# architectural forum

November 1954 complete table of contents (p. 99)

City architecture Should New York City's greatest room be sacrificed

for a new Grand Central Terminal? (p. 134)

Atomic power plants What do they mean to industry - particularly the building industry? (p. 131)

Building abroad Caracas—the buildingest city in South America (p. 152)

Urban redevelopment Prize-winning plans in the Carson Pirie Scott

competition for the 60-year remodeling of Chicago's loop (p. 122)

Building engineering Welded steel ribs for world's largest dome . . . .

Paper honeycomb walls for downtown hotel . . . , Tapered steel framing for stronger buildings . . .

Lighting systems for industrial buildings (p. 158)

Industrial building In a dozen different ways GM's Technical Center is as brilliant as its color (p. 100 and below)





# The wall <u>and doors</u> paint a mural of color and light

Two patterned glass doors blend perfectly into this patterned glass wall. They pick up color and light—transmit them softly from either side. Yet the view is obscured for privacy.

The Blue Ridge Securit\* Interior Glass Door is a single piece of tempered glass, patterned on both sides. It is attractive in many settings. The glass goes well with other materials, and its neutral tone harmonizes with other colors. Being tempered, the Securit Door is toughened to take hard usage.

Easy to hang. Needs no cutting, no mortising. Arrives at the job with distinctive, easily applied hardware.

The cost compares favorably with that of high-quality doors of ordinary materials—and you save on installation and maintenance costs.

Your L·O·F Glass Distributor or Dealer will be glad to give you all the facts. Look for his name in phone book yellow pages, under "Glass". Or write us direct.



Securit Doors are part of this wall of Muralex patterned glass in the offices of Bert Mills, Inc., St. Charles, Illinois. Architects: Burgess, Stevens & Purdy, Chicago.

Patterned glass has many uses — Blue Ridge Patterned Glass offers both function and beauty for many places in offices, homes, stores and institutions. In partitions, for example . . . to lighten a hall . . . for distinctive cupboard doors . . . for lovely built-in furniture. Choose from linear, checkered and overall designs in plain, textured or Satinol\* finishes.

SECURITY LOFE LASS DOORS

2'8" x 6'8"

3'0" x 6'8"

3'0" x 7'0"

For more complete information, see the Securit

Door insert in Sweet's Architectural File.

concealed closer.

Closers—when specified, the door can be shipped with a Sargent closer or prepared for use with an LCN

2'711/16" x 6'71/16"

2'1111/6" x 6'71/6"

2'1111/16" x 6'111/16"

608 Madison Avenue, Tole Please send me your folde	r "Blue Ridge Securit Interior G	lass Doors"
	oklet of ideas for using Blue Ric	
Giass in _ nomes _ other	buildings, (Check one or both.	)
Name (please print)		





### WATERMAN STEAMSHIP BUILDING

# Saves \$16,700 in Six Years

WITH HAUSERMAN MOVABLE WALLS

In 1948, Waterman Steamship Corporation selected Hauserman Movable Walls for its new multi-storied office building in Mobile, Alabama. That choice, based on qualities of versatility, appearance, sound control, and ease of maintenance, has paid real dividends.

In six years, changing space requirements have made office rearrangements necessary. These rearrangements have been made both quickly and easily . . . and with no dirt, dust or confusion, because Hauserman Walls are designed for fast take-down and re-erection.

It's this speed of take-down and re-erection which inevitably results in substantial cash savings every time these modern walls are moved. In this case, the savings, over the cost of tearing down and re-building ordinary walls, total \$16,700 with more savings yet to come, every time another rearrangement is required. Doesn't this suggest an idea to you!

### WRITE FOR FREE DATA MANUAL 53!

This 96-page comprehensive guide for architects contains complete technical details as well as stock sizes, general instructions and specifications on all types of Hauserman Movable Interiors. Write to: The E. F. Hauserman Company, 7150 Grant Avenue, Cleveland 5, Ohio.





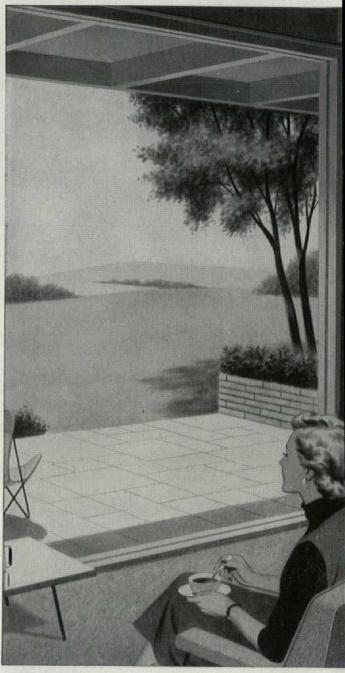
OFFICES . SCHOOLS . LABORATORIES . HOSPITALS . INDUSTRIAL PLANTS

# Looking

# or OUT



**LOOKING IN** through the Parallel-O-Plate Glass in a store window, you hardly know the glass is there, so perfect is its parallelism.

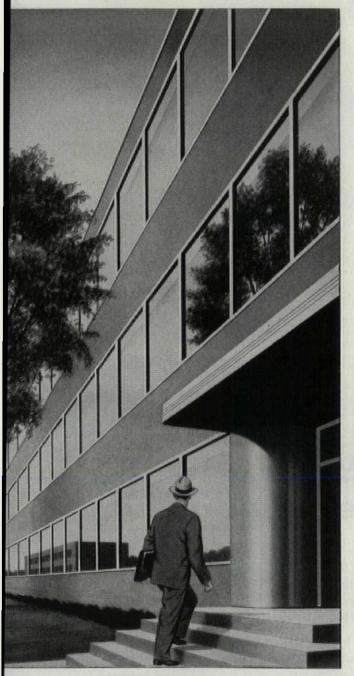


**LOOKING OUT** of a window wall of Parallel-O-Plate Glass, you see scene as it actually *is*, in all its beauty. Parallelism is doubly import when your windows are *Thermopane*®—the double-paned insulating glass.



# or AT

# New L·O·F Parallel-O-Plate Glass is Amazing!



**LOOKING AT** windows of Parallel-O-Plate you see how important glass of true parallelism is to the architectural beauty of modern buildings.

It's the finest plate glass ever made in America . . . yet it costs no more than ordinary plate!

Parallel-O-Plate is the first and only twin-ground plate glass made in America.

For 12 months this L·O·F glass has been reserved solely for fine mirrors and military optical instruments.

Now it has been made available for general use.

It sets a whole new standard of performance for windows in stores, homes and offices.

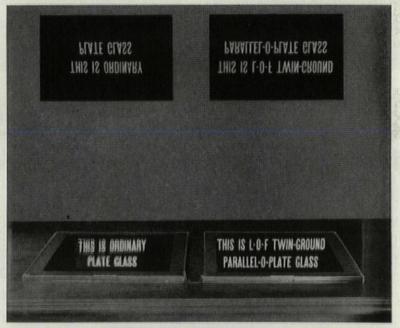
New Libbey Owens Ford twin-grinding is the most advanced method of perfecting plate glass! At L · O · F, a ribbon of plate glass 127" wide and a fifth of a mile long moves continuously through ingenious machines which grind both sides simultaneously!

What does this mean to you?

Most distortion in glass is caused by a lack of parallelism.

Twin-ground plate glass is the most perfectly parallel plate glass in the world!

Yet L.O.F Parallel-O-Plate costs not one cent more!



LOOK AT THIS COMPARISON between the reflections of the upside-down signs in the mirror of conventional plate glass (left) and the mirror of Parallel-O-Plate (right).

## Parallel-O-Plate Glass

The finest plate glass in America...made only by LIBBEY·OWENS·FORD a Great Name in Glass



## For <u>low-cost</u>, <u>dependable</u> steam, Upjohn burns coal the modern way

Upjohn has long been famous as a manufacturer of pharmaceutical products. Because of the nature of these products, it was necessary that the steam plant of Upjohn's new Portage Road Plant, near Kalamazoo, Michigan, operate cleanly as well as economically. Therefore, coal was chosen to fire its boilers.

Today Upjohn's ultramodern steam plant supplies steam at only 40c to 42c per 1,000 pounds. It is clean and efficient, with no dust or smoke nuisances, and ash handling is fully automatic. At peak load, the three boilers shown above, plus a fourth recently installed, deliver up to 115,000 lbs. of steam per hour.

### **Investigate Your Fuel Costs**

If you're planning to modernize your plant or build a new one—or if you are just interested in cutting fuel costs—find out how coal, burned the modern way, compares to other fuels. Talk to a consulting engineer 'or your nearest coal distributor. Their advice may save you thousands of dollars every year.

### facts you should know about coal

In most industrial areas, bituminous coal is the lowest-cost fuel available.

Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar.

Automatic coal and ash handling systems can cut your labor cost to a minimum.

Coal is the safest fuel to store and use. No dust or smoke problems when coal is burned with modern equipment.

Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.

### BITUMINOUS COAL INSTITUTE

A department of National Coal Association • Southern Building, Washington 5, D.C.

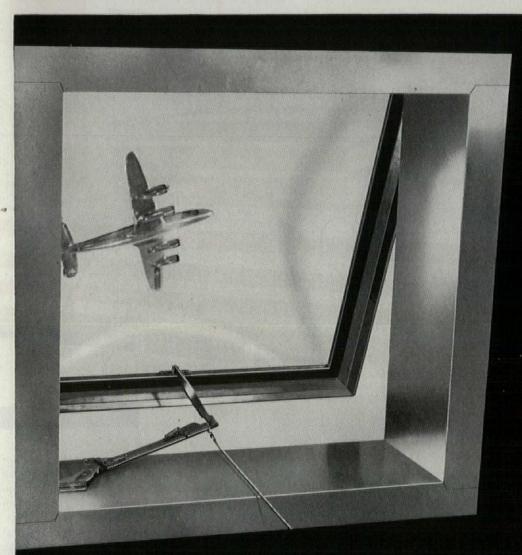


ARCHITECTURAL FORUM · NOVEMBER 1954



It's worth looking into...

# A NEW AND ECONOMICAL DAYLIGHTING-VENTILATION UNIT



### THE WASCOLITE AIRDOME

This new daylighting unit has a Wascolite acrylic dome which admits even, balanced daylight. It's a window to the sky that can be opened and shut at will. And like a window, it has its own removable screen.

The WASCOLITE AIRDOME frees architects from the restrictions of sidewall daylighting, cuts construction costs and reduces clients' light bills. Look into this great new daylighting unit today — it offers the plus feature of gravity ventilation. Write for illustrated catalog.



Patent No. 2610593 and Patents Pending.

WASCO FLASHING COMPANY, 89 Fawcett St., Cambridge 38, Mass. In Canada — Crystal Glass & Plastics, Ltd.



# Write for these free data books from H. H. Robertson's technical library



## 1. Design and Cost Factors

This book compares Q-Floor with other types. Based upon a typical multi-story

building, the study is replete with charts and cost analyses of all structural components.



### 4. Cantilevered Roofs and Canopies

This is information on the use of long-span Q-Deck on modern buildings that call for covered walkways or overhanging roofs for weather protection. Loading conditions and structural details shown.



### 2. How to Fireproof Q-Floor and Structural Steel

This is a description of fireproofing methods when Q-Floor is used with structural steel

framing. It contains detailed drawings, typical code requirements and fire resistive ratings.



### 5. Concrete Fill on Q-Floor

This booklet gives recommended practices for concrete fill over Q-Floor. You'll find specifications for formulation, placement and curing, plus treatises on the nature and reactions of concrete.



### An Analysis of Industrial Roof Construction

All the better-known roof types (flat, monitor, bow-string, double-pitch, high-low

bay, saw tooth) are compared on the basis of weight of structural steel, volume, roofing, sash area, flashing, ventilation and daylighting.



### Acoustical Data on Q-Deck

Though the fluted undersurface of Q-Deck provides some acoustical value, demand for more has led Robertson engineers to devise a new lowcost treatment. Test data and details are included.

## Robertson Products

for modern buildings

### H. H. Robertson Company

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Please send th	e free data	book(s)	have cir	cled below.
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1 2 3 4 5 6

NAME

FIRM

ADDRESS

For Ford's new Central Staff Office Building . . .



Architect: Skidmore, Owings & Merrill, New York General Builders: Bryant & Detwiler Co., Detroit

90,000 square feet of

## ING-RICH PORCELPANELS

Believed to be the largest use of porcelain enamel in a single building . . . this installation employs green-blue insulated porcelain enamel as spandrel panels below and above glass windows.

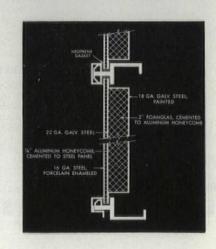
Here again in curtain wall construction porcelain enamel on steel offered the architect exceptional characteristics — including lightness in weight, space-saving properties, economy and adaptability to outstanding design effects. For details on how PORCEL-PANELS can be adapted to your next new or remodeled building, write our Architectural Division.

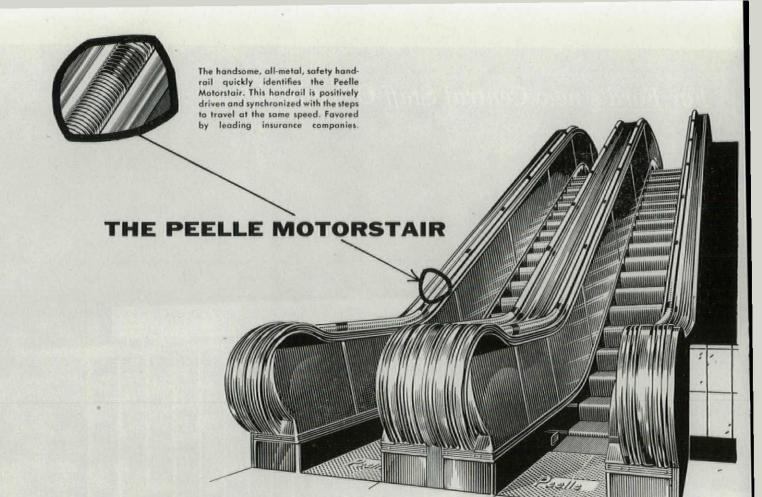
### INGRAM-RICHARDSON MANUFACTURING COMPANY

BEAVER FALLS, PENNSYLVANIA

Member, Architectural Division, Porcelain Enamel Institute, Inc.







### RE-ORDERSthe final test of sound engineering

Important and original engineering advances combined with crisp, contemporary styling are steadily increasing the acceptance for the Peelle Motorstair. But the final test comes when owners, architects and engineers commit substantial sums for re-orders. And that is what is happening. More than half the Peelle Motorstair installations being made now-a-days are re-orders.

### A FEW OF THE MANY PEELLE MOTORSTAIR INSTALLATIONS

Those marked \* have re-ordered from one to forty Motorstairs.

### TRANSPORTATION

TORONTO TRANSPORTATION COMMISSION, Toronto, Canada Architects, DeLeuw, Cather & Company, Chicago, III.
PORT OF NEW YORK AUTHORITY BUS TERMINAL, New York, N. Y. Architects, Port of New York Authority Engineers UNION PACIFIC RAILROAD COMPANY, Seattle, Wash. WICHITA MUNICIPAL AIRPORT, Wichita, Kan. Architects, Thomas-Harris-Calvin Associates HUDSON & MANHATTAN RAILROAD PENNSYLVANIA RAILROAD GREYHOUND BUS TERMINAL, Kansas City, Mo \*NEW YORK CITY DEPT. OF MARINE & AVIATION, Pier Shed No. 84

\*NEW YORK CITY DEPT. OF MARINE & AVIATION, Pier Shed No. 57

#### PUBLIC BUILDINGS

PENTAGON BUILDING, Arlington, Virginia METROPOLITAN MUSEUM OF ART, New York, N. Y. Architects, Vorhees, Walker, Foley & Smith AMERICAN NATIONAL BANK, Austin, Texas Architects, Kuehne, Brooks and Barr

### HOTELS

STATLER \*HILTON

### INDUSTRIAL FORD MOTOR COMPANY, Livonia, Mich.

Architects, Albert Kahn Associated Architects & Engineers, Inc. \*BUICK MOTOR DIVISION, Building No. 36, Flint, Mich

Architects, Albert Kahn Associated Architects & Engineers, Inc. \*BUICK MOTOR DIVISION, Building No. 44, Flint, Mich.
Architects, Albert Kahn Associated Architects & Engineers, Inc.

\*GENERAL MOTORS SAGINAW GEAR DIVISION, Saginaw, Mich. Argonaut Realty Co.

\*ROCHESTER PRODUCTS DIVISION GMC, Rochester, New York Architects, Argonaut Realty Co.

\*FISHER BODY DIVISION GMC, Detroit, Mich. Architects, Argonaut Realty Co.

### CHAIN STORES

\*C. R. ANTHONY COMPANY

\* J. C. PENNEY COMPANY

\* SEARS, ROEBUCK & COMPANY

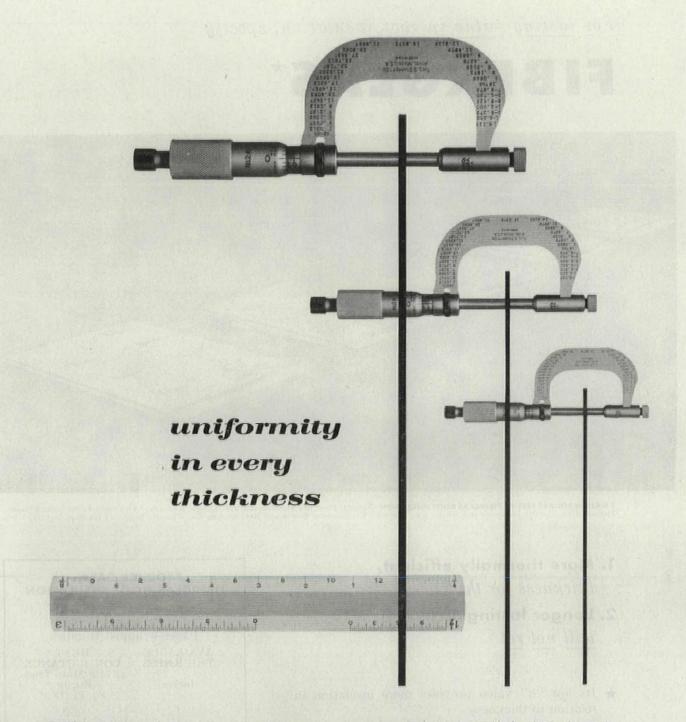
McCRORY STORES \* W. T. GRANT CO.

#### DEPARTMENT STORES

\*R. H. MACY & CO., INC. and L. BAMBERGER & CO. EVERGREEN PARK SHOPPING CENTER, Chicago, III. \*ALLIED STORES

Write for descriptive literature and complete list of installations.

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Careful checking and control throughout the entire manufacturing process keeps our resilient tiles completely uniform in thickness. This control begins with the analysis of raw materials, and continues through mixing, proportioning, and rolling. Accurate micrometer records are kept for each run, while

laboratory technicians regularly chart viscometer flow rates during calendering. Uniform thickness, accuracy of cutting, trueness and clarity of color, surface smoothness, built-in durability and ease of cleaning and maintenance—all these qualities make this the world's most popular line of resilient tiles.

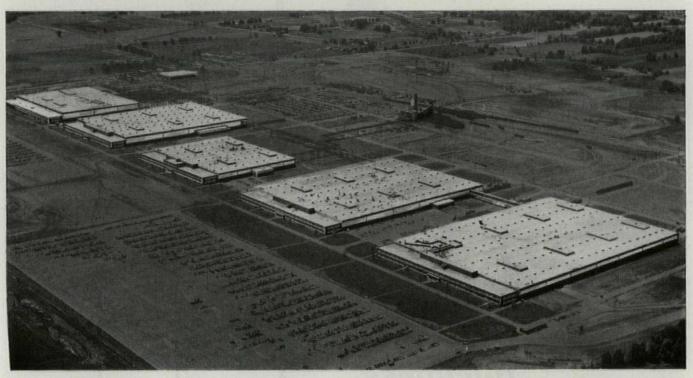
### KENTILE, INC.

America's largest manufacturer of resilient floor tiles

KENTILE: Asphalt Tile • KENCORK: Cork Tile for Floors and Walls • KENRUBBER: Rubber Tile • KENFLEX: Vinyl Asbestos Tile • KENFLOR: Vinyl Tile...also available by the yard • SPECIAL KENTILE: Grease-proof Asphalt Tile • THEMETILE, KENSERTS: Decorative Inserts • KENCOVE: Vinyl Wall Base • KENBASE: Wall Base

For lasting value in roof insulation, specify

## FIBERGLAS\*



3 MILLION SQUARE FEET OF FIBERGLAS ROOF INSULATION—General Electric's Appliance Park, Louisville, Kentucky. Architect: Albert Kahn & Assoc., Detroit. Gen. Cont'r: Turner-Struck Const. Co., Buechle, Ky. Roofers: Brown and Kerr Roofing Co., Chicago; Schreiber Roofing, Detroit, Mich.

- 1. More thermally efficient, thickness for thickness
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AVAILABLE THICKNESS (Inches)	HEAT CONDUCTANCE at 75°F Mean Temp. (Btu/hr./ Sq. Ft./°F.)*
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\*Subject to manufacturing and testing tolerances



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ANY LEVEL















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### for all applications



### OF LIGHT FROM DARK



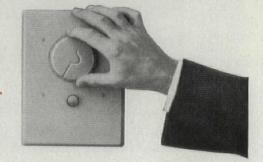
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LIGHT CONTROL

For full technical data on LUXTROL Light Control, write your name and address on a corner of this page, tear off and mail to The Superior Electric Company, 12114 Demers Avenue, Bristol, Connecticut.

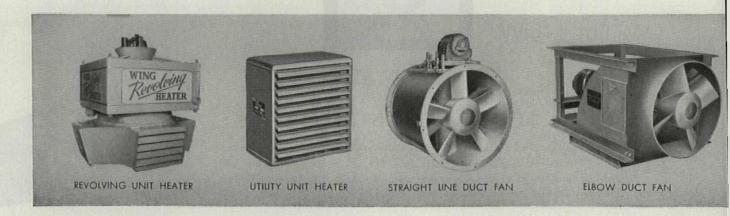


# In 1879, it was the new "Wing's Disc Fan"



It was 75 years ago that L. J. Wing, an ingenious Yankee who had come to New York with some ideas about mechanical devices, formed the company which later became the L. J. Wing Mfg. Co., for the purpose of manufacturing and selling "Wing's Disc Fan" which, according to his catalog, would "move more air than

any other Fan made for heating, ventilation, drying, etc., as competitive trials have shown". Today, Wing products for ventilation, heating and combustion are known for their efficiency and dependability in all parts of the world. The company Mr. Wing founded has kept his ideals of originality and excellence constantly before them.



today, Wing Fans, Blowers, Unit Heaters, Draft Inducers and Turbines are serving industry the world over

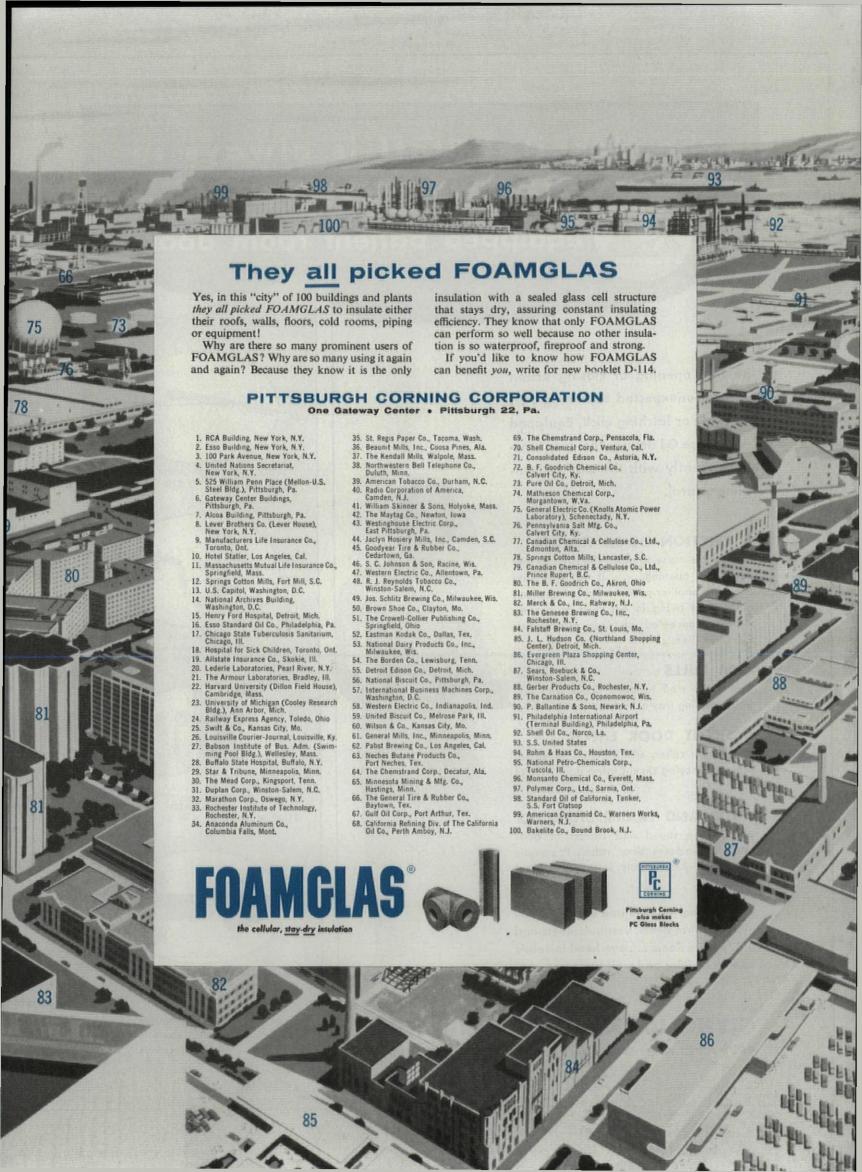


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no free opening or closing action
... no unexpected slamming ...
no rattle or latching click. Equipped
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enables the nurse to place the door at any degree of opening . . . it will stay until moved to another position. Patient can look out without being in full view of passing visitors. Concealed or surface mounted. Operates silently.

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enable the staff to open doors with arm while carrying tray or to keep hands sterile.

### A SILENT DOOR LATCH

with rubber roller, silently engages strike, without annoying click. Closed door will not rattle.

### DOOR AND FRAME SILENCERS

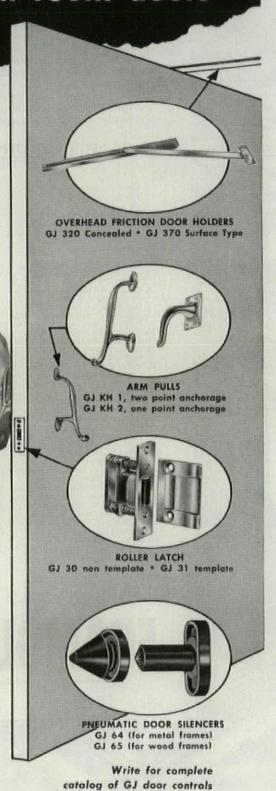
absorbs the sound and impact of door closing. Eliminates door rattle. Pneumatic cushions — permanently installed in door stops.

Also GJ door holders and stops for hospital entrance doors, vestibule doors and utility room doors . . . overhead installed as well as floor and wall types.

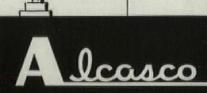
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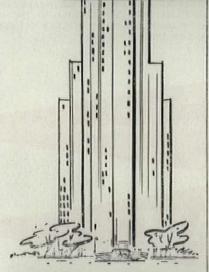
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for Hospitals



ALUMINUM INTERMEDIATE PROJECTED WINDOWS

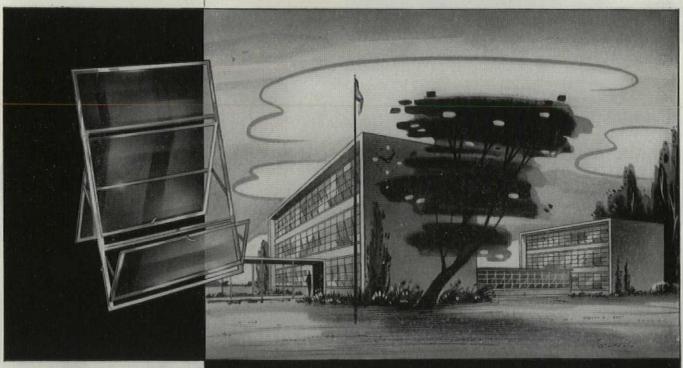


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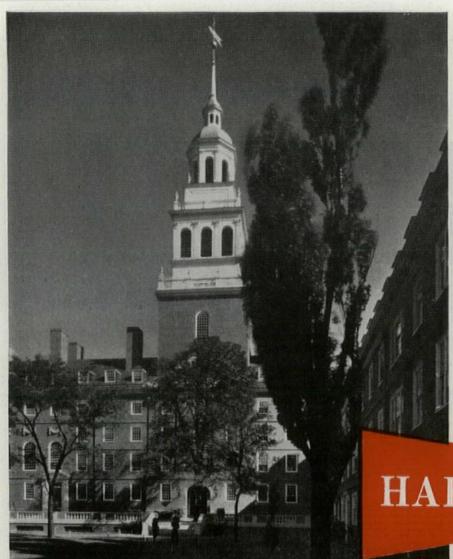
Consultation and planning service available for any joblarge or small. Complete specifications will gladly be furnished upon request.





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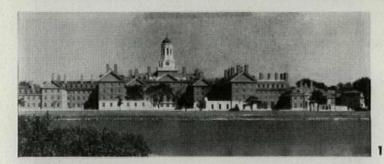
Mechanical Engineers: for Lowell House, McKinlock Hall, Vanderbilt Hall-FRENCH & HUBBARD • for Dunster House, Littauer Building-RICHARDSON & GAY • for Aldrich Hall-HAYDEN, HARDING & BUCHANAN • for Gordon McKay Laboratory-R. G. VANDERWEIL.

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## HARVARD

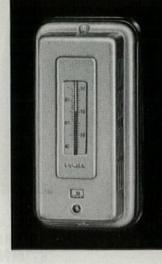
Above: Lowell House





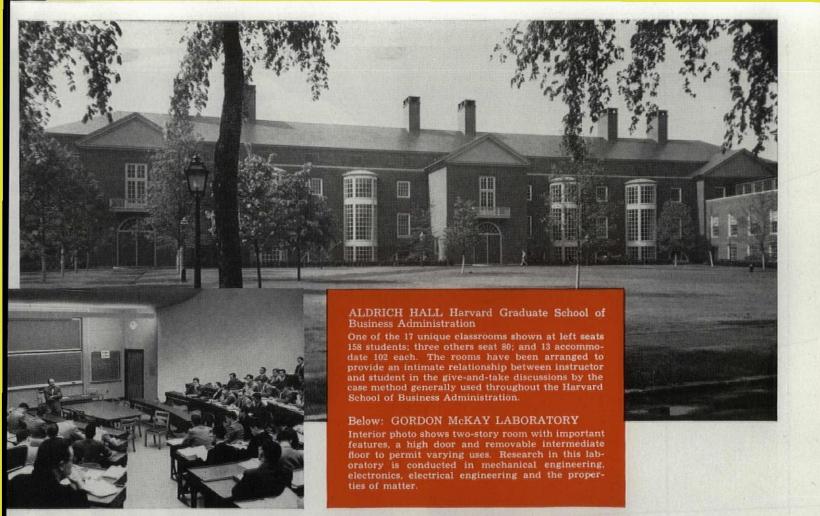








- 1 DUNSTER HOUSE, on the Charles River
- McKinlock Hall
- 3 VANDERBILT HALL
- 4 LITTAUER BUILDING



# **POWERS**

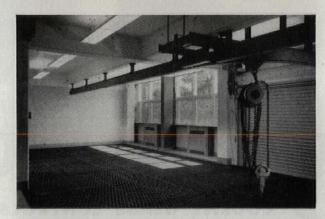
AUTOMATIC SYSTEMS OF

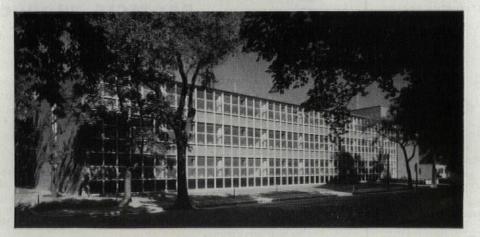
### Temperature Control

On the Harvard campus are to be found some of America's most beautiful buildings. A few of them which benefit from the maximum thermal comfort and fuel savings assured by POWERS control are illustrated here.

For more than half a century POWERS control has been renowned for its matchless ability to give many years of efficient economical service. Users often report 25 to 50 years of reliable control with a minimum of repairs.

Experience gained here and in thousands of other famous buildings qualifies POWERS to help you select the most economical and efficient temperature control for your buildings. When problems of temperature control arise, call our nearest office or write us direct.





### THE POWERS REGULATOR COMPANY

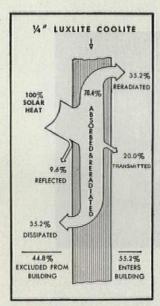
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Over 60 years of Automatic

Temperature and Humidity Control





Schematic diagram shows what Coolite does to the sun's heat. Distribution and control of light, itself, is effected primarily by Mississippi's special Glare Reducing finish.

COOLITE GLASS CONTROLS "RAW SUNLIGHT"
... PROTECTS PRODUCTION AND MORALE

Blinding glare reflected from any surface makes accurate work almost impossible... any task difficult. And the accompanying excess solar heat of "raw sunlight" through ordinary glass creates uncomfortable working conditions that can adversely affect output and morale.

Don't let raw sunlight flood your factory with fatigue...tiring, eye-straining illumination and energy-sapping excess heat. Coolite, the heat absorbing and glare reducing glass by Mississippi, floods work areas with copious quantities of conditioned, natural light at low cost. Coolite-controlled lighting is comfortably different, cool and clean. Workers see better ... feel better, work better in plants using Coolite, the glass that helps fight eye fatigue and cuts costly mistakes.

In your plans for new industrial buildings or in modernization projects, it will pay you to find out how Coolite can increase efficiency and economy. Translucent, light diffusing, wired and figured glass by Mississippi is available from your nearby supplier in a wide variety of patterns and surface finishes, all "Visioneered" to distribute light to best advantage.

Send for free catalog, "Coolite Heat Absorbing and Glare Reducing Glass." Samples on request.



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WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLAS

COOLITE



# All field connections in new Equitable skyscraper are made with RB&W high-strength bolts!

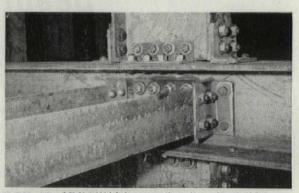
First San Francisco skyscraper to go up since adoption of the city's strict 1948 earthquake code, the new 25-story Equitable Life Assurance Society building features a unique design of tapered steel columns and butterfly-shaped spandrel beams in outside walls.

A landmark in architectural design, the structure also makes news on another count—all field connections are made with RB&W high-tensile-strength bolts.

This proven fastening technique provides greater strength (important in dealing with earthquakes!) at less actual cost. And the faster installation it permits often slices erection time by weeks!

An important installation like this underlines the fast-growing acceptance of high-strength bolting for tough jobs that place a premium on speed and strength. Find out why RB&W is in the lead in this technique by writing for our catalog, "High-Strength Bolts for Structural Steel Connections."

See our insert on high-strength bolts in Sweet's Architectural File



**CLOSE-UP** of RB&W high-strength bolts in Equitable's new skyscraper. Architects: Loubet & Glynn Associates and W. D. Peugh; Irwin Clavan, consulting. Gen'l contractor: Dinwiddie Construction Co., San Francisco. Steel erector: Consolidated Western Steel Div., U. S. Steel Corp.



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Top Illustration: Administrative Office, Alcoa Building, Pittsburgh
Bottom Illustration: Corridor in Alcoa Building





Architect: Harrison and Abramovitz, New York.

Decorator: Knoll Associates, New York

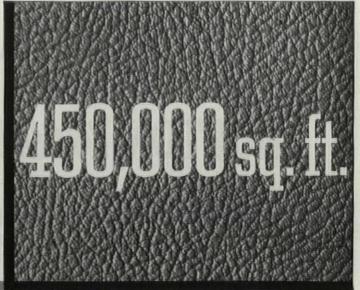


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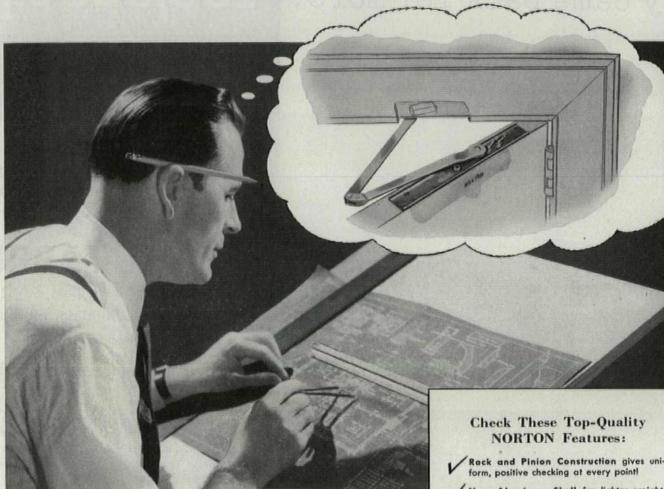
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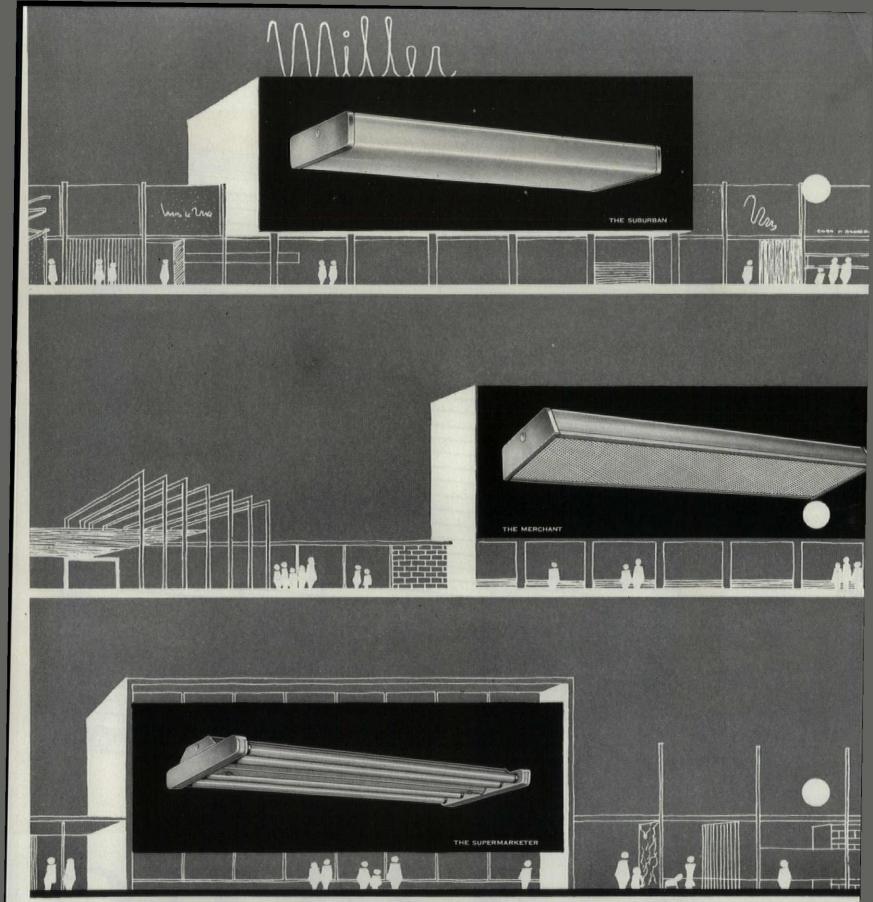
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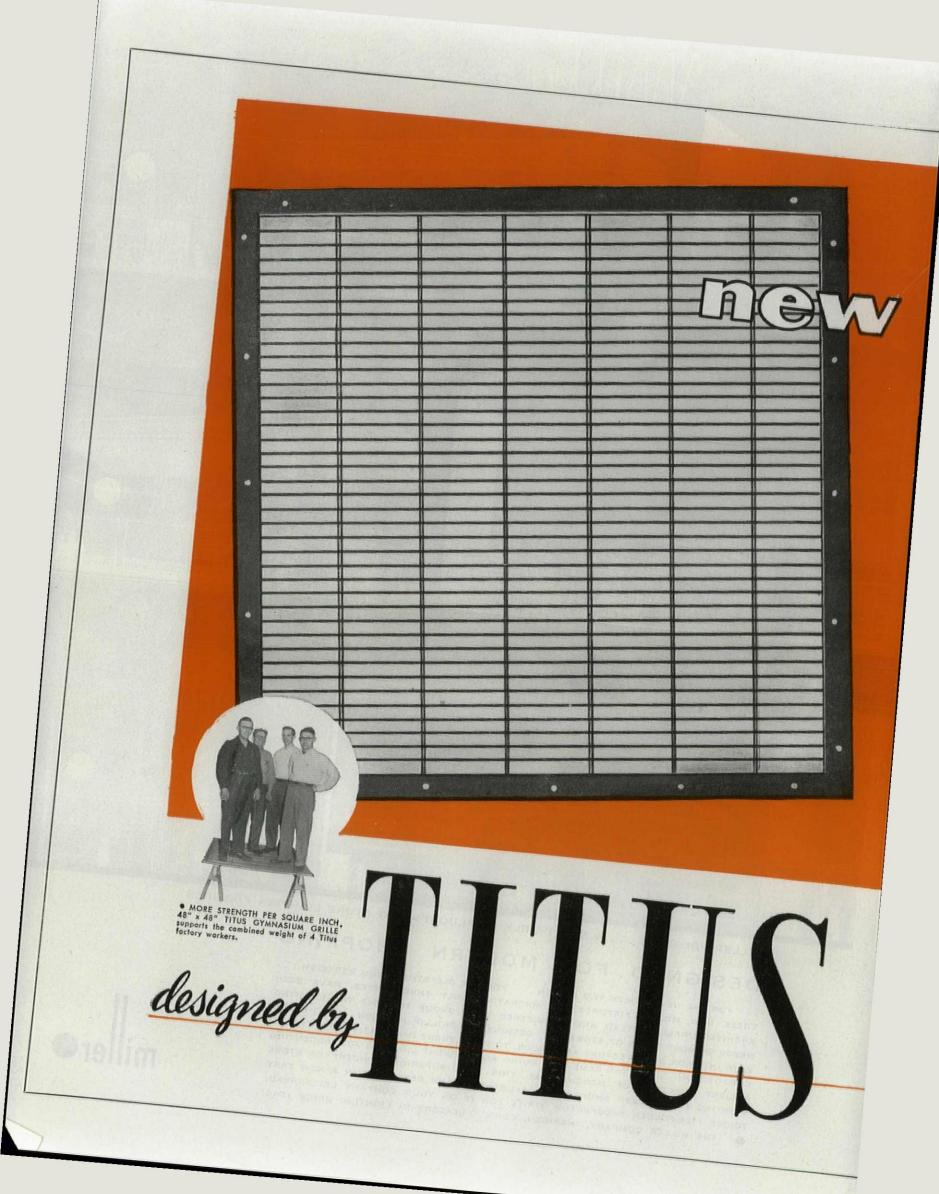


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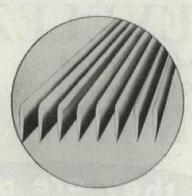
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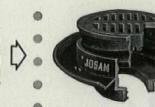


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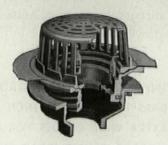
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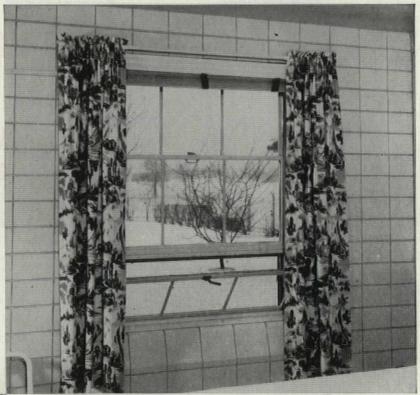


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THE MAGAZINE OF BUILDING

"THE COMPLETE JOB . . . A SINGLE SUPPLIER"

### Seaway towns may get defense rating; building boom, planning problems seen

Civic planners and industrial leaders in cities and villages all along the Great Lakes and the upper St. Lawrence River were voicing guarded elation last month as they started calculating the enormity of the expansion sure to affect their areas as the result of the St. Lawrence Seaway project. Predictions ran all the way from the comparatively pessimistic view of some regional thinkers who foresaw only a temporary construction boom to wildly optimistic "certainty" that some cities would be tripled in population and industrial output by the seaway.

FORUM, in a spot check of several key cities along the lakes and on the river, found these early estimates of the size of the seaway-inspired construction market:

Chicago—Development of 1,750 unused acres for manufacturing and cargo movement purposes, 35,000 new production jobs and 60,000 related jobs, speed-up and amplification of present traffic, transit and redevelopment plans to handle port growth.

**Detroit**—Acrawl with conflicting, unspecified plans, at least half of which were expected to have been washed away by election returns.

Cleveland—Biggest growth of all lake ports predicted by planners and their consultants, completely revised master plan in the making to handle growth, and assurances by dock owners and operators that they can handle ten times the current port tonnage without city dock building.

St. Lawrence area—Quickening of real estate market and increased flow of building permits, mostly for housing, in Ogdensburg and Massena, NY, in preparation for an inflow of construction workers for seaway work and the joint New York State-Canadian power project.

Not even the most astute planners and prognosticators could estimate whether growth along the lakes would fall short of the vaguelydefined expectations or would exceed them. Detroiters found their first worry was convincing Congress it should put up money to blast away some 5 mi, of rock to deepen the Livingstone channel connecting Detroit with Lake Erie. Chicago experts hastened to point out their city was no slouch at growing industrially; they hardly expected the seaway to stimulate expansion at a rate greater than Chicago's impressive postwar growth. Word from Washington was that areas where actual seaway construction is scheduled (Massena, Ogdensburg, possibly Detroit) might qualify for an ODM defense rating, the effects of which would be 1) to make more liberal mortgage terms (90% of FHA valuation instead of 80%) available for rental builders and 2) to open the way for federal aid to cities expanding their services to handle seaway-connected population growth.

# NAHRO pledges aid to urban renewal, urges housing-urban affairs cabinet job

Although many advocates of the urban renewal program established under the new Housing Act hope it will eliminate the need for more federal public housing, the National Association of Housing and Redevelopment Officials pledged itself to support urban renewal last month at its annual convention in Philadelphia.

In its formal resolutions, NAHRO also registered its conviction that "we will not stem blight by talk and publicity, nor renew cities by seeking to achieve broad objectives without adequate means"—one of which, it declared, should be re-expansion of federal public housing to the rate of 135,000 new units a year originally authorized under the Housing Act of 1949.

What marked this year's NAHRO convention was an accent on the positive. The public housing officials found themselves sharing common ground with some of the more moderate elements of the National Association of Real Estate Boards, a group usually regarded as an enemy of NAHRO. The convention also:

▶ Recommended creation of "a cabinet-rank Department of Housing and Urban Affairs" that would be able to deal more effectively with "the fact that the problem of inadequate housing and the spread of slums and blight is today perhaps the most serious and pernicious domestic problem we face." In this, NAHRO backed an idea that has been receiving increasing support recently in homebuilding and real estate quarters.

▶ Accorded an enthusiastic reception to an announcement of the plans and purposes of the newly organized American Council to Improve Our Neighborhoods (p. 121) by LIFE Publisher Andrew Heiskell, one of ACTION'S three vice-chairmen, who was the main speaker at the annual banquet.

Held a two-session workshop on the problems of industrial re-use of Title I urban redevelopment sites with the cordial participation of Executive Director Carl T. Lloyd of the Society of Industrial Realtors and Robert B. Garrabrant, secretary of the industrial council of the Urban Land Institute, two NAREB affiliates that devote their main attention to real estate business and economic matters, pay scant attention to its anti-public housing politicking. Restrictions disapproved. HHFAdministrator Albert M. Cole told the session that "slum clearance alone, even though it has restored some areas to useful life, has so far been a losing fight." The new urban renewal program, he added, "is aimed at something more than clearing out slums—it is aimed at the bigger, more basic job of slumproofing our towns and cities... the erection of slumproof barriers that will wall out the spread of blight into other sections so that you and others can destroy slums once and for all, and sterilize our endangered neighborhood against this infection."

At a press conference, Cole expressed his "personal feeling" that the new Congressional requirement that further public housing can be approved only if it is intended for persons "displaced" from their homes by government action "is too limited". He thought this might cause "unnecessary restrictions" in helping some people who live in slum areas that are not being cleared but who need to be rehoused. Would he recommend repealing this provision? "I don't know."

If the US has a responsibility in slum clearance, said Cole, it would seem to follow that it has a responsibility in relocation, "one of the toughest problems in redevelopment." But while he was not satisfied with present relocation programs, he would not suggest any steps to improve or expand the federal role in relocation until "all the existing tools" of the new urban renewal program have been tried at the local level.

Discordant note. Mayor Joseph S. Clark of Philadelphia jarred the otherwise peaceful convention with a talk touched with sarcasm and belligerency. He said he could not "share President Eisenhower's optimism" that the new Housing Act was "a major advance toward meeting American's housing needs." He said: "The Housing Act of 1954 is in many respects a step backward from previous federal programs. . . . The broader concept of urban renewal is a wholesome one. It cannot, however, contribute much more to the eradication of slums than the previous redevelopment approach, unless the program is greatly stepped up and additional funds made available. To the extent rehabilitation is emphasized, contrasted to slum clearance, there is danger that remedy will be patchwork, merely postpone the date of obsolescence. . . ."

Despite Clark's views, City Housing Coordinator William L. Rafsky and other planning and housing officials were busy shaping a 27-year program for rehabilitation or renewal of every obsolete dwelling in the city—one of the most ambitious urban renewal programs anywhere in the nation. Prospective financing: federal assistance totalling \$6 million a year to supplement city outlays of \$3 million.

New president. First Vice President Walter B. Mills, Jr., executive director of the Greater Gadsden (Ala.) Housing Authority was elected president, succeeding Oliver C. Winston of Baltimore. Robert D. Sipprell, the Buffalo authority's executive director and former NAHRO executive director, was elected

first vice president, and Paul S. Freedman, controller of the Chicago authority, second vice president.

Mills, 46, was born in Birmingham, educated as a civil engineer at Birmingham Southern College and The Citadel. He was a wholesale oil distributor when appointed chairman of the Gadsden authority in 1938. He became executive director in 1941. Known for his pleasantries and throaty Southern accent, he holds a reserve commission as a lieutenant colonel in the Marine Corps, in which he served during World War II. For relaxation he golfs (75 to 80).

### Big drop in nonresidential use of lumber predicted

Design changes and competition will cause a minor revolution in the lumber business in the next 20 years. Annual production will rise by 1975, but only by 2.8 billion bd. ft. There will be 17% less wood in the average dwelling of that year and a much smaller share of lumber for construction will go into nonresidential building.

A 400-page report prepared by the Stanford Research Institute in California for the Weyer-haeuser Timber Co. of Tacoma describes a steadily growing economy in the next two decades, with a lumber industry that will not keep pace. Reason: too high production costs to meet the competition. The result, says Stanford, will be a shift in uses of lumber and growing substitution of other materials.

Bd. ft. per dollar. The report—a meaty document sure to be discussed and mulled over by building men for a long time—predicts an overall decline of about 45% between now and 1975 in bd. ft. of lumber consumed per dollar spent on nonresidential construction. The projected declines in lumber-use range from 25% in institutional building to 50% in highway construction.

The Stanford report figures total new construction in 1975 to reach \$51.7 billion (as opposed to other economists' view of \$36 billion for this year—not included in the Stanford report). The increase in nonresidential construction is paced at the same growth rate as residential—approximately a 60% increase in expenditures over 1952. While lumber use in the average dwelling in 1975 will be 17% less than it is now (due to a large extent to architectural changes), its consumption in nonresidential construction by then will be about 3 billion bd. ft. less.

Forms and framing. The economists judged from a survey of 1,000 nonresidential contractors that 58% of lumber consumption in nonresidential construction goes for concrete forms; 20% for framing and trim and another 10% for scaffolding. It appears likely, they say, that because of its many possible reuses, lumber will retain a portion of the form market in future years. Its main competitors, where smooth surfaces are desired: plywood and hardboard. Lumber's advantage in the other departments is its lower cost. If that is damaged, steel or steel and concrete will push in.

### **SIDELIGHTS**

### Investment for research

A campaign to collect \$100 from every registered architect was launched last month by the American Architectural Foundation, Inc. with an assist from AIA. The purpose: to build a fund for architectural research. The foundation, which is a nonofficial adjunct of AIA, will raise the money; AIA will point out potential areas of interest to architects and its research committees will do the research; BRAB will clear the information gathered and make sure a project suggested has not been done before. The lion's share of \$1 million the foundation hopes to collect, according to Foundation President Douglas W. Orr, FAIA, will be invested. "We will be willing to look into any kind of project," said Research Director Walter Taylor of AIA. He added that no initial project had been settled upon but that it might be something on hospital design.

### For works planning: a trickle

Denied all but a token appropriation by an unsympathetic Congress, the administration's program for stimulating the advance planning of local public works was nearly ready last month for a feeble start. The Housing Act authorized \$10 million in interest free loans to municipalities for planning but Congress actually appropriated only a piddling \$1½ million and stipulated further that not more than 5% of the funds could go to any one state. That means \$75,000—obviously too little for big cities to take any advantage of the fund at all.

As a result, HHFA officials have decreed preference for planning projects in the public health field such as sewer and water line extensions. Application forms were sent HHFA's five regional offices (Philadelphia, Atlanta, Chicago, Fort Worth and San Francisco) Oct. 20. Actual advances, which will be made from these application centers, will start trickling out after Thanksgiving.

#### Piggyback progress

Southern-Pacific is happy with its year-old piggyback freight experiment (transporting truck trailers on flat cars), according to President D. J. Russell. The railroad operates 4,000 of its own trucks, is moving about 100 a night an average distance of 400 mi. "Sometimes as much as 600 or 700 mi." The New York Central, meantime, shelved plans for a piggyback system. Conceived by William White, former president who left when Robert Young's group took over last spring, the plan called for construction of terminals in at least six cities at a cost of at least \$5 million. The Central's proposed system would use sideloading of the flat cars and consequently would necessitate considerable investment in fork-lift trucks and in bringing the flat cars up flush with loading platforms (AF, Aug. '54). Probable reason for the decision; unwillingness by the new management to lay out heavy capital until they see how things shape up the first fiscal year.

### Crowd-puller on Fifth Ave.

Opening day at the Manufacturers Trust Co.'s new glass branch on Fifth Ave. (AF. Oct. '54, News) saw 15,000 visitors jamming the halls to inspect and speculate. Vice-President Harold Miner estimated the throng at thrice the size of any day's traffic in the bank's old branch across the street. Principal comment: "Breathtaking." More specialized opinion came from visiting old-guard bankers (who saw the glistening structure as "newfangled") and from old-guard civilians, who saw Harry Bertoia's sculptured screen and ceiling decorations as something the contractors had forgotten to finish. Some comments reported by the painstaking New York Times: "Oh, I see you didn't get that wall finished." "When are you going to pour the concrete over it?" "It looks like a flying bedspring." The crowds kept coming, however, and the bank stayed open late four days to accommodate them.

### Wasted words? (cont'd.)

Just how effectively manufacturers and advertisers of building materials are getting through to architects with their advertising was thrashed over by some 28 architects, admen, manufacturers, editors and cataloguers at a panel session a month ago of the Hoberg's, Calif., convention of the California Council of Architects (biggest AIA regional group). Panelists, prodded by Architect Bourne Hayne, convention co-manager, and questioned by Robert Burns, AIA council attorney, probed some big areas of concern. Their opinions: There is no shortage of authoritative testing agencies to check manufacturers' claims. Best sources of reliable, readable, filable data on products are regular reporting channels of architectural publications. Before taking other steps to get ads and literature pegged specifically for architects (most of it is waste-basketed, according to Los Angeles Architect Earl Heitschmidt), it might be better to let AIA Document 184, a suggestion sheet for manufacturers, gain wider acceptance. Manufacturers and admen were politely reluctant to encourage formation of an AIA editing service to help them. Nearly everyone agreed on desirability of putting AIA file numbers on literature, but there was some grumbling about sheer volume of data to be filed. Douglas Haskell, editorial chairman of FORUM, suggested a simple alphabetical filing system, with simple cross indexing. Its advantage: fits actual memory habits, is tailored to the least bright file clerk.

### Philadelphia v. air conditioners

Philadelphia will crack down on unlicensed installation of commercial air conditioners. Licenses and Inspection Commissioner Walter S. Pytko believes that "hazardous conditions" exist in many buildings involving the city in such dangers as water shortage, structural weakening of buildings and overloaded wires.



AFTER SIX YEARS OF TOIL, FOUR APARTMENTS ON FORMER SLUM SITE IN CHICAGO

# Lake Meadows rises as Negro market proves worrisome — a progress report

Lake Meadows, a controversial and beleaguered idea for massive slum redevelopment, is gradually hardening into the brick and mortar of a gleaming new community on Chicago's South Side. Last month, four 12-story apartment buildings rose above the 101 acres of cleared slum rubble; the skeleton of a fifth was two-thirds complete. On Nov. 12, New York Life Insurance Co., sponsors of the project, will swing open the doors of a \$1 million drive-in shopping center (AF, Dec. '53, News) to serve the project and surrounding area.

The opening of the center will complete one phase of Lake Meadows' development, but New York Life—after a cautious pause to look around—is moving on to the next and larger phase. Working drawings for the first of four projected 20 story buildings are on the boards of Architects Skidmore, Owings & Merrill. Bids will be sought on the first two shortly after the first of the year.

Out of the slum-ghetto. When fully completed, Lake Meadows will house 2,000 families, most of them refugees from Chicago's stinking slums, in a park-like setting carved out of the rottenest part of the old South Side. It will contain not only its own shopping facilities, but a school, church, and parks as well. It will be Chicago's boldest enterprise to provide modern housing at medium cost for the exploited dwellers of today's Negro slum-ghetto.

It has taken New York Life six years to get its idea to where it stands today, still barely 25% complete. This has been a pioneering process beset by a series of social, legal, financial, and political troubles. A total of 474 of 725 parcels had to be acquired by the Chicago Land Clearance Commission (the subsidized clearance agency) through laborious condemnation suits in Cook County's hopelessly crowded courts. On 11 occasions, the suits dragged through to the Illinois Supreme Court. Three times they reached the US Supreme Court.

Repeatedly, the problem of relocating 3,500 Negro families from the site threatened to shake the support of the Chicago city council, some of whose aldermen wondered—perhaps with reason—if relocation might

not alter the political complexion of their own districts, perhaps even jeopardize their own jobs. For three months one time, planning of the site was snagged because a city county subcommittee delayed approval of a necessary street closing. Added to these delays were the endless bureaucratic processes involved in obtaining approval of local, state, and federal agencies for almost every move. Said one Chicago mortgage banker: "They should rewrite the book of Job."

Can the Negro market pay? Haunting the sponsors of Lake Meadows, besides these troubles, was the question of whether it is possible to build modern housing on such a scale for predominantly Negro occupancy (95% of Lake Meadows' families are Negro).

The sponsors, working on the basis of a 4% return on their investment and longterm amortization, planned Lake Meadows to rent at \$20 a room. Rising costs during the six years have boosted rents to \$28 per room. This is still a whopping bargain when contrasted with the \$50 a room, or higher, rent that tenants in other new elevator apartments pay in Chicago. And Otto L. Nelson, New York Life's vice president for housing, believes this is within the Chicago Negro family's ability to pay-just within. He bases his judgment upon the experience with the first four buildings at Lake Meadows. Col. William J. Reardon, manager, has no long waiting list of applicants, but his 476 apartments are 100% occupied. When the fifth building is finished sometime next summer, he confidently expects it to be filled within a month of its

Nelson cites several factors which he believes have held down the number of applicants at Lake Meadows. The first is the fact that, physically, Lake Meadows still stands in the middle of the rubble of its demolition and is surrounded by the toughest, most criminal slums in Chicago. Lake Meadows' tenants must go into this slum world to shop, to schools, and to churches. Esthetically, there is nothing pleasant about a rubble heap. The first white family to move out of Lake Meadows moved out last month

because of the school problem. Said the mother: "Living here in Lake Meadows with the fine Negro people we have here is one thing. Sending my child into an old school overcrowded with young toughs from the slums is something else, again."

As Lake Meadows moves towards its ultimate objective, Nelson contended, such retarding factors will disappear. With the opening of the new shopping center, one of them is already going. As more buildings are built and landscaped, the physical ugliness of Lake Meadows will be vanishing.

Vanishing trademark. Until that time is reached, New York Life plans to continue a program of cautious progress. One victim of this caution is the original plan that called for two long, slim, 23-story buildings with open galleries housing 640 families each. These dramatic structures, portrayed in advance Lake Meadows' publicity, became almost the trademark of the project. In their place, Lake Meadows will have the four 20-story buildings planned on much more conventional lines. Reasons for the switch according to Nelson:

- 1. Experience has indicated it would be inadvisable to put as many as 640 new units on the market at one time. With smaller buildings, the impact will be more gradual.
- 2. Economy. Buildings with the long, thin lines and outside galleries would be more costly than conventional buildings with a center corridor. Main factor in the savings: reduced exterior wall area.
- 3. The thought of open galleries 23 stories in the air where children might be playing untended gave some people nightmares. To prevent accidents, a sturdy wire screen would need to extend from gallery level to gallery level, the sponsors decided. And this, in turn, would produce a problem of design to prevent a cheap appearance.

Reasonable cost. The original five buildings, designed along clean but conventional and economical lines, went up at a cost Nelson said was "all we could hope for." Other sources put it at \$1.21 per cu. ft., not counting land and certain other factors. This contrasts with a similar figure of \$1.29 which was the cost of a new apartment building of similar dimensions constructed about the same time in Chicago.

Experience at Lake Meadows has taught Chicago redevelopers other lessons, too. For instance, the Chicago Land Clearance Commission is now insisting that every project be built in stages, with new construction keeping pace with demolition. (Acres of Lake Meadows lay fallow for more than a year.)

But there is little sentiment among Chicago redevelopment leaders to call Lake Meadows a flop. Said one key official: "We will all be proud of Lake Meadows someday. . . . The impact of this on our urban renewal planning is more tremendous than you can imagine."



# TO UNIQUE WALL DESIGN AND TECHNIQUE

Erie's experience plus close cooperation with the architects developed porcelain enamel panels that permitted a unique wall design and technique for St. Patrick's Academy in Chicago. In this example the spandrel panels were suspended in a corrosion resistant mullion bar system and filled after erection with insulation.

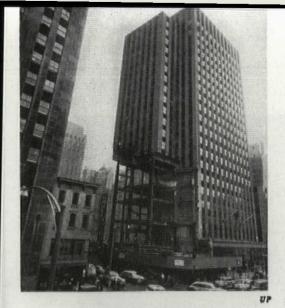
Erie has developed four basic *insulated* panel designs with suitable attachment methods that adapt directly to most suspended wall systems. Erie is also one of the oldest producers of pan and lug porcelain enamel panels and Porock filled panels.

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#### Wreckers knock the bottom out of New York skyscraper

It looks as though Contractors George A. Fuller Co. might be building this office skyscraper from the top down. Actually, it is a delicate wrecking job on the lower nine floors of the US Rubber Building in Manhattan's Rockefeller Center. The Center Theater, just demolished to make way for Gotham's insatiable demand for midtown office space (AF, Oct. '54), underlay the top 11 stories of the Rubber Building and the gaping space to the left of it. Lipsett Inc., demolition engineers, carefully stripped masonry and concrete from around the steel girders. waterproofed and fireproofed them. Excavation for the replacement offices started last month. The new building should swallow up the naked columns again next spring. Edwards & Hjorth, consulting steel engineers, planned the job so the rest of the building continues in use during amendments.

#### 400 code changes adopted by building officials group

More than 400 suggested revisions to the uniform building code promulgated by the Pacific Coast Building Officials Conference were approved by delegates to its convention in Denver last month. PCBOC formulates codes for 735 cities and other governmental units, mostly in western states, including 33 (smallest: Fruitport, Mich., pop. 638; biggest: Stanislaus County, Calif., pop. 137,000) that adopted the code during the past year.

This was a big year for revisions. PCBOC was anxious to include as many as possible in its upcoming edition of the code, republished every three years. The conference approved changes to permit: wider use of wood bracing in buildings, increased application of plywood and laminates, more opportunity to substitute metal wall panels for standard 8" masonry, extension of use of movable partitions, construction of open, multideck parking garages, and substitution of high-strength bolts for rivets in steel framing. Delegates turned down proposals to require reinforcement of all new masonry construction in earthquake zones and to prohibit lateral wood bracing for brick walls.

Aluminum, although approved by the PCBOC research committee for some construction uses, still has not gone into the code. New chapters on wood construction were ex-

pected to cut framing costs for homebuilders, and a new chapter on masonry construction was aimed at correalating requirements in earthquake zones with those in other sections of the country.

Gilbert Morris, slum-fighting superintendent of building of Los Angeles, was re-elected president.

### ASCE affirms suspensions for competitive bidding

The 26-man board of directors of the American Society of Civil Engineers, meeting at the society's convention in New York last month, reaffirmed its drastic move of last August in expelling one ASCE member and suspending 13 others for taking part in competitive bidding for the engineering work on a movable bridge in South Carolina. Clearing up any doubt about where he stood in the hottest controversy the 38,000-member ASCE has known in years, William R. Glidden, assistant chief engineer of Virginia's highway department, had hardly taken office as ASCE's new president when he lambasted engineer bidding: "The sole object of competitive bidding is a low price. . . . Cheap engineering is

expensive, and to employ it is stupid." C. R. McMillan, chief highway commissioner of South Carolina, who had issued the controversial calls for bids, had insisted that he was required to do so by state law.

New executive secretary of ASCE, replacing retiring William N. Carey, is W. H. Wisely, executive secretary (for 14 years) of the Federation of Sewage and Industrial Wastes Assns.

While other engineers were droning through, or listening to, papers detailing trends in everything from the life expectancy of steam plant equipment to buckling in the electroplastic range, Jacob Feld, New York consulting engineer, set a session of the construction division agog by reading a paper on building failures and then quietly attacking an old ASCE taboo against official recognition of structures that crack, leak, sag or simply collapse. Feld suggested-and he was backed by an almost unanimous show of hands of the 60-odd engineers present-that ASCE set up some sort of committee to investigate structural "incidents" and to make public reports of their findings so that all may learn the lessons of the small insufficiencies which may separate failure from success."

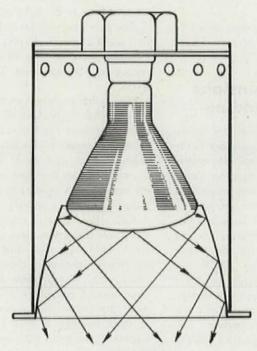
# FHA investigations after six months: rental housing flattened, agency shaken

Six months struggling in the Senate hearing rooms over the workings of FHA and the nation's builders had produced a deal of headache and confusion. In their own way, the builders were at times as puzzled as the populace. The latter had run a gauntlet of headlines confounding them with news of fake repair deals, illicit Christmas presents, sudden resignations and astonishing profits on 608s. Builders, meantime, wondered whether the investigations and hearings on FHA abusessome of them real-would hurt a part of the economy that could help avert a slump. As the investigation prepared for its fall reopening in mid-November-and the Justice Dept. moved in heavily with criminal and civil housing sections and a call for grand juries across the nation-the important question was what the big probe had done to building.

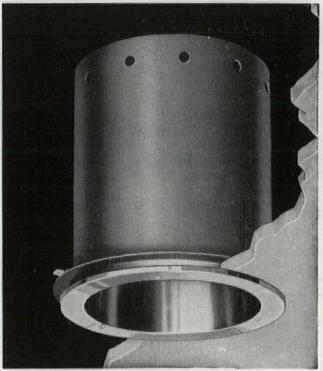
Missing in action: rental housing. The great effect of the Senate committee's hammering at the practice of mortgaging out was to bring about 1) a clause in the new Housing Act prohibiting such practice, and 2) a cut in loanto-value ratios for FHA apartment mortgages. FHA-insured rental housing-it accounted for more than one-third of the nation's 93,000 multifamily units last year-plummeted to a near-halt. Although under a much less drastic ruling on cost certification, the Wherry Act program had also slowed to a crawl. In addition, Sen. Harry Byrd (D, Va.) worked into the new Tax Act a ruling that the ordinary income tax rate (as opposed to the capital gains rate) should apply to distribution of funds from a mortgage exceeding the cost of a project. The tax angle, of course, had been precluded by the antimortgaging out provision in the Housing Act.

Less cut-and-dried results of the probe were harder to evaluate. In recent weeks the spotlight had focused on a few special cases; the newspapers were reacting less violently but Sen. Capehart, with Justice backing, was methodically digging for more evidence. Clyde L. Powell, former rental housing boss, had been brought before a grand jury and charged with contempt after questions and answers about what, if any, documents he took with him when he left FHA. Ian Woodner was still being questioned and three firms in which he held an interest were being sued by the Justice Dept, in connection with rental housing at Chanute Air Force Base. Testimony from 608 builders was as close-packed as ever and Title I redevelopment projects faced some examination. Possible collusion between builder and government employee was being mentioned at many sessions.

FHA Commissioner Mason, HHFAdministrator Cole and President Eisenhower have in recent months individually assured the public that the rotten apples are out of the barrel, the operation on FHA has been a success and—said the President: "The integrity of FHA has been restored." The statements seemed premature. There will be no steadying of the apple barrel (or whatever the simile) until Capehart and committee quit rocking it, either by filing a report showing the job is done or by turning their duties over to Justice. As one former top federal housing aide put it: "It's a neat gymnastic trick—kicking the thing [housing] that you're propping up."

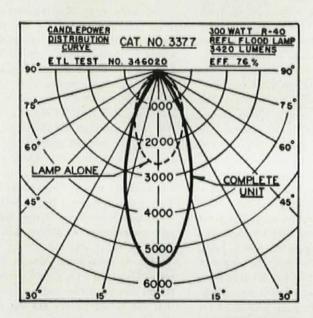






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#### **BUILDING STATISTICS:**

#### Construction volume soars on and up but so do costs and prices

Construction activity in the third quarter of 1954 was running 7% above what it was last year. In fact, it was the most active quarter on record—\$10.75 billion of new work, according to preliminary estimates from the Commerce and Labor Depts. Seasonally adjusted, the third quarter showing indicated an annual rate of \$37.5 billion for new construction, up over the first half year's rate of \$36.3 billion and over actual outlays last year of \$35.3 billion. A year-end total of \$52 billion was predicted by H. E. Foreman, managing director of the Associated General Contractors, split between \$36 billion of new work and \$15 billion for maintenance and repair. A big part of construction's rosy outlook continued to rest on government action: Items:

- ▶ Local airports were due for \$20.5 million in federal funds, with big shares going to New York, California, Minnesota, Kentucky and Ohio.
- ▶ A White House committee was working out details of the President's \$50 billion highway construction plan.
- ▶ The first 29 lease-purchase projects conceived by GSA and the Post Office Dept. were up for approval action by the Senate public works committee.

Costs a brake? One signpost building men should keep an eye on was whether the cost of construction was aiming so high it would soon again begin to be a brake on building volume. BLS materials prices, for instance, crept up to a new all-time peak in September, while wholesale and consumer price indexes slipped a little. When the cost of building materials and building itself begins to get out ahead of the rest of the economy, it counts as evidence that construction is becoming a shade inflationary.

From what trickled out of closed sessions of the government's Business Advisory Council in Hot Springs, big businessmen figure prosperity in 1955 at something between 1953 (a great year) and 1954 (an adequate, but unpretentious year except for booming construction). One phrase that went the rounds: "competitive prosperity." The group agreed that in the event next year's expected upturn is short-lived, Dr. Arthur Burns' proposition to cut taxes and increase spending would be in order.

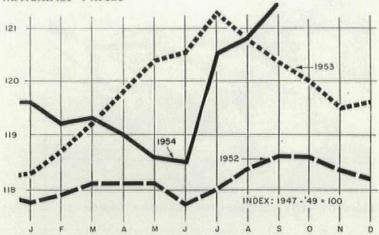
#### **NEW CONSTRUCTION EXPENDITURES**

(millions of dollars)

(millions of dollars)						
	September		—First 9 months—			
Type of construction	1953	1954	change	1953	1954	Percent
Type of construction	1300	1001	change	1303	1554	change
PRIVATE						
Residential building (nonfarm)	1,093	1,296	19	8,869	9,528	7
New dwelling units	965	1,165	21	7,840	8,455	8
Additions and alterations	103	106	3	835	845	1
Nonresidential building	505	551	9	4,139	4,563	10
Industrial	177	160	-10	1,698	1,507	-11
Commercial	175	207	18	1,238	1,599	29
Other nonresidential building	153	184	20	1,203	1,457	21
Religious	44	57	30	335	414	24
Educational	40	54	35	304	402	32
Social and recreational	15	19	27	114	160	40
Hospital and institutional.	27	29	7	239	249	4
Miscellaneous	27	25	-7	211	232	10
Farm construction	170	153	-10	1,370	1,235	-10
Public utilities	422	428	1	3,259	3,339	2
All other private	12	10	20	92	85	-8
*PRIVATE TOTAL	2,200	2,440	11	17,729	18,750	6
PUBLIC						
Residential building	46	23	-50	428	272	-36
Nonresidential building	380	427	12	3,275	3,490	7
Industrial	147	127	-14	1,364	1,222	-10
Educational	153	192	25	1,264	1,528	21
Hospital and institutional	26	35	35	282	270	-4
Military facilities	118	86	-27	1,032	649	-37
Highways	428	445	4	2,326	2,650	14
Sewer and water	81	97	20	638	743	16
Conservation and development	73	66	-10	633	543	-14
*PUBLIC TOTAL	1,162	1,179	1	8,555	8,622	1
*GRAND TOTAL	3,362	3,619	8	26,284	27,372	4

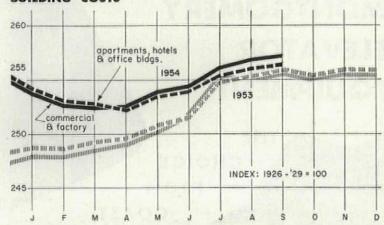
<sup>\*</sup> Minor components not shown, so total exceeds sum of parts. Dents. of Commerce & Labor.

