Ceiling panels are snapfit to water pipes after grids are leveled with transit line. Grids are spaced over entire ceiling to provide support for all panels.



#### BUILDING ENGINEERING

sions are flexible and are determined by the type of ceiling.) Grids are spaced over the entire ceiling so that all panels can hang from them.

After pipe grids are delivered to the building they are attached to turnbuckle hangars threaded on the same rod system which supports the fireproof plaster ceiling used on the steel cellular floor (diagram, p. 143). Pipe grids are precisely leveled by a transit line and the turnbuckles are adjusted accordingly. After installation the panels are blanketed with 3/4" acoustical material.

#### Water temperatures

Cooling water in the tubes is chilled to 61° F. and the temperature increases 4° to 5° upon absorbing room heat. Water temperatures for beating average 130° F. Alcoa's engineers designed for 80° F. and 45% relative-humidity peak inside conditions in summer (resulting dewpoint is 56.4°). To prevent condensation, a simple control continuously maintains water temperatures safely above room dewpoint.

#### Simplified control

Compared with conventional air conditioning, panel cooling makes possible the use of fewer thermostats and a simpler over-all control system. With panel cooling separate thermostats for each room are unnecessary. In the Alcoa building control circuits are required only for three exterior panel zones and the interior zone. Also, each floor has independent controls to which it responds

quickly to changing shade effect from adjacent buildings. (With panel cooling, the air supply does not require zoning.)

#### **Ducts** are fewer

Ducts were designed for conventional velocities because Alcoa's system was planned several years ago before interior high-velocity systems were fully developed. However, Alcoa saved approximately 500 tons of sheet metal by using ducts for only half of the cooling load. Also, fewer ducts vastly simplified the space-congestion problem within walls and ceilings where other utility lines are run.

### Individual equipment rooms

Unlike most air-conditioning systems, Alcoa uses separate equipment rooms on each floor.

In these rooms, each floor's return air is mixed with cooled and dehumidified fresh air. Consequently Alcoa's engineers do not send all return air back to the main air-conditioning equipment for reconditioning. The engineers figured that small equipment rooms on each floor were more economical than an intricate return duct network winding throughout the 30-story building. These rooms also house the pumps and other accessories required for supplying hot or cold water to the panel grid circuits.

#### **Aluminum** water tower

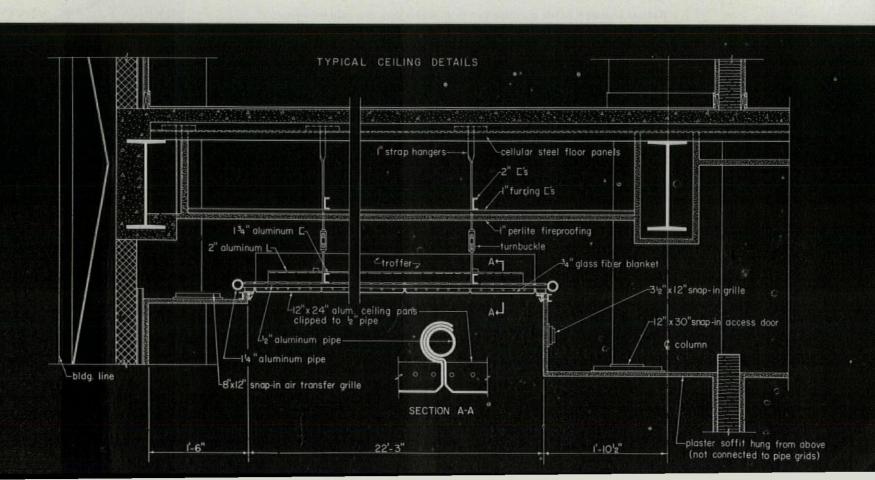
Perched on top of the diamond-patterned Alcoa building is another radical innovation in aluminum, one of the first large aluminum water towers for air conditioning.\* Engineers claim lower maintenance cost for an aluminum tower because it does not require frequent painting as steel does. Also, Alcoa's tower weighs less than one-half of the weight of an equivalent steel tower. By using an aluminum tower in future buildings, engineers could save considerably on steel supports.

In the last analysis the future of radiant cooling will depend very largely on whether it will be cheaper to install and/or operate than competing methods.

Alcoa together with Jaros, Baum & Bolles say that even a higher first cost compared to a conventional system would pay off because of the additional advantage with panel cooling, i. e., space and cubage savings possible plus the much broader temperature range, which provides comfort with a minimum of controls. Its greatest potential may be that panel cooling will permit a reduction of 6" in the floor-to-floor heights of office building compared to that needed for conventional air-conditioning systems. However, engineers must first prove these statements for a hardboiled industry, many of whose members hail from Missouri.

When the Alcoa building is finished late this year actual cost figures for utilities and panel cooling should be available.

<sup>\*</sup>A large aluminum tower now being installed atep the existing Continental Can building in New York has greatly eased the structural problem there.



## TWO SYSTEMS COMPARED

Here are some of the more important differences between the installation worked out for Alcoa by Jaros, Baum & Bolles and the installation worked out for Manufacturers Life by engineer Charles S. Leopold:

Alcoa covers the whole ceiling except in the corridors with radiant panels, whereas Leopold concentrates his ceiling panels around the perimeter where the heat loss is greatest, His only radiant ceiling panels form a continuous border 3' wide around the outside wall.

▶ Alcoa has no radiant panel under its windows (which are relatively small and double glazed) whereas Leopold used underwindow panels for supplementary cooling in summer and for winter heating. ▶ Alcoa uses ordinary fluorescent light troffers, whereas Leopold used special troffers with built-in cooling panels. However, both methods pick up most of the heat load from the lights at the source.

Alcoa relies on its cooling panels to do 45-55% of the cooling; Leopold 60%. To play safe in so large a building, Alcoa designed both the air distribution and the radiant cooling to take care of 55% of the heat load.

▶ Alcoa has individual fan rooms on every floor. Leopold used two large-size fan rooms —one in the sub-basement, the other in the pent house.

Alcoa introduces its cooling water in the panels at 61°, or about 3° closer to the calculated dewpoint than Leopold's system. Both anticipate a 3-5° rise in water temperature as it performs its cooling function. Alcoa automatically shuts off its cooling water if the dewpoint gets too close to 60°. Alcoa uses a modified Burgess-Manning ceiling, with aluminum panels 1' x 2'. The radiant panels hang from the water tubes and do double duty as an acoustical ceiling. Leopold's panels are three aluminum extrusions 1' wide and 8' long clipped together in threes. They are not perforated for acoustical use (though they could be). Elsewhere he uses ordinary acoustical panels.

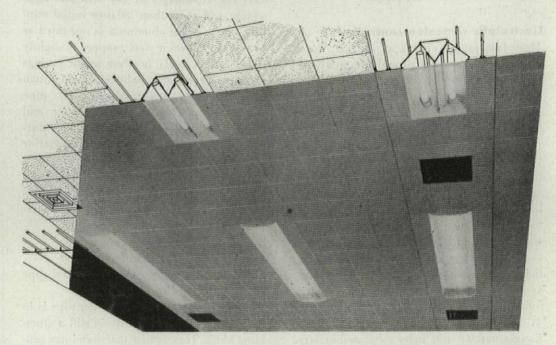
Alcoa uses aluminum pipes for its cooling water. Leopold uses copper pipes which are laid in channels in the back of the cooling panels. The channels are then squeezed to the point of deformation to assure a perfect thermal bond with the pipe. (When Leopold was working out this system Alcoa was not yet ready to recommend the use of aluminum pipes.)

Alcoa's panels are .040" thick. Leopold's are .080" thick because Leopold could not get thinner panels extruded in Canada. (Leopold used .062" thick panels for his earlier experimental system.)



In Alcoa building heating and cooling with radiant panels is supplemented by air supplied through ceiling diffusers strategically spotted in ceiling. Return air is pulled back through rectangular grilles around perimeter of the ceiling.

In Manufacturers Life building, Toronto, ceiling cooling coils are used only behind luminaires, and are also supplemented by air conditioning. But, unlike Alcoa's, this installation also has radiant panels under windows.



HARRISON & ABRAMOVITZ, architects for Alcoa Building
MITCHEL & RITCHEY, ALTENHOF & BROWN, associate architects
JAROS, BAUM & BOLLES, mechanical engineers
EDWARDS & HJORTH, structural engineers
E. E. ASHLEY, electrical engineer
GEORGE A. FULLER CO., general contractor

## 3. ALUMINUM WATER PIPING

Alcoa solves the problems of corrosion and connection in its water-supply system to capitalize on the white metal's low cost, light weight

Can aluminum piping with its vast potential in weight and cost savings perform as well as copper and steel?

Alcoa engineers say yes—with limitations. They demonstrate aluminum piping for all water supply (including most airconditioning water pipes, see p. 143) in their new Pittsburgh skyscraper—about 60% of all piping. As a result Alcoa estimates that aluminum can save 25% of the piping cost in an equivalent office building. (Initial experimentation, and other first costs, inflated Alcoa's piping bill.)

While the most interesting phases of Alcoa's aluminum plumbing are the ways the engineers combat electrolytic corrosion and make pipe connections, also pertinent are the unsolved problems that still prevent aluminum from becoming an all-purpose pipe material. For instance, Alcoa's engineers did not specify aluminum to carry steam or waste or to meet the high pressures in some of the air-conditioning risers. Reasons:

Steam condensate is sometimes laden with salt compounds which corrode aluminum.

Caustic compounds presently used for cleaning waste lines might corrode aluminum by chemical action.

Large water risers demand extra-heavy pipes. Their structural requirements would have called for excessively thick-walled and uneconomical aluminum pipes.

#### **Electrolytic corrosion controlled**

Most fascinating expedient in the Alcoa piping is a sacrificial pipe deliberately offered up to the gods of electrolytic corrosion to prolong the life of other aluminum pipe. Electrolytic corrosion is a major threat whenever aluminum pipe is connected to other metals. Since all present-day plumbing fixtures come with copper fittings, there is the inevitable transition from aluminum to copper. To simplify this ticklish problem Alcoa engineers first decided to terminate aluminum pipes at the flanged water valves just before all fixtures. Here, at the valved connection (see photo, right), the engineers concentrated their war against electrolytic corrosion in the two following ways:

1. Special nonconductive gaskets between flanges and around bolts serve as barriers to electrolytic current flow across the joint. (These gaskets cost very little more than ordinary gaskets according to Alcoa.)

2. A short thick-walled piece of almost pure aluminum pipe is inserted between the valve and the copper pipe. It serves as a magnet to attract electrolytic current away from all other pipe and thus isolates corrosion within itself. These sacrificial pipes are always located in an accessible spot for easy replacement when necessary. Alcoa, however, expects them to last at least 10 to 15 years because of their thick walls. There are about 650 sacrificial pipes throughout the building. Although these joints seem complicated, Alcoa claims they cost about the same as copper-to-copper joints, and their need will disappear in a completely aluminum plumbing system which would be free of electrolytic action.

### Pipe connections flared or welded

Since aluminum tubing will not take a sweat fit like copper, connections are made with regular flared fittings (like those used in an automobile gas line). According to Alcoa, flared fittings do not cost much more than sweated copper joints.

Aluminum pipe connections larger than 1½" or 2" sizes are simply welded like steel pipe with one important difference. Alcoa uses heliarc welding because it does not require a flux (flux could be harmful if trapped inside aluminum pipe).

## Low cost and weight exploited

While this pioneering installation of aluminum piping may sound complicated, Alcoa says the advantages of low cost and light weight will more than balance initial complications. Since aluminum is one-third as heavy as copper or steel (copper is slightly heavier than steel) it offers major savings in shipping. Because lightweight aluminum pipe is more easily handled by pipe fitters, installation should be faster and cheaper. Moreover, aluminum pipe is durable; it is impervious to rust and exterior corrosion.

In comparison with other pipe, Alcoa says actual selling prices per ft. of pipe today for aluminum are close to these rules-of-thumb:

- one-fourth the price of copper pipe
- one-half the price of copper tubing
- one-tenth the price of stainless steel pipe

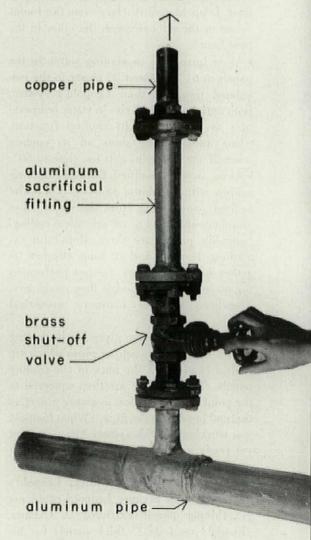
competitive with steel pipe.

Alcoa concedes that aluminum pipe is in its infancy and availability is still a stumbling block. They realize that aluminum cannot attain widespread acceptance until all valves and other plumbing accessories are available in aluminum. (A few critical valves and fittings, less than 10% of all needed, are still not produced in aluminum.)



Aluminum pipes constitute about 60% of all piping in Alcoa building, Galvanized pipes here handle waste water, Black steel pipe carries steam condensate.

Sacrificial aluminum pipe (below) is connected to top of water valve to attract electrolytic corrosion away from all other aluminum pipe. Nonconductive gaskets between flanges and bolts prevent electrolytic current from flowing across flanges.



# HIGH-VOLTAGE WIRING WITH LOW-VOLTAGE SWITCHING

Du Pont office building distributes electricity at 480 and 277 volts with a saving

of 24% in cost and 26% in copper over conventional 120 volt wiring

While Alcoa building (p. 140) uses aluminum conductors with conventional wiring circuits, du Pont's new office building demonstrates how twice as much electricity can be pumped through the same diameter wire (in this case copper) by using higher voltages. But the resulting economies cannot be attained everywhere unless 1) municipal electrical codes follow the leadership of the National Electrical Code in encouraging higher voltages; 2) the building is large enough to have its own transformer substation or the utility supplies current at the required 480 line and 277 phase voltages; and 3) the owner is satisfied with fluorescent ceiling fixtures.

Du Pont's new office block near Newark, Del. (first of four projected in pleasantly wooded surroundings), is the first full-scale application of high-voltage wiring in commercial buildings. Here the use of 277 v. for primary lighting circuits to replace the traditional 120 v. led to a saving of \$98,600 (24%) and 13,600 lbs. (26%) of copper. Having an electrical load of 3,400 kva, this 260,000 sq. ft. building cost an estimated \$92 and 11½ lbs. copper per kva, compared with \$121 and 15½ lbs. if it had been wired and equipped for 120 v.

Developed during World War II and used in several important defense plants, (including such giants as General Motors Technical Center, Detroit; Consolidated Vultee, Fort Worth; Boeing Aircraft, Seattle,) this high-voltage distribution system supplies electricity in a 480Y/277 v. 3-phase, 4-wire network, star connected so as to supply motor circuits at 480 v. line-to-line and ceiling lamp circuits at 277 v. line-to-neutral. These high-voltage lighting circuits are controlled through relays operating on 24 v. switching circuits using class II remote-control wire and powered by dry 120-24 v. transformers.

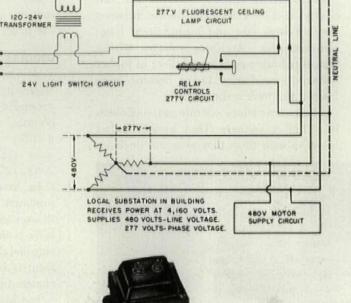
For the comparatively light current needs of plug-in desk lamps and business machines, small 15 kva local transformers step down the line voltage from 480 to 120 v. and floor circuits are laid out as required.

Thus, each floor contains three wiring circuits: 1) a 277 v. circuit supplying fluorescent lamps in ceiling fixtures—fluorescent lamps can be used on any voltage simply by adjusting the ballast that is part of each lamp; 2) a 24 v. switching circuit which controls the high-voltage lamps through relays; and 3) a 120 v. circuit to provide

Basic wiring diagram shows how this office building's electrical needs are obtained from 480Y/277 v. distribution lines by using small economical transformers alongside load on each floor.

