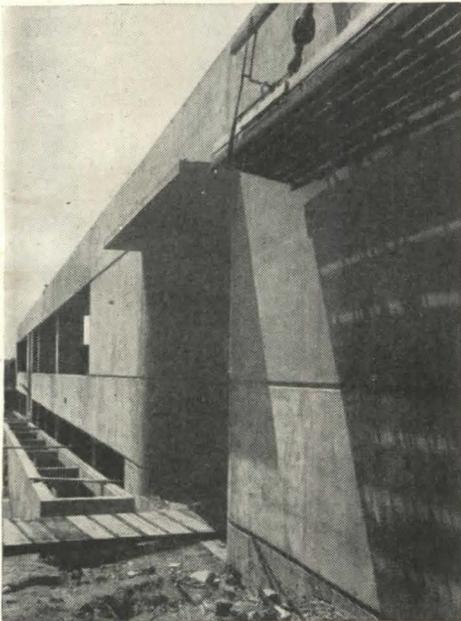


FIREMEN KNOW WHAT IS
FIRE-SAFE



**'INCOR' SPEEDS CONCRETING
OF HUGE, NEW REPAIR SHOP
FOR NEW YORK CITY'S
FIRE DEPARTMENT**



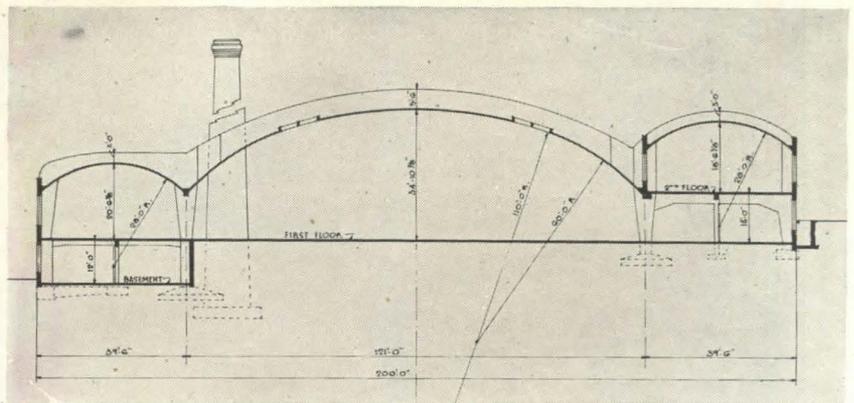
NEW YORK CITY'S FIRE DEPARTMENT repairs its own equipment—21,000 repair jobs a year. Replacing old cramped quarters is this new, all-concrete Repair Shop, covering two city blocks in Long Island City. After analyzing various types of construction, final decision was architectural concrete for utmost fire-safety and barrel-arch construction for maximum unobstructed floor space. The repair unit, with elbow room for handling 90 vehicles at a time, is located under the central arch with its 120-ft. clear span. Side and end sections house related facilities.

'INCOR' 24-HOUR CEMENT was used in barrel-arch structures; elsewhere, LONE STAR CEMENT was used. 'INCOR'* saved time waiting for concrete to harden; even in cool weather, safe stripping strengths were obtained within 48 hours. Here is the initial and long-time economy of architectural concrete . . . good functional design at its fire-safe best.

*Reg. U. S. Pat. Off.

New York City Fire Dept. Repair Shop, Long Island City. City of New York, Department of Public Works; Architects: A. G. Lorimer, former Chief; A. J. Daidone, present Acting Chief, Bureau of Architecture. Engineers, Roberts & Schaefer Co., Chicago. Ready-Mix Concrete, Central Concrete, Inc., Brooklyn, N. Y.

General Contractor:
Corbetta Construction Co., New York



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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 25,300,000 BARRELS ANNUAL CAPACITY

Now... a home completely

**Greater construction efficiency
and year-round comfort made
possible by Servel All-Year
Gas Air Conditioning**

When Howard M. Sloan commissioned architect David S. Barrow to design his new home, he was particularly anxious to maintain an ideal indoor climate the year round.

After careful investigation of every available type of residential air conditioning, Mr. Sloan and Mr. Barrow finally chose the Servel *All-Year* Gas Air Conditioner. This equipment alone, they discovered, would permit them to build a completely



sealed!

sealed home. One compact unit, it not only provides an ideal indoor climate in summer, but winter heating and humidification as well. And draft-free circulation of cleaned air the year round, too.

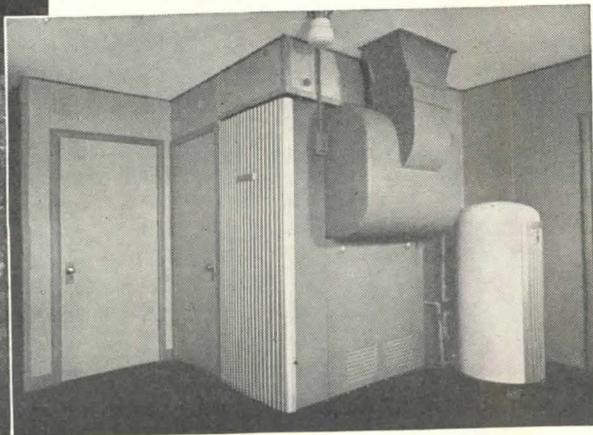
Achieving year-round freedom from oppressive weather did not add to the cost of the house. For, Mr. Sloan states, "The use of fixed windows and the elimination of window screens, window hardware, weather stripping, a screened porch, and

other economies in design and construction made possible by the Servel *All-Year* Gas Air Conditioner actually made it cost little, if any, more than an ordinary heating system!"

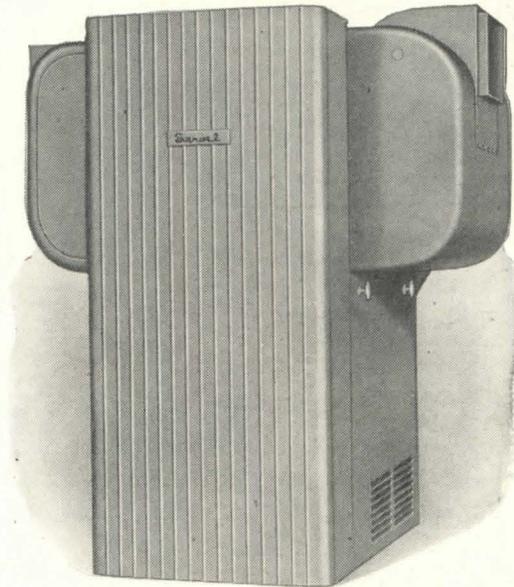
The Sloan house is one of the first specifically designed and built to take *full* advantage of the "new quality of living" made possible by Servel *All-Year* Gas Air Conditioning. Whether or not you plan to build a sealed house, it points the way to greater livability which you can design into any home—without appreciably increasing the cost. For full information about Servel *All-Year* Gas Air Conditioning get in touch with your local Gas Company, or write to Servel, Inc., 8704 Morton Ave., Evansville 20, Indiana.



LIVING ROOM of Sloan's new home in Glenview, Ill., features indoor-outdoor living with three panes of glass, each seven feet high by nine feet wide, opening on rear terrace.



IN ADDITION to Servel *All-Year* Gas Air Conditioning and Servel Gas Water Heater, shown above, the Sloan house contains Servel-designed New Freedom Gas Kitchen and Servel Gas Refrigerator.



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*From Boston to San Diego
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Servel
All-Year
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Keeping this hospital piping healthy—
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The installation pictured is 100% Byers Wrought Iron pipe. The material was used in all radiant heating piping, as well as in hot and cold water lines, and in the wastes and vents from kitchen and from sterilizers.

This widespread application of wrought iron continues a practice that careful designers have fol-

lowed for years. Hospital income provides no cushion to take care of excessive repairs, so that the use of materials of proven durability is not only desirable, but essential. Records of installations in all sections of the country provide plenty of evidence that wrought iron can be expected to serve longer and cost less per year.

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Our bulletin, "Wrought Iron for Piping Systems," illustrates and describes a number of typical installations, and gives helpful information. Ask for a complimentary copy.

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ARCHITECTURAL RECORD



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Architectural Record (combined with American Architect and Architecture) is published monthly by F. W. Dodge Corporation, 10 Ferry St., Concord, N. H., with Editorial and Executive Offices at 119 West 40th Street, New York 18, N. Y. Thomas S. Holden, Pres.; Howard J. Barringer, Vice-Pres. and Treas.; Irving W. Hadsell, Vice-Pres.; Chauncey L. Williams, Vice-Pres.; Sanford D. Stockton, Jr., Secy.; Walter F. De Saix, Asst. Treas.; Edwin H. Freed, Asst. Treas. Member Audit Bureau of Circulations and Associated Business Papers, Inc. Architectural Record is indexed in Reader's Guide, Art Index and Industrial Arts Index. Subscription rates: United States and Possessions, Canada, Cuba, Mexico, Central and South America, and Spain, \$4.50 the year, \$7.50 for two years, \$9 for three years; elsewhere, \$6.50 the year, \$11.50 for two years, \$15 for three years. Single copy, \$1. Circulation Manager: Marshall T. Ginn. Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage. Other Dodge Services: Real Estate Record & Builders' Guide, Sweet's Files, Home Owners' Catalogs, Dodge Reports & Dodge Statistical Research Service.

THROUGH WORDS TO WORKS	71
An Editorial . . . by Kenneth K. Stowell	
PLANNING FOR PEACE	72
Plans for United Nations Headquarters Proceed on Wartime Speed Schedules	
SIX RANCH HOUSES FOR MODERN LIVING	82
Cliff May, Architect	
LIGHT TELLS A MAGIC CARPET STORY	88
Bigelow-Sanford Showroom, Merchandise Mart, Chicago. Donald Deskey Associates, Designers	
TRANSPORTATION COORDINATED	94
Municipal Ferry Terminal, St. George, Staten Island, N. Y. Madigan-Hyland, Engineers	
ON PLANNING MAN'S PHYSICAL ENVIRONMENT	98
At Princeton University's Bicentennial Conference	
BUILDING TYPES STUDY NO. 124 . . . AIRPORT BASIC RESEARCH .	101
AIRPORT PROGRAMMING ANALYZED	103
By J. B. Bayard, Jr., Director of Airport Planning for Horner and Shifrin, and Smith, Hinchman and Grylls, Inc.	
PLANE MAINTENANCE PLANT ANALYZED	111
Discussed by Carl M. Kneisel, Division Airways Superintendent, Pan-American Airways, Inc.; Max Abramovitz, Architect; and Fred N. Severud, Consulting Engineer	
HANGARS ANALYZED	115
By Fred N. Severud, Consulting Engineer	
COMPACT PARKING FOR PERSONAL PLANES	124
Julian Whittlesey, of Mayer and Whittlesey, Planning Consultants and Architects	
ARCHITECTURAL ENGINEERING . . . Technical News and Research . . .	125
A MULTI-STORY GARAGE FOR PUBLIC PARKING	125
By Basil Yurchenco	
STEEL AND CONCRETE IN BRITISH PREFABS	129
ANALYZING THE SMALL INCINERATOR	130
TIME-SAVER STANDARDS . . . Apartment Incinerators	133
PRODUCTS . . . for Better Building	136
MANUFACTURERS' LITERATURE	138
THE RECORD REPORTS . . . News from the Field	7
CONSTRUCTION COST INDEXES	26
REQUIRED READING	28
EMPLOYMENT OPPORTUNITIES	214
INDEX TO ADVERTISEMENTS	230

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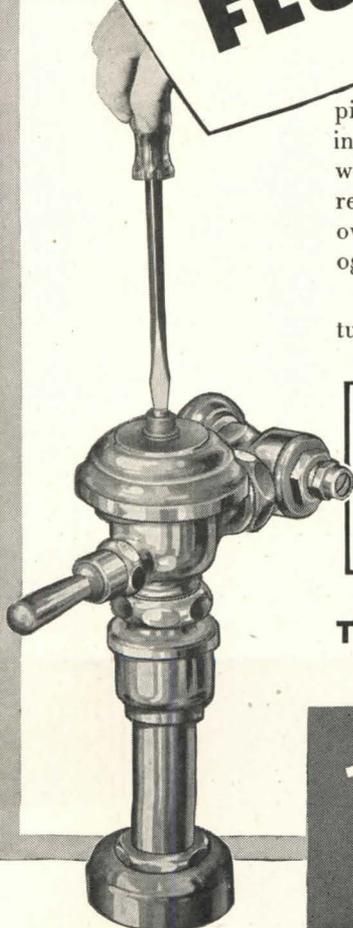
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THE RECORD REPORTS

Means of Reducing Building Costs Sought • Housing Legislation Is Slow to Appear • Home Builders Hold Lively Session • New Building Code Group Convenes

The key question among building contractors no longer is one of learning to live with or escape from government controls but of putting together rising costs, growing selectivity by customers, and an adequate profit margin, and making them all match.

Taking the cost side, the Bureau of Labor Statistics found that average wholesale prices of building materials jumped 8 per cent in November — the largest monthly rise in 26 years — going 62 per cent above the prewar level. Although union wage scales have been steady, reports to the agencies indicate that contractors everywhere must be ready to pay above scale. Finally, although materials are in better supply, there are still shortages, which force suspensions of work. And time, of course, is money.

Whether the cost-price situation will settle is the key question in Washington as elsewhere; it is the problem raised in practically every industry. And the Washington experts have nothing to promise. The only way of getting costs down, they think, is the hard one — cutting corners, standardizing techniques, shopping the materials markets for bargains, etc. As for a general decline, that could well prove too much of a good thing.

Against the upward trend in costs are several factors which may work in the opposite direction. Builders themselves say they are trying hard. The National Association of Home Builders, following its recent convention (see page 16), is launching a series of conferences, under a plan by the new president, Edward R. Carr, with labor and materials men. The association hopes for an increase in apprentices and for higher production per worker.

Ban Secondary Boycotts?

The various veterans' organizations are asking the Justice Department to look into practices of construction workers and the House Labor Committee is probing specific charges. Indeed, prospective changes in labor law may do something, if not a great deal, to reduce costs. Among the few things about which there seemed to be little disagreement was that the law must prohibit secondary boycotts. These, according to the testimony before Congress, afflict the building industry particularly.

Secondary boycotts had some but not

many defenders. Testimony against them, coming entirely from management representatives, charged that producer-union collusion closed major markets to key building appliances. For instance, the New York as well as other top markets, is supposed to be closed to part of the electrical appliance industry. Like charges were raised with respect to other materials or components. If the allegations are true, new law presumably will allow contractors and architects to look beyond the immediate neighborhood for many components.

Rental Projects Pushed

With supply and demand situations rather out of line with respect to one-family residences, the government has been promising to push apartment construction. In March, NHA asked Congress to extend mortgage insurance authority to finance additional rental housing. The builders themselves express hope. However, the cost factor versus rental returns has operated here even more than in home building. Controls over rent may be relaxed or eliminated altogether; the apartment builder must look, however, not to immediate but to long-term returns to amortize and yield some profit on his investment. The

demand for more apartment construction is, of course, not exclusively a matter of high costs for single family houses; it also is based on normal desires of new families and of families whose incomes do not warrant ownership.

Controls Move Out

As final vestiges of federal controls were being swept out the door, it was taken for granted that, while production and construction generally might spurt, there would be temporary dislocations and some maldistribution. There were questions, for instance, about pig iron and the need for it to relieve the boxcar shortage. Shifts to railroad needs would affect the auto industry and could cause further trouble for such housing items as soil pipe, electrical fixtures and structural steel. On the other hand, removal of controls would not disturb the flow of lumber, brick, nails, flooring, trim or glass.

Congress was among those pressing for a house cleaning on government controls; in fact, one of the appropriation committees officially called for an end to OTC, OPA, CPA and OWMR by June 30 — and remember that agencies cannot function without funds from these focal committees.

Legislation Is Slow

As to housing legislation itself, rents excepted, the lawmakers were moving slowly. There was doubt as to how much could be done during the current session. Nevertheless, Chairman Wolcott of the House Banking Committee, which handles housing, moved ahead with plans to repeal most of the Veterans

(Continued on page 10)

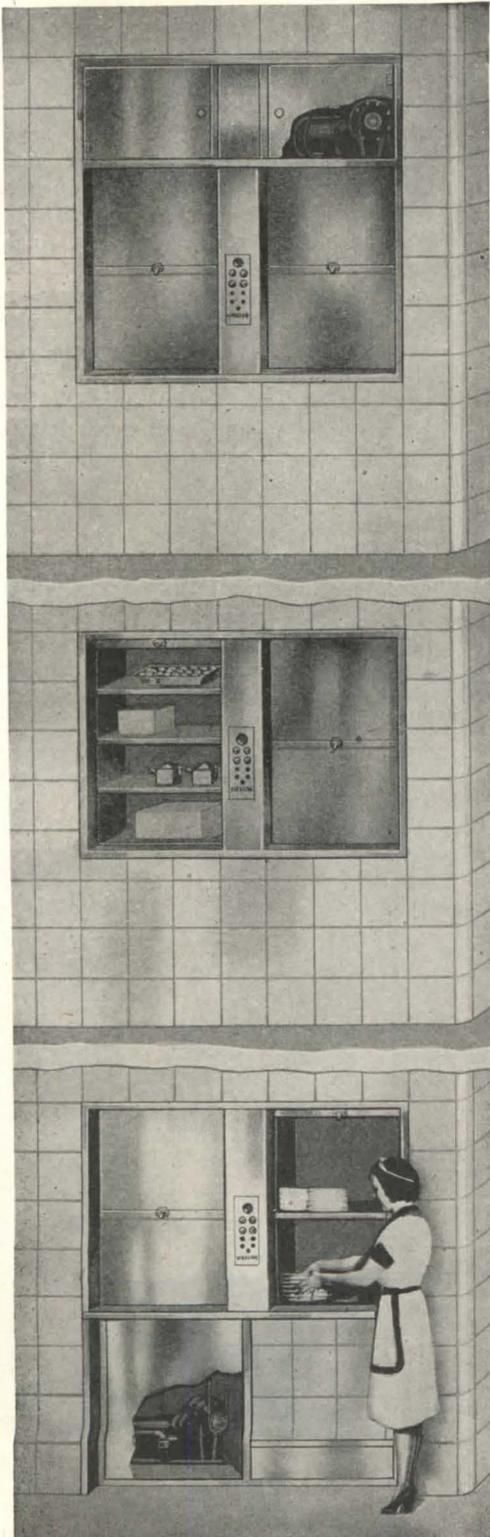


"The delegate from Ethiopia doesn't see the point in leaving out the 13th floor."

— Drawn for the RECORD by Alan Dunn

KIESLING

ELECTRIC DUMBWAITERS AND DOORS

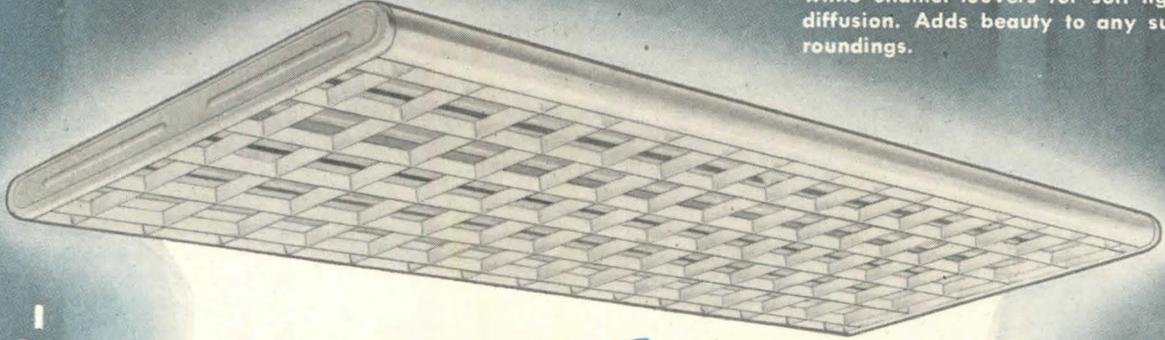


The KIESLING principle of strength and reliability is incorporated in the design and construction of their Electric Dumbwaiters and Doors for Hospitals, Hotels, Restaurants, Chain Stores, Etc.

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Architects and Engineers are invited to write for complete descriptions and details of KIESLING DUMBWAITERS and DOORS, the result of fifty-five years of service and development.

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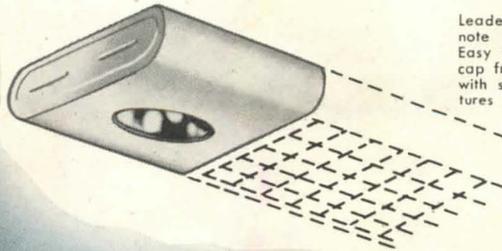
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Banks, offices, department stores and exclusive shops, airport and railway stations—every type of commercial institution where beauty and better light are important—unanimously choose Leader's modern Officer unit. It's America's most versatile fixture—use it as a single unit or in continuous runs—mount it with stem and canopy or flush with ceilings. For every commercial need, choose the “Officer.”

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Emergency Housing Authority. He raised a question as to maximum prices on new construction and as to ceilings on new rental structures. The Senate committee moved to up present rents and to take ceilings off new units.

Significantly, Rep. Wolcott expressed alarm over federal financing of home construction from the standpoint of encouraging veterans to buy homes beyond their means, resulting in early liquidation and increasing government liability. At the same time, incidentally, John H. Fahey of the Federal Home Loan Bank agency was pointing out that the interest rate on long-term

amortized mortgages was too low to be safe and should not be allowed to drop below 5 per cent.

Congress got word of increased building costs not only from the industry but also from the President as a result of the government's activity in the housing field under the Lanham Act. He asked for an additional \$50 million for the temporary re-use program for schools and cities. Note his words: "Rising costs of labor and building materials, as well as rising costs caused by the increased time required for completion due to shortages, have made it necessary for the government several times during

the past year to cut back the temporary re-use program." He wanted the additional funds to pay extra costs in carrying out the original program.

Plan "Engineered House"

Interest in Washington is growing in the so-called "industry engineered house," sponsored by The Producers' Council and the National Retail Lumber Dealers Association more to demonstrate economies which can be made in home building than to develop new house plans or promote any particular type or design of home. Principal savings in design and engineering arise, it is explained, from the fact that the dimensions of the houses are coordinated with dimensions of standard materials. Stock sizes of such items as lumber, wallboard, brick and tile, cement blocks and other products fit into the house with a minimum of cutting and fitting, if cutting and fitting is required at all.

Included in contentions for the program are economies in manufacture, greater degree of mass production, and savings in inventories, both at the point of manufacture and in dealers' stocks. Greatest savings are to be made, Washington officials are being told, at the construction site.

Experiments Continue

The federal government continues its encouragement to experiments in new materials, improved designs and construction methods. It recently came out with a survey of lightweight aggregates for concrete, an assembly of information from the industry itself. NHA is sponsoring a special research and testing program on monolithic concrete using lightweight aggregate materials and is working with both the National Bureau of Standards and the Bureau of Reclamation. Preliminary tests to determine density, strength and insulation properties will be followed by structural tests — all aimed at developing engineering data.

(Continued on page 12)



Louis Checkman Photo

Model of the Museum of Modern Art, New York, showing proposed new wing at right

BUILDING NOTES

New Museum Wing

The Museum of Modern Art, New York City, has announced plans for a new wing which will practically double present exhibition and gallery facilities.

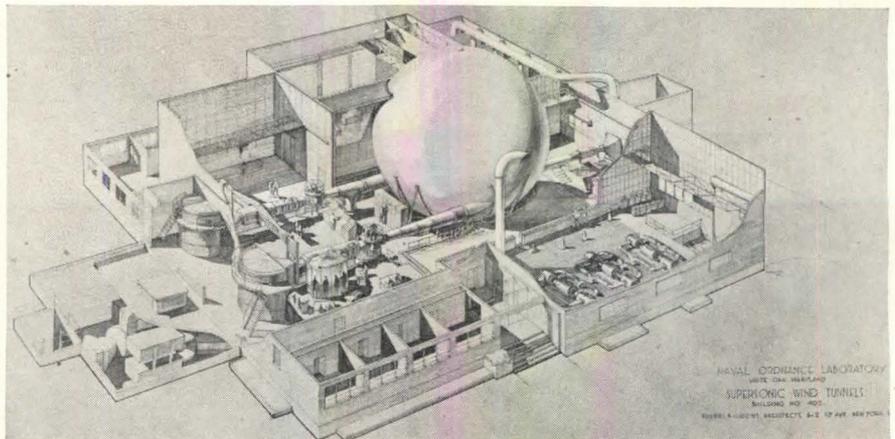
The proposed addition, designed by Philip L. Goodwin, co-designer with Edward D. Stone of the present museum building, will be three stories in height, and in the same architectural style as the existing building. The first floor will contain 3847 sq. ft., or slightly more than on the main floor of the original structure. New exhibition techniques will be used to make the fullest possible use of wall space.

Ordnance Laboratory

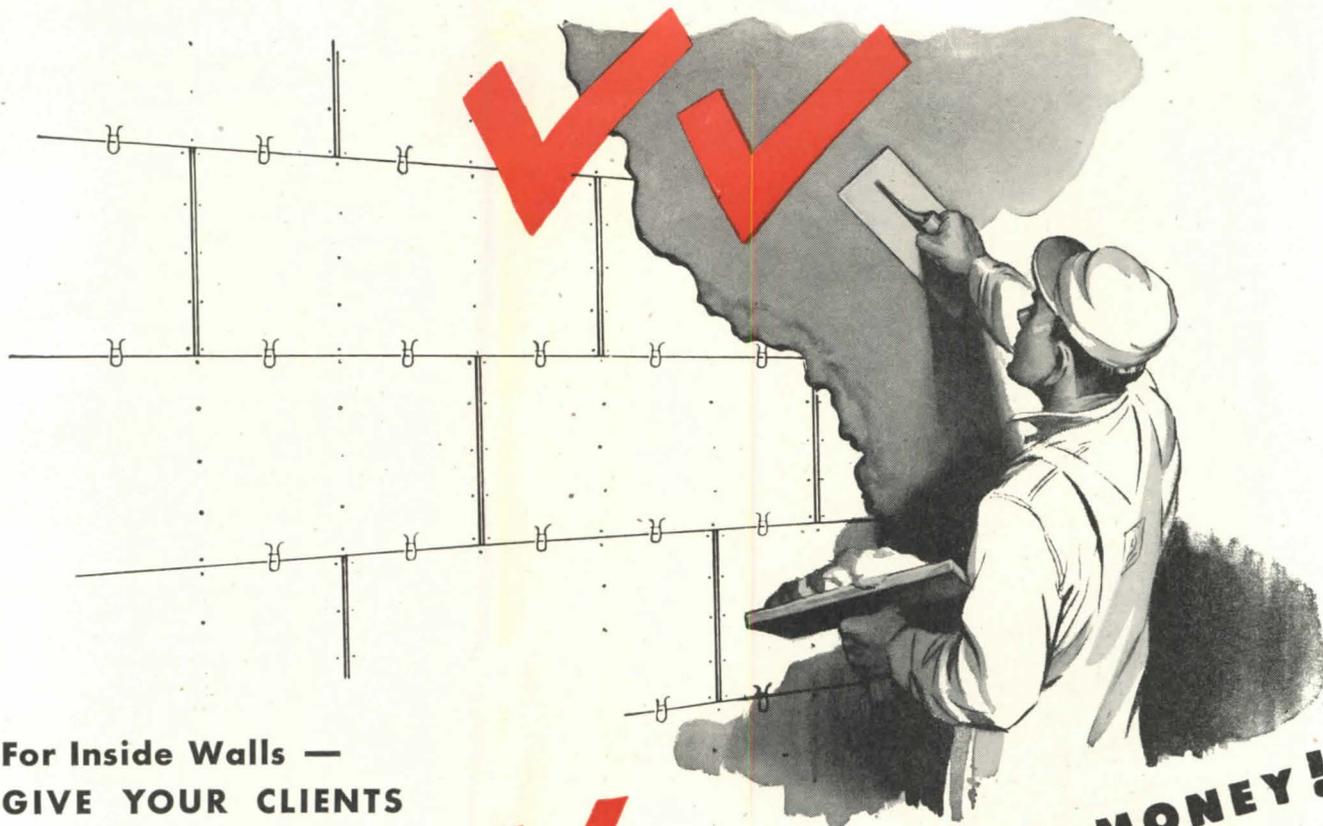
A German-built supersonic wind tunnel, captured by American forces at Kochel, Bavaria, disassembled and shipped to this country, will be one of the principal tools of research at the Naval Ordnance Laboratory now under construction at White Oak, Md. The wind tunnel is being reconstructed in a building especially planned for the

development of projectiles, rockets, and guided missiles.

The wind tunnel structure is but one of some 50 buildings incorporated in the Naval Ordnance Laboratory project occupying a site of about 938 acres and involving an expenditure of \$15 million. Eggers & Higgins, of New York, in association with Taylor and Fisher, Baltimore, are the architects.



A supersonic wind tunnel will be a main feature of the Navy's new Ordnance Laboratory



For Inside Walls —
GIVE YOUR CLIENTS

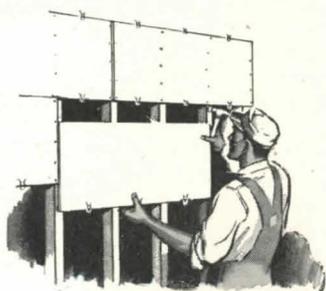
Double FOR THEIR MONEY!

Insulite Lok-Joint Lath does double-duty for inside walls:

(1st) Serves as a *plaster base*, (2nd) *Insulates*.

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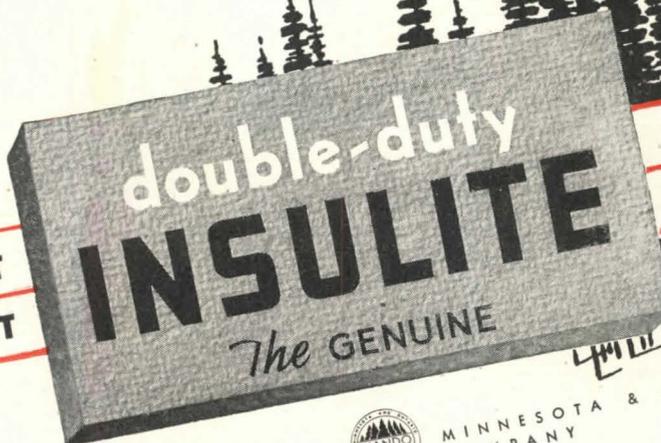
Quickly and easily nailed in place. Greater bracing strength. A strong, rigid plaster base . . . PLUS insulation and vapor control. Specify double-duty Insulite Lok-Joint Lath.



ONE MATERIAL
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Refer to Sweet's File,
Architectural Section 10 a/9

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THE RECORD REPORTS

(Continued from page 10)

More Prefab Contracts

Guaranteed market contracts continue for prefabricated housing. New contracts announced in February, for instance, called for more than 30,000 factory-made homes. Officials expect the prefab total this year to reach 100,000. A big demand is said to exist for prefabricated farm buildings.

Factory shipments of permanent-type prefabricated homes last year totaled 37,200 units, 79 per cent of them wood. NHA qualified 288 plants, but the bulk of the houses was made by 50 firms. Now the industry is in a period of transition with the number of plants due to dwindle through consolidations and failures. Too, old established companies using plywood, wallboard and lumber materials are waiting for newcomers to prove the adaptability of steel, aluminum and vitreous enamel.

CPA Looks Ahead

In what is, perhaps, its last look ahead for the economic scene, the Civilian Production Administration recently placed strong emphasis on the role of construction in the nation's production outlook for the year. It foresaw a 50 per cent dollar increase and an increase of about one third in physical volume. As to building materials, it counted on production to support the anticipated boost in construction. In almost every case, it judged, output will match or exceed that of 1941, when the physical volume of building exceeded the estimates for this year. It warned, however, that allowance must be made for larger residential requirements, as well as for the backlog of demand and virtually empty pipelines.

FTC Tackles Freight

The Federal Trade Commission, notwithstanding the licking it took in the Chicago District Court at the hands of the cement makers, is going right ahead trying to force suppliers to ship F.O.B. their own plant. The idea is to get rid of alleged discriminations.

The Commission has won decisions which firmly outlaw charging the customer more for freight than the actual freight bill. But it has never been satisfied. It wants the total bill to include freight costs to some customers. The District Court denied that the first had been proved and that the second is necessarily discriminatory; it might, instead, be the mere result of trying to meet competition.

While the cement issue was being ap-
(Continued on page 14)



Planning an airport?

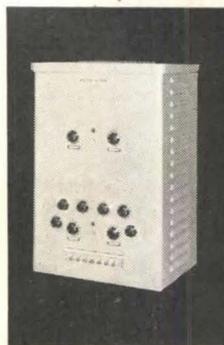
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WIRING DEVICES by
GENERAL  ELECTRIC
 say "G.E." and he'll agree

Wiring Briefs from your G-E Distributors

Are you familiar with the great variety of products in General Electric's full line of wiring devices? Do you know the interesting features that help to make them easy to use and safe to specify? Keep an eye on this column, and you may discover a lot of useful facts and information. We'll keep dishing them out for you.

Now, the entire Watch Dog* line of starters meets a new, high-temperature rating. Maximum recommended operating temperature has been increased from 140 F to 160 F. This is important in installations that are enclosed, or that are subject to high ambient temperatures.



Whether you already include fluorescent lighting in your plans, or just want more information for your files, you need this new folder on "G-E Fluorescent Accessories." It shows you—and your clients—what products G.E. is making, and how they can be used to advantage. Tells about Watch Dog* and standard starters; Slimline, Circline, and Twin Turret lampholders; and fluorescent starters and switches. Ask us for a supply today.



A certain well-known soap has nothing on those boys in G.E.'s "fuse factory." Do you know that the zinc used in General Electric fuse links has to be 99.98 per cent pure by laboratory test? Good point to remember when you specify fuses for that next job.

If you want additional information on these or other G-E Wiring Devices, ask us—your G.E. Merchandise Distributor—or write to Section D52-45, Appliance and Merchandise Dept., General Electric Co., Bridgeport 2, Conn.

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



SAVE TIME WITH CHISEL POINT LEADS

Longer Lines...Less Sharpening

An exclusive Eberhard Faber development... *rectangular shaped leads* that produce longer lines than the conventional round shape leads and lines of unvarying width... lines of HI-DENSITY quality —opaque, dense, better for blueprints. And you save up to 20% more time between sharpenings. As for quality, you get a genuine MICROTOMIC VAN DYKE lead; the only difference is it's "pre-shaped"—it's "CHISEL SHAPED"—for your convenience in sharpening and in use.

"VAN DYKE" EBERHARD FABER. U.S.A. — 2H CHISEL POINT
"HI-DENSITY" MICROTOMIC GRAPHITE

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Check the Degree you'd like to try and mail this coupon to:

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| <input type="checkbox"/> No. 2H | <input type="checkbox"/> No. 4H | <input type="checkbox"/> No. 6H |

"Chisel Points" are made in only these six degrees.

Name

Firm

Address

City State

Dealer's Name

Exclusive
with the
EBERHARD
FABER
MICROTOMIC

VAN DYKE

THE RECORD REPORTS

(Continued from page 12)

pealed to the Supreme Court, the FTC went ahead bringing somewhat similar charges against the sewer pipe makers. They, too, were charged with conspiring. Their pricing system, which involves a series of pricing zones, according to FTC, was said to discriminate.

Ultimate ideal of FTC is to prevent anything but the flat billing of freight so that those nearest the source of supply do best. Whether it can achieve it under present law is still unclear; hence, there is some talk of trying to get help from Congress. Commission officials think that final victory, whether by legislation or the courts, would lead to the relocation of plants.

From Here and There

From various government sources come points of interest. The Federal Works Agency reports that in the preparation of state and local project plans, advances approved by the Bureau of Community Facilities through last December cover an estimated construction cost of \$1,529,211,000. The total volume that can be planned with the \$65 million thus far appropriated is estimated at about \$2.1 billion. Plan preparations completed without federal aid reached \$1.3 billion, concentrated in a few states and large cities.

The Department of Commerce reports that winter building techniques in the small-house field have not kept pace with those used in large construction. The housing field, it says, is wide open for a new class of subcontractor — the winterizing or winter-proofing subcontractor — who would provide some sort of enclosing arrangement including heat and light for small house construction.

The Federal Home Loan Bank Administration advises that non-farm real estate financing continued to a new high in 1946 when about \$10.4 billion of mortgages were recorded, 85 per cent greater than 1945 and 120 per cent above 1941.

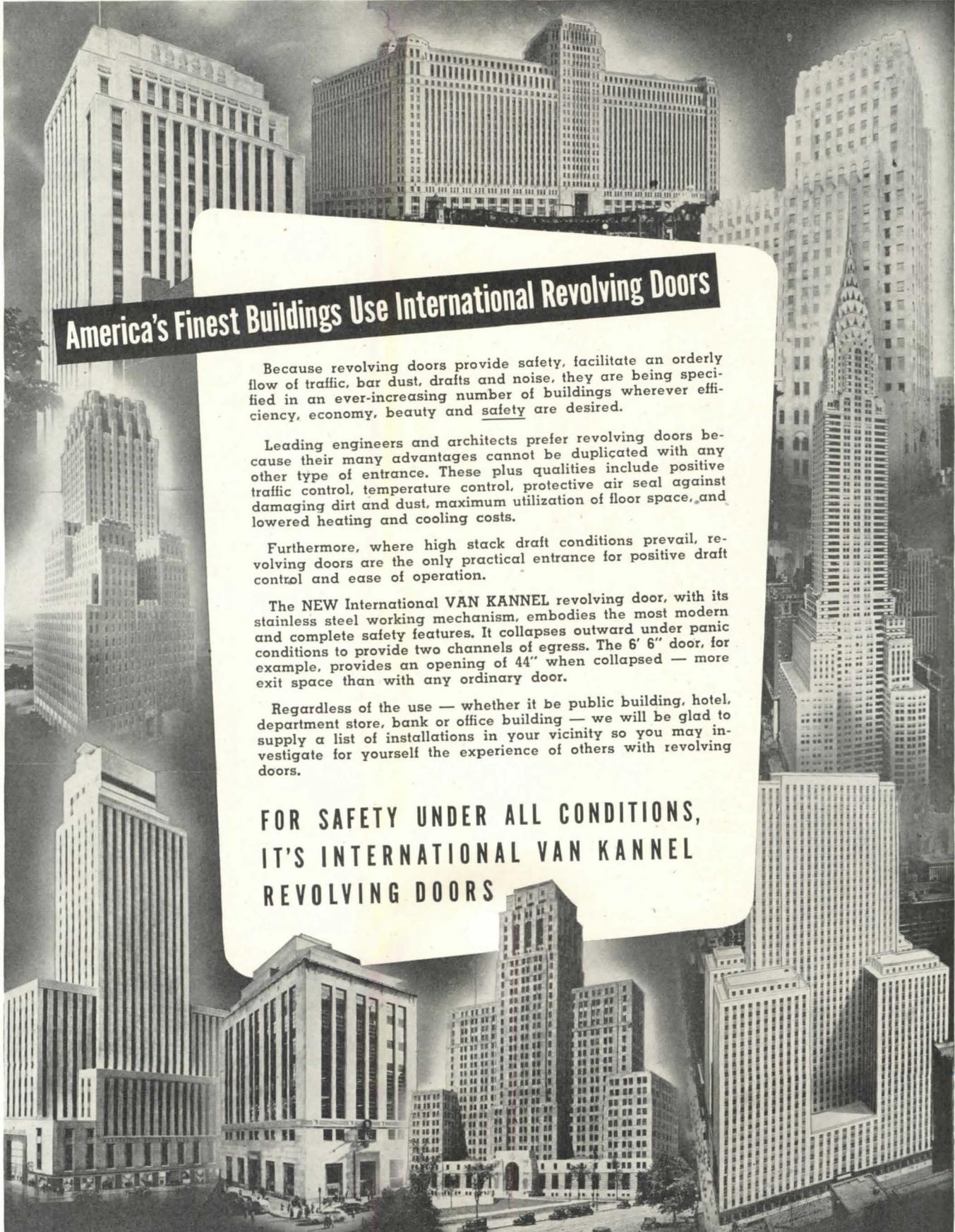
The Bureau of Labor Statistics states that 25 per cent fewer man-hours were needed in 1946 than in 1935 to manufacture 1000 sq. ft. of Douglas fir plywood at the mill.

Production May Be Sufficient

Production of almost all items of construction materials is expected to be sufficient in 1947 to meet the demands of the anticipated large building program, the Construction Division of the Department of Commerce reports.

Large increases in production of practically all construction materials were registered in 1946, in many cases exceeding shipments or production in 1941.

(Continued on page 16)



America's Finest Buildings Use International Revolving Doors

Because revolving doors provide safety, facilitate an orderly flow of traffic, bar dust, drafts and noise, they are being specified in an ever-increasing number of buildings wherever efficiency, economy, beauty and safety are desired.

Leading engineers and architects prefer revolving doors because their many advantages cannot be duplicated with any other type of entrance. These plus qualities include positive traffic control, temperature control, protective air seal against damaging dirt and dust, maximum utilization of floor space, and lowered heating and cooling costs.

Furthermore, where high stack draft conditions prevail, revolving doors are the only practical entrance for positive draft control and ease of operation.

The NEW International VAN KANNEL revolving door, with its stainless steel working mechanism, embodies the most modern and complete safety features. It collapses outward under panic conditions to provide two channels of egress. The 6' 6" door, for example, provides an opening of 44" when collapsed — more exit space than with any ordinary door.

Regardless of the use — whether it be public building, hotel, department store, bank or office building — we will be glad to supply a list of installations in your vicinity so you may investigate for yourself the experience of others with revolving doors.

**FOR SAFETY UNDER ALL CONDITIONS,
IT'S INTERNATIONAL VAN KANNEL
REVOLVING DOORS**

REVOLVING DOOR DIVISION INTERNATIONAL STEEL CO. 1530 EDGAR STREET
EVANSVILLE 8, IND.
VAN KANNEL, INTERNATIONAL AND ATCHISON REVOLVING DOORS

THE RECORD REPORTS

(Continued from page 14)

Prospects for this year are that output will continue to increase, according to the Construction Division's survey.

Asphalt roofing materials and gypsum board (including lath), were among the materials that attained record levels in 1946. Lumber and a few other materials came very close to the previous peak levels achieved in 1941 and 1942.

Some of the difficulties encountered by builders last year will again appear in 1947, says CD, because the supply-demand situation will be too closely matched for comfort. For construction materials to be in easy supply, production must exceed demand by a margin of at least one or two months production — that is, 10 to 15 per cent above the annual total — or else this margin must be provided by inventories at various distribution levels. At present there is no sizeable inventory cushion.

Despite the generally favorable outlook for 1947, the report concludes, there still is a chance of absolute shortages of a few materials such as cast iron soil pipe and inexpensive wiring devices and electrical products made of steel.



EMBATTLED BUILDERS MEET IN CHICAGO

Under the aegis of the National Association of Home Builders, some 6000 builders met, talked, listened, applauded, argued, and elected, at the Stevens Hotel during the last days of February. Between (and during) conference sessions they inspected the extensive, well-staged exhibition of new building materials and equipment, visited the full-sized Celotex Cemesto house next door, or analyzed the Ingersoll Utility Units at the Congress Hotel.

Prime topic of discussion was the elimination of government controls, emphasized throughout many sessions, and culminating in the address of Representative Jesse P. Wolcott, Chairman of the House Banking Committee at the final banquet, Wednesday, February 26. Builders heard him state that he will introduce legislation designed to repeal the Veterans' Emergency Housing Act of 1946 (Patman Act), with the exception of Title VI FHA guarantees, and retaining some kind of veterans' preference as renters or buyers. He suggested rent controls on existing properties be continued until March 1948 where such controls seemed necessary.

Bob Gerholz, on the opening day, stated "our fight to decontrol must continue to be the order of the day." With

(Continued on page 18)

SILV-A-KING
Lighting Equipment

A complete line of quality lighting units from a single source.

**COMMERCIAL
INDUSTRIAL
FLUORESCENT
INCANDESCENT**

SILV-A-KING lighting equipment has been incorporated in major installations, throughout the country, for over a quarter-century... a tribute to craftsmanship... to modern manufacturing methods... to a continuing program of research into every phase of illumination.

SILV-A-KING Lighting Equipment is sold exclusively through recognized electrical wholesalers.

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LIGHTING EQUIPMENT
SINCE 1921

**BRIGHT LIGHT
REFLECTOR CO. INC.**
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SERVING THROUGH SCIENCE



Laytex (Type RU) branch circuit wire is *different*—and *better*.

It is smaller in diameter than any other rubber insulated building wire. It's lighter in weight—easier to handle.

Furthermore—it is insulated with 90 per cent unmilled, grainless natural rubber, and has perfectly centered conductors.

And last—but not least—it leads the field in physical and electrical properties.

All wiring with RU?

Small diameter • Light weight • Natural rubber insulation
Perfectly centered conductors • High tensile strength • High dielectric strength • Flame retardant, moisture resistant cover

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U.S. LAYTEX

U.S. Laytex

Reg. U. S. Trade Mark

ELECTRICAL WIRES AND CABLES



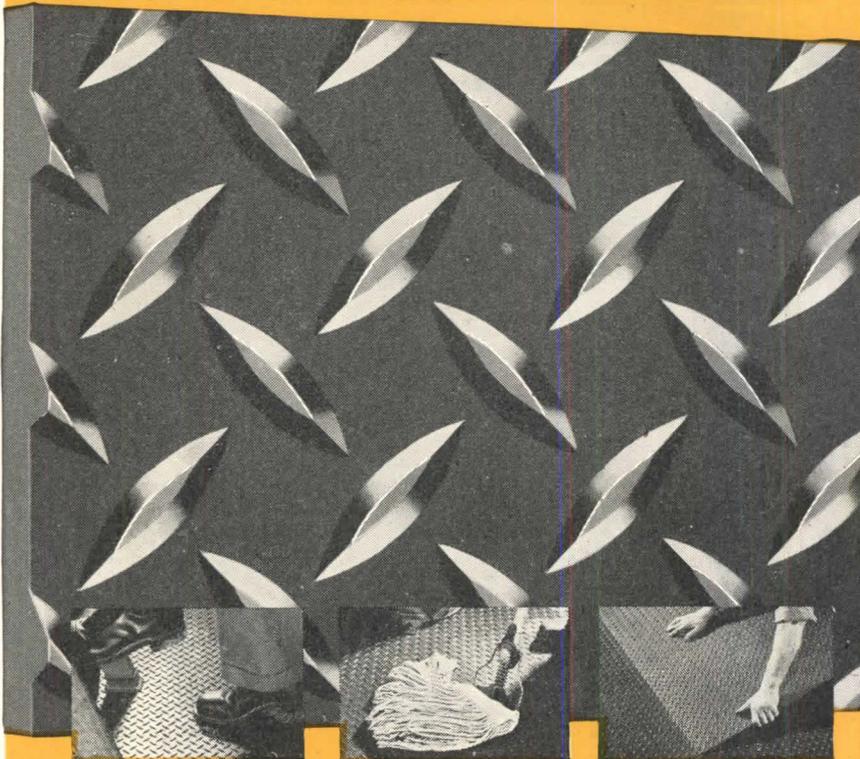
EXCLUSIVE

**THERE'S ONLY ONE
STATUE OF LIBERTY...AND**

ONLY ONE



AW SUPER-DIAMOND FLOOR PLATE



GRIP WITHOUT A SLIP!

EASY TO CLEAN!

EASY TO MATCH!

There are many floor plate patterns but only One AW Super-Diamond Pattern. It's the exclusive super-safe pattern created especially to give you safer, stronger and longer lasting loading platforms, stair-treads, floors, walkways and hatch covers. It grips without a slip. Is easy to clean and easy to match. End your floor maintenance worries by installing AW Super-Diamond Floor Plate now.



FREE A New 16-Page Booklet, L33. It's chock-full of helpful information: weight, sizes, etc. Write for your copy now. Alan Wood Steel Co., Conshohocken, Penna.

AW SUPER-DIAMOND

FLOOR PLATES THAT GRIP



A Product of **ALAN WOOD STEEL COMPANY**

Other Products: Billets•Plates•Sheets•Carbon & Alloy



THE RECORD REPORTS

(Continued from page 16)

regard to prices, number two item of importance, he said "labor must throw off restrictive and make-work practices. The producer must unscramble combinations and trade operations that increase prices." The next day Raymond M. Foley, Administrator of FHA stated that "while costs remain high, the average veteran can better afford to rent, even though the rent must reflect the higher costs, than he can afford to buy. We believe the FHA is now in a position to give the utmost aid to rental housing."

Arthur Binns waxed eloquent and dramatic in denouncing restrictive labor practices and advocating increased productivity of labor as the greatest factor in reducing costs. Eloquent spokesmen for veterans' organizations stressed the same points.

N.A.H.B. went on record as advocating Congressional action to abolish the closed shop which "denies the inherent right of free men to work." Its statement of policy condemned restrictive practices by labor as monopolistic and as putting an additional cost burden on the construction of homes. It advocated a ratio of journeymen to apprentices of 4-1 rather than the usual 12-1. It stated that: "Underlying all these difficulties is a basic philosophy of artificial shortage enforced by labor. This shortage policy is founded on economic misconception which in the long run can have only the most damaging effects upon labor and builders.

"We call upon labor to cooperate to end malpractices. In turn we pledge our earnest efforts to maintain steady output, in order that benefits of steady employment may be achieved."

Frank R. Creedon, National Housing Expediter, reported on the changes he had made in attempting to make government controls less onerous. He stated his belief that if non-residential construction were unrestricted "not only would the materials situation be utterly chaotic, but the bidding for building material would end in costs spiralling upward." Many home builders disagreed, some were in accord.

Panel sessions were lively, with vehement debate, and took up the subjects Status and Outlook for Veterans' Housing; Mortgage Financing; Labor, including Apprenticeship Training, Wages, and Productivity; New Building Material and Methods. Also forums were conducted on heating, on lumber, and on cement.

Edward R. Carr, Washington, was elected president, Rodney M. Lockwood, Detroit, first vice-president, L. J. Boggs, Atlanta, secretary, and Milton J.

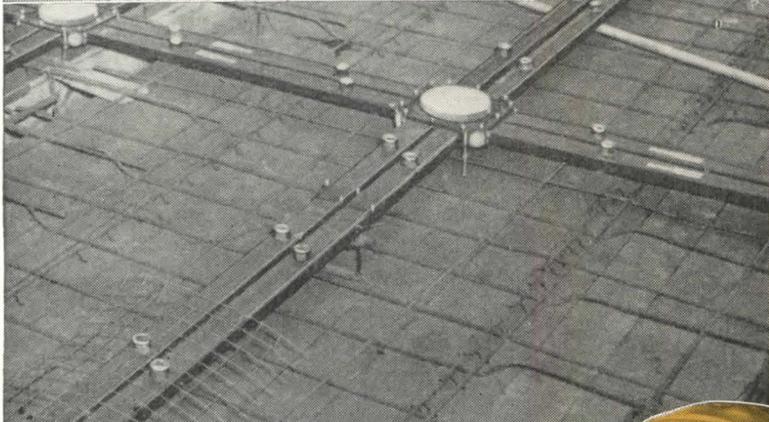
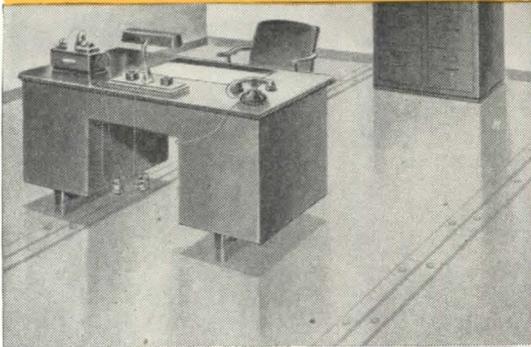
(Continued on page 142)

NEPCODUCT

FOR CONVENIENCE OUTLETS IN THE FLOOR

if you want . . . SIMPLICITY . . . PERMANENCE

. . . ACCESSIBILITY



- Pre-determined outlets on 24-inch spacing provide plenty of service to desks and free-standing equipment.

- New streamlined service fittings of durable brushed brass. Installed whenever needed—quickly—economically.

- A simplified duct of one standard size— $1\frac{3}{8}'' \times 2\frac{7}{8}''$ —for both high and low potential runs. Eliminates confused specifications . . . easier to understand . . . easier to lay out . . . easier to order . . . easier to install . . . easier to maintain.

- Minimum number of junction boxes and fittings required for one-, two- or three-duct layouts. The number of parts have been reduced more than 60%.

- Installed without excess labor or interference in all types of conventional floor construction.

NEPCODUCT The STEEL Underfloor Distribution SYSTEM



(Left) Low potential service fitting. (Right) High potential service fitting. Streamlined design—brushed brass finish—simple, strong construction.

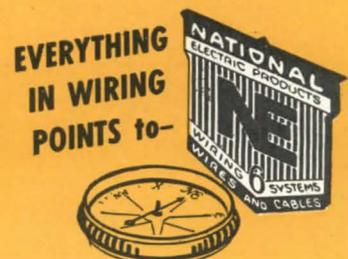


One standard-size duct—smooth, welded construction—rounded corners, for strength in floor construction.

- NEPCODUCT is a steel raceway system providing complete mechanical security and electrical bonding as required by the *National Electrical Code*. Fully approved by Underwriters' Laboratories, Inc., for both high and low potential service.

- Let us send you complete information. Call our sales office nearest you, or write to the address given below.

National Electric Products Corporation
Pittsburgh 30, Pa.

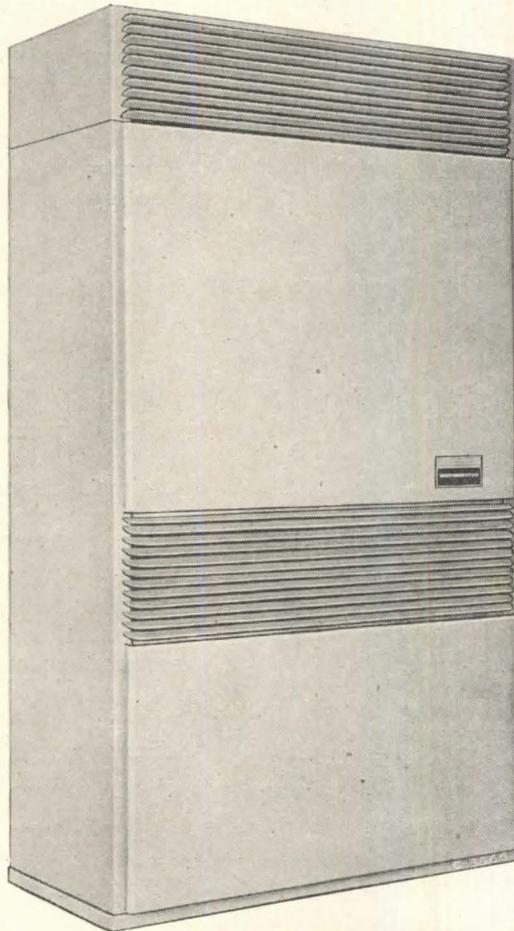


WORTHINGTON

Air Conditioning and Refrigeration Report

Worthington Pump & Machinery Corporation, Harrison, New Jersey

**"PACKAGED"
AIR
CONDITIONING
MEETS
A VITAL NEED
FOR
SMALLER
BUSINESS
PLACES**



Worthington's Self-Contained Air Conditioners — built in two sizes, 3 and 5 ton refrigeration capacities — are especially designed to suit your small or medium sized place of business. These compact, attractive cabinets are complete, factory-built air conditioning systems, fully tested and proved — assuring you effective, low-cost air conditioning 365 days a year.

With one of Worthington's Self-Contained Air Conditioners in your store, shop or office, you will be convinced that these amazingly efficient "packaged" units give you real air conditioning at its best — helping

further to promote better health and better business in every type of smaller commercial and industrial organization. For full details, write for Bulletin C-1100-B29.

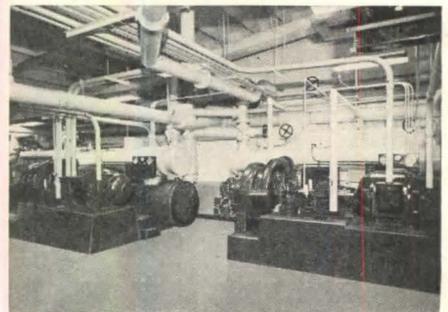
Worthington Pump and Machinery Corporation, Harrison, N. J., Specialists in Air Conditioning and Refrigeration machinery for more than fifty years.

A6-16



**Serving Phoenix —
Served By Worthington**

Occupied chiefly by the medical and related professions, the Professional Building in Phoenix, Arizona, also houses the prominent Valley National Bank and a capacious basement garage. Since its construction in the early 1930's, it has maintained practically 100% occupancy — Worthington air conditioning being one of the most important advantages enjoyed by tenants of this popular, up-to-date office building.



**Two Good Reasons
For Tenant Satisfaction**

Two large-volume Worthington Centrifugal Compressors, "heart" of the air conditioning system in the Phoenix Professional Building, described above. While Worthington Centrifugal Systems are used primarily in the air conditioning field, they are ideally suited to many other applications — from cooling water or brine for industrial purposes to producing ultra-low temperatures for technical research.

**"Integration" Is A Worthington
Specialty**

Making more of the "vital innards" of its systems from compressors to fittings, Worthington can supply completely "integrated" air conditioning or refrigeration for maximum efficiency and economy . . . another reason why *there's more worth in Worthington*. See your nearby Worthington Distributor for further information.

WORTHINGTON



*Air
Conditioning
and
Refrigeration*

"Here's Your Proof in
BLACK and WHITE!"



TURQUOISE LINES REPRODUCE SHARPLY

Take a good look at any black-and-white print (or blueprint) made direct from a TURQUOISE pencil tracing, and *believe your own eyes.*

EVERY DETAIL IS DISTINCT, for the *Electronic graphite is refined down to particle sizes of 1/25,000" to deposit knife-edge lines of extreme opacity!

EVERY LINE IS UNIFORM, because each degree of TURQUOISE is made from its own separate formula of graphite and clay. Wax is added for smoothness alone... never to change the grading.

Then try a TURQUOISE at your drafting board, and *believe your own hand.*

THE POINT IS STRONGER, because Eagle's patented super bonding process welds lead to wood for extra resistance to breakage.

THE LEAD IS SMOOTHER, for TURQUOISE leads are steeped in rare waxes until every particle of graphite glides on its own film of lubricant.

For a Free Sample, just write to Ernest Eagle, naming this magazine, your pencil dealer, and the degree you wish to try.

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(SUPER BONDED)

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THAT'S RIGHT — he hasn't a thing to do but loll in the sun—because **NO MAINTENANCE IS REQUIRED** with an Adlake Aluminum Window. You install it—you forget it.

ONLY ADLAKE combines non-metallic weather stripping and serrated guides to stop excessive air infiltration and give you finger-tip control. What's more, its lustrous aluminum sash requires no painting or maintenance. No warp, rot, swell, stick or rattle—*ever*.

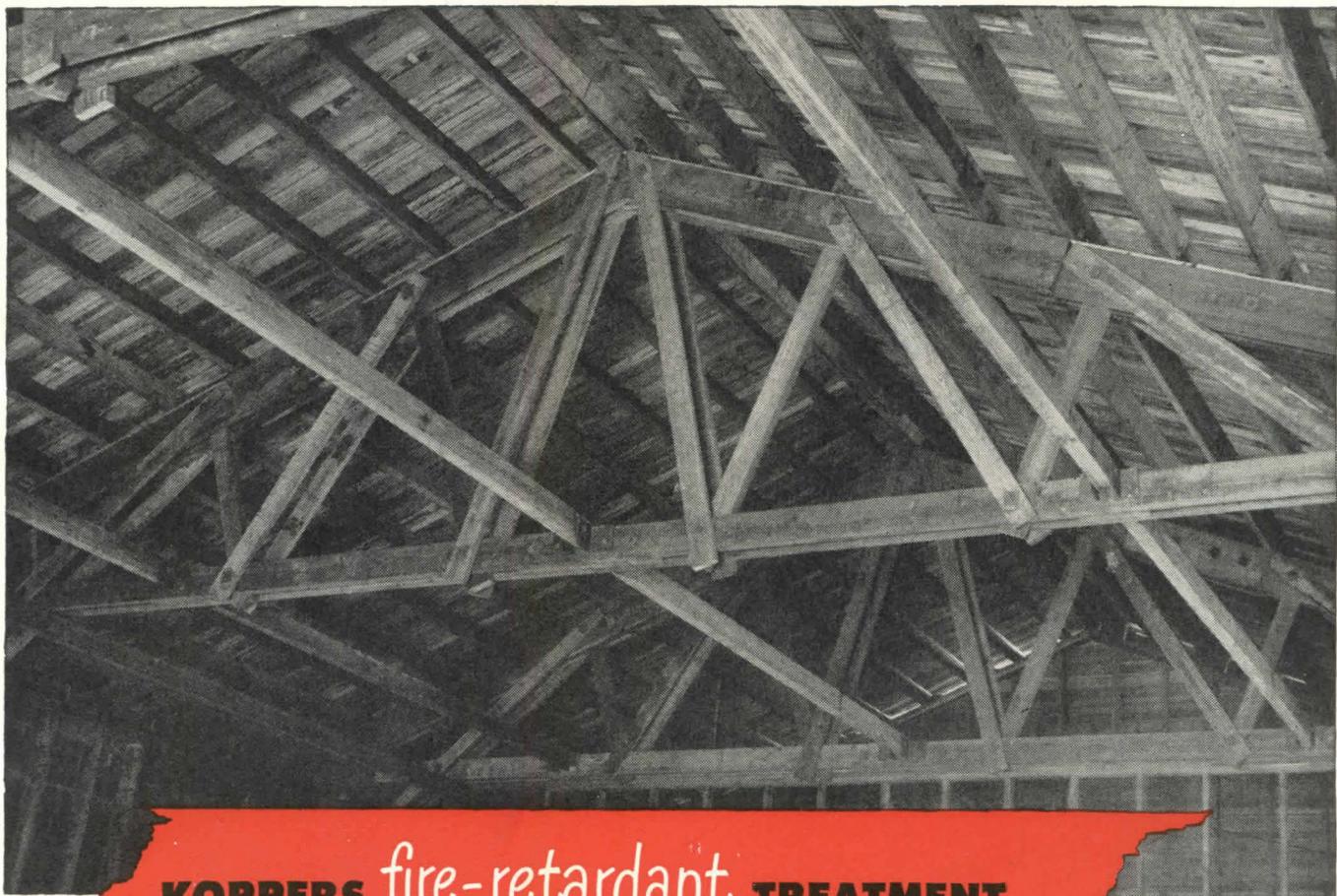
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Although it's not apparent to the eye, something important has been added to this roof. A special Koppers pressure-treatment has promoted the wood into the *fire-retardant* class. Sparks find discouragement, instead of a welcome.

One early installation got a dramatic test when a fire broke out in a lacquer pit and roared like a blow-torch up against the roof structure. There was no spreading of the fire, so the efforts of the fighter-crew were concentrated on the pit itself. When the fire was out, in spite of heat that had ruined electrical conduit and fixtures, the only damage to the wood was a char in the area exposed to flame. Even this was so shallow that structural integrity of the beams was

not impaired—no replacements were made.

Fire-retardance adds another to the long list of economies and advantages that recommend pressure-treated wood for many varieties of structures: low first cost, low maintenance, ease and speed of construction, ease and economy of alteration, enduring resistance to

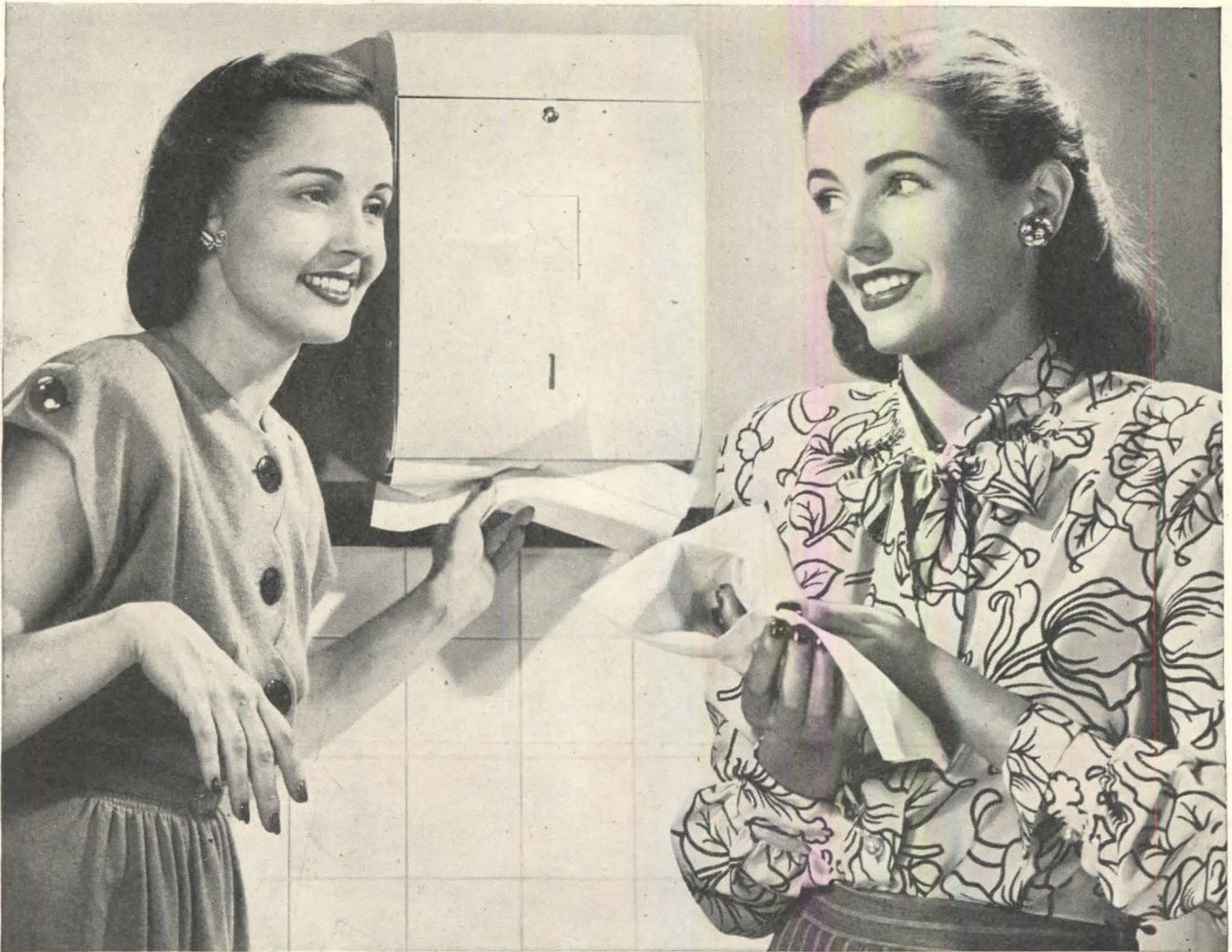
decay and insect attack. Koppers treating plants, located in strategic areas, are equipped to pressure-treat your lumber . . . and, if desired, to frame it to blue-print prior to treatment. For helpful information on treatments and applications, ask for our bulletin, "Economic and Permanent Construction with Pressure-Treated Wood."



PRESSURE-TREATED WOOD

KOPPERS COMPANY, INC.

PITTSBURGH 19, PENNSYLVANIA



Washrooms are one of the four most important factors in good working conditions—according to workers in 400 plants.

“I can’t stand a messy washroom!”

JANE: *“It doesn’t take a lot of money—just a little thoughtfulness—to keep a washroom nice like this one.”*

ISABEL: *“Yes, the management here certainly knows how much good washrooms mean to us.”*

EMPLLOYEES judge a company a great deal by its washrooms. In a survey of men and women workers at more than 400 plants, they named these factors as the ones they considered most important in good working conditions: *good washrooms, adequate lighting, safety devices and proper ventilation.*

Besides helping morale, sanitary well-equipped washrooms, with plenty of soap, hot water and good quality individual tissue towels, help reduce the number of absences due to colds and their complications. For they encourage frequent and thorough washing that helps prevent germs from spreading.

Haven’t you yourself been irritated by a poorly planned, badly equipped washroom? Washrooms should be “Health Zones,” not “Germ Exchanges”—“morale-boosters,” not “temper-testers.”

Good Washrooms begin at the Drawing Board



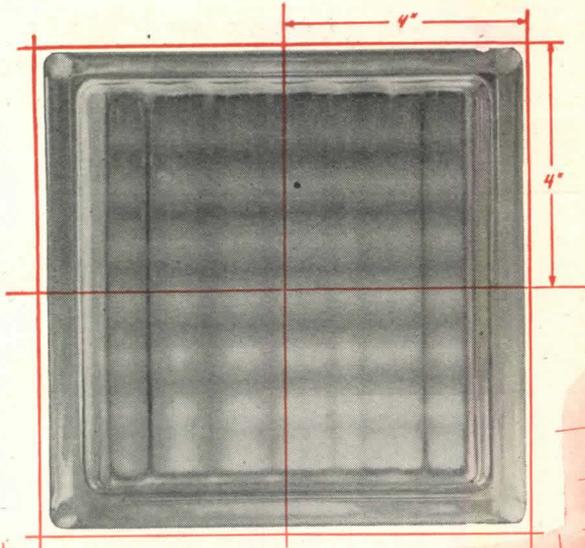
Good washrooms are the result of careful thinking and planning when in the blueprint stage. For practical suggestions on modern washroom layout and design, turn to our four pages in Sweet’s catalog—or call on the Scott Washroom Advisory Service, Scott Paper Company, Chester, Pennsylvania.



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Largest selling tissue towels in America!

Trade Marks “ScotTissue,” “Washroom Advisory Service,” “Duralose” Reg. U. S. Pat. Off.



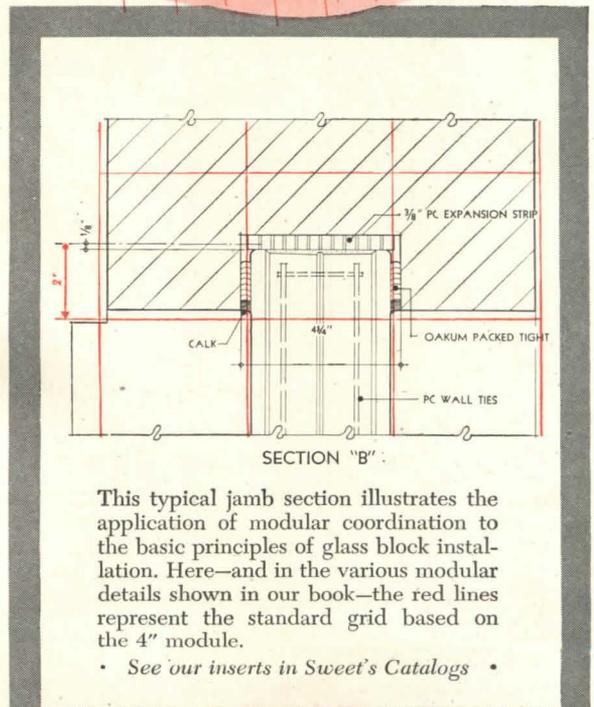
MODULAR COORDINATION WITH PC GLASS BLOCKS

PC GLASS BLOCKS are manufactured in 6", 8" and 12" sizes, which are Standard Coordinated Dimensions. And you know what important savings in time and money accrue—from preliminary planning to final construction—when you use modular products.

This is just one of the reasons why PC Glass Blocks have been so widely specified for light openings in outer walls and for interior partitions. For PC Glass Blocks also transmit daylight generously. They provide excellent insulation. They deaden outside noises, preserve privacy, and are exceptionally attractive in appearance wherever used.

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This typical jamb section illustrates the application of modular coordination to the basic principles of glass block installation. Here—and in the various modular details shown in our book—the red lines represent the standard grid based on the 4" module.

• See our inserts in Sweet's Catalogs •



• Also makers of PC Foamglas Insulation •

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CONSTRUCTION COST INDEXES — Labor and Materials

United States average 1926—1929 = 100

Compiled by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corporation, from data collected by E. H. Boeckh & Associates, Inc.

NEW YORK

ATLANTA

Period	Residential		Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings		Residential		Apts., Hotels, Office Bldgs. Brick and Concr.	Commercial and Factory Buildings	
	Brick	Frame		Brick and Steel	Brick and Concr.	Brick	Frame		Brick and Steel	Brick and Concr.
1920	136.1	136.9	123.3	123.6	122.6	122.8	122.9	108.6	109.8	105.7
1925	121.5	122.8	111.4	113.3	110.3	86.4	85.0	88.6	92.5	83.4
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1940	126.3	125.1	132.2	135.1	131.4	91.0	89.0	96.9	98.5	97.5
1941	134.5	135.1	135.1	137.2	134.5	97.5	96.1	99.9	101.4	100.8
1942	139.1	140.7	137.9	139.3	137.1	102.8	102.5	104.4	104.9	105.1
1943	142.5	144.5	140.2	141.7	139.0	109.2	109.8	108.5	108.1	108.7
1944	153.1	154.3	149.6	152.6	149.6	123.2	124.5	117.3	117.2	118.2
1945	160.5	161.7	156.3	158.0	155.4	132.1	133.9	123.2	122.8	123.3
1946	181.8	182.4	177.2	179.0	174.8	148.1	149.2	136.8	136.4	135.1
Jan. 1947	195.4	198.0	183.9	186.2	183.0	161.9	164.2	145.7	147.1	145.8
	% increase over 1939					% increase over 1939				
Jan. 1947	58.2	61.8	40.7	39.6	40.7	87.6	97.6	53.2	51.0	54.0
	ST. LOUIS					SAN FRANCISCO				
1920	118.1	121.1	112.1	110.7	113.1	108.8	107.5	115.2	115.1	122.1
1925	118.6	118.4	116.3	118.1	114.4	91.0	86.5	99.5	102.1	98.0
1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.4	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1940	112.6	110.1	119.3	120.3	119.4	106.4	101.2	116.3	120.1	115.5
1941	118.8	118.0	121.2	121.7	122.2	116.3	112.9	120.5	123.4	124.3
1942	124.5	123.3	126.9	128.6	126.9	123.6	120.1	127.5	129.3	130.8
1943	128.2	126.4	131.2	133.3	130.3	131.3	127.7	133.2	136.6	136.3
1944	138.4	138.4	135.7	136.7	136.6	139.4	137.1	139.4	142.0	142.4
1945	152.8	152.3	146.2	148.5	145.6	146.2	144.3	144.5	146.8	147.9
1946	167.1	167.4	159.1	161.1	158.1	159.7	157.5	157.9	159.3	160.0
Jan. 1947	183.4	183.8	168.5	169.3	169.5	173.2	170.8	167.3	169.4	172.5
	% increase over 1939					% increase over 1939				
Jan. 1947	66.4	71.8	42.0	41.3	42.4	64.0	72.0	42.5	39.0	48.1

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926-29 for that particular type — considered 100.

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

index for city A = 110

index for city B = 95

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

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

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

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

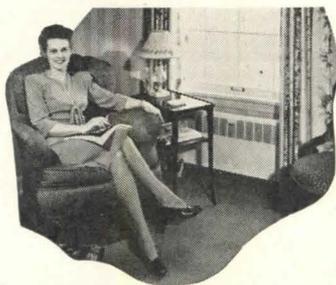
$$\frac{110-95}{110} = 0.136$$

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

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

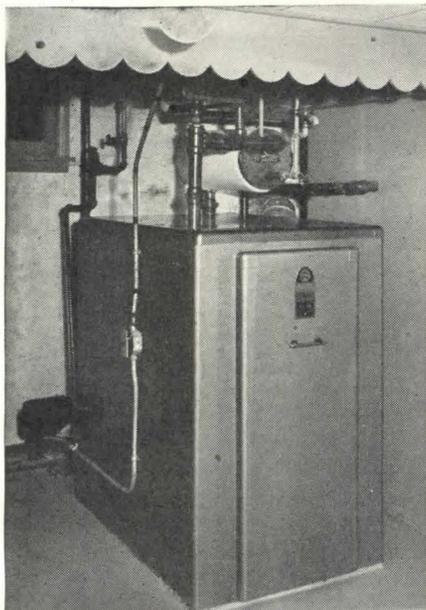
These index numbers will appear whenever changes are significant.

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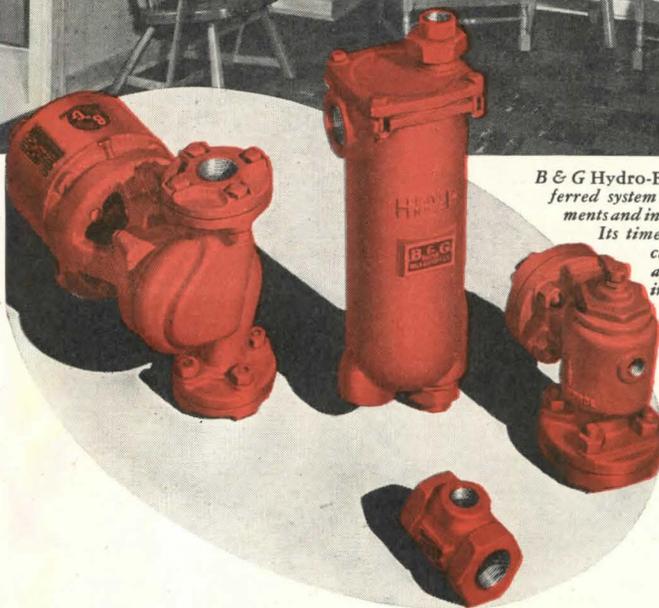


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B & G *Hydro-Flo* Heating provides smooth, positive control of heating medium temperatures . . . automatically adjusting the heat supply to meet changes in the weather. With simple, dependable equipment, indoor temperature is maintained uniformly at whatever degree is desired.

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Hydro-Flo* HEAT

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REQUIRED READING

FRENCHMAN'S AMERICA

When the Cathedrals Were White: A Journey to the Country of Timid People. By Le Corbusier. Translated from the French by Francis E. Hyslop, Jr. New York 18 (8 W. 40th St.), Reynal & Hitchcock, Inc., 1947. 5½ by 8 in. xxii + 218 pp. illus. \$3.00.

Inimitable Le Corbusier! Who but he could write this book of contradictions about the city of contradictions which is New York? Who but he could crowd into a brief 200 pages a galaxy of adjectives, exclamation points, theories, philosophies, the shrewdest of appraisals, praise, blame, the staccato and the poetic?

New York's skyscrapers are too small, says Le Corbusier. They are too many. They are "sublime, naïve, touching, idiotic," "an architectural accident," they have crowns "which seem like chased decanter stoppers," they "speak of the spiritual explosion of uncontrolled youth."

"The George Washington Bridge over the Hudson," he finds, "is the most beautiful bridge in the world. . . . It is blessed. It is the only seat of grace in the disordered city." Grand Central Terminal is a "marvel," where train-taking is a pleasure excursion. New York's newspapers are too big — the Sunday edition weighs 2½ pounds! "In New York events have everywhere got ahead of the control of spirit. It is a titanic effort of organization and discipline in the midst of a chaos brought about by the speed of accelerated times; it is a kind of snorting monster, bursting with health, sprawled out at ease. There is a geometric progression of chaos. Encephalitis in the New York region: twelve million men dedicated to hard labor." Does Le Corbusier love or hate New York? Both! (Doesn't the New Yorker himself do the same?)

But this isn't a book solely about the new capital city of the world. It is a book about America, and, for atmosphere, about France. It is a series of essays on American characteristics and characters, foibles and fortitude. Le Corbusier is not exactly gentle in his appraisal of us, and he is not infrequently disconcerting in his x-ray diagnosis. "Reality," he says, "that is the lesson of America." He marvels at our colleges where every student is made into an athlete, at our stadia packed to the clouds with sports fans, at our commuters' trains. He is dismayed at the gridiron pattern of our cities, at our slums. And he subtitles his book "A Journey to the Land of Timid People!"

Why *timid*? Our timidity, says Le Corbusier, is betrayed in the "gigantomachy" of our city planning; "is the result of a lack of equilibrium, of un-

balance, and it carries with it rather serious disturbances of the core of the social cell — the key of everything: the family." *Touché*, M. Le Corbusier! But you are not the first European who has found immaturity and uncertainty in the American loud-spokenness and braggadocio. That is the traditional European attitude toward Americans, is it not?

The fundamental argument put forward by Le Corbusier in this volume is one for the reorganization of American cities for the benefit of their inhabitants. More trees, more open spaces, more room in which to breathe, he demands. Put up larger skyscrapers, with plenty of room between them. Give man room in which to see the sky, give him a decent place to live. Make it easier for him to get from his home to his place of business. Cut down his working hours so that he will have time to play, to *live*. Cut down his working time, in fact, to four hours "of productive work necessary (and sufficient) for production; machines effect their miracle." Give him eight hours of sleep, allow him an hour for transportation — and he will have *eleven hours* left for leisure every day!

It took ten years for this book to reach an American audience. First appearing in France in 1938-39 in *Direction*, it was at that time translated into English but all prospective publishers insisted upon omitting the first section dealing with France. Now at last comes this new translation, and an American edition which is complete. Nothing has occurred in the past decade to out-date a single word of the original manuscript — a more telling criticism of America and Americans, perhaps, than the sharpest barb of the text itself.

THE UNIVERSAL ART

Architecture: An Art for All Men. By Talbot Hamlin. New York (Morningside Hts.), Columbia University Press, 1947. 6 by 9¼ in. xvii + 280 pp. illus. \$3.50.

A new book by Talbot Hamlin always is good news, particularly when it is, as is this, concerned with architectural interpretation. As the introduction points out, there has been no major volume on the subject since Mr. Hamlin's own *The Enjoyment of Architecture*, published some 30 years ago.

It is rather surprising to find this book announced as a new edition of the earlier one: the entire text has been rewritten and brought up to date, a revision so extensive that the two volumes are alike only in basic theme and outline. Even the author's approach to his subject has been altered. "Understanding and appreciating architecture," he comments, "is no longer a mere matter of 'enjoyment';

it is a matter so deeply implicated in the tissue of our living that it should be as much a part of our lives as is a basic understanding of politics or economics."

Architecture, Mr. Hamlin declares, is the one art with which everyone comes into daily contact. Yet it is one of the least widely understood and appreciated of all the arts. To help rectify this situation, here is what might well be termed the *story* of architecture. It is all here: its appeal, principles of construction and planning, style, interiors, the methods used by architects to achieve their desired effects, and so on. There is even a final chapter on community planning.

As usual, Mr. Hamlin has written in lively and interesting fashion. There is no "talking down" to his readers, though no previous knowledge of architecture is presumed. The layman reader will find himself theorizing and philosophizing along with the author, and before he has read very many pages he will be looking at the buildings around him with a much more appreciative and understanding eye. If he cares to delve further into the subject, there is provided a good list of books directly and indirectly concerned with architecture.

PRE-PLANNING SURVEY

County Town: A Civic Survey for the Planning of Worcester. By Janet Glaiyser, T. Brennan, W. Ritchie and P. Sargent Florence. London, W. 1, Eng. (50 Albemarle St.), John Murray, 1946. U.S.A. distributor, Transatlantic Arts, Inc., Forest Hills, N. Y. 6¼ by 9¼ in. xii + 320 pp. illus. \$6.30.

The authors of this book are not town planners. You can thumb the pages in vain for a single map of proposed park areas or diagram of suggested super-blocks, except for type studies. This is strictly a survey of existing conditions, prepared for the City Council of Worcester (a town of 53,000 population in the English Midlands) by the Commerce Department of the University of Birmingham. Actual redevelopment plans will be drawn up by Minoprio and Spencely, architects and planners. This division of labor is one of several features of the Worcester project worth consideration by American planners.

Worcester is good material for a specimen study in both town and regional planning because of its balanced economy as an industrial town surrounded by farms, and its close relationship with other industrial towns. A useful method has been worked out for defining regions according to physical features, population, traffic and economic structure.

The survey recommends new industries as a means of attracting new citizens and of carrying out the national policy of decentralization. In the matter of zoning, *accessibility* is stressed as well as segregation, and some interesting dia-

(Continued on page 30)



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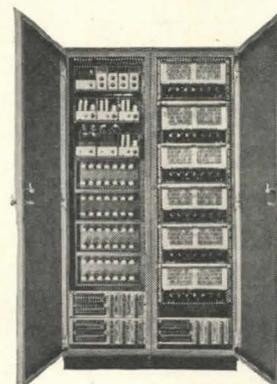
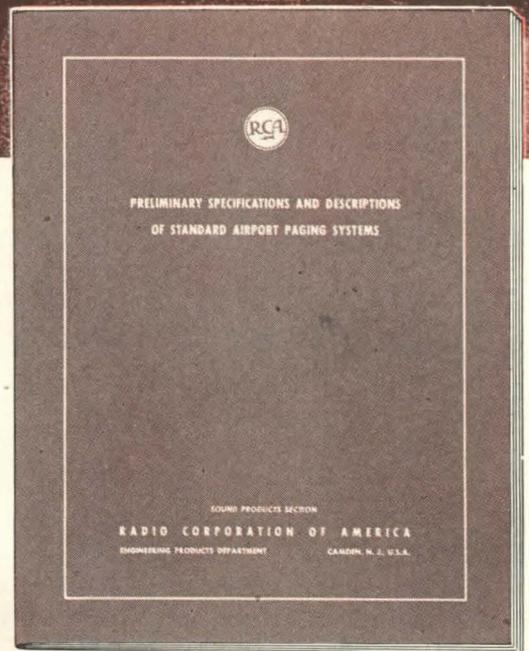
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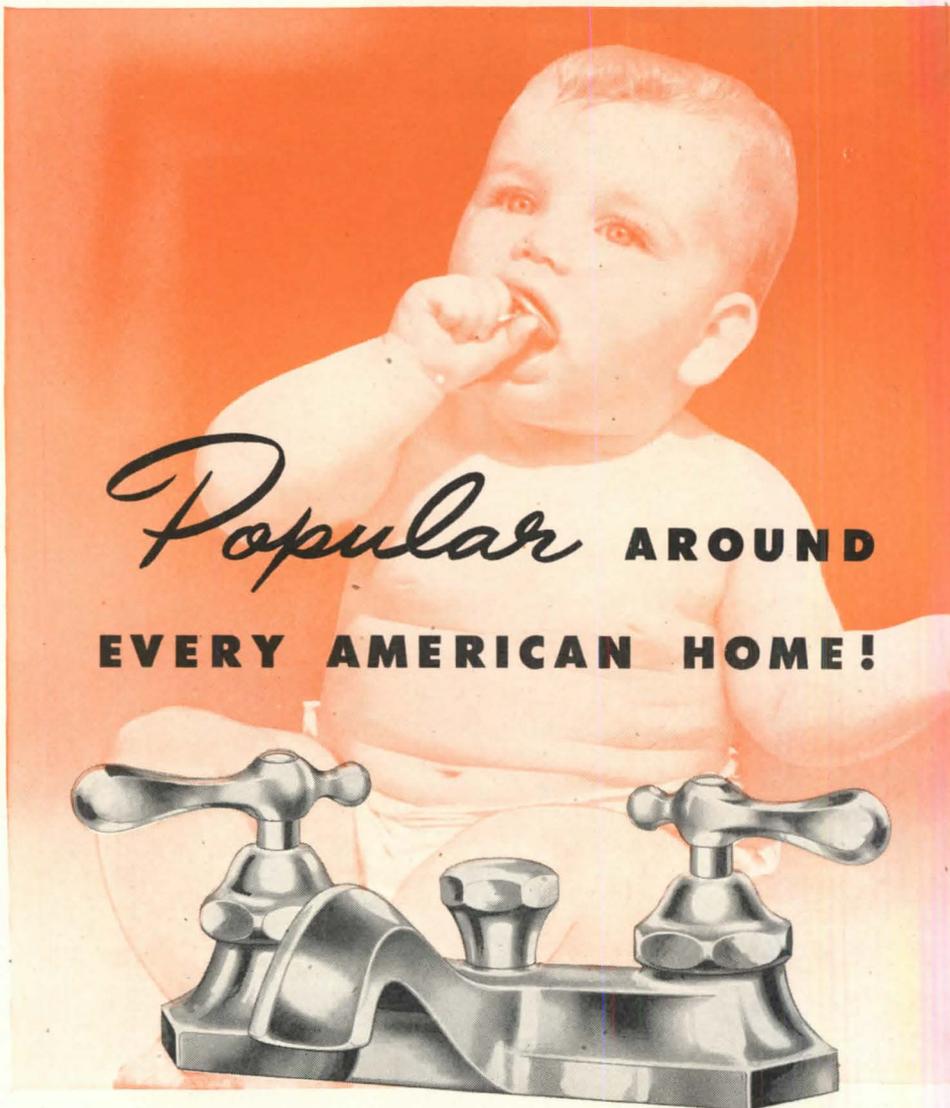


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REQUIRED READING

(Continued from page 28)

grams have been made of the present dispersion of services in relation to population.

The book is well edited for quick reading and ready reference, with a summary of findings at the close of each chapter and a final summary of recommendations.

HEATING MANUAL

Radiant Heating. By T. Napier Adlam. New York 13 (148 Lafayette St.), The Industrial Press, 1947. 6 by 9 in. 472 pp. illus. \$6.00.

Engineers and architects will welcome this manual on radiant heating, radiant cooling and snow melting. Its approach is direct and practical, its coverage broad enough to include all necessary information on the design, installation and control of hot water, steam, warm air and electric radiant heating systems, and to discuss in detail the related subjects of radiant cooling and snow melting by embedded pipes. Among the 309 illustrations are 64 full-page charts for determining pipe size and spacing for as many types of floor and ceiling construction.

Introductory chapters cover the development of heating methods, the theory of heat radiation, the relation of artificial heating to body heat losses, and the measurement of comfort. There are tables of heat transmission coefficients for various types of construction, of outside design temperatures in key cities in each of the 48 states, and of conductivities of building materials. A final chapter summarizes the exact step-by-step procedure in designing and installing radiant heating systems.

ON THE CARPET

The Rug and Carpet Book. By Mildred Jackson O'Brien. New York 16 (114 E. 32nd St.), M. Barrows & Co. Inc., 1946. 6 by 9 in. 166 pp. illus. \$2.50.

Here is a book that will enable the most timid consumer to enter the rug department with a firm step and head held high. Mrs. O'Brien provides her readers with a lively history of rug making from antique oriental to modern American, a complete vocabulary of weaves, textures, materials and patterns, and sound advice on quality, price and how to avoid being fleeced.

The information is drawn — or "persistently pried," as the dedication states — from the author's husband's 25 years of research and experience in the rug and carpet business, but the advice is from Mrs. O'Brien's own experience as a housewife. There are diagrams of carpet knots and cross sections of weaves, but there are also paragraphs on sweeping, removing ink spots and choosing carpets that will be cat-resistant.

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A thick bed of mortar should be spread on the wall.



The furrow in the mortar should be shallow, not deep.



Then the excess mortar will fill the furrow and insure full bed joints.

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The mortar in this bed joint is spread too thin.



The furrow in this bed joint is too deep.



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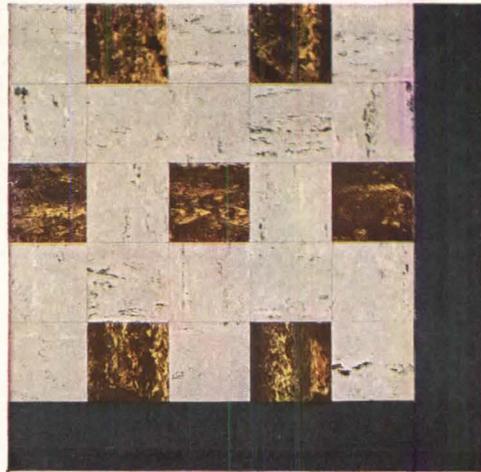
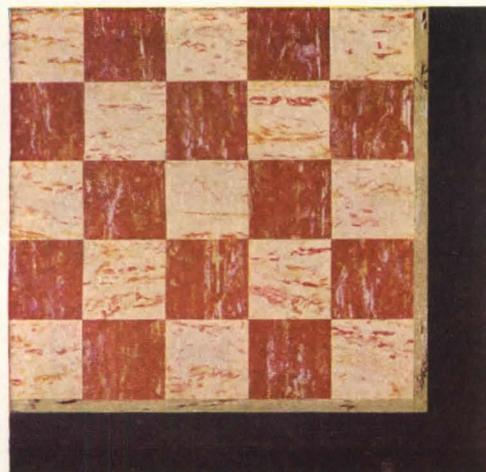
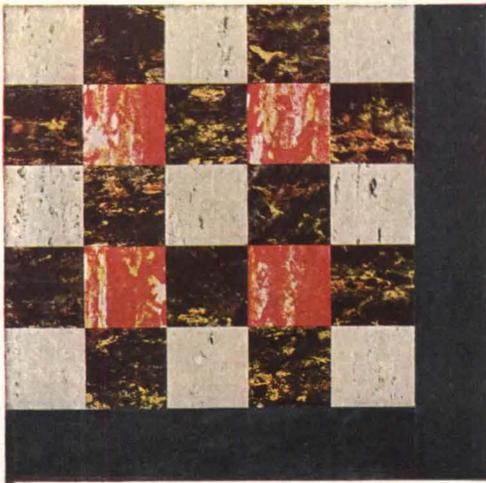
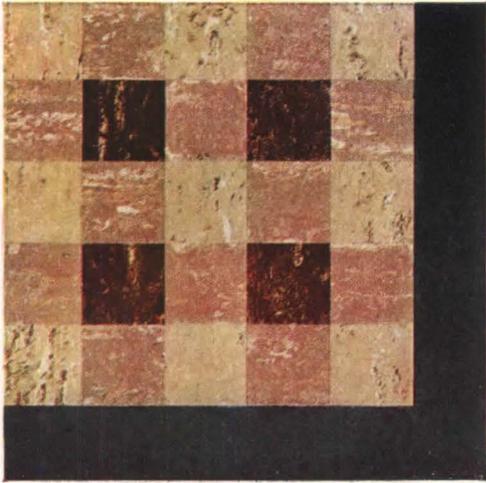


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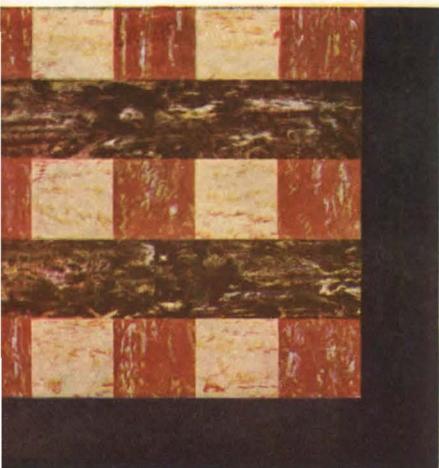
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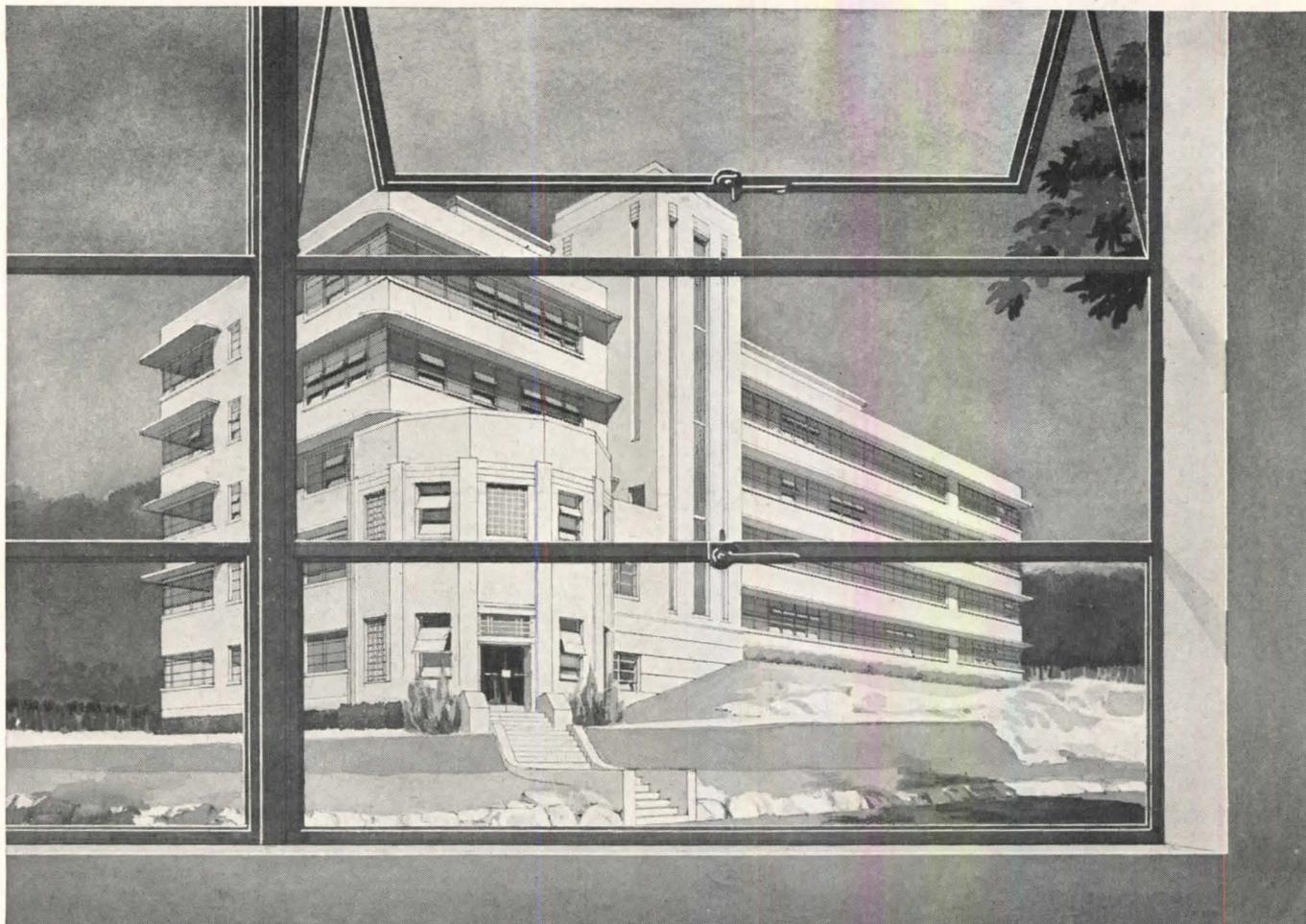
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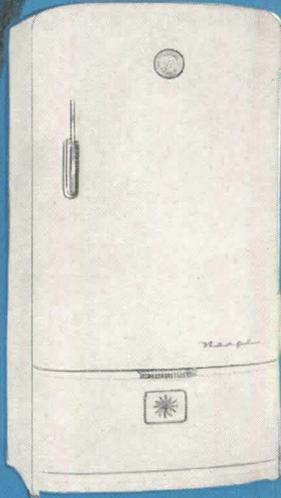
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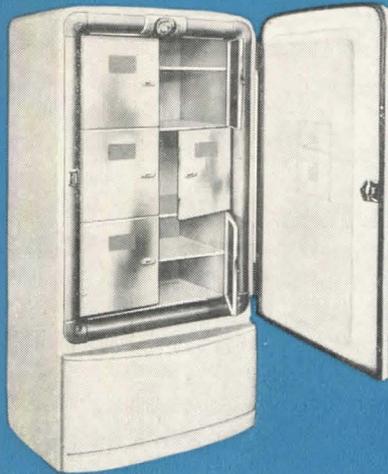


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BECAUSE THEY KEEP
MAINTENANCE MEN DOWN!**



Yes, Right Down on the Floor!