#### MATERIALS PRICES



Hitting a new all-time high, BLS index of wholesale building materials prices moved up 0.6 points to 121.4 in September, 0.8% above the Sept. '53 level. Increase in lumber and structural clay products brought about the gain, offsetting a decline in plywood.

#### **BUILDING COSTS**

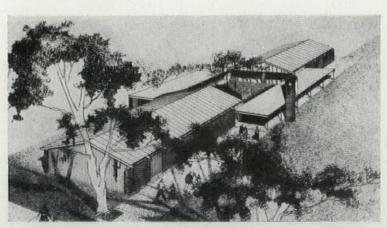


Higher wage rates more than the recent slow increase in materials prices forced E. H. Boeckh & Associates' building cost indexes to an all-time high in September. Apartments, hotels and office buildings inches up 0.3 points to 256.2, compared to 255.9 in Sept. '53. Commercial and factory buildings rose 0.2 points to 257.0, up from 255.6 a year ago.

#### **BUILDING PERMIT VALUATIONS**

	Ni	ne months	Per-cent
City	1953	1954	change
New York	\$395,348,119	\$430,304,859	+8.8
Los Angeles	340,874,276	307,364,083	-9.8
Chicago	171,072,400	170,582,450	5
Houston	97,467,149	120,480,236	+23.6
Philadelphia	90,469,800	111,243,730	+22.8
Dallas	83,560,584	109,156,825	+30.6
Detroit	141,095,673	96,816,219	-31.4
Milwaukee	62,383,812	74,347,207	+19.1
Denver	68,510,367	71,554,978	+4.4
Atlanta	62,513,463	68,318,176	+9.3
Baltimore	81,304,176	58,763,526	-27.7
Seattle	39,348,780	57,118,825	+45.1
San Diego	67,820,683	55,680,566	-17.9
St. Louis	42,066,841	53,708,178	+27.7
Cleveland	69,417,200	52,096,900	-24.9
Source: Dun & Bradstreet			

Another all-time high set in September was in building permit valuations. According to data from 217 cities collected by Dun & Bradstreet, permits reached \$482,807,488, up 17% over Sept. '53. The ninemonth total of \$4,041,761,531 was 2.2% above the same 1953 period. New York continued to lead the rest of the nation in value of permits filled; the nine-month drop in Los Angeles' permits (see table) can be attributed to a slackening off in housing; commercial construction continued at a high rate.



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#### NEWS

#### **NEW BUILDINGS**

#### Church on a budget

When the growing little congregation of St. Bernard Methodist Church, near the giant Chalmette, La. plant of Kaiser Aluminum, wanted to build a church and social hall, it reversed the usual procedure of raising funds to meet the price tag on an already-designed building. The church leaders asked Architects John Dinwiddie, John Lawrence and George Saunders of Tulane University's school of architecture to design a chapel (for 200 worshippers) and social hall (for 100), kitchen and pastor's office, for close to the \$30,000 the church could spend.

The solution, nearing completion last month by Contractor Richard Goodyear, of Arabi, La., is expected to cost \$34,000, will enclose 3,750 sq. ft. for \$9.07 a sq. ft.

To accomplish this, the architects-who practice off campus as a firm-made structure and finish synonomous: they left exposed inside brick cavity bearing walls, welded steel roof trusses and 2" x 6" roof planks. They used simple heating and ventilating equipment (fans and blower-type unit heaters hung in ceiling spaces) and cut labor costs wherever possible. Example: pea gravel tamped into concrete floor slabs to eliminate expensive troweling and to give color and texture to floors. End walls are wood, and patio walls of the chapel and social hall are glass, with random inserts of polyester plastic into which paint and metal were cast to form Christian symbols. This inexpensive substitute for stained glass resulted from experiments by the architects and John Clemmer, an artist of the Tulane faculty. There are no windows; fixed 10" strips of glass on the sides between roof beams provide light.

#### New York stock exchange

Steel trusses, one story high, will carry weight of 22 stories above them in an air-conditioned office building to be erected for the New York Stock Exchange next to its collonaded landmark in New York's financial district. Demolition of the 20-story Commercial Cable building, a difficult \$500,000 job, will be started next month to make room for the new 27-story

#### BIG TRUSSES TO HOLD 22 FLOORS



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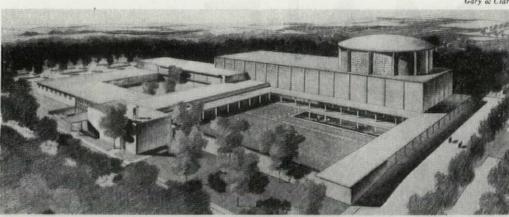
And of course they're gleaming white, porcelain-enameled steel for complete practicality.

And when you specify a Crane kitchen sink—as outstanding in design as Crane bathroom fixtures, and available in seven colors and white—you're assured that your clients will be pleased for years to come.

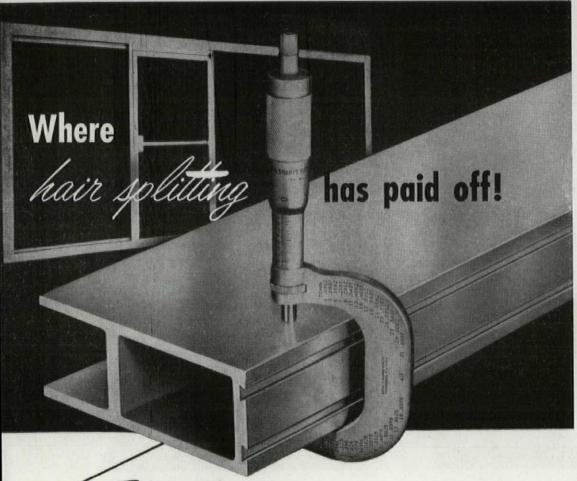
A Crane Kitchen Specialist will be glad to help you work out the details of the specific equipment for any plan. Call your Crane Branch or Crane Wholesaler... or mail the coupon today!

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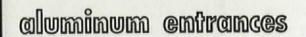


Close tolerances are important in the manufacture of any mass-produced product. But they are the essence of the Amarlite System, a new concept that developed the standardized aluminum entrance. Every piece of material assembled into an Amarlite Entrance is accurate, at the very least, to a few thousandths of an inch. This assures complete interchangeability of the standard components of Amarlite doors and frames. Here's the payoff to you and your client: a precision-built entrance, an economical entrance, a clean-lined, functional entrance.

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structure designed by Kahn and Jacobs and Sidney Goldstone. The 75' trusses between the fifth and sixth floors will permit eventual removal of offices between the fifth and second floors to create a column-free extension of the stock exchange's trading floor from the adjoining building (right in cut). Contractor George A. Fuller Co. will rest the trusses on caissons reaching to bedrock. The \$15-million building is a standard New York ziggurat.

#### Synagogue in Dallas

Temple Emanu-El, \$1.5-million synagogue in Dallas for the largest reform Jewish congregation in the South, will be a carefully studied complex of buildings that looks somewhat like a modern civic center. The main hall, containing sanctuary and auditorium, has been given rhythm by Dallas Architects Max Sandfield and Howard Meyer (with William Wurster of the University of California as consulting architect) by letting concrete columns show between brick filler panels. One feature that is not quite convincing is a sizable concreteribbed, formed-copper cylinder atop the sanctuary-auditorium building. Cars can be parked among 15 acres of pecan trees surrounding the church, planted in a 38' grid pattern. Bids had not been let last month; groundbreaking is scheduled for spring.

#### **US gives Berlin modern library**

Newest example of the advanced design of buildings in the western zone of Berlin—contrasted with the stripped classicism of traditional Nazi architecture still being used in the Soviet zone—is the American Memorial Library, built and stocked with \$1.3 million of American money and opened last month. Public stairs and elevators have been eliminated by locating public rooms (reading rooms, auditorium, washrooms) on the ground floor. The main library floor (and its columnless reading room) have shelves, arranged around book lifts, which serve as partitions. Storage capacity is about 700,000 volumes, a start toward satisfying Berliners' reading hunger.

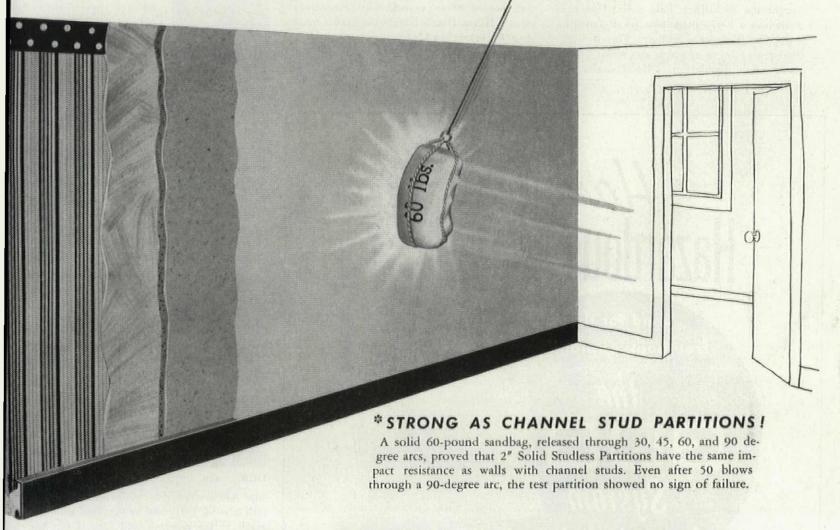
The library is located only four blocks from the Soviet zone—where millions of books of Western civilization are said to have been purged since the Russian occupation. Early plan was to build the library from competitive designs by German architects. Because the Germans have had little experience with public library design in the past couple of decades, no plan was suitable. Four of the architects who submitted the best plans collaborated on the present design, with the help of Consulting Architect Francis Keally of Keally & Patterson, New York, and Library Consultant Charles M. Mohrhardt of the Detroit Public Library.

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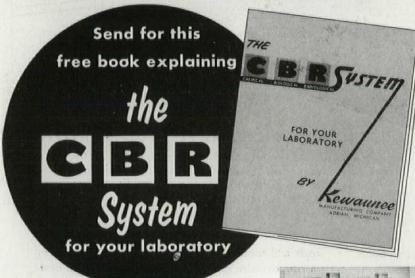
#### PEOPLE: Hotelmen Henderson, Hilton expand their chains; Clay Brown named president of M&M Wood Working

October was the biggest month yet for hotel deals. President Ernest Henderson of the Sheraton Hotel Corp. of America opened it by taking over Chicago's Hotel Blackstone from the Kirkeby chain in a stock swap arrangement. Before the month ended, he had also bought the \$6 million Palace Hotel in San Francisco, a 1907-vintage hostelry designed in the grand European manner. This brought Sheraton's total to 32 hotels and about 24,500 rooms. Said Henderson: "Hotel chains are

just in their infancy. Hilton, Statler and Sheraton do less than 10% of the gross volume of the industry. The time is coming when chains will be of the proportionate size of General Motors and Ford."

It was only a few weeks later when Hotelman Conrad Hilton showed what Henderson meant. Hilton Hotels bought the Statler hotel chain for more than \$111 million in the biggest hotel deal of all time and one of the biggest realty deals in history.

# Hazardous Materials?



The C-B-R System-Chemical, Biological, Radiological -is Kewaunee's latest contribution to safety, convenience, efficiency and economy in the laboratory handling hazardous materials.

Based on the watchwords "concentrate-confine", it provides vital protection to technicians and other laboratory personnel, whether the materials handled are in the field of isotopes, explosives, solvents or toxic materials. It provides remarkable flexibility and operating economy. It assures outstanding efficiency and convenience.

And it's all explained in the new free book "The CBR System by Kewaunee." So if your laboratory is handling hazardous materials of any kind, we invite you to send for this book today. It's yours for the asking-and there's no obligation.

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Single Unit" for remote control

After nearly a year without a president, M & M Wood Working Co. of Portland, one of the two largest plywood manufacturers in the nation, named Lumber Executive Clay Brown to fill the post. Brown, 52, is the first man not

Boychuk Studio

BROWN

a member of the Malarkey family (Thomas, Herbert, the late James A., etc.) to head the company since it was founded in 1918. The board's statement: "We have selected Mr. Brown with utmost care from an imposing list of candidates ...." Brown was a bush league infielder in his

younger days, started his career in forest products with Long-Bell Lumber in Longview, Wash, and then became sales manager for M & M. He left to become vice president with Smith Wood Products, then joined US Plywood and since 1945 has been in business for himself as board chairman of Fortuna Sawmills, Inc. He helped organize the Douglas Fir Plywood Assn. and the Fir Door Institute and served several terms as a director of both groups.

Cleveland Architect Herman Field, 44, who disappeared into Central Europe looking for his brother in 1949, was reported late last



FIFLD

month by Communist radio to have been released from a prison camp in Poland. Field. formerly with Antonin Raymond & Associates in New York, left a job he was doing on a new building for Cleveland College (AF, June, '51) shortly after his brother, Noel, and the latter's

wife had gone to Czechoslovakia. (They are still missing.) He had by that time completed much of the research and formed the basic program for the Cleveland project. Last month, he was reported recuperating in a sanitorium in Poland.

NAMED: Ulysses F. Rible, president of AIA's southern California chapter, as president of the California Board of Architectural Examiners; Frederick Coolidge Crawford, board chairman of Thompson Products, Inc. of Cleveland, as industrialist of the year by NAREB's Society of Industrial Realtors; Designer R. Buckminster Fuller, currently a visiting lecturer at Princeton, as winner of a US Marine Corps medal of merit for his experiments on lightweight structures that can be moved by helicopter (AF, March '54, News).

San Francisco lost one of its old school architects on October 19 with the death of Lewis Parsons Hobart, 81, FAIA. St. Louis-born, Beaux Arts-trained and a resident of San Francisco for 48 years, Hobart more than left his mark on his adopted city and its environs. Grace Cathedral, the Bohemian Club, Mills continued on p. 48





A hideaway kitchen and a slideaway wall in 390 apartments proved an unbeatable combination for the Essex

House, Indianapolis, Indiana. Not only did this arrangement save on space and construction costs, but tenants are delighted with the planning.

Foldoor was chosen for the job to give the best folding door appearance and performance. Its ability to stack into a minimum of  $1\frac{1}{2}$ " per foot of opening . . . its choice of handsome quality fabrics, equaled by no other folding door manufacturer . . . and its quiet, smooth folding action were other important

factors that determined the selection of FOLDOOR.

Whenever you build be sure you include Foldoor in your plans. Whatever you build—institution, office building, church or school—there's a size and type of Foldoor to fit your every need and opening. Construction strength and quality are uniform in all models—you never have to guess when you specify Foldoor for any installation.

For further information see Sweet's Catalog or consult your nearby Foldoor installing distributor.

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IN CANADA: FOLDOOR of Canada, Montreal 26





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**General Contractors:** 

Charles H. Tompkins Co., Washington

Window Erection Contractors:

F. H. Sparks Co. of MD., Inc., Baltimore

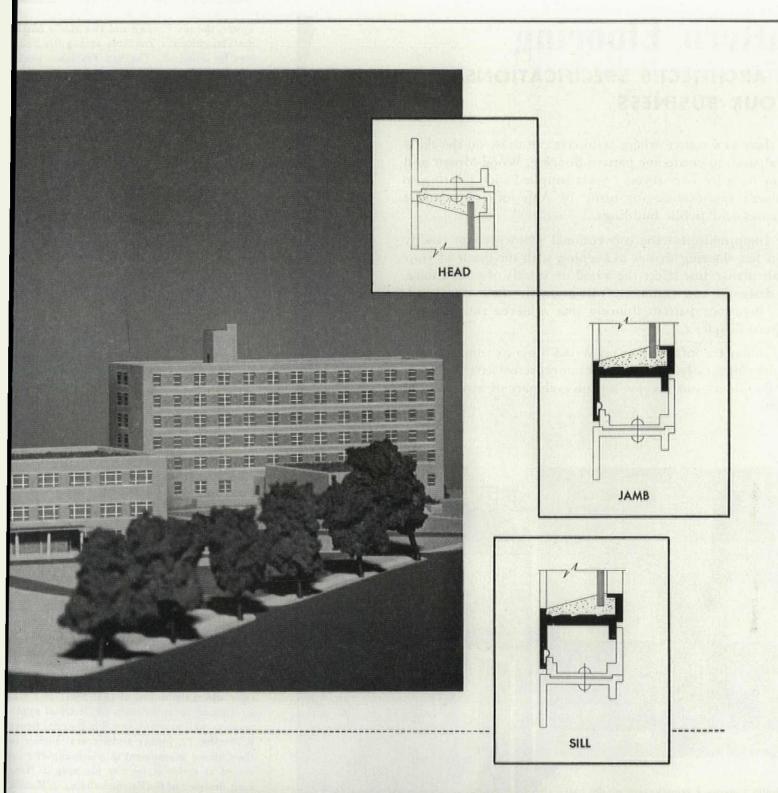
Architectural Aluminum Fabricators:

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#### AMONG THE MANY ALUMINUM APPLICATIONS IN THIS BUILDING:

Reynolds Aluminum Intermediate Projected Windows (illustrated above; details on facing page).

### REYNOLDS



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SEE "MISTER PEEPERS," starring Wally Cox, Sundays, NBC-TV Network.



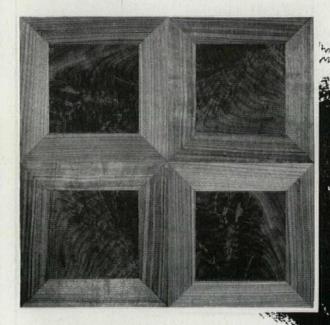
## ALUMINUM

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Yes, there is a source where architects can draw on the skills of craftsmen to create fine pattern flooring. Wood-Mosaic and Parkay have for over seventy years supplied such flooring to architect's specification for many of America's outstanding residences and public buildings.

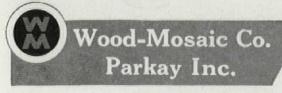
Why compromise for the conventional when you can readily obtain fine flooring that is in keeping with the decor of your overall plans? Just select the wood or woods of your choice. Our designers and craftsmen will assemble them into handsome, luxurious pattern flooring that achieves your desired architectural effect.

Write today for information on Wood-Mosaic's complete pattern flooring service. Better yet, let our representative show you how fine floors can become an integral part of architectural design.



Monticello Pattern—a reproduction of the parquetry floor laid by Thomas Jefferson in his famous Virginia mansion. Consists of 10-inch squares—centers of which are of burl, crotch and figured American Walnut with mitred frames of striped, quartered walnut.

These planks of antique walnut with end-grain walnut plugs are but one of many types supplied which are adaptations or actual reproductions of Early English and Colonial American plan floors.



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Tower, the old Empire and Del Monte hotel the Fleischhacker Zoo were among the buildings he designed. The San Francisco penings sula is dotted with his mansions. In 1935 Hobart was named the first president of the San Francisco Art Commission, which must approve the design of all the city's public buildings.

John Knox Shear, 37, head of the department of architecture at Carnegie Institute of Technology, was appointed editor-in-chief of Architectural Record. Trained at Carnegie Tecand Princeton, Shear has spent most of his career teaching at the two institutions. For time, he was a partner in The Room Inc. Pittsburgh interior decorating firm.

DIED: George C. Keller, 73, past presiden (1921) of the Michigan Real Estate Assn. Sept. 20 in Flint, Mich.; Hugo J. Hesse, 68 past president (1940) of the Michigan Rea Estate Assn., Sept. 21 in Detroit; Brig. Gen Nathan W. MacChesney, 76, drafter of NAREB's original charter, constitution and by-laws, who wrote the first model real estate license act which became the basis for laws now on the books of 40 states, Sept. 25 near Libertyville, Ill.; L. Louis Gairaud, 58, NAREB director and past president of the National Institute of Farm Brokers, 1947 president of the California Real Estate Assn., Sept. 27 in San Jose, Calif.; Architect Henry J. Von Wyl, 62, past president of the Colorado Chapter of AIA. Sept. 27 in Denver; A. C. Steinbach, 73, builder and president of Asbury Park, N. J.'s Berkeley-Carteret Hotel, Oct. 4 in Manhattan; Ed Porth, 84, a founder of NAREB who helped organize the association's mortgage and finance division, Oct. 6 in Milwaukee; George W. Mason, 63, president and chairman of American Motors, recently formed as a merger of Hudson Motor Co. and Nash-Kelvinator. Since 1936 Mason had been president (he later added the duties of chairman) of Nash-Kelvinator, manufacturers of electrical appliances as well as autos, Oct. 8 in Detroit; Henry K. Murphy, 77, former architectural adviser to the Chinese government in which capacity he served as architect for city planning in Nanking, designer of the Pacific building in Manila and the Security Insurance building in New Haven, Oct. 12 in Branford, Conn.; George C. Sellon, 71, California's first state architect (1907-15), designer of many major buildings in Sacramento, Oct. 13 in Sacramento; Edward H. Bennett, FAIA, 80, Chicago architect and city planner whose firm, Bennett, Parsons, Frost & Thomas, called itself the first city planning group in the US, from 1927-33 chairman of the Treasury's Board of Architects on Government Buildings, Oct. 14 in Tryon, N. C.; Everett V. Meeks, 75, who retired in 1947 after 25 years as dean of Yale's School of Fine Arts and under whom the school expanded from one of the university's smallest departments into one of the leading schools of its kind in the country, also one-time president of the Connecticut Architectural Examining Board, Oct. 27 in New Haven.

seared for 45 minutes at temperatures up to 1720° (F.)

this new
industrial roof
didn't burn!
didn't feed
the flames!
didn't fall!

Immediately below the roof in this photo, rages a high-intensity fire, producing heat equivalent to 240 residence-sized gas furnaces operating at full capacity . . . or more than 24 million BTU's in 45 minutes! Last year, similar fires dealt losses of at least \$250,000 to each of 105 manufacturing plants! Note, however, that the roof proves to be completely incombustible and remains intact! Now, you can have this same fire protection for all of your buildings! See following pages . . .

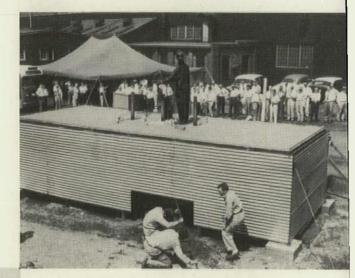




# Rugged fire test proves safety of Tufcor Metal Roof Deck with Cast-in-Place Insulating Slab

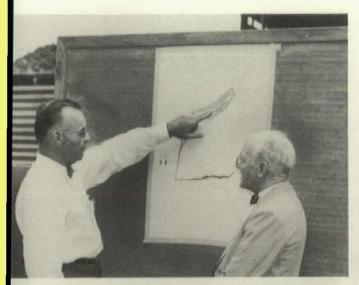
On June 9, 1954, more than 100 U. S. architects, engineers, contractors, roofing manufacturers and insurance men met at Granite City Steel Co., Granite City, Ill. to witness the fire test of a new steel and concrete roof. Designed to prevent the spread of fires, the roof is made of Tufcor galvanized corrugated steel sheets topped by lightweight, insulating concrete.

1. LIGHTING THE FIRE. Test structure represented one 25 ft. bay in a multi-bay structure. Roof support consisted of 10 WF21 main framing beams supporting 11.8 pound junior beams at 6' 3" spacing. To concentrate maximum heat in center bays, fire was produced by 24 gas burners located on either side of center support beam. Mica windows on side walls of heated bays aided visual observation.





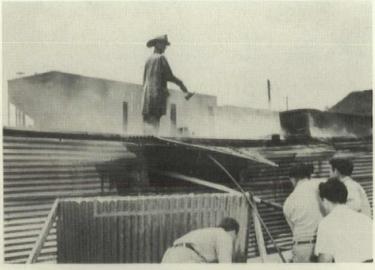
2. INSIDE TEMPERATURE SKYROCKETS to about 1000° in 5 minutes... 1300° in 10 minutes... 1550° in 30 minutes! Although test was conducted in open sun on a blistering day, average roof-top temperature reached only 200°... a mere 60° above the temperature a black roof will reach through solar heat, alone! Tremendous differential between inside and roof-top temperature was maintained by just 2½" of insulating fill! A life-size manikin remained on top the roof throughout the test to vividly show insulating properties of the roof. Sixteen thermocouples measured temperatures inside the structure and on top of the Tufcor, cement, and built-up roof. White haze at roof top came from vaporization of zinc coating on side sheets.



6. CAREFULLY CONTROLLED TEST follows ASTM specification E119-50, which requires temperature to reach 1630° in 45 minutes. Analyzing industrial fires in 1953, one national report stated "95% of losses occurred in partially combustible structures." National Fire Protection Association found "Only 3 of (major) losses occurred in fire resistant buildings."



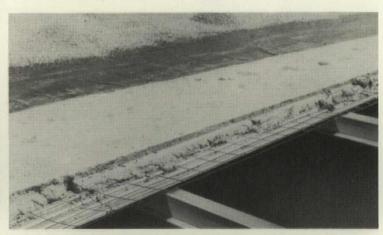
\*\*RESULT: Close observation of structure both during and after the 45-minute test proved that flames had not spread along the underside of the roof, that the roof had neither smoked nor propagated fire! Although extreme heat had completely warped corrugated side walls, the asphalt gravel roof had not blistered or burned—was still intact. Retention of roof strength, after test, was proved by 160-lb. man who climbed atop the test structure, jumped on the roof at midspan, posed beside 190-lb. manikin. Deck was still able to carry full design live load.



4. COLD STREAM OF WATER, played on the white hot underside of the Tufcor deck, (after 45 minutes) simulates force of fire-fighting efforts. Billowing steam clouds and Pyrometer readings taken 5 minutes after flames were extinguished showed jarring suddenness of temperature drop and ability of Tufcor to absorb extremes and rapid changes in temperature.



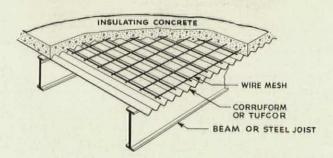
6. LOAD TESTS show the tremendous strength of a roof slab similar to that used in the fire test. After ½ million cycles of repeated loading, from zero to full design live load, the slab was loaded until it finally failed at 273 psf of 8.9 x design live load! Based on 30 psf live load, the ultimate factor of safety of the Tufcor roof slab is 9.0. (See Pittsburgh Testing Laboratory Test No. 282-T-403.)



7. SIMPLICITY AND ECONOMY of construction are primary advantages of this Tufcor and concrete slab. All elements of cost are shown here: hot-dip galvanized steel deck, wire mesh and insulating concrete fill. Recent bids show this superior deck can be used at a cost comparable to ordinary painted metal roof deck with insulation board, or other types of slabs on bulb-tees or purlins. FOR BUILDING INSTRUCTIONS, SEE NEXT PAGE!

# fire-resistant roofs are easy, economical to build

... and Granco offers three ideal deckings for cast-in-place slabs!...



Standard Corruform, Heavy-Duty Corruform, and Tufcor—all non-combustible, all stronger than ordinary steel of the same gauge! When welded to purlins, these Granco tough-temper panels form a HIGH-STRENGTH steel deck over the building, tying roof members into a single strong plate. Lightweight deck also permits designer to use maximum ECONOMY in framing since total dead load of steel sheets and concrete is less than 7 psf! Most important, Granco steel sheets are hot-dip galvanized to offer greater PERMANENCE than ordinary painted metal deck! This permanence combined with long life of concrete results in a far superior roof system. Over 10,000,000 sq. ft. of Granco roofs already in service! For more information, write for FREE Engineering Data Section SFg-546, Dept. AF-D, GRANCO STEEL PRODUCTS CO.

Write today Also . . . see our catalog in Sweets

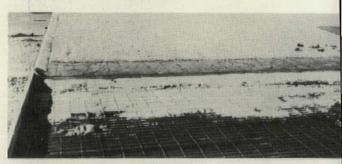




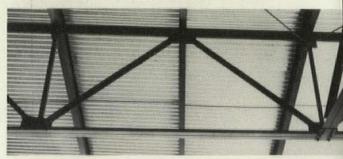
steel sheets are quickly placed and secured by welding or by clips attached to top of joist. Attachment of sheets makes roof rigid, provides working platform. Special Granco tough-temper steel takes construction abuse—adds safety factor.



concrete fill is placed over welded-in-place deck and steel mesh. This insulating slab weighs only 5 lbs. psf for a 2½" average depth. (Insulation value equivalent to 1" of insulating board.)



BUILT-UP ROOF IS APPLIED after slab has cured 8-10 days. Rigidity of slab gives strength, long life to roof. Built-up roof is protected from fire by the insulating layer of concrete.



ATTRACTIVE UNDERSIDE. The bright galvanized surface of Tufcor and Corruform gives lasting protection to steel; affords excellent light reflection when left exposed—however any normal ceiling treatment may be applied.

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#### HOPE'S CUSTOM STEEL SASH and HOPE'S CASEMENT DOORS

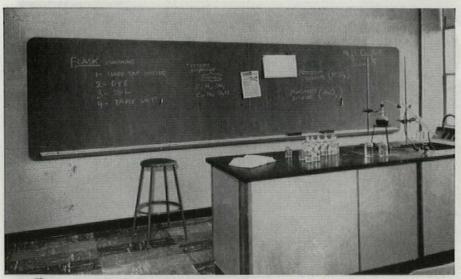
... were selected by the architects for the Frederick Douglass Stubbs School, Wilmington, Del.

- cited by Delaware architects last year as the state's best building since World War II.

For further information, write for Bulletin 134-AF

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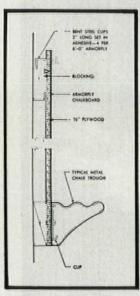
THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS



Magnets pin articles, student papers to frameless Armorply Chalkboard in science room of Fairlawn Junior High School, Fairlawn, N. J. Architect: Arthur Rigolo

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Chalkboard and descriptive brochure.	AF-11-54
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Company	
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#### **EVENTS**

National Motel Show, exhibition of items in the construction, maintenance, etc motels, Nov. 1-3, Morrison Hotel, Chicag

Texas Society of Architects, annual conven Nov. 3-5, the Texas Hotel, Fort Worth.

National Association of Real Estate Boards, annual convention, Nov. 6-11, Cleveland.

Structural Clay Products Institute, annual vention, Nov. 6-10, Hotel del Coronado, Diego.

National Hotel Exposition, Nov. 8-12, Ki bridge Armory, New York, N.Y.

Third Annual Architects' Short Gourse, center on church planning, Nov. 10-12, University Illinois. For details address Prof. Robert Smith, Department of Architecture, Urba Ill.

Great Lakes District, American Institute of Antects, regional conference, Nov. 13-14, Gib Hotel, Cincinnati.

National Building Materials Distributors As fall meeting, Nov. 15-16, La Salle Ho Chicago.

American Standards Assn., fifth national of ference, Nov. 15-16, Hotel Roosevelt, N York, N.Y.

Florida Assn. of Architects, annual conventi Nov. 18-20, La Coquille Hotel, Palm Beach

American Municipal Assn., annual conventi Nov. 28-Dec. I, Bellevue Stratford Hotel, P adelphia.

American Society of Mechanical Engineers, nual convention, Nov. 28-Dec. 3, Statler Ho New York, N.Y.

First International Automation Exposition, exhi on automatic machines, factories and ind tries, Nov. 29-Dec. 3, 242nd Coast Artill Armory, New York, N.Y.

Market Research and Design, two-day confence sponsored by the University of Michigand the Boston Institute of Contempora Art, Dec. 9-10 at Ann Arbor. For deta address Dean Wells Bennett, College Architecture and Design, University of Micgan, Ann Arbor.

American Road Builders Assn., annual convition, Jan. 10-13, Hotel Roosevelt, N Orleans.

American Society of Heating and Ventilating gineers, annual convention, Jan. 24-27, Phi delphia.



**Independent Tests\* Conducted** by Pittsburgh Testing Laboratory Show NE's New Superduct —

**Toughest Corrosive Conditions** 

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Be prepared for the next conduit installation where heavy-duty corrosion protection is essential.

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#### WHAT IT IS

Superduct is National Electric's new heavy-duty rigid steel conduit. It has all the corrosion protection provided by the Sherardizing process of galvanizing plus a special baked-on resin synthetic base coating. The result: NE Superduct is ideally suited for installations wherever wide temperature ranges or excessive corrosion from acids, caustics or moisture is just too rough for even the best regular conduit.

#### WHAT IT PROVIDES

#### **Heavy-Duty Corrosion Protection**

#### SUPERDUCT

Resists corrosive action of almost all chemicals, oils, greases, moisture and weathering conditions.

Does not corrode or rust when buried in the ground.

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#### UPERDUCT

Unaffected by extremes of ambient temperatures.

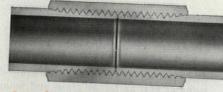
Stands up under conditions of high temperatures and high humidity.

#### Smooth Working and Fishing

#### SUPERDUCT

Has all the easier working, forming and bending properties resulting from the Sherardizing process of galvanizing.

Like Sherarduct, SUPERDUCT couplings are designed to allow the conduit ends to butt within the coupling. permits solidly locked, easily fished, thoroughly grounded system.



#### **Complete Thread Protection**

Every hill and valley of Superduct threads and couplings has full protection of both zinc and special vinyl resin enamel.

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# TO F

Because Toplite Roof Panels insulate so efficiently, buildings are cooler in summer... warmer in winter. Air conditioning and heating costs are lowered. Troublesome condensation in winter is reduced. Illumination bills are cut.

With Toplite Roof Panels you can pro-

vide selected light transmission from the ceiling without monitor, saw tooth, or clerestory arrangements. Toplite's light transmitting characteristics eliminate glare and distribute controlled daylight throughout the room no matter what the angle of the sun.

#### TRANSMITS NORTH LIGHT



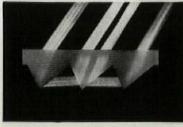
Maximum transmission of north light is a desirable quality in toplighting because of its uniformity and freedom from glare and solar heat. Note how the prism structure of Toplite affords efficient transmission of north light.

ACCEPTS WINTER SUN



Since low winter sun is comparatively weak in relation to high summer sun as far as glare and solar heat are concerned, maximum transmission is again desirable. This photograph shows how Toplite accepts and transmits winter sunlight.

REJECTS SUMMER SUN



Other materials which transmit north light and low winter sun also transmit high percentages of light during the hot, summer months. Toplite rejects direct light and heat from hot, summer sun, but transmits much of the cool, north light.



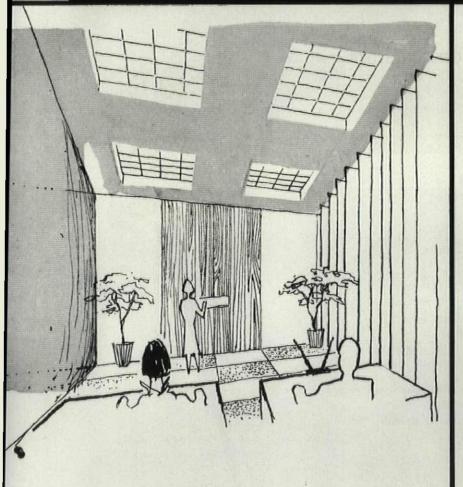
#### Toplite Roof Panels are Factory-Fabricated

They arrive on the job site complete and ready to install. They are set on prepared curbs and anchored, ready for flashing by the roofer. Once installed, roof can be flooded without panels leaking. And, of course, they are fireproof.

#### **NEW INFORMATION CATALOG**

Want more information about this great advance in daylighting? Send for the free, technical catalog on Toplite. Address: Kimble Glass Company, subsidiary of Owens-Illinois, Dept. A-1, Box 1035, Toledo 1, Ohio.

the "daylighting fixture" that insulates; and controls light from the ceiling

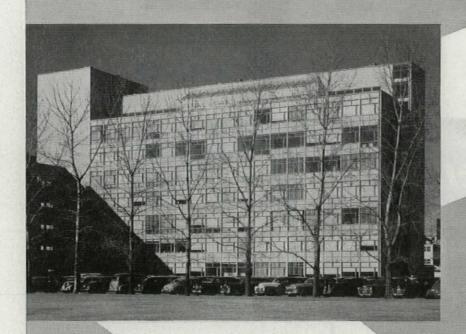


You can use Toplite to bring daylight in wherever it is needed without increasing cubage. Use a Toplite Panel as you do a lighting fixture. They may be installed in continuous strip, pattern, or in individual panels. Toplite Roof Panels permit daylighting of all building areas regardless of location or distance from exterior walls.

TOPLITE ROOF PANELS
AN (I) PRODUCT

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GENERAL OFFICES · TOLEDO 1, OHIO



The new Dorrance Laboratory of Biology and Food Technology Massachusetts Institute of Technology Cambridge, Massachusetts

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#### DURIRON for corrosion resistance at M.I.T.

Duriron was the choice for the extensive waste disposal system on all the floors of M.I.T.'s new John Dorrance Laboratory because of the corrosive solutions to be handled.

Architects specify Duriron Acidproof Drain Line because they know it meets the requirements of corrosion resistance and will generally outlast the building.

Duriron is a high silicon iron which resists most corrosives, as well as erosion and abrasion throughout the entire wall thickness. It is installed by ordinary plumbing methods.

Duriron pipe and fittings are available from stock in principal cities. Duriron Catalog PF/4 gives physical characteristics and complete details. Specify Duriron—Insist upon Duriron.



THE DURIRON COMPANY, Inc.
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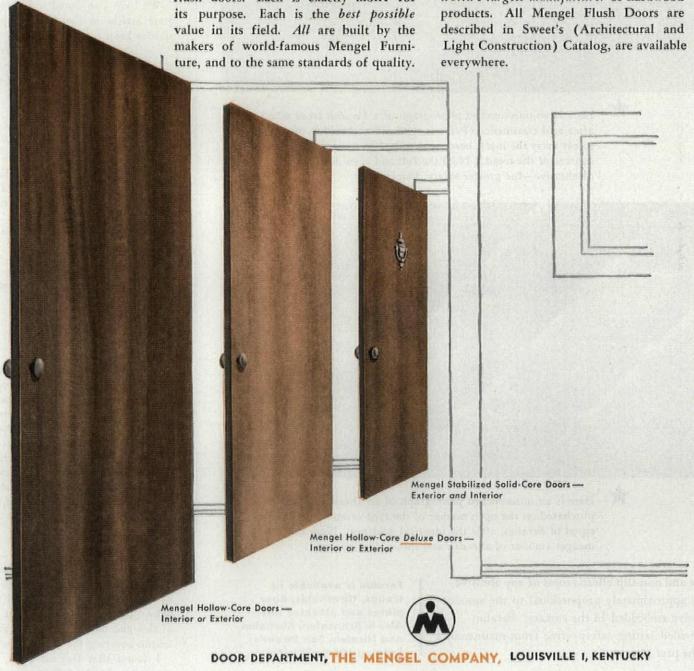
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What is the RIGHT door for any particular job? Is it the BEST door you can buy, or the CHEAPEST, or what?

Mengel makes three distinct types of flush doors. Each is exactly RIGHT for This MEANS SOMETHING to you, your clients and your customers—this, and the fact that every Mengel Door is guaranteed by all the resources of this company, the world's largest manufacturer of hardwood products. All Mengel Flush Doors are described in Sweet's (Architectural and



There is no "or equal" for

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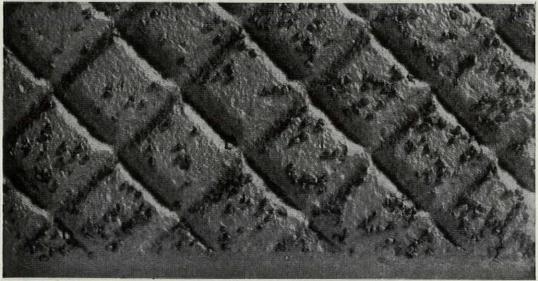
ABRASIVE TREADS

Here's the proof of FERALUN superiority





Here is an unretouched photograph of a Feralun tread taken after acid treatment. (Paint is removed and acid is used to eat away the metal base so as to isolate the actual abrasive content of the tread.) Note the full and even distribution of abrasive-for greater safety, longer wear.





Here is an unretouched photograph of an abrasive tread, purchased on the open market of the type often offered as an equal of Feralun, after the identical acid test. Note the meager amount of abrasive and spotty distribution.

The life and non-slip effectiveness of any abrasive tread is approximately proportional to the amount of abrasive embedded in the surface. Feralun has provided lasting safety-free from maintenance -for the past 35 years.

Feralun is available as treads, thresholds, floor plates and elevator sills. Also in Bronzalun, Alumalun and Nicalun. See Sweet's Catalog 1954-12b/Am.

AMERICAN ABRASIVE METALS CO. . IRVINGTON 11, N. J.

#### LETTERS

#### FORUM ABROAD

Forum:

Henry J. Kaiser and I met several of yo readers in South and Central America duri a recent industrial development tour. The was great interest evidenced there in the novations in the new Kaiser Foundation He pitals (AF, July '53 & July '54), and through your splendid coverage in text and picture word of the design of the hospitals had pr ceded us.

One of your distinguished readers was t mayor of Buenos Aires, Argentina-Inte dente Municipal Jorge Sabate, himself architect; and I also recall specifically a br liant young architect-contractor at Barra quilla, Colombia, who spoke of followir FORUM with great interest.

We have also found widespread interest your article in the US, of course, and i quiries keep coming.

ROBERT C. ELLIOTT Executive assistant to Mr. Kais Henry J. Kaiser Co. Oakland, Calif.

#### BABY HELMETS

Forum:

I notice in the hospital story in your Jul issue that steel helmets shuttle between th nursery and mothers' rooms. I am sure th babies would be much more comfortable i bassinets than in basinets!

FRANKLYN R. HAWKINS, advertising manage Libbey-Owens-Ford Glass Co. Toledo, Ohio

· Believe it or not, our hospital editor is o maternity leave!-ED.

#### TYPEWRITERS VS. MARBLE

Forum:

My wife was examining your article or the New York Olivetti showroom (AF, Aug '54) the other evening, expressing great admiration for the design. I agreed, and said I liked their typewriters too. Quoth my wife: "Typewriters! Of course. For a moment I thought they were selling marble."

JOHN K. SINCLAIR Moore & Salsbury, architects West Hartford, Conn.

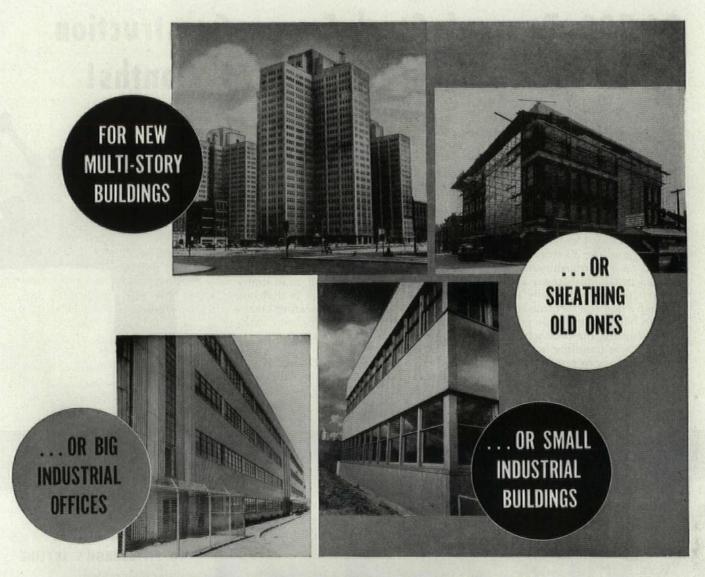
#### THE LOW COST OF BUILDING

Forum:

The buying public commonly proclaims that building costs are too high and many of us in the industry have agreed to this philosophy. I have wondered about the accuracy of this and have done a little preliminary research covering the period from 1940.

I found that DuPont stock had gone up more than 1,000%, that automobiles were up 300%, the Saturday Evening Post up 300%,

continued on p. 62



# STAINLESS CURTAIN WALLS

## give you the best "long pull" investment

#### "INFO" for Architects and Builders

- "AL Structural Stainless Steels"—12 pages on stain-less grades, properties, forms, finishes, standard "specs," uses and advantages.
- "Stainless Steels for Store Fronts and Building En-trances"—40 pages of val-uable data on examples and details. A1A File No. 26D,
- 3 "Stainless Steel Curtain Walls"—A 24-page progress report on methods. A1A File No. 15-H-1.

Write for Details Address Dept. B-59

Curtain wall panels faced with Allegheny Metal have all the advantages. They can give your building the truly modern look. They have a soft, highly attractive luster and permit wide latitude in design for individual appearance. They're light and strong . . . can be used for sheathing or "face-lifting" operations on existing structures, as well as for any type or size of new commercial building or institution.

Compared to brick or masonry construction, stainless curtain walls present savings at every turn: in lighter foundations; in enlarged floor space; in fast all-weather erec-

tion; in reduced maintenance, easy cleaning and freedom from painting. And-compared to any other curtain wall facing material-stainless steel is the hardest, strongest and most resistant to smoke, fumes, weather, wear, etc. It is the one material that can best take a beating . . . that costs the least in the long run because it lasts the longest.

Our Engineering and Research Staffs, etc., are at your service-anywhere, anytime. • Let us work with you. Allegheny Ludlum Steel Corporation, Oliver Bldg.,

Pittsburgh 22, Pa.

## Make it BETTER-and LONGER LASTING with Allegheny Metal

Warehouse stocks carried by all Ryerson steel plants



IN PITTSBURGH'S GOLDEN TRIANGLE . . .

# 34,200 Tons of Steel Frame Construction by AMERICAN BRIDGE in 24 months!

PITTSBURGH'S new buildings have been the talk of the business world. Few cities anywhere have experienced as much commercial construction in so short a time.

For example, in the famous Golden Triangle, busy hub of this hustling metropolis, American Bridge alone erected 34,200 tons of steel framework for six towering new buildings in the two year period between April 3, 1950 and March 31, 1952.

American Bridge fabricated and erected all structural steel for the 41-story building known as 525 William Penn Place; the 31-story Alcoa building; the three Gateway Center buildings (one of which is 24-stories, and two 20-

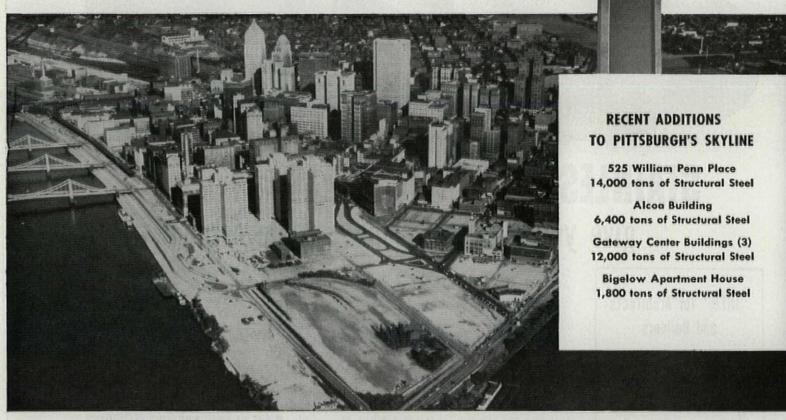
stories); and the 20-story Bigelow Apartment House.

Such an accomplishment is unusual only in the fact that all buildings are located in the downtown area of a single city . . . and that all were under construction at practically the same time. The interesting point is that one company had the facilities, the skilled manpower, and the engineering know-how to handle six sizable jobs like these with such speed and efficiency without disrupting the time schedule of the numerous other construction projects which it was handling in other parts of the country.

which it was handling in other parts of the country.

It only goes to prove that no job is too large for American Bridge. If you would like to know more about the advantages of American Bridge fabricated

and erected construction, call our nearest office.



AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA. Contracting Offices in: AMBRIDGE • ATLANTA • BALTIMORE • BIRMINGHAM • BOSTON CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • ELMIRA • GARY MEMPHIS • MINNEAPOLIS • NEW YORK • PHILADELPHIA • PITTSBURGH • PORTLAND, ORE. ROANOKE • ST. LOUIS • SAN FRANCISCO • TRENTON

AVAILABLE NOW! For showing in churches, schools, clubs and industries, the new sound and color motion picture—BUILDING FOR THE NATIONS—a candid, factual photographic record of the highlights of the fabrication and erection of the United Nations Secretariat Building. For free bookings, write Pittsburgh office.

AMERICAN BRIDGE



UNITED STATES STEEL



Careful planning of new school buildings calls for windows that help reduce annual operating budgets, windows that save important maintenance dollars.

That's why so many school authorities and school architects are insisting on "Quality-Approved" aluminum windows for all new school buildings. They know experience has demonstrated that aluminum windows will not rust or rot—never need painting or costly repairs—that they always operate without trouble and remain beautiful for the life of the building.

"Quality-Approved" aluminum windows are available through many manufacturers (see list below) in sizes and styles (double-hung, casement, projected and awning types) to fit any design treatment. Only those that carry the "Quality-Approved" Seal have been tested by the Pittsburgh Testing Laboratory and approved for quality of materials, for construction, for strength of sections, and for minimum air infiltration.

See Sweet's Architectural Catalog (Section 17a/ALU) for latest Window Specification Book or write for free copy. Address Dept. AF-11.

Pictured above
WEST HEMPSTEAD HIGH SCHOOL
West Hempstead, N. Y.
Architects: Starrett & Van Vleck,
Reginald E. Marsh
Contractor: Lasker-Goldman Corp.

### Aluminum Window Manufacturers Association

74 Trinity Place, New York 6, New York

MEMBERS: Alcasco Products, Inc., Muskegon, Mich. • Aluminum Home Products Co., Knoxville, Tenn. • The Wm. Bayley Co., Springfield, Ohio • Ceco Steel Products Corp. (Sterling Aluminum Window Division), Chicago, III. • Cupples Products Corp., St. Louis, Mo. • Fentron Industries, Inc., Seattle, Wash. Michael Flynn Mfg. Co., Philadelphia, Pa. • General Bronze Corp., Garden City, N. Y. • Hunter Mfg. Corp., Bristol, Pa. • Metal Arts Mfg. Co., Inc., Atlanta, Ga. • Reynolds Metals Co. (Parts Division), Louisville, Ky. • J. S. Thorn Co., Philadelphia, Pa. • Universal Window Co., Berkeley, Calif. Ware Laboratories, Inc., Miami, Fla. • Windalume Corp., Kenvil, N. J.

# Provide ideal working weather the year 'round

New Continental Paper Company offices show why Honeywell Customized Temperature Control is becoming a "must" in all types of buildings

THE people who work in the brand-new Continental Paper Company offices in Ridgefield Park, New Jersey, enjoy some of the "happiest" working weather in America—thanks to the indoor climate planning of Architect L. Freeland Fellgraff.

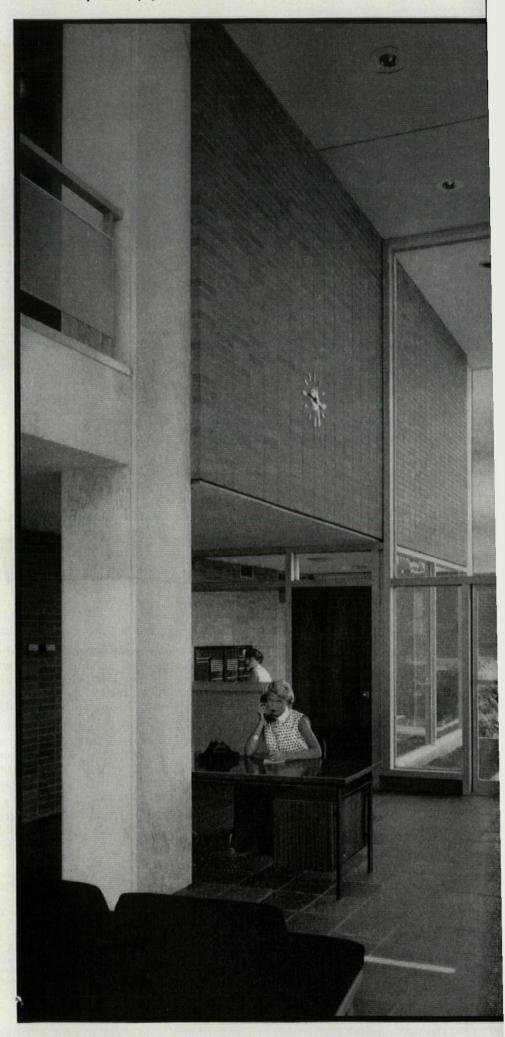
To provide sensitive, reliable control of the heating-cooling system, Architect Fellgraff called upon Honeywell Customized Temperature Control.

The key word here is "customized." It means that whatever your clients' control requirements, a Honeywell Customized Temperature Control installation designed to fit the needs of the building and its occupants is your answer.

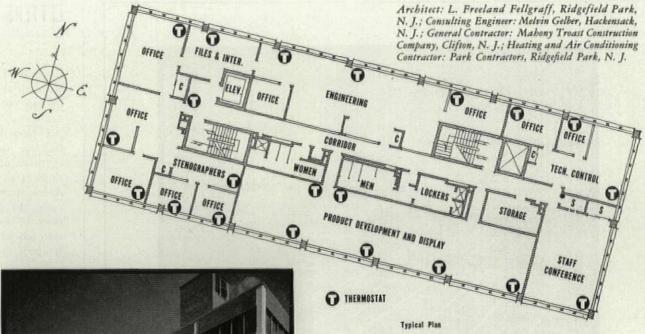
With a Honeywell Customized Temperature Control installation such as the one in Continental's new offices, you have *enough* thermostats strategically located to compensate for exposure, use and occupancy problems. Comfort is assured because the control system is "customized" to the design of the building.

Just as we did for the Continental Paper Company, we can do the job for you and your clients. And only Honeywell can give you *complete* customized service. Because, besides our engineering skill, only Honeywell manufactures *all three* types of control – pneumatic, electric, and electronic.

The comfort problems posed by modern buildings are dramatically illustrated by the first floor lobby. Large glass areas heighten the exposure factor, radiate heat in, in summer, heat out in winter. Visitors bring in the outside weather with them. Both these factors, exposure and use, are easily compensated for by the individual Honeywell thermostat in the lobby—and comfort is assured.







Another comfort problem arises from the generous use of glass on all four sides of the building. If a cold north wind is blowing, yet the sun is shining warmly through the south windows, the comfort system could get out of balance—if it weren't for Honeywell Customized Temperature Control. Individual thermostats permit control of comfort in individual areas, according to area needs.



A separate thermostat in the staff conference room provides the individual control needed to keep the room comfortable under varying conditions. When a conference is small, more heat (or less cooling) is needed for comfort. For a large conference, less heat (or more cooling). Honeywell Customized Temperature Control takes this into account, keeps the conference room comfortable at all times.

For comfortable, even temperature in new or existing buildings of any size—specify Honeywell Customized Temperature Control

3rd FLOOR PLAN

Whether it's a factory, motel, hospital—any building of any size—new or existing, Honeywell Customized Temperature Control can help meet your clients' heating, ventilating, air conditioning and industrial control problems. You can give your clients more comfort and efficiency, and they'll save fuel, too.

For full facts on Honeywell Customized Temperature Control, call your local Honeywell office. Or mail the coupon today.

William J. Alford III, executive vicepresident, Continental Paper Co., says:

"Perfect indoor working conditions were a major requirement of our general administrative quarters. We are pleased with the excellent combination of appearance, comfort and functional efficiency. To help achieve this we turned to Honeywell Customized Temperature Control."



# Honeywell



First in Controls

112 OFFICES ACROSS THE NATION

MINNEAPOLIS-HONEYWELL REGULATOR CO.

Dept. MB 11-213, Minneapolis 8, Minnesota
Gentlemen:
I'm interested in learning more about Honeywell Customized Temperature Control.

Name

Firm Name

Address

City

Zone

State



. . . why architects secify Wright Rubber Tile

The modern beauty and serviceability of Wright Rubber Tile flooring make it as pleasing to the eye as it is to the pocket-

Because of exceptional density, Wright resists dirt, scuffing, burns, acids, alkalis, and abrasion. It has a natural gloss that will last for decades with a minimum of care. Properly installed, Wright Rubber Tile floors are entirely trouble-free, even where there is a moisture condition Chem-Set Cement now assures perfect on-grade installation.

Wright-America's oldest rubber tileis still a first choice among builders everywhere. It has proven its value.

Send today for samples, together with installation details, specifications, and the name of your nearest distributor.

DURBER TILE

The 100-Year Floor!

WRIGHT MANUFACTURING CO. 5203 POST OAK RD. - HOUSTON, TEXAS



WRIGHTEX WRIGHTFLOR VINYL TILE **ECONOTILE** 

the cost of living index up about 100% wage up about 100% and the cost of buil up only 60%. Only the Lifesaver is the sa a nickel.

I have investigated individual trade: find out what present figures are in rela to those of 1940 and have found many them at an across-the-board average of 6 A few were up and others down. It is in esting to note that, although the per price of steel is up, better engineering sign has kept the framing cost of a struc at about the same dollar figure as 1940.

This research was done in only a l market and with the natural inaccuracy one in haste and without proper facilities

ROBERT I. HOYT Architect and planning consul Santa Barbara, Calif.

#### SPACE-FRAME HANGAR

Forum:

Wachmann's space-frame hangar (A Sept. '54) is a stimulating design. . . . I co mend FORUM in its continued effort to p vide the opportunity to everyone interest in building to become acquainted with pioneering that is being done in structu engineering design.

This hangar is a skillful execution of space frame in welded tubular constructi -two modern concepts that have great pote tial. Structural steel design must be su mitted to this type of vital thinking if it to compete with concrete in the way outline by your round table report in the same iss of the FORUM.

Over the entrance to our plant we has mounted in large stainless steel letters axiom which I think applies to structur design as well as to manufacturing. It is:

The actual is limited:

The possible is immense.

CHARLES G. HERBRUG The Lincoln Electric C. Cleveland, Ohio.

Forum:

. . . Quite interesting. I wonder how th cost of something like this would compar with normal structures, especially when yo consider the high cost of piping. It cer tainly is a novel idea. . . .

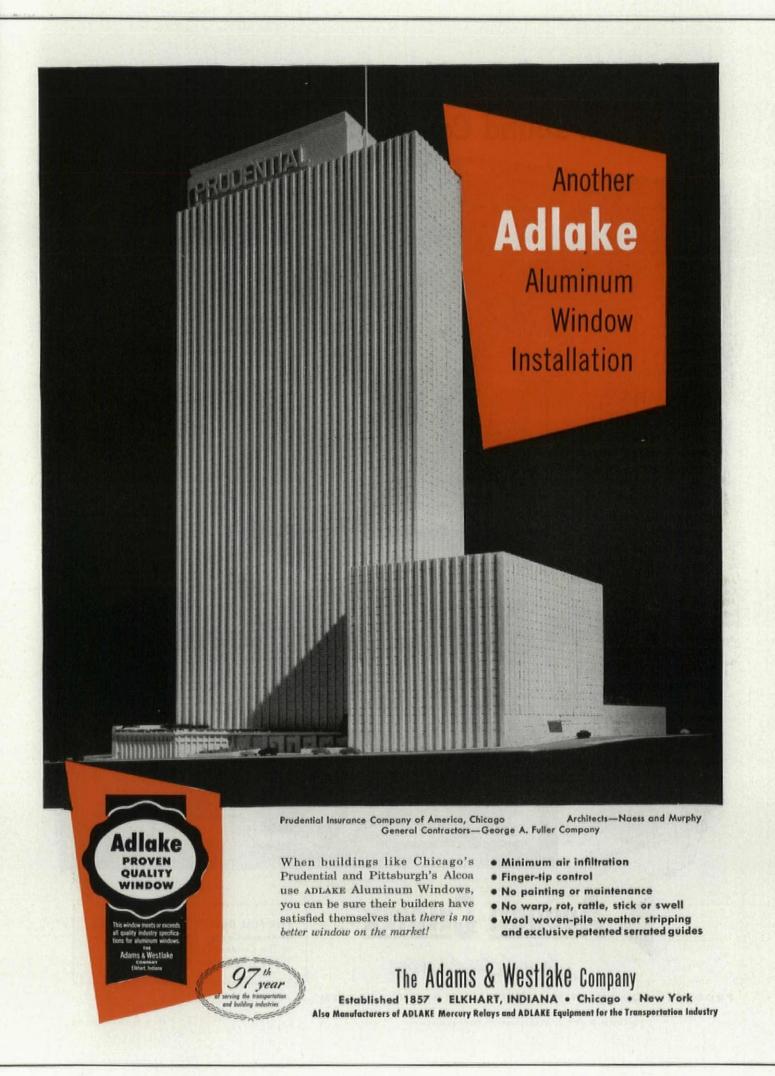
> VAN RENSSELAER P. SAXE, enginee Baltimore, Md.

#### STEEL FRAMING COSTS

Forum:

I have carefully read the report on the round table discussion relative to cutting the cost of steel framing (AF, Sept. '54).

Basically, all the conclusions arrived a were correct and in the right direction. However, the main stumbling block is in having the newer methods and the newer materials continued on p. 68



# J. L. Hudson Co. at New Northland Center Gets **Full Sound Conditioning Treatment**

As part of an all-inclusive plan to make interiors as inviting and comfortable for shoppers as possible, the J. L. Hudson Company has Acousti-Celotex sound conditioning throughout its new store at NORTHLAND CENTER in Detroit, Michigan.

#### **Functional Beauty**

Throughout 350,000 square feet of ceiling area, Acousti-Celotex Random Pattern\* Cane Fiber Tile in 25 different color combinations has been installed. All of the tile has a unique multi-colored paint finish which was applied before installation in order to make the ceilings an integral part of overall store design.

#### Customers, Personnel Benefit

Application of this sound conditioning treatment within the entire store, in all sales areas, offices, beauty salon, stock rooms, employees' lounge, kitchens . . . as well as in the beautiful NORTHLAND Dining Room . . . is intended to benefit both patrons and store staff alike. Shopping and dining may be enjoyed in an atmosphere of quiet comfort. Personnel, too, will find increased ease and efficiency working in these noise-checked areas.

Here again is evidence of the important part Acousti-Celotex sound conditioning is playing in the design of today's new buildings.

Attractive interior views of J. L. Hudson Co., at NORTHLAND CENTER, showing Acousti-Celotex sound conditioned ceil-ings throughout Women's and Men's Apparel Depts.

Architect: Victor Gruen Associated Architects and Engineers, Inc. Gen. Contractor: Bryant and Detwiler Company







Sound Conditioning

PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

THE CELOTEX CORPORATION, 120 S. LA SALLE ST., CHICAGO 3, ILL.
In Canada, Dominion Sound Equipments, Ltd., Montreal, Quebec

FOR FULL DETAILS on the complete line of Acousti-Celotex products, please write to The Celotex Corporation, Dept. A-114, 120 S. LaSalle Street, Chicago 3, III.

\*U. S. Pat. No. D-168,763



1ST FLOOR

2ND FLOOR

New Look

FOR AN OLD BUILDING

...with Lighting by LITECONTROL

This superb remodeling job (in a forty-year-old building) needed custom lighting to show it at its best and provide plenty of balanced light for office work. One versatile fixture — LITECONTROL 4044 — does the job perfectly, lights it just the way everyone wants it.

It's well-illuminated (84 footcandles on the second floor), but even and glare-free. And it's economical on every count.

LITECONTROL 4044 is a louvered fixture that can be used in many ways. Here, it's surface mounted on the first floor, mounted on pendants on the second. It can be hung in rows or individually, as over the door. It goes up easily, is easy to clean and relamp. Louvers swing fully open from either side from spring catches.

LITECONTROL versatility means custom lighting with standard fixtures. That means standard prices. There are twenty-seven basic fixtures that can be combined or modified to light your job the way you want. For lighting or relighting, call your LITECONTROL representative.

INSTALLATION: Time Credit Office, Union Market National Bank, Watertown, Mass.

ARCHITECT: J. Williams Beal Sons, Boston, Mass.

ENGINEER: Lionel G. Gale, Boston, Mass.

DECORATOR: John H. Pray & Sons Co., Boston, Mass.

ELEC CONTRACTOR: Hawes Electric Co., Watertown, Mass.

FIXTURES: No. 4044 4-lamp 40-watt Bipin-louvered, 35°-25° shielding. Surface mounted (1st Floor). On 4" stems (2nd Floor)

CEILING HEIGHT: 11'-0" (1st Floor) -10'-2" (2nd Floor)

SPACING: 8'-0" on Centers

INTENSITY: 70 Footcandles average in service (1st Floor). 84 Footcandles average in service (2nd Floor)



LITECONTROL Fixtures

LITECONTROL CORPORATION
36 PLEASANT STREET, WATERTOWN 72, MASSACHUSETTS

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

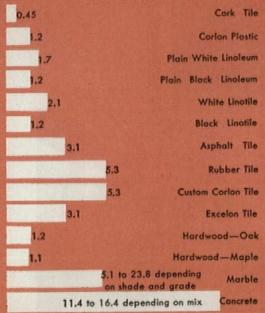
RESILIENT FLOURING INFURMATION

### Important facts for architects about . . .

# THE PERFORMANCE OF RESILIENT FLOORING OVER RADIANT HEATING

#### thermal conductivity

K-90 - BTU/HR./SQ. FT./°F/1" THICKNESS\*



\*"K" values do not include lining felt.

Since resilient floorings are generally used in the manufactured thickness only, the conductance is the real value desired for any calculation of heat flow. To obtain the conductance value, simply divide the thermal conductivity by the thickness of the material. For example, white Linotile of .125 thickness with a "K-90" factor of 2.1 will conduct 16 BTU's/hour/square foot/degree F.

For exacting calculations, it should be kept in mind that the thermal conductivity of flooring materials will vary somewhat according to type, color, and the method of application of the material to the floor. In any case where the thermal conductivity of a flooring material is of special importance to an installation, contact the Armstrong Cork Company for specific recommendations. However, for radiant heating estimation purposes, it is safe to assume that the temperature difference between the surface of the subfloor and the surface of the resilient floor (except cork tile) will be about 2.5° F. With cork tile floors, the difference is between 9° and 15°.

Increased use of radiant heating in modern homes and buildings has led many architects to request more information on the performance of resilient flooring materials over heated subfloors.

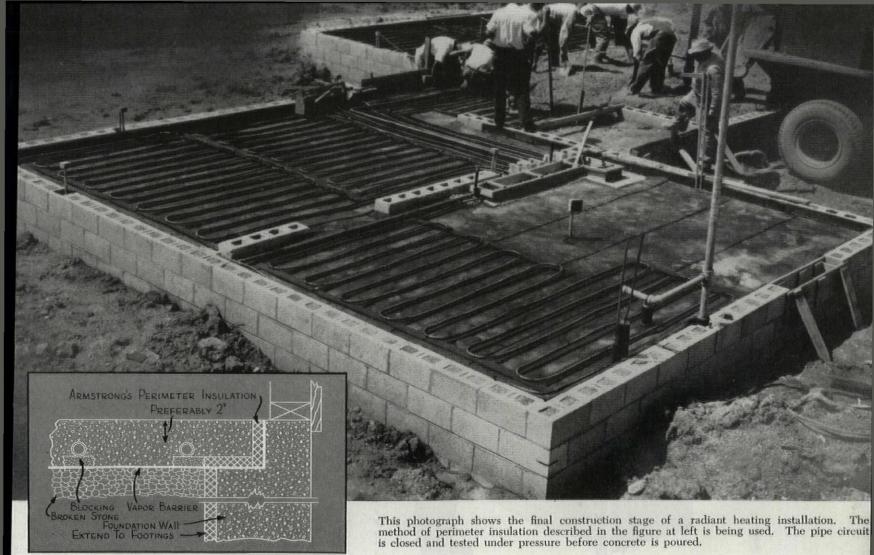
In order to be able to give the architect specific and unbiased recommendations for flooring installations over radiant-heated floors, the Research and Development Center of the Armstrong Cork Company has conducted a series of tests over a nine-year period. Under both experimental and on-the-job conditions, observations have been made of the effects of normal and severe floor temperatures on the hardness, composition, and indentation properties of all Armstrong Resilient Floors.

The results of these tests show that there is virtually no loss of heating efficiency through the use of resilient flooring materials. With floors of asphalt tile, vinyl-plastic-asbestos tile, linoleum, Linotile, Corlon, and rubber tile, temperature difference between the surface of concrete subfloors, commonly used in radiant heating installations, and the resilient flooring surface, is about 2.5 degrees F. With floors of cork tile, which has a thermal conductivity or "k" factor lower than the other resilient flooring materials, the difference is several degrees F. greater. None of these temperature variations, however, is great enough to result in appreciably increased fuel consumption since the time lag required to bring resilient flooring, of the thicknesses commonly used, to the operating temperature of radiant heating systems is insignificant.

No Harmful Effect. The observations of the Armstrong Research and Development Center have also shown that floor heat, within the limits commonly recommended for radiant heating, has no harmful effect on either the resilient flooring or the adhesives used in installation. Both laboratory tests and actual field experience indicate that resilient flooring materials can be chosen for radiant-heated subfloors by exactly the same standards as those where other types of heating are employed. Each type of resilient flooring material is installed over a radiant-heated subfloor with the same adhesives and in the same manner as recommended for conventional floors. It should be noted in this connection that the use of radiant heating does not change the limitation that only certain types of resilient floors may be installed over concrete slabs in direct contact with the ground.

The American Society of Heating and Ventilating Engineers has established 85° F. as the maximum surface temperature for radiant-heated floors. Floor temperatures higher than this standard are considered uncomfortable underfoot. Because of their thermoplastic quality, asphalt tile and plastic asbestos tiles become slightly softer, and indent more easily, when radiant heating temperatures run above normal. The use of the recommended size of Armstrong Furniture Rest will prevent indentation in Armstrong Asphalt Tile or Excelon Tile when floor temperatures do not exceed this standard 85° F. maximum.





Section through a floor panel using Armstrong Perimeter In-Note that the insulation extends around the edges of the slab in contact with all the exterior foundation walls,

Certain characteristics of radiant heating systems as recommended by the American Society of Heating and Ventilating Engineers have an important bearing on maintaining comfort during cold weather without requiring floor temperatures exceeding 85°. These are adequate perimeter insulation for the slab, appropriate insulation of the building, and reasonably low infiltration. The pipe grid layout should give adequate coverage without excessively high water temperatures, and the spacing of pipes should be such that there is a minimum of temperature variation between the area directly above the pipes and the area above the space between them. While none of these design features is within the appropriate scope of Armstrong recommendations to architects, they have all been considered by the Armstrong Research and Development Center in evaluating its test results.

Design specifications for radiant heating systems are available from the ASHVE. When these standards are used as the basis for the design of radiant heating systems, Armstrong Resilient Floors may be specified with assurance of the same excellent performance they have demonstrated in other applications.

RMSTRONG CORK COMPANY makes all types of resilient floors for all types of interiors. Almost any flooring problem can be met with one or more of the floors in the Armstrong Line. As a result, we have no special bias toward any one type and can offer architects impartial recommendations on almost any flooring problem. Our main interest is to aid you in making a sound flooring selection.

Armstrong sales representatives throughout the country will be glad to consult with architects and make specific recommendations for individual jobs. Your Armstrong representa-tive has a wide variety of experience and training in resilient flooring and can also call upon the Armstrong Research and Development Center for assistance with special problems.

For helpful information on any flooring question, just call your nearest Armstrong District Office. If you have not yet received your copy of "RESILIENT FLOORS: Technical Information for Architects," write Armstrong Cork Company, Floor Division, 1611 Rooney St., Lancaster, Pennsylvania.

### LINOLEUM

SPATTER® JASPÉ RAYBELLE® ROYELLE\*

MARBELLER STRYPELLE® CRAFTLINE\* INLAID EMBOSSED INLAID STRAIGHT LINE INLAID

### PLASTICS

CUSTOM CORLON® TILE DECORESQ\* CORLON EXCELON® TILE

GRANETTE\* CORLON TERRAZZO CORLON

\*Trade-mark

### RESILIENT TILES

ASPHALT TILE Standard De Luxe Flagstone

RUBBER TILE LINOTILE® CORK TILE LINOLEUM TILE



## The new Ozalid 800... volume whiteprints in compact, low-cost machine

Ozalid's new 800 turns out whiteprints, up to 42 inches wide at speeds up to 30 feet per minute . . . in a continuous one-step operation!

It delivers the output of a much bigger machine, but takes less space-stands only 61" high, 61" wide, 42" deep. It is moderately priced, will step up print production, cut costs.

The big feedboard holds a wealth of material, is designed for the operator's efficiency and comfort. On-Off dial, speed and delivery controls are all within easy reach. Continuous one-step operation speeds processing of rolls or cut sheets ...delivers prints to front or rear, as desired.

Complete uniform print development is assured by the 800's revolutionary new system. A jet type atomizer feeds ammonia into a pressure tank which vaporizes it over the entire printmaking area.

The 800 is now in full production. Ask your Ozalid distributor to demonstrate, or write for information to 155 Ozaway, Johnson City, N.Y.

OZALID-A Division of General Aniline & Film Corporation . . . From Research to Reality. In Canada, Hughes Owens Company, Ltd., Montreal.

# OZALI

of construction approved. We find that i needed amendments to the labor law, the multiple dwelling law and to the building code, we are two or three years behind conditions, not because we as architects and engineers are not alive to the situation, but because the powers that be, if not loathe to do so, certainly are lax in wishing to comply with changing conditions.