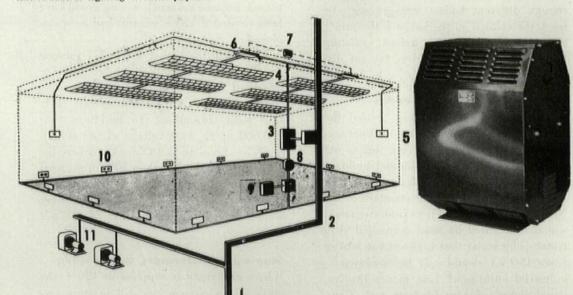
FLUORESCENT

Mockup of typical floor bay shows the physical layout of the electrical equipment detailed in circuit diagram above: Power is received by a 480Y/277 v. local substation in basement (1). Busway risers (2) carry the 3-phase power to panelboards (3) in the areas to be lighted. From the panelboards, 277 v. line-to-neutral lighting circuits (4) are

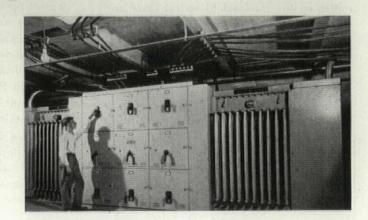


120V FLOOR SERVICE OUTLETS SUPPLYING DESK LAMPS & BUSINESS MACHINES BUS RISER

TO FLOORS ABOVE



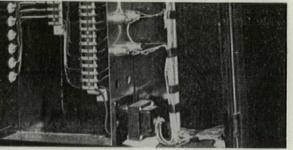
run throughout the area. Single-pole 24 v. remote-control switches (5) control these circuits through 24 v. relays (6) mounted near the lighting fixtures with a small transformer (7) supplying 24 v. power from the 120 v. floor circuits, A 480-120 v. transformer (8) supplies power to the panelboard (9) from which service circuits (10) are run in the floor for plug-in equipment. The same distribution system supplies 480 v. line-to-line power to motors (11) driving moving stairways.



#### BUILDING ENGINEERING

Incandescent lamps operate most efficiently at 120 v., a compromise between lowest system cost and incandescent lamp characteristics. At lower voltages wiring and distribution costs are higher; at higher voltages incandescent lamps become more fragile and have a shorter life.

Fluorescent lamps operate more efficiently at higher voltages. They have a ballast in series with them that generally includes



277 v. lights controlled by 24 v. relays with 120-24 v. transformer below.

some transformer action to step up the circuit voltage for use across the lamp. Although different ballast voltages may be used, the voltage on the lamps is the same; thus by changing the ballast, existing fluorescent lamps can be wired for any distribution voltage.

#### Conservative electrical codes

By locating their new offices beyond the jurisdiction of electrical codes, du Pont was able to use high-voltage wiring that is not generally permitted by municipal building codes. Section 2113 of the National Electrical Code, 1951 edition (the standard of the National Board of Fire Underwriters), which is followed by most municipal electrical codes states that high-voltage wiring (over 150 v.) should only be employed in industrial buildings.\* Last month the National Board of Fire Underwriters' Committee on the National Electrical Code announced in their Tentative Interim Amend-

ment No. 96 to the 1951 edition of the National Electrical Code that office buildings, schools and many stores might now be included with industrial establishments in using up to 300 v. to ground.

However, enabling action by city codes is still required before 480Y/277 v. wiring can be used in commercial buildings in urban districts. Such action is likely to result only if a test case is brought by someone proposing to use high-voltage wiring in a new building.

#### Utilities use low voltages

Today most office buildings receive their electricity either from 230/115 v., 3-wire, grounded neutral, single phase feeder circuits; or, where electricity is supplied by a utility—as in New York, Philadelphia and most other large cities—they receive a 208Y/120 v. 3-phase, 4-wire supply.

In New York, for example, while Consolidated Edison engineers agree on the theoretical economics of higher voltages for office buildings, they feel that their present considerable investment in 120 v. equipment is far too great to warrant a general change to higher voltages.

In Chicago, where most buildings operate on a 120 v. network, Commonwealth Edison also operates a spot network at 480Y/277 v. for the convenience of its large customers. This was begun in the thirties when part of the Marshall Field store was air conditioned, because too much wiring would have been needed if 120 v. circuits had been employed.

At present the higher 480Y/277 voltages can be most profitably employed in large offices or factories that receive their electricity at above 480 v. and operate their own local substations. In buildings over 250,000 sq. ft., high-voltage wiring at 480-Y/277 v. saves up to \$30 per kva where the total 120 v. load is less than 50% of the total motor and fluorescent lamp load. In comparison, a 60,000 sq. ft. office building would show equivalent savings of \$18 per kva.

#### Step-up transformers worth-while

Where electricity is supplied at 120 v. the 480Y/277 v. system can still produce savings of up to \$22 per kva. The supply voltage must first be stepped up by autotransformers. These cost up to \$8 per kva, which has to be deducted from the over-all saving per kva from the 480Y/277 system.

The du Pont building is air conditioned throughout with equipment powered by two 600 hp motors wired directly to the substations at 4,160 v.

Transformers at the substations feed into six 480Y/277 v. vertical risers throughout-the H-shaped building. On each of the four floors these risers feed into six distribution

cabinets which supply 277 v. lighting circuits through the ceiling and also contain the 480-120 v. transformers for service lighting, business machines, etc.

Lighting standards are 35 foot-candles in single offices and conference rooms, 80 footcandles in drafting and general office areas.

#### Safety Measures

Though used throughout the building the 277 v. circuits are no hazard to the occupants because 1) they are used only for ceiling lamps, and 2) they are controlled by low-voltage circuits.

Ceiling lamps are controlled by a 24 v. switching circuit through two-coil relays; energizing the first coil closes the relay, energizing the second coil opens the relay. Thus ordinary single-pole, double-throw local switches on 24 v. circuits control the relays, which in turn control the 277 v. ceiling lights. Low-voltage class II wiring used in 24 v. circuits is considerably cheaper and more flexible than standard wiring. Power for the 24 v. circuits is supplied by small 120-24 v. transformers set in one of the 120 v. service circuits on each floor. The relays are contained in the boxes mounted near columns above the metal pan ceiling.

Contacts of the solenoid operated relay are rated at 15 amps 1/3 hp., 125 v. and 10 amps 277 v. The latter rating is sufficient to supply 12 two-lamp 41 w. fluorescent light fixtures or their equivalent, which will give an average of 55 footcandles on a 20' x 20' bay.

#### **High-voltage** switching

At higher voltages switching becomes a problem. The maximum permitted rating of conventional switches is 250 v. and when they are used to control an inductive load of fluorescent ballasts, current rating must be reduced 50%. This difficulty is overcome by the 24 v. relay switching system outlined above. As an additional safety factor fluorescent lampholders are "dead front" when the lamps are removed so that it is impossible for maintenance men to touch the contacts when cleaning or changing lamps.

Local switches control lighting within each bay, while additional master switches control the lighting in up to six bays per floor. The 277 v. lighting circuits are protected by current-limiting 100,000 amp interrupting capacity silver-sand fuses contained in the local panel boards.

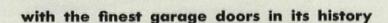
Du Pont Co.'s new office building was designed by architects Voorhees, Walker, Foley & Smith in collaboration with the du Pont Company. The 480Y/277 v. distribution system was engineered by the General Electric Co.

<sup>\*</sup>Actual wording: "Branch circuits supplying lampholders, fixtures or receptacles of the standard 15-ampere or less rating shall not exceed 150 v. to ground, except in industrial establishments the voltage may exceed 150 v. to ground but shall not exceed 300 v. to ground for current circuits supplying lighting fixtures only that are equipped either with mogul-base screw-shell lampholders or with lampholders of other types approved for the application, mounted not less than 8' from the ground, which do not have switch control as an integral part of the fixture."

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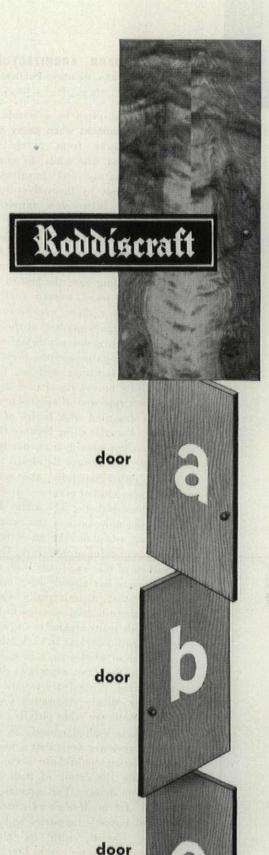
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OVERHEAD TYPE





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Louis 16, Mo. • San Antonio 6, Texas • San Francisco 24, Cal.

# **BOOK REVIEWS**





College, Lakeland, Fla., Frank Lloyd Wright, architect (left); Residence, Santa Monica, Charles Eames, designer (above).

The Organic Approach: Florida Southern

ART IN MODERN ARCHITECTURE. By Eleanor Bittermann, Reinhold Publishing Corp., New York, N. Y. 178 pp, 81/2" x 101/2". Illus. \$10

"This book is inspired by a certain moment in history—a moment when many architects are turning away from purely architectural forms and are ready to employ the richness of fantasy and imagination that artists have kept to themselves too long." Thus Eleanor Bittermann introduces her book

It is an important book because it is a first: the first to survey what has happened to sculptural, mural and glazing art in an industrial building age; the first to capitalize on a current trend toward enriching the stark forms of modern architecture.

Unlike handcraft building of the past, machine architecture did not bring with it an appropriate decorative method, evolving naturally from new structural systems. First came indiscriminate borrowing of past styles; then the complete rejection of applied ornament as architects struggled with basics of structure and form. Functionalism became the sacred cow of modern architecture, purity of unadorned line and surface its ideal.

Today, rather wistfully, the architect is seeking a new kind of ornamentation, suitable to a machine esthetic. The artist, long relegated to the museum and the monument, is again being asked to take an active part in the creation of living architecture. The copious illustrations of this handsome book show that much progress has already been made. They show also that a universally appropriate answer, if there is one, remains to be found. Unfortunately many architects and artists still seem a bit self-conscious in each other's company. A lack of wholeness, a lack of integration between their two aspects of design, are often apparent. A tendency toward the modernistic, the slickly decorative or the fulsomely symbolic are other pitfalls.

The book is limited entirely to American work. This reviewer feels that a more stimulating collection could have been made by choosing only the cream of both American and European designs. For instance, in a discussion of Art in Modern Architecture the omission of Lurcat's tapestries and Matisse's Dominican Chapel, with its electrifying stained-glass windows and black-on-white glazed tile murals, leaves a void which cannot be filled.

Nevertheless, the book is a valuable survey of peculiarly American attempts, failures and stimulating successes. It covers our major trends in architectural art for the past 30 years with emphasis on outstanding designs of the most recent past, Divided arbitrarily according to medium, the book includes brief histories of the use of plaster, mosaic, stone, wood, metal, glass, ceramics and fresco in

(Continued on page 156)





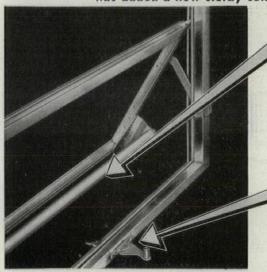
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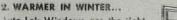
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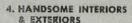


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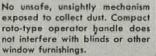
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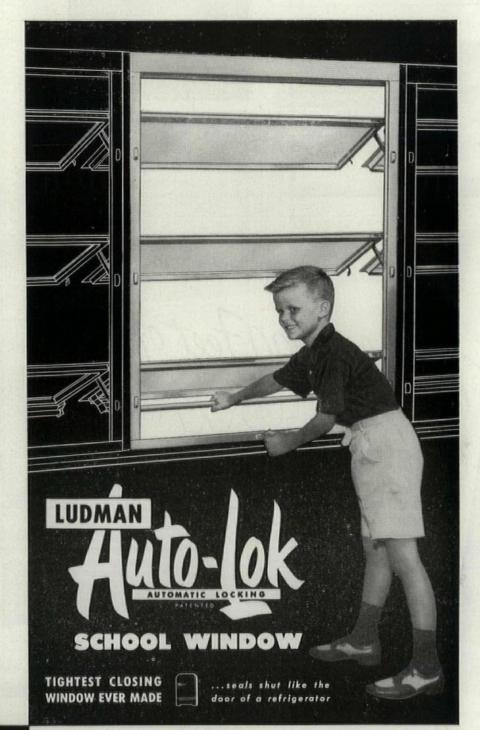
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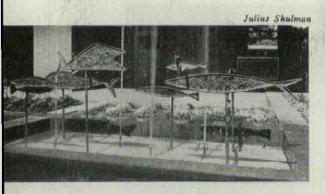
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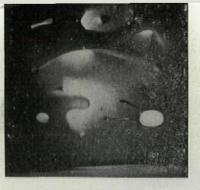
- an Architect
  an Engineer
- a Contractor
  School Board Member

2 State of the Party of the Par

COMPANY OR SCHOOL BD. \_\_\_\_\_

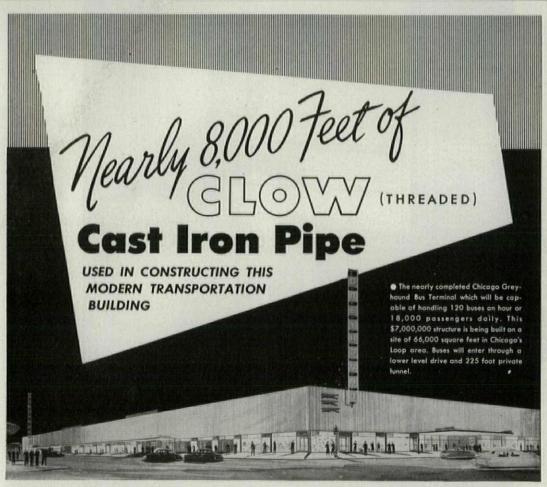
IN WINDOW ENGINEERING





The Collaborative Approach: S. S. Argentina, Isamu Noguchi, sculptor, Donald Deskey, Assoc., designers (above); UCLA Elementary School, Los Angeles, Bernard Rosenthal, sculptor, Robert Alexander, architect (left); Terrace Plaza Hotel, Cincinnati, Joan Miro, artist, Skidmore, Owings & Merrill, architects (right).





Deceptive in appearance, this ultra-modern building actually has five levels. And in this block-long structure, over 7900 feet of Clow Cast Iron Pipe has been installed for all 3-inch and larger downspout, waste and vent piping.

#### Here's why the Architects specified Clow (threaded) Cast Iron Pipe:

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architectural decoration, It also describes new media and techniques-plastic, ethyl silicate, etc .- which give the modern artist his unprecedented freedom of expression. In collecting and cataloguing examples of American architectural art, in discussing its roots and its technical potential, Mrs. Bittermann has done a real service. Her book should enable both architect and artist to profit by the experience of earlier attempts, and it should challenge them to a more profound study of the problems to be solved.

Of particular interest are three divergent approaches which this collection reveals. The first and most famous is that of Frank Lloyd Wright: the "organic" decoration, which is an integral part of the structure itself. This is well illustrated by the sculptured columns and concrete block details of his Florida Southern College, Unlike many modern architects Wright never rejected decoration, but from the first made it an inseparable part of his structural forms. In large degree this accounts for the richness and warmth which have always been a striking quality of his architecture. According to Wright, "painting and sculpture are not necessary: the building is the painting and sculpture."

In this same category falls the work of Charles Eames, a designer whose industrially based esthetic could not be farther removed from that of Wright. In Eames' own house, exterior walls become "murals" through the composition of structural units: panels of glass, plywood, stucco and asbestos, in contrasting textures and colors, separated and unified by the exposed steel frame. The result is an architectural interpretation of meticulous "constructivist" art.

In opposition to the organic approach is the idea, old but now new again, of collaboration between architect and artist. This would appear to be the current trend as documented by Mrs. Bittermann. Perhaps the outstanding example of such collaboration is found in the sculptured ceiling lights of Isamu Noguchi. For the American Stove Co. building, the S. S. Argentina and TIME-LIFE-FORTUNE-BUILDING information center, Noguchi has executed in plaster abstract designs which act dually as light sources and sculpture-the

(Continued on page 160)

# MIRACLES IN METALS

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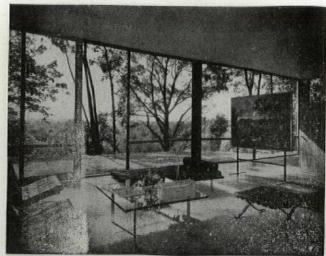
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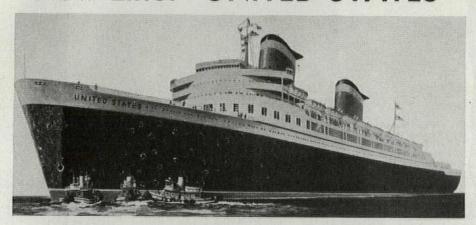
See Sweet's for data on Republic Pipe, Sheets and Roofing...Electrunite E.M.T....Republic Rigid Steel Conduit...
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Ezra Stoller-Pictor

The Exhibit Approach: Residence, New Canaan, Conn., Nicolas Poussin, artist, Philip Johnson, architect.

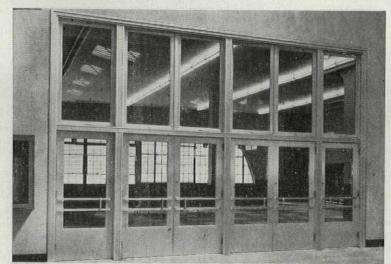
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light and shadow emphasizing and dramatizing the sculptural forms. This is no mere applied decoration, but an integral use of art in architecture.