Fluorescent Luminaires must be cleaned regularly because accumulated dirt can cut light output as much as 50%. With ordinary Fixtures, the cleaning operation is slow, awkward, time-consuming. Maintenance Men drag ladders all over the premises, disturb workers, waste time and energy climbing up and down.

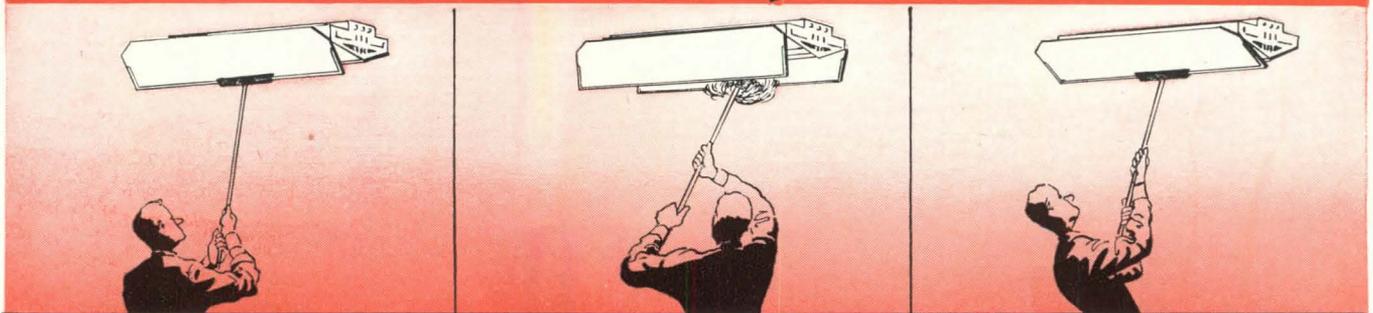
With the new GUTH Hinged Glass ARISTOLITE*, the entire operation can be performed *from the floor!* A simple gripper on the end of a pole swings the glass panels free, a duster on the opposite end of the same pole cleans the Fixture, and the panels are then quickly replaced and securely seated.

The new GUTH Hinged Glass Aristolite, like its famed predecessor, the standard Aristolite, provides fine diffused Fluorescent illumination which makes for safe, comfortable, easy seeing. In addition the Hinged Aristolite provides safe, comfortable, easy maintenance, too!

*It's the Fixture that's serviced in a minute . . .
serviced RIGHT . . . right from the floor!*

*Trade Mark Registered—Patents Pending

MINUTE-MAINTENANCE WITH THE NEW **Guth** HINGED GLASS ARISTOLITES



The glass panels are released and swing open on their hinges. A quick dusting restores lighting efficiency to the Fixture. The glass panels lift back and are

seated in small metal flanges. For relamping, one trip up the ladder replaces the customary three or four. Less time . . . more safety!

Write today for full information that tells how the New Hinged Glass Aristolite can reduce maintenance time and costs.

THE EDWIN F. GUTH CO. • 2615 WASHINGTON AVE • ST. LOUIS 3, MO.

Guth
Leaders in **LIGHTING**
SINCE 1902



For Radiant Heating, long lengths of
Copper Tube * **are easily handled**

IN radiant heating, the light weight of Chase Copper Tube is an outstanding installation advantage—particularly for ceiling mounting.

Coils up to 100 feet long can be held in position by a single workman, while a second bends the tube and fastens it in place. Or the coil may simply be slung over a nearby wall hook.

Use of these long coils—combined with copper tube's ease of bending—cuts down to a mini-

mum the number of joints necessary. And where joints *are* needed, they are quickly made with solder-type fittings.

The demand for Chase Copper Tube—result of its many advantages—is so great that we cannot meet it at all times. Information on radiant heating, however, is available for your use now to aid in your future planning.

For copies of our radiant heating literature, write on company letterhead, to Dept. AR47.

7 Reasons
WHY CHASE COPPER TUBE
FOR RADIANT HEATING

1. EASY TO BEND
- * 2. LIGHT IN WEIGHT
3. SOLDERED FITTINGS
4. SMALL DIAMETERS
- * 5. LONG LENGTHS
6. LOW COST
7. LONG LIFE

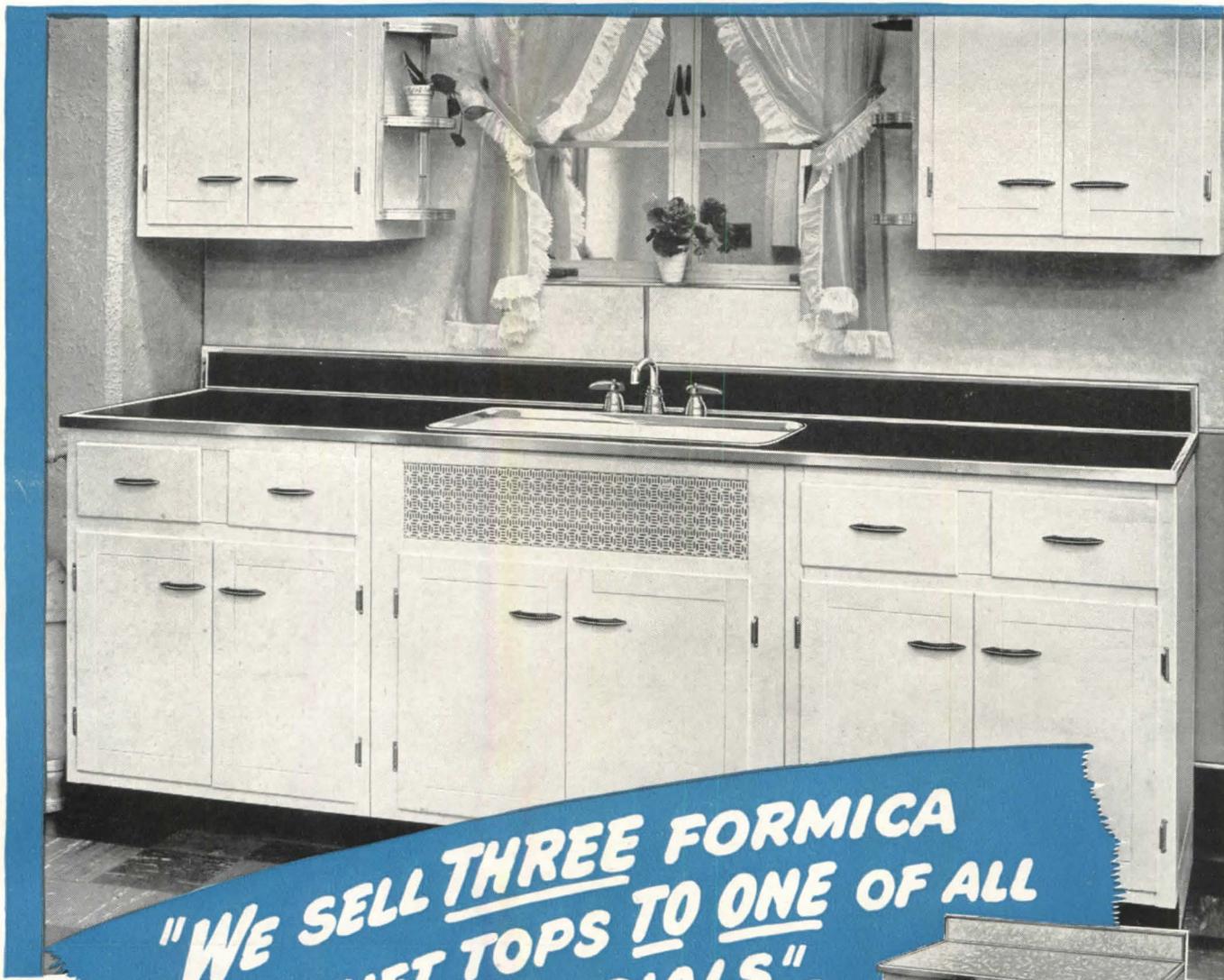


Chase
BRASS & COPPER CO.
 INCORPORATED

Waterbury 91, Connecticut
 SUBSIDIARY OF KENECOTT COPPER CORPORATION

This is the Chase Network—handiest way to buy brass

ALBANY† ATLANTA† BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON† INDIANAPOLIS JACKSONVILLE† KANSAS CITY, MO. LOS ANGELES MILWAUKEE
 MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER† SAN FRANCISCO SEATTLE ST. LOUIS WASHINGTON† (†Indicates Sales Office Only)



**"WE SELL THREE FORMICA
CABINET TOPS TO ONE OF ALL
OTHER MATERIALS"**

CINCINNATI BUILDERS SUPPLY CO.

The rather startling statement that Formica kitchen cabinet tops displayed with other materials on the same sales floor are now outselling all other materials combined by three to one, has been made not only by one producer of such tops, but by several.

It shows definitely the new trend in post war cabinet tops.

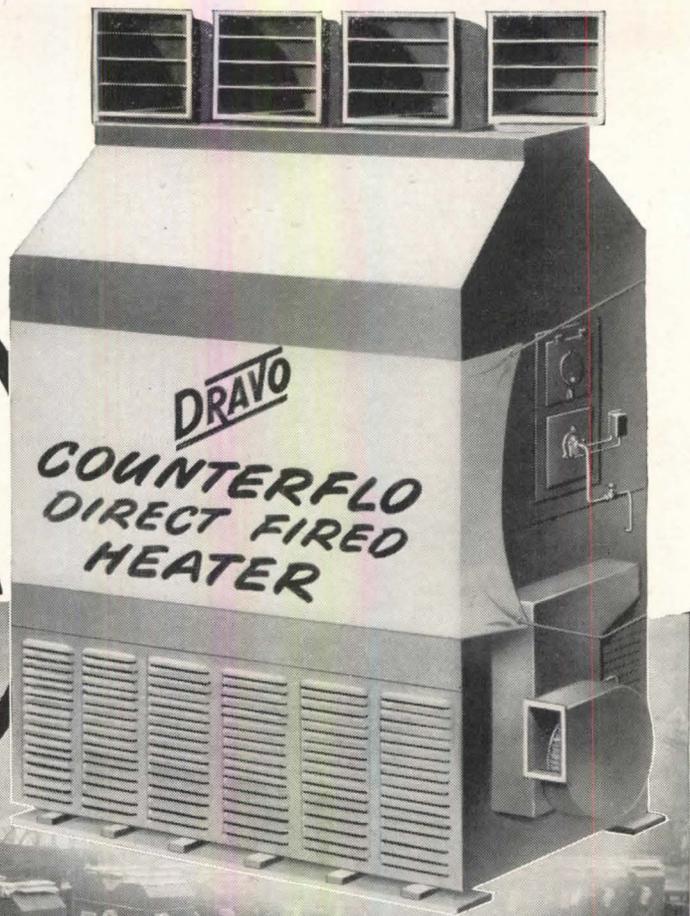
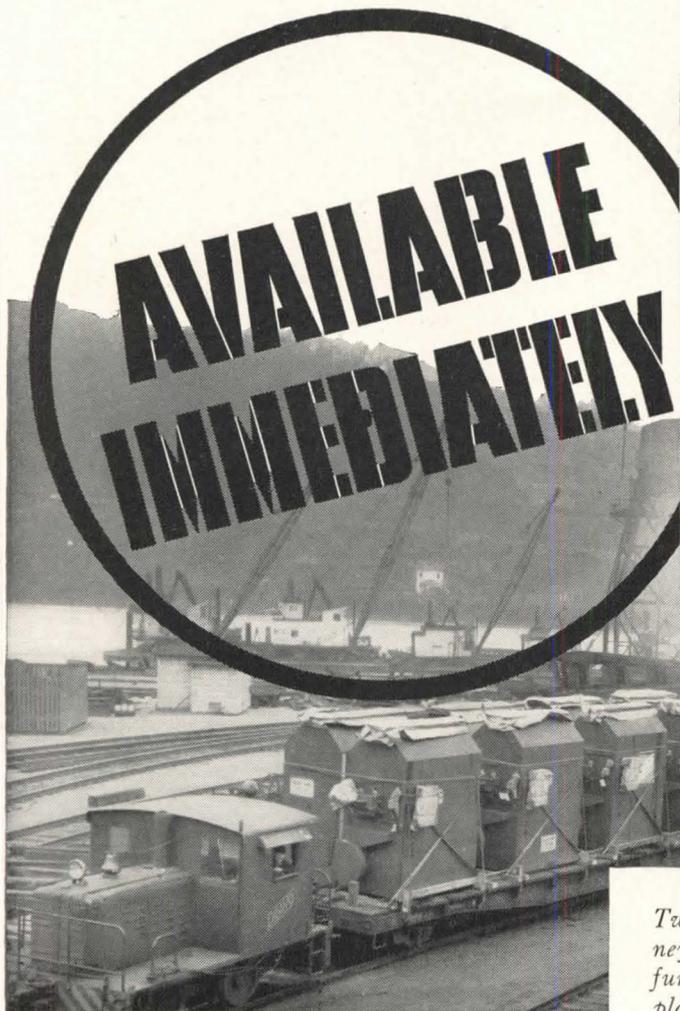
Formica supplies one-sixteenth sheet in black, or attractive colored patterns to producers of tops and they assemble the tops in accordance with their own or Formica specifications to water resistant plywood, by the use of water resistant glue, and trim the tops with metal moldings.

The result is handsome and very easy to sell. Better still, it is very durable and retains its good looks through years of use. Color schemes are available to harmonize with all kitchen treatments.

Let us give you the facts.

THE FORMICA INSULATION CO., 4651 SPRING GROVE AVE., CINCINNATI 32, OHIO





Twenty-eight Dravo Counterflo Heaters start their journey from Pittsburgh to the West Coast. They will soon furnish heat for a new, modern automobile assembly plant in Southern California.

It is no longer necessary for buyers of industrial and commercial heating to take less than the best equipment in order to get prompt shipment.

For open space heating Dravo Counterflo Direct-Fired Heaters are undisputed leaders in quality, efficiency and performance. This is proved through thousands of successful installations.

Now — due to greatly expanded production facilities —
Dravo Heaters are Available Immediately!

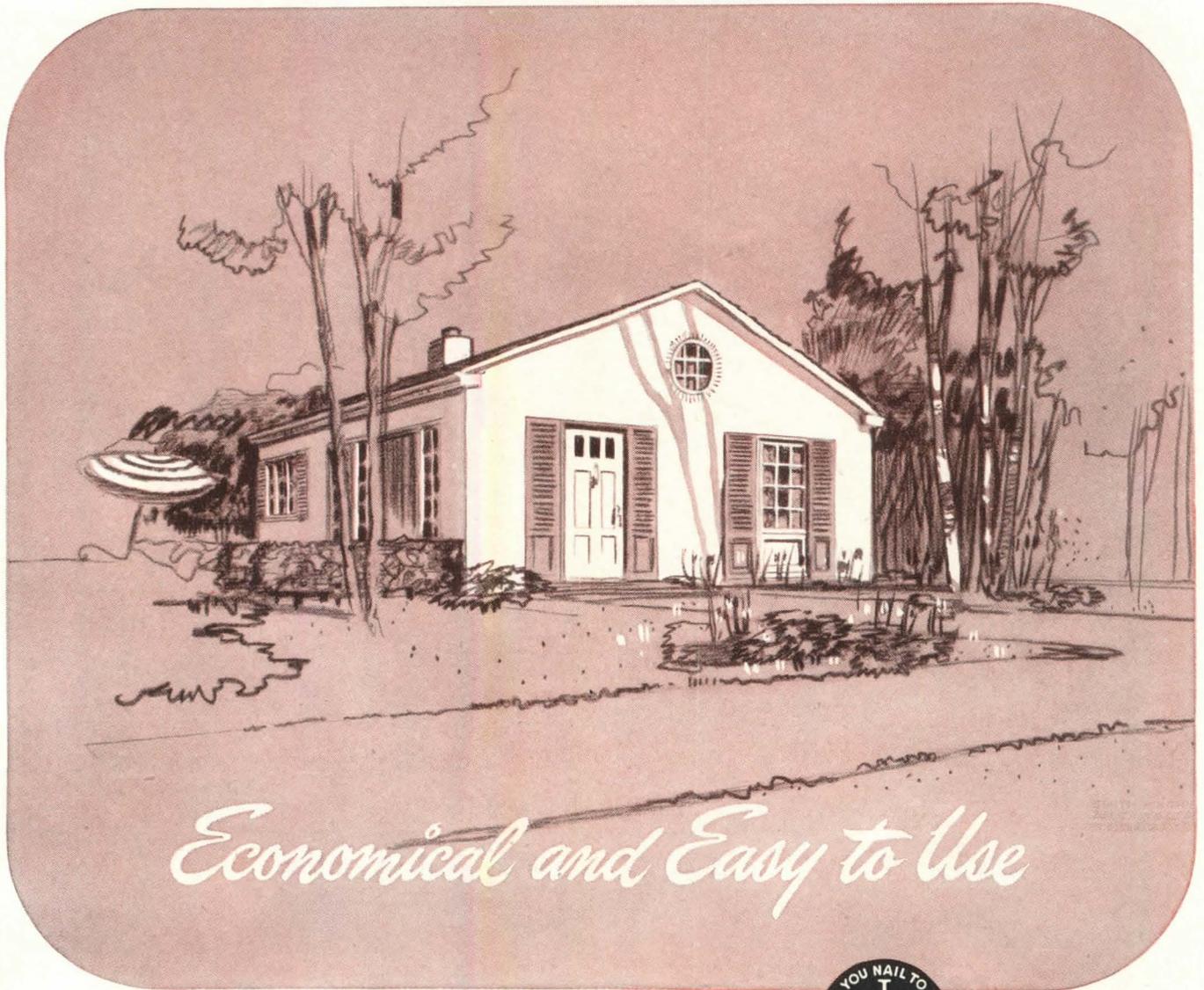
If you have a heating problem involving 400,000 Btu or more, look up the Dravo distributor in the "Heater Section" of your classified telephone directory —or write or call Heating Section, Dravo Corporation, 300 Penn Avenue, Pittsburgh 22, Pa.

DRAVO CORPORATION

PITTSBURGH · PHILADELPHIA · CLEVELAND · NEW YORK · DETROIT
 WASHINGTON · WILMINGTON



Bulletin BM-516 free on request.



Economical and Easy to Use

Stran-Steel framing is a building product of Great Lakes Steel Corporation



When they use Stran-Steel packaged framing for the first time, architects and builders alike are surprised that steel can be so easy to work with. Consisting of only a few basic types of framing members and fittings, the Stran-Steel system is simple and efficient. Yet it allows full flexibility of design. Practically any type of framing connection is possible, and any standard collaterals can be used.

Two unique construction features make Stran-Steel packaged framing ideally suited for light-load buildings. One is the fact that members can be quickly assembled with self-threading screws. The other is the patented *nauling groove*, an integral part of every Stran-Steel stud and joist. By means of this groove, collaterals can be nailed directly to the frame, just as easily as to wood.

By virtue of its efficiency, Stran-Steel is *economical*. To prospective owners it represents a sound invest-

ment in long building life, simplified maintenance and added fire protection.



GREAT LAKES STEEL CORPORATION

Stran-Steel Division • Dept. 36 • Penobscot Building • Detroit 26, Michigan
UNIT OF NATIONAL STEEL CORPORATION



SOON we'll see plenty of smart new homes under way, like those at the left. Maybe you remember seeing some of these pictures in National Gypsum's big full-color campaign in the Saturday Evening Post. (All during 1946 and begun again this year with the February 22nd issue.)

In America, the land of beautiful homes, it's amazing how many families put most everything else ahead of owning a home of their own. So, this series of Post ads is designed to:

1. Promote the thrill and life-long satisfaction of building a home NOW!
2. Emphasize how new homes offer greater comfort, lasting beauty and fire protection through the use of fireproof products such as Gold Bond Rock Wool Insulation, Gypsum Sheathing, Gypsum Lath and Plaster.

All told there are over 150 Gold Bond building materials—each product researched and engineered to do a specific job better. When Gold Bond products are specified and used exclusively, it centers responsibility with one reliable manufacturer, a definite advantage from the standpoint of the architect, builder and owner. The full Gold Bond line is described in our section in Sweet's.

You'll build or remodel better with Gold Bond

NATIONAL GYPSUM COMPANY • BUFFALO 2, N. Y.

Over 150 Gold Bond Products including gypsum lath, plaster, lime, wallboards, gypsum sheathing, rock wool insulation, metal lath products and partition systems, wall paint and acoustical materials.

HOFFMAN *Comfort* CONTROL



Hoffman Control Valve

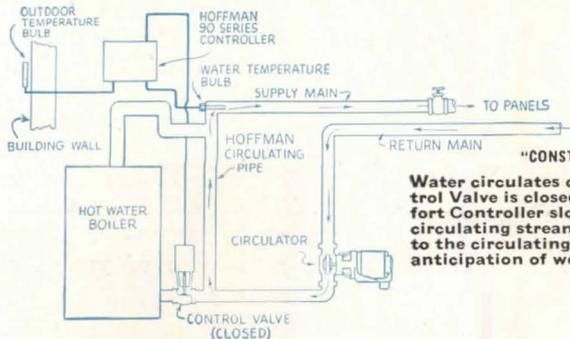


Hoffman Circulator

Most Essential Factor in Precise Hot Water Control

The Hoffman Series 90 Hot Water System, with its automatic regulatory features, is the ultimate in precise control for *any* application of hot water heating—whether panels, radiators, convectors or radiant baseboards are employed. The Comfort Controller, or *brain* of the system, is activated by Outdoor and Water Temperature Bulbs which transmit temperature changes to its accurate balancing mechanism—automatically opening or closing the Hoffman Control Valve to maintain the desired temperature of *continuously circulating* water to meet the need for heat.

Zoning of apartments or sections of large residences to suit personal preference or functional activities of the building may be obtained with Series 90 Systems. The diagram below shows the basic operating principle of this system. Thousands of installations now in operation acclaim its merits.



"CONSTANT COMFORT" UNIFORMLY MAINTAINED BY CONTINUOUSLY CIRCULATED HOT WATER

Water circulates continuously through the Hoffman Circulating Pipe and radiation when the Control Valve is closed. When water has lost heat, as noted by the Water Temperature Bulb, the Comfort Controller slowly opens the Control Valve, permitting hot water from the boiler to enter the circulating stream. When sufficient hot water has been admitted to restore the proper temperature to the circulating water, the Valve is closed by the Controller. This cycle repeats automatically in anticipation of weather changes.

HOFFMAN

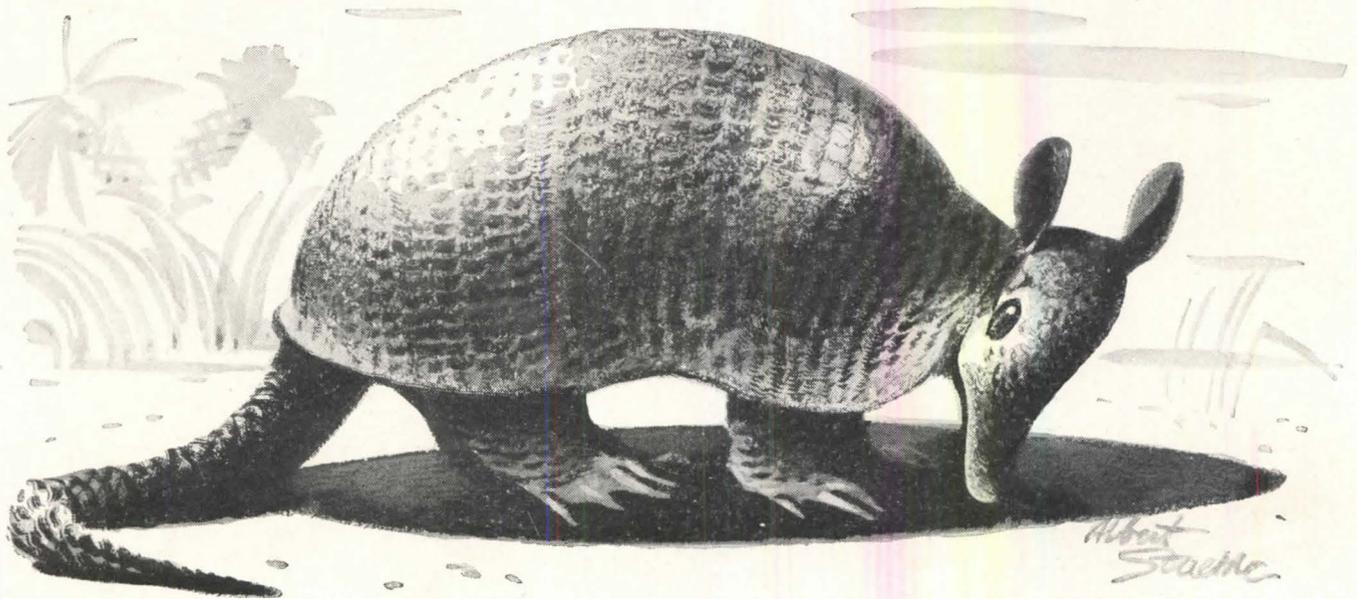
Hoffman Specialty Co., Dept. AR-4, 1001 York St., Indianapolis. Famous for Hoffman Valves, Traps, Vacuum and Condensation Pumps, Forced Hot Water Heating Systems.

Hot Water
CONTROLLED HEAT



Send for new Cat. HWC-846

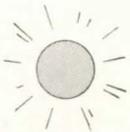
What keeps the armadillo dry can keep your clients happy, too!



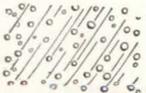
Over 90 years of successful roofing experience has demonstrated the sound value of the gravel or slag wearing surface of a Barrett Specification Roof:



1. It holds in place the heavy-poured (not mopped) top coat of coal-tar pitch—providing a doubly thick waterproof covering.



2. It provides protection against the sun's actinic rays which otherwise dry out the valuable oils in roofing bitumens.



3. It protects the roof against mechanical damage, hail and wind, wear and tear.



4. It interposes a surface of fireproof rock between the building and flying embers—makes a roof that carries Fire Underwriters' Class A Rating.

No roofing problem bothers the Armadillo. Inside his armored wearing surface he's safely protected from his natural enemies.

The Barrett Specification* Roof, with its armored wearing surface of gravel or slag, provides comparable protection for building structures. It's so tough and long-wearing it can be bonded against repairs and maintenance expense for as long as 20 years.

Built up of alternate layers of coal-tar pitch and felt, topped by a thick pouring of pitch to anchor the gravel or slag wearing surface, it is the toughest, longest-lasting built-up roof made. It is waterproof, fire-safe, sun-resistant, and armored against mechanical damage.

Protect your clients against roof failure. Recommend Barrett Specification Roofs on the buildings you design. The Atomic Bomb Plant at Oak Ridge, Tenn., the Empire State and R.C.A. buildings in New York, and many other famous American buildings—all Barrett-roofed—will confirm the soundness of your recommendation.



THE BARRETT DIVISION

Allied Chemical & Dye Corporation

40 Rector Street, New York 6, N. Y.

2800 So. Sacramento Avenue Birmingham
Chicago 23, Ill. Alabama

In Canada: The Barrett Company, Ltd.,
5551 St. Hubert Street, Montreal, Canada

*Reg. U. S. Pat. Off.

6 Ways

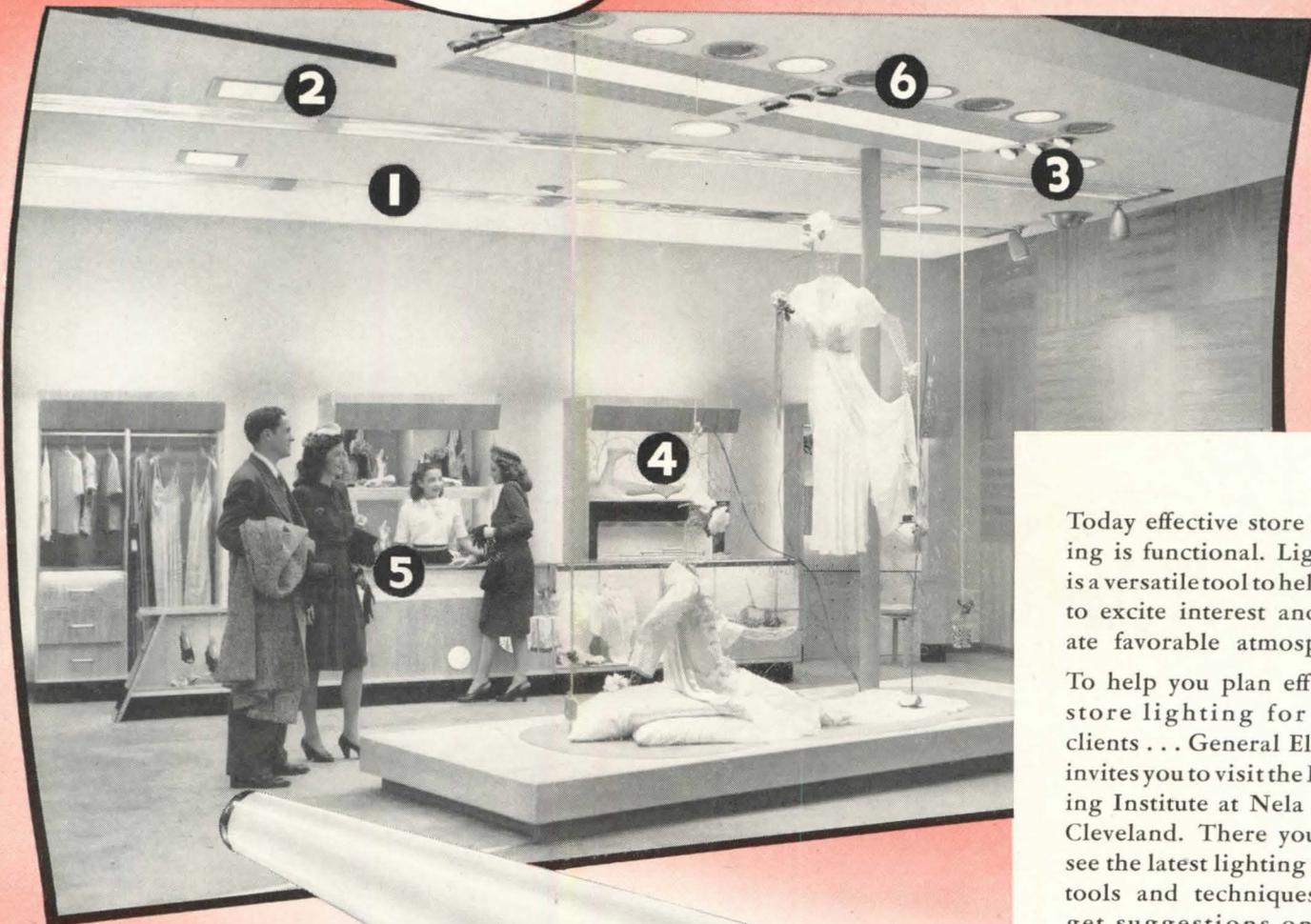


LAMPS

Help Sell Merchandise

Here are six of many ways G-E Lamps are used in the women's wear store to aid in selling merchandise:

1. G-E Fluorescent Lamps give cool, even overall lighting to the store.
2. Filament Lamps in recessed fixtures may add the punch, snap and relief of direct lighting.
3. G-E Reflector spot or flood lamps focus attention on special displays—add high spots of interest.
4. Fluorescent lamps built into wall cases accentuate the merchandise.
5. Slimline fluorescent lamps fit modern display cases.
6. Filament lamps provide high brightness to dramatize featured items in window displays.



Today effective store lighting is functional. Lighting is a versatile tool to help sell, to excite interest and create favorable atmosphere.

To help you plan effective store lighting for your clients . . . General Electric invites you to visit the Lighting Institute at Nela Park, Cleveland. There you may see the latest lighting ideas, tools and techniques and get suggestions on new ways to use G-E Lamps.

When specifying lamps be sure you say "G-E Lamps", for they are constantly improved by research to make them . . .

Stay Brighter Longer!

G-E LAMPS

GENERAL ELECTRIC

Decorative Glass... FOR A "GRAND ENTRANCE"

In the Extacee Showrooms, designer Virginia Connor Dick used a screen of Blue Ridge Louvrex as an effective background for showing fine lingerie.



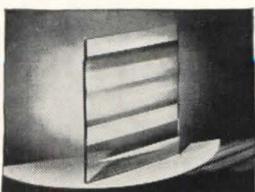
For customer or client, the reception room or showroom sets the mood for business. Decorative Glass helps to create the effect you want.

Its sparkle combines friendliness with dignity, luxury with good taste. Clean-cut patterns blend with any setting—modern or period. It solves many decorative problems for skilled designers.

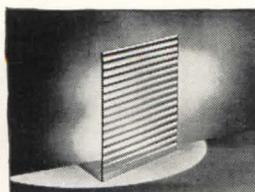
Blue Ridge Decorative Glass is made in 20 patterns to meet design needs for homes, offices or public buildings. It may be plain or Satin-finished for complete privacy *plus* ample light transmission. Available through your nearest L·O·F Glass Distributor. Libbey·Owens·Ford Glass Company, 247 Nicholas Building, Toledo 3, Ohio.

"Design it with one of the 5 EX's"

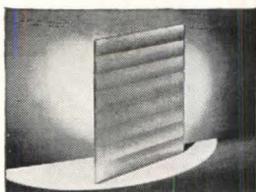
LOUVREX



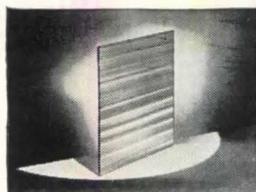
LINEX



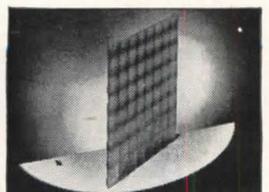
FLUTEX



STYLEX



DOUBLEX



BLUE RIDGE *Decorative* **GLASS**

FOR SOFT, DIFFUSED LIGHT • SMART DECORATION • COMPLETE PRIVACY

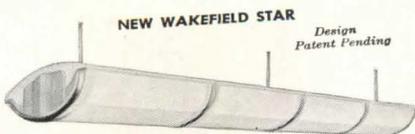


"Hang the Sky" TO HELP THEM SEE BETTER • WORK BETTER

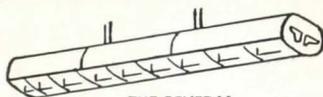
You can do it with
Over-ALL Lighting
by Wakefield

For a "sky" of easy-eye light
specify **THE WAKEFIELD STAR!**

Combines the advantages of
fluorescent and luminous indi-
rect light. Pretested to give ex-
tra assurance of good lighting
service. Plaskon reflector shield
slides out like a drawer for easy
cleaning. The ideal unit for
Over-ALL lighting in many
a drafting room . . . office or
schoolroom!



Over-ALL . . .
in lighting
in sturdy construction
in ease of maintenance



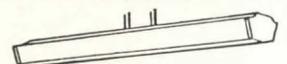
THE GENERAL



THE GRENADE



THE COMMODORE



THE DIPLOMAT

. . . a new way to plan lighting for drafting room, office or school

Lighting like that from Nature's sky—diffused, comfortable,
evenly distributed . . . Wakefield Over-ALL Lighting! It makes
for better work, less eyestrain and cheerful interiors . . . serves
the client, serves you!

We believe you will find that Over-ALL Lighting offers ad-
vantages *over* all other systems . . . for lighting efficiency, for
comfort, and for effective modernization. Because Wakefield
Over-ALL Lighting is based on *seeing* results! And you can use
all types of Wakefield Lighting units to provide it.

Ask your local Wakefield representative or the lighting engineer of your
power company to tell you about Over-ALL Lighting. Or
write for new catalog No. 46. The F. W. Wakefield Brass
Company, Vermilion, Ohio.

Wakefield

LIGHTING EQUIPMENT FOR OFFICE, SCHOOL AND DRAFTING ROOM



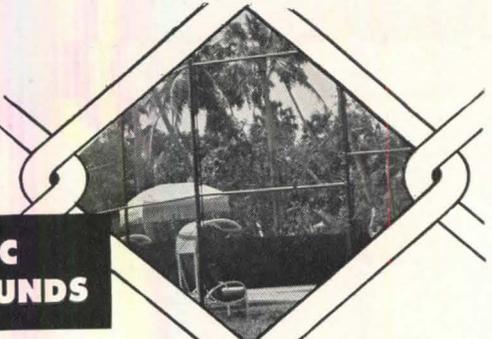
Protection for

Consider the moderate installation cost, the amazingly low maintenance costs, the protection it affords against theft, vandalism and other hazards—and you'll agree there's "dollar and sense" wisdom in protecting property with a well erected chain link fence.

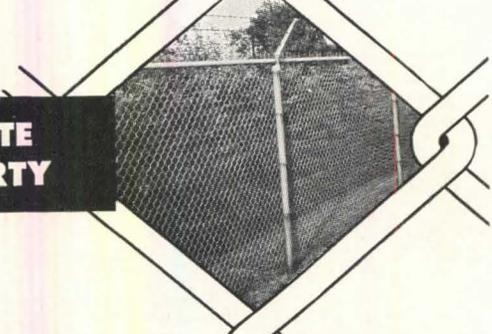
Exceedingly difficult to climb because of its diagonal mesh, a chain link fence provides greatest protection when combined with a top finish of four pronged barbed wire. For schools, playgrounds, homes and gardens, a smooth knuckled selvage (with ends bent back along the weave) insures an excellent enclosure and barrier.

The fence and fabric of Wickwire, Colorado and Calwico Brands of Chain Link Fence are made of carefully selected steel wire, heavily galvanized after weaving. Fittings are of malleable iron and pressed steel, heavily galvanized, or aluminum.

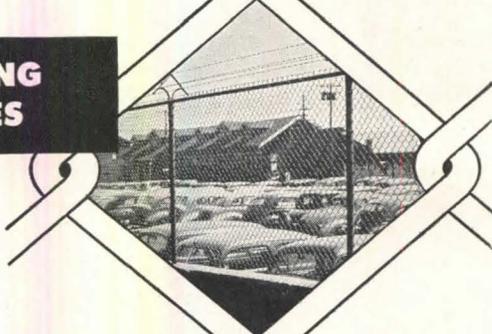
FREE ESTIMATES—We will be happy to measure your property, work out details to secure proper protection, and submit estimates for fence material ready for erection or covering complete installation by our trained crews. For free catalog and further particulars, write to our nearest branch office.



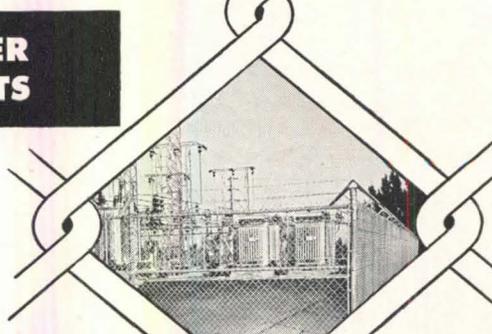
**PUBLIC
PLAYGROUNDS**



**PRIVATE
PROPERTY**



**PARKING
PLACES**



**POWER
PLANTS**

CHAIN LINK FENCE

WICKWIRE • COLORADO • CALWICO

DIVISIONS OF THE COLORADO FUEL AND IRON CORPORATION

Wickwire Spencer Steel

The Colorado Fuel and Iron Corporation

The California Wire Cloth Corporation

361 Delaware Ave., Buffalo 2, N. Y.

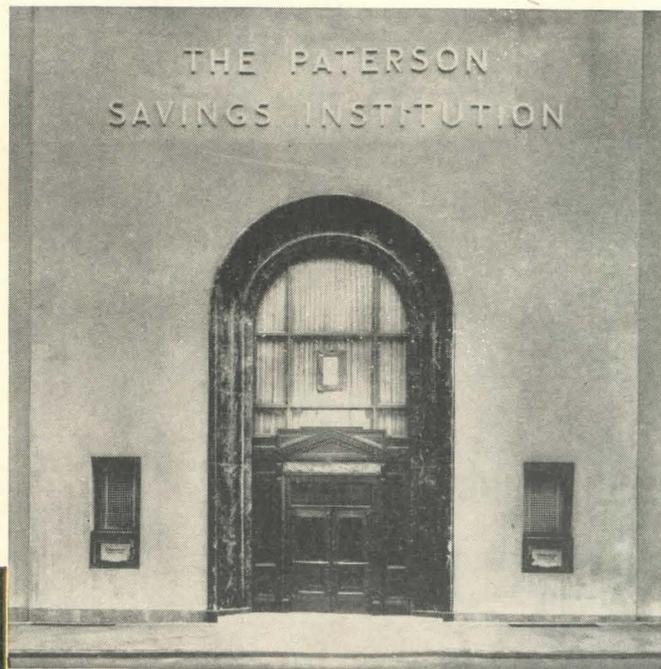
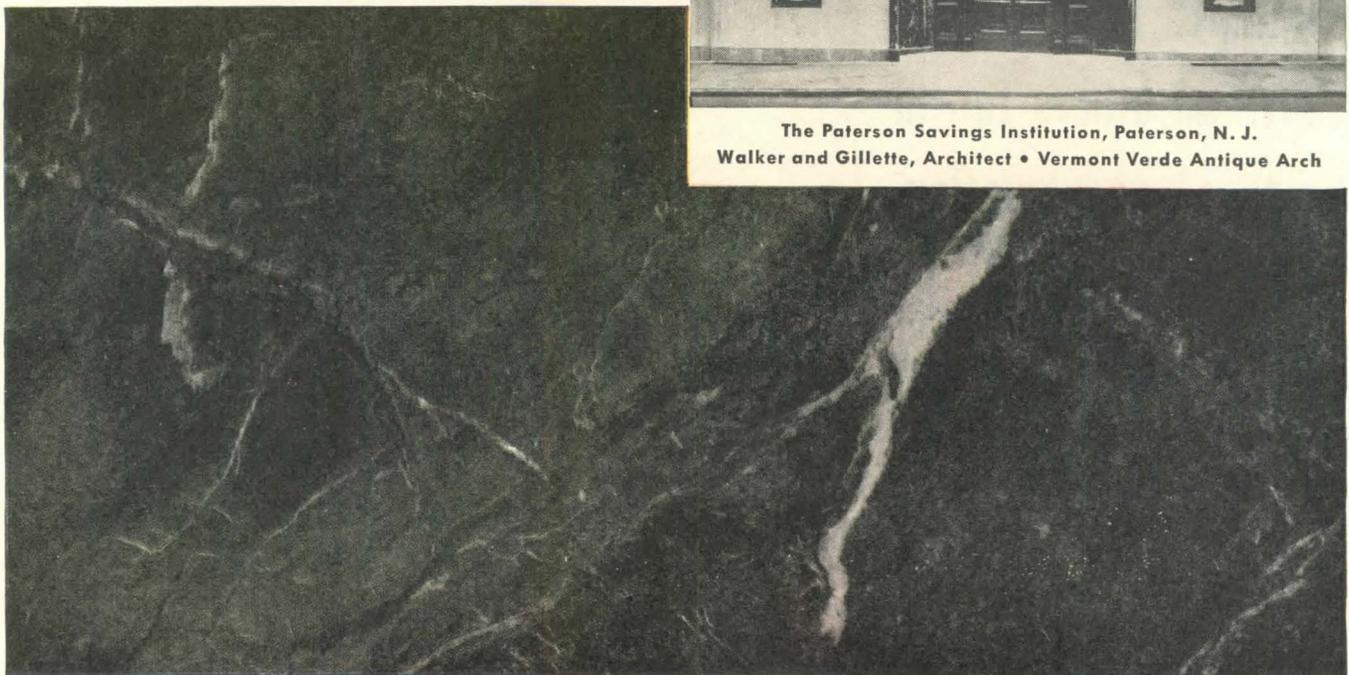
Continental Oil Bldg., Denver 1, Colo.

1001 22nd Ave., Oakland 6, Cal.



**MODERN BLENDING OF
COLOR AND DESIGN...**

with
Vermont Marble



The Paterson Savings Institution, Paterson, N. J.
Walker and Gillette, Architect • Vermont Verde Antique Arch



Rich color in marble, so often believed to be obtainable from foreign lands only, is not missing in the rugged slopes of the Green Mountains. Like the green in other products of nature, it blends in color with a wide variety of ornamental and utilitarian materials.

At the entrance to the Paterson Savings Institution it points the way for a large and busy population to stability and security, and its attractive color and contour make that way pleasing.

A recital of the many uses to which architects are putting Vermont Verde Antique would overrun this page. From doorway to powder room, and from floor,

to ceiling, plain or ornamented, either walked upon in your corridor or admired at your fireplace, there is no material that is quite so generally desired.

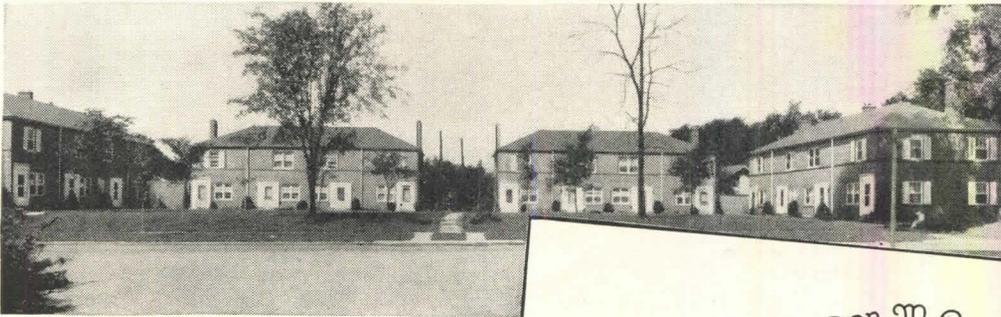
VERMONT

MARBLE

VERMONT MARBLE COMPANY • PROCTOR, VERMONT

Branch Offices:

**BOSTON • CHICAGO • CLEVELAND • DALLAS • HOUSTON • LOS ANGELES • NEW YORK • PHILADELPHIA • SAN FRANCISCO
ONTARIO MARBLE COMPANY, LIMITED, PETERBOROUGH, ONT.**



Part of the attractive, four-family apartment project built in Columbus, Ohio, by CAPITOL PROPERTIES, INC.

Ohio builder chooses KIMSUL* Insulation above all others for all types of construction

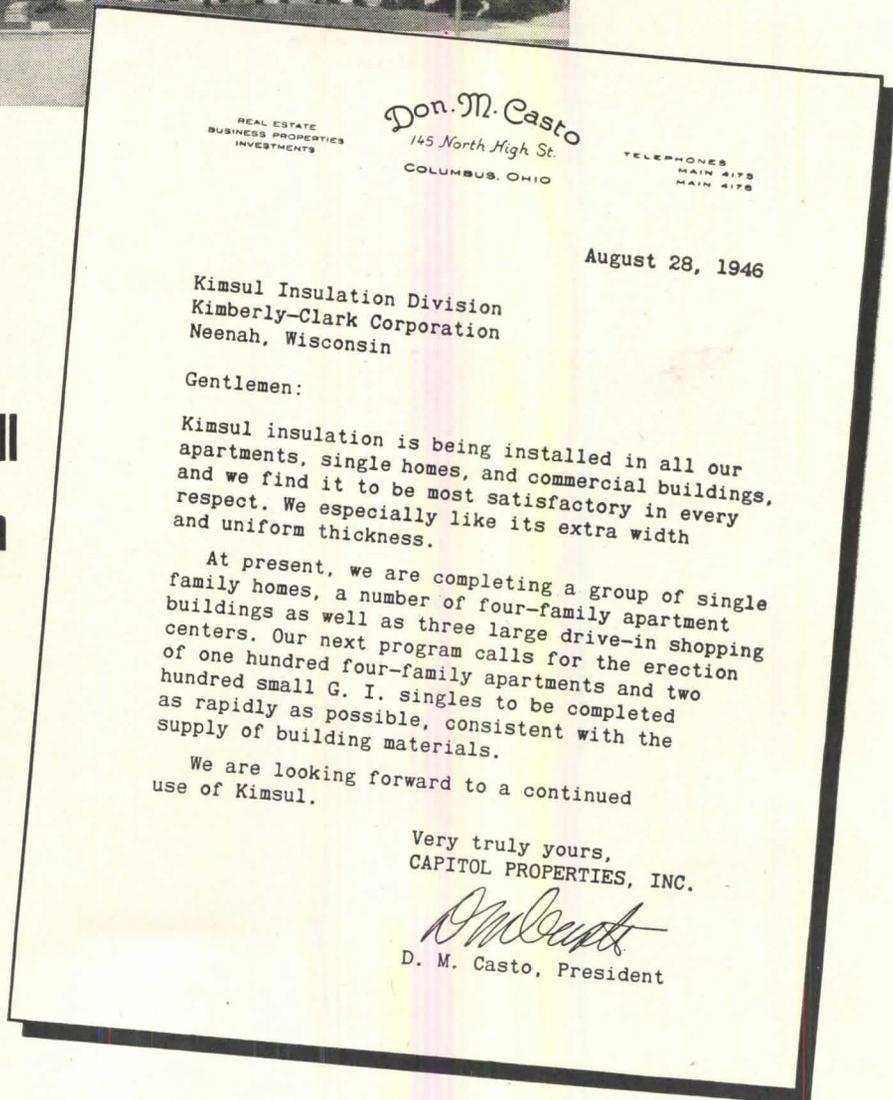


Installing light, flexible KIMSUL* in a CAPITOL PROPERTIES, INC. home. It is easy—just cut KIMSUL to desired length, expand it, and staple to ceiling joists.

Like Don M. Casto, important builders, architects, and contractors everywhere are specifying KIMSUL Insulation. With a "k" factor of 0.27, KIMSUL is one of the most efficient insulations ever developed for insuring home comfort. Designed on the scientific principle of many-layer construction, KIMSUL automatically provides uniform insulation coverage. Prefabricated and pre-stitched, it's easy to install. It's pleasant to handle because it's so clean—no dust, no

irritating after-effects to skin of workmen. And KIMSUL is resistant to fire, moisture, fungus; it is termite-proof... won't sag, sift, or settle.

These qualities—and many more—account for the outstanding performance of KIMSUL in all types of construction. They are the reasons why it is wise for you to include KIMSUL in any building specification. For complete information, write Kimberly-Clark Corporation, KIMSUL DIVISION, Neenah, Wis



REAL ESTATE
BUSINESS PROPERTIES
INVESTMENTS

Don. M. Casto
145 North High St.
COLUMBUS, OHIO

TELEPHONES
MAIN 4175
MAIN 4176

August 28, 1946

Kimsul Insulation Division
Kimberly-Clark Corporation
Neenah, Wisconsin

Gentlemen:

Kimsul insulation is being installed in all our apartments, single homes, and commercial buildings, and we find it to be most satisfactory in every respect. We especially like its extra width and uniform thickness.

At present, we are completing a group of single family homes, a number of four-family apartment buildings as well as three large drive-in shopping centers. Our next program calls for the erection of one hundred four-family apartments and two hundred small G. I. singles to be completed as rapidly as possible, consistent with the supply of building materials.

We are looking forward to a continued use of Kimsul.

Very truly yours,
CAPITOL PROPERTIES, INC.

Don M. Casto
D. M. Casto, President

↓

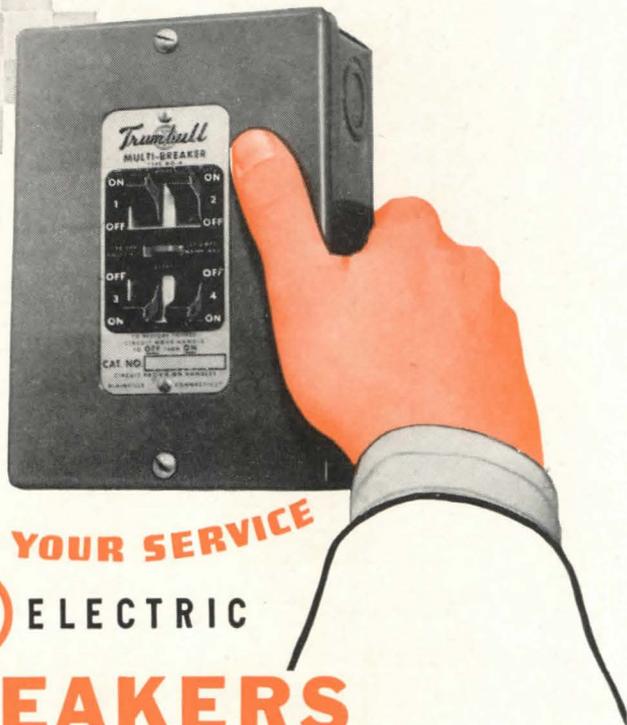
We are producing all the KIMSUL Insulation we possibly can, but due to the great demand, distributors may have some difficulty in supplying KIMSUL dealers as promptly as usual.



*KIMSUL (trademark) means Kimberly-Clark Insulation

**NO MORE STUMBLING
AROUND IN THE DARK**

TRYING TO FIND A FUSE



A FLIP OF THE SWITCH RESTORES YOUR SERVICE

TRUMBULL **T** ELECTRIC
MULTIBREAKERS

When you install a Trumbull Multibreaker you have assured Convenience, Economy and Reliability in modern circuit breaker protection for lighting circuits, small motors, appliances, water heaters, ranges and oil burners.

On overloads or short circuits, the Multibreaker automatically and instantly trips. On, Off and Tripped positions are indicated on the handle. To restore a tripped circuit merely move the handle from neutral position to Off... then to On. No fuses are needed. There's nothing to renew. No live parts are exposed even when restoring current.

Trumbull's complete line for residential use is shown below... and there's also a wide selection of industrial Multibreakers. See your Trumbull wholesaler for the capacities you need... make it Multibreaker for safe, durable protection... specify Trumbull for streamlined, compact design.

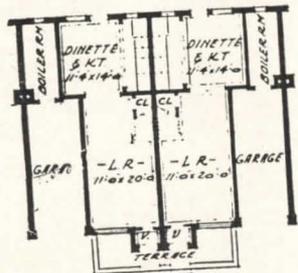
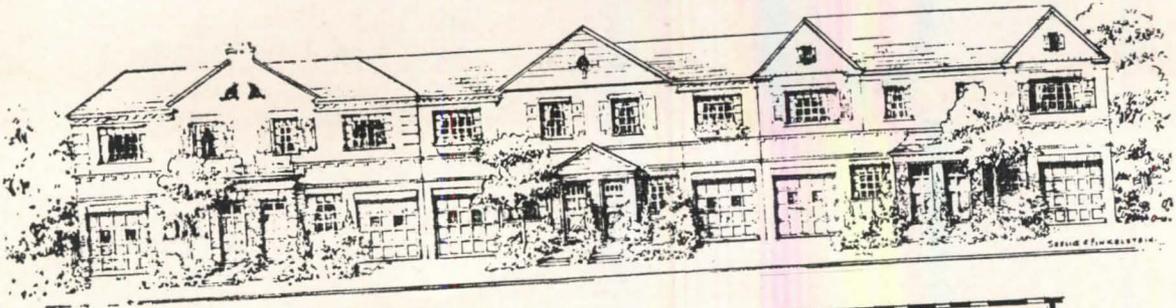
THE TRUMBULL ELECTRIC MANUFACTURING COMPANY

Plainville, Connecticut

Other factories at Norwood, O.—Seattle, San Francisco, Los Angeles

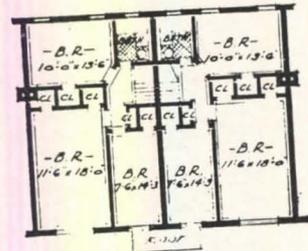
A REALLY COMPLETE LINE





FIRST FLOOR PLAN

— RALEIGH —



SECOND FLOOR PLAN

Bay Development, TRUMP HOMES
 Seelig & Finkelstein—Architects
 Par Plumbing—Contractors, all of Brooklyn, N. Y.
 800 Delany Flush Valves and No. 50 Vacuum Breakers.

MODERNIZE with DELANY VALVES

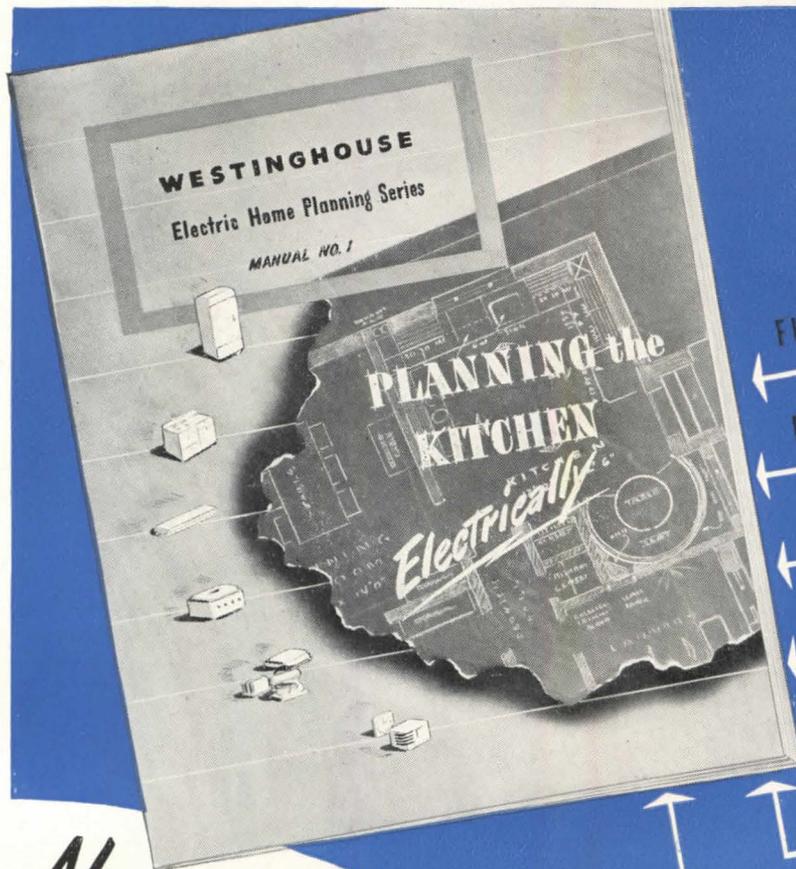
These 400 Beautiful Homes are equipped with streamline, space saving Delany Valves —one of the reasons for the rapid sales of the above homes long before they are completed.

These families are on the threshold of a service many families have been enjoying for the past 20 years. You too can have this, light fingertip manipulation, the speedy cycle of operation (6 seconds), the smooth streamline action, the positive clean elimination of waste, definitely doing away with all personal annoyances of additional housekeeping.



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- ← FUNDAMENTALS OF KITCHEN PLANNING
- ← BASIC KITCHEN LAYOUTS
- ← DESIGN DETAILS
- ← KITCHEN LIGHTING
- ← ELECTRIC OUTLETS AND CIRCUITS
- ← APPLICATION TO SPECIFIC HOMES
- ← KITCHEN EQUIPMENT

Now-a new book that makes kitchen planning easy!

This new book explains fully the principles of kitchen planning. Eliminates hours of detailing by using the 64 standardized layouts that are adaptable to practically any kitchen. Basic kitchen layouts are clearly indexed so that you may quickly find a design to meet specific requirements.

All layouts are detailed to scale, permitting quick tracing. Elevations and a complete list of materials are included for each design. Four pages of details are given, showing location of doors and windows to assure clearance of kitchen equipment, furring above cabinets, etc.

Efficient methods of lighting and ventilating

kitchens are also included. Proper circuits and required number of electrical outlets are specified. Detailed product data, is given along with dimensions and brief specifications. The most unique and practical design book ever produced on kitchen planning. Costs \$1.00. Other booklets that may help you are "4 Degrees of Electrical Living" (Free), and "Home Wiring Handbook" (\$1.00).

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... CAN BE PLACED ANYWHERE
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ELECTRIC

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Frank Adam Quikheters are excellent for any day on which heat is needed, but they are particularly ideal for days when the weather is extremely variable... damp and chilly mornings, warm afternoons and cool evenings... days when the regular heating plant sends forth an uncomfortable amount of heat, and yet, it is too cool to be without some warmth in the house.

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Encourage your customers and clients to install one or more of these attractive, convenient, fuel-saving, comfort-giving units and thus help to insure a balanced heating system.

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Built-in  Electric Quikheters are available in single units of 1,000 and 1,500 watts and twin units of 2,000 and 3,000 watts, for immediate delivery. For details, send for Bulletin No. 77.

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DAUPHIN COUNTY COURT HOUSE, Harrisburg, Pa.

Lawrie & Green, architects — Harrisburg, Pa.

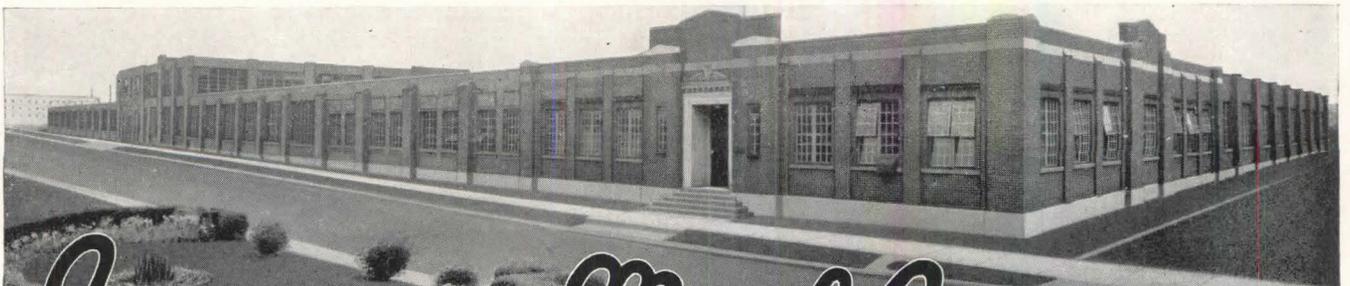
William A. Berbusse, Jr., Inc., general contractor — New York City

The Dauphin County Court House at Harrisburg, Pa. is one of the finest examples of court house construction in the country.

In this distinctive, modern building—hollow metal was supplied by Jamestown Metal Corporation.

● Jamestown Metal Corporation requests an opportunity to work with architects on plans for Elevator Enclosures, Interior Trim, Hollow Metal Doors, Office Partitions and Cold Rolled Moulding in Bronze, Aluminum, Steel and Stainless Steel.

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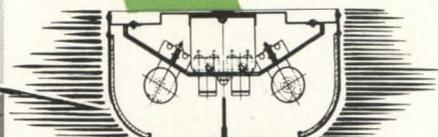
A Designed...

LIGHTING INSTALLATION

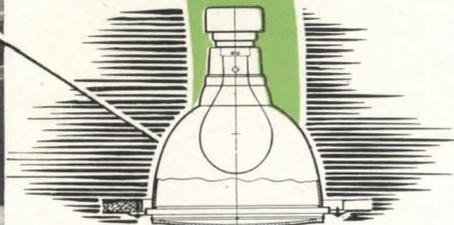


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The wide range of Pittsburgh Permaflexor Units give *unlimited design possibilities*—whether you need fluorescent or incandescent equipment . . . or a combination of both.



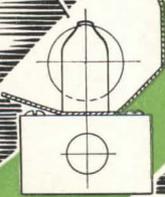
Permaflexor "Tyler" Fluorescent Units, ceiling mounted in continuous rows.



Permaflexor E-500-4 Incandescent Units, ceiling recessed and equipped with hinged, concentric louvers.



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Cove recessed, indirect Fluorescent Strip KO-41-E with asymmetric Flu-Re-Flectors.

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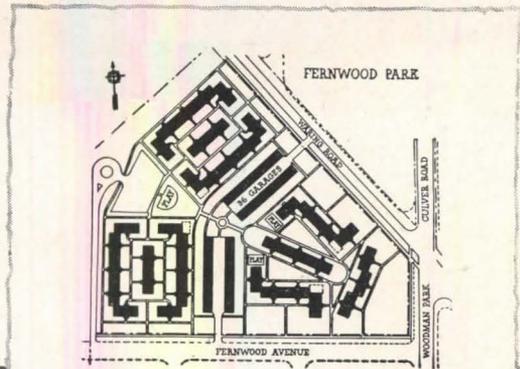
Pittsburgh Reflector Company

OLIVER BUILDING • PITTSBURGH 22, PA.

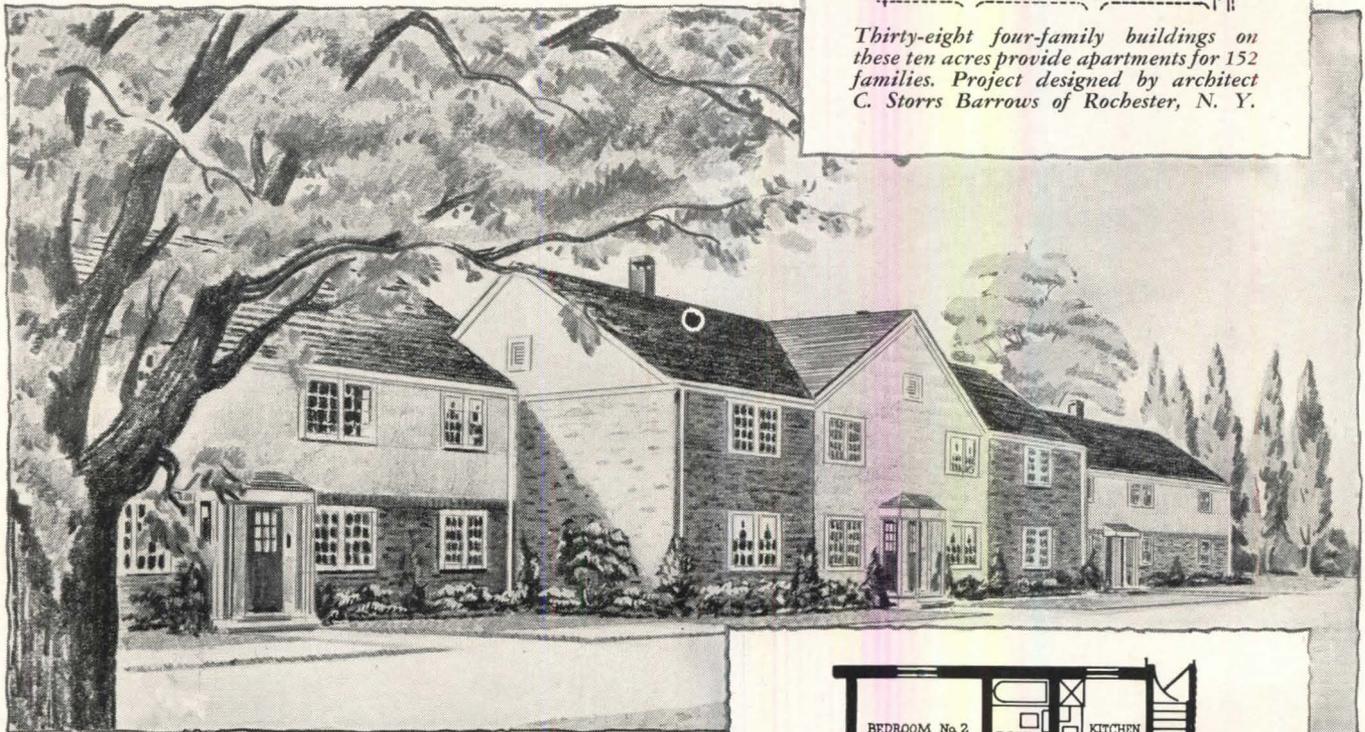
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Rochester Plan

PROVIDES LOW-COST RENTAL HOUSING
FOR VETERANS AND THEIR FAMILIES



Thirty-eight four-family buildings on these ten acres provide apartments for 152 families. Project designed by architect C. Storrs Barrows of Rochester, N. Y.

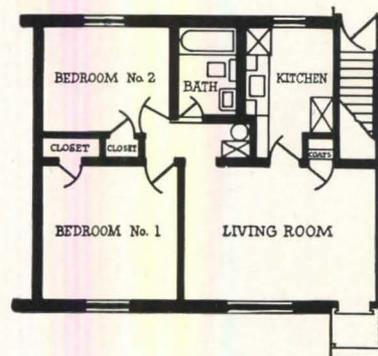


152 Bryant Winter Air Conditioners supply ideal indoor weather, individually controlled



The Rochester Plan, one of the nation's best solutions to the war-created housing shortage, is now a glowing reality . . . only slightly over a year since its conception by the eight banks of Rochester, N. Y. Operated by bank-owned Rochester Civic Rental Project, Inc., a non-profit company, the Plan provides modern living for service veterans and their families at extremely modest rental. Each apartment has three spacious rooms, bath and kitchen complete with range, refrigerator and electric disposal unit. Service facilities include a laundry center with automatic washers, garages and play areas for children.

A distinctive feature of the project is individual apartment heating, supplied by Bryant Model VB-6 Winter Air Conditioners. A vertical forced air unit, the Bryant Model VB is made especially for installation in apartments, basementless homes or any home where space is at a premium. Bryant Heater Co., 17825 St. Clair Ave., Cleveland 10, Ohio . . . *One of the Dresser Industries.*

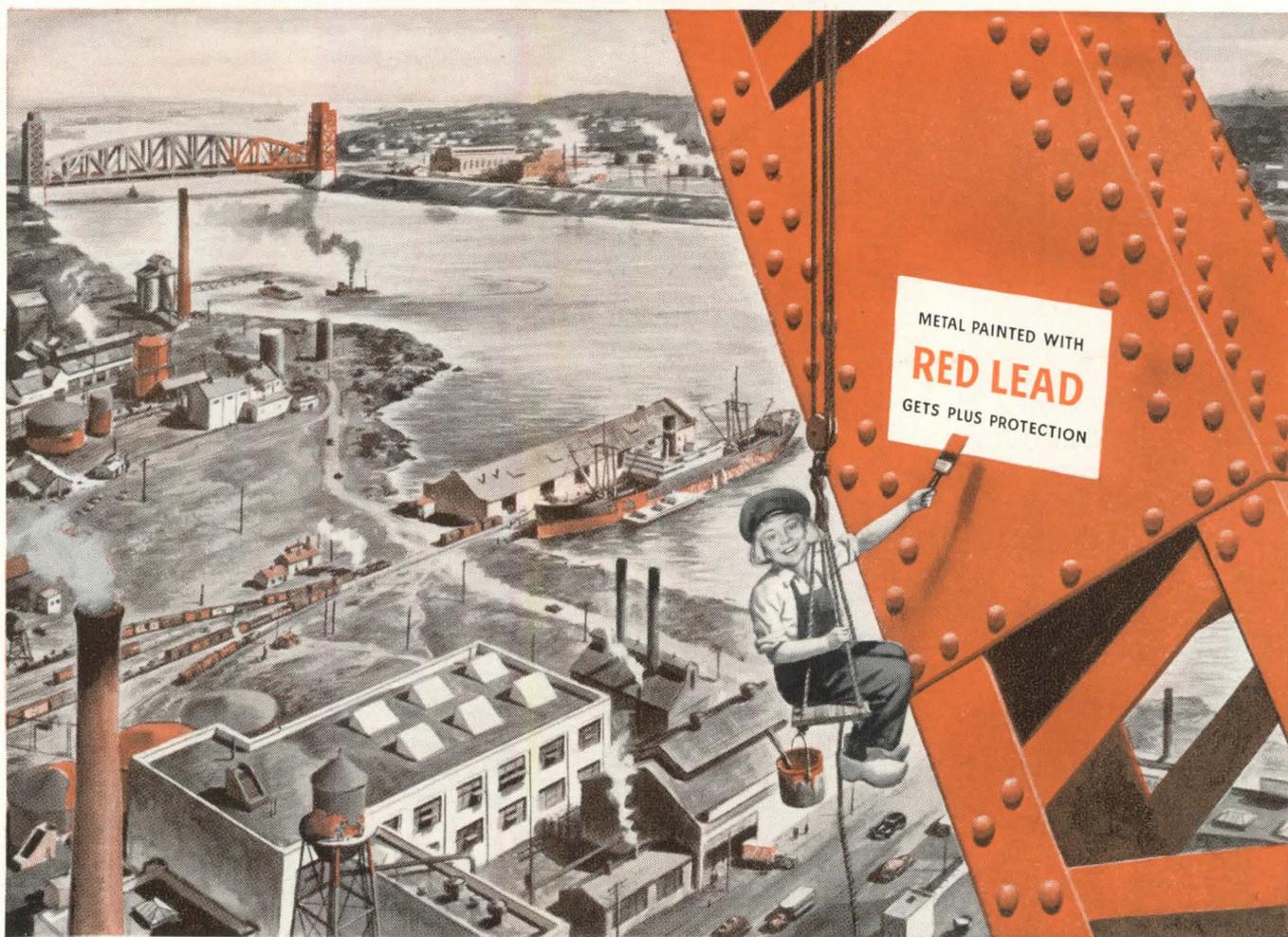


Although exterior treatment varies to give these homes individuality, each apartment has the same pleasing, compact interior arrangement.

bryant
GAS
HEATING



LET THE PUP BE FURNACE MAN



Unique **RED LEAD** "Soaps"

... check Rusting 3 Ways

Scientific research shows why Red Lead has long been regarded as the "standard" metal-protective paint.

One interesting factor is Red Lead's ability to react with the vehicle and produce unique lead "soaps."

These "soap" formations grow to form a tough, impervious, intermeshing matrix within the paint film, as shown in the photomicrographs below. These "soaps" help Red Lead inhibit rust three ways.

1. Toughen Paint Film. Radiating from central cores the "soap" formations develop long, rod-like projections, which spread out and interlock. Thus, they form a dense intermeshing structure that *mechanically* reinforces and toughens the paint film.

2. Make Film Water-Resistant. The very structural formation of these "soaps," with their thick, impervious matrix of closely-knit fibres, helps restrict the passage of moisture through the paint film. And metal cannot rust without the presence of moisture.

3. Keep Film Flexible. The "soap" formations, far from being rigid, allow movement all

along their soft, intertwining projections. The resulting flexibility helps prevent the ruptures to which a hard, unyielding paint film is subject. Thus the lead "soaps" aid in maintaining the continuity of the paint film.

Lead "soaps" form primarily in the dry paint film as it ages. This is where the "soap" formations impart their greatest benefits. When a paint film weathers and ages, decomposition products of the vehicle are formed. Red Lead's ability to slowly combine with these decomposition products actually enhances the life of the paint film. Red Lead's slow rate of reaction means the film age-hardens at a slower rate. It thus retains a high degree of flexibility, a great factor in its lasting adhesion.



The photomicrographs above show how Red Lead "soaps" progressively spread out as they grow and thus reinforce the paint film.

Remember, too, Red Lead is compatible with practically all vehicles commonly used in metal protective paints, including fast-drying resin types.

Specify **RED LEAD** for ALL Metal Protective Paints

The rust-resistant properties of Red Lead are so pronounced that it improves *any* metal protective paint. So, no matter what price you pay, you'll get a better paint if it contains Red Lead.

* * *

The benefit of our extensive experience with metal protective paints for both underwater and atmospheric use is available through our technical staff.

NATIONAL LEAD COMPANY: New York 6; Buffalo 3; Chicago 8; Cincinnati 3; Cleveland 13; St. Louis 1; San Francisco 10; Boston 6, (National Lead Co. of Mass.); Philadelphia 7, (John T. Lewis & Bros. Co.); Pittsburgh 30, (National Lead Co. of Pa.); Charleston 25, W. Va., (Evans Lead Division).



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A Tribute to
AQUELLA
*from a prominent
California Architect*



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PASADENA 5, CALIF

November 15, '46

Prima Products, Inc.
230 Fifth Avenue,
New York City.

Gentlemen:

I have been a practicing architect in Pasadena for something like forty years and have thought that you might care to have from me an endorsement of Aquella. I was the architect of the Pasadena Community Playhouse, the Huntington Art Gallery at San Marino, California, and some of the buildings of the California Institute of Technology.

My own home in Pasadena was built some 35 years ago. When the forms for the concrete of its basement walls were removed a number of fissures were disclosed which, during heavy rain storms resulted in the basement being flooded. This has happened virtually every year now since the house was built.

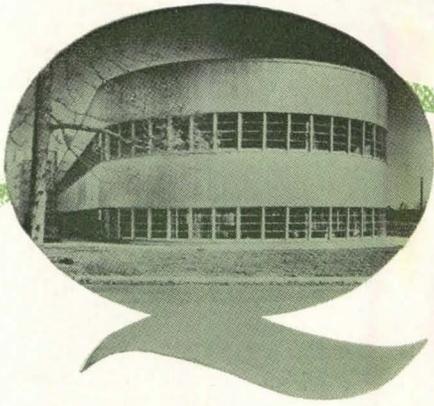
I knew that if I could get at the outside of the basement walls it would be a simple matter to apply waterproofing and stop the leaks. But that would be difficult and expensive. This year I thought I would experiment with Aquella on the inside of the walls. We have just had the worst rainstorm of the season. The rain came down in torrents for several days. But our application of Aquella to the inside of the walls stopped the leaks. Our basement is as dry as a bone. I am therefore glad to recommend Aquella as an unusually effective waterproofing compound.

Yours truly,

Elmer Grey

The principle on which Aquella works and how it is being used by architects, engineers and contractors to control water seepage on all porous masonry surfaces is told in our new brochure "Aquella and Concrete Masonry Construction." May we send you a copy?

PRIMA PRODUCTS, Inc.
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Q-Panels available now

AND LOOK WHAT ARCHITECTS ARE DOING WITH THEM!

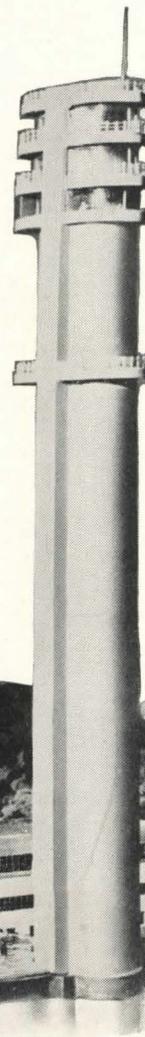
● The scale model below shows how Giffels & Vallet, Inc., L. Rossetti, Engineers and Architects, visualize the new electronics laboratories now under construction at Nutley, New Jersey, for the Federal Telecommunication Laboratories, Inc. The 300' tower is in itself a microwave experimental laboratory.

Like the completed section shown above, the finished project will be Robertson Q-Floors and Robertson Q-Panels throughout. The tower will be faced with specially designed aluminum fluted Q-Section.

The Q-Panels are 2' wide consisting of a fluted aluminum section and a flat steel plate enclosing 1½" of insulation. Q-Panels weigh less than 5 lbs. per square foot and can be erected so fast that a crew of only twenty-five men have put up an acre of wall in three days. Yet this advanced wall building panel has the thermal insulation value of 12" dry masonry. Fluted or flat surfaces offer great variety for architectural contrasts in light and shadow.

Wherever conventional, heavy masonry walls have been used in commercial and industrial buildings, Q-Panels can be used, and it's a lot easier to hang a wall than to pile it up. Q-Panels come to the job pre-engineered for speedy erection, and not the least of Q-Panel's advantages right now is the fact that you can get them in a reasonable time. In addition to the job described here, Robertson Q-Panels are currently being used in all parts of the country.

For more information, call your Robertson Representative or write the H. H. Robertson Co.



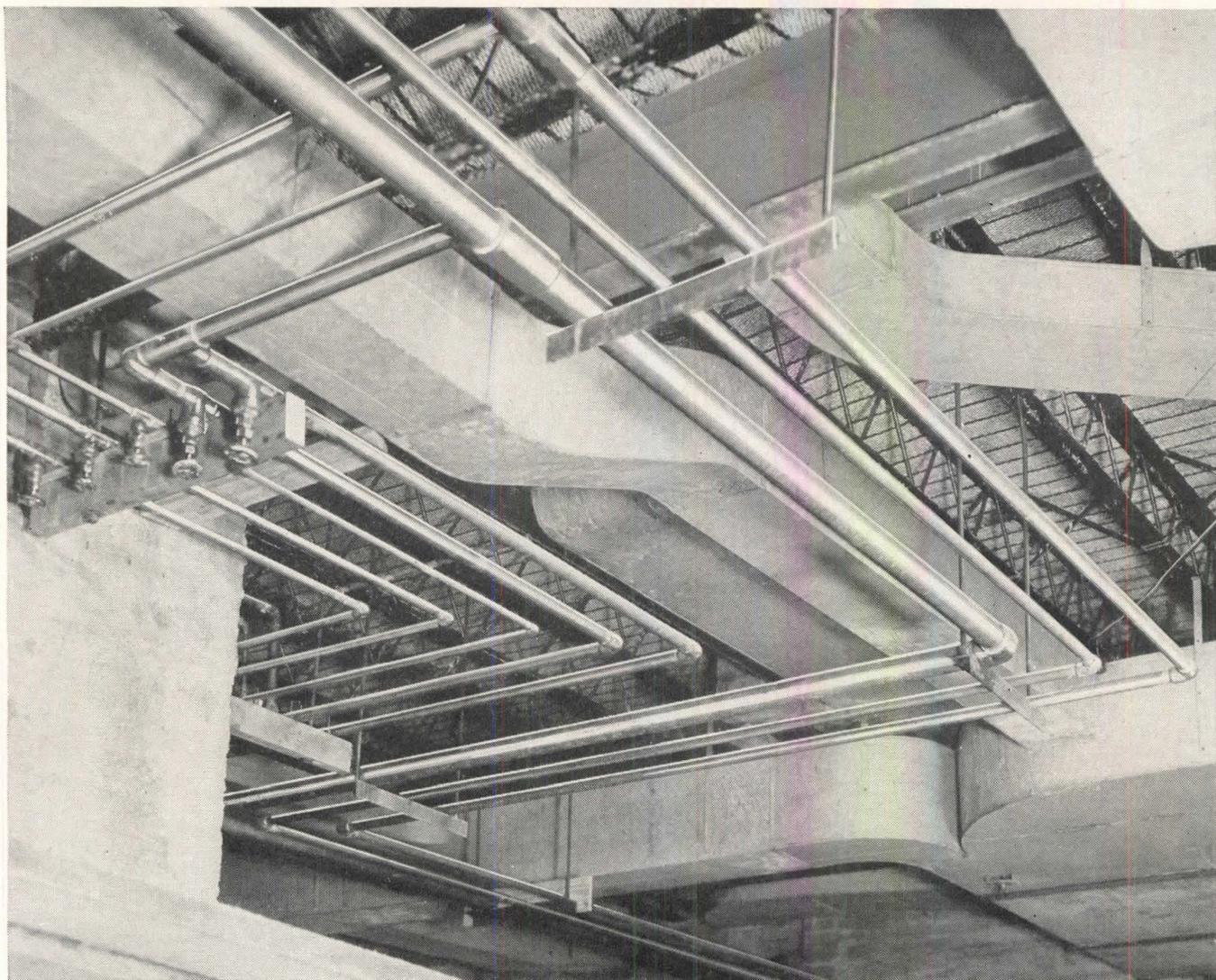
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NO matter how fine a building may be in other ways, faulty water and heating lines can make it old fashioned, costly to maintain, inconvenient to use or occupy. With Revere Copper Water Tube you can economically guard any building against leaks, insufficient flow, and taps that run red, rusty water. For *completely installed*, this tube costs little or no more to use in the first place, and much less in the long run, because it helps any building to keep on meeting the demands that are made upon it.

Made for heating, water supply, air conditioning and other services in all types and sizes of buildings, Revere Copper Water Tube has a smooth, gun-barrel interior finish that insures an unrestricted flow of water through the lines. Joints made with either soldered or compression fittings help further to cut down friction loss. The Revere name and the type, stamped on this tube at regular intervals, insure full wall thickness and the close gauge tolerances so essential for tight sweated joints.

You can also specify such long-lived Revere materials as Red-Brass Pipe; Sheet Copper for tanks, ducts, pans and trays; Dryseal Copper Refrigeration Tube (dehydrated and sealed); Copper oil burner, heat control and capillary tubes... and, of course, Sheet Copper for roofing, flashing and other sheet metal construction. Revere materials are handled by leading distributors in all parts of the country. The Revere Technical Advisory Service, Architectural, is always ready to serve you.

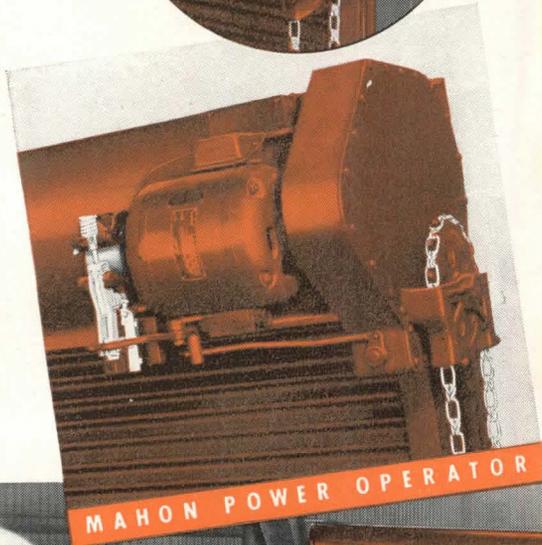
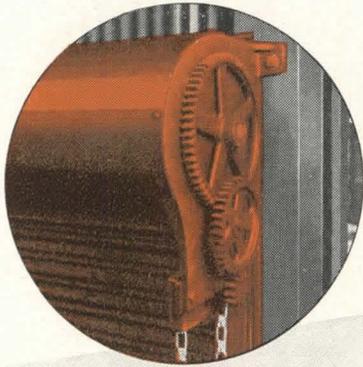
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In addition to the protection afforded, the permanence of steel, and the inherent space-saving advantages of vertically opening Rolling Steel Doors, you will find in Mahon Doors many distinct advantages in operating mechanisms and compactness of design. These advantages are worthy of your investigation . . . see Mahon Insert in Sweet's File for detailed information, specifications and clearance dimensions, or consult a Mahon representative.

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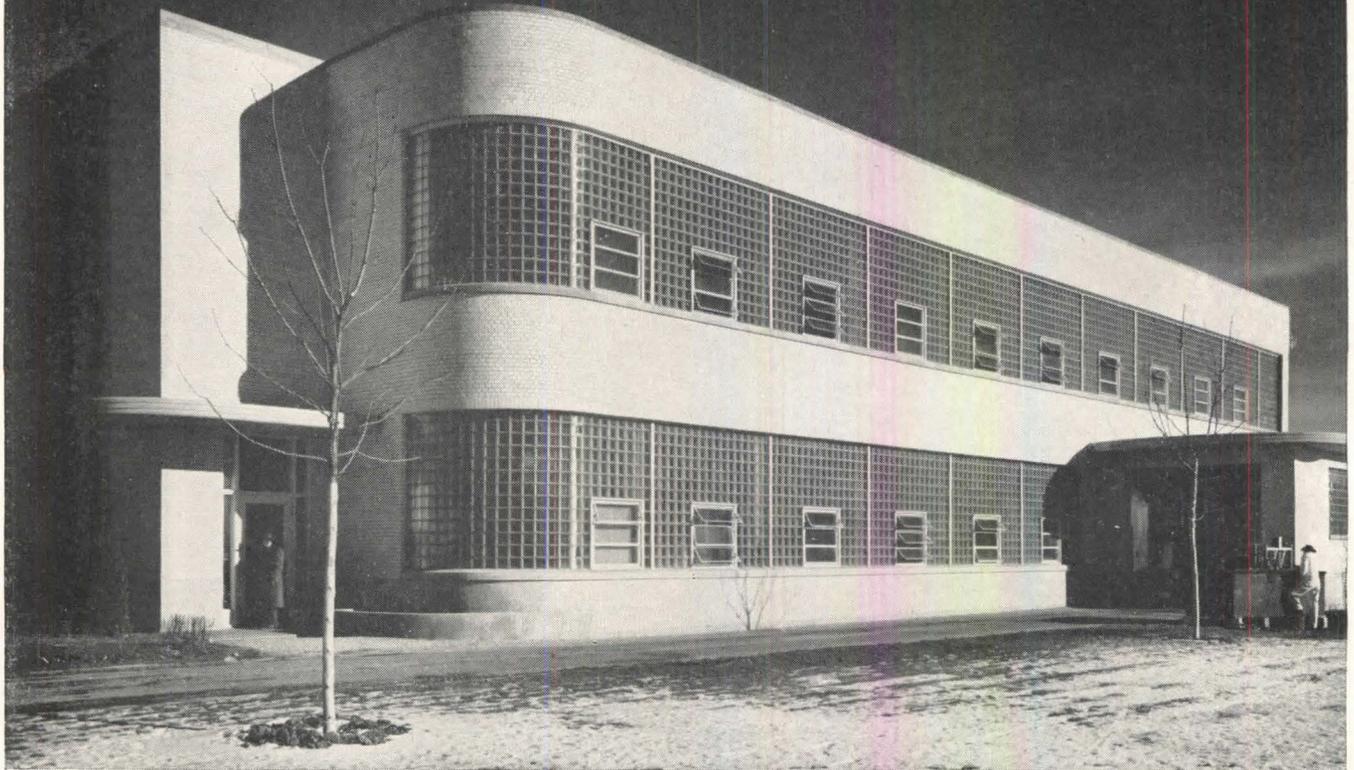


ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

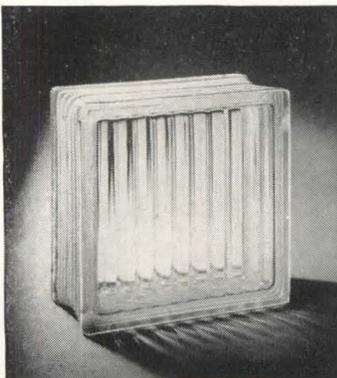
One of Thirty-two Mahon Rolling Steel Doors installed in Terminal No. 2, Port of Vancouver, Washington.

MAHON

Plentiful private daylight is a number one reason for the use of Insulux Glass Block in the Dean Milk Co., Huntley, Illinois. Installed in a manner similar to brick, Insulux forms a permanent, light-transmitting wall. Architect: Victor L. Charn, Chicago.



Permanent answer to daylighting problems



OWENS - ILLINOIS

INSULUX
GLASS BLOCK

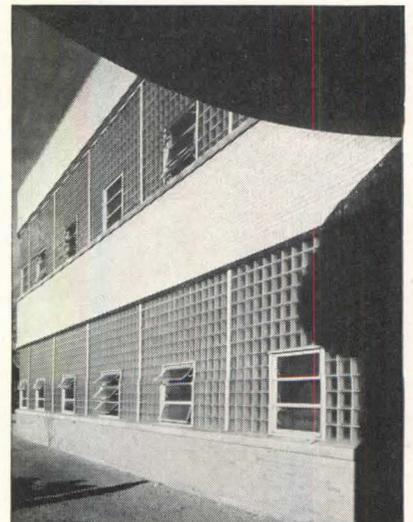
Insulux Glass Block is a functional building material, manufactured in three sizes, many attractive and functional face patterns. Investigate!

PLENTIFUL daylight pours into the new Dean Milk Co. building through panels of Insulux Glass Block—which also *permanently* solve other important problems.

Here, sanitation is a prime concern. Insulux Glass Block seals out dirt and dust and it's easy to keep the panels clean and sparkling. Even if humidity is excessive, impervious Insulux will not rot, rust or corrode and there's no need for painting.

High insulating value is an important plus feature. Heat gain and heat loss are sharply reduced as compared to single glazing. The result: lower cost air conditioning and heating operations.

These advantages are a few of the many that have made Insulux Glass Block so widely and well used in industrial, commercial and residential construction. Complete technical data, specifications and installation details are given in the "Glass" section of Sweet's Architectural Catalog, or write Dept. D-4, Owens-Illinois Glass Company, Insulux Products Division, Toledo 1, Ohio.



Harmony of Insulux Glass Block and other building materials is readily seen here. Small clear windows, set in the panels with standard frames, provide vision out and ventilation.

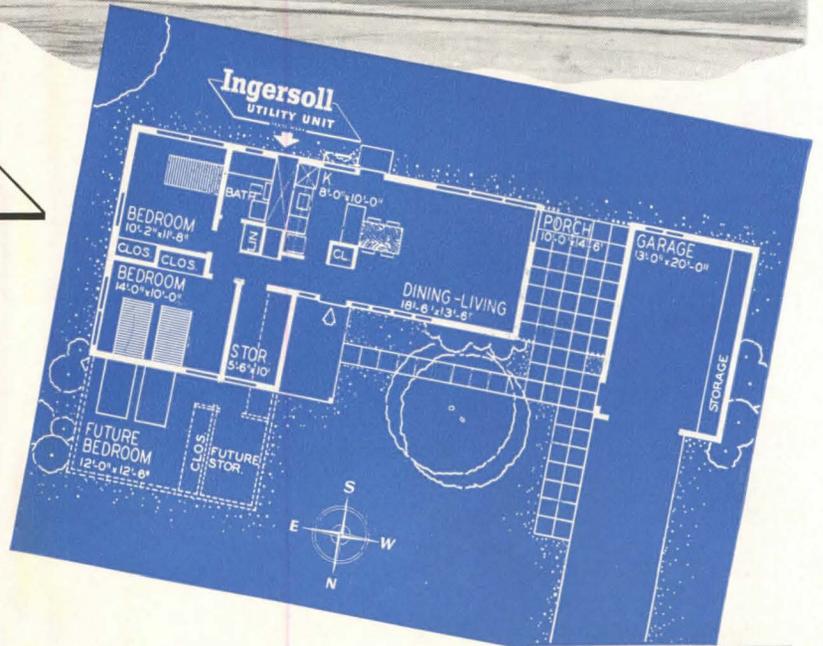
More and More Architects Are Specifying

the **Ingersoll** UTILITY UNIT

TRADE MARK

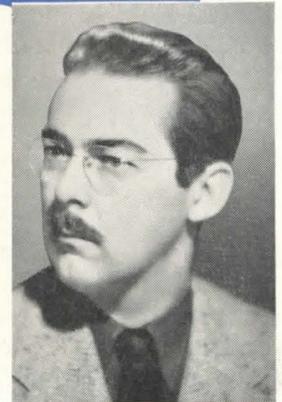
Because:

1. The Ingersoll Utility Unit is an architect's product. It was conceived by an architect; produced in collaboration with architects; job-tested by architects.
2. The unit occupies less than 80 square feet of floor space, gives valuable extra cubage without restricting creative design.
3. This complete, engineered assembly assures the architect of an attractive kitchen, bathroom and heating plant, including all basic connections, without making detailed specifications.
4. The Ingersoll Utility Unit has been thoroughly tested in a wide variety of homes designed by eight leading architects. These homes have been "lived in" for more than a year.
5. Because the Ingersoll Utility Unit comes in one space-saving package, the architect can deliver a roomier, more attractive home at a low cost.



Small Homes Designed by L. Morgan Yost Show How the Ingersoll Utility Unit Saves Floor Space Without Restricting Creative Design

"I have used Ingersoll Utility Units in many of my small home designs," says Mr. Yost, well-known architect of Kenilworth, Illinois. "I find they are easily adaptable to an amazing variety of attractive floor plans, and always result in a saving of valuable space. They save the architect time in planning and in making up specifications, and they simplify the contractor's problem of procuring and installing all the fixtures and equipment that are included here in a single unit."



L. Morgan Yost
Kenilworth, Ill.



Ingersoll UTILITY UNIT

TRADE MARK

The Ingersoll Utility Unit is a single engineered assembly that includes Kitchen, Bathroom, Heating Plant and all plumbing and electrical connections. All fixtures and appliances are included. Nothing extra to specify.

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HEAT *that flows* TO EVERY NOOK AND CRANNY

YOU'LL want to specify Moduflow for every home you design. With Moduflow heat does flow—literally—to every nook and cranny. Instead of former on-and-off control systems, Moduflow furnishes heat continuously and with the supply always in balance with heat loss.



By including Moduflow in the homes of your clients, you are providing an entirely new kind of heating comfort because this control represents one of the radically new improvements for which the public is looking. Moduflow puts an end to the drafts and chilly periods caused by intermittent heat supply. Gone is the cause of petty annoyances about a bathroom that is not warm enough, or a living room that is cold at one end.



Use Moduflow not only to give your clients the ultimate in home heating comfort, but to identify yourself with progressive improvements. Moduflow is available now. It

has been tested and proved on installations throughout the country. Minneapolis-Honeywell Regulator Company, 2601 Fourth Avenue South, Minneapolis 8, Minnesota . . . In Canada: Toronto 12, Ontario.



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THROUGH WORDS TO WORKS

IT IS good to confer, good to convene. It is good to exchange ideas, to be exposed to the ideas of others. It is especially good to come to know men as persons as well as to know them as exponents of particular philosophies, theories, or practices. One's opinions of men change as well as one's opinions of their opinions. One learns to evaluate the sincerity and depth of a man's thought and feeling, to weigh what a man is in the light of what he says he believes, to judge his motives as well as his protestations. Informal group and man-to-man discussion contributes as much as public debate in open sessions. It is good, for it reaffirms one's faith in his profession and its future, in his colleagues, and in himself.

The recent Bicentennial Conference at Princeton proved this. The coming A.I.A. Convention at Grand Rapids will confirm it. The success of the Princeton Conference was due in large measure to the care with which the agenda was prepared, the high plane established at the outset, centering the discussion on the philosophical basis of design in relation to human progress in the control of environment. I commend to your attention, and for your contemplation, the thoughts expressed in the brief excerpts of statements made (pages 98 to 100). Fragmentary as they are and ripped from the context, each is a subject or a point of view worthy of consideration and development in your own mind and in discussion with others.

If there was one thought that threaded its way through the pattern of the Princeton discussions it seemed to be the general conviction that architecture and design must transcend physical objectives and serve man's spiritual needs, using all that science and engineering can provide but shaping them in terms of human values. Emphasis was placed thus on architecture as an *art*, with engineering as a means to an end rather than an end in itself. This is reassuring to the architectural profession which felt itself threatened by a more materialistic or mechanistic philosophy so prevalent but a few years ago. There was no formalized detailed expression of this belief in the true function of design, but it does indicate the direction of the current philosophy of many leaders in the field.

But there are other functions of other conferences and conventions. Paramount among them now is perhaps the consideration of ways and means to make that philosophy effective in practice, getting down to the question of *what* and *how*. It is heartening to find that this year the A.I.A. is undertaking seminar conferences directed to these ends, a procedure we have long and publicly advocated. Developed as they can be, and we hope will be, in future years, these features of A.I.A. conventions can be most rewarding both to the profession and to the public it serves. And some day the public will become aware of, and will appreciate, both the motives and the philosophy of the design professions through the excellence of their works. Only through the physical manifestations will the public become aware of the philosophies expounded and developed in conferences and conventions.