The savings that could be obtained by standardization of bay dimensions could be considerable, particularly for factories and

It is entirely true that adequate payment for engineering services, permitting careful study on the part of the engineering consultant, is more than justified. It is money very well spent in the interest of the client. In the long run, such payment is an economy, since it results in better and more economical buildings.

> RICHARD ROTH, architect Emery Roth & Sons New York, N.Y.

#### **EXTROVERT SUBSTATION**

Forum:

. . . I would recommend all substations be designed to brighten things as the one in your article certainly does-the B. C. Electric Co.'s substation (AF, Sept. '54).

J. E. CURRAN Duquesne Light Co. Pittsburgh, Pa.

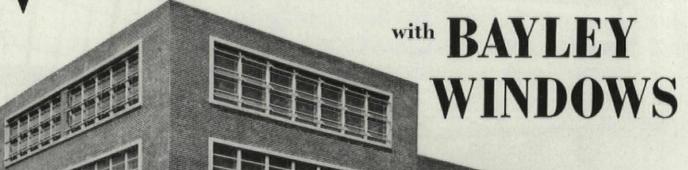
#### WRIGHT OR WRONG

Forum:

That John Lloyd Wright (AF, Aug. '54, et seq.) has licenses in Indiana, Texas and Nevada including a professional engineer's license in Indiana and has failed the structural section of the architects' registration exam in California indicates that perhaps he should go back to school and learn how to pass this elementary "schoolboy" test. This also indicates that the authorities who granted him licenses in the above states ought to review the procedure by which such a person is permitted to practice. . . .

In New York we have dozens of people calling themselves "designers" most of whom voluntarily or involuntarily left schools of architecture before completion. In the same category, we have some "paper architects" who might just as well be back decorating eclectic facades for their knowledge of construction. Are these to be given legal sanction to practice architecture? . . .

Such is the deception you play defending the likes of John Wright! Such is the anarchy you would have! Who, pray tell, is to decide who is competent to be an architect-the FORUM editor, the frustrated soph bounced out of school, or shall a basic test open to all qualified defend public safety? You must continued on p. 74 Visioneering\* answers the call of Psychiatric Authorities



Mayview Hospital, Mayview City, Pittsburgh, Pa. Altenhof and Bown, Architects, Pittsburgh, Pa. Allegheny Building Co., Builders, Pittsburgh, Pa.

# Look at these features:

Designed specifically for psychiatric institutional needs, this Bayley Window offers features demanded by mental hospital authorities; such as:

Safeguards against escape • Better daylighting • Controlled ventilation • Large areas of clear glass vision • Minimizes self injury • Working parts concealed • Sanitary, easy to clean • Glass washed from inside • Reduces maintenance and interference with hospital routine • Reduces detention appearance • Can be fitted with inside screens and drapes.

Your requirements may call for this or an entirely different type of window. In any case you'll find Bayley qualified and cooperative in helping you solve your problem with either aluminum or steel windows. For complete information write or phone today.

\*Visioneering—The science of coordinating vision, air and light in modern building walls with windows of advanced design.



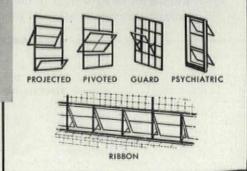
See Bayley in Sweet's. Complete catalogs on aluminum windows, 16a/Bay; and steel windows, 16b/Ba. Or write Bayley for details on your specific requirements.

Copyright 1954 The William Bayley Co.

### THE WILLIAM BAYLEY COMPANY

Springfield, Ohio

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# "Hurry-up construction" at lowest cost calls for USS Structural Stee

The company: Minneapolis-Honeywell Regulator Co., Los Angeles.

The problem:

Not enough space (frequently heard nowadays).

Another building needed in a hurry.

The answer:

A new, expandable machine shop with plenty of natural light, a shop that's economical and easy to maintain.

• The structural design chosen consisted of a series of 30' x 60' bays, the roof framing of which was composed of tapered-steel girders and open-web joists. Using this economical design coupled with the use of USS Structural Steel, the builders were able to obtain 30' x 60' bays at very little more than 20' x 40' bays would have cost had some other design or material been used. Among others considered, but eliminated due to prohibitive cost, were welded north-light rigid-frame gable bents, 60' steel trusses, precast-concrete bents, and prestressed concrete beams.

U.S. Steel's Consolidated-Western Division of Los A geles contracted to have the steel frame ready for install tion of walls and roofs within 43 working days after recei of approved blueprints. This included making shop deta drawings, shop fabrication, painting and erecting the stee The frame was ready four days ahead of schedule.

Structural Steel is the most economical of load-carryin materials. Yet, it is the strongest. It will withstand mo abuse than other structural materials—effectively resisting tension, torsion, compression and shear. Enclosed in buildings, it will last indefinitely—requiring no maintenance Equally adaptable to riveting, welding, or bolting, Structural Steel can be erected in any weather in which me can work. And since steel members are fabricated indoor weather can have no effect on the quality of workmanships.

For further information on construction with steel, writed to the United States Steel Corporation, 525 William Pen Place, Room 4498, Pittsburgh 30, Pa.

• ARCHITECTS . . . ENGINEERS The Structural Steel you need is available—NOW!

No waiting is necessary. Place your order and prompt delivery is assured.

UNITED STATES STEEL CORPORATION, PITTSBURGH . COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. . UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS

# USS STRUCTURAL STEEL



UNITED STATES STEEL





a job worth "crowing" about

# COLONIAL STORES, Inc.

Atlanta, Georgia

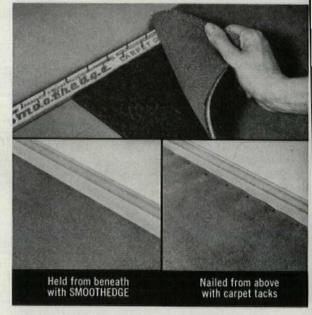
choose wall-to-wall and

Smo.o.thedg.e.

carpet gripper

### THERE'S MORE TO LAYING CARPET THAN MEETS THE EYE





Even where profits are figured in pennies, cost-consciousness takes a back seat to improved working conditions.

The South's largest grocer spurned hard surfaces and chose flawless wall-to-wall carpet installed

with genuine SMOOTHEDGE carpet gripper in their new \$3,000,000 general offices.

Installed over concrete, SMOOTHEDGE holds the carpet firmly in an uninterrupted line with no ugly, dust-catching tack marks to mar the carpet's luxurious perfection!

# Here's why there's no substitute for genuine Pre-Nailed



PRE-NAILED for more efficient, easier installation and insured maximum strength! BEVELED EDGE means quarter-round does not have to be removed! EXTERIOR-TYPE PLY-WOOD resists deterioration . . . easy to cut, nail or . cement! RUST - RESISTANT PINS set at precise intervals and gripping angle! UNIVERSALLY USED and accepted by all progressive carpet firms!

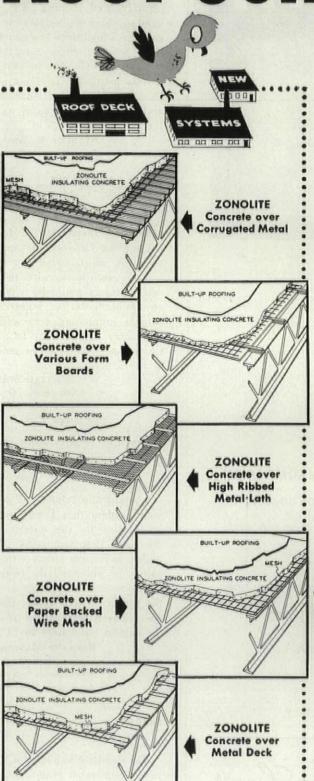
See Sweets AIA File No. 19J or write Dept. AF 411 for samples and informative installation manual.

THE ROBERTS CO.

1536 No. Indiana Street Los Angeles 54, California In Canada, Write Box 129, Weston, Ontario



# Great New Benefits Announced In Roof Construction!



# ZONOLITE

Concrete Roof Systems Are
INSULATING! FIRESAFE!
PERMANENT! LOW IN COST!

# And Adaptable To Any Roof Deck Design!

Nowhere in the construction industry is there to be found an equal to Zonolite systems of lightweight roof construction. They are simple in design, lightweight, firesafe, insulating, speedy in erection, strong, durable, have good appearance. Yet in spite of these added benefits, they are low in cost. The systems of construction shown here are only a small portion of the combinations now made possible by the use of Zonolite vermiculite concrete. To make your next roof deck job—or any job—outstanding, we suggest you send for Zonolite's manual on roof systems.



#### Just Published!

Here is a book you'll refer to constantly... gives details of many roof deck systems... including design data, sectional drawings, etc. Mail coupon —no obligation.

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Please send me your new booklet, giving full details of Zonolite concrete roof systems.
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Its blend of tough Nylon and sturdy wools - with the built-in sponge rubber cushion — greatly increases the life you get over conventional carpeting.

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realize that many cities in Indiana, Texas Nevada do not have the safety factor o building department check. You must a realize that the prime function of design is the sole function of the architect and that ability to design without the knowledge build does not necessarily make an archite

The architectural profession is in sore no of soul-searching. Our licensing exams of perately need pruning. The architects m band together to eliminate the parasitic frin growth of hucksters and quacks who so eff tively propagandize against the profession their own benefit. The support given to peo of this mettle by your magazine is a great affront to the serious, unesoteric practici architect and your copy, an affront to intelligence.

> STANLEY R. ROSENBERG, archit New York, N.Y.

#### WHERE CREDIT IS DUE

Forum:

Turner Construction Co. was chosen general contractors for the Home Office Buil ing for the Connecticut General Life Insu ance Co. shortly after the selection of o firm as architects, with the idea that t entire project would be a team effort of the owner, architect and builder. This relatio ship is proceeding very well and we we very sorry to note that Turner Construction Co. was not mentioned as general contracto in the article.

WILLIAM S. BROWN Skidmore, Owings & Merri architects-engineers New York, N.Y.

· Forum, too, regrets having made this omissio -ED.

#### Forum:

I would appreciate it if you would infort your readers that I was not the source information for the statement in your Sep '54 issue that irradiated plastics had th ability to become stronger than steel, and th ability to withstand the temperatures in th afterburners of jet engines. Neither was the source of your report that in large-scal operations it was proved possible to reduc the cost of irradiation to 2¢ per lb.

BERNARD MANOWITZ Fission Products Utilization Project Brookhaven National Laboratory Associated Universities, Inc. Upton, N.Y.

#### KUDOS

The excellent handling of "Six New Stores in the September issue indicates again to m why FORUM is tops. . . .

And thanks for your thought-provokin article on a new "plastic" order.

> MARIO GAIDANO, architec San Francisco, Calif.



# We like the door's "electronic politeness"



SOCONY-VACUUM BUILDING New York City

e new 42-story SOCONY-VACUUM BUILDING will have 32 is AUTOTRONIC operatorless elevators. This is the large of more than 175 new and modernized office buildings, tels, hospitals, banks, and department stores that have ven AUTOTRONIC elevatoring an overwhelming vote of nfidence—by buying it!

vner: Galbreath Corporation (John W. Galbreath—Peter B. Ruffin) chitects: Harrison & Abramovitz; John B. Peterkin—Associate ilder: Turner Construction Company Passengers quickly discover why they like the Otis Electronic Elevator Door. It's the invisible *electronic zone of detection* that extends in front of the leading edges of both car and hoistway doors up to shoulder height—as shown in phantom above. It inspires passenger confidence.

Whenever this *electronic zone* detects a person's presence in the doorway, the doors politely reverse before they can touch the passenger. But if there is no chance of passenger interference, the doors close promptly after each stop.

This zone of detection prevents unnecessary delays. If a talkative passenger lingers overlong in the doorway, a buzzer sounds and the doors slowly, firmly—but politely nudge the passenger out of the doorway so that the car can proceed on its way.

The Otis Electronic Elevator Door is the crowning achievement in the field of the operatorless elevator. Its successful development insured the ability of operatorless elevators to move great masses of people in busy buildings with the greatest degree of safety. Ask any of our 268 offices for details.

Otis Elevator Company, 260 11th Ave., New York 1, N. Y.



COMPLETELY AUTOMATIC

# **AUTOTRONIC®**

**ELEVATORING** 



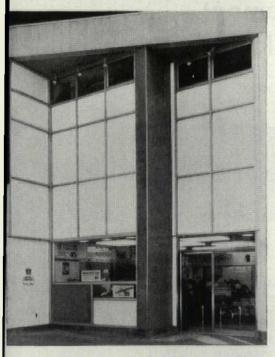
# Pittsburgh Plate

# Today's glass-clad buildings utilize

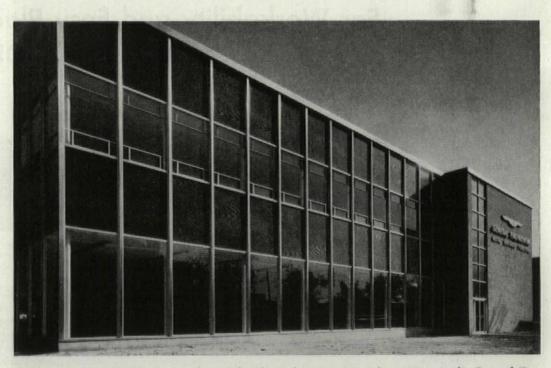


Pittsburgh Plate Glass for enduring, distinctive architectural appeal

FEATURED in this smaller glass-clad structure are "12" Tranquil Green Carrara® Structural Glass spandrels. Carrara Glass is noted for its colorful beauty, its homogeneous structure, imperviousness to weather and other deteriorating agents, as well as for its design flexibility. Other Pittsburgh Plate Glass Products used here include four Herculite® Tempered Plate Glass Doors and Pittsburgh Polished Plate Glass. Architects: Cull, Robinson & Green, Providence, R. I.



IN THIS BUILDING, too, Pittsburgh's Carrara Structural Glass, backed with Foamglas® insulation, is effectively adapted to an ingenious architectural treatment. Included also are Herculite® Tempered Plate Glass Doors, Pittco® Store Front Metal and Tubelite® Metal. Architect: C. Ralph Fletcher, A.I.A., Chagrin Falls, Ohio.



ROUGH SOLEX PLATE GLASS units are alternated with regular green-tint Solex sections in the General Fireproofing Company Building to produce a glass-clad building of immediate appeal. Solex is particularly recommended for southern and western exposures. It reduces heat and sun-glare, keeps interiors cooler than outside temperature, thus helping to increase efficiency and employee morale. Design and construction by The Austin Company, Cleveland, Ohio.

> Your Sweet's Catalog File contains detailed information on all Pittsburgh Plate Glass Company products . . . Sections 7a, 13e, 15, 16b, 21.

Glass



PAINTS . GLASS . CHEMICALS . BRUSHES . PLASTICS . FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED



DURAPLASTIC CONCRETE used for frame at retail-store building for Sears, Roebuck and Company.

# For Workability and Easy Placement — Structural Concrete Made With DURAPLASTIC\*

Whenever you design in reinforced concrete, it will pay you to consider the many advantages of concrete made with Duraplastic air-entraining portland cement. Throughout the building field, architects, builders and contractors have learned to rely on the outstanding performance of this superior cement.

Contractors report easier placement, improved surface appearance with Duraplastic-made concrete. That's because mixes made with Duraplastic are more workable, more cohesive . . . are easy to place properly in forms and around reinforcing. Less mixing water is needed for a given slump. Construction work progresses smoothly and rapidly.

Duraplastic also minimizes water gain and segregation... gives finished concrete greater durability. Specify concrete made with Atlas Duraplastic on your next job.



COMPLETED Sears, Roebuck and Company retail-store bldg., Waco, Texas. Architect: George L. Dahl. Contractor: W. S. Bellows Const. Corp., Houston, Texas.

YET DURAPLASTIC COSTS NO MORE! It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

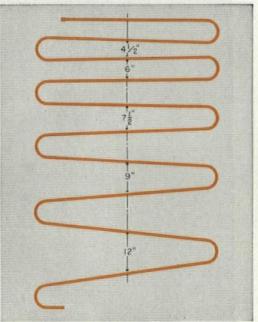
""Duraplastic" is the registered trade-mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.



UNITED STATES STEEL HOUR—Televised alternate weeks—See your newspaper for time and station



PG's are lightweight and easy to handle. They come packed in cartons, ready to install.



Center-to-Center spacing is readily adjusted to design requirements.



PG's are straight and true—no sags or dips make plastering easier.

# For your next radiant heating job-specify PG's

Now radiant panel heating systems are more practical than ever...in rust-free copper tube. PG's\*\* (Panel Grids)—a new development by The American Brass Company—are the reason why.

PG's are the *only* standard-size radiant panel heating grids that are *factory* formed... ready to install. Shipped in a figure-8 bundle, they open readily to a flat sinuous coil pattern. They do away with slow, tiresome on-the-job bending and awkward "stringing up" of coiled tubing.

3/8" PG's contain 50 feet of 3/8" nomi-

nal (½" O.D. actual) Type L ANAcond Copper Tube and come preformed to common 6" c-c spacing. You can contract or extend them easily by hand to meet all desired spacing requirements within a range of 4½" to 12" c-c.

 $V_2$ " PG's consist of 50 feet of  $V_2$ " nominal ( $V_8$ " O.D. actual) Type L tube formed to a 9" c-c spacing and are also easily hand-adjustable to all c-c spacing from 6" to 18".

Try PG's on your next job! See for yourself how they make installation

easier, faster—and better. For more information about this revolutionary new development in panel piping, write for Publication C-6. The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

\*Patent Applied For

5409A

# **ANACONDA**°

Copper Tube PRE-FORMED Panel Grids for Radiant Panel Heating lines of light
with
full diffusion

# modular sightron

For flowing lines of glareless light, tailored to the exact dimensions of corridors or utility areas... modular Sightron by Lightolier in 2 foot modules, joined tightly end to end. Injection molded, pure white, smooth polystyrene diffusers with matching white housings present a trim, crisp appearance, blend gracefully into interior design. Diffuser sends light in all directions for overall area illumination; snaps out with one hand for easy relamping and cleaning. Rapid start ballasts light lamps instantly. Available in several sizes for commercial or residential applications.

Write today for a free copy of Lightolier's complete Architectural Lighting Portfolio.

# LIGHTOLIER

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Preferred by architects, interior designers, and illuminating engineers for 50 years.



Corridor, Foothills School, Boulder, Col. Robert Ditzen, Architect. Reeves-Ryan Tile Co., Tile Contractor

#### THE MOSAIC TILE COMPANY

Member—Tile Council of America and The Producers' Council, Inc.
Offices, Showrooms and Warehouses from Coast to Coast.
Over 4000 Tile Contractors to serve you.

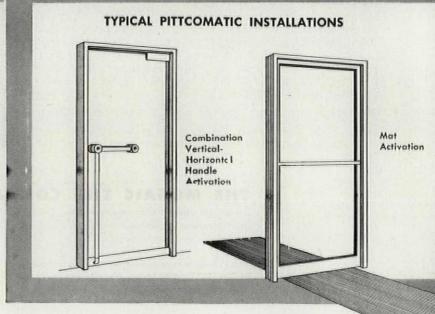




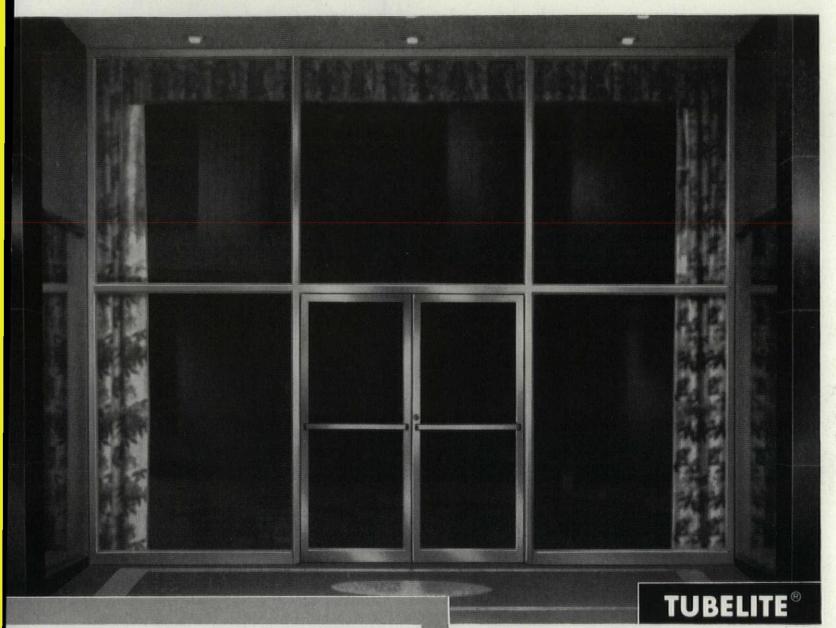
# Pittsburgh Doors are designed t



Pittsburgh's Herculite Doors (3/4" thickness) have enjoyed phenomenal acceptance in all parts of the country-ever since their introduction in 1938. They have contributed importantly to the modern architecture of some of the country's foremost public, commercial and industrial buildings. The Tempered Polished Plate Glass and the durable hardware from which they are constructed retain their original beauty after many years of operation. Their ruggedness and dependability are found in no other door. The new 1/2" Herculite Door has adequate strength for almost all entrances. It is easily handled during installation and in operation. Architect: Wyatt C. Hedrick, Dallas, Texas.



# Il every building need



# The Pittcomatic opens Herculite and Tubelite doors automatically!

ow the Pittcomatic Hinge operates: ower unit supplies hydraulic power of the hinge under the door through &" copper lines. A 10-volt circuit in he handle or mat passes through the ontrol box and activates the power unit. The action of the door can be regulated by adjustments provided in the control box and the hinge. No power can build up. It's the safest automatic door opener; the easiest to install and maintain.

or complete information on Pittsburgh Doors, see Sweet's Catalog File . . . Sections 6-E, and 16-H, or write to Pittsburgh Plate Glass Company, Room 4345, 632 Fort aquesne Blvd., Pittsburgh 22, Pa. Ask your local Pittsburgh distributor for a copy of ne de luxe Store Front Detail Book.

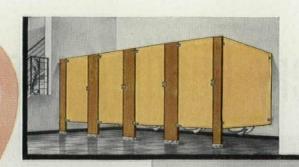
These new tubular frames and doors mark a distinct advance in hollow metal entrance design. Their clean, simple lines make them easily adaptable to any type of construction. Their unique interlocking construction assures utmost rigidity; holds their true shape through long and continued use. Glazing is simple and quick. Their many exclusive, quality features make Tubelite the most value at the lowest possible cost. Architects: Marsh & Saxelbye, Jacksonville, Florida.

PAINTS . GLASS . CHEMICALS . BRUSHES . PLASTICS . FIBER GLASS

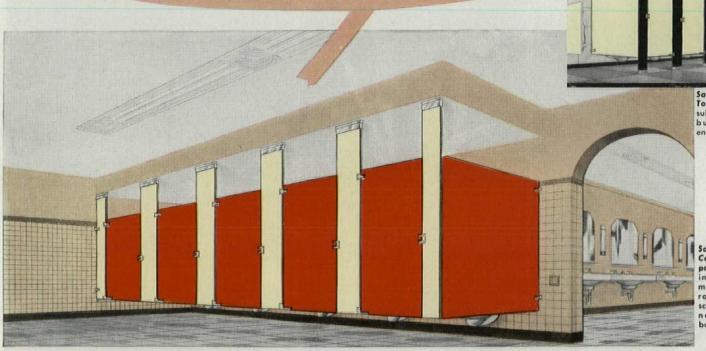
DITTERIDE H DIATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Untimely
obsolescence of rest rooms
usually occurs when and
where it is invited...

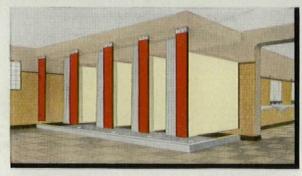


Sanymetal NORM-ANDIE Type Toilet Compartments endowarestroom environment with dignity and good



Sanymetal ACADEMY Type Toilet Compartments are suitable for conservative but modern rest room environments.

Sanymetal CENTURY Type Ceiling Hung Toilet Compartments offer the utmost in sanitation and provide modern, distinctive rest room environments for schools, institutions, terminals and other public buildings.



Sanymetal CENTURY Type (Ceiling Hung) Shower Stalls of Sanymetal "Porcena" (Vitreous Porcelain on Steel) Partitions and Pilasters, as arranged for a typical club installation. Also available in Sanymetal "Tenac" (synthetic enamel baked-on over Galvanized, Bonderized\*Steel).

# This is Sanymetal "PORCENA"

(Vitreous Parcelain on Steel)
A metal base material that
is impervious to maisture,
odors, cleaning and uric
acids, oils and grease. It is
rust proof. Available in 21
glistening colors.

# This is Sanymetal "TENAC"

(Baked-on Paint Ename) over Galvanized, Bonderized\*\* Steel)

A metal base material that is notable for the positive adhesion of the baked-on paint enamel to the metal and its resistance to corrosion Its lustrous, protective finish assures long-lasting newness. Available in 21 gleaming colors.

It is obsolete before it is completed according to today's standards. To insure against *untimely obsolescence* consider wall-type plumbing fixtures installed with Sanymetal ceiling-hung toilet compartments.

Sanymetal offers several different types of toilet compartments. Sanymetal also offers and recommends Two Full Purpose Metal Base Materials which combine colorful attractiveness with long years of service life and effect important day-after-day savings in cleaning and maintenance costs. These Two Full Purpose Metal Base Materials—Sanymetal "Tenac" (Galvanized, Bonderized\*\* Steel), and Sanymetal "Porcena" (Vitreous Porcelain on Steel), the ageless and fadeless, rustproof material—are described herein. Sanymetal Toilet Compartments are also available in cold rolled steel.

Sanymetal Toilet Compartments and Shower Stalls embody the results of over 39 years of specialized skill and experience in making over 500,000 toilet compartment and shower stall installations. Ask the Sanymetal representative in your vicinity to demonstrate the worthiness of Sanymetal Toilet Compartments as protection against *untimely obsolescence*.

### THE SANYMETAL PRODUCTS CO., INC.

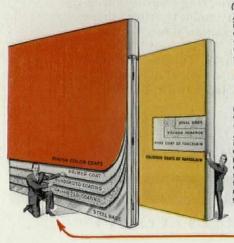
1687 Urbana Road . Cleveland 12, Ohio

Sanymetal Toilet Compartments embody the results of specialized skill and experience in fabricating over 500,000 toilet compartments in all types of buildings. Ask the Sanymetal representative in your vicinity for information about planning suitable rest room environments that will always stay new. Refer to Sanymetal Catalog 25 in Sweet's Architectural File for 1954 and Catalog 13a in Sweet's Industrial File for 1954.



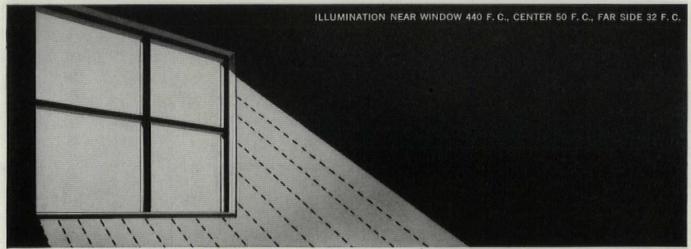


TOILET COMPARTMENTS
SHOWER STALLS AND
DRESSING ROOMS

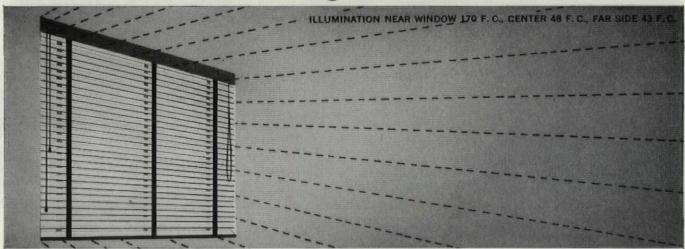


you get 34.4% more light

with all- Hexalum venetian blinds



bare window wastes light...leaves far side dark



# Flexalum blind spreads light to far side of room

An exhaustive study by the Faber Birren Company\* shows: A bare window gives extreme glare on one side of the room, insufficient light on the other. The FLEXALUM Blind, by reflection, *spreads* the high-intensity sunlight at the window throughout the room—giving more illumination with less glare. The brightness ratio, which was 14 to 1

with the bare window, is now reduced to a comfortable able 4 to 1. \*Copies of this study available on request.

Write for local sources and free file of venetian blinds information—AlA File #35-P-3.

Only all-FLEXALUM Blinds give these maintenance and durability advantages:



Wipe-Clean Plastic Tapes and Cords

Cut cleaning time from hours to minutes. A damp cloth wipes away the stubbornest stains. Won't fade, shrink, or mildew.



Snap-Back Aluminum Slats

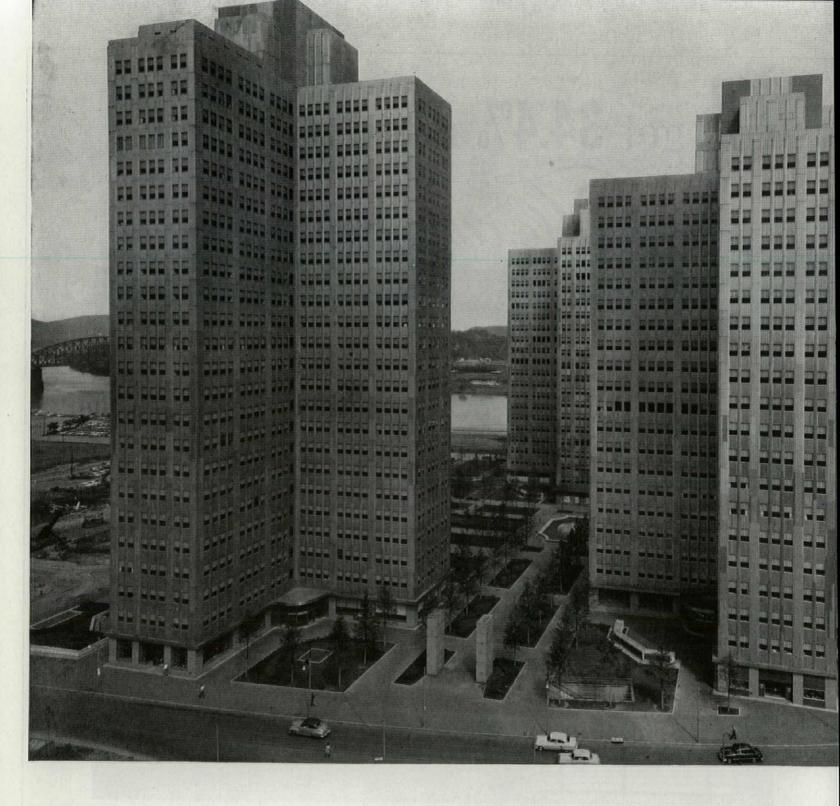
n Spring-tempered to snap p back ruler-straight ever be when bent to a 90° angle e, Baked-on finish won't rust chip, crack, or change color

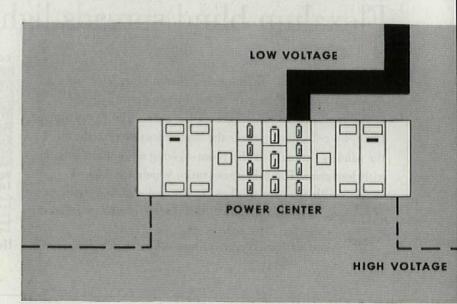


Insist on this Mark!

The FLEXALUM "visible" invisible" trade-mark guarantees a top quality blind. For satisfied clients specify all-FLEXALUM blinds.

Hunter Douglas Corp., 150 Broadway, New York 38.





# A DESIGN STANDARD LIKE THIS DEMANDS USE OF MODERN POWER

The standards being set in today's office building design call for full utilization of modern electrical power. It's an important consideration—in view of such necessities as high-speed elevators and modern lighting, the heating, ventilating and air conditioning systems.

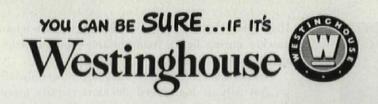
These devices, as you know, have placed greater demands on a building's electrical system. *More* power must be carried. And power *quality* has had to be improved to minimize outages, assure well-regulated voltage.

Thus, a modern, completely adequate electrical system is extremely vital if the service devices you design in are to operate at peak efficiency. Literally, it's an integral part of the building's foundation. It should be considered in the study stage . . . keyed to the services that will operate from it . . . built with equally modern electrical power equipment.

By so doing, you'll be bringing the power facilities up to the standards you've set for design. And you'll be providing your client with a better building—economically sound and adequately equipped to handle the many functions it must perform.

For assistance on modern electrical system planning, call the construction application engineer in your nearest Westinghouse Office. Westinghouse Electric Corporation, Construction Dept., Building 12-L, East Pittsburgh, Pa.

DP-5002-A



WHAT IS A MODERN ELECTRICAL SYSTEM? It's an integral part of basic design—not superimposed or considered after the building is under construction.

The modern system is planned around requirements for reliability, versatility and convenience. And it stresses electrical characteristics essential to building services. Therefore, system design will vary—based on the type of building involved.

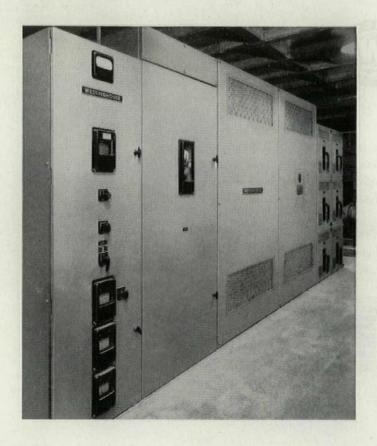
The Spot Network System, left, is an example. It emphasizes "reliability"—an important requirement in large office buildings. Efficient, high-voltage power is brought close to building loads from two or more sources. An electrical fault at one source will not interrupt power to the loads being served.

FOR YOU . . . 24-page book, covering modern electrical systems and equipment for commercial buildings. Valuable adjunct to your design planning. Write at no obligation for Cornerstone or Tombstone, B-6151. Westinghouse Electric Corp., 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pa.





# MATCH PEAK TRAFFIC WITH PEAK POWER



High-speed elevator service—demanded when tenants must be moved quickly during heavy traffic hours—should begin at the electrical system planning stage.

The need for completely adequate power distribution makes this so. Not only do high-speed elevators require *more* power, but their drives are usually located in the penthouse—far removed from the power source. Thus, the electrical system must carry *heavier* loads *greater* distances. Yet, it has to hold voltage and power losses to a minimum.

A typical way: High-voltage distribution—carrying high voltage from power source in the basement close to the electrical center of load in the penthouse. This modern practice stabilizes voltage. It eliminates line losses that result from long runs of secondary lines. It assures adequate capacity for heavy electrical loads.

At the center of load, then, high voltage is stepped down to operating levels with a Westinghouse Dry-Type Power Center. It installs anywhere to feed the elevator equipment and other local loads. No need for a vault. And the dry-type transformers and air circuit breakers minimize maintenance.

DP-5002-B

#### WESTINGHOUSE DRY-TYPE POWER CENTER ...

a compact substation that permits high voltage to be carried close to elevator and other remote loads. Comes ready to install.

# MATCH MODERN AIR CONDITIONING WITH MODERN CONTROL

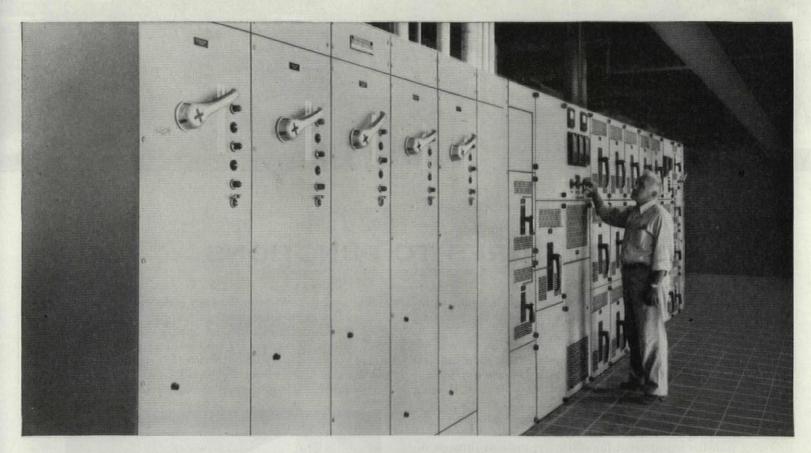
Modern air conditioning is another tenant demand completely dependent on the electrical facilities behind it.

A number of motors and controls is involved in the modern air conditioning system. Thus, early steps should be taken electrically to assure continuous circulation of conditioned air—to the various building services.

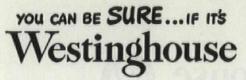
In many modern buildings, all control equipment is located in one spot. This brings about easier operation and simplifies maintenance. More complete integration of the controls is possible with a Westinghouse Control Center. It centralizes motor starting and protective devices in a compact enclosure that installs easily in any convenient location. Then, operating personnel can check operation of all motors at a glance.

In addition, Westinghouse Control Centers meet future requirements. This flexibility is due to standardized design and modular construction of the units.

DP-5002-0



WESTINGHOUSE CONTROL CENTER centralizes electrical control for building air conditioning systems in a single enclosure. At right: Secondary control for wound rotor motor drives . . . typical of the Westinghouse complete line of air conditioning compressor motor control.









### MATCH FIXTURES TO FUNCTIONS

Effective illumination demands this consideration: Lighting systems must be matched to functional requirements, yet blend harmoniously with building design.

This is particularly difficult in general office areas where sharp contrasts must be minimized. Thus, to keep contrast between fixture and ceiling down—to prevent specular reflection from shiny surfaces—indirect lighting is required.

When you select the fixture, you must balance the desirability for comfort—obtained with indirect lighting—with the requirement for efficiency, realized through direct lighting.

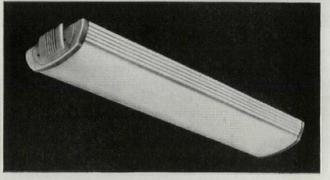
Other factors also affect the selection. Fixture design and proportion and the ultimate lighting layout must blend with interior design.

Above is an outstanding example of how these considerations have been met. A Westinghouse CD-80 Luminaire was selected. It assures both comfort and efficiency by providing direct and indirect lumination. It blends well with room proportions . . . gives quality light for detailed

office work . . . maintains the same high level of balanced design that exists throughout the building.

Architecturally, complete advantage was taken of the 10' ceilings. Fixtures were suspended approximately 2'. This permitted installation of a comfortable system of continuous semi-indirect lighting. Today, it still main tains a desk-top lighting level of over 40 footcandles.

DP-5002-L



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

### PROVIDE MAXIMUM RENTAL SPACE

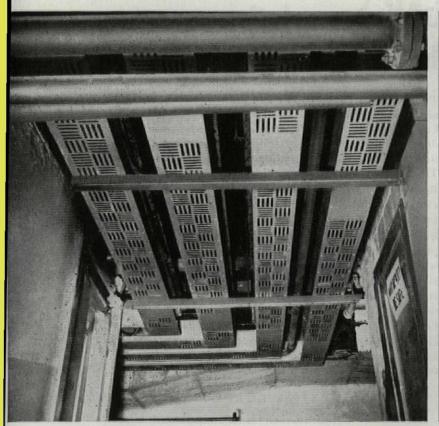
The heavier electrical loads elevator, air conditioning and lighting systems place on a building's power system make selection of its component parts a vital consideration. This equipment must have adequate capacity for increased loads. Yet, it should be compact to release maximum space to your client.

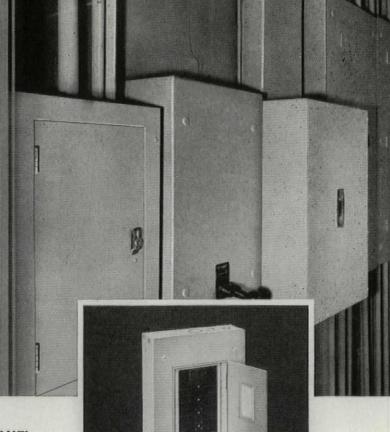
Modern distribution equipment answers these requirements. Example: Westinghouse Bus Duct—a highly efficient way to distribute low-voltage power. Up to 5000 amperes, in fact, it packs more power into less space than any other method of secondary electrical distribution.

Westinghouse Bus Duct comes in standard, prefabricated sections that adapt perfectly with building plans. It can be installed in elevator shafts or wireways. When exposed, its neat appearance blends well with interior design.

The inherent flexibility of bus duct is another "plus". It provides adequate reserve capacity to handle future loads. Expensive rewiring is eliminated.

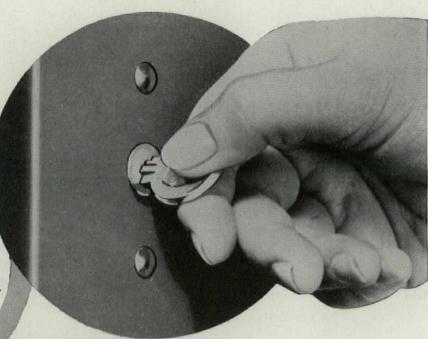
DP-5002-E





MATCH LIGHTING INSTALLATION WITH MODERN PANEL-BOARDS to give your clients both adequate protection and the convenience of circuit breakers. Westinghouse NPLAB-type lighting panelboard, here, features the compact Quicklag® P AB De-ion® circuit breaker. It enables you to design circuit protection into a smaller panelboard . . . and saves valuable closet space.

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Berger's exclusive Key-Control locker system completely eliminates all need for handle maintenance. Locker fronts are flush and smooth, with no noise-inviting projections. Berger offers school administrators and architects a complete planning and installation service, too. A service which supplies technical planning and engineering assistance, then assumes full responsibility for proper installation. Berger service is complete . . . right down to the tightening of the final bolt.

Look to Berger-world's leader in lockers-for (1) exclusive Key-Control; (2) the largest selection of standard steel lockers; (3) service which helps you provide the most efficient school storage system. Write:

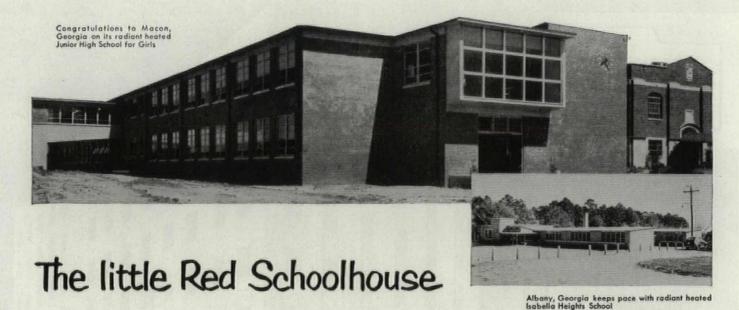
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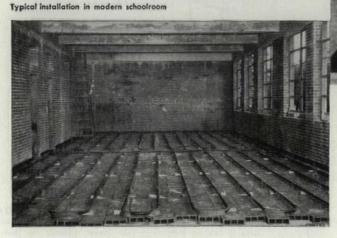
Berger STEEL LOCKERS



# ... aint what she used to be!



Beautiful Lakeview School, Vass, N. Carolina will be comfortable, too, with radiant heating



Memories of the little red schoolhouse and the heart-tugging refrain "school days, school days, good old golden rule days" are fine . . . sentimentally. Practically, we Americans have too much concern for the health and welfare of our children to really want to return to the era of the wood stove and kerosene lamp. The hickory stick . . . maybe . . . but not the others!

We take pride in the finest school buildings in the world because we know that the education of our children is the most *important* thing in the world . . . basic to American progress. So we're not "soft," just realistic, in providing the best light, heat, sanitation and recreational facilities possible. Healthy children learn more, faster.

All over the country new schools are incorporating radiant heating because its gentle, all-permeating, sun-like warmth... without hot or cold spots, drafts, or dust laden currents... provides the most healthful school heating known. Concealed heat sources and controls resist vandalism, promote safety, save valuable floor and wall space and improve classroom appearance. Auditoriums and gymnasiums (even swimming pools!) derive particular benefit.

Steel pipe is, of course, first choice for radiant heating as it is for conventional heating . . . proved in more than 60 years of service in steam and hot water systems. In fact steel pipe is the most widely used pipe in the world, for heating, plumbing, snow melting, fire sprinkler systems and the transmission of power, steam and air.



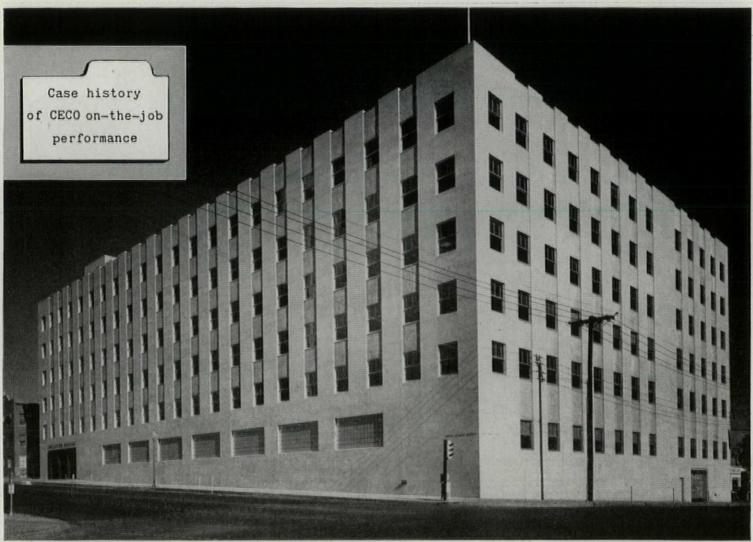
Washington - Douglass Elementary School, Jackson, Tenn., looks as modern as its radiant heating

Send for free 48 page color booklet "Radiant Panel Heating with Steel Pipe" and 32 page companion booklet "Steel Pipe Snow Melting and Ice Removal Systems."

Committee on

#### STEEL PIPE RESEARCH

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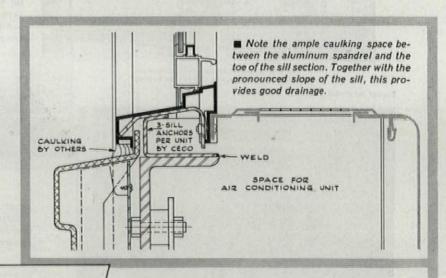


Sinclair Building, Tulsa, Okla./Architect, Hugh R. Humphreys

# How Ceco Aluminum Windows solved two architectural problems...

Achieving striking architectural effects draws upon the imagination of the architect . . . adapting products to realize the design poses another problem. Architect Hugh R. Humphreys found the solution for Tulsa's new Sinclair Building in Ceco-Sterling Aluminum Double-Hung Windows, An unusual building design was created through the use of aluminum panel spandrels . . . Ceco Aluminum Windows were a perfect complement to the spandrels and likewise met the air conditioning problem. A simple but effective tie was made between the window and air conditioner cover. Ceco engineers helped develop the economical yet positive sill anchor. Architect Humphreys gives another reason why Ceco Aluminum Double-Hung Windows were used: "Their stainless steel weatherstripping holds air

stainless steel weatherstripping holds air infiltration to a minimum." Ceco Aluminum Windows need no painting... will outlast any structure. Next time call Ceco Product Specialists to help solve your building problems.



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# Highlighting high fashion

Many dramatic lighting effects achieved with extruded Du Pont LUCITE® acrylic resin



A luminous panel of "Lucite" transmits light without glare because of its excellent diffusing power. Clear and translucent colors are available.



Corrugated panel of "Lucite" for light-diffusing ceilings. "Lucite" has excellent impact strength and color stability, and is easy to clean.

Architects and lighting engineers have a free hand to design unusual lighting arrangements with Du Pont "Lucite." Extruded "Lucite" is now available for troffer-type units and light-diffusing ceilings in flat, shaped and corrugated panels. Extruded sheeting can be shaped to satisfy the designer's needs.

"Lucite" transmits optimum light yet eliminates glare. It has excellent impact strength and maintains its original color as required by modern indoor lighting. Clear and translucent white "Lucite" is stable in direct outdoor sunlight and resists weathering, which makes "Lucite" an ideal material for outdoor lighting fixtures and skylights. Fabrication is economical. A variety of clear, translucent and opaque colors is available.

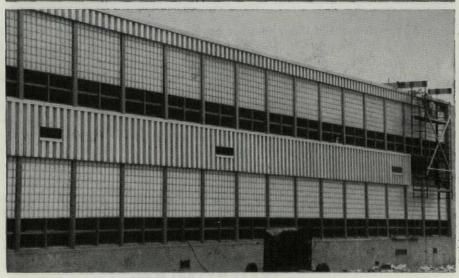
Write to E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department, Room 2911, Du Pont Building, Wilmington 98, Delaware, for further information on this beautiful, durable engineering material.



# New EDISON JUNIOR HIGH SCHOOL\* takes full advantage of the beauty and utility







Here is a fine, spacious, new junior high school building that sets a precedent in design and construction. For the architect has made extensive use of one of today's most beautiful and most functional building materials—Stainless Steel.

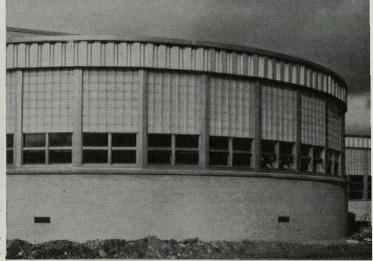
On the exterior of Edison Junior High School, insulated panels of Stainless Steel form the spandrels and the head panels. The spandrels are of 20 gage Stainless Steel, one foot wide and four feet high with six-inch face square corrugation. The head panels are one foot high. Panels are insulated with one and one-half inches of Fiberglas and attached to the structural framework with clips.

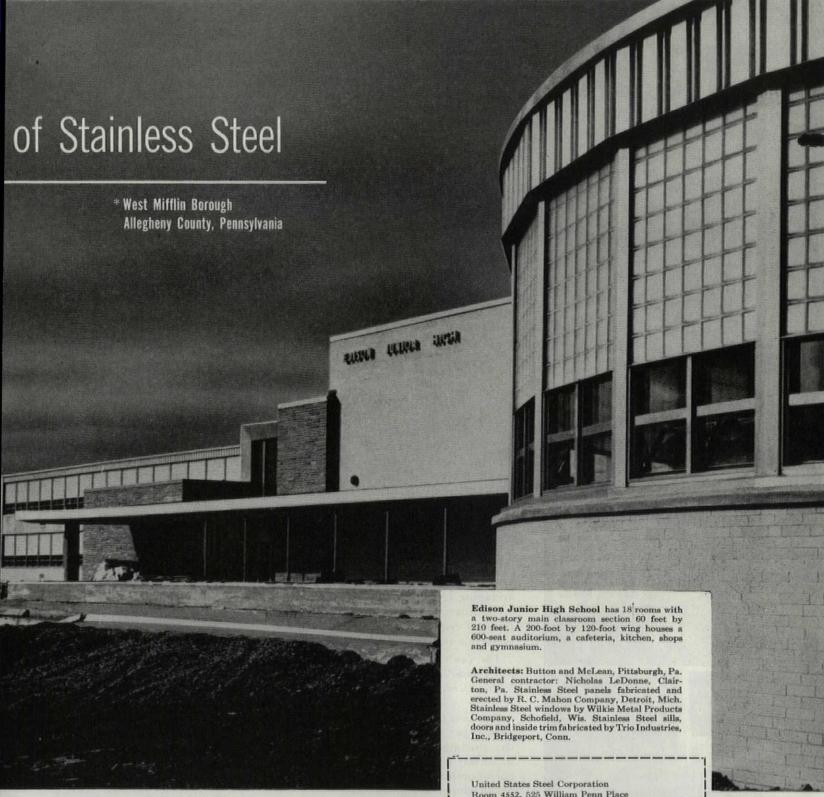
The combination of Stainless with masonry and glass block makes an extremely attractive building. But the benefit of Stainless panel construction doesn't stop there. Construction with the panels was fast and went forward in all types of weather. More complete utilization of floor space was possible through this curtain wall type construction. Maintenance on the Stainless Steel will be negligible and life will be long.

These panels are extremely efficient from a heating standpoint. They have a low rate of thermal transmission (or "U" factor).

Stainless Steel also was used in this school for sills, mullions, windows, door canopies and trim, blackboard and tackboard frames, doors and door frames, column covers and other items of interior trim.

If you have a new school in the planning stage, now is the time to think about Stainless Steel and its many benefits. And think in terms of USS Stainless Steel. For more information on Stainless Steel panel construction, mail the coupon at right. If you like, we will be pleased to have one of our representatives call.





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# **USS STAINLESS STEEL**



PIPE - TUBES - WIRE - SPECIAL SECTIONS

United States Steel Corporation Room 4552, 525 William Penn Place Pittsburgh 30, Pa.

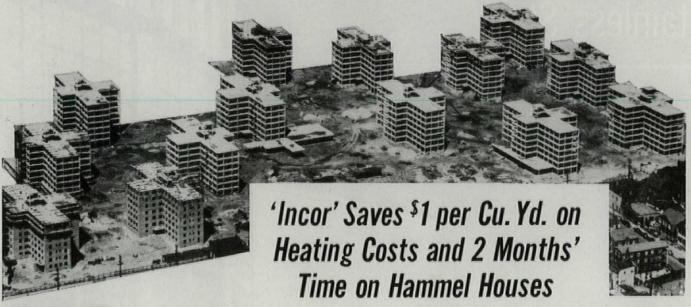
- $\hfill \Box$  Please send me literature on Stainless Steel panel construction.
- Please arrange to have fabricators of Stainless Steel wall panels send me literature on their particular type of construction.

Name..... Title.....

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

United States Steel produces only the Stainless Steel from which panels of this type are made; the panels themselves are fabricated by our customers.

# **CUTS** Winter Concreting Costs







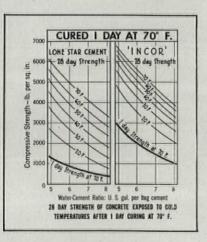
FRAME CONCRETING on Hammel Houses, 14 seven-story buildings, began November 16, 1953. CAYE CONSTRUCTION CO., INC. had a Winter job on their hands, and as they put it, there wasn't any question, the cement to use was 'Incor'.

With 'Incor' 24-Hour Cement and one-day heat-protection, forms were stripped and re-used in 24-48 hours, averaging 1.3 floors a day, even at lowest outside temperatures. Heaters using propane cylinder gas provided clean, uniformheat, withminimumlaborcosts.

The Contractor figures 'Incor' saved two months' time and cut heating costs by two-thirds, saving \$1. per cu. yd. of concrete.

Concrete design called for 550 lbs. cement per cu. yd., and 3000 psi 28-day strength. Tests showed strengths uniformly close to 4000 lbs.... field corroboration of data summarized in graph, shown at right, above.

The saying—"Any time is 'Incor'\* time"—goes double in cold weather!
\*Reg. U. S. Pat. Off.



HAMMEL HOUSES, Rockaway Beach, N. Y.

Owner:
NEW YORK CITY HOUSING AUTHORITY
Architects: LORIMER & ROSE, New York

Structural Engineers: ROBERTS & SCHAEFER; New York

General Contractor: CAYE CONSTRUCTION CO., INC.; Brooklyn, N. Y.

Ready-mix 'Incor' Concrete: COLONIAL SAND & STONE CO., INC.,



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# architectural forum

NOVEMBER 1954

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\* HOUSE & HOME, ARCHITECTURAL FORUM's sister publica-tion, is devoted exclusively to homebuilding.



NEWS EVENTS

LETTERS

GENERAL MOTORS TECHNICAL CENTER In Detroit, industry's new colorful architectural standard.

Architects: Eero Saarinen & Associates

NEWS Recent court decisions help interpret the legal status of urban redevelopment.

CHICAGO'S PRIZE PLANS Results of the Carson Pirie Scott competition for the long-range rebuilding of the Loop.

ATOMIC POWER PLANTS What they look like and what they mean to industry -particularly the building industry.

GRAND CENTRAL STATION Should one of New York's greatest rooms be sacrificed to modern railroad economies?

ARCHITECTS TO INDUSTRY How Voorhees, Walker, Foley & Smith have served a long list of blue-chip clients-specifically DuPont.

SCHOOL ON STILTS Thomy Lafon elementary school, New Orleans,

CARACAS The buildingest city in South America.

Architects: Curtis & Davis.

EXCERPTS Columnist Dorothy Thompson on shopping centers. Sculptor Joe Brown on playground equipment.

Architect Lou Kahn on structure. BUILDING ENGINEERING

Framework for a big dome. Paper-core curtain walls for a hotel. Tapered steel for a stronger building. Better lighting for industrial operations.

DESIGN STANDARDS AND DATA 166 Stadium and grandstand plans and seating details.

**NEW PRODUCTS** 169 A review of new building materials and equipment.

ARCHITECTS ONLY

170 Small talk on big subjects.

**BOOK REVIEWS** 210

Cover: Mechanical Laboratory, General Motors Technical Center, Detroit. Eera Saarinen & Associates, architects. Photo: Lionel Freedman.

TECHNICAL PUBLICATIONS

264

33

50

56

100

120

122

131

134

152

156

158



Photos (pp. 100-119, including color): Lionel Freedman

Progress report:

#### **NEARS COMPLETION** GM

Technical Center was a glossy dab of color on the flatland that slides north from Detroit. Today it is a lustrous palette—and not completed even yet. The site is a square mile. The first three buildings (AF, Nov. '51) have grown to 20. And the horizontal scale and spacing of the buildings in this gigantic commission are so great as to demand an automobile for observation. Just as the Acropolis was built to be contemplated by a man standing still, Venice to be enjoyed from a drifting gondola, GM Technical Center should best flash by a Buick window at 35 mph. The Technical Center site module is a speedometer.

Color, too, is used to set the pace. With the intense glowing walls-red, dark red, tangerine, orange, yellow, black, gray, dark and light blue-spaced out on the passive stage of an unresisting, uninteresting landscape, Saarinen and his associates are completing a setting for a passion play of the Industrial World. Today's novelists write gloomily prophetic books about this world, predicting mankind's defeat by the machine; but actually imagination is winning the day at GM. The imperative sensations received as you drive around GM have been anything but automatically produced: color, luster, sweep, moody precision, and jewel-like detail. It is a tense, triumphant group, an architectural feat which may be unique in our lifetime.

Three years ago General Motors





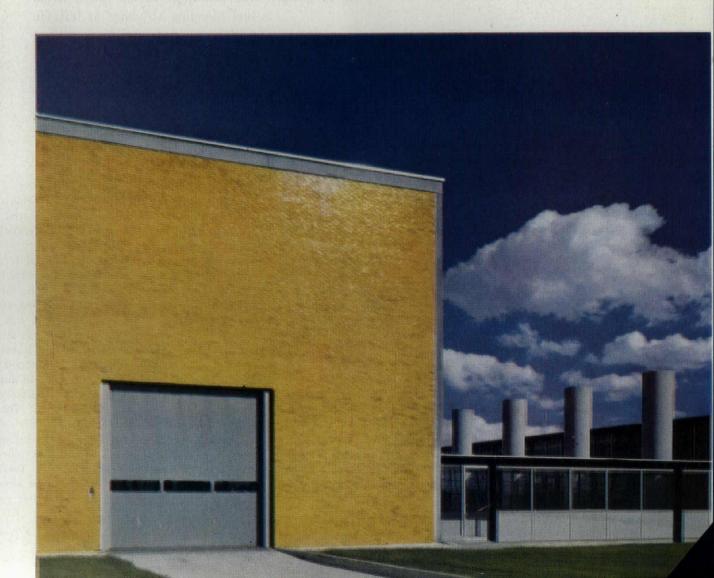
# olor

ank brick end walls, fired nine different intense lors, stand like billboards craft and imagination, nalities that are vital in search. The walls are illiant as a world's fair, apprecedented in perma-

### \_uster

he rough bricks glisten ad gloss, surpassing the miliar gleam of metal and ass walls, the bracelet at connects them.

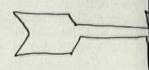
hey are common bricks, azed and fired a second me; the surfaces are used doors and out.





# Sweep

The buildings stretch 3,000' from fuel blending structure at left (in model above) to styling section at right; a man-made lake 7' deep, 1,780' long, 560' wide, is placed like a rectangular rug in the center of a room, with four tousled islands of foliage lying on it.



#### What the GM Technical Center is:

Gathered together into a coordinated research town, four of the five groups of buildings are separate staff functions of General Motors Corp.: Research Laboratories, Process Development, Engineering Staff, and Styling group. The Service Section is the housekeeping and administrative headquarters, the landlord.

Each of the four groups can be "hired" by the various operating sections of GM or by outside agencies to execute research or design. Oldsmobile may want a new transmission for 1961; Frigidaire a new refrigerant; the US Army a new secret. They can come here for these things, also for production techniques.

Begun in 1949, the Technical Center is scheduled for completion in 1955. This group shares its square-mile campus with the Fisher-Chevrolet Engineering Center, a group of less highly refined, but still impressive, design. (It has a similar water tower which is not clothed in stainless steel, but simply painted.) The Technical Center is a \$100 million project; Fisher-Chevrolet will cost about half as much.

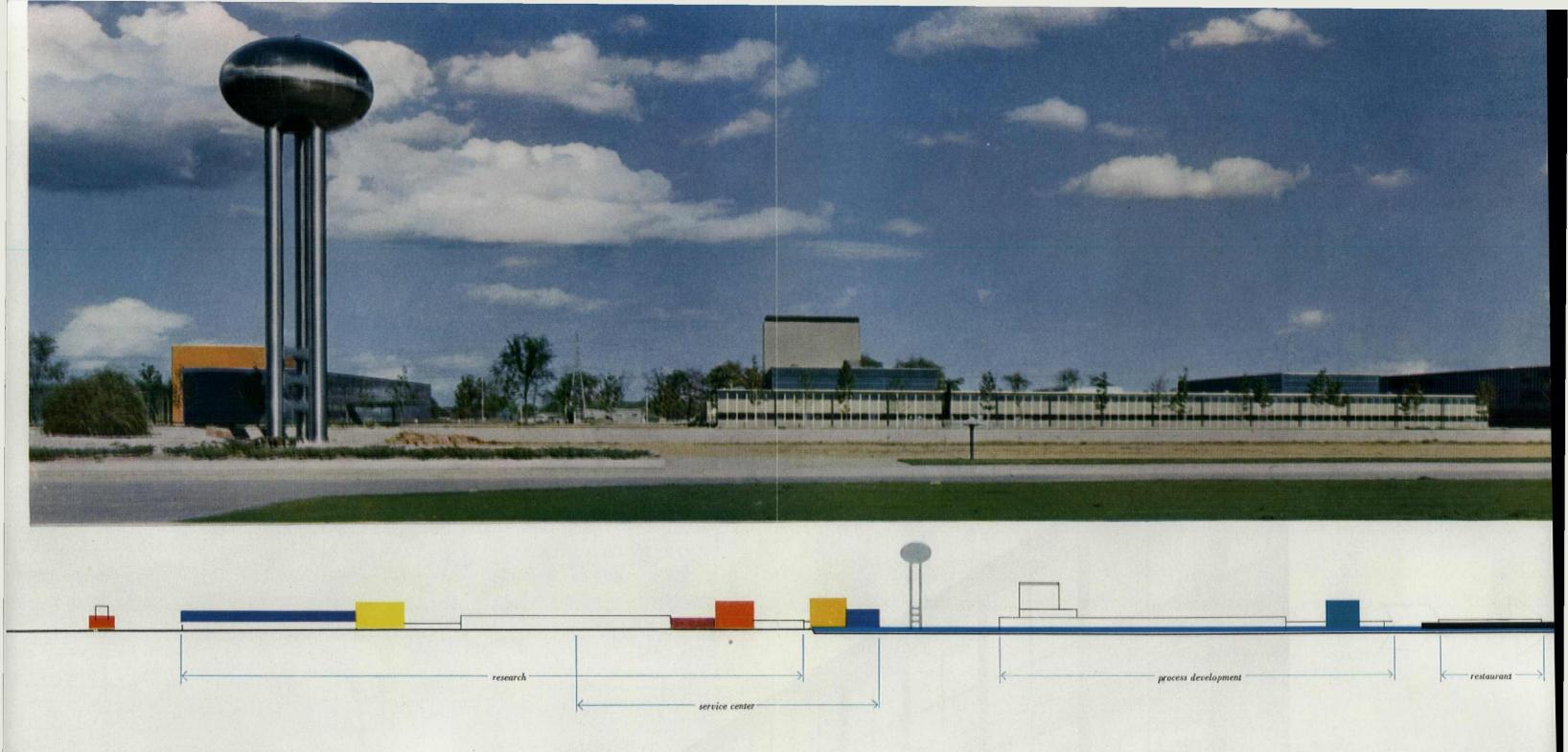
The Technical Center's buildings all have chassis of naked, nonfireproofed structural steel from the ground up (always black where it is visible). Also characteristic throughout are aluminum trim, heatand glare-absorbing glass, porcelain-faced panels, and the specially fired brick end walls.

But from this point the designs vary slightly according to the tenants' needs; even the structural module goes up and down from one building to the next. Window sills in one administration building are desk height, in another lab table height, and this is expressed on the facade. Two office buildings are clear span, but the biggest office-lab building is not clear span; it has a fixed, framed central corridor and vertical runs of oxygen, water, gas, etc., so any office can easily be transformed into a laboratory. The styling buildings will be still different. The total office and lab area is about 560,000 sq. ft.

There are two general kinds of shop spaces: one with wood floors and the services buried; the other with cast floors and the services hung overhead. Total shop, foundry and testing building area will be almost 1.3 million sq. ft. The Fisher-Chevrolet Center contains 1.33 million sq. ft.

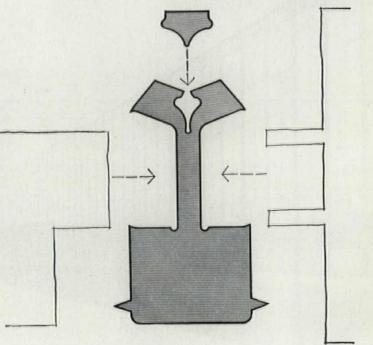


FOLDOUT



## **Inventiveness**

Industrial components of the curtain wall-double glazing and porcelain enamel filler panels-were so perfect in surface they made oldfashioned window calking archaic. It would not cling. Instead, panels and glass are gripped like automobile windshields to their metal frames, with extruded neoprene gaskets (full-size section, right; wall details, p. 117). These were developed by architects and client working together.



SAARINEN, SAARINEN & ASSOCIATES, architects

SMITH, HINCHMAN & GRYLLS, INC., architects-engineers

BRYANT & DETWILER CO., general contractor

THOMAS D. CHURCH, landscape architect

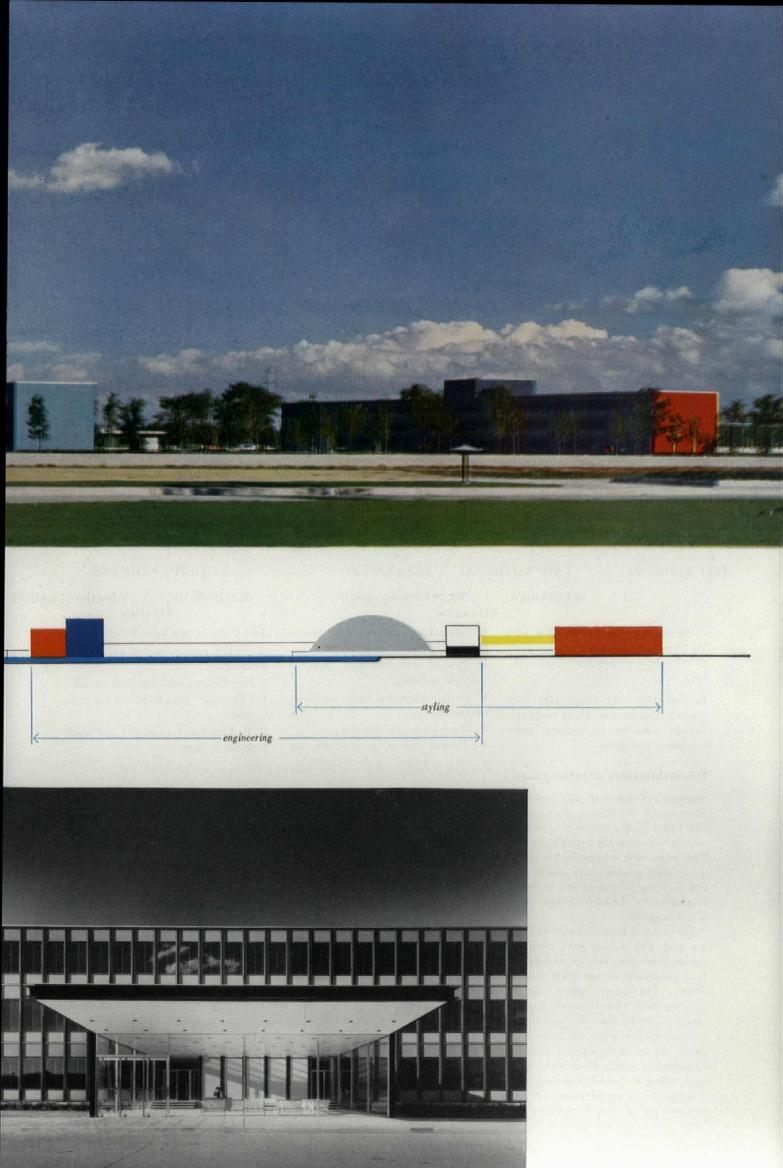
EDWARD A. EICHSTEDT, associate landscape architect

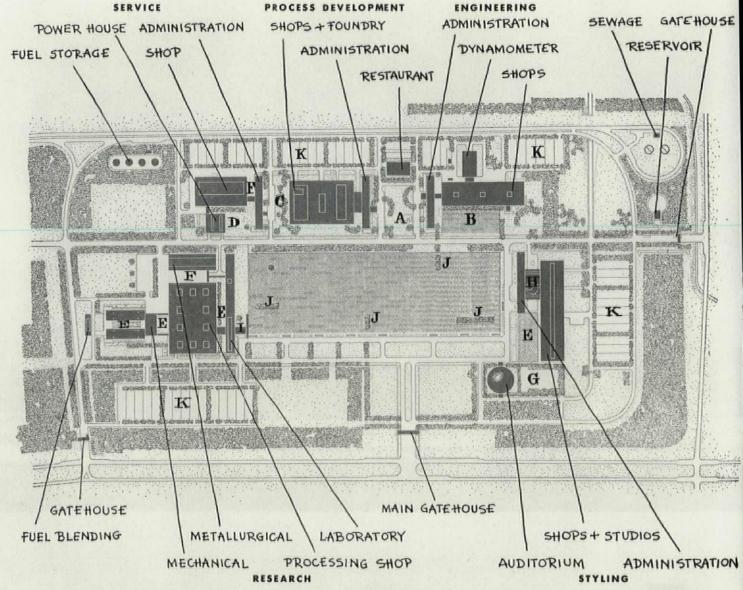
BOLT, BERANEK & NEWMAN,

consultants on acoustics

## **Precision**

The pure detailing and perfect finish of the glass, aluminum, steel and porcelain enamel are hypnotic in their repetition, an esthetic extracted from the machine. The glass-walled pavilion jutting forward from office building (right) will lose some of its surface-of-themoon quality when it is completed by interior planting-a bank of orange trees-but this facade is representative of the window walls' delicate tones and eerie effect.





A. Green court off central lake, with big trees—functions as entrance court to two administration buildings, cafeteria.

B. Reflecting pool (large lake does not reflect buildings). These pools also can be used for ice skating, other lunchtime recreation.

- C. Landscaped "corridor" for circulation to administration building.
- D. Lawned area. "Outdoor room" of adjacent building.
- E. Green insulating buffer strip between buildings.
- F. Motor court for deliveries.
- G. Formal "paved garden" for out-

door study of new auto designs.

- H. Walled penthouse roof garden, top building.
- I. Paved stone roof overlooking lake.
- J. "Floating" islands of willow trees in lake.
- K. Parking lots fragmented into small areas by hedges.

#### The architecture of interspaces

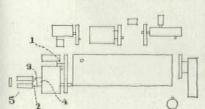
Saarinen's assignment was buildings to fit the varying programs of five clients, since each of the five groups of this GM complex operates independently. This made it necessary to keep the over-all site plan fluid almost to the time when each successive foundation went in. Also, in the original scheme there was to be a sizable administration building jutting up out of the lake to form a central focal point for the entire group, but in later programming that disappeared.

The site was kept lake coherent by encircling the building area with a loop road, then designing the outdoor spaces inside that loop as painstakingly as indoor rooms. It is practically an operation of weaving exteriors to interiors. The empty spaces that intervene among the building walls (see drawing) actually make up a kind of tapestry of their own. Its pattern is achieved through an intricate variety of devices, from paved courts to reflecting pools, always changing, yet producing a setting always consistent in spirit. Even without the soft green yarn of landscaping to bind it together, the pattern is secure.

Before he designed these GM open spaces, Architect Saarinen got up from his drafting board to make a special tour of Europe's great Renaissance squares and spaces. But it is evident that he also brought to the vast concept of the central water plaza the memory of his boyhood surroundings. Although GM is in a very different orchestration, it has also the same soft melody of his father, Eliel Saarinen's, charming complex of slate-roofed brick dormitories and workshops not many miles away at Cranbrook. There the buildings are punctuated by many little courts and lawns, and there is always the play of water in a Carl Milles fountain to balance and focus the site compositions at the head of an avenue or at the end of a grass plaza. The sound and sight of water is the lyric touch, night and day.

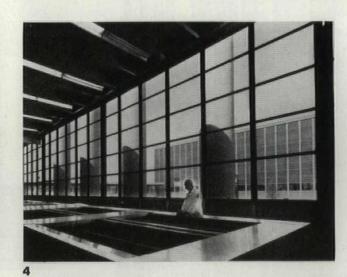
GM will have fountains too, but cascading ones, without statuary; the 138'-high gleaming stainless-steel water tower was judged the proper sculpture for this industrial group. The spouting sprays of water will shoot up from the lake surface in alleys of motion among the islands of foliage which sit like great feather dusters stirring in the breeze. At night the outdoor lighting near the lake is from low stems, not pole street lights, yielding to the drama of the water and winds.