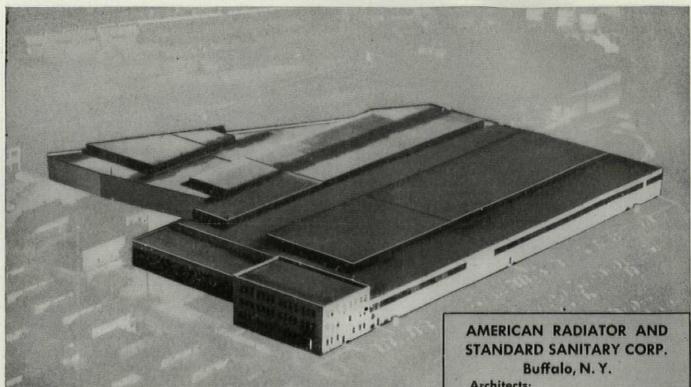
Nonfunctional, but equally well integrated into the total design are the repoussé copper door panels executed by Frederic Littman for Pietro Belluschi's Zion Lutheran Church; the gay bronze fishes grouped into a fountain for the UCLA Elementary School (Bernard Rosenthal, sculptor; Robert Alexander, architect); the humorous Steinberg and Miro murals and the Calder mobile for the Terrace Plaza Hotel. Such collaborations prove the tremendous gain which can result from the interplay of artist and architect on a design problem.

As a proponent of a third approach, Philip Johnson stands alone, at least within the covers of this book. He rejects both the organic and collaborative method, prefers to choose completed sculpture or painting after the building is finished. However, his approach is not that of the magpie collector; it is nearer an exhibit technique. His few choices "work" within the design as a whole. Johnson's architecture is precise, machined and, in his own "glass house," almost dematerialized. Here he uses individual works of art to give weight, division or accent as needed. The Poussin painting, which echoes the "mural" of surrounding woods seen through his glass walls, acts also as a screening panel between two areas in the open plan. The oversize Nadelman sculpture "weights" the extreme lightness of his predominantly glass house, providing a welcome contrast in texture and contour. Explains Johnson: "If you give sculptors architectural commissions, they often get self-conscious about the space they have to fill and do not always do their best work. Pick the greatest works of art you can, put them in the best place you have, and you get the type of architecture we want in this scientific age."

Throughout her book, Mrs. Bittermann has chosen to let the architect and artist speak for themselves. Most illustrations are accompanied by explanations of the technique and materials used, and the philosophy behind the solution, given in the designers' own words. Thus the book becomes an enlightening collection of the theory and practice of many top-ranking artists and architects.

One could wish, however, for more evaluation from the author herself. The book ends rather abruptly without a résumé of the trends shown. Sides are seldom taken and the future development of architectural art is hardly touched upon. Perhaps the author does not aspire to be a prophet. Perhaps also, this is the wiser course, since the problem lies ultimately in the hands of the architects and artists themselves-Mary Mix Foley

(Continued on page 164)

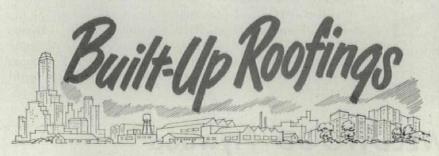


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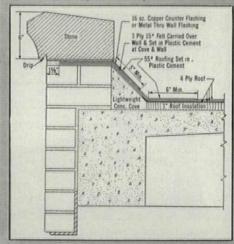
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The installations shown on this page illustrate the use of a certain amount of ingenuity and imagination.

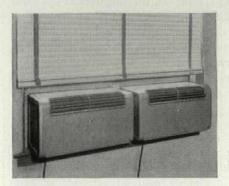
Home—Here the unit is installed in a steel casement window. In this case the ventilators (swinging window sections) and the center mullion have been removed, a new member has been bolted across the frame, and the space above the unit filled in with a fixed glass panel. Since the unit provides ventilation, there is no disadvantage to the fixed glass arrangement.

Motel — Where no window is available, the unit may be installed in a special opening provided in an outside wall. This permits choice of optimum location, such as near the ceiling, which saves space and gives ideal air distribution.

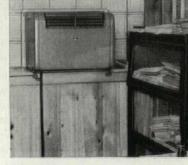
Factory—Where neither window or outside wall location is feasible, units can be installed above or below the conditioned area and connected to it by supply and return air ducts, as shown in this unique factory installation.

Offices—A wide variety of unusual installations are possible in offices. One such shown below, has the entire window removed and the space around the unit filled in with attractive glass blocks. The other illustrates a novel use of two units installed side by side in a single window to provide the desired capacity.

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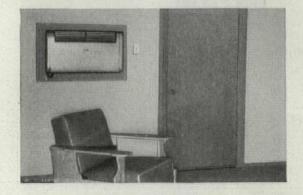
**Battery** of window-type units provides abundant cooling-saves valuable floor space.



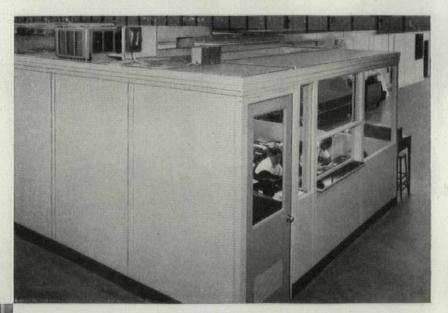
Entire window has been removed here and replaced with modern glass bricks.



Casement window problem solved with unique use of fixed glass panel.



Wall installation points up flexibility of locating these easily installed units.



Overhead placement overcomes one of the more unusual problems of air conditioning an office within a factory area.

# FRIGIDAIRE Appliances -

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.



Silk merchant mark, France, end of the 18th century.



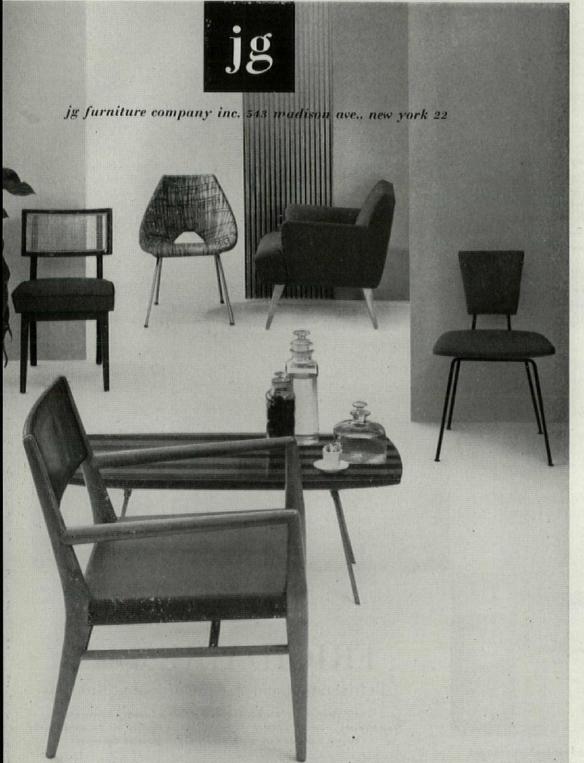
Raymond Loewy Associates for International Harvester



Ladislav Sutnar for Golden Griffin Books



Warner-Leeds for Caribe Hilton Hotel



Chairs, tables and upholstered furniture for public areas-

offices, stores, hospitals, schools, restaurants, airports-on display for your easy selection.

SEVEN DESIGNERS LOOK AT TRADEMARK DESIGN. Edited by Egbert Jacobson. Published by Paul Theobald & Co., 5 N. Wabash Ave., Chi-

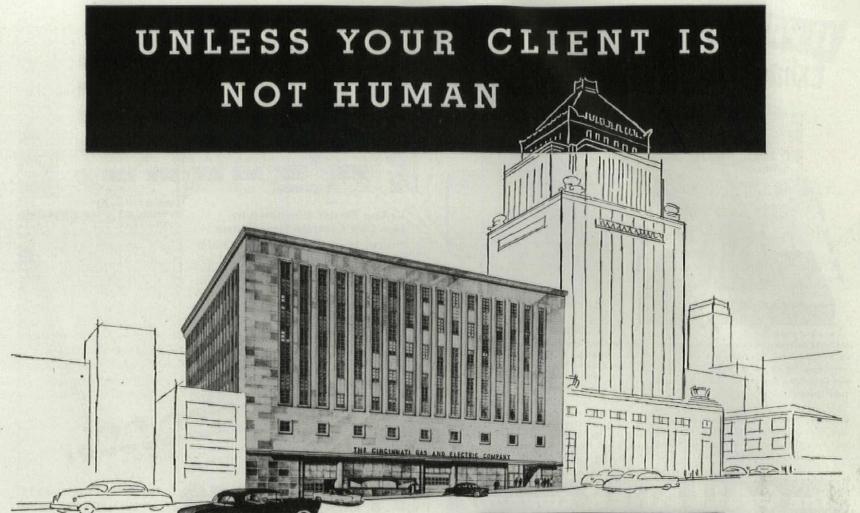
cago 2, III. 171 pp. 83/4" x 111/4". Illus. \$8.75

Not infrequently, architects may be called upon to design the trademark or symbol used to identify a particular store or any other building on which they may be working. Architects Warner-Leeds, for example, have done impressive work with the Bonniers trademark (Mar. '49 issue) and with the Caribe Hilton initials (Mar. '50 issue) used throughout their fabulous San Juan hotel. Even more often, an architect may have a chance to improve, however slightly, an existing trademark or symbol. If and when these opportunities arise, he will necessarily need a book that tells him something about modern typography, about color impact and about visual communication in general. This is just such a book, and a very handsome production it is, too.

Editor Egbert Jacobson-whose Container Corp. ads have been important contributions to modern graphic design in America-has called upon an impressive panel of experts to handle different aspects of the problem: Herbert Bayer, Will Burtin, H. Creston Doner, Alvin Lustig, Paul Rand and Bernard Rudofsky are all about as intelligent about the subject as one can find-intelligent, but not always intelligible. It is a curious (and amusing) sidelight upon their complete devotion to visual communication that some of these top designers are verbally almost totally inarticulate—their means of oral communication having, apparently, been stifled somewhat along the way. Take a look at this, for example: "He is inescapably exposed to a never ending variety of impressions on his mind so that we may say as designers concerned with the visual aspect of communication, he is letterpoisoned." (Yet, you do get it the second time around....) Or this: "Another approach to the revitalization of the trademark is to combine the trademark with an illustration wherein the dominant feature of the illustration is derived from the basic form of the trademark." (This one you don't get at all until you have gone into the home stretch.) However, the illustrations-in color and black and white-are so eloquent and so well chosen that they serve perfectly to tell the complete story without much additional comment.

One further point: Bernard Rudofsky's scholarly Notes on Early Trademarks and Related Matters are the most fascinating chapter in the book. His illustrations range from early Greek sealstones (8th-Century B.C.) to the most charmingly elaborate Victorian nonsense. It is a pleasure to find this sort of esoteric material collected so carefully and evaluated so well.

(Continued on page 168)



Have you any clients who would NOT appreciate these Q-Floor advantages which Harry Hake and Harry Hake, Jr., provided for the Cincinnati Gas and Electric Company:

- Lighter weight building, therefore lower cost foundation and supporting structural steel;
- Less drafting room time because partitions and electrical outlets could be located after occupancy;
- Earlier completion date because the construction time can be reduced by Q-Floor methods;
- Protection against electrical obsolescence for the life of the building because Q-Floors provide electrical availability on any six-inch area.

These are the more easily discernible benefits from Q-Floor. There is also an advantage which you can present, even though it is an intangible—the savings effected by the contractor when he organizes his work to take full advantage of Q-Floor methods: A contractor can dispense with much temporary material when he uses Q-Floor as the working platform for subcontractors. He can also anticipate shorter construction period and consequently lower his bid. In some areas, subcontractors automatically reduce their bids when Q-Floor is specified.

You can explain to your client still another saving:



Three generations in the firm of Harry Hake and Harry Hake, Jr., architects who specified Robertson Q-Floors for this building, constructed by Union Central Life Insurance Co., and leased to the Cincinnati Gas and Electric Co., Cincinnati, Ohio. General contractor—Frank Messer & Sons, Inc. Structural engineer—Harry Balke.

Q-Floor permits occupancy 15 to 20% earlier than the old-fashioned wet construction. To calculate this exactly—take the square footage of the building, multiplied by monthly rent per foot, times number of construction months saved. The original cost of Q-Floor is about \$1 per square foot.

On many jobs the saving actually cancels out the cost of the Q-Floor!

For Latest Q-FLOOR Literature ...

Write

# H. H. ROBERTSON CO.

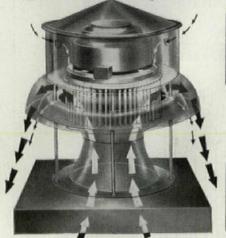
2403 Farmers Bank Building Pittsburgh 22, Pennsylvania

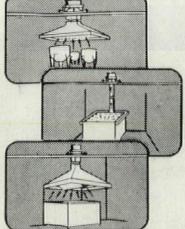


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World-Wide Building Service

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Pat. 2188741 2526290

CERTIFIED RATINGS: Gallaher Air Vans are tested by an independent laboratory — a test of the whole unit not just the fan wheel. You can be sure of Gallaher performance data — it's tested not interpolated.

**EFFICIENT:** SCROLL EFFECT designed into the unit and exclusive with Gallaher. Research tests show that efficiency against *even normal* static pressures is not possible without it.

SAFE MOISTURE AND FUME REMOVAL — Motor out of the air steam with the exclusive patented air seal off to make it certain. How safe? Gallaher units are safely used for ether and air concentrations without explosion proof motors.

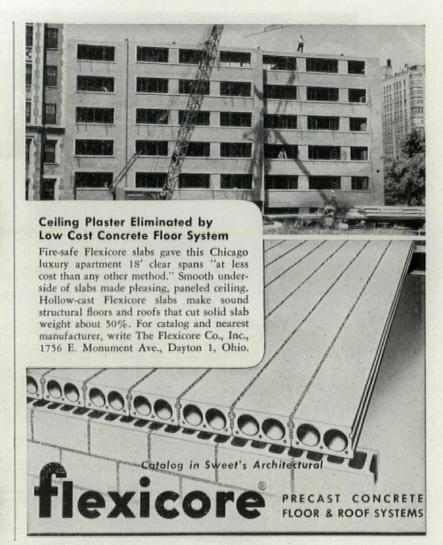
STRONG: We invite comparison with any comparable unit. Our specifications are published and available by asking your local Gallaher representative or writing Dept. A, 4108 Dodge Street, Omaha, Nebr.

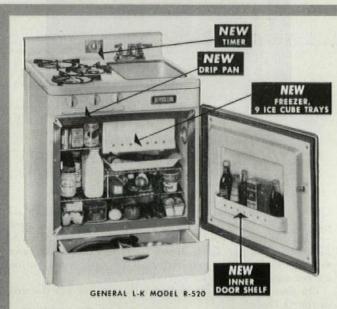
Capacities 150-11,000 CFM; Static Pressures to 13/4"

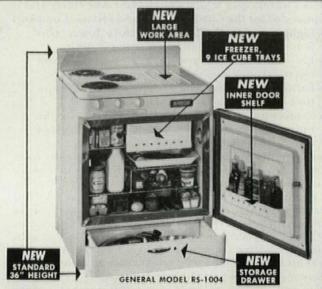
# The GALLAHER Company

Omaha, Nebr.

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A COMPLETE KITCHEN: REFRIGERATOR, COOKING-TOP, SINK Has horizontal freezer, 9 ice-cube trays, inner door shelf. In 27½" combines refrigerator, sink, storage drawer and 3 gas burners adjustable to natural or bottled gas. Also available with electric burners for 220 v. or 110 v.

COOK ON YOUR REFRIGERATOR. General Chef—now is standard 36" height. Requires only 4.1 sq. ft, of space.

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air conditioning corp.
NATIONWIDE SALES AND SERVICE

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# store...both prove versatility of TILT-UP CONSTRUCTION

From coast to coast architects and engineers are turning to *Tilt-up*, the fast, economical method of concrete construction for stores, warehouses, office and industrial buildings, hospitals, schools, homes and apartments.

Tilt-up is adaptable to individually designed or standard buildings. It is quick and easy and reduces form building to a minimum. Wall panels are cast flat in simple edge forms—usually right on the concrete floor—and then tilted up into position with power cranes or hoists.

Forms for door and window openings are positioned in the walls before placing the concrete. Walls can be sized to meet a wide variety of requirements. After panels have been tilted up into position they are tied into one integrated unit with cast-in-place piers and beams.