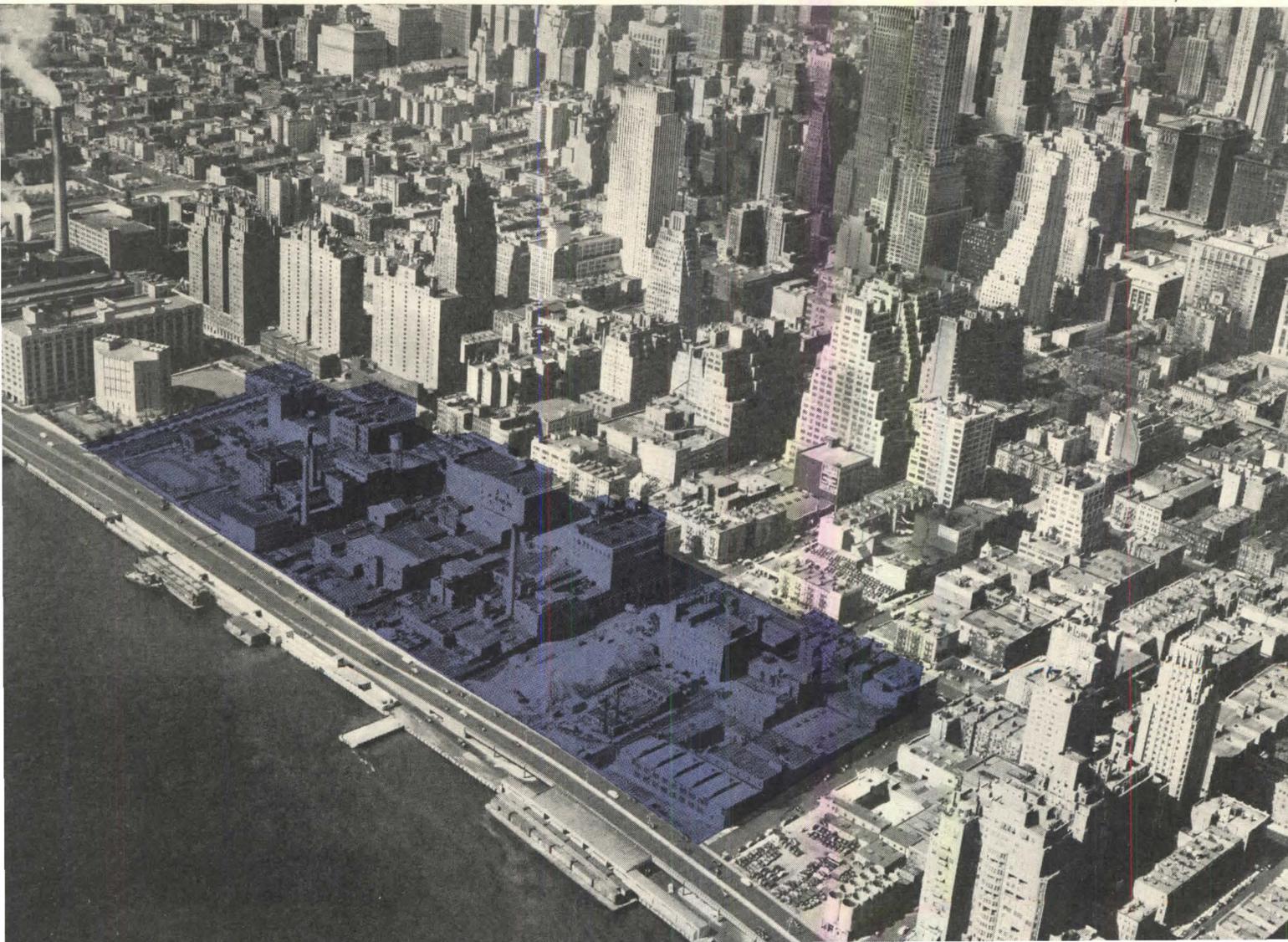
Kenneth K. Stowell

EDITOR

PLANNING FOR PEACE

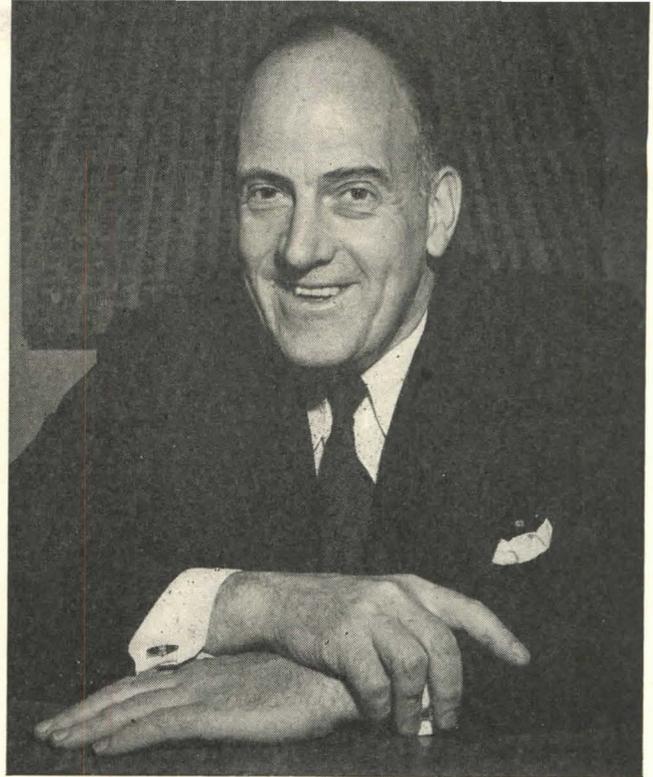
Plans for United Nations Headquarters proceed on wartime speed schedules

Fairchild Aerial Surveys Photo





Wallace K. Harrison, Director of Planning



Official United Nations Photo

PLANNING for peace is fully as frantic in the RKO Building in Rockefeller Center, as any planning of war plants or military bases. Architects, associates, advisers, engineers, draftsmen, renderers, model makers, are all bent over boards with an air of urgency that might well be emulated in the meeting rooms being planned.

The designers feel that the whole effectiveness of United Nations might hang on the rapid completion of the permanent headquarters buildings. As one of them said, "Nobody has had the time or inclination to think of this as a great opportunity for grandiose exhibitionist schemes. There is no monument-to-architectural-genius self-consciousness, which would probably defeat itself anyway. We must do good workable buildings, in a mighty hurry. And I have an idea most great work of the past was done in just that spirit."

The parallel with wartime planning is striking. The Director of Planning, with authority of the Secretariat and the Headquarters Commission, preempts architectural talent just as our own government did. Work started weeks ago, long before the team was assembled. New players from here and abroad are called and sent into the game whenever they can be used at the field. The associate architectural firms are called upon to supply selected draftsmen on demand, and at cost. The Director of Planning, Wallace K. Harrison, does not have an architectural commission—he works on an annual salary, a surprisingly modest one. Indeed as yet there isn't even any appropriation covering design and construction; nobody has a dollar to spend. But, as in wartime, there isn't time to wait on such formalities. The engineers have their own conferences in a stripped apartment in the Marguery Hotel, have installed their own draftsmen there. Site borings have already been made. A liaison group has been set up with City bureaus,

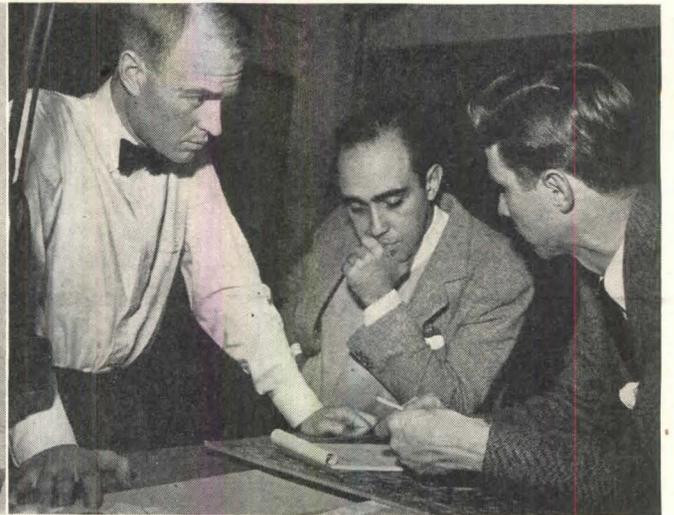
plans are being drawn for rearranging traffic routes, covering over or widening streets, moving the through drive along the East River, and so on. Material suppliers and labor leaders have been contacted, have promised a continuous flow of work.

Space requirements and groupings were worked out last year, before the site was chosen. These have been restudied and shaken down, are now fairly precise. (See pages 76 to 79.)

Planning work started with the three principal types of meeting rooms: general assembly, conference and council rooms. First assignment for architects was the development of dozens of alternate schemes for the disposition of delegates, advisers, interpreters, stenographers, press, radio and public (see page 81). The large meeting rooms will not, however, be the first built. The latest program calls for one building on an advanced time schedule, this to be "an efficient and functional" office building which would provide office space for the Secretariat and would include a few of the smaller conference rooms, but not the assembly or council chambers.

Three times schedules have been formulated: (1) "normal," calling for full completion in 1950; (2) "accelerated," completion in fall of 1949; (3) "maximum accelerated," which would get the office building done by fall, 1948. Architectural plans are called for in four months, to be ready for distribution to member nations in time for consideration by the General Assembly next September.

This might be contrasted with the record of the League of Nations palace at Geneva, which was handled through an architectural competition. The competition began in March, 1926; submissions did not meet requirements, nine equal first prizes were awarded.

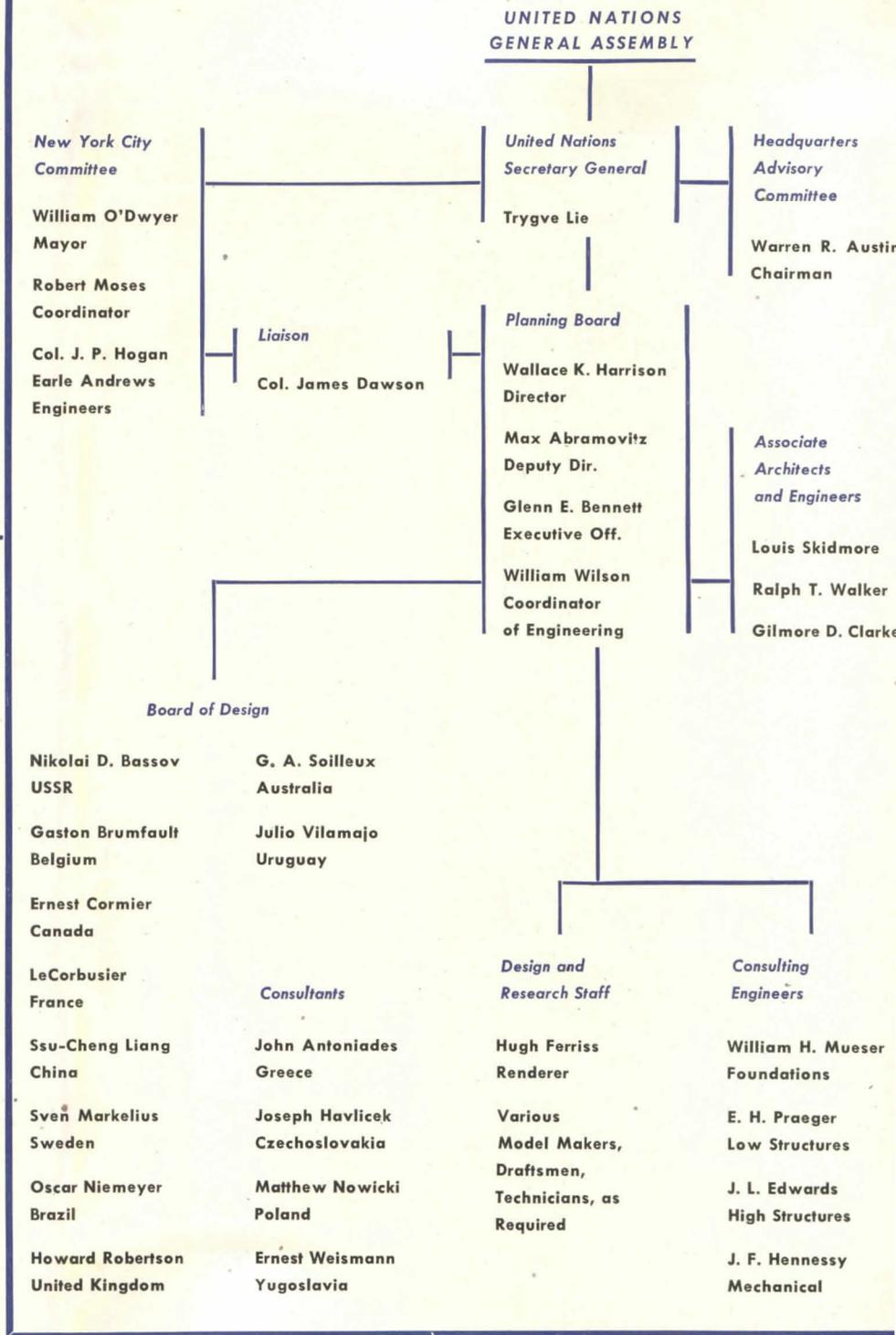


Finally diplomats took over the contest, chose four of the most orthodox schemes, asked that new plans be drawn. Almost two years had gone by. The foundation stone was laid a year and a half later, with final completion 12 years after the competition began.

This time peace headquarters cannot develop so deliberately. Speed here might make all the difference. Well, it isn't waiting. It is being done by architectural firms with plenty of skyscraper know-how, and 14 consultants to supply imagination and viewpoints from as many foreign lands. If the UN builds its peace on as sound a basis as its buildings, and on a comparable "maximum accelerated" schedule, perhaps the world may begin to relax.

Far left: Ralph T. Walker, Louis Skidmore and Howard Robertson. Left: Oscar Niemeyer, Brazilian architect, flanked by Thaddeus Crapster and George Dudley of Harrison's staff, tackles a problem

United Nations Headquarters Planning Commission



Official United Nations Photos

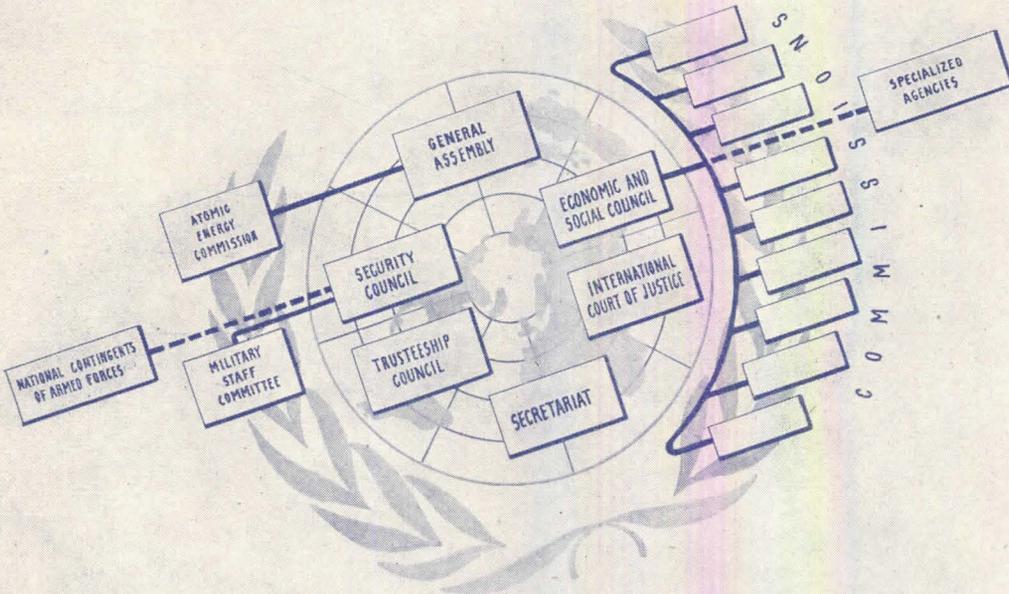
Left center: The early three of the architectural advisory group, with Wallace K. Harrison: left to right: LeCorbusier, N. D. Bassov and Howard Robertson. Center: a meeting of the Headquarters Advisory Committee; at the center table: Trygve Lie, Warren R. Austin, Harrison and Glenn Bennett. Lower left: a typical session of advisory architects and associates. Right: Robert Moses addresses a meeting on plans for the city's improvements near the site



BUILDING REQUIREMENTS FOR U N HEADQUARTERS

Formulated even before the site was selected, these data on space needs are still sound as to organization and function, but actual space allocations have since been revised, as on page 79

PRINCIPAL ORGANS

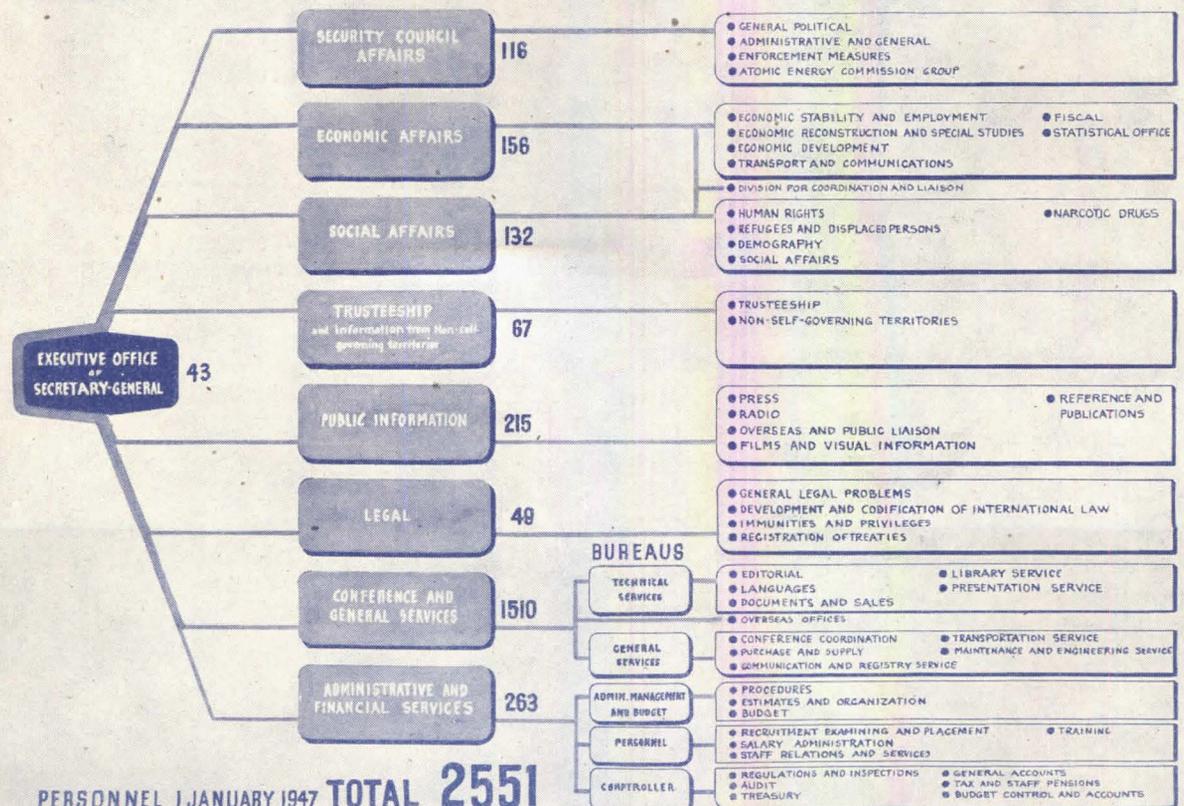


PERMANENT RESIDENT PERSONNEL

SECRETARIAT

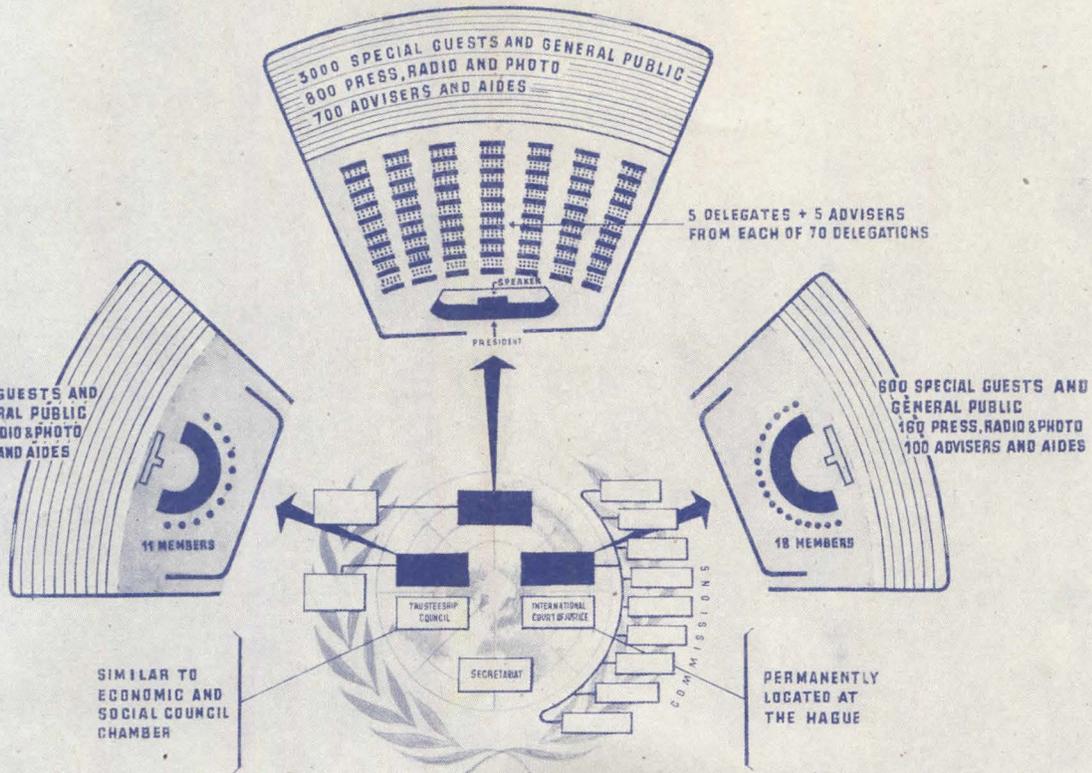
DEPARTMENTS

DIVISIONS

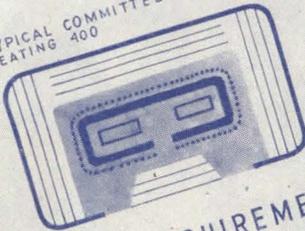


OFFICIAL BUILDING REQUIREMENTS

MEETING HALLS



TYPICAL COMMITTEE ROOM
SEATING 400



ADDITIONAL REQUIREMENTS FOR MEETING HALL AREAS

COMMITTEE ROOMS	7 SEATING 400 10 SEATING 60	SECURITY COUNCIL	8 SEATING 120	ECONOMIC & SOCIAL COUNCIL (TRUSTEESHIP COUNCIL SIMILAR)	10 SEATING 120
DELEGATES OFFICES	15 SUITES FOR 8 PERSONS	SUITES FOR: PRESIDENT ASSISTANT SECRETARY-GENERAL OFFICES & SUITES FOR: MILITARY STAFF COMMITTEE ATOMIC ENERGY COMMISSION ONE OTHER COMMISSION COMMITTEE OF EXPERTS	11 SUITES FOR 8 PERSONS	SUITES FOR: PRESIDENT 2 VICE PRESIDENTS 2 ASST. SECRETARIES-GENERAL OFFICES & SUITES FOR: OFFICERS OF 15 COMMISSIONS AND SUB-COMMISSIONS	18 SUITES FOR 8 PERSONS
OTHER MAIN OFFICES	SUITES FOR: PRESIDENT 7 VICE PRESIDENTS SECRETARY-GENERAL EXECUTIVE OFFICER				

CENTRALIZED OR SEPARATE SERVICES FOR ALL MEETING HALLS

- SECRETARIAT
 INTERPRETERS
 VERBATIM-REPORTERS
 TRANSLATORS
 DOCUMENTS
 SECURITY
 BUILDINGS MANAGEMENT
 INFORMATION
 PUBLIC & STUDIOS FOR: RADIO,
 BOOTHS & TELEVISION
 FILM, PHOTOS
 SIMULTANEOUS INTERPRETATION
 BOOTHS
 SOUND CONTROL BOOTHS
 SOUND RECORDING ROOMS

- OTHER SERVICES
 TELEPHONE
 STORAGE
 CLOAK ROOMS
 REST ROOMS

- PRESS
 CENTRAL WORK ROOM
 WIRE & CABLE SERVICES
 OFFICES FOR:
 20 NEWS SERVICES
 50 NEWSPAPERS

- MISCELLANEOUS
 EXHIBIT AREAS
 DELEGATES LOBBY &
 LOUNGE WITH BAR
 PUBLIC LOBBY
 PRESS LOBBY &
 LOUNGE WITH BAR

OFFICIAL BUILDING REQUIREMENTS OFFICES

SECRETARIAT

1 SECRETARY-GENERAL	1,500
8 ASSISTANT SECRETARIES-GENERAL	8,800
9 TOP-RANKING DIRECTORS	9,900
75 DIRECTORS OF DIVISIONS	52,500
100 OTHERS	70,000
300 SECTION HEADS	135,000
800 OTHERS	90,000
2400 EMPLOYEES	240,000
20 CONFERENCE ROOMS	2,300
2 AUDITORIUMS	12,000
RECEPTION AND LOBBY	8,000
REPRODUCTION, STORAGE, VAULTS, SHIPPING	100,000
PUBLIC COMMUNICATIONS SERVICES	4,000
BUILDING SERVICES AND REST ROOMS, DUCT SPACE	190,000
CIRCULATION (15% OF TOTAL)	114,000

1,038,000 SQ. FT. = **96,534** m²

DELEGATIONS

25 MISSIONS, 2000 SQ. FT. EACH	50,000
25 MISSIONS, 8000 SQ. FT. EACH	200,000
15 MISSIONS, 12,000 SQ. FT. EACH	180,000
5 MISSIONS, 50,000 SQ. FT. EACH	250,000

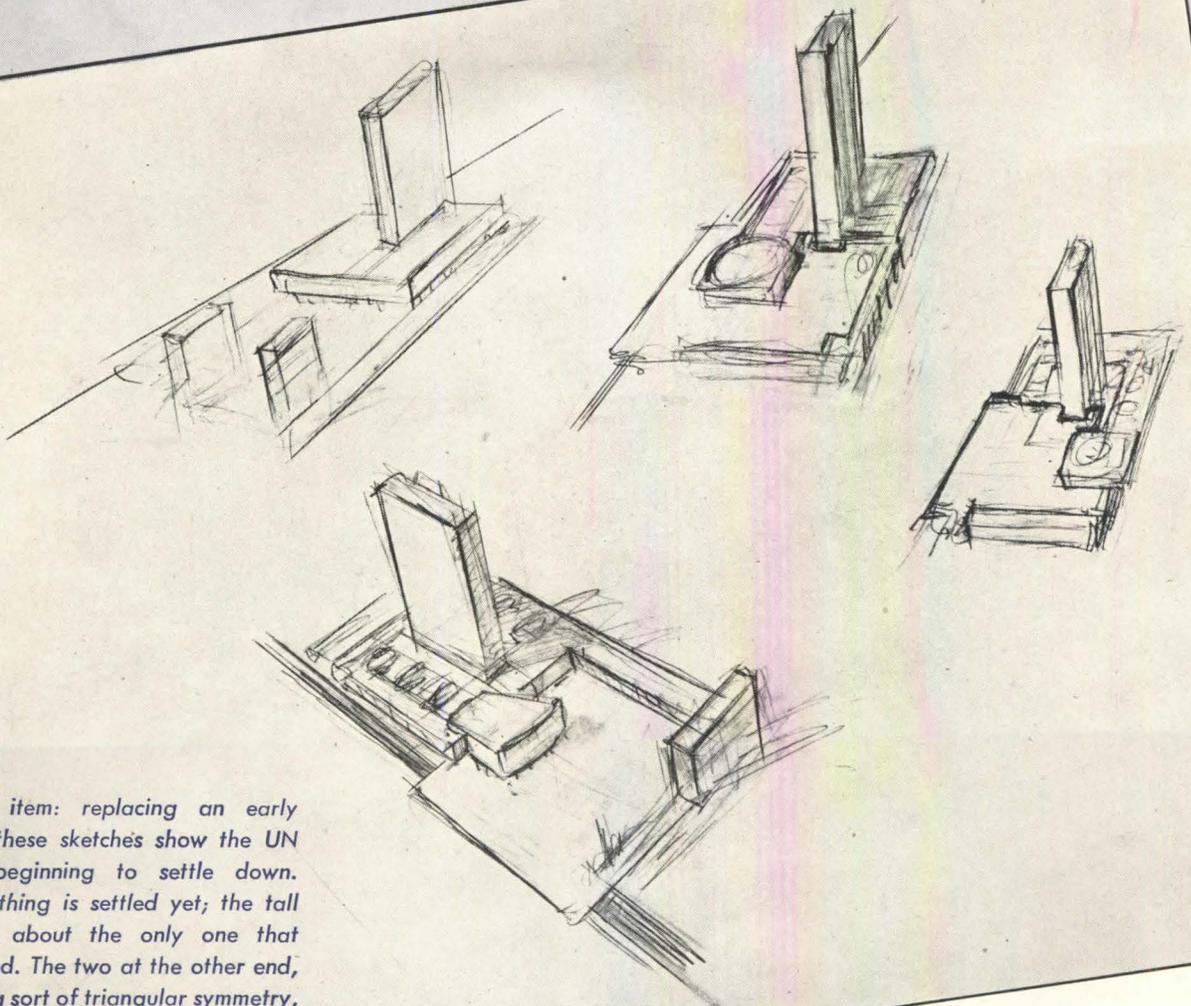
680,000 SQ. FT. = **65,240** m²

SPECIALIZED AGENCIES

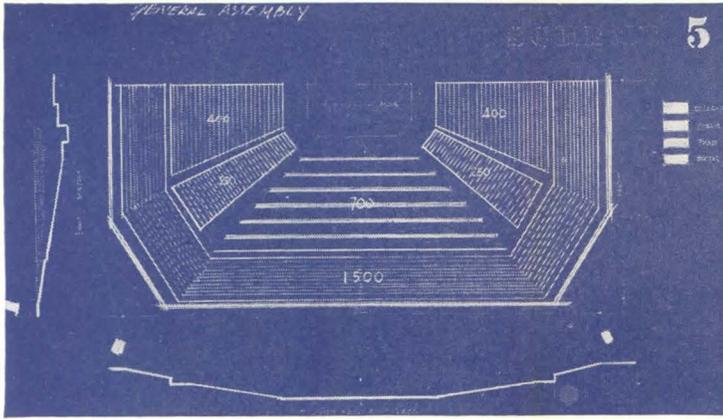
6 AGENCIES, 250 PERSONS EACH	
350 SQ. FT. PER PERSON. (SAME AS SECRETARIAT)	525,000
9 LIAISON OFFICES, 1750 SQ. FT. EACH	15,000

540,000 SQ. FT. = **50,220** m²

□ = 10,000 SQ. FT. = 929 m²

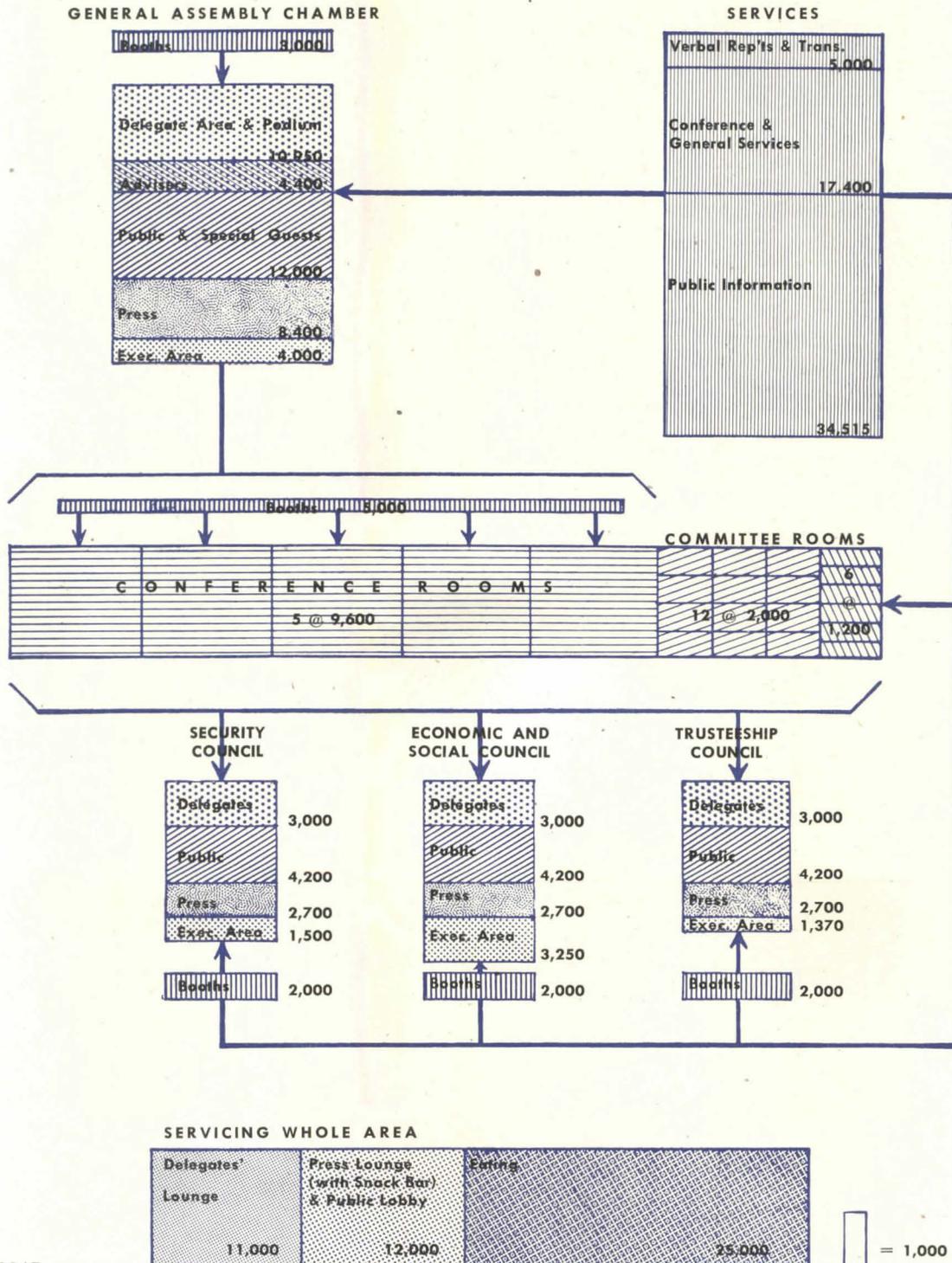


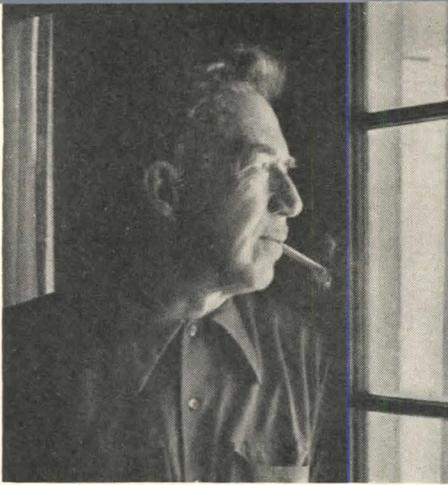
Stop-press item: replacing an early "doodle," these sketches show the UN buildings beginning to settle down. Actually nothing is settled yet; the tall building is about the only one that seems placed. The two at the other end, in (above) a sort of triangular symmetry, are still little more than conjectural



U N MEETING HALL AREAS, NOW "JUST ABOUT RIGHT"

(all areas in sq. ft.)

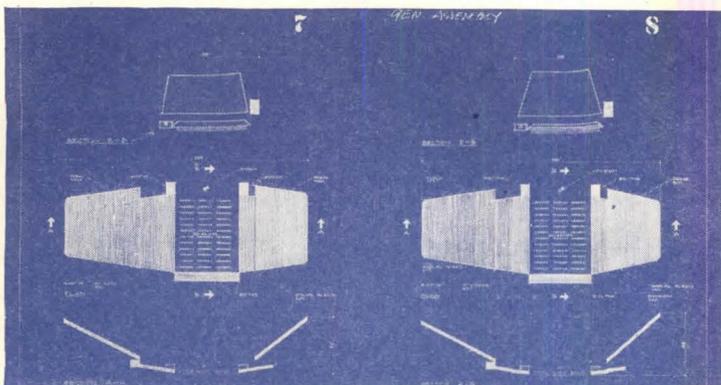




Hugh Ferriss, official renderer for U N staff

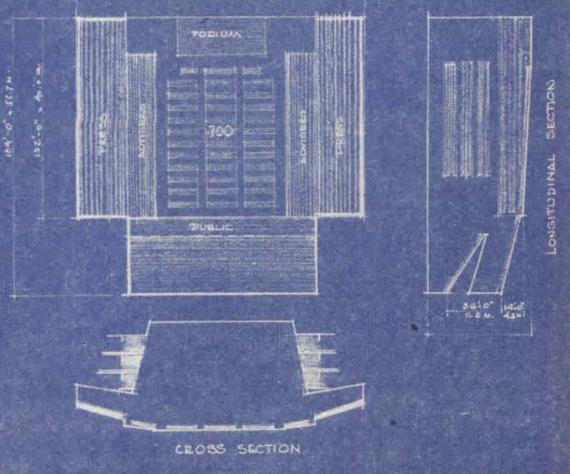


Max Abramovitz presides at a meeting of the engineers and planners. Gilmore Clarke, landscape architect, third from right



Drawings in blue are a sampling of dozens of schemes now being tried out for assembly room, conference rooms and council chambers

GENERAL ASSEMBLY



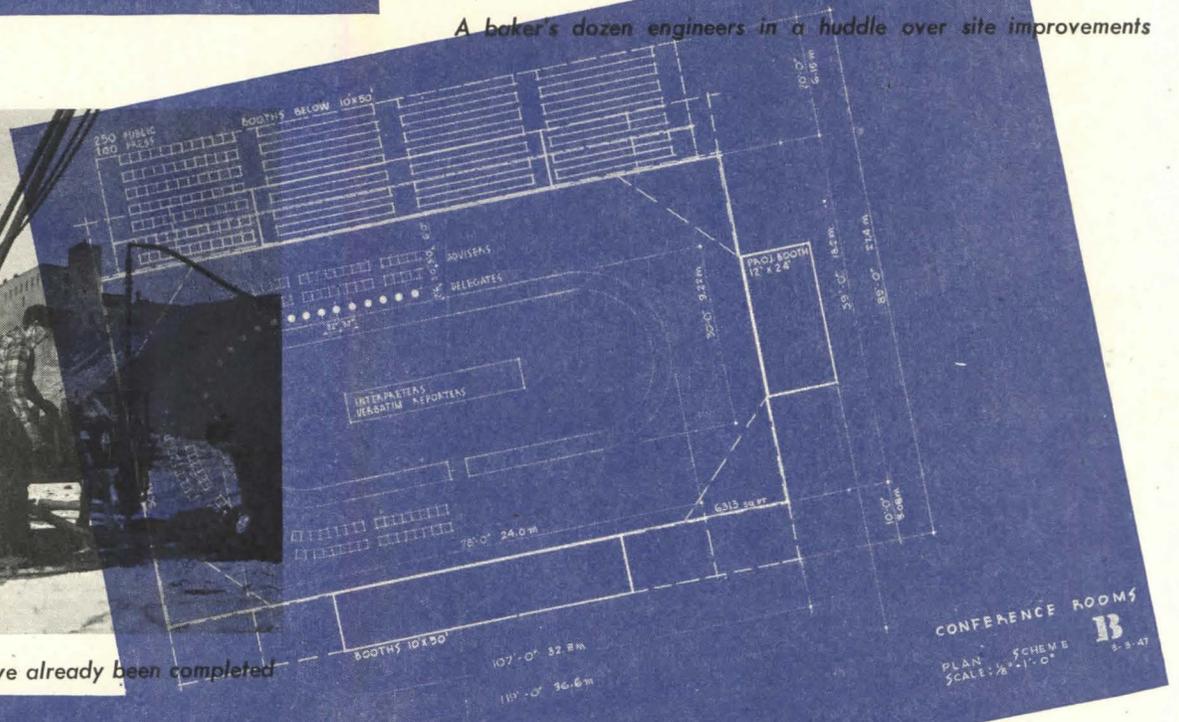
SCHEME 1A
SCALE - 1/8" = 1'-0"
MARCH 4, 1947



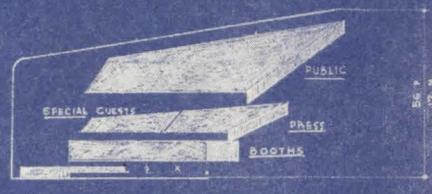
A baker's dozen engineers in a huddle over site improvements



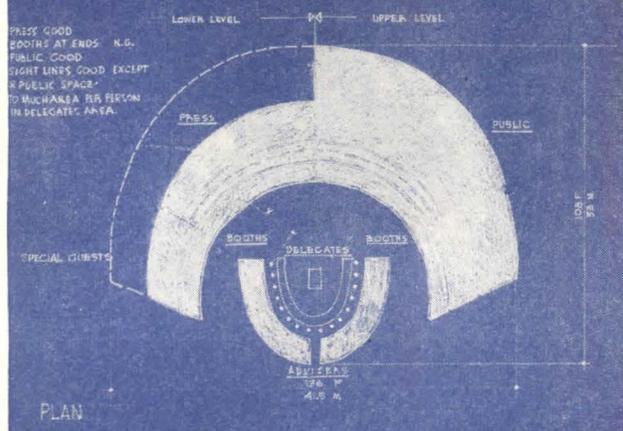
Test borings have already been completed

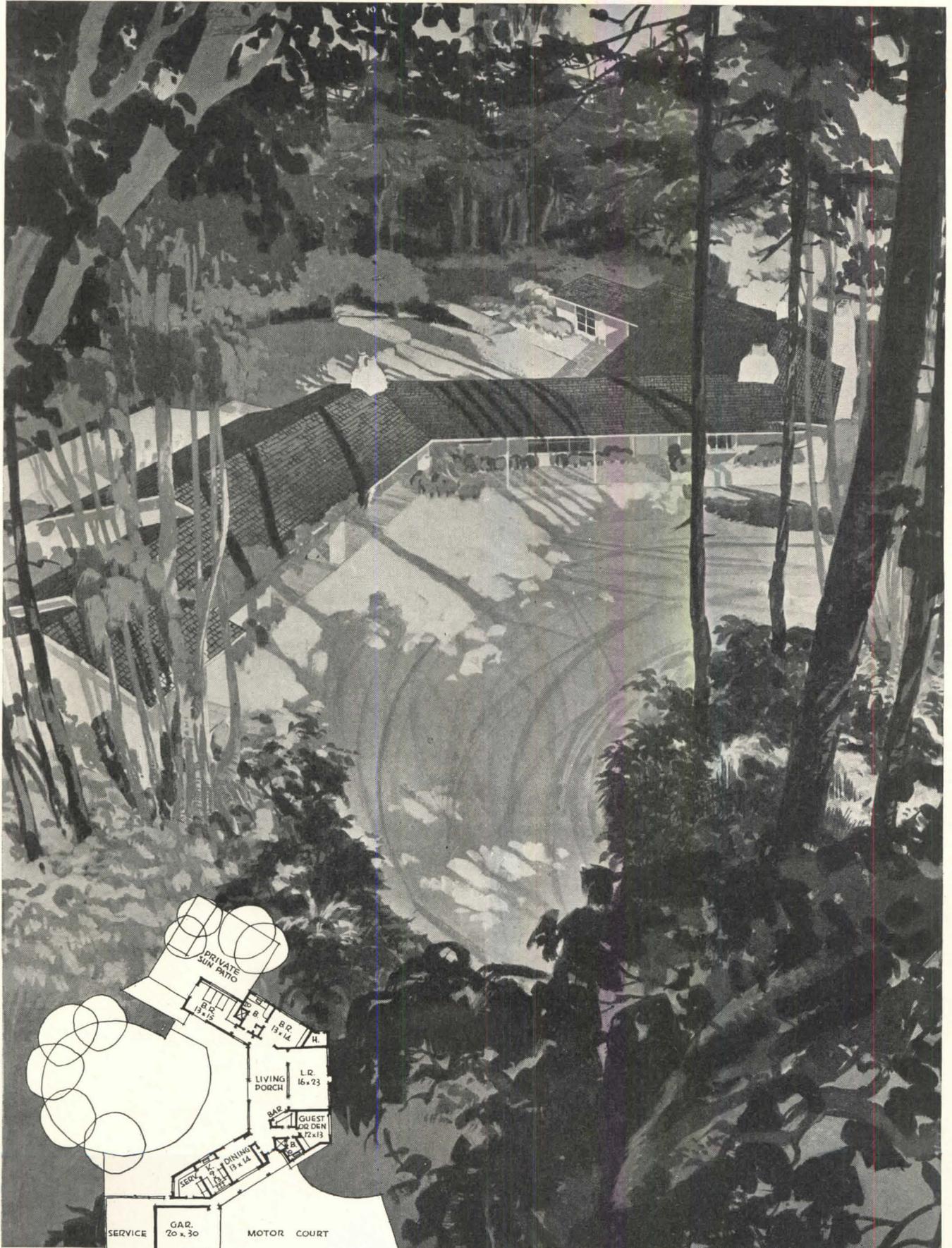


The quarterback has full attention in an architectural huddle



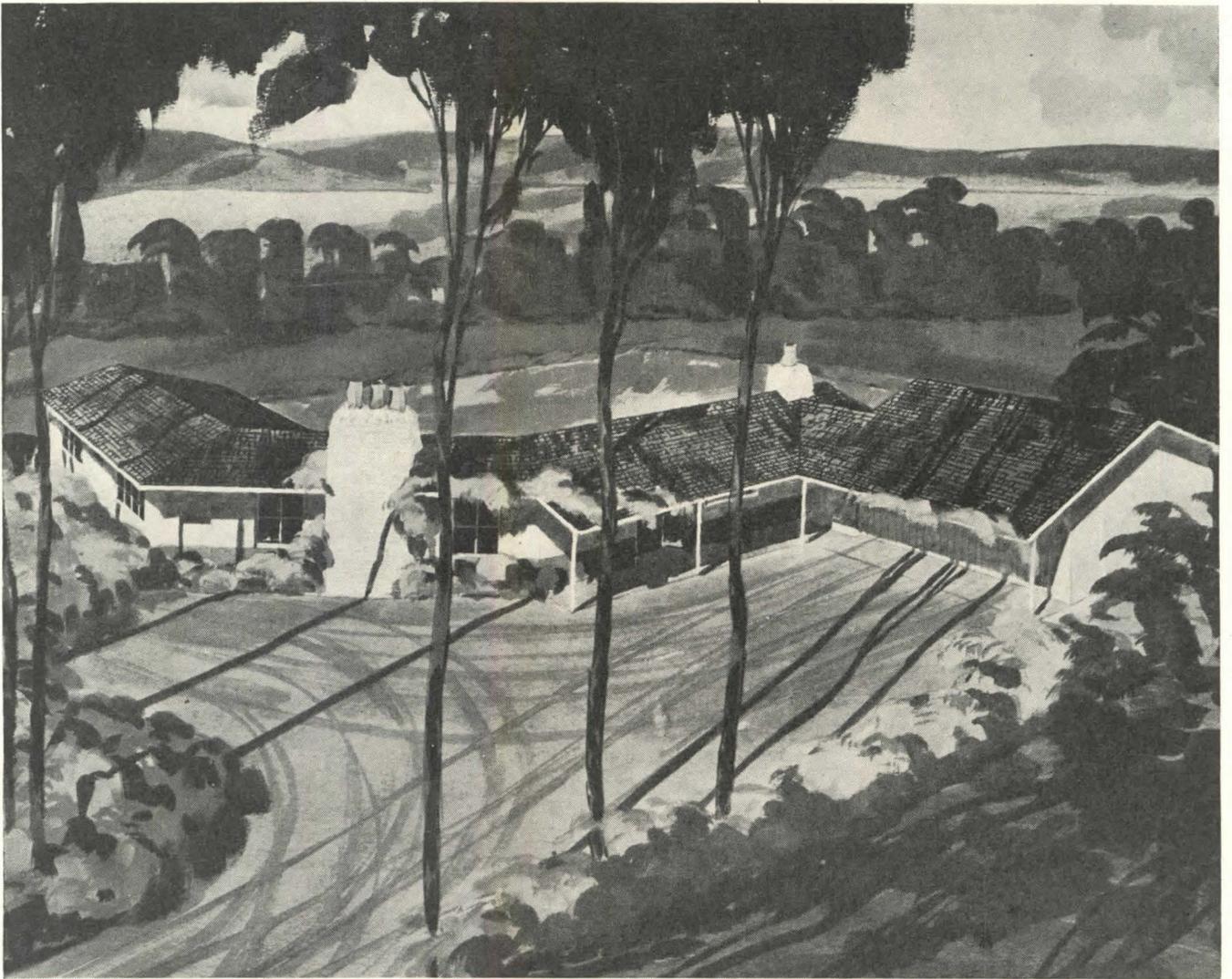
COUNCIL CHAMBER
SCALE 1/8" = 1'-0"





Photographs of renderings by Maynard L. Parker

Woodacres, San Vicente. The motor court segregates guest and service traffic and assures the privacy of the main patio and the sun patio. The central living-areas are ideally planned for entertaining

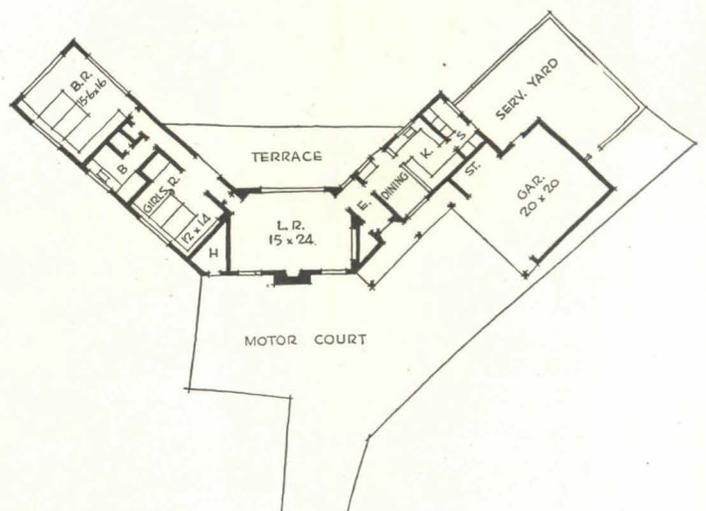


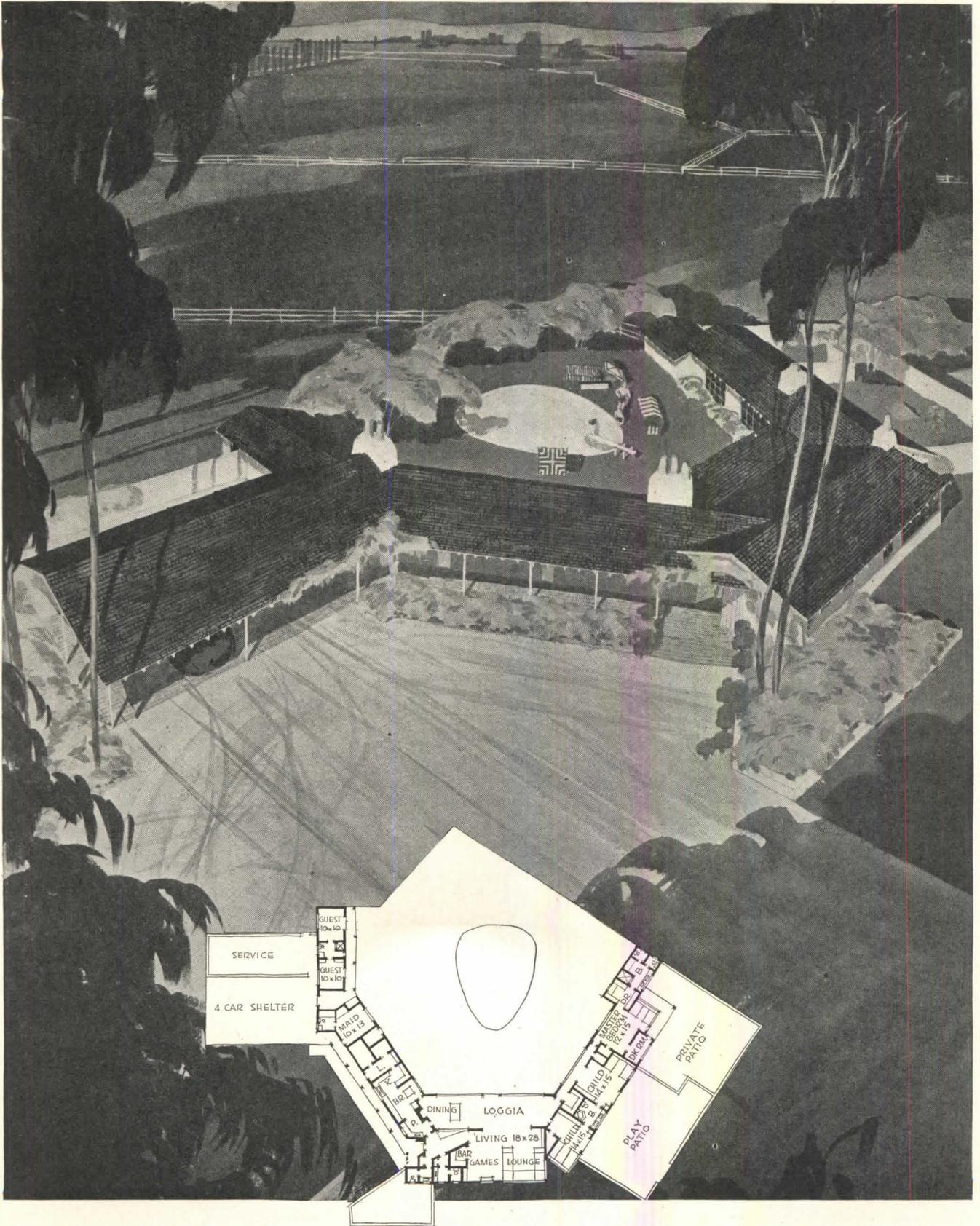
6 RANCH HOUSES FOR MODERN LIVING

VARIATIONS of a vigorous theme provide a symphony — in this case a theme of abundant living outdoors and in, with overtones of California sunshine and quiet shade. Here are six houses with a basic plan conception — a central living area with wings on both sides, one wing for services and one for personal rooms, an informal rambling type plan with pleasant angles. And the variations are significant in terms of the owners' requirements. The architecture is always gracious, utterly simple and unostentatious — a straightforward expression of plan and structure, wood frame with hand split shake roofs. Foundations are concrete slabs over a 6-in. rock cushion. Floors are wood, carpet, asphalt tile, linoleum, or stone, depending on the use of the room. Heating is usually forced warm air.

The house for Mr. and Mrs. Talton R. Craig, above, now nearing completion, commands a panoramic view of the San Fernando Valley.

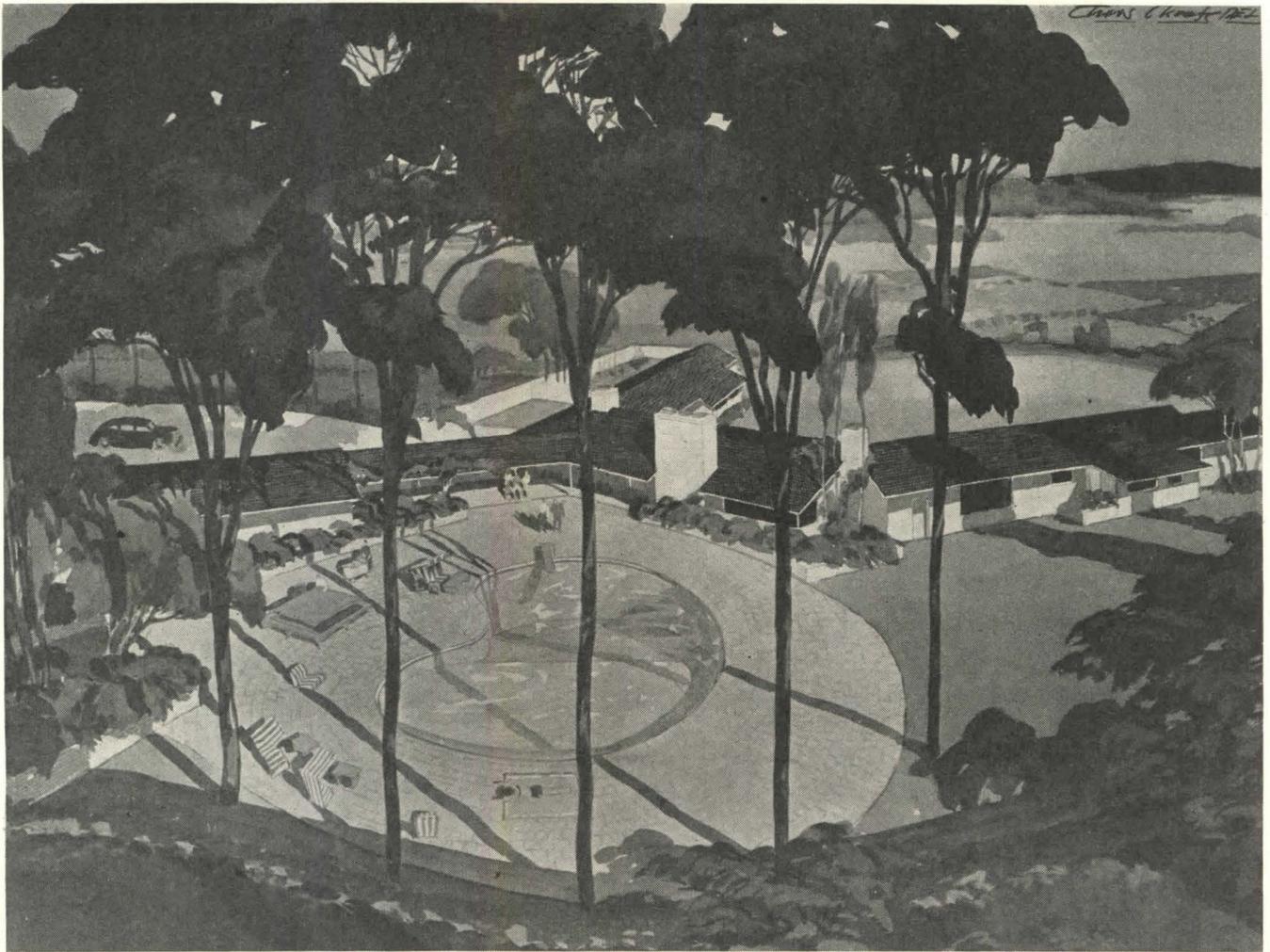
Cliff May, Architect





Ranch House for
Mr. and Mrs. James L. Maupin
Cliff May, Architect

Informal hospitality is reflected in the plan of this Fresno ranch house, expressed so well in the truly functional arrangement of the living room and the dining loggia which are separated only by a sliding partition. The breakfast room, practically a part of the kitchen, is also available for informal snacks. Guests have their own wing opening on the patio

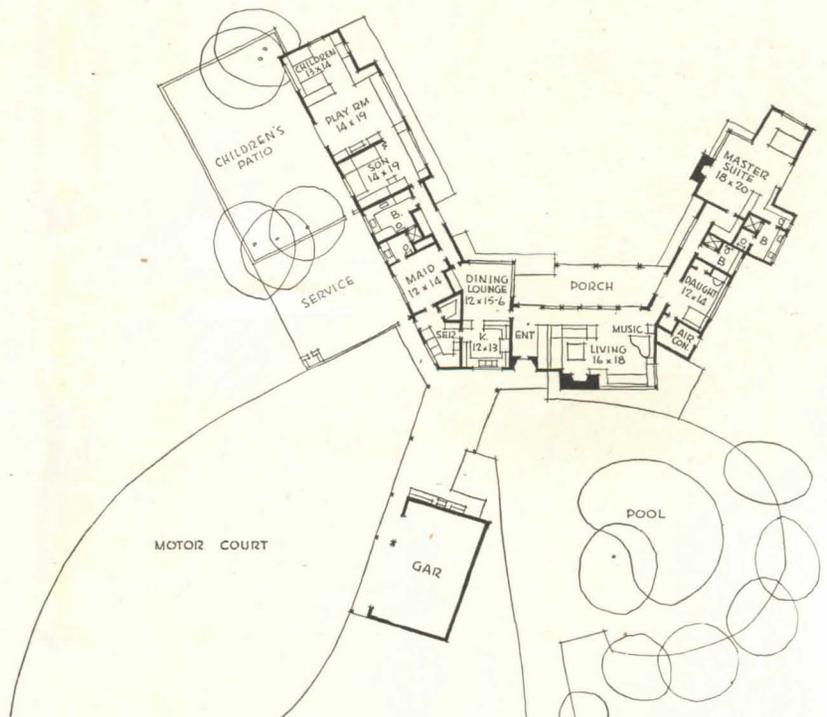


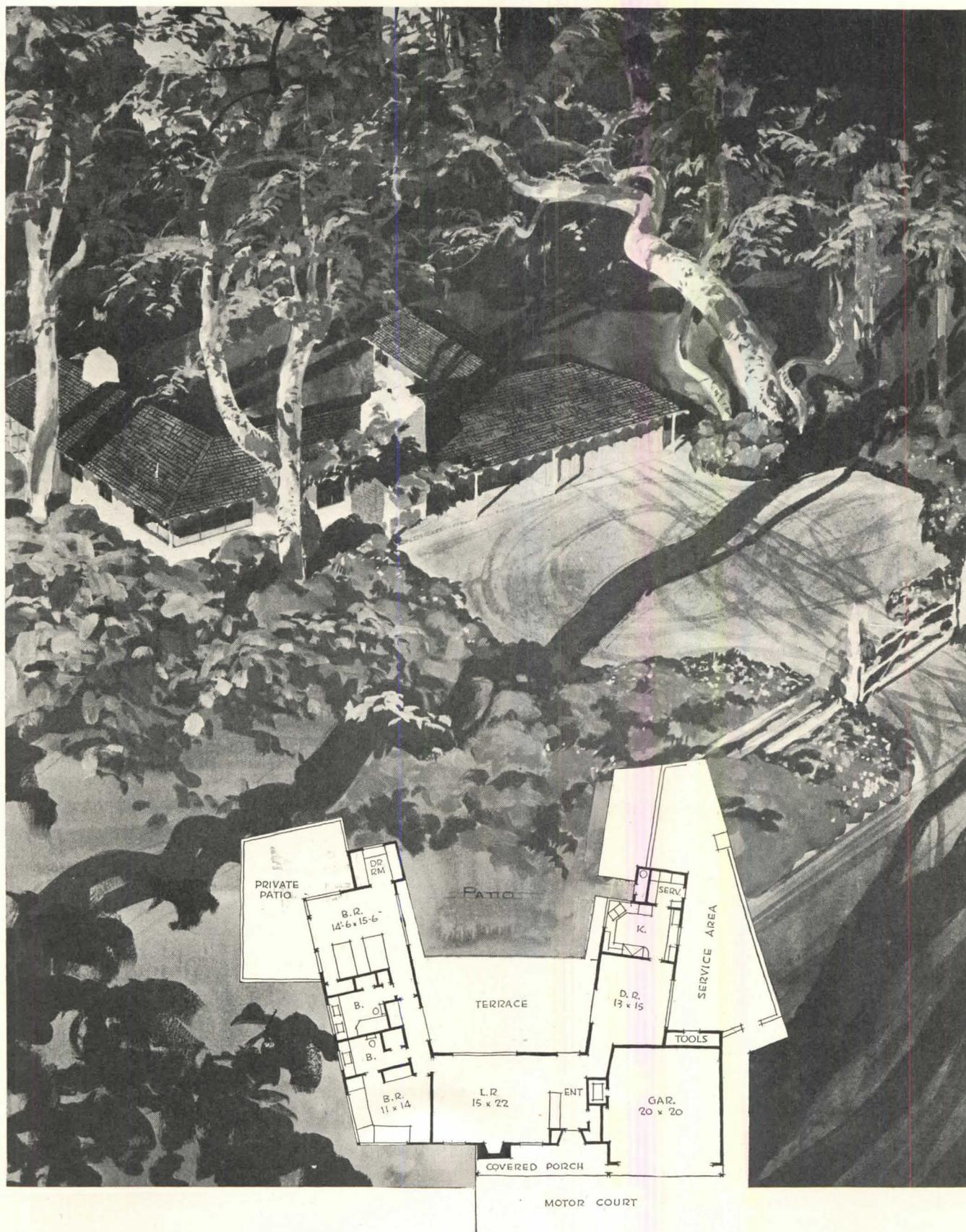
Ranch House of Mr. and Mrs. Jesse Curtis, Jr.

San Bernadino, Cal.

Cliff May, Architect

Provisions for four active growing children determined much in this plan. The three boys are in one wing with its spacious playroom and patio, the older son having his own room. The daughter's room is in the master-suite wing. The master bedroom itself is noteworthy for its large living area, so necessary when youth takes over the main living and music room. A convenient dining-lounge-kitchen contributes to the pleasures of informal hospitality. Motor court and swimming pool court are separated by the garage and spacious covered terrace while the main patio and living-porch overlook the expanse of the San Bernadino valley



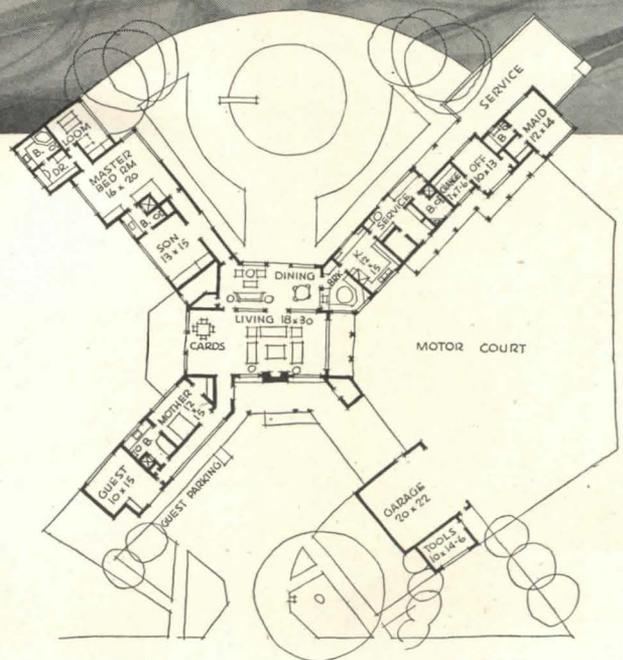
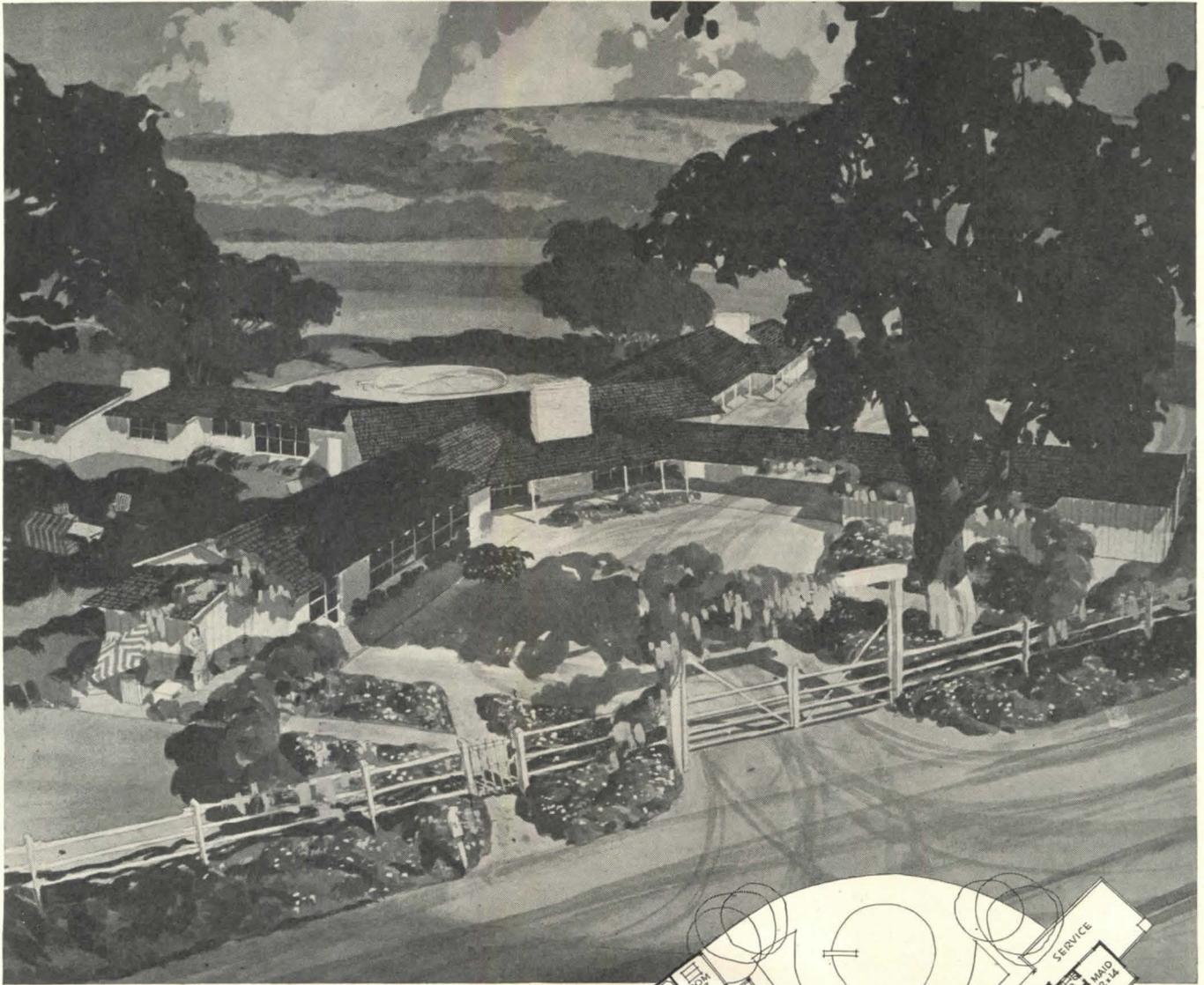


Ranch House of

Mr. and Mrs. Lloyd Aldrich

Cliff May, Architect

Proving that a ranch house can be compact without losing its character, this house was planned for a 100-ft. lot. The wings are but slightly splayed, embracing a rear patio-garden. The master-suite patio is surrounded by a seven-foot wall insuring privacy. The front bedroom is convertible into a den when the older son is away. Both the living room and the dining room open onto the broad terrace for ease in entertaining. Motor court and service area are well separated from the outdoor living areas by the house itself



Ranch House of

Mr. and Mrs. Sam Crowley

Cliff May, Architect

In contrast to the house on the opposite page, the site of this house is a 100-acre ranch, at Red Bluff in northern California at the foot of the Sierra Nevada Mountains. Three gigantic oaks enhance the beauty of the site and provide welcome shade. Since the view extends in every direction, an "x" plan was developed and one can enjoy the view on all sides from the central living area. The plan is logically divided to provide for the activities of each member of the family

LIGHT TELLS A MAGIC CARPET STORY

BIGELOW-SANFORD SHOWROOM, MERCHANDISE MART, CHICAGO

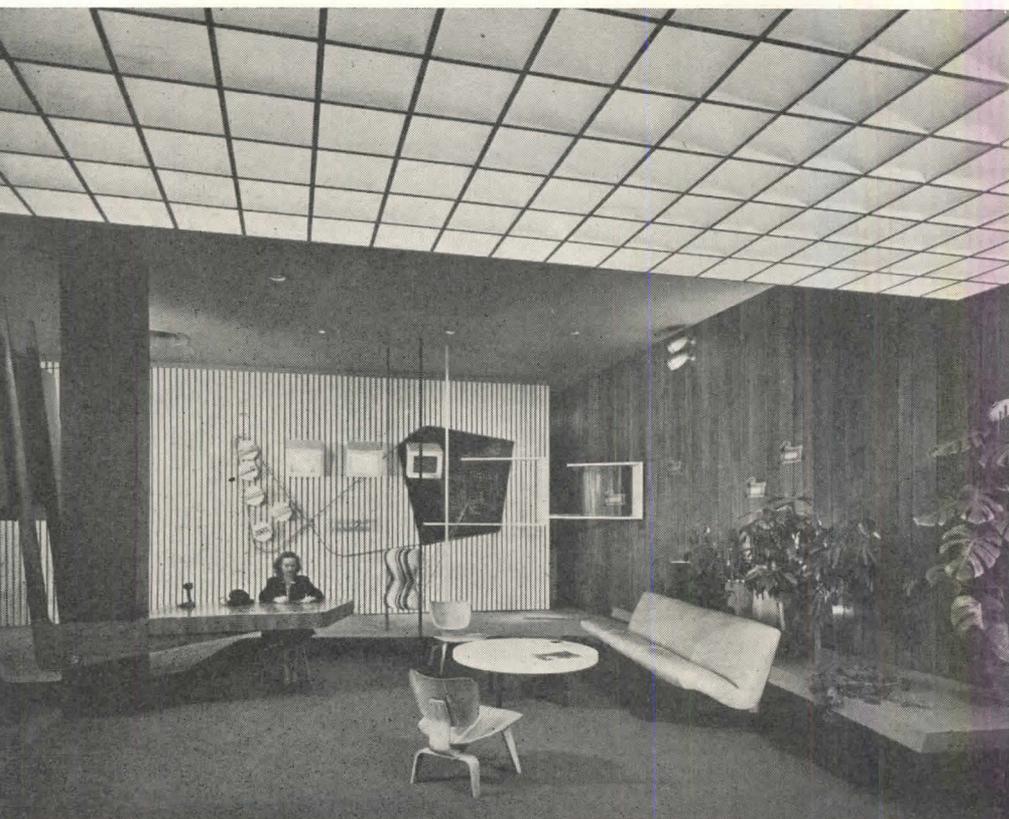
Donald Deskey Associates, Designers. Project Coordinators: Ralph G. Gulley,

Charles H. Warner, Jr., Harold Leeds, Arthur Finn, Frank Wallis

WHOLESALE show and sales requirements were the chief determinants in this design, providing large areas for display of the complete Bigelow-Sanford line. It is believed, however, that many of the features and devices can be adopted profitably by retailers, and to this extent the showroom is prototypic.

Here, as in most all effective display merchandising, lighting tells the biggest part of the story. And carpets, among all commodities, are near the top in exacting

highest designer skill in applying the technique. In this case, standard units for the most part were used in seeking the proper mixtures of fluorescent and incandescent, to give uniformity over the broad carpet surfaces, insure minimum color distortion, and prevent "washing out" of widely varying pile textures. Greatest control is provided in the Contract Sales Room (see plan, page 91) where 12 switch combinations enable simulation of conditions from dim interior to outside daylight.

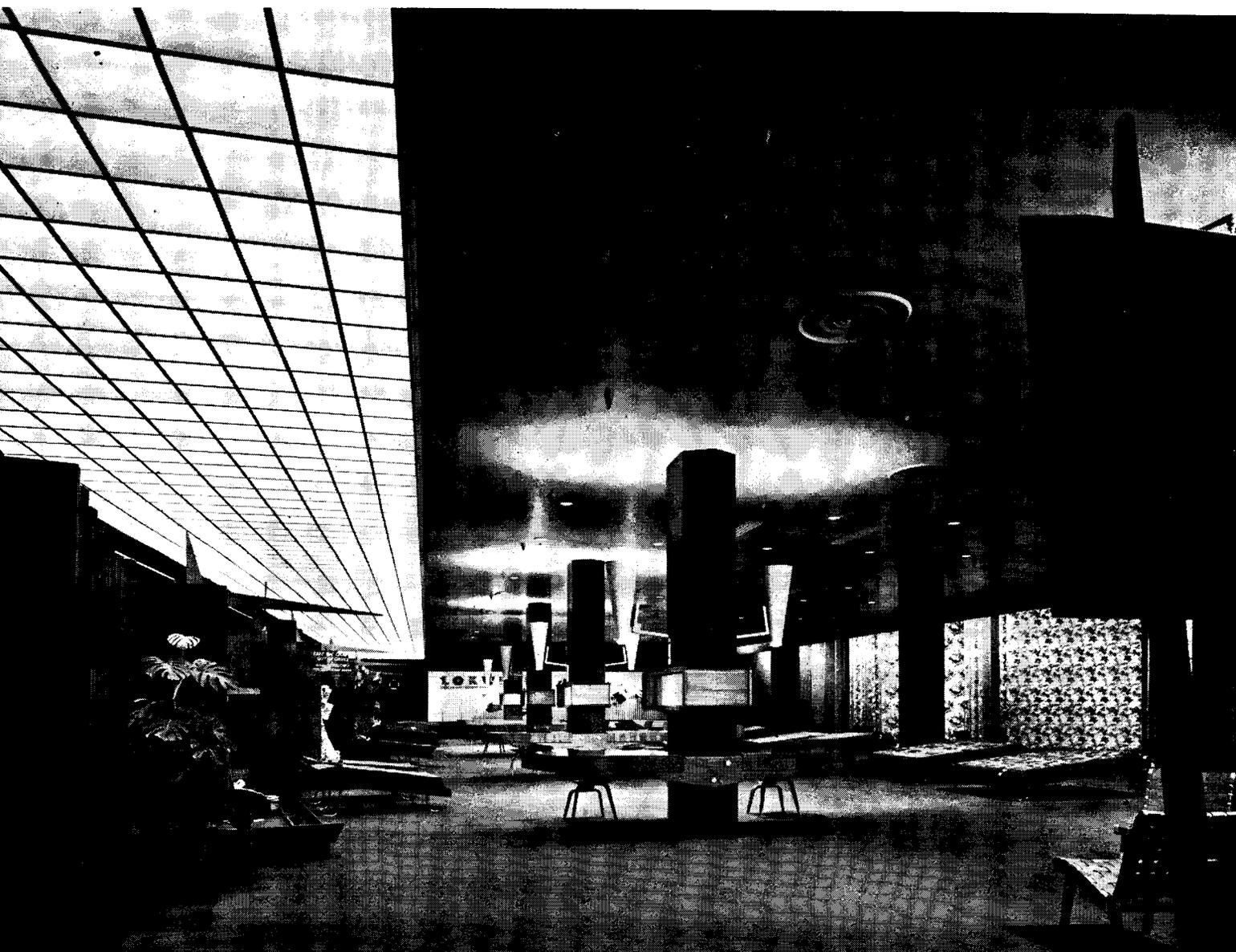
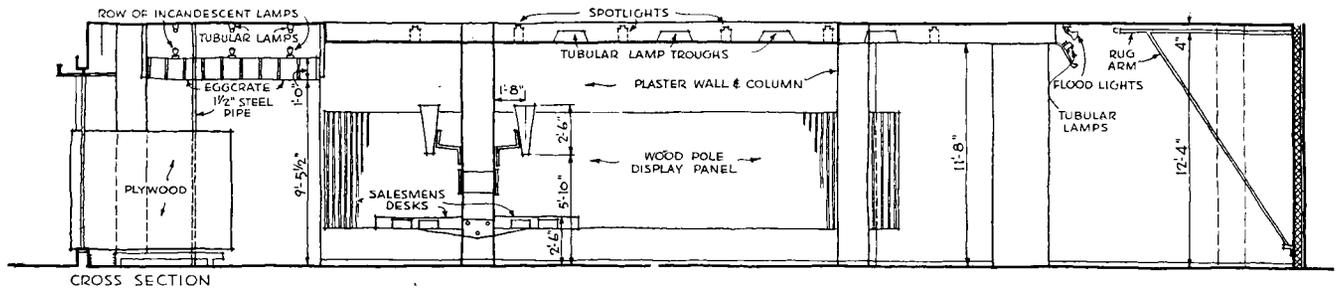


Hedrich-Blessing Studio Photos

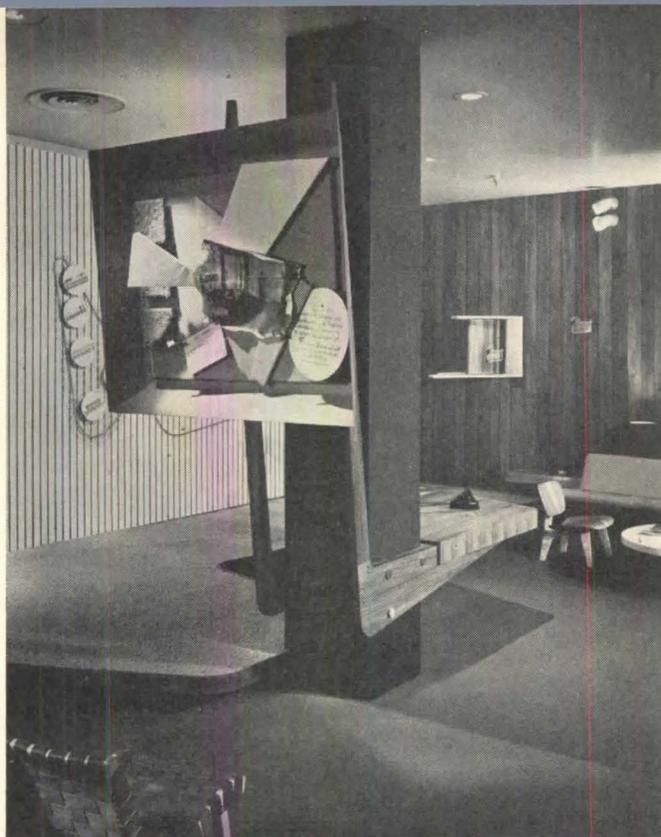
"Open-front" compulsion is manifest, though the showroom is located on an interior corridor of the Merchandise Mart. Front has terrazzo base with metal sill. Glass is trimmed with mat-finish chrome metal. Screen to left of door is-walnut veneer plywood, natural finish; entrance push plate is wood, same finish



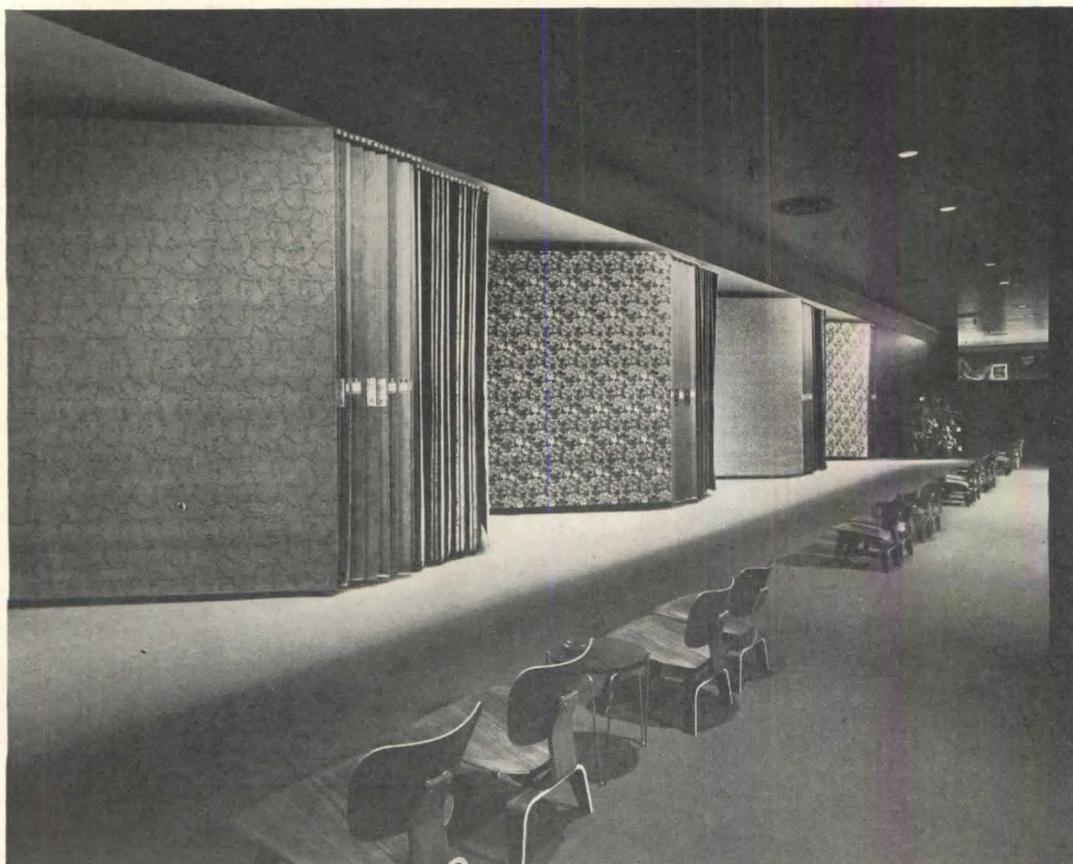
Show-window soffits contain conventional floodlights (not detailed in section). Along the ceiling above the egg crate are three fluorescent strips running continuously over the entire length. Fixed on the crate's top side are a number of 60 w. incandescent lamps, spaced 3 ft. on centers each way and planted in special "egg cup" fixtures (45° cut-off) which reflect to the ceiling for fluorescent mix. In the main area, incandescent floodlights (labeled "spotlights" in section) are 150 w., flush recessed; 4-tube, 40 w. each, fluorescent units are flush recessed and louvered. Combination is designed to give 45 fc. on each rug platform at an incandescent-fluorescent ratio of approximately four to one. Swivel socket adjustable reflector floodlights in rug arm alcoves are 300 w. each



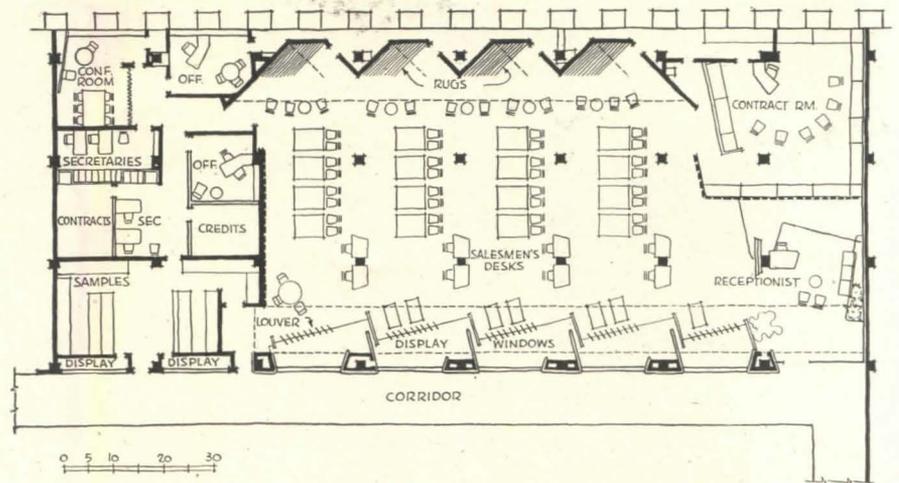
Painted bronze display box, "balancing" the receptionist's desk, has a cork back for exhibiting various institutional eye catchers. All the cantilevered furniture is functional to the extent of permitting a less-cluttered broad sweep of Bigelow-Sanford carpet underfoot. Then, too, fixed desks are not subject to disharmonic shoving about by paleolithic salesmen



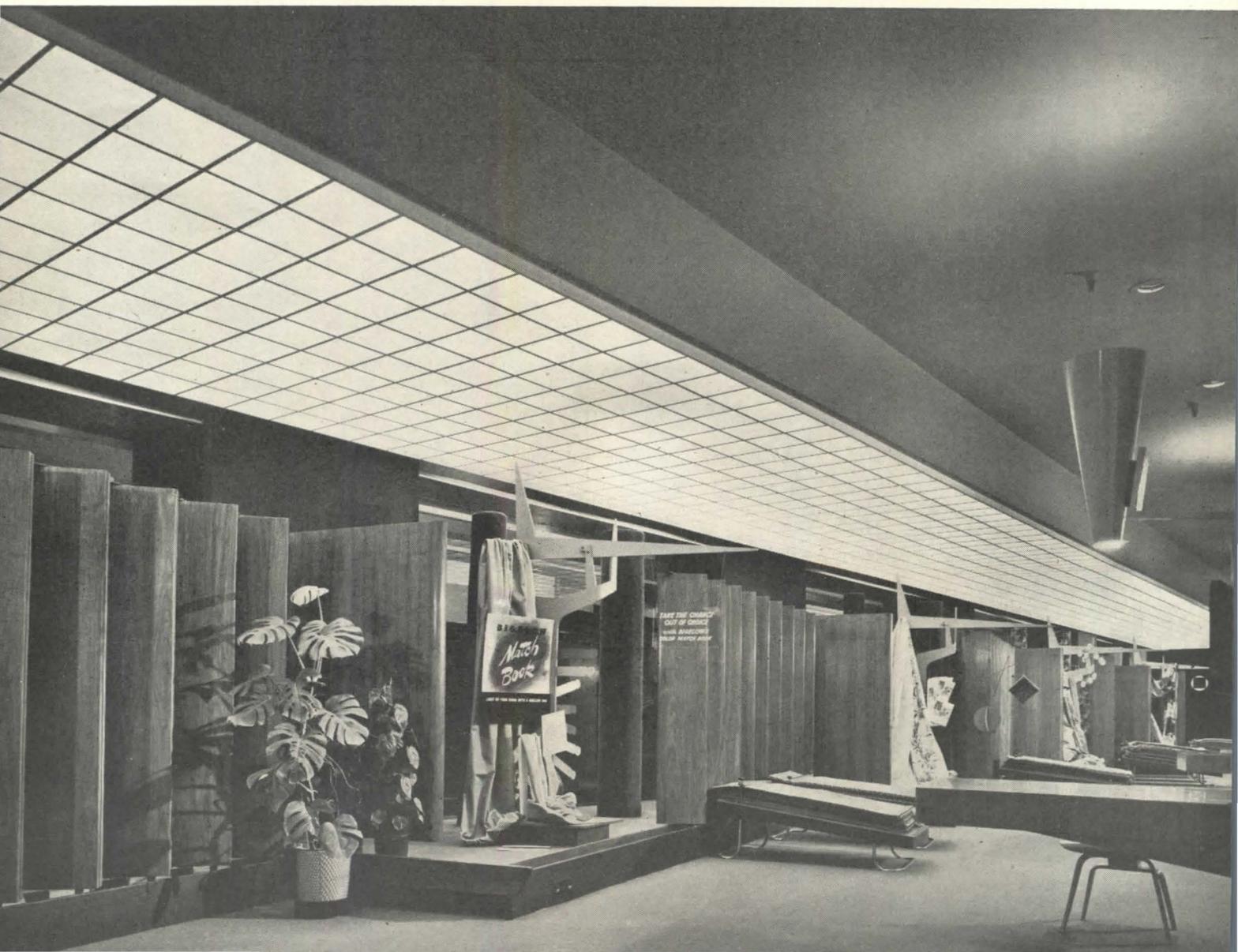
Below: Each alcove contains 29 rug arms, 58 rugs approximately 9 by 12 ft. Incandescent-fluorescent lighting from cove is supplied by 300 w. adjustable floodlights and standard tubular units (see section, page 89). There are 10 floods for each alcove and four 2-tube units, 4-ft. long; one, 3-ft. long. Five of the floods play across to one side of the "V"; five to the other; and are adjusted to give maximum uniformity on the rug surfaces, with minimum "pile washing." Alcove juncture points were designed to coincide with lines of columns for "framing" from the main sales area. Vistas framed by columns were also calculated elsewhere

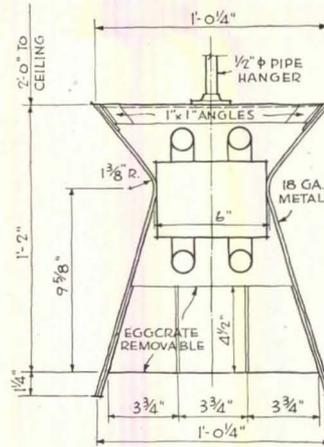


Economy in the layout of office spaces may be noted in the plan, to permit utmost possible dimensions in the main selling areas. Measures for preventing cubicular claustrophobia in office regions may be observed on the next page

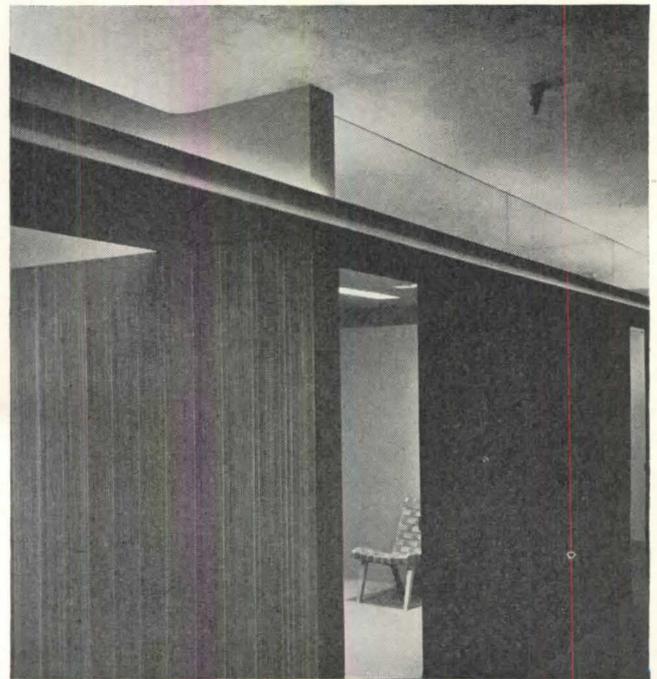
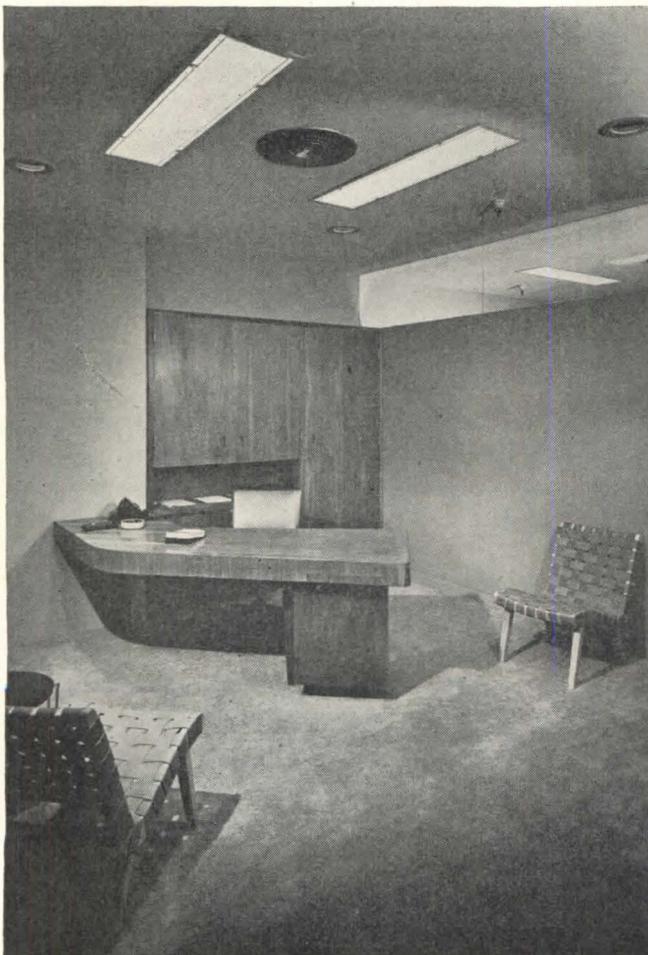


Both the plan and the photo below illustrate the use of pivoted fins as show-window backing, permitting varying amounts of through view, as desired, from both sides of the window display. Platforms are also equipped with stanchions for hanging rugs, and for screens to enclose the usually open platform corners. Fins like most of the showroom's woodwork have natural finish walnut veneer. In the egg crate, convenient sections are removable for lamp servicing. Also removable are baseboards to insure snug carpeting



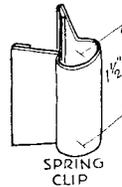
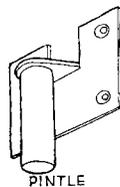
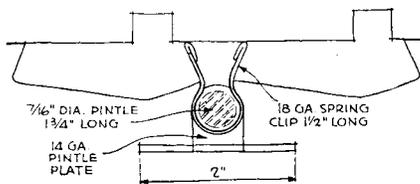
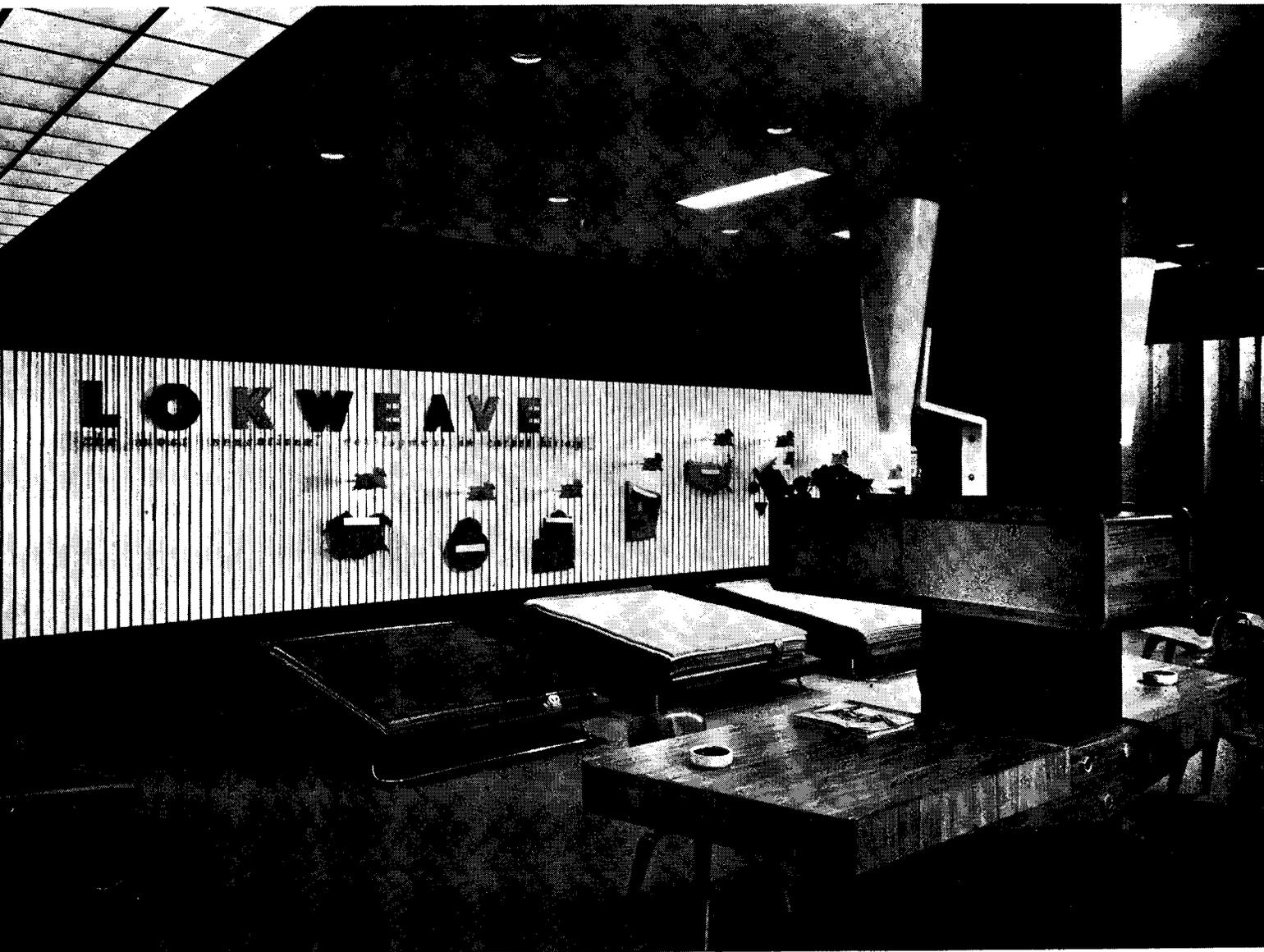
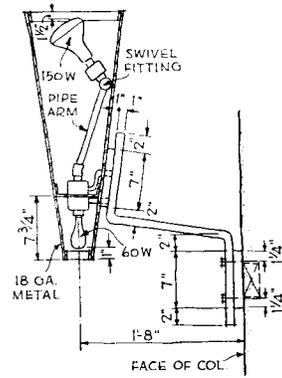


Lighting in the conference room, though very special, does not provide the wide range of combinations and control given elsewhere, since the needs are different. Fluorescent is used exclusively here, with four 2-tube open-end industrial units over the egg crate. The lowest part of the special fixture is 3 ft. 2³/₄ in. above the desk, to bring light exactly to the 4- by 8-ft. edges



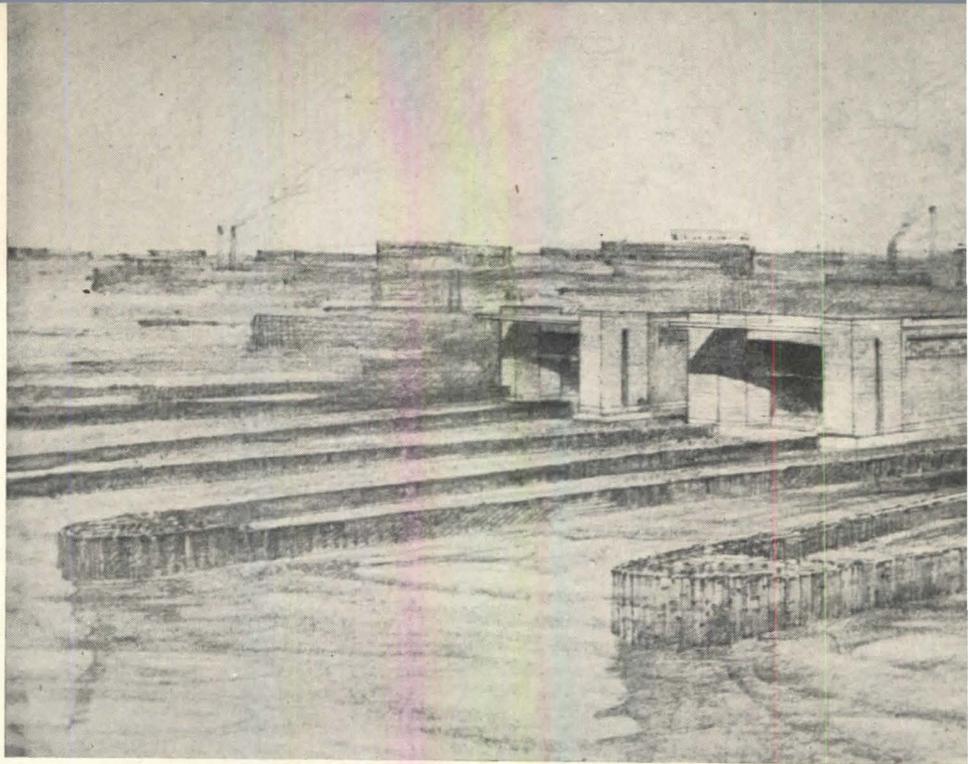
To allay possible claustrophobic sensations in the minimal office spaces, partitions are topped with glass transoms to give ceiling spread. In photo above, striated plywood panel flanks corridor leading to main sales area. Lighting along top of front partition is by means of three continuous fluorescent lines, with reflector; there are four lines over entrance to the corridor

"Megaphone" fixtures above desks give glareless uniformity from the bottom over salesmen's working surfaces; from the top, provide supplement to lighting of main sales area. They are adjustable so that, to a degree, they may be thrown into incandescent-fluorescent combinations as needed. Background display screen is similar to that behind reception desk (see p. 89)



Details at left illustrate method of attaching changing displays to fireproofed wood-pole screens. 2000 w. duplex outlets permit wiring, concealed by pole angles, to pass up to lights on inner side of display. Screens are also spotlighted

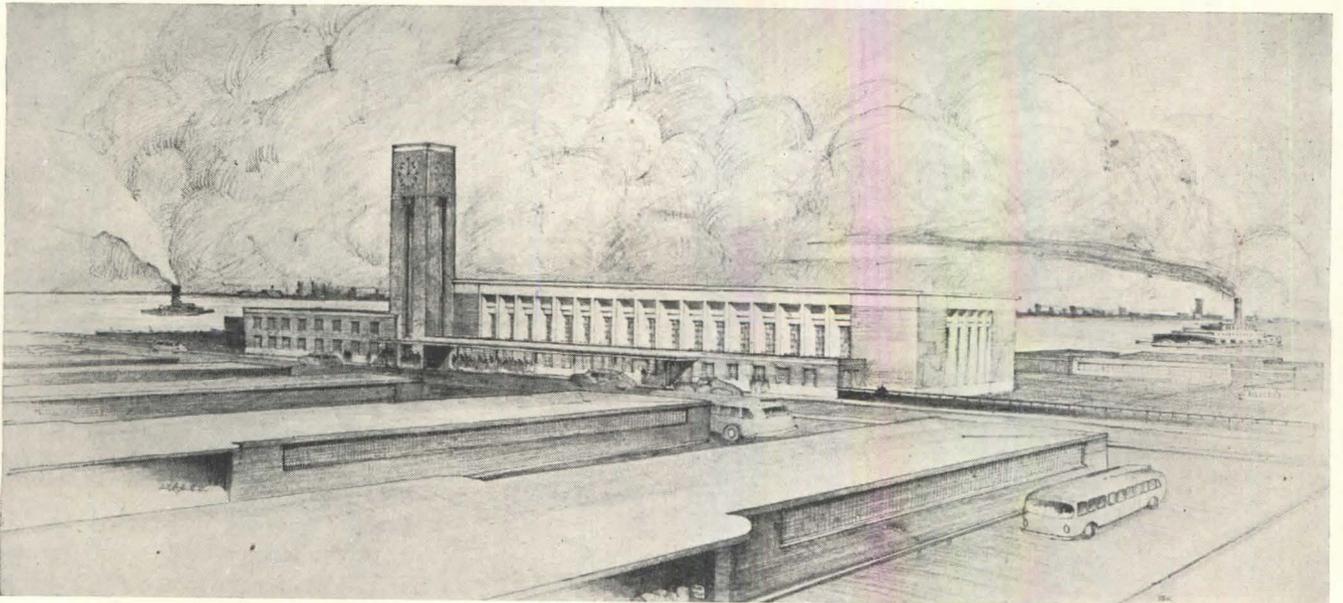
Exterior of the new terminal will 'be red brick with limestone trim, to harmonize with the existing Borough Hall structure directly across from the main entrance

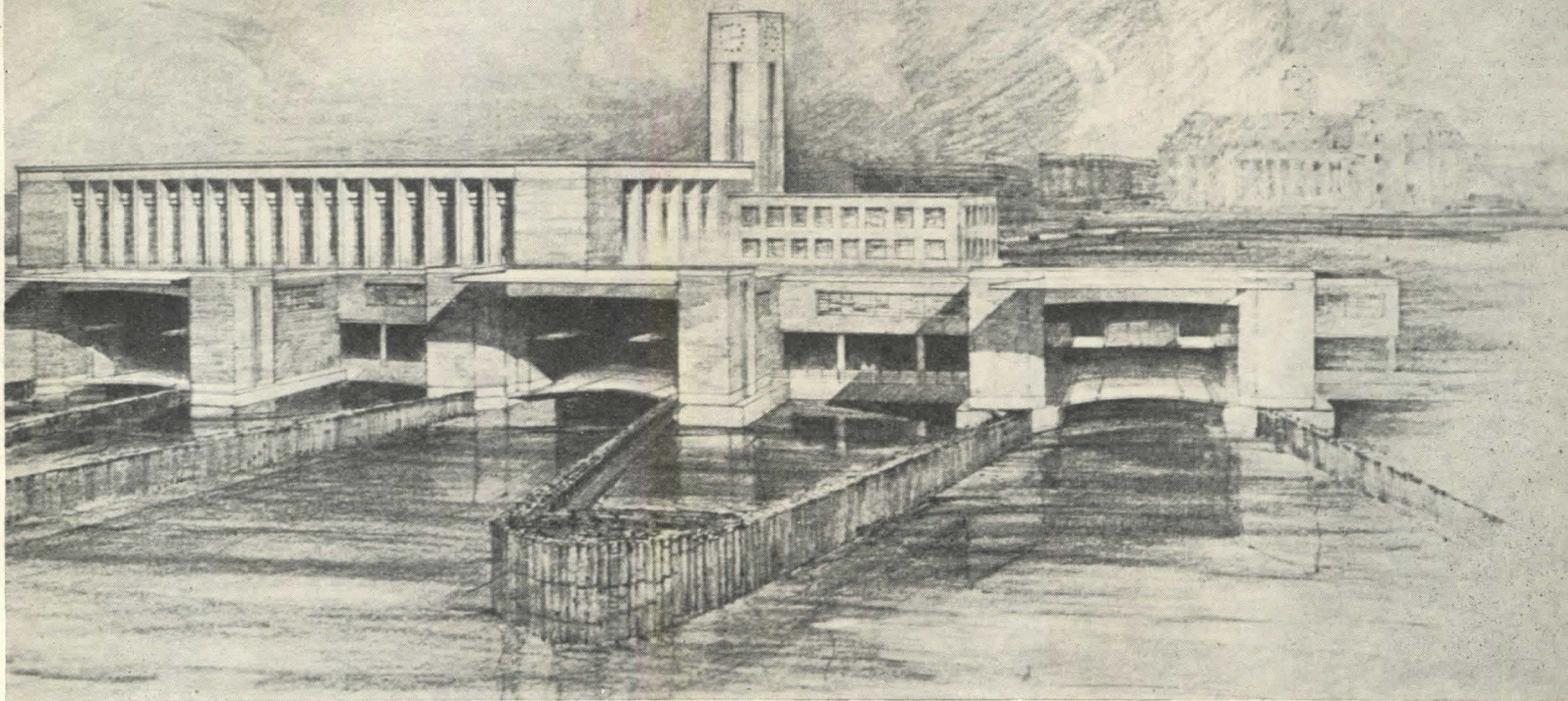


TRANSPORTATION COORDINATED

Municipal Ferry Terminal, St. George, Staten Island, N. Y.