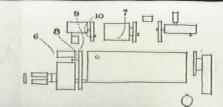
The industrial environment is given new life and refinement, surpassing the efficient but barren factory spaces of most plant architecture. This is done without undue delicacy, however; these are plain utilitarian areas. The extra dash is provided by continuation of the fiery approach to color (end wall in big space above is yellow, inside and out) and by the verdant landscaping, which is not aimed outward at the passer-by but inward, through glass, at the employees.

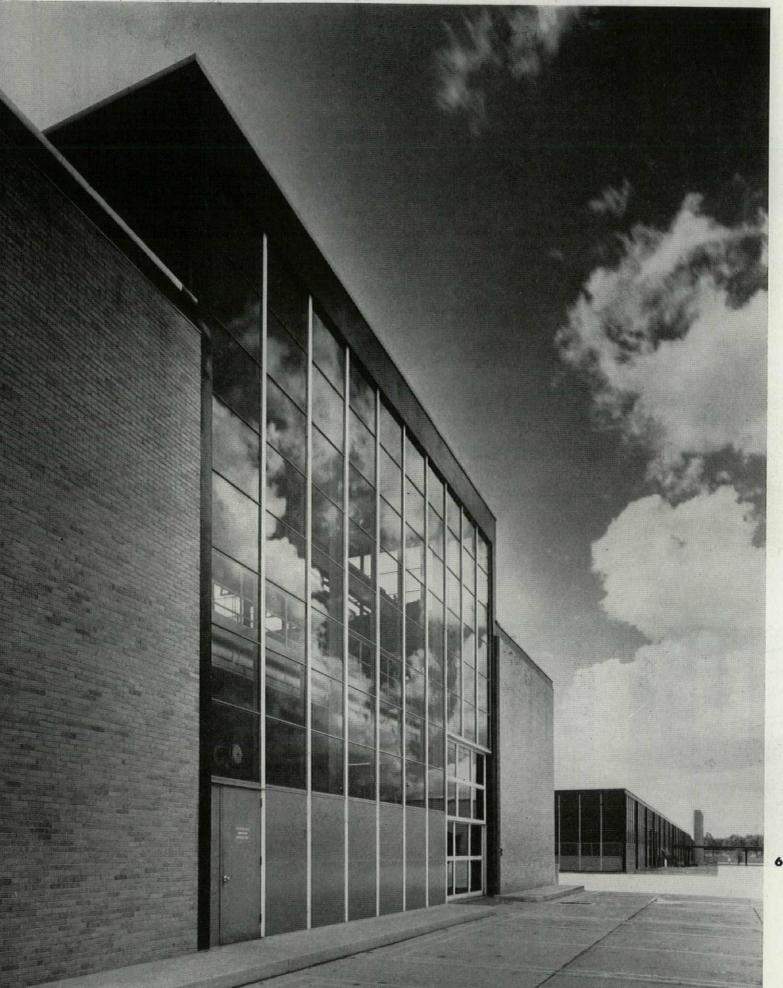




- 1. Landscaped buffer space stretches between office-lab wing and shop.
- 2. Inside mechanical shop in Research Group.
- 3. Test room views long landscaped garden between two wings.
- 4. Clear glass in wall of this wing, oriented north, contrasts with etched glass above vision strip in next wing. In between is a row of exhaust stacks.
- 5. Fuel mixing building (left); wings of heavy test cells (right). Red brick (left); blue brick (right).









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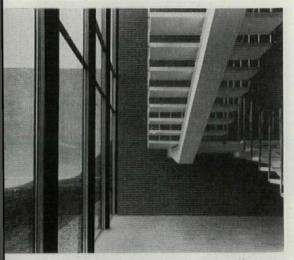
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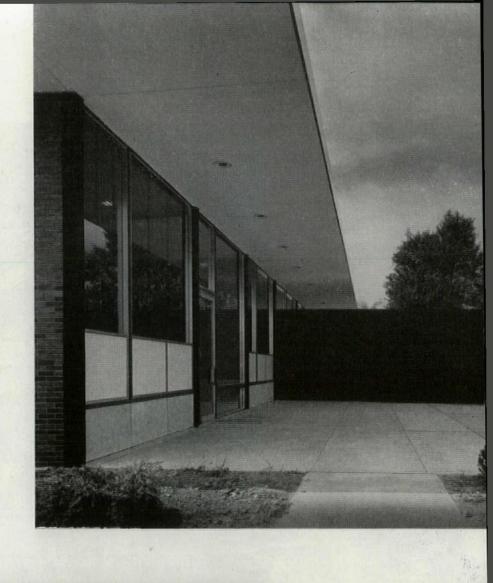
Simple wall components are varied and rearranged to produce a variety of effects. Among the most cogent is the glass topped and bottomed window wall in the shop above, with a ribbon of porcelain enamel in the middle to kill glare. Top glass adds ventilation and daylight for inner part of deep room.

- Clear glass wall is at north end of Mechanical Research building between red brick walls.
- 7. Shop in Process Development Group; windows face west.
- 8. Glass walled bridges reflect sky, framed in strokes of black steel calligraphy.
- Strip-windowed wall is at south end of Mechanical Research building.
- 10. Shop and foundry, from under canopy of Services Administration building.



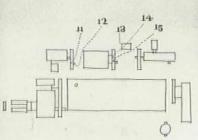


11. White-painted steel and stone stairway in lobby of building below.



# The office environment





 Canopy of Services office building tilts upward over sidewalk, edged with exposed steel sections.



13. Cafeteria is in contrast to the rest of the group in two respects: it is monochromatic, and it has overhangs. At right, Process Development administration building.



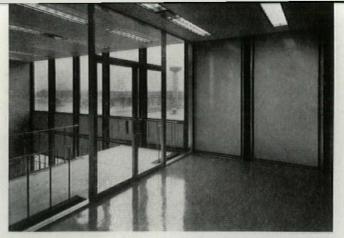
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Vertical character of the glass and porcelain enamel walls of the office buildings is unusual in glass architecture. Saarinen's reason—to meet the partitions: "If you have a long, horizontal exterior wall, like most modern glass walls, the prefab partitions march vertically up to it on the inside as if they were stepping in front of a train. There can be no impression of joining."





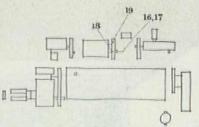
 Projecting lobby of Process Development administration building.



18. Elevator hall adjoins one of pair of stairways (next page)

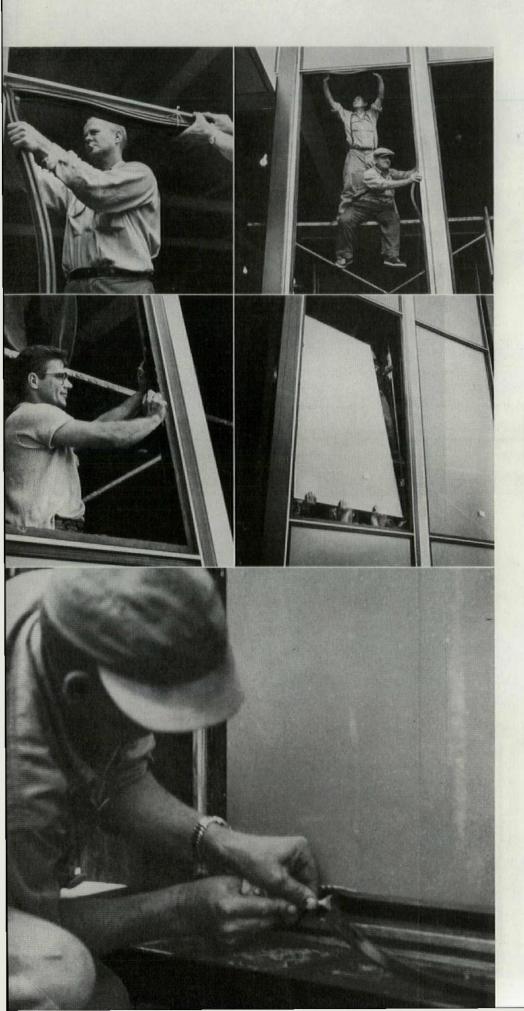
Lean prefab panel wall has the same dignity inside and out. Its very repetition gives it an austere authority, but the delicate tan coloring of the panels within the dramatic edging of the black plastic of the gaskets, then aluminum, then black steel, keeps the effect from being quite so severe as black and white photography indicates.





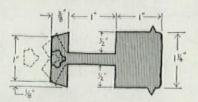
17. Glass roof section lights planting box, as yet unfilled, in lobby of Process Development administration building. Chrome pipe at far end is roof drain.

## Set like an automobile windshield



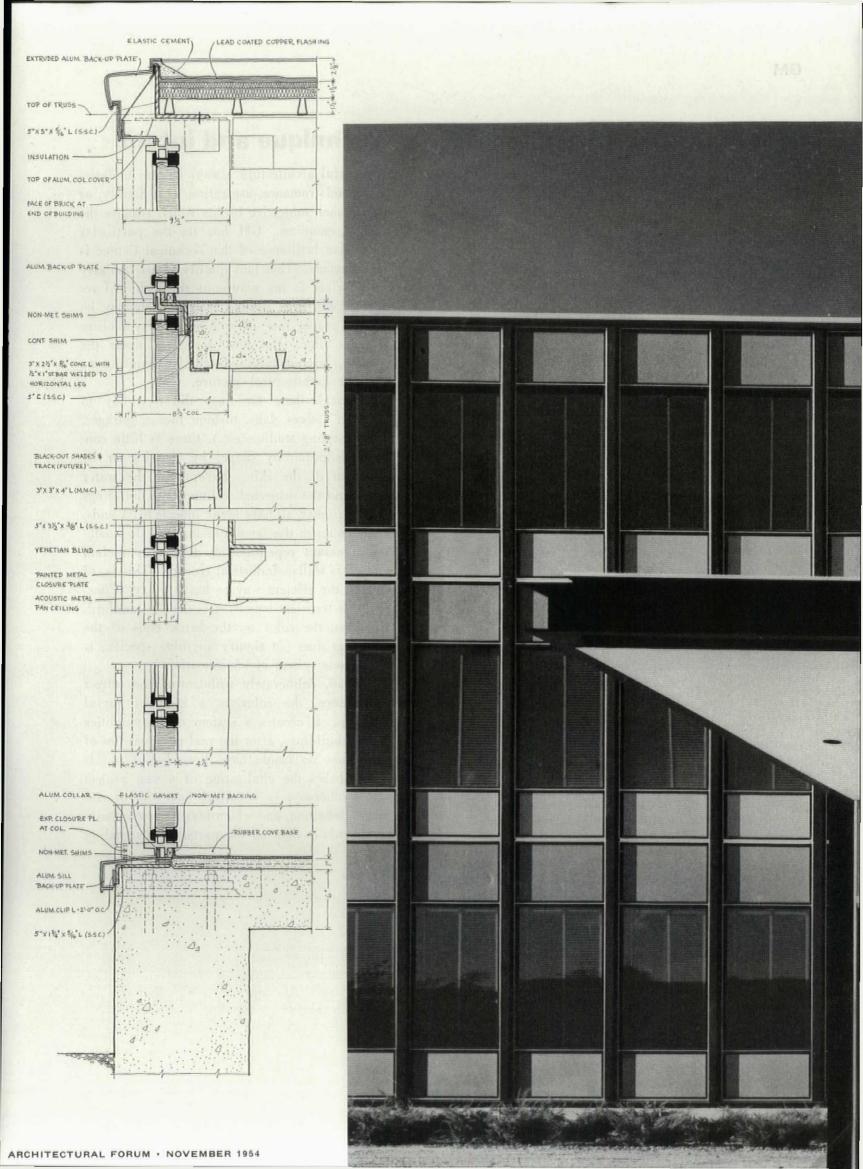
All who build with fixed glass anywhere in America must now attend to the new neoprene gasket weather seal, developed cooperatively by GM and the architects to replace today's calking. On the first buildings the edges of the porcelain enamel panels or of glass panes were calked where they meet the aluminum framing, but it was found that no calking would adhere satisfactorily to the slick glass and porcelain surfaces. When the volatiles dried out, adhesion was lost.

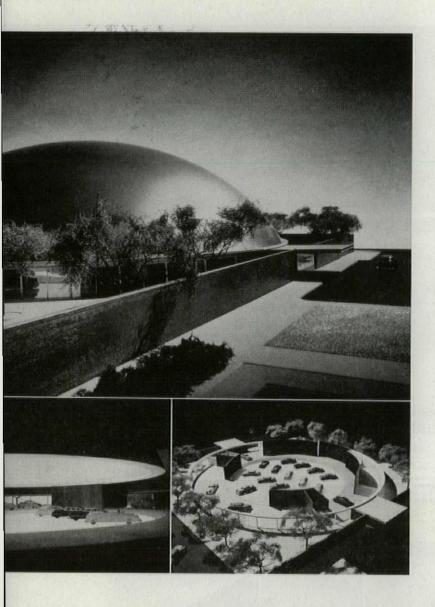
To solve this problem, a GM subsidiary helped develop a mechanically sealing gasket like those used in automobiles. The gasket has no seal other than itself. It is set in place on the lips of the aluminum sections; the glass or porcelain enameled steel panel is slid into place, then the joints are "zipped" tight by inserting a filler strip of neoprene. This forces the knife edges of the neoprene against the glass or porcelain with a high edge compression. Surfaces, of course, must be flawless for the knife edges of the neoprene to grasp them continuously. The plastic will take edge pressure of 30 lb. per running inch, is estimated to have at least a 25-year life, can be easily unzipped for removal of panel or glass, and is manufactured by extrusion, with molded corners.



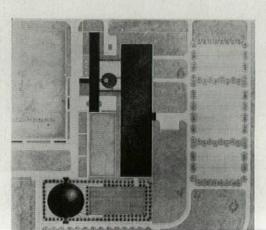
The porcelain panels first used at GM were not all satisfactory. The first problem was separation of the bond between the honeycomb paper core used and the steel skin, allowing panels to bulge. Earlier panels bonded between paper and plain metal had held; but here the bond had to be with glass—since the steel cover sheets had to be enameled both sides to equalize stresses. Cleavage occurred in a clean plane between glue and porcelain, delaminating the panels. Again, when the panels were filled with block insulation instead of paper, it was the block insulation itself that pulled apart, not the glue line.

GM and the architects have two answers. The first is a new glue that can hold the glossy surface of the steel, and is now in use. The next will be the use of aluminumfaced panels instead of the steel. It will be possible to fire only the exterior face of the aluminum with porcelain, leaving a good porous gluing surface inside.





Next: the styling center. Now under construction (except for the domed auditorium, which has not yet been completely designed), the styling section is characterized by high big rooms for working on full-size mock-ups of auto bodies. In the auditorium the mock-ups will be studied under the light of an artificial sky dome to eliminate point reflection and distortions of shape. There will also be a walled yard for this work in good weather. The dome will be clad in aluminum shingles with white porcelain enamel finish, themselves domed to make a gleaming cobbled effect.

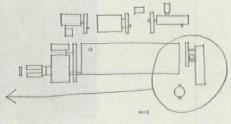


## **Technique and intent**

Successful architecture always has an underlying mood: romance, aspiration, vast dignity, or some other subjective bridge which reaches the human emotions. GM has it; the particular subjective brilliance of the Technical Center is its tenseness. This taut quality is particularly appropriate to the nature of the technical research, and even beyond that, tension may be a very proper tone of architectural symbolism for our time. But how does GM make the gripping architectural effect? By painting an abstract architectural picture.

Although these buildings differ widely in function (offices, labs, turbine rooms, garages, shops, styling studios, etc.), there is little concrete definition by shape, by massing or by variation of the skin. Except for the water tower and the projected styling dome, buildings are rectilinear, all have blank intense brick ends, all have much the same massing and the soothing, pleasant repetition of delicate porcelain and glass walls—industrial tracery. This is, of course, the efficient way to build today. Function is a transient tenant; it is not the landlord. But even the color on the brick ends of the buildings does not signify anything specific, is not a code system of identification.

Instead, deliberately withdrawn from direct significance, the color is a kind of joyful make-up. It creates a system of personalities for the buildings, after the real personalities of what goes on inside have been boxed in. It accomplishes the vitalization of a vast project which otherwise is beautiful but without emphatic definition, and which lays more emphasis on the whole than on the parts. Not signaling



anything, but conveying a great deal, the colors are a classic mime's gestures, restricted within narrow limits of expression, a tense pantomime of real life.

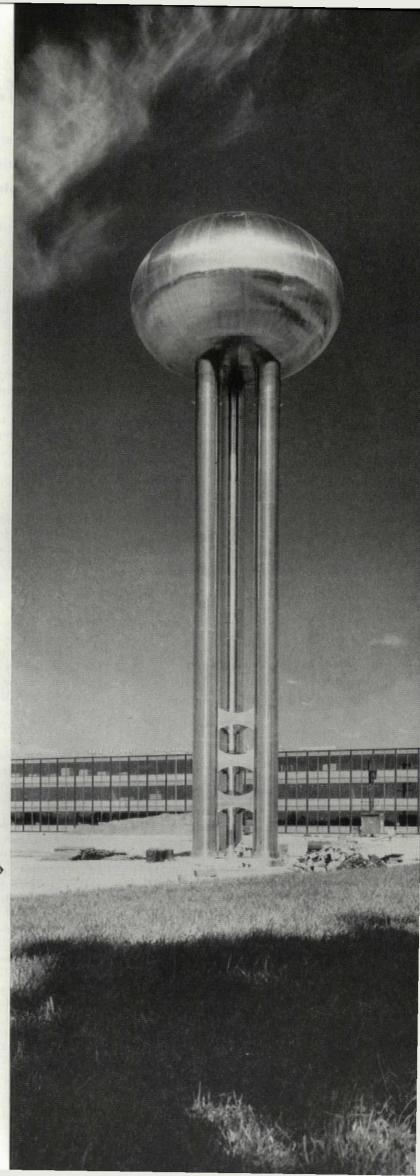
Not to go unnoticed on another level is the pleasant paradox of ending a building full of machines with a brick wall that—under its Simonized sheen—resembles a mottled piece of handicraft. The rough texture and direct colors are a good transition from the cold metal of the buildings to the imaginations of the people who use them, but this really seems a by-product of architecture as art in this group.

On still another plane: when anyone builds anything as seriously beautiful as the General Motors Technical Center in these days of utilitarian glory, he is going to be asked why. Why the pure, perfect details out there on the anonymous countryside? . . . why the exquisitely alternated planes of hypnotically reflective glass, intensely glistening brick? . . . why this painstaking parable of industry?

It is significant that this huge manufacturer was not interested in building the world's biggest skyscraper on the busiest corner of the world's greatest city, and calling it GM. The intent was clearly different. It was that the focus of the corporation's interior energy should remain where it began, in the steady improvement of its technological product, and never wander away in the more sophisticated mazes of finance and sales, that GM is a great manufacturing company first and anything else second. The tense excitement and glittering perfection of this research center will always keep that intent alive. If you want an idea to be remembered—as the ancients knew—you build it.

A MAN ( .....)

Water tower, a true elipse in elevation, is 138' high, fabricated from type 302 stainless clad plate. One of its legs contains a stairway for service access, one is for water transit and the third completes the triangulation of support. The tower will rise directly out of the lake.



# Slum clearance faces Supreme Court test

If District of Columbia Redevelopment Act is held unconstitutional, entire Title I program might be crippled. Illinois upholds slum prevention law in historic decision

IN THIS MONTH'S NEWS

(see pp. 33 through 48)

St. Lawrence Seaway project promises significant boom in industry, jobs, housing and new planning problems

What the FHA investigations have done to apartment construction—so far

Signs of cooperation between realtors, public housing officials mark NAHRO annual convention

Pacific Coast building officials adopt 400 code changes including complete rewrite of masonry, wood building rules

Stanford University researchers predict a big drop in lumber use in nonresidential building The wheels of redevelopment grind smooth only under conditions of extreme municipal industry mixed with good fortune. In addition to the ordinary difficulties inherent in such programs, cities in the past few years have been challenged repeatedly on the constitutionality of their slum clearance laws. Such cases—usually based on a private citizen's protestation that it is illegal to raze his property and then hand it over to some one else for rebuilding—have mounted as redevelopment plans increased. But legal progress has been good. As of last month, in 21 of 23 states where the question has been put to test, the laws have been validated.\* One of the most important cases, however, has yet to be decided: a plea before the US Supreme Court challenging the constitutionality of the District of Columbia Redevelopment Act.

This is a big case. The decision could profoundly affect the whole Title I program. While optimistic as to the outcome, government lawyers (representing the DC Redevelopment Land Agency) concede that an adverse ruling might place slum clearance and urban rebuilding operations nationally in serious jeopardy.

For a public use? Washington has extensive plans for redevelopment of its rundown southwest section and has already begun demolition of old buildings. The city went ahead with these plans on the basis of a lower court decision a year ago upholding the constitutionality of the DC law. The crux of the case before the Supreme Court is the same: can the government seize private property under its condemnation powers and turn it over to private parties for redevelopment purposes?

The attorney for the plaintiff—the estate of the late Max R. Morris, who owned a department store in an area to be cleared for Washington's Project "B"—argued in the negative.

"What is the constitutionality of your argument?" asked Justice Frankfurter.

"The government," replied Atty. James C. Toomey, "has no right to take the property of a private citizen for other than a public use."

New terms in new laws. The public vs. private use is part of the battle; another part was evident in Toomey's argument that city officials do not have the power to take vast areas of property including buildings that are perfectly sound. It is notable that this subject constitutes one of the prime (and one of the least definite) paragraphs in the new rulings on urban renewal. Section 110c of Title I practically hinges on such expressions as "predominantly residential uses" and "substantial number of slum. . . . accommodations." It is also notable that the matter of terms was mentioned by judges in the lower court who first considered the present Washington case-they raised objections that such words as "blight"

and "backward and stagnant land" were not properly defined in the District's act. Counsel for the Redevelopment Land Agency in the Supreme Court case is not only urging reaffirmation of the constitutionality of the law in question, but also that the law not be restricted by the terminological limitations suggested by the sther judges.

gested by the other judges.

What are the chances? There is no doubt that a finding favorable toward the Land Agency would give redevelopment authorities elsewhere a powerful assist in cutting back an undergrowth of litigation that is hampering their efforts. And legal opinion both inside and outside the government is in agreement on one point: redevelopment will not be directly affected outside of Washington, no matter which way the court decides. (This is because each state spells out its own powers of eminent domain in respect to the seizure of private property for public use.) The legal fraternity has covered itself in this respect, however, with a fairly unanimous belief that the reverberations from either opinion will be considerable.

No more federal aid? Some government lawyers have said that if the court invalidates the District's redevelopment law HHFA might have to shut down its entire Title I program.

BIG TEST COMING UP



Chicago Tribune

<sup>\*</sup> Dissenters were Florida and Georgia, where courts interpreted the laws as a misuse of the power of eminent domain.

This view is perhaps extreme. But other lawyers and administrative officials in the housing agencies do admit that if the high court rules against the D.C. law, it would immediately touch off a test of the federal-aid program in other cities. And they feel it is doubtful that the Supreme Court would countenance the use of federal funds for such a program if the matter were challenged.

Top rank housing men—who are disinclined to be quoted by name because of the pending court decision—base their hopes for a "favorable" outcome on the kind of the questions asked by members of the court during the testimony and on a belief that the Court in recent years has been inclined to interpret the constitution broadly where programs involving the general health and welfare are concerned.

A first in Illinois. State courts have also been broadening their concept of redevelopment legislation. Decisions were handed down recently in Maine and Massachusetts, adding to state supreme court rulings upholding the constitutionality of such laws. In Illinois a double decision was reached of first rate importance: it was the first time a top state court had held that the use of eminent domain to prevent slums—rather than clear them—was a public purpose.

In ruling on the Urban Community Conservation Act, the court's opinion included the following:

▶ "We are aware of no constitutional principle which paralyzes the power of government to deal with an evil until it has reached the maximum development. . . . Legitimate use of governmental power is not prohibited because of the possibility that the power may be abused."

On condemnation provisions the court was emphatic: "An owner of property in a conservation area is required to comply with a conservation plan. His property may be taken by eminent domain or a lien may be imposed upon it to bring it up to minimum standards."

• On the question of definitions, the court admitted that "mathematical measurements of the extent of the overcrowding of residences and of schools and other community facilities which indicate imminent deterioration cannot be stated. . . ." but added that the enumeration of "various blighting factors" as written in the state's Blighted Areas Redevelopment Act were phrased "with sufficient clarity"

In Chicago, the opinion on conservation in the Illinois courts found favor with Peter

#### WHAT PRICE REDEVELOPMENT?

The costs of redevelopment in large urban centers continue to be enormous. A recent project announced for New York-the New York University-Bellevue Hospital project-involves site costs of \$8.97 million for 10.6 acres, or over \$840,000 an acre and over \$19 a sq. ft. It is expected that out of this expenditure only \$2.9 million will be salvaged, leaving a loss on the transaction of about \$6 million-about \$570,000 an acre and \$13 a sq. ft. What this shows is that it costs \$19 a sq. ft. to produce a site that in the final outcome is worth only a little more than \$6 a sq. ft. In setting the project up, New York slum clearers did what the law says. Not a few building experts, however, think this is strange economics and probably no solution to the problem of urban renewal,

Bukowski, chairman of the Neighborhood Redevelopment Commission. "Chicago now has the most powerful slum prevention weapons of any city in the country," said Bukowski. "The decision. . . . gives Chicago the green light to step up its program to save 56 sq. mi. of middle-aged neighborhoods from becoming slums, requiring costly clearance." (For news of Chicago's Lake Meadows project, see p. 35.)

Power of eminent domain. The Maine and Massachusetts decisions were concerned, again, with the basic question of the use of eminent domain for a private purpose. What they said:

In Maine: "There is no element of private use in the removal of the conditions of blight. Great public purposes are thereby served and the entire community will benefit."

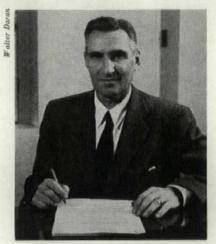
In Massachusetts: "The plan here..., does not have for its primary objective the taking of the property of one individual and turning it over to another, so that slum clearance can be said to be merely incidental to that objective. On the contrary, we are of opinion that the main purpose of the plan is slum clearance..."

# 50 leaders in industry, labor, housing form council to back rehabilitation

Efforts to stop the march of blight across US cities—losing efforts so far—will get a big shot in the arm this month from a new quarter. In Washington's Mayflower Hotel, formation will be announced of a new citizens' group aimed at 1) helping cities learn the complex know-how of conservation and rehabilitation faster, and 2) rallying broad public support behind removing slum conditions and causes through a massive education and promotion program.

The American Council to Improve Our Neighborhoods will get its start with White House blessing. President Eisenhower is to speak on how its objectives mesh with those of the 1954 Housing Act. The new law for the first time created broad federal aids to urban renewal and slum prevention. The council-ACTION for short (initials are no coincidence)-is a nonprofit, nonpolitical, educational organization with an annual budget of \$750,000 and a 50-member board of directors representing the gamut of housing interests-labor, religious groups, education, commerce, trade associations, civic, professional bodies, finance and minorities. A small staff headquartered in New York City and led by Maj. Gen. Frederick A. Irving, who retired from the Army in October as superintendent of West Point, will concentrate on spark-plugging nationwide action against the rapid wasting away of the biggest single asset in the nation's wealth-its \$220 billion housing investment.

How it works. A research division-guided by a 400-page outline of research needs prepared by Reginald Isaacs, head of Harvard's department of city planning and other consultants-will gather data on problems and set up pilot projects to find out what methods work and which do not in improving homes, neighborhoods and communities. An information division will bring top-drawer advertising talent to bear on the long-neglected job of arousing the public to the threat to national well-being posed by housing decay. ACTION's plans call for advertising in all media, followed by a how-to-do-it approach beamed at home owners. One probable theme: "You can afford to live better than you do." A field service division will offer personal advice to

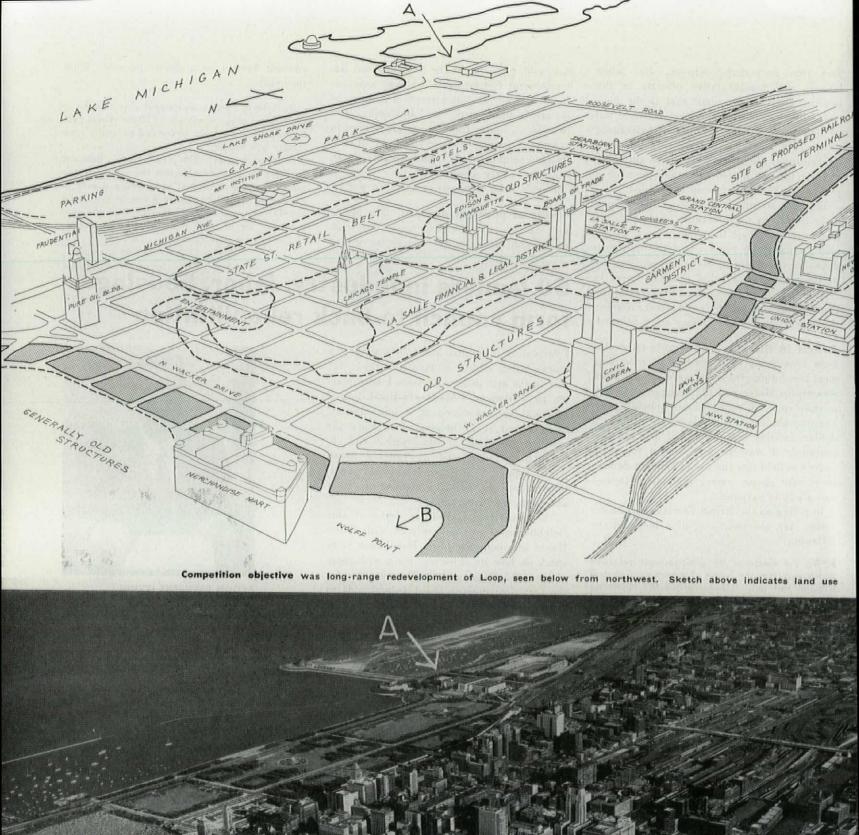


ACTION PRESIDENT IRVING

cities or community groups on how to set up neighborhood or community-wide programs against blight, including counsel on technical problems involved like zoning, local promotion, committee organization, pitfalls. All of ACTION's findings will be handed on to trade and professional groups and civic organizations with no effort to get credit for ACTION, but rather for national or local groups to use under their own banners.

How it began. The council had its genesis in a round table on housing conservation more than a year ago sponsored by Forum's sister publications, House & Home and Life. Members of the group felt the only real solution to the problem lay in the hands of the American people as individuals, as neighbors. The group was incorporated, after months of study, under New York State law. General Irving, its full-time, salaried president, hopes to begin active work next March. Other ACTION officers:

Ferd Kramer, Chicago mortgage banker and one of the key men in Chicago redevelopment, vice chairman in charge of research; Realtor-Builder Fritz Burns, Los Angeles community developer, vice chairman in charge of field service; Publisher Andrew Heiskell of Life, vice chairman in charge of information; Emanuel Spiegel, former president of the Nat'l Association of Home Builders, secretary; Philip Graham, publisher of the Washington Post & Times-Herald, treasurer; Joseph Grazier, president of American Radiator & Standard Sanitary Corp., finance committee chairman.





# **Bold plans for Chicago**

## Redevelopment competition yields a wealth of ideas to guide the future of cities

When old Daniel Burnham advised Chicago to "make no little plans" he started a pattern that still holds (see AF: May '49, Aug. '52, April '54). But none of his successors' schemes has ever broken through to reality the way Chicago's magnificent lake-front parks and buildings sprang from Burnham's own master plan of 1909.

Can Chicago once more build as big as it plans? Departmentstore Executive John Pirie Jr. thinks so: this year he bet \$32,500 that the city could start doing something constructive about its downtown mess. In response to his Carson, Pirie, Scott & Co. Centennial Competition, no less than 106 teams of professionals sent in their ideas for untying the snarled Loop and projecting the whole 403-acre business district into the future. Over half the 265 contestants were from outside Chicago: 22 states, Hawaii, Germany, Denmark, the Netherlands. No recent contest for the redevelopment of a city has attracted so much serious attention from so many able architects and planners-or stirred up so much excitement. At least two other cities, noting all the expert advice Chicago got for practically nothing, are already talking about holding competitions of their own.

These cities could well profit from Chicago's experience in try-

ing to run a big planning competition. Having had only five days to analyze no less than a half-mile of presentation boards and stacks of written reports, a somewhat stunned jury found it would have been grateful for a tighter program and more standardized presentation requirements to help overcome the inevitable frustrations of a problem almost too big.

Doing its best, the jury chose one scheme as the best concept of an ultimate goal, one as the best intermediate plan, one as the best immediate move Chicago could make toward a goal. They were compelled to ignore the fact that the particular first steps they chose did not lead directly to the particular intermediate plan, and this did not lead to the particular goal-which led to some grumbling. But what could you do?

At least the Chicago Plan Commission, as the beneficiary, got an estimated half-million dollars worth of the entrants' time. How much more Carson's generous gift could mean to Chicago awaits the outcome of a careful study by a Plan Commission team.

On the following pages the winning plans are presented in detail for the first time. Whether or not any of them sees immediate action, they are full of ideas any city in the US might profitably think about.



#### THE JURY:

Dr. Henry T. Heald, chairman; engineer, chancellor, New York University Robert E. Alexander, Los Angeles architect and planner

George W. Barton, Chicago traffic engineer

Miles L. Colean, Washington D. C. building economist and architect

Ladislas Segoe, Cincinnati planner and engineer

Professional adviser: Howard L. Cheney, FAIA, Chicago

Technical adviser: Frederick T. Aschman, Chicago Plan Commission

Consultants: Philip Will Jr. for the AIA; Dennis O'Harrow for the AIP; Howard Olson for the Chicago Regional Planning Assn.; John Cordwell, planning director, Chicago Plan Commission

First prize model shows how winners envision central business district 100 years from now. Tallest building (foreground) houses city, state and federal offices, stands in prominent location as symbol of civic pride. Around it are row of pylons, low exhibits building, three "smaller" office buildings (including Prudential building, which is 41 stories rather than 30-odd stories indicated in model). Six huge office buildings on the west look out over retail district (right, center) and fairgrounds (dome, left center). Hotels get premium view locations along Michigan Ave. Reference points: A-Field Museum; B-Wolff Point.

#### FIRST AWARD

Award: \$20,000. The team: Herbert A. Tessler, Joseph A. D'Amelio, Leon Moed, William H. Liskamm, students; William N. Breger, associate professor; all of Pratt Institute, Brooklyn, N.Y.

## Chicago, 2054 . . . a clear, dramatic goal to stir men's minds

This youthful team took Burnham's advice-and won.

Entering the competition as their senior thesis in architecture under the eye of their young design professor, the four 22- and 23-year-olds were able to devote full time to the problem for nearly five months, analyzing it for two months and then working as long as 20 hours a day to meet the deadline.

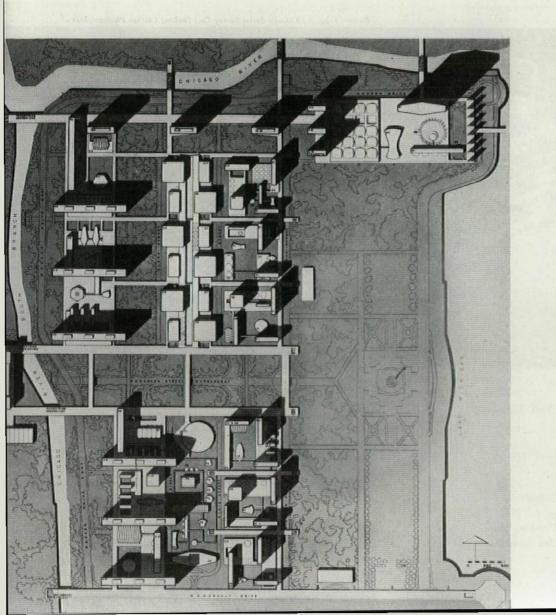
Their dramatic proposals, set forth in eight presentation boards and an elaborate model (preceding page), have already stirred up talk in Chicago and lively professional arguments elsewhere.

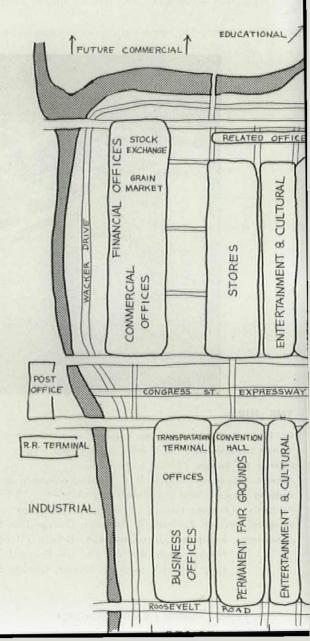
The jury, weighing broad objectives and planning principles, found the scheme a clear, well-ordered solution of the district's essential functions—resourceful, highly imaginative, with a beautiful, open arrangement of parks and buildings that would have great appeal to the man in the street. Other critics, taking its

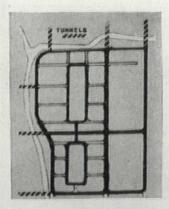
indications perhaps too literally, have called it impracticable, authoritarian, overdispersed, out of human scale.

Says competitor Breger: "In an explosive society like ours, any projection into the next 100 years is at best a series of postulations. Yet the need for a general blueprint is basic, for unless some planning can be devised, the future can only resemble the unplanned chaos of the past. Ours is a schematic sort of blueprint, subject to modifications as different conditions arise. We believe that some direction is better than no direction at all."

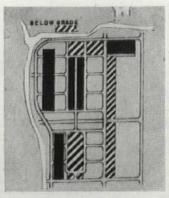
The competition backers, in placing the winning plans on public view, simply included some very interesting engravings of shanty-town Chicago less than 100 years ago. Anything, they seemed to say, can happen: in 100 years US cities are rebuilt completely in any case.



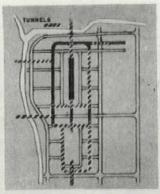




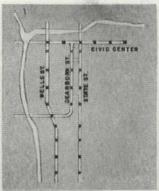
Autos enter district through tunnels replacing Chicago's many bridges.



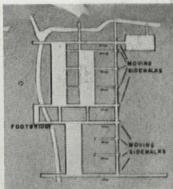
Parking is in big one-story garages under offices, below grade in open areas.



Service: trucks have tunnel and road system separate from autos.



Subways: a new line under Wells St., new extension to civic center.



Pedestrians overcome dispersion on elevated moving sidewalks.

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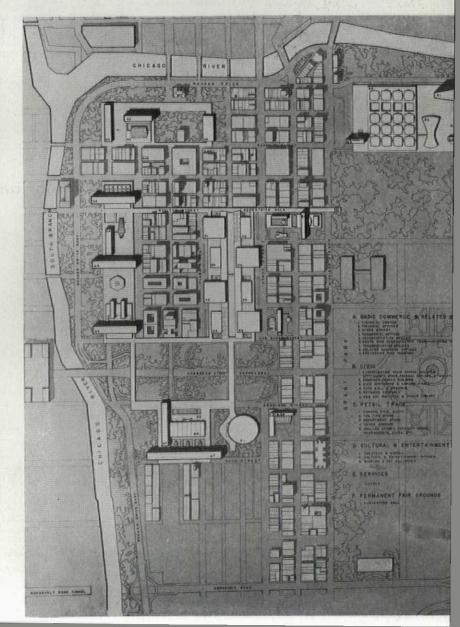
Final stage (of four 25-year stages) brings related activities together in functional groups: wide bands of buildings separated by vast green spaces up to 700' wide, yet tied together by a transit network (see sketches above). Commercial and financial offices are grouped near grain and stock exchanges; lawyers and others dealing with courts and government departments can occupy space in civic center office buildings; transportation offices rise around bus-rail-air terminal (linked with west-side rail terminal by moving sidewalk, pneumatic tubes for baggage transfer). Industrial and agricultural concerns have offices along west side of permanent fair grounds, where they can exhibit in exposition buildings. Retail trade is grouped in convenient central location. Hotels all along park front have lake view on one side, and on other, theaters, shops, restaurants, nightclubs, small museums, broadcasting studios-forming spaces of more intimate scale than business sections. With such facilities and view, hotels could attract profitable "family" business.

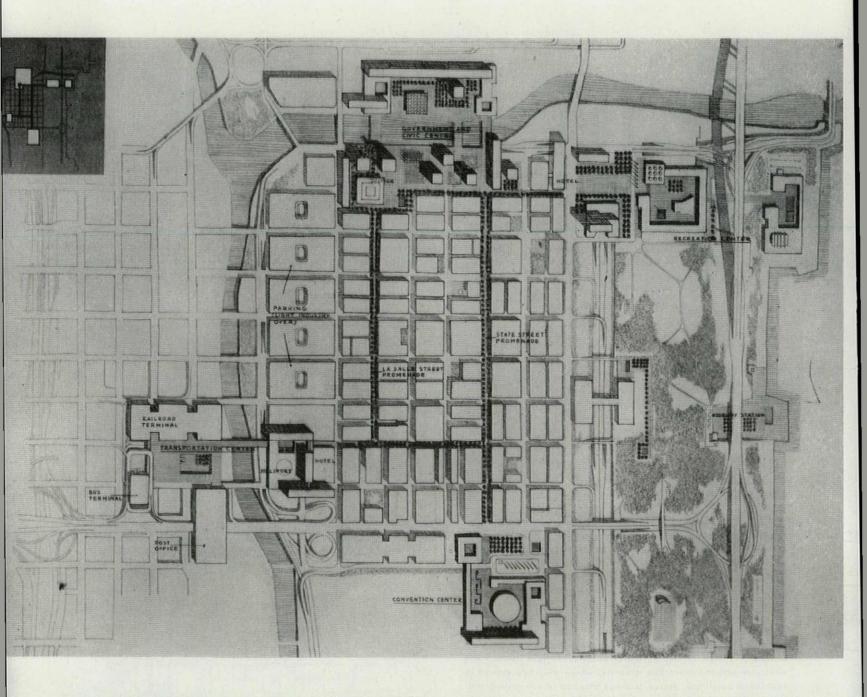
their successors on adjacent bands of lower-income land. New office slabs rise a block west of La Salle St. offices; new department stores (including Carson's, Sears) are built just west of retail belt, currently concentrated on east side of State St. Civic-cultural center is built over ICRR yards at northeast. On the south, deteriorating areas are cleared and RR tracks covered to make way for transportation center and convention hall, which would help hold Loop values from running away to north side. All property owners would be shareholders in central finance authority which would buy and improve properties, dis-

tributing profits to all members whether or not they were ad-

First stage leaves major buildings functioning while starting

jacent to improvements. Most valuable buildings are not demolished until final stage.

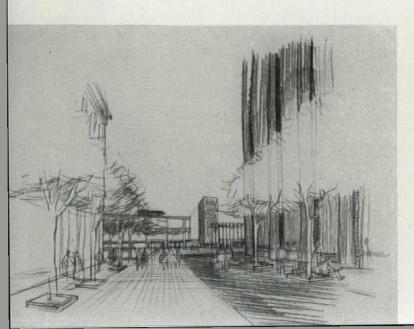




#### SECOND AWARD

## Four major anchors: a feasible framework that could lead

Award: \$7,500. The team: Wilhelm V. von Moltke, David H. Karp, Robert F. Kitchen, Clifford B. Slavin and Irving Wasserman, all of the Philadelphia City Planning Commission; Hans G. Egli, architect, Philadelphia.

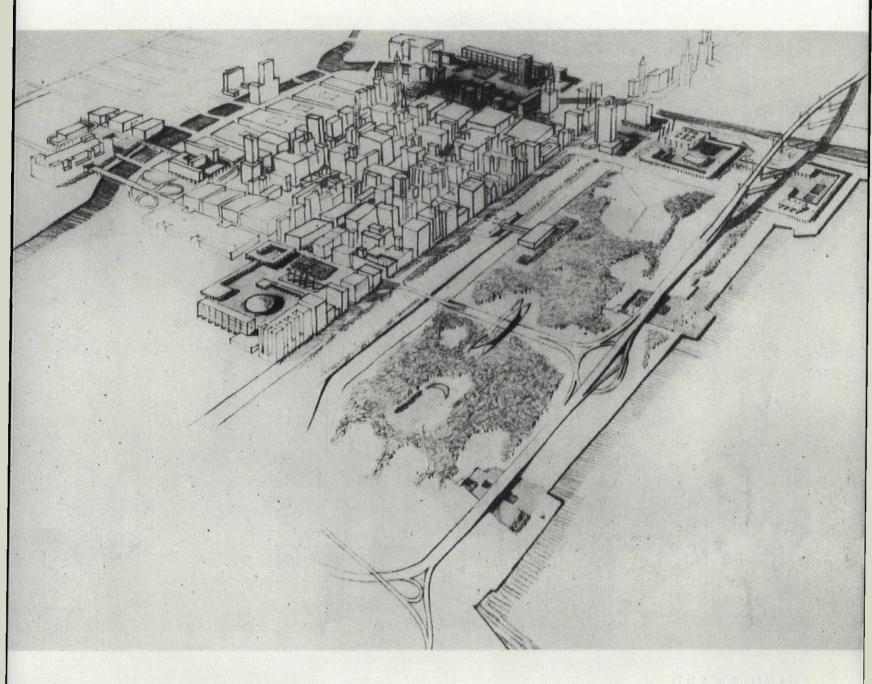


The great merit of this scheme, the jury agreed, was that it proposed maximum improvement with minimum effort. Since team leader Von Moltke, employed by the planning commission of Philadelphia, was professionally familiar with the Chicago Plan Commission's own ideas, his approach takes on added interest.

Leaving sound, high-value buildings alone in the center and along Michigan Ave., the plan throws out four big anchors on less expensive sites at the district's fringes. These break up the collar of slums around downtown, give it a chance to breathe by removing some functions to the edge:

1. A civic center, to be built by 1970, straddles the river at the north, in roughly the same semiblighted area proposed for the Fort Dearborn project (AF, April '54). Courts and government offices in daily contact with the public are pulled out slightly but kept on the south bank convenient to the La Salle St. legal-financial district. Offices less frequented by the public are located on the north bank. To unify the two halves of the center and allow pedestrians to enjoy the river, the present upper level of

La Salle St. promenade would run north to new courts building, expand into a wide civic plaza. Trees and benches would be added, autos banned.



## toward complete redevelopment

Wacker Drive is placed beside the lower level, out of sight under a wide river-front plaza. Parking (north of the center): 6,000 cars.

2. A convention center is to be built by 1990 on low-value land near five of the Loop's big hotels, directly behind the 3,000 room Conrad Hilton. Parking (west of the center): 5,000 cars.

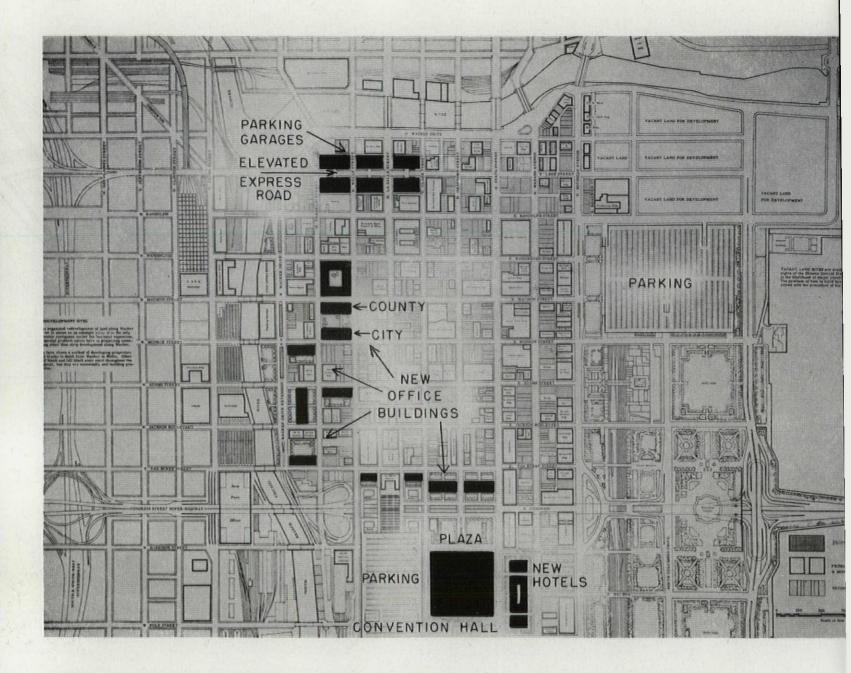
3. A consolidated transportation center is to bridge the river on the west by 2010. Railroad terminal, bus terminal and existing post office are linked with a heliport and hotel (parking under).

4. A recreation center is to be built by 2030 over the ICRR yards at the north end of Grant Park, which is remodeled to make it more inviting, less cut up with auto traffic. Near the lake is a health center with indoor and outdoor swimming pools; just inland, a cultural center with exhibit halls and a small auditorium, parking for 6,000 cars underneath. Across Michigan Ave. a new hotel serves the civic center, recreation center and State St.

While nailing down the district on four sides against the shifting winds of real estate, Von Moltke's team would open up a brighter future for the core. As each major anchor is dropped overboard, a heavy line is pulled taut to the next anchor in the form of a promenade avenue. For example, as the civic center is built, State St. gets a face-lifting with trees, plant boxes and benches, autos are prohibited and rapid streetcar lines run south to the next project, the convention center. La Salle St. gets the same treatment (see sketch, left) from the towering Board of Trade building up to the new civic center. Shorter promenades pull the recreation center in from the east and the transportation center in from the west.

East-west streets are dead-ended at both major promenades (with turn-arounds and taxi stands), freeing them from cross-traffic and reserving the three-block-wide core between them for pedestrian use. Pickup and delivery traffic can move into this pedestrian precinct on its two north-south streets, but through-traffic is blocked by looping these streets short of the civic center on the north and the convention center on the south. With no through traffic up the district's center, the near north and south sides can be developed as quiet residential areas linked by subway direct to downtown.

Gradually the State St. and La Salle St. promenades, now strong lines of interest and communication, would attract the best new buildings. And with all downtown interests pooled in a giant corporation, run-down buildings could occasionally be bought up and demolished to create small plazas along the avenues.



#### THIRD AWARD

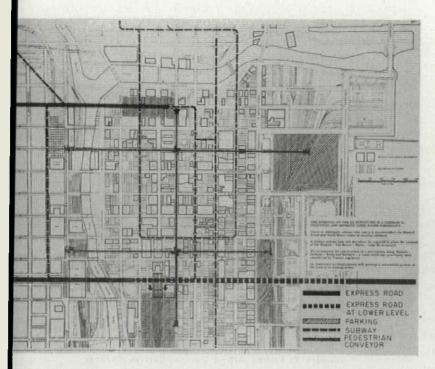
## First steps: a new downtown commission and bonuses for open space

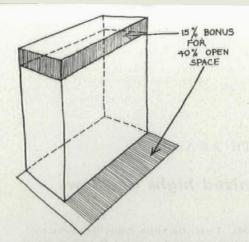
Award: \$2,500. The team: John F. Kausal, Charles B. Genther, William T. Priestley, Albert A. Goers, Mace de Buy Wenninger, John T. Black, W. H. Binford, W. B. Cobb and K. D. Farwell, all of Pace Associates, Chicago planners, architects and engineers; Graham Aldis, Aldis Co., Chicago realtors and building managers; Robert S. Cushman, partner in MacLeish, Spray, Price & Underwood, Chicago attorney.

The authors of this scheme, all directly concerned with Chicago's building future, confined their planning to studies of immediate use to the city and to themselves. Their workmanlike, block-by-block survey, says the Plan Commission, has already saved the city a \$30,000 study of its own. Findings:

The Loop is primarily a workshop, not a great center of culture, government or shipping (which is concentrated farther south). Offices account for half (49.2%) the total value of land and buildings, followed by loft buildings (14.5%), fireproof hotels (9.7%), department stores (9.6%), one- to three-story store and loft buildings (4.4%).

Sole expanding uses are offices and parking; lofts are fast diminishing; department stores, theaters and club buildings are relatively static. Office occupancy expanded rapidly from 1940 (28 million sq. ft., 20% vacant) to 1950 (30 million sq. ft., 4% vacant), has now slacked off from an occupancy increase of 640, 000 sq. ft. a year to only 70,000 sq. ft. a year. But after the new Prudential building absorbs 500,000 sq. ft. of outside demand,





Positive bonus would give developers more floor space if they left high percentage of site open and maintained it as a public park. Present zoning allows floor area 144 times lot area.

Pedestrian conveyors replace bus lines, run underground from rail terminals and parking lots to downtown area. Congress St. Expressway extends east to proposed north-south toll road.

annual requirements for more office space will rise to and remain at a norm of 200,000 to 300,000 sq. ft.—the equivalent of one new 20-story building a year. The current breathing space offers Chicago an unusual chance for sound planning.

Give positive bonuses for leaving open space. To make its workshop more attractive, the city should encourage individual entrepreneurs to work with whole blocks at a time instead of single lots, building on only part of the block. New ordinances should 1) allow developers of half-block sites or larger to build 15% of "bonus" floor space beyond zoning allowances if they keep at least 40% of the site open and maintain it as a landscaped area for public use; 2) exempt such buildings from conventional setback requirements (which so often deform buildings); 3) allow a similar 10% bonus to developers who set their buildings back at least 50' from the Chicago River and landscape them as recommended by the Plan Commission. These positive bonuses avoid the doubtful legality of restrictions for purely esthetic purposes, twice declared invalid in Illinois courts. And more important, they could provide the city with landscaped open areas at no public cost.

Add subsurface transit. A consolidated south-side railroad terminal (proposed in various forms by the Plan Commission and several competitors) cannot be financed and built within the foreseeable future. Instead, build three underground pedestrian conveyors like the one scheduled to replace New York's Grand Central-Times Square subway shuttle. These would connect seven of the eight existing terminals, and four large perimeter parking areas with each other and the Loop (see map diagram, above.) Alleviating surface congestion, each line would carry 30,000 persons per hour in small cars riding a continuous belt with a top speed of 15 mph (e.g., a five-minute ride east from Union Station to the Clark St. transfer point near the center of the Loop). Estimated cost for the three lines: \$19 million at \$2,000 per ft., about one tenth the cost of a consolidated terminal. In addition the Clinton St. subway project would be completed west of the river for \$11.4 million, and some years later the downtown El would be torn down and replaced with a new \$54 million subway looping in from the north. The Pace-Aldis-Cushman study also proposed to: Handle government offices like any other business offices, keeping them downtown for flexibility and public convenience rather than

placing them off by themselves in a monumental civic center.

Add 25,000 parking spaces (financed by \$75 million in revenue

bonds) on railroad air rights, and in six underground garages to accommodate traffic from the new Northwest Expressway, leasing the air rights above the garages to builders.

▶ Establish trucking depots outside the district, limit trucks over 20′ long to nighttime deliveries and enforce daytime off-street loading regulations for trucks and airline buses.

▶ Build, at a later date, a \$15 million convention center and adjacent hotels at the south.

Total to be financed by general obligation bonds: \$120,400,000, well within the city's reserve of bonding power. In addition, the city could levy special assessments on properties benefited by improvements, plus use and occupancy taxes which would be returned to the district instead of going into the city's general budget. Among the latter: taxes on advertising signs and transient hotel guests, increased liquor license fees.

As a single, driving force behind redevelopment, the city should create an official downtown commission of nine unpaid members selected by the mayor, with city council approval, from a slate of names presented by the major downtown interests (State St. Council, Building Managers' Assn., etc.). The commission would: 1) make its own studies and recommendations to the mayor, 2) comment to the mayor on downtown changes proposed by other agencies, 3) pass on plans and appearances of all new buildings and major remodelings, with the help of a municipal art committee, 4) gradually "house clean" objectionable billboards, overhanging signs, sign and light posts. The commission's approval would be required on any special assessment one quarter of which was to be levied within the downtown district, and it would control the spending of use and occupancy tax funds allotted back to the district. Its powers could be enlarged, reduced or dissolved by consent of the city council and owners of 50% of the value of real estate involved. The mayor would appoint and remove the chairman, have veto power over the commission's actions. Under Illinois law, such a commission could be created by special act of the Illinois legislature without public referendum. Its initial working fund of \$15 million, to be used for capital purposes only, should be part of the next bond issue submitted to the public.

#### FOURTH AWARD

#### Organized highs and lows

Award: \$500. Team: Burnham Kelly, Ralph Rapson, Rai Y. Okamoto, Kevin Lynch and Marvin E. Goody, all of MIT.

This skillful perspective from one of the fourth award presentations shows high-density hotel-and-office clusters (floor area ratio: 20), set in a low density background (FAR .75) of pedestrian ways, pools and plazas, restaurants, theaters and shops introducing spaciousness at a human scale. Sound big buildings are retained and new ones of similar function grouped around them while the hodge-podge of smaller buildings are scraped away from their bases. The whole Loop district is raised on a great plateau with parking and service roads underneath. The ICRR tracks and yards are removed to a freight handling center southwest of the district and the roadbeds converted into a new canal and a chain of pleasure islands. Heavy building masses are kept away from the east side to open up views and ready access to the lakefront. Note newly consolidated retail area along State St. (FAR: 6), civic center at far right, north of the Loop.

OTHER FOURTH AWARDS (\$500 each)

Lewis Clarke, Robert Montgomery and Ben Gary Jr. of Raleigh, N. C.

Edward J. Hustoles, Carl Almbiad, Maurice D. Chandler, Richard H. Jennings, Arthur M. Shatz, George Vilican Jr. and Ruth V. Wilson of Detroit, Mich.

Carl L. Maston and Beda Zwicker of Los Angeles, Calif.

Chester H. Jordan, Robert W. Heck, T. G. Hansen and E. Keith McPheeters of Auburn, Ala.

#### HONORABLE MENTIONS

Charles A. Blessing of Detroit, Mich.

Kenneth H. Dillon, Blaine N. Rawdon and Harry Salm of Hollywood, Calif.

Witold K. von Henneberg, Jäcek von Henneberg, James A. S. Walker and James L. Harris of Cambridge, Mass.

Joseph G. Burnett of Chicago, III.

Richard H. Peacock, Thomas W. Hefley, William D. Koster, Gordon R. Garn and Richard N. Wenick of Cincinnati, Ohio

Bernard Rothzeid, Barnett Berliner, William Goodman and Sanford Greenfield of Cambridge, Mass.; and Morse Payne of Brookline, Mass.

Howard T. Fisher, Alfred Burnes, Carl L. Gardner and J. Edwin Quinn of Chicago, III.; and Roland A. Wank of New York, N.Y.

J. Byers Hays, Stephen A. Kaufman, Morten J. Schussheim and Alfred D. Yanda of Cleveland, Ohio

Harry Weese of Chicago, III.

Martin A. D. Meyerson, Robert L. Geddes, George W. Qualls and Blanche Lemco of Philadelphia, Pa.

Kurt K. Perlsee and Niels Stoermer of St. Louis, Mo.



# ATOMIC POWER

It is opening up broad new fields for industrial plant location and a new set of problems for architects, engineers and builders

An \$8 billion infant just entering the growing-pains stage—that is the US atomic energy industry. In less than 15 years this country has created an industry with a larger capital investment than DuPont, General Motors and US Steel put together. So far most of its growth has been handled by the government. This year marks the start of its development as a private industry. Even now, architects, engineers and builders are being called upon to construct the pioneer civilian atomic installations.

Although the industry is about where the automobile was in 1905 as far as private applications are concerned, it is estimated that by 1965, 10% of the country's new electric power plants will be fueled by nuclear fission. By 1975 the figure will be 20%. One estimate puts the cost of atomic plant and equipment in that period at about \$10 billion.

Where will the plants be built? Who will build them? What will they look like? What are some of the problems their designers, builders and owners will face?

#### **New frontiers**

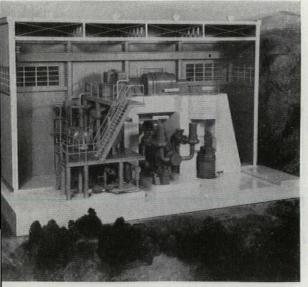
Cost of converting nuclear fission into power is a lot higher than using fossil fuels or water, particularly if the conventional plant is fairly close to a source of fuel. Eventually, technological improvements are likely to make nuclear fuels competitive. For the next few years though, atomic energy power plants are going to be economic only in relatively remote and power-starved areas.

As power comes to areas that are rich in resources but poor in power, the industrial map of the US will change. As an example of the kind of change that is going to occur. take the once poor city of Decatur, Ala. In 1934 this was just another little Southern city with 14,000 people and one industry—cotton. Now, only 20 years later, Decatur has a shipyard, an aluminum fabricating plant, a meat packing company, a peanut oil factory, a commercial flour mill and a dairy products processing plant.

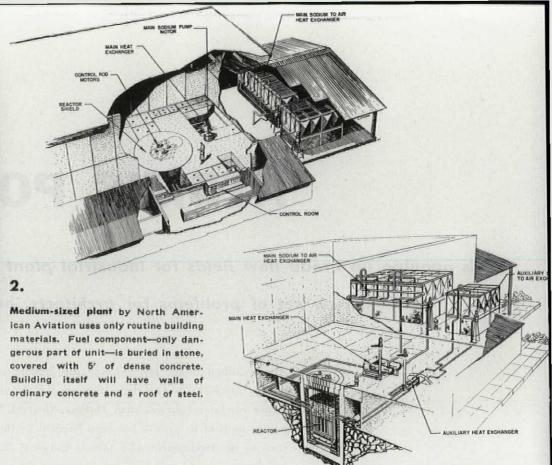
What caused the industrialization of this cotton town? Electricity—from the dams of the TVA. Once industry was attracted in the area there was money to spend on soil conservation and fertilizers to broaden and enrich the area's agricultural output. The dollar-and-cents effect is startling. The yearly payroll in Decatur soared from \$1 million in 1934 to \$12 million in 1953.

What hydroelectric power did for Decatur and the rest of the Tennessee Valley, atomic power will do for the other power-short sections of the country. Atomic power plants are going to create areas that will have the same growth characteristics as TVA towns. Although the growth will be on a smaller scale in each case, the total effect could easily be as great, as more and more of our remote areas find themselves with electricity—the one "raw material" modern industry cannot do without.

All of this means that architects, engineers and builders are going to find themselves opening up new frontiers as they construct the generating facilities that will create electricity—and then build the plants attracted by this electricity.



 Portable plant—so small it can be loaded piecemeal on plane—will bring power to remote areas. American Machine & Foundry's design (above) is prefab using structural steel supports and corrugated aluminum siding, with concrete foundation.



Today's atomic power plants come in three sizes

From the outside, atomic energy plants are not going to look very different from today's power plants. About the only external change will be the absence of railroad sidings, smokestacks and coal dumps. And, inside the plant, from the turbine on, the equipment and its housing will not be much different from the sort of thing builders have been constructing for years.

But great new problems will occur in housing two basic units of an atomic plant. The fuel storage unit and the section containing the nuclear reactor must be treated with the same respect as a hydrogen bomb; they must be encased in a shield and buried for protection against a possible explosion.

These principles will apply to any atomic power plant—whether it is supposed to turn out 70,000 kw or 1,500. Further, because there will be such a big spread in the size of the units, architects and builders who consider nuclear energy plants as too big an operation for them to handle will be talking themselves out of business that should be right down their alley.

#### 1. Small

Calls for the construction of small units are not waiting on the development of larger ones. For example, the army already has 33 industrial firms bidding on a 1,700-kw plant—about the size of the one shown above (left). The winner will call on a building firm to do the actual construction.

The army plans to spend about \$8 million for this compact plant that can be transported by airplanes in several sections. It will provide electricity and heat for remote military bases, where transportation of coal or oil would be both difficult and expensive.

The same kind of plant—with an output of less than 10,000 kw—will also be used by private industry in remote areas that are loaded with natural resources. Instead of shipping out thousands of tons of ore, mining companies will be able to process the material on the site. That is just one of the savings that makes

such an operation economical. Another is that one airplane shipment can bring in enough fuel to keep the plant going for years,

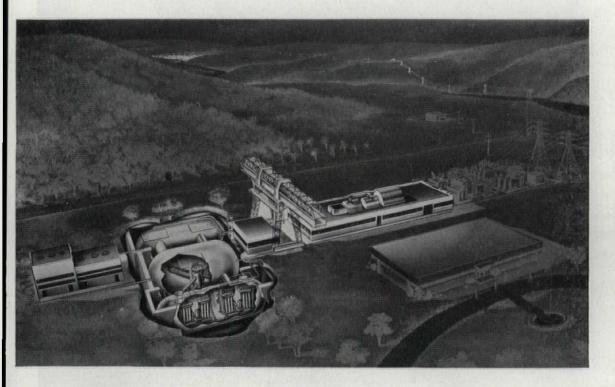
This type of atomic power unit can be built in almost any part of the world; in mountains, tropical jungles or arctic regions. Construction materials will vary with the climate and geography. In some cases, lightweight prefabricated structures would be required to permit air shipment. In others, local adobe brick and stone could be used. It is even possible that no enclosure would be needed except for the control room. In any case, the fuel units would have to be shielded by enclosing them in a concrete shell (with the cement flown in), or burying them deep in the ground, or installing them in a cave.

If the structure is fairly near a populated area it will be necessary to put up pressure-tight buildings with air-lock entrances for personnel. For further protection, the unit will be encased in a steel sphere and buried. The model (shown at the left above) was designed for a remote area by the Atomic Energy Dept. of American Machine & Foundry Co.

It is a prefabricated building with structural steel supports and corrugated aluminum siding. In the building, which is 80' long, 40' wide and 40' high, the reactor is shielded by a concrete jacket.

#### 2. Medium

In between these "baby" facilities and the biggest project yet planned, there is a medium-sized plant. A prototype, now being built by North American Aviation, Inc. (second and third pictures, above), will generate 20,000 kw of energy. The reactor building will be about 100' long and 50' wide, with a 45' area overhead. The reactor itself will be encased in a steel tank and the entire unit installed underground, with 5' of dense concrete between the reactor and ground level.



3.

Biggest plant yet planned (shown at left in drawing by Westinghouse artist) will not have smokestacks or coal and rail facilities found with usual power units. Plant's "furnace" is underground, encased in 9' x 25' steel wall. Cube of concrete, 32' on each side and weighing about 3,000 tons, surrounds steel. Building will be 200' x 200' with 100'-high walls.

### to serve jungles, farms and industrial towns

Not designed for a remote area, this type of unit would be used for a rural community to provide the electricity that would attract small industry. The exact price tag on such a plant is not available but it would not be under \$10 million.

#### 3. Large

The first big private atomic power plant is the 60,000-kw station now being built by Westinghouse and the Dusquesne Light Co. at Shippingport, Pa., 25 mi. north of Pittsburgh. This 400-acre, \$46 million plant (picture, above) probably will be in operation by 1957.

Westinghouse, responsible for the construction, has subcontracted the architectural and engineering work to Stone & Webster Engineering Corp. The contractors were so anxious to get the experience that they agreed to do the work for just \$1—figuring that the knowledge gained would put them several jumps ahead of the field when it came time to compete for the other atomic plants that will be built in the next decade.

Since they are working solely for experience, Stone & Webster have been playing their cards close to their corporate chest. Specifications for the plant have not been made public. But, based on knowledge of similar plants that have been proposed, it is possible to get a general idea of what the unit will look like and what materials will be used.

The preliminary sketch (shown above) released by Westinghouse shows the two "hot" units at the left, These buildings—one for fuel handling and the other for the reactor and heat exchanger—are the only ones that will require unusual materials. The other segments of the installations, from the maintenance building on through the power lines at far right that will carry the electricity to 400,000 consumers, could be used in a hydro or fossil fuel plant.

The fuel-handling building will probably be a steel and con-

crete unit with air-lock entrances. Inside, the nuclear fuel will be kept in heavy metal containers above the ground level.

Next door, in the reactor building itself, the steam-producing reactor will be buried underground within a shell of steel and walls of concrete. In other reactors of a similar type the core of the reactor is shielded with a 3,000-ton concrete cube, 32' on each side. The core is really a cylinder of fuel about 6' in diameter and 71/9' high. This fuel is surrounded by a steel case about 9' in diameter and over 25' high. The dimensions of the reactor building will probably be 200' x 200' with a height of about 100'. The roof of the reactor building will probably be supported solely by its walls, leaving vehicular traffic free to move around the room. The control room will be located in a balcony protruding out into the reactor room near the roof, and the concrete floor will have to be about 3' thick so that it can carry heavy loads of equipment. Entrance to the unit presumably will be through hatchlike air locks in the ceiling. Air will enter through tunnels, pass through two sets of filters and be heated and then sent into the building-after which it will be filtered again and ejected from the building.

It is likely that the walls, floor and ceiling of the room will be at least partially covered with a thin metal skin that can be peeled off if it becomes contaminated.

From the outside, the area above the reactor room will be almost completely flat without any visible signs of a steam plant.

This element of "invisibility" has been present in a peculiar fashion in almost all steps toward atomic power plants. For while the nation has worried about bombs and has given military applications most of its attention and effort, it has—almost without noticing it—started to move into an era of atomic power.

Small, medium or large, many architects, engineers and builders are going to be building these plants long before the start of the sixties.



Grand Central's drama of light plays into a drama of space no picture can convey.

# Can the Grand Central concourse be saved?

The prospect that New York's Grand Central Station, with its splendid concourse, may be torn down, raises emotions very different from the vague nostalgia that attends all expected demolitions. The concourse is one of those rare examples of fine civic architecture that has been blessed by good fortune as well as skill, and has been taken to the hearts of the people. The good fortune is an element that cannot be had every time for the asking.

On hearing the news, FORUM promptly framed an appeal to the heads of the two railroads to plan their future expansion in a way that will save the concourse, that will incorporate it in their new, ambitious program as a living part of the city.

In the belief that the letter represents the strong wishes of the architectural and planning professions as a whole, it was sent to a list of 428 professionals, and their signatures invited. The list was made up largely of those forward-looking, not backward-looking, men whose contemporary creations the magazine has published; it included also the deans of the architectural schools and other leaders. The response was remarkable. More than half replied to a mailing that carried no return cards or envelopes. And of the 235 responding, a phenomenal majority of 220 did join the plea to save the concourse.

The dissenters were thoughtful, too, and their views are reported on p. 136. But in transmitting the letter herewith, we feel secure in saying that it represents the community of those who believe in architecture, the art that creates our cities.

## to New York Central System's Chairman Robert R. Young, the New Haven Railroad's President Patrick B. McGinnis, and their associates:

The New York Times reports that you have considered demolishing the Grand Central Station, concourse and all, to put in more compact and advanced station facilities connected with a major office building development.

We are delighted that you are not content with the sleepy inefficiency and obsolescence of so many railroad structures; but before you touch the concourse of Grand Central we urge some careful thinking.

The concourse may not be the most efficient railroad station conceivable for 1955, but-the Grand Central concourse is probably the finest big room in New York.

It belongs in fact to the nation. People admire it as travel carries them through from all parts of the world. It is actually one of those very few building achievements that in many minds has come to stand for our country.

This great room is noble in its proportions, alive in the way the various levels and passages work in and out of it, sturdy and reassuring in its construction, splendid in its materials-but that is just the beginning. Its appeal recognizes no top limit of sophistication, no bottom limit. The most exacting architectural critic agrees in essentials with the newsboy at the door.

The big sunray pattern filtering through its windows is part of its drama, but so is the adventure of scurrying through labyrinthine passages to emerge on a rainy day eight blocks north, or engulfing a hearty steaming oyster stew in the cavelike Oyster Bar. But, most of all, America loves its big room under the zodiac.

Gentlemen, we plead that you not tear it down. that you not trust yourselves to replace it.

We do not seek herewith to advise you on your practical, economic problems. For example, if taxation on this place where all America feels grand has become onerous, we urge the most careful reconsideration by the city of what share should be taken by the citizens in supporting this public monument and magnet.

What does concern us is that masterpieces of architecture are no easier to replace than masterpieces of music. When and where genuine lasting beauty will strike is the most unpredictable of things. It cannot be assured by good intentions. To throw away a known masterpiece of architecture, tested and loved; to remove an important link between the city and its history; to grow careless with the evidence of past greatness, would be an adventure attended with great risk.

Your own past actions have shown a fine regard for the public and what it loves. We address to you the plea: save the Grand Central concourse.