Tilt-up structures have all the desirable qualities of any concrete building. They're strong and durable. They resist decay, termites, storms, vermin and fire. Their first cost is moderate, they give lifetime service and they cost little to maintain. That's true low-annual-cost construction!

### PORTLAND CEMENT ASSOCIATION

Dept. 8-7, 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



# Now available . . .

# New TILT-UP Book

Learn more about this modern time-saving, economical construction method. Write for a new illustrated technical book. It's available free and contains a variety of construction and design details. Distribution of this book is limited to the United States and Canada.

HOTELS, RESTAURANTS, CAFES AND BAR-ROOMS. By Alexander Koch, Alexander Koch, Inc., Stuttgart, Germany. 303 pp. 834" x 121/4". Illus.

While the text of this book is in German, the author gives the reader a generous helping of photographs and floor plans to help translate the current hotel and restaurant architecture of America, Sweden, France, Italy, Switzerland and, of course, Germany.

LABORATORY DESIGN FOR HANDLING RADIOACTIVE MATERIALS. By the Building Research Advisory Board, 2101 Constitution Avenue, Washington, D.C. 140 pp. 8½" x 11". Illus. \$4.50

In view of the growing use of radioisotopes in industry, agriculture and medicine and in the buildings that house their activities, this book will prove an increasingly useful reference guide for architects and engineers. It consists of the proceedings of the November 1951 conference conducted by BRAB and jointly sponsored by AIA and AEC at which AEC made available much information on atomic energy which had formerly been classified.

LOUIS SULLIVAN — Prophet of Modern Architecture. By Hugh Morrison. W. W. Norton & Co., Inc. Reprinted by Peter Smith, 321 Fifth Ave., New York 16, N.Y. 391 pp. 61/2" x 81/4". Illus.

Now available after being out of print for some years, this tribute to Sullivan has eight chapters, ranging from his "Youth and Training" through the development of the sky-scraper and his architectural theory, and finally "A Critical Estimate" of his influence on architecture.

M. Kenyon. Frederick A. Praeger, New York, N.Y. 203 pp. Illus. \$3.25

This is a good book for anyone interested in taking up archaeology as a hobby or as a career. It outlines the basic techniques of excavation and the specialized methods used in tackling many types of sites. Miss Kenyon has been both a lecturer on archaeology at London University and a practitioner in the desert lands of the Near East, Her suggestions on how to record, interpret and preserve archaeological finds have therefore been evolved by long trial and error in the field.

LETTERING ART IN MODERN USE. By Raymond A. Ballinger. Reinhold Publishing Corporation, 330 W. 42nd St., New York, N.Y. 246 pp. 9" x 12". Ilius. \$12

Included in this very handsome book are examples of lettering used in architecture as well as the fields of publicity, packaging, posters, display, books, silver, glass and fabrics. Of primary interest to lettering students and designers, the material is presented almost entirely in pictorial form; text is held to a minimum.

BUILDING TRADES BLUEPRINT READING AND SKETCHING—BASIC COURSE. Delmar Publishers, Inc., Albany, N. Y. 193 pp. 1036" x 8". Ilius. Plastic bound \$3.25; cloth bound \$4.25

Prepared for the instruction of carpenters, masons and other building tradesmen, this is a detailed presentation of the fundamentals of interpretating blueprints and specifications and making trade sketches. It has been developed jointly by the publishers and the Connecticut State Education Department who are currently preparing advanced instruction material on blueprint reading for each specific building trade.



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building industry by the U. S. Forest Products Laboratory. This pioneer leadership in experience and manufacturing

facilities is yours to draw on and work with. See SWEET'S

catalog for basic arch information; and write, without ob-

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STRUCTURES, INC

Peshtigo, Wisconsin

# AG-35 VOLUME

# ... REDUCES ADJUSTMENT TIME and LABOR

## BALANCE SYSTEM WITH-OUT REMOVING GRILLE

This means that plaster or paint is never damaged or smudged during balancing. Key-operator regulates air volume to hairline adjustment.

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**ONE-UNIT GRILLE** and VOLUME CONTROLLER

**COMBINE AG-35** with any AIRFOIL grille for complete one-unit handling.



## PERFECT 4-WAY AIR CONTROL

Light weight-easy to handle—easy to install.



**VOLUME CONTROL LOUVERS MOVE** SIMULTANEOUSLY IN OPPOSITE DIRECTIONS-CLOSE TO ANY DEGREE DESIRED FROM FULL OPEN TO FULL CLOSED

Installers balance an air-conditioning system in one-tenth the ordinary time with amazing, new AIRFOIL AG-35.

There are no grilles to remove. Workman's hands never touch grille or wall to leave dirty, expensive smudges. Blades adjust fastereasier. Close more tightly.

Louvers do not close flat as in common styles using damper but close at 45°. This maintains a metering control down to the final moment of closure with a minimum disturbance of the air pattern.

Remember-there is one unit to install-one unit to handle-one unit to purchase when the air guide volume adjuster is combined with an AIRFOIL grille.

AIRFOIL Grilles are the most efficient ever designed. They are priced to enable you to use a superior product at lower cost. Get complete information at once.



#### CHECK TYPE OF GRILLE ON WHICH INFORMATION IS DESIRED

- Air-conditioning outlets Return air grilles and registers
  - Volume controllers
- Perforated metal and ornamental grilles Door ventilators
  - Special made-to-order grilles
- TITUS MANUFACTURING CORP., WATERLOO, IOWA
- **RUSH information on AG-35**
- Send complete catalog.
- Send literature on above checked items.

NAME

ADDRESS.



... uses the ageless and fadeless material

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on steel for toilet compartments

# Name a material that can equal it!

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

Vitreous Porcelain on Steel presents these exclusive features: It is a non-porous material with the hardness of glass and the strength of steel.

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

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

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

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

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

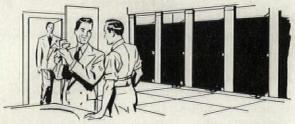




One way to win and retain the favor of people, whether they be employees, tenants, students or customers is to provide strictly modern toilet rooms—modern in every aspect. A toilet room environment impresses more people, either favorably or adversely, than any other single environment of a building where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



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



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

A FEW BUILDINGS, SELECTED FROM HUNDREDS,
IN WHICH SANYMETAL PORCENA TOILET COMPARTMENTS HAVE BEEN INSTALLED:

Newark City Hall, Newark, N. J. • Virginia Polytechnic Institute, Blacksburg, Va.

Baker Hotel, Dallas, Texas • Southern Railway System, (Several Locations) • Hill School, Sandusky, Ohio Norfolk & Western Railroad, Portsmouth, Ohio • Krauss Dept. Store, New Orleans, La.

Pennsylvania Railroad (Several Locations) • Charlotte Memorial Hospital, Charlotte, North Carolina Scott Paper Co., Chester, Pa. • Y. M. C. A. Building, Springfield, III. • Pacific Telephone & Telegraph Co., Los Angeles, Calif. • Lever Bros. Co., Los Angeles, Calif. • Otis Elevator Co., New York, N. Y.

Kiplinger's Agency Building, Washington, D. C. • Stonecutter Mills Corp., Spindale, North Carolina

#### THE SANYMETAL PRODUCTS COMPANY, INC.

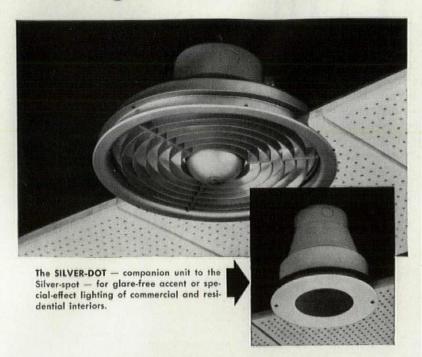
1687 Urbana Road, Cleveland 12, Ohio





people

# NEW . . . all-purpose incandescent downlight — the SILVER-SPOT



Versatile Silver-spot and Silver-dot downlight units are designed for use with the new 100-watt A-21 silvered-bowl lamp. They produce more candle power than equipment using 150-watt projector or reflector lamps . . . use less energy . . . generate less heat — without glare or wasted spill light.

Easy to maintain and install, these new units can be relamped from the floor without handling of fixture parts. A new lamp automatically restores initial efficiency.

In addition to providing warm color quality and soft, even light distribution at high illumination levels, these new Silvray units offer the following features:

#### The Silver-spot

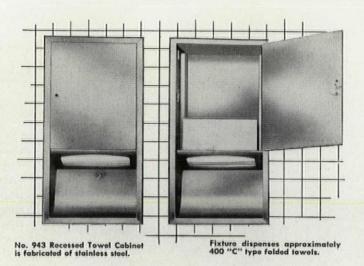
- Complete shielding of light source
   45° shielding of reflector.
- Recessed units fit opening 5%" deep by 9¼" in diameter.
- Simple accessory permits surfacemounting—unit projects only 3½".
- Easily convertible to either floodlight or spotlight distribution.

#### The Silver-dot

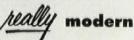
- 4" ceiling aperture controls a 6' light circle at a vertical distance of 6'.
- Requires a recess opening only 7¼" deep by 6½" in diameter.
- Complete shielding of light source

   no bright areas on interior of housing.
- Minimum initial cost.

# SKYLIKE LIGHTING, INC. — a Silvray-associated company. 107 West Main Street, Bound Brook, New Jersey Gentlemen: Please send me further information on Silver-spot and Silver-dot units. 1927 Silvray ALWAYS.... the best in lighting Address City\_\_\_\_\_Zone\_\_State\_\_\_\_\_\_



To make washrooms really



-specify the Scott No. 943 Recessed Towel Cabinet

Here's the fixture designed to keep step with today's growing trend to recess fixtures. It's one of the many Scott fixtures available to meet the most exacting demands for modern washrooms.

For a detailed dimension and installation drawing of the No. 943 fixture or for the help of a trained Scott consultant, write Washroom Advisory Service, Dept. MB-8, Scott Paper Company, Chester, Penna.

## SCOTT

Symbol of Modern Washrooms

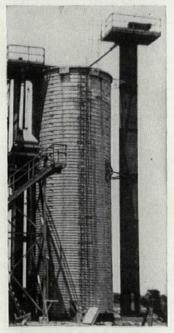
Trade Mark "Washroom Advisory Service" Reg. U.S. Pat. Off.

# heavy stuff becomes light-weight aggregate

You can tell by the close spacing of the hoops on this 16 x 50 ft. Neff & Fry Silo that the material stored is very heavy. The silo, when filled, holds 450 tons of perlite, the raw material for Permalite—a light-weight aggregate made by The Great Lakes Carbon Co.

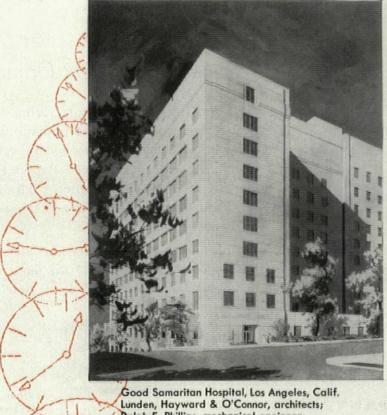
Our folder, "Bins With the Strength of Pillars," explains how Neff & Fry Super-Concrete Staves are made to give them rocklike density and extreme crushing strength.

If you handle any flowable bulk material, it will pay you to read our folder. Ask for a copy now while you're thinking of it.



THE NEFF & FRY COMPANY
148 Elm St., Camden, Ohio

NEFF & FRY SUPER-CONCRETE STAVE



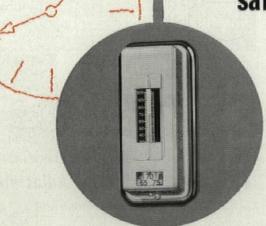
On 24-hour duty

# **JOHNSON**

AUTOMATIC TEMPERATURE CONTROL

Lunden, Hayward & O'Connor, architects;
Relph E. Phillips, mechanical engineer;
Howe Bros., heating contractors; Los Angeles

for labor-saving comfort and safety



In the thoroughly up-to-date Good Samaritan Hospital in Los Angeles, 70 Johnson Individual Room Control Thermostats are on "24-hour duty," working around-the-clock to maintain precisely the proper temperatures for every purpose. The room thermostats operate Johnson mixing dampers at the double "tempered and warm air" plenum chambers of the 15 central-fan heating systems in the building. "Behind the scenes," other Johnson instruments, valves and dampers are on continuous duty, so that the temperatures of the air, for heating and for ventilation, are controlled at exactly the right levels in those plenums.

With Johnson Automatic Control in command, hospital personnel are relieved of such oft-recurring chores as operating radiator valves and checking room temperatures. Assured of comfort and safety for patients, the staff is free to devote more time to professional duties . . . and with added energy—thanks to Johnson Temperature and Humidity Control.

Johnson Control meets the most exacting safety requirements. *Pneumatically* operated, it is always safe, even in the presence of explosive anesthetic gases. Also, Johnson Humidity Control guards against the dangers of static electricity.

Whether the problem involves control of temperatures and humidities in a single operating room or an entire hospital, call a Johnson engineer from a nearby Branch Office. His advice is yours for the asking. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

Automatic Temperature and JOHNSON Air Conditioning CONTROL MANUFACTURE - APPLICATION - INSTALLATION - SINCE 1885

# RAYNOR CARVED RAISED PANEL DOORS

When Distinctive Individuality Is Desired

Specify this RAYNOR Original

Typical of Raynor Manufacturing Company's ability to equip every door installation with the best in wood sectional overhead door equipment—the Carved Raised Panel Door is an excellent example of why leading architects specify Raynor doors exclusively.

Built complete in the Raynor plant, all Raynor doors are backed by the finest door designing and construction know-how.

Raynor Carved Raised Panels are available in the long narrow stream-lined panel as well as the standard square panel.

See our catalog in Sweets.

Simple-Low Cost

Many standard designs to choose from.

Extra panels may be built into shutters and house doors.

Finished paint job invites originality.

Precision routed from I" thick blanks.

**CUSTOM-BUILT ALUMINUM WINDOWS** Croft Steel Products offers facilities for design and manufacture of custom-built aluminum windows, backed by over thirty years' experience in the metal win-

> Write today for further information

at your service.

AMERICA'S OLDEST CASEMENT WINDOW MANUFACTURER

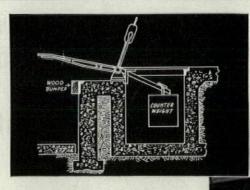
16 MARKET STREET



Write Dept. E for colored illustrated literature and technical data .....

Builders of a complete line of wood sectional overhead doors—equipped with Graduated Seal.

RAYNOR MANUFACTURING COMPANY, DIXON, ILL.



Installation Note perfect Bridge between Truck and Dock

70 Design TOP-EFFICIENCY Specify

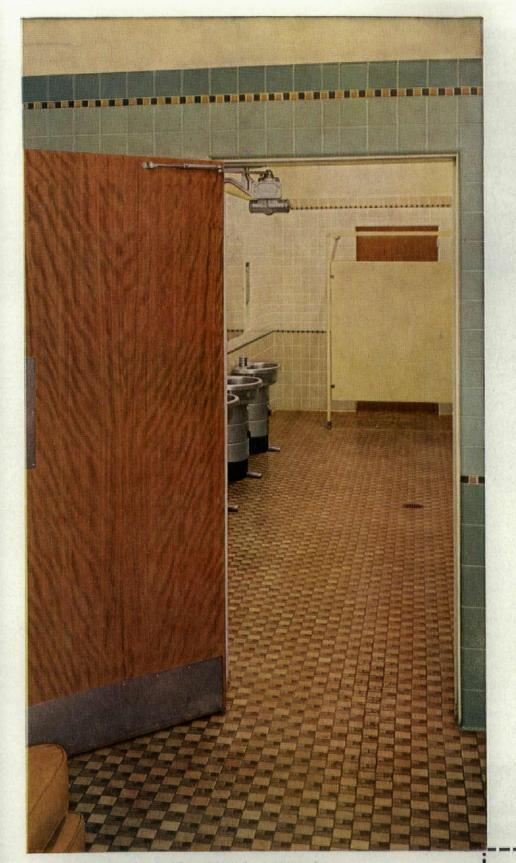
**Adjustable Loading Docks** 

For the perfect bridge between truck and dock, specify the Rite-Hite Adjustable Loading Dock. The answer to the Architect's design problems. Low-cost installation, plus troublefree service and lack of maintenance cost, guarantees client satisfaction.

No piping No compressors V No pumps / No motors V No lubrication No machinery > No operating expense Counter-balanced Easy to operate

For further details, sizes, capacities, plans and specifications, write to: DEPT. - 106

LOOMIS MACHINE CO., CLARE, MICHIGAN (RITE-HITE DIVISION)



Girls' Washroom, Standard Pressed Steel Co., Jenkintown, Pa.