Madigan-Hyland, Engineers





Renderings by Robert E. Kelley

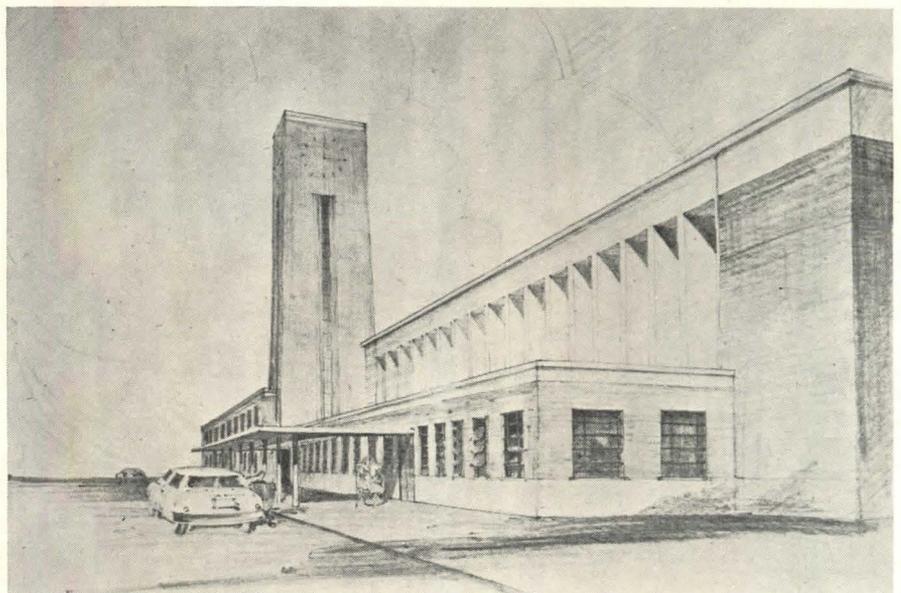
THE new Municipal Ferry Terminal now under construction at St. George, Staten Island, N. Y., will resemble its predecessor in only one respect: it will have ferry slips. When the old terminal was built in 1905, vehicle traffic was about 10 per cent of today's volume, and almost all of it was horse-drawn. Today the yearly passenger volume alone amounts to more than half that of Grand Central Terminal.

Plans for the new terminal were drawn up only after exhaustive studies of historical background, available facilities and every detail pertaining to ferry operations. On the very day that the plans and model of the proposed structure were presented to the city in June,

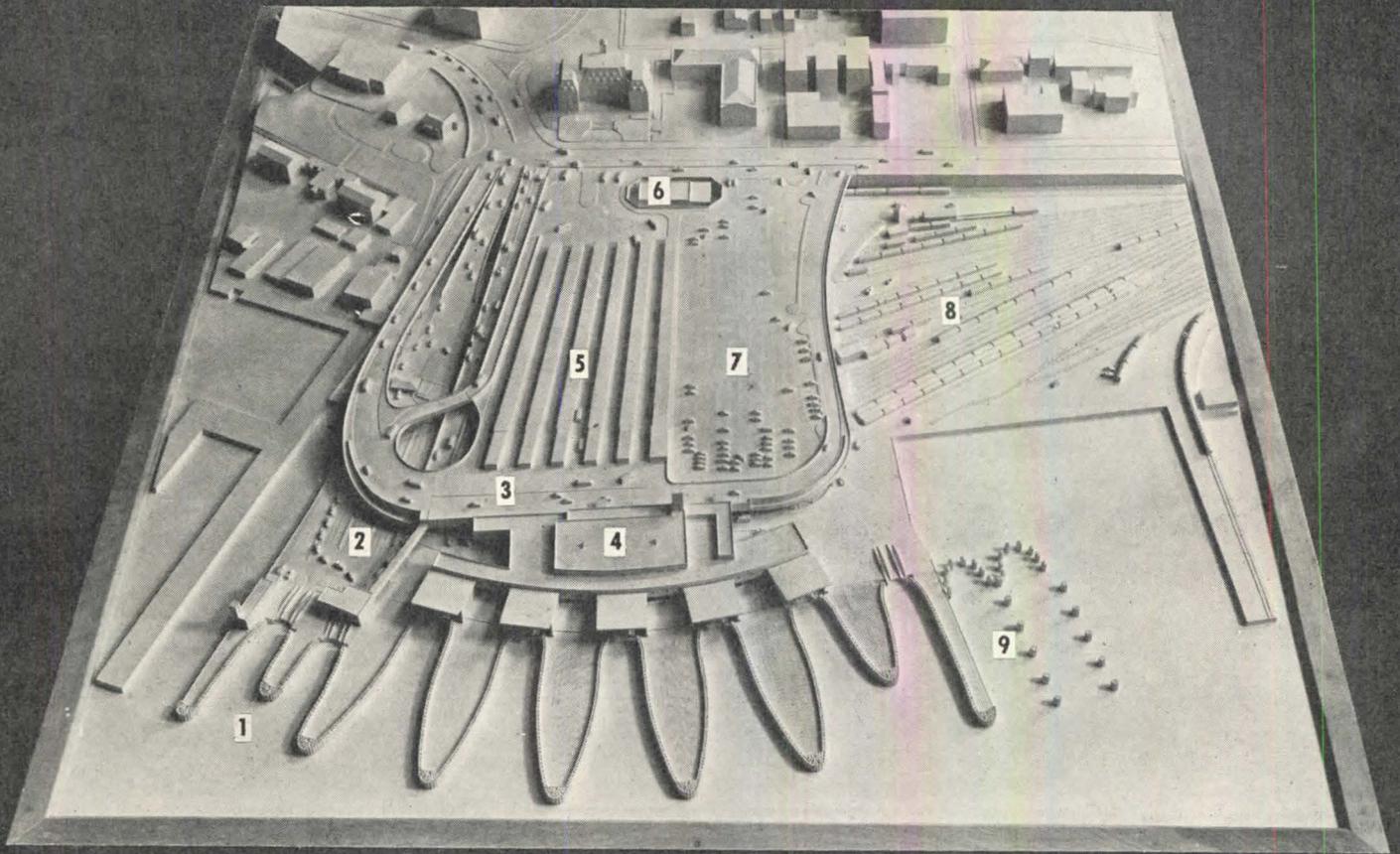
1946, the old terminal was destroyed by fire.

Keystone of the plans as finally adopted is the elimination of delay and confusion caused by the crossing of incoming and outgoing vehicular and passenger traffic in a single structure coordinating railroad, bus and ferry transportation. Separate roadways for out-bound traffic at the north ends of the terminal area have been provided. The north ramp will also give direct access to the Baltimore and Ohio Railroad yards and to the municipal ferry repair shops, completely separated from the ferry traffic. Five operational slips will be provided for the municipal ferries and two for the privately operated ferry to Brooklyn. Buses, taxis

The deep vertical fenestration of the main waiting room is designed to give the facade a columned appearance. The four-dialed clock tower is 90 ft. high

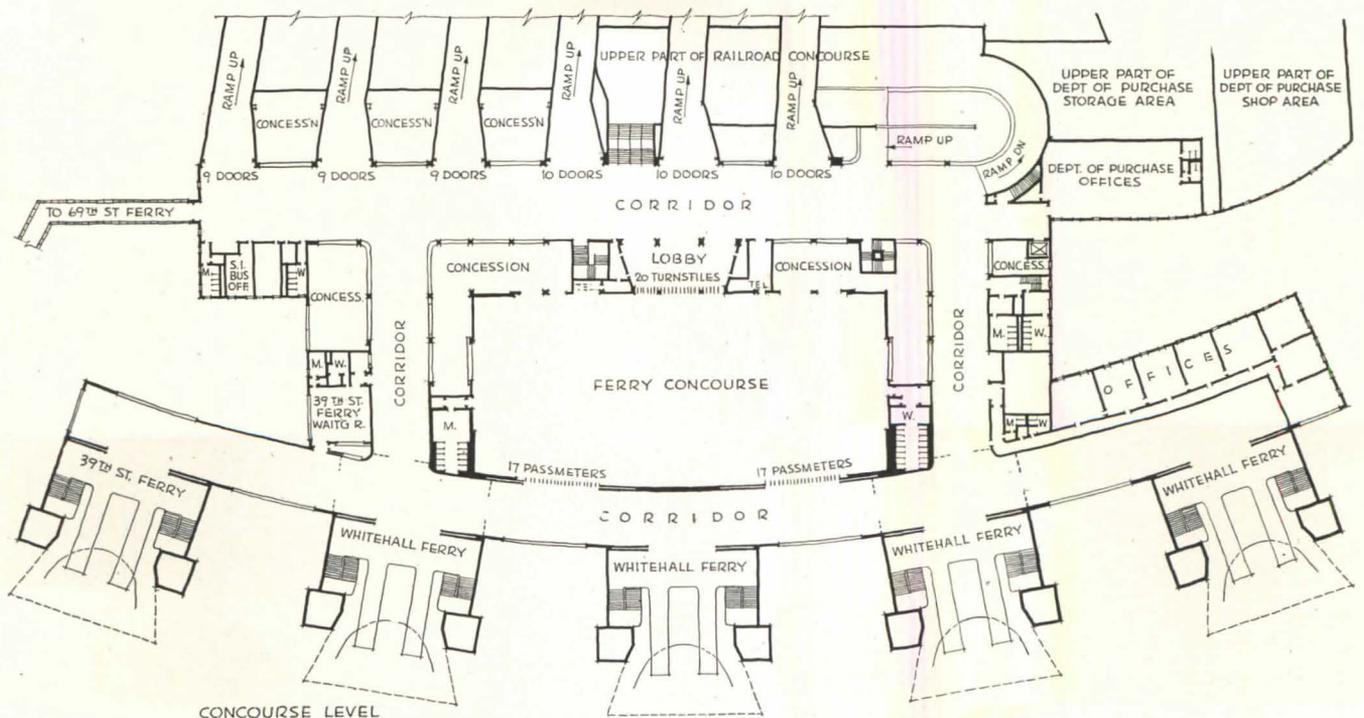


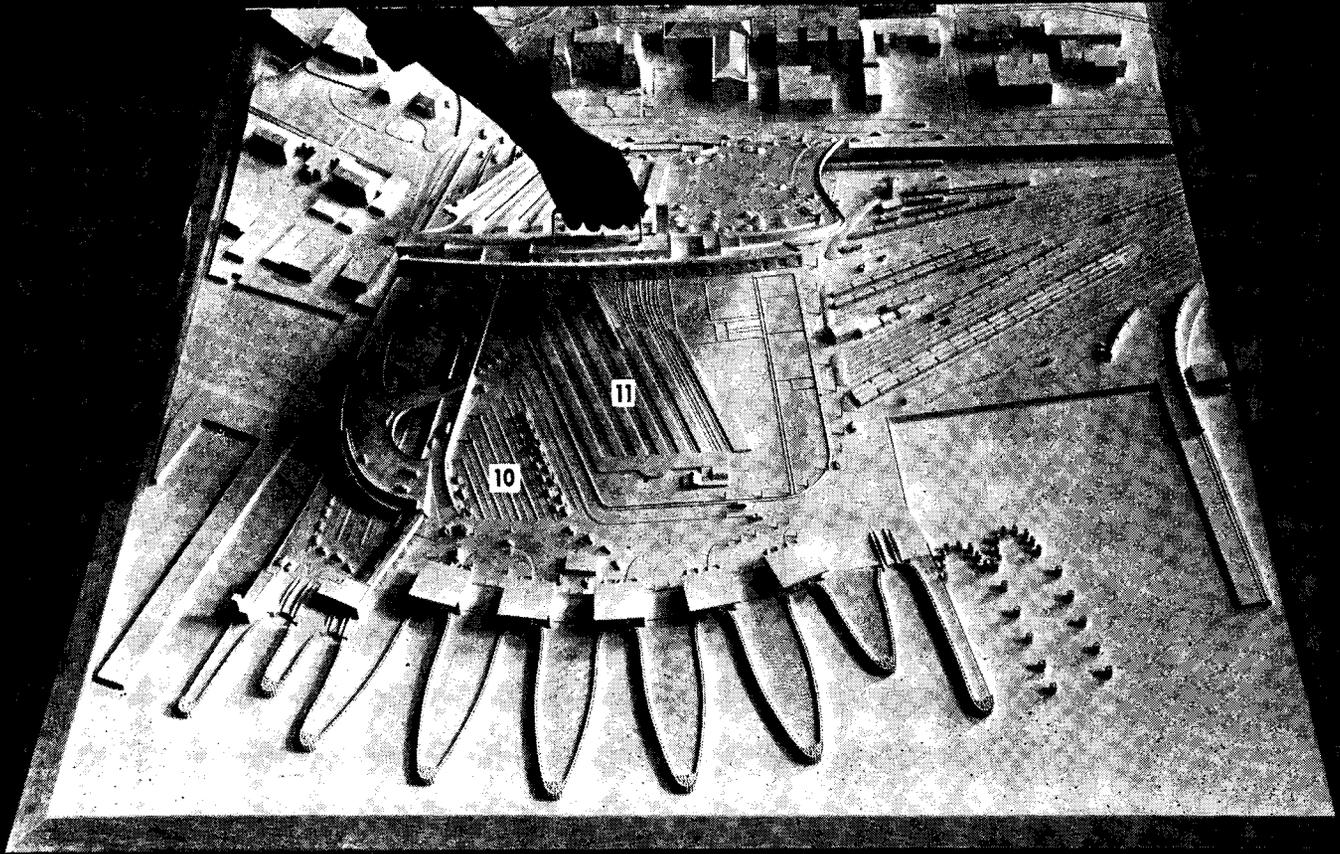
Passengers arriving by taxi or private car are discharged on the upper level, proceed via stairs to the main concourse. Bus passengers will have their own ramps



Key to photos of model, above and opposite page: (1) slips and (2) vehicle lanes for Brooklyn ferries; (3) taxi, private car and bus viaduct; (4) roof of terminal; (5) bus loading and unloading

platforms; (6) transformer station; (7) parking space for 500-600 cars; (8) railroad yards; (9) lay-up and repair slips; (10) vehicle lanes for Manhattan-bound ferries; (11) railroad terminal



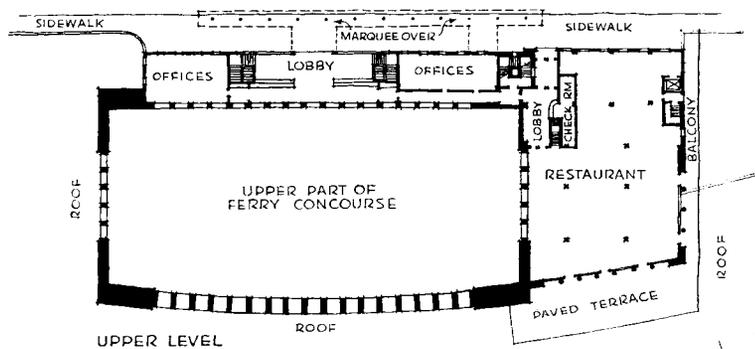


Model by Rochette and Parzini

and private cars carrying passenger traffic will enter the terminal on separate roads and at different levels from ferry-bound vehicular traffic.

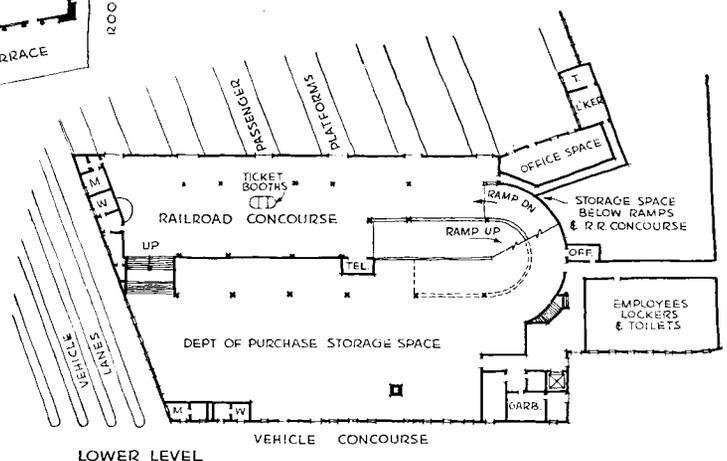
The project is being developed for the New York City Department of Marine and Aviation and the

Borough of Richmond under the direction of Mayor William O'Dwyer, Borough President Cornelius A. Hall, and Frederick G. Reinicke, Commissioner, and Lewis H. Rabbage, Chief Engineer, of the Department of Marine and Aviation.



Upper level (left) provides a large restaurant and observation decks, offices, and lobby for taxi and private car passengers. Ramps connect railroad concourse on lower level (below) with waiting room

Manhattan passengers will reach ferries from main waiting room, will discharge from incoming ferries into wide exit corridors to prevent cross-traffic. Brooklyn passengers have separate waiting room



ON PLANNING MAN'S



George Howe (silhouette) and
Frank Lloyd Wright



Alvar Alto
M.I.T.



Walter Gropius
Harvard



Robert B. O'Connor
New York



Jean Labatut
Princeton



Roy Childs Jones
Minnesota

A purposely small group of some sixty articulate thinkers and doers in architecture and allied fields of design gathered at the Princeton Inn March 5th and 6th for spirited discussions of Man's Environment, and what could and should be done about it. Following an agenda thoughtfully prepared by Arthur C. Holden and his committee (Henry A. Jandl, Kenneth S. Kassler, Jean Labatut, Sherley W. Morgan, Robert B. O'Connor), seven sessions were held covering the physical possibilities and limitations of design and the visual, social, philosophical, psychological aspects of environment — from city and regional planning to the design of buildings and small objects.

Differences of opinion enlivened the discussions and stimulated thinking. That there were digressions may have been due to lack of preparation on the parts of some of the participants or just to the fact that particular (though non sequitur) subjects were uppermost in their minds. A few brief excerpts from the opening statements of several speakers are given here with a dozen random candid shots. More detailed reports will be forthcoming later.

The conference ended with Frank Lloyd Wright's dinner address stressing decentralization and a back-to-the-farm movement for veterans instead of university training.

Since the objective was exploration rather than framing conclusions, no resolutions were passed.

TO SHOCK is no longer necessary, not even desirable. Perpetually to make something new may call fleeting attention to one's self, may capture the ephemeral applause of a self-admiring clique; but it is not a panacea for progress. . . . So today the architect . . . must first of all be an interviewer, an objective recorder of needs, an understanding examiner of techniques. This process may well take longer than the final synthesis, the space arrangement, which is the design. . . . There is risk that modern architecture does not follow its own precepts. It is no more noble to preconceive a building with a cantilever, a spiral, or an exo-skeleton and then force everything to fit, than it is to preconceive it in the mold of St. Trophime. . . . Do we really survey the technical need without prejudice; do we refrain from imposing our own clichés; do we avoid facile rationalization and the pseudo-scientific; are we prepared to bring humanism to the mechanism we have already prescribed with such authority? . . . only the thoughtless could answer with a chorused "yes."

— John E. Burchard

It is pertinent to inquire why we admit, as readily as we do, that man is better off when he lives and works in an environment which has esthetic values. In the first place, where does this esthetic value come from? For myself, I do not believe that esthetic

PHYSICAL ENVIRONMENT

AT PRINCETON UNIVERSITY'S BICENTENNIAL CONFERENCE

value can be created through conscious aim. Esthetic value is the evidence of an innate harmony that has been achieved through the arrangement of space in such a way that human needs and senses are satisfied.

— **Arthur C. Holden**

Man's needs for shelter have changed but our tendency in designing man's home must be to simplify instead of to complicate our lives within our homes. The simpler our lives the simpler our homes should be and the better we shall live in them. . . . Let us then PLAN to live more simply; to live more slowly. Let us give of what we have to satisfy the needs of others and let us — above all — live in harmony with our neighbors and specially, very specially, with ourselves.

— **Carlos Contreras**

We would like to cause the city to grow from a chaos to a cosmos by recognizing human dependence upon community organization. We would divide the city into neighborhoods, providing their citizens with self-government, with education and recreation, with some morale building institution like the church; and where possible with industry and commerce. . . . The tendency to have every shopping center in America look like every other; to produce houses by the thousand all the same, like trailers; to have mail-order lampposts and hydrants and street signs; — this

is not only banality, but it ends in apathy and stultification. . . .

— **William Roger Greeley**

The democratic architect will not tolerate compensation on the basis of a percentage of expenditures incurred. It is unethical because it creates a sharp and unnecessary conflict between the interest of the architect and that of his client. For him to make unusual effort to achieve economies and so to reduce costs, or to achieve exceptional quality through fine design, is for him not only to be unpaid for such productive service, but often to be penalized for it in reduction of compensation. . . . American industry and culture should decentralize, leaving in the city only the functions and population actually needed there. The suburb is not the answer.

— **Arthur E. Morgan**

Architecture *must* transcend engineering because the human activities which it houses are not merely physical and utilitarian in the narrower sense, but also, and significantly, cultural and spiritual. Family life, the processes of government, education and research, religious worship, and even business and industry as responsible and dignified human activities, all involve human relationships, human values and evaluations, cultural traditions and standards, spiritual aspirations. To ignore these is to reduce man to his merely physical

(Continued on next page)



Ernest J. Kump
San Francisco



George F. Keck
Chicago



Sigfried Giedion
Zurich

Stowell Photos



William W. Wurster
M.I.T.



Richard J. Neutra
California



M. Roberto, Brazil; Jose Sert,
N. Y. (back); Serge Chermayeff

components and acts; to recognize and promote them is the distinctive task of architecture as an art.

— **Theodore M. Greene**

The end, if we would recapture unity of art and life in building, must be to create significant space, whether real, that is useful and practically dimensioned, or ideal, that is symbolic and proportionally dimensioned, in terms of contemporary thought and feeling, not only socially, economically, and politically, but scientifically, philosophically, and spiritually. This is the great aim which the so-called modern school of design, for all its blind gropings, has set itself. This is functionalism in its broadest interpretation. The building itself becomes a function, in the modern mathematical sense, that is to say, a dependent variable.

— **George Howe**

The greatest change in the character of building design comes from movement which constantly insists on lighter and more flexible structures. At the same time this change does not want to sacrifice anything in the way of fire and other human safety factors, nor does it want to increase upkeep. Movement must include *social changes* (less permanent family, less children, changing jobs); . . . *transportation changes* (automobile or airplane); . . . *mechanical improvements* (electricity, gas and radio join with transportation to decrease urban advantages); perhaps *spiritual*, which wants to give each generation the pleasure of creating its own shells.

— **William W. Wurster**

The question whether the planning-designing profession shall cater to a poorly considered requirement list, handed in by the owner, is in need of qualification. . . . If the executing architect is to abide by a programmatic requirement list, it certainly should, for best results, be developed by a set of professionals superior to himself. . . . The major brain investment is in the program, a preliminary which is fertile with potential life only if it digests all supposedly "realistic" requirements in the light and radiation of a foresight, which activates, because it is more imaginative than bound to the pedestrian statistics of the past.

— **Richard J. Neutra**

It is this extension into the third dimension that is our special concern as architects. Our arrangements of structures in space are limited by the uses to which land can be put. These land uses, in turn, are limited by law and custom. No matter what we plan, unless law and custom — the deep-seated *mores* of the people — are on our side, we cannot build those broad plans we put

on paper. . . . We must always remember that this city we wish to create must be lived in, worked in, played in by all the kinds of people there are. If we do so we will not, I am sure, go too far towards Utopia — which was, I believe, a mirror of dictatorship.

— **Henry S. Churchill**

The successful planning of Man's physical environment means *knowing* Man — not only as factory worker, artisan, merchant, doctor, clergyman, professor — as earner and spender — but Man also as husband, father, brother; as poet, philosopher, painter, dreamer; Man as *spirit* as well as body, *Man as a whole*. And we, as Architects, shall never know *Man* as a *whole* until we discard the narrow, particularizing, separating view of Science, and take the *broad, unifying view of Art*.

— **Ernest J. Kump**

Planning in a democracy involves effective citizen participation. The planner is only one of many technicians. . . . A comprehensive plan is not the creation of a master mind but a collaborative effort. It is the social ideas of a community or region which are to be expressed in the physical pattern, not the ideas of the technician. . . .

— **Frederick J. Adams**

During the past three decades we have seen a vast extension of zoning regulations. These have had some value in arresting some of the bad planning practices of the past but they are, at best, feeble devices for building the city of tomorrow. Even the most well-intentioned regulation may produce results that are very far from those intended by the code-writer. I believe that a more hopeful approach can be made by placing a greater emphasis on cooperation and by placing less reliance on restrictive regulations.

— **Louis Justement**

We must reverse this present way of thinking and acting and must extend the new scientific understanding, namely, that the field and the behavior of the objects are correlative, to our social structure and to the structuring of our physical environment. We must stop thinking in terms of units; we must learn to think in terms of unities, that is, in terms of the organic relationship of units. . . . We can no longer indulge in the mere designing of individual objects, we must follow through all the relationships, that is, we must span the whole field to give contours to the objects.

— **Gyorgy Kepes**

A public nostalgia exists which, through its "style and form" sentimentality, is in direct conflict with mass production. . . . Advertising has

created what might be called a suggestive pictureword language which exerts an enormous impact on the millions of people. This impact not only prevents really clean technological progress, as it is based on artificial obsolescence, but also distorts and destroys basic human and social values. It even affects the sincere designer who is eternally forced to be "novel," to streamline, to be a superficial stylist.

— **Walter Baermann**

Creative design has been hampered because the designing professions have neglected to appreciate that their value to society must be expressed in terms of exchange and finance in order that the judgments and services of designers may carry weight. Society has not yet evolved a system of long term banking that can be compared to the achievements in short term finance that have been developed by the commercial banks.

— **Arthur C. Holden**

Legislative regulation of buildings as contained in building codes, zoning and other ordinances . . . is one of the severest limitations under which design must operate. The severity lies in their rigidity and not in their legitimate purposes. The hope for relief lies in the possibility of phrasing these standards in terms of performance or function. It lies further in the selection of administrators who are capable of interpretation of performance standards.

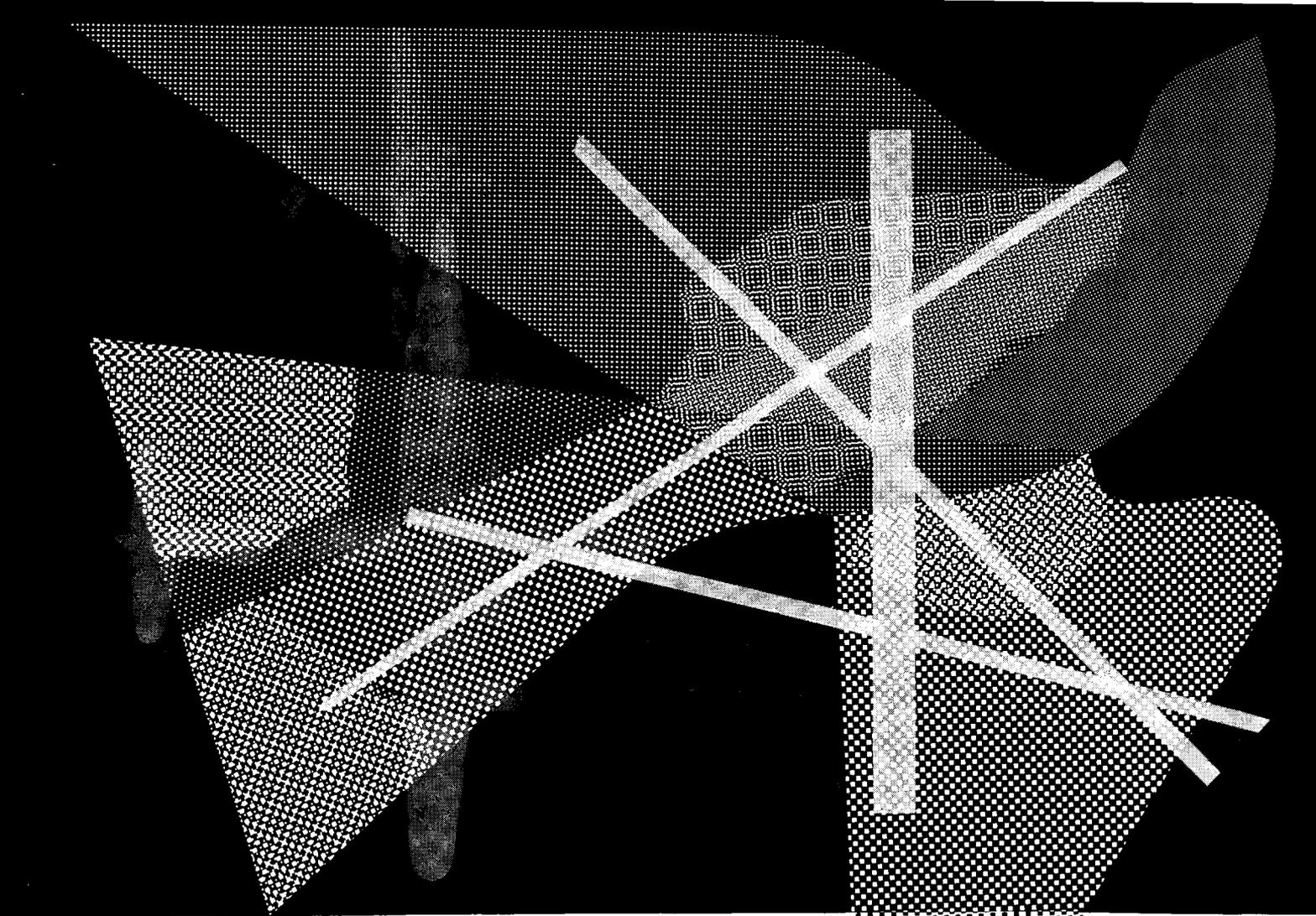
— **Howard P. Vermilya**

Labor is still largely divided on the individual craft union basis rigidly compartmentised. Many restraints have been placed on product and assembly development. As trend increases toward offsite fabrication there is evident a great need for a new classification — the skilled assembly mechanic, not restricted to any one material. This may require a vertical union with the economic incentive of an annual wage.

— **A. Gordon Lorimer**

[In rebuilding a city] construction must be piecemeal, because the city must maintain "business as usual." To obtain necessary funds and secure needed legislative authority, the public — the great majority of all the people — must be convinced of the importance, urgency, and desirability of planned rebuilding. The history of planning during the Twentieth Century bears out that plans have not been realized, for lack of organized public understanding and support. . . . The crux of the problem is that centrally located but blighted land commands a much higher price than its economic re-use value.

— **Theodore T. McCrosky**

An abstract halftone drawing by M. Peter Piening. It features a dense grid of dots in various shades of gray, creating a textured background. Overlaid on this are several thick, white, irregular lines that intersect and cross each other, forming a complex, geometric pattern. The overall effect is one of dynamic tension and visual complexity.

Drawing by M. Peter Piening

AIRPORT BASIC RESEARCH

ARCHITECTURAL RECORD'S

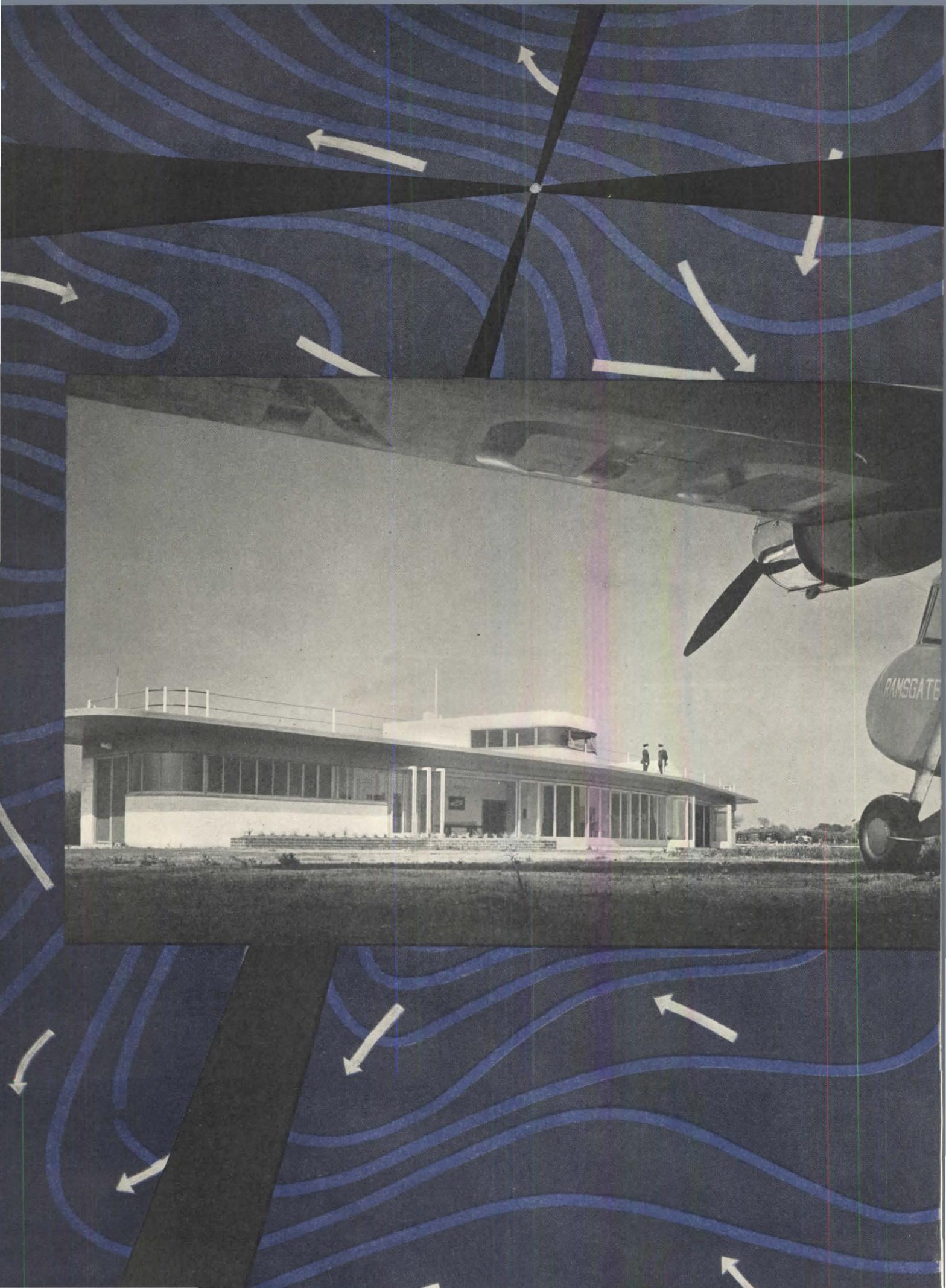
BUILDING TYPES STUDY NUMBER 124

THE authors of this study have made a basic contribution which *RECORD* editors seriously recommend to their readers. Nothing like this approach is to be found either in CAA literature, or in aviation, or architectural literature thus far.

Airports cannot be solved today on the drafting board because no amount of design skill can produce physical order out of mental confusion in the airport client.

The architect's next move, therefore, is not to sit back helplessly but to help public authorities formulate the kind of program that an architect can hope to make workable.

This can be done. Our authors show by precept how to make an airport survey, and by example how to study airport service plant. The editors commend them heartily to you.



AIRPORT PROGRAMMING ANALYZED

By J. B. Bayard, Jr.*

Director of Airport Planning for Horner and Shifrin, and Smith, Hinchman & Grylls, Inc.

MOST major airports have been developed without the aid of essential elemental studies. The architectural and engineering design of these all-important terminals has had to proceed piecemeal, lacking analysis. It has been compelled to rely on hobbies and on the repetition of individual ideas, most of which have proved to be obsolete even before the mortar was dry on the first executed example.

The present study of air terminals is written for the public interest. This interest has been sadly neglected through ignorance of the fundamental concept of the airport as a public facility. Only small ports are now being built entirely by commercial interests under their own financing. These smaller ports bear no public responsibility beyond that of fitting into the national and

local flight pattern so as not to interfere with air traffic. But all larger ports, and all ports for scheduled flying, have been built and financed by public authorities.

Commercial airlines, having proved unable to create their own ports with their own means, must therefore yield to the public interest, which demands far lower capital costs and far more convenient service.

To Go Forward We Have To Go Back

The need for fundamental information is not confined to projects for new airports. This fundamental information must be acquired also for existing airports faced with the necessity for improvement or expansion.

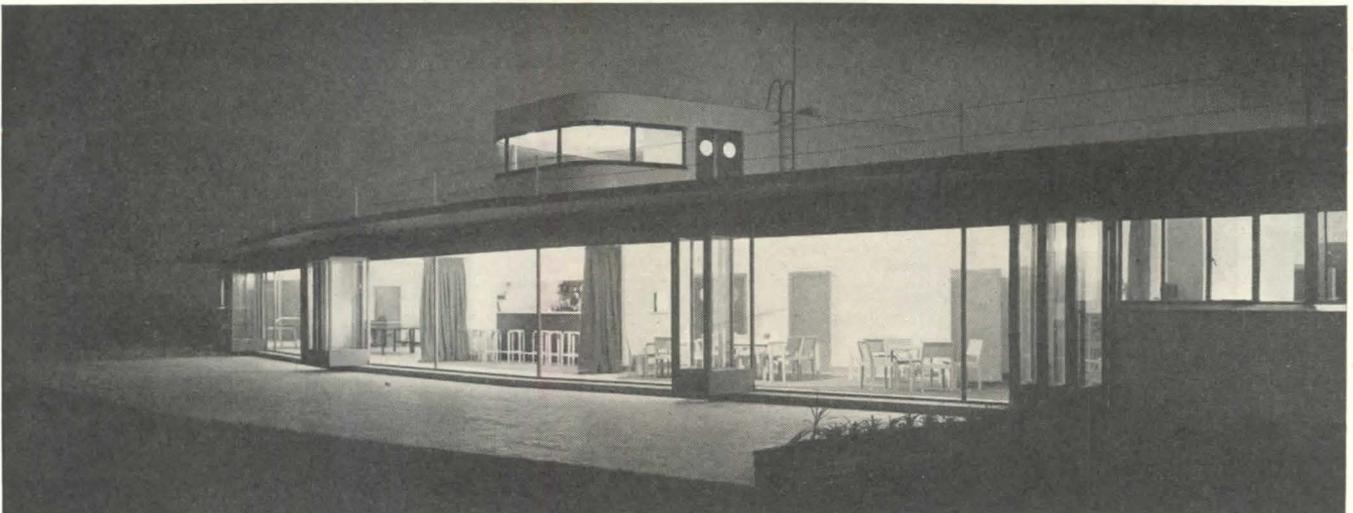
Appreciation of this need by airport planners, engineers and architects is essential, to prevent endless wallowing in a quagmire. The chief reason is that every step is worked out not according to set objectives but according to a succession of negotiations.

Acceptance by public authorities of the necessity for fundamental information is the first prerequisite for any intelligent airport development. Without such awareness, the necessary studies are never authorized or paid for. They are far too costly as a speculation.

* Mr. Bayard speaks feelingly out of a lifetime of experience with airports. He received engineering training at the University of Illinois, designed terminal facilities for Transcontinental Air Transport (which operated the first transcontinental passenger service), did market research in aviation for the St. Louis Chamber of Commerce, did traffic and cost analyses for Ludington Air Lines as Superintendent of Traffic, engaged in special operations and analysis work for Eastern Air Lines. From 1934 to 1945 he was with the Bureau of Air Commerce and the Civil Aeronautics Administration engaged in airport planning and engineering. Since 1945 he has occupied his present position. The Detroit airport plan of Horner & Shifrin (engineers) and Smith, Hinchman & Grylls (architects and engineers) won a Haire Airport Award in 1946.

A ship-shape English terminal of the mid-thirties, at Ramsgate, by David Pleydell Bouverie. Even such distinguished designs as this would be unprotected in the U. S. against butchery and remodeling to make up for lack of foresight in setting up airport programs. The architect's only protection for his design is to extend his service and help make basic surveys, so that the program is correct

Dell and Wainwright Photos



A workable framework or form for such a fundamental analysis is the next necessity. As we shall see, large sums of money have been wasted on "surveys" which have revealed nothing of value to the airport developer.

Bad Effects of Insufficient Information

The traveler, because of the lack of coordinated airport planning and building, finds himself consuming long periods of time to reach airports situated far from where he is, approaching them through alleys and over congested highways. At the port he finds himself unable to buy decent food or find a clean place to eat it; he is unable to purchase gifts, toilet necessities, reading matter, or those other small items which the traveler expects to obtain at a *transportation terminal*. He is unable to spend time between planes in anything but complete boredom. He is made uneasy about his reservation, his ticket, his baggage; and he is irritated by the length of time it takes after deplaning to get himself and his belongings assembled and started to his final destination.

The taxpayer is constantly getting unpleasant reminders of airports through annual deficit budgetary provisions for maintenance, revision, repairs, and total rebuilding of badly conceived facilities. Bond issues are floated for capital improvements on which the taxpayer foots the bill for interest and amortization.

From an *operating* standpoint, we find major errors. For example, after construction had begun on a certain super-airport, it was found that additional runways were needed to keep from blocking the approach paths of neighboring ports!

Every one of these bad effects is reflected in higher

charges to the aeronautical users of the field. These charges are then passed on to the public in the form of high rates for services, and high taxes.

MAKING A PRELIMINARY SURVEY

The first purpose of this article is to outline what the owner and designer of an airport, or of an airport system, have to know *before* sites are acquired and *before* the actual designing is initiated.

Basic Research for a Locality

What is meant by research? From the architect's and engineer's standpoint it means acquiring enough information to know whether he has a program or whether he has none.

Is the problem posed by officials the problem?

Is there an existing program? If so, how far does it go? Is it workable?

Have the aeronautical needs of the locality been firmly established?

Has there been a determination of the number and type of airports needed and of their time scheduling?

Have sites been selected?

Public Officials are Responsible

Without fear of contradiction it can be said that more than 99 per cent of all public airports either existing or projected have been conceived and brought to their present state of development without a clear picture of their ultimate use and their economic function in the community. This condition is the result of lack of appreciation on the part of public officials of the impact of airports on community life; it is also the result of collective apathy on the part of architects and engineers in performing the planning function where it is most needed: in the first preliminary phase.

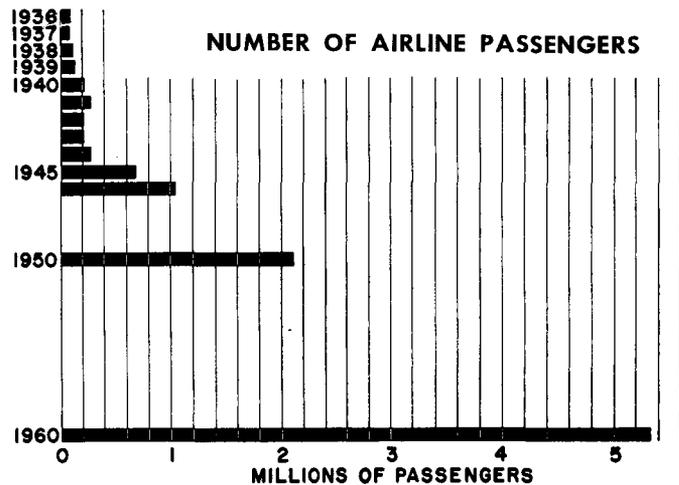
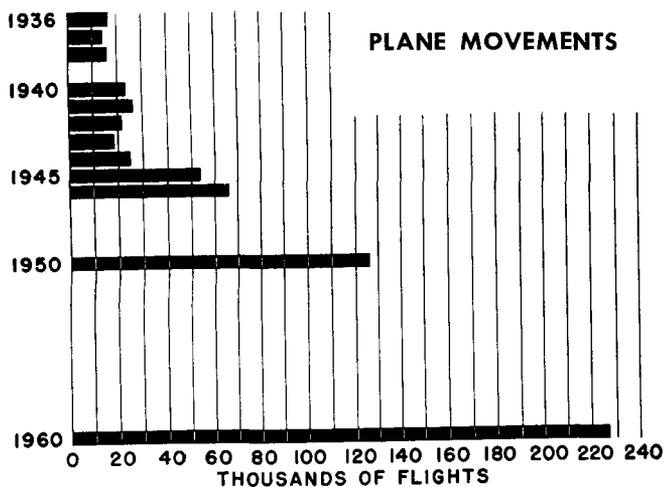
Confused methods of operation (left) and confused city planning (below) bring the passenger down to earth with an emotional thud, no matter how conscientiously the architect has labored. To get right answers he must help clients state right problem



Wide World Photo



Metro News Photo



What is an Adequate Survey?

In some instances the immediate problem is to set up an airport system, an airport administration and a method of financing. In some instances a single airport previously built has to be expanded and adapted for joint scheduled and non-scheduled operations.

In some others there is an urgent need to separate private flying from commercial flying or national from international, at the same airport, and to provide individual building areas for each. Regardless of the scope of the immediate problem, the essential items of information are always practically the same. The difference is merely in the degree of thoroughness that must be given to any particular part of the investigation.

How Do You Set Up a Survey?

How Do You NOT Set Up a Survey?

It is our firm belief that the public authority should make up the best possible description of its problem according to its own thinking and then ask different consultants for a detailed outline of their proposed *method of approach* — *their procedure in getting to a solution*. Too many surveys have been made on too vague a basis. Professional firms have been asked to enter competitive bids to “survey the airport needs of McCushlin County.” The resultant bids have been based on approaches as different from one another as camels and fish. In a recent well-known episode the highest proposal was for \$200,000 and the lowest, which was accepted, was for \$47,000. Very obviously the two proposals did not cover the same kind of job. It is safe to assume, when a survey is made on a dollar basis, that by paying \$5000 you get work to the value of \$5000; again, if you pay \$10,000 you get \$10,000 worth of work — but you cannot know until it is too late whether you got the *right* \$10,000 job done or not.

Differences in Penetration. One important item of judgment in making a survey relates to differences in penetration. Money can be wasted in too detailed an

exploration of items which should only be skimmed until something else has been ascertained first. Other kinds of facts may have to be known in full detail.

Differences in Importance. It is astonishing how much analysis has been given to factors which are easily amenable to scientific determination, compared to those items which may be far more important but which involve more ingenuity in research. For example, soil conditions, now at the top of the list in a great many published treatises, should come in behind a great many other items. Thus, in judging between two sites, the primary question is *not* which one can be prepared more cheaply for runways. Suppose that the cost of preparation at one of two possible sites is \$300,000 and at the other site \$100,000. The economic situation including market factors may be such that you could spend the \$300,000 and be sure of getting it back, or you could “save your money” by spending only the \$100,000 — and never get it back.

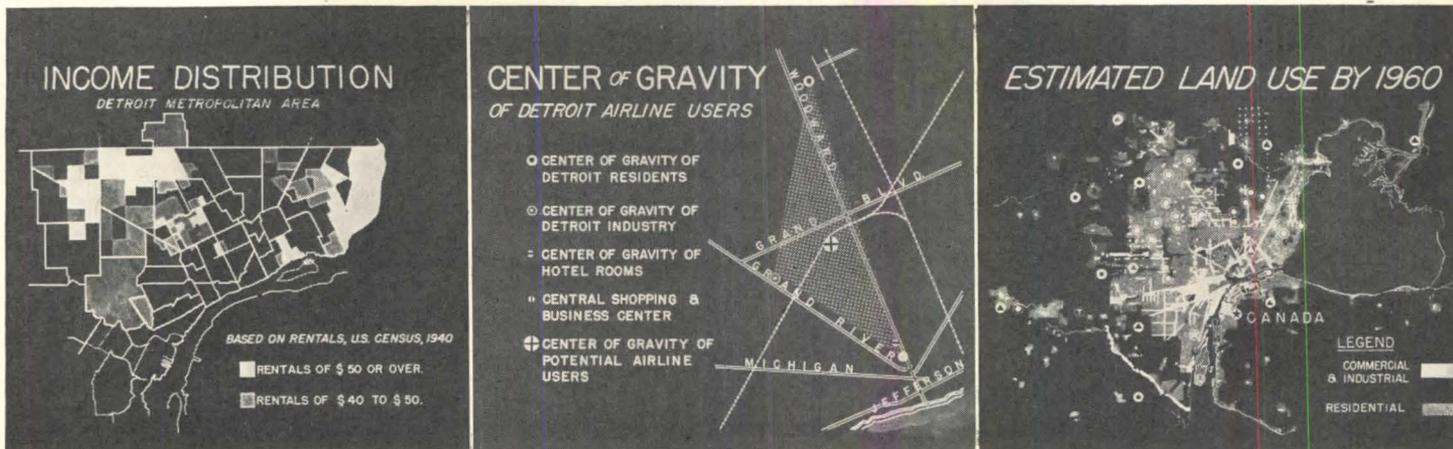
Another fault of surveys on a dollar basis is that the public authority may receive a mere compilation of self-evident factors already published elsewhere, and the authority has no recourse.

For all these reasons it is much sounder to allow the survey to be made by that firm or group of consultants which gives evidence of the soundest *method* of investigation.

CONTENTS OF A SURVEY

The same basic information will be contained in a good survey regardless of whether it covers an area or a single port, or whether the port is large or small.

How do you determine an area? An airport area corresponds to an existing area of retail consumer influence served by adequate transportation and community facilities. A word of caution is needed here: most transportation networks completely ignore political subdivisions. Thus the obvious location for the major terminal of a certain midwestern city is across a big river and in another state; for cities on a national boundary the most economical site may even be across the border in another country. In outline, the survey will cover:



I. GENERAL FACTORS

A. Growth Indices

1. *Population characteristics of the selected area:* Rates of growth. Income (basic information on what income groups use airplanes is very difficult to secure from airlines). Telephones of all types. Postal receipts. Power consumed.
2. *Industry and commerce:* Retail trade — sales, payroll, number of employees. Wholesale trade — sales, payroll, number of employees. Manufacturing — millions added by industrial products, number of employees.

B. *Land Use Pattern.* Charts showing areas devoted to residential, commercial, or industrial use, also densities of occupation of the land.

C. *Ground Transportation.* For the future of aviation, even the development of new efficient aircraft is no more important than the assumption of *responsibility for transportation of passengers on the ground.* The tendency is to analyze the ground trip toward its point of origin. The airlines share the responsibility for developing a coordinated system from the moment the passenger leaves his own front door. An ever increasing proportion of air traffic starts as commuter traffic. The vast majority of airline passengers may be expected to come to the airport by common carrier — although this expectation depends very heavily on what the airlines are going to do. A coordinated ground transportation system would eliminate a vast amount of reduplication of service and expense.

II. AERONAUTICAL FACTORS

This concerns the regional share of total air traffic business. Contents are:

A. Comparison of the *regional picture* with the U. S. transportation picture and determination of the region's share.

B. Evaluation of *local factors* influencing this ratio in the future.

C. A similar evaluation for *non-scheduled flying*, with allowance for local deviations from the normal pattern.

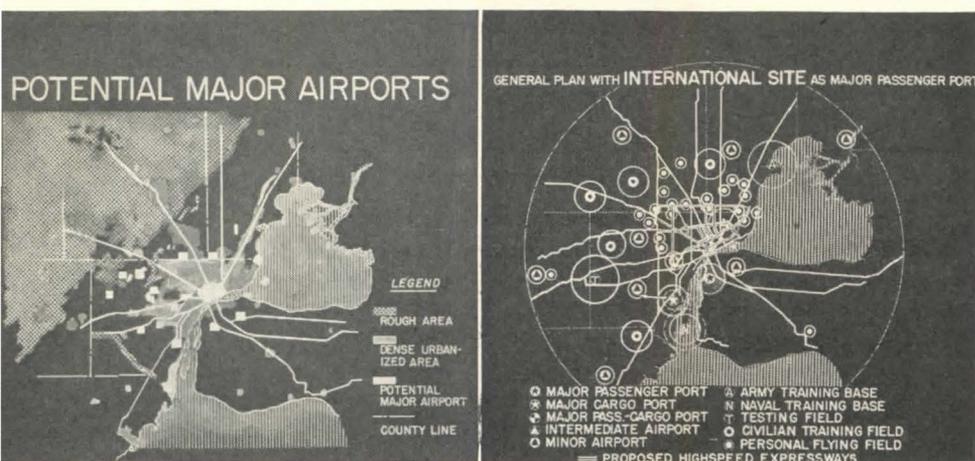
D. *Local patterns and conditions.* This includes: (1) meteorological data — the "wind rose" and what affects it; (2) topographical survey; (3) soil survey (a topographical survey is concerned with contours only, while a soil survey is concerned only with the composition of the soil); (4) airway patterns in the locality; (5) existing airport facilities.

E. Establishment of a *trial pattern* for a local airport system to meet the aeronautical requirements as these are determined by an evaluation of the factors listed above. (At this point in the survey it is necessary to strike a trial balance.)

F. Computation and compilation of *capital costs* involved in the trial system. This includes setting up costs for alternate or competitive locations as well as the first-line locations tentatively chosen. In brief, a rough sketch is made showing both the first-line and second-choice facilities and their comparative capital structures. An important step is to determine the air navigation facilities required in each specific location. These air navigation facilities involve the runway pattern (including taxiing distances for planes), markings, radio beams, obstructions, etc. They will vary widely.

III. ECONOMIC FACTORS

The economic analysis of an airport system is supremely important. In a period of prosperity it is quite possible to set up almost any kind of workable airport system. It is possible to get it financed and started in operation without too much trouble. But look to the future! In a period of depression, parasitic functions are the first to lose public support, and your beautiful uneconomical airport system will collapse a lot quicker than it was inflated.



Five charts from among perhaps fifty, made to help the authorities and citizens of one city visualize the factors bearing on their individual airport problem. These charts were also made up into film strips, so that they could be projected to very large size for big audiences.

Charts should, of course, never be used merely to "dress up" a story. A chart sequence is a statistical motion picture carefully plotted so as to clarify, and not confuse, the basic situation dealt with

A. *Income potential* must be balanced against capital costs. (The capital costs are those described in II above.) Income potential consists of:

1. *Revenue from aeronautical activities.* These consist of scheduled operations and non-scheduled operations. The list which follows applies to scheduled operations. All or a part of the same list applies to non-scheduled operations: landing fees, ramp charges (including telephone outlets and gas outlets), terminal building rentals, office space rentals, utility charges (electricity, water, sewerage, etc.). Personnel services such as janitor. Ground rentals including charges for communications buildings, hangars and shops, tank farms. Commissions for items such as bus and taxi privileges.
2. *Revenue from obvious non-aeronautical sources.* These include: (a) private automobile parking; (b) food service — the airport restaurant, coffee shop, in-flight meal preparation; (c) conveniences — telephone booths, Western Union service, lockers, toilets, newsstands, valet service involving barber shops, beauty parlors, shoe shine stands, clothes pressing and cleaning and the like; (d) advertising. An existing airport which shall not be named betrays the glaring defect of a 1700-ft. concourse serving a vast public and devoid of all provisions for advertising revenue. Advertising, which crept into railroad stations higgledy-piggledy, should be consciously planned in airports. In a certain western port, situated in rich ranch country, a major revenue-producing feature is a display of farm machinery.
3. *Revenue from merchandising at the airport.* Wherever a high-income public congregates in large numbers as it does at an airport, there is an implicit opportunity for clever merchandising. Airport promotion which ignores this fact deserves the fate it will receive. On the other hand, blue-sky promotion is out of order.

Even a preliminary survey has value only to the degree that responsible potential users have been interviewed to ascertain the conditions under which they could use the airport as an outlet, the kind of facilities that they would need, and again the capital cost of such facilities balanced against income from possible rental charges. Since the airport is the gateway to the city for its best customers, high-class department stores and high-style shops may well use the port as an outpost, benefiting not only from the direct sales but from the publicity.

4. *Revenue from entertainment and recreation.*
 - (a) An airport theater in many situations is a natural — and the possibility must be canvassed that it might be used alternately as an auditorium for fashion displays or other gatherings.
 - (b) Sports facilities. Here the possibilities are so diverse that they may be only suggested. Often the natural situation for a port is in open country rather than in built-up areas; and adjacent grounds might be developed for various sports such as tennis, handball, possibly even baseball, very profitably. It should be noted that even a free public park in the vicinity of an airport will increase the turnstile revenue derived from added airport spectators, plus important income to concessionaires.

IV. ADMINISTRATIVE

The primary survey is far from finished even after it has clarified the aeronautical situation and the economic potential. Public officials, who are notoriously inexperienced in operating what amounts to a complex business enterprise, are in need of suggestions from an impartial source such as the architect-engineer consultants making the survey on the possible financing for the airport or the airport system, and on the administrative structure.

The questions which occur at this point stand at the borderline between public policy and shrewd business management: *Who is benefited by the airport? How widely*

are the benefits distributed? (Can it be fairly said that the population as a whole is the beneficiary of an operation which serves directly only a small fraction of the people?) Can those whose direct benefit is unquestioned participate in assuming the capital cost and the possible operating cost? Does the structure proposed provide for the most efficient business and economic setup?

An outstanding example of a corporation performing a public service in a complicated transportation field is the Port of New York Authority. It took 14 years to achieve the creation of the Port Authority as an enterprise disentangled from the fortunes of political administrations. There are not 14 years available for setting our airport facilities on their feet.

The success of airport facilities is inseparable from their physical design. The most careful method of financing can fail if the runway pattern, for example, causes the terminal buildings to be jammed against a highway.

It is for this reason that a report issued by a team of architects, engineers, and planners can well recommend an administrative setup. This has already been done in at least one conspicuous example.

V. STAGES OF DEVELOPMENT

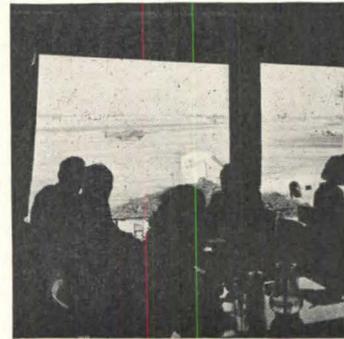
Any competent airport survey sets up a master plan — not all of which can be built at once. The time factor

is as important as the space pattern. An orderly sequence of development, provided for in advance, has advantages too obvious to require discussion.

VI. A FINANCING PROGRAM

Only after all of the foregoing factors have been isolated and examined so that basic decisions can be made is it possible to set up a rational financing program based on capital cost, amortization, maintenance and operating expenses, and firmly established schedules of revenue.

Restaurant facilities are the most important single source of non-flying revenue in many ports. The smaller view shows present-day tentative use overlooking the field. The drawing on opposite page shows full development in "grandstand" style as conceived by Harrison & Abramovitz, Architects, in their New York Idlewild project



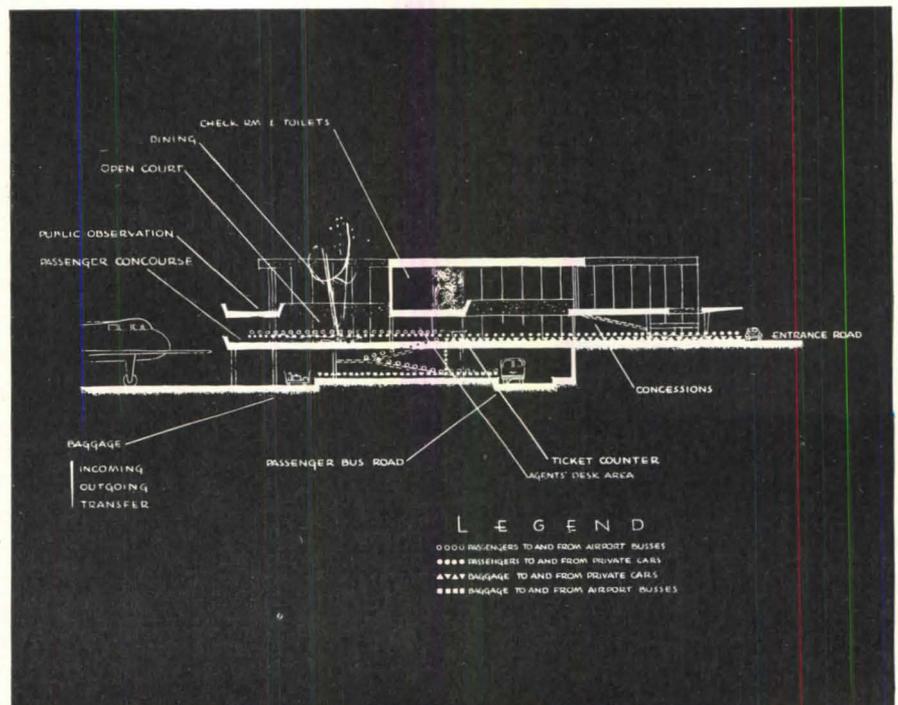
BETTER TERMINAL

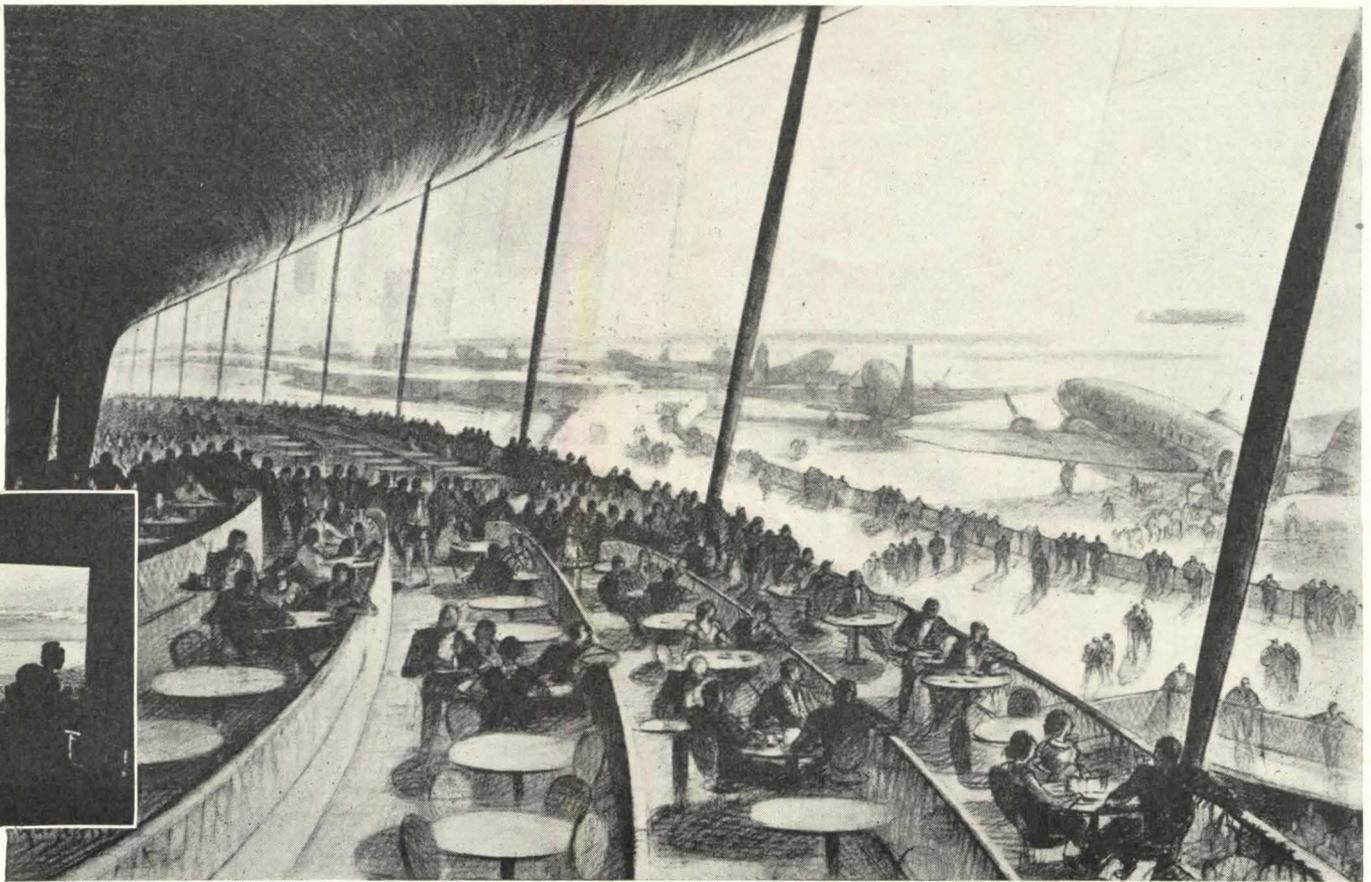
The accompanying scheme has been carefully evolved by Smith, Hinchman & Grylls designers to illustrate an integrated approach based on findings of many surveys.

The scheme will be more fully illustrated and explained in a coming issue of the RECORD.

Salient features are the consolidated handling of passenger traffic and baggage up to the moment of emplaning; full and convenient development of conveniences and concessions; segregation of control tower and offices from the main terminal building.

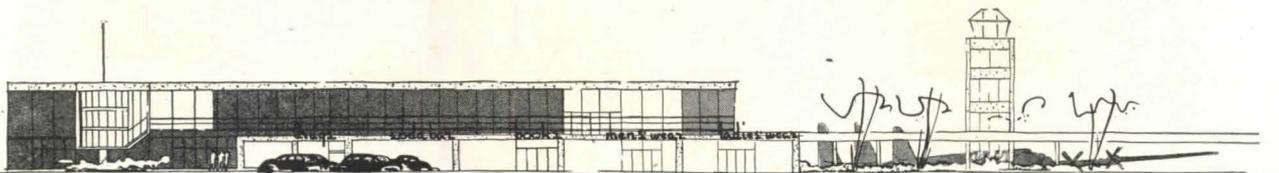
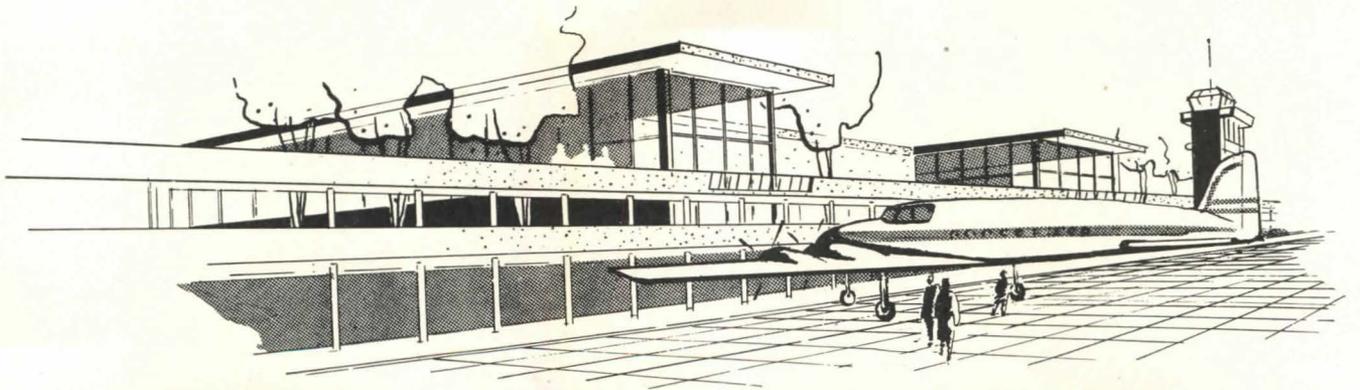
The perspective, taken from the field side, shows the generous projecting lounge (left) and main dining room (right) forming an extraordinarily open and roomy court space in between. Shops (elevation) are equally convenient from highway and interior

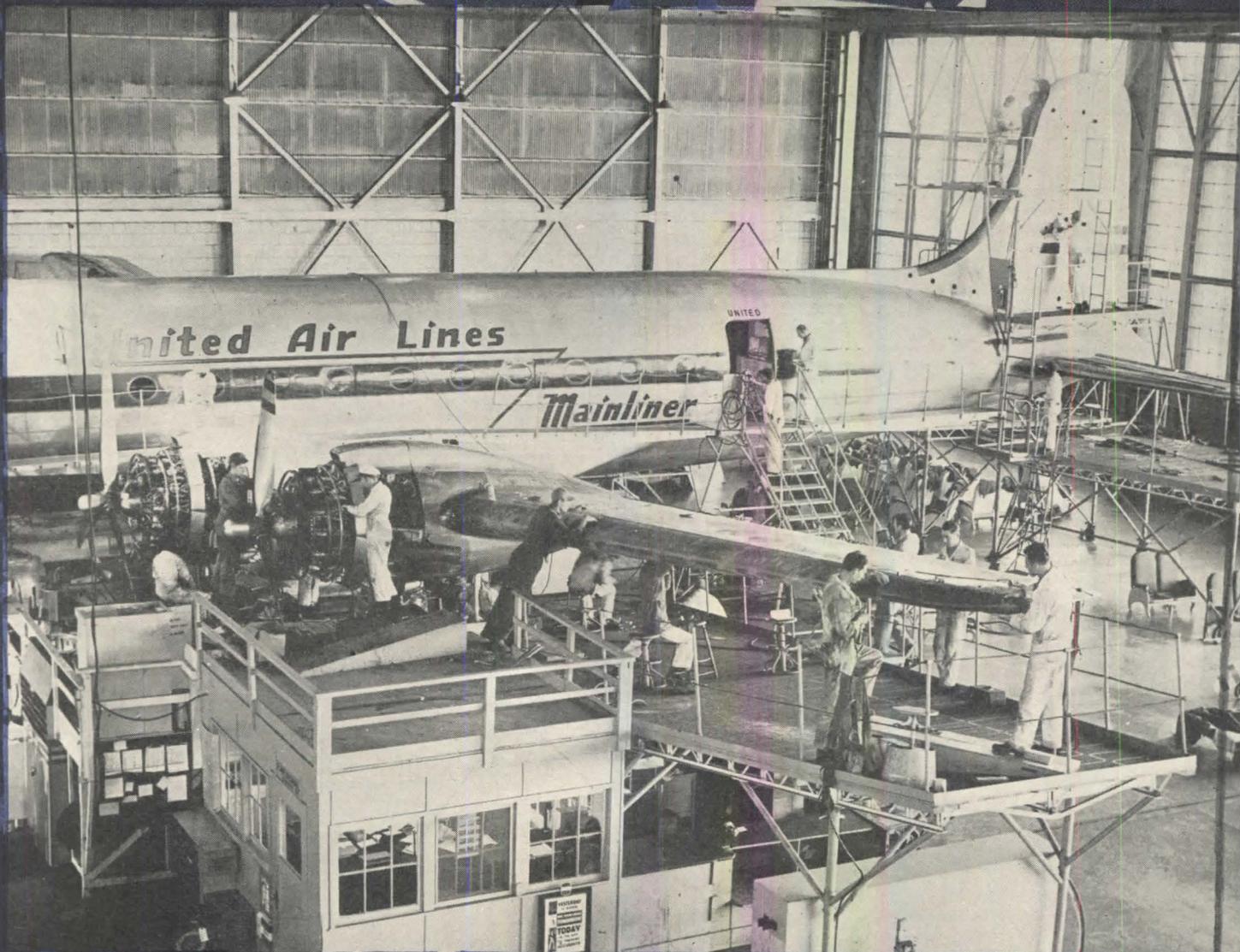




Hugh Ferris Rendering

BUILDINGS WILL FOLLOW ON GOOD SURVEYS





PLANE MAINTENANCE PLANT ANALYZED

Discussed by

Carl M. Kneisel

Division Airways Superintendent,
Pan-American Airways, Inc.

Max Abramovitz

Architect

Fred N. Severud

Consulting Engineer

CHAIRMAN: Starting at the most familiar end, my first question is, do we need hangars?

MR. KNEISEL: Yes, we need hangars. There are two types that an airline may need. One is a hangar that is required for routine service: that is, some small service along the route. The other type that you require is for main-base service, which is entirely different. It is much more elaborate.

Naturally an airline can't afford to have main bases scattered all along the route.

Why do we need hangars? There are certain services to be performed, such as those on the landing gear, which require jacking up the plane.

You can readily see what an area you have in the tail and wings. On jacks, it is quite critical — any wind acting on the rudder might throw the plane off the jacks. It has happened several times.

Another thing: in servicing, your labor costs go up terrifically outside — especially in climates such as this. Unless you have a good place for the men to work, your efficiency goes way down. In a close study you may find that your hangar costs are one of the cheapest items in the total operating costs.

CHAIRMAN: Mr. Abramovitz, did you have some different experiences?

Climate and Working Conditions

MR. ABRAMOVITZ: Through force of circumstances, in China we worked without hangars. We used nose hangars carefully designed and operated. The climate was in our favor and the boys had a special incentive to get out the work. Still, the boys became so accustomed to working that way that when lines of communication opened and we had access to hangars they didn't want hangars any more. It made me ask, isn't there some element of psychology to be developed in our peace-time operations?

My quarrel is with the form hangars have taken today — they seem such a hell of a big construction and a hell of a big investment with such hunks of space unusable. For what it does, is a hangar costing some

\$4 million really cheap? If you are simply thinking of a hangar as *some* kind of enclosed space in which you work on your equipment I am agreeable.

MR. KNEISEL: A lot depends on climate. Where labor costs are high, the cost of working outside in poor climate is going to be two or three times as much as where the working conditions are good. We too have had experience with nose hangars. Compared to the extra labor cost in the open, the extra hangar cost for full enclosure is cheap.

MR. ABRAMOVITZ: When it takes only a couple of hours to move a plane, why not a major overhaul shop down South and just the small stuff along the northern routes?

MR. KNEISEL: We have made quite a few studies. Unless the good-climate area is close to your high-density route, you are under a severe penalty not only in airplane hours but in crew problems, schedule difficulties and administrative overhead. You gain only on ground-base personnel and facilities.

Nose Hangars and Big Hangars

MR. SEVERUD: Before we drop this discussion of nose hangars *vs.* big hangars might I suggest something in between? Here's an example (page 120, 2) where all the main equipment for handling is in a permanent minimum space. A pair of movable units — what you might call "box-cars" — close in from both sides over the wings after the plane is in place. It is a simple structure without those terrific trusses and vast areas that cost so much. Moving back the two box cars releases the plane. You don't have to worry how much planes change in shape because adjustment becomes very easy. You have all the equipment needed, and the enclosure. Without assuming that this is a final answer, what do you think of the principle?

MR. KNEISEL: What are you going to do on a plane on a major service job? Take the CV-37: The tail is 57 feet in the air. That's a five-story building. It's a terrific area.

MR. ABRAMOVITZ: It's perplexing, trying to keep down



Official U. S. Navy Photo

An engine overhaul plant at a main base. Speaking for the airlines' viewpoint, Mr. Kneisel declares that we need to design an "entirely new kind of facility" where shops occupy a separate area from hangars, are bigger, and more important to airline operation

the size of hangars, and keep them flexible, when we don't know about future planes. Isn't it true that the planes you people may have to fly in a couple of years can't get into the prewar hangars?

MR. KNEISEL: That has been the trouble all along. I have yet to see a hangar that I considered big enough. No one has looked far enough ahead.

MR. ABRAMOVITZ: Suppose they do. The war has spoiled us about spending dough. When you get down to cold turkey you can't just spend \$10 million instead of \$5 million without exhausting every other possible way of working. If you neglect one, you'll live to regret it very much.

MR. KNEISEL: There are two things you can do. You can build a small cheap hangar that you amortize over the life of a certain plane, or you can build big enough for anything in sight. The extra space is not so costly. It quickly fills up with more service docks, equipment, more men, more everything. At La Guardia we haven't a spare inch left.

Arrangement Might Bring Down Size

MR. ABRAMOVITZ: You can always build a hangar *big* enough — that is the easiest thing in the world to do. The brass-tacks question is how *little* you can build? If this meeting could get people to thinking about what is good or bad about existing hangars, and *what goes on inside hangars*, and how to get *efficiency by better arrangement* instead of relying on raw bulk —

MR. SEVERUD: For example, if there is a central equipment line, and the field is such that you can enter from both sides, I believe that there is self-evident economy in making this central area one long line of

equipment and stores, and let the hangar expand indefinitely in length (page 121, 5).

MR. KNEISEL: Wait a minute! Let's get the basic service principle clear first.

You will find that the hangar area is actually the smallest area that you require. The shops are the largest area. When a plane came in with a bad instrument, we used to take the instrument off the plane, repair it, and put it back in the plane. Now, we take it out, put a new one in, send the instrument to the shop — and keep the plane flying.

MR. ABRAMOVITZ: Then why don't the manufacturers take care of your major overhaul and repairs?

"Entirely New Service Facility"

MR. KNEISEL: Fleet size affects that. Usually your fleet is not big enough so that you can afford to leave a plane out of service for a couple of months.

The airlines are gradually going to engineer a service facility such as they have never had before. For example, we shall have production control.

We shall have production control. We shall know before the plane arrives what is to be done to that airplane. If it is scheduled to go into the hangar at four in the afternoon, the replacement parts will be right there, the men will be ready, the plane will be brought into the dock, the parts that need repair will come off — even if it is a whole power egg — the new parts go right on. The plane continues on its scheduled flight, and the parts that have to be serviced can go to a shop that can be a mile away if that is necessary —

MR. ABRAMOVITZ: Then it might be better to have hangars small, temporary, and cheap?

MR. KNEISEL: Again, you have to balance that. Say that you have a short route of high density, where you probably are not going to fly anything bigger than the DC-4 for a long while. Then you can settle on a smaller facility. But for long-haul operations airplanes are going to keep growing larger. They haven't reached the limit of size yet.

MR. ABRAMOVITZ: We are really in a situation where I don't know that we can jell on a hangar.

I have come to the conclusion that you ought to call the whole thing a service area and analyze the whole service area, and concentrate no more on the hangar than you do on the engine overhaul section or the sheet metal or the welding or any other section.

What Shops Are Needed

MR. KNEISEL: Speaking for our own operation, we have come to the conclusion that at a main base we need much more besides hangars with small lean-tos — the rest goes into separate shop areas.

Let's take shops. You have your engine shops — then you have a fabric and equipment shop, and an accessory shop and an instrument shop, a radio shop, electric shop and hydraulic shop.

CHAIRMAN: What is this hydraulic shop?

MR. KNEISEL: There is a terrific amount of hydraulic work. Then you have a paint shop, metal welding, carpentry, automotive, stores and offices. Stores should not be centralized because then you are spending man hours to take a mechanic off the job to get a bolt and nut. You need satellite stores next to each shop. So when you add them all up you end with a terrific area much larger than you have in your combined hangar area.

MR. STOWELL: That is a concept that we ought to get across to the architects and engineers. We should have some data as to where shops should be located and how connected and sized, so designers would have something real to work with.

MR. KNEISEL: We have our own studies but every other airline is a separate individual case.

No Good Precedents Exist

CHAIRMAN: Is there any port tolerably well laid out in its service facilities that we could use at least as a point of departure?

MR. KNEISEL: None that I know of. They are not engineered to our operations. We have had to adapt out operations to them.

MR. SEVERUD: Do you think that the study Pelham and I made on a combined hangar and shop area (page 123, 9) might be of interest in this connection?

MR. KNEISEL: We have changed our thinking since then. We want to remain free to expand our shop space in *all* directions.

MR. SEVERUD: You still believe, don't you, that along the route the equipment may be more fully concentrated in the hangar?

MR. KNEISEL: It depends on what you are going to do. You have a major service and short service to take care of. Hangars and shops have to be equipped to do this work.

MR. SEVERUD: I asked because free-standing hangars are much more economical to build if they are self-bracing; and circular forms (page 122, 7, 8) are vastly more efficient in this respect than rectangular ones.

DRAMATIS PERSONAE: Mr. Kneisel, left, maintains port facilities for Pan-American; Mr. Severud, center, has designed big hangars around the world; Mr. Abramovitz, right, already known to readers as an architect, operated wartime flying fields in China

Pan American World Airways Photo

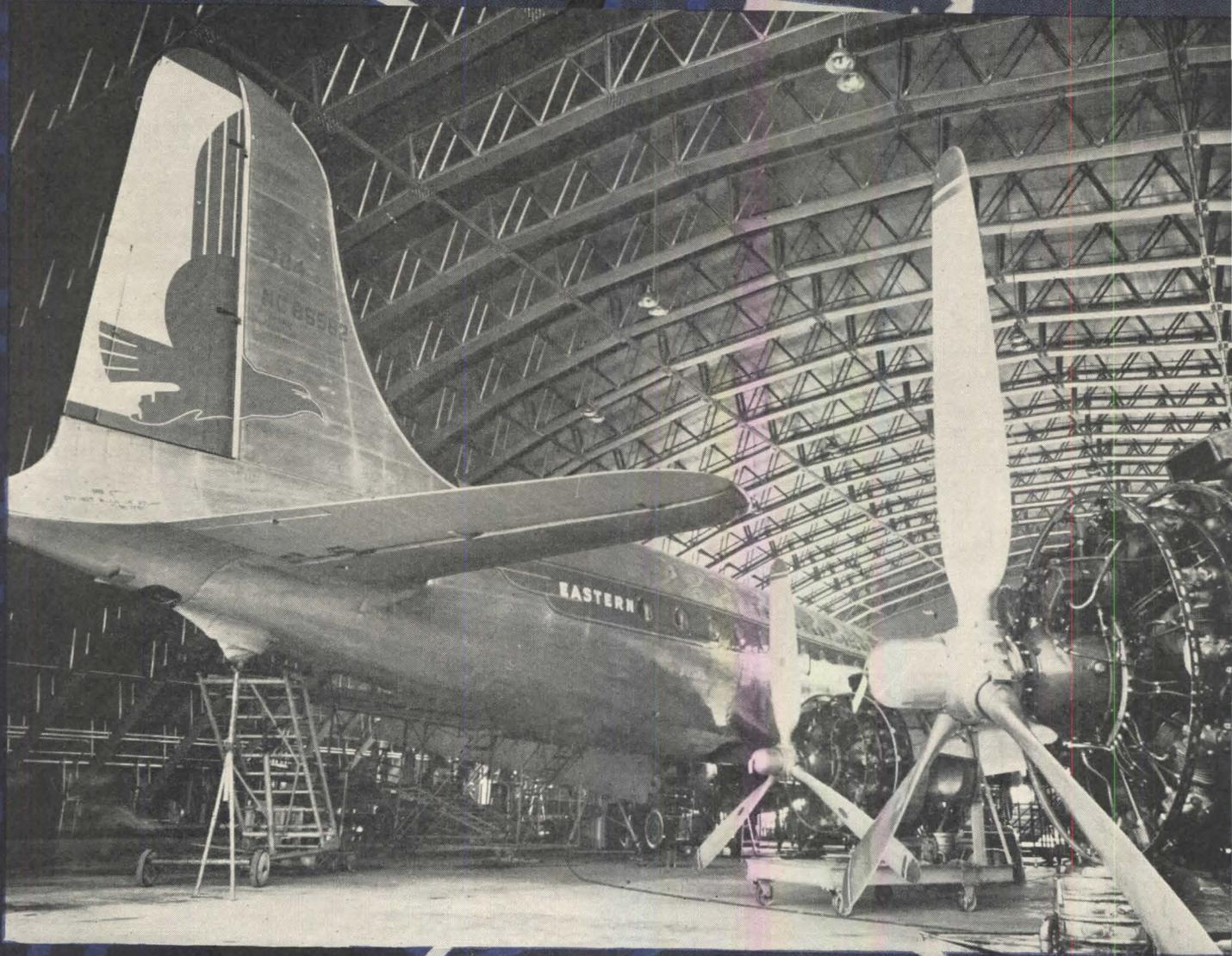


Conway Studios Photo



Official United Nations Photo





HANGARS ANALYZED

By Fred N. Severud, Consulting Engineer

FOLLOWING on the foregoing discussion (pp. 111-113) of the need for covered areas in which to work on airplanes, it becomes important to know in just what way the areas can be covered most economically and with the desired qualities for maintenance and possible fireproofing.

We are dealing here with large hangars. Small ones are a chapter in themselves. When, therefore, we speak of spans and areas we mean those which are relatively large.

Fireproofing

There has been some debate about the economics of fireproofing, since insurance rates do not show as pronounced a differential as one might expect between fireproof and non-fireproof construction. However, there is still the factor of enormous delay to be considered by the airline which loses a big hangar as well as the contents in hot gasoline fires, regardless of whether costs are covered at the same rate or not.

Recent tests have shown that vermiculite plaster is an extremely efficient protection against fire. Other means are also available for fire protection, such as ceiling formed of gypsum planks laid on fireproofed tees that, in turn, are hung from the roof construction.

We need not, therefore, let our review be too much concerned with whether the basic structure in itself is fireproof. An inherently fireproof system can be considered without disadvantage in comparison with one which has less intrinsic fire resistance but which has been given a separate protection to bring it up to an equal fire resistance rating.

Use of Space

The quick assumption that any large hangar must preserve its interior space entirely free and clear of obstruction is one that has been made very generally; but any airline which does *not* expect to expand the size of its planes indefinitely (and there are many which, on account of the distance between stops, have surely come close to the economic maximum in plane size) will in-

FRONTISPIECE. The high tail is what makes the hangar have to be so high. Cheaper construction is possible where high areas can be confined. Note entire "power eggs" removed onto dollies

NEW STRUCTURAL FORMS SHOWN

1	Washington Airport hangars.....	Page 119
2	"Box-car" hangar.....	120
3	Nose hangar tightly closed.....	120
4	Diagonal-truss hangar.....	121
5	Cantilevered barrel vault.....	121
6	Crane-erected concrete arch.....	121
7	Precast ring circular hangar.....	122
8	Spiral structure, precast units.....	122
9	Slanted truss, cantilevered.....	123

creasingly consider every item of waste and excess cost with the greatest care.

We must therefore pay close attention to those means of *reducing spans*, or *reducing height*, or *finding interior points available for supports*, which can bring down the enormous excess that is imposed by mere habit.

Existing Types of Support

In order to come to grips with the problem quickly, it would seem wise to parade the present systems which involve large spans, and put in a word of comment on the merits and demerits of each. In order to do this succinctly, some 19 different types have been tabulated on page 118.

In order to give a quick visual impression of the types habitually used for different sizes, we have assembled examples of the leading ones (next page), mostly from our own practice, and reproduced them to equal scale.

A few preliminary remarks may be in order.

Concrete Shells

Where there is exact repetition, concrete shell hangars have recently been popular. It seems that the first cost of construction, even despite the inherently considerable expense of form-work, compares quite favorably with other types. This form-work is made for only one bay and is so arranged that it can be jacked up for pouring, then lowered and moved on tracks from bay to bay. When one hangar is finished, the forms are moved outside and sidewise, and then into the next hangar.

One disadvantage of hangars constructed in this manner is that weather is a severe handicap. It is obviously impractical to provide an enclosure under which to pour concrete in cold weather. The whole construction is

therefore subject to delays and the method is not too speedy in itself. (Enthusiasts for this type may have some grounds for their counter-arguments if delivery of structural steel is delayed and prices are jacked.)