### The big majority of architects plead: "Save the concourse!"

FREDERICK J. ADAMS, Cambridge RICHARD J. ADAMS, Montgomery WM. STEPHEN ALLEN, San Francisco LAWRENCE B. ANDERSON, Cambridge JAMES M. HUNTER, Boulder ROBERT ANSHEN, San Francisco HARRIS ARMSTONG, Kirkwood LEOPOLD ARNAUD, New York WILLIAM T. ARNETT, Gainesville A. L. AYDELOTT, Memphis TURPIN C. BANNISTER, Urbana PHELPS BARNUM, New York GEORGE M. BEAL, Lawrence, Kan. HERBERT L. BECKWITH, Cambridge RICHARD M. BENNETT, Chicago WELLS BENNETT, Ann Arbor WALTER BOGNER, Cambridge SIMON BREINES. New York HAROLD BUSH-BROWN Atlanta FRANCIS V. BULFINCH, Boston JOHN C. CAMPBELL, San Francisco J. GORDON CARR, New York ROBERT CARSON, New York WILLIAM W. CAUDILL, Bryan GIORGIO CAVAGLIERI, New York SERGE CHERMAYEFF, Cambridge MARIO I. CIAMPI, San Francisco HERVEY P. CLARK, San Francisco ALEXANDER S. COCHRAN, Baltimore CHARLES R. COLBERT, New Orleans CLINTON H. COWGILL, Blacksburg GARDNER DAILEY, San Francisco K. W. DALZELL, Belleair Beach, Fla WM. HENLEY DEITRICK, Raleigh VERNON DEMARS, Berkeley JOHN E. DINWIDDIE, New Orleans LATHROP DOUGLASS, New York HENRY DREYFUSS, New York CHARLES EAMES, Venice, Calif. OTTO R. EGGERS, New York THOS. F. ELLERBE, St. Paul WINSTON ELTING, Chicago FREDERICK E. EMMONS, Los Angeles EUGENE J. MACKEY, St. Louis RAY FAULKNER, Stanford J. HERSCHEL FISHER, Dallas T. K. FITZ PATRICK, Charlottesville O'NEIL FORD, San Antonio KENNETH FRANZHEIM. Houston ALBERT FREY, Palm Springs ARTHUR B. GALLION, Los Angeles PAUL GERHARDT JR., Chicago FRANCIS J. GINA, New York HARMON H. GOLDSTONE, New York ALBERT S. GOLEMON, Houston CHARLES M. GOODMAN, Washington PERCIVAL GOODMAN, New York JOHN L. R. GRAND, Gainesville ROBERT A. GREEN, Tarrytown OLINDO GROSSI, Brooklyn BARNEY GRUZEN, New York D. A. HAMILTON, Stillwater, Okla. TALBOT HAMLIN, New York ALONZO HARRIMAN, Auburn, Me. HARWELL HAMILTON HARRIS WM. B. HARVARD, St. Petersburg ROBERT F. HASTINGS, Detroit HENRY HEBBELN, New York GEORGE F. HELLMUTH, St. Louis JACK HERMANN, San Francisco ARTHUR P. HERRMAN, Seattle HENRY HILL. San Francisco

SAMUEL E. HOMSEY, Wilmington

VICTOR HORNBEIN, Denver CALEB HORNBOSTEL, New York KARL HUMPHREY JR., Minneapolis E. H. HUNTER, Hanover PAUL R. HUNTER, Los Angeles ROBERT S. HUTCHINS, New York REGINALD R. ISAACS, Cambridge JOHN MACL, JOHANSEN, New Canaan PHILIP C. JOHNSON, New Canaan A. QUINCY JONES JR., Los Angeles VICTOR N. JONES, Seattle ELY JACQUES KAHN, New York HENRY L. KAMPHOEFNER, Raleigh KARL KAMRATH, Houston KENNETH KASSLER, Princeton MEYER KATZMAN, New York GEORGE FRED KECK, Chicago WILLIAM KECK, Chicago ARTHUR H. KEYES JR., Washington DAN KILEY, Charlotte WALTER H. KILHAM JR., New York PAUL HAYDEN KIRK, Seattle CLARENCE KIVETT, Kansas City CARL KOCH, Cambridge LAWRENCE KOCHER, Williamsburg ERNEST J. KUMP, San Francisco ALAN K. LAING, Urbana ERNEST LANGFORD. College Station PAUL LASZLO, Beverly Hills JOHN LAUTNER, Hollywood ELEANOR LEMAIRE, New York ROBERT A. LITTLE, Cleveland ROBERT M. LITTLE, Miami SIDNEY W. LITTLE, Eugene HERMON LLOYD, Houston EMIL LORCH, Ann Arbor THOMAS H. LOCRAFT, Washington OWEN A. LUCKENBACH, Birmingham EARL H. LUNDIN, New York MAYNARD LYNDON, Los Angeles F. J. MACKIE JR., Houston MARION I. MANLEY, Coconut Grove CLIFF MAY, Los Angeles ALBERT MAYER, New York ANGUS McCALLUM, Kansas City FRANCIS J. McCARTHY, San Francisco PAUL THIRY, Seattle H. B. McELDOWNEY, Chicago ROBERT W. McLAUGHLIN, Princeton CARROLL L. V. MEEKS, New Haven JOHN G. MEEM, Santa Fe HOWARD R. MEYER. Dallas JAMES A. MITCHELL, Pittsburgh FRANK MONTANA, Notre Dame JOHN C. B. MOORE, New York W. B. MORGAN, Houston G. MEREDITH MUSICK, Denver RALPH MYERS, Kansas City S. E. NAESS, Chicago GEORGE NELSON, New York GEORGE NEMENY, New York ELIOT F. NOYES, New Canaan R. B. O'CONNOR, New York ROBERT K. OVERSTEET, Jackson GEORGE M. PAGE, Austin LOUIS C. PAGE. Austin ALFRED B. PARKER, Miami G. HOLMES PERKINS, Philadelphia LAWRENCE B. PERKINS, Chicago BUFORD L. PICKENS, St. Louis

RALPH POMERANCE. New York ALFRED EASTON POOR, New York HERBERT J. POWELL, Los Angeles RALPH RAPSON, Minneapolis EARL H. REED, Chicago JOHN LYON REID. San Francisco JOHN REX, Los Angeles NORMAN L. RICE, Pittsburgh LORIMER RICH New York JOHN N. RICHARDS, Toledo JOSEPH P. RICHARDSON, Boston W. D. RIDDLE, Cleveland DAHLEN K. RITCHEY, Pittsburgh A. C. ROBINSON, III, Cleveland GEORGE T. ROCKRISE, San Francisco JERRY ROGERS, San Antonio WALTER T. ROLFE, Houston JOHN J. ROWLAND, Kinston, N. C. PAUL RUDOLPH, Sarasota GEORGE V. RUSSELL. Los Angeles T. TRIP RUSSELL, Miami EERO SAARINEN, Bloomfield Hills NICHOLAS SATTERLEE, Washington BEN SCHLANGER, New York NORMAN J. SCHLOSSMAN, Chicago RICHARD E. SCHMIDT, Chicago JOHN P. SCHOOLEY, Columbus DANIEL SCHWARTZMAN, New York PAUL SCHWEIKHER, New Haven VINCENT I. SCULLY, New Haven JOSE LUIS SERT, Cambridge J. STANLEY SHARP, New York JOHN KNOX SHEAR, Pittsburgh ROSS SHUMAKER, Raleigh CHLOETHIEL WOODARD SMITH MORELAND G. SMITH, Montgomery ELDREDGE SNYDER, New York ZAREH SOURIAN, New York LOUIS A. SOUTHERLAND, Austin HAROLD SPITZNAGEL, Sioux Falls C. E. STOUSLAND, Oxford HUGH STUBBINS, Lexington EDGAR TAFEL, New York EATON W. TARBELL, Bangos D. CODER TAYLOR, Kenilworth WALTER DORWIN TEAGUE, New York OTTO J. TEEGEN, Albany W. STUART THOMPSON, New York RALPH S. TWITCHELL, Sarasota WILLIAM C. VLADECK, New York I. FRANCIS WARD, San Francisco JOHN C. WARNECKE, San Francisco JOHN R. WEBER, New York ROBERT LAW WEED, Miami PAUL WEIGEL, Manhattan, Kan. ELLIOTT L. WHITAKER, Columbus JULIAN WHITTLESEY, New York PAUL LESTER WIENER, New York SAMUEL G. WIENER, Shreveport J. R. WILKINSON, Atlanta PHILIP WILL JR., Chicago HAROLD B. WILLIS, Boston ROYAL BARRY WILLS, Boston TALBOTT WILSON, Houston RALPH E. WINSLOW, Larchmont KENNETH E. WISCHMEYER, St. Louis WORLEY K. WONG, San Francisco JOHN LLOYD WRIGHT, Del Mar WILLIAM W. WURSTER, Berkeley JOHN YEON, Portland L. MORGAN YOST, Kenilworth

COMMITTEE ON HISTORICAL BUILDINGS, New York Chapter, AIA, Ferdinand Eiseman, Chairman

ERNEST PICKERING, Cincinnati

## A small but influential minority thinks Grand Central concourse can well be replaced

#### **Against monuments**

Forum:

I can't go along. Years ago, in an article called "Monuments, Memorials and Modern Design," I stated my firm opinion that a railroad station could and should not be a monument in the contemporary scheme of things. By this opinion I abide.

I will admit that I have had much pleasure, in the past years, from entering and circulating in the Grand Central because of its fascinating complexity of passages and levels woven about a great space, but once these are removed I see no great architectural virtue in the great space itself. The exterior to the south and the office tower to the north are in any case deplorable.

So, putting aside sentiment, I say let the nature of the taxation of aerial rights take its course.

Sorry!

GEORGE HOWE Philadelphia, Penn.

#### For greater convenience

Forum:

... The construction of a combined terminal and office space on a site already fixed as a terminal would be a step forward in making more contacts possible without relatively increasing the traffic problem.

From that standpoint alone the project would be commendable.

Further, I have confidence in the esthetic values and the things that would be created by Messrs. Zeckendorf and Stevens—and I think they would dominate that phase of the project—to stir things in people as they are being stirred now.

... Wouldn't it be a better approach to suggest that the concourse room might be saved—and still have the connection with a tower of offices—but construct it over the Grand Central office building? To raze that structure would not do any great harm to mans' spirit.

KENNETH C. WELCH Grand Rapids, Mich.

#### Against inconvenience

Forum

Do you really want to retain, in other than photos, the concourse and dungeons of an era of architecture that only retarded the forthright development of our own forms and functions?

Did you ever try to find Track 39?... the men's room?... the taxi stand? Did you ever try to get in or out of the place? Or drive around it on Park Ave.? Honestly, the only good thing about the place is the oyster stew, and that is only seasonal!

I hope Messrs. Young and McGinnis

think twice before they leap—but I hope they leap . . . following not even the UN or Lever House or the aluminum shells and false spandrels rising all about you.

JOHN S. BOLLES San Francisco, Calif.

## Concourse not significant architecturally

Forum

Why such a strong plea for one of New York's great structures composed in the age of eclecticism? . . . A much greater architectural creation could be forthcoming. If Grand Central Station is to be retained as Americana the appeal should be on some basis other than architecture.

ALBERT C. MARTIN Los Angeles

Forum:

. . . Grand Central leaves me cold. . . .

ROBERT G. CERNY Minneapolis, Minn.

Forum:

You cannot stop progress for sentimental reasons. Grand Central is not a cultural or historical treasure that must be preserved at any price.

> L. L. RADO New York

#### Faith in new creation

Forum:

We should not put obstacles in the way of a new project which may create a still better architecture. . . . I believe in the vitality of our time. Good contemporary architecture stands up against the great creations of the past. Any "cultural" or "local patriotic" hampering of free development of contemporary architecture is dangerous. Let us wait until a new project crystallizes and decide then. . . .

MARCEL BREUER
New York

Forum:

Though it is a marvelously beautiful room, Grand Central is in an archaic style, does not particularly express the exciting materials or exciting methods of construction we have today. The new complex should culminate in the most exciting room in the world, perhaps with its roof an elegant perforated shell, such as Nervi has done in Italy. A tremendous center emptying into and fed by underground railroads emptying into a wonderful complex of office buildings reachable in a five-minute indoor walk and yet accessible to all New York could be the most exciting job in the world, in the right hands. . . .

MINORU YAMASAKI Detroit, Mich.

#### The real problem is congestion

corum:

I am not certain the demolition of Grand Central would be such a serious blow. . . . But if it were to be replaced by the world's largest office building diagonally across from what would then be the world's second largest building [Socony-Vacuum—ED.] and not far from others among the first ten, congestion in the area would be terrific.

FREDERICK G. FROST JR. New York

#### Keep concourse to avoid congestion

Forum

The real reason for not changing the concourse is congestion.

CLARENCE S. STEIN New York

Forum: -

Better to question further increasing density in this already terribly overcrowded section of New York with a building. . . .

> GEORGE EDSON DANFORTH Cleveland, Ohio

## Alfred Fellheimer's redesign

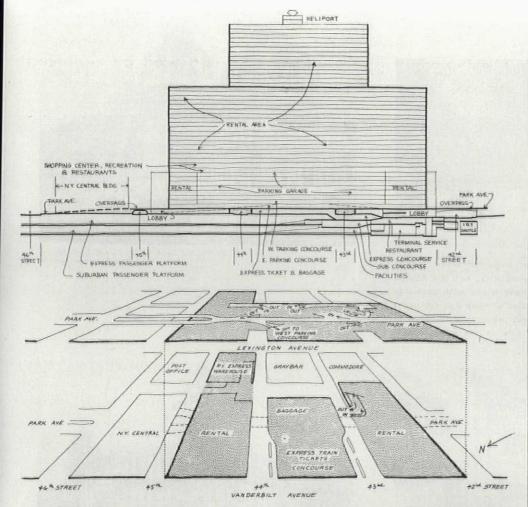
Innumerable new ideas have been offered, including Frank Lloyd Wright's 500-story tower; the only plans yet released are by Alfred Fellheimer, who helped plan today's station starting back in 1903. He writes:

In spite of my own pride in the station, I must say it has become an obstacle to attainment of important public objectives. . . . Point one. When the present station was built, there were no cross streets between Madison Ave. and Lexington Ave. Traffic was mainly horse-drawn and light. The area was far north of the intensive development of the day. Anticipating the growth of the city, the architects planned extension of all east-west streets across what was then an open-cut railroad yard, and continuation of Park Ave. in a straight line. East-west and north-south streets were to be at different levels, with ramp connections.

Result: through the insistence of the New Haven Railroad, Park Ave. overpass at 42nd St. was restored—the one feature of the plan that was carried out.

Point two. For the growing number of commuters who would interfere with long-distance travelers the architects planned commuting facilities and exits along 46th St. (with express-train traffic oriented toward 42nd St.). Result: zero.

Point three. To offset too great carrying charges the architects proposed a tall office building over the station (this won the compe-



Complicated-looking diagrams show Alfred Fellheimer's actual simplification of traffic in his new Grand Central proposal. But in the process of carrying Park Ave. right through

the station, he has reduced the concourse (front center) to a much smaller, relatively lower, room which Carrol Meeks (next page) compares with a subway station.

#### strictly considers operation, income, city traffic

tition for them). The railroads held that offices so far uptown would never rent but they reluctantly let foundation and column capacity over part of the property be designed to carry a 22-story building.

Result: additional capacity was incorporated . . . so the present station could support that limited amount of office space without structural change.

Point four. The architects proposed the then-unprecedented use of the air space over the yards for high-grade buildings. The railroads were doubtful, but permitted construction of one building.

Result: the architects brought about organization of a group to finance Grand Central Palace, developed the first techniques of vibration control, and thus laid the groundwork for "air-rights" development of the Murray Hill-Park Ave. district. However, by then the station had been built. Realization of this potential came too late for redesign of urban traffic.

There were other disagreements on matters of future growth, such as the architects' recommendation that the right of way from the Mott Haven yards be eight tracks wide rather than four. . . .

Congestion in and around the station, pedestrian as well as vehicular, is now as bad as anywhere in the city. And it is steadily getting worse. This is a matter of direct public interest, quite apart from the financial burden upon the railroads.

We cannot speak for any plans that may or may not have been developed by others. Our own studies were based from the start on the necessity of workable traffic patterns. These proposals include new street extensions, at different levels to minimize crossings; new facilities for rerouting bus and truck movements; removal of the major part of station-induced taxicab traffic from 42nd St. and Vanderbilt Ave.; restoration of the one-way street pattern; a major parking garage with multiple ramp access from several streets; direct northward outlets for commuters to avoid backtracking toward 42nd St.; a roof plaza, restaurant and shopping center at the first setback level to keep tens of thousands of building occupants off the congested streets.

We carefully weighed our own pride in the present building, and its emotional and esthetic significance to people all over the world. Our reluctant but firm conclusion is that neither pride nor reverence should be permitted to clot the vitality of a great metropolis. In turn, that very vitality may guarantee that if one expression of human aspirations must be destroyed in the process of growth, it will be replaced by an even greater one.

ALFRED FELLHEIMER Fellheimer & Wagner, architects and engineers

# Seven important questions about Grand Central:

1. Is the thought of demolition real?

Answer: It had better be treated as bona fide. Both the new energetic railroad heads can be counted on to exploit the full real estate potential, to which they are obviously entitled, for their stockholders.

# 2. Is the motivation tax-saving or income?

Answer: Both, but chiefly income. Real estate taxes on the terminal itself, including office space but not No. 230 Park Ave., are given by the City as \$1.33 million a year. This does not include taxes on yards and trackage. The railroads give \$24 million as the operating loss for the terminal. The Central is irked because its money-losing passenger business into New York is taxed while airlines use public-owned airports.

But the main thing is a wonderful tract of 15 acres (excluding the hotels) worth an estimated \$7 million per acre, not now earning income. An office building of 5 million sq. ft. renting at \$6.50 per sq. ft. would bring more than \$30 million gross income annually—and would boost leases on all surrounding hotels.

## 3. Is the concourse worth saving?

Answer: Architecturally, yes, is the consensus of architects and critics.

# 4. Could adequate income be realized and the concourse be saved?

Answer: Experienced Architect Fellheimer (see left) and imaginative Architect Pei (working with Zeckendorf) both say no, for traffic reasons. But Grand Central's best disinterested historian, Carroll L. V. Meeks, thinks yes, and further disinterested opinion is needed for a fully convincing answer.

#### 5. How could the answer be found?

Answer: By putting the world's best architectural and planning brains to work, perhaps through an international competition. Because of the complexity and magnitude, the railroads would however have to retain unusual freedom of action. Yet bountiful prizes would be justified.

#### 6. Is the atmosphere favorable?

Answer: Yes. President McGinnis of the New Haven is unusually alert to architectural values (he and Mrs. McGinnis have just bought their second modern house) and Central's Young is highly aware of the public interest.

#### 7. Is the city involved?

Answer: Yes. It is reported to have turned down both tax relief and public operation as ideas. But Grand Central is, as the roads say, primarily a public facility; moreover the city must cooperate on the major traffic and planning problems involved.



The 200'-wide train shed of imported metal was a wonder of technology and simplicity, but the Second Empire architecture of the head house with cast-iron trim, not so good. Complication already was too great—three separate waiting rooms inside, and the need to haul some cars down Park Ave. to the more central Madison Square station.



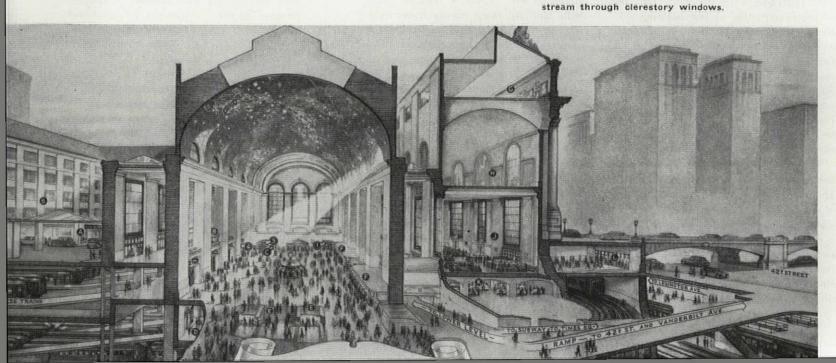
Photos: (above & below) Carroll L. V. Meeks (left center) The Bettmann Archive



1898 Complication had grown still greater, was met by palliatives. Extra stories were piled on the station in full architectural confusion; an indifferent waiting room worked in; the Third Ave. elevated tracks continued on a 42nd St. spur almost to the Grand Central entrance. The trains were already too long and some cars stood beyond the shed.



The triumph of a big focal space, in the concourse, that brings visual order out of a complicated situation. Note the many subway levels to right, and the loop that was intended to carry trains on the outer tracks around the station (it is too tight for anything but locomotives now). Building wings are farther apart than indicated in this drawing, making it possible for south sun to



### Today's Grand Central concourse is a victory over "complexities continuous"

by Carroll L. V. Meeks, Yale University

When Commodore Vanderbilt began his great passenger station at 42nd St. he had hoped that its uptown situation would solve the congestion and confusion which surrounded the old location at Madison Square. He expected that uniting the services of three scattered terminals would simplify transfer problems for his clients. At the same time he aspired to build a station which would equal if not eclipse the magnificent terminals in Paris and London. He was only partly successful. Some passenger cars still had to be hauled through Grand Central down Park Ave. to the more centrally located Madison Square terminus. His grade-level tracks along upper Park Ave. involved him in lawsuits as people disputed for right of way with his engines. His architects were forced to import the metal for his daring 200'-wide train shed. Stone trim for the Second Empire head house proved too costly. All the cornices and window frames as well as the coins were cast in iron. The three companies sharing the new terminal insisted on separate, independent suites of waiting rooms and ticket offices.\* This determined individualism meant that passengers arriving on the cars of one company and wishing to travel farther on another line had to pass out into the street and re-enter another set of offices regardless of weather. A few years later when the elevated lines were building, a spur was run along 42nd St. to connect with Grand Central but at a higher level. In the 1880's the trains had grown so long that some cars stood out in the vard beyond the end of the shed.

By 1898 the situation was so bad that palliatives were undertaken. A remodeling program was adopted. A new combined waiting room serving all lines was devised under one end of the shed. The old head house was hopelessly outgrown. A baroque superstructure of appallingly bad design was contrived. The feeder tracks down Park Ave, were walled and bridged but the four lines were heavily taxed.

The Pennsylvania Co. had decided to eliminate their transfer points on the Jersey shore and come right into Manhattan. Their grandiose station plans made the barbarous, battered old Grand Central look even more atrocious. There were subways and buses as well as motor cars to consider now, too. Traffic within the station had increased alarmingly. A new track layout was the only hope of salvation. Considerable courage was necessary to admit that already

only a completely new station would answer. Most of the big ideas were the brain children of Engineer C. Wilgus: the superimposition of two separate stations, one for express trains and one for suburban; the loops; the enlargement of the site.

To solve this stunning complexity of functions with what is after all a comparatively simple plan was an unrivaled architectural feat. A limited competition was held and in some unexplained way it was decided to combine the services of the winners, the firm of Reed & Stem, already famous for a series of new railroad stations, with those of Vanderbilt's relation Whitney Warren and his partner Wetmore, The first firm, it is believed, suggested continuing Park Ave. on a viaduct, allowing 45th St. to continue across the site, and proposed the vitally necessary ramps. They also prepared for the future by building footings and a skeleton capable of supporting 20 stories of office buildings.

This time there was the willingness to build a station which would symbolize the role of the railway as one of the chief entrances to a great city.

Just as Vanderbilt had been influenced by European prototypes, so the third Grand Central derived some of its ideas from Victor Laloux's recently completed Gare d'Orsay in Paris, opened for the Exposition of 1900. There, too, the scale was huge, the entrances were marked by colossal arches and the great hall of the station lay over the tracks and platforms. The trains were operated electrically. In New York, however, where the complexity was infinitely greater and the land far more costly, it was necessary to introduce still more levels, as well as to provide vastly increased accommodations of all types. Furthermore, the station had to continue in use while the old buildings came down, new tunnels were bored and the new building rose. All the fabulous costs including electrification could only have been borne provided that the sale of the air rights was successful. All worked out as foreseen but to an unexpected extent. As the surrounding property continued to help support the heavy costs, land values rose; only the station buildings themselves failed to share in this affluence so producing the present crisis, in which the railroads are being squeezed out by their own spawn.

Passenger stations serve as transfer points and have inevitably been associated with innumerable auxiliary services required to meet human needs. Station-connected hotels came very early. In the 1840's at York and at Euston in London provision for more adequate vehicle space was urgent as early as the 1860's and rarely provided abundantly enough.

There was another major function which stations were called upon to play from the beginning. This was a ceremonial one. The station became a welcoming place. Receptions were held in it for visiting royalty. Conquering generals and presidential candidates were hailed there by the crowding populace. Today swarms of children departing for camp bid farewell to their parents under Grand Central's vault. It became hard to distinguish between the station and other types of public buildings, so much did it become a part of the pageant of life. The architecture of stations came to reflect this added function.

The tradition of stately concourses began with the addition in the 1840's of a great hall to the Euston Station. Philip Charles Hardwick raised a lofty room surrounded with marble columns, roofed by a coffered ceiling and furnished with a baroque staircase.

Today this tradition survives unimpaired in great new stations built on the Continent at state expense, as in Oslo, Göteborg and most spectacularly in Rome. In our own country we have few stations adequately expressive of this cultural role. Perhaps that at Washington, D. C. is the most generally recognized and accepted example. The relation of that station to the Capitol physically and to our history spiritually is unquestioned. The superlative concourse of the present Grand Central, now more than 40 years old, is fast accruing the same rich patina of values. A more utilitarian transfer point can never achieve its uniquely successful blend of efficiency and civic dignity.

Both Grand Centrals have had some claim to simple efficiency. The great train shed of the first station, once one of the sights of New York, ranked for a while second to the National Capitol, was a straightforward solution to the problem of boarding and leaving cars under shelter.

The concourse of the present station manages to function smoothly as a mixing chamber in which the most diverse routes which the passenger may conceive for himself can be worked out with a minimum of confusion and wasted steps. Orientation is easily achieved. The proposed new concourse would be low, cluttered with columns, and would be forced to resort to signs and colored lights like the subway transfer point at Times Square.

<sup>\*</sup> Even as airlines do today.-ED.



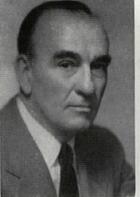
STEPHEN F. VOORHEES



RAIDH WALKE



MAX H. FOLEY



PERRY COKE SMITH



DENIAMIN LANE SMITH

## **VOORHEES WALKER FOLEY & SMITH**

have become architects to industry

by mastering the art of human relations as well as the art of efficient design. Prime example

Much credit for the great quality and great quantity of US laboratories must go to the staid, staunch firm of Voorhees, Walker, Foley & Smith, architects and engineers—and specialists for many years in what they call "the design of structures and sites for special occupancy." Translation: "buildings for people with organized habits of work and particular functions"—mostly laboratories like the ones at the right for DuPont and other buildings for industry (like the 1 million sq. ft. of all-purpose office facilities planted out on a verdant suburban hilltop at Milford crossroads—also for DuPont).

The qualitative "revolution" in US labs actually began back in 1937, when VWF&S did a lab for Bell Telephone at Murray Hill, N.J. based on the flexible-modular concept, and thereby created what is generally considered this nation's first really modern research structure. The underlying principle of the bulk of VWF&S work ever since, up to and including the work shown here, is the same flexible-modular concept.

The quantitative "revolution" got under way soon after V-J Day, 1945, when a decade of depressions, wars, economies and shortages finally came to an end. And no part of the whole great building boom of the subsequent decade was to be more impressive—especially in terms of the future national well being—than the postwar boom in brand new (or newly expanded) laboratories.

By far the lion's share\* of the designing of these projects has accrued to VWF&S; for them 1945-54 has been an era of peak production never before matched in the firm's 70 years of existence. Glancing through its postwar portfolio is like glancing at random through some gilt-on-grosgrained Blue Book of Blue-Chip Clients: Bell Telephone, of course, and N.Y. Tel (200 projects), and N.J. Bell Tel (100 projects) . . . and Ford, GE, IBM, R. H. Macy (82 projects), Procter & Gamble, General Foods, Union Carbide, Westinghouse, Esso, Coty, Travelers of Hartford, Prudential, Bank of N.Y., Bakelite, Quaker Oats . . . and Columbia University (a cyclotron building, among other things), Columbia-Presbyterian Medical Center (54 projects), University of Chicago, MIT, Johns Hopkins, Archdiocese of N.Y., the City of N.Y., the United Nations, the Atomic Energy Commission (item: Argonne National Laboratory; item: "certain facilities" at the big, hush-hush Savannah River Atomic Energy plant) . . . and—though certainly not last, not least—E. I. DuPont de Nemours & Co., Wilmington, Del., et environs. Which takes us now to the banks of the Brandywine and the big recent addition to the DuPont Experimental Station.



Aero Service Corp.

<sup>\* \$500</sup> million-plus in project-value, 1945 to present

DUPONT EXPERIMENTAL STATION EXPANSION, Wilmington, Del.

For Voorhees, Walker, Foley & Smith:

PERRY COKE SMITH, partner-in-charge

HERBERT H. DEAN, JOHN BENNETT, project managers

For E. I. DuPont de Nemours & Co.:

F. W. PARDEE Jr., manager, design division

SANFORD W. SAWIN, design project manager

R. K. MASON, field project manager

SYSKA & HENNESSY, mechanical engineers

WILCOX & ERICKSON, structural engineers

DuPont's laboratory complex (below) and its new office headquarters (p. 146)



DuPont's Experimental Station, the product of close architect-client collaboration, is a campus of six modern laboratory establishments

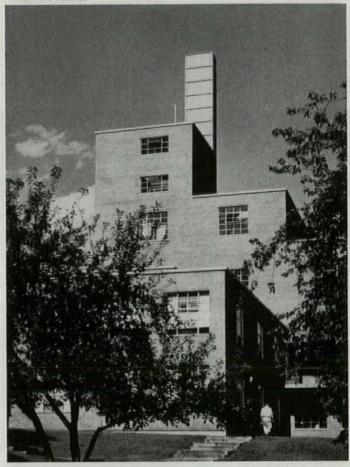
The problem of designing this huge complex of DuPont labs \* was as much as anything else a problem in the delicate, complex art of human relations. Here is what VWF&S partner-in-chargefor-DuPont Perry Coke (Jack) Smith discovered during his introductory visit to Wilmington: 1) DuPont was not one great king-sized corporation, it was 10 different autonomous industrial departments-Polychemicals (plastics), Grasselli Chemicals (ranging from floor waxes to plant sprays), Textile Fibers, Pigments, etc., supported by 12 different staff departments, including Chemical and Engineering. 2) The plants of these departments were spread all around the map from points east to west, Delaware to Cleveland to Niagara Falls to Texas; they were all big; they were all very proud of their own particular prerogatives. 3) Six of them—those named above—were willing to be persuaded to take up housekeeping together in a single Experimental Station, but they had six different ideas of what was best in the size, shape and arrangement of laboratories. 4) Always in the past, the Design and Construction Divisions of Engineering-a 2,200-man department-had handled the designing and building of anything anybody at DuPont wanted built. (Another division is devoted to research.) But now the whole business was too close to home. Should there be one enormous structure housing six or more separate research organizations? Should there be six or more different structures-and if so, how to work out a site plan that would be spacially well composed and at the same time meet the preferences of the six individual departments? (The new Experimental Station is actually an expansion of-and adjacent to-the old Experimental Station located just a few hundred yards from where Eleuthère Irénée DuPont de Nemours had built his first powder mill on the outskirts of Wilmington in 1802.)

"DuPont had reached the point," says Architect Smith, "where they finally had to conclude that it was like nothing so much as trying to teach your wife to drive . . . that what DuPont needed most of all was the outside point of view."

Simple little task for the "outsider": to work out with DuPont a solution acceptable to everybody, especially to DuPont's Engineering Department, whose Design Division would be responsible in DuPont for the design and supervision of construction.†

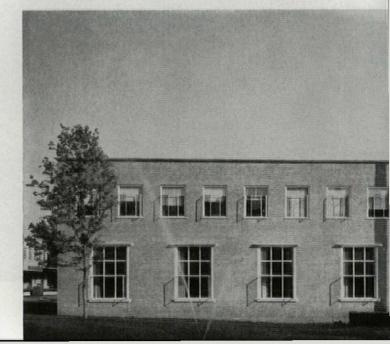
The mechanics of this collaborative process worked like this: design solutions were proposed by VWF&S, examined by Engineering's Design Division, discussed and eventually approved. These solutions were then offered to the using departments (the clients, in this case) as joint recommendations of VWF&S and the Design Division. Needless to say, the effectiveness of this operating procedure required the development of confidence





Special services lab performs large-scale odd-job research for all other components, is centrally placed between old station and new.

Lavoisier library (left of flagpole) adjoins administration building. Window wall of vestibule establishes connection, separation.

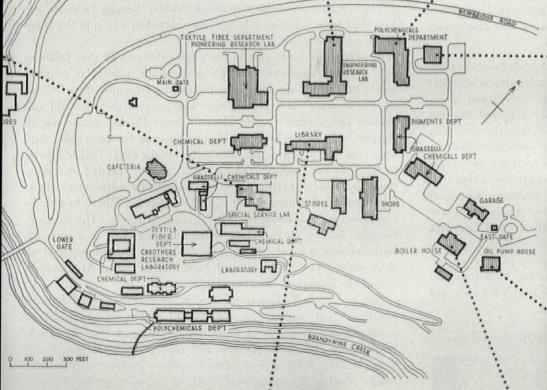


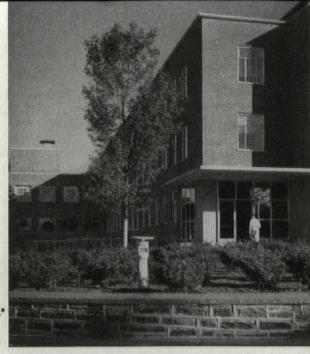
<sup>\*</sup> Total cost, about \$30 million; cost of VWF&S-designed portions of project,

<sup>†</sup> Eventually, VWF&S was also to send down liaison teams to work with DuPont in the field and help resolve specific questions of plan interpretation.



Engineering. Here, as elsewhere, the modules added up to three main working stories, plus a service-distribution story in basement.

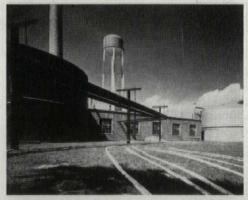




Polychemicals. Architects gave each structure a different form of entranceway, sought thereby to give each as much individuality as possible.

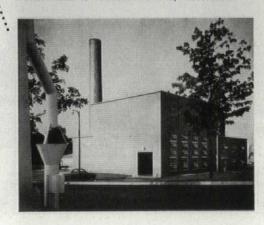


Polychemicals. Each lab has loading platform



Oil-pump house: simplicity with a touch of drama

Boilerhouse is reduced to crisp essentials

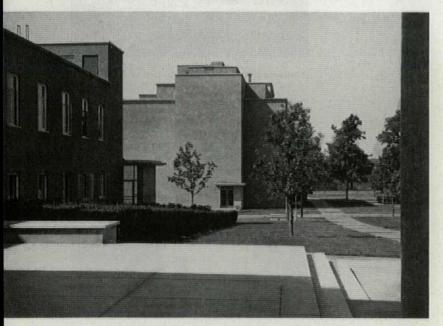


between the technicians of both DuPont and VWF&S.

Here is how this architect-client team tackled the three major phases of the design problem:

- 1. The labs themselves—i.e., the individual laboratory rooms. Under the leadership of the architect the various DuPont clients ultimately agreed on one standard "laboratory unit"—its dimensions, bench arrangements, facilities, etc. (Says Smith: "We just put all the 'why's' together, then worked out a hard core of all those 'why's.'") The result is presented at the right.
- 2. The laboratory building—or buildings. At the outset conversations between VWF&S and the Design Division led to a scheme consisting of a single laboratory building for all departments except Textile Fibers. This was natural, for such a design would offer maximum economy, facility for change and growth, and present an impressive appearance. (Textile Fibers—formerly Rayon—needed a separate building because of their special laboratory requirements.) This concept was acceptable to all concerned at first. However, after the design had been sufficiently developed to become real, those who were to work in the building concluded that while they would be well equipped, they would be unhappy in such a large, consolidated laboratory building. DuPont decided that in the long run separate buildings would suit their people better, and a substantial amount of work was abandoned to start afresh on a multiple-structure design.
- 3. An acceptable site plan. VWF&S went back to work, presently produced a new proposal based on the small-campus concept: diversity achieved through skillful spotting of varishaped buildings around a centrally located library; unity achieved through facing, interlocking quadrangles. Marvelous to say, the new plan was enthusiastically welcomed on all sides-precisely because VWF&S had gone to great pains to come up with the one single arrangement most accommodating to every department's sensitivities: Textile Fibers was put near the main entrance; Chemical found itself nearest to its own existing facilities; Engineering was to stand across the road from the magnificently stocked Lavoisier Library\*; Special Services was convenient to everything; Polychemicals, Grasselli Chemicals, Pigments were to provide an imposing climax at the site's far end. There was joy in Wilmington and in New York-and that much accomplished, VWF&S could concentrate on the individual labs themselves.

<sup>\*</sup> Twenty-five thousand books and journals, some 200,000 chemical patents.



### Inside, DuPont's labs are planned for flexibility larger-than-laboratory experiments as well a

All of DuPont's new laboratories have one thing in common: the all-important flexible-modular concept. The DuPont module is an area 19' x 25', fully equipped to handle either a lab bench (along the 25' side wall) or two benches (side and center). By simple addition or subtraction of partitions, you can then join any two or more adjacent modules together. Side and center benches can be fed their specialized "utilities" through L-shaped service trenches tapping off from vertical service stacks at every bay module, one stack to either side of the central corridor. Stacks and trenches can carry electricity, water (ordinary and distilled), steam, compressed air, vacuum, illuminating gas and nitrogen to every bench throughout the project. Controls are individually and easily accessible from both labs and corridors; the pipes themselves are also accessible for quick repair. Escape facilities are provided-two for each lab, one into corridor, one into the room or lab next door.

That was the basic part of each lab's design; all that followed was a direct resultant. VWF&S studied the particular requirements of each of the six participating departments, then "added up the modules" in every instance and juggled them around and around and around—rather like children's blocks—until they all slipped into the one best possible combination for each case. And each case was, of course, far different from the next: Textile Fibers, to take just one example (photo, right, above), needed its larger-than-laboratory experimental area immediately adjacent to all its laboratories. Furthermore, this area in Textile Fibers had to be two floors high to allow for the spinning of fibers. The solution, roughed out by DuPont and refined by VWF&S, is a squarish building with a great open bay in the center, this surrounded on three sides by a double-decked horseshoe of labs. At the open end of the horseshoe: loading platforms.

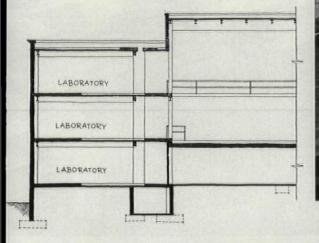
Not to be overlooked is the design of certain special fixtures for these labs, notably in and around the benches and bench areas. Outstanding among these developments: The 10' bench-hoods with separate auxiliary air supply (normal length for hoods is 4-5'). The self-sustaining mullions incorporated in these hoods, making for unimpeded work space when protective window-sections are in the raised position. Introduction of air-supply ducts into the big, solid bench-lips—this to keep heavy gasses from flowing out toward researchers. Removable front bench panels, so as to provide "deep sections" (6' instead of the usual 3') for experiments requiring high equipment.

Such is the Experimental Station—from which, every half hour, the limousines take off for Wilmington and connect with another shuttle heading southwest, every hour, for another DuPont establishment 12 mi. out in the country: the Louviers office project (see p. 146).

Chemical department laboratory

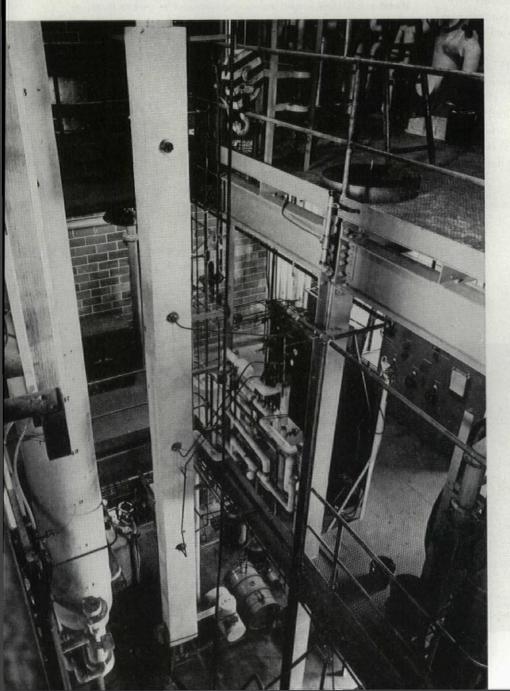
viewed from entry to administration building.

and equipped to accommodate bench-top experiments



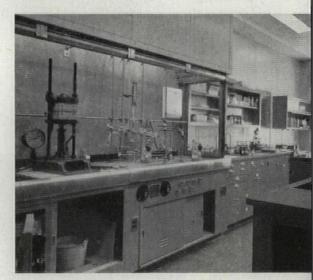
Photos: I. W. Martin





Textile Fiber department needed space two stories high to allow for spinning of fibers and situated immediately adjacent to its laboratories. This problem was solved by putting labs (off corridor at left) in two-tiered horseshoe around large central semiworks area.

Ten-foot hoods on typical lab benches serve as housings for protective window sections. Sections slide up and down on tracks of "self-sustaining mullions."



Tall distillation columns in special-services laboratory created just one of many special structural problems involving provisions for outsize or extra-heavy equipment. In areas like this, architects mapped all "plumbing" up to specified take-off points; DuPont Engineering worked out concluding details of hook-up and extension.

#### DuPont's rural headquarters will be a separate campus of H-shaped office buildings

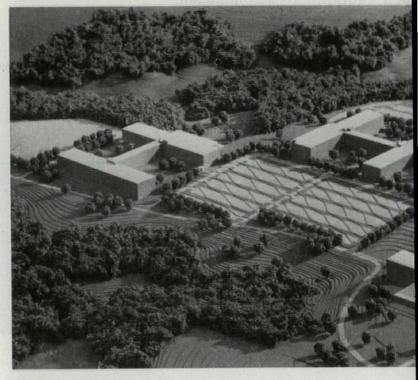
Someday Milford Crossroads near Newark (pronounced New Ark), Del., may house other DuPont headquarters offices. Meanwhile, the first huge H-shaped building—Louviers \*—stands there as the prototype for three others which are eventually to rise beside it on the 825-acre rural site. And who do you suppose wholly occupies just-completed Louviers? DuPont Engineering (except for what is at the engineering labs)—proof, if proof were needed, that VWF&S human relations are still working out fine.

Basic concept of the Louviers plan: not a module but a "space unit"—one great floor of one great wing, virtually all of it "net usable space" to be subdivided as the situation may demand into so many private offices, so much open clerical area. In times of growth, more "space units" may be added almost at will, either vertically (more floors) or horizontally (more wings) or both.

Two wings of the same building are joined together by a spine—the crossbar of the H—which is kept as thin as possible so as to obstruct as little light as possible. Elevators, escalators, washrooms are all located at the ends of the spine, where it joins the wings. In the first building the private offices run all along the inner edges of the wings and on through the spine, more or less like production lines; the rest is open clerical space. But if so desired, the arrangement could be reversed—or otherwise changed—with no difficulty whatsoever. (As far as offices go, DuPont believes that privacy should come in a standard economy size—namely, 10' x 13'—all considerations of rank to the contrary notwithstanding. Exceptions are only made in cases of actual necessity.)

Not least among the merits of the H-plan as here applied is the solution it offers to the parking problem. At Louviers, parking lots are placed contiguous to the ends of the H. Quite close to the buildings, they are at the same time out of sight and mind of most of those who will work at the Crossroads—and who will see only, as they glance out their windows, several acres of landscaped courtyard on the one side, several hundred square miles of rural Delaware on the other.

\* Name of a town in northern France whence the DuPonts came.



Model of complete project shows disposition of H-shaped buildings

LOUVIERS BUILDING, Millford Crossroads, Del.

For Voohees, Walker, Foley & Smith:

PERRY COKE SMITH, partner-in-charge

HERBERT H. DEAN, LAWRENCE SCACCHETTI, project managers

For E. I. DuPont de Nemours & Co.:

F. W. PARDEE, manager, design division

W. W. MELLEN, design project manager

P. W. TAYLOR, field project manager

MEYER, STRONG & JONES, mechanical engineers

ELSON T. KILLAM, sanitary engineers

SEVERUD, ELSTAD & KRUEGER, structural engineers

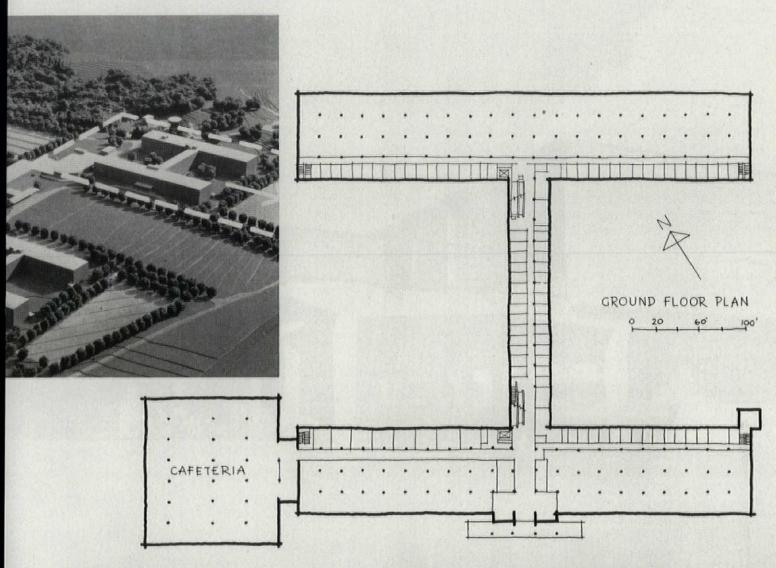
Main entrance of prototype building is centrally located opposite union of H's stem and crossbar.



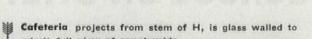
Lobby inside main entrance is for visitors. Employees use subentries near parking lots.



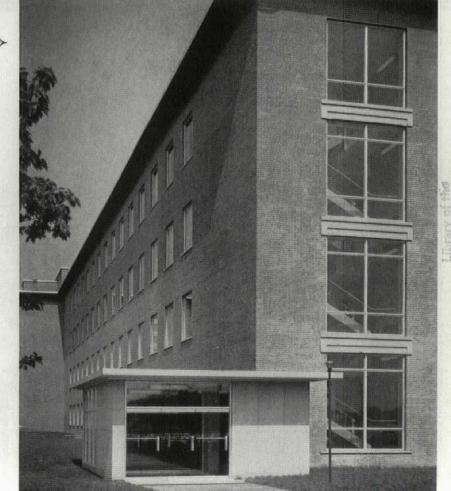
Photos: 1. W. Martin



Stairwell at end of one stem of H has vertical band of big windows which contrasts with horizontal rows of small office windows. Since building is completely air conditioned, all windows are fixed.



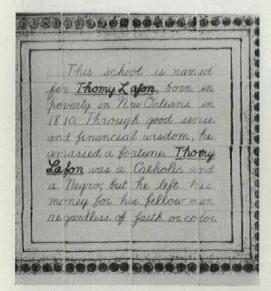




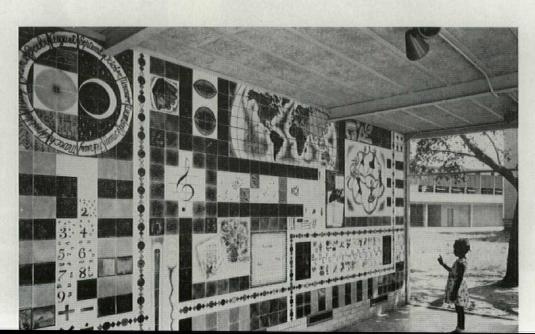


Off-the-ground scheme pre-empts little of desperately needed schoolyard on 3.2-acre site housing more than 2,200 elementary pupils.

# **SCHOOL ON STILTS**

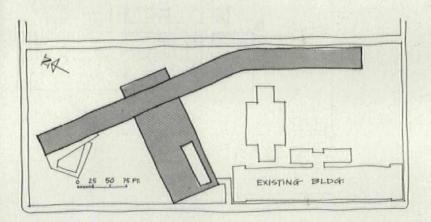


Tiles in lobby—swatches of early learning and early fun—charmingly state both tone and purpose of entire school. Tile mural detail above.





Rump and porch serve kindergarten students; older children use stairs allotted to each pair of classrooms



#### leaves space on ground

#### for outdoor fun in crowded slum site

Photos: (below & far right) LIFE: R. W. Kelley: (others) Frank Lotz Miller



Old buildings still crowd site. Students are filing to new school's auditorium

CURTIS & DAVIS, architects
JOHN CANADY, tile mural
JACK HASTINGS, sculpture
A. & O. BUILDERS, general contractor

This school (previewed AF, Apr. '53) had all the tangible odds against it. Its pitifully small, slum-surrounded site serves 2,200 students. The budget was so modest everyone conceded only eight classrooms, instead of the fourteen wanted, could possibly be built in the first phase.

But as photos and plot plan show, the solution enhanced the site's little play space instead of eating it. And the \$10.35 per sq. ft. was so much lower than anticipated—partly owing to elimination of the corridor and resulting dividends of direct bilateral lighting and ventilation—that the complete projected school was built at once.

As in all cases of triumph over "impossible" tangible odds, the vital intangible odds were favorable. The problem was so acute that the community was in no mood to object to unusual design simply because it was unusual. At the time, New Orleans was blessed with a reform, do-something schoolboard; and the architects chosen and encouraged by the board, and its Planner-Architect Charles Colbert were equal to the demands for ingenuity.

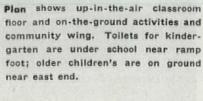
Another reason this school is successful is that the architects took the trouble (and had the chance) to show the faculty how to use it—ventilate it properly, make the most of storage, take advantage of flexibility. Unfortunately, afterhour maintenance funds have been too scant to use the activities wing as the real community center for which it is so thoughtfully planned.



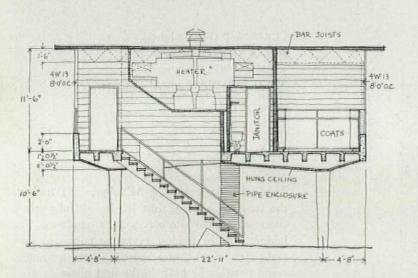
Typical classroom has full bi-lateral lighting, full cross-ventilation because of no corridor. Glare-reducing glass is blue-green.

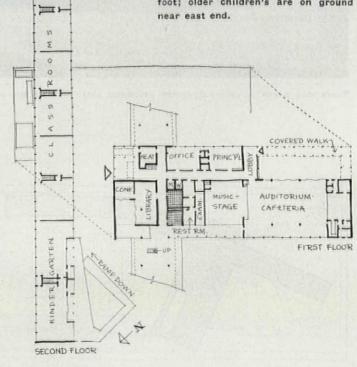


Kindergarten, looking toward porch and ramp. Shared stair-utility core is at rear.



#### Stilt plan eliminates classroom corridors







Stairs lead from playspace to entrance and utility core between each pair of rooms. Pipe stack can be seen behind stair. Larger ground-floor enclosure toward rear houses toilets.

#### THOMY LAFON ELEMENTARY SCHOOL

New Orleans. ▲ 14 classrooms. ▲ Designed for 525 pupils, used by 750.

FEATURES: Economical covered play space. ▲ No classroom corridors. ▲ Full bilateral lighting and ventilation. ▲ Classrooms above street and school-yard hurley-burley. ▲ Compact utility-entrance cores. ▲ Community-service activities wing. ▲ Lighthearted accents at covered walk, little gardens, ramp, stairs. ▲ Adroit use of color. ▲ Commendable attention to damp, warm climate.

construction: Wood piling, slab on grade over compacted sand. ▲ Framing, reinforced concrete and light steel trusses. ▲ Steel sash. ▲ Concrete block partitions. ▲ Cement and fiber roof decking. ▲ Asphalt tile flooring. ▲ Gas unit heaters in classrooms, forced warm air elsewhere.

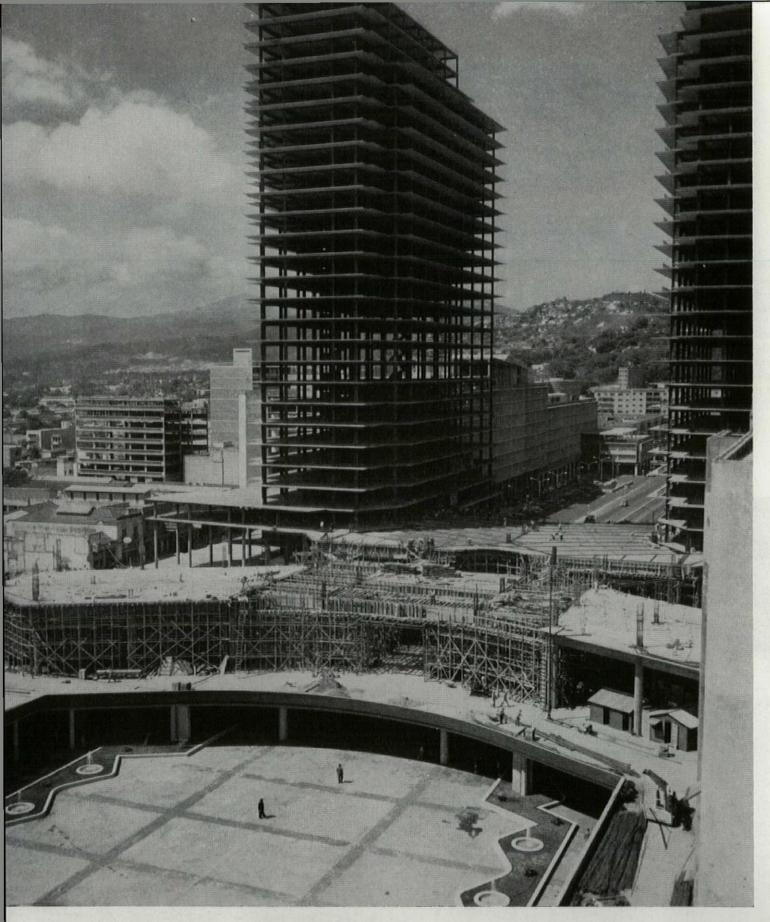
COST: Construction and landscaping (excluding architects' fee of 6%) \$427,-260 (about \$113,000 under budget!); \$10.35 per sq. ft. rating covered areas at usual  $\frac{1}{2}$ .



Auditorium-cafeteria wing has sliding panels for natural ventilation. Room is set up for assembly. The opposite side of the hall opens onto a garden bordering the covered walk. Divider beside walk can be glimpsed through building. Children love peering through its "knotholes."

Large hall is in almost constant use as either cafeteria or auditorium. Architects report arrangement for storing furniture under stage works extremely well and setup can be swiftly changed. Stage serves as band-practice room and smaller meeting space, is also equipped with chalkboard and storage for extra classroom service. Plywood mural over kitchen was painted one Sunday by Architects Curtis & Davis; their wives helped by filling in background colors and providing lunch.





Bolivar center, focal point of Caracas' new city plan, features twin office towers, 28 stories high. In foreground is a pedestrian plaza beneath which is a station for 600 buses, a garage for 1,600 cars and a four-lane through-traffic underpass. Only local traffic remains on grade.

Projected buildings as shown in model will flank Avenida Bolivar for more than a mile.



152

# CARACAS—the buildingest city in South America—by May Lumsden

More than 100 years ago an earthquake helped to modernize the capital of Venezuela; recently the young architect-city planners have been creating their own earthquakes. A Caracas resident, returning to the capital after six months' absence may easily lose his way in the center of his own home town. Craters gape where office buildings stood; jagged pieces of raw brick walls wait patiently for tomorrow's blasts, and shining in the rubble are fragments of blue and green glazed Spanish tile that a short while ago lined the impressive entrances of colonial-style houses.

It all started not with the discovery of the gold for which the Spaniards were killing Indians and each other in the fifteenth and sixteenth centuries, but with the gushing of the "sluggish black gold" the North American oil companies extracted in the late twenties,

Unlike other countries that have sold their riches cheap and then tried to hold up the buyer, Venezuela has been a partner, financially and economically almost from the start, in the production and use of her wealth. And now, besides being the second largest producer of oil in the world, she is on the way to vying with the greatest producer of iron ore as well. Only within the last decade was the secret of the great iron deposits extracted from the earth. During that time, the population of the principal cities-Caracas, the capital and metroplitan area, and Maracaibo, the great oil center-has more than doubled; and during the past three years the iron ore capital of Ciudad Bolivar has also grown spectacularly. But the country is still in the boom stage of its development. With an area about equal to the size of Texas plus Oklahoma, Venezuela now has a population of slightly more than 5 million concentrated in the principal cities, but spread also through the hot oil-producing lowlands of the West, the cool coffee regions of the Venezuelan Andes, and on the plains of the Orinoco River basin. Parts of the country, south and east of the Orinoco mine developments, are still unexplored masses of jungle.

City plan. The young men of Venezuela, who have changed the face of their country, studied engineering at the Universities of Caracas and Merida, and also came to the States and went to France to study. During the late thirties in the States, they were

Completed buildings have already created an impressive business center



entranced by the talk of city planning; by the scientific, economic and sociological studies that were being made as a basis for planning new communities. They were greatly influenced, too, by the planning theories of the Beaux-Arts school and by the French Institute of Urbanism.

In 1937, the "visionaries" started talking of the "urbanization" of Venezuela—the need for planning for the growth of city life. Planning experts from other parts of the world were consulted: Maurice Rotival (of Yale, and an international planning expert), Jose Luis Sert (now dean of the Harvard School of Architecture, and also an international planning expert)—and even Bob Moses was called in at one point to help on traffic problems (he stayed only a few days).

One of the first jobs the young planners tackled might easily have thrown older men. The capital city itself, center of the business, social and government life of the country, lies in a valley 10 mi. long and 3 mi. wide. Until 1946, it was a small Spanish town, completely surrounded by mountains, with narrow streets running up and down the hills, and trolley cars occasionally going in the opposite direction from the one-way auto traffic. Unlike every other important city, Caracas, one of the fastest growing cities in the world, had no main avenue or traffic artery. The method of street widening and modernization which General Gomez had initiated—new buildings were required to be set back several meters from the original street line—added a strangely zigzag appearance to sidewalks already cluttered with iron-railed staircases to help pedestrians cope with hillocks in the center of the city.

The young planners were not satisfied to wait the years that would be required to change their capital on this piecemeal basis. A commission on urbanism was created; the National Planning Board also started work. Headed by young Dr. Gustavo Ferrero, a staff of 150 technicians operates on an annual budget of about \$800,000, studying population trends and movements, water supply, soil conditions, housing needs. A master plan for the capital metropolitan area resulted from the combined efforts of Venezuelan architects and engineers and their foreign consultants.

Bolivar center. Because the city's most pressing problem in 1946 was the traffic problem, the planners decided to make the first avenue an express highway slashing right through the center of town. But it was to be more than an express highway; to make it the show avenue of Caracas, the young planners felt that the Avenida Bolivar had to be lined with modern buildings arranged in accordance with a master plan. A government corporation was set up; it issued 6% bonds for the condemned property; razed 400 buildings; has already completed four seven- to ten-story buildings for government offices and shops; has nearly finished two 28-story buildings; provided underground parking space for 600 buses and 1,600 cars. The mile-long eight-lane highway with all its appurtenances will cost about \$300 million.

There has been some criticism of the Avenida Bolivar plan. Some say that it is too symmetrical, in the Beaux-Arts tradition; others argue that, although it has served the purpose of connecting the old part of the city with the growing suburbs of the east, it has also tended to bisect Caracas into north and south sectors. The Caraqueño, with his usual apt phrasing, calls it the 38th parallel.

University City, although it is another government project for the beautification of the capital, serves as an educational center for the nation. This dream started in 1943 with the creation by the government of the University City Institute, an autonomous body charged with the planning and construction of a new university for Venezuela. The old University of Caracas had occupied, since the granting of its charter by King Philip V and the inauguration of classes in 1725, the vaulted halls and spacious patio buildings of the historic convent of the order of St. Francis in downtown Caracas. With time, it became entirely surrounded by shops, and had to rent space in other buildings to keep up with its growing population.

The new university stands in the center of the valley of Caracas, between the old colonial city and the new modern suburbs circled completely by hills, and bordered on the north by a tremendous green reforestation zone of the Botanical Gardens. Less than a generation ago, green sugar plants grew tall and thick here in what was then a hacienda that faced toward the grand mountain peak of the Avila, the highest and most beautiful topping Caracas. In the old hacienda house of the Ybarra family, which stood on a hill overlooking the plantation, a group of young men of Caracas—architects and engineers—studied and worked on plans for improvement of their country.\*

Although the project is called University City, after the Spanish example of the University of Madrid, it is really not conceived as a separate city, but rather as a sports, adult-education and health-activities center for the metropolitan area of Caracas as well as a university center for the country as a whole. Privacy for the students is achieved through the isolation of their buildings, but there is easy access to the public facilities.

The Olympic Stadium with capacity of 35,000 spectators completed in time for the Bolivarian games held in Dec. 1951, is a beautiful example of cantilever planning and smooth concrete work. From the back it looks like the huge skeleton of a prehistoric monster. From a distance, framed against the tall green Avila mountain peak, the flowing curves of the structure create an impression of lightness, movement and gaiety that so well express the purpose of the stadium. Facilities are provided in the lower section of the stadium for all the customary services for 448 athletes. The stadium is open at both ends for necessary circulation for parades and folklore festivals.

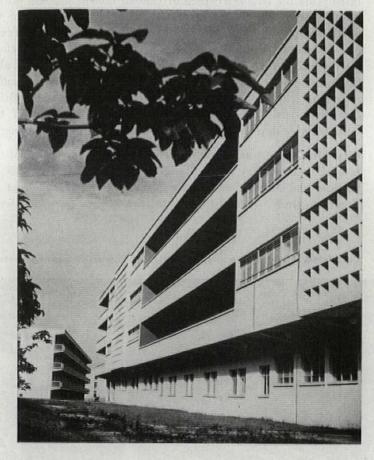
Close by is the baseball stadium (capacity, 38,000), tennis courts, swimming pool, and gymnasium.

Also available to the public is the large outdoor theater, which seats 3,500. Smaller functions can use an auditorium designed continued on p. 172

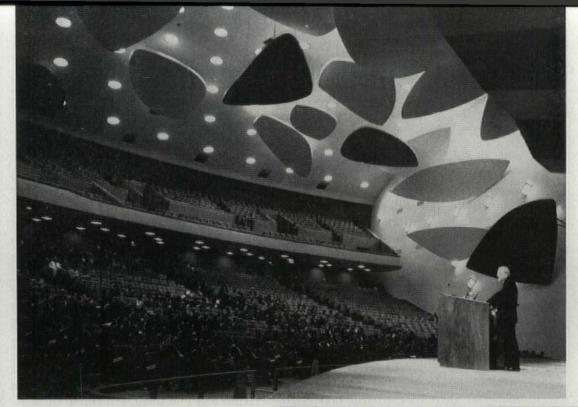


Library tower in back consists of red brick wall panels set in white framework of concrete structure. In left foreground is tile-patterned exterior of conference hall (see also photo right, above).

Dormitories for University students feature deep balconies, overhangs and egg-crate screens for sun control.



<sup>\*</sup>The University City plan was drafted by Dr. Carlos Raúl Villanueva, who had studied at the Beaux-Arts school in Paris and at the Urbanism Institute of the University of Paris. The responsible engineer is Captain Luis R. Damiani, president of the Administrative Council of the Institute. Heading the construction department is another young engineer, Dr. Santiago Briceño.



Floating panels in conference hall were specified by US engineers to solve acoustical problem. Picture shows John Foster Dulles addressing tenth Inter-American Conference.

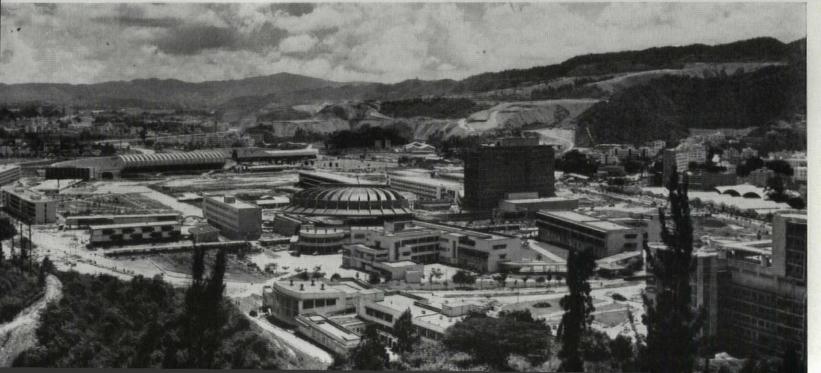
# UNIVERSITY CITY CARACAS

Stadium profiles in strong sunlight create abstract pattern. At left is end view of tennis stand, at right is back of tennis bleachers, beyond is end view of Olympic Stadium's curved concrete canopy.

Hilltop view of university shows domed conference hall in center next to tall library, stadiums in background, dormitories at left, medical center in right foreground.

Photos: (below) UP; (others) Hamilton Wright





# **EXCERPTS**

Outside opinion and comment on the building industry from the rostrum and the press





#### A new look for commercialism

Dorothy Thompson cites the nation's new shopping centers as examples of successful civic planning

Excerpts from the noted commentator's regular column in the Ladies' Home Journal.\*

"Commercialism" has been blamed for most of the faults in American life, and buying and selling associated with rapacity. its principle being defined as buying cheap and selling dear. The struggle to attract the public eye in an advantageous location has been blamed for land speculation, the inflation of real estate values, and the creation of commercial and residential slums. The commercial spirit has been described as the antithesis of the esthetic, defacing beautiful landscapes with screaming billboards, blotting out the sky with neon signs. Commercialism has been accused of cutthroat competition, and socialists and other social reformers have declared private commerce incompatible with cooperative plan-

As in most cases, there has been an element of truth in the accusations, as usual unbalanced by other truths. The trader has been the great opener-up of the world, the bridge between human cultures, and between country and city. He has been the purveyor of news as well as wares.

ning. Thus has the case against the

More than any other group, merchants created the city and urban civilization,



Dan Cabnal

with all its graces and amenities. One of commercialism's greatest recent accomplishments is Northland (AF, June '54). It is prosaically described as a "shopping center," and that is what it is-together with several other things besides. It is the most ambitious of such mercantile centers in America or the world. And it is as new as the twenty-first century. It is extremely practical, and it is perfectly beautiful. It is a model of enlightened planning, and of social cooperation-between merchants, architects, sculptors, artists and civic-minded citizens-and it is entirely the creation of private enterprise; in fact, the creation of one great Detroit department store, J. L. Hudson Co., a family enterprise which has capitalized and financed it to the tune of \$25 million for no other reasons than that much-deplored "profit motive," the capacity to think ahead, and the very human desire to create something admirable and worthy of repute.

Northland-which flies its own flag, a white (wind rose) sunburst on a blue ground, and, of course, the Stars and Stripes as well-is not one market place but a series of ten connected courts (piazze they would be called in Italy), terraces, malls and lanes. The largest of these-the "courts"-like the terraces" are squares, the courts open on one side; these one enters from the parking lots. Malls are twice as long as they are wide; lanes are smaller. But characteristic of all of them is that their central areas are beautiful gardens. Fountains spray water into the air; everywhere there are solid and handsome oak benches where one can sit and gossip or smoke, and in every court or mall a delightful piece of modern sculpture attracts the eye-and suggests meeting places.

Most of these sculptures are abstract, and many of them mobile, moving and creating new forms as the breeze wills. Victor Gruen (and his associates), who designed and carried out the whole project, wanted no heroic, static or dramatic sculpture, but only what is modern, gay, a little challenging and always amusing.

I find it amazing that shopkeepers were willing to abandon so many of the practices they normally use to bring in business. No shop is allowed paper stickers on its windows, advertising special items. No shop tries to outbid its neighbor by huge and glaring signs. Competition is confined to quality, display and price. The spirit is cooperative as well as competitive. Each

seems to want all to succeed.

There is always music in the air, faint, sweet and gay. All the surroundings create a sense of leisure, fun and . . . time. I find shopping, normally, the most exhausting of activities, but I shopped for six hours in this center without feeling more than momentary fatigue.

Victor Gruen's is not the only architectural or engineering firm planning such projects. Chicago's Marshall Field's is planning three new suburban branches. L. S. Ayers has in hand a project near Indianapolis; Welton Becket in Los Angeles is working on several, as far separated as San Mateo and Philadelphia; Lathrop Douglass is responsible for the Cross County project in Westchester County, New York; John Graham has centers for the Portland, Ore., and Milwaukee areas underway.; Abbot and Merkt is another firm working in the East. A. T. Nooney and Co., a local real-estate firm, is building a \$12 million 62-acre project in a St. Louis suburb.

These centers are sponsored and financed by department stores, real estate developers and builders. However, in all of them the department store plays a leading role,

These projects refute the notion that civic planning can be successfully accomplished only by government and supported by government subsidy. I doubt if any project such as Northland could ever be built, including everything except the interior equipment of the stores, for anywhere near \$25 million if government, with its bureaucracy, the political pressures on it, and the enthusiasm of functionaries for spending other people's money, undertook it. There is room in America for all sorts of planning, under all sorts of auspices; the question is only who will have the greatest interest in doing it beautifully, practically and economically.

Given not so very much time—and no war—America promises to be a very beautiful country, not only because of its beauties of Nature, but out of the imagination and initiative of its citizens. What has been ill-done will be undone. What has successfully been tried will be improved. America, as Walt Whitman observed, does not reject the past but translates and adapts it to modern needs. Its spirit looks forward, upward, and aspires. And like the builders of Solomon's Temple, the muchberated shopkeeper gilds the columns of his emporium with the lily-work of art.

Just give us time, freedom and peace.

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#### Playground sculpture-for the fun of it

Fighter-professor-sculptor would substitute challenging and unpredictable apparatus for the traditional teeter-totter.

Excerpts from an article about the work of Joe Brown\* in the Princeton Alumni Weekly

When Professor Joe Brown was asked to judge playground equipment designed by Princeton's graduate students in architecture, the University's sculptor-pugilist gave the boys a hard time. He criticized their work as unrelated to human needs, unimaginative and overly imitative of the Scandinavian school of "play sculpture." When the graduate students in effect asked Professor Brown for his credentials as a critic in this field, Joe replied: "I was a boy once." He picked up the gauntlet by designing play equipment which fulfilled his concepts of human needs.

In St. Louis this fall—four years later— Professor Joe Brown delivered a paper before a meeting of the National Recreation Assn. and exhibited models. In designing equipment which would help "to prepare children for the struggles of maturity," Mr. Brown set three interrelated requirements:

- 1. Play equipment must be continuously challenging and creative for the child, not merely for the designer. (Accidents in playgrounds result from boredom, he believes, after the child has been lulled into a sense of false security.)
- 2. To provide continuous challenge, equipment must be *unpredictable*. "Unpredictability, within reasonable limits, is the factor which gives physical activity the creative quality which is the very soul of

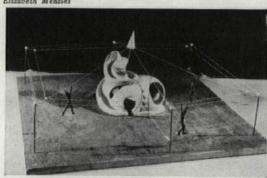
\* A one-time fighter of note, Joe Brown is now associate professor of sculpture and boxing coach at Princeton. play." It necessitates decisions and makes each experience a different and new achievement—"a tacit reminder that success is a process, not an end."

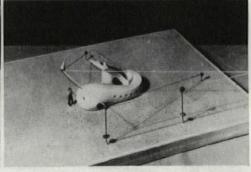
3. Play equipment should be so designed as to permit various age groups to use the same apparatus without getting in each other's way and with a minimum of supervision. "In too many cases supervisors have become to the child what the lawyer and the policeman have become—too often—to his father: a substitute for judgment and conscience."

Joe Brown calls his apparatus a play "community" because "any child who uses it is forced by circumstances to recognize the vitality of his surroundings. Through experience he is taught to respect the complexity of every situation even though his personal aims may be simple. This respect will be neither unreasonable fear nor a thoughtless sense of security—just an acceptance of the fact that personal designs and social designs are interdependent.

"The factor of unpredictability—the creative factor—places upon the child the responsibility—at this time in life, the fun—of choosing, of emerging, of choosing again, of emerging again, ad infinitum; practice in the art of living, the rare art of accepting each accomplishment as a signpost in a wonderful journey that never ends; a journey made on one vehicle—a mind and a body, one and inseparable."

Elizabeth Menzies





Prototype: this model, Joe Brown has incorporated all his basic ideas. The plastic-coated cables on which the three figures are playing are so arranged that motion at any point is transmitted to every other point in the network. (The central cone is mounted on a ball and the uprights are flexible.) Hence the climbing ropes are never completely stable. "Each time one of the strands is pulled, the whole network moves, complicating the lives of everyone concerned." The motion is enough to draw a child off balance unless he learns to extend and to flex—to give and take—at the right times. The ever changing rhythm makes each trip a new experience.

The massive central element of concrete offers other challenges. A child climbing the outer steps may have to make a choice between following the steps or letting go the right-hand rail. A child descending the spiral slide will be disappointed in his expectation of sliding all the way to the bottom, but a couple of pushes will start him on his way again. Or he may venture out of the curved ledge or descend by the net which can be seen at the left. Younger children can play safely in the interior.

The Whole Yard: this is a modification of the prototype and is particularly suitable for children of varying ages playing together, without getting in each other's way. Smaller children can crawl through the whale, but cannot reach the upper strands of rope. The Whale Yard and another piece of apparatus called a Spring-Tree will be constructed in Philadelphia this spring.

#### How to develop new methods of construction

Excerpts from a talk by Louis I. Kahn, architect, conference on architectural illumination, School of Design, North Carolina State College

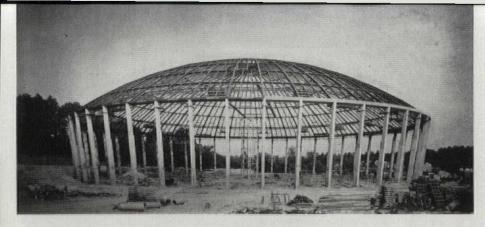
We should try more to devise structures which can harbor the mechanical needs of rooms and spaces and require no covering. Ceilings with the structure furred in tend to erase the scale. The feeling that our present-day architecture needs embellishment stems in part from our tendency to fair joints out of existence—in other words, to conceal how parts are put together. If we were to train ourselves to draw as we build, from the bottom up, stopping our pencils at the joints of pouring or erecting, ornament would evolve out of our love for the perfection of con-

struction and we would develop new methods of construction. It would follow that the pasting on of lighting and acoustical material, the burying of tortured unwanted ducts, conduits and pipe lines would become intolerable. How it was done, how it works should filter through the entire process of building, to architect, engineer, builder and craftsman in the trades.