Send for your copy of this booklet today.

# AMERICAN-OLEAN TILE COMPANY

Executive Offices, 910 Kenilworth Ave., Lansdale, Pennsylvania

# NEW

# Booklet Shows You How to RAISE MORALE and LOWER MAINTENANCE COSTS

Among the major sources of personnel gripes are unsightly and outmoded wash-rooms—and their costs in janitor service and maintenance expenses are high.

American-Olean's new 20-page full color booklet gives you the full story on how to cut out refinishing and repainting expenses . . . how you can help your client slash janitor costs to the bone. And it explains why clean, colorful American-Olean tile installations boost workers' morale and help eliminate one of labor's four major complaints against management.

It's the only book of its kind! Page after page of color photographs of actual installations, with specifications. Send for your file-size copy today.

# AMERICAN-OLEAN TILE COMPANY

910 Kenilworth Avenue, Lansdale, Pa.

Gentlemen:

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

Name\_\_\_\_\_\_
Title\_\_\_\_

Firm Name\_\_\_\_\_\_

City\_\_\_\_State\_\_\_



Seventeen 6-story buildings, housing about 800 families - and the walls on all floors are decorated with Wall-Tex fabric wall coverings. Dorothy Draper, Inc., Interior Decorators, chose Wall-Tex for its color-and-design beauty and its unmatched serv-

Tenants take pride in the luxurious beauty of Wall-Tex, take better care of it. And Wall-Tex takes better care of walls and ceilings. Doesn't scuff easily, controls plaster cracks. Needs little attention, saves on upkeep cost.

## Pre-trimmed, 24 inches wide

New pre-trimmed 24-inch Wall-Tex is ready to paste and hang. Factory trimmed straight and true, no rough edges or loose threads. Easy to apply and do an expert job. 200 beautiful patterns and colors. Mail coupon for swatches and File Folder.



Send your new File Folder on Wa	all-Tex and Sample Swatches.
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Name			
Street			

City.

	THE F. W. WAKEFIELD BRASS CO. Vermilion, Ohio
	Please send me a copy of your book on the Wakefield Ceiling.
	Name
3	AddressState

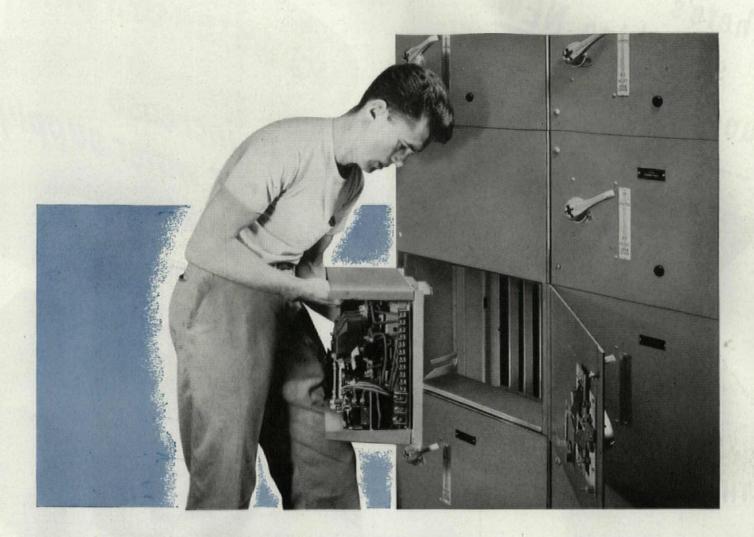
To know all there is to know about this patented, packaged, proven means of providing total luminous-acoustical environments you must have this book. A copy is waiting for you.



#### the Quality plus the Gross Area of the Steel will alone determine your Net Results

Strength comparison		Strength
2 1/4" Round Rods-55,000 lbs. steel	.0982	5401 lbs.
Standard Dur-O-wal-3 No. 9 Rods, 100,000 lbs. steel	.0518	5181 lbs.
Extra Heavy Dur-0-waL-2-3/16" Rods, 1 No. 9 Rod,		

With this strength comparison PLUS the added mechanical bond provided by the unique triangle construction and the high tensile strength steel provided in a small area, it is easy to see why Dur-0-wal is the reinforcing member to specify for buildings you design. Cedar Rapids Block Co., Dur-0-wal Div., 651 12th Ave., SW, Cedar Rapids, Ia.; Dur-0-wal Products, Inc., P. O. Box 628, Syracuse 1, N. Y.



# POSITIVE SAFETY

# for personnel...for equipment

Another reason why most control center buyers specify WESTINGHOUSE

Every time a man works with a Westinghouse Control Center he does so with complete freedom from danger. He knows that every design precaution has been taken to make his task a safe one.

He knows that when he tilts out a starter unit, it is completely disengaged from the power buses. He knows that when he removes a unit, the unit door remains on the structure to close off the hot buses. He knows that when he replaces the unit, the guide rails align the Magna-Grip® stab connectors so that engagement with the buses is positive every time. He knows that each starter unit is completely enclosed and has grid-type baffling which prevents spread of ionized gases to adjacent units. He knows that all

current interrupting components have been tested at the Westinghouse High Power Laboratory to prove their unfailing performance.

Call your local Westinghouse office for the services of an application engineer. He will work with you to figure out the best combination of control center components and structures to handle your job. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-27024





# THAT SAVES FLOORING

"Loma Loom" carpet - the carpet with the built-in sponge rubber back, can save the cost of a hardwood floor. This sensational carpet can be installed over concrete, plywood, or a wood sub-flooring, as the sponge rubber cushion moulds to the available type of flooring.

"Loma Loom" can be taken up without damage to itself or to the finest floor.

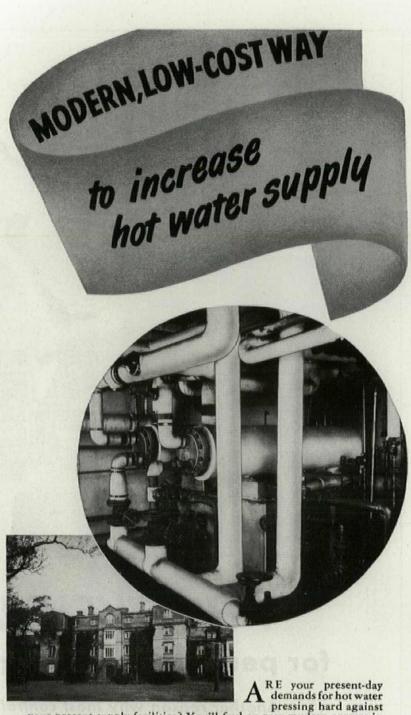


BUILT-IN SPONGE RUBBER CUSHION

MADE BY

> WEIL BROS. TEXTILES, INC. 31 East 32nd Street, New York 16, N. Y.

• May we send you samples?



your present supply facilities? You'll find an easy modern answer in GENERAL Instantaneous Heaters.

These heaters require no bulky storage tanks or complicated piping ... use either live or exhaust steam as heat source ... and may be installed either to "boost" or completely replace storage-tank water-heating systems. Their compactness and high efficiency save you money on installation and operation.

The illustration above shows a typical compact installation of GENERAL Instantaneous Heaters which supplies all hot water requirements for kitchens, baths and cafeteria in a New England private hospital.

Investigate the benefits of GENERAL Instantaneous Heaters for your hot water supply. Available in 21 sizes with capacities up to 300 gals, per min. All-bronze and copper waterways.

### MAIL THIS COUPON FOR COMPLETE CATALOG 60 -----

General Fittings Co., Dept. H 123 Georgia Ave., Providence 5, R. I. Gentlemen: Please send copy of your new Catalog 60 containing detailed information on Instantaneous Heaters. Address.

# Rolling Steel

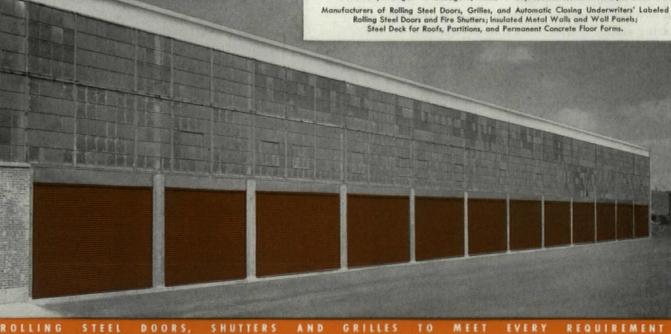
CHAIN-GEAR OPERATOR

#### Manually, Mechanically, or Power Operated

Here again is illustrated a building in which only Rolling Steel Doors could meet the operating requirements. It is a foundry building with high clearance below trusses and continuous sash above door lintels to provide good natural light. Rolling Steel Doors were chosen because their vertical roll-up action occupies no usable space inside or outside the door opening, and does not create an obstruction above the lintel level. No other type of door offers these inherent advantages of space economy and compactness in operation. There are other advantages too . . . Rolling Steel Doors are permanent—their all-metal construction provides maximum security against intrusion and fire, and assures you a lifetime of continuous trouble-free service. Like most other things, there is a vast difference in the quality of the various rolling steel doors on the market today—a careful check of specifications will reveal this. For instance, the galvanized steel material for the interlocking slats of Mahon Rolling Steel Doors is chemically cleaned, phosphated and chromated to provide paint bond, and the protective enamel coating is baked on at 350° F. prior to roll-forming. This is just one of the extravalue features of Mahon Rolling Steel Doors-you will find others. See Sweet's Files for complete information including Specifications, or write for Catalog No. G-52.

#### R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

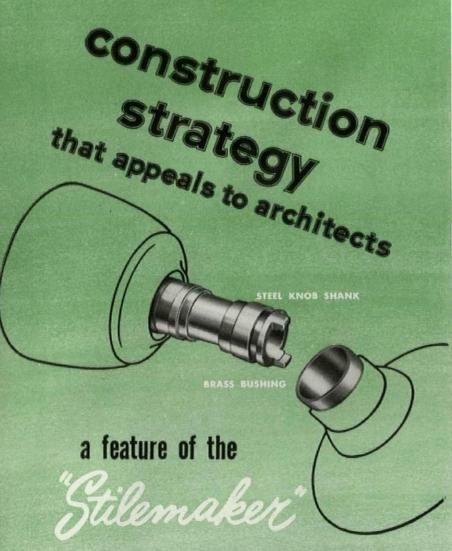


ve of fifteen Mahon Power Operated Rolling Doors installed in a new foundry building by Spence Bros., General Contractors, naw, Michiaan.

MAHON STANDARD

POWER OPERATOR 920-

MAHC



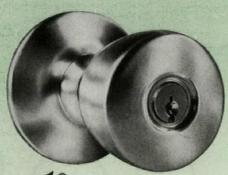
From your engineering background, you'll recognize the advantage of making a knob shank of steel and bushing of brass. The use of two, time-proven bearing metals assures extra long service life ... a feature of the Russwin "Stilemaker". + + + In addition, "Stilemaker" construction employs the same shifting roll back principle used so successfully in \*UNIT locks . . . another assurance of long service life as well as smooth, positive operation. The appeal of "Stilemaker" construction is reflected everywhere in more and more architects' specifications. Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

\*Copyrighted

Engineered to Architect's Specifications

All Popular Functions

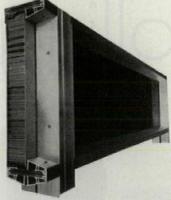
Knob Styles . . in wrought or cast bronze or brass



RUSSWIN "Stilemaker"

BY THE MAKERS OF THE ORIGINAL KEY-IN-THE-KNOB LOCK

#### PRODUCT NEWS



Plywood insulation bridges inside and outside sections of the metal framing. The cutaway at left is designed to support a curtain wall material with a honeycomb core.

#### TAPERED ALUMINUM FRAMING has insulating core

Bevels on each section of Thermo-Sash give the aluminum framing a bulklessness which belies its rigidity and strength. The slim, sloped extrusions grip plastic-coated wedges between exterior and interior sections. These separators prevent conduction of heat or cold through the metal members. (Even when it hits 20° below outdoors, no condensation or frost forms on the inside surfaces to upset the precise humidity-temperature balances desirable in many buildings.) Having a U factor of .38, Thermo-Sash seems to be a natural counterpart for double glazing and insulated curtain wall panels. It comes in widths of 23¼" to 5" and, to date, has met required deflections and wind loads for windows up to 14' high. Where sections 4" or more deep are used, this construction method allows the architect a generous reveal with

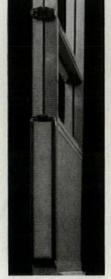
rich sight and shadow lines. Costs run from \$1.50 to \$6 per lin. ft., depending on the detailing necessary. Entire curtain walls designed with Thermo-Sash can be ordered with prefabricated sandwich panels installed at the factory. Porcelain enameled steel, stainless, and aluminum are some of the facing materials available over paper honeycomb, foamed styrene, or mineral insulating cores. Made in 4', 6', and 8' widths in heights up to 11', the curtain walls are delivered ready for erection and glazing.



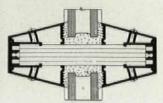


They sell for about \$3.50 to \$7 per sq. ft., according to the finish and core selected, and structural details.

Manufacturer: Kesko Products, Bristol, Ind.

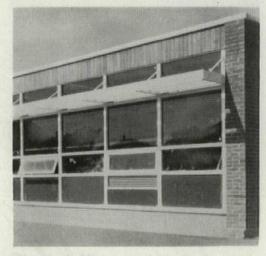


Completely insulated walls may be planned with Thermo-Sash. The diagram below is a detail of a window muntin.

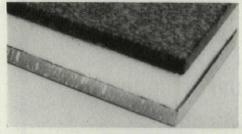


#### CURTAIN WALL PANELS sandwich insulation between skins of textured enameled steel

One of the newest ready-made wall materials is Seaporclad, a laminate of colorfully porcelained steel sheets with an insulating middle. Combing the longevity and easy upkeep of baked enamel with a lightweight core, the paneling is adaptable to many kinds of buildings. Unlike the raw wetlooking enameled steels that sensitive designers shun as being suitable only for souped-up supermarkets, Seaporclad has a brisk multicolor finish. In one type, the manufacturer takes particular advantage of the medium by mixing translucent particles with opaque pigments to create a scintillating surface. Monotones as well as color combinations (matched to

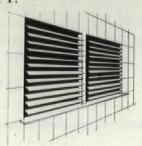


any painted swatch submitted) are available in varying degrees of bumpiness with either a gloss or semi-matte finish. The panels are formed in sizes up to 5' x 10' and supplied either with both sides porcelain enameled or one enameled and the other of unadorned sheet metal. Costs run about



\$2 to \$3 per sq. ft. Outside louvers for daylighting control also were introduced recently by the firm. Fabricated of porcelain enamel fused to steel at 1,550° F., the slim louvers are said to withstand the rigors of all climates.

Manufacturer: Seaporcel Metals, Inc., Long Island, N. Y.



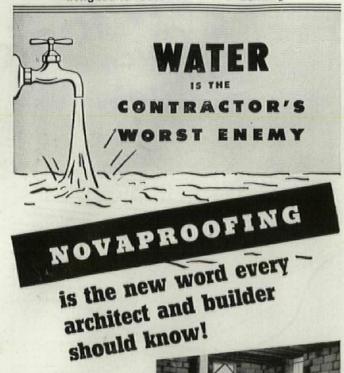
(Continued on page 186)





#### another HOMASOTE FIRST

-designed to reduce the cost of building



Novaproofing is a term used to signify a coordinated science of protecting buildings from the weather; it crystallizes 20 years of research and tested methods. The records indicate that some one or more of the Novaproofing products and methods can correct almost any water condition—even after all other methods have failed.

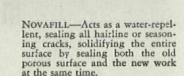
failed.

The scientific aspects of Novaproofing are based upon a recognition of the strengths and weaknesses of concrete and mortar. They have inherent qualities which, properly leavened, mean increased protection from the weather, increased strength, increased service life. At the same time, the workability of the mixture must always be under full control. It can be varied in such a way as to produce concrete and mortar for each particular application in exactly the form it should have.

Novaproofing is based upon the use of five particular products . . .

NOVAMIX — For mass concrete, pargeting, stucco, slush coat, cement grout. Helps concrete and mortar to become stronger, more moisture-resistant—by controlling the rate of curing.

NOVACRETE—The "Micro-Milled" masonry paint with unexcelled water-resistance and long-wearing qualities. Preserves and beautifies stucco, cinder and concrete blocks and all masonry surfaces.



NOVALASTIC—A flexible joint filler, designed for use as a relieving joint in brick-work, coping stone, etc.