Steel Tonnage: Straight Forms vs. Rounded

There is an interesting difference in steel tonnages required by three-hinged arches as compared to rigid frames. On a three-hinged arch roof that we designed for a 275-ft. span, the structural steel, including bracing, came to 22.5 lb. per sq. ft. Another hangar having a somewhat shorter span of 264 ft. and a rigid frame took 38.8 lb. of steel per sq. ft. In general, *it may always be stated that economy of material always follows rounded structural forms such as arches, shells, and domes.*

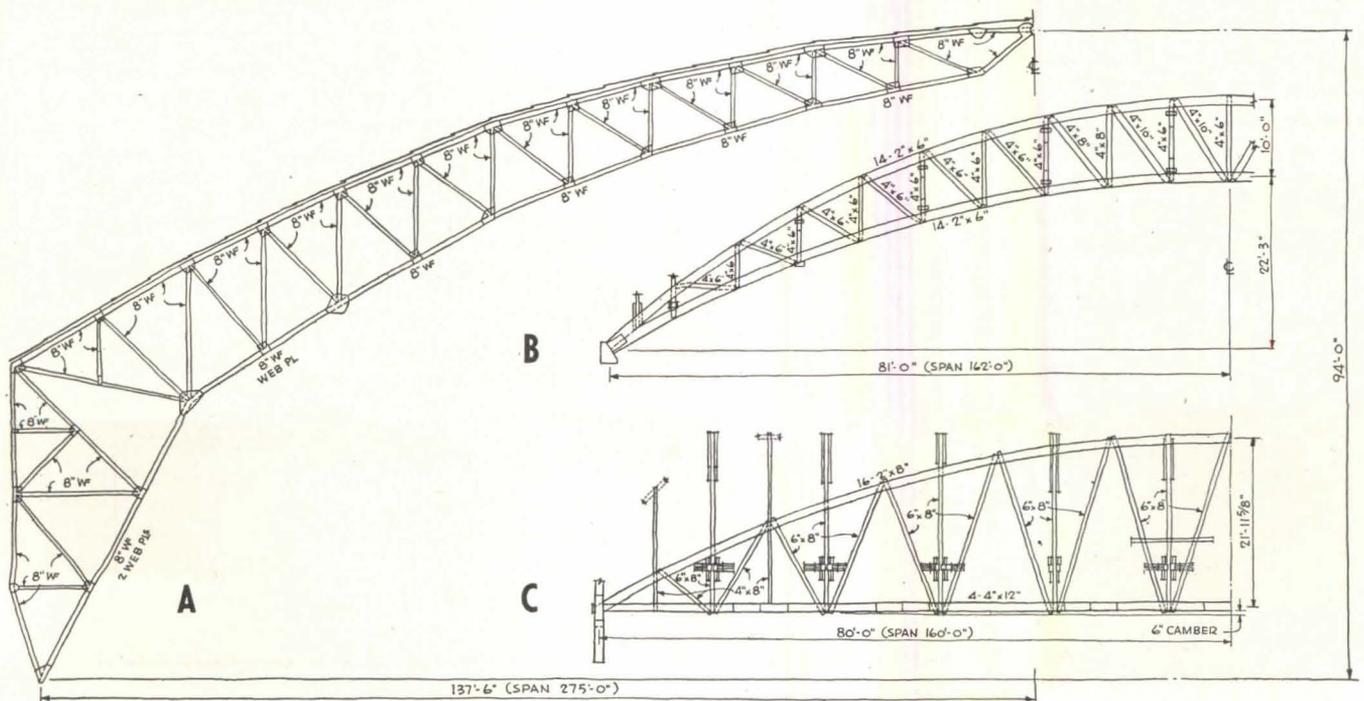
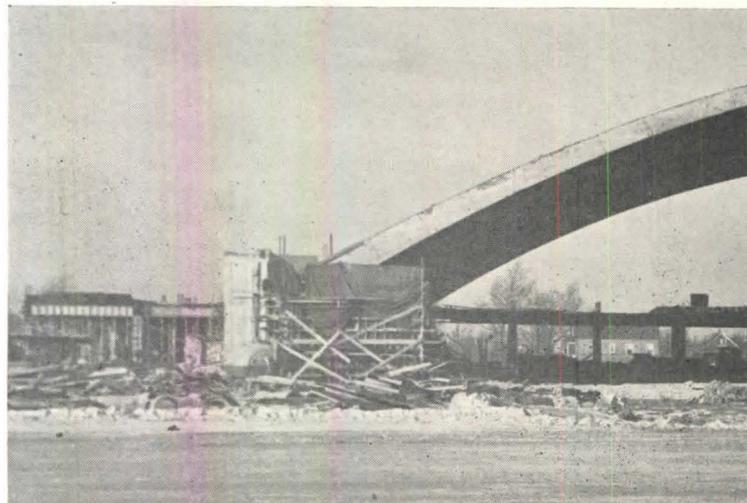
Tie Rods vs. Self-braced Structural Forms

As noted in the table, tie rods are objectionable. They are the most efficient means of resisting lateral thrust under conventional construction methods, but they do restrict the mechanical work considerably, and should be avoided, if possible, in order to facilitate possible future rearrangement of underfloor tunnels. If tie rods are eliminated from structures exerting sidethrust, this thrust must be resisted by buttresses. Eventually the side thrust finds its way into the ground and is resisted there. We have made studies of the effect of unequal settlement on long-span construction and have found that in one case a 16-in. differential settlement could be tolerated with no more than a 10 per cent increase in stresses. Of course, such a large settlement has a highly objectionable effect on side walls and roof and is mentioned only to show that small settlements will have practically no effect on the arch construction. However, hangars are often built on questionable ground and it may well be that, in certain cases, tie rods should be used to prevent a spreading of the arch.

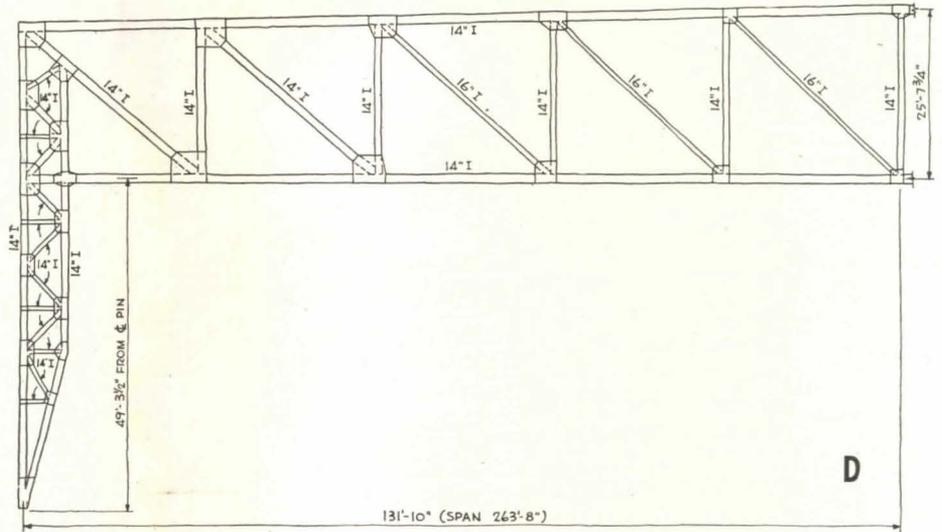
Structurally, by far the most efficient form is the ring-shaped dome, which resists lateral thrust within the structure itself. Although Mr. Kneisel, on preceding pages, has raised objections to the circular hangar on grounds of access, the shape may be indicated under some circumstances and may serve very well in shops, so a proposal of this type is explored in the latter part of this article.

A complete analysis of hangar construction would take in numerous components such as roofing, siding, insulation, door types; but this study seeks only to outline the broad structural features. We therefore follow up the analysis of existing types with some thought-provoking proposals.

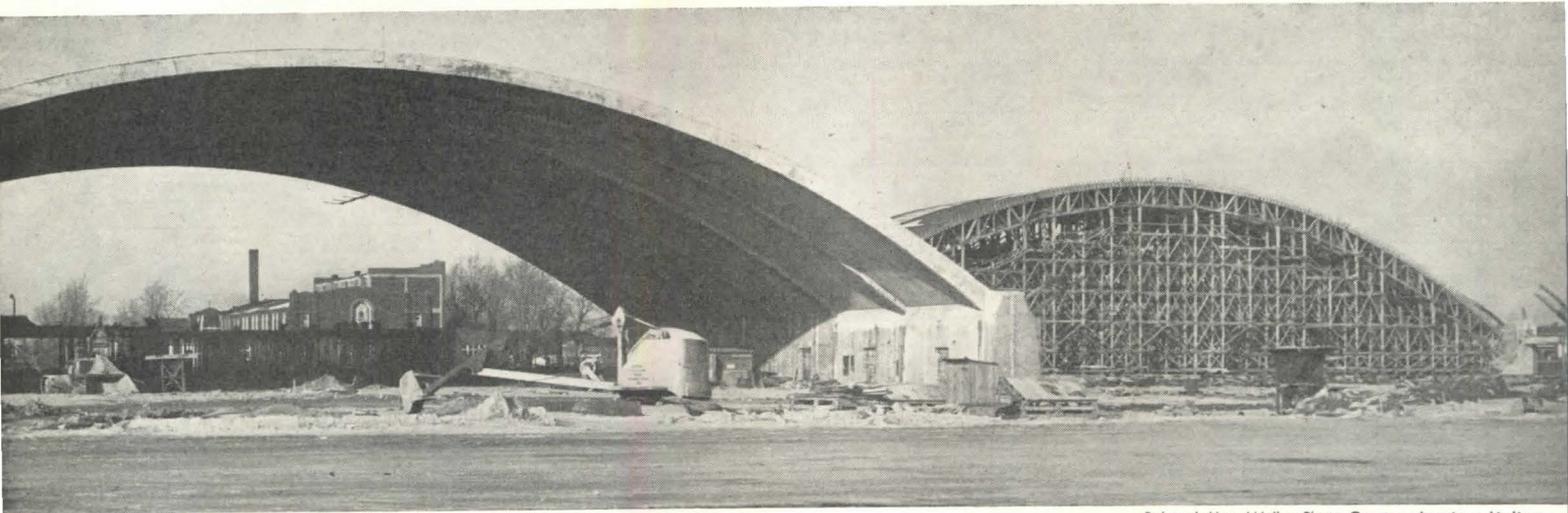
COMMON FORMS



A parallel-chord steel truss structure (D, right) is available for large spans, cuts down height, heating, wind resistance, but consumes more material compared with the three-hinged steel arch (A, opposite page). The small crescent wooden arch (B) requires either tie rods or buttresses; in the bow-string (C) the tie-rod is integral but the truss consumes more space

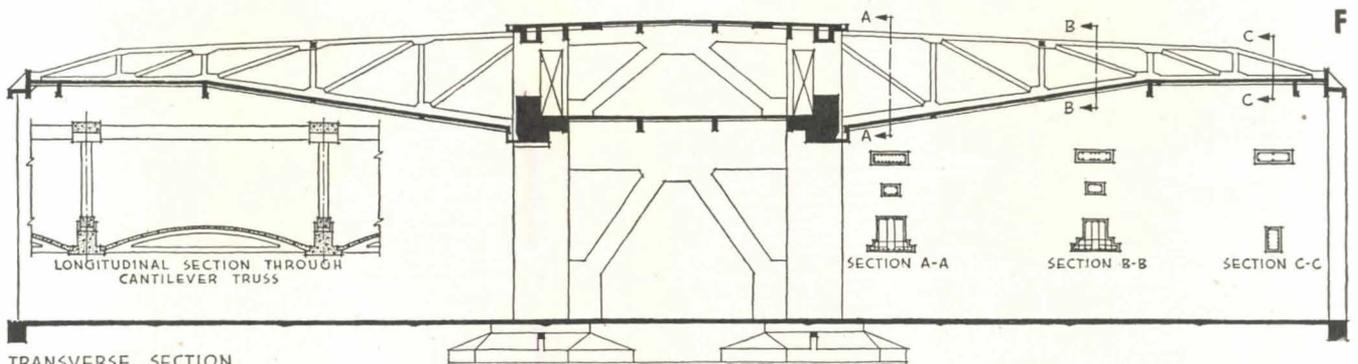
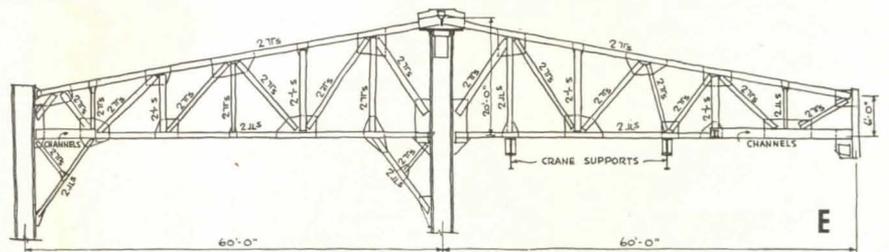


OF HANGAR STRUCTURE SHOWN TO EQUAL SCALE



Robert LeVern Walker Photo Courtesy American Air Lines

Concrete hangars seen above are in Chicago for American Air Lines, by Whitney and Ammann, engineers. Slab is on the neutral axis of the ribs, creating an economical, more flexible structure. Buttress area provides shop space. (Span, 257 ft.) Cantilever trusses seen at right (E, steel, F, concrete) are short in themselves but allow endless lateral spans



Marcello Roberto, Architect, Argentina

PRELIMINARY ANALYSIS OF HANGAR TRUSSES *By Fred N. Severud, Engineer*

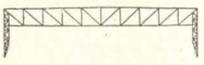
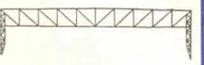
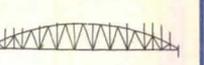
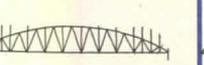
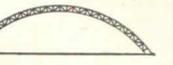
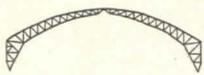
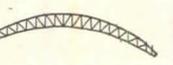
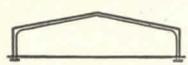
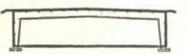
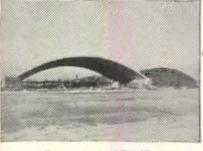
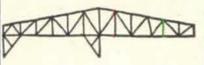
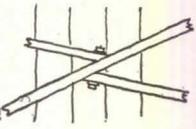
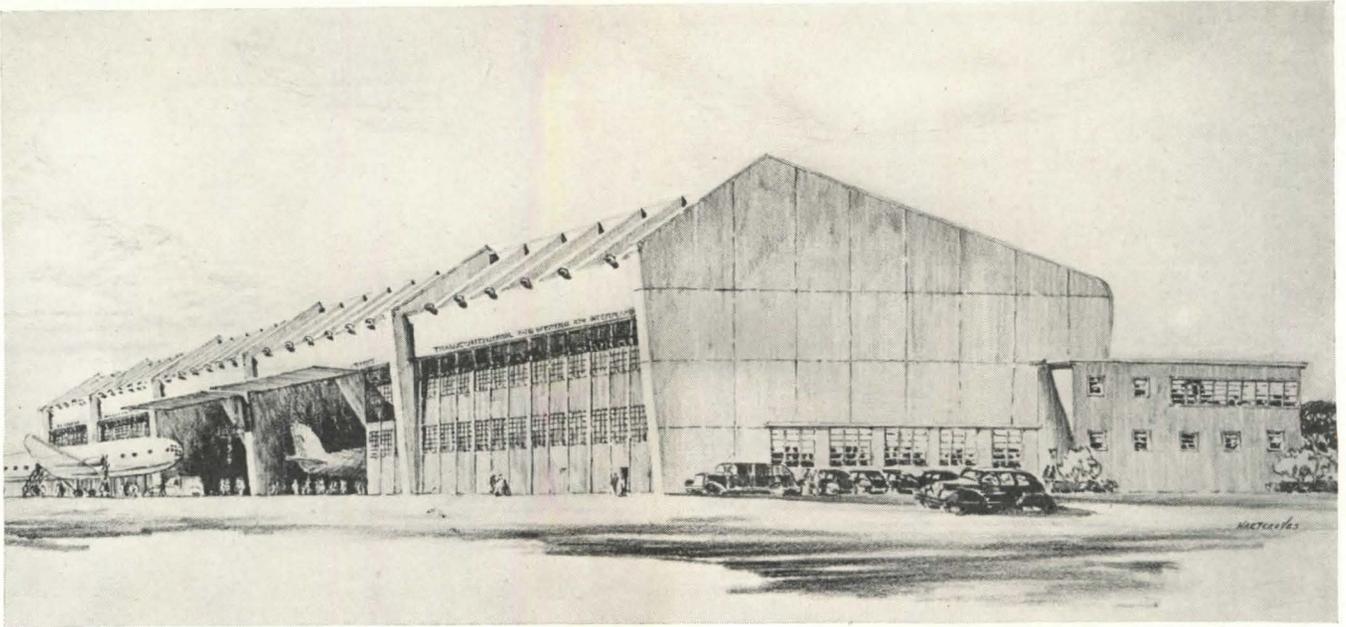
NOTE: Circumstances vary widely making each of these structures the best for some purposes. This analysis is preliminary only, applying to hangars of wide span	 Parallel Chord, Wood	 Parallel Chord, Steel	 Bowstring Wood	 Bowstring Steel	 Steel Arch
First Cost	Fair	Fair	Good	Good	Very good
Maintenance	Fair	Painting	Fair	Painting	Painting
Fireproof Quality	Poor	Poor	Poor	Poor	Poor
Ceiling req'd	Non-Fireproof	Yes	Non-Fireproof	Yes	Not customary
Side thrust	None	None	None	None	Tie rod or abutment
Bracing	Fair	Good	Poor	Poor	Good
Roof height	Great	Great	Great	Great	Low
Speed of erection	Good	Good	Good	Good	Good
	 Three-hinged Arch, Steel	 Steel Rib Arch (a)	 Laminated W. Arch (b)	 Crescent Arch Wood	 Crescent Arch Steel
First cost	Very good	Very good	Good	Fair	Fair
Maintenance	Painting	Painting — less area	Fair	Fair	Fair
Fireproof quality	Poor	Poor	Poor	Poor	Poor
Ceiling req'd	Not customary	Not customary	Non-fireproof	Non-fireproof	Not customary
Side thrust	Yes	Yes	Yes	Yes	Yes
Bracing	Good	Good	Good	Good	Good
Roof height	Low	Low	Low	Great	Great
Speed of erection	Good	Good	Good	Good	Good
	 Rigid Frame, Steel	 Rigid Frame, Concrete	 Concrete Shell, Roberts & Schaefer	 Concrete Shell Whitney (c)	 Single Cantilever
First cost	Fair	Fair	Good if repeated	Good if repeated	Fair
Maintenance	Painting	Very good	Very good	Very good	Painting
Fireproof quality	Poor	Very good	Very good	Very good	Poor
Ceiling req'd	Yes	No	No	No	Yes
Side thrust	Small	Small	Yes	Yes	No
Bracing	Good	Very good	Very good	Very good	Fair
Roof height	Low	Low	Low	Low	Great
Speed of erection	Good	Slow	Slow	Slow	Good
	 Double Cantilever, Steel	 Double Cantilever, Concrete	 Wood Lamella	 Steel Lamella	
First cost	Fair	Very high	Fair	Fair	
Maintenance	Painting	Good	Fair	Painting	
Fireproof quality	Poor	Good	Poor	Poor	
Ceiling req'd	Yes	No	Non-fireproof	Not customary	
Side thrust	No	No	Yes	Yes	
Bracing	Poor	Good	Fair	Fair	
Roof height	Great	Great	Low	Low	
Speed of erection	Good	Very slow	Fair	Fair	

Photo credits: (a) Bethlehem Steel, (b) Unit Structures Inc. (c) Robert LeYern Walker.

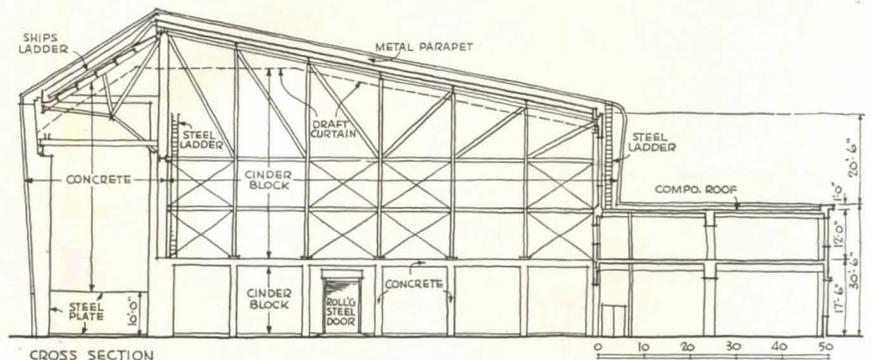
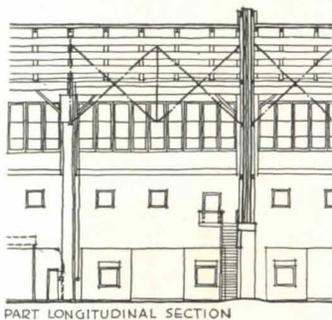
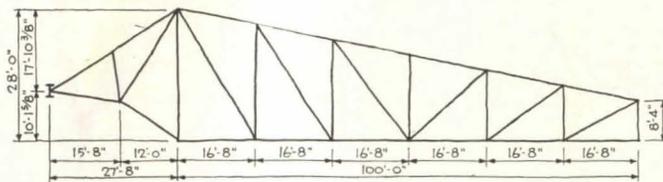


REDUCING ROOF AREA BY MASTER TRUSS

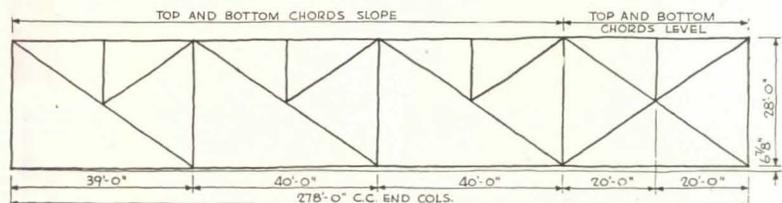
New hangars under construction at Washington National Airport

Public Buildings Administration, Architects and Engineers

The big transverse truss (see diagram, bottom of page), which runs through under the ridge, is used to reduce the roof area and to hold longitudinal truss spans down to 100 ft. Longitudinal trusses (top diagram, right) are cantilevered from the ridge forward. The

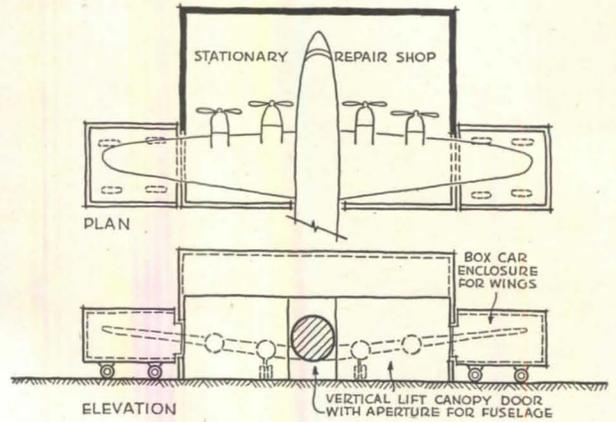
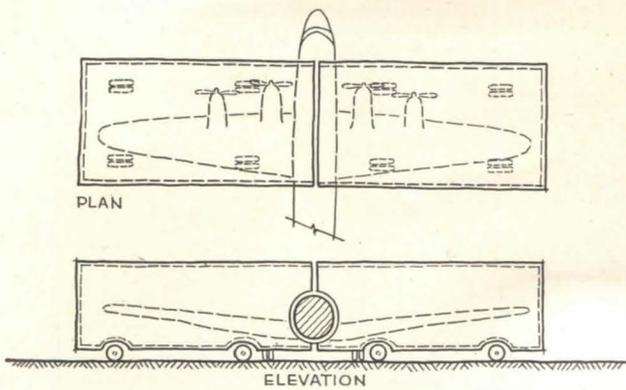


kick-up of this truss above the hangar door (see diagram) is a good idea, since the added height could be used to allow an extra opening for big tail fins if planes began to crowd the hangar in height (although it has not been so used here)



"NOSE" HANGARS FOR SEMI-ENCLOSURE

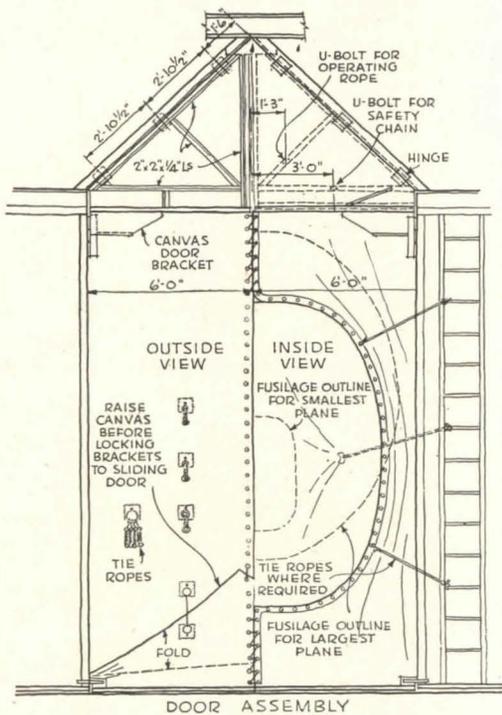
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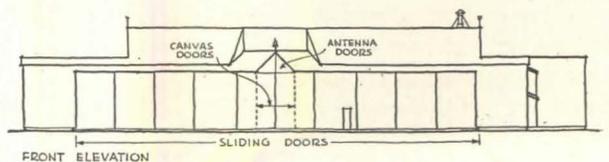
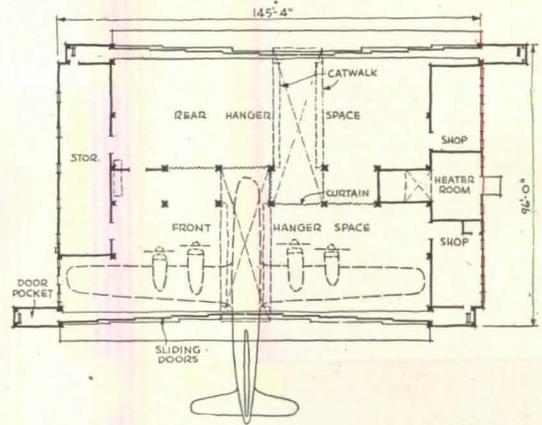
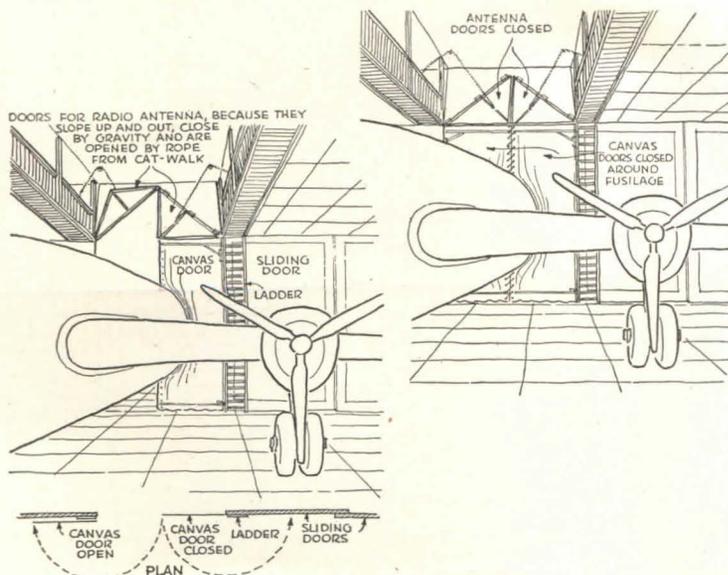
2 is a "box-car" arrangement; 3, a nose hangar with tight doors

Mr. E. G. Elstad of our office developed the two "box-car" schemes above. The simplest (left) consists of two huge cars or vans rolled together and closing above the wings. Variant at right shows permanent servicing dock, enclosure completed by box cars over wing tips. Height is reduced — no need to accommodate the tall tail; span reduced. Similar box cars could be pushed against tail, stabilizing it against high winds on rare occasions when landing gear is serviced with planes on jacks

3

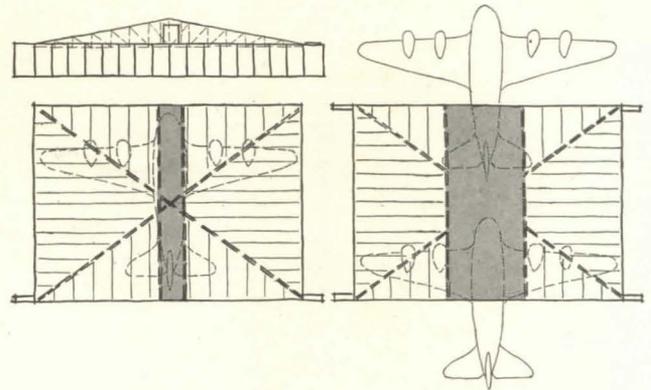


Below and left: Nose hangar with tight closure around the fuselage. When empty, hangar is completely closed by steel doors. When plane enters, steel doors are stopped short at fuselage and final closure is made by a canvas curtain. This is hung on brackets attached to top and bottom of central door leaves and is swung shut. Small door in peak closes down obliquely against antenna of plane. If planes are to be tailed in, a much higher peak is required. This hangar is in actual use for limited repairs



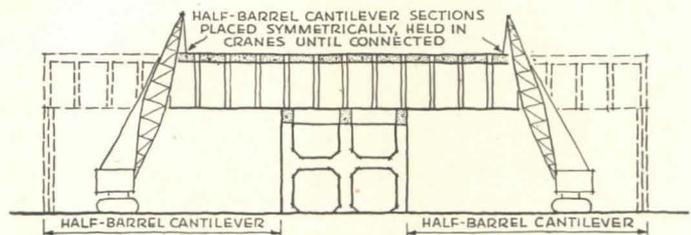
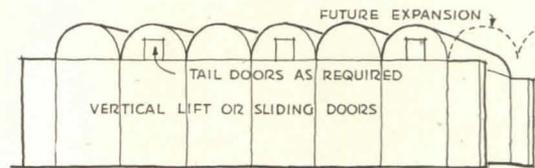
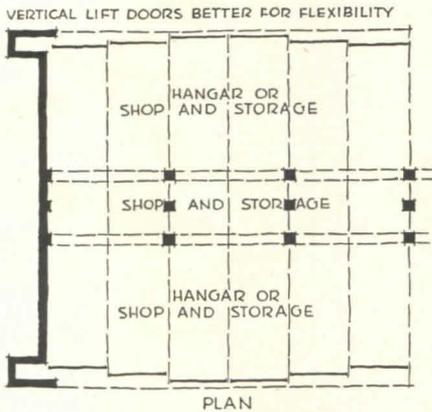
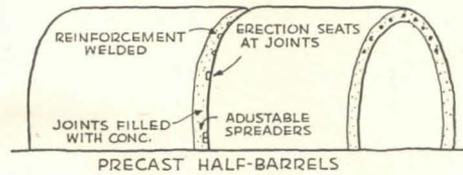
TRUSSES SHORTENED; CENTERING AVOIDED

Here truss work is confined to two diagonals only. Remainder of steel can all be rolled members. For tailing in planes, diagonals must be high enough to clear tails. However, in a double hangar (right) the tail would not have to cross the center and it would be practical to use low diagonal bottom chords. In the double hangar, a good many columns could be introduced near the center so as to shorten spans without obstructing operation. In single hangar (left) plane enters from either side, can leave on opposite side



Double barrel cantilever in concrete

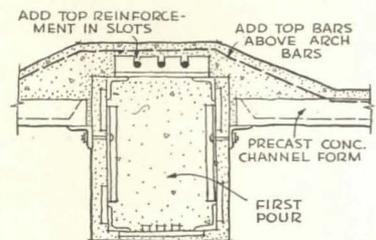
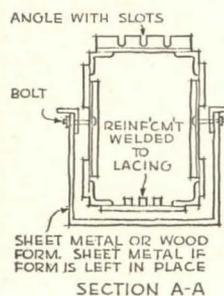
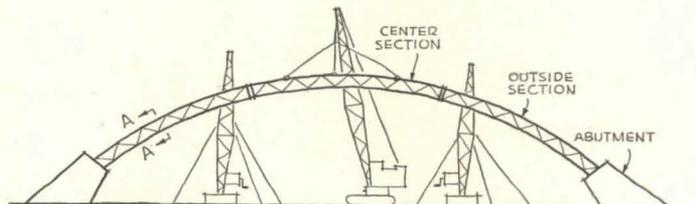
Here is a double hangar arrangement with shop space at the center, expandable indefinitely. Central posts are cast first. Precast concrete half-barrels are lifted by cranes symmetrically, held in place until reinforcing rods (projecting at the ends) are welded and joints filled, creating monolithic structure



Concrete arches held by gin poles

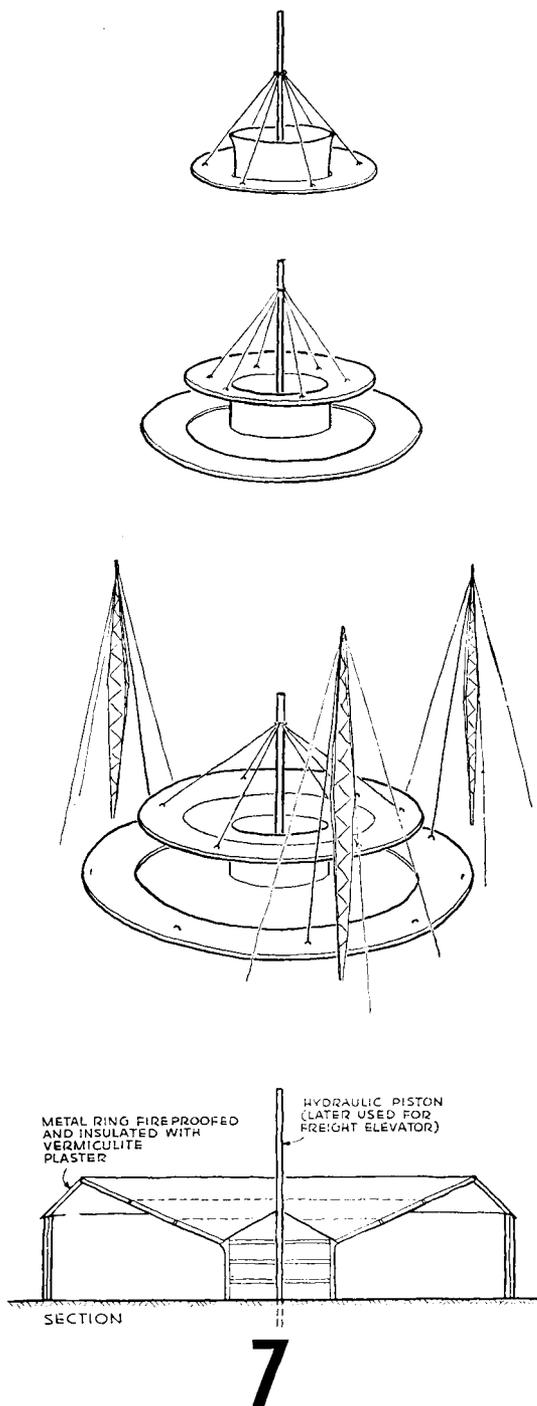
This study eliminates scaffolding. Although the sketch shows a single crane, on large hangars it would be more economical to use two. After gin poles are guyed, the lower arch sections are lifted into place and attached to abutments. Gin pole continues to hold upper end in position, adjusted by separate winch.

The crane then erects the center arch section, holding it until connections are made at each end. For large spans, arch may have to be guyed; on small ones, gin poles give lateral bracing. Arch sections come with metal or wood forms attached (sketch), for concrete poured from crane bucket. Precast concrete channel forms span from arch to arch supporting final roof slab. Their reinforcement is sufficient to resist stresses during pour. Further reinforcement stiffens final slab

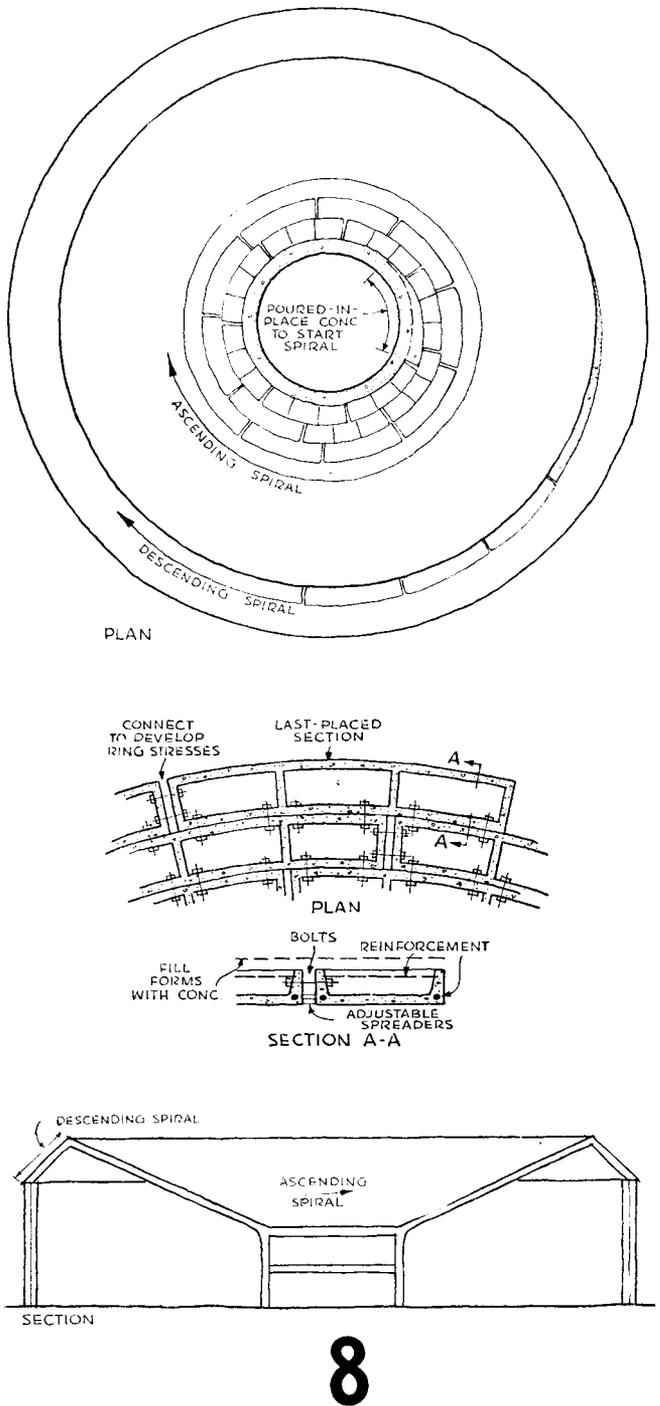


CIRCULAR FORMS FOR GREATER STRENGTH

This radical departure from ordinary methods relies on the greater intrinsic strength of circular forms, and on efficacy of road-building techniques. The central shaft seen in the sketches might be a hydraulic piston. A complete ring of concrete is pre-cast on the ground, like pavement, then lifted into position, and its radial reinforcing welded to that of the previous ring. Successive rings, cast on the ground, may require gin-pole hoisting. In the ascending shell the stresses are ring tension and radial compression. In the final, descending section they are reversed, so this may be more practical as light steel, fireproofed with vermiculite plaster



Again, borrowing from experience in prestressing concrete tanks, it is possible to work around and around a spiral, lifting up successive small precast units and bolting and grouting as the work goes forward. A certain amount of torsion is developed but these stresses are so extremely small that they may be neglected almost entirely. The units are reinforced for the ring stresses produced by the tendency of the ring to burst. Crosswise reinforced ribs make the unit strong enough to be bracketed out from the adjacent section. Loose contact between units permits the same shape to be repeated, with safety, throughout the spiral. Identical units, and no falsework, for economy



MAINTENANCE SHOPS RELATED TO HANGAR

The plan seen below is from a preliminary study of a proposed hangar and shop area at a major airport. This study was prepared by George Fred Pelham, Architect, with our firm as structural consultants. Even in the short time that has elapsed since the study was prepared, certain modifications must be made to correspond with more recent thinking of airline officials. The main purpose in presenting this study is to portray the balance between hangar shop and storage areas, and the relative locations between shops for various activities. A secondary purpose is to portray also a system for the framing of hangar roofs that embodies novel features. By selecting points for interior columns that will not interfere with the functions of the hangar, means have been found to support a good portion of the hangar roofs on sloping cantilever trusses. These trusses provide the necessary tail height for complete enclosure and give support to a framing system that consists of rolled sections only. As will be seen in the part elevation, the hangar roofs become extremely

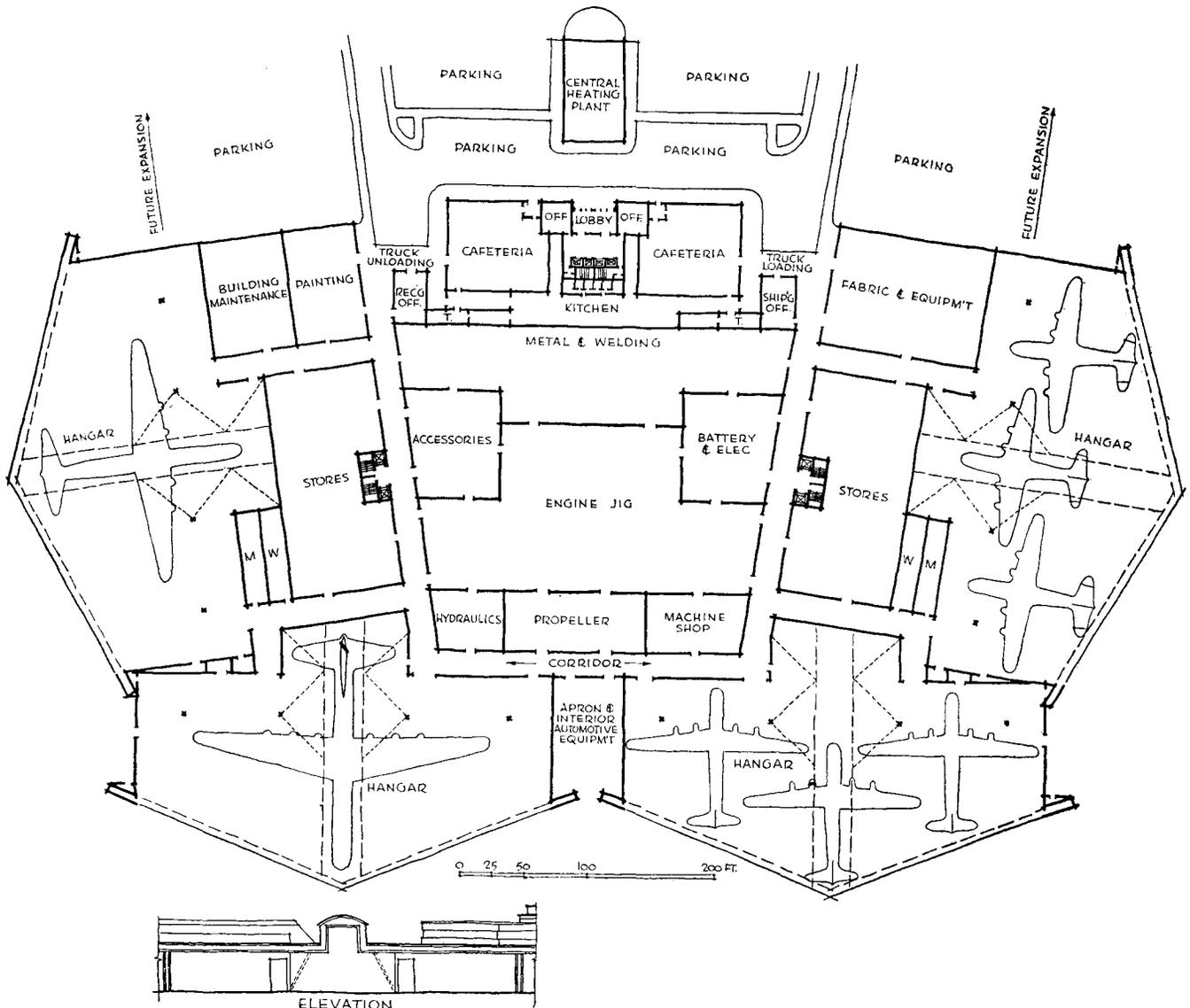
low in comparison with the usual big arch, saving in heat and maintenance and adding sightliness.

The steel per square foot in this particular design is 25.8 lb. Most of this steel is rolled beams, and therefore carries a low tonnage cost. Even the tonnage itself compares favorably with the steel tonnage for hangars with much smaller span and much more truss or arch work.

A warning must be issued against copying such a design as a whole, since requirements vary enormously from airline to airline, and access varies greatly from port to port.

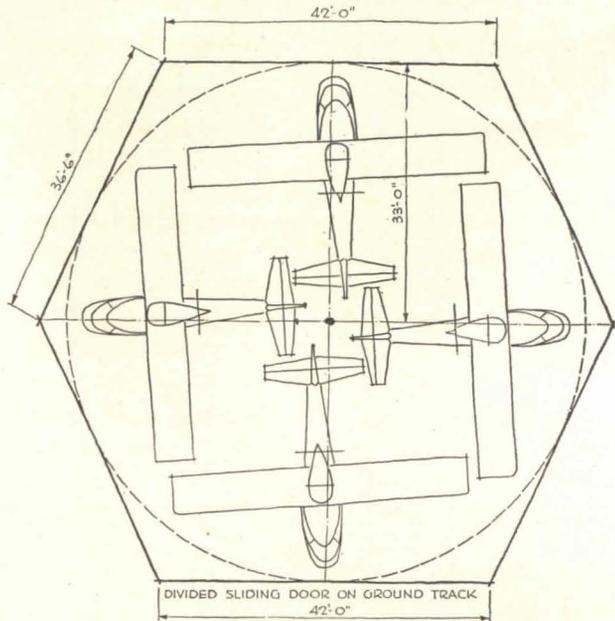
The principle is established, however, that a big hangar should not be merely an enlargement of a small one. Once the operators have settled down in regard to fleet makeup and operational routine, there are bound to be "dead" spots within the hangar available for structural support. Unlimited clear space is a costly luxury.

In future, shops may be located entirely away from hangars.



COMPACT PARKING FOR PERSONAL PLANES

Mayer and Whittlesey, Architects. Patents applied for by T. O. Warfield



Basic in this scheme, for an operator renting sea-planes, is a single door for every four planes, by use of rotating platforms. Tolerances are close, plane being standard model. Plane is pulled by jeep to marked position on apron, tail toward hangar. Central winch pulls plane in, tail foremost, to accurate position, aided by rear-wheel guide. Compared to standard "T" hangars (third diagram below) much less space is needed. With T hangar, jeep pulls on through, needs a taxiway each side of hangar. On lot 200 ft. by 550 ft. the new "hex" arrangement parks 64 planes against 48 in T's. First rotating-floor parking hangar is understood to have been that of Slim Kidwell of Roto-Hangar, Inc., at Los Angeles

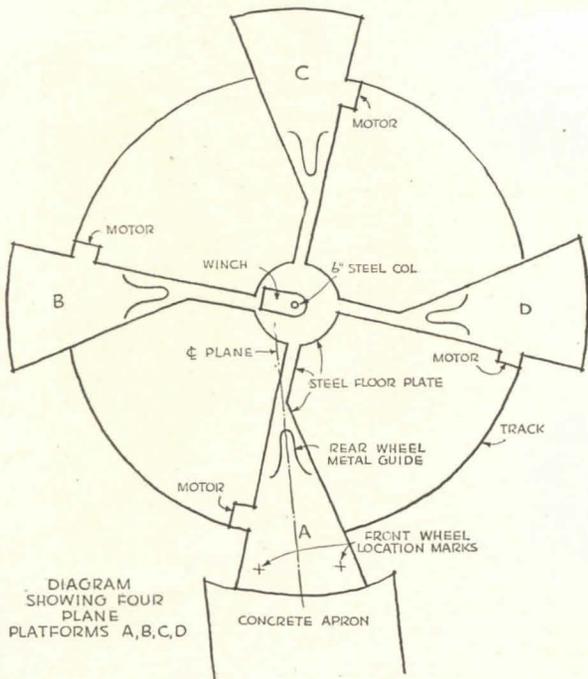
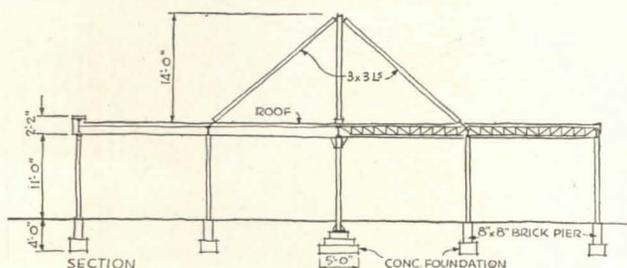
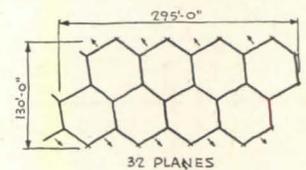
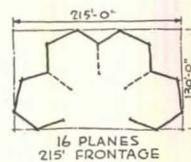
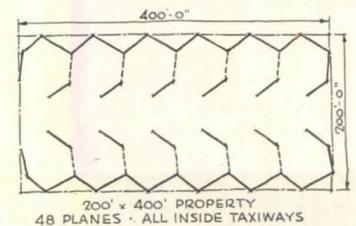
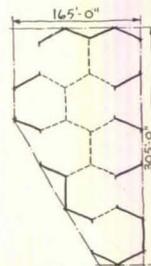
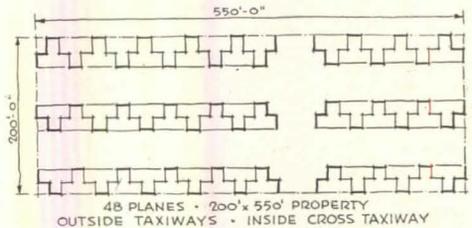
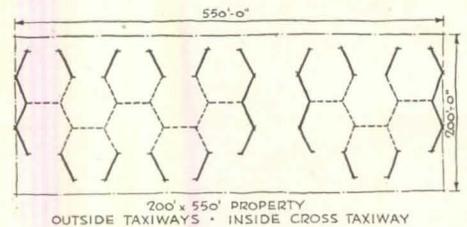
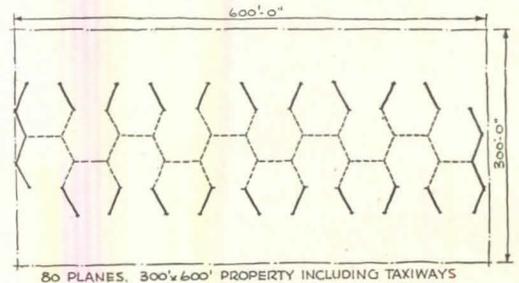


DIAGRAM SHOWING FOUR PLANE PLATFORMS A,B,C,D



ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

A MULTI-STORY GARAGE FOR PUBLIC PARKING

By Basil Yurchenco
and Eduardo Catalano,
Architects

Off-the-street parking is rapidly becoming a "must" in urban planning, due to increasing traffic congestion and parking restrictions. Yurchenco and Catalano, who developed the Spiralway ramp parking principle for a General Motors design competition for dealer establishments, here present a comparative study of multi-story garage systems*

Object: A multi-story structure which will most efficiently answer today's great need for adequate car parking facilities in cities.

Requirements: For adequate performance such a structure must provide:

1. Economical relationship between parking and driving areas.
2. Ease of maneuvering cars between floors and into parking stalls so that the average driver can park his own car.
3. For control, one centralized and ample means of entrance and exit of traffic, with no impeding factor upon smooth traffic flow.
4. Accommodations for pedestrian traffic.

What type of multi-story structure best answers these needs? The modern automobile is an "outdoor vehicle," comparatively independent of temperature and weather conditions. Its only environmental requirements for efficient operation are evenness of road surface and sufficient space in which to maneuver. In short, the modern automobile has been designed for the street and highway, and we believe that the storage structure which most closely resembles the street is the best solution to the parking problem. This should produce a new type of building which in a vertical sense extends the horizontal advantages of the street. In the "Spiralway" the floor area, exclusive of central core, consists of a continuous ramp upon which cars may be parked. No space is relegated to the conventional steep ramp joining horizontal floors since the entire floor area is an ascending ramp of much lower slope. A slope averaging 2 per cent rise is possible within efficient garage areas.

HUMAN FACTOR

Maneuverability is more important than distance in the parking areas. The car travels under its own power, and the driver does not object to the distances involved in parking. Once the car has been parked, however, he would like to get out of the building as quickly as possible. In the "Spiralway" garage the central core can be utilized for stairs or passenger elevators giving quick egress to the street.

Of the total garage capacity, one may expect as much as 60 per cent of the traffic load to be concentrated in the early morning and late afternoon.

There has been considerable discussion about the practicality of self-parking units large enough to house 2000 or more cars at one time. If a hundred cars per floor is the economical maximum, this implies a 20-story structure. We feel

that eight stories would be the highest number of convolutions a person would care to drive. This figure can be bettered, however, by extending the ramp three or four stories below ground level, bringing the total to 12 stories or 1200 cars. Additional stories could be planned above for long-term parking.

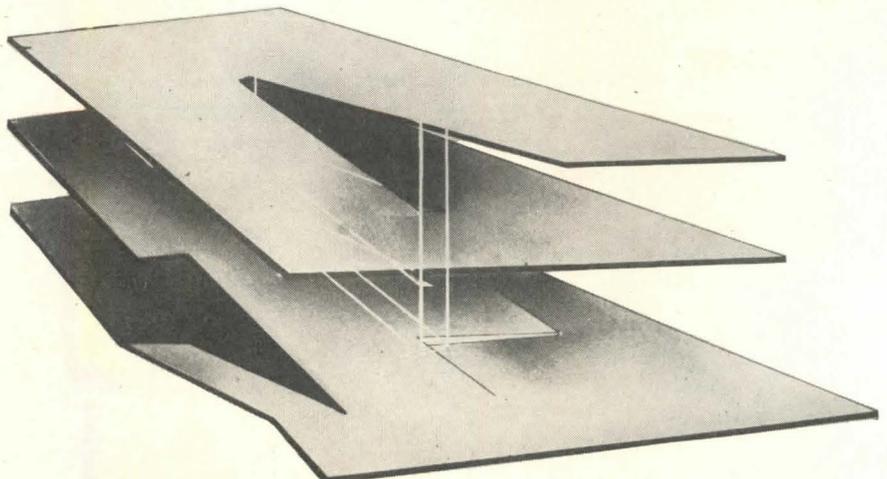
OTHER DESIGN CONSIDERATIONS

The greatest criticisms of existing parking garages have been:

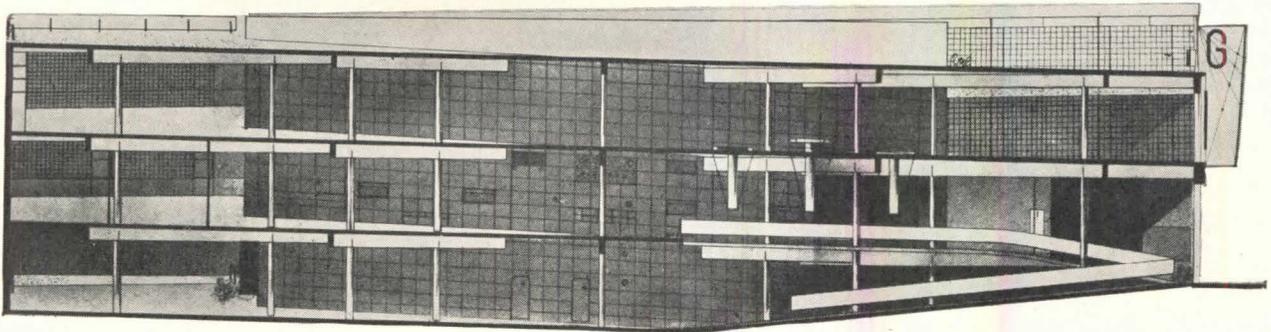
- Inflexible structures because of small slab spans
- Narrow driveways
- Narrow stalls
- Steep slopes
- Broken-up floor areas
- Lack of pedestrian walks
- Sharp turns

While walls and heating provisions

In a parking garage, the entire floor area, exclusive of central core, would consist of a continuous ramp. Continuous ramp parking floors can be seen in this perspective of a dealer establishment designed for a General Motors design competition



* Patent applied for



Another view of the "Spiralway" ramp parking principle applied to a G.M. dealer establishment. Low slopes permit parking on the ramp

will not be necessary for the average parking garage, an additional original investment in installed pipe for radiant heating and conduits for carbon monoxide elimination, would make it considerably easier and cheaper to convert to a repair garage at a later date. A car washing tunnel would be a desirable service feature.

The use of roof area to compensate for loss of serviceable floor areas due to driveways has long been recognized. Another point is the need for simplicity of floor identification — possibly through the use of color.

SITE FACTORS

In many cities, the locations of multi-story parking garages will be based on over-all urban planning. Central location, and the simplicity and ease of well-planned accommodations should help eliminate the present disorder of the downtown parking lots.

The variety of sites on which multi-story garages have been built emphasizes the fact that no existing standard

property subdivision takes into account the requirements of an effective parking system. The accompanying table illustrates the range of lot dimensions and the sizes of blocks in various cities.

STALL AND DRIVEWAY DIMENSIONS

A stall dimension of 8 ft. by 18 ft. is thought the best compromise between space economy and maneuverability and is used throughout this study as standard. In the past, for economic reasons, stalls often have averaged 6 ft. 10 in. in width, but only highly skilled garage attendants could maneuver cars into such areas. Considerable agility was required to get in and out of cars. The increased number of garage attendants required to park the cars made parking expensive.

Driveways should be some 22 to 24 ft. in width to permit untrammelled turning and parking. Within this width it is possible to have ample traffic lanes which should allow greater speed of car handling, and sufficient turning radii.

FLOOR AREA

The combination of a driveway with right angle parking on both sides can be considered the simplest and most essential unit or design module. In a multi-story building this unit is usually indicated by the framing plan. Contemporary practice may tend to eliminate the 20- to 24-ft. span in favor of 60- to 64-ft clear spans.

The depth of the parking quadrant is the first resolvable factor, a sum of the following dimensions:

- 1st row of cars — 18 ft.
- driveway — 24 ft.
- 2nd row of cars — 18 ft.

Next to be considered is the equally important corner quadrant which is the combination of the parking stalls and the driveway where it turns to join the opposite half of the floor. This is the area that most reduces the efficiency ratio of the structure.

Of all types studied, the long-axis parking of cars on either side of the driveway with a 22-ft. turning area at the ends appears the most efficient. The continuity of the driveway in this instance again resembles the street.

A system that appears efficient in plan is the parking of cars around the four sides of the building. However, this is impractical because it necessitates the removal of adjoining cars in order to remove any of those parked in the corner areas.

SPACE EFFICIENCY

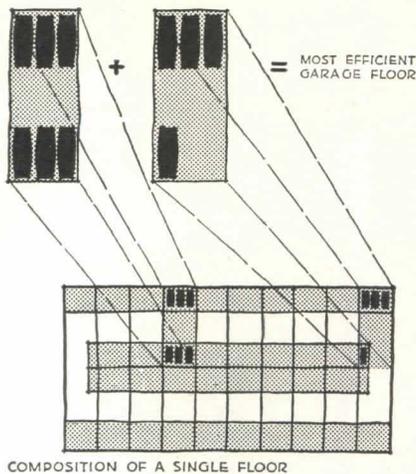
Property depth can be determined at an early planning stage, consisting normally of the depth of four parking stalls plus the two driveways, pedestrian lanes, and the central core.

There remains the question of building length for the most efficient relationship between the driveway and parking areas. From the four following studies it is found that the efficiency reaches its most workable maximum in a garage of about 175 ft. in length.

Available lot sizes influence the efficiency of multi-story parking garages

Table of comparative standard block and lot sizes in various cities

CITY	BLOCK SIZE	LOT SIZE
Toledo	240 X 480	60 X 120, with alley
Minneapolis	170 X 340	56 X 120, with alley
Seattle	108 X 240	60 X 108, with alley
Dayton	198 X 396	49 X 198, no alley
Houston	250 X 250	50 X 100, no alley
New York	200 X 800	25 X 100, no alley
Memphis	148 X 148	74 X 148, no alley
Indianapolis	120 X 285	71 X 120, no alley



Floor width is determined by the depth of 4 parking stalls plus 2 driveways. End units include turning driveway and therefore park 33 1/3 per cent less cars

INTEGRATION OF LEVELS

The accompanying plans established the maximum efficiency of use of a typical floor. The moment that these floors are repeated one above the other, a number of problems are encountered.

The first and most typical solution is that in which floors are connected by ramp driveways. Because of the very nature of the structure, approximately 115 ft. of property length is required for approach and ramp driveways.

The second solution is the use of elevators which, when installed, are very efficient in space conservation but inefficient in time consumed in getting cars to and from parking stalls.

Some kind of helicoid ramp arrangement as demonstrated by "Spiralway" would appear to be an effective solution if the slopes can be kept within 1 and 4 per cent rise. Questions which arise are:

1. Would such slopes be satisfactory for parking? For years cars have been parked on streets with comparatively high crowns and slopes.

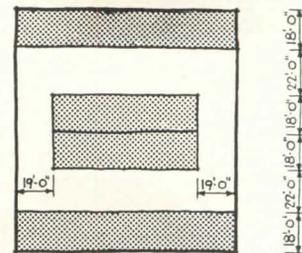
2. Can cars be serviced and repaired on a sloping floor? Yes, except for alignment jobs for which special frames are provided anyway.

3. Within what property dimensions can such garages be developed? The accompanying table gives lot sizes and related perimeters of ramps and their degree of slope.

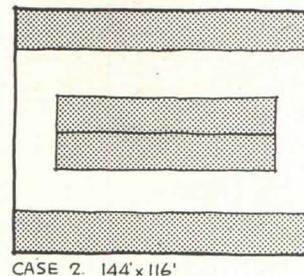
The idea of using spiral floors for parking in garages is not new, having been introduced both here and abroad as attested by dozens of patents. Many earlier attempts have proved impractical, however, because they employed one centrally located generatrix, which produced square buildings and extremely high slopes in their inner perimeters. In the "Spiralway" system this problem is solved by using a number of generating centers located not in the geometrical center but where convenient. Planes meet in common tangents, producing one continuous floor level with extremely low slopes.

(Below) The most practical relationship between floor area and number of cars accommodated is shown by 4 case study plans to be about 175 ft. by 116 ft.

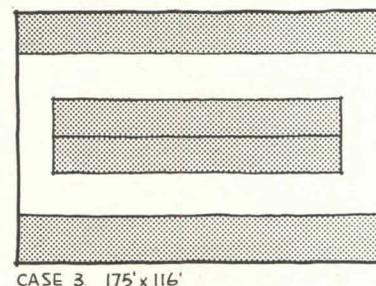
Case 1 (104 ft. by 116 ft.)
 Floor area: 12,064 sq. ft.
 Number of cars: 42
 Area required per car: 287 sq. ft.
 Efficiency: 50 per cent



Case 2 (144 ft. by 116 ft.)
 Floor area: 16,704 sq. ft.
 Number of cars: 62
 Area required per car: 269 sq. ft.
 Efficiency: 53 per cent



Case 3 (175 ft. by 116 ft.)
 Floor area: 20,300 sq. ft.
 Number of cars: 78
 Area required per car: 260 sq. ft.
 Efficiency: 55 per cent



Case 4 (200 ft. by 116 ft.)
 Floor area: 23,200 sq. ft.
 Number of cars: 90
 Area required per car: 258 sq. ft.
 Efficiency: 55.8 per cent

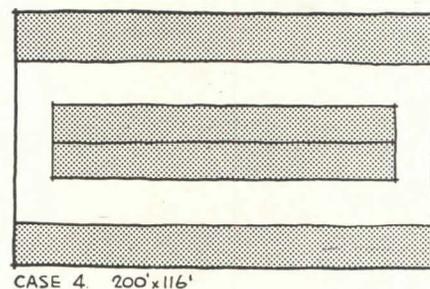
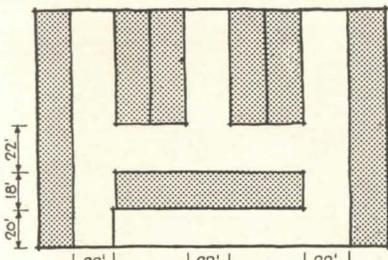
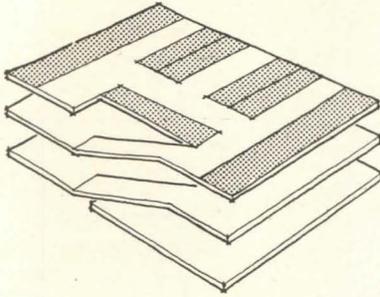


TABLE SHOWING DEGREE OF RISE OF RAMPED FLOORS WITHIN CERTAIN PROPERTY DIMENSIONS

Lot Size	Floor-to-Floor Height	Outside Perimeter	Driveway Perimeter	Core Perimeter	Slope at Outside Perimeter	Slope at Driveway Perimeter	Slope at Core Perimeter
170' X 140'	11'-0"	620'	430'	252'	1.78%	2.5%	4.4%
170' X 140'	10'-0"	620'	430'	252'	1.6%	2.3%	3.8%
150' X 140'	10'-0"	580'	424'	240'	1.7%	2.3%	4.2%
250' X 150'	11'-0"	800'	610'	412'	1.38%	1.8%	2.7%

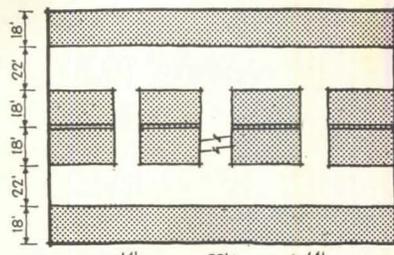
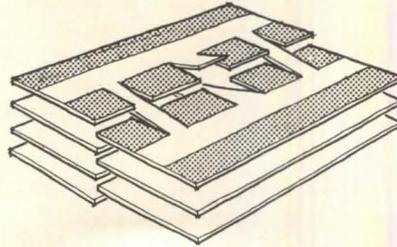
Comparative efficiency of floor areas of various types of multi-story parking garages, 175 ft. by 116 ft.



STRAIGHT RAMP

Number of cars: 68
Area required per car: 298 sq. ft.
Efficiency: 48 per cent

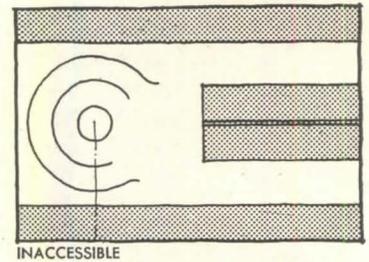
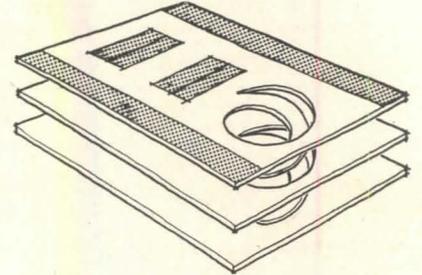
Too much parking space is sacrificed to the connecting ramp between floors



STAGGERED FLOOR AND RAMP (D'HUMY)

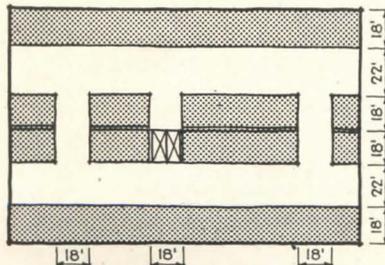
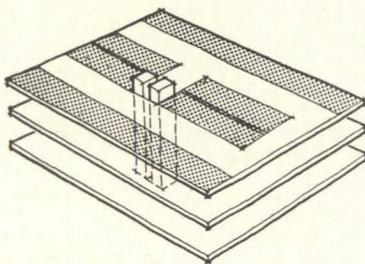
Number of cars: 76
Area required per car: 267 sq. ft.
Efficiency: 54 per cent

Most efficient of the horizontal floor systems. Comparatively short ramps



INACCESSIBLE
CONCENTRIC SPIRAL

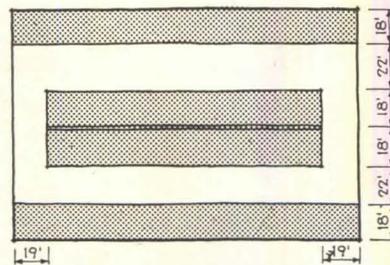
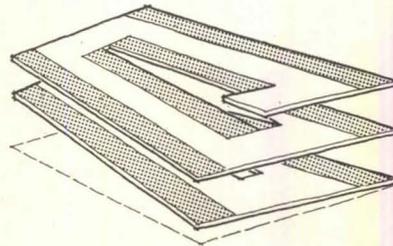
Not practical on lot of this size. (Diagrams show parking variants)



ELEVATOR

Number of cars: 76
Area required per car: 267 sq. ft.
Efficiency: 54 per cent

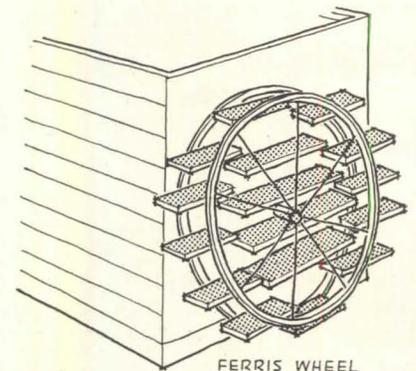
Slow handling of cars, and fire hazard. (Diagrams show parking variants)



SPIRALWAY (CONTINUOUS RAMP)

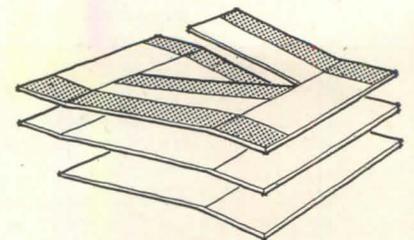
Number of cars: 78
Area required per car: 260 sq. ft.
Efficiency: 55 per cent

Best relationship between floor area and number of cars accommodated



FERRIS WHEEL

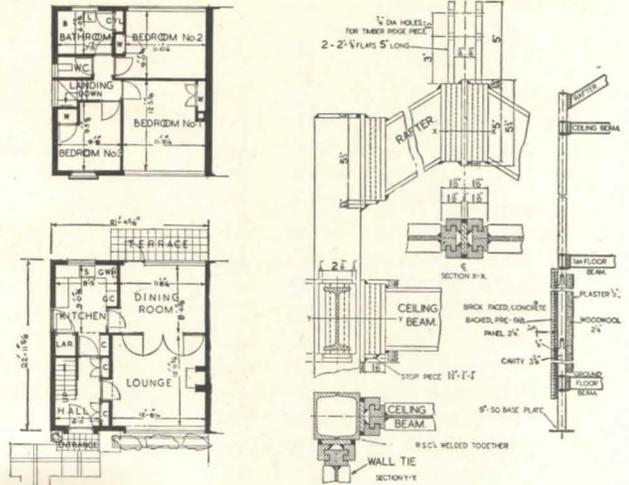
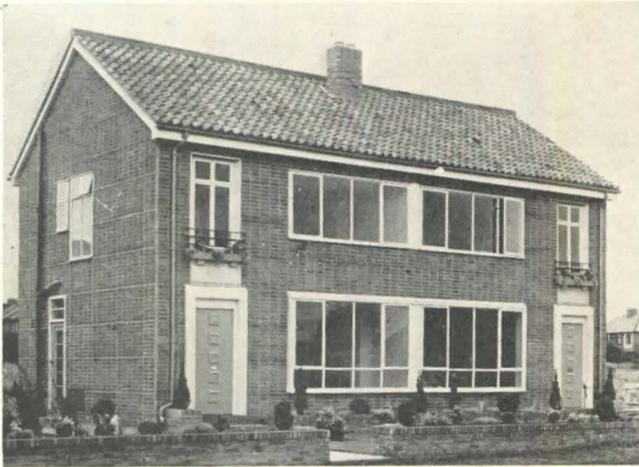
High installation and maintenance costs; contradictory demands made by safety factors and different people wanting to use the system simultaneously



STRAIGHT AND RAMPED FLOORS

A step in the right direction, but less practical than the continuous ramp floor

STEEL AND CONCRETE IN BRITISH PREFABS



BBRITAIN emerged from the war with 4,500,000 houses, one-third of her total, destroyed or damaged. Current rebuilding programs call for 3,000,000 to 4,000,000 houses to be replaced by 1957.

To meet this schedule, British architects are designing basic housing types that can be built quickly and economically from mass-produced structural units and prefabricated wall sections. Two of these houses are shown on this page, the Cussins and the Airey.

The Cussins house, above, has a patented steel frame* (shown in the details), which is fitted with prefabricated brick wall panels. The panels are backed with concrete and have self-aligning connections. The interior is finished with insulation board and plaster. Erection time for a 2-family unit is about 14 days; cost, about \$10,250.

In the Airey house, shown below, precast concrete posts are used as the chief framing members, to which are at-

tached wall slabs of precast concrete, 3 ft. long, 9 in. wide, and about 1 in. thick. These slabs are laid in dry courses and secured to the concrete posts by copper ties. The slabs are tapered in section and fit together with overlapping horizontal joints. The vertical butt joints are backed with a bituminous seal. Greatest weight of the precast concrete units is only 36 lb., a weight that can be handled by the average workman without special hoisting or hauling gear.

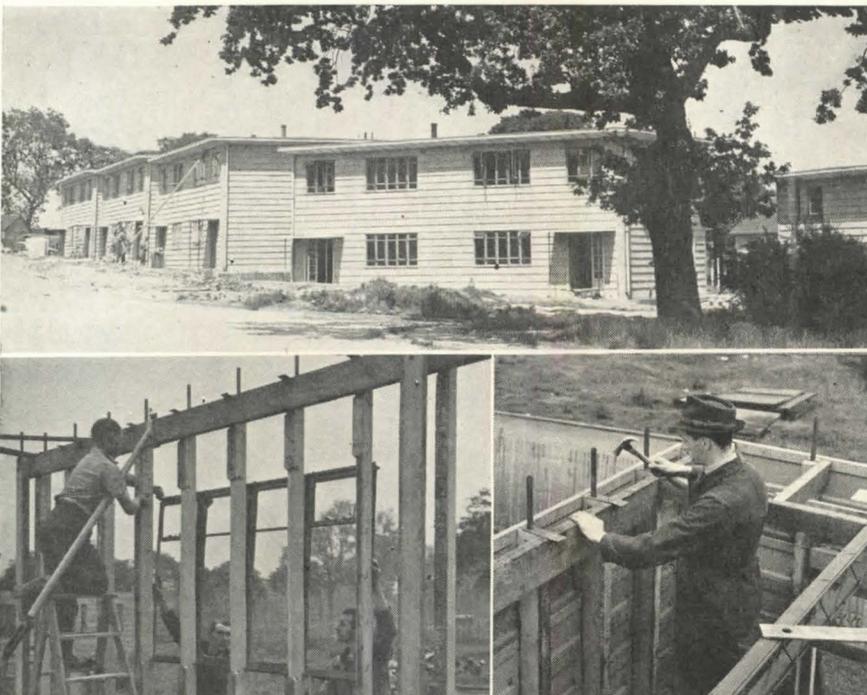
The window treatment is interesting. Where openings occur, the concrete posts are shaped in the style of mullions and continue through the opening, thus eliminating load-bearing window lintels. Window frames are held in place by hook-bolts and steel bars that run through the posts.

Inside walls are of aluminum insulating sheet, fastened to the uprights and lined with glass fiber. Insulating board forms the finished interior wall.

The uprights of the upper story are connected to the corresponding posts below by projecting metal dowels. At floor level the posts are stiffened by metal straps, as shown in the photograph, and are also bolted to the first-floor joists and roof members. Joists are of light-gauge steel, with timber fillets for ceiling and floor attachment.

Sir Edwin Airey is the designer of the Airey house, of which 13,000 are already on order from the present production program of 20,000. The Cussins house was developed by the building firm of Cussins of Newcastle-on-Tyne.

British Information Service Photos



*"Kariscal" Steel Frame and Connections.

ANALYZING THE SMALL INCINERATOR

By Dwight F. Metzler*

* Formerly P. A. Sanitary Engineer (R) U. S. Public Health Service; Sanitary Engineer Consultant to Region III, Federal Public Housing Authority.

A STUDY of the design and effectiveness of small incinerators in low-rent housing projects was made recently by FPHA to assist in making recommendations for future projects. The investigation covered installations totaling 498 incinerators in 10 large housing developments in the midwest.

In practically all projects incinerators proved an efficient and economical means of reducing garbage, trash, and other refuse to a stable residue, thus eliminating problems of odor and vermin which often accompany the collection of garbage.

To perform adequately the incinerator must generate temperatures in excess of 1250° F. (usually 1300° to 1450°) in order to ignite carbon monoxide and the hydrocarbons that cause noxious odors. The flow of air is controlled by the design of dampers, grate, and flue, and care must be taken not to overload the grate. A design figure of 1 sq. ft. of grate for 30 to 50 lb. of refuse is commonly used. Refuse has been found to total about 3½ lb. per person per day.

Combustible household rubbish, such as paper and rags, serves as fuel if present in quantities of 35 to 50 per cent of the total weight. When less than 35 per cent of the refuse is rubbish, an auxiliary source of fuel is necessary.

In general, the incinerators studied were of the three types shown below. None has an auxiliary source of fuel.

The advantage of the flue-fed incinerator was found to be convenience for tenants in multi-story buildings, since disposal chutes can be located on all floors. In such incinerators, firing and burning of volatiles takes place in one chamber, and the firebox must therefore be larger than in other types to allow more complete combustion.

The flue-fed incinerator sometimes produces fly ash problems since much of the combustion takes place in the stack and excessive velocities may force unconsumed material through the spark arrester. Combustion can be improved, however, by careful control of draft.

Some incinerators with stacks extending only above the two-story level lacked sufficient draft; three-story stacks operated without difficulty.

Incinerators that are not flue-fed can be provided with a separate combustion chamber to (1) mix the volatile gases with proper amount of air; (2) complete the combustion of escaping volatile matter, and (3) collect suspended solids such as ashes and charred paper.

This type operates best when designed with baffles or turns in the flue which cause fly ash and dust to settle out.

Particularly good results were noted in the housing project where incinerators were of the type shown in (3). There, the firebox is separated from the combustion chamber by a baffle; space for the firebox is .24 cu. ft. per person served; and the combustion chamber is a combination baffled compartment and horizontal flue, connected to the stack of the heating plant. This gave the most complete garbage reduction of all incinerators studied — approximately 90 per

cent of all of the combustible material.

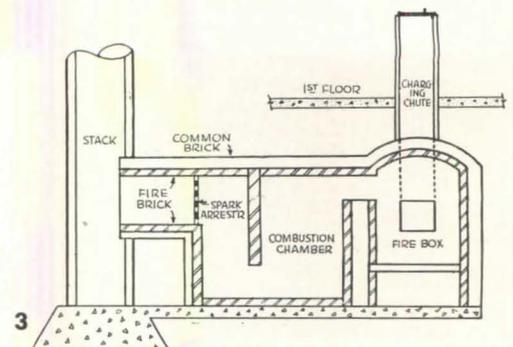
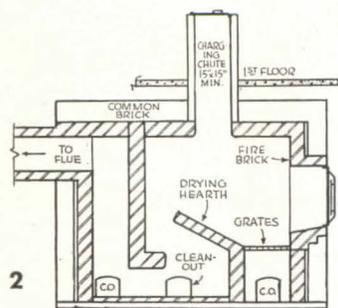
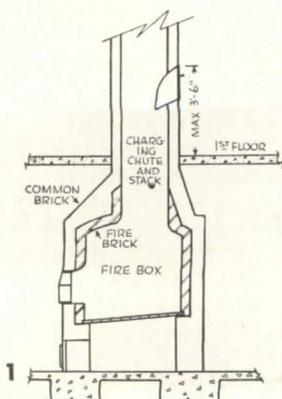
The following suggestions are made to assist in the design of incinerators for multiple dwellings:

1. Arch design should deflect as much heat as possible from the outer wall.
2. Specify the best quality of fire-brick available. Its fusion point should be not less than 3000° F., and compression strength, 7500 lb. per sq. in. Brick of best quality affords full benefit from heat retention, which is essential for complete combustion of gaseous products.
3. Provide bull-nose brick around the incinerator door openings and the edge of the flue to prevent excessive spalling.
4. Most complete combustion results when the combustion chamber is separated from the firebox by a baffle.
5. Hopper doors should be somewhat wider than containers used, at least 10 in. deep, and 3 to 4 ft. at their top above the platform or floor.
6. Quantity of air admitted to the firebox should be sufficient to give a stack velocity of 15 to 20 ft. per sec. Too much air results in substantial heat loss, decreased combustion, and excessive velocities of stack gases.
7. Grates are necessary for efficient operation, and should be raised far enough above the firebox floor to provide good air intake.

Dimensions for flue-fed incinerators.

No. Families Served	Flue Sizes ¹	Firebox Dimensions (Approx.) ²		
		Width	Depth	Height
6	16" x 16"	1'-9"	1'-9"	4'-0"
10	20" x 20"	2'-6"	2'-0"	4'-0"
15	20" x 20"	2'-9"	2'-0"	4'-3"
20	20" x 20"	3'-0"	2'-4"	4'-4"
30	20" x 20"	4'-3"	2'-6"	4'-4"

¹ For buildings over six stories this size should be increased to 24" x 24".
² Dimensions in the clear above the grate for units fired once a day.



Sectional views of incinerator types studied in low-rent housing developments: (1) flue-fed; (2) separate baffled combustion chamber and stack; and (3) a similar type that connects with stack of heating plant



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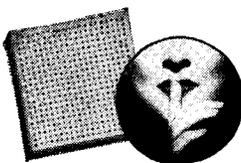
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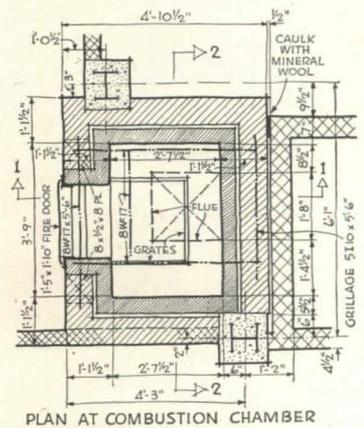
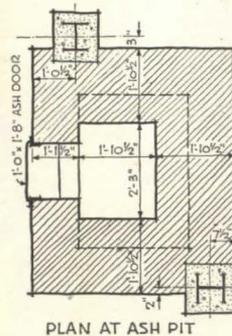
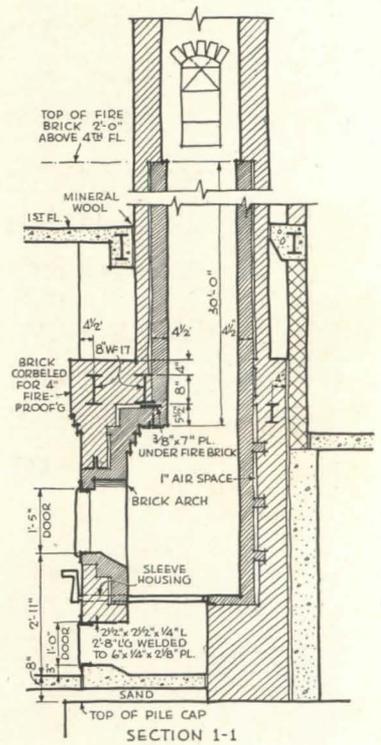
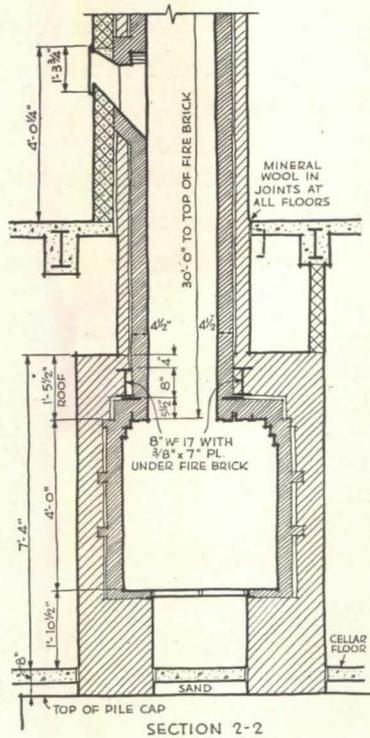
IT'S EASY TO SEE WHEN IT'S

DAY-BRITE

Lighting

APARTMENT INCINERATORS

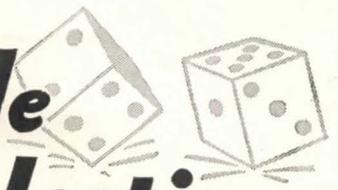
*Designs from New York City Housing Authority
for Abraham Lincoln Houses. Skidmore, Owings
& Merrill, and Tandy & Forbes, Architects*



INCINERATOR FOR 6-STORY BUILDING

(Continued on page 135)

How to take the gamble out of boiler selection



HOW CAN YOU BE SURE you're getting a steel boiler whose construction is in rigid accordance with the standards set by the American Society of Mechanical Engineers?

Look for the A.S.M.E. stamp on the boiler.



HOW CAN YOU BE SURE your steel boiler has been inspected and hydrostatically tested to insure A.S.M.E. code conformance?

Look for the "Hartford" inspector's mark on the boiler—your guarantee that he has passed it.

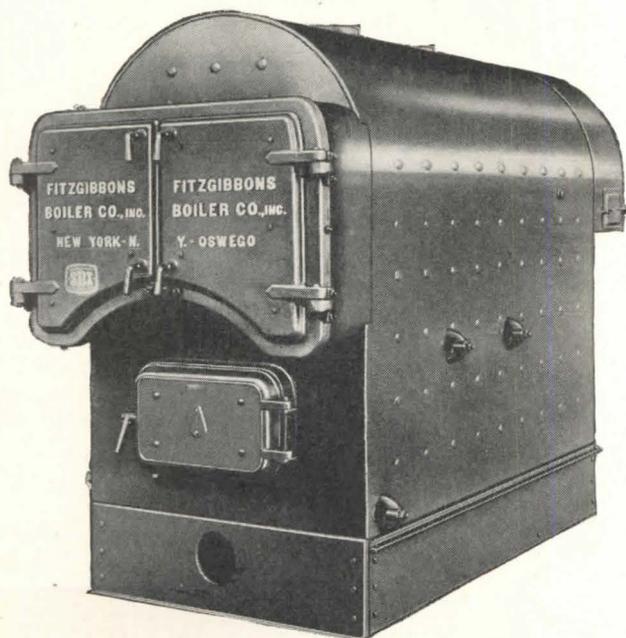
HSB

HOW CAN YOU BE SURE the boiler is honestly rated, and will perform right up to or beyond its given capacity?

Look for the Symbol of the Steel Boiler Institute—on the boiler.



LASTLY, HOW CAN YOU BE SURE that the design of your boiler is free of untried and impractical quirks, and is based on sound, proven principles? Look for the Fitzgibbons trademark, an emblem mark of 61 continuous and successful years of steel boiler building.



YOU CAN BE SURE OF THIS BOILER

The Fitzgibbons "D" Type—suitable for heating anything from a moderate sized apartment to a large institutional building. On it you will find every one of the "sterling" marks shown above. Built in types for oil, gas, stoker and hand firing, in sizes up to 42,500 sq. ft. steam. "D" Type Catalog, recently published, on request.

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WOOD PRESERVATIVE

Interest in wood preservation is definitely not new but there have been interesting developments in the field of materials preservation, partly through wartime research that sought a means of combating mildew and rot in hot, wet climates. As a result of this experience, it is now claimed that decay can be prevented in wood by the application of a primer or sealer containing a fungicide such as *Nuodex* copper or zinc naphthenate. A number of paint manufacturers are said to be manufacturing treating solutions containing these naphthenates, which can be brushed, sprayed, or dipped on wood.

Fungi causing rot and mildew are not confined to the tropics but flourish wherever humidity, the chief contributing factor, goes over 80 per cent and temperature over 75° F. The following places in wood structures are suggested as needing special protection: all timbers in contact with stone or cement foundations, cement porch floors, and fireplace foundations; timbers in contact with cold-water pipes; interior timbers in attics not ventilated in summer and winter; wood paneling in basement rooms; sheathing and uprights beneath windows; ends of such structures as porch pillars, particu-



Result of 30 days' soil burial of yellow birch veneers dipped in the following preservatives: (1) Nuocide Copper (2 per cent); (2) Nuocide Zinc (4 per cent); (3) Nuocide Zinc (2 per cent); (4) and (5) other preservatives; (6) Nuocide Mercury; and (7) untreated

larly lower ends; wood steps and porches; wood floors overlaid with linoleum; all timbers that come in contact with the ground; and ends of adjoining timbers.

The following advantages are claimed for naphthenates: (1) permanent protection, since naphthenates will not be leached out by moisture; (2) deposit is neither oily nor greasy; (3) surfaces can be painted; (4) there is no increase in

fire risk; and (5) there is no irritating effect upon eyes or skin while being applied. Nuodex Products Co., Inc., Elizabeth, N. J.

WARM-AIR PANEL HEATING

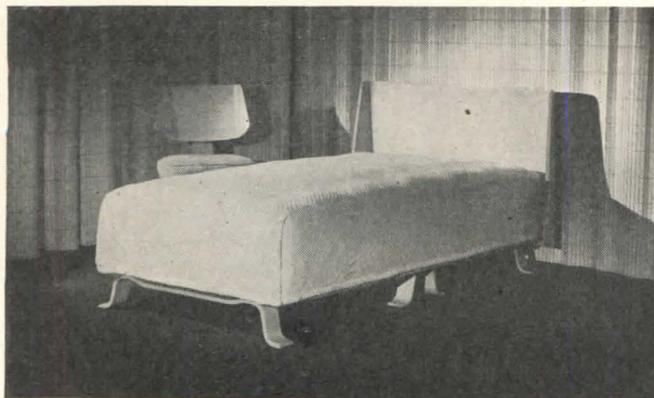
No registers, grilles or radiators are visible in a house equipped with *Panel-aire* warm-air heating. Air is heated in the conventional way by a *Luxaire* gas-fired forced-air furnace, and conveyed to stacks in the stud spaces, but there the resemblance to ordinary warm-air heating ends. Instead of introducing the air into the room, it is fed into a specially constructed space between the joists and ceiling, which radiates warmth downward into the room. Sheet rock insulating board is nailed to the bottom of the joists, and the ceiling (plaster on metal lath) hung several inches below. C. A. Olsen Mfg. Co., Elyria, Ohio.

(Continued on page 158)

PLYWOOD FURNITURE

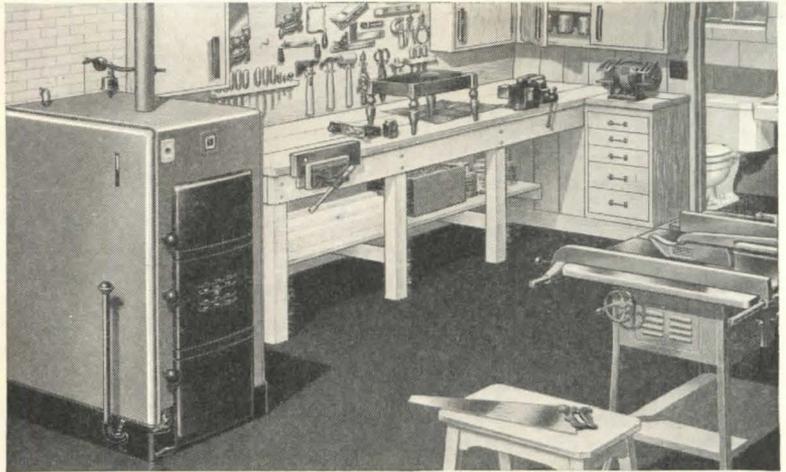
Laminated birch and maple are used in a new line of molded plywood furniture, designed by Allen and Edwin Kramer for John Stuart, Inc. The dining and occasional chairs utilize the natural resilience of molded plywood; their backs made adjustable by placing the underseat bolt to the front for a "soft" back, or to the rear for a rigid one. The dining table, which measures 32 by 48

in., can be extended to 60 in. A new type of support for couch or bed is provided by *Ply-Units*, molded plywood skids that replace the conventional leg and caster. Headboards are available to fit twin, double, and swing-type beds, and as a back rest for a studio couch. Finishes are blackwood, mahogany, natural, and colored lacquer. John Stuart, Inc., 4th Ave. and 32nd St., New York, N. Y.



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MANUFACTURERS' LITERATURE

AIR CONDITIONING

Dorex Activated Carbon Air Recovery Panels. Catalog of air recovery units, containing complete data on design, construction, function and application. Bulletin features a performance chart providing all data necessary for panel selection. Also includes table of recommended fresh air requirements for home, office, store, theater, school, hospital, etc. 18 pp., illus. W. B. Connor Engineering Corp., 114 E. 32nd St., New York 16.

ASBESTOS

Asbestos: The Silk of the Mineral Kingdom. By Oliver Bowles. What asbestos is, where it is found, its early history, characteristics, mining and milling methods, uses. Among uses discussed are roofings and sidings of asbestos-cement, pipe coverings, insulation. 40 pp., illus. The Ruberoid Co., 500 Fifth Ave., New York 18.*

CONTROLS

Control Equipment. Folder of catalogs of hydraulic action controls, light and heavy duty thermostats, fan and limit controls, oven controls, hot water and steam controls, damper motors, gas valves and safety pilots, refrigeration controls. Specifications and price list. White-Rodgers Electric Co., 1209 Cass Ave., St. Louis 6, Mo.

Motor Controls (Catalog 10). Catalog of manual and magnetic starters, accessories and enclosed switches. Dimensions tables, specifications, price lists. Wiring diagrams. Wire tables for 1947 Code. 124 pp., illus. The Arrow-Hart & Hegeman Electric Co., 103 Hawthorn St., Hartford 6, Conn.*

ESCALATORS

Otis Escalators. History of the Otis Escalator and non-technical information on location, maintenance, safety record. Cut-away section showing construction details; description of safety devices employed; explanation of operation; typical applications. 22 pp., illus. The Otis Elevator Co., 260 Eleventh Ave., New York, N. Y.*

FIRE PREVENTION

Fire Prevention. Brief catalog of Howie kalamein and metal clad doors, smoke screens, metal covered windows, frames and trim, entrance doors, etc. Includes sections of corridor partition, standard frames and trim, and dumb

waiter door. Shows typical door designs. 4 pp., illus. John D. Busch and Sons, Inc., 639 E. Fort St., Detroit 26, Mich.

GUNITE

Gunite Buildings. Process of constructing stores, theaters and medium size buildings with solid reinforced Gunite. Describes the single wood form employed by the Gunite method. 4 pp., illus. Johnson Western Co., Dept. AR, Box 6, San Pedro, Calif.

INSULATION

Insulating Varnishes. Technical and application data on G-E insulating varnishes. Specifications, electrical properties, film properties, cure and aging, chemical resistance, baking cycles of each type. Types include black baking, black air drying, clear baking, clear air drying, sticking varnishes and air drying and baking enamels; 36 grades described. 40 pp., illus. General Electric Co., Chemical Dept., Pittsfield, Mass.*

INTERCOMMUNICATION

(1) **Talk-A-Phone** and (2) **Talk-A-Phone Special DeLuxe.** Catalog of the complete line of Talk-A-Phone models (1), with specifications and diagrams given for each system. Description of a new deluxe model (2) featuring compact streamlined cabinet and extra powerful amplifier. 12 and 2 pp., respectively, illus. Talk-A-Phone Co., 1512 S. Pulaski Rd., Chicago 23, Ill.

LIQUID RUBBER

Elaterite Liquid Mineral Rubber. Brochure describing a line of Elaterite products: plaster and stucco bond, waterproofing, mastic flooring, fibrated roofing and non-fibrated roofing, trowel cement, acid resistant and heat resistant paint, aluminum paint. General information on each, typical applications. Elaterite Non-Metallic Products Co., Dept. AR, Los Angeles, Calif.

LUMBER

(1) **Grade Use Guide** and (2) **Yard Grades.** Data sheets featuring the new lumber grades adopted by the California Redwood industry. List of the proper yard grades for more than 90 specific uses of Redwood in building construction (1), with tables on net sizes of standard patterns of worked Redwood lumber and surfaced Redwood yard lumber. Description of each of the seven new yard grades of Redwood (2), with the suitability of the grade for specific purposes indicated. California Redwood Assn., 405 Montgomery St., San Francisco 4.

Typical Lumber Designs (1947 edition). Over 200 typical lumber roof truss designs listed for garages, stores, churches, theaters, gymnasiums, warehouses and hangars. Other designs cover low cost prefabricated houses, grandstands, various types of towers, bridges and railway structures. Designs employ the Teco connector system of construction. Quantities and materials lists included. Timber Engineering Co., 1319 18th St., N.W., Washington 6, D.C.

PLUMBING

Fairfacts Vitreous China Bathroom Accessories (Catalog 41). Description of a complete line of accessories: soap and tumbler holders, glass shelves, wall grips, etc. Specifications, installation details. Also includes information on kitchen drainboard sections and sink trim. 16 pp., illus. The Fairfacts Co., Inc., 245 W. 14th St., New York, N. Y.*

STEEL DOORS

Mahon Rolling Steel Doors, Grilles and Shutters. Catalog of hand operated, mechanically and power operated doors and grilles. Complete specifications for each model. Models include standard push-up and between jambs push-up types, chain operated, chain-gear, multiple doors with intermediate post, crank and power operated doors. Dimension tables for each. 16 pp., illus. R. C. Mahon Co., Detroit 11, Mich.*

STRUCTURAL GLASS

Carrara: The Modern Structural Glass of Infinite Possibilities. Recommended uses of Carrara glass in public buildings, commercial buildings, laboratories and other industrial applications, and residential. Prefabricated units for the home, including bathtub wainscot and kitchen panels. Specifications and physical characteristics, installation information. 20 pp., illus. Dept. G-6554, Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh 22, Penn.*

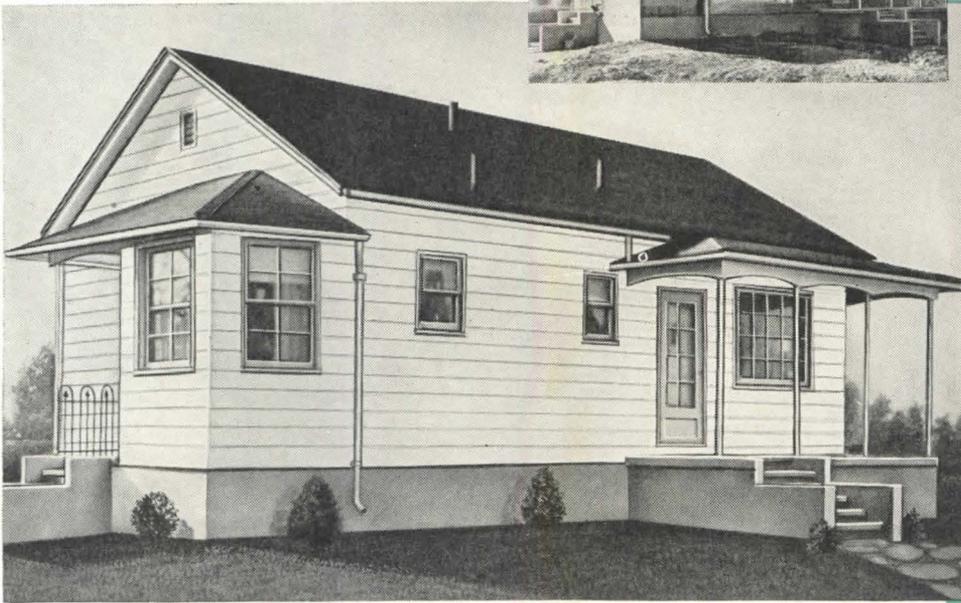
SYNTHETIC RUBBER

Our Third Report to Industry on Simplex Synthetic Rubber Insulations. Discussion of the future of synthetic rubbers, the properties of some of the principal types of compounds used on insulated wire, tables comparing typical values of synthetic and natural rubber insulations. 12 pp. Simplex Wire & Cable Co., 79 Sidney St., Cambridge 39, Mass.

WASHROOMS

Scott Washroom Advisory Service. Typical layouts for small and large plant locker and washrooms, school washrooms, plant recreation rooms, (Continued on page 170)

Note the true lines, literally "straight as a die," and the attractive corner-cap finish in this small home re-siding job. ▼



RE-SIDING JOBS PROVE THE EXTRA VALUES OF REYNOLDS *Lifetime* ALUMINUM CLAPBOARD SIDING

This aluminum clapboard gives you all the traditional beauty of Colonial sidewalls... plus new perfection of line, never warping, never sagging.

And under the paint are still greater unseen values...lifetime permanence that defies fire, rust, rot and termites...structural strength combined with light weight...and reflective insulation from the *inside* aluminum surface, facing an air space 13/16 in. deep at butt.

Builders like the fast, easy application of this self-aligning clapboard...precision-made for a snug, weathertight fit. Comes in 12-ft length with 8-in. exposed surface.

Architects are developing interesting contrasts between unpainted and painted aluminum clapboards and other surfaces. The natural aluminum weathers to an attractive grey-white. Current Reynolds national advertising shows such combinations...and will have your customers asking *you* about aluminum.

You'll find the answers and many new

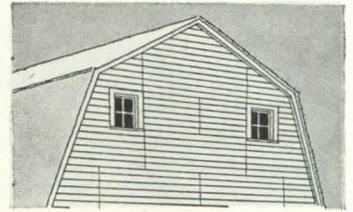
ideas in the new A.I.A. Files of Reynolds *Lifetime* Aluminum Building Products. Write for yours today.

Reynolds Metals Company, Building Products Division, Louisville 1, Kentucky.

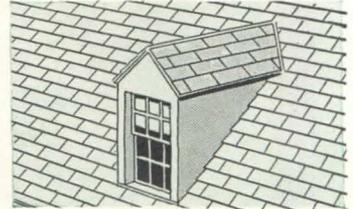


NATIONAL ADVERTISING — full pages in full color appear regularly in Saturday Evening Post, Better Homes and Gardens, American Home, House Beautiful, Small Homes Guide, also two-color pages in Country Gentleman, Progressive Farmer, Successful Farming.