# **BUILDING ENGINEERING**

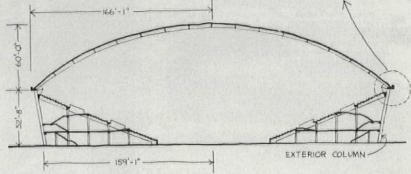
- 1. Radial ribs for world's largest dome
- 2. Metal on paper honeycomb for strong, light walls
- 3. Tapered steel framing for stronger buildings
- 4. High intensity lighting for an assembly line
- 5. Luminous ceiling for a factory





Sloping columns add design interest to huge dome, emphasize fact that dome's thrust is contained by steel tension ring (detail, right).

# BATTEN TYPE ALUM ROOF IN NAILING CONCRETE IN SUL CONCRETE IN GUTTER & COPING WARIES TO GIVE TRUE CIRCLE WE TRUE CIRCLE



## 1. WORLD'S LARGEST DOME

All welded, radial ribbed structure spans 334'. Design holds steel to 22 psf, framing costs to \$3.64 sq. ft.

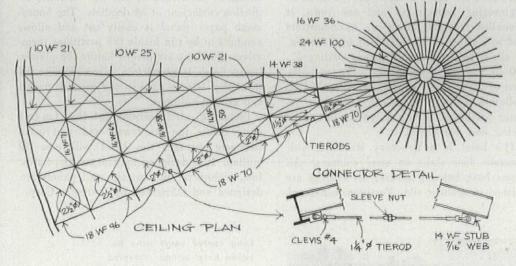
Precise engineering design saved weight and dollars on the world's largest dome, a 334' diameter, all-welded, radial ribbed structure now abuilding over a new games and exhibitions coliseum at Charlotte, N. C. Using a tricky but economical design technique invented in 1863 for considerably smaller domes by the German steel expert J. W. Schwedler, the weight of the structural steel, including purlins and enclosing tension ring, was held to 970 tons, or 22 psf. Thanks to welding and prefabrication of the radial ribs on the ground, the framing steel went up in 3,400 man-days at a cost of \$150,300, or \$155 per ton of steel.

The dome is built atop 48 cast-in-place columns sloped outwards 7' to keep the rain

off of the huge windows and precast concrete wall panels. To compensate for elongation of the 172 ton tension ring, the columns are strained inwards 34" at their tops and the tension ring is bolted atop them before the full weight of the dome is put on the columns. Rib sections, 176' long and weighing 14 tons each are assembled on the ground and ends tied with cables for erection between column heads and a 46' dia. central compression ring mounted upon an erection scaffold. Only three ribs are erected in each quadrant at a time to avoid unbalanced loads on the compression ring. Each three-rib dome section is welded and braced with purlins and adjustable tie-rods before the next section is put in place.

Design data: the dome is engineered to carry dead load plus live load (20 psf of roof surface) either over half or over the entire area of the roof; wind loading is for a 125 mph gale calculated for different sections of roof surface according to an inclined surface formula that gives a negative value where suction occurs. Design analysis is based upon cyclo-symmetry, which entails determining the influence of a unit force on all joints assuming a fully-hinged structure. The resultant values are used to design individual framing members, working from the periphery to the center of the dome. This analysis is subsequently checked by the membrane theory.

Roofed with lightweight insulating concrete panels covered with sheet aluminum, the coliseum will seat 10,000 people (on precast concrete bleachers) around a 99' x 212' arena. With an adjacent 2,500 seat auditorium it forms part of Charlotte's new civic center designed by A. G. Odell Jr. & Associates, architects. Severud-Elstad-Krueger are the consulting structural engineers; Southern Engineering Co., steel erectors.



Welded dome structure is held by steel tension ring mounted atop 48 concrete columns and by central compression ring. Note how 176' long arched ribs are connected with 11/4" tie rod (detail above).





2. HONEYCOMB PAPER PANELS

Honeycomb paper panels with mottled buff porcelain enamel outer finish are stored inside drive-in hotel ready for erection.

Used with porcelain enamel steel and plasterboard, they meet code requirements for downtown drive-in hotel.

Porcelain enameled curtain wall panels with a 2" core of perlite impregnated honeycomb paper have been installed for the first time in a downtown commercial building, a 170-room drive-in hotel at Brookline just outside Boston. Erected in sizes up to 7'-10" x 3'-10", the panels weigh 4½ psf and have a U-value of 0.25 for a thickness of 2½" (with plasterboard interior finish). Although the panels have not yet been subjected to

the official fire test, preliminary tests have convinced the manufacturer, his independent engineering consultants and the town of Brookline that the panels are incombustible and will withstand the standard 4-hr. fire test. In all, 1,720 exterior wall panels totaling 27,000 sq. ft. were erected in 9,120 man-hours. Cost of the exterior panels, including 75¢ installation cost, is about \$3.25 per sq. ft.; interior partitions, having no porcelain enamel facing, cost 60¢ per sq. ft.

The hotel is a two-story structure with concrete floor slabs on steel columns. All rooms have balcony access; all ceilings are finished in acoustic tile. Partitions consist of the 2" honeycomb core sandwiched between sheets of plasterboard, and have a noise reduction coefficient of 38 decibels. The honeycomb paper panel is easily cut and allows conduits to be run inside the partitions themselves. Conduits are placed before the plasterboard finish is glued into place. Perlite fill insulation is only used in the exterior panels and around columns.

Including air conditioning (by fan-coil units below the windows) and a 170-car basement garage, the hotel will cost \$2 million. It is designed by Sturgis Associates, Inc., architects; the curtain wall panels are designed and fabricated by Bettinger Corp.



Long center court runs between hotel wings. Covered footbridges connect balconies. Dining rooms are at far left.

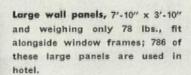
#### Panels form walls on the outside



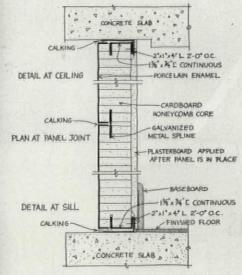
Window frames are hung from soffit beams. Alongside window frame is lagged chilled water pipe and steel column.



Porcelain enamel wall panels are joined to wood shoes by plugs driven into floor slab by powderactuated tool.









Interior of wall is ready for lining and partitions. Louvers in panel beneath windows are inlets for

air conditioning equipment.

Exterior of finished wall is braced with vertical timbers until plasterboard inner lining is laminated



. . . and partitions on the inside



Wooden shoe and header for partitions are fastened to concrete floor slab and beam by powder-actuated fastening gun.

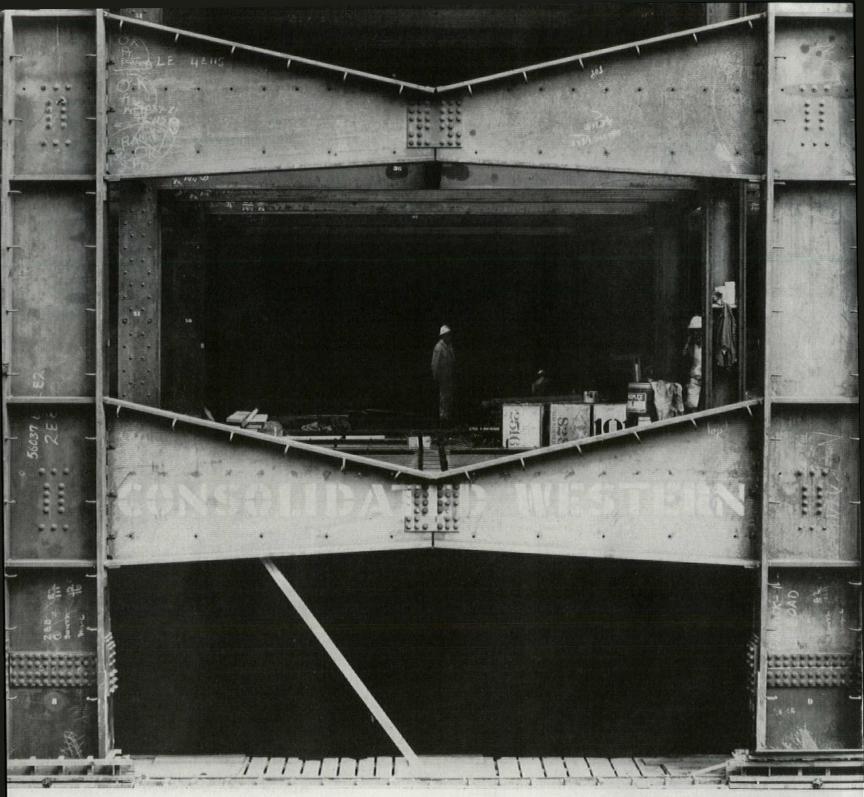


Column fireproofing is honeycomb core with granular perlite filling. Paper core panels are easily cut to fit around conduits.



Plaster board finish is applied to column fireproofing. Partitions are clipped to shoe and header then plasterboard is glued to both sides.

2' HONEYCOMB CORE



Heavy tapered beams 51/2' deep span almost 24' between tapered columns of perimeter walls.

# 3. STRONGER SKYSCRAPERS

San Francisco's strict earthquake resistant code inspires use of tapered spandrel beams and columns, special K-bracing and high-strength bolts

The strongest skyscraper ever built is being topped out in San Francisco, a 25-story office building for Equitable Life Assurance Co. It is the first tall building to satisfy the strict demands of San Francisco's 1948 building code. This code requires large seismic increases for every additional story on a building until, at 25 stories, the total seismic shear forces to be controlled be-

come almost  $2\frac{1}{2}$  times the lateral wind forces. Such design is naturally expensive and, when the new code appeared, tall building construction in San Francisco came to a temporary halt. By detailed analysis of the problem the engineers of this building have come up with an economical solution:

▶ By keeping the plan dimensions of the tower, 65' x 165', under 60% of the building coverage, 119' x 165', they got code permission to use lower seismic values (see chart).

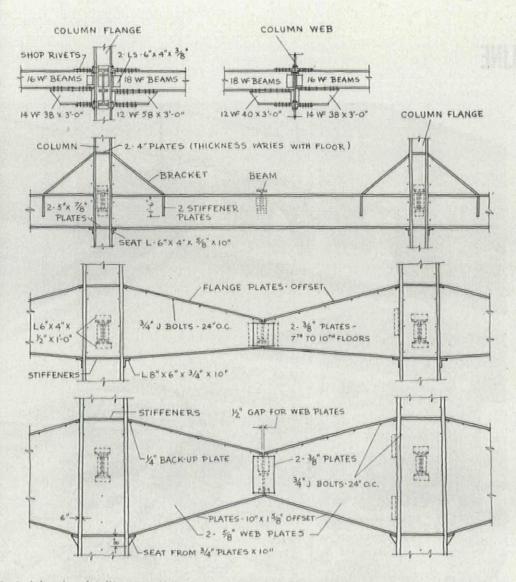
▶ By using deep butterfly-shaped spandrel beams and wide, tapered columns (including

tapered corner columns), they carried seismic forces in the lower half of the structure entirely in the exterior walls, thus avoiding deep, space-consuming floor beams.

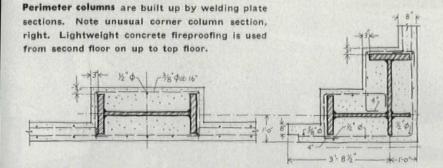
▶ By a system of shallow K-bracing on the 15th and 16th floors, they transmitted seismic shear forces from the tower (where the entire frame resists lateral loading) to perimeter.

▶ By mounting the building on 467 steel piles driven to refusal into the bedrock some 132′ below ground level, they were permitted a 15% reduction in seismic shear.

In spite of this comparatively complicated design, an efficient combination of welding,



Typical framing details top to bottom: 1) tower framing, 17 to 25th floors; 2) spandrel beams on floors 11 to 16; 3) spandrel beams on floors 3 to 10; and 4) spandrel beams at 2nd floor. Columns are tapered 3/32" per ft., from 42" web at base to 12" web at 14th story.

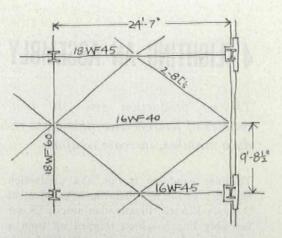


shop riveting and field bolting using hightensile steel bolts made it possible to erect the 5,300 ton steel frame (23 psf) for \$1,633,594, or \$304 per ton. A more conventional alternate design using the whole lower part of the structural frame for bracing was also considered but was bid 15% higher and required greater floor depths.

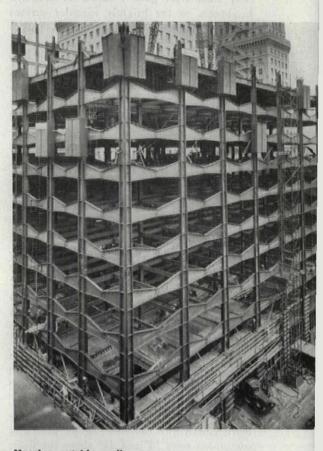
The building is designed for a live load of 80 psf including partitions. Floor to floor height is 12'-2", allowing 9' headroom, 12" for ducts and 2' for floor beams, floor slab and fireproofing. Lightweight concrete of 2,750 psi and 100 lbs. per cu. ft. is used above the 2nd floor to save weight. The

beams and surrounding concrete are designed as composite beams thus increasing beam strength by 15%. Floor slabs are 6" thick (including electric conduits) and act as diaphragms to the exterior walls.

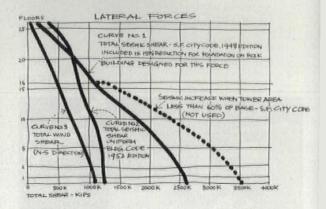
Complete with year-round air conditioning, ten electronic operatorless elevators and an external finish of stainless steel, aluminum and white marble, this 459,000 sq. ft. office is being built for \$8,873,401 or \$19.30 per sq. ft., including foundations. It is designed by Architects Loubet & Glynn, successors to the late W. D. Peugh, with Irwin Clavan, consulting architect; F. W. Kellberg & Associates are the structural engineers.



Diagonal bracing, shown in this typical bay, is used at 15th and 16th floors of 25 story building to carry seismic shear from tower to perimeter.



Massive outside walls of building are designed to carry seismic shear forces of entire frame. Final architectural treatment did not capitalize this structural drama; the finished exterior wall is punctured with ordinary windows.



Lateral force curves for 25 story building show shear on each floor, compare local code with wind and uniform building code.

# 4. LIGHTING AN ASSEMBLY LINE

TV set production gets 240 footcandles of nonreflective lighting to reduce mistakes, increase comfort.

To raise employee morale and production efficiency at the new Batavia, N.Y., plant of Sylvania Electric, illumination over a TV set assembly line has been stepped up from a painfully reflective 36 foot-candle level to a diffused, restful 240.

In the old plant a row of unshielded industrial luminaries gave a band of reflected brightness on the brightly specular surface of each cadmium-plated TV chassis (photo below). A connection seen against the bright metal appeared in silhouette while one seen against a darker area was visible by direct lighting. This produced glare and discomfort and caused many faulty connections, which subsequently had to be located and repaired at considerable expense.

The solution was to increase the illumination but to reduce and equalize reflection. This is achieved by a continuous 32"-wide luminaire composed of two rows of dual 30-w. industrial lamp units mounted side by side and shielded by a continuous row of 32"-square panels of white diffusing corrugated vinyl plastic. For uniform brightness the corrugations are normal to the lamps. The shielding is about 2" below the reflectors and 54" above the assembly line. This design reduced the ratio of brightest to darkest areas in the chassis from 20:1 in the old plant to  $3\frac{1}{2}$ :1 in the new.

To avoid distracting brightness contrast between the assembly lines and the rest of the plant, the entire work area is covered with 50 foot-candles of general lighting. This is provided by louvered semidirect luminaries, each with two 40-w. lamps, placed in continuous rows 10' and 12' above the floor. Designers: Illuminating Engineers R. M. Smart and Willard Allphin of Sylvania Electric Co.



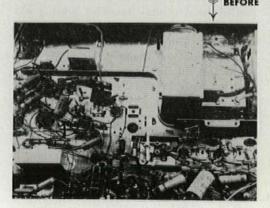


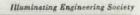


AFTER

New production line (above) is in bright contrast with old line on left. Lighting was stepped up from 30 to 240 foot-candles.

> Comparison of TV chassis under old and new lighting shows value of new diffused lighting (far right) in equalizing specular reflection.













Luminous ceiling provides uniform economical light for 8,250 sq. ft. assembly shop.

# 5. LIGHTING AN ASSEMBLY SHOP

Aircraft part assembly gets 80 footcandles from luminous plastic ceiling for \$2.10 per sq. ft.

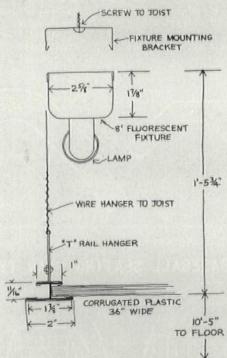
While a production line demands excellent light over specific areas, separate assembly

While a production line demands excellent light over specific areas, separate assembly tables call for good, low-cost general lighting. At Thompson Products, Inc., Cleveland, a well-diffused lighting of 80 foot-candles in their 50' x 165' assembly shop for high-precision aircraft parts went up in only two weeks for a cost of about \$17,500 or \$2.10 per sq. ft. This rapid installation was mainly due to production-line assembly of 18'-3" x 21' sections of plastic ceiling on the ground before erection.

The 17"-deep space above the corrugated plastic diffusing screen doubles as a return plenum for the air-conditioning system. Filtered, cooled and tempered air is supplied by ducts to 18 diffusers set in the ceiling and return air passes into the plenum through the numerous openings at each side of the 36"-wide ceiling strips.

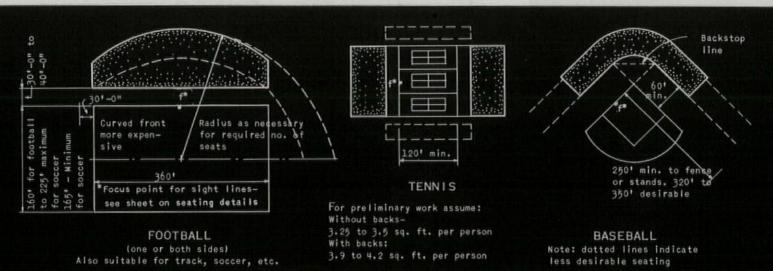
The lighting system consists of 8'-long single-tube fluorescent fixtures mounted 2' o.c. lengthwise of the shop and clipped to wooden joists running across the shop. Suspended "T"-rails to carry the plastic ceiling are also mounted lengthwise about 3' o.c., 17" below the lamps, allowing a finished ceiling height of 10'-5". "T"-rail sections are assembled on the ground, lifted into place and the entire structure leveled by transit, after which the plastic is unrolled and stretched into position.

The ceiling is designed by Thompson Products Plant Engineer Norman C. Vicha in cooperation with the H. Leff Electric Co.



Simple hunger is key to low cost and speedy erection of luminous ceiling. Continuous rows of lamps are mounted 2' o.c.

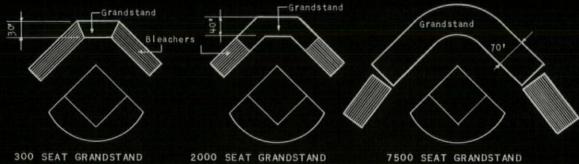
#### GRANDSTANDS AND STADIUMS—PLAN TYPES



#### SPACE REQUIREMENTS FOR PLAYFIELDS & SEATING AREAS

FORM & SIZE OF THE STADIUM OR GRANDSTAND IS DETERMINED BY: 1. The sport & range of other activities for which it is designed.

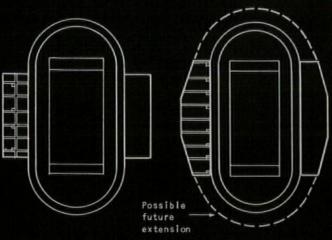
- Topography and location of stand and playing field to offer maximum protection from sun's rays for eyes of players and spectators
- 3. Desire and practicability of providing best accommodations at location of greatest spectator interest.
- 4. Conformity to official sports requirements on playing field designs.
- 5. Type of school or community; number of students, faculty, townspeople.
- 6. Athletic relations with and proximity to other schools and
- 7. Emphasis placed on sports and available funds.



7500 SEAT GRANDSTAND

#### NOTE: Compromise between baseball & football shape is very difficult. A base-ball field in a stadium constructed primarily for football (except in colossal structures) must necessarily have one short outfield.

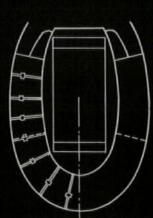
#### BASEBALL SEATING PLAN TYPES



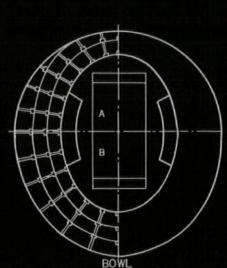
STRAIGHT Suitable primarily for schools & small colleges 3000 to 10,000 capacity

# CRESCENT Designed in relation to seat preferences at point

of spectator interest



HORSESHOE May be designed as slightly curved stand for future extension into horseshoe or bowl.



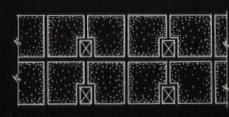
A. Combined bowl & crescent type B. Ellipse - 4 tiers permits capacity up to 100,000

FOOTBALL SEATING PLAN TYPES

#### GRANDSTANDS AND STADIUMS—SEATING PLANS

#### DESIGN FACTORS - ENTRANCES & EXITS

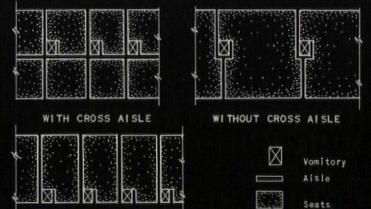
- Entrances and exits should be well-distributed and protected by several passageways fanning out around entrances.
- Entrances and exits should be protected with safety railings.
- 3. There should be an adequate number of entrance gates (too many is better than too few).  $\ensuremath{\diamondsuit}$
- 4. Maximum desirable emptying time is ten minutes.
- Avoid stairways when possible (otherwise careful consideration must be given to height of stair risers and width of treads.
- 6. Stadium may be built to advantage of natural slope with spectator entrances at high point.
- 7. There should be a minimum of 2 exits remote from each other immediately to the outside for each balcony or tier; 3 exits if capacity of tier exceeds 1000, 4 exits if capacity of tier exceeds 4,000.
- 8. The aggregate width of aisles, passageways, ramps or corridors should equal the width of exits.
- If exits do not discharge directly into the street, or open spaces, lanes leading to street should be at least 20° wide.



If tier capacity exceeds 4,000, 1 vomitory per 1000 people. If tier capacity exceeds 10,000, 1 vomitory per 1200 is sufficient.

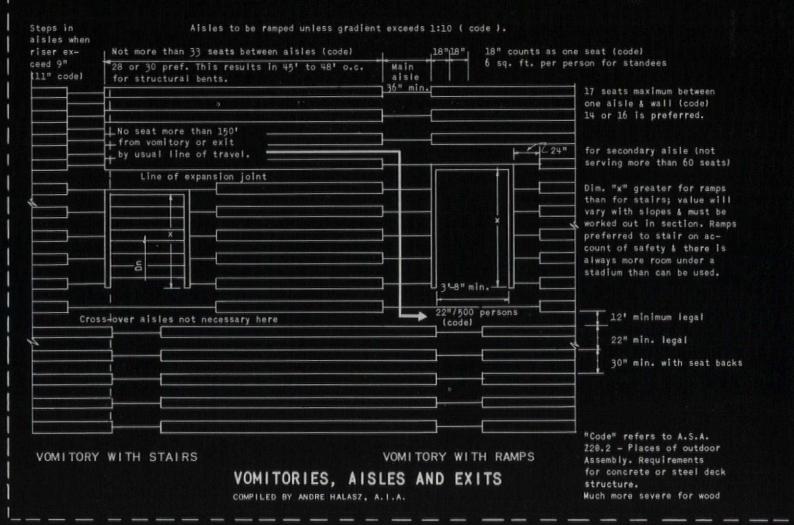
FOR LARGE CAPACITY STADIUMS

WITH BOX SEATS



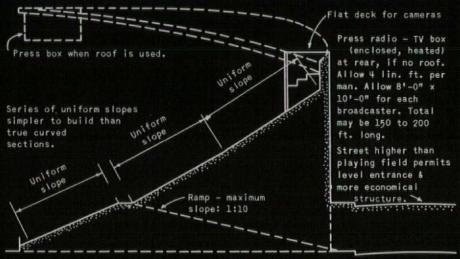
#### VOMITORY DISTRIBUTION

boxes



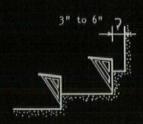
#### GRANDSTANDS AND STADIUMS—SEATING DETAILS

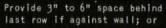
Roof, if used, should be cantilever type — seldom used for football, often for baseball & racing.



#### TYPICAL SECTION

If street level is high enough & soil firm, entire stadium may rest on ground - most economical construction.



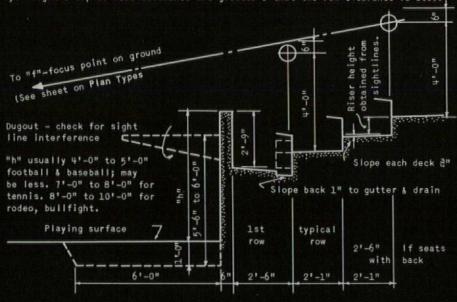




place last row on deck - type supports if cross-over aisle is behind it.

#### BACK ROWS - TYPICAL SECTIONS

Sight lines are laid out in same manner as for theater balconies except note that eye height & top of head clearance are greater & that two-row clearance is used.



Too great "h" will inordinately increase slope of stadium.

FRONT ROWS - TYPICAL SECTION

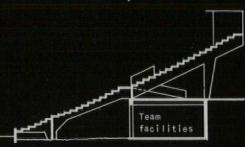


ALL SEATS RESTING ON EARTH

If playing field is completely enclosed by seats, space for team facilities and concessions and tunnels from playing field (A) must be excavated. If tunnels for spectators (B) are not provided, it is necessary to climb nearly to the top of the stadium to reach the lower seats. This system is more economical if playing field is not entirely enclosed by seats.



ENTRANCE ABOVE PLAYING FIELD - SEATS PARTIALLY RESTING ON EARTH More economical if seating area does not entirely enclose playing field. Otherwise, ramps or tunnels from playing field to team facilities are necessary.

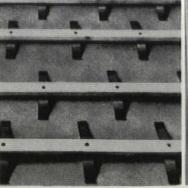


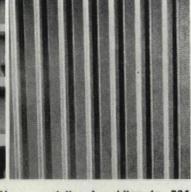
ENTRANCE ABOVE PLAYING FIELD Structural economy is achieved through taking advantage of natural ground levels



ENTRANCE LEVEL WITH PLAYING FIELD
The solution necessary if soil bearing capacity is not sufficient to take load of seats resting on earth. Most stadiums have vertical support; the example shown eliminates this by means of tension rings around the bowl.

SECTION TYPES





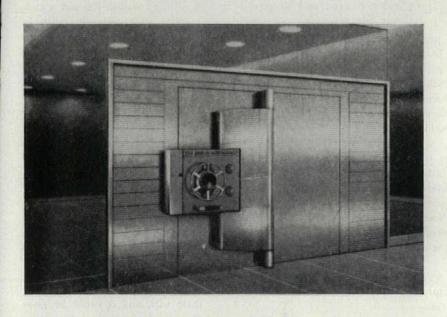
# **NEW PRODUCTS**

istic by the roll (p. 224)

springs for sports (p. 236)

stipling for siding (p. 224)

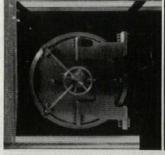
#### Vault doors revamped by Dreyfuss complement modern banks



More than any single element, the vault door characterizes a bank building as a bank. To keep up with contemporary styling for such structures, safemaker Mosler commissioned Henry Deryfuss to work out a modernized line of the steel hefties (weighing in at 4 to 25 tons). Introduced last year and restyled last month, one of the models has a glass face on the inside which reveals the locking mechanism (photo, right). Exterior of the current door is unchanged; it features a massive crane hinge, with controls-pressure wheel, bolt handle and combination locks-all on a single operation panel. Capable of 100 million combination changes, the "Counter Spy" locks are numbered on the edge of the dial rather than the face to prevent peeking. Several styles of architrave panels are now available for about \$2,500 additional on the \$12,000-and-up door units, and there is a choice of three interior treatments. Layer upon layer of steel and burn-resistant metal provide ultimate protection against fire as well as siege by sledge, explosive, drill or torch. The doors also have a relocking mechanism which automatically jams the locking bolts (temporarily) should any violence be attempted on the outside.

Manufacturer: Mosler Safe Co., 380 Fifth Ave., New York City.

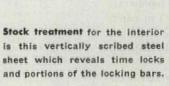
continued on p. 216





Special round vault door at new Manufacturers' Trust building in New York was a three-way collaboration among Mosler, Architects Skidmore, Owings & Merrill and Designer Dreyfuss. Thrusting tons of steel 8' out from the hinge, such a unit costs 50% more than a standard model.







side is the familiar and still intriguing glass face showing off the entire working mechanism. A third model displays the gears through a pattern of tapered holes into the steel plate.

# for architects mely

#### History without fake

Ours is a country that habitually looks forward, not backward, in its city-building. In thinking of that extra, fourth dimension of building called time, we anticipate the future rather than speculate on the past. During the war, when little useful building was being done, English architectural magazines took the occasion to re-evaluate their historical architecture, especially that of the nineteenth century; we, here, used the occasion to project previously unheard of building concepts for "194X." And by now many of them have been built.

In the most youthful days of the Republic, poets like Whitman scorned nothing so much as the dead "old world" they had left. In 1855 Hawthorne, speaking of Coventry in England, remarked, "We wandered wearily up into the city, and took another look at its bustling streets . . . a good emblem of what England itself really is-with a great deal of antiquity in it, and which is now chiefly a modification of the old. The new things are based and supported on the sturdy old things, and often limited and impeded by them; but this antiquity is so massive that there seems to be no means of getting rid if it, without tearing society to pieces."

Small wonder, then, that the architectural revolution called "modernism" has produced a higher proportion and probably a far higher total of modern buildings good and bad in the US than in all Europe. When we swing, we all swing together.

Yet behind all this a strange nostalgia has persisted. The more unanimously we have decided to disregard past building and past building habits in our cities, the more unanimously, too, we have been trooping to Europe - as Richard Neutra points out-in the role of tourists. History is what we are looking for, with its reassurance that mankind was not all born yesterday.

Sentiment, this is called; and

it has led to expensive tourist projects in our own land, such as the recreation of Colonial Williamsburg. From these spots sentiment has spread, changing into sentimentality, and attaching itself most persistently to the places where we live most personally-in our homes. So LIFE appears, as we go to press, with an article entitled, "How to make a fast antique-expert reproducer of ancient furnishings ages them 600 years overnight with acid, flames, bird shot."

This unlaughing addiction of ours to outrageous fake, this taste for a mushy, half-baked inside to the biscuit we eat, suggests that the cooking may have been too fast also on the hard-baked, or "hard-boiled," outer business crust.

There must be some better way to reconcile our two contradictory emotions-our love for uncompromising forward looking business sense and our sneaking search for some connection with the past.

FORUM is not open to the accusation that it seeks an answer in compromising new architectural creation with deliberate historical tags and "precedents." The revolution has come that separates good work in this industrial age from good work in the handicraft age that preceded it. You can't, as Le Corbusier said, build an airplane that will fly by copying birds.

Yet there are places and occa-

sions, still, where the past can be acknowledged and preserved to our advantage: not as a tourist curiosity but as part of our continuing daily business life. That is why FORUM asks the most careful scrutiny when the chance comes to retain such past achievements as the Grand Central concourse in New York. Only the strongest evidence that this inherited building will interfere seriously with the living tissue of our civilizaton would reconcile us to sadly giving it up.-And then only on the assurance that the old masters who created it are to be given an adequate salute.

What would be an adequate salute? To find the son rising to his time as the father did to his.

#### Architecture without pomp

Two architects we talked with about the Grand Central problem are exceptionally able men: one a veteran, one a younger man, each representing his generation.

Alfred Fellheimer helped conceive the existing building way back in 1903. Yet unlike many architects who love their creations like children, he is perfectly will-

torn down. The only reality he acknowledges is the play of economic forces out of which buildings grow, and out of which they must be replaced. All else he brushes aside as mere "sentiment." His extraordinary foresight, described in the article in this issue, caused his economic thinking to be often ahead of railroad presidents themselves. But his whole generation came on the scene just as a previous ruling viewpoint, one with some glory in it, was going lost. Said he, "J. P. Morgan declared that a railroad station was not a commercial enterprise-it must be treated as the gateway to the city." Since J. P. Morgan is dead, and railroads must live on their income of today, Fellheimer sees no alternative now but to forget Morgan's grandiose ways and find what handsomeness can be produced in stations that work.

ing to see his original building

Ieoh Ming Pei as a younger architect, speaks from close association with realty promoter Zeckendorf.

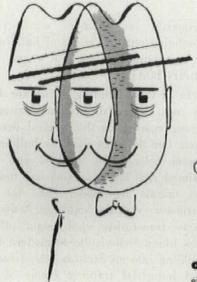
Pei does not mourn Morgan either, but for a different reason. Morgan, says he, was a tycoon and an autocrat, the successor in America of the Medici's in Florence. Such men could impose their will, and it could be good or bad. Since then democratization, says Pei, has been at work. Men like Young and Zeckendorf,\* whose personal fortunes compared with Morgan's are quite small, guide the building future nevertheless. They do so because the business community has voted them confidence.

What distinguishes a man such as Zeckendorf, continues Pei, is that he recognizes the economic force of intangibles, such as architectural quality. This is treated not as something outside the routine, not as something for Sunday, not for advertising, and with no premium in added cost, but as a guarantee of greater permanent worth. To this important theme, as Zeckendorf and Pei carry it out, Forum will in due course return, giving chapter and verse.

Meanwhile, next month, dealing with another key architectural problem involving past and future, FORUM will discuss the proposal that the Cathedral of St. John the Divine be finished in contemporary architecture. D.H.



<sup>\*</sup> And of course, McGinnis.



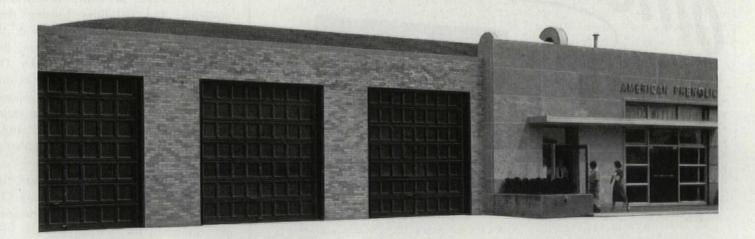
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Balconied hospital with 1,250 beds is core of big health center near Caracas' University City



primarily for chamber music concerts. Rounding out this group of buildings will be an exhibition hall and a new central library building.

In all these buildings forms are dictated by use; climate dictates orientation; and strong color adds the tropical decorative note. For the most part the buildings are cream color, with sections and pillars painted rich blues, yellows and mulberry; the murals are modern and the colors harmonize with the buildings. A deep mulberry transforms what might otherwise look like a well-ventilated modern factory building into an exciting school for trade and industrial training (some of whose students will be trained in the maintenance of the university itself). The light green planting skirting the whole development and the darker green tones of the mountainpeak backdrop soften the bright tropical effect of the buildings. The only spot in which the colors seem harsh is in the entrances to the stadium. Here small blue and yellow glazed Italian tiles fight for attention with the deep oranges, reds and blues of the ticket gates.

Health center. Several blocks from the sports center stands a large health center, whose focal point is an earthquake-proof hospital with 1,250 beds. The plans here envisage an interrelationship between the schools of medicine, experimental medicine, pathologic anatomy, and tropical medicine. The buildings housing these schools are directly connected with the hospital, and the schools of hygiene, dentistry, pharmacy, and nursing nearby. One of the special design features of the 11-story hospital is the angled walls which separate patients in the 16-patient wards in such a way as to place each bed in a corner, and so prevent its being seen from the neighboring

It will be interesting to see what effect this modern, well-planned University City will have on the more than two-centuries'old customs of its students. Will the welllighted library and study halls end the picturesque squatting of students under dim street lights for serious study? Will the magnificent new sports center consume some of the energy of the students, and cool their accustomed ardor for participating violently in politics-a practice which keeps so many of the Latin universities closed for large parts of each year?

continued on p. 178

# Distinctive treatment of school exterior obtained with colorful

Architectural Porcelain

by DAVIDSON

Davidson Architectural Porcelain panels in blue and green identify specific functional areas. This illustrates how Architectural Porcelain may be appropriately used with other exterior materials.



Double Oaks Elementary School, Charlotte, North Carolina. A winner in THE SCHOOL EXECUTIVE 1953 competition for better school design. Architect: A. G. Odell, Jr., & Assoc.

Double Oaks Elementary School, a winner in THE SCHOOL EXECUTIVE third annual competition for better school design, presents applications of Davidson colorful Architectural Porcelain for exterior spandrels and for exterior classroom wainscots. The structural characteristics of Architectural Porcelain combining the natural beauty of glass with the strength of steel are ageless and assure easy, low-cost maintenance. The brilliant colors are fadeless and harmonize perfectly with other structural materials.

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Davidson Architectural Porcelain is custom-designed, processed and enameled at the same time to insure trouble-free application and color uniformity. There are no standard prefabricated or stock panels. Davidson Architectural Porcelain comes in what-ever shapes are needed for each exterior or interior application. ever shapes are needed for each exterior or interior application. It is being used on schools, hospitals, theatres, stores and various types of public buildings. A complete file on Davidson Architectural Porcelain for architects contains details for all types of panels and illustrations of basic and special shapes, also details showing application of each type of panel. This complete file is available on request. Davidson Architectural Porcelain is a life-time building material—not just a finish!

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\* Reg. T. M. The B. F. Goodrich Co.



Application of Davidson Architectural Porcelain panels in blue, maroon, and yellow enable children to visually identify classrooms.

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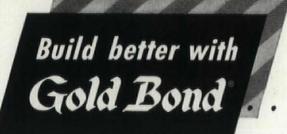
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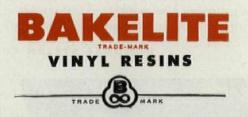
# STYLE... FOR A LONGER WHILE



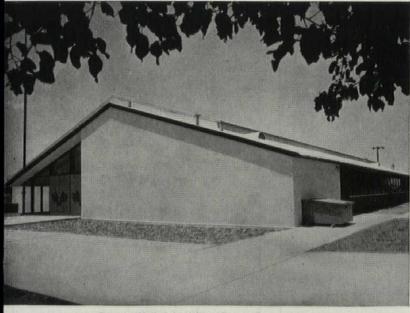
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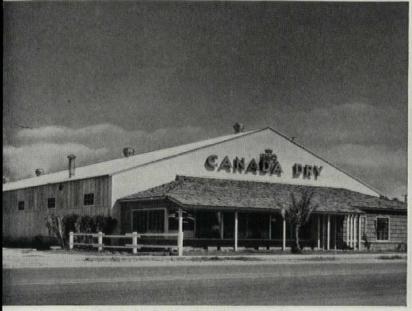
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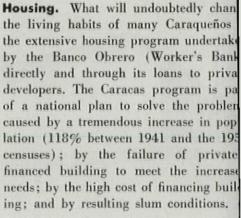
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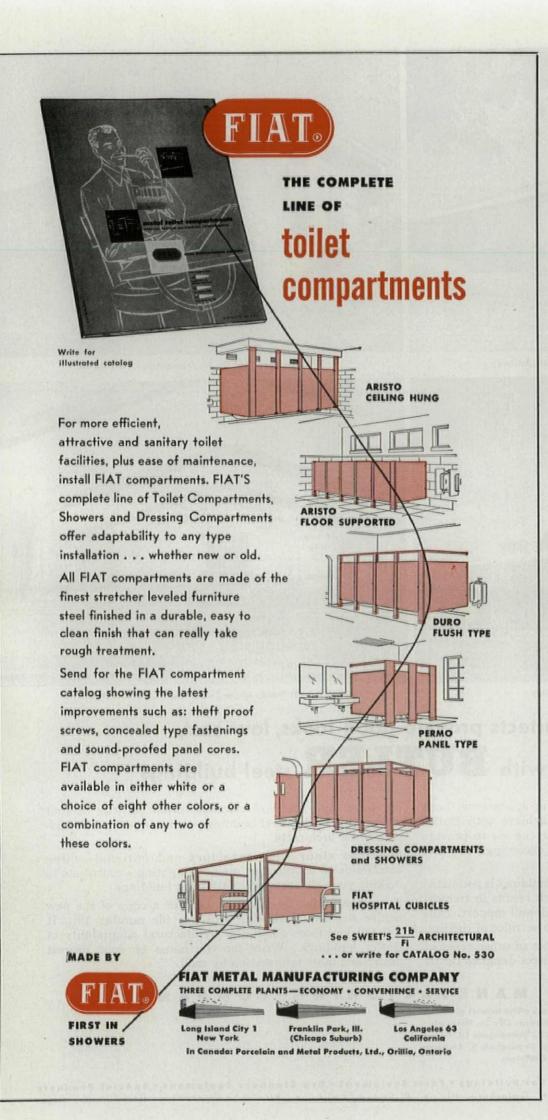
Slum dwellers in Caracas present particularly difficult problem, since the consider themselves property owners. The are usually squatters, who have bui themselves ranchitos on the sides hills-one-room affairs with cardboar walls, wood planks, and tin roofs and wil no sanitary facilities. They pay no ren no taxes, no garbage charges. They r ceive the health and hospital services the city free. Huge colonies live perma nently in these temporary shacks, takin their chances of being washed down th hills when the heavy rains come, an being smothered by dust in the dry season Some of the families have settled in wel even furnishing their ranchitos with r frigerators, radios and now television set But they represent a very real potentia health problem to the city. The govern ment has had considerable success in rehousing plan by which the ranchito traded in on an apartment or house.

continued on p. 18

LIFE-Cornell Capa



Typical housing project in Caracas accommodate low income families in four-story walk-ups,



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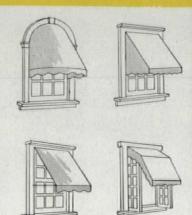
So if the nicest view is to the west, put in a big window

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In the redevelopment of this slum are -called the City of Small Planks-709 of the families exchange their ranchit for modern apartments. The new develop ment razed almost 1,000 shacks in wake, and when the project is completed close to 1,500 families will have bee transferred to new modern quarters wit facilities for recreation, education an health service.

One of the largest housing projects i Caracas, covering 45 city blocks, name for Col. Delgado Chalbaud, is compose of workers' apartments, middle-class apar ments, row houses and individual house The differentiation is based on income, an the amenities vary with these differences This integration of the various incom groups of the working community is th basic plan of all the government housing

Apartments as well as houses are sole on a down-payment, long-term purchas plan. The public financing permits a 109 down payment and grants a 4%, 15-year mortgage, whereas the usual private f nancing by insurance companies is at 89 on a ten-year basis. Less-reputable lender charge up to 12%. Most of the smalle housing units cost from \$5,000 to \$6,000 and the most expensive, \$13,000. Land i supplied by the municipality; streets and lighting are provided by the regional gov ernment; building is done by the Banco Obrero; sewers and water supply are th responsibility of the government.

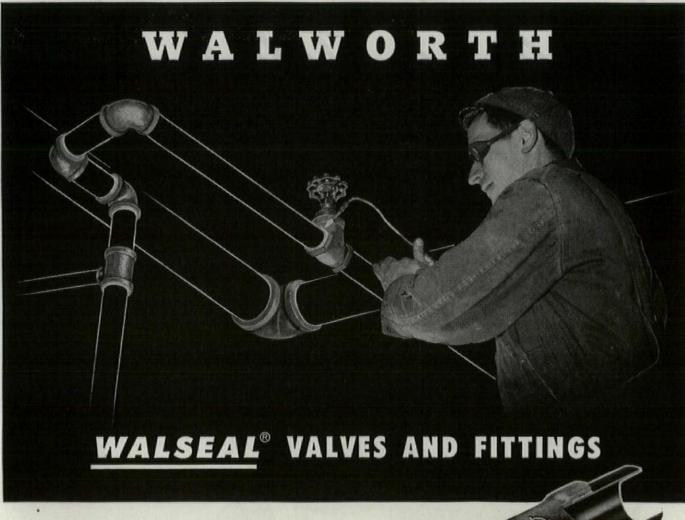
Although these large new developments have helped change the face of the capital they have not brought in their wake the continued on p. 18

Hamilton Wrigh



Modern apartment in Caracas contrasts sharpl with traditional mansion next door.





Better because . . . There's no guesswork when a silver-brazed joint is made with a Walseal fitting. Sil-Fos alloy, which appears as a fillet at the face of a Walseal joint, comes from rings which have been factory-inserted in the end connections of Walseal fittings. The bright silver alloy fillet that you can see assures full penetration of alloy for a permanently leakproof joint.

Walseal is a registered trade mark which identifies valves and fittings manufactured by the Walworth Company. Walseal products have factory-inserted rings of silver brazing alloy in threadless ports. Walseal joints can be made only with Walseal valves and fittings.

If you're piping water, oil, steam, air, oxygen, nitrogen, helium or other industrial gases or refrigerants through brass, copper, or copper-nickel pipe, you'll want to investigate Walseal - available in complete lines of valves and fittings in four distinct pressure ranges from 0 to 5000 psi. working pressure\*. Your copy of Circular 115 will be sent on request . . . see your near-by Walworth Distributor today, or write to: Walworth Company, General Offices, 60 East 42nd Street, New York 17, N. Y.

\*Walseal fittings and valves are being used at sub-zero temperatures as low as -350 F.



Cutaway view of a Walseal Tee showing: factory-inserted ring of silver brazing alloy; fillet of silver brazing alloy that appears upon completion of Walseal joint; cutaway view of the completed joint showing that silver brazing alloy has flowed in both directions from the factory-inserted ring.

Make it "a one-piece pipeline" with WALSEAL



valves . . . pipe fittings . . . pipe wrenches 60 East 42nd Street, New York 17, N. Y.

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The Johns-Manville Permacoustic Ceiling in the beautiful Bradley Airport Terminal restaurant provides quiet and comfort despite noisy aircraft traffic outside.

## A beautiful Solution

TO NOISE-CONTROL PROBLEMS...

## Johns-Manville

decorative acoustical tile

Specify J-M Permacoustic® tile for ceilings that provide unusual architectural beauty with maximum acoustical efficiency and fire safety.

Johns-Manville Permacoustic is exceptionally sound-absorbent. It is attractive and noncombustible. It is available with either a textured or fissured surface. These random-textured finishes increase its noise-reduction qualities and provide design and decorative interest.

Made of baked rock wool fibres, Permacoustic is fireproof—meets all building code fire-safety requirements. Johns-Manville Permacoustic is easy to install on existing ceilings or slabs, or by suspension using a spline system of erection.

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

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Cu	and a	uslic	

Sizes 12" x 12" 12" x 24"	Thickness 3/4"*	Color; white
Callanta Land	Test No. A51-98	Y Test No. A51-99
cycles per second	cemented to plaster board (mounting No. 1)	mechanically mounted on special metal supports (mounting No. 7)
125	.04	.56
250	.21	.53
500	.75	.60
1000	.88	.73
2000	.85	.88
4000	.78	.88
noise reduction coefficient	.65	.70
weight per sq. ft.	1.3	1.3



Johns-Manville

40 YEARS OF LEADERSHIP IN THE MANUFACTURE OF ACOUSTICAL MATERIALS

## "You wouldn't believe it was the same office!"





#### **New SYLVAN-AIRE Lighting** System improves sight and sound ... quickly installed!

Architects and business executives acclaim the transformations made with Sylvania's advanced SYLVAN-AIRE System.

This lighting system consists of translucent, corrugated plastic supported by light-weight aluminum channels. Longitudinal "V"-shaped Sono-Wedges, filled with glass fiber also greatly reduce distracting noise.

The structural elements of the SYLVAN-AIRE System are designed for suspension from either single or multi lamp units, necessary to supply the proper level of illumination.

There's lots more you should know about the extreme versatility, efficiency and ready installation of SYLVAN-AIRE. For illustrated literature address 4X-1211 at Sylvania.

In Canada: Sylvania Electric (Canada) Ltd. University Tower Building, St. Catherine Street, Montreal, P. Q.

LIGHTING . RADIO . ELECTRONICS . TELEVISION

widespread destruction that Bolivar cen caused. Except for the first project, bu in 1941 to replace a slum site in the c part of Caracas, the new projects ha been built on vacant land-level vall sites-or on squatter-occupied land, clim ing up the sides of the mountains as t ranchitos do. The Banco Obrero is wo ing with the National Commission Urbanism and the Municipal Engineer office to try to set aside sites for futu housing development, in line with t master plan for the city.

New suburbs. But if Caracas is chan ing fast from old to new, the change even more drastic in those newly opened areas where there was not anything befor Zoning and building restrictions are als helping to speed the change. In an attempt to keep pace with the population growt the planning authorities require nothin lower than ten-story buildings in son new sections of the city. This means th to build a storage warehouse, a compan is sometimes forced also to build an apar ment house-in an area formerly devote to farming. And the apartment house pr vides as good a return as the warehouse.

The demand for apartments sprang u in the past five years, as a result of th heavy influx of short-stay foreigners, an the general decline in the supply of servants (service occupations are still th lowest paid). The new apartment house range from lowest-rent walk-up types large luxury apartments with terraces parking facilities, penthouses, elevators servants' quarters, service shops.

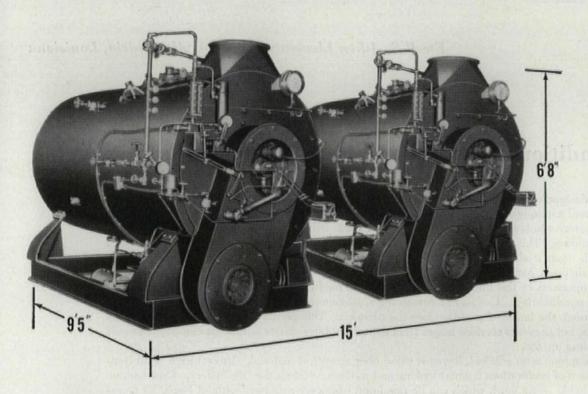
continued on p. 19

Hamilton Wrig



Public school for 1,200 children is dominated hexagonal sun screen across facade.

## 9600 lbs. of Steam in only 1000 cu. ft!



## Using only 140 sq. ft. of Floor Space

The Cyclotherm MC4000 Steam Generator allows you to utilize your space more efficiently... to devote more of your area to storage and production use.

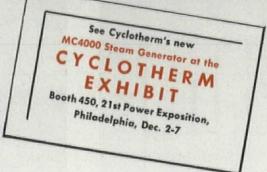
Requires the minimum in boiler room space and costs. Or can be placed in a working area because radiant heat loss is at a minimum. Exclusive, patented, Cyclotherm Cyclonic Combustion makes the most compact steam generator yet developed possible.

A flaming cyclone swirls the

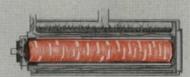
length of the firetube . . . separated from the walls only by a thin layer of air. The even distribution of the flame converts the entire surface of the firetube into an effective heating area. Without increasing the boiler size, the heating area has been enlarged to the maximum.

No other method of combustion can equal this accomplishment. The Cyclotherm MC4000 is ideally suited for service wherever steam is needed but boiler room space is at a premium.





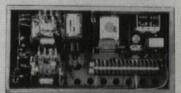
Cyclotherm Division, U. S. Radiator Corp., Dept. 422, Oswego, New York



Exclusive, patented Cyclonic Combustion gives you a minimum guaranteed 80% efficiency in only 2 passes . . . a rate unequalled by any other method of combustion.



Simplified design shaves maintenance costs up to 50%. Cleaning and replacement of parts can be done in minutes by any maintenance man. Firetube never needs cleaning as all fuel is consumed.



Automatically operates by electronic control system. No fireman required. Burns gas and/or oil. A Cyclotherm unit will pay for itself in  $4\frac{1}{2}$  years in fuel savings alone.



Precision modulation equipment regulates firing rate from 30 to 100% of the Cyclotherm's capacity without losing peak efficiency.



Now aboard Sinclair Refining Co.'s "Sinclair Chicago," and U.S. Navy's "U.S.S. Endurance" ... operating efficiently in space too cramped for ordinary packaged units.



Other Cyclotherm models range from 18 to 500 hp...from 15 to 200 psi. For industrial, commercial plants, institutions and marine use.



Architects: Barron, Heinberg & Brocato General Contractor: J. E. Ratcliff Acoustical Contractor: King & Co., Inc.

Ewell S. Aiken Elementary School, Alexandria, Louisiana

#### Sound conditioning makes advanced school design practical

The designers of Alexandria, Louisiana's Aiken Elementary School have combined sound conditioning and a unique design to provide improved classroom lighting and ventilation.

Clerestory windows of colored diffusing glass admit light into a corridor along the south side of the building. This light is transmitted into the classrooms through special louvered walls. Since each room is also designed with northern exposure, the result is a well-balanced lighting, free from shadows, high contrast areas, and glare.

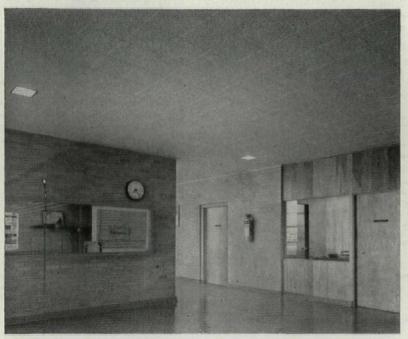
The openness of this louvered wall construction might prove highly impractical were it not for sound conditioning. Ceilings of Armstrong Cushiontone Full Random extend from the classrooms through the louvered partition into the corridor. This permits light and air to reach the classrooms, but prevents corridor noises from disturbing busy classes and keeps classroom sounds from building up, too.

Cushiontone is an efficient, low-cost wood fiber acoustical material. Its exclusive "Full Random" pattern of perforations is smart looking and modern, subdues the "tile" effect. Cushiontone has a washable white finish which can be repainted whenever necessary without losing its noise-muffling effectiveness.

See your Armstrong Acoustical Contractor for full details on Cushiontone and Armstrong's entire line of sound-conditioning materials. For the free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 4211 Rooney St., Lancaster, Pa.

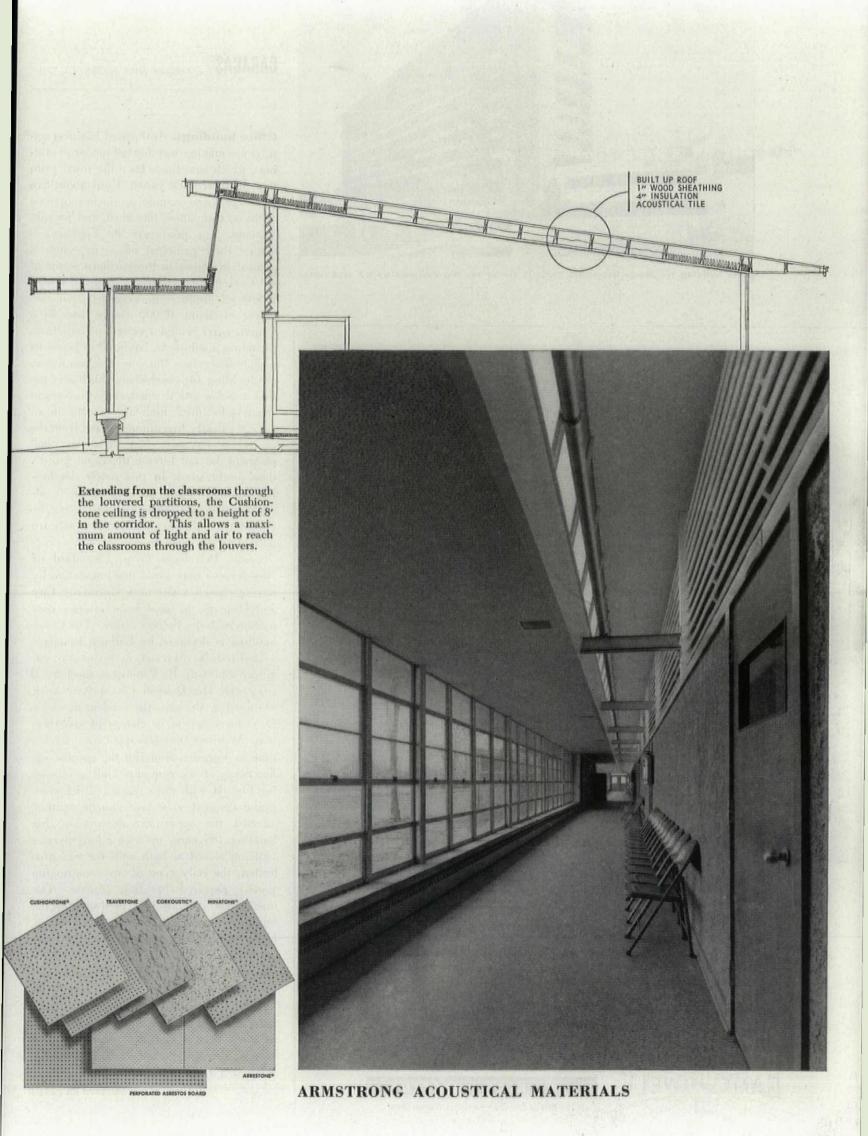


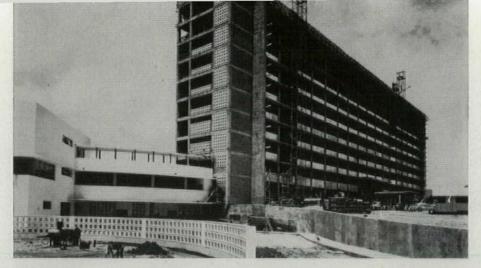
Low in both material and installation costs, Armstrong Cushiontone is often the choice where strict budgets must be met. Cushiontone's high acoustical efficiency promotes a comfortably quiet atmosphere for study that is beneficial to both student and teacher.



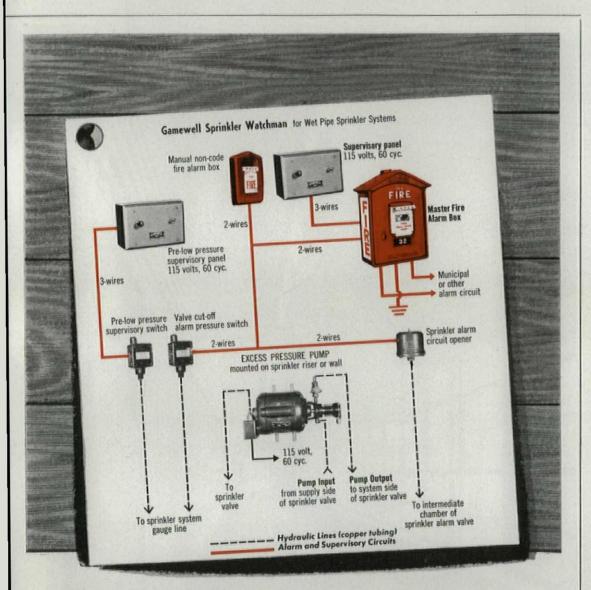
Cushiontone's Full Random pattern of perforations produces a continuous ceiling appearance instead of the usual "tiled" effect. Noiseabsorbing Cushiontone can also be repainted to blend with any desired interior color scheme without loss of acoustical efficiency.







Office building for Creole Petroleum Corp. is one of the few designed by US architects.



#### The GAMEWELL Sprinkler Watchman

lets you "mechanize" sprinkler systems

The sprinkler system that automatically calls the Municipal Fire Department keeps fire and water damage low.

To "mechanize" a sprinkler system
. . . to make it call the Department
whenever a head "goes off", you merely

specify that the Gamewell Sprinkler Watchman be installed as part of the sprinkler system.

Write for additional information about the Gamewell Sprinkler Watchman.



THE GAMEWELL COMPANY Newton Upper Falls 64, Mass.

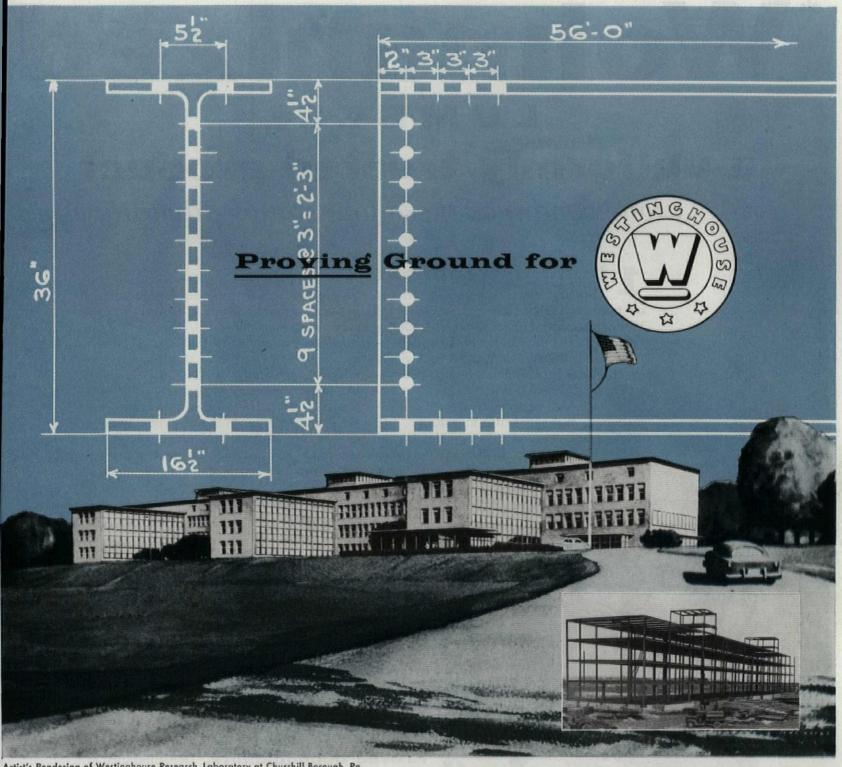
FIRE ALARM SYSTEMS

The Box Is Positive — Reduces Human Error

Office buildings. Antiquated business settings are making way for tall modern buildings, which sometimes keep the royal palm trees in their back yards. Until about five years ago, large companies-including some of the oil companies, like Shell, and Socony-Vacuum, big producers in Venezuelahoused their principal offices in manorial patio-style houses in the northern sector of old Caracas. The Creole Petroleum Corp., largest oil producer in Venezuela, and employer of about 18,000 (more than 90% Venezuelans) rented a variety of buildings, including a suburban "quinta" to house its expanded services. But now these companies are building for themselves. Shell was the first to move into its modern red brick and concrete building, high up on a hill in an eastern suburb, five minutes drive from the center of Caracas. But even the Shell planners did not foresee the rapid growth they would spark in this newly developing suburb. Their parking space is already inadequate-three years after completion of the building-and traffic snarls are normal at the peak hours.

Creole Petroleum Corp. (Standard of New Jersey) may avoid this inundation by having chosen a site near University City and close to the new main arteries connecting with the Bolivar center. The Creole building is designed by Lathrop Douglass, with Fred N. Severud as structural engineer and Guy B. Panero as mechanical engineer. The Driscoll Co. of New York (Edward S. Moran is the resident manager for Venezuela) is in charge of construction. Architect Douglass spent considerable time in Caracas, studying the specific office needs of the company and familiarizing himself with the vagaries of the yearround tropical mountain climate as they affected the operating efficiency of his building. He came up with a long narrow building closed at both ends for sun protection, the only type of air conditioning usually required for that climate. The broad base, serving as a platform for the building, resulted from the housing of large related departments most efficiently on the lower floors. Earthquake protection dictated the other decorative feature-the roof projection of the elevator core. The United Nations building type of construction-the steel flooring and aluminum spandrels-is new to Caracas, but the general exterior design type is becoming almost as familiar a sight as the old patio buildings

continued on p. 194



Artist's Rendering of Westinghouse Research Laboratory at Churchill Borough, Pa.

#### Fabricating Steel is our Business

The stage for tomorrow's electronic magic is set today in research laboratories like this Westinghouse facility in Churchill Borough, Pa., near Pittsburgh.

Ingalls, the nation's leading independent steel fabricator, supplied the steel for the Westinghouse Laboratory as it has for so many other commercial and industrial buildings in almost every section of the country. Our 40-odd years of experience is your assurance that Ingalls can meet any fabricated steel requirement, regardless of size or location.

Plants at Verona (Pittsburgh District), Pa., Birmingham, North Birmingham, Pascagoula, Miss., and Decatur, Ala., assure you of a service that's prompt, efficient and economical.

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SALES OFFICES: New York, Chicago, Pittsburgh, Houston, New Orleans, Atlanta PLANTS: Birmingham, Ala., Verona, Pa., North Birmingham, Ala., Pascagoula, Miss., Decatur, Ala.

## \*Wolmanized

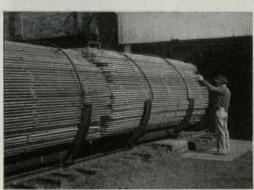
## LUMBER a uniformly treated product

... alone combines these four major advantages

The uniform, unvarying standards of treatment that are characteristic of Wolmanized clean pressure-treated lumber begin with the production of the preservative chemical itself. Controlled by a single exacting standard, Wolman brand preservative never deviates from its chemical formula. And the high-pressure treatment process by which Wolman salts, in solution, are driven deep into wood is also completely controlled, always the same. Retorts and other pressure-treatment equipment must meet

strict Koppers requirements before a preserver is licensed to produce Wolmanized pressure-treated lumber. Since the preservative is forced deep into the fibers of the wood by pressures up to 150-p.s.i., equipment must have at least that capacity before approval is granted. Thus, from all 14 sources operating 24 pressure-treatment plants, Wolmanized clean treated lumber is always the same. Wherever you specify, use or buy Wolmanized lumber you are assured that uniform treatment is providing a product with undeviating quality.





2 Application versatility. Wherever you use treated lumber, Wolmanized lumber will fill your needs. In addition to the application versatility that has always been the hallmark of wood, Wolmanized lumber is deadly to rot and termites, clean, odorless, completely paintable, harmless to clothing and skin, and noncorrosive to metal fittings.

**3** Available anywhere. 47% of all clean pressure-treated lumber is Wolmanized . . . nearly as much as the total output of all other sources combined. When you specify Wolmanized lumber, delivery is certain, since 24 qualified wood preserving plants in the United States and Canada provide coast-to-coast distribution.

4 Proved dependability. Dependability of Wolmanized lumber is documented by actual service records. Unusually long life, even under the most adverse conditions, is another advantage of Wolmanized pressure-treated lumber. For further information write: Koppers Company, Inc., Wolman Preservative Department, Pittsburgh 19, Pennsylvania.

\*"Wolman" and "Wolmanized" are registered trademarks of Koppers Company, Inc.

**Pressure-Treated** 

## Wolmanized



#### SPECIFICATIONS

Weights and sizes:	Standard 400
Width	42"
Lengths	1' to 12' (in 6" increments
Thickness	Approx. 1/8" at the crests and vales, 1/4" at flanks.
Pitch	4.2"
Weight	4 lbs. per sq. ft.
Color	Natural Cement Gray
Depth of Corrugation	11/2"
Applications Specifications:	
Minimum Roof Slope	3" rise in 12"
Maximum purlin (roof) spacing	1 4'-6"
Maximum girt (side wall) spacing	5'-6"
Weight per net square, including side and end laps	Approx. 500 lbs.
Minimum side lap	1 corrugation (4.2")
Ainimum end lap	6"
Re	fer to Sweets - AIA File 12-F

NATIONAL GYPSUM CO. . BUFFALO 2, N. Y.

Get striking good looks with low cost construction by using Gold Bond "400" Corrugated Asbestone in your commercial and industrial building designs. Asbestone's rock-like properties, reinforced with top quality asbestos fibers, resist fire, corrosion and leakage. Wall surfaces need no maintenance and are never affected by summer or winter weather. Best of all, Gold Bond Corrugated Asbestone harmonizes perfectly with brick, cement blocks, corrugated glass or plastic panels. Before you specify old style, high cost walls, investigate Gold Bond Asbestone for your next job.

Send to Dept. AF-114 for your copy of "Corrugated Asbestone Roofing and Siding"—with full technical and application data.

Build better with Gold Bond.















ASBESTOS ROOFING

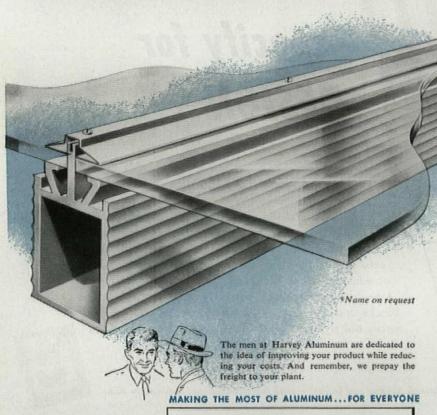
## 15/18/11

## Harvey Aluminum will reduce your costs

### HERE'S HOW ONE MANUFACTURER REDUCED SKYLIGHT COSTS 47%



Working with Harvey's engineers and specialists a leading manufacturer\* of skylights redesigned his product to take advantage of the multiple function characteristics of Harvey aluminum extrusions. As a result of this teamwork the efficiency of the original design was greatly increased. The 3 main components of the skylight glaze bar were incorporated in a single aluminum extrusion, appearance was improved, weight was reduced enough to cut the cost of supporting material by 50%, labor was reduced 10% to 25%. Harvey offers many other ways to cut your costs. One example is the new Harvey 66S alloy. Write for bulletin today,



An independent producer of aluminum extrusions in all alloys and all sizes; special extrusions, press forgings, bar stock, forging stock, tubes, impact extrusions, aluminum screw machine products and related products.

HARVEY

HARVEY ALUMINUM SALES, INC. TORRANCE, CALIFORNIA BRANCH OFFICES IN PRINCIPAL CITIES were. The result of this efficient plan, wit sufficient space for access, parking, plantin recreation, and all foreseeable future d velopments, is a striking addition to the new Caracas landscape.

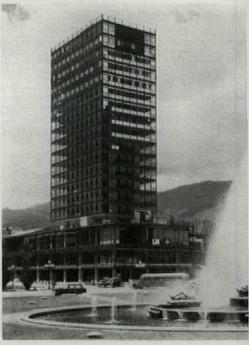
Other new office buildings in Caraca are the all-steel construction Karam building (built by Driscoll for a Venezuela owner), and the Socony-Vacuum building

The new hotels, luxury shops with zig zag parking, department stores, and the most sumptuous of supermarkets with all the latest automatic service gadgets, are modern in design, but as with the modern single-family houses in Caracas, there is little sameness. Originality rather that conformity marks the new designs for Caracas—whether they are drawn by Venezuelans in Caracas or by Americans in New York.

New towns. Outside of Caracas the mos interesting new experiment is the joint planning of two towns for Orinoco Mining Co. (US Steel subsidiary) by the Venezue lan Office of Planning & Housing and US Architects Wiener & Sert.

Cerro Bolivar (the so-called mountain of iron) was found to have high-grade iron ore of such great importance tha major steel companies of the US have invested more than \$250 million to develop the region. The iron-ore find was a major continued on p. 198

H. Wright



Office tower on Plaza Venezuela in Caracas is by local architect, but reflects precepts of Mies.

## The BETTS ON A CLASSROOM IS OCCUPIED!

#### Regardless of the Season, Cooling is a "Must" for Classroom Comfort

It's the human system that upsets school heating systems! Every student's a stove radiating over 200 BTU's an hour. And there's the additional heat from lights and solar effect, too! That's why temperature continues to go up when the thermostat is turned down. That's why cooling is a "must" for classroom comfort, regardless of the season.

Herman Nelson's approach to the problem of overheating is both simple and logical. DRAFT|STOP is provided with ample fan capacity to insure delivery of outdoor air in sufficient quantities to reduce room temperature to comfort level. Equally important, DRAFT|STOP never contradicts itself while cooling. Its method of draft elimination requires no heat-precludes the possibility of heating and cooling simultaneously.

The danger of overheating is real, DRAFT STOP's solution is realistic. For complete information, see our catalog in Sweet's Architectural File, or write Herman Nelson Unit Ventilator Products, American Air Filter Company, Inc., Louisville 8, Kentucky.



**Provides** 

COOLING, HEATING, VENTILATION, ODOR CONTROL, DRAFT ELIMINATION

All at minimum cost

UNIT VENTILATOR PRODUCTS

American Air Filter Company, Inc.

SYSTEM OF

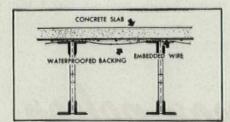
CLASSROOM HEATING, VENTILATING AND COOLING



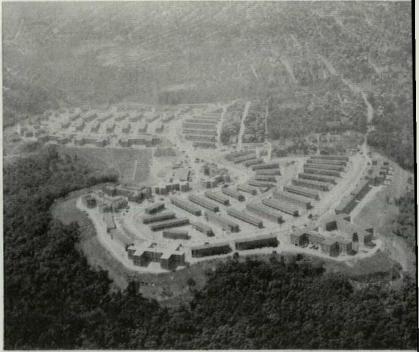
\$5-million Bigelow Apartments, at the top of Pitts-burgh's famed Golden Triangle tower 20 stories, contain 465 units all air conditioned. Steeltex Floor Lath provides reinforcement for all floors. Arthur E. Tennyson, Architect. Martin C. Knabe, Structural Engineer. Behrman & Passel, Contractors.



New 3-story addition to Shaler Township High School added 20 classrooms, upped accommodations from 750 to 1400 students, cost \$1.35 million, has gym, auditorium, three shops, offices and locker. Steeltex Floor Lath on all floors. Charles M. & Edward Stotz, Jr., Architects. Geo. H. Chilli, Contractor.



NOTE: In the cross section the weight of the wet concrete forces the backing away, which permits the galvanized steel mesh to assume its proper position in the slab. Steeltex floor lath also performs two other functions: It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.