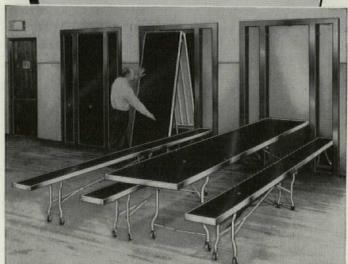
NOVAPRIME—Used in conjunction with Novalastic. Its function is to penetrate and waterproof the surfaces of brick, stone and other masonry.

We have the products and the know-how to help you—"wherever you want to keep water in or out". As a service to Architects—never before available—we offer a series of nine Specification Data Sheets covering all important masonry uses. To Builders—a series of 19 Service Bulletins, the know-how of Novaproofing.

Let us send you fully illustrated and detailed literature.

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Send details on NOVAPROOFING.	CO! TRENTON 3, N. J.					
Name	A whally owned subsidiary Homosote Company—manuf					
Address	furers of the old- est and strongest insulating build-					
CityState	SWEET'S ing board; wood-					
My lumber dealer is	stricted panels.					

# Approved\* Method of Cutting Costs in School Design





# COMBINE LUNCHROOM AND ACTIVITIES AREAS . . . ELIMINATE A SINGLE-PURPOSE ROOM!

 See Sweets Architectural File for details on this multiple-use- of-space equipment. Proven and accepted as practical by school officials and installed in hundreds of schools from coast to coast.



\*ALREADY SPECIFIED BY HUNDREDS OF SCHOOL ARCHITECTS. WRITE FOR THE LIST

SCHIEBER SALES COMPANY

12738 Burt Road . Detroit 23, Michigan

# ...another bridge on RAYMOND piles

Constructed for State of California Department of Public Works, Division of Highways.

spanning the South Channel Sweetwater River between National City and Chula Vista, California is this 332-foot long highway bridge supported by Raymond piles. It has a 28-foot wide roadway and is of reinforced concrete construction with concrete caps resting directly on the Raymond piles—another example of the important role Raymond is playing in the constant development of the highways of America.

THE SCOPE

OF RAYMOND'S

ACTIVITIES . . .

Foundation Construction . . . Harbor and Waterfront Improvements . . . Soil Investigations . . . In-Place Pipe Lining . . . Specialized Construction

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Caribbean mansion in Havana by architects Silverio Bosch and Mario Romañach combines beauty and climate control,

For the most distinguished domestic work of leading world architects see **house** + **home** every month.

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THE MAGAZINE OF BUILDING

### house+home ...

540 North Michigan Avenue, Chicago 11, Illinois

# "maintenance time CUI 50%"

# with Westinghouse MERCURY lighting

A typical customer's problem: "To reduce the time spent on lighting maintenance."

Westinghouse recommendation: "To install Westinghouse Mercury Lighting."

Result: "Less than half as many fixtures to maintain and fewer lamps to replace, because mercury vapor produces more light per luminaire than any other lighting system."

This is only one case out of hundreds of "time-tested" installations. All show evidence that Westinghouse Mercury Lighting is a fast growing industry favorite. Investigate the complete line: 400, 1,000 and 3,000-watt units for either low or high-bay areas... open or closed fixtures for clean or dirty locations...high or low-voltage ballasts for any distribution system. Send for B-4727, "Westinghouse Lighting at Work" in every industrial area. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

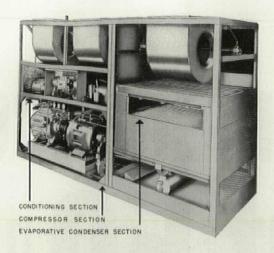


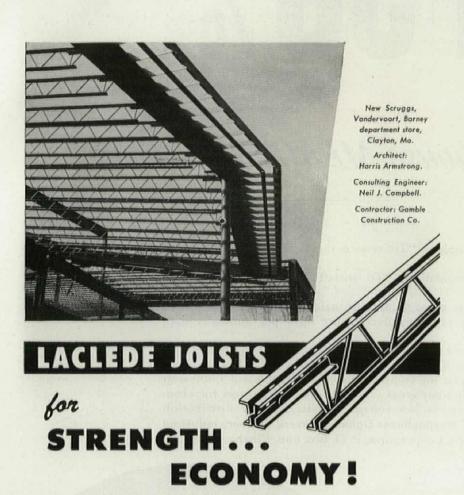
1-04294

#### PRODUCT NEWS

#### 10 AND 20 TON AIR CONDITIONERS easy on water and power consumption

Instead of working on the usual power-eating on-off cycle, Trane's new line of medium tonnage air conditioners feature reciprocal compressors which step down the power automatically when the need for cooling drops. By modulating the electricity consumed according to cooling requirements, the compressors also relieve the motors of the burden

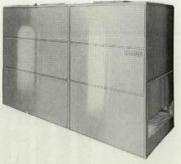




For lightweight, functional design, builders, architects and engineers wisely specify these Laclede Steel Products for floor and roof construction.

WELDED WIRE FABRIC • FORM & TIE WIRE MULTI-RIB REINFORCING BARS • JOISTS CORRUGATED STEEL CENTERING





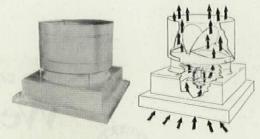
Compressor, condenser, and conditioner assemblies are grouped in a single space-saving cabinet.

of frequent stops and starts. The conditioners, which have built-in evaporative condensers. are engineered to meet the most rigid water regulations. Moisture collected from the atmosphere by the cooling coil is added to the condenser's spray water-a process said to cut water consumption as much as 98% on humid days. (Trane reports that a gallon of condenser-evaporated water will absorb 50 times more heat than a gallon raised 20° F. in a water-cooled condenser and then discharged to a sewer.) Produced in 15 and 20 ton cooling capacities, the new units can be fitted with heating fins to provide all-year air conditioning for medium-sized offices, stores, banks, and restaurants. Each conditioner measures about 10' long, 6' high and 3' deep, and is shipped ready for operation after simple electrical, water, and duct connections are made.

Manufacturer: The Trane Co., La Crosse, Wis.

#### POWERFUL UPBLAST EXHAUSTER presents low-slung outline on rooftop

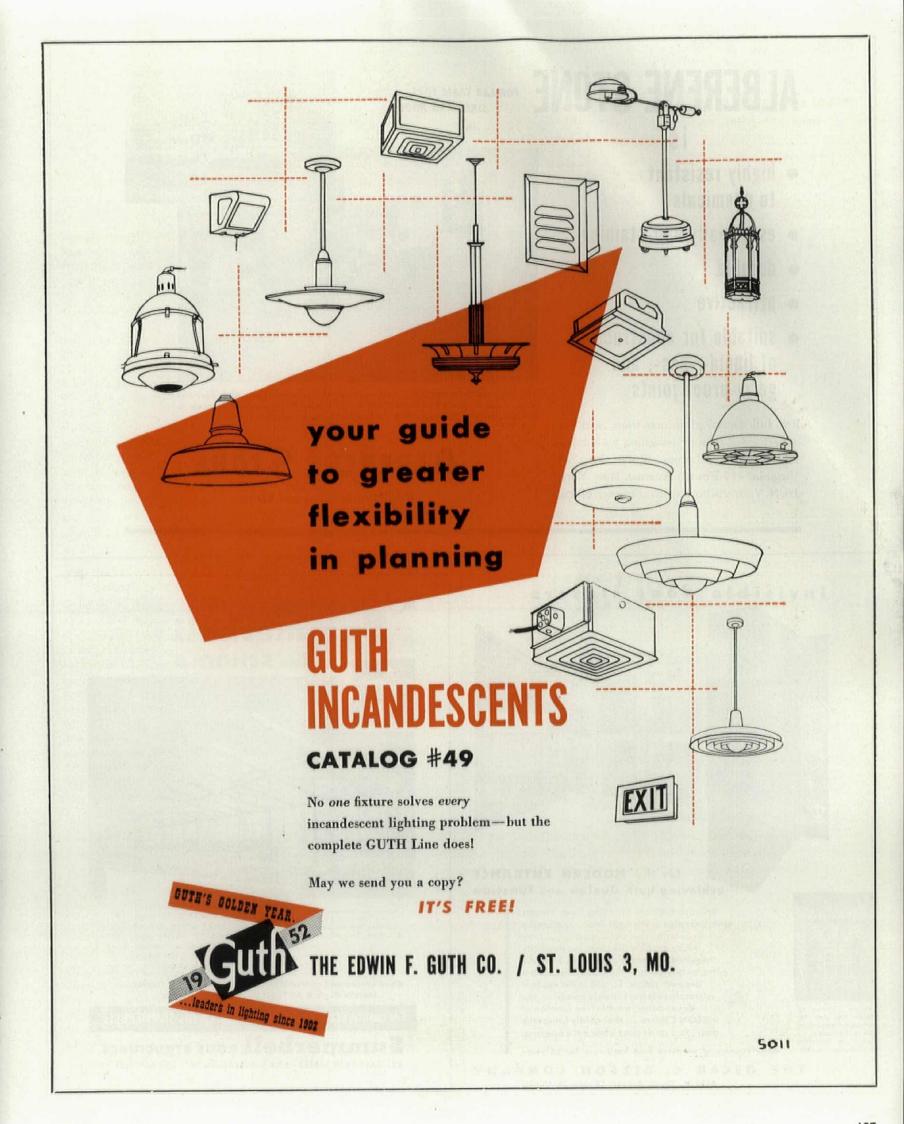
Standing only 4'-6" high, Gallaher's model 42 Air Max exhaust fan can handle 22,000 cu, ft. of air per min. The new low silhouette was developed to cut down the overturning effect sometimes created by conventional exhausters installed in large numbers on existing structures. Incidentally, the horizontal drum shape of the unit makes for better-looking commercial and industrial roof lines. The Air Max comes to the site as a package, with motor totally enclosed, ready for installation. Its base is optional equipment. Fan blades, machined from cast aluminum alloy, are vinyl coated to protect them against acid and alkali fumes, and the entire housing is



treated for chemical resistance. When the ventilator is not working, aluminum dampers shut out wind, rain, and avifauna.

In addition to model 42, the firm makes exhausters for vertical air discharge with capacities ranging from 1,700 to 44,000 cfm and prices from about \$200 to \$800.

Manufacturer: Gallaher Co., Omaha, Neb. (Continued on page 190)



# ALBERENE STONE FOR LAB TABLE TOPS, SINKS AND HOO

- highly resistant to chemicals
- essentially non-staining
- durable
- attractive
- suitable for construction of liquid-, gas-, and germ-proof joints

For full technical information, and for expert assistance in designing your laboratory, write Alberene Stone Corp. of Virginia, 419 Fourth Avenue, New York 16, N. Y., or visit our nearest branch office.



ANOTHER MODERN RESEARCH LAB equipped with Alberene Stone table tops and sinks . . . new SOLVAY LABORATORY, Solvay Process Division, Allied Chemical & Dye Corporation, Syracuse, N. Y. Architects—The H. K. Ferguson Company.

#### ALBERENE STONE

**Branches in Principal Cities** 

invisible do



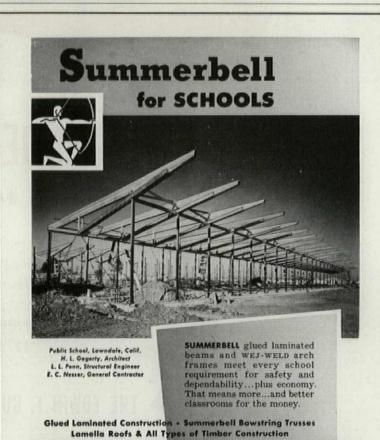
Rixson concealed closers are ideal for entrance remodeling and modernizing. Template drawings available on request.

Because RIXSON Checking Floor Hinges are concealed in the rigid floor . . . allowing a full, unobstructed door opening . . . they make possible the clean cut simplicity required in modern design. No unsightly arms, or any parts of the closed mechanism are ever visible. To add to the modern atmosphere is the invisible power . . . the dependable, trouble free function of RIXSON Closers . . . that gently brings the doors to a quiet close after each opening.

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For quality, economy and satisfaction, specify SUMMERBELL

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#### NEW YORK UNIVERSITY, LAW COLLEGE, WASHINGTON SQUARE, N. Y.





# **POWERS**

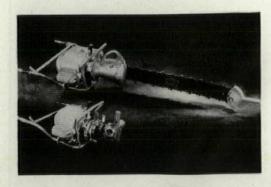
Temperature and Humidity Control was selected for this distinguished building, outstanding for the excellence of its traditional design.

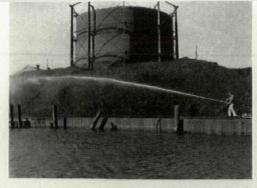
Here, 199 convectors are controlled by 54 Powers room thermostats. There are 30 complete air conditioning systems for summer cooling and dehumidifying, also winter ventilation and humidification—all are controlled by Powers equipment.

When you wish automatic temperature control which often gives 25 to 40 years of dependable service with a minimum of repairs, specify Powers. Over 60 years experience gained in supplying temperature control for many important buildings may be helpful to you in selecting the type best suited for your requirements. Contact our nearest office, there's no obligation.

Established in 1891 . THE POWERS REGULATOR COMPANY . SKOKIE, ILL. . Offices in Over 50 Cities

#### PRODUCT NEWS





The chain saw set-up can be stripped to become a chassis for a high pressure pump in a minute.

#### DUAL TOOL is quickly converted from highpressure pump to chain saw

For cartoonist Steinberg devotees who relish umbrella stands nee bassinets, and for practical-minded maintenance men and contractors, Kiekhaefer Corp. has a double-barreled delight. The manufacturer's new twoway tool consists of a portable high-pressure pump that can be switched in less than a minute to chain saw operation. No special tools are necessary to attach the 18 lb. unit to a mercury-powered chain saw engine. The combination, weighing 63 lbs., can be handled by one man. Selling for approximately \$145, the pump has a 50 gal. per min. capacity at 125 psi. The chain saw (model DA-211) with mercury engine costs about \$495. All parts of the equipment are treated to resist corrosion.

Manufacturer: Kiekhaefer Corp., Dept. P-2-9, Fond Du Lac, Wis.

#### SEMIAUTOMATIC CONSTRUCTION TOOL cuts nailing time in half

It has been some time since a palaeolithic Piltdown lashed a stone to the end of a stick, but until recent years the building industry could boast in its hammer only minor modifications of the early weapon and courting calling card. The swing to labor-saving mechanical implements finally is catching up with that good old standby. The Fox Nailer is one device sure to interest anyone who has suffered the ignominy of bruising a thumb





while starting a nail, the frustration of bending a half-driven 10 penny, or an aching deltoid after overhead nailing. A simple, efficient attachment for a pistol-type pneumatic hammer, the 6" long Fox No. 16 consists of just four parts-two of which move but need no lubrication. Any common 6 to 16 penny nail may be inserted, head first, in the muzzle; and when the trigger is squeezed, rapid blows of an alloy steel plunger drive in the nail. The tool not only starts the nail, but will drive it in at any angle. The manufacturer says that a carpenter can keep up a pace of 20 nails per min. with the Fox Nailer and feel less fatigued than if he uses an ordinary hammer to drive 10 per min. Already tested for 21/2 yrs. on big and little construction projects in the Pacific Northwest, one Fox Nailer has 11/2 million spikes to its credit without a single fizzle. The instrument retails

Manufacturer: Fox Nailer Corp., 3706 Airport Way, Seattle 4, Wash. (Technical Publications page 194)

# POREX WALL FURRING will keep those B.T. U.'s inside!

3" POREX
gives as much
insulation as
2" of cork

9" Brick

1/2" Parging

POREX

1/2" Plaster



POREX furnishes a first-class plaster base

POREX WALL FURRING for Hospitals, Apartment Houses, Hotels, Factories, Warehouses.

STANDARD THICKNESSES—
1", 134", 3", 31/2"—other sizes where required.

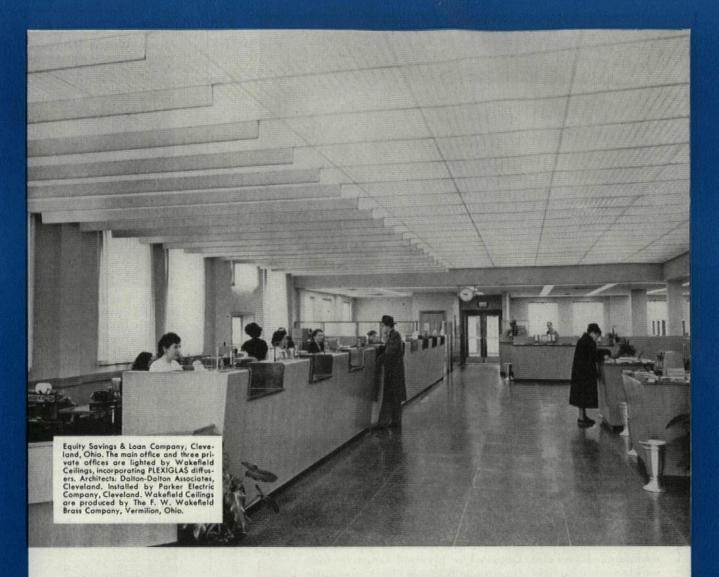
OREX IS

The reduction in size of heating plant required, pays for the cost of POREX. The reduction in fuel cost is a clear saving. INSULATING
SOUND-ABSORBING
SELF-SUPPORTING
LIGHTWEIGHT
MOISTURE-PROOF
FIRE PROOF
EASILY CUT

**ECONOMICAL** 

PORETE MANUFACTURING CO., North Arlington, N. J.