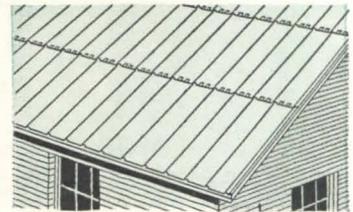
REYNOLDS LIFETIME ALUMINUM



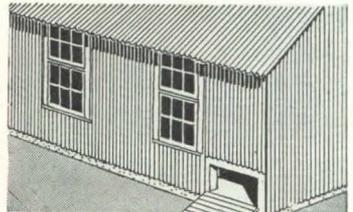
Weatherboard Siding. Sheets crimped like 4-in. clapboard. 8, 10, 12-ft. lengths; 24-in. coverage. Sturdy extra-thick sheet, .024-in.



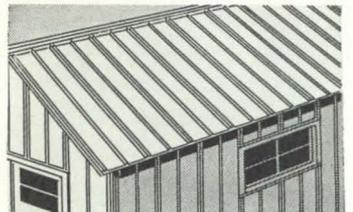
Shingles. Individual shingles that interlock all around, weathertight, covering all nails. Two sizes: covering 8x14½ and 5½x18½.



'Snap-Seal' Roofing. Aluminum sheet with weathertight interlock covering all nails. 6, 8, 10, 12-ft. lengths; 24-inch coverage.



Corrugated Roofing & Siding. Sturdy extra-thick sheet, .024-in. 6, 8, 10, 12-ft.; 26-in. wide; 1¼-in. and 2½-in. corrugations.



5-V Crimp Roofing & Siding. Sturdy extra-thick sheets, .024-in.; 6, 8, 10, 12-ft. lengths; 24-in. coverage.

Also: Aluminum Studs, Trusses, Window Frames, Garage Doors, Reflective Insulation and Complete Aluminum Houses.

IF YOU SEE RUST
YOU KNOW IT'S NOT
ALUMINUM



REYNOLDS
Lifetime ALUMINUM
BUILDING PRODUCTS

HUNDREDS OF MILLIONS OF SQUARE FEET
ALREADY PRODUCED AND DELIVERED.

New Store Front ideas

based on common sense,
research and
imagination

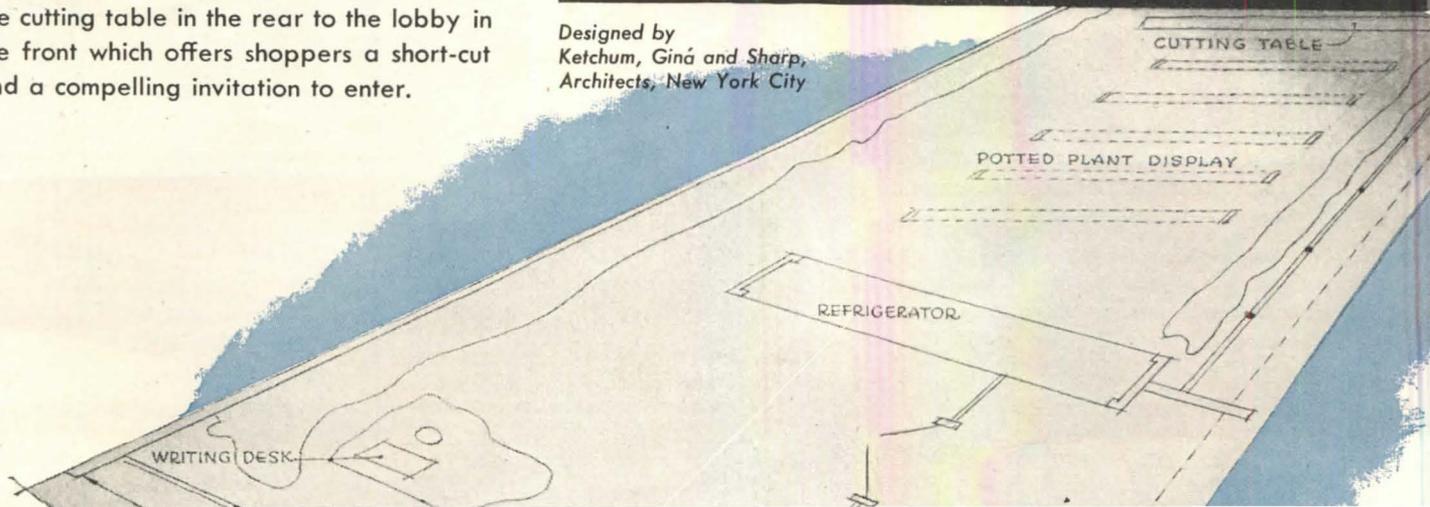
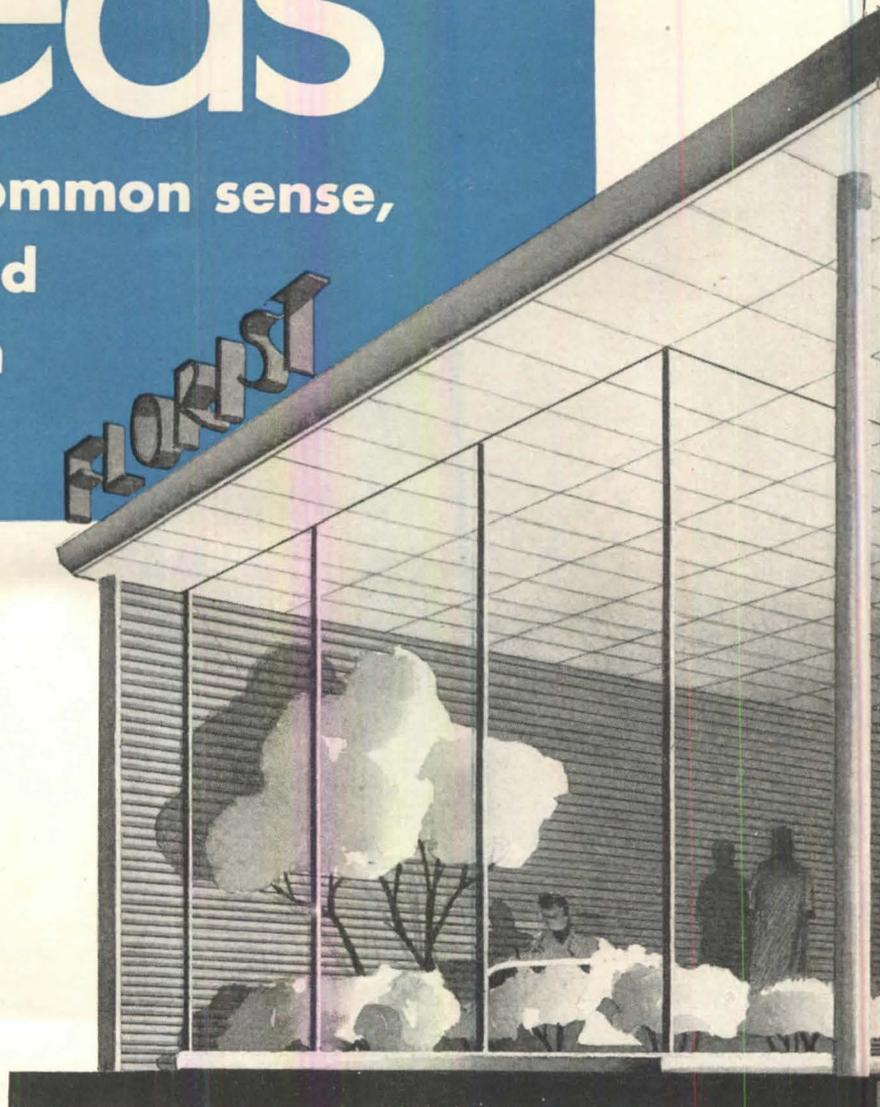
Today's new and realistic trend in store design is based on common sense, research, and imagination:

Outstanding architects agree that a modern store front has three basic functions—it must attract and stop customers, it must show them merchandise, and then it must pull them inside to buy.

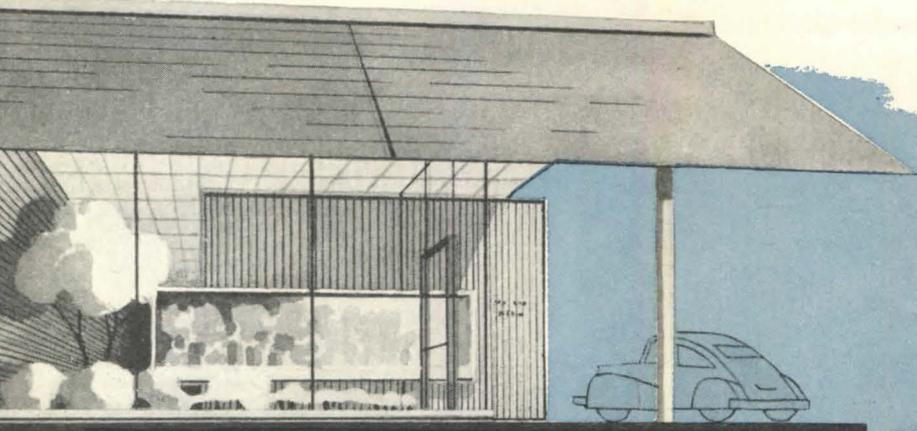
These requirements are successfully fulfilled by the flower shop pictured here. As the plan below shows, the front has been designed to meet the merchandising demands of the store itself.

Every element has been thought out, from the cutting table in the rear to the lobby in the front which offers shoppers a short-cut and a compelling invitation to enter.

Designed by
Ketchum, Giná and Sharp,
Architects, New York City



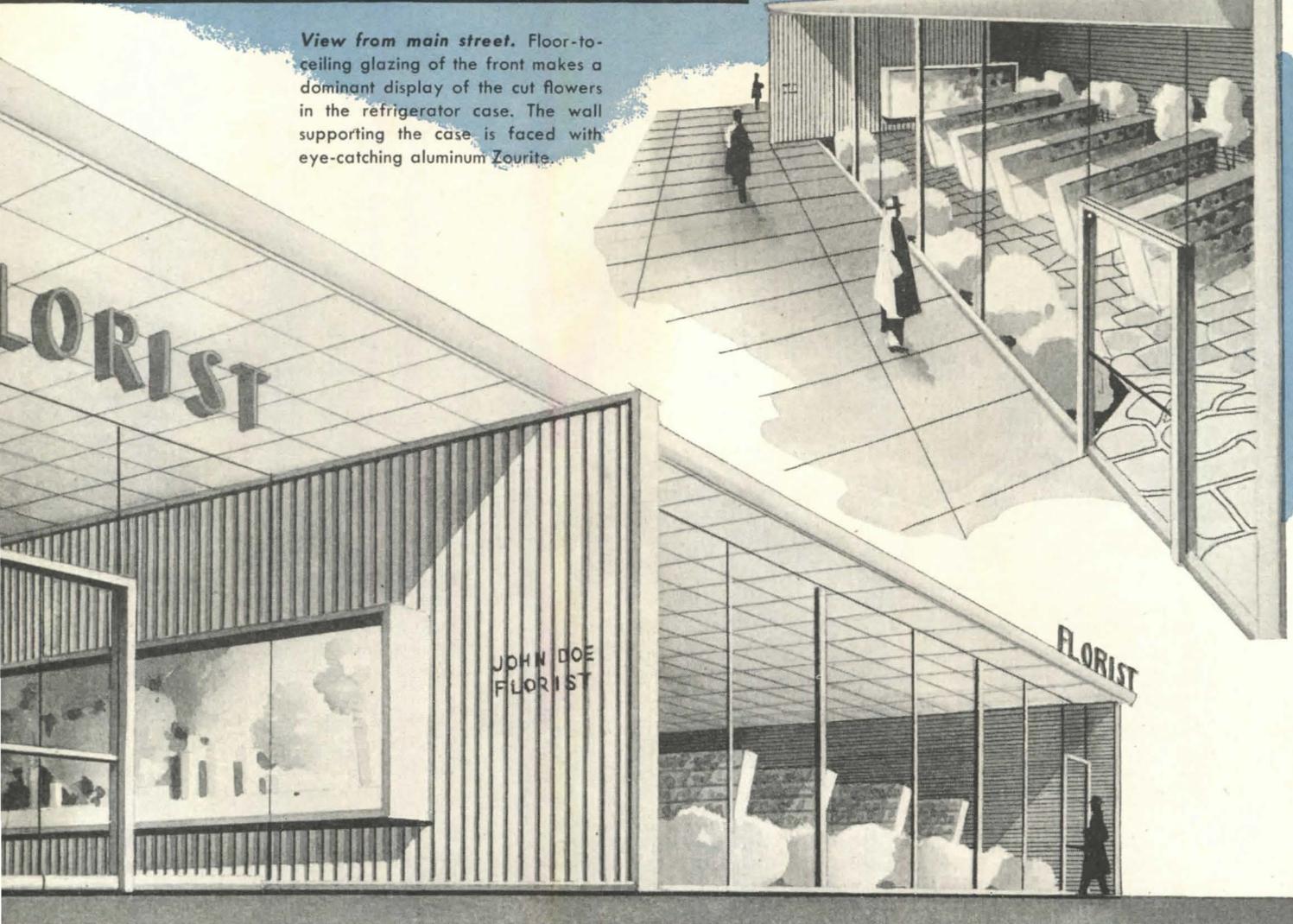
FLORIST



View from side street. A colorful bed of plants and flowers lines the show window. Behind it is a mass display of potted plants on wooden stands. Cobble-stones add to the informal "garden" atmosphere.

FLORIST

View from main street. Floor-to-ceiling glazing of the front makes a dominant display of the cut flowers in the refrigerator case. The wall supporting the case is faced with eye-catching aluminum Zourite.



How Store Front Ideas are made Practical and Profitable by the Modern K-47 Line

To construct store fronts which are striking in appearance and in sales-building power, leading contemporary designers analyze a store's merchandising needs as well as its structural demands.

By solving these two problems and by using materials which meet modern architectural standards, store fronts of distinction can be designed and built.

The K-47 Line of store front metals has been styled and engineered to answer today's new requirements. It offers these important advantages—

NEW custom-styling in stock shapes. The members which compose the K-47 Line possess the striking individuality which formerly could be obtained only in expensive, specially-detailed, made-to-order sections.

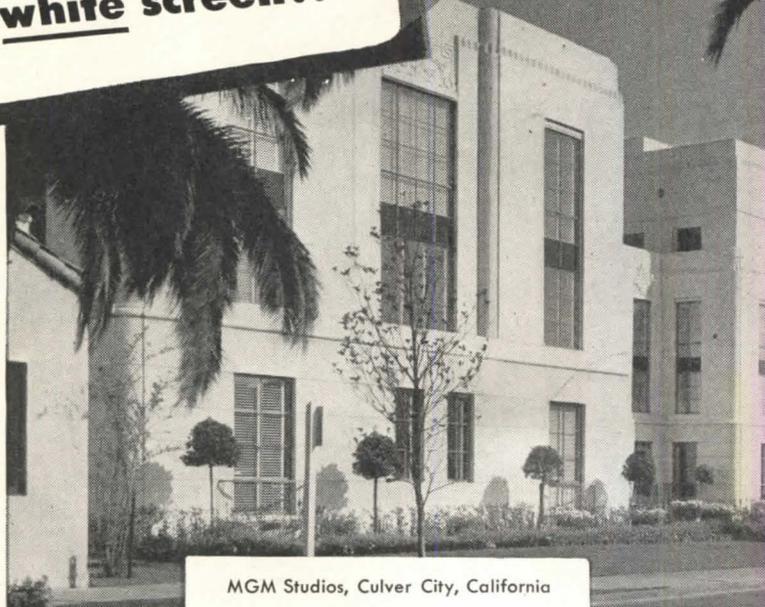
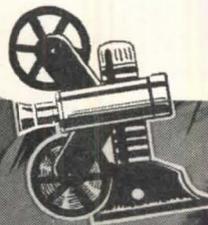
NEW interchangeable members with multiple uses. Face members can be interchanged to gain new effects, and they can be used for a variety of architectural purposes.

NEW features in construction. With the K-47 Line you can use flush-glazing, full-vision doors, floor-to-ceiling lights of glass and many other elements of modern design.

Send for the new booklet which describes and pictures the outstanding K-47 Line. The Kawneer Company, 740 North Front Street, Niles, Mich.

Kawneer
SALES-BUILDING
STORE-FRONTS

**Just as a
projectionist
uses a
white screen...**



MGM Studios, Culver City, California

Concrete craftsmen choose White Cement

The brilliant overtones of a Technicolor movie are brought out best against the white background of a motion picture screen. A darker screen would dull the colors. So, too, a matrix of Atlas White Cement sets off better the color values of pigments and aggregates in Terrazzo, Stucco, Cement Paint and Architectural Concrete Slabs. Such a matrix—rather than a darker one—gives the selected colors, in contrast or blend, a uniform clarity—a life-like sparkle.

In addition, Atlas White, a true portland cement, provides protection against moisture and the wear of weather. Simple cleansing suffices. Maintenance costs are low.

For further information, write the Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

AR-C-17

FOR BEAUTY AND UTILITY
ATLAS WHITE CEMENT
FOR TERRAZZO, PAINT, SLABS, STUCCO



"THE THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel
Sunday Evenings—ABC Network

THE RECORD REPORTS

(Continued from page 18)

Brock of Los Angeles, treasurer. Mr. Brock also served as treasurer during 1946.

Regional vice presidents for the coming year are: Region I, John Olson, Worcester, Mass.; Region II, Gustav A. Mezger, Roslyn Heights, L. I., N. Y.; Region III, William B. Dixon, Pittsburgh, Pa.; Region IV, Mark C. Bane, Richmond, Va.; Region V, George S. Goodyear, Charlotte, N. C.; Region VI, Thomas Coogan, Miami, Fla.; Region VII, Joseph B. Haverstick, Dayton, O.; Region VIII, Arthur E. Fossier, Chicago, Ill.; Region IX, Sig G. Pearson, Minneapolis, Minn.; Region X, O. G. Powell, Des Moines, Ia.; Region XI, Bill Caruth, Dallas, Tex.; Region XII, Alan E. Brockbank, Salt Lake City; Region XIII, Charles T. Gore, Denver, Colo.; Region XIV, Frank R. McAbee, Seattle, Wash. and Region XV, Lawrence B. Gibbs, Los Angeles.

NEW GROUP MEETS TO MODERNIZE CODES

Early last month the newly formed Building Officials Foundation held its first meeting in New York, inaugurating a program of building code study and betterment which will include the provision of a uniform testing procedure for the evaluation of new construction materials and methods.

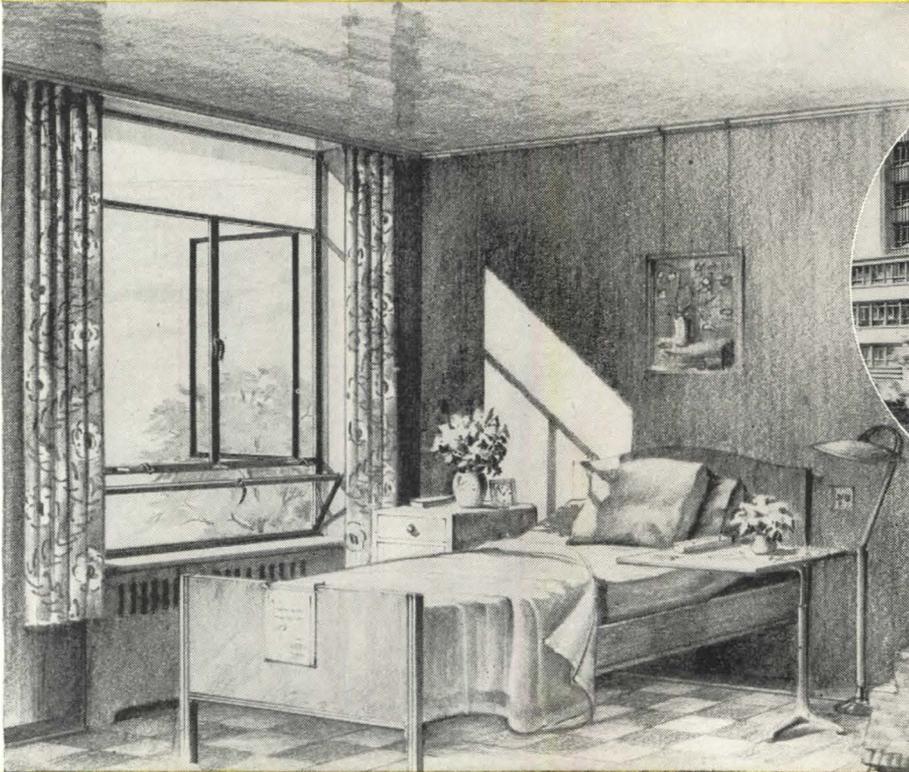
One of the principal functions of the Foundation will be to encourage the adoption of the Basic Building Code promulgated by the Building Officials of America, Inc., the parent organization of the new group. The Foundation also will assist communities in the administration of their building laws and regulations, and provide building officials with authoritative reports on the materials and methods tested.

Chairman of the Foundation's board of governors and of the executive committee is Andrew J. Eken, head of Starrett Brothers & Eken. Serving with him on the executive committee are Joseph H. Carter, of Pittsburgh Steel Co., Bror Dahlberg, of The Celotex Corp., Bernard A. Savage, New York City building official, and Walker S. Lee of Rochester, N. Y.

Other industry members of the board are: H. L. Andrews, General Electric Co.; J. R. Fink, National Steel Co.; Thomas S. Holden, F. W. Dodge Corp.; Roy A. Hunt, Aluminum Co. of America; J. C. Ingersoll, Ingersoll Steel Co.; C. Louis Meyer, Ceco Steel Products Corp.; Leroy A. Petersen, Otis Elevator Co.; H. H. Robertson, H. H. Robertson Co.; George Shakel, Great Lakes Carbon Corp.; J. H. Thornley, (Continued on page 144)

Designed for beauty... standardized for economy
NEW FENCRAFT FAMILY* OF WINDOWS

*Casement . . . Projected . . .
 Combination



Suggestion:

For hospital bedrooms, Fencraft Standard Intermediate Combination Windows, such as type 626 illustrated, provide abundant sunlight, and controlled fresh-air ventilation. Sill vent serves as built-in wind guard.

Three new lines of Fencraft Windows now offer new high quality, lower cost and important installation economy.

Built of specially-designed steel casement sections, by craftsmen in the shops of America's oldest and largest steel window manufacturer, all Fencraft Windows beautify both the outside and the inside. They provide permanently easy operation, firesafety, more daylight, better ventilation, safe cleaning, superior screening, lasting weather-tightness and low maintenance cost.

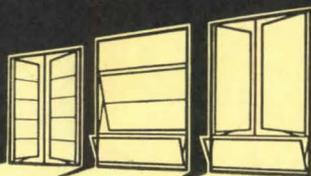
Singular economy in first cost is made

possible by standardized manufacture—the concentration of production on standard types and sizes.

Uniform installation details, plus the coordination of window dimensions with those of collateral materials in the wall, minimize installation cost.

Eminently suited for America's finest buildings, Fencraft Windows are now being shipped to many localities. For product details, see Fenestra's catalog in Sweet's for 1947 (Section 16a-9). Or mail coupon below.

Fenestra



FENCRAFT INTERMEDIATE STEEL WINDOWS

Detroit Steel Products Company
 Dept. 2252-AR-4
 2250 East Grand Blvd.,
 Detroit 11, Michigan

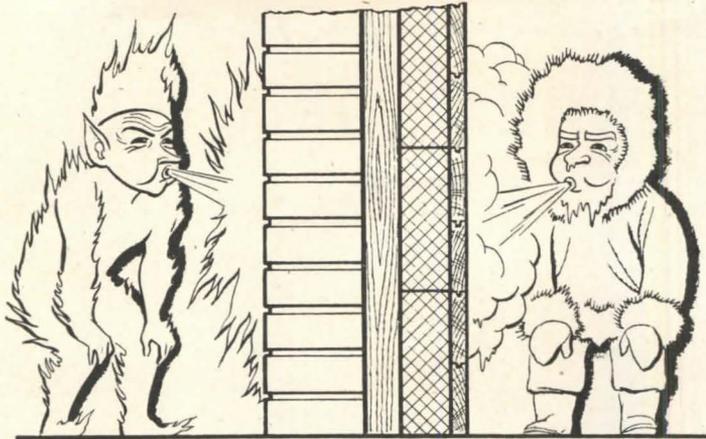
Please send me data on types and sizes of the new Fencraft family of Fenestra Windows:

Name _____

Company _____

Address _____

(Continued from page 142)



WOLMANIZED LUMBER*
doesn't mind the "rain"
that falls inside a wall

Moisture squeezed out of super-cooled air is always a problem in refrigerated structures. And that moisture (or melting ice and frost) plays havoc with ordinary materials.

Use Wolmanized Lumber there and decay can't get a start. It's standard structural lumber made highly resistant to decay by pressure-treatment with Wolman Salts* preservative.

YOU SAVE ON UPKEEP

This pressure-treated lumber costs little more than untreated wood. You save money by eliminating expensive replacements. There's no odor. And this treated wood can be painted.



*Registered trademarks

WOLMANIZING

FLAMEPROOFING

CREOSOTING

Western Foundation Co.; and Loring Washburn, S. H. Pomeroy Co.

Building officials, members of the board, in addition to Messrs. Savage and Lee, are: Albert H. Baum, St. Louis, Mo.; Arthur J. Benline, New York City; Fred C. Bergeson, Rock Island, Ill.; Charles A. Flanagan, Philadelphia, Penn.; R. S. Fredericks, Memphis, Tenn.; K. S. Gillies, Toronto, Canada; H. E. Hagood, Birmingham, Ala.; Bernard J. McKelvey, Bridgeport, Conn.; James H. Mooney, Boston, Mass.; John Picken, Montclair, N. J.; Arthur N. Rutherford, West Hartford, Conn.; George H. Slenker, Allentown, Penn.; and Lyle D. Webber, Denver, Colo.

MORE BUILDING IN '47

The volume of industrial engineering and construction will be higher in 1947 than in 1946 and may reach an all-time high as materials become more plentiful, prices become stabilized and government controls relaxed, predicts The H. K. Ferguson Co., industrial engineers and builders of Cleveland, New York and Houston. The opinion is the result of a survey of five executives in the company.

Special emphasis was put on industrial construction by several of the men questioned. A. Kingsley Ferguson, president of the company, commented that "basic industries in chemicals, steel, foods and textiles are now convinced that the increased demand for their products is sound and will last long enough to justify plant expansions even at higher costs."

C. W. Roberts, manager of the Company's southern district, emphasized the favorable prospects for industrial expansion in the South and Southwest. He pointed out that half of the total money invested in new chemical plants from 1935 to 1940 was invested in 12 southern states. Simplification of industrial plant design and a greater tendency toward standardization are prophesied as major 1947 trends by Wells N. Thompson, vice president in charge of the eastern district.

The cost of construction in 1947, the survey indicated, will probably be somewhat below the present peak, with decreases appearing mostly after midyear. Costs will not be radically lower, but will probably stabilize at some point near the average of the last two years.

MODULAR BUILDING

Important savings in the cost of building veterans' hospitals will result from the use of modular sizes of masonry products, windows and other building

(Continued on page 146)

1679 McCORMICK BUILDING, CHICAGO 4, ILLINOIS

IT'S BUILT FOR
Beauty

Modern in design with beautiful chrome finish.



IT'S BUILT FOR
Duty

All working parts are of heat-resistant non-corrosive bronze.



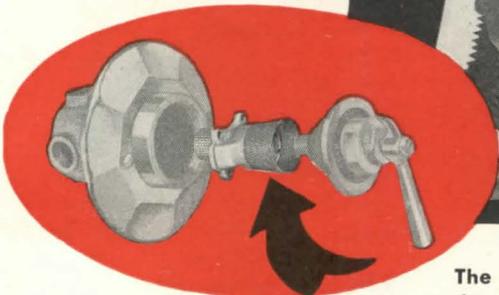
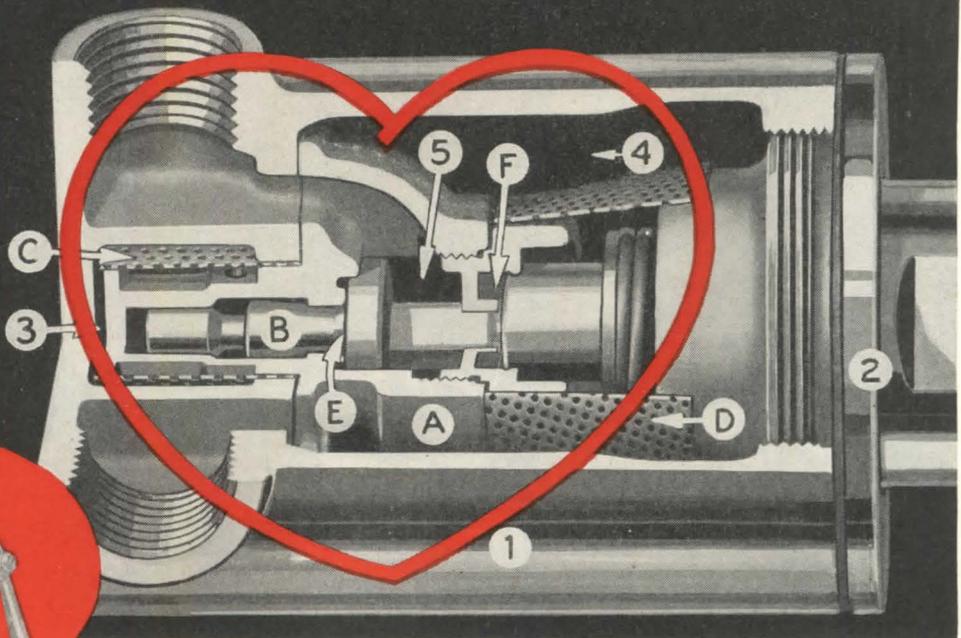
...AND IT'S "tops" IN
Shower Protection

No accidental scalding; hot water shuts off when cold water fails.



Josam scald-preventing
MODERATOR SHOWER MIXING VALVE
WITH exclusive **HEART-OF-VALVE** CONSTRUCTION

- 1. One-piece bronze body
 - 2. Removable bronze bonnet
 - 3. Cold water chamber
 - 4. Hot water chamber
 - 5. Mixing chamber
- "Heart-of-Valve" consisting of:
- A. Cage carrying operating mechanism
 - B. Hydraulic-type shuttle valve
 - C. Bronze screen protecting cold water port
 - D. Bronze screen protecting hot water port
 - E. Neoprene cold water valve seat
 - F. Neoprene hot water valve seat



Maintenance is simple and easy. All working parts are combined in the "heart of valve" unit easily accessible by removing valve bonnet. Old unit can be removed and new unit installed in a jiffy. "Heart of valve" renewal units are available in individual packages.

The Josam Moderator Mixing Valve assures *lasting* shower bathing pleasure through simplicity of construction. A single moving part—the hydraulically operated shuttle valve—keeps hot and cold water "in balance" at the selected temperature and prevents accidental scalding. This shuttle valve is enclosed in the "heart of the valve"—a unit in which all working parts are combined. Even after years of wear or rough usage, there is no need of expensive replacement. All you do is replace the old "heart of valve" with a new one...and the valve is as good as new! The Josam Moderator Mixing Valve is ideal for residences, apartments, schools, colleges, hotels, clubs, institutions, factories, or wherever shower bathing is a regular routine. Fits readily into all standard shower installations. Send coupon below for complete details today!

JOSAM MANUFACTURING COMPANY

CLEVELAND 14, OHIO PLANT, MICHIGAN CITY, INDIANA

Representatives in all Principal Cities

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See our Catalog in Domestic Engineering Directory

JOSAM MFG. CO. 302 Ferguson Bldg., Cleveland 14, Ohio

Send new literature on Josam Moderator Mixing Valve to

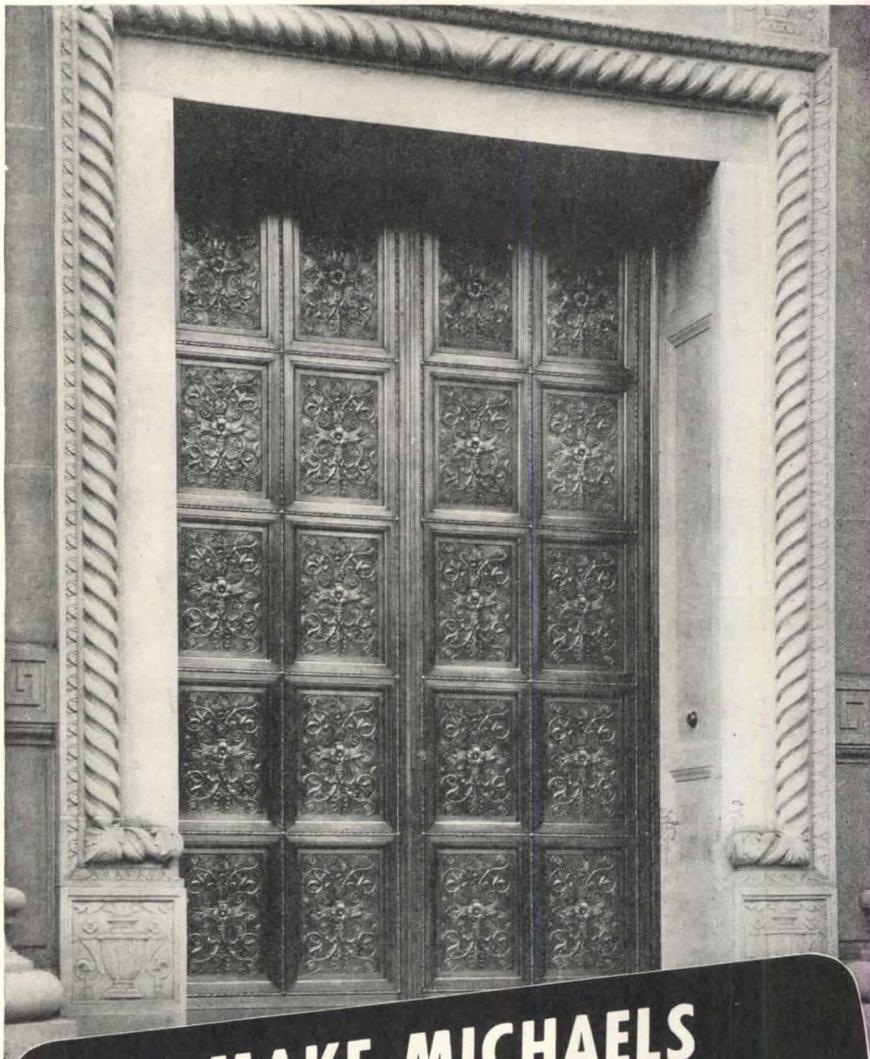
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**★ MAKE MICHAELS
YOUR SOURCE OF SUPPLY
FOR METAL BUILDING PRODUCTS**

Since 1870 this organization has manufactured bronze, aluminum and nonferrous metal products to meet virtually every building requirement. During this time a large part of our work has been the faithful reproduction, in metal, of architects' creations and plans. Today we are in an even better position to handle this class of business. So, whether it be new construction or a remodeling job, don't overlook the products and service offered by Michaels. Write for more details. The bronze door illustrated above is only one of many Michaels products. A partial list is given in the next column.

MICHAELS PRODUCTS

- Fixtures for Banks and Offices
- Welded Bronze Doors
- Elevator Doors
- Elevator Enclosures
- Check Desks (standing and wall)
- Lamp Standards
- Marquise
- Tablets and Signs
- Name Plates
- Astragals (adjustable)
- Railings (cast and wrought)
- Building Directories
- Bulletin Boards
- Stamped and Cast Radiator Grilles
- Grilles and Wickets
- Kick and Push Plates
- Push Bars
- Wrought Iron and Bronze Lighting
- Fixtures
- Wire Work
- Cast Thresholds
- Extruded Thresholds
- Extruded Casements and Store
- Front Sash
- Bronze and Iron Store Fronts
- Bronze Double Hung Windows
- Bronze Casement Windows

THE MICHAELS ART BRONZE CO., Inc.

234 Scott St., Covington, Kentucky

THE RECORD REPORTS

(Continued from page 144)

materials, according to Tyler S. Rogers, president of the Producers' Council, commenting on the recent decision of the Army Engineer Corps to encourage the use of modular products in the \$600 million hospital program.

"The veterans' hospital program will serve as the first large-scale demonstration of the cost-reducing possibilities of modular coordination," Mr. Rogers said, "inasmuch as construction of most of the buildings which have been designed on the modular basis has been delayed by the federal order limiting the volume of non-residential building."

Completion of the hospitals, Mr. Rogers pointed out, will be speeded up by the use of modular products, which can be put in place with much less cutting and fitting than is required for the traditional sizes.

The decision of the Army Engineer Corps, Mr. Rogers said, "also will serve to stimulate interest in designing other buildings on the modular basis and thus speed up the general adoption of coordinated dimensions. . . . Owing to the rapid adoption of modular coordination during the last few years, the entire outer shell of any building now can be constructed with products whose dimensions have been coordinated under the modular program."

The Producers' Council is conducting a series of regional meetings at which the principles of modular coordination and their application to hospital construction will be explained in detail, Mr. Rogers announced.

MUSEUM EXHIBITS

A Better Newark

An exhibition showing what the City Planning Commission is proposing for Newark, N. J., is currently on view at the Newark Museum. The master plan prepared by the Newark Central Planning Board's engineers, Harland, Bartholomew and Associates, forms the basis for the exhibition, which includes models, plans, photographs, maps and charts.

Highlighted in the presentation are drawings of the proposed War Memorial Plaza, the convention hall and sports arena, and the cultural center of which the Museum will form a part. Charts show the major street plan and plans for parking and transportation facilities, housing developments, schools and recreation areas.

"Cleveland Builds"

An unusual exhibition at the Cleveland, Ohio, Museum of Art through April 9th is "Cleveland Builds — Work

(Continued on page 148)

SEE THIS 10-MINUTE DEMONSTRATION



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- Mobile.....Acoustics & Specialties Co.
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- Kansas City }Henges Co., Inc.
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- Trenton.....The W. M. Moyer Co.
- NEW MEXICO
- Albuquerque.....The Jay Gear Corp.
- NEW YORK
- Albany }Collum Acoustical Co.
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- Jamestown }
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- Syracuse }
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- Charlotte.....Acousti Engineering Co. of the Carolinas
- OHIO
- Akron }Mid-West Acoustical & Supply Co.
- Cleveland }
- Columbus }
- Toledo }
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- Dayton }
- PENNSYLVANIA
- Altoona }Harry C. Leezer Co.
- Pittsburgh }
- Sharon }
- Harrisburg }
- Philadelphia }
- Scranton }
- RHODE ISLAND
- Providence.....Pitcher & Co.
- SOUTH CAROLINA
- Charleston.....Acoustic Engineering Co. of the Carolinas
- SOUTH DAKOTA
- Sioux Falls.....Insulation Sales Co., Inc.
- TENNESSEE
- Chattanooga }Len Herndon Co.
- Knoxville }
- Nashville }
- Memphis.....Acoustics & Specialties Co.
- TEXAS
- Dallas }S. W. Nichols Co.
- Houston }
- San Antonio }
- El Paso.....The Jay Gear Corp.
- UTAH
- Salt Lake City.....Lauren Burt, Inc.
- VIRGINIA
- Norfolk }John H. Hampshire, Inc.
- Richmond }
- Roanoke }
- WEST VIRGINIA
- Huntington.....E. C. Decker & Co.
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Here's a Newer, Better Way to Partition or Panel BUILDINGS OLD OR NEW

By use of a few standardized parts and fittings, M/P Metlwals meet every wall paneling and partitioning requirement . . . eliminate the need for plaster in new construction . . . and permit fast, clean, simple installation in dividing space. They combine rich beauty, quiet and fire resistance with low initial cost and permanent economy.

Pre-Fabricated . . . Pre-Decorated

Made in lifelike wood grains and soft color finishes . . . providing an all-flush surface from floor to ceiling . . . eliminating the need for filler boards of other materials at ends or above the cornice level . . . M/P Metlwals of Bonderized steel make possible an endless variety of new, modern decorative effects. And you can use these distinctive interiors for executive, factory and general offices, stores, banks, theatres, hotels, hospitals, schools, residences and other buildings of every kind.

Write or Phone For Demonstration

The nearest M/P Distributor listed at the right is ready to give you a 10-minute demonstration of the unique features of M/P Metlwals. Write or phone him today. Also, for your A. I. A. file, send for booklet No. 35-H-6, containing Metlwal specifications, drawings and installation photographs. Address: Martin-Parry Corporation, Fisher Bldg., Detroit 2, Michigan. Plants: Toledo, Ohio; York, Pennsylvania.



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ALL-FLUSH PANELING
MOVABLE PARTITIONS

66 Years of Service

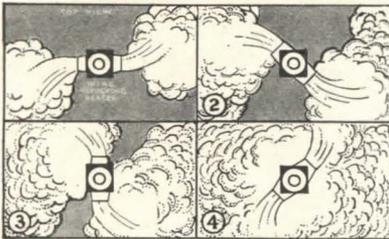
ENGINEERING AND ERECTING SERVICE AND
WAREHOUSE STOCKS FROM COAST-TO-COAST



Revolving Unit Heaters Insure Complete, Thorough Coverage Regardless of Obstructions

Not just another unit heater, the WING REVOLVING HEATER is unique in that it does what no other heater can do—its slowly revolving outlets gently distribute the heat continuously in a constantly changing direction. It reaches over, around and under obstructions into out-of-the-way corners, its moving streams of heated air quickly warm up a plant in the morning.

Revolving Discharge Outlets for Thorough Heat Coverage



1. Heater starts. 2. 15 seconds later, 45° revolution. 3. 30 seconds later, 90°. 4. 45 seconds later, 135° revolution.

Wing Revolving Unit Heaters keep the heated air moving, circulating around obstacles, seeking out far corners, spreading an even, uniform, healthfully invigorating blanket of warm air over the entire working area.

ADVANTAGES OF WING REVOLVING UNIT HEATERS

1. Makes workers feel comfortable, live and invigorated—more productive.
2. Reaches over and around obstructions and into out-of-the-way corners.
3. Moving discharge heats up plant quickly on cold mornings.
4. Reduces absenteeism due to colds resulting from drafts, chills or overheating.
5. Is an excellent cooling system in summer with steam off and fans on.

Its properly warmed, healthful air currents thoroughly distributed, create a sensation of live, invigorating comfort for the workers. Wing Revolving Unit Heaters are used in many of the country's leading industrial plants. Write for a list of installations.

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TURBINE BLOWERS	MOTOR DRIVEN BLOWERS	DRAFT INDUCERS	REVOLVING UNIT HEATERS	UTILITY HEATERS	FLOODLIGHT HEATERS
STEAM TURBINES	FOG ELIMINATORS	PROCESS HEATERS	VENTILATING FANS	EXHAUSTERS	SHIP VENTILATORS

THE RECORD REPORTS

(Continued from page 146)

by Cleveland Architects," showing post-war development in progress and projected in the Cleveland area, and a few of the projects which Cleveland architects are undertaking in other cities.

The Cleveland chapter, A.I.A., is sponsoring the show. There are 63 exhibits in all, including plans, drawings, renderings, perspectives and models by 34 Cleveland architects. The projects are commercial, residential, industrial, recreational, health, religious, educational and safety.

ON THE CALENDAR

April 19-26: Metropolitan Home Show, sponsored by Home Builders Council of New York, New Jersey and Connecticut; Grand Central Palace, New York City.

May 6-8: The President's Conference on Fire Prevention, Federal Works Bldg., Washington 25, D. C.

May 6-10: 2nd National Plastics Exposition and Annual Convention, The Society of the Plastics Industry, Coliseum, Chicago.

June 2-4: Semi-annual Meeting, American Society of Heating and Ventilating Engineers, Hotel del Coronado, Coronado, Calif.

June 12-22: 2nd annual Construction Industries Exposition and Home Show, Pan-Pacific Auditorium, Los Angeles.

June 16-19: Semi-annual Meeting, American Society of Mechanical Engineers, Stevens Hotel, Chicago.

July 7-13: 1st Annual Store Modernization Show, Grand Central Palace, New York City.

Sept. 1-4: Fall Meeting, American Society of Mechanical Engineers, Hotel Utah, Salt Lake City, Utah.

Nov. 3-7: 2nd International Lighting Exposition and Conference, Stevens Hotel, Chicago.

Dec. 2-5: Annual Meeting, American Society of Mechanical Engineers, New York or Atlantic City.

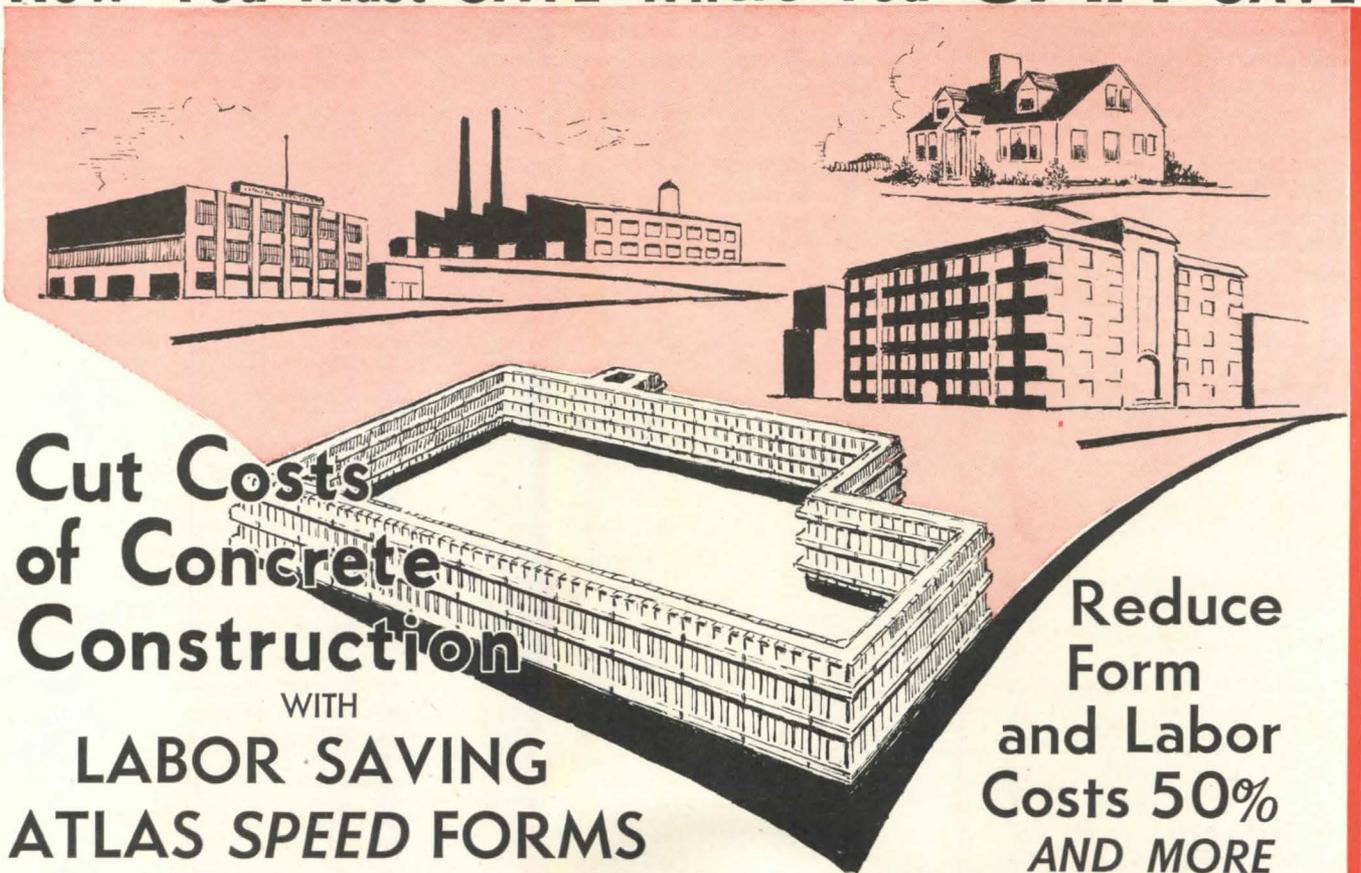
NEW HOUSING AGENCY?

In a surprise move early in March Mayor O'Dwyer of New York City acted to terminate the city's five-member, non-salaried housing Authority and replace it with a three-member agency responsible directly to the Mayor.

If the bill incorporating the proposal is passed by the State Legislature, the terms of the present members of the Housing Authority will expire on July 1st, at which time the Mayor will be empowered to reconstitute the agency as a three-member unit with a salaried, full-time chairman. The other two members of the board would be unpaid. The

(Continued on page 150)

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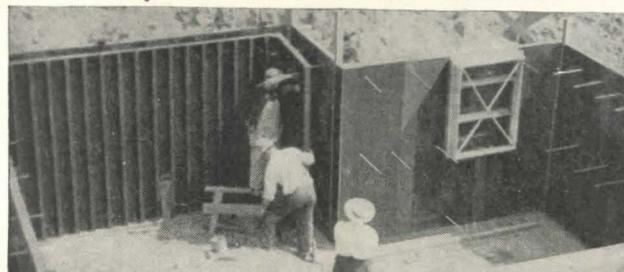
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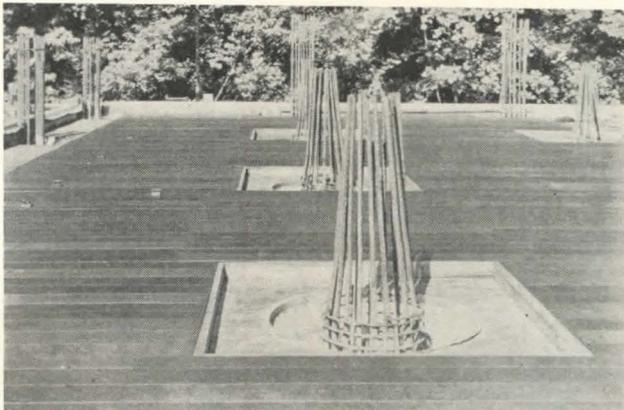
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chairman would be chosen by the Mayor, and would be responsible to him. "Such chairman," the bill states, "shall have had successful experience in large-scale construction, shall give full time to his duties and shall not engage in any other occupation, profession or employment." Present members of the Authority are Edmond B. Butler, chairman; Mrs. Mary K. Simkhovitch, vice-chairman; John S. Parke, Frank R. Crosswaith, and William Wilson.

LIGHTING CONTEST

A competition for \$1200 in Merit Awards, designed to bring to the Second International Lighting Exposition next November outstanding examples of "What Planned Lighting Can Do" in industrial, store and office applications, has been announced by the Exposition Operating Committee.

Three prizes of \$100 each will be awarded to the best entries from each of four classifications: (1) electrical con-

tractors; (2) utility lighting representatives; (3) architects and consulting engineers; and (4) wholesaler's lighting specialists and salesmen. All entries must be in by August 31st. For further information and entry blanks, address the International Lighting Exposition Award, Suite 818, 326 W. Madison St., Chicago, Ill.

AT THE COLLEGES Fellowship Offered

The University of Illinois has announced the 16th annual consideration of candidates for the Kate Neal Kinley Memorial Fellowship offering \$1000 for a year's advanced study of the Fine Arts in America or abroad.

The fellowship is open to graduates of the College of Fine and Applied Arts of the University of Illinois and of similar institutions whose major studies have been in music, art, or architecture. Applicants should not exceed 24 years of age on June 1, 1947. Application blanks and instructions may be obtained from Dean Rexford Newcomb, College of Fine and Applied Arts, Room 110, Architecture Bldg., University of Illinois, Urbana, Ill. Applications must be received by May 1, 1947.

Audio-Visual Aids

Keeping in step with the increased demand for progressive aids to teaching, the Audio-Visual Center of the City College School of Business, Evening and Extension Division, is expanding its auditory and visual aids services.

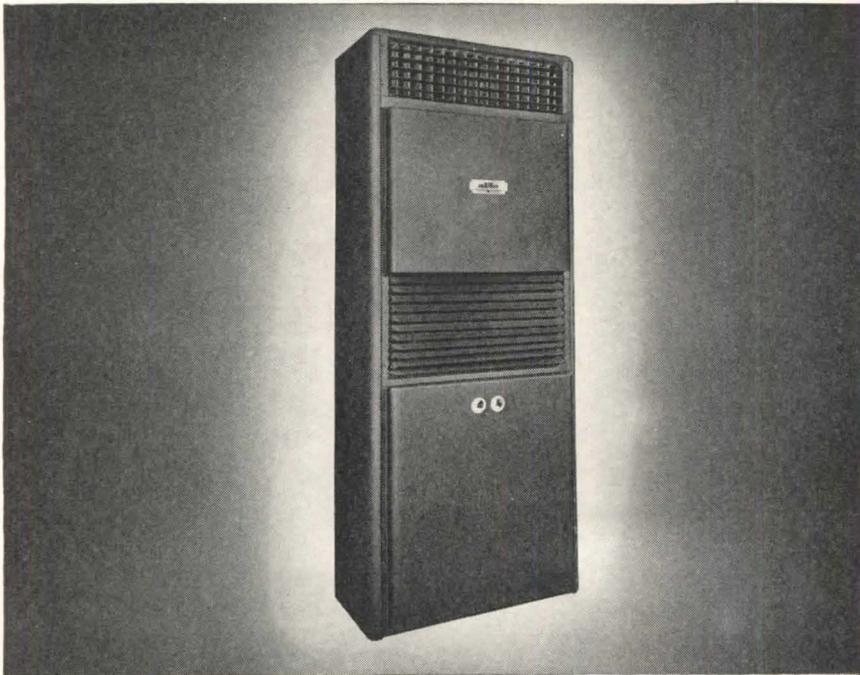
Dr. Louis S. Goodman, supervisor of the Center, reports that a program of close cooperation with schools, business and industry for the use of audio-visual aids is planned. The Center's services include a growing library of sound films, film strips and recordings, with complete facilities for presentation. Courses are given at the College in techniques of utilizing these new media. New instructional aids are being developed, with present emphasis placed on recordings and graphic materials.

A catalog of the material distributed may be obtained by writing to the Audio-Visual Center, City College of Business, 17 Lexington Ave., New York.

Masonry Research

Improved masonry construction and lower production costs are expected to result from six research projects at leading universities and technical institutions, reports Roy A. Shipley, president of the Structural Clay Products Institute. "The projects are being financed with grants totaling \$103,000 from the Office of Technical Services of the U.S. Department of Commerce and will be supervised by the Institute," Mr. Shipley explains.

(Continued on page 152)



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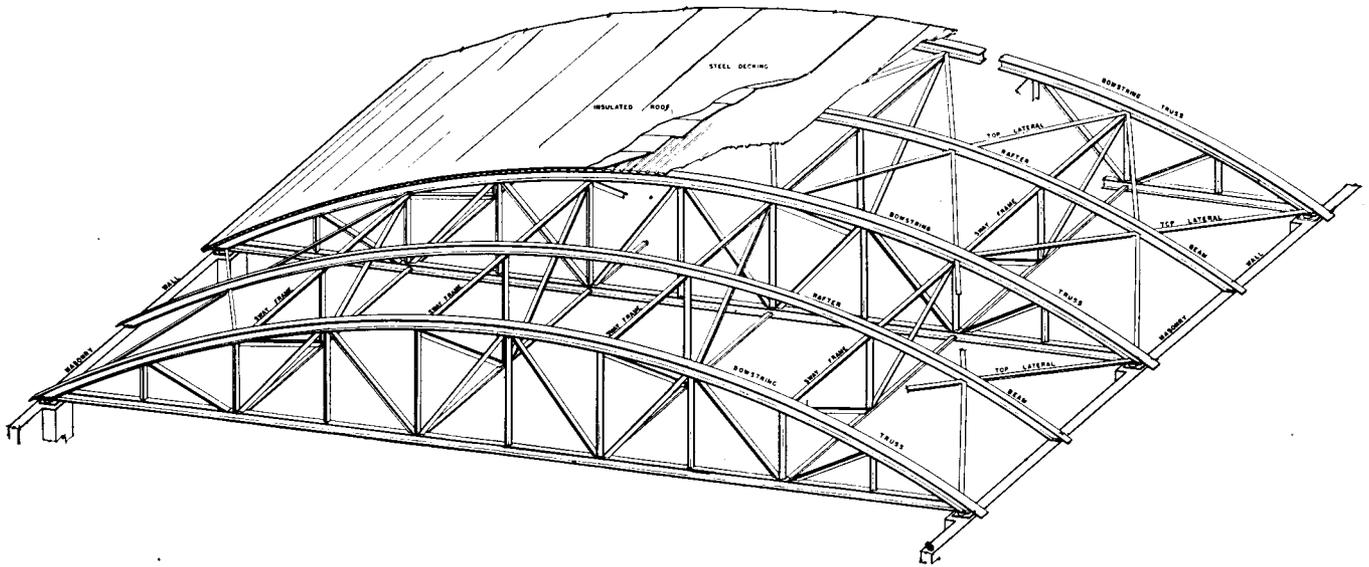
business the climate needed in today's competitive market at a cost well within your operating budget. For further information write United States Air Conditioning Corporation, Minneapolis, Minnesota.



Welded Bow String Roof Truss is Economical and Efficient

By Ned L. Ashton

Consulting Engineer, Iowa City, Iowa



THE arc welded bow string roof truss shown above is intended for a 72-foot clear span roof supported on masonry walls, used in combination with an insulated steel deck. This type roof is ideal for large store buildings, hangars, garages, small factories, display rooms, etc.

The bow string truss is economical—uses only 4.4 lbs. of steel per square foot of area for the truss shown—and provides wide entrance-exit openings at ends of the building.

The truss consists of curved 6"-wide flanged top chord sections, 6" light beam section bottom chords and 3" x 4" T section web members joined by electric arc welding. Trusses are spaced at 18'-0" centers and span 72'-0". Curvature radius of the top chord is 72', same as span length. Trusses are 9'-7 $\frac{3}{4}$ " deep, center to center of chords, at the middle.

MINIMIZES STRESSES

Truss weight is estimated at 3200 lbs. per truss or 45 lbs. per foot of one truss. The dead load from roofing

materials is slightly less than 12 lbs. per square foot. An analysis of the dead load web stresses reveals that they are very small. In fact, the truss is designed so that, under the dead load or a uniform snow load covering the whole span, there is no beam action of the top chord, the stress in every diagonal is zero and the stress is constant throughout the bottom chord. Under half live load conditions, the stresses in the web members alternate between tension and compression going from one member to the next along the truss. Both the chord and web stresses are reversible under varying wind conditions—the same member acting either in tension or compression depending on which way the wind is blowing.

RAFTERS AUGMENT TRUSSES

In addition to the bow string trusses, the roof decking gets support from light intermediate-curved 6" joist section rafter beams. These make the truss spacing independent of the purlin span. In longer spans,

2, 3 or more of these intermediate rafters should be used between trusses for economy.

Rafters are 5-span continuous beams supported at intervals of 14'-4 $\frac{3}{4}$ " by the longitudinal sway frame trusses, and supported transversely by the top lateral bracing. In turn, the rafters cut down the unsupported length of the laterals.

REQUIRES LITTLE FIELD WELDING

Both the 72-foot trusses and the sway frames are designed to be completely fabricated in the shop. Field erection welding is confined to joining the sway frames, rafter beams, top laterals and roof decking.

A detailed study of this roof and the bow string type truss is made in a new series of Plates of "Studies in Structural Arc Welding," published by Lincoln Electric. To be placed on the mailing list for these and future Studies, write THE LINCOLN ELECTRIC COMPANY, Dept. 262, Cleveland 1, Ohio.

Advertisement

At the University of Texas a study will be made to determine suitable specifications for materials and methods to be used in constructing tile-reinforced, pre-cast floor beams. The effect of brick texture on the bond between mortar and brick will be studied at Virginia Polytechnic Institute, and factors affecting size variation in the manufacture of brick, together with causes of defects such as lamination, will be studied at Iowa State College, the University of

Illinois, New York State College of Ceramics, and the National Bureau of Standards.

Analysis of Benton

Professor D. W. Laging, of the Department of Literature and Fine Arts, Michigan State College, East Lansing, Mich., is preparing a catalog and critical analysis of the work of the American painter, Thomas Hart Benton. He would appreciate hearing from anyone owning

sketches, drawings or paintings (exclusive of lithographs) by Mr. Benton.

NEW PRODUCTS CENTER

Following its incorporation as a non-profit undertaking, a Chicago Building Products Center is being organized under the joint sponsorship of the Chicago chapters of the Producers' Council and the American Institute of Architects. Directors named include Paul Gerhardt, Jr., and Charles D. Faulkner, president and secretary respectively of the A.I.A. chapter; and Robert R. Clegg, American Lumber and Treating Co. official; and George W. Bornquist, of Bornquist, Inc., president and secretary respectively of the Council chapter.

Negotiations are now under way for approximately 20,000 sq. ft. of floor space in a Loop office building to house the new Center. Approximately 16,000 ft. will be used for permanent exhibit space by building product manufacturers and the remainder will provide a meeting place and offices for the two sponsoring organizations and the administrative staff of the Center. Heads of several leading Chicago architectural firms are contributing by doing the design work for the project; manufacturers, in turn, will provide financing through the rental of exhibit space.

The Center is expected to be in operation by mid-summer, and will be open without charge to architects, builders, contractors and the general public. In the opinion of its founders it will perform a necessary public relations function for the industry by showing actual products that are now or soon will be available, thus helping to debunk the misinformation which the prospective home owner has been fed about the "home of tomorrow" and "pushbutton living." Forums on various phases of home planning and construction, special exhibits and demonstrations and similar events are planned, and architectural exhibitions of designs of specialized types of buildings — industrial, educational, residential, etc. — will be held from time to time.

APARTMENTS FOR PARALYZED VETERANS

Specially designed apartments for paralyzed veterans are being constructed by the State of New York at two emergency housing projects, Marine Park and Maritime Base, in Brooklyn.

The units are being built to fit the special needs of paraplegics, paralyzed from the waist down. Four three-room apartments, to accommodate 12 unmarried veterans, have been completed at Maritime Base and two three-room apartments for married veterans are under construction at Marine Park.

(Continued on page 154)

PIPE WITH UNIFORM CORROSION RESISTANCE

The corrosion-resistance of Duriron drain pipe is as thick as the wall. The acid-carrying ability of this pipe does not depend on a lining which can wear, chip, crack or spall.

Duriron pipe is made entirely of Duriron, a high silicon iron alloy with extreme resistance to practically all corrosives. For instance, 10% sulfuric acid, one of the worst will not eat away more than 1/16" of the 5/16" wall of a 2" Duriron pipe in 900 years.

For complete information on this corrosion-defeating, abrasion-resisting pipe, write for bulletin 702-D.

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DURIRON ACID PROOF DRAIN PIPE



Multi-colored porcelain enamel mural, size 72 feet by 28 feet, given to the Union Terminal, Cleveland, Ohio, by the Ferro Enamel Corp., Cleveland. Designed and executed by J. Scott Williams in Seaporcel's plant.

Specify *Seaporcel* Architectural Porcelain Enamel Parts

BECAUSE with Seaporcel the architect or designer is not restricted to conventional, cut and dried designs caused by limitations of materials lacking the flexible characteristics of Seaporcel porcelain enamel.

JUST AS THERE is attainable a free play in color and finishes, with Seaporcel porcelain enamel the architect can obtain fabrications in any shape, form or section;—rounds, compound curves, flutings, reedings, etc., etc.

AND, THANKS TO the everlasting fusion of porcelain and steel, Seaporcel* is fire-proof, corrosion and acid resistant, will not crack or craze when exposed to thermal shock and will withstand moderate mis-handling.

SEAPORCEL is equally adaptable to broad and dramatic sweep for building facades, store fronts, interiors of public buildings, restaurants, banks, schools, hospitals, hotels. Make your final word on your next preliminary sketches: SEAPORCEL!

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693 Mission Street
San Francisco, Calif.

Douglas McFarland & Co.
1491 Canal Street
Long Beach, Calif.

Maritime Pacific Supply Co., Inc.
Alaska Trade Bldg.
Seattle 1, Washington

The apartments are so designed that the veteran in a wheel chair can handle most of the normal operations of living with a minimum of difficulty. Extra wide doors and ramps will give easy access to and from adjacent parking areas. All doors open in and out, and there are no differences in floor levels to impede passage into or within the apartments. Bathrooms are larger than average to provide easy access to all fixtures from a wheel chair, certain

fixtures are lowered, a permanent seat has been built into each shower, and special shower fittings have been provided. Lorimer Rich and Robbins Conn are architects for the Marine Park project, and J. M. Berlinger is the architect at Maritime Base.

ELECTIONS, APPOINTMENTS

Serge Chermayeff, A.I.A., F.R.I.B.A., has been appointed president and director of the Institute of Design, Chicago,

succeeding the late L. Moholy-Nagy. Mr. Chermayeff has been professor of architecture and chairman of the Department of Design at Brooklyn College since 1942.

Dr. Leo L. Beranek, formerly director of the Electro-Acoustic and the Systems Research Laboratories of Harvard University, has been appointed associate professor of communications engineering in the Department of Electrical Engineering of the Massachusetts Institute of Technology.

Six new directors have been elected to the board of the American Standards Association: R. L. Pearson, vice president of the New York, New Haven and Hartford Railroad Co., to represent the Association of American Railroads; Curtis W. Pierce, president, National Fire Protection Assn. and president, Factory Insurance Assn., to represent the fire protection group; J. H. Hunt, director of the new Devices Section of General Motors Corp., to represent the Society of Automotive Engineers; J. H. McElhinney, vice president, Wheeling Steel Corp., representing the American Iron and Steel Institute; R. Oakley Kennedy, recently retired vice president of Cluett, Peabody, to become one of three directors representing general consumer interests on the board; and Auguste G. Pratt, president, The Babcock & Wilcox Co.

Ford, Bacon & Davis, Inc., engineers, have announced the election of Everett S. Coldwell as executive vice president and David A. Uebelacker as vice president and director in charge of new business activities.

The Grand Rapids chapter, A.I.A., has announced the election of the following officers for 1947: *president*, Phillip Cowles Haughey, Battle Creek; *vice president*, Carl C. Kressbach, Jackson; *secretary-treasurer*, Bernard J. DeVries, Muskegon; *chapter director*, Clarence H. Rosa, Lansing; *director to M.S.A.*, Paul E. Flagan, Grand Rapids.

The Turner Construction Co. has announced the following appointments: *vice president*, Nelson L. Doe; *general superintendent in the New York office*, Walter P. Jackson; *director*, C. F. Rosenburgh; *vice president*, and chief engineer of the Turner-Rostick Corp., Godfrey Lutz; *chairman of the board*, Robert C. Wilson; *president*, H. C. Turner, Jr.

OFFICE NOTES

Offices Opened, Reopened

Saul Edelbaum, A.I.A., has opened a new office for the practice of architecture, planning and design at 624 Madison Ave., New York 22, N. Y.

John W. Floore, Architect, until recently with the Army Air Forces, has opened an office for general practice at

(Continued on page 156)

BLIZZARD OVER CHOMO-LUNGMA



Few have braved the final precipice of Everest; none has returned to tell what he found at the crest. It may be that man will never conquer its awful cold, the fury of the sudden hurricanes which lash, without warning, the highest spot on earth.

Few indeed fancy the risk of this unpredictable weather. But many have use for the controlled climate of refrigeration . . . the calculated cold of refrigerated spaces which is efficiently, economically safeguarded by Jamison Cold Storage Doors. Jamison-built doors go back almost as far as the cold storage industry itself. Half a century of know-how explains the confidence that refrigeration, cold storage, and frozen food operators have in the Jamison name.

For cold storage doors expressly tailored to your needs, choose from the Jamison standard line . . . Jamison, Stevenson, Victor, and NoEqual Doors. Your installation deserves this long-term investment in quality. Full information . . . and address of nearest Jamison branch . . . may be obtained by writing Jamison Cold Storage Door Company, Hagerstown, Maryland.



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TRUE CHURCH TONE

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SPECIFICATIONS of the Series 20

Great Organ

	PITCH		PITCH		PITCH
Bourdon	16'	Dulciana	8'	Fifteenth	2'
Viola	16'	Celeste	8'	String Mixture 2 ranks	
Open Diapason	8'	Octave	4'	Chimes (Stop Tablet	
Flute	8'	Flute	4'	and Stop Tablet	
Flauto Dolce	8'	Violina	4'	Switch only)	
Viola	8'	Twelfth	2 $\frac{2}{3}$ '		

Swell Organ

	PITCH		PITCH		PITCH
Bourdon	16'	Dulciana	8'	Flute Twelfth	2 $\frac{2}{3}$ '
Stopped Flute	8'	Voix Celeste	8'	Flautina	2'
Flauto Dolce	8'	Stopped Flute	4'	Oboe	8'
Viola	8'	Violina	4'	Tremulant	

Pedal Organ

	PITCH		PITCH		PITCH
Major Bass	16'	Octave Bass	8'	Violoncello	8'
Dolce Gedeckt	16'	Diapason	8'	Flute	4'

IN considering an electronic organ for church and chapel use, it is not enough that the instrument selected be small in size and cost. Above all else, it should provide the variety and qualities of tone which have for centuries been associated with the worship service.

The individual voices of the Wurlitzer Organ are so faithful to organ traditions that only the pipe organ can equal it in this respect. The Wurlitzer Organ tone is not a substitute for church music...it *is* church music, so perfect that it is inseparably associated with the devotional service. Even the names engraved on the stop tablets are completely familiar to anyone who knows the pipe organ.

If yours is a problem requiring this traditional church music, write for more details to Dept. AR-4, Organ Division, The Rudolph Wurlitzer Co., N. Tonawanda, N. Y.



The WURLITZER ORGAN Series 20 Two-Manual

THE RECORD REPORTS (Continued from page 154)

815 American Fidelity Bldg., Fort Worth, Texas.

Andrew R. Fritz, Architect, has opened his new office at Room No. 1, 189 Sunrise Highway, Rockville Centre, N. Y.

M. M. Konarski, Architect, and F. W. Stafford, Engineer, have announced the opening of their new office at Highland Sq., 844 W. Market St., Akron 3, Ohio.

Ellis L. Lavine, P. E., has opened a consulting engineering office at 132 Nassau St., New York 7, N. Y., for the

practice of architectural, structural and industrial engineering.

Sidney K. Neill, Architect, has reopened his office at 19 Bank Lane, Nassau, Bahamas.

New Addresses

The following new addresses have been announced:

Advanced Tool & Design Co. (industrial engineering services), 228 S. 4th St., Philadelphia 6, Penn.

The Ambassador (magazine), 49 Park Lane, London, W. 1, England.

The Architect & Building News (magazine), Dorset House, Stamford St., London, S. E. 1, England.

Burnham & Hammond, Inc., Architects-Engineers, Monadnock Block, 53 W. Jackson Blvd., Chicago, Ill.

Alfred Cook, Architectural and Industrial Photographer, 9 E. 59th St., New York 22, N. Y.

Giffels & Vallet, Inc., L. Rossetti, Associated Engineers & Architects, New York offices, 500 Fifth Ave., Suite No. 10, New York, N. Y.

Holabird & Root, Architects-Engineers-Consultants, 180 M. Wabash Ave., Chicago 1, Ill.

Arthur Rosenstein, Architect, 184 Boylston St., Boston 16, Mass.

Firm Changes

James D. and Eugene W. Beacham have announced their association for the practice of architecture as Beacham Associates, Architects, with offices at Peoples Natl. Bank Bldg., Greenville, S. C.

C. Ralph Fletcher and Raoul L. DuBrul have become associates in the offices of Lester C. Tichy, Architect and Industrial Designer, 369 Lexington Ave., New York 17, N. Y.

Oliver Ingraham Lay has joined the organization of Charles Downing Lay in the practice of landscape architecture, town and site planning, 15 Vanderbilt Ave., New York 17, and Stratford, Conn.

A. Carl Stelling has announced the association of John Robinson Tregenza in the practice of landscape architecture and site planning. Address, 77 Park Ave., New York 16, N. Y.

ERRATA

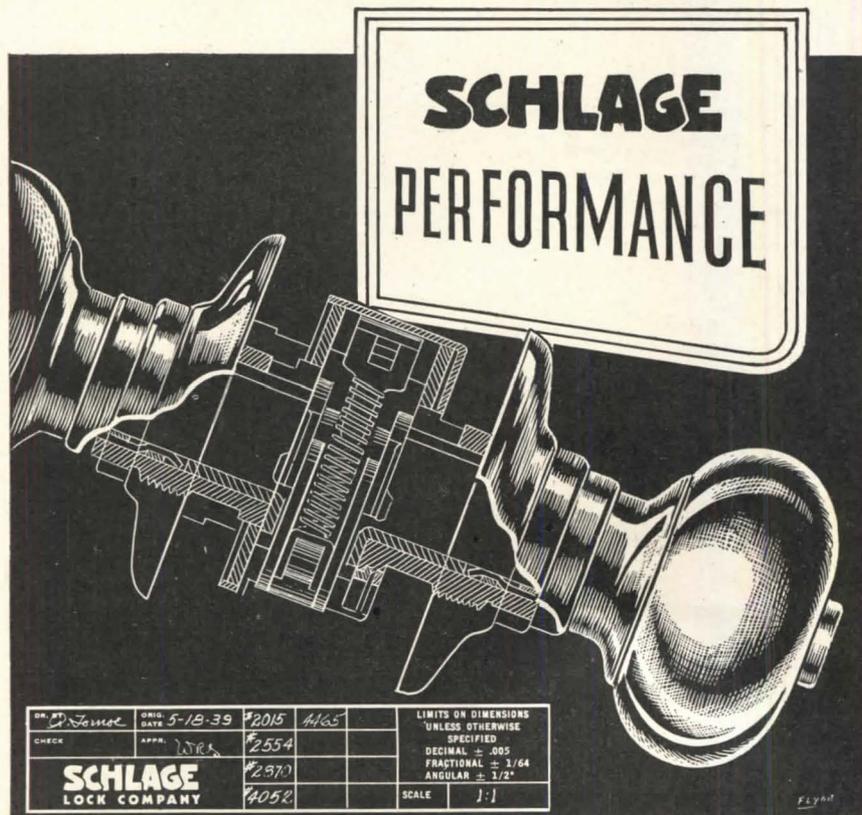
The two apartment projects being built for the Savings Banks Trust Co., shown in the February ARCHITECTURAL RECORD (pages 77 and 85) were incorrectly credited to Harrison, Ballard & Allen, Architects, instead of to William F. R. Ballard, Architect. The firm of Harrison, Ballard & Allen is not an architectural organization, but functions in an administrative capacity as owners' agents.

The photographs of the California residence shown on pp. 88-89 of the October ARCHITECTURAL RECORD were erroneously credited to Philip Fein. They are the work of Mason Weymouth.

ADDENDUM

Contracting work for the New York Port of Embarkation A.P.O. (ARCHITECTURAL RECORD, Oct., 1946, p. 126) was done by John A. Johnson & Sons, Inc., Brooklyn, N. Y. (superstructures); Cayuga Construction Corp., New York City (foundations); concrete block by National Brick Corp., Long Island City.

IMPLEMENT OF ARCHITECTURE



DR. <i>D. Seime</i>	ORIG. DATE 5-18-39	#2015	4465	LIMITS ON DIMENSIONS 'UNLESS OTHERWISE SPECIFIED DECIMAL ± .005 FRACTIONAL ± 1/64 ANGULAR ± 1/2°
CHECK	APPR. <i>W.R.</i>	#2554		
SCHLAGE LOCK COMPANY		#2970		
		#4052	SCALE 1:1	

Actual specifications from Schlage Drawing #C-2315:

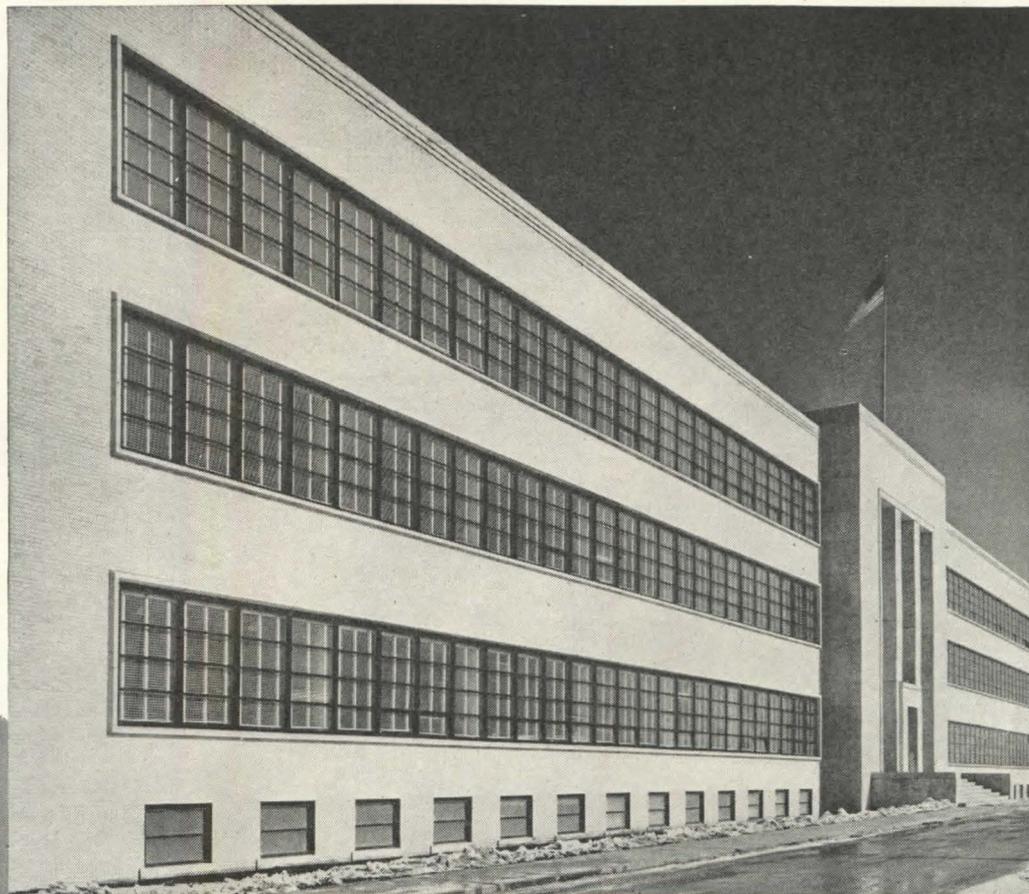
*"Knob action must be smooth, free, and snappy.
Key action must be smooth, free, and definite.
Knob catch must engage freely and securely.
Check demountable knob feature with P-5126 instruction.*

Check for proper hook-up with latch unit."

Such dependable action is assured by perfectly formed parts, manufactured to exacting dimensions.

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In construction products **CECO ENGINEERING** *makes the big difference*

(Continued from page 136)

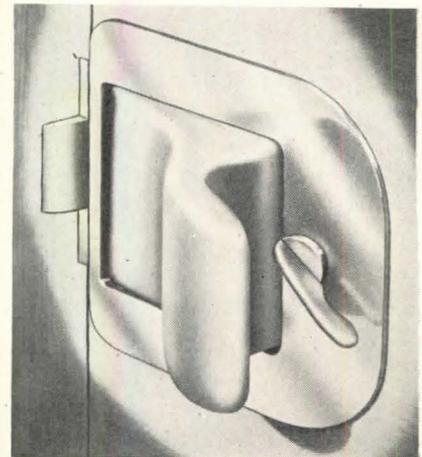
GLAZING CLIPS

In future specifications, glazing clips should be included under "glass and glazing," according to announcement of Detroit Steel Products Co., manufacturer of *Fenestra* steel windows. Glazing clips are no longer being furnished with steel sash orders by the manufacturer, and will be bought by the glazing contractor from his local glass jobbing house. The announcement

states that this policy has been adopted by leading manufacturers of steel windows, because previously steel sash makers often were required to supply many more clips than actually were needed and had to replace losses for which they were not responsible.

FINGERTIP DOOR LATCH

The *Parlyn Door Lock and Latch*, introduced in California and soon to be marketed nationally, features a curved



New door latch offers finger-tip control

latch in place of the conventional door-knob. The door is opened by a slight push or pull of fingertips or hand, depending upon whether the door opens outward or inward. Safety features are claimed for use of this type latch in buildings and institutions where doors open outward, since the pressure of knee, elbow, or body can open the door in emergencies. No. 200 Series (illustrated) has a trip-type lock for bathroom, bedroom, and other private doors; No. 300 Series, (without inside lock) is for other interior doors; and No. 400 Series is for use with cylinder lock in front doors and other doors that are 1 3/4 to 2 in. thick. Finishes are chrome, bronze, or dull brass. Installation of lock and latch, which come assembled as a unit, requires only a saw-cut slot, 2 1/4 by 2 1/2 in. deep, into which the unit is slipped in place and secured by two bolts. Parlyn, Ltd., Dept. AR, 707 S. Broadway — Suite 1116, Los Angeles 14, Calif.

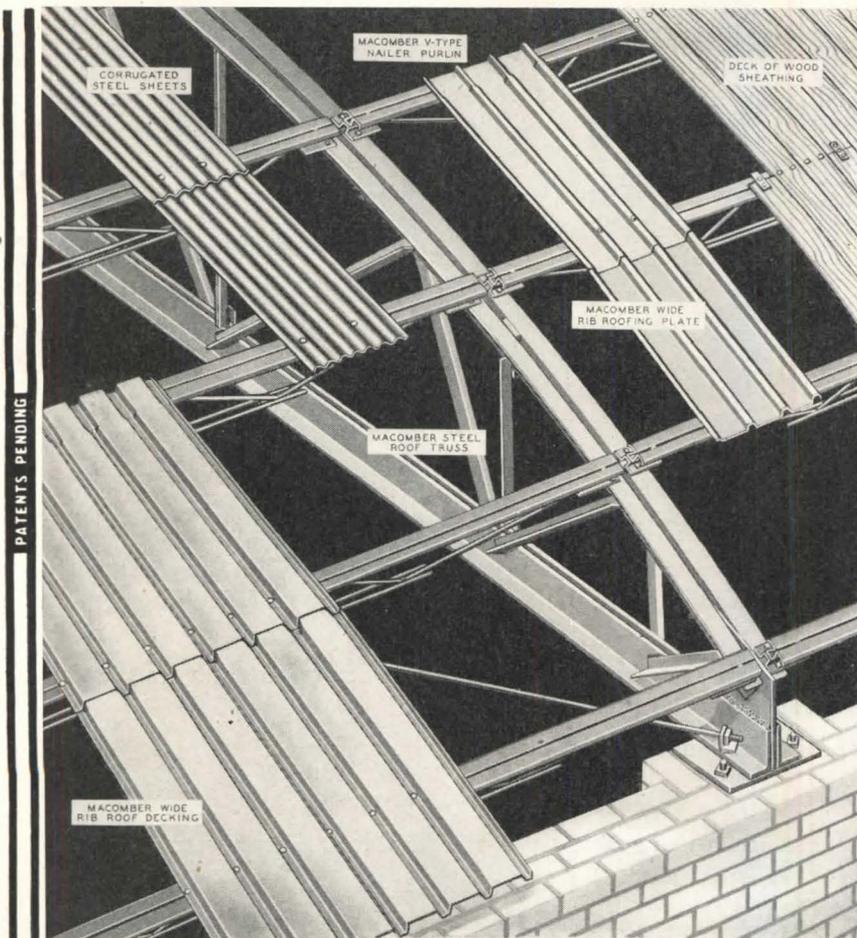
ALUMINUM ROOF COATING

Silvercool, an asphalt-base aluminum roof preservative and insulator, can be sprayed or brushed on wood, metal, felt, asbestos, composition, or asphalt roofs — usually without priming. It is said to reflect 74 per cent of the sun's rays, thereby reducing expansion and contraction of the roof and lowering temperatures within the building. For long roof life, the manufacturer recommends an application of *Silvercool* once every 5 years. Asphalt Products Co., 1300 S. Lipan St., Denver 10, Colo.

HYGIENIC TOILET

The new *Grenby Hygienic Toilet Seat* offers particular hygienic advantages for installations in hotels and public rest rooms. The seat is continuously exposed to germicidal ultra-violet rays in a vertical cabinet into which it automatically rises when not in use. The

(Continued on page 160)



For Better Structural Design — For Fast, Economical Construction use . . .

Macomber All Steel V-Type Nailer Purlins. Shown above are various types of roof decking nailed directly to V Purlins. Specify them for short-cuts to occupancy from standard steel joist loading tables. This modern aid to building is also available in V-type Floor Joists and Studs. For further information write us.



MACOMBER
CANTON • OHIO
MEMBER OF THE STEEL JOIST INSTITUTE

Prefabrication Means Known Performance

With Bulldog BUStribution DUCT

THERE are two ways to install electrical systems.

One way—the *old way*—is to have the system fabricated on the job site. Until the installation is complete, such vital operating characteristics as voltage drop and temperature rise will be deep, dark mysteries.

Voltage drop can plague your clients' plants by cutting the power and efficiency of motors . . . dragging the output of lighting fixtures down below par. And excessively high operating temperatures are bound to take their toll by impairing performance and shortening the life of the electrical systems.

No Other Systems Offer So Much

The *new way* is the Bulldog way, where prefabrication means known performance. Bulldog Plug-In Type and Bulldog Lo-X Feeder Type BUStribution DUCT are both built in standardized, prefabricated sections, laboratory-tested to provide accurate performance data *in advance of installation*.

No other system can offer this cost-saving feature, so call your nearby Bulldog field engineer and learn more about the many advantages of Bulldog BUStribution. He'll show you a successful installation near your own office . . . and he'll be on the job to help when the time comes to design your clients' systems.

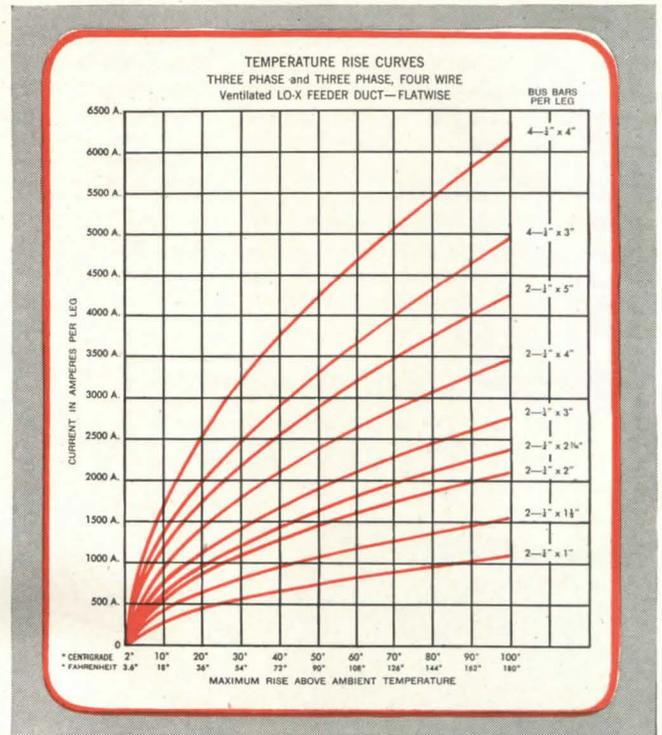
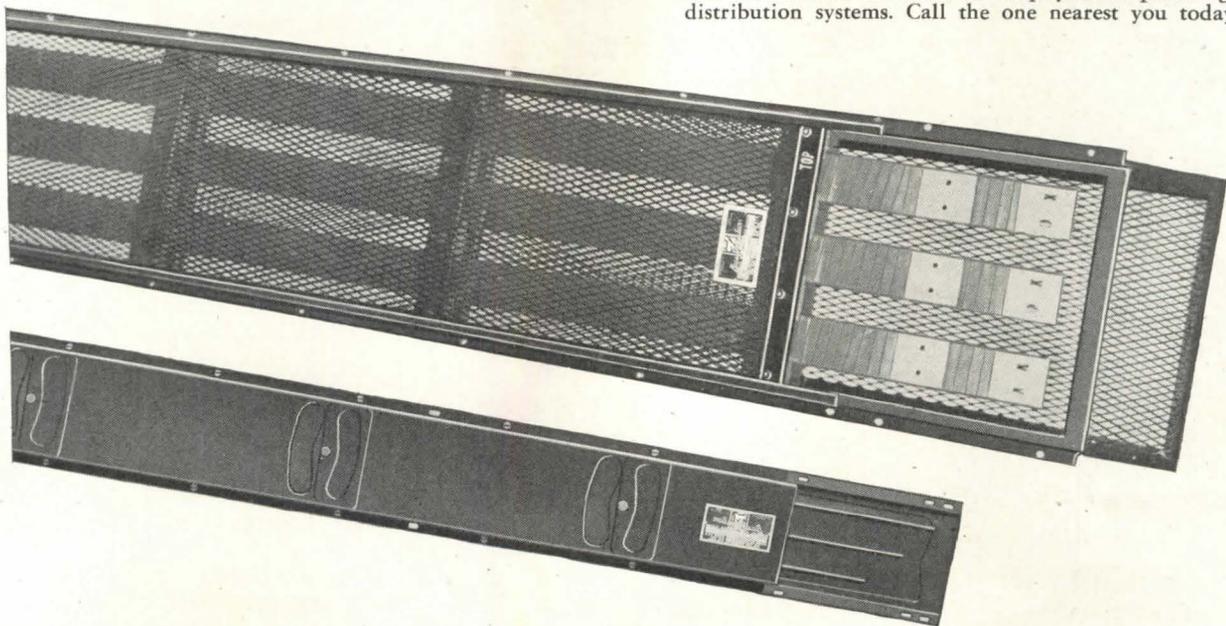


Chart shown is typical of the data on voltage drop and temperature rise available in advance of installation for all types of Bulldog BUStribution DUCT. Bulldog field engineers have this information at hand to help you in planning electrical distribution systems. Call the one nearest you today.



BULLDOG

ELECTRIC PRODUCTS COMPANY



Bulldog manufactures Vacu-Break Safety Switches—SafToFuse Panelboards—Superba and Rocker Type Lighting Panels—Switchboards—Circuit Master Breakers—“Lo-X” Feeder BUStribution DUCT—“Plug-in” Type BUStribution DUCT—Universal Trol-E-Duct for flexible lighting—Industrial Trol-E-Duct for portable tools, cranes, hoists.

Detroit 32, Michigan. Field Offices in All Principal Cities. In Canada: Bulldog Electric Products of Canada, Ltd., Toronto

(Continued from page 158)

seat lowers at the press of a button, and returns to the cabinet automatically after use. As it returns, toilet flushes automatically and General Electric germicidal lamp lights. Grenby Manufacturing Co., Plainville, Conn.

OIL BURNER CONTROL

Announced as a major advance in oil heat engineering, *Fire-Stat Combustion Control* regulates the rate at which combustion air is supplied. Extra air is

fed to the flame starting in a cold fire box, and then reduced gradually as the fire box becomes hot. Fuel savings are said to be 15 to 20 per cent. HomEase Products Div., Bogue Electric Co., 300 Iowa Ave., Paterson 3, N. J.

ALUMINUM GARAGE DOOR

A new type of track hardware has been developed for the *Berry Aluminum Garage Door*, which tilts up and rolls completely inside the garage. This door



Garage door of lightweight aluminum

supplements the canopy-type which swings up outside the garage and is unsuitable for certain basement or alley locations. It fits a standard 8 by 7 ft. opening, and needs only 2-in. headroom and 2 5/8-in. side clearance. The pressure of a finger is said to be enough to lift and lower it. Power is supplied by a completely enclosed power unit on each side of the door. There are no exposed springs, and no weights are needed. Installation reportedly involves little more than attaching the power unit to the jamb with screws, and hanging the track. Weatherstripping, lock, and striker plate are factory applied. Berry Door Co., Birmingham, Mich.

SHOWER CABINET

Lightweight aluminum panel sections are used in a new stall shower cabinet, the receptor of which can be installed on either finished or unfinished floors. Basic design provides for the addition of a standard glass shower door. The cabinet comes complete with welded aluminum receptor, chromium-plated brass caulk-type drain, rubber gasket, and curtain rod. W. R. Ames Co., Dept. AR, 150 Hooper St., San Francisco 7, Calif.

GAS CONVERSION BURNER

A *Fuel Door Burner* permits the conversion of existing furnaces or boilers to automatic gas heat. It is installed in the fuel door, thus eliminating the necessity of removing the grates or making any other extensive alteration. A single model is designed to handle the gas heating requirements of most houses. A simple readjustment varies the input from 50,000 Btu to 200,000 Btu. Handley-Brown Heater Co., Jackson, Mich.

ELECTRIC DUMBWAITER

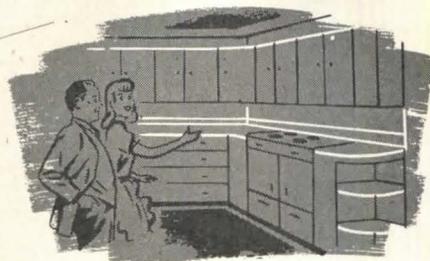
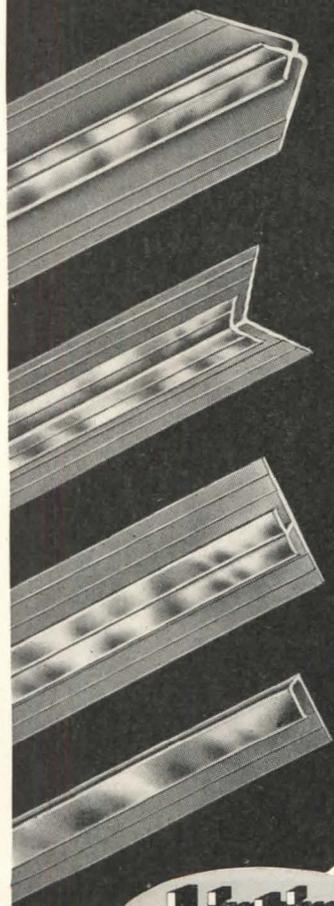
The *Electravator* is an electrically operated dumbwaiter or small freight elevator capable of handling loads up to 500 lb. It operates on a screw-lift action which eliminates the need for rails, counterweights, and cables; and is

(Continued on page 162)

Win Praise and Higher Appraisal SPECIFY KINTRIM FOR MORE

Visible Value

ESSENTIAL INTERIOR MOULDINGS
RESIDENTIAL • COMMERCIAL



The graceful and lustrous beauty of KINTRIM catches your client's eye—accents features of interior design that, otherwise, might go unappreciated. And KINTRIM affords you greater freedom along modern, sweeping lines . . . For these metal mouldings also have the structural precision you need and want for more attractive, practical use of: (1) Wallboards, and (2) Linoleums for walls, counters, and floors.

For "visible value"—to fit covering materials snugly—KINTRIM is precision-made in a complete range of gauges. And every section of KINTRIM Stainless Steel embodies Kinkead's refinement—the *Rolled Edge*—to protect hands and clothes from snagging.

KINTRIM beauty and utility can add to the recognition you already enjoy. Specify it—as the finishing touch for more "visible value!"

Detailed data on KINTRIM Stainless and Aluminum designs may be had promptly. Write our "Architects' Dept."

Kintrim
Reg. U. S. Pat. Off.



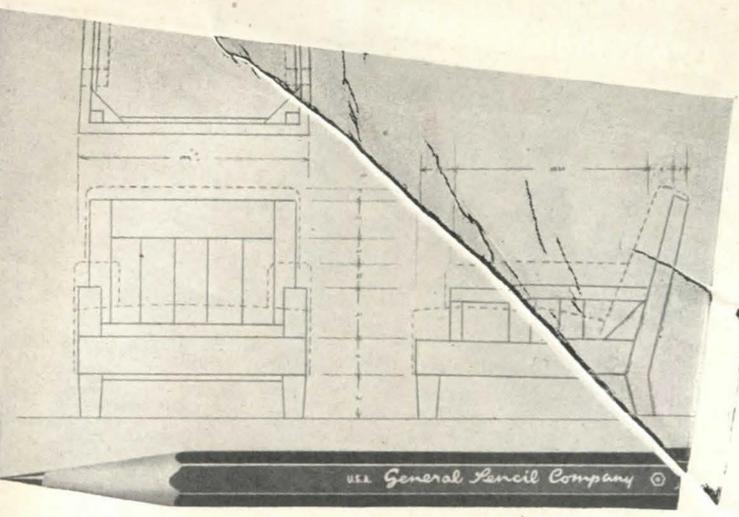
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INCORPORATED

440-450 W. SUPERIOR ST., CHICAGO 10, ILL.

WHAT ARE YOU DESIGNING?

HOUSES—SPIRAL STAIRS
VALVES OR CHAIRS



Whatever you are designing you need a good drawing pencil. Use **KIMBERLY**, with *Built-in-Quality*, smooth, strong, evenly graded lead to make your work better. You'll be pleased with its performance.