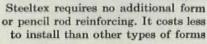
\$13-million low rent public housing project, St. Clair Village, 79 buildings, 723 units in 3-story buildings, 366 units in 2-story row houses. Concrete floors poured over Steeltex. Marks, Fisher & Simboli, Architects. George Levinson, Design Engineer. Ragnar Benson, Inc., Contractors.

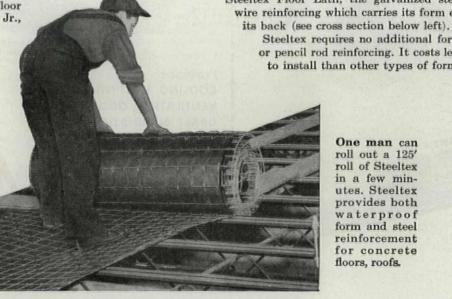
### Why building designers for reinforcing concret

Pittsburgh, City of Vision, is one of the most progressive cities in America today. Once dirty and smoky and threatened constantly with floods, Pittsburgh, now undergoing a renaissance, is one of the country's cleanest cities.

A vast network of dams in the headwaters of the Alleghenv and Monongahela make damaging floods virtually impossible. A stream purification program is well under way. A new \$5-millionper-mile east-west parkway, partially completed and in use, will speed traffic through the city's heart without cross streets or traffic lights. New skyscrapers, new research centers, new industrial plants, new parks, new off-street parking garages have brought about a boom in new apartments and public housing, new schools and hospitals, new shopping centers.

When buildings of this type are being designed, poured concrete decks are most desirable and when you pour concrete, it is only natural to specify Steeltex Floor Lath, the galvanized steel wire reinforcing which carries its form on





One man can roll out a 125' roll of Steeltex in a few minutes. Steeltex provides both waterproof form and steel reinforcement for concrete floors, roofs.



The \$3.5-million nurses home at University of Pittsburgh towers 14 stories, completely air conditioned, contains library, recreation room, reception rooms, cafeteria seating 400—comfortable living quarters for 600. Steeltex in upper floors. Ingham, Boyd & Pratt, Architects. Trimble Company, Contractors.

### ittsburgh specify STEELTEX® oors and roofs

and reinforcement for concrete because Steeltex can be rolled out like a carpet, stretched with a special tool, and clipped tightly in place by one man (see photo below left).

Steeltex with its waterproofed backing also prevents waste of concrete by reducing leakage to a minimum from the freshly poured slab—craftsmen can continue working on the floor below without getting splattered. Expensive clean-up time is eliminated.

Steeltex insures a strong floor because embedment of steel reinforcing takes place automatically (see note below left). Steeltex allows concrete to cure slowly, properly—guards against excessive cracking—can be installed over any type of joist—will support ample safe loads from 109 to 886 lbs. per square foot depending on spacing of joists and thickness of slab. No wonder Steeltex has been the choice of architects, engineers, contractors, and building owners alike, not only in Pittsburgh but wherever concrete slabs are poured over joists.

If your building plans call for poured concrete floors, roofs, plaster walls or ceilings, masonry veneer or Portland cement (Stucco) exteriors, there's a type of Steeltex reinforcing that will do the job better, faster, with less effort at lower overall cost.

For complete details see the Steeltex catalog in Sweet's or write for your free copy of a new 24-page illustrated booklet "Pittsburgh Steeltex, Backbone of Concrete, Plaster, Mortar." It's yours for the asking.

## STEELTEX

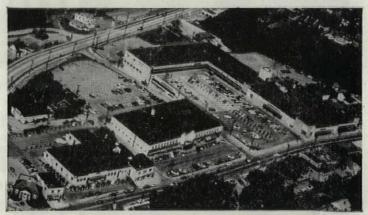
manufactured by the

#### **Pittsburgh Steel Products Company**

a subsidiary of **Pittsburgh Steel Company**Pittsburgh 30, Pa.



St. Clair Hospital, Mt. Lebanon Township, Pa., serving the growing South Hills area has 116 beds—cost \$1.34 million. Steeltex used in floors. Kuhn & Newcomer, Architects. R. A. Zern, Structural Engineer. H. Busse, Contractor.



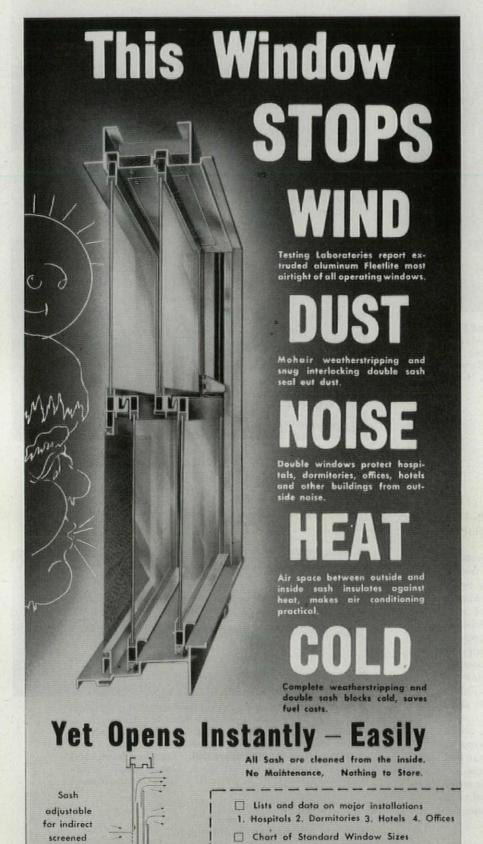
Brentwood-Whitehall Shopping Center built on two levels has 25 shops in 210,000 square feet—80% are air conditioned—parks 1,000 cars. All floors reinforced with Steeltex. Forsyth & Blezard, Architects. Leland Cook, Structural Engineer. Landau Bros., Contractors.



Mammoth decks in this fabulous \$10-million terminal building at \$42-million Greater Pittsburgh Airport, were poured on Steeltex Floor Lath. Last year 2.5-million people including travelers spent \$20 million at ticket counters, restaurants, nightclub, theater, hotel and shops. Joseph Hoover, Architect. Leland Cook, Structural Engineer. Dick Construction Co., Contractors.

#### Here are other recent buildings in Pittsburgh and vicinity using Steeltex:

Amberson Gardens
Bedford Dwellings
Center-Negley Apartments
Greentree Apartments
Hebron Grade School
Kennilworth Apartments
Pennsylvania College for Women (Administration Building)
Shadyside Presbyterian Church (Chapel)
St. Augustine's High School
Talbot Towers (Housing Project)
Union Railroad (Office Building)
Westinghouse Educational School
Westinghouse Electric Corporation (Atomic Project Buildings)



☐ Typical Installation Details ☐ Samples of Extrusions

Name

FLEET OF AMERICA, INC., 116 Pearl Street, Buffalo 2, New York

Gentlemen: Please rush the material checked above.

factor in the US steel industry's migration to the Delaware Valley, to facilitate re ceiving the ore from abroad.

The two towns to spring from the firs phase of the mining operation have been completely zoned to protect the use effi ciency of each area. Climate has been a determining factor in the planning of al the buildings-particular attention being given, because of the tropical heat, to considerations of breeze and view. The pation plan for the community (AF, Aug. '53) i modern, although retaining the Spanish feature; it provides for familiar and agreeable living. The civic center, community building, school, shops are simple in de sign. Emphasis is placed on well-designed landscaping, experimental planting and central plazas for relief from the climate.

The individual houses are simple, built of cement blocks made locally, but the proportions are luxurious, and the cellular-cut terra-cotta and cement blocks give the living rooms the openness of balconies. The small, pivoting, louvered windows are ideally suited to the climate.

This joint planning effort by the government and the companies involved should avoid the mistakes of earlier developments by the oil companies alone, which tended to create isolated communities, as business developed outside the camps. In these areas of the Paraguana Peninsula, designated as sites for refineries, the planning

continued on p. 202

LIFE-Cornell Capa



Laguna Beach Club at Macuto by Architect Julian Ferris shows influence of Corbusier, Neomeyer

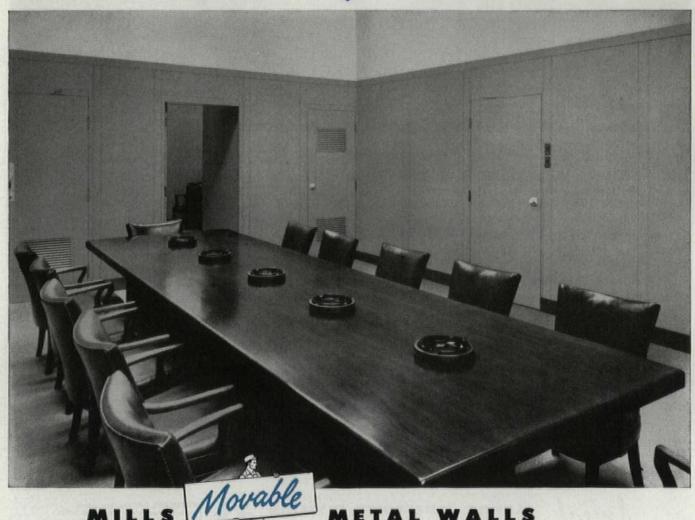
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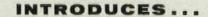
TO CHANGES IN NEEDS

Conference Room, Emory University, Atlanta, Ga. Robert & Co. Associates, Architects, Barge-Thompson Co., Builders.  The walls throughout Emory University's new research laboratory building are Mills Walls-as distinctive and attractive as walls can be. But when Emory's space requirements change these walls can be rearranged to fit new layouts quickly, easily and at very low cost-without dust, debris, commotion or interruption of normal space usage. They are fully insulated and soundproofed and provide for easy installation of wiring for light, phone and air conditioning controls. Available in a wide range of soft modern colors, their baked-on enamel finishes require no maintenance other than occasional washing.

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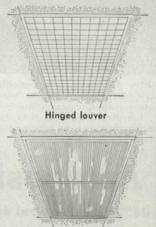
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office is now working with the group involved to integrate the various existin communities to facilitate more coordinate expansion.

A completely new community is growing up near San Cristobal, in the heart of th agricultural Andean valley.\* Besides th usual housing for workers and middle-clas families, this plan calls for bachelors quarters and an artisans' center. The prin cipal handcrafts of Venezuela come from this region-woven fabrics, pottery, wood en objects; and the plan for the area attempts to preserve the customs of this most conservative part of the country within the modern forms of architecture No part of Venezuela goes untouched by the plan to develop a modern country from the fabulously conceived superhigh way from Caracas to the sea, to the off coast island of Margarita. Margarita of the pink beaches and pearl fisheries, is slated for a community planning job.

Tocuyo, the little agricultural town founded in the sixteenth century, whose adobe huts could not resist the earthquake of 1950, is now being completely rebuilt Turén marks a new community development in the hot flat plains of central Venezuela to encourage large-scale agriculture.

\* The group of young architects responsible for the planning of this community-complete with schools, shopping center, church, social clubs-are Dr's. Juan Andrés Vegas, Julián Ferris, and Carlos Dupuy.

H. Wright



Road building is also booming in Venezuela. This is an aerial view of Autopists Highway.



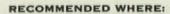
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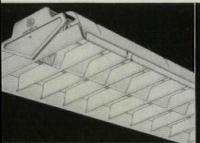
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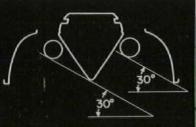
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20° LENGTHWISE SHIELDING. Optional louver assembly provides excellent visual comfort. Louvers furnished in 4-ft. sections, hinge either side for easy servicing.



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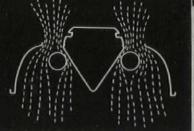


Microphoto shows how metal and porcelain enamel fuse together to form lifetime bond.

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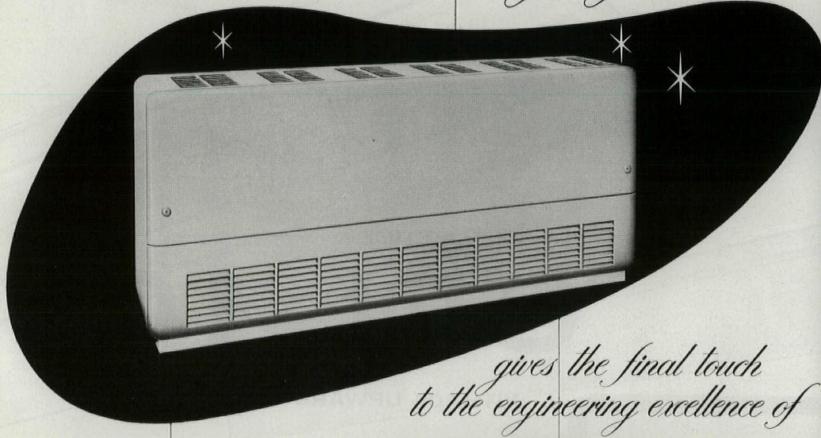
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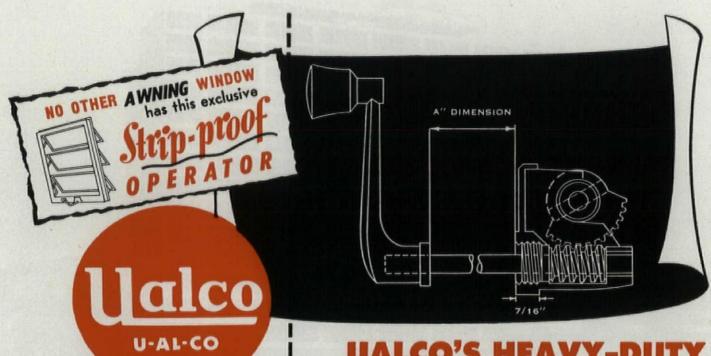








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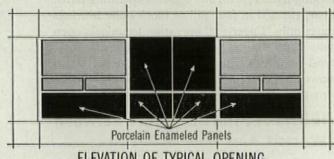
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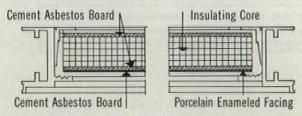


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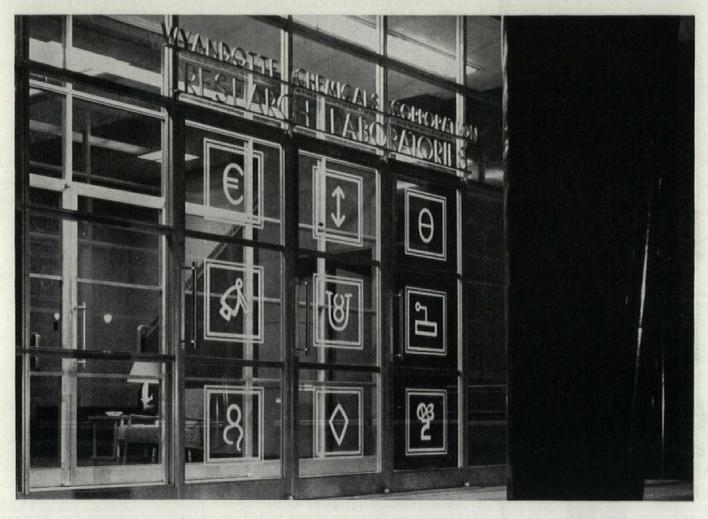
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#### **BOOK REVIEWS**

HOUSING FOR THE ELDERLY, Standards of Design. Massachusetts State Housing Board, Boston, Mass. 18 pp. 81/2" x 11"

As the median age of the US rises, housing for the elderly (65 years old and up) assumes greater importance. In no area of housing is less known about the needs and wants of those to be sheltered. This booklet concerns itself not only with the design standards of such housing, but also with the sociological and physiological reasons for the standards.

The booklet faces facts: "As a group they [the elderly] are older than 90% of us. They are also poorer than four-fifths of us."

It is also realistic: "Housing for the elderly of low income must be inexpensive. It must be suited to their infirmities. And it must be located to their advantage. Flexibility and ingenuity are of the essence."

Sometimes it is almost poetic: ". . . these are years of decline. They bring increasing tiredness, loneliness, and introspection. It's longer to the store, the ice is slipperier, stairs are steeper, it's much harder to make a bed."

What kind of apartments? A couple is the largest number any one apartment is to be planned for. A proportion of three dwellings for single people to one for couples is the desirable average. Economy dictates that single occupancy apartments should not exceed 300 sq. ft., while those for couples should not exceed 400 sq. ft. The design problem is to provide for all the normal functions of living through dual, or triple, use of space, wherever they do not overlap in time.

In what kind of building? The restrictions of their social life make the elderly place a premium on a lively view, and their habit of sitting at windows puts a premium on the orientation of buildings. The court scheme is thus inappropriate for the elderly. Front stoops and walks should be laid out to increase chance meetings, and consequent new friendships. Though one-story row housing is the obvious building type, two stories are perfectly acceptable, for not all older people are too infirm to climb a flight of stairs. Anything more than two stories high will need an elevator.

On what kind of site? The friends and associations of their old neighborhoods may be about all these people have left. Any such project should be located where such former contacts may be maintained most easily. Massachusetts' law tries to minimize segregation and institutionalization, and the policy is sound. Several smaller scattered projects are better than one large one. The goal should be a social unit large enough to provide a variety of people, yet retaining a measure of self-help.



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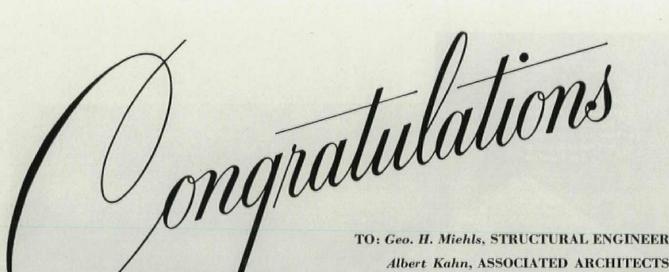


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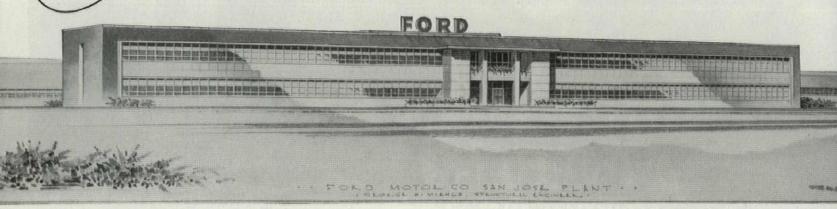
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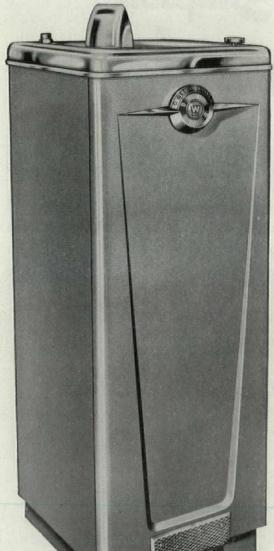
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The new Ford Motor Company "San Jose Assembly Plant" at Milpitas, California.



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WESTINGHOUSE ELECTRIC CORPORATION
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WWE14B 14-Gallon, Water Cooled Explosion-Proof



WAC 2 Compartment Pressure Cooler



WAP7A 7-Gallon, Remote Cooler

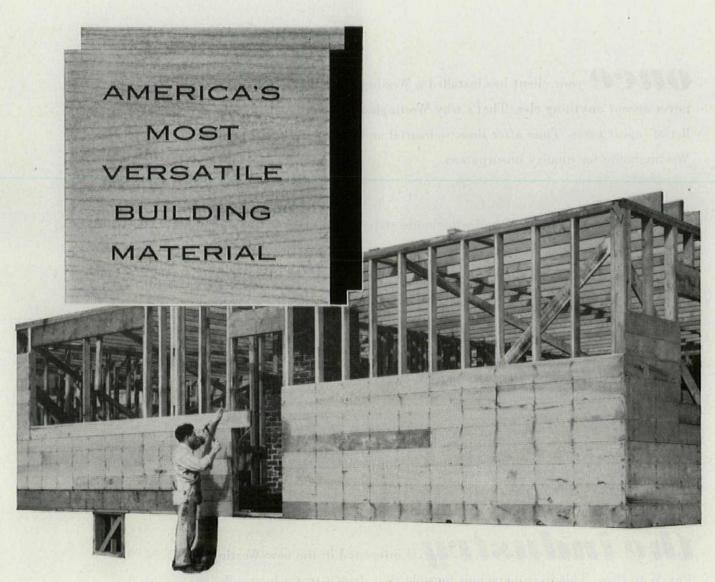


WWP13 13-Gallon, Remote Cooler



WBC1 Compartment Bottle Cooler

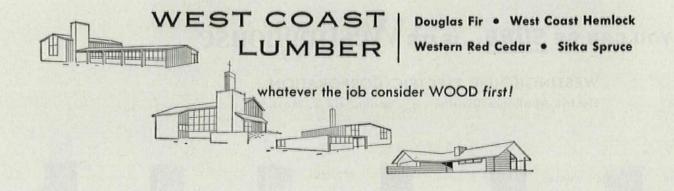




Sheathing of West Coast lumber — the building material with an outstanding record of performance — assures walls that are strong, rigid and long lasting. Lumber offers high insulating value, real nail-holding power. West Coast lumber is time-tested in conventional construction. And, as always, it remains the natural choice of the day's most creative designers.

For dependable lumber, specify the West Coast species...Douglas Fir, West Coast Hemlock, Western Red Cedar and Sitka Spruce.

Send for folder describing free literature available for your reference files. West Coast Lumbermen's Assn., 1410 S.W. Morrison St., Portland 5, Ore.



IN SCHOOLS, THEY CALL IT

# CHILDPROOF" PLEXTONE

and no wonder! This new multicolored paint is stain-mar-grease-scratch-chip resistant!



Never before a paint for school interiors like amazing, rugged Color-flecked PLEXTONE. It's revolutionary . . . two or three different colors (sprayed at ONE time from ONE gun WITH-OUT SPRAY DUST) which form a multicolored; textured pattern. SCHOOL AUTHORITIES find this new multicolored decorator finish easy on the budget. It resists wear, soil . . and rambunctious youngsters. SCHOOL ARCHITECTS find that PLEXTONE's uniform coverage on different types of low-cost surface materials gives them new styling resources . . . and new design possibilities because of its high light reflectivity and durability. PAINTING CONTRACTORS say PLEXTONE goes on easier, WITHOUT SPRAY DUST, makes possible neater, cleaner jobs. And MAINTENANCE MEN find it unmatched for ease and low cost of upkeep.

**SO RUGGED!** Color-flecked PLEXTONE resists staining by crayon, ink, candy, grease, and other forms of soil. Its harder, thicker paint film cannot easily be scraped or scratched. It can be washed, scrubbed, scoured — even sandpapered — without marring. And touch-ups, if ever needed, defy detection!

**SO PRACTICAL!** Imagine! This amazing new paint gives you a color-flecked surface consisting of two or three different colors, sprayed from *one* gun at *one* time in *one* coat without spray dust! And PLEXTONE's textured surface has unmatched hiding power . . . cleans quickly and easily!

**SO BEAUTIFUL!** You've never seen a more unusual, more dramatic, more beautiful effect. PLEXTONE's multicolor finish matches the most skilled spatter-dash painting . . . in subtle tones-on-tone or a brilliant circus of colors.

Write today for FREE color chips and Color-flecked PLEXTONE application data.

# PLEXTONE COLOR-FLECKED TEXTURED ENAMEL

MAAS & WALDSTEIN CO.

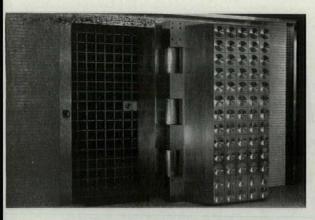
**World's Largest Producer of Multicolored Paints** 

2125 McCARTER HIGHWAY NEWARK 4, NEW JERSEY

MIDWEST DIVISION: 1658 Carroll Avenue, Chicago 12, Illinois PACIFIC COAST DIV.: Smith-Davis Co., 10751 Venice Blvd., Los Angeles 34, Calif.

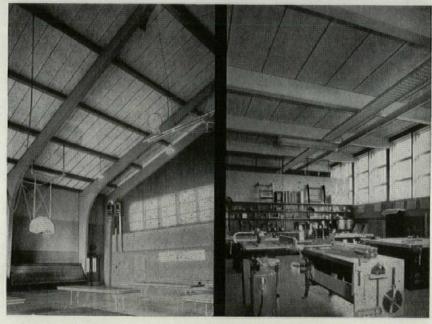
2125 McCarter Highway, I	Newark 4, New	Jersey
Gentlemen: Please rush t chips and application dat		ed PLEXTONE color
Name		
Title (or occupation)		ENGLISHED TOO
Company		
Address		
City	Zone	State

MAAS & WALDSTEIN CO., Architectural Division



Designer Charles Deaton's door for Diebold mirrors bank activities in its milled steel plate.





Junior High School, Keene, New Hampshire 3¼" Composite Porex Architect: J. A. Britton Gen. Contractor: MacMillan Co.

# POREX ACOUSTICAL CEILINGS

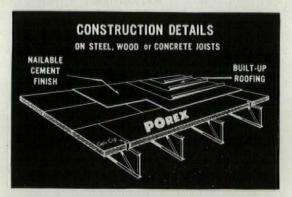
# Heat Insulation, Sound Control and Fire Protection

...all in one ROOF DECK!

When roof decks must provide maximum quality at minimum cost, architect after architect specifies POREX . . . because POREX combines all these properties:

- STRUCTURAL STRENGTH
- . LIGHT WEIGHT
- NAILABILITY
- INCOMBUSTIBILITY
- **HEAT INSULATION**
- SOUND CONTROL

Plain POREX for short spans and Composite POREX for long spans are also ideal for Auditoriums, Gymnasiums, Armories, Churches, Factories and many others.



# SAFE UNIFORM LOADS

Type of POREX	Thic Slab	kness Finish	Weight Ibs/ Sq. ft.	100	2'8"	enan	sq. f	1.
Plain	2"	1/4"	7	100	60	-	_	
Plain	3"	1/4"	10	-	90	50	-	_
Composite	3"	1/4"	14	-	-	-	100	60

# PERETE MANUFACTURING CO., North Arlington, N.J.

Precast lightweight concrete products since 1920

# NEW PRODUCTS continued from p. 169

### VAULT DOOR: 6 tons of stainless elegance for modern banks

Even a callous safecracker would hesitate before scratching the surface of this grandly Gargantuan vault door. In designing the unit as a sculpture as well as service element for a contemporary bank, Charles Deaton played up the milling properties of the stainless steel, faceting the inside face (on view during bank hours) with precise cups and repeating the motif on the outside in miniature.

By rotating a hand wheel with one finger the balanced 6-ton door moves smoothly open and shut. It closes much like a press; all contact surfaces on the door kiss the frame at the same time. Instead of the usual numerous bolts, the locking mechanism consists of two bars (set discreetly on each side of the door) which move into the frame with the closing action to secure the door. Prices-\$12,000 to \$16,000-are about 10% higher than for conventional models. First bank to ante up the premium for fresh design: US National in Denver's Mile High Center.

Manufacturer: Diebold, Inc., Canton 2, Ohio

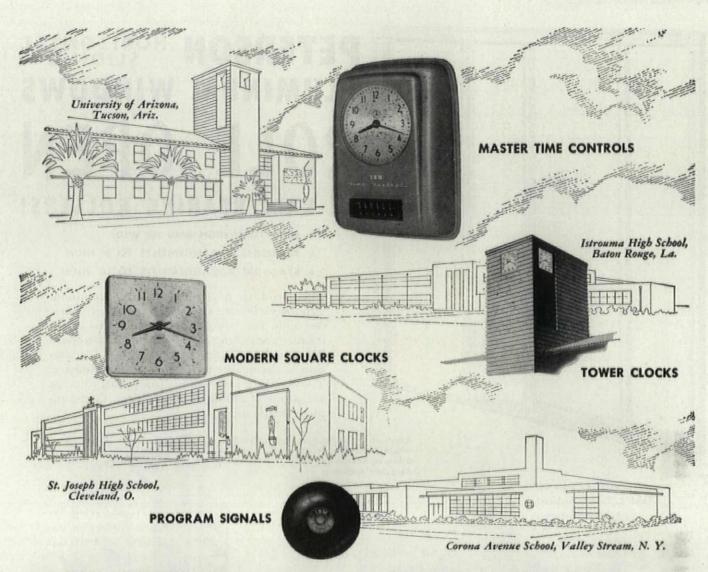
# SQUARED-OFF STERILIZER takes on big load, makes fine public appearance

Square pegs can be fitted into round holesif the fitter can afford to waste space on all sides. But most hospitals have to operate efficiently down to the cubic inch just to break even. Because the bulk of hospital supplies that must be sterilized-linens, dressings, instrument trays-are bundled in boxy shapes, American Sterilizer has designed a squarish



unit in nickel stainless steel. Yielding 35 to 100% more useable room than conventional cylinders which consume the same floor space, these sterilizers are more economical to oper-

continued on p. 220



# THOUSANDS OF U.S. SCHOOLS ARE RIGHT ON TIME

In planning a new building, adding to or remodeling an existing one . . . you can specify an IBM Electronic Time System with fullest confidence.

This modern time and program signaling system features around-the-clock self-regulation . . . as much as 12 hours when required. It synchronizes, coordinates clocks and signals—without special unit-to-unit wiring. Its programing flexibility allows for automatic control of utilities—lighting, heating, ventilating, water-flow—too.

Write to IBM for the latest data on time systems and other IBM time equipment.

with..



# Time Equipment



# ad of

# FIRE ALARM SYSTEMS

add their extra measure of safety to building and occupants...deliver emphatic signals on demand.

### INTERCOMMUNICATING TELEPHONE SYSTEMS.

automatically connect classrooms and office . . . save time and steps for teachers, administrators.



### NEW RADIO-SUPERVISED TIME CONTROL . . .

a major advance in precision timing, is tuned to U. S. Bureau of Standards broadcast time signals . . . resets itself if out of synchronization. Delivers radio tone and voice announcement of time, permitting sight and sound check of clock's accuracy.

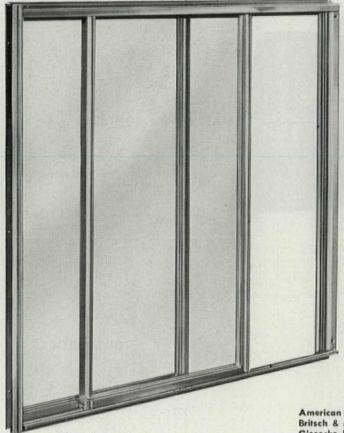


# ELECTRONIC UTILITIES CONTROL . . .

saves time, effort, money by eliminating need for manual supervision in actuating water flow—opening and closing ventilators—switching light circuits, heating and air conditioning systems on and off.

INTERNATIONAL BUSINESS MACHINES . 590 MADISON AVENUE, NEW YORK 22, N. Y.

Branch offices throughout the U. S.



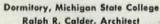
# PETERSON HORIZONTAL ALUMINUM WINDOWS LL OPEN

# BALL BEARING ROLLERS!

- . SIZES TO 6' HIGH AND 10' WIDE
- . TRANSOM ARRANGEMENTS TO 8' HIGH
- STACKING ARRANGEMENTS TO 10' HIGH

The trend to horizontal sliding aluminum windows has been spurred by your customers' demands for better appearance, less maintenance and greater ease of operation. Peterson Window Corporation has established a reputation as the quality pace-setter of the industry. Thousands of installations from coast to coast are proof of customer satisfaction. Get complete details today.

American Legion Building, Washington, D. C. Britsch & Munger, Toledo, Ohio, Architects Giesecke, Kuehne and Brooks, Austin, Texas, Associate Architects





# Specify Peterson . . . For These Features:

### ROLLS OPEN

Effortless horizontal operation on ball bearing rollers.

## ARCHITECTURAL APPEAL

Streamlined beauty for all design motifs.

### STURDY

Hollow-type aluminum extrusions.

### MINIMUM MAINTENANCE

No painting, rusting, swelling, warping or sticking.

### ADVANCED DESIGN

Eliminates putty, sash balances, cranks, projecting hinges.

### EASILY CLEANED

Sliding sash removes into room for easy washing.

### SAFE

Positive locking in closed, one, two and three inch open positions.

WEATHERPROOF
Hi-pile mohair provides in-sulated, draft free comfort.

# FURNISHED COMPLETE

with double glazing panels and aluminum screens if desired.



# STANDARD SIZES

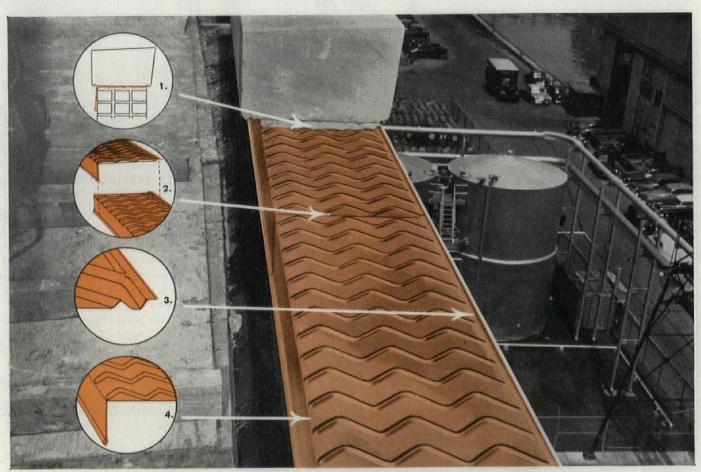
All shapes and sizes popularly specifield for residential, commercial and monumental buildings supplied promptly. Special sizes can be ob-tained at slightly higher cost.

Constructed of sturdy aluminum extrusions—63S-T5 Alloy, minimum thickness .062"—engineered for maximum strength.

SEE 160/Pe IN SWEET'S CATALOG or WRITE FOR COMPLETE DETAILS.

A limited number of exclusive dealerships with protected territories are available. Peterson Window Corporation invites inquiries from reputable dealers.





ANACONDA THROUGH-WALL FLASHING is readily adapted to practically every brick or masonry construction. Note that the smooth selvage (4) forms a counter-flashing free of buckles or distortion at the bend.

# Anaconda Through-Wall Flashing protects new Colgate-Palmolive Building

The Colgate-Palmolive Company's new Industrial Service Building, Jersey City, N. J., is four stories high and contains nearly nine acres of floor space. It represents a big investment. Naturally, special precautions were taken to assure sound and lasting construction.

Adequate through-wall flashing of efficient design was essential. Otherwise, water would penetrate the brick and mortar joints... cause damage by deterioration and freezing... eventually reach interior surfaces.

The solution? Jacob Ringle & Sons, Sheet Metal Contractors, Jersey City, N. J., installed 1,552 feet of ANACONDA Through-Wall Flashing.

In the picture above you see four reasons why Mr. Ringle selected Anacond Through-Wall Flashing to do the job. They are:

# 1. NO LATERAL MOVEMENT

The %2" high zigzag corrugations provide complete bond in the mortar in all lateral directions.

### 2. WATER-TIGHT LAP JOINT

Anaconda Through-Wall Flashing is easily locked endwise to provide a tight joint by simply nesting one or two corrugations. If desired, the joints can be easily soldered because of the flat surfaces between the corrugations.

### 3. INTEGRAL DAM

The integral dam throughout its length is the full height of the corrugations. The accurately stamped dam and corrugations of the Anaconda Flashing assures complete drainage in the desired direction when installed on a level mortar bed.

### 4. SMOOTH SELVAGE FOR COUNTER-FLASHING

Flat selvage permits neat, sharp bends for counter-flashing or locking to adjacent sheet metal without distorting the flashing or inhibiting free drainage.

The standard ANACONDA Through-Wall Flashing is made of 16-oz. copper, but lighter or heavier gage metal can be furnished to order. Stock sizes are for 8" and 12" walls. Special sizes to meet unusual requirements are available up to 47" wide over-all. One-piece corner flashings for 8" and 12" walls are also standard stock items.

The American Brass Company is always glad to discuss and offer suggestions on any problem involving sheet copper in building construction. Just send details to our Technical Department.



FREE BOOKLET! Publication C-28 tells how to use adequate flashing of efficient design. 27 illus. Write to: The American Brass Company, Waterbury 20, Connectic ut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

good construction demands

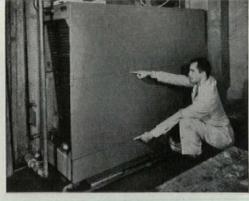


THROUGH-WALL FLASHING

ate and require fewer loading trips by the attendant. Less costly to install than recessed units (and also cooler since heat dissipates more quickly), the attractive new cabinet models are especially suitable for use in hospitals whose labs go on view as part of public relations. Steam or electric heat units are available in several types and models ranging in price from \$2,000 to \$4,000.

Manufacturer: American Sterilizer Co., Dept. SS., 1230 Plum St., Erie 6, Pa.





## BOLTED COOLING TOWERS come apart at seams to get through tight spots

Halstead & Mitchell's Take-Apart cooling towers are shipped assembled, then unbolted and toted in sections down narrow stairs into a tight indoor area or-if the roof is still the best spot-hoisted up without an expensive rigger, and put back together. Produced in sizes up to 30 tons (a 5 ton lists at \$344 and a 10 ton at \$508), the towers carry a 20-year guarantee on damage to wetted deck surfaces by rot or fungus. Drive shafts and fans are stainless and the housing has a triple protective coat of noncorrosive vinyl zinc, vinsynite and chlorinated rubber.

Manufacturer: Halstead & Mitchell, Zelienople, Pa.

### PLUG-IN AIR CONDITIONER wheels from room to room

Wherever cooling needs for particular rooms vary, Unairco's \$329.95 mobile conditioner can keep pace by season, day or even hour. Having capacity to make comfortable a private office (or hotel room, on rental basis) up to



500 sq. ft., the 3/4-ton unit can be rolled from room to room and plugged into any 110-v. outlet. Flexible snap-on pipe lines connect the cooler to a nearby cold water tap and drain. (Water consumption is 30 to 40 gal, per minute.) If and when a fixed location is decided upon, the conditioner is de-wheeled and rigid connections made for about \$15. Ivory or dark brown vinyl plastic sheathes the 28" high x 18" wide x 17" unit.

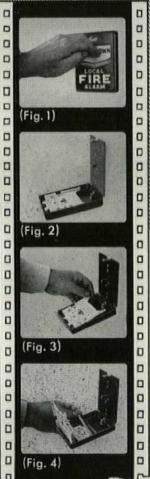
Manufacturer: Union Asbestos & Rubber Co., Heating & Cooling Div., 332 S. Michigan Blvd., Chicago 4, Ill.

continued on p. 224

# NEW MODERN DESIGN



and SIMPLE OPERATION



and simple in appearance, this station provides complete dependability of operation. Its two-position locking mercury switch element provides positive contact when operated, but is not affected by shock

Couch NON-CODE FIRE ALARM STATION

Here is an all new non-code UL approved fire

alarm station for use in all types of buildings. Clean

or vibration. The element is hermetically sealed for protection against dirt and moisture.

The film strip at the right shows the ease with which the station is reset after use.

(Fig. 1) Station closed and about to be operated

(Fig. 2) Open station

(Fig. 3) Lift up sliding front panel

(Fig. 4) Replace glass rod (broken glass is selfclearing)

For complete details on this and other Couch fire alarm equipment write for Data Sheet FI



Simplified Systems of Communication

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

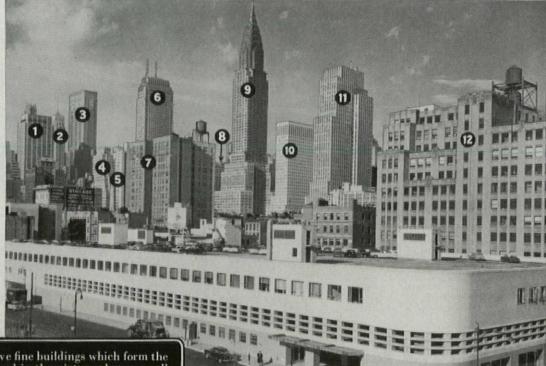
NORTH QUINCY 71, MASSACHUSETTS, U. S. A.

In Canada: Canadian Marconi Company, Montreal.



# THE VAST MAJORITY OF THE NATION'S FINE BUILDINGS ARE SLOAN EQUIPPED

JOHN PETERKIN architect SEARS & KOPH mechanical engineer S. S. SILBERBLATT general contractor ASTROVE PLBG. & HTG. CO. plumbing contractor CRANE CO. plumbing wholesaler



The twelve fine buildings which form the spectacular background in the picture above are all equipped with SLOAN Flush VALVES.

N. Y. Doily

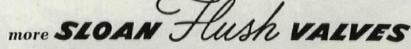
- 1 100 Park Avenue Building 7 301 E. 38th St. Apt. Bldg.
- 2 500 Fifth Avenue Building
- Lincoln Building
- 370 Lexington Ave. Bldg.
- 369 Lexington Ave. Bldg.
- Chanin Building
- 8 Commodore Hotel
- 9 Chrysler Building
- 10 Chrysler East Building
- 11 New York News Building 12 United Parcel Service Bldg.

New York's EAST SIDE AIRLINES TERMINAL, now nearing the end of its first year, has solved many problems for 20 airlines, the operators of airport buses, hundreds of thousands of air travelers and car drivers in midtown traffic

# **BOON TO AIR TRAVELERS**

• As many as 10,000 passengers are serviced in one day by offices of 20 airlines, American and foreign, within this new 7 million dollar terminal in downtown New York. On arrival at the terminal the passengers enter the spacious, air-conditioned concourse by escalator or stairs. Buses load on an enclosed ramp that runs around three sides of the block-long main rotunda and the travelers are whisked away through Midtown Tunnel to La Guardia and International Airports in from 27 to 35 minutes. In this and other terminals,

railroad stations, bus depots and other buildings serving a vast and continuous flow of people, the operation of each flush valve in one day is likely to be a dozen or more times greater than in many other types of buildings. Where use is recurring, day and night, the performance, endurance and low cost maintenance of such equipment are of utmost importance. As in the vast majority of fine buildings, this terminal is completely equipped with SLOAN Flush VALVESfurther evidence of preference that explains why ...

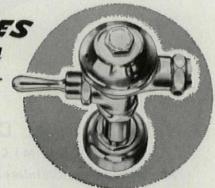


are bought than all other makes combined

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. Architects specify, and Wholesalers and Master Plumbers recommend the Act-O-Matic-the better shower head for better bathing.

Write for completely descriptive folder





### EMBOSSED ALUMINUM SHEET: sun glare. dents and scratches get lost

Capitalizing on aluminum's inherent malleability, Alcoa has come up with a truly appropriate texture on its new 331/2"-wide ribbed sheet. The pleasant pattern, resembling stylus stipping, enriches the surface by breaking up harsh reflections and, important for upkeep, camouflages mar marks. Planned primarily as siding for frame industrial struc-



Building Foundations Bridges Skylight Viaducts Tunnels Cornice Flashings Retaining Walls WATERPROOFING PRODUCTS PROVIDE POSITIVE PROTECTION AGAINST SEEPAGE OR DAMAGE TO STRUCTURE BY WATER Membrane Waterproofing System has proven its superiority through actual test. When you have a waterproofing problem call for Karnak. Available through waterproofing contractors or distributors or write us for information.

tures, the material also makes a practical facing for new or old buildings of concrete block or masonry. Sandwich walls with the ribbed sheet on both sides of a glass-fiber center are claimed to match 2' of brick for insulation value. The new industrial siding sheet comes



in lengths of 5' up to 18' in .032-ga. aluminum. Its 1"-deep hexagon ribs are 25%" o.c. Price is about 35¢ psf. Flat flashing stock and preformed rubber filler strips are available commercially.

Manufacturer: Aluminum Co. of America, Alcoa Bldg., Pittsburgh, Pa.

### FLAT TRANSLUCENT PLASTIC produced in continuous strip, uniform thickness

What seems the most adaptable form reinforced plastic could take-plain flat sheet-is now being made in to-order lengths by a big California fabricator, Plexolite. While not so rigid as the corrugated polyester laminates on the market, this simplest of shapes will probably work well in more diverse applications, and create less waste than standard-length panels. Some possibilities for the material: continuous fenestration and wainscoting for factories, greenhouses, display signs, skylighting, and diffuser panels for luminous ceilings (aluminum supports are advisable since both materials have same thermal expansion coefficient). The lightweight translucent sheet is shatterproof and is resistant to salt air, chemicals and heat (it takes 850° F. to burn



Plastic by the roll will fill myriad construction needs. The 2' x 65' piece above weighs just 60 lb.

it). The 1/16" thickness (weight: 8 oz. psf) will support a 130-lb, load psf on 4' span, and has a 18,000 psi tensile strength, 35,000 psi flexural, and static load capacity of 150 psf. With lateral supports the uniform load can be increased considerably. Available in

continued on p. 230



what's

waterproofing

problem?

your

OLAE Corp.

# OTHER KARNAK PRODUCTS

Made by Lewis Asphalt Engineering Corp., 30 Church St., New York 7, N. Y.

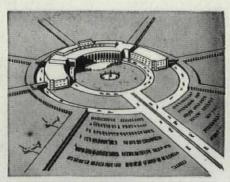
Asphalt Roof Coatings & Cements Asphalt Emulsions Floor Mastic Asphalt Paint

Aluminum Roof Coating Wood Block Mastic Tile Cement Joint Filler

\*Lighting
that makes
the nation's
most
important
buildings
come alive



EMPIRE STATE BUILDING, N. Y. C.



IDLEWILD INTERNATIONAL AIRPORT, NEW YORK



CONSOLIDATED EDISON CO., N. Y. C.



DETROIT INSURANCE AGENCY, DETROIT, MICH.

SOME OF THE IMPORTANT ORGANIZA-TIONS NOW USING PHILITE SERIES 1118 or SERIES 1119 LUMINAIRES.

American Reinsurance Company
Committee for Free Europe
Continental Casualty Co.
City Hall Annex, Philadelphia
Loft Candy Shops
Mepham Junior High Schools
National Banks of Detroit
New England Telephone Co.
Norden Instrument Co.
Speed Products Corp.

When fine lighting is required for either original installations or for modernization programs, more often than not the nation's leading organizations select Ruby-Philite luminaires. And for good reason. Ruby-Philite luminaires are designed to provide high levels of illumination with maximum efficiency and comfort, engineered for lowest installation and maintenance costs, and constructed to withstand hard usage. Write today for complete catalog data.

\*PHILITE SERIES 1118 & PHILITE SERIES 1119 • Commercial luminaires with illuminated metal or translucent plastic sides available with choice of metal louver, plastic louver, or extruded plastic shielding.





Ruby-Philite Corp.

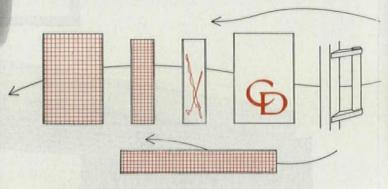
32-02 QUEENS BLVD., LONG ISLAND CITY 1, N. Y.



# NOW! \_\_\_\_\_ the finest door costs less

# THE NEW KAWNEER WELDED DOOR ...

Available now at a new, low price-it's the first new development in door design and manufacture based entirely on what architects, builders and owners need. This is the door that puts your design ideas into action -and saves money for your clients. Accent your entrances with the Kawneer Welded Door identification hardware . . . in any color, any design. Specify this door of distinction for any building. Its clean, virtually seamless appearance complements any design. And when you specify the new Kawneer Welded Door, you can depend on long-range client satisfaction. New, exclusive construction features make the Kawneer Welded Door 10% stronger than similar doors. Add the Kawneer Touch to your entrances now! Specify the door that's years ahead and priced at a new low . . . the new Kawneer Welded Door. For complete details, write Kawneer, Niles, Michigan.



# Hardware in Color! Hardware on door (at left) is Custom

Kawneer supplies face plate inserts for identification hardware in any color, any design you specify. Think of the distinctive design ideas you can present a client! Each entrance can look "custom-made" with the ease of specifying

# compare — the new Kawneer Welded Door is years ahead...costs less!

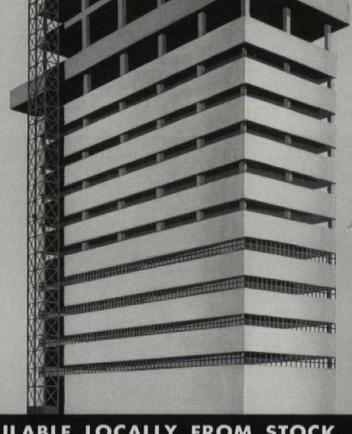
- Hardware in color, special identifications
- 10% stronger than similar doors
- New, Kawneer "Deep-Weld" penetrates metal 100% for strongest weld ever made in a door
- Finest polished Alumilite finish
- Takes overhead or floor checks
- Hairline welded joints No weld bloom or halo
- No exposed screws
- New offset pivots-tamper-proof, self-lubricating
- Beveled glass stops emphasize glass area
- Takes standard "panic" hardware
- Standard size lock cylinder





start sooner . . go up faster!"





# All Materials are AVAILABLE LOCALLY FROM STOCK

There are no delays in starting a reinforced concrete job. All the necessary materials can be delivered in a matter of days from local stocks. These faster starts, plus the faster erection made possible with reinforced concrete, save months of delay . . . months which will mean reduced interest charges and extra rental income that could run into thousands of dollars.

Furthermore, reinforced concrete offers lower over-all costs, rugged strength, rigidity, and flexibility of design found in no other method of construction. On your next job, design for reinforced concrete.



Compare...
YOU'LL SAVE WITH
REINFORCED CONCRETE



38 South Dearborn Street, Chicago 3, Illinois

CONCRETE REINFORCING STEEL INSTITUTE

# NOW! Full unit control in ... with Trane UniTrane

Each tenant dials his own climate with this air conditioning system. This is UniTrane! And UniTrane means full unit control in multi-room air conditioning. It's the system that offers all the desirable features of a central system . . . plus individually-controlled room units that cool or heat, dehumidify, ventilate, filter and circulate air for personalized climate control.

UniTrane meets widely varied demands—from large office buildings, hospitals, hotels and commercial buildings down to small apartments and motels.

Because, with UniTrane, each tenant sets the temperature of his room just as he wants it, without affecting the temperature or "climate" of any other room. Tenants prefer it.

Management agrees UniTrane offers more. This unique combination of tenant advantages costs less to install, far less to operate. The same piping circuit is used for both heating and cooling. Individual room units can be shut off in unoccupied rooms without affecting operation of any of the other units. Operating load can be matched directly to

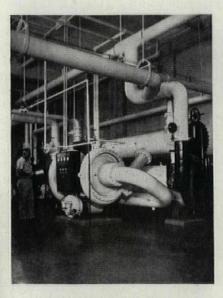
fluctuating temperature requirements for lowest possible operating costs.

Architects especially like the savings in valuable floor space, the design freedom. Units are available in all sizes and types—free-standing, recessed, semi-recessed, ceiling—for either exposed or concealed installation.

Discover for yourself just how easy it is to offer full unit control in multi-room air conditioning—with central system economy! Contact your nearest Trane Sales Office or write Trane, La Crosse, Wisconsin, for Bulletin DS-420B.



# multi-room air conditioning Units



Trane CenTraVac supplies chilled water for UniTrane and Trank Climate Changer units in large systems. Starts, stops, modulates automatically, with power consumption in almost direct proportion to load. Eight models, 45 to 400 tons.



Irone Cold Generator for smaller installations using UniTrane units or Trang Climate Changers, or both. Delivers chilled water from one compact package. Engineered, built, tested and refrigerant-charged at the Trang factory. 10 to 100 tons.



Trane Multi-Zone Climate Changers are air handling units which can heat, cool, humidify, dehumidify, ventilate and filter air (singly or in combination) for as many as six different zones at once. 28 models, 450 to 23 400 cfm. to 23,400 cfm.



In six of New York's newest skyscrapers TRANE Custom-Air systems are in-stalled. The Custom-Air system uti-lizes UniTrane room units combined with a central source of ventilation air to give complete air conditioning comfort plus individual tenant control of room temperature. Installations include 99 Park Ave.; 579-589 Fifth Ave.; 7 Park Ave.; 261 Madison Ave.; 720 Fifth Ave.; 460 Park Ave.

ne source

one one esponsibility Specify TRANE Unitrane Units

for personalized climate control

MANUFACTURING ENGINEERS OF AIR CONDITIONING, HEATING, VENTILATION AND HEAT TRANSFER EQUIPMENT The Trane Company, La Crosse, Wis. • East. Mfg. Div., Scranton, Penn. • Trane Co. of Canada, Ltd., Toronto 90 U.S. and 15 Canadian Offices

# NEW PRODUCTS continued from p. 224

15 colors in widths 1' to 40", the 1/6" thick sheet (type 250) is  $79\phi$  psf and the 3/64" (type 175)  $69\phi$ .

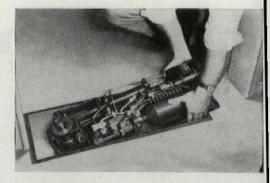
Manufacturer: Plexolite Corp., 2051 E Maple Ave., El Segundo, Calif.

# COMPACT DOOR OPERATOR needs neither compressor nor piping

All in one watertight bundle 29" long x 11" wide x  $6\frac{1}{2}$ " deep, the Supermatic electrohydraulic door operator obviates compressor,



Nestled beneath the threshold are all the parts Supermatic uses to operate a door.



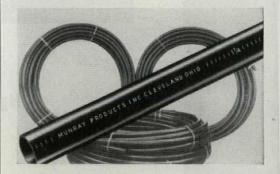
piping and runs of hydraulic lines. A small motor (1/6 h.p.) turned on by a light footstep on either side of a treadle across the threshold (or by movement in front of an electric eye) activates the hydraulic operator. (If anyone steps onto the opposite side the door will not move, however.) An adjustable timer which holds the door open per prescribed setting and controls for "automatic," "manual," or "full open" operation are housed in a neat box which can be mounted at any convenient spot. Price at \$750 for treadle type and somewhat higher with the electric eye, Supermatic installs for 10 to 20% less than comparable equipment, says the manufacturer, for an overall saving of about \$100.

Pioneers in automatic door operators for the Chicago transit system 50 years ago, National has produced 70% of all such equipment for the world's trains, buses and trolleys. The Supermatic should make the firm's entry into the building field a welcome one.

Manufacturer: National Pneumatic Co., Inc., & Holtzer-Cabot Divisions, Boston, Mass.

# POLYETHELENE PIPE, resistant to sunlight, is suitable for outside installations

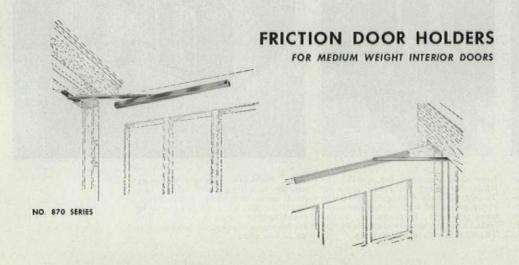
Ability to withstand sunlight (reported to wreck havoc with many polyethelene materials) is the feature of a new polyethylene-base plastic pipe which also boasts flexibility, light weight (a 100' length of 34" pipe weighs 13 lb.) and an unconditional guarantee



against electrolytic corrosion, rust and rot. Its resistance to the sun makes the pipe particularly suited for use as an exterior electrical conduit. Also, even on jobs where its eventual use may be indoors or underground, the piping can be stored outside without fear of sunlight attack. It is furnished in nine standard sizes up to 6" in diameter. Price of the ½" is \$12.65 per 100'; the 2", \$55.59.

Manufacturer: Munray Products, Inc., 12400 Crossburn Ave., Cleveland 11, Ohio

continued on p. 236



# "CASEHOLD" casement adjusters

NO 820 SERIES



# SASH AND DOOR CONTROLS

# ... Better Because

### No. 870 SERIES (FED. SPEC. TYPE 1165)

Adjustable friction holds door at any position up to  $110^{\circ}$ . Action stopped by spring cushion shock absorber. (No. 880 has friction element omitted.)

### No. 820 SERIES (FED. SPEC. TYPE 1164)

Channel is fully mortised in door. Otherwise identical to No. 870. (No. 830 has friction element omitted.)

### "CASEHOLD" tubular casement adjusters.

Weather-proof friction element permits use inside or outdoors. Friction quickly adjusted by rotating barrel. Surface applied for inswinging or outswinging casements and transoms.



SARGENT & GREENLEAF, INC. ROCHESTER 21, N.Y. SINCE 1857

# aluminum WINDOWS by GENERAL BRONZE

● First the United Nations Building . . . then Lever House, and the all-aluminum office buildings at 99 Park Avenue and 460 Park Avenue . . . and now the Manufacturers Trust Company's spectacular new "showcase" bank building in New York City. All outstanding in design—all with windows and curtain wall facades fabricated by General Bronze.

As you plan new buildings—hospitals, schools, apartments or commercial buildings—we want you to make full use of the service and 40 years practical experience General Bronze offers in solving your problems as they pertain to windows, spandrels, curtain walls and architectural metal work.

Our unequalled facilities and our vast experience enable us to serve you well, especially when your requirements are complex or unusual. We will be most happy to discuss your problems with you at any time. Our catalogs are filed in Sweet's.





# GENERAL BRONZE CORPORATION . GARDEN CITY, N. Y.

PERMATITE DIVISION—Custom-built Windows, Architectural Metal Work and Revolving Doors. ALWINTITE DIVISION—Stock-size Aluminum Windows BRACH MFG. CO. DIVISION—Multel, T. V., Radio and Electronic Equipment. STEEL WELDMENTS, INC. DIVISION—Custom fabrication in steel and iron.

In stores, restaurants, hotels, institutions...

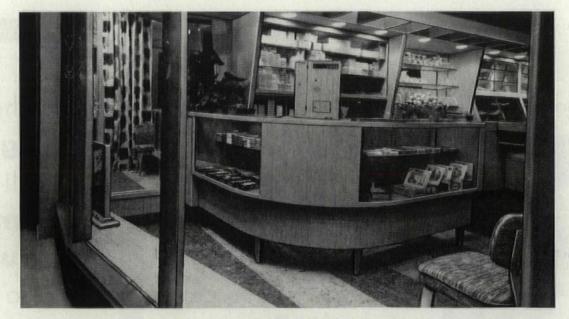
New, Versatile Consoweld 10

assures interior walls that please clients!

These are typical applications of new, versatile Consoweld 10—for both horizontal and vertical use. Consoweld 6 (standard 1/16" thickness) is also available for shop-fabricated jobs and some types of on-the-job use, where a smooth undersurface already exists. Both are produced according to rigid standards, and are identical except for thickness.







If you were to ask your client what characteristics he wanted for interior wall construction, chances are he'd give you three answers:

# Beauty—and up-to-the-minute styling Easy maintenance • Down-to-earth first cost

You can specify just such a wall... when you specify new Consoweld 10 Plastic Surfacing. Beauty with colors and patterns that are color-tuned by experts in color research. Easy maintenance with a surfacing that never needs painting or refinishing. Low first cost because Consoweld 10 makes on-the-job application of plastic surfacing truly practical for the first time.

For example, Consoweld 10 can be applied directly over sheathing-grade plywoods, gypsum lath... even over cement or cinder blocks. As you know, that just isn't possible with laminates of conventional 1/16" thickness. But, because Consoweld 10 is a full 1/10" thick, it "bridges" irregularities in the surface. This extra thickness also means easier handling... permits use of mastic-type adhesive instead of the pressure-sensitive types. Carpenters can easily handle a Consoweld 10 installation—without

messing up the building unduly or raising humidity sky-high during the final stages of construction. This extra-thick surfacing broadens the Consoweld line of high-pressure

thermosetting plastic laminates; adds to

design flexibility, particularly in vertical applications. Consoweld 6, the conventional 1/16" thick laminate, is also widely used for shop-fabricated jobs, and certain types of on-the-job applications where self-edging is desired. Both thicknesses are available in the same beautiful colors and patterns . . . both have unusual durability, even including high resistance to cigarette burns!

Write today for more information on versatile, top-quality Consoweld! We'll be glad to give you more information . . . including a brand-new full-color booklet which faithfully reproduces all the Consoweld colors and patterns.

# This booklet graphically shows the advantages of Consoweld Color-Tuning

The entire line of Consoweld patterns and colors has just been completely streamlined —by the Color Research Institute of America. Each of the 44 patterns and colors

has been selected for its ability to blend harmoniously with complementing base colors . . . and each has been thoroughly preference-tested in advance.

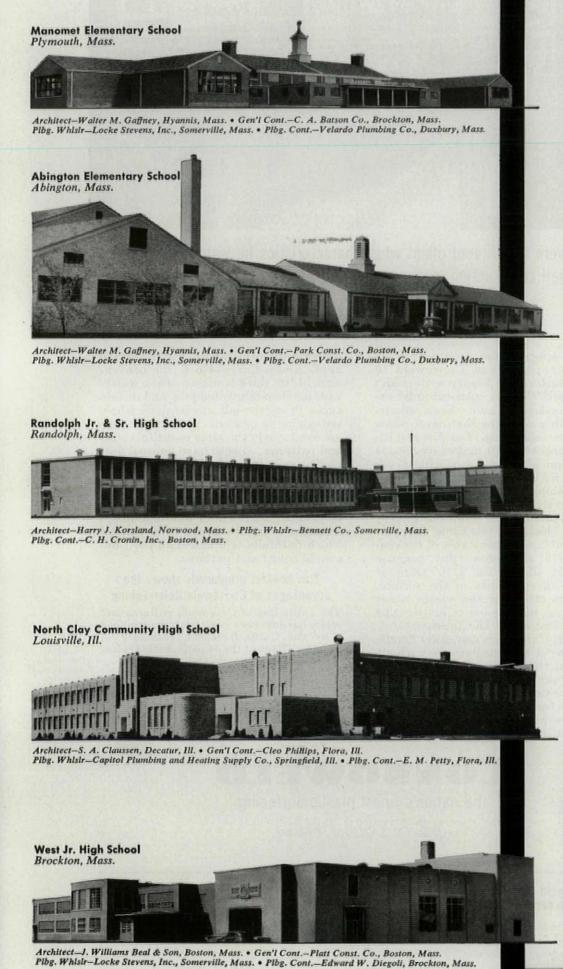
Mail coupon for free copy!



# CONSOWELD

the nation's finest plastic surfacing ... good for a colorful lifetime

Consoweld Corporation, Architectural & Wisconsin Rapids, Wisconsin	Engineering Department			AF-114
Please mail new Architectural File	NAME			
insert, showing additional technical data and reproducing all Consoweld	ADDRESS			
colors and patterns.	CITY	ZONE_	STATE	aminet ac



# it's the toughest test of all—when plumbing fixtures go to school

When you install plumbing fixtures in a school restroom, you've got to be sure they'll stand up under the awesome energy of youth. That's why so many schools install Richmond fixtures—they're MORE than "equal" to that kind of treatment.

When you specify Richmond, you're choosing plumbing fixtures of maximum durability with minimum maintenancethe end products of correct design, careful selection of raw materials and close control in manufacturing operations. Richmond vitreous china ware, for example, is fired in modern kilns at temperatures up to 2300°F. to give you a highly scratchresistant surface that is actually comparable in hardness and durability to the natural sapphire. In Richmond cast-iron ware you get a ceramic glaze that's furnace-fused to the base for a permanent, impermeable bond and smooth glass-hard surface. Continuous quality control at all stages of manufacture assures the production of only top-grade fixtures.

Richmond fixtures comply with U. S. Government specifications WWP-541A, Federal specifications for land use of Army, Navy and Air Force installations and exceed the requirements of Commercial Standards CS20-49 and CS77-51.

Richmond plumbing fixtures are available in a wide range of sizes and modern styles, in famous "Whiter-White" or seven lovely pastel colors.

For long service life with minimum maintenance, it pays to specify Richmond.



# Richmond radiator company

Affiliate of Reynolds Metals Co. Metuchen, N. J.

# **NEW USES** BETTER DESIGNS BETTER CONSTRUCTION **PRACTICES WITH**

# aids for architects

Here are just a few of many NCMA aids to architects - all available through your local NCMA member:



Wall Pattern Ideas—The wide variety of wall patterns using 8" high concrete masonry units, as well as new sizes, shapes, colors and textures now available in many areas, pro-vide unequaled design versatility. Many wall pattern ideas are illustrated in the booklet, Ideas for Wall Patterns with Concrete Masonry,

winner of Exceptional Merit award in 1954 AIA-Producers' Council competition.



Control Joint Designs and Uses-Architects are making increased use of "control" or "expansion" joints to allow for stresses that occur in any masonry wall. Well designed and spaced control joints provide a continuous vertical separation through the wall thickness, eliminating most of the problems associated with wall movement. The NCMA lintel design booklet, and the "Construction Details" portfolio show several widely used control joint systems.

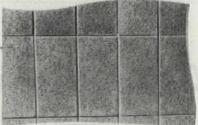


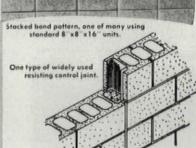
Lintel Designs-Properly designed and reinforced lintels span doors, windows, and other openings in masonry walls, supporting the weight of the wall and transmitting these loads to adjacent masonry Award-winning NCMA booklet, Design and Construction of Lintels, gives reliable design and load recommendations.

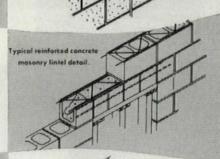


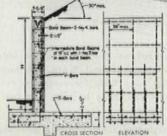
Retaining Wall Designs—A new NCMA booklet, Reinforced Concrete Masonry Retaining Walls, gives recommendations for the design and construction of concrete masonry retaining walls up to 10 feet in height, along with sample calculations, reinforcing recommendations and load tests.

Note: All of these, and many other helpful design aids, are available from any local concrete masonry manufacturer who is a member of NCMA.









Typical detail for cantileyer

**DESIGNING A** HOSPITAL? A SCHOOL?

· Low installed-in-the-wall cost.

- Design versatility—with wide choice of wall patterns.
- · Durability, fire-safety, low maintenance.
- Check on these advantages of concrete masonry construction: · Beautiful, cost-saving interior walls, too!

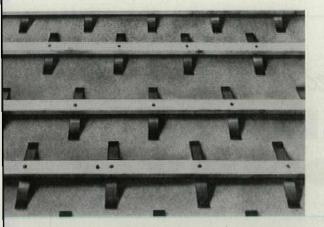
**Exposed concrete masonry interior** walls save on finishing costs; absorb sound.

# **National Concrete Masonry Association**

38 South Dearborn Street

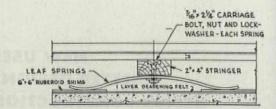
Chicago, Illinois



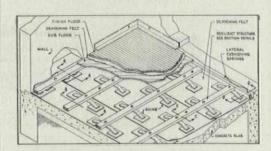


## STEEL SPRINGS give bounce to gym and dance floors built directly on slab

Easily constructed, the Springaire system by Detroit Contractor Leo Kuhlman will give comfortable resilience to floors for gymnasiums, community centers, roller rinks, dine and dance restaurants built on concrete slab. To overcome objectionable rigidness, the Springaire system floats the finished floor above the concrete base by mounting it on an assembly



of 18"-long auto-type leaf springs set on top of asphaltic paper shims bolted to sleepers. To prevent buckling, the sleepers, in turn, are anchored to concrete 5' o.c. and 10' apart. Flexibility of the steel springs is controlled to provide adequate bounce and distribute dead weight and active loads over wide areas. Springaire method absorbs shock otherwise relayed to adjoining walls. It also retards sound transmission by means of deadening felts. A 31/2" open space between wood floor and slab allows for adequate ventilation to prevent moisture damage. Cost of the floor

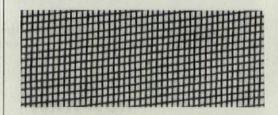


completely installed runs about \$1.50 per sq. ft. Detroit Steel Products makes the springs but the assembly is available at present through Mr. Kuhlman.

Distributor: Leo E. Kuhlman, 9716 Conner Ave., Detroit 13, Mich.

# GLASS-FIBER SCREENING with colorfast vinyl coat will not ravel or sag

Glass yarns are woven into standard screen mesh and coated with tough vinyl to prevent raveling in Chicopee Fiberglas screen cloth. Available in gray or green in widths up to 6', the material has a very high burst strength. It will not fade or discolor, shrink or stretch,

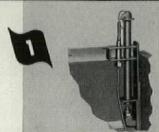


thanks to the dimensionally stable glass fibers and heat-set vinyl coating. It is also reported to be unaffected by salt air or industrial fumes. Weight is just 4 lb. per 100' sq. ft. The retail price, 12¢ psf, is a little higher than galvanized but lower than aluminum or bronze. Manufacturer: Owens-Corning Fiberglas Corp., Industrial Textile Div., 15 E. 56 St., New York 22, N. Y.

continued on p. 246

# When you buy or specify Gas Unit Heaters LOOK FOR THESE 4 Features





NON-CLOGGING PILOT Most dependable pilot ever developed for Gas Unit Heaters.

TILTING FRONT

Directs heat downward without restricting the flow of air.

The four features pictured at the right typify today's finest Gas Unit Heater Construction. When you buy or specify Unit Heaters that have these features, you can be sure that your customers are going to enjoy the best of automatic gas heating.

Humphrey engineers originated these design improvements and numerous others, in the course of their continuous program of research aimed at increasing Unit Heater dependability and economy.

Today, every one of these superior features is a Humphrey exclusive, available only on Unit Heaters made by General Gas Light Co.



It is this kind of construction that has earned the Humphrey its reputation as the world's finest Gas Unit Heater.

# GENERAL GAS LIGHT COMPANY

Humphrey AUTOMATIC



DUAL FLAME BURNER

With Stainless Steel burner tips, assures high efficiency plus long



FREE-FLOW HEAT EXCHANGER

Provides maximum radiating area, plus freedom from clogging. No

NIT HEATERS



Another famous hospital protects patients and dollars with Sargent Products

# BERGEN PINES COUNTY HOSPITAL

Bergen Pines County Hospital, New Jersey Architect: York & Sawyer Hospital Consultant: James A. Hamilton

Protect your clients against unforeseen emergencies by assuring fast, safe exits under all conditions.

You can be sure of doing this by specifying Sargent's "Quick" Exit Devices.

Only slight pressure on the cross bar releases the locking mechanism, making latch bolts free floating. Doors can be *instantly* pushed open. Although ordinary latch bolts may bind and prevent exit when pressure is applied to the door before the bolt retracts fully, the Sargent double roll-back action

is actually assisted by this pressure.

These devices are made by the Sargent Shell Molding Process... a wonderful new method that produces smooth, close-grained parts of rugged strength, rugged beauty.

You will also find it safe and wise practice to recommend that Sargent Door Closers be used with "Quick" Exit Devices. These liquid closers have special quality features that insure precision closing, perfect control.

Don't forget the beautiful Sargent Integralock ... the only key-in-knob lock with the extra protection of the Sentry Bolt. Call your Sargent Representative, or write us, Dept. 8L, for complete data.





Sargent & Company
New York · NEW HAVEN, CONN. · Chicago
Hardware of Character

# FULL STATES OF PRINT OF THE PRI

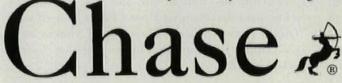
# Chase<sup>®</sup> copper roofing products are 16 ounce copper or heavier—last years longer!

When you choose roofing products, look for the die-stamped Chase Trade Mark and Weight Stamp—your assurance of quality, stability and permanence.

To withstand the weight of snow and ice, Chase copper downspouts, gutters, elbows and shoes are all 16 ounce copper or heavier. All corrugations are deep and generous... ample for temperature changes in any climate. Chase copper leaders are formed from full-width strips, to assure strong, expansion-proof seams. And, since Chase copper roofing products can be joined with standard soldering techniques, the installation will *stay* water-tight and leak-proof *for good*.

Chase copper roofing products simply can't rust, will resist atmospheric and weather conditions that ruin less durable materials. So insist on *Chase* copper roofing products.

For more information on copper roofing products and flashing, send for the free Chase Copper Roofing Products Booklet.



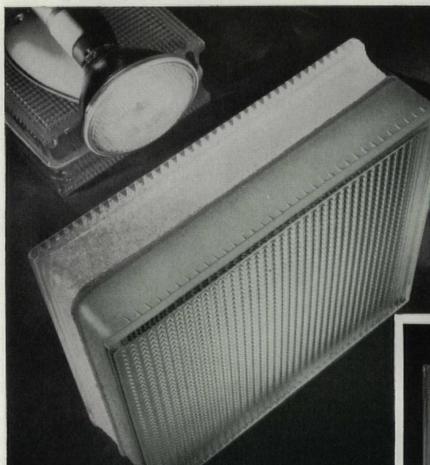
BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT . SUBSIDIARY OF KENNECOTT COPPER CORPORATION

The Nation's Headquarters for Brass & Copper

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

# look closely...



you can
See
the
secret of
Suntrol

In the top photograph, you can see how the green Suntrol screen reduces the light intensity from the lamp. The outer half of the Suntrol Block is bright, but *inside*, on the room side, the raw light is softened and diffused until it's easy on the eyes.

The other photograph tells more of the story. You can see the green, fibrous glass diffusing screen (1) that filters the light and divides the block into two insulating cavities. You can see the internal prisms cast into every Suntrol Block (2) that direct the light upward or diffuse it according to the pattern selected. Lastly, you can see the exclusive PC Soft-Lite® Edge (3), of opal glass that eliminates glare through the edge of the block.

Suntrol Blocks reduce brightness 35%, and instantaneous heat gain by 25% compared with

standard glass blocks. If you have an unusual location where glare and heat are a problem, it will be to your advantage to learn more about these remarkable Suntrol Blocks — available exclusively from Pittsburgh Corning. For complete information, write to Pittsburgh Corning Corporation, Dept. E-114, One Gateway Center, Pittsburgh 22, Pennsylvania.