Manufacturers of Porete Plank, Porete Channel Slabs, Porex and Poretherm



#### Lighting . . . Air Diffusion . . . Sound Control . . .

#### Combined in a Luminous Ceiling

The Wakefield Ceiling shown above, with its corrugated PLEXIGLAS diffusing panels, combines three functions in a single installation.

- Mounted wall to wall beneath fluorescent tubes, the acrylic plastic panels provide high level, low brightness, evenly diffused illumination.
- Conditioned air from the space above the luminous ceiling is delivered into the room through the openings at the edges of the corrugated diffusers.
   The multiple openings insure an even distribution of air, with elimination of drafts on customers and employees.

 The simple framework for the PLEXIGLAS also supports acoustical baffles which absorb sounds from the work area.

This Wakefield method of combining air diffusion and sound control with the best in lighting—using Plexiclas acrylic plastic—can reduce building construction and operation costs. In addition there is the advantage of duct-free, fixture-free appearance.

We will be glad to send you details about the installation shown above, and tell you how PLEXIGLAS may solve your lighting problem.

CHEMICALS



FOR INDUSTRY

#### ROHM & HAAS

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

Canadian Distributor: Crystal Glass & Plastics, Ltd., 130 Queen's Quay at Jarvis Street, Toronto, Ontario, Canada.

PLEXICLAS is a trademark, Reg. U. S. Pat. Off. and other principal countries in the Western Hemisphere.



# When Appearance Counts-Specify Plywood Forms

How smooth can concrete be? As smooth as the material against which it's cast. That's why plywood-formed\* concrete surfaces are smooth, dense, uniformly attractive. Large panel size automatically reduces fins and joints to an absolute minimum. Exact-size Douglas fir plywood concrete form panels are tough, rigid, dimensionally stable. Stark monolithic surfaces, curved surfaces, rustication lines, fluting and other special architectural design effects are also easily achieved with plywood forms. For free catalog, write Douglas Fir Plywood Association, Tacoma 2, Washington.

#### Only Plywood Offers All These Advantages

- Plywood forms create smooth, finfree surfaces
- Economical! Plywood forms can be used over and over
- Plywood forms speed work—save time and labor
- Plywood is strong, rigid—yet light, easy to handle
- Plywood forms are puncture-proof, water and morter tight
- Plywood has superior nail and tie holding properties
- Plywood is easy to work with hand or power tools
- Plywood provides sheathing and lining in one material



Douglas Fir Plywood

AMERICA'S BUSIEST BUILDING MATERIAL

"Several plywood grades are manufactured for concrete form work. Interior Plyform® is made with highly moisture-resistant glues which permit multiple re-use (up to 10 to 15 are not unusual). For maximum re-use specify Exterior-type PlyForm®, bonded with completely waterproof adhesives. For special architectural concrete, use Exterior or Interior plywood grades with "A" face veneer—or one of the new plastic surfaced or hardboard-faced plywood panels.

Registered grade-trademarks of Douglas Fir Plywood Association

#### **PANEL DISCUSSION**

PlyForm Grade Plywood Now Made In Two Types



The familiar PlyForm grade-name now identifies special concrete form grades within both Interior and Exterior-type fir plywood. Exterior PlyForm replaces the old Exterior Concrete Form grade-name. Identified by the new diamond-bar symbol shown above, Exterior PlyForm with100% waterproof bond is intended for use where forms will be used until the wood itself is worn away. Simultaneously, the highly moisture-resistant glueline of Interior PlyForm has been fortified for better service, and up to 10 or 15 re-uses may be expected even though glueline is not permanently waterproof.

#### Builder Saves \$10 Per Square With Plywood Siding-Sheathing



With unlimited choice of building materials, Rusdick Lumber Sales chose plywood siding for its new Tacoma, Wash. warehouse and the builder reports the panels cut construction costs by \$10 per square. "We chose plywood because we like a smooth, flush exterior surface but cost was an important factor and plywood was cheaper" says partsowner Russell Ross.

an important factor and plywood was cheaper," says part-owner Russell Ross.

MacDonald Building Co. designed and built the new structure. According to L. B. MacDonald, plywood afforded the least expensive satisfactory construction. He estimates the in-place cost of plywood, unpainted, with studs 16", o.c., and metal flashing, at \$68 a square—some \$10 less than the in-place cost of other siding combined with the necessary sheathing.

bined with the necessary sheathing.

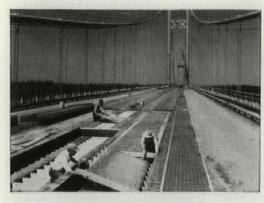
The building is 50' by 150', 20' high to the roof trusses. PlyShield grade plywood, 5%"-thick, was used as a combined siding-sheathing. Panels were applied horizontally with metal flashing.

#### Plywood Shapes Unusual Concrete Roof Frames

Plywood-formed concrete frames were used to replace conventional posts and roof trusses to achieve an unusual degree of interior flexibility in the Fred Meyers Burlingame Shopping Center Building, Portland, Oregon. Photo shows frames viewed from roof; vertical haunches project

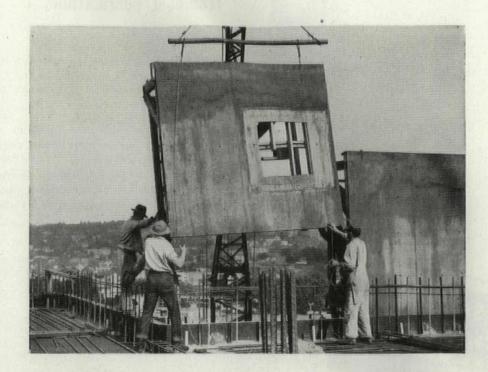


down through the roof to ground. Trussed wood joists are suspended from tie-beams secured to the frames. Because the frames are a definite architectural feature, concrete had to be smooth, fin-free. According to Leslie E. Poole, engineer in charge of construction, plywood offered the simplest, least expensive method for obtaining the smooth surfaces. In fact, because of its smooth, neat appearance, the concrete required no further finishing once forms were stripped. Exterior PlyForm panels were reused up to eight times in forming the five frames. The building was designed by Engineer Leslie E. Poole; contractor; H. M. Hocken, Portland.



#### Mile-Long Road Slab Formed With Plywood

The time and cost-saving features of plywood forms often warrant their specification even when appearance and re-use are not important factors. An example is the recently completed Tacoma Narrows Bridge. On the job, almost a third of a million feet of plywood were used to form the milelong reinforced concrete road slab. Earl Starbard, job superintendent for Wood-worth and Co., contractors for all concrete work, reports that plywood was specified because the "forms had to be as tight as possible to prevent leakage on steelwork below the slab." In addition, he estimates plywood's size and light weight helped speed work and reduce labor costs by over 15% In addition to use on the roadway itself, plywood was used to form all above ground concrete on the anchors, viaducts, bents and toll houses.



# When Re-Use Counts-Specify Plywood Forms

Measured in terms of cost per use, Douglas fir plywood\* ranks as one of the most economical of all form materials. On apartments, office or factory buildings, plywood form sections can be used to job completion—eliminating the expense of rebuilding forms once the job is under way. Plywood deserves ordinary care in handling, but it does not require extreme caution at every step and is far more rugged than other panel type materials. The exact number of re-uses obtained vary with grade and the care it receives on the job. Builders report up to 10 to 15 re-uses with Interior-type PlyForm . . . twice as many with Exterior-type PlyForm and new overlaid plywood panels. See grade data below.

#### Only Plywood Offers All These Advantages

- Plywood forms create smooth, finfree surfaces
- Economical Plywood forms can
  be used over and over
- Plywood forms speed work—save time and labor
- Plywood is strong, rigid—yet light, easy to handle
- Plywood forms are puncture-proof, water and mortar tight
- Plywood has superior nail and tie holding properties
- Plywood is easy to work with hand or power tools
- Plywood provides sheathing and lining in one material

Douglas 7th
Plywood



AMERICA'S BUSIEST BUILDING MATERIAL

\*Several plywood grades are manufactured for concrete form work. Interior Phyform® is made with highly moisture-resistant glues which permit multiple re-use (up to 10 to 15 are not unusual). For maximum re-use specify Exterior-type PhyForm®, bonded with completely waterproof adhesives. For special architectural concrete, use Exterior or Interior plywood grades with "A" face veneer—or one of the new plastic surfaced or hardboard-faced plywood penets.

Registered grade-trademarks of Douglas Fir Plywood Association



#### TECHNICAL PUBLICATIONS



ELEVATORS. Ornamental Designs, 8 pp. 8½" x 11". Special Entrance Designs, 6 pp. 8½" x 11". Otis Elevator Co., Architectural Products Division, 260 11th Ave., New York, N. Y.

These two new publications illustrate contemporary elevator door and entrance designs. Ornamental Designs pictures 18 basic decorative door designs for single-slide and centeropening elevator doors. The folder Special Entrance Designs reproduces renderings of 42 elevator-entrance treatments for single cars and groups of two or more elevators.

STORE FITTINGS. Garcy Adapt-A-Frame for Flexible Merchandise Displays. Garden City Plating & Manufacturing Co., 1750 No. Ashland Ave., Chicago 22, III. 12 pp. 81/2" x 11".

A flexible group of metal fittings for merchandise displays is pictured and described in this bulletin. Called Adapt-A-Frame, the line is designed to work with tables, counters, and bases as inexpensive store fixtures that may be converted easily for different kinds of merchandise and seasonal displays. Clever use of transparent overlays in the booklet illustrate several applications of the fittings.

WINDOWS. Fenestra Architectural Steel Products. Detroit Steel Products Co., Advertising Dept., 3111 Griffin St., Detroit 11, Mich. 32 pp. 81/2" x 11",

The well-illustrated catalogue describes windows for hospitals, schools, offices, institutional and public buildings. It covers seven types of Fenestra units including® casements, projected and combination windows, psychiatric windows, awning-type windows, and detention windows. In addition to complete specification data, the booklet notes advantages and uses of each type, and pictures construction features and installation details. How the manufacturer gives the units a protective zinc coating by means of a hot-dip galvanizing process is explained briefly and interestingly.

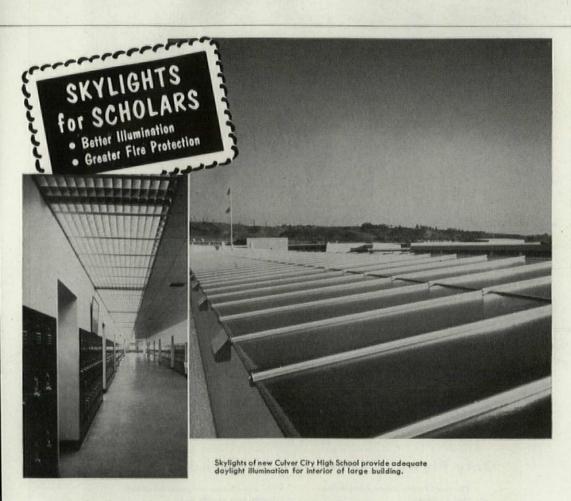
LABORATORY FURNITURE. Unaflex Laboratory Furniture for Secondary Schools. John E. Sjostrom Co., Dept. LAB, 1715 N. 10th St., Philadelphia 22, Pa. 16 pp. 8½" x 11".

Noting the economy and functionalism of Unaflex laboratory furniture, this concise catalogue illustrates the lines' design features. The equipment is described as having been "developed to meet the varying requirements of school and industrial laboratories while avoiding the prohibitive cost of custom-built equipment." The publication includes data on construction details, basic laboratory units, dimensions, finished laboratory assemblies, seating arrangements, and other information on laboratory planning,

WATER CONDITIONING. Permutit Data Book. The Permutit Co., 330 W. 42nd St., New York 36, N. Y. 116 pp. 5" x 71/4".

Superseding the 1949 edition, this revised data book contains much valuable technical information on water conditioning. Some of the subjects covered in tables and test are: hydraulics, water impurities, chemical conversions, chemicals used in water treatment, alkalinity relationships, and chemical reactions. Bound in simulated leather, the pocket-size volume should be a handy guide to those who work with water-conditioning problems.

(Continued on page 198)



#### COOLITE GLASS HELPS GUARD YOUNG EYES

Eye fatigue is an enemy of education. School children must be provided with high levels of quality illumination. In the modern Culver City High School, approximately 30,000 square feet of Hammered Coolite Wire Glass by Mississippi was installed in skylights which flood the entire interior with glare-free, controlled daylight for easier seeing. The texture and delicate blue-green tint of Coolite transmute raw sunlight into softly diffused and conditioned illumination. The innate strength of this famous wire glass by Mississippi adds structural endurance, reduces danger from breakage. Hammered Coolite Wire Glass helps retard effects of dangerous fires, provides increased safety for occupants. It tends to "bottle up" and smother small conflagrations before they can spread to tragic proportions.\*

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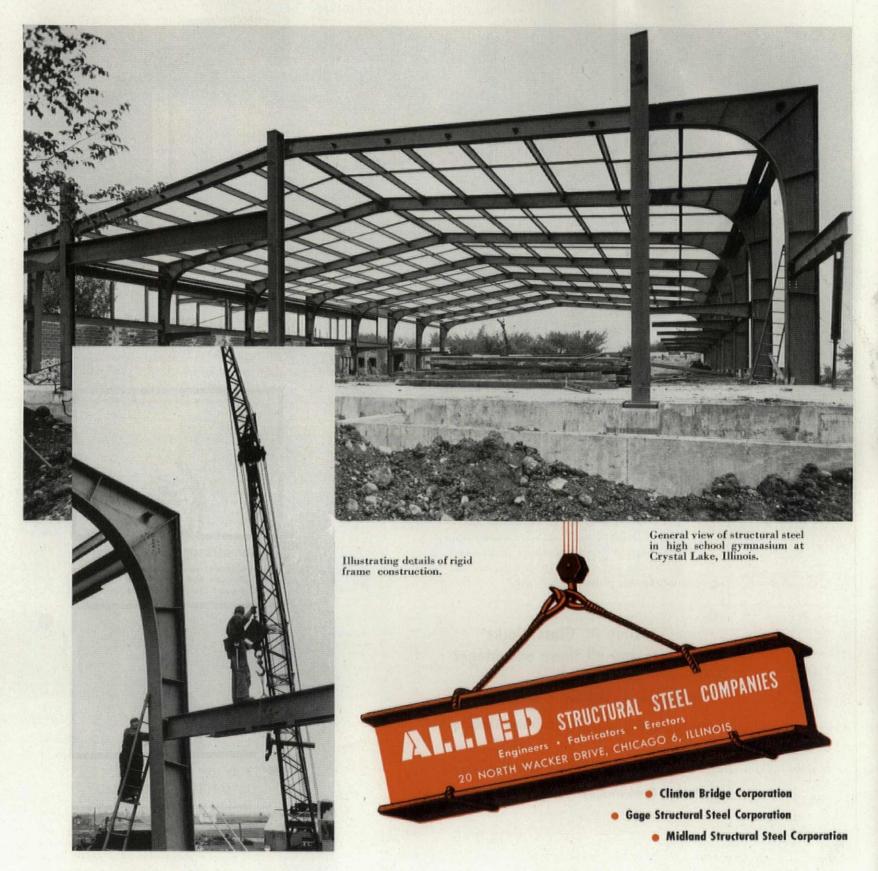
# "Muscles of Steel"

IN THE CRYSTAL LAKE GYM

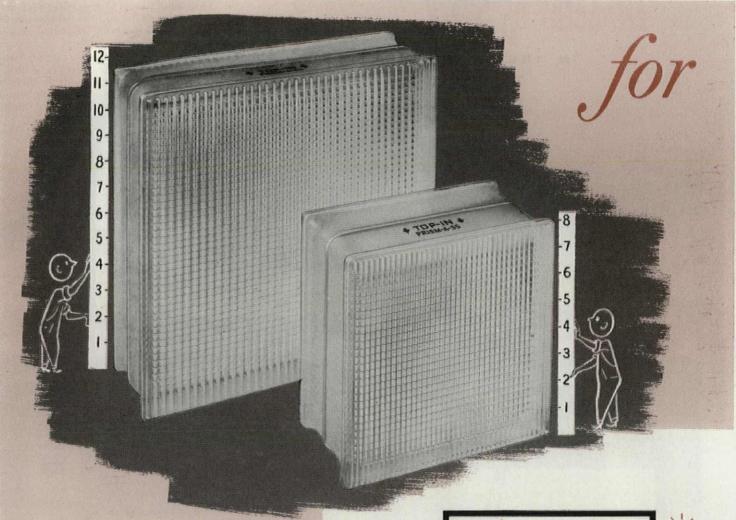
That's what you see here . . . columns, roof frames, balcony supports . . . "Muscles of fabricated structural steel." They have the stamina to give substantial support to the building without interior columns.