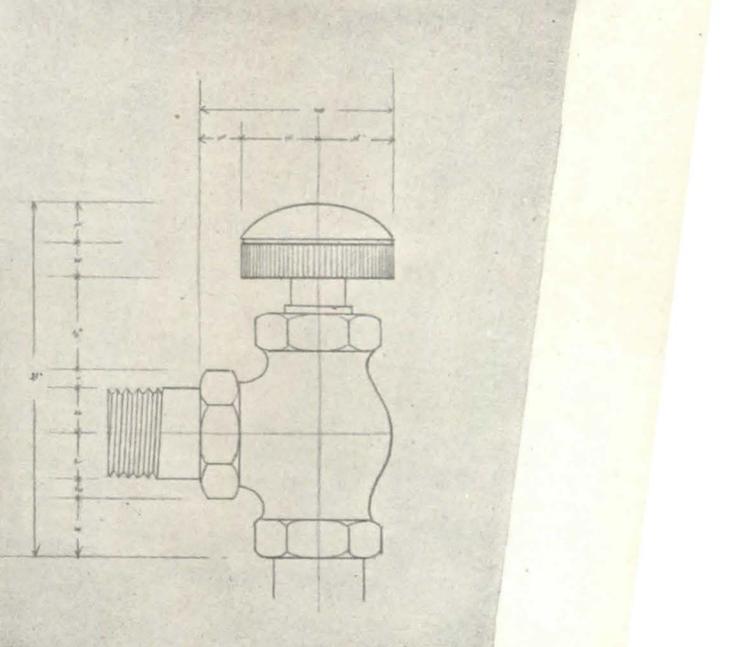
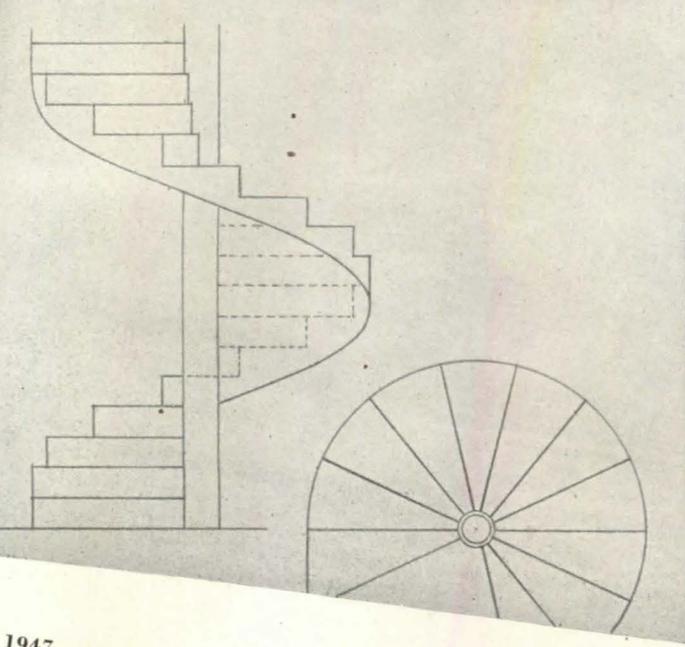
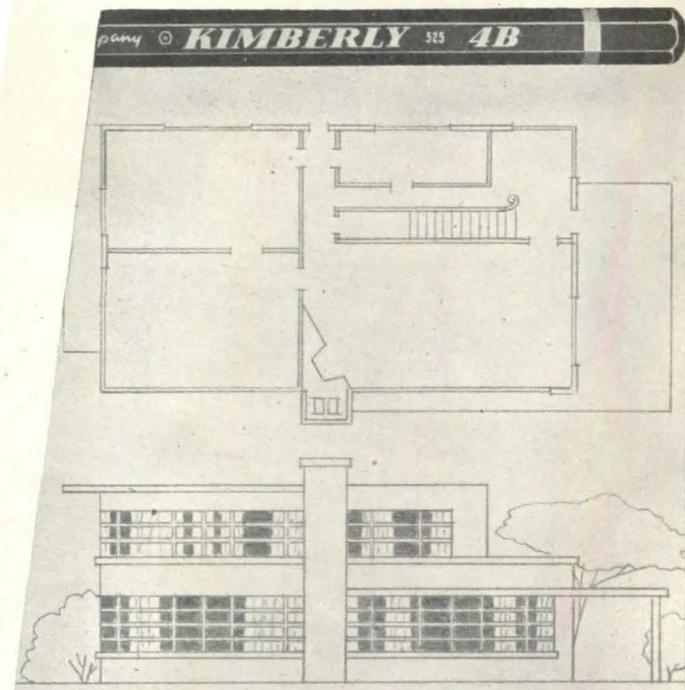
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DRAWING PENCILS

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Makers of Fine Pencils Since 1889

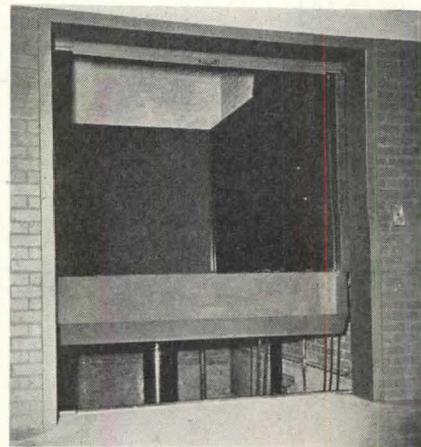


(Continued from page 160)

powered by a 1 h.p., 1750 rpm. motor providing a lift speed of 35 ft. per min. The Electravator may be installed on either side or back wall or under a counter. Beam of the standard model is 15 ft., giving a lift of 12 ft. The entire unit is assembled at the factory and shipped ready to install, complete with limit switches and all controls, but without car, platform, or enclosures. Installation is made by local elevator company. The Electravator Corp., 705 Albany St., Dayton 8, Ohio.

ELEVATOR

An improved line of hydraulic elevators is manufactured in standard sizes for either freight or passenger service, with travel limited to 36 ft. This standardization is said to meet most existing requirements and make possible early delivery at reduced cost. Featured is the plunger construction which employs V-type packing at the cylinder head. Self-adjusting packing conforms to the contour of the plunger,



Elevator features improved plunger

in order to reduce friction and keep pit dry without a drip pan. Cylinder protection is provided by a mastic coating, over which is applied asphalt-impregnated kraft paper, reinforced with Nylon cord. Casing of the well hole reportedly can be eliminated except under the most severe conditions. Montgomery Elevator Co., Moline, Ill.

SCAFFOLD UNIT

The *Quick-Action Scaffold Unit* of welded tubular metal construction consists of five lightweight parts for quick assembly or demounting. Platform heights and widths are said to be quickly and safely adjusted by means of manganese steel hand-set screws. One standard model unit with plank or board across top will provide walkway in small rooms, stairways, and halls; for larger areas several units can be used in combination. Bil-Jax Manufacturing Co., Swanton, Ohio.

LUMINOUS SIGNS

Decorative lighting effects are possible with *Vion* signs that employ a luminescent plastic activated by "black light" from a filter-shielded fluorescent lamp. Operating costs are said to be low since the lamp required is the standard low-watt fluorescent lamp, good for 2500 hr., that plugs into any outlet. Vion Corp., 1311 First Ave., New York, N. Y.

CUSHIONER

The *Isomode* pad is offered as a means of absorbing vibration in all types of equipment from typewriters to forging hammers. Standard pads of this *Neoprene* material are 18 in. square, and $\frac{3}{16}$ in. thick, and can be cut to any size desired. When used as a mounting pad or machine base, they eliminate the need for hold-down bolts, skids, concrete mats, or grouting. The MB Manufacturing Co., Inc., New Haven 11, Conn.

(Continued on page 164)



3-WAY PROTECTION for patrons with fabrics that **CANNOT BURN**

Too many tragedies have resulted from flameproofed organic fabrics that could, and did, burn. For the efficiency of flameproofing depends entirely upon the type of chemical used, and the length of time since the last treatment. Moreover, lethal gases are generated when such fabrics are exposed to flame, causing additional deaths from asphyxiation.

BELLEVUE STRATFORD in Philadelphia

The delightfully refreshing atmosphere of this fashionable hotel is safeguarded by three sparkling Fiberglas® fabrics in green and white. Note how deftly the brilliant Tropical Print combines with wide-striped hangings to frame the snowy bubble weave window curtains. Installed by National Drapery Studio, Philadelphia, Pa.

Fiberglas® fabrics, woven entirely of finely spun, inorganic glass filaments, are as naturally fireproof as your drinking glass. They afford 3-way protection in case of fire:

- 1—Permanent non-combustibility. Never require flameproofing; immune to rot or decay; always operate at 100% efficiency.
- 2—Minimize the hazard of suffocation from oxygen depletion in the event of fire in enclosed places.
- 3—Will not emit asphyxiating smoke and fumes if exposed to flame. Cannot burn, smolder or propagate flame.

WRITE FOR SAMPLES AND INFORMATION

THORTEL

FIREPROOF FABRICS

FIBERGLAS® Listed by Underwriters' Laboratories, Inc., as "Non-Combustible Fabric;" approved by the Bureau of Standards and Appeals, City of New York.

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*T.M. Reg. U. S. Pat. Off. Owens-Corning Fiberglas Corp.

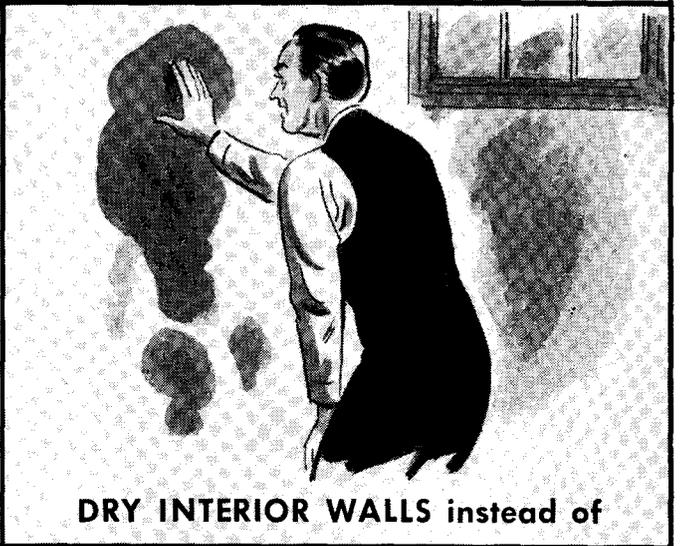
GIVE HOME OWNERS what they want



DRY BASEMENTS instead of



BEAUTIFUL STUCCO instead of



DRY INTERIOR WALLS instead of

AT LOW COST *by specifying* "BUILT-IN WATERPROOFING"



Basements that stay dry the year round . . . stucco that is free of disfiguring cracks and stains . . . concrete, brick, and stucco homes with damp free interior walls.

These advantages can be obtained easily and at low cost, when you specify "built-in waterproofing"—the Medusa way.

Medusa Waterproofed Portland Cements—White and Gray—eliminate the capillary action that draws water into concrete or stucco. It lines the pores with water repelling material—locked in for the lifetime of the building. Waterproofing can't chip, peel or crack . . . It's built in—throughout every inch of the mass.

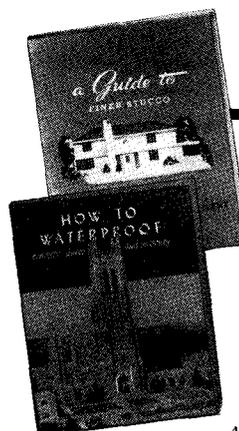
No extra time is required to use Medusa Waterproofed Cements—no extra supervision—no added labor. These cements are mixed and placed exactly as ordinary cements, but they make concrete that is safe from water damage

—a bonus for your clients. Specify Medusa Waterproofed Cements*—White or Gray—for mortar, for plaster coats on interior walls, and for scratch and brown coats as well as finish coats in stucco. The slight additional cost of waterproofed construction now is only a fraction of the cost entailed to correct water damage later. Be safe—specify "built-in waterproofing"—the Medusa way.

Send the coupon below for your free books.

**Where Medusa Waterproofed Cements are not available, use Medusa Waterproofing Paste or Powder.*

"FIFTY-FIVE YEARS OF CONCRETE PROGRESS"



MEDUSA

PORTLAND CEMENT COMPANY

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Gentlemen: Please send me copies of the books, "How To Waterproof Concrete, Stucco and Masonry" and "A Guide To Finer Stucco."

Name

Address

City State

Also made by Medusa Products Co. of Canada, Ltd., Paris, Ontario

(Continued from page 162)



**"This boiler
can wait 'til
the roof is on"**

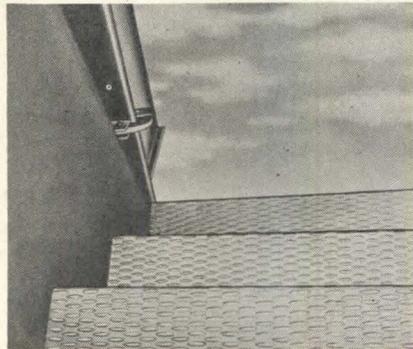
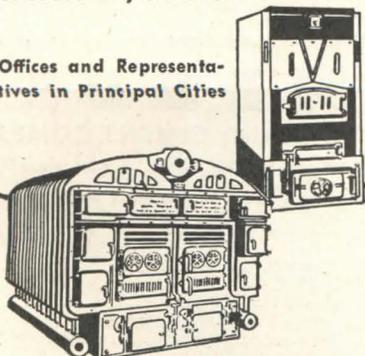
When your client's heating plant is to be H. B. Smith, you can go right ahead and finish your building before you install the boiler. This means that when material and labor shortages slow down or stop the job, your new boilers don't have to stand in a half-erected building exposed to the elements.

H. B. Smith boilers can be placed in any building, through ordinary doorways, because they are assembled from multiple cast-iron sections. These sections are shipped directly to the point of installation, where they are assembled quickly and easily. H. B. Smith header-type construction cuts erection time and costs too.

Once an H. B. Smith Cast-Iron Boiler is installed, the owner usually agrees that there is no finer looking, finer performing boiler in service. So when your building schedule calls for a boiler that can be installed "after the roof is on" . . . or whenever there is need for uninterrupted, efficient low-cost heating . . . recommend H. B. Smith Boilers, for new installations or replacement. Write for your free catalog.

H.B. Smith
CAST-IRON BOILERS
THE H. B. SMITH CO., INC.
WESTFIELD, MASSACHUSETTS

Offices and Representatives in Principal Cities



All-steel steps and sides for cellar way

CELLAR STAIRS

Considerable savings in construction time and costs are claimed for *Bilco Stair Units*, which include steel side walls for the cellar way and steel risers and treads. The builder need only leave an opening in the foundation wall and equip it with 5 anchor bolts on each side for fastening the side walls of the stairs. The cellar stair unit can then be assembled on the ground, slid into place and caulked along the seams. Closing is provided by the *Bilco Door*, of copper steel. The Bilco Co., 164 Hallock Ave., New Haven, Conn.

DOOR RELEASE

The *Balch Door Release* is a platform unlocking device for releasing glass exit doors automatically from the inside, designed for schools, theaters, auditoriums, and public buildings requiring emergency exit doors. As a person approaches, his weight upon the platform operates a latch mechanism, releasing the doors which lock again automatically upon closing. A hold-down device makes the doors free-operating when so desired. There also is a cylinder lock, protected by a slide cover, below the exterior face of the threshold so that the door can be unlocked from the outside. Balch Glass Exit Door Release Co., Dept. AR, 1725 Silver Lake Blvd., Los Angeles 26, Calif.

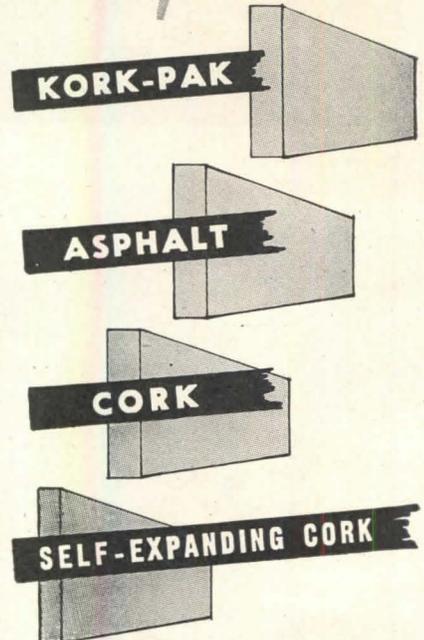
ONE-COAT PAINT

The manufacturer of *Sta-Par* paint announces it as a white exterior paint with the ability to seal, prime, and finish surfaces in only one application. It is ready mixed and suitable for unpainted wood, previously painted wood, masonry, concrete block, or metal. The paint base is soybean oil which reportedly makes possible an unusually high zinc-oxide content, for increased resistance to sunlight. Sicca Soya Sales Co., 415 S. Washington St., Peoria, Ill.

(Continued on page 166)

**SERVICISED
PREMOLDED
EXPANSION JOINT
FILLERS**

for HIGHWAYS . . . DAMS
AIRPORTS . . . BRIDGES . . . TUNNELS
and GENERAL CONSTRUCTION



★ **KORK-PAK**

Non-Extruding KORK-PAK Fiber Joint is a composition of bitumen and cork, preformed between felt strips, and designed to incorporate various desirable qualities.

★ **ASPHALT**

Premolded ASPHALT Joint is a mixture of asphalt, fiber, and mineral filler preformed between felt strips. The standard joint for use where concrete slabs are not subject to excessive movement, and some extrusion is not objectionable.

★ **CORK**

Non-Extruding CORK Joint is an excellent type where a construction job requires the consideration of a resilient, non-oozing joint. Specified for use in dams, swimming pools, reservoirs, tunnels, bridges.

★ **SELF-EXPANDING CORK**

Non-Extruding SELF-EXPANDING CORK Joint is designed especially for concrete slabs that contract beyond their original set.

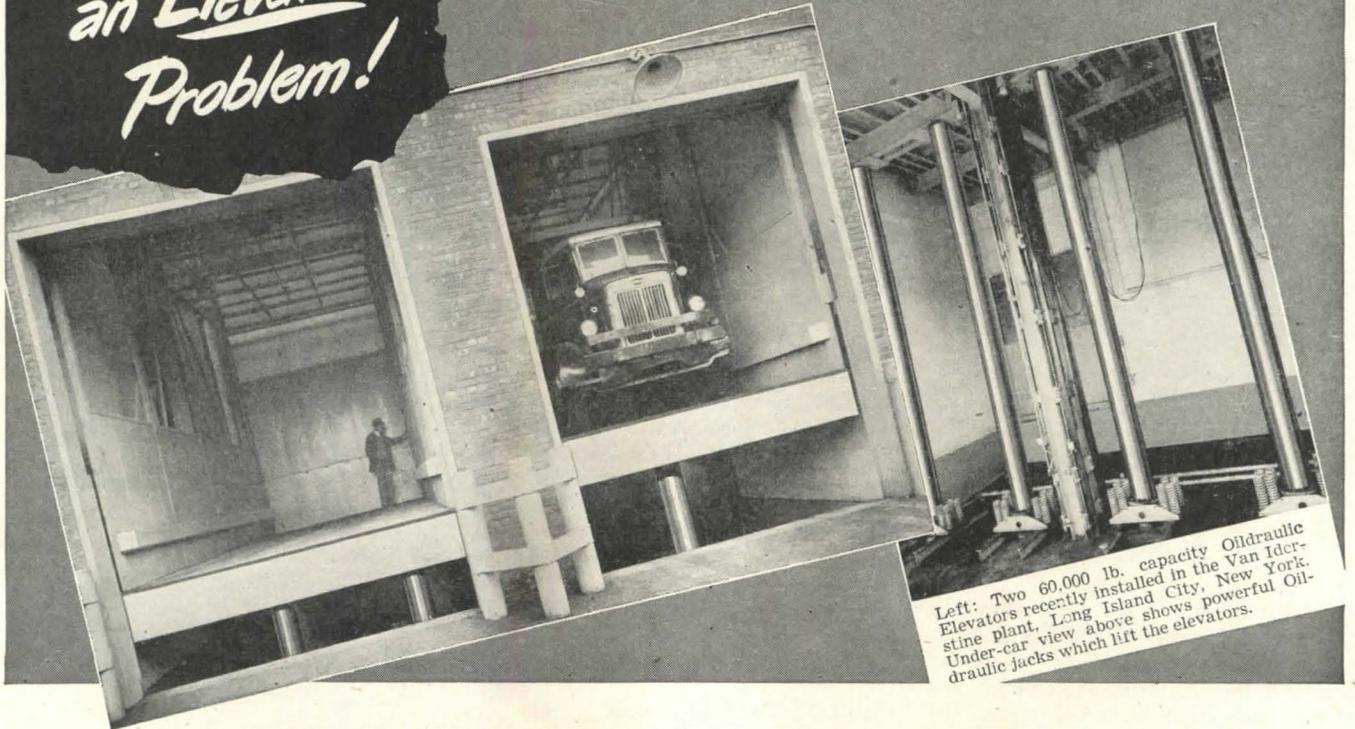
SERVICISED EXPANSION JOINTS are specified by State Highway Departments and Army & Navy Engineers throughout the country.

Write for further specific information.

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SERVICISED PRODUCTS CORP.
6051 West 65th Street. Chicago 38, Ill.

Solution to an Elevator Problem!

When you're planning a 2, 3 or 4 story building and heavy duty elevators are required . . .



Left: Two 60,000 lb. capacity Oilraulic Elevators recently installed in the Van Idersstine plant, Long Island City, New York. Under-car view above shows powerful Oilraulic jacks which lift the elevators.

You get these important advantages by specifying "the elevator that's pushed up"



LIGHTER SHAFTWAY STRUCTURE

No need for heavy, load-bearing supporting columns to carry the elevator and its load. The Rotary Oilraulic Elevator is pushed up from below by a powerful hydraulic jack . . . not pulled from above.



ACCURATE LANDING STOPS

Guided by the highly efficient "Oilraulic Controller," this modern elevator operates smoothly and stops at floor landings with accuracy. Very important where loading and unloading is by power vehicles.



NO COSTLY, UNSIGHTLY PENTHOUSE

The Oilraulic Elevator does away with the penthouse that interferes with modern, streamlined designs. No special machine room required either . . . compact power unit can be located in any convenient space.



RUGGED, HEAVY-DUTY CONSTRUCTION

Every Rotary Oilraulic Elevator is built to take hard wear. Construction is extremely rugged, with heavily reinforced sling and platform. Owners everywhere say this elevator gives dependable, lowest cost service.

For data to help solve your elevator problems

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OILDRAULIC ELEVATORS

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Hillyard's Floor Seals, Finishes and Treatments properly protect and prolong the life of all types of floors. Floors stay cleaner, look better and last longer. Many leading flooring manufacturers and contractors approve Hillyard Products because they have given and are giving entire satisfaction in uniformity, dependability and economy. Write for literature on Hillyard products for every type surface.



HILLYARD SPECIFICATION CARDS

See Hillyard Specifications in Sweets 1946 Catalog, Sec. 13 Pages 13G-2



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ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(Continued from page 164)

FLOOR FURNACE

A new automatic oil-burning floor furnace is designed to supply the heating requirements of the average small house. Equipped with a galvanized outer casing, the furnace measures $36\frac{3}{16}$ in. in length, $24\frac{3}{16}$ in. in width, and $41\frac{3}{4}$ in. in overall depth. Shipping weight is approximately 190 lb. Complete installation is said to require only the cutting of a centrally located floor opening to accommodate furnace dimensions; insertion of stack and fuel line connections; and the provision of proper ground clearance of a few inches on bottom and sides. The furnace operates on No. 1 fuel oil or kerosene, and has an output of 50,000 Btu. Maximum oil flow is set at $\frac{1}{2}$ gal. per hr. with a pilot flow rate of 4 cc. of oil per min. The connection arrangement between combustion chamber and heat exchanger reportedly permits normal servicing from floor level; burner is designed for clean operation on low draft. J. L. Gillen Co., Dowagiac, Mich.

MULTI-LOUVER DAMPER

The New *Aerofuse Multi-Louvre Damper* features uniform control, quiet operation, and a tamperproof locking mechanism, for commercial air-conditioning, heating, and ventilating equipment. The damper can be completely closed, opened, or left in any position by turning the handle in the center of the unit. Louvers can be locked in position, and, if desired, operating handle and rod may be removed. Tuttle & Bailey, Inc., New Britain, Conn.

MICROFILM

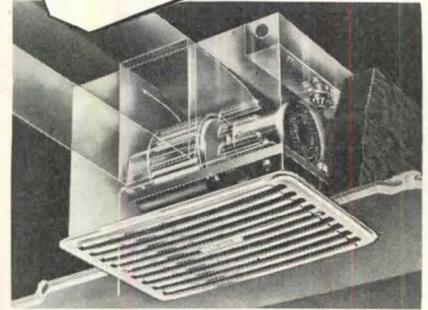
Pointing to "13,000,000 blueprints reduced to file-size books for U. S. Army Ordnance," a microfilming company suggests that engineers, architects, and manufacturers duplicate their entire files of original drawings in microfilm. It now offers, in addition to the photographing service, a *Microfilm Reader* which projects either 16 mm. or 35 mm. film in its own convenient viewer. Holbrook Microfilming Service, Inc., 350 Fifth Ave., New York 1, N. Y.

AUTOMATIC FLUSHING

Better control over the flushing of urinals in toilet rooms is claimed for the *Flushometer*, which substitutes electric time-clock control for hand flushing. The system is designed to operate on 60-cycle 110-volt alternating current, and is timed for 5-min. intervals during the day and 1-hr. intervals at night. Sloan Valve Co., 4100 Lake St., Chicago.

(Continued on page 168)

Specify PACKAGED VENTILATION For Small Rooms



CLIPPER BLOWERS

Here's a complete, packaged ventilating unit that is engineered to do a big job in small rooms.

The Clipper is specially designed for ventilating kitchens, bathrooms, ticket booths, X-ray rooms, toilets, clinics and other small rooms.

Mounted between ceiling joists and vented outside, the Clipper traps and expels unwanted air.

Not a blade-type fan, but a quiet squirrel cage blower—a complete packaged unit. Patented construction with the motor entirely removed from air stream, means greater efficiency, longer life, easier servicing.

At leading dealers from coast to coast.



The Clipper is a complete packaged ventilator which is hidden in the ceiling. Only an inconspicuous "dripless" ceiling grille is visible, yet motor and blower assembly are instantly removed without tools for service.

TRADE-WIND MOTORFANS, INC.
5707 S. MAIN STREET, LOS ANGELES 37, CALIF.



Work in
COOLER COMFORT
this hot summer!

PROTECTED BY

KOOLSHADE*
SUN SCREEN



The sun "sees" KoolShade like this
In effect, KoolShade is a miniature venetian blind with the "slats" permanently set at a 17 degree angle to block, absorb and radiate up to 90 percent of the sun's heat rays outside the window.

Your office can be as much as 15° cooler . . . on the hottest days!

Summer will soon be here, and with it—*blazing heat!* Don't endure another season of sweltering misery when a KoolShade installation can assure you cooler comfort all summer long. KoolShade makes sun-exposed rooms as much as 15 degrees cooler by blocking and radiating up to 90% of the sun's heat rays *outside your window!* Yet vision from inside is crystal clear, and there's an abundance of glareless light!

KoolShade is easily installed like ordinary insect screen. It requires no maintenance . . . will never rot, rust or rattle. Keeps out insects, too. Order KoolShade *now* to assure installation before hot weather begins. It will pay you big dividends in personal comfort and increased working efficiency!

NOTE THESE VALUABLE FEATURES

- Permanently set at 17° angle for greatest shading efficiency.
- Prevents the fading of valuable drapes and furnishings.
- Easy and inexpensive to install—will not rot, rust or rattle.
- Fits neatly and smoothly into modern architectural design.
- Durable bronze KoolShade also effective as insect screen.

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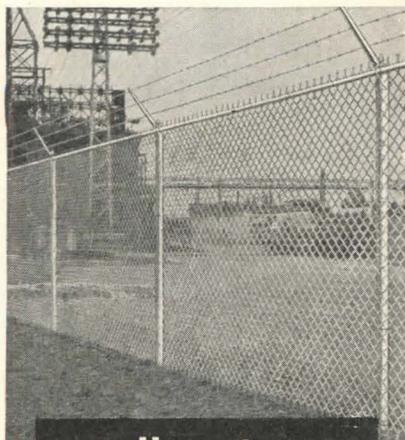


PRODUCT OF
**BORG-
WARNER**

Ingersoll
KOOLSHADE* SUN SCREEN

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(Continued from page 166)



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PAINT

Quigley Triple-A paints and finishes are offered for house exteriors, interiors, and trim. Featured are Westchester White Paint for exterior finish, Architectural White Enamel for interiors, and Trim and Trellis Paint in colors. This company also makes a number of other paints, primers, preservatives, varnishes, enamels, and coatings. Quigley Co., Inc., 527 Fifth Ave., New York 17, N. Y.

FIBERGLAS SIDING

Fiberglas forms the base material of an asphalt type of *Ford-V-Neer* panel siding. Since Fiberglas is an incombustible and inorganic material, this siding is reported to have increased resistance to such building enemies as fire, rot and decay, moisture and shrinkage, and the attack of vermin and termites. It also has the added advantages of light weight, which permits the use of panel sections in larger sizes, reducing application time. Insulating qualities are said to be exceptionally good. This new siding is manufactured in panels, 5/8 in. thick, 24 in. by 36 in., shiplapped on four edges. It comes in colored patterns, simulating brick or stone. Ford Roofing Products Co., 111 W. Washington St., Chicago 2.

GRILLES

Tri-Flex grilles and registers are offered in 26 standard sizes to cover the full range of commercial, industrial, and institutional air conditioning installations. Air delivery is controlled in its direction, throw, and drop. The multi-shutter damper also affords volume control. Tuttle and Bailey, Inc., New Britain, Conn.

DRAFTING SCALE

A new drafting scale, called *Vant Rule*, has all the customary architectural scales calibrated on one side. It is of clear plastic, with calibrations and numerals in red to facilitate reading against black and white drawings or blueprints. All edges are beveled. Stewart Jackson Instrument Co., Dept. AR, 215 West 7th St., Los Angeles 14, Calif.



but
**"In-Wall"
Condensation
IS NO LAUGHING MATTER**

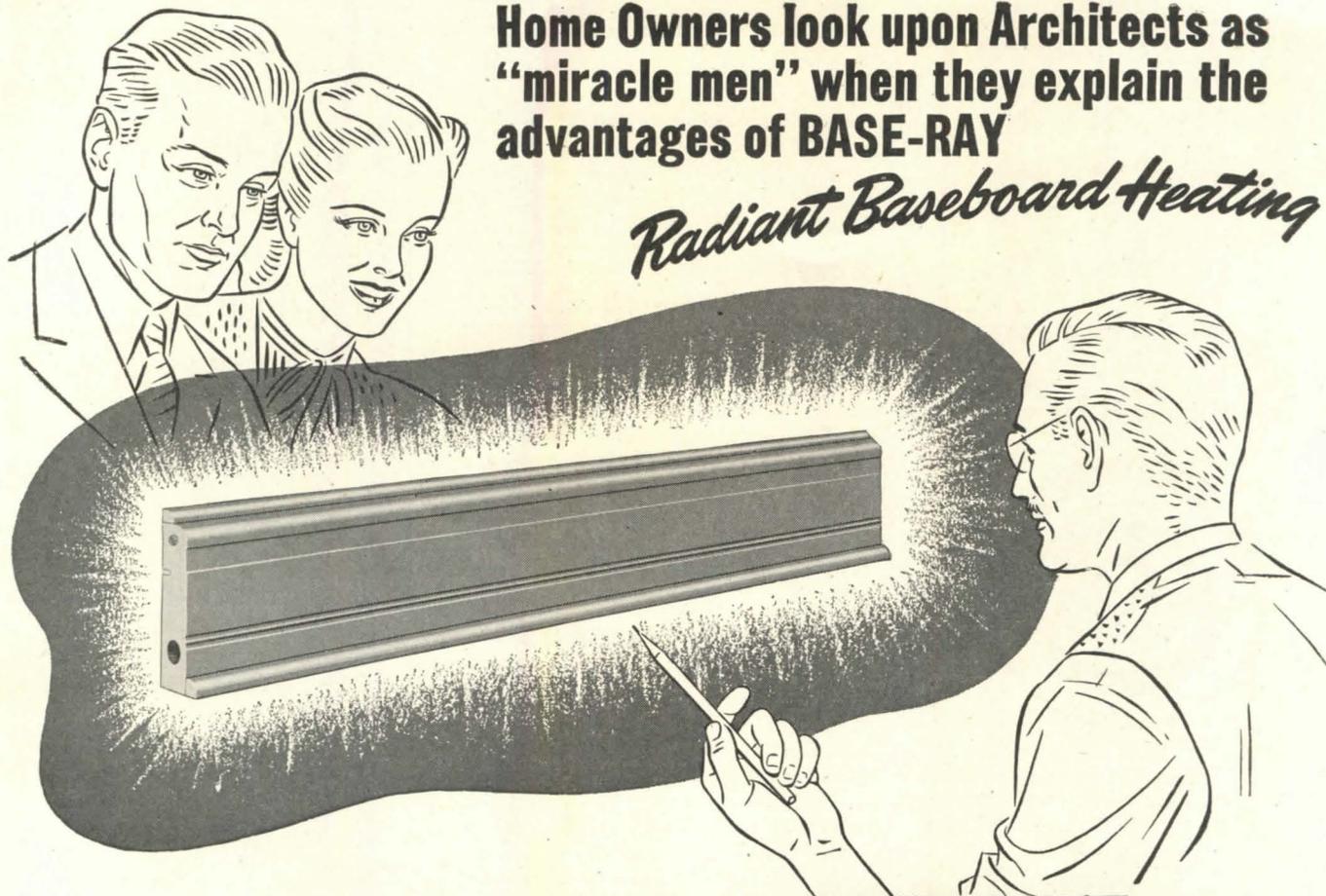
The same vapor that "steams up" windows can make insulation soggy and impair its efficiency if it condenses within walls. Condensation is the deadly foe of insulation. Uncontrolled condensation can cause wall stains, paint peeling, hasten structure rot. A sure way to lick "in-wall" condensation and give life-long protection to insulation is with a *separate* vapor barrier. Standard with architects the country over is Bird Neponset Black Vapor Barrier. Applied on the warm side of insulation, Bird Neponset Black safely repels vapor, keeps insulation at peak efficiency. Costs only about \$20. for a \$10,000 building. Consult Sweet's Architectural file, 9b-2, or write Bird & Son, inc., 156 Wash. St., E. Walpole, Mass., for sample.

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SHREVEPORT

Home Owners look upon Architects as
 "miracle men" when they explain the
 advantages of BASE-RAY

Radiant Baseboard Heating

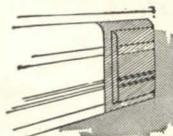
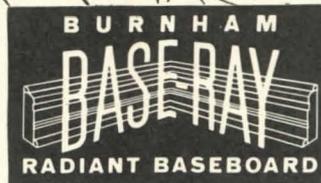


It's a good story to tell . . . a story of uncluttered floors and cold weather comfort that's wholly new. You can point out to your clients the design advantages of room-length BASE-RAY* heating units that take the place of baseboards on outer walls. You can tell them how ankle-height heating units mean warm floors and evenly distributed heat . . . that even in sub-zero weather the floor-to-ceiling temperature differential is only 3°.

It's a story we are constantly telling the home-conscious public through national advertising . . . and one that has created enthusiastic response. If you are not already familiar with BASE-RAY Radiant heating, get all the facts now. Mail the convenient coupon TODAY so you'll be ready with the answers to questions you'll surely be asked.

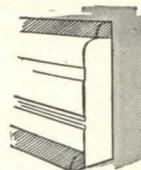
CONSIDER THESE FACTS: No structural changes are necessary for BASE-RAY installations in new homes or alteration jobs. These hollow cast iron units, 7" high and 13/4" deep, are easy to install — your Heating Contractor can do a good job. May be used with any type hot water system as well as 2-pipe steam and vapor jobs. When painted to match, BASE-RAY units become, as far as the eye can tell, part of the regular trim. BASE-RAY assemblies up to and including 6 lineal feet are shipped in one piece. Longer assemblies are shipped in two or more pieces.

*Reg. U.S. Pat. Off.



CONCEALED VALVES

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MOLDINGS

To provide an even more realistic baseboard appearance and to compensate for irregularities sometimes found in walls and floors, regular wood moldings are added at top and bottom of "Standard" BASE-RAY and at top only of "Hy-Power" units.



Write today for this FREE Booklet, which gives ratings and installation data on BASE-RAY Radiant Baseboards.

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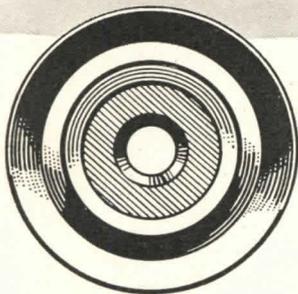
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Here is a radiator's eye view of one type of Webster Metering Orifice. These expertly sized "holes" are a vital part of every Webster "Moderator" System of Steam Heating.

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To convert an ordinary heating installation to a Webster "Moderator" System involves a survey of the building and existing mechanical installation, taking into consideration the radiation required and the amount already installed. Also, how the piping compares in size with the requirements. By properly sizing orifices we can convert a 50 ft. radiator to one delivering only the equivalent of 43 ft., without removing the radiators.

Webster Metering Orifices are sold only as integral components of Webster "Moderator" Systems for coordinated use with Webster Traps, Valves and Controls.

If your heating system isn't satisfactory, look into the possibilities of a Webster Heating Modernization Program. Hundreds of big building owners have profited by such action.

WARREN WEBSTER & CO., Camden, N. J.
Representatives in principal U. S. Cities: Est. 1888
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Webster

HEATING SYSTEMS

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(Continued from page 138)

lounges, supply rooms, etc. Before-and-after plans showing rearrangement of smaller fixtures to increase efficiency. Catalog of Scott fixtures. 24 pp., illus. Scott Paper Co., Chester, Penn.*

X-RAY FACILITIES

T.D.S. X-Ray Service Plan (B-3844). Booklet describing "T.D.S.," a service making use of 1-in. scale models of x-ray apparatus for three-dimensional study. Gives actual examples of T.D.S. applications, first showing the layout, then the T.D.S. photo, then the photo of the final installation. Also includes 10 sample plans for x-ray departments. P.O. Box 868, Westinghouse Electric Corp., Pittsburgh 30, Penn.*

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

Ashton & Evans, Ware & McClenahan, Architects & Engineers, 47 S. Main St., Salt Lake City 1, Utah.

Morton J. Berman, Design Engineer, 718 S. 58th St., Philadelphia 43, Penn.

C. Bert R. Bitter, Room 753 Penobscot Bldg., Detroit 26, Mich.

Castillo, Sanchez, Castro, Oficina de Ingenieros, Edificio Diez, Apartado de Correos 187, Ciudad Trujillo, R.D.

Marvin E. DeFee, Architect, 411 E. Houston Ave., Marshall, Texas.

Craig D. Ellyson, M.D., 801 Black Bldg., Waterloo, Iowa.

John W. Floore, Architect, 815 American Fidelity Bldg., Fort Worth, Texas.

Anthony Gattozzi, City Architect, 517 City Hall, Cleveland 14, Ohio.

Paul D. Gilbert, Planning Division, Drake Construction Corp., 45 Crosby St., New York 12, N. Y.

Fred W. Gould, Civil and Structural Engineer, 1271 Bender Ave., Cleveland 12, Ohio.

Eral Leek, Residential Designer, Route 2, Gig Harbor, Wash.

O'Sullivan and Murphy, Associated Architects and Industrial Engineers, 131 State St., Boston, Mass.

Samuel B. Settle, Consulting Engineer, Union Trust Bldg., Parkersburg, W. Va.

Roderick Seidenberg, Architect, Pipersville, Penn.

Edwin P. Starbuck, Architect, 7784 Montgomery Rd., Cincinnati 27, Ohio.

Paul H. Tipton, Architect, 8311 Aster Ave., Oakland 5, Calif.

James E. Tweedt, Appraiser, Union Bank & Trust Co., 8th and Hill Sts., Los Angeles 55, Calif.

Juan Vega, Civil Engineer, Havre 87 Dep. 4, Mexico, D. F.

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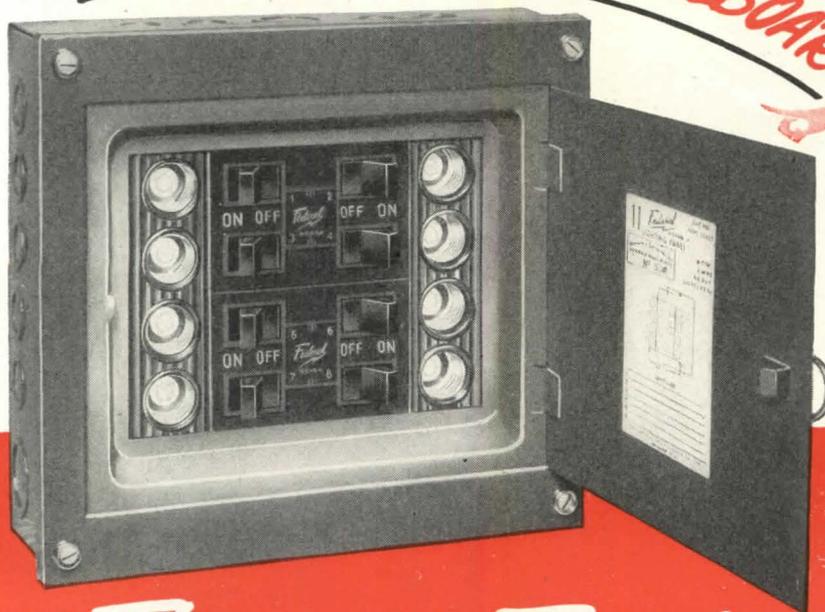
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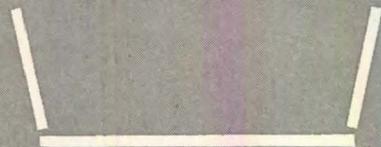
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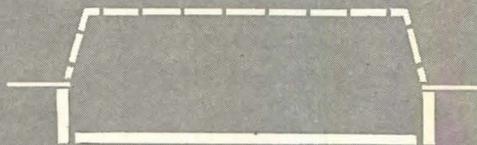
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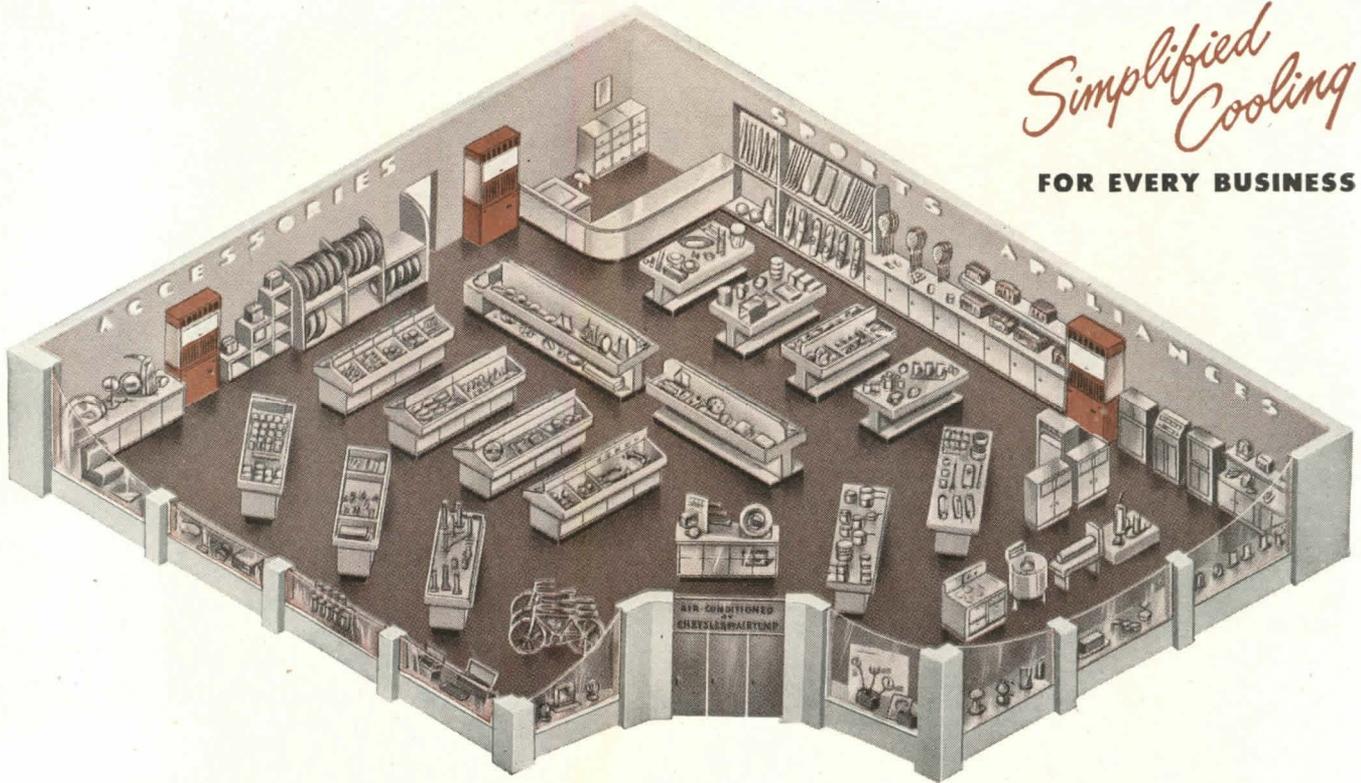


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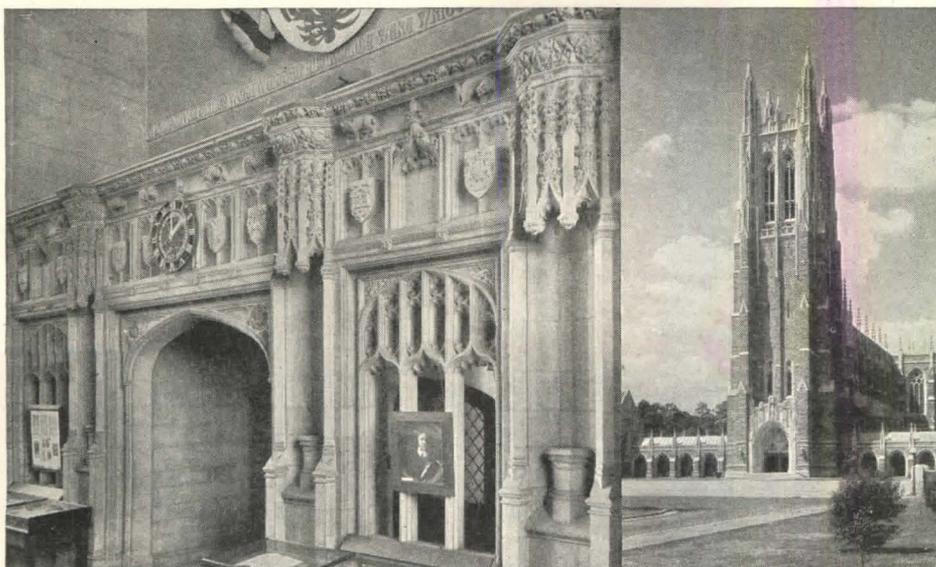


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for every type of construction

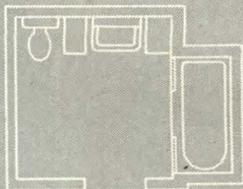
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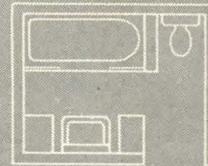
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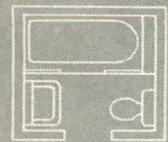


ROOM SIZE—7' x 9'

At the left is a floor plan of the room, shown above, built to permit photographing in actual room settings. The Drexel Group can, of course, be used in smaller bathrooms which you are planning, as suggested in the two layouts at the right.



ROOM SIZE—7½' x 6'



ROOM SIZE—5½' x 5'

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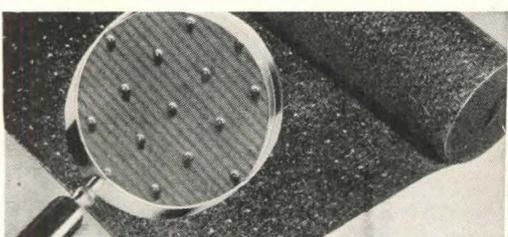
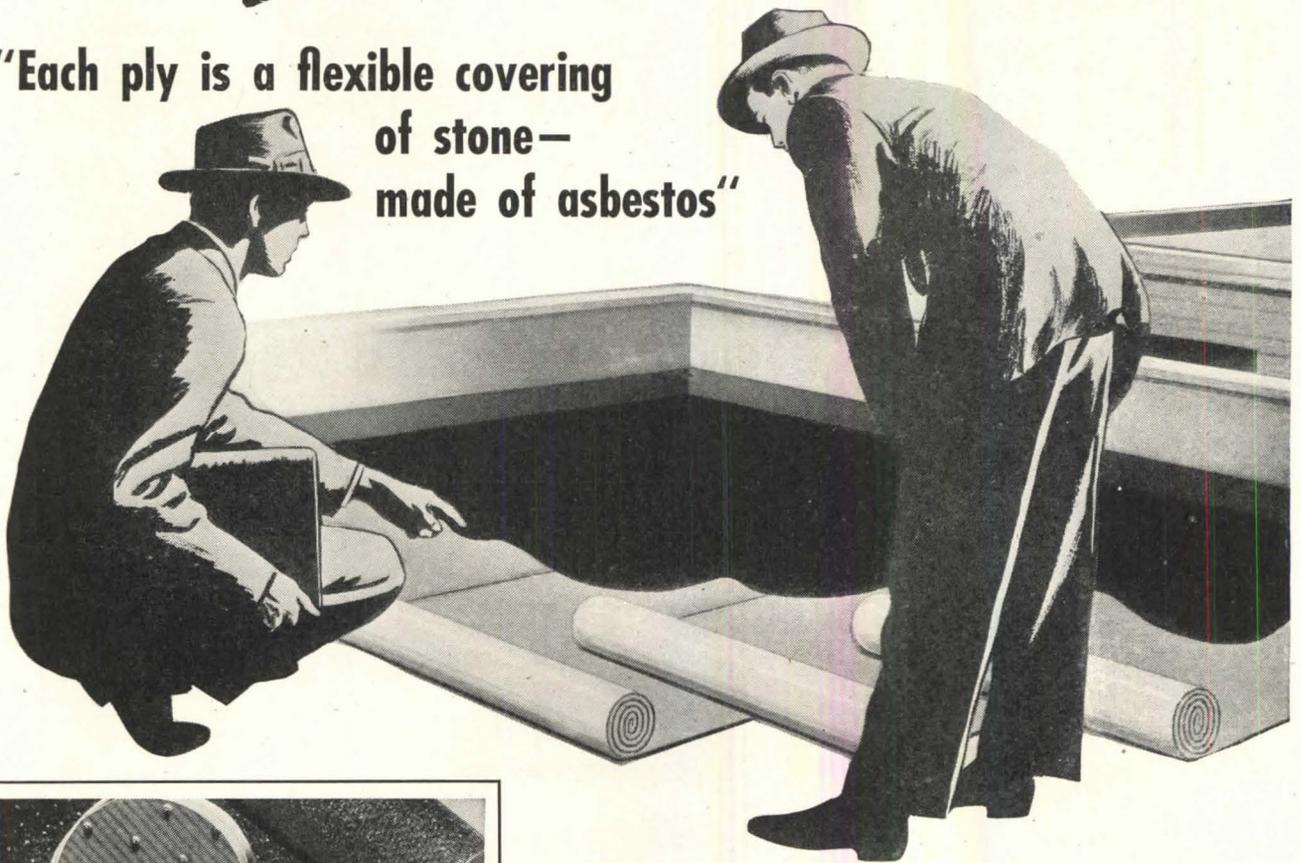
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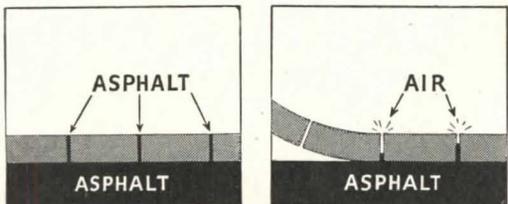
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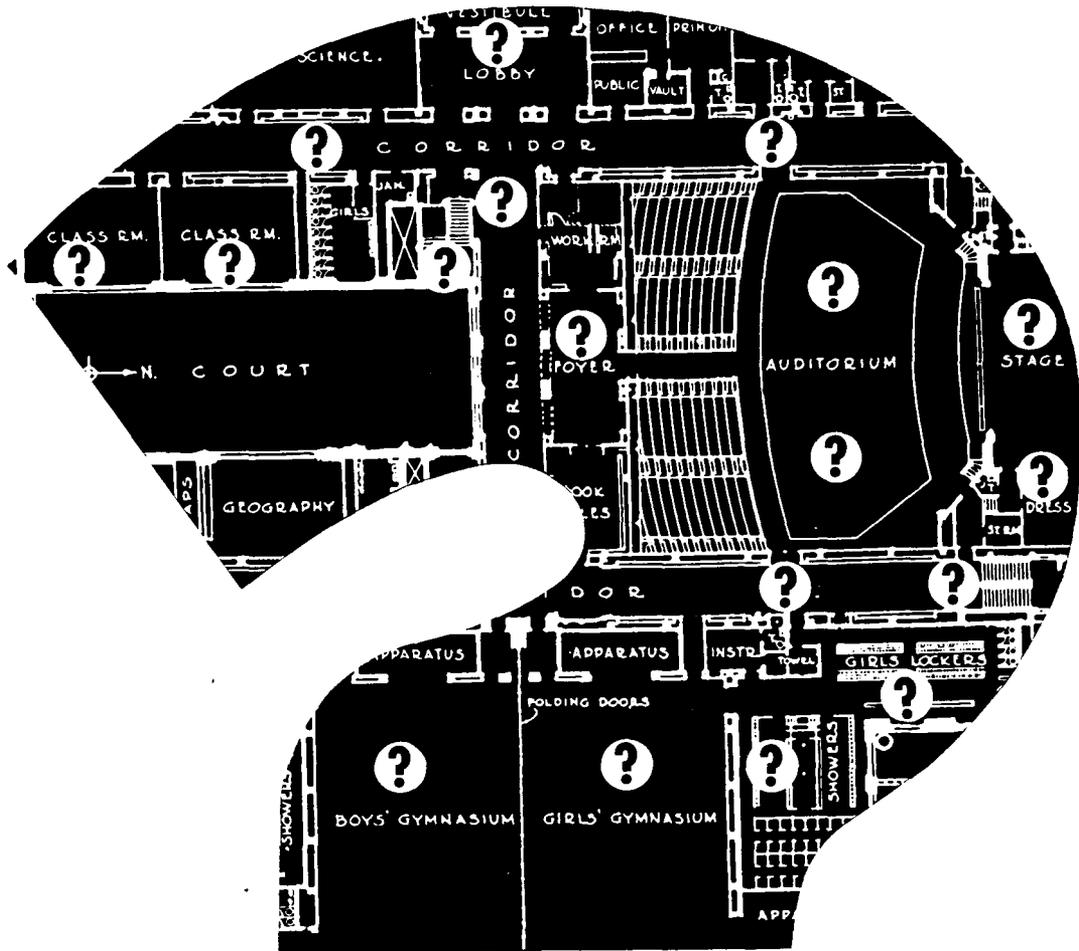
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- Lockers
- Corridors
- Stairways
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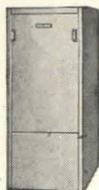
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General Electric Company, Air Conditioning Department, Section 7444, Bloomfield, New Jersey

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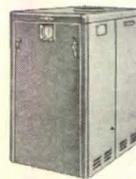


G-E Warm Air Con-
ditioner



G-E Conversion
Oil Burner

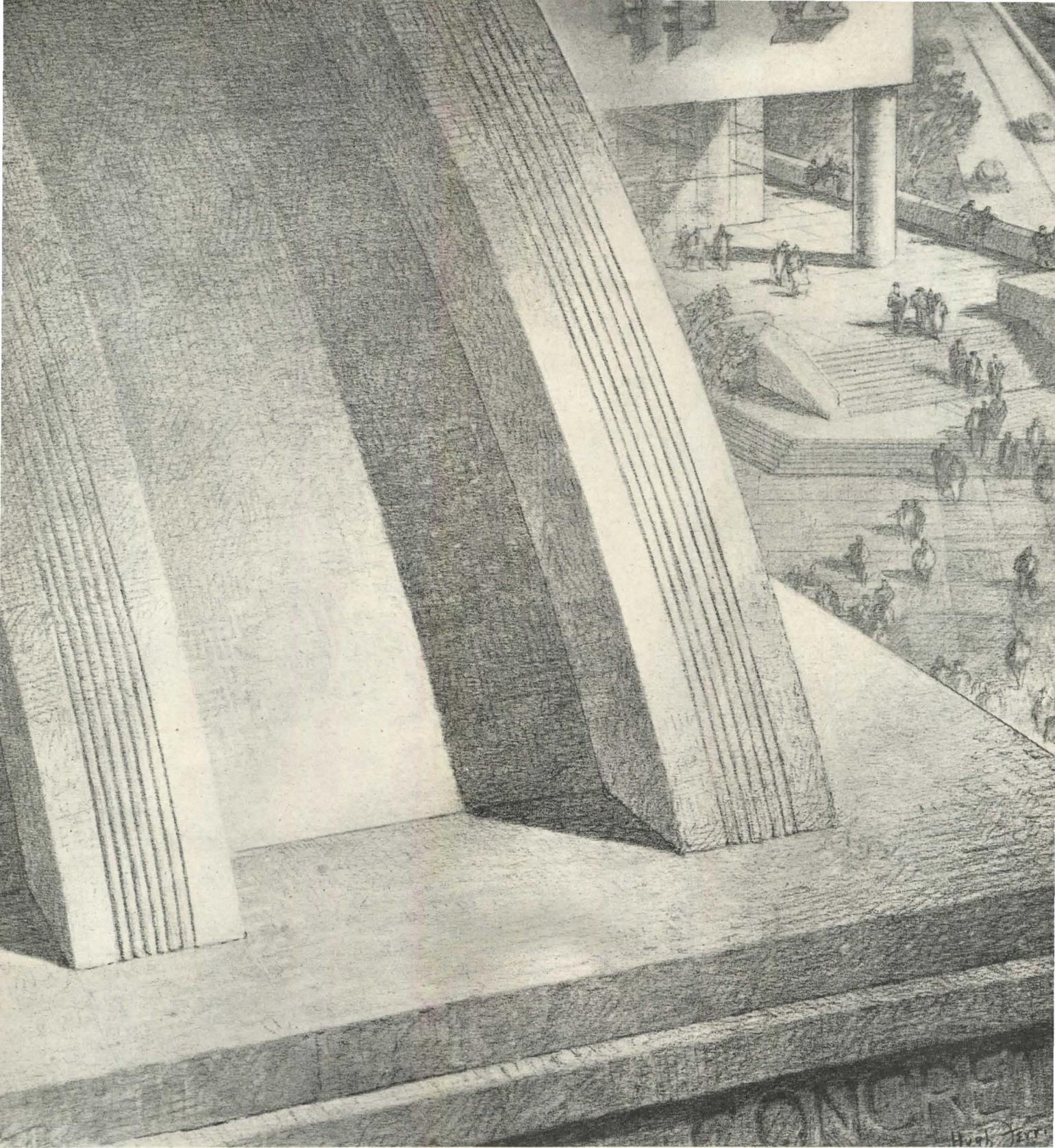
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G-E Boiler for steam
or hot water heat.



G-E Warm Air
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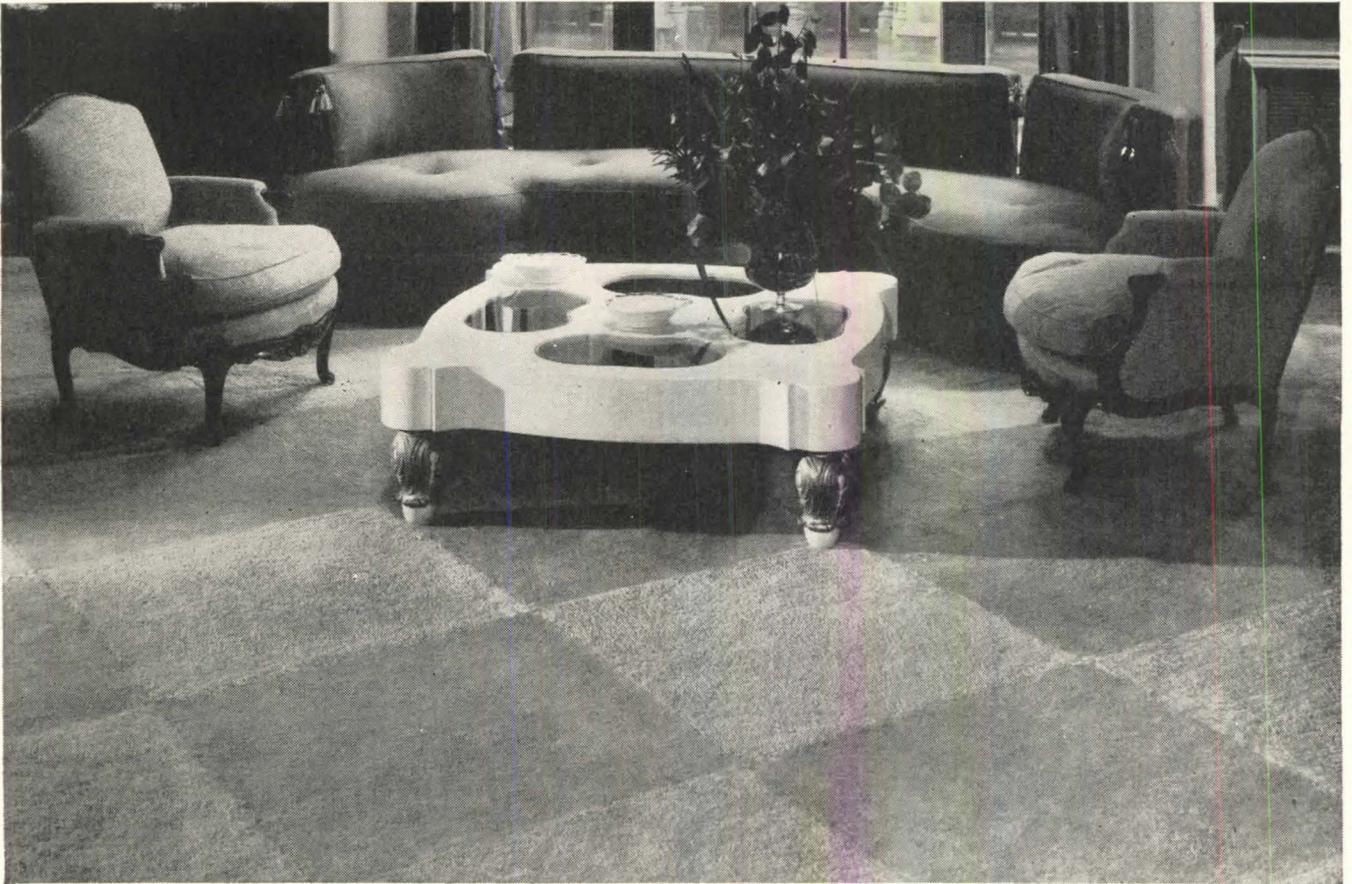
ARCHITECTURAL CONCRETE

The architectural vigor of these concrete arches for long span roofs is revealed in this drawing by Hugh Ferriss. It is fifth in a series of delineations showing the economy and adaptability of Architectural Concrete for firesafe construction of apartments, hotels, hospitals, schools, industrial and commercial buildings.

PORTLAND CEMENT ASSOCIATION
DEPT. A4-8, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

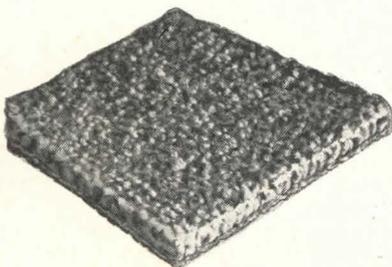
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- a showroom carpet with spare parts



Bigelow Sonata

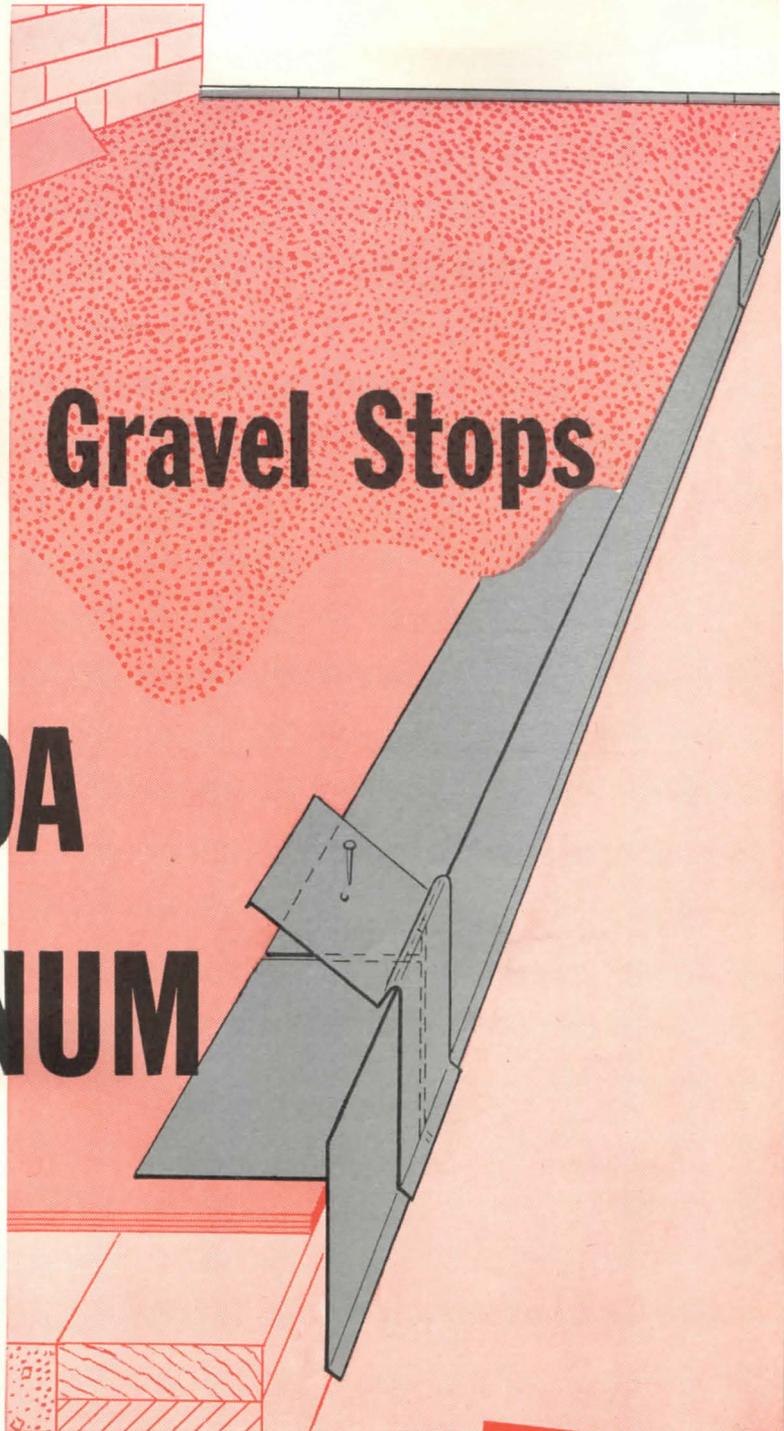
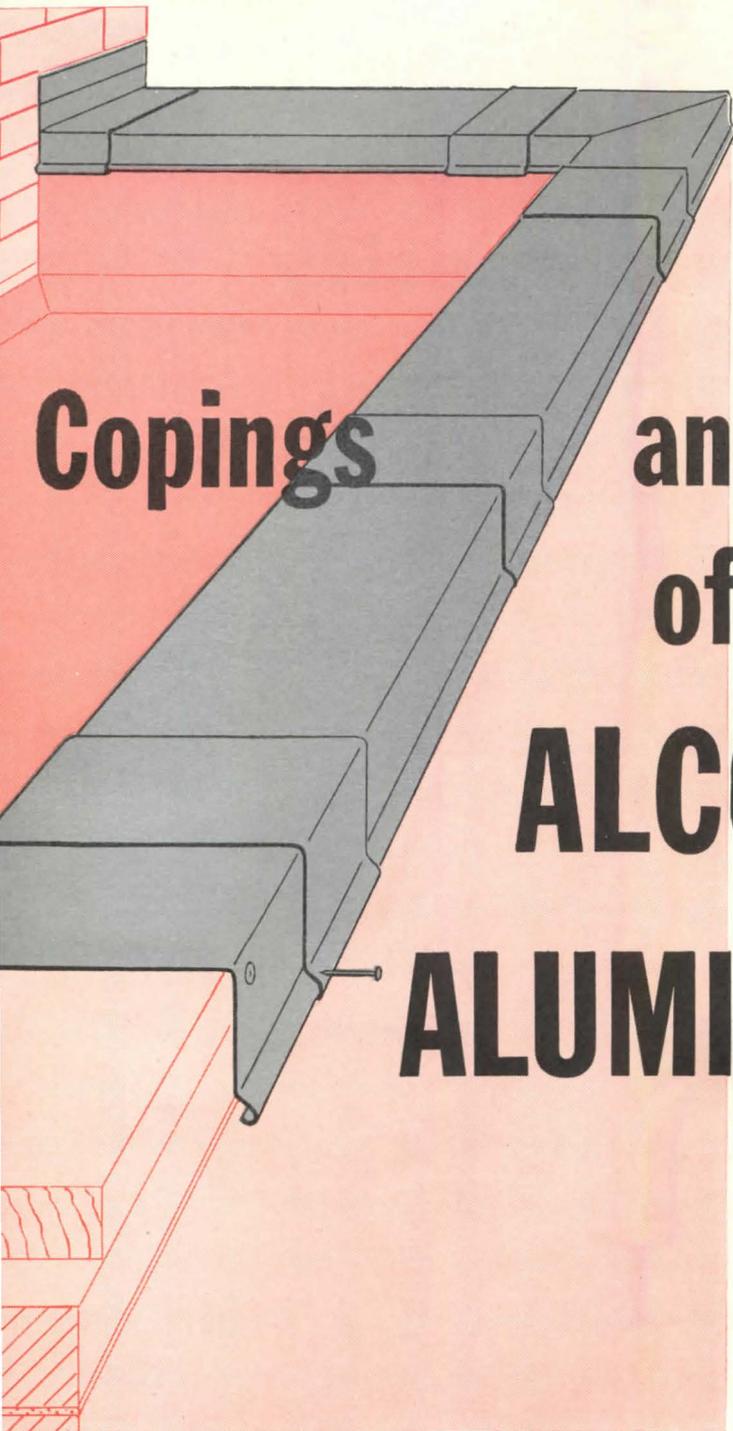
There's no doubt about it. Beauty will always remain in this showroom . . . with lush Sonata . . . a Bigelow carpet of Lokweave construction that was made to stay luxurious longer . . . to always be prepared for a quick comeback in spite of spills, burns or tears. Here's how:

This special Bigelow Sonata was made in smooth-fitting squares that are easily replaced . . . spare parts that mean real simplicity maintenance . . . without requiring complete replacement. It's a rich, thick carpet that always is and looks like *luxury* . . . always means economy. Ask Bigelow's Carpet Counsel to help you plan for beauty combined with utility, with rugs and carpets like this.



BIGELOW-SANFORD CARPET CO., Inc.
140 Madison Ave., New York 16, N. Y.

ADAPTABLE • ECONOMICAL • NON-RUSTING

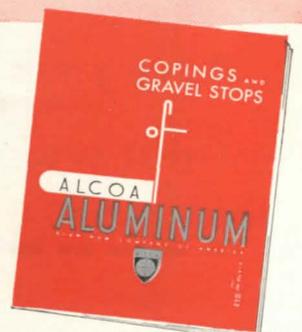


Copings and Gravel Stops of **ALCOA** **ALUMINUM**

Strong, lightweight, corrosion-resistant, easy to work. These inherent characteristics of Alcoa Aluminum make it particularly adaptable for copings and gravel stops. Long sections may be installed quickly by one man. It may be used with any type, any width of wall. Alcoa Aluminum can never rust, rot or

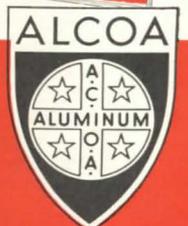
warp. It will not stain surrounding materials; never requires painting.

For detailed information on standard copings readily available, consult the booklet illustrated at the right (A.I.A. File No. 12-L-2). For copies, write to ALUMINUM COMPANY OF AMERICA, 1867 Gulf Bldg., Pittsburgh 19, Pa.



MORE people want **MORE** aluminum for **MORE** uses than ever

ALCOA FIRST IN ALUMINUM



IN EVERY COMMERCIAL FORM

8 reasons why you should specify

WIRE AND CABLE INSULATION MADE FROM

GEON plastics

for manufacturing, domestic, industrial, and utilities wiring

Excellent electrical properties

Thin coating of insulation

More conductors in a given space

**Resistance to ozone, wear, sunlight,
water, chemicals, and most other
normally destructive factors**

14 colors including NEMA standards

Ease of handling

Easy stripping

Light weight



Be sure to specify wire or cable insulated with GEON in order to get *all* these advantages. Or, for information regarding special applications please write Department N-4, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

B. F. Goodrich Chemical Company

A DIVISION OF
THE B. F. GOODRICH COMPANY

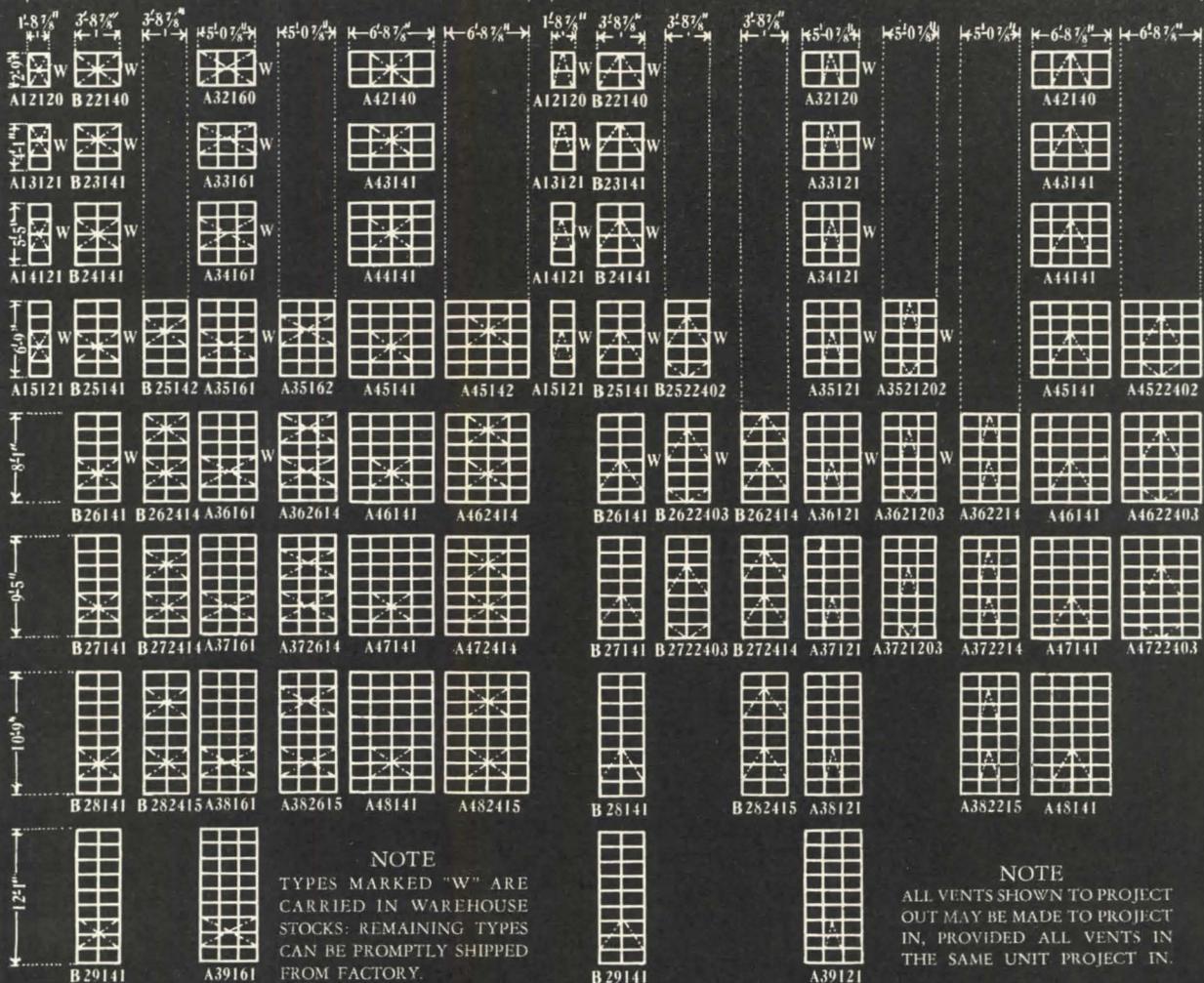
GEON polyvinyl materials • HYCAR American rubber • KRISTON thermosetting resins • GOOD-RITE brand chemicals

1818 HOPE'S 1947

LOK'D BAR STEEL WINDOWS

PIVOTED WINDOWS

COMMERCIAL PROJECTED WINDOWS



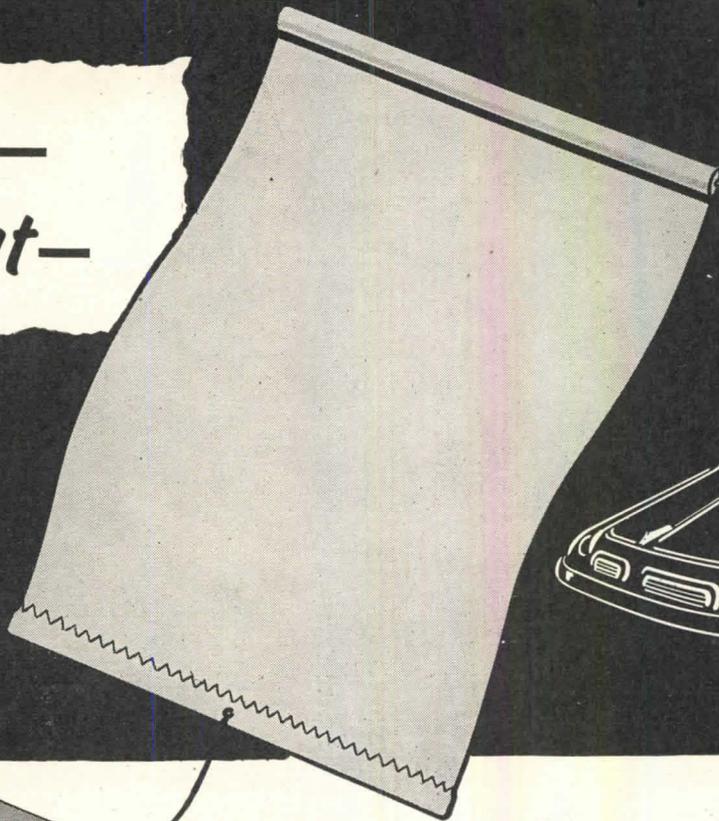
STANDARD TYPES AND SIZES

HOPE'S LOK'D BAR STEEL PIVOTED AND COMMERCIAL PROJECTED WINDOWS OFFER EXTRA STRENGTH—DOUBLE THAT OF ORDINARY SASH—LOW MAINTENANCE COSTS AND FREEDOM FROM TROUBLE. THERE ARE NO LOOSE OR APPLIED WEATHERINGS TO CORRODE AND BREAK AWAY BUT VENTILATORS ARE BUILT AS SOLID WELDED CASEMENTS AND FRAMES HAVING SOLID SECTION WIDE WEATHERING FLANGES ROLLED AS INTEGRAL PARTS OF THE SOLID STEEL BAR. NO OTHER PIVOTED OR COMMERCIAL PROJECTED STEEL WINDOW HAS THESE ADVANTAGES.

HOPE'S WINDOWS, INC., *Jamestown, N. Y.*

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

Year in—
Year out—



--- Washable "TONTINE"* Shade Cloth Stands the Wear!

HERE'S WHY "TONTINE" SHADE CLOTH OFTEN GIVES UP TO 20 YEARS' SERVICE

◀ **Deep into the fibers** of the fabric, the pyroxylin is driven. This chemical—a liquid form of cotton—is soaked up by the cotton fabric as a sponge soaks up water, then it hardens. Thus the two become, in effect, one material.

◀ **Pyroxylin is washable**—it is impervious to water, rain, grime and dirt. When a shade made with "Tontine" becomes soiled, it can be scrubbed with soap and water, then rehung fresh and clean as ever. Service records show that "Tontine" can be scrubbed—vigorously—20 times or more without damage! And colors resist fading, stay bright for the life of the shade.

◀ **Resists cracking and pinholing.** "Tontine's" pyroxylin impregnation gives it a protective finish that resists cracking and pinholing. And it gives maximum resistance to fraying and ripping. Constant improvement of all these qualities through the years makes today's "Tontine" one of the best values in its field.

Reports show that window shades made from durable "Tontine" have been in use up to twenty years. "Tontine" gives years of extra wear—fewer replacements are necessary—maintenance costs are lowered. In addition, clean, good-looking shades of "Tontine" help to impress customers and clients.

Specify "Tontine" for all window shades. It saves money, time, and trouble. An authorized "Tontine" dealer can arrange an economical washing and repairing service. E. I. du Pont de Nemours & Co. (Inc.), "Tontine" Sales, Newburgh, N. Y.

**"TONTINE" is Du Pont's registered trade mark for its pyroxylin-impregnated washable window shade cloth.

**DU PONT
"TONTINE"**

WINDOW SHADE CLOTH
Looks Better Longer



REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

Balsam-Wool APPLICATION DATA SHEET

SEC. A No. 4

THERMAL RESISTANCE VALUES OF BUILDING MATERIALS

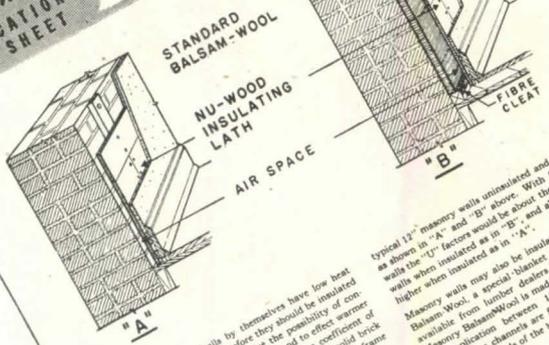
The thermal resistance values of various building materials in the table below are taken from the Guide of the American Society of Heating and Ventilating Engineers. These resistances may be used to calculate heat transmission coefficients, as described in Data Sheet No. 3. The values listed in the "Per one inch thickness" column are for building materials of the thickness shown. The adjacent column "As stated or used in construction" is normally used in building.

Resistance	As Stated or Used in Construction
Per One Inch Thickness	As Stated or Used in Construction
22	

Balsam-Wool APPLICATION DATA SHEET

SEC. B No. 8

INSULATING MASONRY WALLS



Masonry walls by themselves have low heat resistance. Therefore they should be insulated to minimize the possibility of condensation occurring on the wall, and to effect warmer wall surfaces for greater comfort. The coefficient of heat transmission "U" of a plastered 12" solid brick wall, for instance, is .24—the "U" of a standard frame wall is .25.

Application of 1" x 2" furring strips to the 12" brick wall with 1/2" Nu-Wood Insulating Lath and plaster interior, as illustrated in "A" above, lowers the "U" factor to .19. The insulating efficiency may be further increased by applying Standard Balsam-Wool between 2" x 2" furring strips attached to the wall, which would represent a saving of 67.5% of the heat loss which would otherwise be lost through the uninsulated, plastered 12" brick wall.

Insulation of other types of masonry construction would result in similar heat savings, as may be noted in the table at right. Here "U" factors are listed for typical 12" masonry walls uninsulated and insulated, as shown in "A" and "B" above. With 8" masonry walls when insulated as in "B", and about 0.2 to .03 higher when insulated as in "A".

Masonry walls may also be insulated with Balsam-Wool, a special blanket insulation which is available from lumber dealers in certain localities for application between 1" x 2" furring strips. Special fibre elements are furnished for capping and fastening the ends of the blanket.

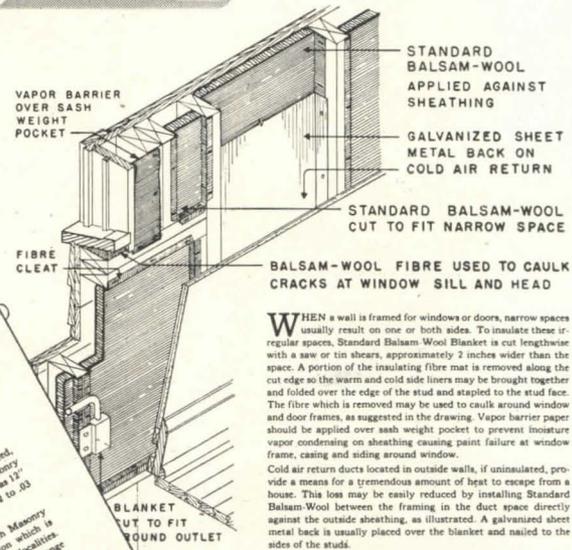
Type of Wall	U Factor	Heat Loss (Btu per sq. ft. per hour)
Uninsulated 12" masonry wall	.24	12.0
Insulated 12" masonry wall (Type A)	.19	9.5
Insulated 12" masonry wall (Type B)	.03	1.5

WOOD CONVERSION COMPANY
First National Bank Building
St. Paul, Minnesota
Products of Weyerhaeuser NU-WOOD

Balsam-Wool APPLICATION DATA SHEET

SEC. C No. 1

BALSAM-WOOL APPLICATION AROUND WINDOWS AND AIR DUCTS



WHEN a wall is framed for windows or doors, narrow spaces usually result on one or both sides. To insulate these irregular spaces, Standard Balsam-Wool Blanket is cut lengthwise with a saw or tin shears, approximately 2 inches wider than the space. A portion of the insulating fibre mat is removed along the cut edge so the warm and cold side liners may be brought together and folded over the edge of the stud and stapled to the stud face. The fibre which is removed may be used to caulk around window and door frames, as suggested in the drawing. Vapor barrier paper should be applied over sash weight pocket to prevent moisture vapor condensing on sheathing causing paint failure at window frame, casing and siding around window.

Cold air return ducts located in outside walls, if uninsulated, provide a means for a tremendous amount of heat to escape from a house. This loss may be easily reduced by installing Standard Balsam-Wool between the framing in the duct space directly against the outside sheathing, as illustrated, and a galvanized sheet metal back is usually placed over the blanket and nailed to the sides of the studs.

Where electric outlets, switches, etc. occur in outside walls, Balsam-Wool should be carefully cut to fit tightly around these fixtures, otherwise moisture vapor may be free to pass into the outer wall space where it may contribute to condensation trouble.

WOOD CONVERSION COMPANY
First National Bank Building
St. Paul, Minnesota
Products of Weyerhaeuser NU-WOOD

- High Thermal Efficiency
- Built for Permanence
- Non-Settling
- Flame-Proof
- Wind-Proof
- Moisture-Proof



how to insulate masonry walls

...see Balsam-Wool data sheets!

Insulating masonry walls is only one of the many insulation subjects covered by Balsam-Wool Data Sheets. These handy sheets represent years of research in gathering vital facts on insulation application—solving tough insulation problems. The whole set of Balsam-Wool Data Sheets—containing 32 sheets in all—is yours for the asking. Just mail the coupon—no cost or obligation!

Balsam-Wool



SEALED INSULATION

BALSAM-WOOL • Products of Weyerhaeuser • NU-WOOD

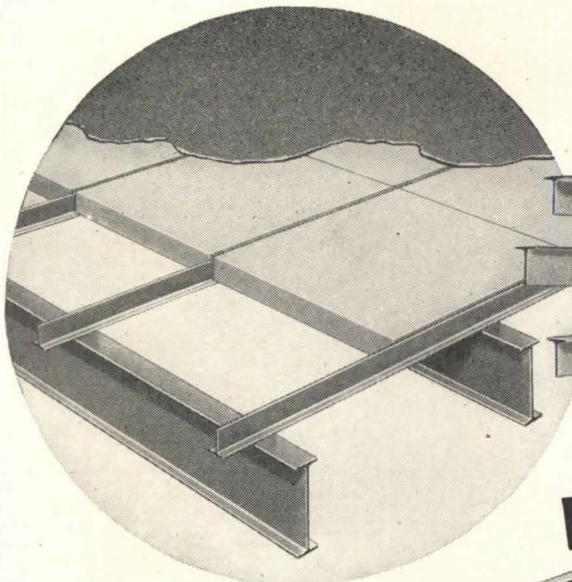
WOOD CONVERSION COMPANY
Dept. 115-4, First National Bank Building, St. Paul 1, Minnesota
Please send me set of Balsam-Wool Application Data Sheets.

Name

Address

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

J&L STEEL



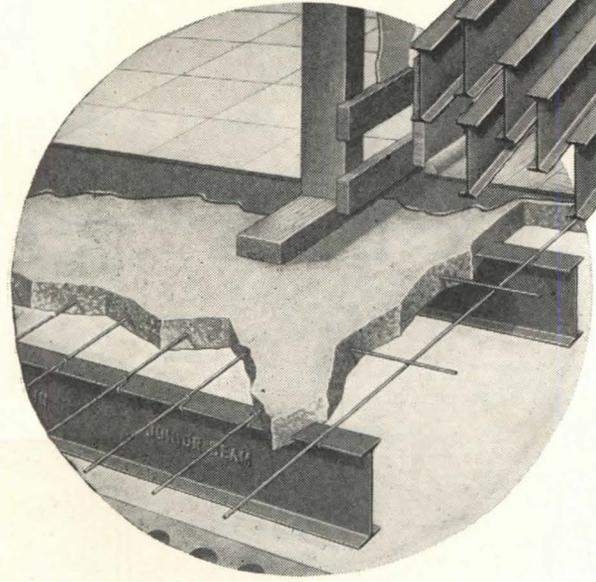
JUNIOR TEES



JAL-TREAD

JUNIOR CHANNELS

JUNIOR BEAMS

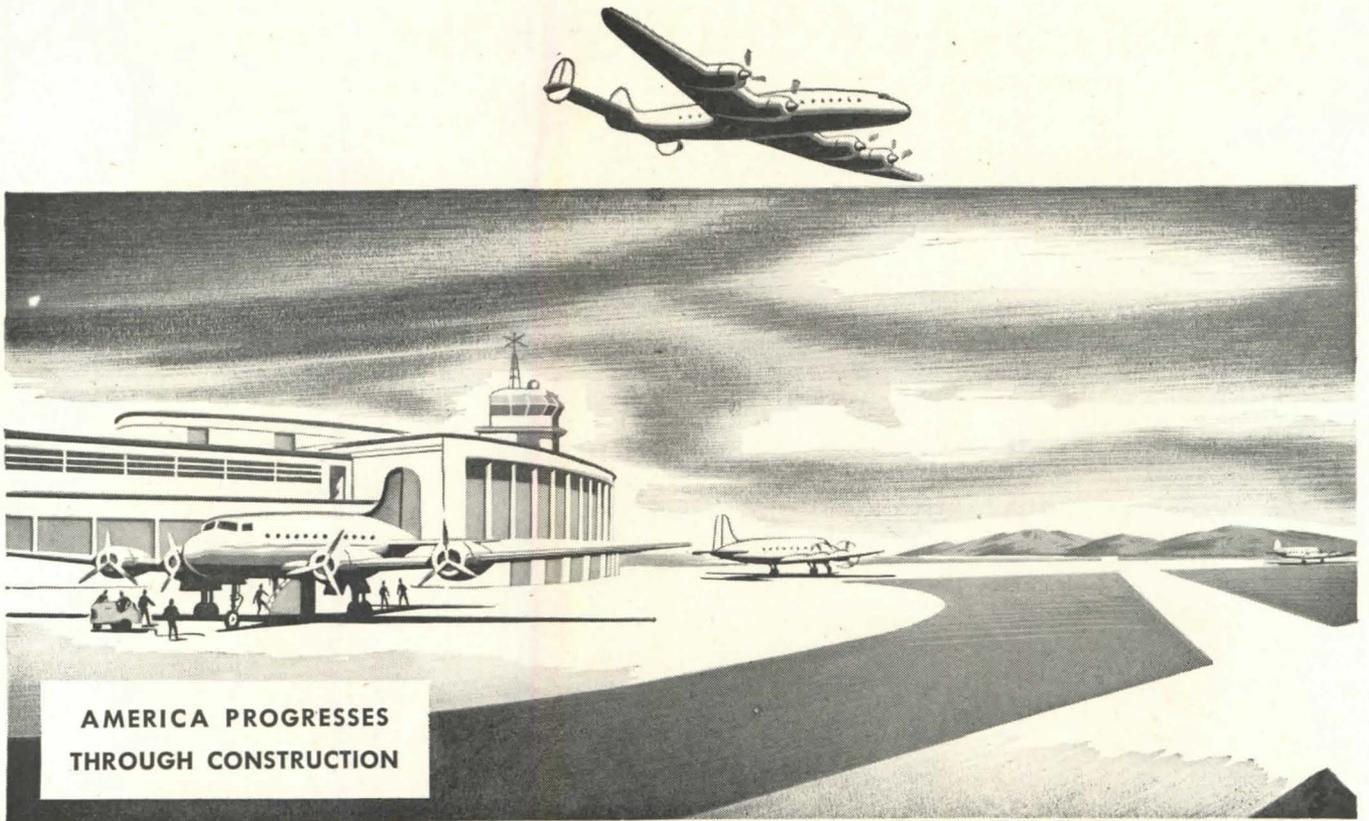


*Available Now
to speed housing
construction*

- Junior Tees for roof supports
- Junior Channels for stair stringers
- Jal-Tread checker plate for stair treads
- Junior Beams for steel and concrete floor systems

These J&L structural members and floor plate are light in weight. Yet they provide strength and other advantages of steel for single residence or multiple dwelling housing projects. They are readily installed—adapt themselves particularly well to mass production methods. Write for full technical information.

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PITTSBURGH 30, PA.



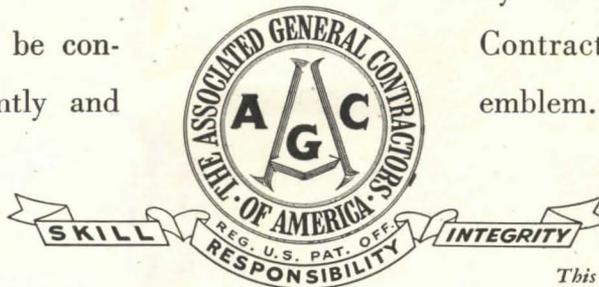
3,000 MORE NEW AIRPORTS NEEDED

America needs more than 3,000 new airports constructed and more than 1,600 existing ones improved, according to the national plan of the Civil Aeronautics Administration.

These airports can be constructed more efficiently and

economically on the one-contract, one-responsibility basis of awarding contracts to experienced and competent contractors.

These contractors may be identified by the Associated General Contractors of America, Inc. emblem.



This advertisement is No. 12 of this series

THE ASSOCIATED GENERAL CONTRACTORS of AMERICA, INC.

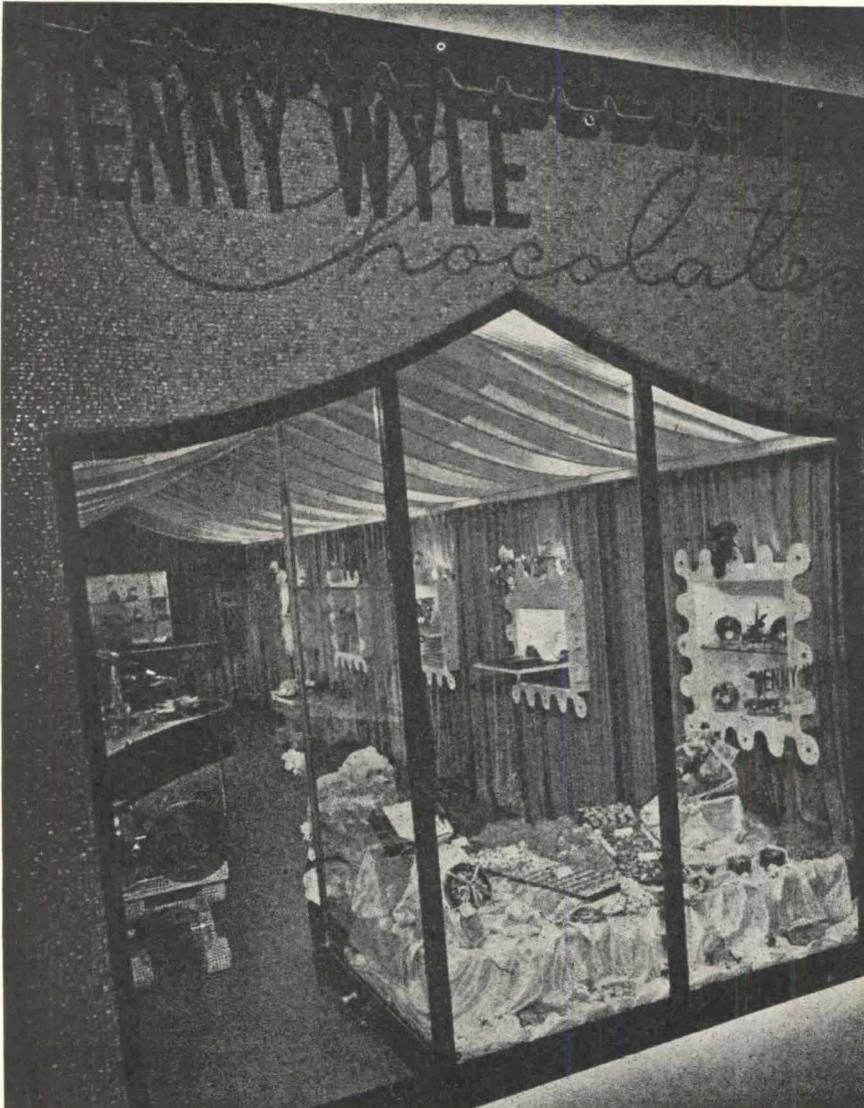
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National Headquarters — Munsey Building, Washington 4, D. C.

SKILL, INTEGRITY AND RESPONSIBILITY IN CONSTRUCTION OF BUILDINGS, HIGHWAYS, RAILROADS, AIRPORTS AND PUBLIC WORKS

CONTEMPORARY SHOPS in the United States

By EMRICH NICHOLSON

Second and Enlarged Edition, 1946



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A.R.-4-47

radiant heat

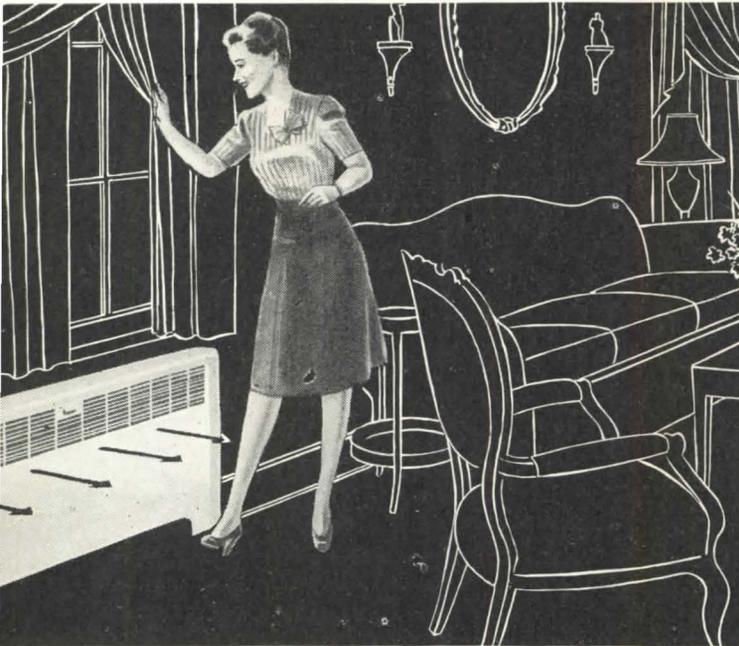
+

convection heat

=

MODERN HEATING AT ITS BEST!

that's what Modine Convectors offer you!



1

RADIANT HEATING

Notice those arrows? That's radiant heat . . . mild radiant heat coming from that Modine Convector Panel in just enough quantity to offset heat loss from window areas. But we don't stop with just *radiant* heating. To it we add—

2

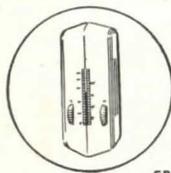
CONVECTION HEATING

Convection heating. The hot water or steam circulates through the copper heating unit, draws the cooler, floor-line air into the bottom of the convector where it's warmed, rises, and is then gently circulated throughout the room.

Result: A modern, blended heating system for modern living! • A heating system that gives you *individual* room control, that responds almost instantaneously to sensitive automatic controls . . . that gives you gentle air circulation without the use of moving parts that wear out. • Yes . . . think of the dependable heating comfort, distinctive charm, space-saving, cleanliness and long service life of Modine Convector Radiation for moderate cost homes and apartments. Look for Modine's representative in the "Where to Buy it" section of your phone book. • Write for complete information and free descriptive literature. MODINE MANUFACTURING CO. 1773 Racine St., Racine, Wis.