# PC Suntrol\* Glass Blocks



ALSO SKYTROL® AND FOAMGLAS®

\*T. M. Reg. Applied For

# New TEMTRIM Finned Pipe Radiation by American-Standard for Public, Industrial and Commercial Buildings

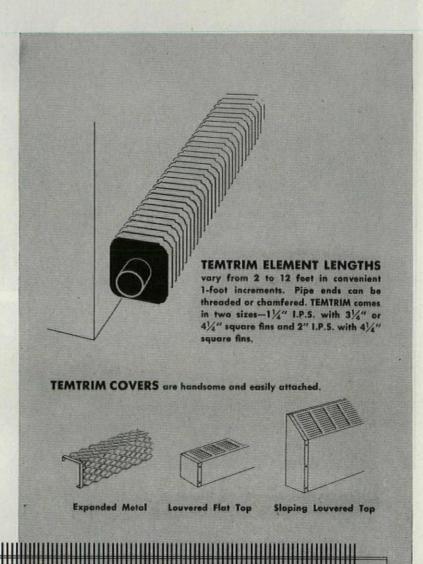
- Low cost
- High heat output
- Easy installation
- Compact size

TEMTRIM is a welded steel pipe that bristles with steel radiating fins. It has a big, high-output heating surface, yet it is compact. Mounted on the wall, Temtrim projects only between 3 to 5 inches into the room.

TEMTRIM is economical to buy and install. Lengths of Temtrim can be connected and hung on wall brackets in a matter of minutes. Can be used with either hot water or steam systems for any type installation.

TEMTRIM can be installed with fins exposed, or with one of three attractive covers: expanded metal, louvered flat top or sloping louvered top. These sturdy steel covers are bonderized and finished with a gray prime coat.

With the addition of Temtrim, American-Standard offers a complete line of radiation for commercial and residential application. Included in the line are ferrous and non-ferrous baseboard panels and convectors and cast iron radiators, as well as remote type heating-cooling units. For information about Temtrim, mail coupon to American Radiator & Standard Sanitary Corp., Dept. AF-114, Pittsburgh 30, Pa.

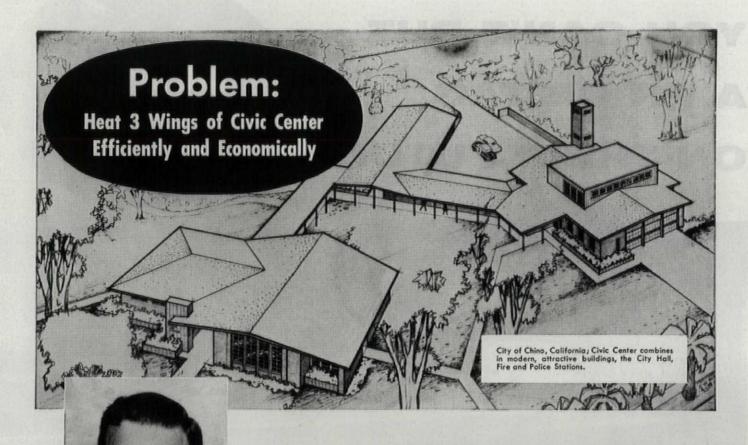


TEMTRIM FINS are mechanically bonded to the pipe. They won't work loose.



American-Standa	rd
Dept. AF-114, Pittsbur	rgh 30, Pa.
Please send me literat	ure on TEMTRIM.
Name	
Address	
City	State

Serving home and industry: AMERICAN-STANDARD . AMERICAN BLOWER . CHURCH SEATS & WALL TILE . DETROIT CONTROLS . REWANEE BOILERS . ROSS EXCHANGERS . SUNBEAM AIR CONDITIONERS



MY 1

Stanley Clark Meston, A.I.A. Fontana, California architect for the recently constructed Chino Civic Center.

Architect Stanley Meston, A.I.A. specified

# Janitrol UNIT HEATERS

He says "A single central heating system with duct work to the 3 separate wings would have been more expensive to install and more costly in the use of fuel."

Building budget dollars can often buy more if careful consideration is given to the heating layout and equipment specifications.

The application of Janitrol Gas-Fired Unit Heaters and Winter Air Conditioners in the Civic Center above is not unusual. Similar Janitrol installations are saving money on the original cost and operating expenses in schools, shopping centers, new and modernized commerical and industrial buildings.

When it comes to the selection of equipment, again your careful consideration will reveal why Janitrol has the great preference among leading architects.

Design wise, Janitrol is far advanced in performance, dependability and economical, quiet operation. Your comparison of Janitrol's construction features will prove this.



PROVEN PERFORMANCE THAT'S UNMATCHED With more than a million exclusive design Janitral heat exchangers installed since 1950...less than 1/4 of 1% have been replaced for any cause. Write for A.I.A. Files on Commercial and Industrial Gas Heating and information on the most durable unit heater built.

Janitrol

GAS-FIRED UNIT HEATERS

ALSO MAKERS OF Surface INDUSTRIAL FURNACES Kathabar HUMIDITY CONDITIONING

JANITROL HEATING & AIR CONDITIONING DIVISION, SURFACE COMBUSTION CORPORATION
COLUMBUS 16, OHIO • In Canada: Alvar Simpson Ltd., Toronto, Ont.

# YOU CAN'T PUT A PRICE TAG ON THEIR FUTURE





# 

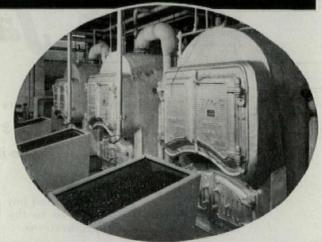
# to meet all conditions

One of America's greatest assets is school children . . . from their ranks come the leaders of tomorrow. Their well-being depends on adequate facilities to guard health . . . meet future needs. There can be no price tag here so thoughtful school boards and those who design, build and equip the nation's schools, plan wisely. Take the matter of heat. There must be enough boiler capacity to provide healthful temperatures. Because every Kewanee Boiler is certified to deliver 50% extra reserve power, adequate heat is always available. Kewanee Reserve Plus Rated Boilers guarantee enough power for any emergency . . . for fluctuating demands, and equally important, they provide for expansion. School enrollment is growing at the fastest tempo ever, so the need for rapid expansion is often critical.

Be sure you follow the Kewanee Reserve Plus Rating Plan in considering boilers. Know these important facts:

- 1-Boiler rating must be based on nominal capacity, not maximum capacity;
- 2-Boilers must have sufficient built-in reserve to meet changing demands;
- 3—Boilers <u>must have</u> sufficient capacity to operate at "cruising speed," not maximum speed at all times;
- 4—Like examples must be considered in comparing boilers. Don't be confused by vague technical claims.

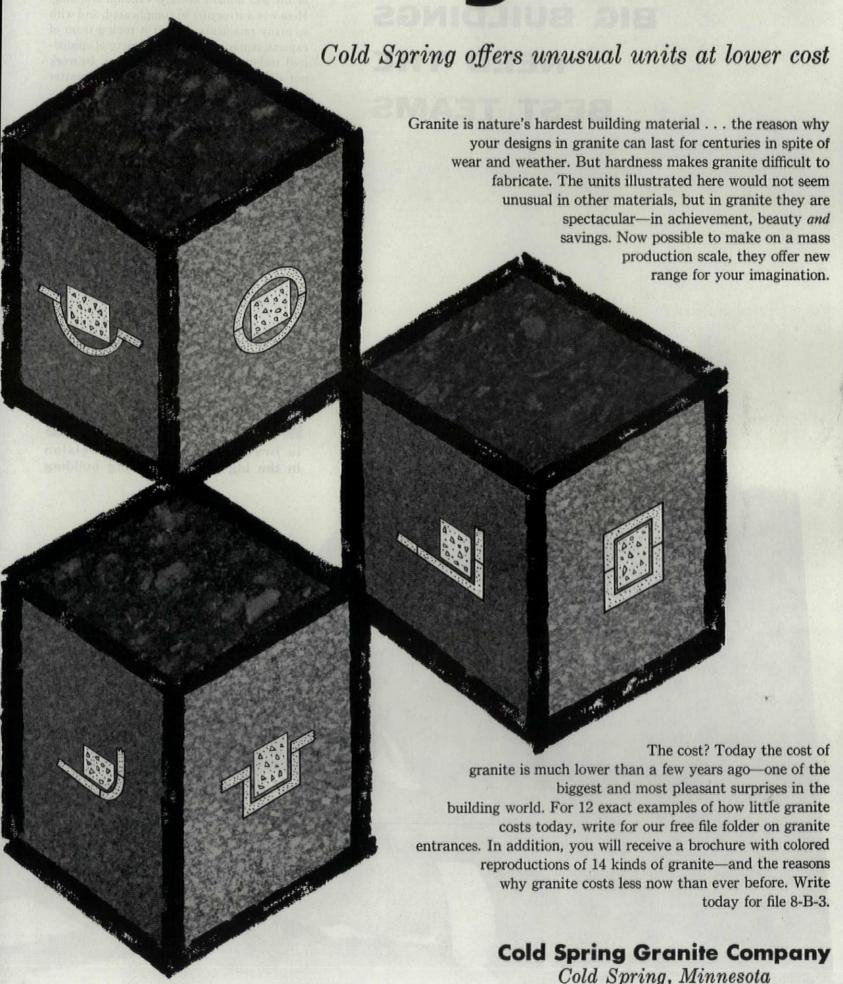
Choose Kewanee and cut fuel costs—lower maintenance—reduce breakdowns—get longer boiler life.

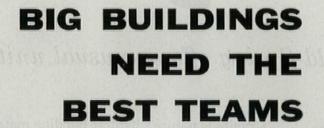


Three 7L79 Kewanee Type "C" Boilers used in the Maryland Elementary School. Student health is protected because there's sufficient reserve to meet every need ... provision for expansion, too.



# for rare beauty at unusual savings... GFGINITE





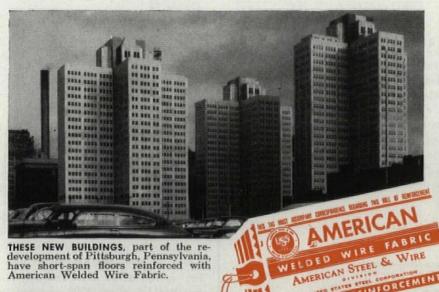
"Building today just has to be a team operation - and the bigger the building, the better the team has to be. Take our case as owners of the \$45 million Socony-Vacuum Building. Here was a structure so complicated, and with so many ramifications that it took a team of experts, representing a wide variety of specialized technical skills and experience, to work out all the problems involved. But no matter what the size of the building, no one man - no single professional-can possibly make all the decisions that must be made as a project moves from drafting board to final occupancy. Surprisingly enough, although teamwork in building has been standard procedure for many years, Forum is the only magazine I know which has recognized the team, serves every interest of every member of the team. Because FORUM gives its readers this widescreen viewpoint, I know of no better way for any man-no matter what his interest in building - to keep well-informed on the changing developments in today's big building industry."

> Peter B. Ruffin, Vice President Galbreath Corporation

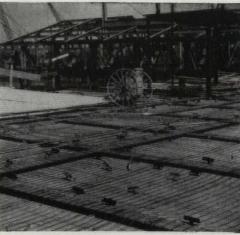
FORUM is first with the men-of-decision

in the big business of big building

Peter B. Ruffin is Vice-President of the Galbreath Corporation, owners of New York's newest skyscraper.
This 42-story Socony-Vacuum Building is now under construction in midtown Manhattan.
In addition to this building, the Galbreath organization owns or controls substantial real estate holdings in New York, Chicago, Pittsburgh, Birmingham, Charlotte, Providence and Los Angeles.



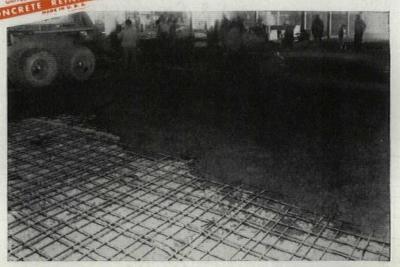
THESE NEW BUILDINGS, part of the re-development of Pittsburgh, Pennsylvania, have short-span floors reinforced with American Welded Wire Fabric.



AMERICAN WELDED WIRE FABRIC reinforced short span floors mean speed in building construction.



ALL 14 BUILDINGS in Rockefeller Center, New York City, have floors reinforced with American Welded Wire Fabric. This high quality fabric comes in prefabricated rolls, wound on large mandrels in any style you need.



FACTORY FLOORS—pounded day after day by heavy traffic and vibration—need the extra protection of American Welded Wire Fabric.

# It's American Welded Wire Fabric for the strongest concrete

 Don't worry about the strength or durability of your concrete work if you reinforce it with American Welded Wire Fabric. American Fabric doesn't just meet the new ASTM Specifications A185-53T; it often exceeds them. It assures you an extra margin of safety in concrete walls, floor slabs, driveways and roofs, whether they

are pre-cast or poured at the job site.

We make sure our fabric is the best quality by rigid inspections that check size and spacing of wires, soundness of welds, and strength of the finished product. This assures you high quality concrete work that is just as strong and crack-resistant as you designed it.

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS . UNITED STATES STEEL EXPORT COMPANY, NEW YORK



**EVERY TYPE OF REINFORCED CONCRETE CONSTRUCTION NEEDS** 

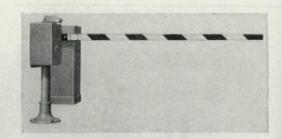
# USS AMERICAN WELDED WIRE

E D



### TOLL GATE substitutes for parking lot attendant

A branch off Western's main line of electric gates for railroad crossings, this toll gate takes the place of a parking lot attendant. Here is how it operates: the driver stops at the gate, reaches out his car window and drops a coin or token in the box. A magnetic control opens the gate to admit the auto and when cleared, closes. (The gate is timed to prevent a second vehicle from free-loading.) The one or two

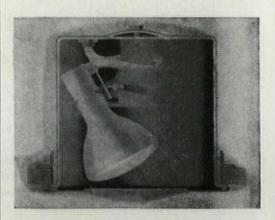


units needed for most off-the-street lots are said to be less expensive to maintain than individual meters (and far more effective when used without attendants). For retail store parking, the WRRS Gates can be regulated to take a coin and discharge a token to be used in trade. Keved units are also available for monthly parking patrons or private lots. For a small area, one gate, two detectors and one remote control station complete with lock for key operation are furnished for \$1,190 and installed for about \$200. To put two gates ("in" and "out") in a larger lot, costs run \$1,500 for the gates \$600 for four heavy duty detectors \$240 for multiple coin acceptor in remote control station. Total: \$2,340 F.O.B. Chicago plus \$400 installation.

Manufacturer: Western Railroad Supply Co., 2428 S. Ashland Ave., Chicago 8, Ill.

# RECESSED REFLECTOR: lens throws spot or spreads sheet of light where needed

Ceiling-recessed over a glass store counter, Century's new downlight can throw an accent spot on merchandise while directing reflections away from the customer's line of vision. Mounted close to a wall mural or bulletin board the same fixture will bathe the vertical surface in even light. The device that makes possible this flexibility in the moderate-priced (\$19.50) fixture is its roundel lens which spreads light 60° along one axis and 15° on



the other. The lamp receptacle (for flood or spot reflectors) is mounted on a swivel and can be rotated to any useful direction. To illuminate chalkboards in a low-ceilinged classroom the units may be spaced as far apart as 9'; the higher the ceiling, the wider the spacing. Century provides data for determining the most effective location of the units and will help plan for specific conditions.

Manufacturer: Century Lighting, Inc., 521 W. 43 St., New York 36, N.Y.

continued on p. 252





Before you specify any tile flooring, consider the distinctive difference in

# MATICO

There is a difference in MATICO Parquetry tile flooring. It's different in appearance...rich, luxurious, in perfect keeping with any style of architecture or decorative plan. There is a difference in cost, too. For all its richness and beauty, MATICO Parquetry costs no more than ordinary asphalt tile flooring. And Parquetry is durable...stain and water-resistant...easy to clean...can be installed on, above or below grade and performs efficiently over concrete slab foundations.

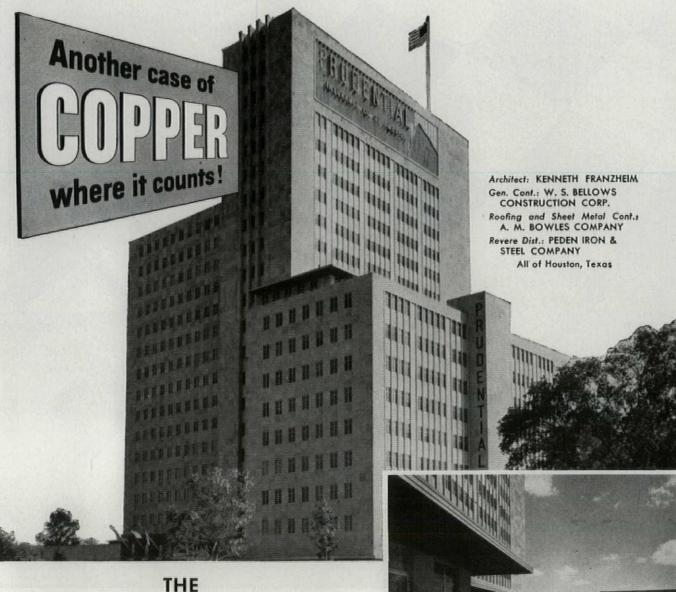
Yes, when next you specify tile flooring, consider the many advantages offered by MATICO Parquetry. Parquetry comes in four distinctive shades — walnut, mahogany, oak and maple — in 9 x 9, 1/8" sizes. Write Department G-II for details and specification data today!



# MASTIC TILE CORPORATION OF AMERICA

Joliet, Ill. . Long Beach, Calif. . Newburgh, N. Y.

Manufacturers of: Aristoflex • Confetti • Parquetry • Asphalt Tile • Cork Tile • Plastic Wall Tile



# PRUDENTIAL

# **INSURANCE COMPANY OF AMERICA**

Southwestern Home Office, Houston, Texas

Here is still another case of the most modern of buildings depending on man's oldest metal to seal out the elements. Metals may come and metals may go but the enduring qualities of copper have remained unmatched for centuries. There is not another metal or alloy that has all of the outstanding construction characteristics of copper. It is equally at home in the most ancient cathedral or in the newest streamlined skyscraper. It's adaptability in construction and flexibility in design make it the metal preferred by architects.

lined skyscraper. It's adaptability in construction and flexibility in design make it the metal preferred by architects.

That's why, on structures built to last, such as the new Prudential Building, you'll find Revere Copper used as flashing, as gutters, in expansion joints, as roofs and in other vital spots where unerring performance through the years is of utmost importance to the reputation of the architect and the satisfaction of the client.

Copper cannot rust or rot. Its design possibilities are unlimited. Its endurance has been proved for centuries. The enviable reputation copper has earned makes it readily acceptable by the toughest board of directors. Contractors prefer to work with it because it solders beautifully, requires no special tools, is readily worked into any shape or form and is readily prefabricated in the shop. Write us today about the money-saving advantages of Revere Keystone Thru-Wall Flashing\* and the new Revere-Keystone 2-Piece Cap Flashing.\*\* And, if you have technical problems, we will put you in touch with Revere's Technical Advisory Service.

\*Patented \*\*Pat. Pend.



WEATHER IS SEALED OUT on a permanent basis in this Prudential Building in Houston, Texas. For approximately 12,000 lbs. of non-rusting, enduring Revere Sheet and Strip Copper were used for various flashing applications, and as gutters and expansion joints

Inset photo directly above shows where Revere Copper was used to flash the planting box (left) and the stone parapet where it joins the roof (right).

# REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Chicago and Clinton. Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N.Y. Sales Offices in Principal Cities, Distributors Everywhere.

SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS

### CODE REQUIREMENTS

for cleanouts are seldom more than

## MINIMUM REQUIREMENTS

...leaving clients vulnerable to repeated unnecessary expense

Day-to-day cost of maintaining buildings can become a very large item if gaining access to drainage-line stoppages requires destruction of fittings, walls or floors. Lack of sufficient accesses and use of clean-outs which merely meet code requirements are the causes of such needless expense. As anyone who has ever tried to remove one knows, ordinary "cleanout plugs" freeze immovably in a matter of months. SUPREMO PERFECT SEAL CLEANOUTS will always provide quick, sure access and positive re-sealing, whether the installation is two months or twenty years old.

Code requirements can be hazardous in the matter of cleanout location, as well. Every building drainage plan presents a new set of potential "trouble zones". Provide SUPREMO PERFECT SEAL CLEANOUT access not only at the usual 50-foot intervals, but at every foreseeable trouble zone. It is a client obligation, which, if observed, will pay dividends for years to come.

### J.A. ZURN MEG. CO.

Sales Offices in Principal Cities of the World

AFFILIATE: AMERICAN FLEXIBLE COUPLING COMPANY
IN CANADA: CANADIAN ZURN ENGINEERING LTD., MONTREAL, P. Q.



.... EXCEED CODE

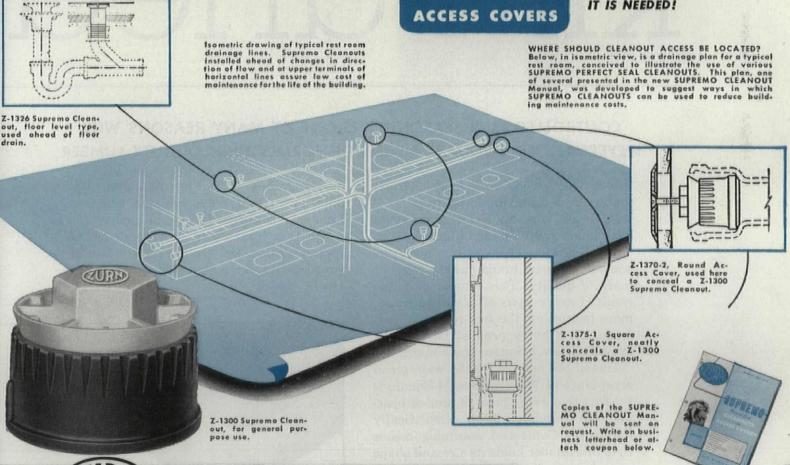
REQUIREMENTS — PROVIDE

SURE, QUICK NON-DESTRUCTIVE

ACCESS TO DRAINAGE

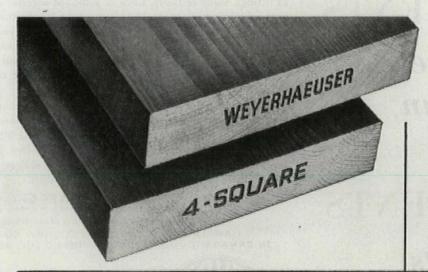
LINES WHENEVER

IT IS NEEDED!





COPYRIGHT 1954



this brand name on lumber also means

# kiln-dried

### CONTROLLED KILN SEASONING IS ONE OF MANY REASONS WHY WEYERHAEUSER 4-SQUARE MEANS UNIFORMLY HIGH QUALITY LUMBER

The use of well-known, trade-marked materials is sound building practice—and always wins appreciative approval from home and building owners.

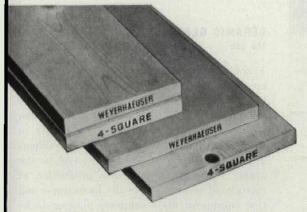
Builders and owners see in the Weyerhaeuser 4-Square brand name a familiar mark of quality. This confidence is the result of many years of advertising and, more important, the fine record of performance of every product bearing the Weyerhaeuser 4-Square trade mark.

One of the reasons for the widespread acceptance of Weyerhaeuser 4-Square is the fact that every piece of lumber bearing this brand has been scientifically kiln-dried. Controlled seasoning means that this lumber holds its size and shape remarkably well...has maximum strength and stiffness... takes paint and other finishes. These characteristics, plus the benefits of precision sawing and surfacing,

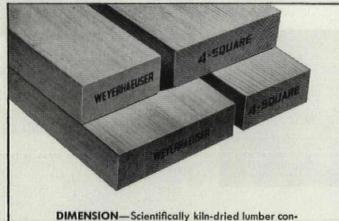
proper grading, careful handling and shipping, mean that Weyerhaeuser 4-Square Lumber is consistently high in quality.

See this lumber, in a wide range of species, grades and sizes, at the office of your local Weyerhaeuser 4-Square Lumber Dealer.



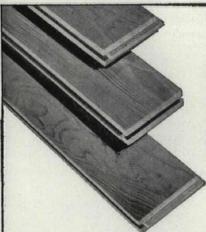


BOARDS—Every board bearing this brand name has been seasoned prior to manufacture.

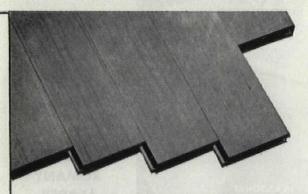


DIMENSION—Scientifically kiln-dried lumber contributes to sound, durable construction.

# lumber



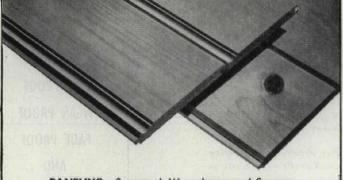
END MATCHED-This popular item eliminates waste and reduces building time -proper seasoning gives it maximum strength.



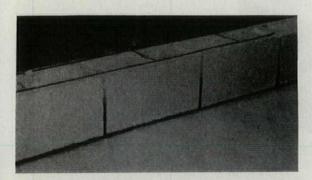
FLOORING-Controlled kiln-drying means a firm, smooth surface for superior appearance and wear-

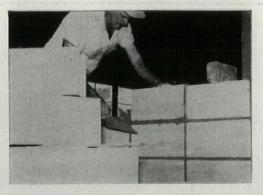
### Weyerhaeuser Sales Company

ST. PAUL 1, MINNESOTA



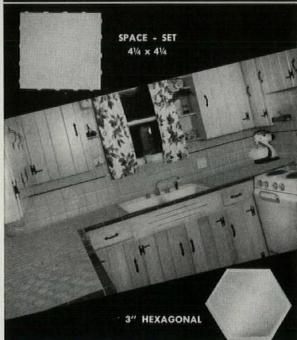
PANELING-Seasoned Weyerhaeuser 4-Square paneling presents a dry, smooth surface for a variety of finishes.





Factory finish of colored glass is fused on concrete block.

## Real Clay Tile



There is INCREASING DEMAND

for

COUNTER TOP TILE!

> Another ROMANY LEADER

Many new homes now enjoy the added luxury of a tile-top working surface in the kitchen, a glamorous tile top surrounding the lavatory in the bathroom.

Because - Real Clay ROMANY Tile has a glazed surface "hard as steel," it is especially adapted to counter-top use.

In conventional 41/4" x 41/4" square design with ROMANY'S exclusive "Space-Set" lugs, or in the inviting 3" hexagonal shape, ROMANY Tile offers many advantages.

> For detailed information see Sweet's - or write us

### United States Quappy tile CG

Member: Tile Council of America and Producers' Council, Inc.

217-J FOURTH ST., N.E., CANTON 2, OHIO

for the specification consider these outstanding features

ROMANY IS:

FIRE PROOF

**WEAR PROOF** 

FADE PROOF

AND

ACID PROOF

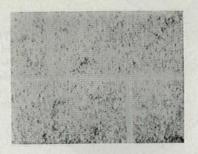
And is available in more than 30 attractive colors.

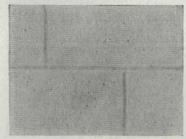
### CERAMIC GLAZED BLOCK needs no finish on the job

Ferro Corp.'s new glazing process coats concrete block front and/or back with colored ceramic. Thus rendered scratch and fire resistant, the new unit is called Glasface. It can be sawed without chipping, is available in wide range of colors and finishes; emblems and special designs can be ordered in the glaze. Ferro plans to license production of this glazed block on a royalty basis, reporting that equipment for a complete plan could be installed for less than \$50,000. While the finish can be applied to the various clay, shale and slag blocks, it has been found best suited to lightweight-aggregate block. Application of the glaze does not impair the structural strength of the masonry. Tests have shown too, that the glazed unit can stand a hydrostatic pressure of 15" of water on the reverse side without showing any signs of peeling. Ferro's current price is 75¢ to 85¢ a block. Manufacturer: Ferro Corp., Cleveland.

### TWO MASONRY PAINTS combined in quick smooth finish for rough block

A finely powdered marble-base paint has been mixed with a concentrated latex alkyd-resin paint to create a washable finish which, in one application, eliminates the voids and pits usually encountered in painting interior surfaces of aggregate block walls. The technique,





which combines Marb-L-Cote Texture with Satin Liminall paint mixture, takes a second coat of the Luminall paint for a creamy smooth surface with the purpose of providing a quick smooth finish; it does not claim to substitute for the smooth wall of a plaster job. Estimates show the finish can be applied at a materials cost of \$3.45 per 100 sq. ft.

Manufacturer: Luminall Paints Div., National Chemical & Manufacturing Co., 3617 South May St., Chicago, Ill.

continued on p. 258

## rinity White is a true portland cement

Use it for a brilliant sparkling white, or with pigments added it gives the loveliest of colors! Specify it for architectural concrete units...

terrazzo...stucco... and light reflecting uses. It's a true portland... and it meets all Federal and ASTM specifications.

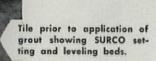
It's the whitest white cement

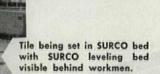


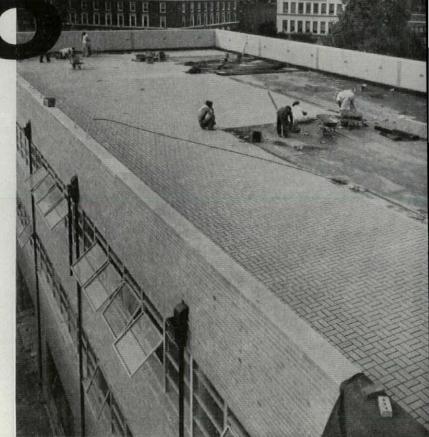
A Product of GENERAL PORTLAND CEMENT CO. • Chicago • Dallas • Chattanooga • Tampa • Los Angeles

TRINITY

## SURCO



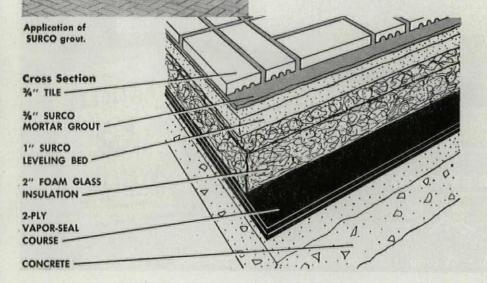




Roof recreation area of university building with quarry tile flooring. SURCO grout setting and leveling bed used throughout

## TILE SETTING BED... tops the class

SURCO is the newest discovery of contractors who need a strong, easy-to-apply tile setting material for indoors or out. Resilient, durable and water proof. SURCO Yellow Label applied 1/8 to 1/4 inch thick sets tile fast . . . usually ready for normal traffic in 24 hours. SURCO's adhesion of 68 pounds per square inch assures a tight bond.



In kitchens, bathrooms, shower rooms, wherever a waterproof tile floor is needed, a SURCO tile setting bed will do the job faster, better and more economically.

• See Sweet's Files or write to:

### SURFACE COATINGS, INC.

110 Pear Street, S.E. Atlanta, Georgia



the new LUME-GLOW

**by MITCHELL** 



New MITCHELL "Lume-Glow" sets the standard of excellence in comfortable indirect lighting. It is specifically designed for low brightness contrast and features pleasing eye-ease illumination. Designed for pendant mounting, Lume-Glow luminaires achieve a desirably high upward component coupled with diffused downward lighting to achieve this new concept in glare-free, restful illumination. The superb combination of abundant light output with low surface brightness is achieved through the original use of polystyrene plastic formed in an ultra-shallow streamlined contour of unusual beauty and distinction. Finally, "Lume-Glow" offers exceptional advantages in simplified installation and maintenance. For full details, specifications and performance data, write for Bulletin No. 4.

The "Evenglo" plastic diffusing shield provides the most desirable low surface brightness



High upward component, combined with plastic diffusing shield, provides the eye-ease illumination of indirect lighting



Ultra-shallow contour achieves a smart, streamlined effect to create clean, tailored-looking installations in the most distinguished interiors

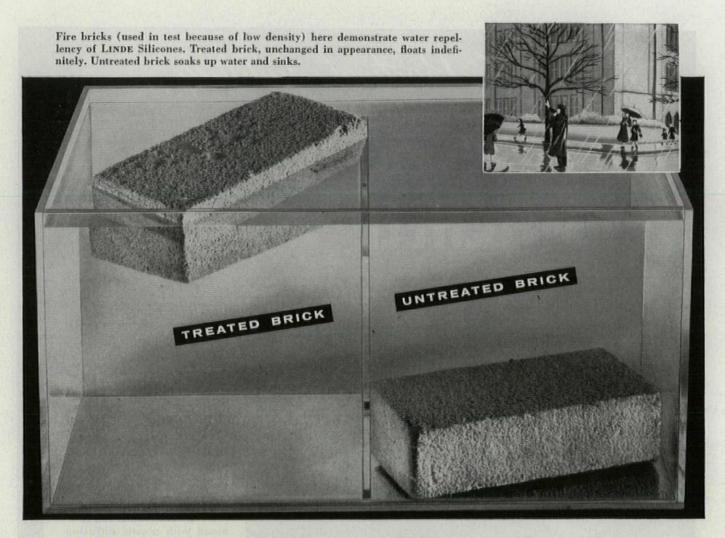


Available in 4-Foot, 2-Lamp or 4-Lamp Luminaires (choice of Rapid Start, Slimline or Medium Bi-Pin), and in 8-Foot, 2-Lamp or 4-Lamp Slimline. Matching Spots, Fill-Ins and Corner Boxes are available

where quality counts,

ants, Specify MITCHELL MANUFACTORING S. 2525 N. Clybourn Ave., Chicago 14, Illinois In Canada: Mitchell Mfg. Co., Ltd., 19 Waterman, Toronto

MITCHELL MANUFACTURING CO.



## How buildings can keep their heads above water

You can keep water out of your above-grade brick and masonry walls just as it's kept out of that floating brick, above.

Above-grade masonry water repellents made with LINDE Silicones do the job. Tests already indicate they last ten years and up.

Damage to interiors from seepage is eliminated. Repair and maintenance costs really drop.

Fully protect new buildings. Fix up old buildings. These silicone-based water repellents prevent even 100-mile-an-hour wind-driven rain from penetrating brick and concrete. They do not change surface appearance.

Yet they do keep building surfaces clean, since water simply rolls down the sides, carrying dirt with it. Streaking and efflorescence are stopped. They are easily applied by spray or brush.

These silicone masonry water repellents end spalling and cracking caused by freezing moisture. They even prevent seepage where exhaust fans reduce indoor air pressure. They let no outdoor water in, yet the pores of the masonry can still "breathe."

For full details on above-grade masonry water repellents made with LINDE Silicones, and a list of representative suppliers, write Dept. A-11.



General Offices: 30 East 42nd Street, New York 17, N. Y.

In Canada: Dominion Oxygen Company, Division of Union Carbide Canada Limited

The term "Linde" is a registered trade-mark of Union Carbide and Carbon Corporation.



RAYMOND'S DOMESTIC SERVICES... Soil Investigations • Foundation Construction • Harbor and Waterfront Improvements Prestressed Concrete Construction • Cementmortar Lining of Water, Oil and Gas Pipelines, In Place.

RAYMOND'S SERVICES ABROAD . .
In addition to the above, all types of General Construction.



### RAYMOND

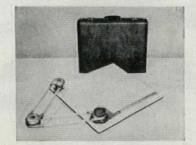
CONCRETE PILE CO.

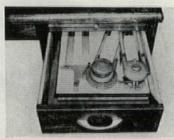
140 Cedar Street . New York 6, N. Y.

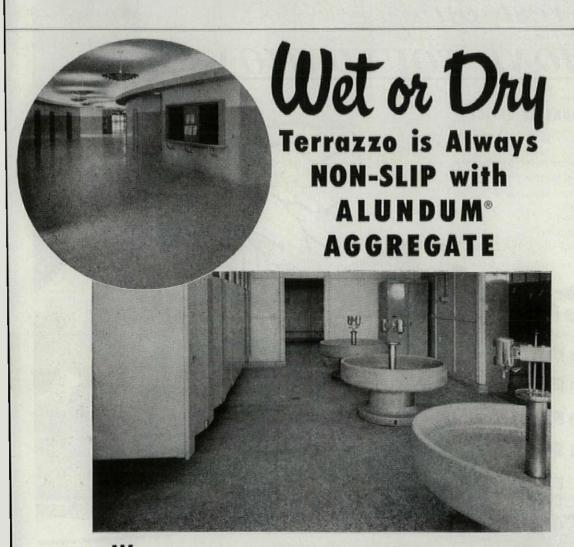
Branch Offices in Principal Cities of the United States, Central and South America

#### PORTABLE DRAFTING MACHINE: an office in a suitcase

A complete drafting system, Universal Desk-Topper permits the architect or engineer to take his drafting room with him to a field shed or client appointment. The new professionalquality tool contains a machine with 22" x 34" drawing capacity, a 15" aluminum scale, and linoleum-topped folding board with folding legs that accommodates drawings up to 17" x







Wet footing is never treacherous footing on terrazzo made nonslip with ALUNDUM Aggregate. Wet or dry, these installations are not only perfectly safe walking surfaces, but are attractive and will show no signs of wear over the years.

Norton ALUNDUM Aggregate for terrazzo in washrooms, entrances, hallways, stairs, cafeterias and countless other places where absolute safety, maximum resistance to wear and quality appearance are desired.

There is also ALUNDUM (C. F.) Aggregate for use in cement floors, stairs and ramps. Write for information or see our catalog in Sweet's.



NORTON COMPANY WORCESTER 6, MASSACHUSETTS

Making better products...to make other products better

22". (An accessory clamp makes it possible to mount the machine on larger drawing surfaces of any material up to 34" thick.) The \$74.50 model includes a box for instruments, tracing paper dispenser and carrying carton. For \$37.50 more, the good-looking travel case (photo above) is provided. Light and easily stored in a desk drawer, Desk Topper is outlined as having all the features of full-size drafting machines.

Manufacturer: Universal Drafting Machine Corp., 7960 Lorain Ave., Cleveland 2, Ohio.

### GLIDING PRINT RACK helps solve the problem of blueprint storage

Filed in the Glider, 12 to 18 complete blueprint sets are immediately available and their locations clearly indexed. Each of the clamps in the rigid free-standing rack holds securely up to 100 sheets of any size. Holes do not have to be punched in the drawings and single sheets can be taken out and put back without removing others in the set. Good feature for



the mobile contractor: the Glider comes apart easily for shipment to a field office. Price for a 5' high unit 4' wide and 3' deep is \$89.50. Finish is gray. An extension is available as well as a shelf compartmented for specs. Gliders also are available in enclosed, lockable cabinets.

Manufacturer: Momar Industries, 4323 W. 32 St., Chicago 23, Ill.

Technical Publications, p. 264

### REVOLUTIONARY NEW HEATING



A thermostat in every room

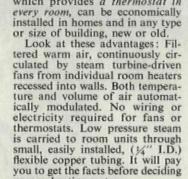
IRON FIREMAN®



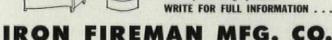


which provides a thermostat in





on any heating system.



3276 West 106th Street, Cleveland 11, Ohio

# HEAR

**NEW Model 45 Acousti-Booth** - spacesaving configuration provides amazing acoustical performance.

50% Reduction in loudness of noise - 14 db attenuation provides full-length Booth performance.

New triangular configuration permits 7 spacesaving multiple Booth arrangements.

All steel, doorless construction – silver gray hammered finish – easy installation – no maintenance.

WRITE for Bulletin A-131 for details, including auxiliary floor stand, light fixture, and brackets.

### **BURGESS-MANNING** COMPANY

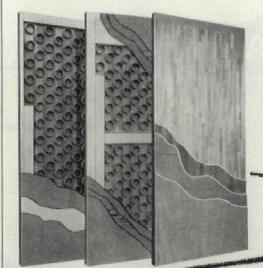
**Architectural Products Division** 5970-V Northwest Highway Chicago 31, Illinois

ORDER TODAY

ONLY \$100.00 F. O. B. CHICAGO light fixture extra



MODEL 45 351/2" wide—32" deep—36" high.



• STANDARD HOLLOW CORE

 INSTITUTIONAL HOLLOW CORE

• SOLID CORE

The Complete Line

ALL GENERAL DOORS ARE HOT PLATE PRESSED

GENERAL PLYWOOD CORPORATION

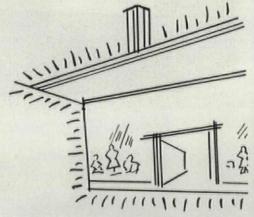
50 YEARS IN HARDWOOD PLYWOOD LOUISVILLE KENTUCKY

Send for Samples of ALUMILINE'S NEW

## GOLD L

THE FINISH THAT **ARCHITECTS** HAVE WANTED FOR YEARS

Gold Lite is a colored Alumilite finish that has been exposure-tested by Alcoa for a period in excess of 10 years, yet has shown no perceptible signs of fading. Newl Gold Lite is offered for the first time for Store Fronts and Entrances using extruded aluminum. Gold Lite achieves unusual and attractive effects at a cost comparable to standard Alumilite finishes.



Highly resistant to wear and tarnish, Gold Lite requires a minimum of maintenance. Gold Lite is available in all Alumiline extruded Alumilited aluminum products as shown in our catalogs. Also available for custom windows, spandrels, facia, curtain wall construction, etc. Choice of lustrous polished finish, or

SEND FOR ADDITIONAL GOLD LITE INFORMATION AND SAMPLES

Dunnell Lane, Pawtucket, R. I.

Store Front Construction . . . Entrances . . . Doors . . . . . . . . and Special Aluminum Building Materials





### "Saved Time and Money"

• Mr. H. E. Rumpel, Superintendent of Schools, Richfield, Minnesota, says: "We selected lath and plaster for our new school because we wanted the fire safety and low maintenance it provides. And we have found that its intelligent use can save a worthwhile sum of money. For example, pre-colored, acoustical plaster eliminated the need for painting, and cost substantially less.

"In addition, plastering considerably shortened construction time. And it gave us a lower insurance rate—a worthwhile yearly saving throughout the life of the school."



A. M. Hede and L. G. Peterson of Peterson & Hede Co., plastering contractors, present Certified Craftsmanship Certificate on Richfield High School to Mr. H. E. Rumpel, Superintendent of Schools, Richfield, Minnesota, and Mr. R. N. Thorshov, Senior Partner, Thorshov & Cerny, Architects and Engineers. Richfield is a suburb of Minneapolis.

# Certified Craftsmanship in action in Minneapolis

• As in scores of cities across the country, contractors and craftsmen in Minneapolis have formed a local chapter of the National Bureau for Lathing and Plastering. They have subscribed to the Bureau's recently adopted Code of Standard Practices for Lathing and Plastering and are offering Certified Craftsmanship Certificates.

The Certified Craftsmanship Certificate is a written pledge of adherence to work schedules, job cooperation, work of craftsmanship caliber and nationally recognized standards of quality. A certificate is yours for the asking from lathing and plastering contractors adhering to the Code of Standard Practices for Lathing and Plastering.

We suggest a thorough reading of the Code of Standard Practices which appears on the back of every certificate. Ask your lathing and plastering contractor for a copy, or write National Bureau for Lathing and Plastering, 1401 K Street, N. W., Washington 5, D. C. Certified Graftsmanship

OF PERFORMANCE

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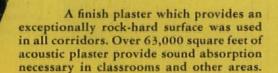
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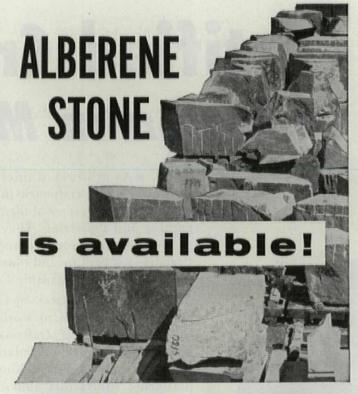
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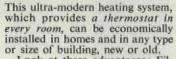
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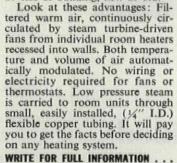
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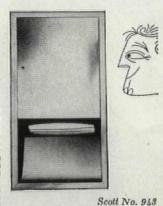
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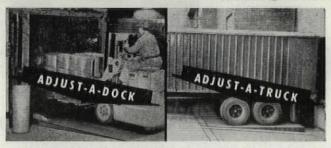
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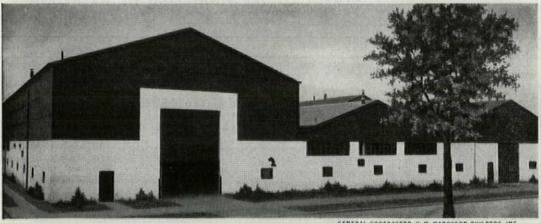
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Telecom Model 4A23 Switchboard, Bul. TEL 10 Telecom Inc., 1019 Admiral Blvd., Kansas Cit Mo. 8 pp. 6" x 9"

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Herman Nelson Classroom Unit Ventilators -Color and Linoleum Selection Guide, Bul. 600-E3. Unit Ventilator Products Dept., American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky. 2 pp. 81/2" x 11"

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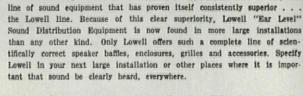
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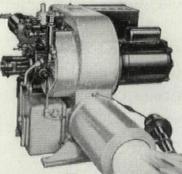
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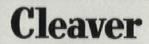
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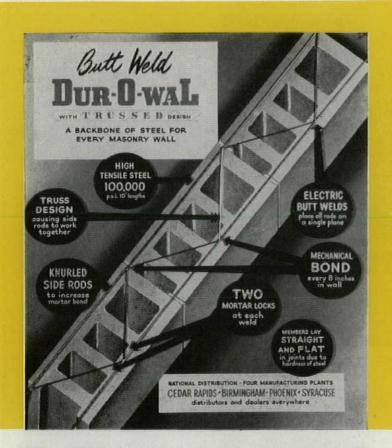
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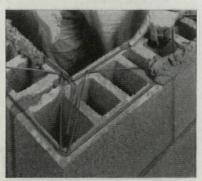


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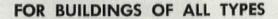
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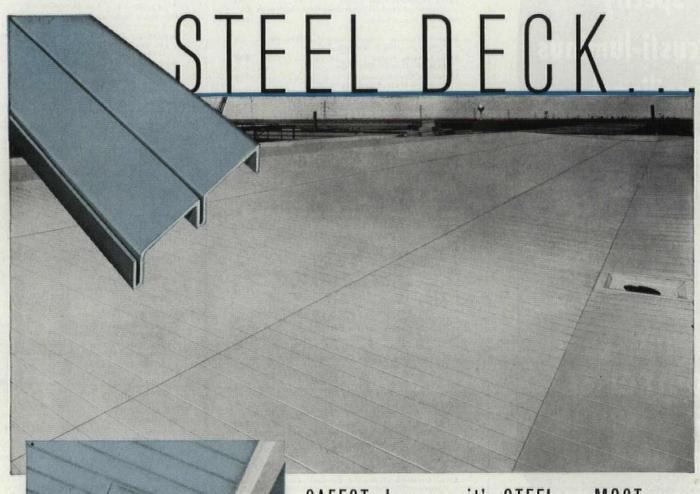


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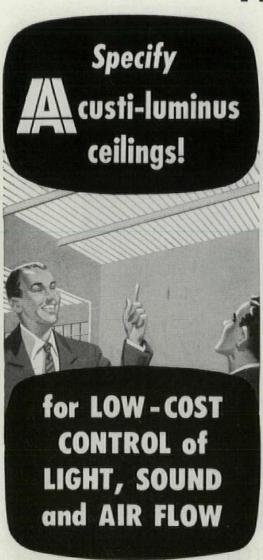
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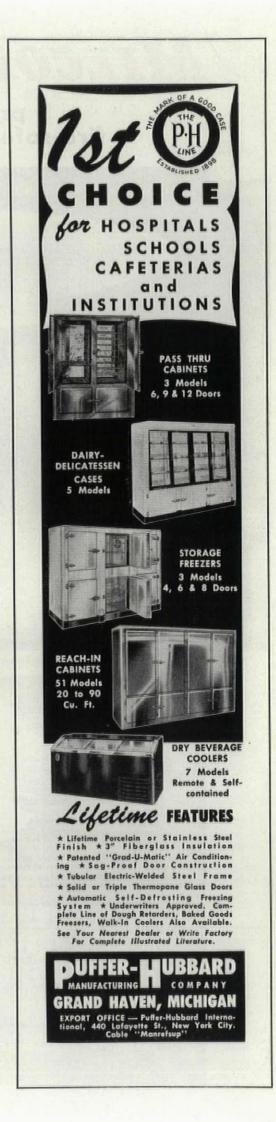
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Adams Leathers, Inc
Agency—Face Advertising Agency, Inc.
Adams & Westlake Co., The
Agency—Alfred J. Silberstein-Bert Goldsmith, Inc.
Alberene Stone Corp
Alcasco Division (Detroit Gasket & Mfg. Co.) 19
Agency—Castle & Werner, Inc. Altee Lansing Corp
Altee Lansing Corp.         268           Agency—Dan B. Miner Co.         259           Alumiline Corporation         259
Agency-Moss Associates
Aluminum Window Manufacturers Association 59 Agency-Wildrick & Miller, Inc.
Allegheny Ludium Steel Corporation 57 Agency—Walker & Downing
American Abrasive Metals Company 56 Agency-Michel-Cather, Inc.
American Air Filter Co., Inc
Agency—The Griswold-Eshleman Co. American Air Filter Co., Inc. (Herman Nelson
Division)
American Art Metals Co
Agency-Moziey, George & Wootlen, Adv.  American Biltrite Rubber Co. (Amtico Rubber
Flooring) Agency—Al Paul Lefton Co., Inc.
American Brass Co., Inc., The
Agency—Kenyon & Eckhardt, Inc.  American Bridge Co. (U. S. Steel)
Agency—Batten, Barton, Durstine & Osborn, Inc. American Hardware Corp. (P. F. Corbin Divi-
sion)
American Machine & Metals, Inc. (DeBothezat
Division)
American Radiator & Standard Sanitary Corp 240 Agency-Batten, Barton, Durstine & Osborn, Inc.
American Steel & Wire Division, (United States
Steel Corp.)
Anemostat Corp. of America
Architectural Forum
Agency—Direct Armeo Steel Corp
Agency-N. W. Ayer & Son, Inc.
Armstrong Cork Co
Art Metal Co., The
Artex Division of Arnold Products Co 32
Agency-Bishopric, Green & Associates, Inc. Associated Mfrs. of Lathing & Plastering
Agency-Bishopric, Green & Associates, Inc.
Agency—Bishopric, Green & Associates, Inc. Associated Mfrs. of Lathing & Plastering Materials
Agency—Bishopric, Green & Associates, Inc.  Associated Mfrs. of Lathing & Plastering Materials
Agency—Bishopric, Green & Associates, Inc.  Associated Mfrs. of Lathing & Plastering Materials
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Cyclotherm Corp
Davidson Enamel Products, Inc
Dag-Brite Lighting, Inc
D.D. though District (American Machine & Met-
Agency-L. W. Ramsey Co.
Agency—Castle & Werner, Inc.
Douglas Fir Plywood Association27
DuPont de Nemours, E. I
Duriron Co 5
Dur-O-Wal
Eastman Kodak Co
L. Agency—I. Walter Thompson Co.  Eljer Company
Erie Enameling Company
Agency—IV aiker & Downing
Fiat Metal Manufacturing Co
Fleet of America, Inc
Fort Pitt Fixture Company
Agency-Cabbot & Coffman, Inc.
Gamewell Co., The
Carden City Plating & Manufacturing Co 20
Agency—Cruttenden & Eger Associates G. R. Products, Inc. Agency—Norman-Navan, Inc.
Agency—Norman-Navan, Inc.  General Aniline & Film Corp. (Ozalid Division) 6  Agency—L. E. McGivena & Co., Inc.
Agency—L. E. McGivena & Co., Inc.  General Bronze Corp
Agency—Wuldrick & Miller
General Plywood Corporation
Agency-William J. Dawson Adv. General Portland Cement Co. (Trinity Division) 25.
Agency-Harris & Bond, Inc.
Clynn Johnson Corn
Glynn-Johnson Corp
Glynn-Johnson Corp.  Agency—The Advertising Corp.  Granco Steel Products Co. (Subsidiary of Granite City Steel Co.)48A, 48B, 48C, 48l  Agency—Gardner Advertising Co.
Granco Steel Products Co. (Subsidiary of Gran- ite City Steel Co.)48A, 48B, 48C, 48l Agency—Gardner Advertising Co.
Granco Steel Products Co. (Subsidiary of Gran- ite City Steel Co.)
Granco Steel Products Co. (Subsidiary of Granite City Steel Co.)
Granco Steel Products Co. (Subsidiary of Gran- ite City Steel Co.)
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Granco Steel Products Co. (Subsidiary of Granite City Steel Co.)
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Granco Steel Products Co. (Subsidiary of Granite City Steel Co.)
Granco Steel Products Co. (Subsidiary of Granite City Steel Co.)
Granco Steel Products Co. (Subsidiary of Granite City Steel Co.)
Granco Steel Products Co. (Subsidiary of Granite City Steel Co.)
Granco Steel Products Co. (Subsidiary of Granite City Steel Co.)
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Granco Steel Products Co. (Subsidiary of Granite City Steel Co.)

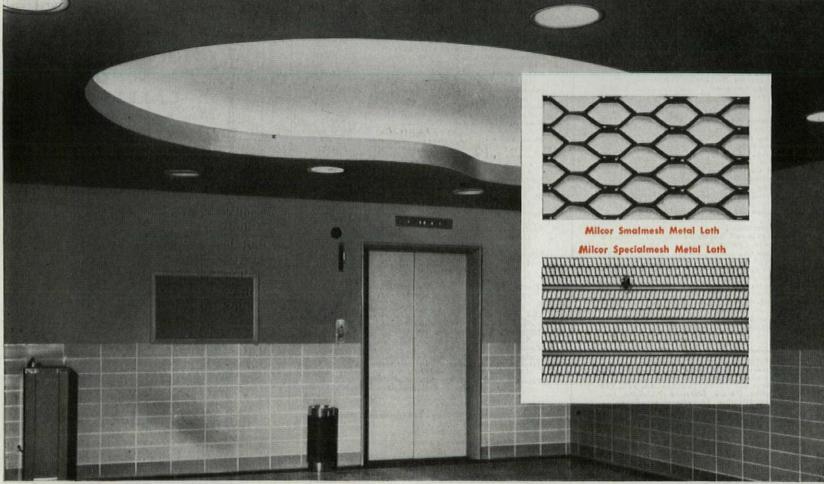
ewaunee Manufacturing Co	44
oppers Company, Inc	92
ewis Asphalt Enginering Corp	24
ewis Asphalt Enginering Corp	
Agency—Fuller & Smith & Ross, Inc.	, 0
ibbey-Owens-Ford Glass Co. (Blue Ridge Divi-	11
Agency-Fuller & Smith & Ross, Inc.	
ightolier Co., Inc	80
inde Air Products Company (Division of Union	
ightolier Co., Inc.  Agency—Alfred Auerbach Associates, Inc.  inde Air Products Company (Division of Union Carbide & Carbon Corp.).  Agency—J. M. Mathes, Inc.  itecontrol Corp.  Agency—Sutherland, Abbatt	50
Attecontrol Corp.	65
one Star Cement Corp	98
Agency—Lowan & Dengier	66
Agency-Mayard Sales & Advertising Counsel	
Agency-Mayard Sales & Advertising Counsel uminous Ceilings, Inc	214
Luria Engineering Company	264
Mass & Waldstein Co	215
Agency-Ine Franklin Fader Co.	273
Agency-Anderson, Inc.	
Agency—Anderson, Inc. Mastic Tile Corp. of America Agency—S. R. Leon Co., Inc.	247
McLouth Steel Corporation	221
Mengel Co., The	55
Agency-Doe-Anderson Advertising Agency Miller Co., The	27
Agency—Deman & Baker, Inc.  Mengel Co., The  Agency—Doe-Anderson Advertising Agency  Mency—Julian Gross Advertising Agency  Mills Co., The	
Agency mans, inc.	199
Minneapolis-Honeywell Regulator Co 60.	, 61
Agency-Foote, Cone & Belding Mississippi Glass Co.	22
Agency—Ralph Smith Advertising Agency Mitchell Mfg. Co. Agency—George Brodsky	255
Momar Industries	267
Anougy Rosell & Incohe Inc	
Montgomery Elevator Co.  Agency—L. M. Ramsey Co.  Mosaic Tile Company	40
Agency-Farson, Huff & Northlich	81
National Concrete Masonry Association Agency-David W. Evans & Associates	235
National Electric Products Corn.	51
Agency-Ketchum Macleod & Grove	102
National Gypsum Co	Inc.
Co., Inc.)	
Co., Inc.)	195
Agency-Doe Anderson Advertising Agency	195
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division	199
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt	270
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Fleor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale	270 258
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.)	270 258
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Fleor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale	270 258
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.	270 258 26
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.	270 258 26
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.	270 258 26
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mig. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Brickson, Inc. Owens Illinois: Kimble Glass Company Subsidi-	270 258 26 75
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mig. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thombson Co.	270 258 26 75 12
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mig. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Brickson, Inc. Owens Illinois: Kimble Glass Company Subsidi-	270 258 26 75 12
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.	270 258 26 75 12
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.	270 258 26 75 12
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—Mc Cann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Paelle Co. The Elebatona Firence of Door	270 258 26 75 12 , 53
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ovalid Division (General Aniline & Film Corp.) Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Parkay, Inc.  Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Riehmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc.	270 258 26 75 12 2, 53 68
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ovalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Riehmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The	270 258 26 75 12 2, 53 68 48 7 10 218
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ovalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Riehmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The	270 258 26 75 12 2, 53 68 48 7 10 218
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ovalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Riehmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The	270 258 26 75 12 2, 53 68 48 7 10 218
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ovalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Riehmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The	270 258 26 75 12 2, 53 68 48 7 10 218
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ovalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Riehmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The	270 258 26 75 12 2, 53 68 48 7 10 218
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Riehmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Agency—Batten, Barton, Durstine & Osbern, Agency—Retchum, MacLeod & Grove, Inc. Pittsburgh Corning Corp.  16 Agency—Batten, Barton, Durstine & Osbern, Agency—Ketchum, MacLeod & Grove, Inc. Pittsburgh Steel Products Co. 16 Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196, 48ency—Rond & Steer Lee.	270 258 26 75 12 2, 53 68 48 10 218 218 10, 17 2, 183 1, 17
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Riehmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Agency—Batten, Barton, Durstine & Osbern, Agency—Retchum, MacLeod & Grove, Inc. Pittsburgh Corning Corp.  16 Agency—Batten, Barton, Durstine & Osbern, Agency—Ketchum, MacLeod & Grove, Inc. Pittsburgh Steel Products Co. 16 Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196, 48ency—Rond & Steer Lee.	270 258 26 75 12 2, 53 68 48 10 218 218 10, 17 2, 183 1, 17
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Ovens-Corning Fiberglas Corp. Agency—G. M. Basford Co. Ovens-Corning Fiberglas Corp. Agency—Mc Cann. Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe Anderson Advertising Agency Peelle Co., The (The Richmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Lewin, Williams & Saylor, Inc. Powers Regulator Co. 26.	270 258 26 75 12 2, 53 48 1nc. 1, 17 2, 83 1nc. 1, 17 2, 183
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ovalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Riehmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The	270 258 26 75 12 2, 53 48 1nc. 1, 17 2, 83 1nc. 1, 17 2, 183
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc.  Darkay, Inc.  Darkay, Inc.  Peterson Window Corporation, The Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Plate Glass Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Bond & Starr, Inc. Porete Manufacturing Co. Agency—Symonds, Mackenste & Co. Puffer-Hubbard Mfg. Co. (Stevens, Inc.)	270 258 26 75 12 2, 53 68 48 10, 17 2, 83 10, 17 2, 83 10, 17 2, 83
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc.  Darkay, Inc.  Darkay, Inc.  Peterson Window Corporation, The Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Plate Glass Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Bond & Starr, Inc. Porete Manufacturing Co. Agency—Symonds, Mackenste & Co. Puffer-Hubbard Mfg. Co. (Stevens, Inc.)	270 258 26 75 12 2, 53 68 48 10, 17 2, 83 10, 17 2, 83 10, 17 2, 83
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc.  Darkay, Inc.  Darkay, Inc.  Peterson Window Corporation, The Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Plate Glass Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Bond & Starr, Inc. Porete Manufacturing Co. Agency—Symonds, Mackenste & Co. Puffer-Hubbard Mfg. Co. (Stevens, Inc.)	270 258 26 75 12 2, 53 68 48 10, 17 2, 83 10, 17 2, 83 10, 17 2, 83
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc.  Darkay, Inc.  Darkay, Inc.  Peterson Window Corporation, The Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Plate Glass Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196. Agency—Bond & Starr, Inc. Porete Manufacturing Co. Agency—Symonds, Mackenste & Co. Puffer-Hubbard Mfg. Co. (Stevens, Inc.)	270 258 26 75 12 2, 53 68 48 10, 17 2, 83 10, 17 2, 83 10, 17 2, 83
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Richmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Class Co. 166, 77, 8: Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196, Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Products Co. 196, Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Steel Corp. (Republic Steel Kitchen Division) Agency—Symonds, Mackensie & Co.  Raymond Concrete Pile Co. Agency—Symonds, Mackensie & Co. Puffer-Hubbard Mfg. Co. (Stevens, Inc.)  Republic Steel Corp. (Republic Steel Kitchen Division) Agency—Meddrum & Feusmith, Inc. Republic Steel Corp. (Truscon Steel Division) Agency—Meddrum & Feusmith, Inc.	270 258 26 75 12 2, 53 68 48 1nc. 197 2, 83 1nc. 197 2, 197 2, 257
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ovalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Richmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Williams & Saylor, Inc. Povers Regulator Co. Agency—Lewin, Williams & Saylor, Inc. Povers Regulator Co. Agency—Needham & Grohmann, Inc. Republic Steel Corp. (Republic Steel Kitchen Division) Agency—Meldrum & Fewsmith, Inc. Republic Steel Corp. (Truscon Steel Division) Agency—Meldrum & Fewsmith, Inc. Revere Copper & Brass, Inc. Agency—St. Georges & Keyes, Inc.	270 258 26 75 12 2, 53 68 48 10 2, 18 18 18 18 19 19 2, 21 19 19 2, 21 19 2, 21 19 2, 21 2, 21 3, 21 3, 21 4, 21 3, 21 4, 21 4
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc.  Darkay, Inc.  Parkay, Inc.  Peterson Window Corporation, The Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Ittsburgh Steel Products Co.  Agency—Batten, Barton, Durstine & Osbern, Agency—Batten, Barton, Durstine & Osbern, Ittsburgh Steel Products Co.  Agency—Buthe Steel Co.  Agency—Symonds, Mackensie & Co.  Porete Manufacturing Co.  Agency—Lewin, Williams & Saylor, Inc. Powers Regulator Co.  Agency—Lewin, Williams & Saylor, Inc. Powers Regulator Co.  Agency—Lewin, Williams & Saylor, Inc. Powers Regulator Co.  Agency—Needham & Grohmann, Inc. Republic Steel Corp. (Republic Steel Kitchen Division)  Agency—Meldrum & Fewsmith, Inc. Revere Copper & Brass, Inc.  Agency—Meldrum & Fewsmith, Inc. Revere Copper & Brass, Inc.  Agency—St. Georges & Keyes, Inc. Reynolds Metals Co.  Agency—Buchanan & Co.	270 258 26 75 12 2, 53 68 48 1nc. 197 218 1nc. 197 216 20, 217 216 217 217 218 218 218 218 218 218 218 218 218 218
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Owens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Parkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Richmond Fireproof Door Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—Geer Dubois & Co., Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osborn, Pittsburgh Plate Glass Co	270 258 26 75 12 2, 53 68 48 1nc. 197 218 1nc. 197 216 20, 217 216 217 217 218 218 218 218 218 218 218 218 218 218
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odlin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—Mc Cann-Erickson, Inc. Otalid Division (General Aniline & Film Corp.) Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Parkay, Inc. Agency—Doe-Anderson Advertising Agency Peelle Co., The (The Richmond Fireproof Door Co.) Co.) Agency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Tof, 77, 8: Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Tof, 77, 8: Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Tof, 77, 8: Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Williams & Saylor, Inc. Povers Regulator Co. Agency—Lewin, Williams & Saylor, Inc. Povers Regulator Co. Agency—Needham & Grohmann, Inc. Republic Steel Corp. (Republic Steel Kitchen Division) Agency—Meldrum & Fewsmith, Inc. Republic Steel Corp. (Truscon Steel Division) Agency—Meldrum & Fewsmith, Inc. Republic Steel Corp. (Truscon Steel Division) Agency—Meldrum & Fewsmith, Inc. Revere Copper & Brass, Inc. Agency—Meldrum & Fewsmith, Inc. Revere Copper & Brass, Inc. Agency—Meldrum & Fewsmith, Inc. Revere Copper & Brass, Inc. Agency—Meldrum & Fewsmith, Inc. Revere Copper & Brass, Inc. Agency—Meldrum & Fewsmith, Inc. Revere Copper & Brass, Inc. Agency—Meldrum & Fewsmith, Inc. Revere Copper & Brass, Inc. Agency—Meldrum & Fewsmit	270 258 26 75 12,53 68 48 238 10c,17 2,83 1nc,17 216 0,21 .275 .257 .257 .257 .257 .257 .257
Agency—Doe Anderson Advertising Agency New Monarch Machine & Stamping Co. Division (Bull Dog Floor Clip Co.) Agency—Charles A. Schmitt Norton Co. Agency—John. W. Odin Co., Inc. Norton Door Closer Company (Division of Yale & Towne Mfg. Co.) Agency—Ruthrauff & Ryan, Inc.  Otis Elevator Co. Agency—G. M. Basford Co. Owens-Corning Fiberglas Corp. Agency—McCann-Erickson, Inc. Ovens Illinois: Kimble Glass Company Subsidiary Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—J. Walter Thompson Co. Ozalid Division (General Aniline & Film Corp.) Agency—L. E. McGivena & Co.  Darkay, Inc.  Darkay, Inc.  Pagency—Geer Dubois & Co., Inc. Peterson Window Corporation, The Agency—The Allman Company, Inc. Pittsburgh Gorning Corp. Agency—Batten, Barton, Durstine & Osbern, Hitsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Agency—Batten, Barton, Durstine & Osbern, Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Corning Corp. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Plate Glass Co. Pittsburgh Plate Glass Co. Pittsburgh Steel Products Co. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osbern, Pittsburgh Steel Products Co. 196. Agency—Batten, Barton, Durstine & Osbern, Porete Manufacturing Co. Agency—Meddrum & Fewsmith, Inc. Republic Steel Corp. (Truscon Steel Division) Agency—Meddrum & Fewsmith, Inc. Rever Copper & Brass, Inc. Agency—Batchanan & Co. Republic Steel Corp. (Truscon Steel Division) Agency—Backanan & Co. Revere Copper & Brass, Inc. Agency—Backanan & Co. Revere Copper & Ress. Revere Copper & Ress. Revere Copper & Ress. Revere Copper & Brass, Inc. Agency—Backanan & Co. Revere Copper & Ress. Reve	270 258 26 75 12 2, 53 68 48 218 218 218 218 218 219 219 219 219 219 219 219 219 219 219

American Martin Administration descriptor
Agency—Neale Advertising Associates
Roberts Co., The
Rohm & Haas Co
Rohm & Haas Co
Agency—Rogers & Smith
Rowe Methods
Ruby-Philite Corporation
Russell, Burdsall & Ward Bolt & Nat Co 23  Agency—James Thomas Chirurg Co., Inc.
Agency-James Thomas Chirurg Co., Inc.
Sanymetal Products Co., Inc., The 84
Sargent & Co
Agency-Marschalk & Pratt
Agency—Lee Donnelley Co.   237
Scott Paper
Agency—J. Walter Thompson Co. Selec-Temp Division, Iron Fireman259, 263
Scott Paper
Agency—Harry Serwer, Inc.
Simpson Logging Co
Sloan Valve Co
Southern Sash Sales & Supply Co. (Ualeo Alumi-
num Windows)
Surface Continue. Inc
Agency-Allen, McRae & Bealer, Inc.
St. Paul & Tacoma Lumber Co
Agency-McCann-Erickson, Inc.
Surface Combustion Corp., Janitrol Heating &
Superior Electric Co., The
Sylvania Electric Products, Inc
rigency occur of reservey, and
Taylor Co., The Halsey W
Agency—The Advertising Agency of William
Cohen The Trans Co
The Trans Co
Agency-Weston-Barnett, Inc.
Agency-Wendell P. Colton Co.
Trinity Divison (General Portland Cement Co.) . 253
Agency—Harris & Bond, Inc. Truscon Steel Co. (Republic Steel Corp.) 31
Agency-Meldrum & Fewsmith, Inc.
Jalco Aluminum Windows (Southern Sash Sales
& Supply Co.)
U. S. Motors Corporation
Agency—Geer-Murray Co. U. S. Plywood Corp
U. S. Plywood Corp
U. S. Steel Corp. (American Bridge Co.) 58  Agency—Batten, Barton, Durstine & Osborn, Inc.
U. S. Steel Corp. (American Steel & Wire Divi-
Agency-Batten Barton, Dursting & Osborn, Inc.
U. S. Steel Corp. (National Tube Co.) 70, 71, 96, 97
U. S. Steel Corp. (National Tube Co.) 70, 71, 96, 97 Agency—Batten, Barton, Durstine & Osborn, Inc. Union Carbide & Carbon Corp. (Linde Air Prod-
Agency—Roeding & Arnold U. S. Steel Corp. (American Bridge Co.)
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc.
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc.
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) .176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) .176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) .176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) . 176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) .176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) .176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co
Agency—J. M. Mathes, Inc. Union Carbide & Carbon Corp. (Bakelite Corp.) .176 Agency—J. M. Mathes, Inc. Universal Atlas Cement Co

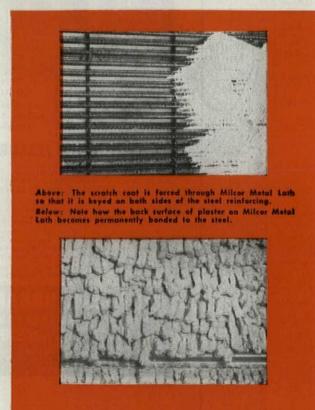


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CLEVELAND 14, 0HIO, 1541 E. 38th St.—DETROIT 2, MICH., 690 Amsterdam Ave.—
KANSAS CITY 41, MO., P. O. Box 918 — LOS ANGELES 58, CALIF., 4807 E. 49th St.
NEW YORK 17, N. Y., 230 Park Ave. — ST. LOUIS 10, MO., 4215 Clayton Ave.
\*Reg. U. S. Pat. Off.

## 102-unit motel features Eljer plumbing fixtures in color



# A SUBSIDIARY OF THE MURRAY CORPORATION OF AMERICA

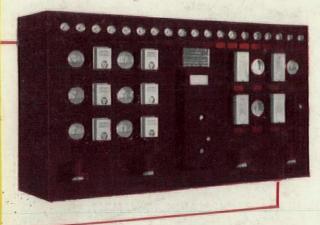
A motel requires bathroom fixtures that can take the beating of constant careless treatment, and frequent thorough cleaning . . . clean up *fast*, and look fresh and attractive, guest after guest, year after year.

Leading hotels and motels the country over—like the 102-unit Framingham Motor Inn in Framingham, Massachusetts—have found that Eljer quality and good looks pay off. Sleek, durable finishes, smart designs and colors, rugged brass fittings made and individually tested in Eljer's own plant assure satisfaction to the proprietor and his guests!

Eljer fixtures are made in cast iron, formed steel and vitreous china in a wide range of styles. For complete information see your Eljer distributor, or write to Eljer Co., Ford City, Pa.

Winnespoils School of Act

## Every room weather-perfect!



- its another air conditioned hospital with

JOHNSON CONTROL

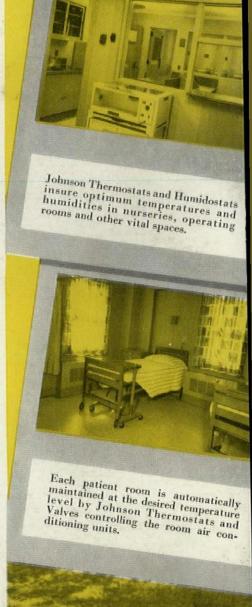
In the modern 300-bed Moses H. Cone Memorial Hospital, correct temperatures and humidities for every need are effortlessly and accurately provided by an up-to-the-minute system of Johnson Automatic Temperature and Humidity Control.

Four Johnson controlled year 'round air conditioning systems serve the vital areas, dining rooms and canteens. Strategically located Johnson *Individual Room* Thermostats and Room Humidostats respond instantly and continuously to the most exacting demands in the operating rooms, delivery rooms, nurseries and other vital areas.

In patients' rooms, Johnson Heating-Cooling Thermostats regulate Water Valves on the supply of hot and cold water in Carrier Weathermaster room air conditioning units, maintaining each room at precisely the prescribed temperature. In addition to this *indi-* vidual room control, behind the scenes Johnson Master-Submaster Control regulates the temperature and humidity of the large primary air system which supplies the individual room units.

Johnson Control, throughout the entire hospital, produces maximum comfort and faster recovery for patients, permits hospital personnel to concentrate on technical duties and insures the greatest return from every dollar spent for heating and cooling.

In hospitals—and in all other types and sizes of buildings—the one best solution to your temperature regulation problems is "Planned-for-the-Purpose" Johnson Control. An engineer from a nearby Johnson branch will gladly give you his recommendations without obligation. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.





The Moses H. Cone Memorial Hospital, Greensboro, N. C. Samuel Hannaford and Sons, architects, Cincinnati; Loewenstein-Atkinson Associates, supervising

architects, Greensboro; Watson and Hart, mechanical engineers, Greensbo W. H. Singleton Co., Inc., heating and air conditioning contractors, Arlington,