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Recommended for all elevations for good light diffusion and transmission and where good thermal insulation is important.



Recommended for sun-elevations where good daylighting and glare control for critical seeing tasks are important.

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sizes intermingled to produce interesting panel designs.

The diagrams on these pages indicate correct application of both 8" and 12" sizes for each elevation. PC Glass Blocks are available in both light-directing and light-diffusing patterns.

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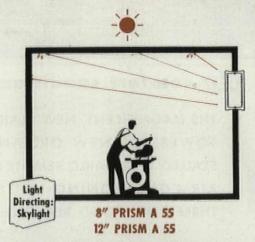


Recommended for non-sun elevations where moderate glare control is required.



glare control is required.

\*Double cavity block with fibrous glass screen insert. †T. M. Reg. Applied for.



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Dept. D-82, 307 Fourth Avenue, Pittsburgh 22, Pa.

Without obligation, please send me complete data on the full line of Pittsburgh Corning Functional Glass Blocks.



INSULATION, Insulation for Metal Buildings. Owens-Corning Fiberglas Corp., Toledo 1, Ohio. 8 pp. 81/2" x 11".

Although their construction is often quick and economical, uninsulated metal buildings sometimes have comfort disadvantages: they can be like ovens in summer and refrigerators in winter. This booklet tells about four different kinds of Fiberglas manufactured for the various insulation requirements of metal

structures. The products described and illustrated are: preformed rigid boards, flexible Aerocor, roll blankets, and rigid perimeter insulation. Thicknesses of the materials range from 7/8" to 5" and widths from 1' to 2'. Standard lengths run from 3' for the board type to 200' for Aerocor lightweight blanket. Simple diagrams illustrated proper application methods for the material.

INSULATION. Foamglas for Sandwich Panels. Pittsburgh Corning Corp., 307 Fourth Ave., Pittsburgh 22, Pa. 4 pp. 81/2" x 11".

This folder discusses the use of Foamglas cellular glass in sandwich panels for various types of construction. It cites several physical and installation advantages of the lightweight insulation material.

ROOFING. Paramount Seal-Kote, Bulletin L-5201. Paramount Industrial Products Co., Inc., University Center Station, Cleveland 6, Ohio. 4 pp. 81/2" x 11".

Printed in two colors and illustrated with photos and line sketches, the bulletin describes the drying effects of sun and weather on roof coatings. It goes on to explain how Seal-Kote asphalt-asbestos coating penetrates and seals roofing surfaces and prevents the composition material from cracking and leaking. According to the bulletin, Seal-Kote remains pliable, contracting and expanding with temperature changes.

HEATING. Adsco Instantaneous Heaters, Bulletin No. 35-78, 58 pp. 81/2" x 11". Adsco Convertors, Bulletin No. 35-37. 32 pp. 81/2" x 11". American District Steam Co., Inc., North Tonawanda, N. Y.

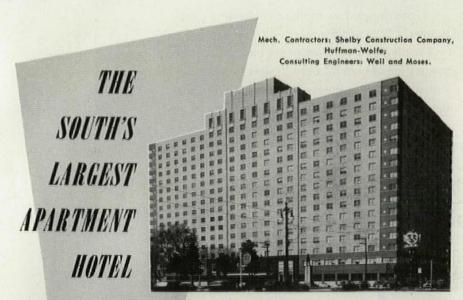
These two booklets are useful references for heating engineers. The first one on instantaneous heaters presents tabulated data on capacities and pressure drops for 198 hot-water heaters. It contains an exploded view of an Adsco unit, cutaway drawings and complete specification details.

The Convertor bulletin has capacity information on 18 units as well as an illustrated price list and a chart for converting square feet of radiation into Btu's per hr.

TOILET COMPARTMENTS, Sanymetal Hardboard Toilet Compartments, Bulletin No. 951. The Sanymetal Products Co., 1701 Urbana Rd., Cleveland 12, Ohio, 6 pp. 81/3" x 11".

Made of noncritical materials, Sanymetal's hard-board toilet compartments are suitable for many installations where steel units cannot be furnished. The folder describes the flush-type model fabricated of compressed hardwood panels applied over solid insulation board, and gives complete ordering specifications.

(Continued on page 202)



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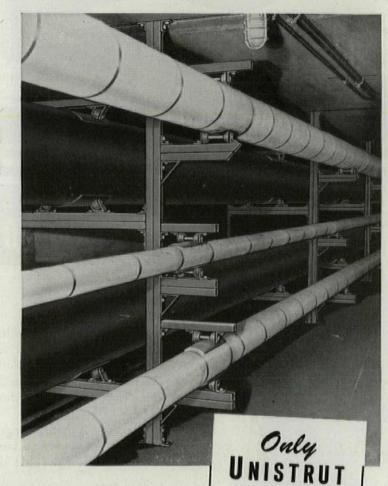
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**GYMSTANDS.** Wayne Rolling Gymstands, Catalogue R-52. Wayne Iron Works, Wayne, Pa. 16 pp.  $81/2^{\circ} \times 11^{\circ}$ .

Before preparing this publication on rolling gymstands, the manufacturer conducted a survey among architects to find out the kind of information they felt should be covered. In addition to the usual dimension tables, photos, drawings of details and sample specifications for ordering Wayne gymstands, the catalogue provides planning aids for gymnasium seating. ACIDPROOFING, Acidproof Construction. Aqua-Therm, Inc., Dayton, Ohio. Bulletin 160. 5 pp. 81/2" x 11".

How to construct acidproof process tanks, towers, and floors is the subject of this bulletin. It describes cements and lacquers which are resistant to the corrosive effects of gasses and liquids. The coatings are said to be practical applications for both steel and concrete construction.

ACCIDENT PREVENTION. Manual of Accident Prevention in Construction. Pocket Editions. The Associated General Contractors of America, Inc., Munsey Building, Washington 4, D.C.

As part of a comprehensive safety program, the Associated General Contractors of America is making available pocket-sized reprints of sections of its Manual of Accident Prevention. The brochures are intended for use on construction jobs by superintendents, workmen and other employees of general contractors. Each reprint contains from one to six sections of the original manual. The topics covered include: hoists, cranes and derricks; scaffolding; demolition and excavation; steel erection; tunnels, shafts, and compressed air work; handling and storage of materials; shoring and pile driving.

WINDOWS. Fenestra Industrial Steel Windows. Detroit Steel Products Co., Advertising Dept., 3111 Griffin St., Detroit 11, Mich. 24 pp. 81/5" x 11".

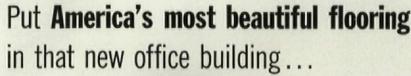
Prepared for architects and engineers, the new catalogue provides comprehensive data on the manufacturer's steel windows for industrial buildings. It describes, gives specifications, and notes applications for pivoted, commercial-projected, and security windows used separately and in combinations; and for continuous windows fabricated for toplighting in sawtooth roof construction.

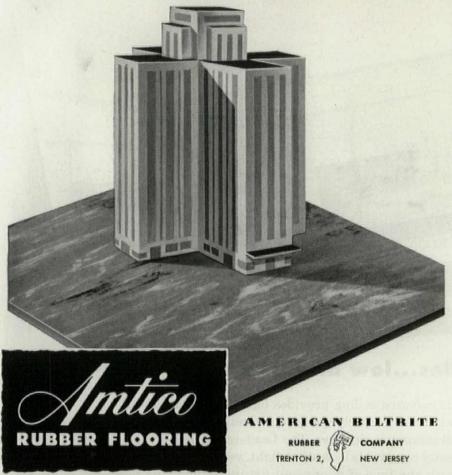
STAINLESS STEEL FASTENINGS. Right Off The Shelf, Catalogue No. 52-A. Star Stainless Screw Co., 190 Union Ave., Patterson 2, N. J. 20 pp. 81/2" x 11".

As an aid to those who select and order fastener devices, the manufacturer has issued this detailed specification catalogue on Star products. Categories covered include all types of stainless-steel screws, nuts, bolts, washers, pins, studs, rivets and nails and fittings.

EXPANSION JOINTS. Adsco Corruffex Packless Expansion Joints. Bulletin No. 35-51A. American District Steam Co., Inc., North Tonawanda, N. Y. 28 pp. 81/2" x 11".

Suggested solutions to numerous pipe-expansion problems are pictured in this bulletin. Illustrated throughout with photographs and line drawings, the publication provides technical information on selecting, specifying, and installing *Corruflex* packless expansion joints.





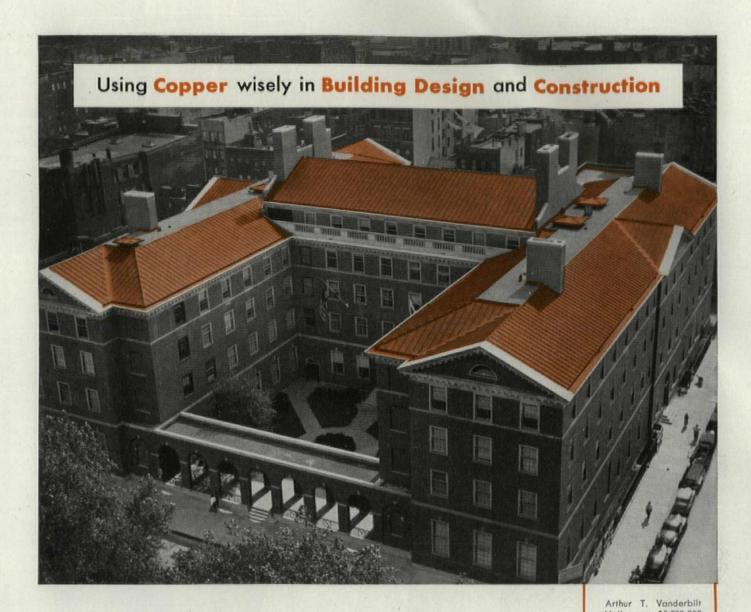
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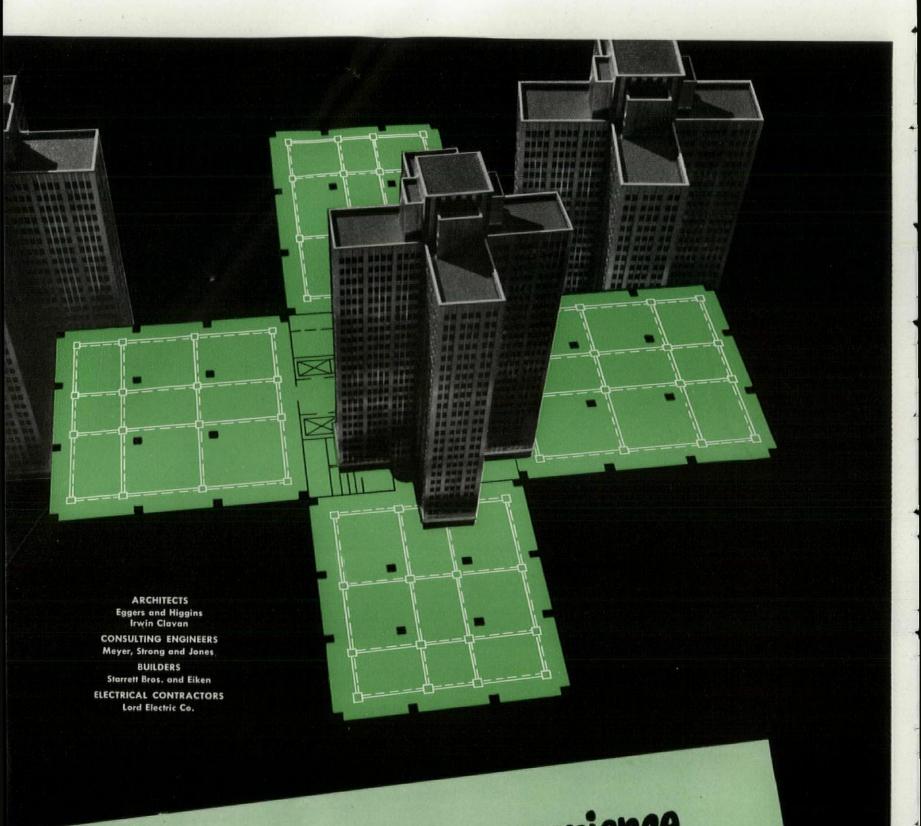
The roof of Vanderbilt Hall has an 8" pitch and is constructed of poured concrete. The roof covering is copper of batten seam design. The copper pans were formed from 20-oz, weight sheets and the batten covers, ridges and gravel stops for the flat roof areas are all of 16-oz, copper. The built-in gutters are lined with 20-oz, cornice temper copper with expansion joints between downspouts.

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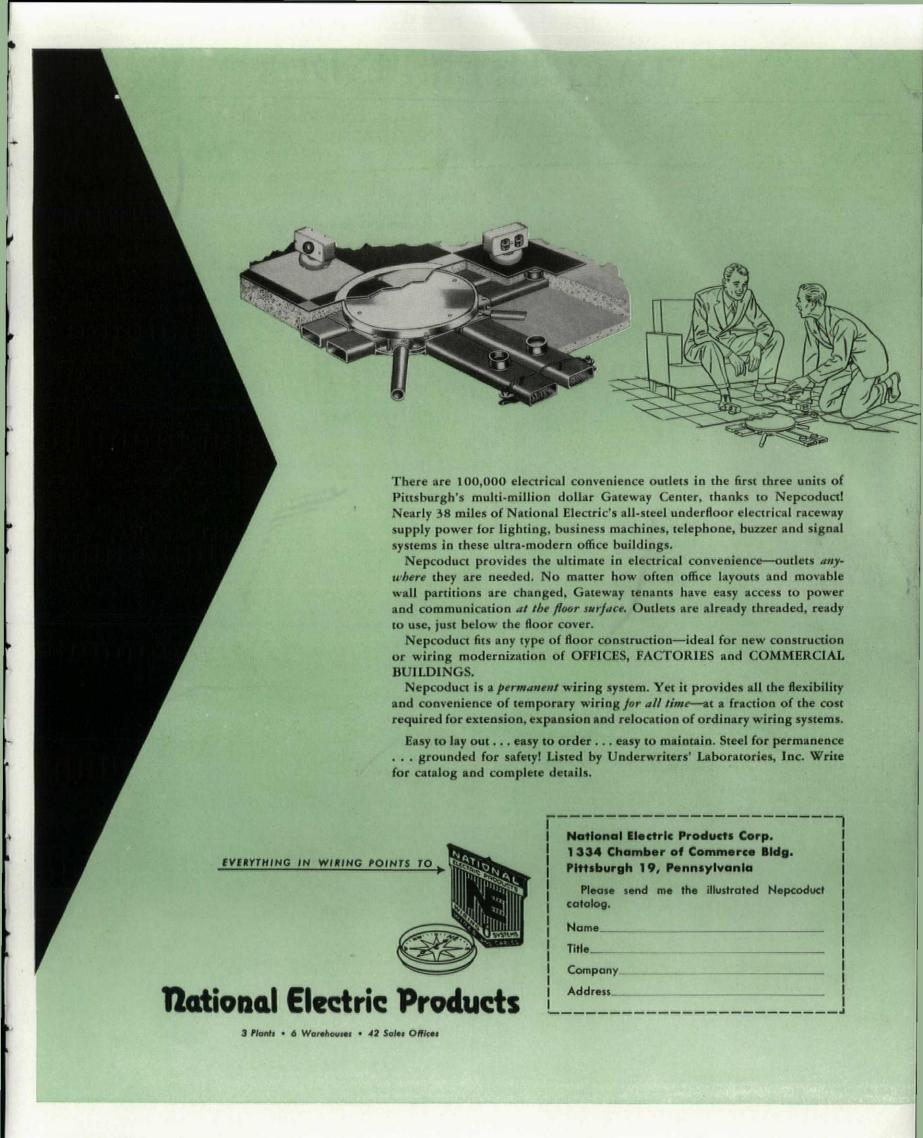
Hall, new \$5,000,000 law center for New York University, faces historic Washington Square in downtown New York City. Architect: Eggers and Higgins; General Contractor: John Lowry, Inc.; Roofer: Zenith Roofing and Sheet Metal Co., Brooklyn,

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