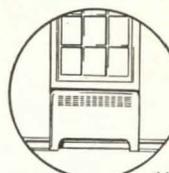
MODERN BEAUTY



CLOSE TEMPERATURE CONTROL



EASY TO INSTALL



ADDS TO LIVING SPACE



COSTS NO MORE THAN CONVENTIONAL RADIATORS

Modine

CONVECTOR RADIATION

The Modern "proved by use" heating method

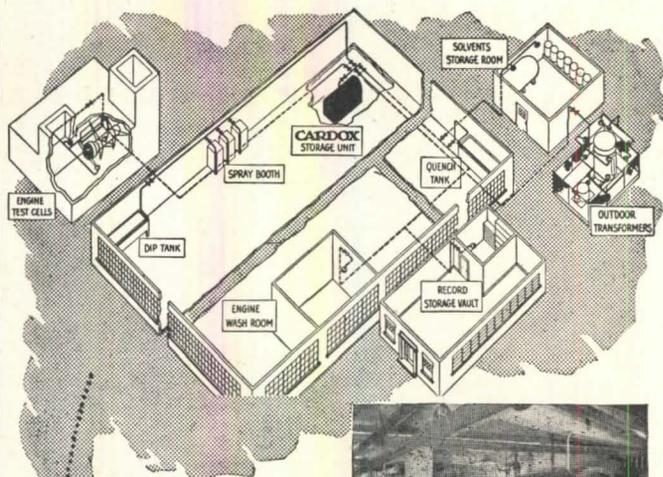
*Strikingly
Smart*

FOR ANY BATHROOM PLAN
OR COLOR SCHEME!

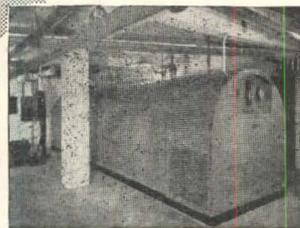


Specify
**LIFETIME
CHROME**
by
Gerity

Gerity mirror-bright fine chrome accessories for baths and kitchens are smart with *any* color scheme. Extremely durable—won't break, crack, peel, check or tarnish. Write for catalog. Gerity-Michigan Die Casting Co., Adrian, Mich.



CARDOX



**GIVES DOUBLE PROTECTION
FOR TOUGH FIRE HAZARDS**

DOUBLE—because the Cardox method of engineered application and control makes it entirely practical to provide enough fire-killing carbon dioxide to give "double-shot" safety to the largest hazard protected, multiple shot protection to other hazards covered by the system. This *ample reserve* that means uninterrupted protection *after* fire has been extinguished is a recognized principle of sound Cardox fire engineering.

DOUBLE—because *mass* application of Cardox CO₂ in *pounds* or *tons* means less fire damage. Burning time is cut to a minimum. Non-damaging carbon dioxide cannot harm costly equipment or material in process. There is no after-fire clean-up to cause costly production delays.

Cardox Fire Extinguishing Systems use low-pressure carbon dioxide—stored at 0° F. and relatively low pressure in a single, compactly designed, centrally located Storage Unit that holds from ¼ to 125 tons. The Cardox method of application and control and Cardox engineered equipment have broadened both the performance and protection scope of carbon dioxide—providing *all* the proved advantages of CO₂ extinguishment for tough fire hazards, single or multiple, large or small, indoors or out.

Why not determine for yourself whether this broadened application of carbon dioxide by Cardox Systems or mobile equipment may not be the most effective answer to the fire problems that concern you? Write for Bulletin No. 15

CARDOX CORPORATION
BELL BUILDING • CHICAGO 1, ILLINOIS
District Offices: New York • Philadelphia • Pittsburgh • Cleveland
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CARDOX

CO₂ FIRE EXTINGUISHING SYSTEMS

Choose Your Style

THEN CHOOSE **WELDWOOD** FOR THE INTERIOR



What are you working on? Public building or private home? Millionaire's mansion or veteran's bungalow? Cape Cod cottage or modern solar house?

Whichever it is, you'll add extra appeal to the interior when you specify Weldwood* plywood walls. Weldwood brings to interiors all the warm, soft, ever-popular beauty of genuine, richly-grained wood.

And there's a wood for every mood . . . from fine domestic woods such as oak, birch and knotty pine to rich imported de oro, mahogany and prima vera to mention only a few.

Looking for something new and different? Consider Weldtex*. Here is an economical, utilitarian Weldwood panel with which you can achieve innumerable decorative effects. The surface of the panel is attractively striated. It can be installed vertically, horizontally, or in interesting checkerboard, herringbone or other patterns . . . can be painted, stained or left natural.

Versatility is only one of Weldwood's many virtues. In addition it gives you structural strength and stability, ease of installation, economy.

And it's durable . . . guaranteed for the life of the building. The Weldwood interiors you design today will be prestige-makers for you for years to come.

Put all these advantages into your homes. Write for full information, and request our Weldwood Installation Booklet. It's yours for the asking.

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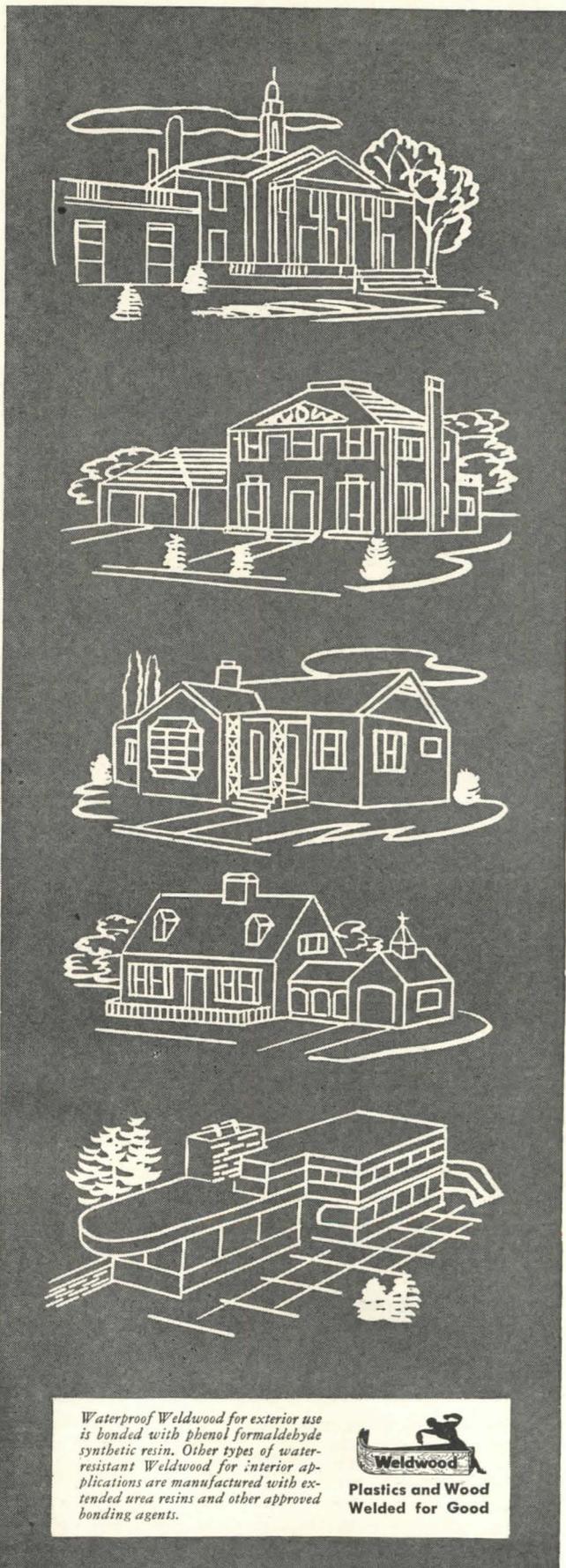
WELDWOOD Plywood

Weldwood Plywood and Mengel Flush Doors are products of

UNITED STATES PLYWOOD CORPORATION
New York 18, N. Y.

THE MENGEL COMPANY
Louisville 1, Ky.

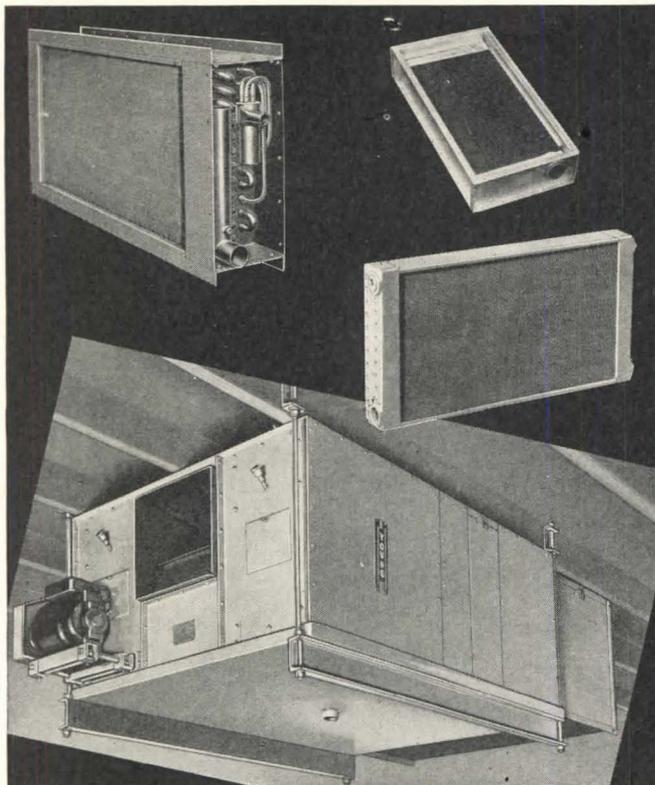
Distributing units in Baltimore, Boston, Brooklyn, Chicago, Cincinnati, Cleveland, Detroit, High Point, Los Angeles, Newark, New York, Oakland, Philadelphia, Pittsburgh, Rochester, San Francisco, Seattle. Also U. S.-Mengel Plywoods, Inc. distributing units in Atlanta, Dallas, Jacksonville, Louisville, New Orleans, Houston, St. Louis. In Canada: United States Plywood of Canada, Limited, Toronto. Send inquiries to nearest point.



Waterproof Weldwood for exterior use is bonded with phenol formaldehyde synthetic resin. Other types of water-resistant Weldwood for interior applications are manufactured with extended urea resins and other approved bonding agents.


Weldwood
Plastics and Wood
Welded for Good

**STANDARDIZE ON YOUNG
HEATING-COOLING COILS
and
AIR CONDITIONING UNITS**



Heat transfer equipment for heating, cooling and air conditioning systems are "catalog" items with Young. Through a continuous program of engineering and modern manufacturing techniques Young offers advanced designs—high efficiency operation.

Young coils are available in six types: for hot water and steam heating; for water or refrigerant cooling. "Streamaire" Air Conditioning Units are simple to install and take little space. They complete the functions of heating, cooling, cleaning and humidifying, or dehumidifying. It is possible to specify a "Streamaire" Unit to perform one or any combination of these services.

Write today for complete information on Young Heating and Cooling Equipment.

YOUNG

HEAT TRANSFER PRODUCTS

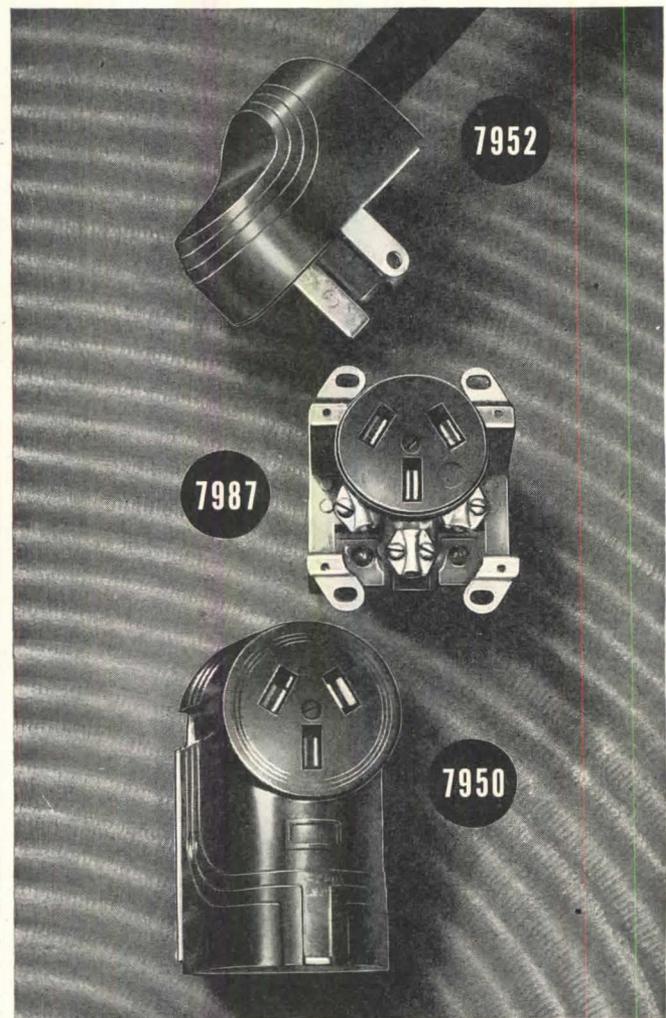
OIL COOLERS • GAS, GASOLINE, DIESEL ENGINE COOLING RADIATORS • HEAT EXCHANGERS
INTERCOOLERS • EVAPORATIVE COOLERS • ENGINE JACKET WATER COOLERS
GAS COOLERS • UNIT HEATERS • CONVECTORS • CONDENSERS • AIR
CONDITIONING UNITS • EVAPORATORS • HEATING COILS • COOLING COILS
AND A COMPLETE LINE OF AIRCRAFT HEAT TRANSFER EQUIPMENT



YOUNG RADIATOR CO., Dept. 517-D RACINE, WIS., U.S.A.

Sales and Engineering Offices in All Principal Cities

H&H THREE-WIRE
50 AMP., 250 V.
RANGE OUTLETS



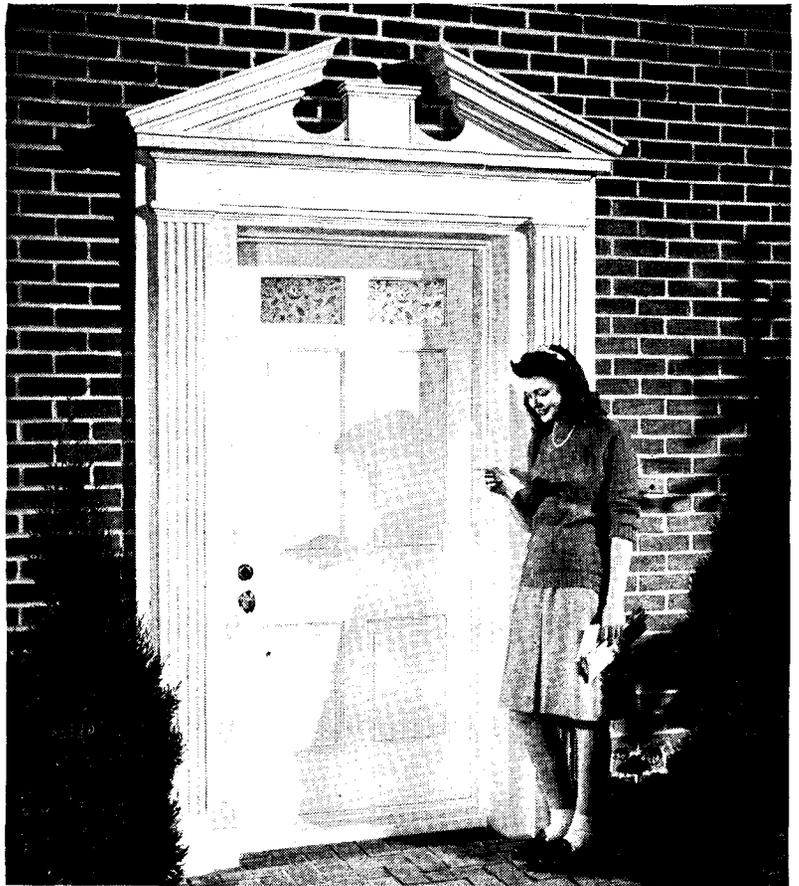
These quickly-wired Outlets and Caps have every improved feature for easy installation and use. Straight-in wiring with solderless connectors make fast work of range hook-ups. Cap and Receptacle combination make a neat, compact installation with attractive harmony of design.

Range Cap No. 7952 is of polished black Bakelite, designed to match the Receptacles. Range Outlet No. 7950 is surface type; polished black Bakelite. Also available in white Ivorylite; No. 7950-I. Range Outlet No. 7987 is flush type; polished black Bakelite. If wanted with .040" brush brass plate, specify No. 7990; with .060" plate, No. 7991.

HART & HEGEMAN DIVISION

**ARROW-HART & HEGEMAN ELECTRIC
COMPANY, HARTFORD 6, CONN., U.S.A.**

put
Beauty
 into your plans
 with
 the NEW
 Curtis Woodwork

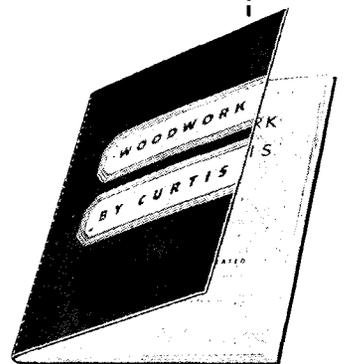


This new Curtis entrance—Design C-1733—can be used successfully on one or two-story houses of any structural material. H. Roy Kelley, architect.

COST need not be the enemy of beauty—if you include the new Curtis Woodwork in your house plans. For Curtis entrances—mantels—china closets—stairways and other stock woodwork—will fit into the most moderate building budget. And the great variety of Curtis Woodwork gives you freedom in planning to fit a wide variety of individual needs and tastes. Architecturally correct in design—built

like fine furniture—Curtis Woodwork is the answer when beauty and quality, at reasonable cost, are demanded.

Ask your Curtis dealer to show you the new Curtis Woodwork Style Book—an entirely new and different way of presenting the new Curtis woodwork line. Measuring 15 x 19 inches, this book contains 100 pages of beautiful woodwork styles in natural home settings—many photographs in full color.

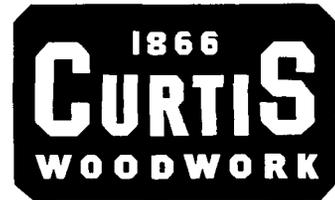


The bowed fascia of this Curtis mantel accentuates its simple charm. One of the many new Curtis designs, it follows the tradition of the 18th Century. Design C-6074, by George W. Stoddard, architect.

Beautiful new china closet by Cameron Clark, architect. A formal and dignified design that is best suited to large rooms. Also made with open front. Corner installation only. Design C-6505.



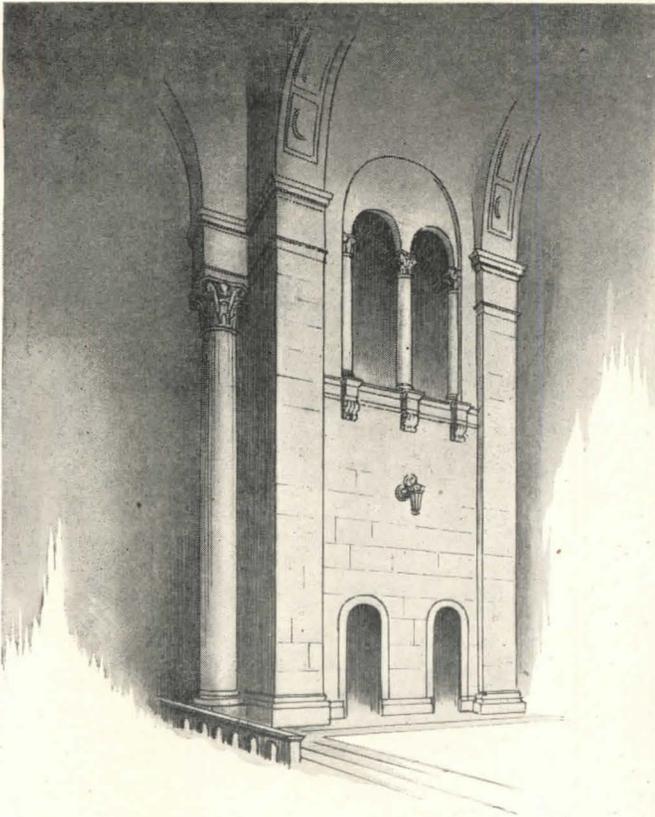
Curtis standard stair parts make up this beautiful stairway. These parts allow widest latitude in designing stairways for any size and style home.



Mail the coupon for complete, illustrated literature.

Curtis Companies Service Bureau
 AR-4W, Curtis Building
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 Gentlemen: Please send me booklets on the new Curtis Woodwork and the new Silentite Window line.

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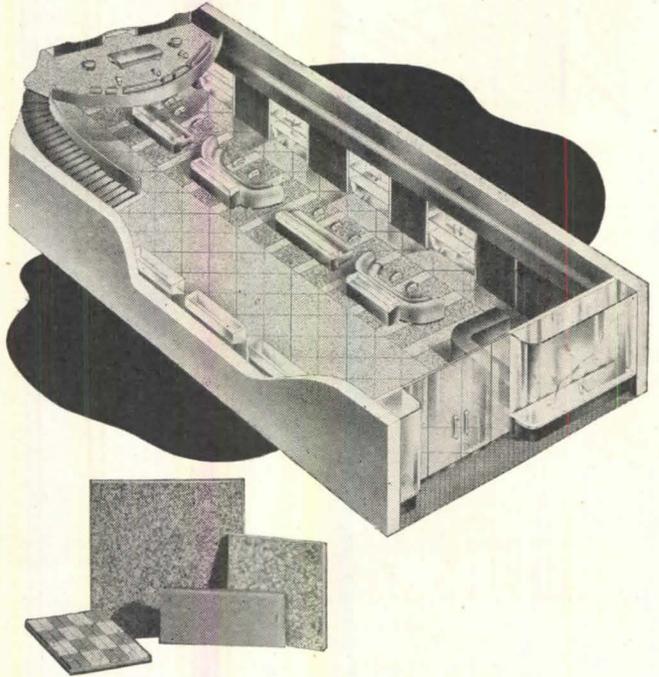
for Enduring Beauty

Architects, Craftsmen and Dealers who specify, apply and sell the original Ohio White Finish and its famous twin, Hawk Spread, know that the quality of these brands help to insure their reputation.

Both brands are scientifically processed from rock quarried from the heart of the world's purest deposit of dolomitic limestone . . . Both are always packed in distinctively striped Red Zig Zag Bags . . . the mark of enduring beauty for plastered walls and ceilings.



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in Walking..*



An important feature
in a shoe store of Distinction
**NORTON non-slip
ALUNDUM FLOORS**

Safety in walking is an important feature in any building where it is desirable to have a wear-resistant surface that is permanently non-slip even when wet. Non-slip flooring is a "natural" for a shoe store. The shoe store illustrated above has been designed to have ALUNDUM aggregate mixed with marble to make the terrazzo flooring in the entry way, on the main floor and on the stairs and mezzanine safe from slipping hazards. Combine beauty with safety and add years of wear-resistant service by using Norton non-slip ALUNDUM floor products: aggregate, stair tile, ceramic mosaic tile. For free color samples and our latest catalog write to:

NORTON COMPANY
WORCESTER 6, MASS.

ALUNDUM — Registered trade-mark for Norton Company's aluminum oxide abrasive.

NORTON non slip ALUNDUM FLOORS

MORE THAN JUST ANOTHER SHOWER HEAD

It's an Anystream!



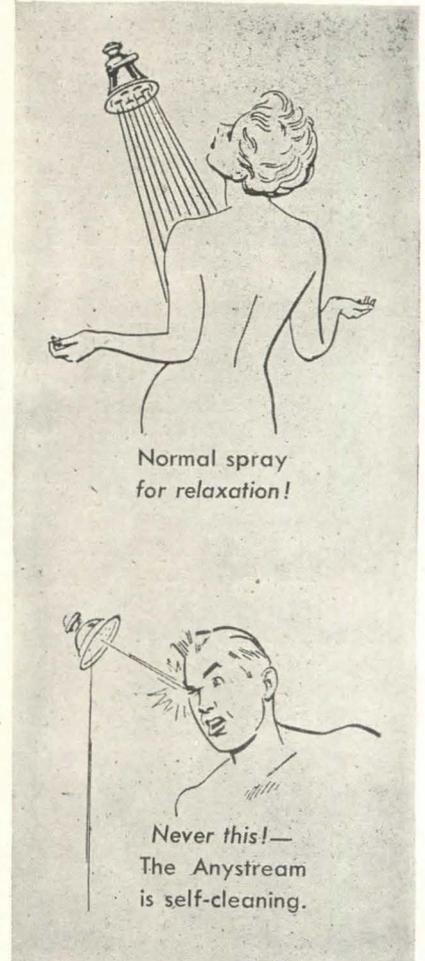
- The Speakman Self-Cleaning Anystream assures you a full-flowing, evenly distributed shower instantly adjustable to any degree of spray you desire.

- Rugged in construction . . . beautifully designed and machined . . . the Anystream is a model of engineering skill. It can be counted on to give long, dependable service.

- Unlike ordinary showerheads, the Anystream is self-cleaning . . . a feature which keeps it from clogging. In the flood position, foreign matter is instantly flushed away.

- The Anystream saves up to 58% on the consumption of hot water . . . welcome news to those who find the supply or cost of hot water a major problem.

- The Anystream is easily installed. No special fittings are required. And when . . . after long service . . . normal wear occurs, repairs can be made quickly and inexpensively.



The Speakman Self-Cleaning Anystream is distributed nationally through plumbing wholesale supply dealers and plumbing contractors. It can be depended on to rejuvenate any shower bath . . . modernize the newest installation . . . and give long, satisfactory service.

Established 1869
SPEAKMAN
SHOWERS AND FIXTURES
SPEAKMAN COMPANY, WILMINGTON 99, DELAWARE

Moultile Beauty

WILL SURPASS YOUR EXPECTATIONS

You'll be more than pleased with the final inspection of the Moultile floors you design. The colors, with their sparkling clarity and depth of tone, surpass in beauty the floor as you visualized it. A rich variegated effect, never monotonous or mechanical, is created by the crisp, distinct veining.

Remember that Moultile permits you to achieve artistic, original designs without resorting to costly special fabrication. Use the conventional checkerboard, if you wish. Or lay out the individual tiles into panels, strips or bands, either parallel or diagonal. Vary the pattern with spots or other inserts. Or develop your own maze, meander or woven patterns.

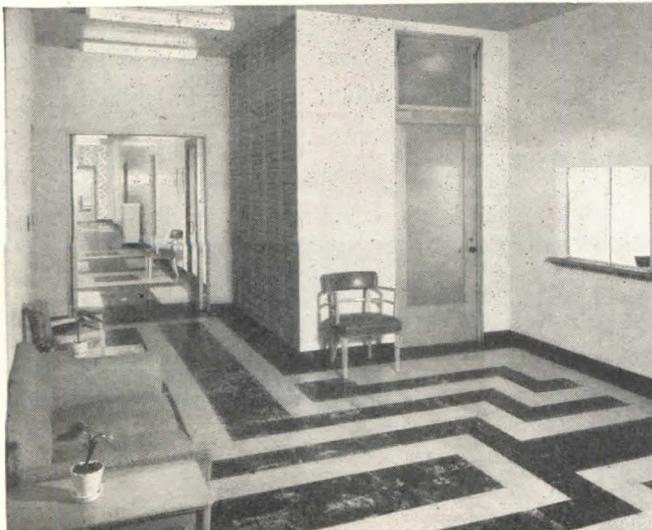
The beauty of a Moultile floor is that its beauty endures. The non-fading colors and texture are uniform throughout its thickness. Hardest wear leaves no noticeable marks, so there is no need for costly periodic refinishing. Your clients will like that. And they'll enjoy the foot-friendly comfort of Moultile, its quiet and foot-safe surface. They'll approve Moultile for its low original cost and low upkeep cost. Write today for free samples and catalog to: THOS. MOULDING FLOOR MFG. CO., 165 W. Wacker Drive, Dept. AR-4, Chicago 1, Ill.

THOS. MOULDING

Moultile

**Flexible-Reinforced
MASTER ASPHALT TILE**

A variety of original designs features the Moultile floors throughout the American Dental Association Bldg., Chicago, Ill. Childs & Smith, Architects.



"Does a Fine Job"

—SAYS
VETERAN PLUMBER

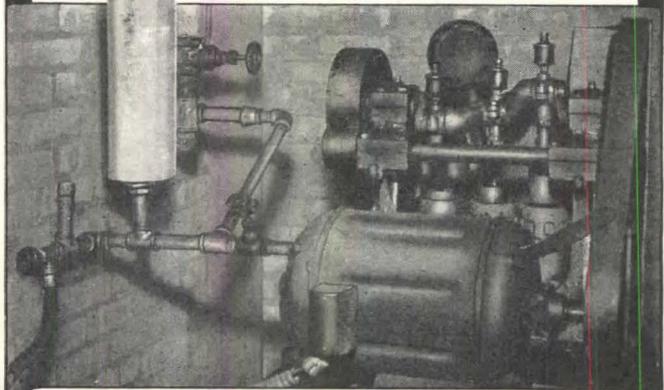
He's speaking about the Wade Sealed Air Chamber. But let's hear directly from Chas. E. Gawne, prominent Chicago plumbing contractor . . . "We installed a 3/4" water line to a high pressure pump used for truck washing operations at the Midwest Transfer Company, Chicago. The 150 lbs. discharge pressure at the spray nozzle backed up in fluctuating pressure surges past the pump into the city water line. This created a dangerous vibration of the entire piping system—so much so that the pipe was torn loose from its hangers. We installed your No. 134 Sealed Air Chamber on this water line and it stopped all vibration. THIS WADE SEALED AIR CHAMBER REALLY DOES A FINE JOB."

More and more plumbers, engineers and architects are learning how the Wade Sealed Air Chamber effectively solves water hammer problems. They cushion the shock created by high surge pressures to prevent stretching and straining of pipes, valves and fittings.

Take a tip from Mr. Gawne and learn more about this modern effective answer to destructive water hammer. Send today for our new Sealed Air Chamber booklet which includes Selector Tables to determine the correct size Air Chamber for each job.

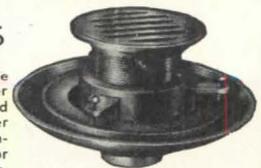


Photo shows the Wade No. 134 Sealed Air Chamber, installed on a 3/4" pipe at the Midwest Transfer Company, Chicago. It "stopped all vibration."



WADE DRAINS

Wade, makers of the HydraFilter grease interceptor and the Sealed Air Chamber manufactures a complete line of floor and shower drains, roof drains, backwater valves and swimming pool equipment. Consult your nearest Wade representative or write direct to us for further information.



W-1100



85 NORTH STATE • ELGIN, ILLINOIS



The smaller the room . . .
the more a Picture Window
does for it!

Are higher costs and material shortages limiting you to smaller rooms?

Then consider this: The feeling of confinement in a small room is largely the result of visual barriers . . . restrictions on the eyes' natural desire to roam.

A Picture Window gives a feeling of spaciousness to a small room—adds the beauty, the ever-changing color and activity of the outdoors.

It doesn't require a lake or mountain view. Even a small lot will have some garden space

—will enable you to bring in every season's appeal of lawn and flowers to make indoor living more enjoyable.

Today, the Picture Window is as practical as it is popular. No longer need heating problems result from using large glass areas. Glaze them with *Thermopane**, the L·O·F multiple-pane insulating unit. Here's transparency combined with insulation—a team of benefits that is of real value to designers, builders and owners of homes large and small.

Get the facts on *Thermopane* before breaking ground for your next house. Send for our book that includes sizes, thicknesses, types of glass and other pertinent data. Don Graf Technical Sheets also will be sent to architects requesting them. Libbey·Owens·Ford Glass Company, 2247 Nicholas Building, Toledo 3, Ohio.

*Reg. U. S. Pat. Off.

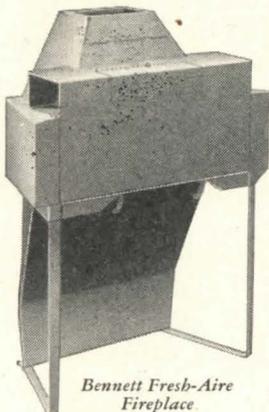
WHEREVER VISION IS IMPORTANT
USE L·O·F *Polished Plate* GLASS



LIBBEY·OWENS·FORD
a Great Name in **GLASS**

BENNETT
Fresh-Aire
UNITS

for Perfect Fireplaces
EVERY TIME!



Bennett Fresh-Aire
Fireplace

Of course, you can *design* the perfect fireplace. But will it be constructed *exactly* as you planned it? Will "building blunders" mar your perfect fireplaces? Eliminate that possibility by specifying the Bennett *Fresh-Aire*

Unit. It serves as a *complete form* for smoke-free internal proportions of throat, damper, smoke chamber and shelf, etc. Fireplaces built around these units *must be right*.

Here are three additional reasons for specifying Bennett *Fresh-Aire* Units for the modern, insulated home:

1. They warm *fresh* air drawn from outdoors—eliminate the upsetting effects of the ordinary fireplace on the balanced central heating system . . . eliminate smoky back-drafts.
2. They allow *complete freedom* to detail the exterior design of any type or style of fireplace you plan.
3. Their moderate first cost is offset by savings in construction and *perfect* operation.

Bennett Warm-Aire Unit

—for perfect fireplaces in camps, southern homes, play rooms, etc. Draws cool air off the floor, heats and recirculates it evenly throughout the room—and to adjacent rooms or upstairs.

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or see Sweet's.

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Chartered in 1906
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With The Lustrous Beauty
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Choose from a wide range of interesting colors and patterns. Find out how effectively this modern plastic material can brighten up your interiors. Write for full information today.

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Decorative Micarta cannot be scratched or marred in transit! A heavy Kraft paper "beauty mask" protects it at all times . . . even during machining and fitting . . . easily removed after installation!

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BURGLAR-RESISTIVE NIGHT DEPOSITORIES
THAT THE ART AND SCIENCE OF METALCRAFT
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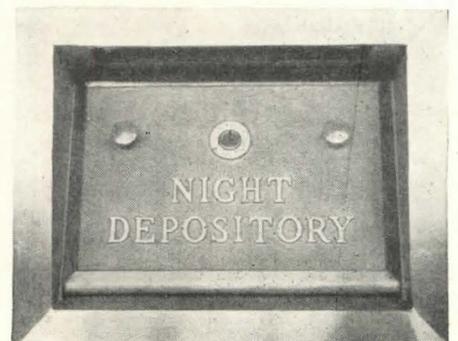
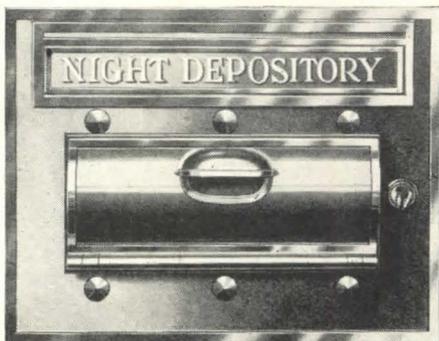
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Herring-Hall-Marvin Night Depositories are designed, built and installed to rate the highest Night Depository Insurance Classification money can buy—Underwriters' Certified Bank Burglary Class "B". We make no compromise with safety.

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WHY EXPOSE YOUR BANK TO COSTLY PENALTIES?

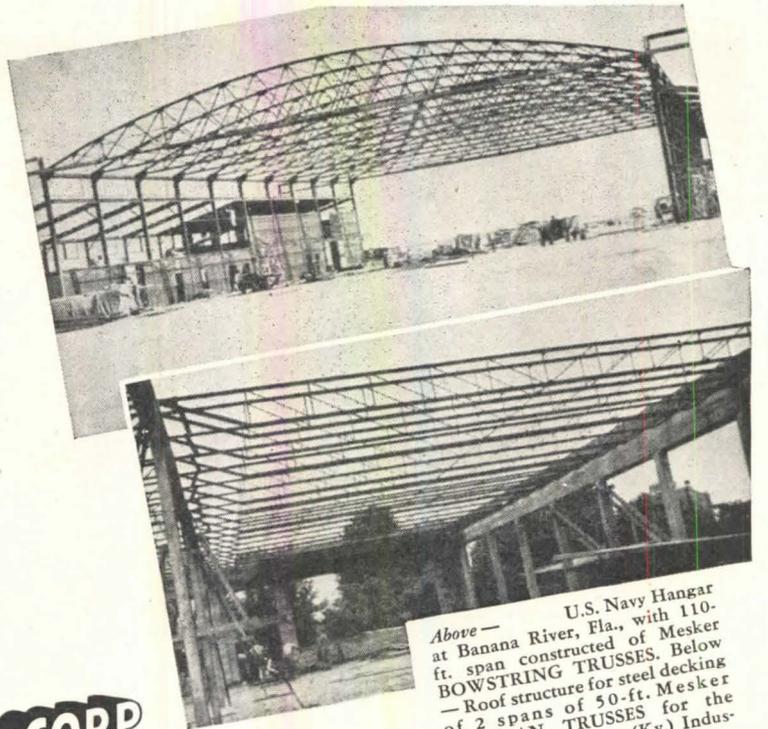
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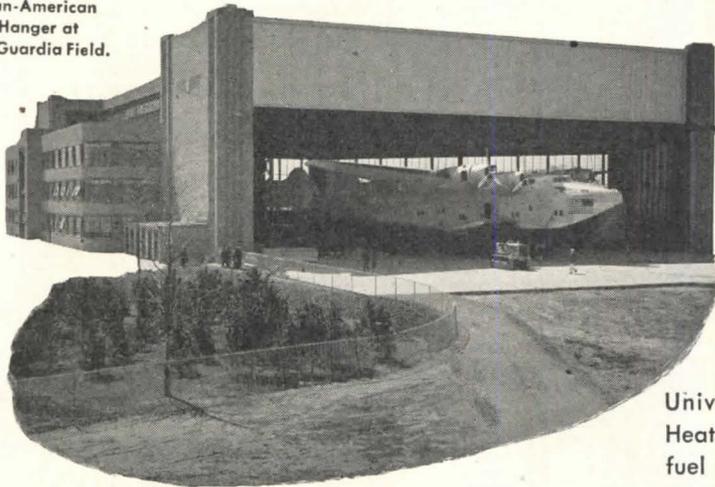
Above — U.S. Navy Hangar at Banana River, Fla., with 110-ft. span constructed of Mesker BOWSTRING TRUSSES. Below — Roof structure for steel decking of 2 spans of 50-ft. Mesker FREESPAN TRUSSES for the 100' x 300' Somerset (Ky.) Industries factory.

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BOWSTRING STEEL ROOF TRUSSES • FREE SPAN STEEL FLOOR AND ROOF TRUSSES • STEEL WINDOWS • STEEL STAIRS • FIREPROOF DOORS • FIRE ESCAPES • ORNAMENTAL IRONWORK • SKYLIGHTS • ALL KINDS OF STRUCTURAL STEEL

Pan-American Hangar at La Guardia Field.



LEE HEATED HANGERS HOUSE AMERICA'S AIRCRAFT

Universal acceptance proves Lee's Direct Air Heating best for airports and hangars. Efficient fuel utilization, ease of installation and unique suitability for heating large spaces make Lee Direct Air Heating the choice of engineers throughout North America. Because of its simplicity of operation, highly skilled or licensed operators are unnecessary. The Lee Engineering Co. is the originator and patentee of the warm air curtain used in the floor of large door openings.

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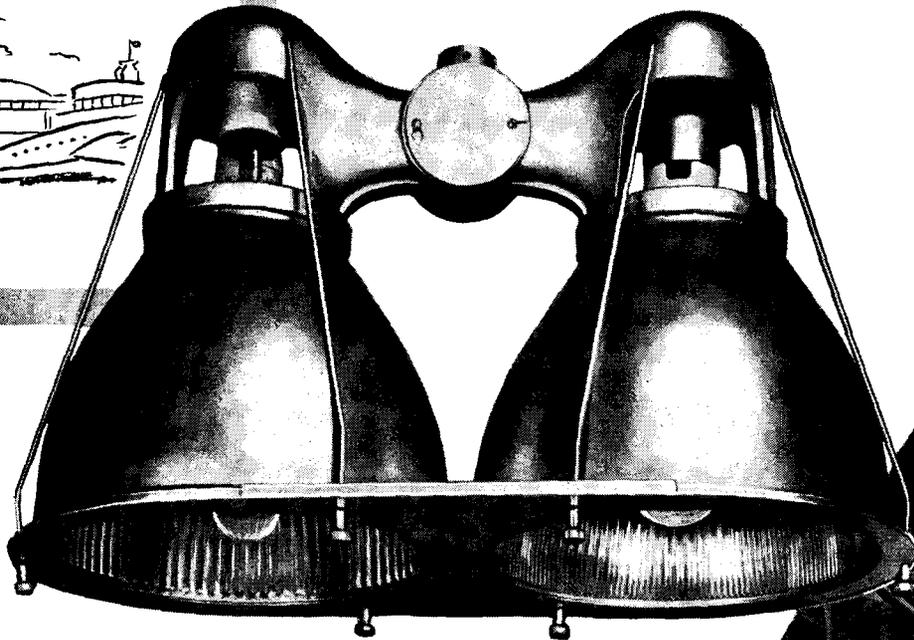
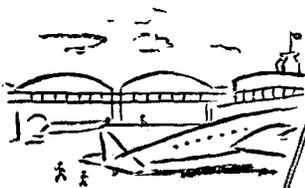
For further information, and literature write to: Dept. AR.

LEE ENGINEERING COMPANY
YOUNGSTOWN 3, OHIO

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hangars

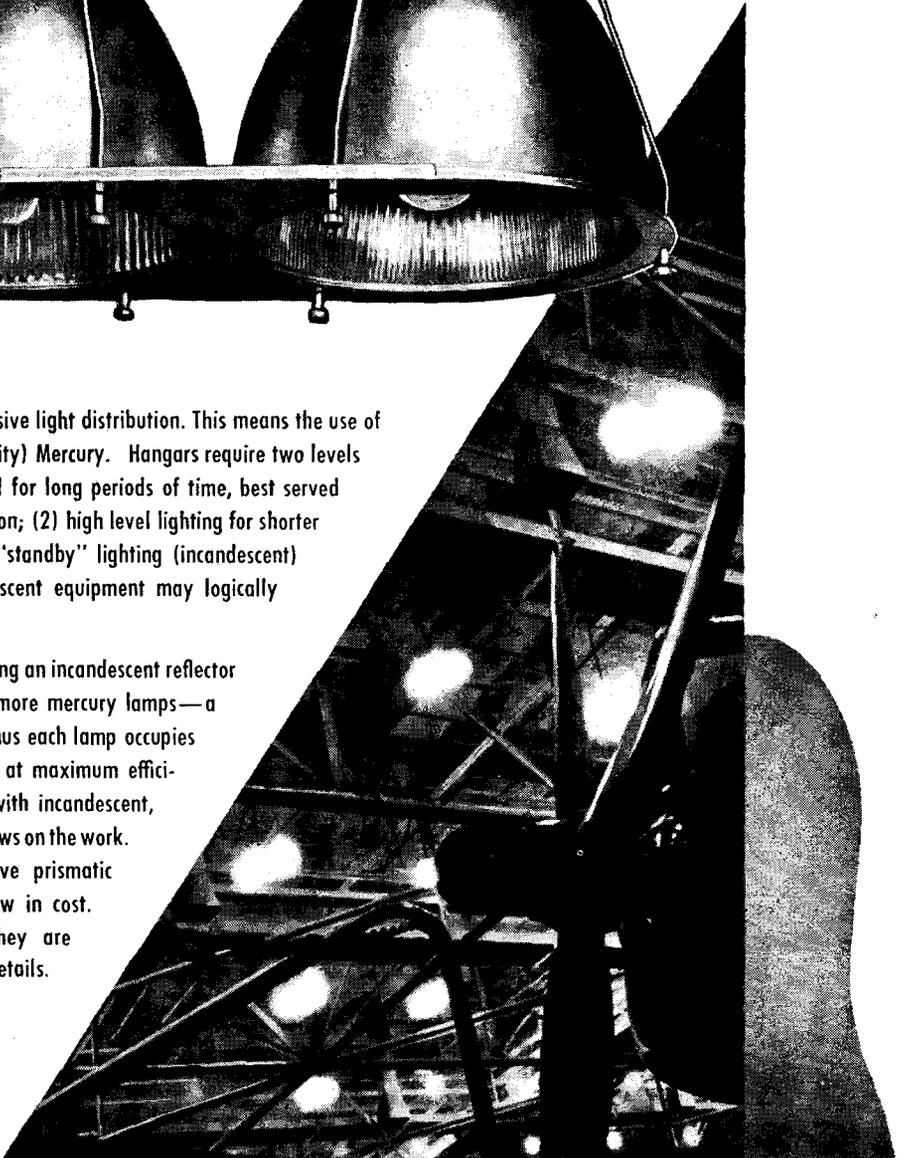
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INCANDESCENT and MERCURY



High bay hangars 45' to 60' call for intensive light distribution. This means the use of either incandescent or Type H (high intensity) Mercury. Hangars require two levels of illumination: (1) a low (storage) level for long periods of time, best served by mercury with its low current consumption; (2) high level lighting for shorter servicing periods. Since mercury needs "standby" lighting (incandescent) against current interruption, the incandescent equipment may logically be used when the higher level is required.

Holophane solves the problem by introducing an incandescent reflector into a composite unit containing one or more mercury lamps—a separate reflector for each light source. Thus each lamp occupies its own reflector's focal point to operate at maximum efficiency. This arrangement blends mercury with incandescent, far above the floor, to eliminate color shadows on the work. These units, equipped with non-corrosive prismatic glass reflectors are high in efficiency, low in cost. Adaptable to disconnecting hangers, they are economical to maintain. Write for full details.

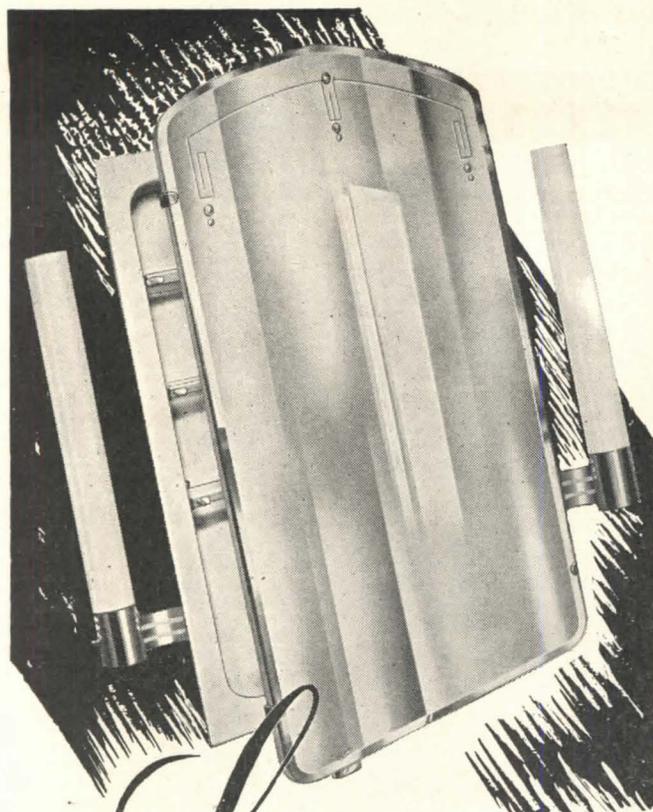


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- First-quality copper sealed plate glass mirror.
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**WORLD'S LARGEST
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**THE F. H. LAWSON CO.
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That's* for Me!



decides
Mrs. Doakes

Trust a good housekeeper
to know what's what in
smooth-working window
hardware . . .

And 134,456,000 magazine
readers agree with her

Forceful advertising in leading home service magazines is now carrying the Grand Rapids "Invisible" story to millions of convenience-conscious home-planners and home-makers. (Also widely advertised in trade journals to architects, builders and dealers.)



*She
means the

GRAND RAPIDS
Invisible
SASH BALANCE



The dependable spiral sash balance

Quickest and easiest of all balances to install—three screws do the trick. Performance-tested in the laboratory and in windows of thousands of pre-war homes. Perfect for large volume building operations because of speed and economy in installation. Simple adjustment without removing sash. Same size balance fits upper and lower sash. 10 standard sizes meet 95% of all your residential installations.

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GRAND RAPIDS HARDWARE COMPANY
Grand Rapids, Michigan



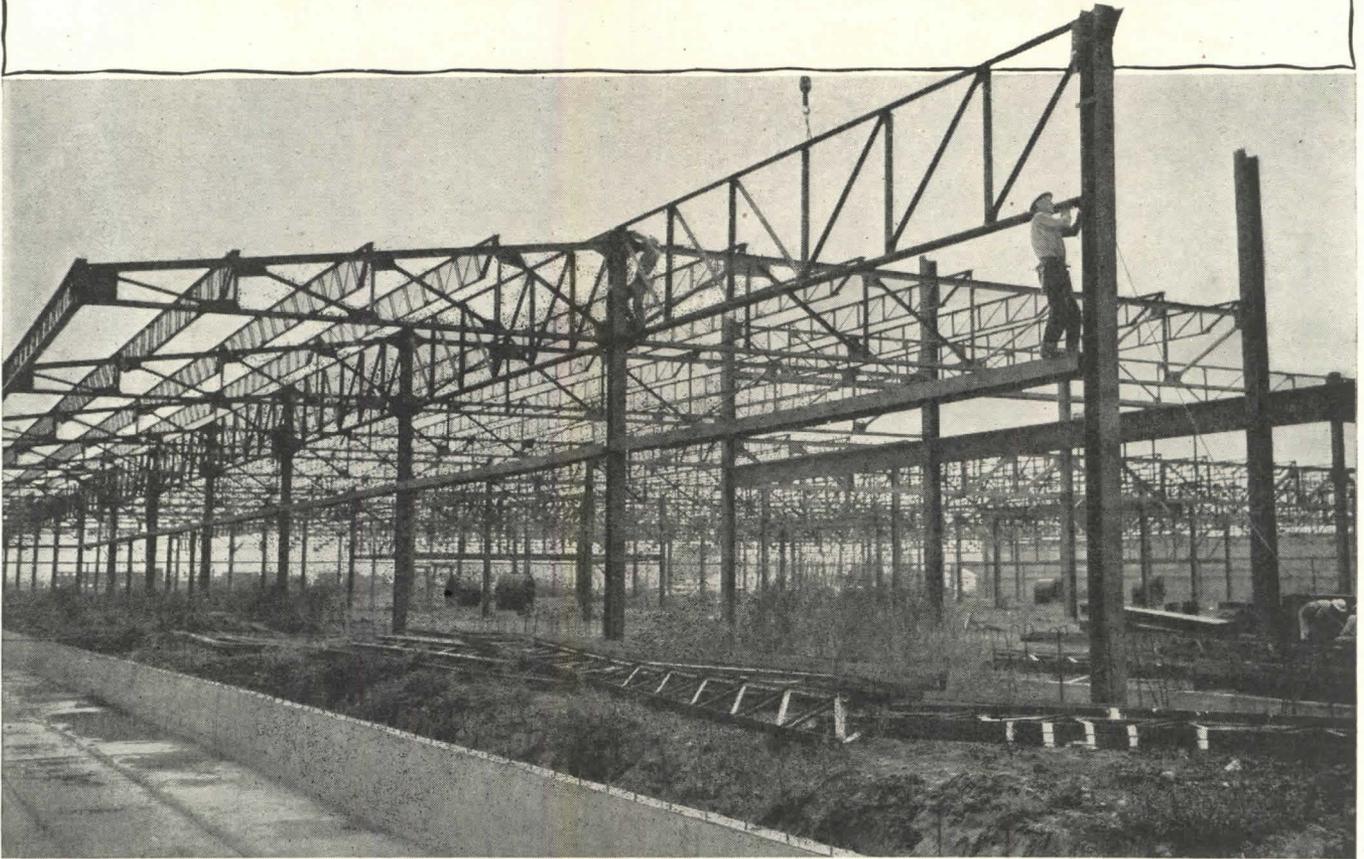
Grand Rapids Sash Pulleys

"The recognized standard of quality for
a half century"

No. 103 face plate, cone bearing type and Nos. 175, 109, 110 sawtooth drive type sash Pulleys cover 95% of all sash pulley requirements.



AUTOMOBILE ASSEMBLY PLANT HAS 500 TONS OF OPEN-WEB JOISTS



Shown under construction at Los Angeles, California, is the huge Lincoln-Mercury assembly plant of the Ford Motor Co. Designed by Harry R. Miller, and erected by William P. Neil Company, both of Los Angeles, the L-shaped one- and two-story structure is about 840 ft in length, and 600 ft wide. To permit large expanses of clear floor space with a minimum of columns and thus facilitate manufacturing and assembly operations, 500 tons of Bethlehem Longspan Joists were used.

Because they provide column-free floor areas up to 64 ft across, Bethlehem Longspan Joists are excellent for supporting the roofs of industrial buildings as well as light-occupancy structures. They reduce the need for pilasters. They simplify the placing of pipes,

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Longspan Joists are easily installed, too. Like Bethlehem Standard Open-Web Joists, they arrive at the job completely fabricated, ready for installation without falsework.

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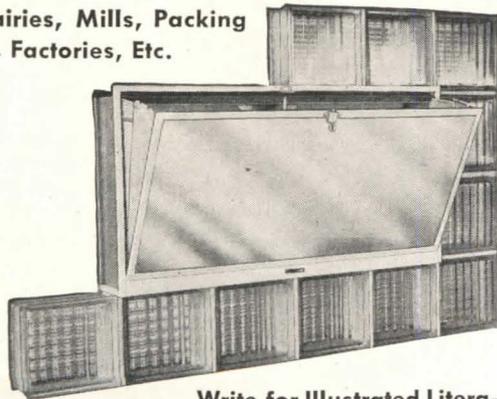
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ALUMINUM**
IN ALL SIZES

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Their advertising is sure clicking!"



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Prestile tileboard has many
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low cost... smart colors...
and very important, an
oven-baked finish that lasts.
Prestile national advertising
is a real help!"

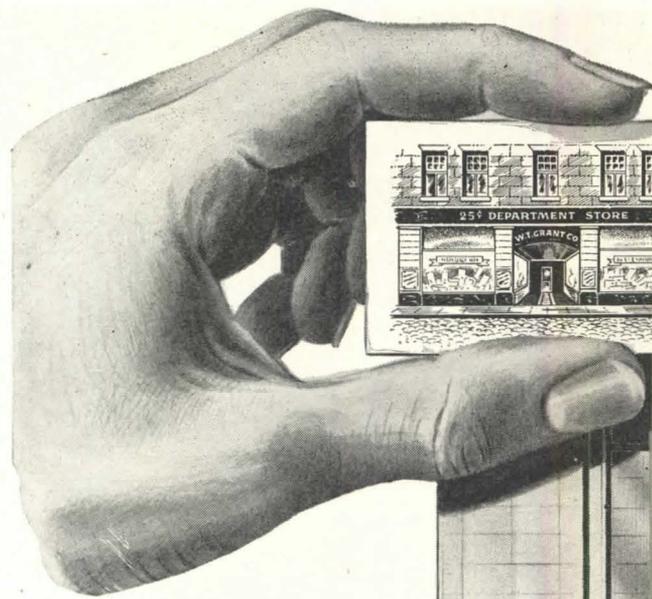
• Right now, demand for this quality tileboard exceeds supply. Prestile national advertising is designed to keep demand at a high level... for the day when ample supply is available.

PRESTILE

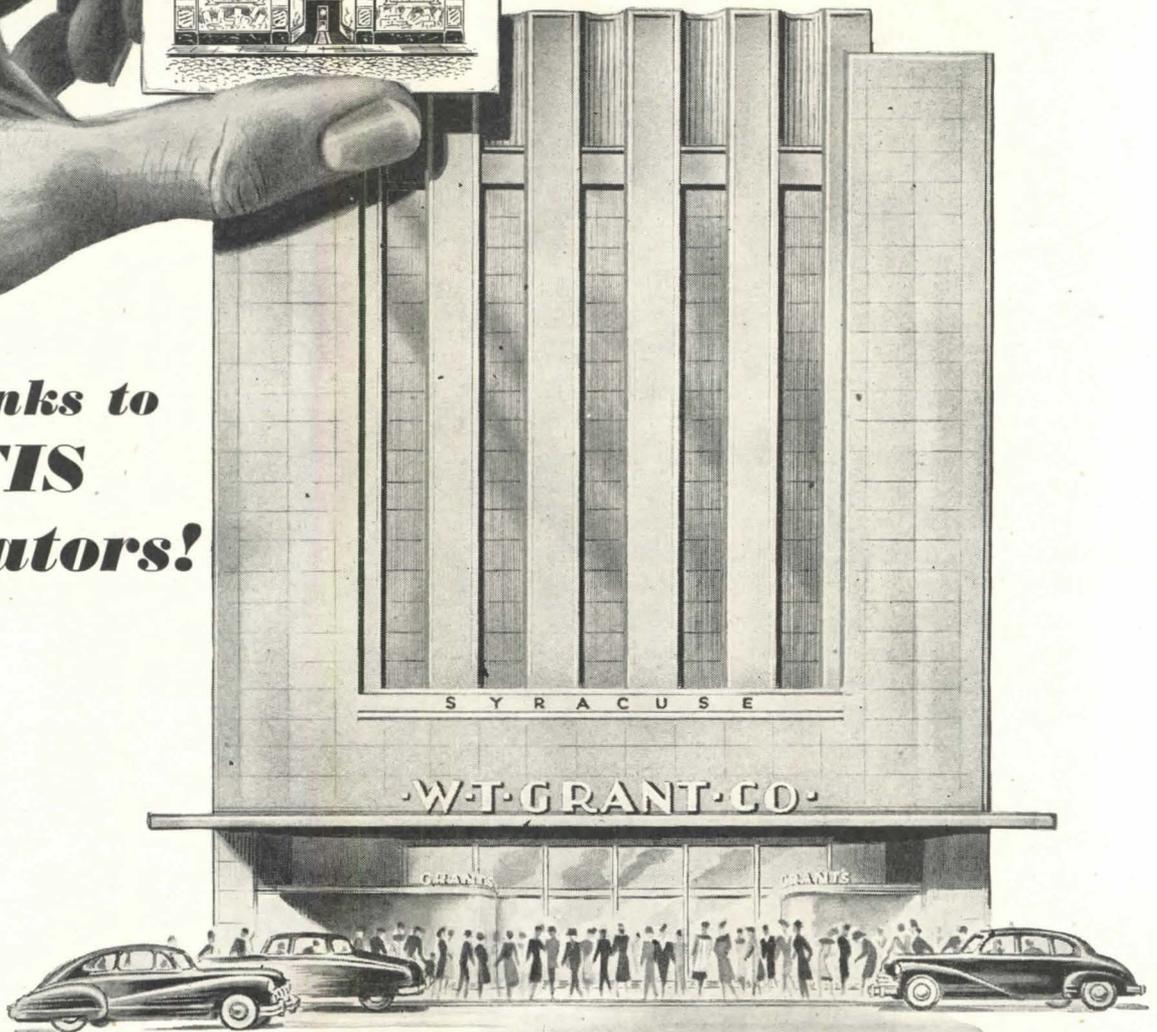
"Its Lasting Beauty is Baked In"

PRESTILE MANUFACTURING COMPANY
2860 Lincoln Avenue, Chicago 13, Illinois

from 1 main floor to 3



...thanks to
OTIS
Escalators!



Designed by P. A. Cunniss, architect for the W. T. Grant Co.

41 years and 488 stores ago the W. T. Grant Co. started business in a small store in Lynn, Mass. Street-level convenience, plus easy-to-see merchandise made the store a success.

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to the second and third floors of their new store in Syracuse, N. Y. Why?

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- because Grant's know that Escalators will make it easy for main-floor shoppers to visit upper floors, see more merchandise.

If you need more main floors in *your* store, call your local Otis office today.

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"BY FAR THE BEST"
 protective metallic
 coating for rust-proofing
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 U. S. BUREAU OF STANDARDS
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Zinc, in the form of galvanizing, protects against rust in TWO WAYS: First, by simple coverage, with a sheath of rust-resistant metal . . . Second, by electro-chemical action, or "sacrificial corrosion." Good design that includes zinc-protected steel or iron means long-time, low-cost protection . . . savings in materials and maintenance. It's wise to specify heavy coatings—for the heavier the coating, the better the protection. The "Seal of Quality," shown at the right, is the yardstick of economy and service-life in galvanized sheets. It denotes at least 2 oz. of Zinc per square foot!



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"United Air Lines APPROVES ENTERPRISE OIL BURNERS" ★



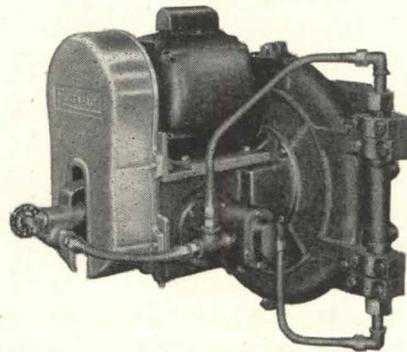
General Headquarters—United Air Lines
Photograph—Courtesy of United Air Lines



★ "United Air Lines approves Enterprise Oil Burners," says E. P. Lott, director of United's design, buildings and airports department, "because Enterprise fully meets our specifications for an efficient automatic oil burner."

United installed its first Enterprise Oil Burner more than a year ago in its General Headquarters building in Chicago, to provide heat for its entire hot water needs. Based on this burner's record of complete dependability and economical, trouble-free operation, the second Enterprise Oil Burner was installed six months later—this time to supply automatically controlled heat for United's 15,000 square foot storage warehouse in Chicago.

As a solution to *your* heating problems, whether large or small, Enterprise offers many profitable advantages and features you'll want to know all about. Write today for your copy of Catalog No. 47. There's no obligation, of course.



ENTERPRISE *Oil Burners*
COMBUSTION EQUIPMENT DIVISION OF
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SAN FRANCISCO 10, CALIF.

Two of these Model EP Heavy-Duty Enterprise Oil Burners have been installed for United in Chicago by Enterprise Heat & Power Co., 1401 West North Ave., Chicago 22, Ill.

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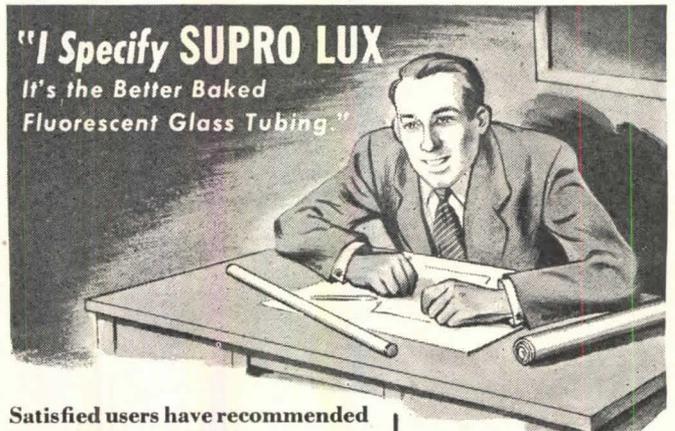
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The PLANNING BOARD



The Truscon Planning Board says, "Right now, March 15, our shipping schedules read like this: Series 46 Double-Hung Windows, 12 to 14 weeks; Reinforcing Bars, 4 to 6 weeks;

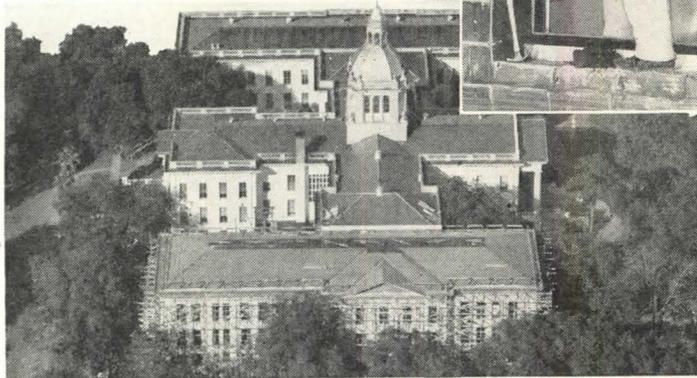
Light Tube Doors, manually operated, 10 to 12 weeks; Structural Doors, manually operated, 12 to 14 weeks; shipments of doors with motor operators are contingent upon our ability to secure electrical equipment. Keep in touch with the Truscon sales representative in your district for latest information."

Big, Big Steel Windows

Recent expansion operations at the State Capitol Building, Tallahassee, Florida, included the exclusive use of Series 46 Truscon Double-Hung Steel Windows in large sizes. These windows permitted the generous introduction of Florida sunshine and fresh air into the structure, while helping enhance the architectural design of the building.

The Series 46 Double-Hung Steel Window is designed especially for use in important office and public buildings or for openings where Underwriters' label of approval is

State Capitol Building, Tallahassee, Florida



Write for new catalog giving complete mechanical and installation details of the Series 46 Truscon Heavy Double-Hung Steel Windows, together with the data on the entire line of Truscon

Steel Windows and Industrial Steel Doors.

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Truscon Steel Bars for reinforcing are applicable to a wide range of concrete work, such as concrete slabs, beams and girders, columns, walls and footings; in the construction of buildings, bridges, tanks, and all other concrete structures subject to tension and compression stresses.

These concrete reinforcing bars are special rolled sections of high grade steel, with a series of longitudinal and diagonal ribs so designed as to provide the maximum bond with the surrounding concrete.



Truscon Reinforcing Bar

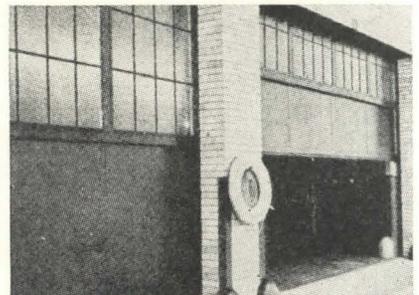
Truscon concrete bar fabricating plants are strategically located throughout the country in order to economically serve our customers. Bars are fabricated in these plants to meet the engineering requirements of individual jobs. They are delivered to the job cut to length, bent, bundled and properly tagged. If desired, our engineering department furnishes completely detailed placing drawings for the convenience of the steel erectors. Write for details.

Truscon Steel Company Announces Purchase of Knapp Brothers Plastering Accessories

Truscon Steel Company announces the purchase of that portion of Knapp Brothers Manufacturing Company's facilities developed for the manufacture of Bull Nose and Scalloped Edge Corner Beads, Special Base Grounds and Screeds, Picture Mold, Casings, Fittings and other plastering accessory items. The equipment and dies are being moved from Joliet, Illinois to Youngstown, Ohio and it is expected that production on these products will begin within the next six to eight weeks. Knapp Brothers have been manufacturing Plastering Accessories and Trim for approximately forty years and have an excellent reputation for quality products both in the architectural and building fields. This standard of quality will be continued. The acquisition of these products from Knapp Brothers Manufacturing Company will give Truscon Steel Company a more complete line of plastering accessories to supplement their present line of metal lath items.

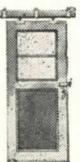
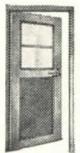
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There's a range of Truscon Steel Doors to meet every type or size needed in any type of structure, from 2' 7 1/2" swing type for residences, schools, stores, etc., to great mechanically operated doors for airplane hangars with openings of hundreds of feet in width. The types include swing and slide industrial doors, two-section vertical lift doors, two-section turnover doors, accordion doors, crane and canopy doors, pier doors and hangar doors. Write for details.



New Literature

A new catalog describing Truscon Steel Joists, Steeldeck Roof, Metal Lath, Concrete Bars and Reinforcing now is ready. Write for your free copy today.

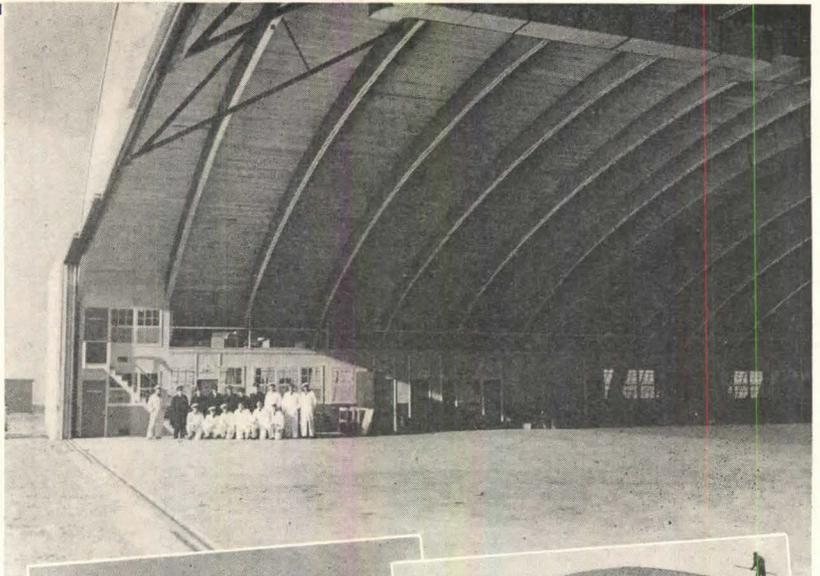


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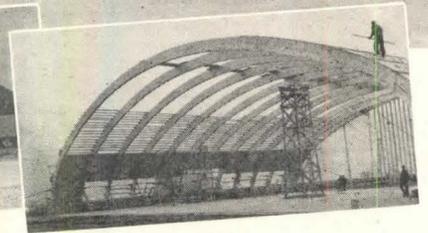
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170' x 120' hangar at Hagerstown, Maryland, designed by Albert Kahn, Associated Architects and Engineers. Roof supported by 170' wide Unit glued-laminated arches.



Front view of hangar shown in main illustration above, while under construction (Fargo, N. Dak.). 152' span supported by Unit glued-laminated arches spaced 10' apart.

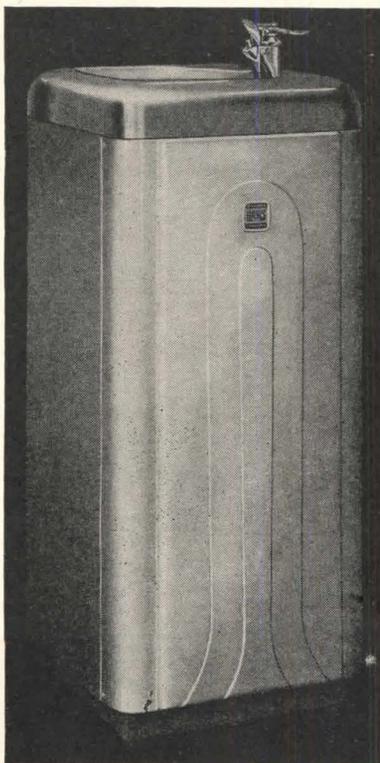


Unit Structures, Inc., Peshtigo, Wis.

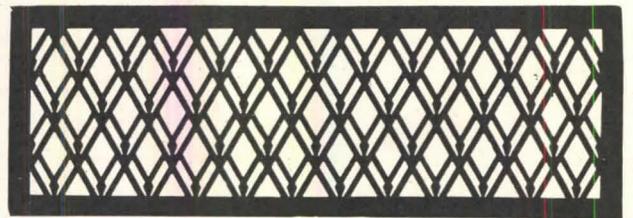
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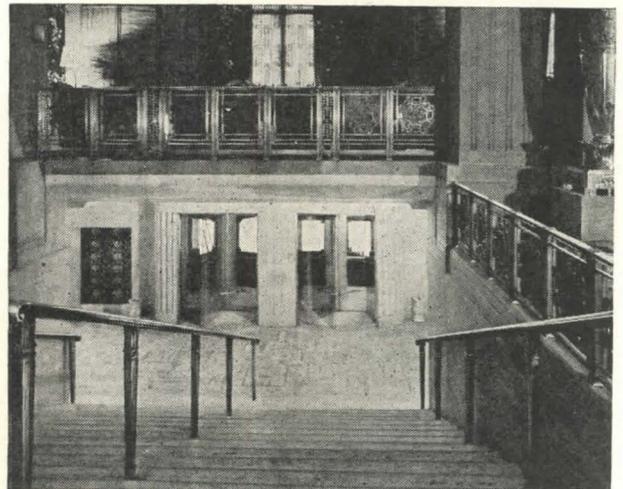
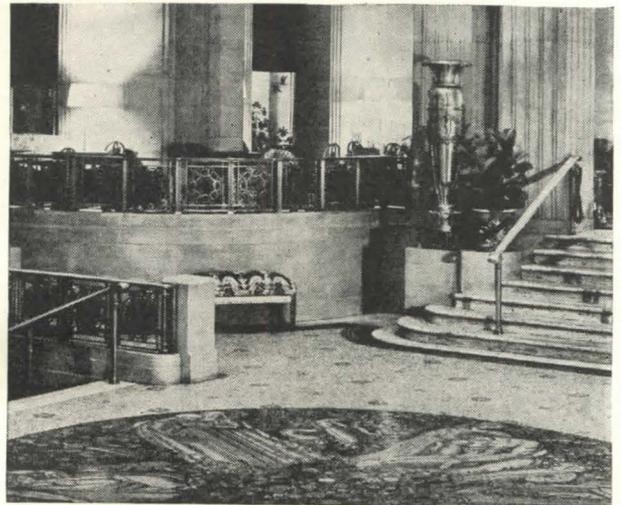
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4714



Two views of the foyer at the Park Avenue entrance to The Waldorf-Astoria. Lustrous Anaconda Nickel-Silver, in balustrades, hand rails and trim, adds a note of inviting luxury to the main floor foyers and lounges.


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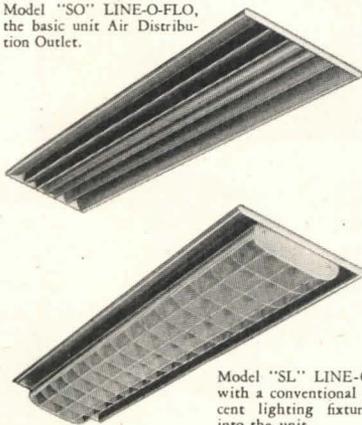
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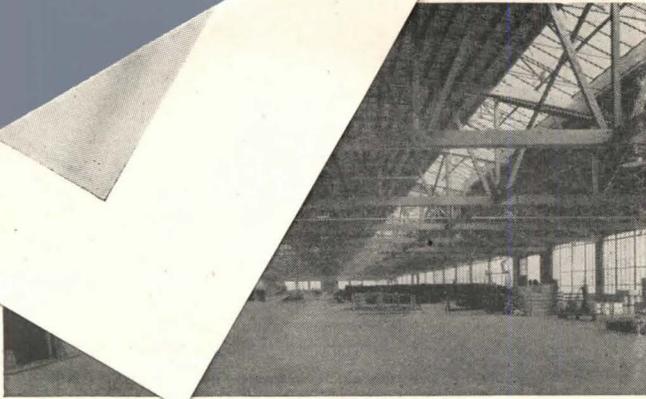
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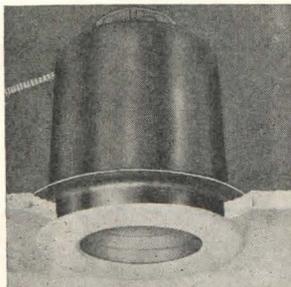
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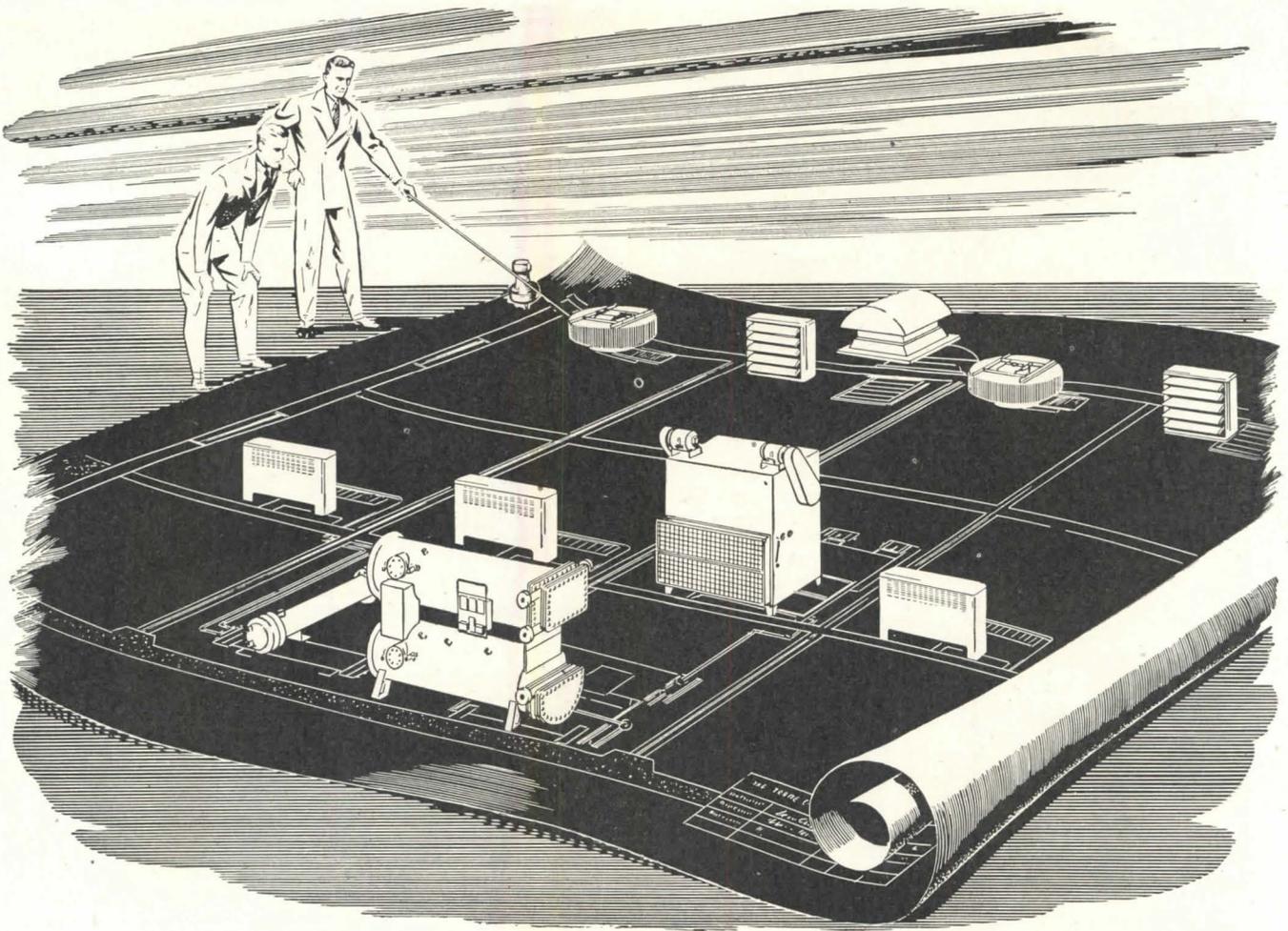
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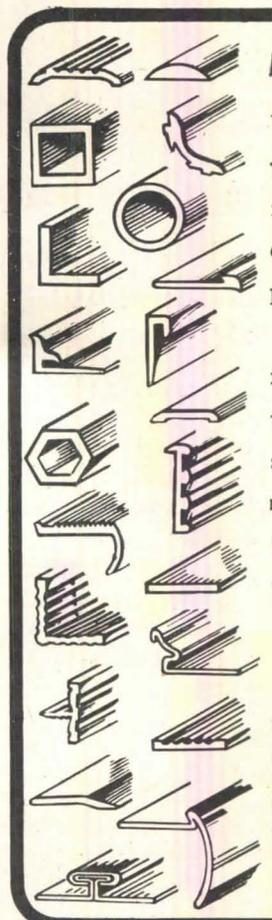


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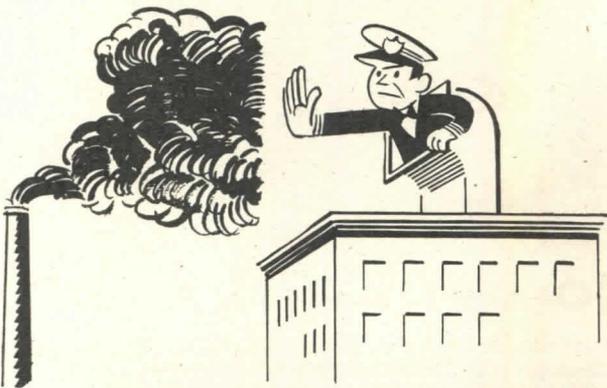
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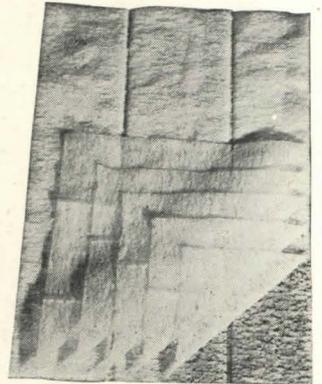


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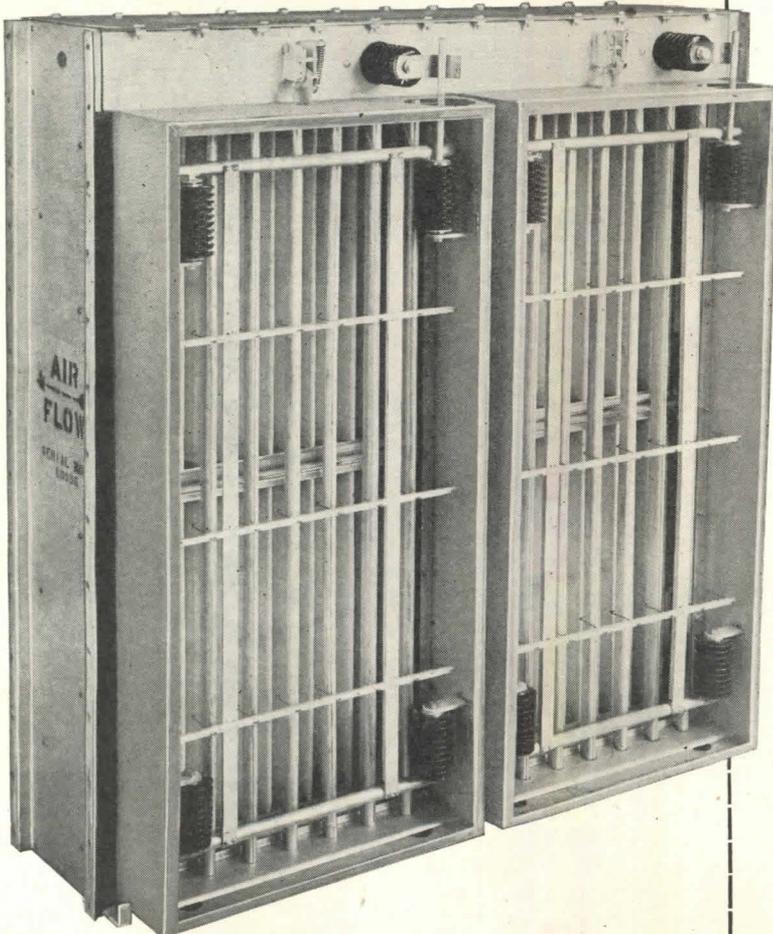
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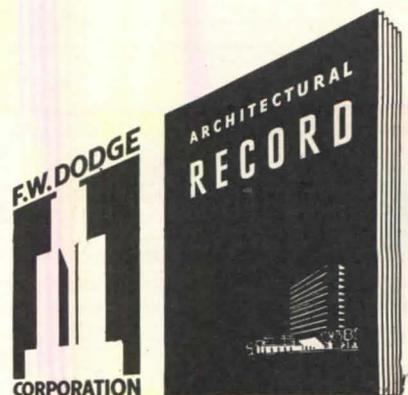
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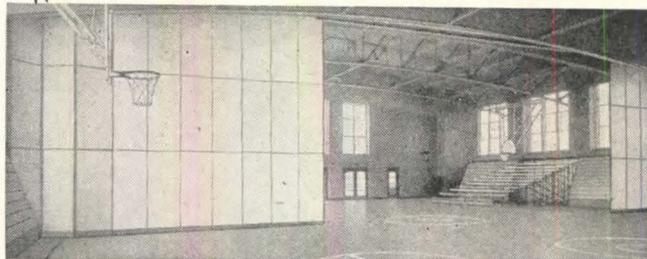
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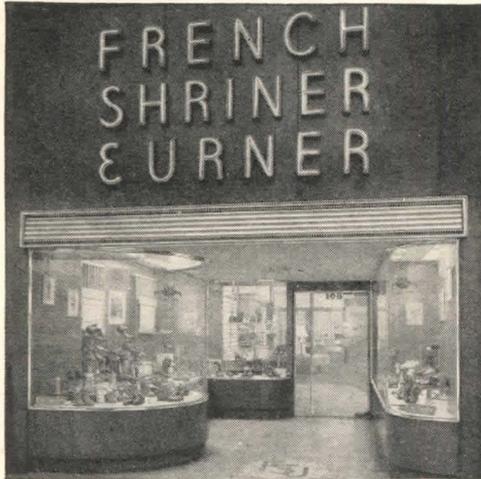
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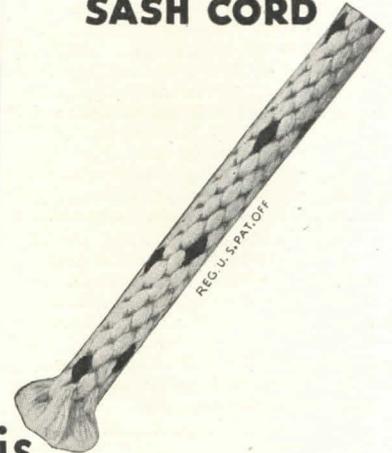
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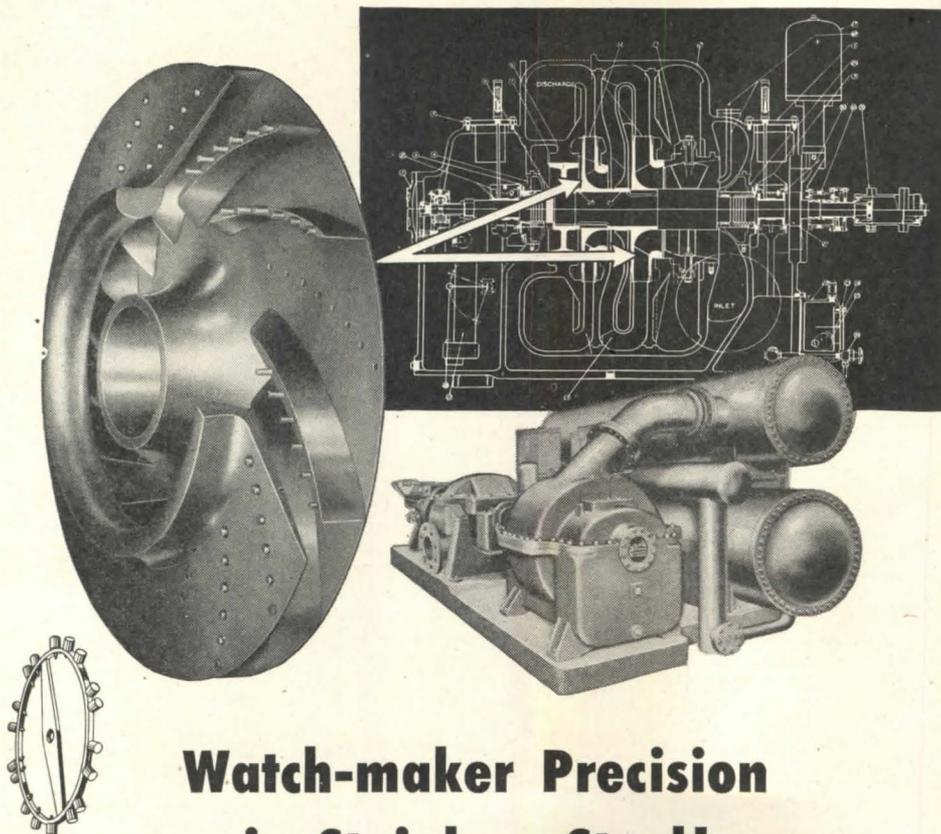
INDEX TO ADVERTISEMENTS

Catalogs of concerns marked (s)
are filed in Sweet's File (1946)

s Adam, Frank, Electric Co.....	59	General Pencil Company.....	161	Ohio Hydrate & Supply Co.....	196
s Adams & Westlake Company.....	22	Gerity-Michigan Die Casting Co.....	192	Okonite Company.....	220
s Airtemp Division.....	175	Goodrich, B. F., Chemical Company.....	184	s Otis Elevator Company.....	207
Alan Wood Steel Company.....	18	s Grand Rapids Hardware Company.....	204	s Owens-Illinois Glass Company.....	68
s Allied Chemical & Dye Corp.....	48	s Great Lakes Steel Corporation.....	45	Ozalid Products Division.....	224
s Aluminum Company of America.....	183	Guth, Edwin F., Co.....	41		
s American Air Filter Co., Inc.....	219			s Petroleum Heat & Power Company.....	221
s American Brass Company.....	213	s Hart & Hegeman Division.....	194	s Pittsburgh Corning Corporation.....	25
s American Flange & Manufacturing Co., Inc.....	229	s Haws Drinking Faucet Co.....	212	s Pittsburgh Plate Glass Company.....	25
s American Lumber & Treating Company.....	144	Haynes Products Co.....	226	s Pittsburgh Reflector Company.....	61
s American Radiator & Standard Sanitary Corporation.....	137	Hazard Insulated Wire Works Division.....	220	s Portland Cement Association.....	181
American Roof Truss Co.....	216	s Hendrick Manufacturing Co.....	212	s Powers Regulator Company.....	220
s American Zinc Institute.....	208	s Herring-Hall Marvin Safe Co.....	201	Prestile Manufacturing Company.....	206
s Anaconda Copper Mining Co.....	213	s Hillyard Company.....	166	s Prima Products, Inc.....	64
s Anchor Post Products, Inc.....	168	s Hoffman Specialty Co.....	47		
Architectural Record.....	222	s Holophane Company, Inc.....	203	s Radio Corporation of America.....	29
s Armstrong Cork Company.....	37	s Hope's Windows, Inc.....	185	s Republic Steel Corporation.....	211-223
s Arrow-Hart & Hegeman Electric Co.....	194	s Horn Brothers Company.....	224	s Revere Copper & Brass, Inc.....	66
Associated General Contractors of America, Inc.....	189	Hotel Pittsburgher.....	220	s Reynolds Metals Company.....	139
				s Robertson, H. H., Co.....	65
s Barber-Colman Company.....	214	s Imperial Brass Mfg. Company.....	6	s Rotary Lift Company.....	165
s Barrett Division.....	48	s Independent Lock Company.....	224	s Russell, F. C., Company.....	210
s Bell & Gossett Company.....	27	s Indiana Limestone Institute.....	176		
s Bennett-Ireland, Inc.....	200	s Inland Steel Company.....	232	S. & W. Moulding Co.....	218
s Bethlehem Steel Company.....	58-205	s Ingersoll Steel Division.....	39-69-167	Salter, H. B., Mfg. Co.....	30
Bigelow-Sanford Carpet Co., Inc.....	182	s Insulite Division.....	11	s Samson Cordage Works.....	229
s Bird & Son, Inc.....	168	s International Steel Co.....	15	Schlage Lock Company.....	156
Bituminous Coal Institute.....	40	Irvington Form & Tank Corp.....	149	s Scott Paper Company.....	24
s Blank, Frederic & Company, Inc.....	218			s Seaportel Porcelain Metals, Inc.....	153
Books.....	170-190-227	s Jamestown Metal Corporation.....	60	Servel, Inc.....	2-3
s Borg-Warner Corporation.....	39-69-167	s Jamison Cold Storage Door Company.....	154	s Serviced Products Corp.....	164
Brasco Manufacturing Company.....	226	s Johns-Manville.....	34-35-178	s Sisalkraft Co.....	226
Bright Light Reflector Co., Inc.....	16	s Jones & Laughlin Steel Corporation.....	188	s Sloan Valve Company.....	4th Cover
s Bryant Heater Company.....	62	s Josam Manufacturing Co.....	145	s Smith, H. B., Co., Inc.....	164
s Bull Dog Electric Products Company.....	159			s Speakman Company.....	197
Burnham Boiler Corporation.....	169	s Kawneer Company.....	140-141	Stewart-Jackson Instrument Co.....	224
s Burl Mfg. Co.....	228	s Kiesling, John W., & Son, Inc.....	8	s Stran Steel Division.....	45
Byers, A. M., Co.....	4	s Kimberly-Clark Corporation.....	54	Straus, Nathan-Duparquet Inc.....	228
		s Kinkoad Industries, Inc.....	160	s Streamline Pipe & Fittings Division.....	225
		Koh-I-Noor Pencil Company, Inc.....	229	Stromberg-Carlson Co.....	12
		s Koppers Company, Inc.....	23	Supro-Lux Manufacturing Co., Inc.....	210
				s Swedish Crucible Steel Co.....	216
s Cabot, Samuel, Inc.....	210	s Lawson, F. H., Co.....	204		
s Cambridge Tile Mfg. Company.....	2nd Cover	Leader Electric Company.....	9	Thortel Fireproof Fabrics.....	162
Cardox Corporation.....	192	s Lee Engineering Company.....	202	s Trade-Wind Motorfans, Inc.....	166
s Caco Steel Products Corporation.....	157	s Libbey-Owens-Ford Glass Company.....	50-199	s Trane Company.....	217
s Celotex Corporation.....	131	s Lincoln Electric Company.....	151	s Trumbull Electric Manufacturing Co.....	55
s Century Lighting, Inc.....	216	s Lockwood Hardware Mfg. Company.....	224	s Truscon Steel Company.....	211
s Chase Brass & Copper Co.....	42	Lone Star Cement Corporation.....	1		
Cheney Industries.....	229	s Louisville Cement Company, Inc.....	31	s Unit Structures, Inc.....	212
s Chrysler Corporation.....	175			s United States Air Conditioning Corp.....	150
s Colorado Fuel & Iron Corporation.....	52	Maas Organ Company.....	226	s United States Plywood Corporation.....	193-200
Committee on Steel Pipe Research.....	215	s Macomber, Inc.....	158	s United States Steel Corporation Subsidiaries.....	142
s Corning Glass Works.....	172-173	s Mahon, R. C., Company.....	67	United States Rubber Company.....	17
s Coyne & Delany Co.....	56	s Martin-Parry Corporation.....	147	s Universal Atlas Cement Company.....	142
Crane Company.....	177	s Medusa Portland Cement Company.....	163		
s Creo-Dipt Company, Inc.....	216	s Mengel Company, Incorporated.....	193	s Vermont Marble Company.....	53
Curtis Companies Service Bureau.....	195	s Mesker Brothers.....	174		
s Cutfler Mail Chute Co.....	218	Mesker, Geo. L., Steel Corp.....	202	s Wade Manufacturing Co.....	198
		Michaels Art Bronze Co., Inc.....	146	s Wakefield, F. W., Brass Co.....	51
s Day-Brite Lighting, Inc.....	132	s Milcor Steel Company.....	232	s Webster, Warren & Co.....	170
Detroit Steel Products Company.....	143	s Minneapolis-Honeywell Regulator Co.....	70	s Werner, R. D., Co., Inc.....	208
Dravo Corporation.....	44	s Modine Mfg. Co.....	191	s Westinghouse Electric Corporation.....	57-3rd Cover
s Dresser Industries.....	62	Monroe, Lederer & Taussig, Inc.....	220	Wickwire Spencer Steel.....	52
Du Pont, E. I. de Nemours & Co., Inc.....	186	s Moulding, Thos., Floor Mfg. Co.....	198	Winco Ventilator Co., Inc.....	206
s Duriron Co., Inc.....	152	s Mueller Brass Co.....	225	s Wing, L. J., Mfg. Co.....	148
				s Wood Conversion Company.....	187
Eagle Pencil Company.....	21	National Chemical & Mfg. Co.....	36	s Wood Treating Chemicals Co.....	228
Ebco Manufacturing Company.....	228	National Electric Products Corporation.....	19	Woodwork Corporation of America.....	32
Electric Storage Battery Company.....	179	s National Gypsum Company.....	46	s Worthington Pump & Machinery Corp.....	20
Employment Opportunities.....	214	National Lead Company.....	63	Wurlitzer, Rudolph, Co.....	155
Enterprise Engine & Foundry Co.....	209	Nesbitt, John J., Inc.....	33		
		s Norge Division.....	39	s York Corporation.....	231
Faber, A. W., Inc.....	218	s Norton Company.....	196	s Young Radiator Co.....	194
Faber, Eberhard Pencil Co.....	14				
Federal Electric Products Company, Inc.....	171				
s Fitzgibbons Boiler Company, Inc.....	134				
s Flynn, Michael, Manufacturing Co.....	38				
s Formica Insulation Co.....	43				
General Aniline & Film Corp.....	224				
s General Electric Co.—Air Conditioning.....	180				
s General Electric Co.—Lamps.....	49				
s General Electric Co.—Wiring.....	13				

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York's Engineering Assistance backs up York's Outstanding Equipment

Experience and practical technical assistance unequalled elsewhere are available to you as a York customer . . . wherever you may be.

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YORK Refrigeration and Air Conditioning



HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885

Now... Steel for Solid Partitions Goes Up Fast



... with this new Milcor system

Milcor announces a new development which greatly simplifies the construction of 2-inch solid-plaster partitions.

Only *two* separate units provide the steel to hold the metal lath: (1) a standard runner which is used at both floor and ceiling; (2) a standard channel stud which interlocks easily and firmly into place and allows for variation in ceiling height. Confusion in handling materials is eliminated; time is saved.

These new cost savings bring solid-plaster partitions to the fore, as a con-

struction that deserves consideration now. They enable you, within practical limitations, to give your client these five advantages of a *solid plaster wall on an interlocking web of steel*: (a) Saving of floor space; (b) Full 2-hour fire rating; (c) Increased strength, especially under impact; (d) Reduced floor load; (e) Reduced sound transmission.

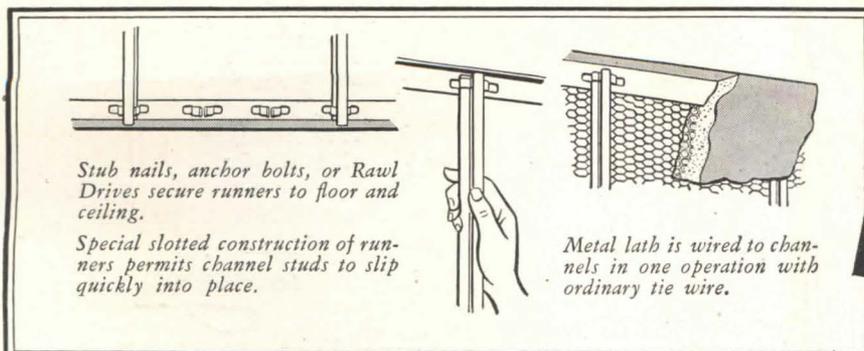
Milcor Solid Partitions provide these advantages for non-bearing, sub-dividing partitions between tenancies, within tenancies, and for corridors; for

enclosures of stairways, elevator shafts, penthouses, fan and motor rooms, and ventilating shafts; for general decorative use where variety of surface treatment is desirable; for free-standing furring walls.

Consult the Milcor Manual in Sweet's Architectural File, for helpful information on the new Milcor Solid Partition System, and the complete Milcor line of steel building products. Write for bulletin on Milcor Solid Partitions.

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